DRAFT ENVIRONMENTAL ASSESSMENT FOR THE CONSTRUCTION AND CONSOLIDATION OF OFFICE OF SECURE TRANSPORTATION CAMPUS AT PANTEX

CARSON COUNTY, TEXAS

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Prepared for: U.S Department of Energy (DOE)
National Nuclear Security Administration (NNSA)
Office of Secure Transportation (OST)
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TABLE OF CONTENTS

Tables:

Figures:

List of Acronyms

ACS	American Community Survey
Amsl	above mean sea level
AO	Administrative Order
AOCC	Agent Operations Central Command
APE	Area of Potential Effect
AQCRs	Air Quality Control Regions
ARPA	Archeological Resources Protection Act of 1979
BEA	Bureau of Economic Analysis
BMP	Best Management Practice
BP	Before Present
CAA	Clean Air Act
CEQ	Center on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CGP	Construction General Permit
CH_4	Methane
CNS	Consolidated Nuclear Security
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	CO_2 equivalent
CWA	Clean Water Act
CY	Calendar Year
DHHS	Department of Health and Human Services
DoD	U.S. Department of Defense
DOE	Department of Energy
DU	Depleted Uranium
ECD	Environmental Compliance Department
EO	Executive Order
EPA	Environmental Protection Agency
FAF	Federal Agent Facility
FEMA	Federal Emergency Management Agency
FM	Farm to Market Road
FPPA	Farmland Protection Policy Act
FTA	Fire Training Area
GHG	Green House Gases
GWP	Global Warming Potential
HE	High Explosive
HE S&E	High Explosive Synthesis and Engineering Facility

ICM	Interim Corrective Measures
IPaC	Information for Planning and Consultation
IPCC	International Panel on Climate Change
ISM	Interim Stabilization Measure
IUF	Intermediate Use of Force
MCF	one-thousand cubic feet
N_2O	Nitrous Oxide
NAA	No Action Alternative
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1966
NNSA	National Nuclear Security Administration
NO_2	Nitrogen Dioxide
NPL	National Priorities List
O_3	Ozone
OSHA	Occupational Safety and Health Administration
OSSF	On-site Sewage Facilities
OST	Office of Secure Transportation
PAH	Polycyclic Aromatic Hydrocarbons
Pb	Lead
PCPI	Per capita personal income
PM_{10}	Particulate Matter (10 microns)
$PM_{2.5}$	Fine particulate matter (2.5 microns)
PPE	Personal Protective Equipment
PREP	Pantex Renewable Energy Project
PWS	Public Drinking Water System
RA	Remedial Action
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
ROC	Region of Comparison
ROD	Record of Decision
ROI	Region of Influence
SDWA	Safe Drinking Water Act
Sf	square feet
SGCN	Species of Greatest Conservation Need
SO_2	Sulfur Dioxide
SPCC	Spill Prevention, Control, and Countermeasure

SVE	Soil Vapor Extraction
SWMU	Solid Waste Management Unit
SWPPP	Stormwater Pollution Prevention Plan
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
THC	Texas Historical Commission
TLAP	Texas Land Application Permit
TPDES	Texas Pollutant Discharge Elimination System
TPWD	Texas Parks and Wildlife Department
TSCA	Toxic Substances Control Act
TTU	Texas Tech University
TWC	Texas Workforce Commission
UIC	Underground Injection Control
USCB	U.S. Census Bureau
USFWS	U.S. Fish and Wildlife Service
VMF	Vehicle Maintenance Facility
VOC	Volatile Organic Compounds
WOTUS	Waters of the United States
WTF	Water Treatment Facility
WWTF	Wastewater Treatment Facility

1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

Pantex is the primary assembly, disassembly, retrofit, and life-extension center for nuclear weapons in the nation and is located approximately 30 miles east of Amarillo, Texas in Carson County. The facility is owned by the National Nuclear Security Administration (NNSA), a semi-autonomous agency within the U.S. Department of Energy (DOE). The Office of Secure Transportation (OST), a sub-branch of the NNSA, is responsible for the safe and secure transport of government-owned special nuclear materials in the contiguous United States. OST currently operates out of Agent Operations Central Command (AOCC) at Pantex, a complex of transportation and administrative facilities tailored to OST operations. In order to meet urgent mission needs and increase logistical efficiency, OST proposes eight future construction projects occurring within the next 10 years to consolidate and modernize facilities at a location adjacent to Pantex's secure site. OST has prepared this Draft Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [U.S.C.] 4321 *et seq.*), NEPA regulations at 40 Code of Federal Regulations (CFR) § 1500-1508, and other relevant federal and state laws and regulations, as well as the DOE NEPA implementing regulations (10 CFR § 1021) and NNSA Policy NAP-451.1, NEPA Compliance Program. This Draft EA discloses the environmental impacts that would result from the Proposed Action and alternatives.

1.2 BACKGROUND

OST is the principal transportation arm of NNSA and contains a dedicated program staff of Federal Agent couriers, facility managers, and administrators to facilitate mission success. OST's mission is to provide safe and secure transport of government-owned special nuclear materials (SNM) along with other transportation missions supporting national security throughout the contiguous United States. OST operates from three commands located in Albuquerque, New Mexico (Western Region); Amarillo, Texas (Central Region); and Oak Ridge, Tennessee (Eastern Region). Each command is tasked with secure transportation activities within its designated operations region.

AOCC, the home of OST Central Region Command, is a complex specialized facility designed to the specification of the transportation mission. AOCC facilities are owned and operated by OST independently of other facilities at Pantex. General activities which are conducted at AOCC in direct support of the OST's long-term mission goals include:

- Staff meetings
- Classroom instruction
- Other OST Headquarters meetings
- General facility maintenance
- Classified discussions and data processing
- Video teleconferences
- Weapons training, cleaning, and maintenance
- Tactical team movements
- Munitions storage

The secured, limited access portion of the AOCC facilities complex includes a vehicle maintenance facility (VMF), government vehicle parking, and the agent operation building. The VMF provides a central location for regular mechanical maintenance of required vehicles. Maintenance activities performed at the VMF are similar to those activities performed at a local automotive service center. Parking spaces for

government vehicles are located directly adjacent to the VMF as well as 10 designated tractor trailer spots equipped with power hookups. Mission planning, staff meetings, and mission coordination occur within the agent operations building within the secured area. A weapons armory and weapons cleaning room within the operations building are used for the issuance of live fire weapons for mission operations and training activities, and for weapon cleaning. A 400-meter (m) running track for Federal Agent conditioning and testing is located east of the Federal Agent Facility. AOCC does not have dedicated firing ranges or live fire shoothouses and all Federal Agent weapons and tactical training occurs at Pantex-owned facilities. All other Federal Agent training occurs outside of the limited access area in a joint-use general weight training and hand-to-hand combat training facility directly adjacent to personal vehicle parking.

Although AOCC facilities currently serve mission purposes, pending updates to OST transportation platforms and overall logistical difficulties inherent to the Pantex site require modernization and consolidation of OST facilities. Sandia Laboratories is currently developing the Mobile Guardian Transporter (MGT), a third-generation secure tractor-trailer system for over-the-road transport of SNM within the United States. Crash testing was completed for prototype MGTs in May of 2020 and the current set of transporters will be replaced by MGTs in the near future (Sandia 2020). Existing VMFs are unable to accommodate new mission vehicle modifications. Furthermore, site access to the Pantex facility is managed by NNSA, requiring intensive coordination between OST and NNSA security staff and overall logistical difficulty in the management of OST shipments, deliveries, and contractor support. OST also must rely on Pantex cooperation in order to access onsite shooting range and tactical training areas.

In order to accommodate these urgent mission needs, OST proposes a conceptual plan outlining eight projected construction projects for the next 10 years to consolidate and modernize facilities at a location adjacent to Pantex's secure site. The proposed plot of land is currently owned by NNSA and would be transferred to OST for management. The proposed construction and associated site improvements are herein referred to as the "project."

1.3 SITE LOCATION AND LAYOUT

The 18,000-acre Pantex site is located approximately 30 miles east of Amarillo, Texas in Carson County, although operations primarily occur on approximately 2,000 acres. The facility has approximately 650 buildings and maintains its own water-treatment, sewage, and steam-generating plants. Figure 1.3-1 shows the regional location of the Pantex facility and Figure 1.3-2 shows the location of the proposed OST acquisition parcel directly adjacent to the facility.

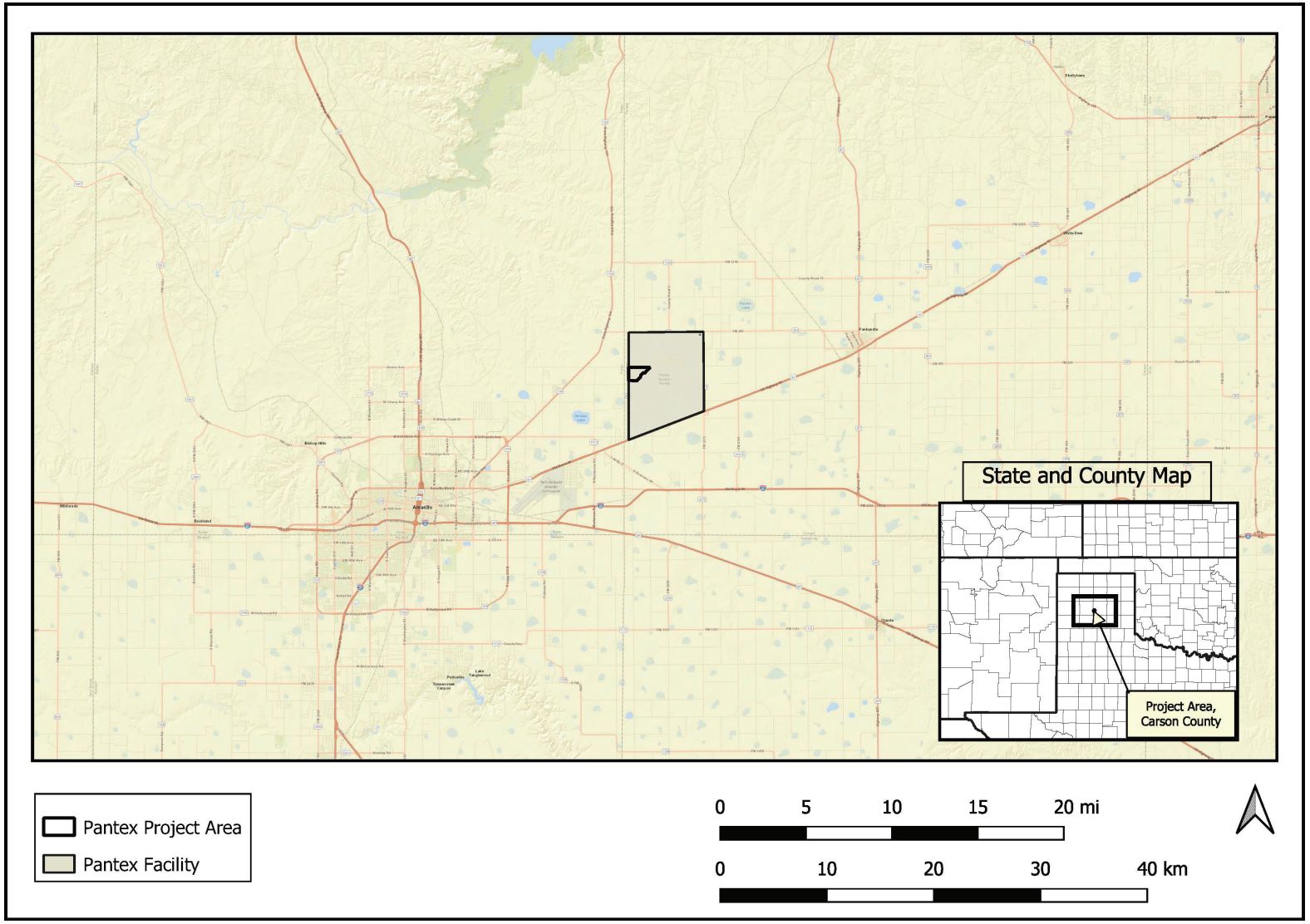


Figure 1.3-1. Regional Location of the Pantex Site

The proposed project area sits on a 375-acre parcel of land located directly adjacent to the west of the Pantex Plant facility. The project area consists primarily of disturbed grassland and cultivated cropland. Texas Tech University (TTU) manages grazing and agricultural activities on the site. Existing structures consist of two groundwater quality monitoring wells, one pumphouse station, and reclaimed rail lines. A capped landfill exists immediately to the southeast of the site location immediately outside of the acquisition property line.

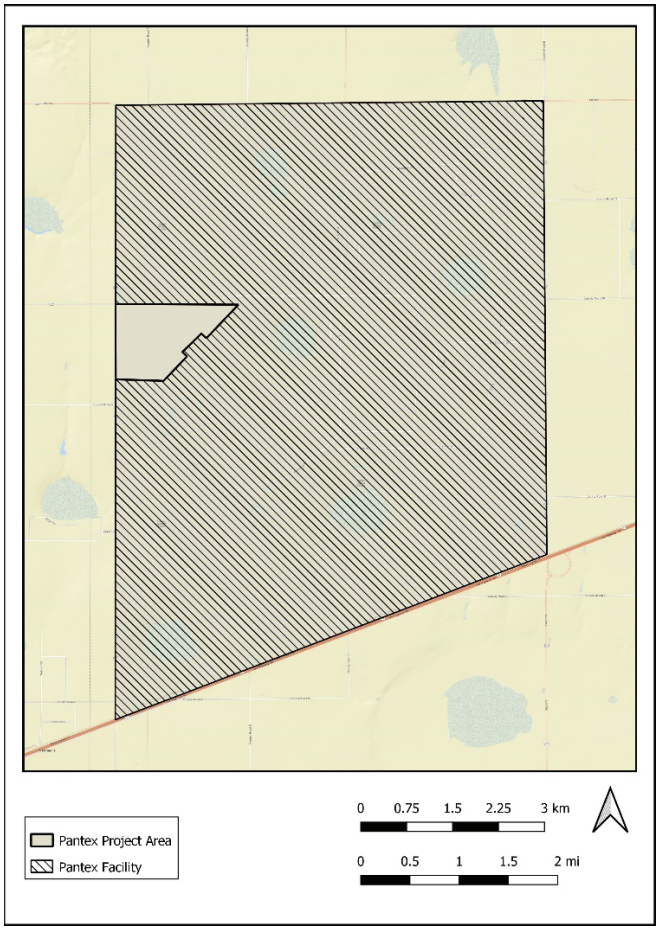


Figure 1.3-2. OST Existing Project Site

1.4 PURPOSE AND NEED

The project's purpose is to maintain AOCC's ability to fulfill OST transportation mission goals for the foreseeable future in addition to enhancing the efficiency of OST operations at Pantex. The existing AOCC VMF cannot currently accommodate the MGT and cannot be renovated without disruption to critical mission activities. Furthermore, current access coordination requirements between OST and Pantex is time and labor-intensive and impedes the efficiency of OST operations. The proposed project would ensure that adequate facility and infrastructure resources are available for OST mission operations as well as improving overall operation efficiency through consolidation of site access requirements.

The need for the Proposed Action is to fulfill OST's mission in the Central Region by allowing the continued and uninterrupted mission operations at AOCC during the construction of new facilities at an adjacent site.

1.5 PUBLIC INVOLVEMENT

The NEPA process provides several opportunities for public involvement. During these designated times, interested and affected parties (stakeholders) may provide relevant information, express their concerns, and provide their views about:

- The project and its possible impacts on the natural and human environment;
- What should be addressed in the analysis and evaluation of the Proposed Action; and
- The adequacy of the NEPA analysis and documentation of potential impacts in the EA.

A notice of availability (NOA) of the Draft EA was published on January 6, 2023 in the *Amarillo Globe News* and emailed to relevant agencies and interested local stakeholders. The NOA provided instructions as to where the public and other interested parties could review the Draft EA, and it provided instructions for submitting comments. The Draft EA is available on the NNSA NEPA website at https://www.energy.gov/nnsa/nnsa-nepa-reading-room. Comments will be accepted until February 6, 2023. Revisions will be made to address all received public comments.

NNSA solicited coordination and review of the Draft EA with the Texas Commission on Environmental Quality (TCEQ), Texas State Soil and Water Conservation Board, Texas Parks and Wildlife Department (TPWD), Texas Historical Commission (THC), Natural Resource Conservation Service (NRCS), U.S. Fish and Wildlife Service (USFWS), Apache Tribe of Oklahoma, Comanche Nation of Oklahoma, Jicarilla Apache Nation, Kiowa Indian Tribe of Oklahoma, and Tonkawa Tribe of Oklahoma. Revisions to the Draft EA will be made to address all comments received during the 30-day public comment period.

1.6 DECISION TO BE MADE

Based on the analysis of the Proposed Action and alternatives documented in the Final EA, the responsible official will determine whether the Proposed Action should be implemented at this time, or if the No Action Alternative should be selected. The Proposed Action and No Action Alternative are described and discussed in Chapter 2, Description of the Proposed Action and Alternatives. The No Action Alternative (not constructing, modernizing, or replacing AOCC facilities) would not meet the purpose and need for the project, but in keeping with NEPA regulations must be analyzed regardless, because the No Action Alternative serves as an environmental baseline.

NEPA and the Council on Environmental Quality (CEQ) regulations that guide the implementation of NEPA (40 CFR § 1500-1508) mandate that agencies consider environmental issues in their decision-making. The decision to be made would be based on the environmental and non-environmental issues evaluated in this document.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

Per 40 CFR § 1502.14, the federal government must consider reasonable alternatives to a proposed action. Considering alternatives helps avoid unnecessary impacts and allows analysis of reasonable ways to achieve the stated purpose. To warrant detailed evaluation, an alternative must be technically and economically feasible, meet the purpose and need for the Proposed Action, and support OST's mission.

2.1 PROPOSED ACTION – MODERNIZATION AND CONSOLIDATION OF AOCC FACILITIES AT AN ADJACENT PARCEL

Under the Proposed Action, OST would complete eight future development projects over a 10-year period of analysis at an adjacent parcel of land acquired from Pantex. Pantex site utilities would immediately be extended to the new OST campus. The new utilities to be extended include water, electrical, and natural gas. The site would use local septic tanks for sewage treatment and a decentralized wastewater treatment system for vehicle wash water rather than extending existing sewer lines. In addition to the extension of utilities from the Pantex site, the immediate preparation of the campus infrastructure would include the erection of fencing and the construction of an entrance road and a guard shack. In order of completion, the following facilities would be constructed after the initial site preparation:

- **Vehicle Maintenance Facility** (VMF; 49,500 square foot (sf)). The proposed VMF consists of up to 10 vehicle maintenance bays for the OST tractor trailers, along with storage space for vehicle parts and tires, and administrative areas. Development of the VMF includes construction of the facility along with an adjacent paved parking lot, a decentralized wastewater treatment system, a new fence line with security lights around the perimeter entry/exit roads and a 1,150-sf guard shack. Design and construction are planned to be funded in 2023.
- **Federal Agent Facility** (FAF; 30,000 sf). This facility is primarily administrative and would serve as the primary office and meeting space for the OST Federal Agents. In addition to administrative office and conference room space the facility would house a weapons armory, weapons cleaning, locker space, bullpen office space, and an auditorium. The proposed facility also includes a drive-through canopy for loading/unloading vehicles.
- **Physical Training/Intermediate Use of Force (IUF) Facility** (13,125 sf). This gym facility would facilitate physical fitness training of Federal Agents required to meet physical fitness standards. The facility includes two large, open areas for physical fitness workout equipment and a large mat area for IUF man/man training. The proposed facility includes office space for training personnel, locker rooms, and showers. After the Physical Training/IUF facility is built, an on-site 400m running track with artificial turf interior would be constructed.
- **Shipping/Receiving Facility** (13,125 sf). This facility would contain administrative space as well as storage space for supplies and for maintenance personnel to store materials and equipment. The proposed facility also includes a loading dock for delivery of materials by outside entities, and would allow third-party delivery trucks to perform deliveries without having to access the secured limited area.
- **Live Fire Shoothouse** (60,000 sf). This facility would consist of a covered open building with movable walls and basic and sustainment training for special response forces (SRFs). The proposed building would be constructed as a large concrete slab with a canopy tall enough for two stories and a catwalk overtop for instructor observation. The movable walls would be constructed of ballistic panels.

- **Indoor Shooting Range** (225,000 sf). This facility is needed to maximize range operations during inclement weather and will allow for primacy and privacy of OST firearm training activities, particularly during inclement weather. The proposed building would consist of multiple lanes for indoor shooting with ballistic protection as well as specialized insulation to reduce noise.
- **Vehicle Wash Rack** (2,600 sf). This on-site wash rack will allow cleaning the exterior of OST vehicles all at a single location.
- **Ammunition Storage Magazines and Buffer Zone** (6,585,522 sf). This facility includes an ammunition storage facility and revetment as well as the required clear explosive zone. Ammunition would likely be contained in four, reinforced-steel, Armag explosive ammunition storage magazines. Storage magazines would be covered by revetment material in order to minimize the required clear zone.

The limited security area of the proposed OST campus would include only the VMF, FAF, Vehicle Wash Rack, and Ammunition Storage Magazines; all other campus facilities would occur in the general property protection area, which allows for greater operational efficiency.

Although site preparation and construction of the VMF would begin immediately upon completion of the NEPA process, with the issuance of a Finding of No Significant Impact (FONSI), overall campus construction would take place over a 10-year period. Employees and vehicles would move between the new VMF and existing facilities on an as-needed basis until the full campus buildout is completed. Projects would be completed on a priority basis dependent on mission importance and funding availability. Work would involve grading and excavation, framing and finishing, and paving. Staging areas will be designated in the vicinity of project sites and will not be larger than a half-acre in size.

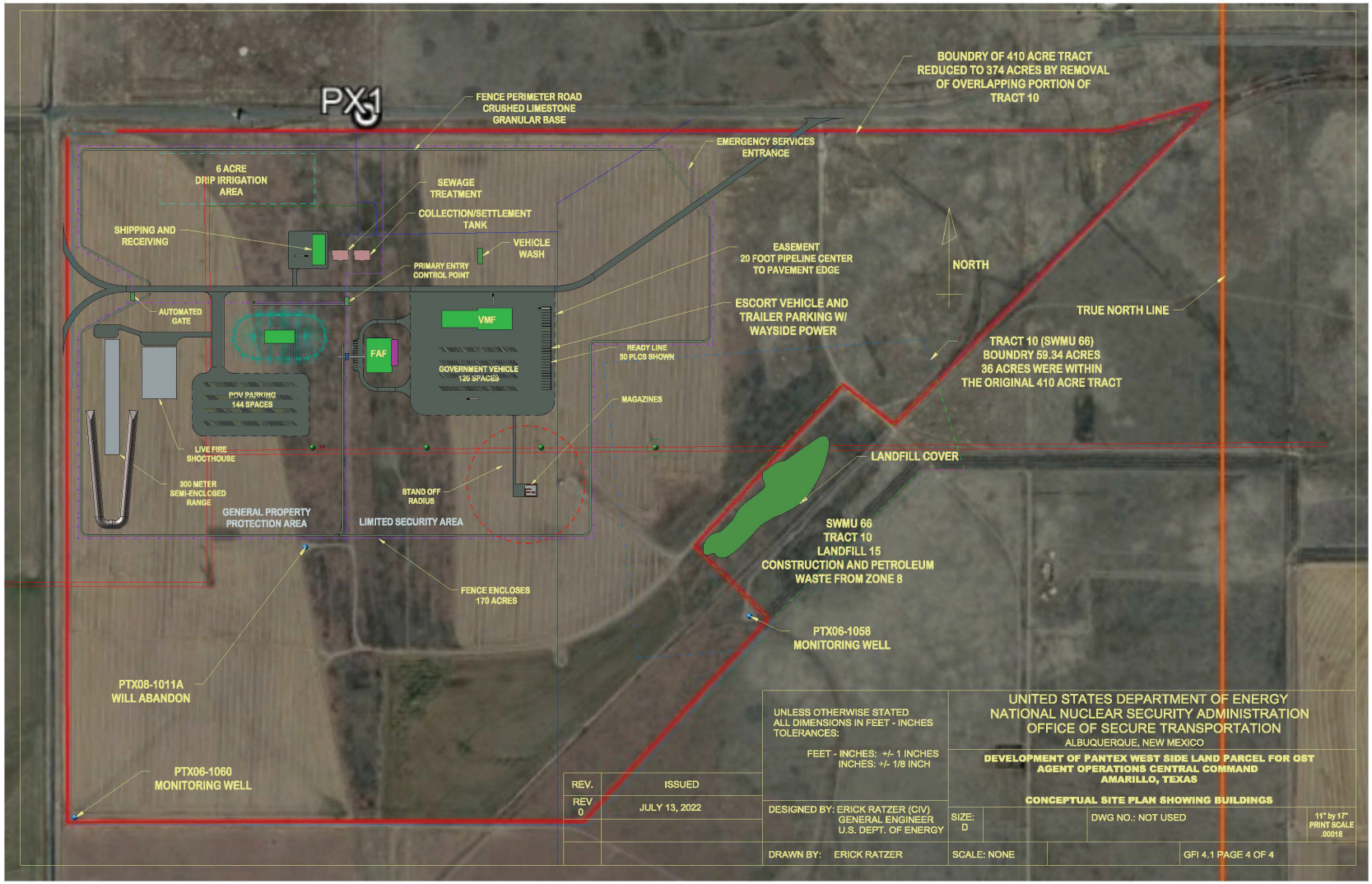


Figure 2.2-1. Conceptual Site Plan for AOCC Facilities on the Adjacent Property – Proposed Action

2.2 NO ACTION ALTERNATIVE

The No Action Alternative is included and analyzed to provide a baseline for comparison with impacts from the project and also to satisfy federal requirements for analyzing "no action" under NEPA.

The No Action Alternative assumes that no construction, extension of utility infrastructure, or consolidation of OST operations would occur at Pantex. No new land parcel would be acquired under the No Action Alternative. Minor repairs would occur as needed, and the operation of the existing facilities would continue as described in Chapter 1. This alternative would not meet the purpose and need of the project (as identified in Chapter 1 of this Draft EA) as the current VMF cannot accommodate the MGT and renovations cannot be undertaken without compromising current mission operations. The No Action Alternative would not allow for successful completion of the long-term OST mission. Although the No Action Alternative does not meet the purpose and need for the proposed project, this alternative will be carried forward for analysis and comparison, as required by CEQ NEPA regulations.

2.3 ALTERNATIVES CONSIDERED AND DISMISSED FROM DETAILED ANALYSIS

Two additional alternatives to the action alternatives presented in this EA were initially considered during the formulation process, but dismissed from detailed analysis: update of current OST facilities in place and the acquisition of an alternative plot for construction of the OST campus.

OST initially considered demolition and construction of required facilities on the initial OST campus along with increased support by CNS. Under this alternative, the existing facilities on the current OST campus would be updated over a ten-year period to accommodate OST mission needs. The current Memorandum of Understanding (MOU) between OST and the NNSA Production Office (NPO) would also be reviewed and revised to better reflect OST mission priorities and agency-specific service requirements. However, renovations to the current VMF to accommodate the MGT would not be able to occur concurrently with current transportation operations. Any disruption of current OST transportation operations is incompatible with the OST mission and does not meet the purpose and need for action. Furthermore, although updates to the MOU to codify OST-specific needs and services would assist with operational efficiency, the majority of current constraints are related to site access inconsistency and would not be alleviated by the updated MOU. As such, this alternative was eliminated from detailed consideration.

The first alternative considered but dismissed from detailed analysis involved the acquisition of one 400-acre parcel located east of the Pantex Plant main gate across Farm to Market Road (FM) 2373 for the construction of the new OST campus facility. However, this parcel was initially acquired by Pantex in 2008 as part of ongoing environmental remediation efforts. Surface irrigation systems are planned on the location for disposition of treated groundwater in accordance with DOE agreements with the Environmental Protection Agency (EPA) and Texas Commission of Environmental Quality (TCEQ) and the parcel is planned for long-term remedial use. Construction of an updated OST campus at this location was not compatible with planned surface irrigation systems and long-term groundwater remediation goals within the parcel. As such, acquisition of this parcel was dismissed from detailed consideration.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the current environment for resource areas that may be affected by the Proposed Action and the alternatives, and the potential environmental consequences associated with these alternatives. Resource areas analyzed include: land use and visual resources; geology, topography, and soils; water resources; biological resources, utilities and infrastructure; cultural resources; air quality and climate change; transportation and traffic; noise; socioeconomics; environmental justice; and waste management and hazardous materials.

3.1 METHODOLOGY

The affected environment summarizes the current physical, biological, social, and economic environments of the area within and surrounding the proposed AOCC location. For each resource area, the bounds of the area for analysis that could be impacted by the Proposed Action and the alternatives are defined, and the elements or components of the resource area that may be potentially affected are described. For some resource areas, the geographic area for analysis of the affected environment extends beyond the boundaries of the proposed AOCC location to encompass the City of Amarillo or Carson County. However, for other resource areas potentially affected by the alternatives, the area of analysis is located within the footprint of the project site where the project elements (e.g., dormitory) are or would be located.

The analysis of environmental consequences for each resource area begins by explaining the methodology used to characterize potential impacts, including any assumptions made. The impacts analysis considers how the condition of a resource area would change as a result of implementing each of the alternatives and describes the types of impacts that would occur (direct, indirect, beneficial, or adverse). The significance of impacts is assessed using four parameters: magnitude, duration, extent, and likelihood of occurrence. The impact types and significance criteria are described below. The terms “impacts” and “effects” are used interchangeably in this chapter.

Types of Impacts

For this EA, direct and indirect effects are defined as:

Direct effects: Effects that are caused by the action and occur at the same time and place.

Indirect effects: Effects that are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect effects also include “induced changes” in the human and natural environments.

In other words, direct impacts are those that are caused directly by an alternative, such as soil erosion caused by excavation to construct a new building under the Proposed Action. Indirect impacts are those follow-on effects induced by the initial impact. An example of an indirect impact is an adverse impact on water quality, such as stream sedimentation, caused by soil erosion from excavation to construct a new building.

Identified impacts may be either adverse or beneficial. For this EA, the following definitions are used:

Adverse impacts: Those impacts which, in the judgment of an expert resource area analyst, are regarded as having a negative and harmful effect on the analyzed resource area. An adverse impact causes a change that moves the resource area away from a desired condition or detracts from its appearance or condition.

Beneficial impacts: Those impacts which, in the judgment of an expert resource area analyst, are regarded as having a positive and supportive effect on the analyzed resource area. A beneficial impact constitutes

a positive change in the condition or appearance of the resource area or a change that moves the resource area toward a desired condition.

The adverse impact may be to the natural environment (e.g., decrease in a vegetated area), and the beneficial impact may be to the human environment (e.g., improved quality of life as a result of improvements to OST Federal Agent meeting space). Or the opposite may be true: the adverse impact may be to the human environment and the beneficial impact may be to the natural environment. Or, both adverse and beneficial impacts may occur to the natural and human environment for a single resource area.

Significance Criteria

Significance criteria were defined as a means of measuring the size of the impact and its significance. A structured framework is required to support conclusions concerning the significance of effects and to integrate individual resource area assessments systematically. For example, construction projects generally require some grading and soil disturbance. These activities have an impact on the soil and could also affect air quality (by creating fugitive dust), water quality (through erosion of the bare soil and sediment deposition in the surface water), and terrestrial resources (through the removal of vegetation and wildlife habitat). Using the same criteria to describe the size and significance of impacts for each of these resource areas allows for comparing the impacts between resource areas and determining the significance.

The significance of impacts was determined systematically by assessing four parameters of environmental impact: magnitude (how much), duration (how long), extent (sphere of influence) and likelihood of occurrence (probability). Each parameter was divided into the following levels:

Magnitude:

Major – Substantial impact or change in a resource area that is easily defined, noticeable, and measurable, or exceeds a standard.

Moderate – Noticeable change in a resource area occurs, but the integrity of the resource area remains intact.

Minor – Change in a resource area occurs, but no substantial resource area impact results.

Negligible – The impact is at the lowest levels of detection – barely measurable but with perceptible consequences.

None – The impact is below the threshold of detection with no perceptible consequences.

Duration:

Permanent – Impact would last indefinitely.

Long-term – Impact would likely last the lifetime of the project, or for as long as the proposed AOCC campus is in operation.

Short-term – Impact would last the duration of the construction phase.

Temporary – Impact would be continuous and last for a portion of the construction phase.

Intermittent – Impact would not be constant or continuous but rather recurring or periodic. Intermittent impacts could occur temporarily or in the short or long term.

Extent:

Large – Impacts would affect the resource area on a county, regional, or state level, extending well past the immediate project area.

Medium or localized – Impacts would affect the resource area only in the project area or its immediate surroundings, and would not extend into the county, region, or state. For example, noise impacts from building construction activities are usually localized as they can be heard from approximately 1,000 feet but not further away.

Small or limited – Impacts would affect the resource area over a portion of the project area.

Likelihood:

High – The impact is more likely to occur than not, i.e., approximately 50 percent likelihood or higher.

Medium – The impact has some chance of occurring, but probably below 50 percent likelihood.

Low – The impact has a non-zero but very small likelihood of occurrence.

None – The impact has zero probability of occurring.

3.1.1 LEVEL OF RESOURCE AREA ANALYSIS

All potentially relevant resource areas were initially considered for analysis in this EA. Consistent with NEPA implementing regulations and guidance, NNSA focuses the analysis in an EA on topics with the greatest potential for environmental impacts. CEQ regulations encourage NEPA analyses to be as concise and focused as possible, consistent with 40 CFR § 1500.1(b) and 1500.4(b). Additionally, the resource areas were evaluated to determine level of significance and potential dismissal per 40 CFR § 1501.7(a)(3).

Table 3.1-1 presents each considered environmental resource area and its thresholds of significance. The table also identifies those resource areas that are dismissed from further analysis or are fully analyzed in this EA, and the rationale for dismissing or analyzing each resource area. In conducting this analysis, a qualified subject matter expert reviewed the potential direct and indirect effects of the Proposed Action relative to each environmental resource and indicated those resources which would not be measurably affected by any of the considered action alternatives.

Table 3.1-1. Environmental Resource Area Assessment and Level of Assessment

Resource Area	Significance Threshold	Dismissed from Further Analysis?	Rationale
Land Use and Visual Resources	• Conflict with applicable land use plans, policies, or regulations of an agency with jurisdiction over the project; • Conflict with applicable habitat conservation plan or natural community conservation plan; or • Create a substantial change in the visual landscape, increased glare or lighting, elevated noise levels, or other factors that diminish the physical value of these resources.	No	The proposed action consists of the construction of eight future development projects on a currently vacant land parcel. These projects would noticeably alter current land use and would change the aesthetic conditions of the project area in both the short and long term. This resource area warrants detailed consideration.
Geology, Topography, and Soils	• Result in substantial soil erosion or topsoil loss; or • Are located on a geologic unit or soil that is unstable, or would become unstable due to the project, potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.	No	The proposed development projects would result in approximately 135 acres of temporary soil disturbance during the 10-year construction period. Completed projects would replace 65 acres of the project area with impervious surface. These actions have the potential to increase soil compaction and erosion, alter stormwater runoff patterns, and potentially disturb prime farmland. This resource area warrants detailed consideration.
Water Resources	• Violate any water quality standards or waste discharge requirements; • Result in an excess sediment load in adjacent waters, affecting impaired resources; • Result in unpermitted direct impacts to surface waters or wetlands, including wetlands;	No	The proposed development projects would result in approximately 135 acres of temporary soil disturbance during the 10-year construction period. Completed projects would replace 65 acres of the project area with impervious surface. These actions have the potential to increase erosion and suspended sediment, introduce pollutants, and affect surface

Resource Area	Significance Threshold	Dismissed from Further Analysis?	Rationale
	• Substantially affect surface water drainage or stormwater runoff, including floodwater flows; or • Substantially affect groundwater quantity or quality.		drainage patterns within the project area. This resource area warrants detailed consideration.
Biological Resources	• Substantial permanent conversion or net loss of habitat at the landscape scale; • Long-term loss or impairment of a substantial portion of local habitat (species-dependent); • Loss of populations of species; • Unpermitted or unlawful "take" of ESA-protected threatened or endangered species, or species protected under the Bald and Golden Eagle Protection Act or Migratory Bird Treaty Act; or • Violation of policies, regulations, and permits related to wetlands conservation and protection.	No	The proposed development projects would temporarily disturb 135 acres of wildlife habitat and permanently remove 65 acres of grassland wildlife habitat from productivity. Texas species of greatest conservation need are known inhabitants of the project area and could potentially be affected by project activities. This resource area warrants detailed consideration
Utilities and Infrastructure	• Substantial increase in any utility consumption to the extent that generation capacity is exceeded, based on currently available projections, or unacceptable demands are placed on infrastructure supply and distribution systems.	No	The proposed development projects require extension of existing utilities including water, electricity, natural gas, wastewater as well as the installation of septic tanks for wastewater and a decentralized wastewater treatment system for the treatment of vehicle wash water. Construction activities and the final completed campus would likely increase utility demands at Pantex. This resource area warrants detailed consideration.

Resource Area	Significance Threshold	Dismissed from Further Analysis?	Rationale
Cultural Resources	• Substantial adverse change in the significance of historical or archaeological resources as defined in the NHPA; or • Disturb any human remains, including those buried outside of formal cemeteries.	No	Cultural resources could potentially occur or be disturbed within the project area. This resource area warrants detailed consideration. [Note to NNSA: this description will be bolstered after the cultural resource survey is completed].
Climate Change	• Substantial contribution of greenhouse gas emissions and climate change.	No	The construction and operation of the proposed OST campus would noticeably increase the greenhouse gas emission profile of the overall Pantex facility. This resource area warrants detailed consideration.
Air Quality	• Exceed the general conformity rule de minimis (of minimal importance) threshold values; or • Contribute to a violation of any federal air regulation.	Yes	The vicinity of the Pantex facility is in attainment for all criteria pollutants and therefore, the General Conformity Rule does not apply. The Proposed Action would not significantly affect air quality. The Proposed Action would generate temporary construction emissions from construction activities spread over the course of 10 years, including particulate matter and other criteria pollutants. Operation of the projects would generate negligible air emissions and particulate matter. Although new stationary sources, emissions would only result when use of the backup generators are warranted. Range training activities could create dust which would be minimal and generally consistent with existing training activities. The Vehicle Wash Rack and maintenance areas would generate air emissions due to vehicle and truck use but would be negligible. As a result, this resource area is not further discussed.
Transportation and Traffic	• Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system; or	No	The construction of eight proposed development actions could potentially impact local traffic patterns through the transportation of heavy equipment and materials. During the 10-year construction phase,

Resource Area	Significance Threshold	Dismissed from Further Analysis?	Rationale
	• Noticeably hinder emergency access.		OST employees would also need to commute between the existing AOCC FAF and newly constructed OST facilities. This resource area warrants detailed consideration.
Noise	• Violation of any Federal, State, or local noise ordinance; • Creation of incompatible land uses for areas with sensitive noise receptors outside the project area; or • Creation of noise loud enough to threaten or harm human health.	No	The operation of heavy construction equipment during the 10-year construction phase would contribute relatively high levels of noise during the construction period. Employee vehicle traffic and operation of the proposed shooting range and live fire shoothouse could similarly contribute to the ambient noise environment of the project area and its surroundings. This resource area warrants detailed consideration.
Socioeconomics	• Substantial change to the sales volume, income, employment, or population of the surrounding ROI; or • Displace substantial numbers of existing housing units or people, necessitating the construction of replacement housing elsewhere.	No	The construction of eight proposed development projects would increase construction expenditures within the economic region of influence for the next 10 years, likely resulting in indirect and induced creation of jobs. Long-term facility and maintenance jobs would also be created as result of the operations of the proposed facilities. This resource area warrants detailed consideration.
Environmental Justice	• Disproportionate adverse economic, social, or health impacts on minority or low-income populations; or • Substantial disproportionate health or safety risk to children.	No	Potter County qualifies as an Environmental Justice community on the basis of its minority representation. Environmental Justice community members could potentially be affected by hiring of construction staff, noise conditions, traffic conditions, water quality, and emissions which would occur as a result of the proposed alternatives. This resource area warrants detailed consideration.
Waste Management and	• Create a significant hazard to the public or the environment through the routine	No	The construction of eight proposed development projects involves the onsite use and storage of

Resource Area	Significance Threshold	Dismissed from Further Analysis?	Rationale
Hazardous Materials	transport, use, or disposal of hazardous materials; or • Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.		hazardous materials such as diesel fuel, paint, adhesives, thinners, and solvents. Operation of heavy equipment would increase the likelihood of fuel and oil spills within the project area. Completed facilities would store and use standard hazardous materials for building operation and maintenance. This resource area warrants detailed consideration.

3.2 LAND USE AND VISUAL RESOURCES

Land use generally refers to the human use of land. It is further defined as the economic and cultural activities (e.g., agricultural, residential, industrial, mining, and recreational uses) practiced at a given place. Visual resources are those natural or human-made visible elements of a landscape that are particularly valued by a community or protected by law. Examples of visual resources include scenic water or land formations, trees, parks, buildings or clusters of buildings, and other distinct human-made elements such as bridges or public art installations.

Land use and visual resources are linked through their contribution to the visual setting of a particular landscape. Alterations to the landscape can occur through physical changes based on how the land is used or through manipulation of viewing conditions (e.g., light or glare conditions) or both. These changes occur regularly throughout the U.S. and can either be beneficial or adverse depending on the land use patterns and the characteristic landscape of a given area. Land uses such as habitat restoration or reclamation of previously contaminated lands may beneficially impact the human or natural environment by promoting and reinforcing basic elements of the characteristic landscape. Urbanized land uses may adversely affect the environment by substantially altering the elements of the characteristic landscape through development and pollution.

This section describes the land use patterns and visual resources within and surrounding the project area and discusses the impacts to these resources from the Proposed Action and the No Action alternatives.

3.2.1 AFFECTED ENVIRONMENT

Land use around the Pantex facility is mainly agricultural and rangeland, with some additional oil and gas drilling infrastructure, wind turbine installations, and other industrial facilities. Agricultural land is mostly used for farming winter wheat and grain sorghum. While dryland farming is the dominant farming method, some fields are irrigated with water from the Ogallala Aquifer or local playas (i.e., temporary shallow lakes). Ranching in the region generally consists of cow-calf and yearling operations. Other major industrial presences in the Texas Panhandle region include Tyson Foods (a beef-production operation), Owens-Corning Fiberglass (a fiberglass reinforcement plant), the industrial area formerly belonging to ASARCO (a large silver and copper refinery), Cactus Feeders (one of the largest cattle-feeding operations in the world), Conoco-Phillips Petroleum, and Xcel Energy. A land-use census of the residential population surrounding the Pantex facility determined that most of the population is located west-southwest of the Pantex facility in the Amarillo metropolitan area (CNS, 2019). The remaining rural population is scattered across the region and consists of single-family homes, trailers, and storage structures, along with cars, trucks, tractors, and other farming vehicles and machinery.

The characteristic landscape in the vicinity of the project area is mainly composed of flat or rolling, grassy plains and numerous natural playas. The natural landscape consists of green, short, dry grass, or recently-tilled red-colored soils. These features dominate the viewshed on either side of the two-laned U.S. Highway 60, which is the only viewing location outside of the Pantex facility of the project area. Travelers along the rural highway can range from six vehicles to 27 vehicles on average per day (TX DOT, 2022), and would likely only consist of local residents, Pantex employees, or other travelers driving through the Panhandle region. The views from U.S. Highway 60 are similar to those observed from within and in the adjacent surroundings of the project area. The observer's view from U.S. Highway 60, and from the Pantex facility and the project area, extends to the horizon in all directions, as seen in **Figures 3.2-1** and **3.2-2**. The only objects that alter this view are the human-made structures that are present along U.S. Highway 60 or perceived in the distance. U.S. Highway 60 connects the City of Amarillo to the southwest with the City of Panhandle to the northeast and runs along the southern boundary of the Pantex facility. Along the

east-bound lanes of traffic, wooden, single-post powerlines run parallel along the highway, and a few dirt roads leading to single-family homes or other small structures appear sporadically, as seen in **Figure 3.2-1**. Several rows of wind turbines are also located along the highway or in the distance; however, they are not a prominent feature of the viewshed.

(Google Earth, No Date)

Figure 3.2-1. South-facing View of the Landscape from U.S. Highway 60's East-bound Lanes

(Google Earth, No Date)

Figure 3.2-2. North-facing View of the Pantex Facility (approximately 1.5 miles away) from U.S. Highway 60's West-bound lanes

Adjacent to the west-bound lanes of traffic, a set of train tracks run alongside the highway; the Pantex facility resides about one and a half miles north of the highway. The Pantex facility is an industrialized,

2,000-acre complex of facilities consisting of multiple buildings, parking lots, and paved roadways intersecting and connecting the complex. At this distance, the buildings and various facilities of the Pantex facility can be seen from the highway but are not easily discernable and do not dominate the landscape, as seen in **Figure 3.2-2**. The project area is located on a 374-acre parcel of land directly adjacent to the west of the Pantex facility. This parcel of land is generally undeveloped, composed mostly of disturbed grassland and cultivated cropland, and contains three monitoring wells, one pumphouse station, and reclaimed rail lines. A capped landfill exists immediately to the southeast of the project area.

3.2.2 ENVIRONMENTAL CONSEQUENCES

This section discusses the potential impacts of the Proposed Action and the No Action alternatives on land use and visual resources within and surrounding the project area.

3.2.2.1 Proposed Action

The impacts of the Proposed Action on land use and visual resources would result from the construction of eight proposed future development projects over a 10-year period and their ensuing operations in the project area. The facilities would range in size from 2,600 square feet (sf) to over six million sf. Collectively, the eight new facilities would cover approximately 65 acres out of the 374 acres of land comprising the project area. Some of the new facilities would include associated structures and features to compliment the operations at each facility:

- VMF would include adjacent paved parking lots, a new fence line with security lights around the perimeter entry/exit roads, and a 1,150-sf guard shack;
- FAF would include a drive through canopy for loading/unloading vehicles;
- IUF Facility would include an on-site, 400 meter running track with artificial turf interior; and
- Shipping/Receiving Facility would include a loading dock for delivery of materials by outside entities.

Based on these projects and their associated structures and features, the Proposed Action would impact land use and alter the characteristic landscape within and surrounding the project area. The undeveloped grassland and agricultural land in the project area would be converted to an administrative area with the construction of the new campus. Construction equipment, such as vehicles and heavy machinery, would physically disturb the land through grading, excavating, paving, and other construction activities. Upon completion of construction, land use in the project area would change indefinitely because the new facilities would be permanent, administrative structures covering the land with impervious surfaces. The presence of construction vehicles and equipment, the recurring construction activities, and the newly-built campus would also alter the viewshed by creating new and different features that would become components of the landscape. During construction, the viewshed of flat, grassy, rolling plains and natural playas would mostly remain the same, but with the addition of construction vehicles, heavy machinery, building materials, and any excavated and/or developed areas occurring at construction sites. On the newly-built campus, new buildings and paved surfaces would permanently replace the natural landscape with an industrialized and developed landscape.

Construction staging areas would be designated in the vicinity of the project area and would be limited to no more than a half-acre in size. Once construction activities conclude, vehicles, machinery, and building materials would be removed from the area. Thus, short-term, adverse impacts from construction activities would not persist beyond the duration of the construction period and would likely only serve as limited and temporary impacts to land use and visual resources. Impacts from construction activities and the

newly build campus would be considered minimal due to the limited number of observers traveling along U.S. Highway 60. In addition, the project area is located directly adjacent to the west of the Pantex facility, which is about one and a half miles north of the highway. At this distance, the buildings and facilities of the Pantex Plant can be seen from the highway but are not easily discernable; since the project area is located at a similar distance away from the highway, construction activities and the newly-built campus are also not expected to attract attention or dominate the landscape. Only those observers who travel closer to the project area, such as construction workers, Pantex employees, or visitors to the facility, would be able to discern the changes in land use and visual resources. However, the land within the project area has already been previously modified to some extent by the monitoring wells, pumphouse station, and reclaimed rail lines that exist on the site. The land surrounding the project area has also been slightly to substantially modified: from the Pantex facility, to the capped landfill just beyond the project area, to other human-made structures scattered sparsely throughout the landscape, such as wind turbines, powerlines, railroad tracks, single family homes, and other small structures. Thus, the newly-built campus, facilities, and infrastructure would fit in with these existing landscape features and land use patterns.

While construction activities and a newly-built campus would consist of alterations to land use patterns and the viewshed, these changes would not be expected to attract attention or dominate the landscape. Impacts would likely be minimal due to the limited number of observers in the area, the limited visibility that would exist due to the distance between the highway observation area and the project area, and the human-made modifications that already exist in the landscape. Therefore, impacts to land use and visual resources under the Proposed Action would be minor to moderate in the short term during construction and minor and permanent once construction is complete. All short-term and permanent impacts would be localized, and high in likelihood. These effects would not be significant.

3.2.2.2 No Action Alternative

Under the No Action Alternative, the new parcel of land would not be acquired and the construction and operational phases of the proposed project would not occur. As such, the conditions described in the affected environment would remain constant. No land use patterns or visual resources would be adversely impacted by the presence of construction vehicles, equipment, or machinery, or the presence of the newly-built campus. Therefore, the No Action Alternative would have no effect on land use and visual resources; therefore, impacts would be insignificant.

3.3 GEOLOGY, TOPOGRAPHY, AND SOILS

This section presents an overview of geology, topography, and soil resources within the project area and an analysis of the Proposed Action's potential impact to geology, topography, and soils. The area of analysis for geology, topography, and soils is the 374-acre OST campus site. Geology, topography, and soil resources are generally regulated by the Farmland Protection Policy Act (FPPA) and the Soil and Water Resources Conservation Act of 1977 (RCA).

3.3.1 AFFECTED ENVIRONMENT

Geological resources refer to the Earth's surface and subsurface materials and are commonly described in terms of geology, topography, and soils. The affected environment section describes the current setting for these resources in the project area and surrounding region.

3.3.1.1 Geology

Geology is the study of the physical composition and configuration of the Earth. The project area and the greater Pantex Plant are situated on the Blackwater Draw Formation, which was formed in the Pleistocene Epoch of the Quaternary Period (USGS, No Date-a; USGS, No Date-b). The Blackwater Draw Formation is a rock unit dominated by very fine to fine red sandstone that was derived from windblown silt (Hall and Goble, 2020).

Geologic hazards, such as earthquakes and landslides, are natural events that can threaten human safety and cause property damage. There are no fault lines located under or near the Pantex Plant. The Texas Panhandle is very flat and is not considered susceptible to mudslides and landslides.

3.3.1.2 Topography

Topography is the arrangement of both natural and human-made landforms on the Earth's surface. Topographic maps show landscape features such as mountains and rivers and depict elevation through contour lines to enable visualization of landforms. The Pantex Plant is located within the Llano Estacado region which is characterized by a very flat surface with scattered small playa lake basins (Trimble, 1980). The Llano Estacado is the southernmost portion of the High Plains, which is demarcated by the Canadian River valley. The project area is located at approximately 3,565 to 3,575 feet above mean sea level (amsl) and is almost completely flat (USGS, 2022).

3.3.1.3 Soils

Soil refers to the inorganic and organic materials overlying bedrock. Soils can be described in terms of type and physical characteristics (e.g., texture and erosion potential). Soil texture is measured by the relative proportions of sand, silt, and clay particles in a mass of soil. Erosion potential is determined by slope, the prevailing climate, vegetation, and characteristics of the soil that impact soil drainage, such as porosity (permeability to water) and texture.

Different soils are divided into units based on characteristics of their respective soil profile, which is the sequence of natural layers composing the soil from surface to bedrock. The NRCS web soil survey report attributes the entirety of the project area to the Pullman clay loam, 0 to 1 percent slopes soil unit (NRCS, 2022). Pullman clay loam, 0 to 1 percent slopes is composed of 90 percent Pullman and similar soils, and the remaining 10 percent consists of minor components of other soils, including Olton, Pantex, and Estacado soil types (NRCS, 2022). Pullman soils typically have a 6-inch-thick surface layer of dark brown, moderate, medium granular clay loam that is non-calcareous (i.e., a low calcium carbonate content). Beneath the surface layer is typically a 32-inch-thick subsoil layer of dark brown, moderate, medium, mildly calcareous clay followed by a 12-inch-thick or greater layer of reddish-brown clay loam (Coover et al., 1953).

Pullman clay loam is considered to be prime farmland and is well drained with low runoff (NRCS, 2022). The entire project area is designated as prime farmland. Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and that is available for these uses (NRCS, 2009). Prime farmland has the combination of soil properties, growing season, and moisture supply needed to produce sustained high yields of crops in an economic manner if it is treated and managed according to acceptable farming methods.

The soils within the project area may have been previously disturbed. During WWII, supplies for the Pantex facility passed through the project area, which contained at least 13 now-demolished buildings. Past construction and demolition likely involved heavy equipment and could have resulted in soil compaction and erosion.

3.3.2 ENVIRONMENTAL CONSEQUENCES

3.3.2.1 Proposed Action

Under the Proposed Action, OST would construct eight future development projects over a 10-year period. In combination with associated structures, roads, and parking areas, the total footprint of soil that could be disturbed by construction under the Proposed Action would be approximately 135 acres. Of the total acreage disturbed, only 65 acres would be permanently replaced with impervious surfaces and the remainder could recover or be rehabilitated. The construction of the new OST campus would involve excavation, grading, framing and finishing, paving, and movement of heavy equipment. For each of the eight development projects, a separate staging area would be established to temporarily store construction materials. Staging areas would be designated in the vicinity of the project area and would not be larger than a half-acre in size.

Under the Proposed Action, the majority of construction would be restricted to the ground surface and would not impact the geologic stability of the project area. The installation of septic tanks, a decentralized wastewater treatment system, and the extension of other utilities from the main Pantex facility would take place over a relatively small area and are not likely to impact geological resources. Additionally, construction would be unlikely to adversely impact the existing topography of the project area because minimal grading would be needed. There would be no adverse impacts to geology or topography during the construction and operation of the OST campus.

Ground disturbance from earthwork activities would result in increased soil erosion, leading to detachment of soils and transport of freshly disturbed soils via wind and/or stormwater runoff, including to the playa basin east of the project area. Additionally, OST would install septic tanks, a decentralized wastewater treatment system for vehicle wash water, and extend other utilities from the main Pantex site including water, electrical, and natural gas. This would result in the additional disturbance of soil outside the project area and disturbance of soils below the surface. However, soils within the project area may not be fully intact and could have been previously disturbed by past construction and demolition as described in the affected environment. Impacts to previously disturbed soils would be less severe than impacts to intact soils. Additionally, best management practices (BMPs) for erosion and sediment control would be implemented for each development project, such as the installation of a silt fence and/or waddles around the construction perimeter throughout each new facility's respective construction period. Additionally, an area of rock or riprap would be installed for vehicles to drive on as they enter or leave the project area and water would be used to keep the soil moist during construction for dust control.

The Proposed Action would result in increased soil compaction (i.e., displacing air from the soil) due to vehicle and foot traffic during construction activities. Increased soil compaction would result in disturbance to soil structure and decreases to the soil's drainage capabilities. Typically, no more than 25 employees and no more than five heavy pieces of equipment would work in the project area at any one time. Impacts to soil compaction would be limited to the footprint of construction and the area immediately surrounding the project area and staging area. Mulch would be used as necessary to prevent soil compaction and stabilize bare and disturbed soils.

Increasing impervious surface coverage (e.g., from new construction of buildings and pavement) would result in the decrease of the available drainage area and an increase in soil erosion through stormwater runoff from the project area. The increase in impervious surface coverage within the project area could result in permanent adverse impacts to the structure and drainage of the soils underneath, and would remove the ecological function of productivity from the soils. The campus would include the construction of approximately 65 acres of impervious surfaces such as buildings, parking lots, and roads. Since more

than one acre of land would be expected to be disturbed, the project would require a Construction General Permit (CGP). As a condition for coverage under the CGP, a Stormwater Pollution Prevention Plan (SWPPP) would be developed and implemented. The SWPPP is required to include BMPs and erosion and sediment controls to minimize erosion. As mentioned above, BMPs would be implemented to control erosion, including the implementation of a silt fence and/or waddles around the construction perimeter, an area of rock or riprap for vehicles to drive on as they enter or leave the project area, and water to keep the soil moist during construction for dust control. Additionally, swales would be installed around buildings to channel stormwater to the proper channels.

In the event of an accidental leak or spill of fuel, cleaning chemicals, surfactants, oils or lubricants, or other materials, the spilled material could contaminate soils within the project area. However, if a spill were to occur, it would be cleaned up immediately. With the implementation of BMPs and use of spill kits, adverse impacts from accidental spills would not be substantial.

Construction activities under the Proposed Action would alter or disturb soils that are designated as prime farmland. NNSA communicated all potential impacts to prime farmland to USDA NRCS via FPPA consultation and received concurrence on November 7, 2022 that no additional protections or considerations beyond the implementation of erosion controls were necessary. Thus, the Proposed Action would have non-significant effects on prime farmland.

Under the Proposed Action, impacts to geology, topography, and soils within the project area and vicinity would be minor to moderate, adverse, localized, and long-term to permanent with a high likelihood of occurrence. Impacts would not be significant.

3.3.2.2 No Action Alternative

Under the No Action Alternative, there would be no construction or expansion of utility infrastructure; therefore, no impacts to geology, topography and soils would be expected to occur. There would be no significant impacts to geology, topography, and soils under the No Action Alternative.

3.4 WATER RESOURCES

This section presents an overview of the existing water resources conditions at the project area and vicinity and an evaluation of each alternative's potential impact to those water resources.

3.4.1 AFFECTED ENVIRONMENT

This section describes the affected environment in terms of the local water resources, which include surface water, groundwater resources, and water used in operational activities (i.e., wastewater, stormwater, and drinking water).

3.4.1.1 Surface Water

No surface water resources occur within or directly adjacent to the Pantex facility. Major surface water resources in the region include the following (along with their approximate distances from the Pantex facility):

- the Canadian River, 17 miles north;
- Sweetwater Creek, 50 miles east;
- the Salt Fork of the Red River, 20 miles east;
- the Prairie Dog Town Fork of the Red River, 35 miles south; and
- Lake Meredith, a constructed reservoir approximately 25 miles north (B&W Pantex 2010).

The drainage divide between the Red River basin and the Canadian River basin occurs at approximately FM 293, just north of the Pantex site. The Pantex facility falls within the Red River basin; the area north of FM 293 from the Pantex Plant fall within the Canadian River basin.

All of the precipitation surface water runoff at the site drains through manmade ditches, natural drainage channels, and by sheet-flow into playas (relatively shallow ephemeral lakes). These playas are frequently dry because of the high evaporation rate and relatively low precipitation in this region. Playas in the area may be as large as 4,000 feet in diameter, though they average 2,500 feet in diameter (BWXT Pantex LLC 2004). Most playas are formed over clay lenses (a low permeability layer that is thick in the center and thinner towards the edges), sometimes 30 feet thick near the center. The runoff leaving the project area likely evaporates in the playas and does not reach the Red River.

Floodplains

Federal Emergency Management Agency (FEMA) does not have flood hazard mapping available for the vicinity of the Pantex facility. The closest FEMA-mapped areas include the cities of Amarillo, town of Panhandle, and portions of Potter County. The Pantex facility is therefore outside any FEMA-mapped special flood hazard area. The most recent floodplain delineation report was developed by the USACE, Tulsa District, in January 1995. The following mapped 100-year floodplains exist in the vicinity of the five playas onsite:

- Playa 1 – 216 acres
- Playa 2 – 224 acres
- Playa 3 – 182 acres
- Playa 4 – 380 acres
- Pantex Lake – 913 acres

The sole facility located in 100-year floodplain areas is the Pantex wastewater treatment facility. No floodplains are present within the project area.

Wetlands

Some small and isolated Freshwater Emergent Wetlands exist at the Pantex facility; however, none appear to exist within adjacent vicinity, per the National Wetlands Inventory (USFWS, 2022).

3.4.1.2 Groundwater

The Ogallala Aquifer is the primary source of groundwater for Amarillo, Pantex, and the Southern High Plains (BWXT Pantex LLC 2004). Historical groundwater withdrawals in the region have exceeded the natural rate of recharge for the Ogallala Aquifer, causing substantial water level declines. The City of Amarillo is the largest user of water from the aquifer.

Perched groundwater is found below the Pantex facility at approximately 200 to 300 feet below ground surface, and the saturated zone's thickness ranges from less than one foot to approximately 70 feet (B&W Pantex 2010). The Pantex facility obtains its drinking water from the Ogallala Aquifer via five wells located at the northeast corner of the Pantex facility; the perched groundwater sits above the Ogallala Aquifer and is not used for drinking water.

3.4.1.3 Other Water Use

Other water use at the Pantex facility includes wastewater, stormwater, and drinking water.

Wastewater

During 2019, the Pantex facility discharged approximately 145 million gallons of treated wastewater to the on-site playa lake (CNS 2019). The Pantex facility does not discharge wastewater into or adjacent to waters of the United States (WOTUS); thus, it is not subject to the Clean Water Act (CWA). WOTUS are generally defined in 40 CFR § 230.3(s) and include all waters used for commerce; all interstate waters; all other waters such as intrastate lakes rivers, streams, etc.; all impoundments of waters otherwise defined as WOTUS; tributaries of waters identified as WOTUS; the territorial sea; and wetlands adjacent to WOTUS. Treatment ponds or lagoons designed to meet the requirements of the CWA are not WOTUS.

The Pantex facility disposes all of its treated industrial and domestic wastewaters via discharge to an on-site playa (CNS 2020). The Pantex facility is authorized by Permit WQ0004397000 (Texas Land Application Permit [TLAP]) and Underground Injection Control (UIC) Authorization 5W2000017 to discharge treated wastewater through surface or subsurface fluid distribution systems. In combination, these authorizations support the production of approximately 400 acres of crops. The TLAP was amended to provide authorizations for the disposal of treated wastewaters through a surface or subsurface irrigation area when covered by vegetation. The UIC authorization allows the application of treated wastewater in limited quantities to the irrigation area during fallow periods. During 2017, major filter leaks developed in the subsurface system, and use of the system was temporarily discontinued. After June 2017, all treated industrial and domestic wastewaters were discharged via a surface water outfall into an on-site playa, per Texas Water Quality Permit WQ0002296000. Repairs are ongoing so that treated effluent from the wastewater treatment facility (WWTF) and from the perched aquifer pump-and-treat systems can once again be discharged to the subsurface fluid distribution system. Efforts are underway to establish a surface irrigation system that would provide additional opportunities for beneficial reuse of treated wastewater for crop irrigation (CNS 2020).

At seven remote buildings, the Pantex facility operates On-site Sewage Facilities (OSSFs), or septic tank systems, to dispose of domestic wastewaters from these buildings. Newer OSSFs have been approved by the TCEQ via permits. However, several of the systems pre-date applicable regulations and are not currently registered. As unregistered OSSFs are replaced, permits authorizing the upgrading or installation of the new system will be acquired from the TCEQ (CNS 2020).

Stormwater

Stormwater generated at the Pantex facility is generally discharged into ephemeral playas on-site via manmade ditches, natural drainage channels, or sheet runoff where it infiltrates into the soil or evaporates. The Pantex facility operates under the TPDES Multi-Sector General Permit (TXR05CD31) for the discharge of stormwater related to industrial activities. The Pantex facility obtains coverage as needed under the TPDES Stormwater General Permit for Construction Activities (Permit TXR150000). The Notices of Intent filed for large construction projects during 2020 include permits TXR1500000, TXR1509B, TXR1508BO, and TXR 1516CR, which are for General Activities, a Running Track Project, a Road Repair Project, and a Well Installation Project, respectively.

Drinking Water

The Public Water System at Pantex (State of Texas Public Water System I.D. No. TX0330007) is considered a non-transient, non-community public water system (PWS) under the Safe Drinking Water Act (SDWA) regulations. The Environmental Protection Agency (EPA) created this category to identify private systems that continuously supply water to small groups of people (for example, in schools and factories). The same group of people consumes water supplied by such systems daily over long periods. All water used at Pantex Plant originates from the Ogallala Aquifer. The Pantex facility operates a Non-community, Non-

transient Public Drinking Water System (PWS), which is registered with the TCEQ. The water is obtained from production wells located in the northeast portion of the plant. These wells supply all of Pantex Plant's water needs. Water pumped from the Ogallala Aquifer is treated to provide disinfection protection, and is then transferred to a distribution system which distributes water across Pantex Plant. In addition, the system provides water to adjacent Texas Tech University owned property for domestic and livestock use and to the JCDC. In December 2009, the TCEQ notified the Pantex facility that its PWS had achieved a "Superior Rating." The Pantex Plant maintained its Superior PWS rating during 2020 (CNS 2020).

3.4.2 ENVIRONMENTAL CONSEQUENCES

This section discusses the potential impact to water resources within the project area under each alternative and all adjacent or hydrologically-connected areas.

3.3.2.1 Proposed Action

The potential impacts on water resources (surface water, groundwater, and other water use) are analyzed in this section during both the construction phase and normal day-to-day operations and use of the project area.

3.4.2.1.1 Surface Water

The Proposed Action would involve grading and excavation, framing and finishing, and paving. The construction phase of the Proposed Action would disturb approximately 135 acres of land. Construction vehicles would access the Pantex facility via the local county roads from US 60 and traverse the project area via temporary construction access roads over the 10-year period of construction.

Construction-related activities associated with the Proposed Action would expose soils and sediments, and any materials spilled during construction, to possible erosion and transport by heavy rainfall. Implementation of BMPs, including soil erosion and sediment control measures and spill prevention and waste management practices, would minimize any suspended sediment and pollutant transport that could result in potential water quality impacts (i.e., additional sedimentation and/or water quality impacts to the on-site playa). The project area would be sited so as to avoid interrupting natural and existing surface water drainage to the maximum extent practicable. Construction-related activities would be subject to the requirements of Texas Pollutant Discharge Elimination System (TPDES) General Permit TXR150000 for the discharge of stormwater. A SWPPP would be developed during the detailed design phase including the BMPs proposed to avoid or minimize impacts and how the construction practices would meet the requirements of the TPDES General Permit.

The installation of permanent access roads has the potential to affect surface water drainage patterns. The access roads would be all weather and must be fairly level to accommodate the large, heavy loads of vehicles used for delivery of heavy construction materials, and other equipment. Road design would require proper sized culverts, curb, and gutter, as applicable, to allow for drainage and to support the weight of equipment.

The selected contractor for the Proposed Action would be required to implement the new stormwater design requirements of Section 438 of the Energy Independence and Security Act that apply to Federal construction projects disturbing 5,000 sf or more of land.

A post-project stormwater management plan would be developed during the detailed design phase to satisfy the applicable regulations by evaluating and identifying strategies to:

- Control stormwater volume and velocity within the site, including peak flowrates and total stormwater volume;
- Identify appropriate culvert, curb, and gutter design for proper drainage design of the roadways;
- Identify water-smart landscaping to the maximum extent practicable, potentially involving xeriscaping, to revegetate and stabilize areas around the proposed facilities;

The effects of the Proposed Action on surface water during construction would be minor as there would be BMPs employed per TPDES via a SWPPP, short term during the construction period, medium affecting the areas surrounding the project site, with a high likelihood. The effects of the Proposed Action on surface water during day-to-day operations would be minor, long term, medium, with a high likelihood. These effects are not significant with respect to surface water resources.

3.4.2.1.2 Groundwater

Under the Proposed Action, the installation of approximately 65 acres of additional impervious surfaces would prevent stormwater from infiltrating into the ground as would otherwise occur in pre-project conditions.

There are no effects from the Proposed Action during construction on groundwater. Therefore, effects of the Proposed Action during day-to-day operation of the facilities would be minor, long-term, medium, and with high likelihood of occurrence. These effects are not significant to overall groundwater resources.

3.4.2.1.3 Other Water Use

Water would be required for dust suppression and compaction during construction of the Proposed Action and for the preparation of concrete during construction, if mixed on-site.

The detailed design phase will elucidate the requirements and strategies to collect, manage and treat additional wastewater generated from the facilities, including the Vehicle Wash Rack. This includes the installation of OSSFs and a decentralized wastewater treatment system for the treatment of vehicle wash water.

The effects of the Proposed Action during construction would be minor, short-term, medium in extent, and with high likelihood of occurrence. The effects of the Proposed Action during day-to-day operation of the facilities would be minor, long-term, medium in extent, and with high likelihood of occurrence. These effects are not significant to other water use resources.

In conclusion, the effects of the Proposed Action on water resources are not significant.

3.4.2.2 No Action Alternative

Under the No Action Alternative, no construction, extension of utility infrastructure, or consolidation of OST operations would occur at the Pantex facility. Therefore, the No Action Alternative would have no effect on water resources.

3.5 BIOLOGICAL RESOURCES

This section discusses the affected environment and environmental consequences that would result under each alternative for biological resources in the project area, including vegetation, wildlife, non-native invasive species, and special status species. The project area for the analysis of biological resources includes the 374-acre project area located on the western edge of the existing Pantex facility that is under consideration for development.

3.5.1 AFFECTED ENVIRONMENT

The 374-acre project area is characterized by a mixture of cultivated agricultural land and disturbed grasslands. The project area has two primary sections of disturbed native grasslands: one located in the northeast corner and another bisecting the western half of the project area. The project area also contains two mature black-tailed prairie dog (*Cynomys ludovicianus*) colonies, respectively located in the northeastern and northwestern edges of the project area. Black-tailed prairie dog colonies are used for habitat, shelter, or forage by many other grassland species. Additionally, there is existing human disturbance within the project area, including two-track roads, three monitoring wells, and a pumphouse station.

3.5.1.1 Vegetation

The majority of the project area consists of disturbed native grassland or cultivated agricultural lands. The remaining area consists of disturbed areas, such as dirt roads, that are unsuitable for most plants. The disturbed native grassland areas primarily consist of common grasses such as buffalograss (*Buchloe dactyloides*) and blue grama (*Bouteloua gracilis*). Previous studies have documented 262 plant species in the Pantex facility, although many were non-native, weedy species (Gray, 2004). Invasive plant species of particular concern include old world bluestems of the genera *Bothriochloa* and *Dichanthium*. These species can rapidly spread and outcompete native shortgrass communities. Once established, old world bluestems change the habitat structure of native grasslands and are very difficult to eradicate (CNS, 2021a). Other invasive plant species of concern include, but are not limited to, honey mesquite (*Prosopis glandulosa*), Russian olive (*Elaeagnus angustifoli*), salt cedar (*Tamarix* spp.), and musk thistle (*Carduus nutans*).

3.5.1.2 Wildlife

Wildlife documented within the Pantex facility includes 46 species of mammals, 202 species of birds, 28 species of amphibians and reptiles, and over 900 species of various macro-invertebrates (CNS, 2020; Ray, 2013).

Mammal species that regularly occur within the Pantex facility include, but are not limited to, Black-tailed prairie dog, coyote (*Canis latrans*), bobcat (*Lynx rufus*), white-tailed deer (*Odocoileus virginianus*), and cottontail rabbits (*Sylvilagus* spp.) (CNS, 2020).

Bird species that regularly occur within the Pantex facility are typical of western shortgrass prairie habitats. These include, but are not limited to, species such as Swainson's hawk (*Buteo swainsoni*), barn swallow (*Hirundo rustica*), western kingbird (*Tyrannus verticalis*), and western meadowlark (*Sturnella neglecta*) (CNS, 2020).

Reptile and amphibian species that regularly occur within the Pantex facility include, but are not limited to, bullsnake (*Pituophis melanoleucus*), prairie rattlesnake (*Crotalus viridis*), and checkered garter snake (*Thamnophis marcianus marcianus*) (CNS, 2020).

3.5.1.3 Special Status Species

A review of special status species was performed to develop a list of protected species that could potentially occur in or near the project area. A list of special status species was compiled from the U.S. Fish and Wildlife Service (USFWS) IPaC (Information for Planning and Consultation) online project planning tool and the TPWD Species of Greatest Conservation Need (SGCN) list (USFWS, 2022; TPWD, 2020). According to the IPaC review, two federally threatened species could potentially occur in or near the

project area. The two federally threatened species, the piping plover (*Charadrius melodus*) and red knot (*Calidris canutus rufa*), are long-distance migrants that rely on marshes and wetlands as stopover habitat. The likelihood that individuals of either species ever occur within the project area is very low due to the lack of suitable wetlands onsite.

Species designated as SGCN in Texas that are present or have historically been documented in the project area include the Texas horned lizard (*Phrynosoma cornutum*), western burrowing owl (*Athene cunicularia hypugaea*), and black-tailed prairie dog (*Cynomys ludovicianus*). Kazmaier (2011) determined the Texas horned lizard to be common or abundant in the entire Pantex facility, but surveys conducted in 2022 did not locate this species (Solv, LLC., 2022). Texas horned lizards are declining in the eastern half of Texas, but western populations are relatively stable (TPWD, 2008). However, surveys did locate potential Texas horned lizard scat, which indicates that a small population may still be present onsite. Historical surveys documented burrowing owls within the project area, often associated with the black-tailed prairie dog colonies (Chipman, 2006). The 2022 surveys documented burrowing owl throughout the project area, but detected no other special status species in the survey window (Solv, LLC., 2022). Other Texas SGCN, such as ferruginous hawk (*Buteo regalis*) and mountain plover (*Charadrius montanus*), have been documented on the greater Pantex facility. These species associate with shortgrass prairie and prairie dog colonies and, therefore, could potentially occur within the project area.

Migratory birds are designated as special status species due to their protection by the Migratory Bird Treaty Act, and focus under Executive Order (EO) 13186, Responsibilities of Federal Agencies to Protect Migratory Birds. Two hundred and three species of birds have been recorded at the Pantex facility, and the vast majority are classified as migratory birds. Some species nest within the grasslands, prairie dog colonies, or cropland habitats occurring in the project area.

3.5.2 ENVIRONMENTAL CONSEQUENCES

This section describes the potential impacts associated with the Proposed Action and alternatives on biological resources within the project area and vicinity.

3.5.2.1 Proposed Action

Adverse impacts to biological resources under the Proposed Action would be primarily associated with the removal of available habitat in the project area and the temporary, recurring disturbance of wildlife associated with construction in the area within and immediately surrounding the project area. Additionally, there would be adverse impacts to vegetation within the project area due to impacts associated with construction.

The Proposed Action would lead to the removal of approximately 65 acres of vegetation in the project area over the 10-year project period. Approximately 18 acres of disturbed native grassland would be removed during construction activities; the remainder of removed vegetation would consist of cultivated cropland with few native species. Thus, impacts on native vegetation would be minimal. Construction activities could potentially directly spread or create disturbed conditions ideal for invasive plant species, including old world bluestem. Disturbed conditions would be reduced by the implementation of erosion control BMPs, including the construction of a silt fence and/or waddles and an area of rock/riprap for construction truck transit. Additionally, large equipment and vehicles would be washed prior to entering the construction site to minimize the spread of invasive plant species.

Construction noise and associated visual disturbance during the eight future development periods could potentially result in the temporary displacement of some common wildlife species within and in the immediate vicinity of the project area while humans or equipment are present. Noise can startle individual

animals, cause stress, mask communication and other natural sounds, and displace animals from surrounding habitat. Any displaced animals would likely return to the vicinity of the project area upon completion of construction. Disturbance would be temporary but recurring as different buildings and structures are constructed over the 10-year project period. Wildlife disturbance would be limited to the general vicinity of the project area and would continue after construction, albeit to a lesser degree, due to daily operational activities.

The Proposed Action would remove approximately 65 acres of wildlife habitat and convert them into impervious surfaces, such as buildings, roads, and parking lots. Of the 65 acres that would be removed, approximately 18 acres consist of disturbed native grassland, which provides habitat, forage, and shelter for wildlife. The remaining 47 acres that would be removed consists of cultivated cropland. This habitat is inhabited by few native species and provides minimal resources to wildlife. The 374 acres of wildlife habitat within the project area could be temporarily impacted by construction activities such as the movement and operation of heavy equipment, noise, visual disturbance, and human presence. However, other than the removed 65 acres of habitat, any impacted areas within the project area could recover after the construction period. Impacts that would continue in the project area after construction are related to regular facility operations, such as noise and disturbance related to human presence.

The construction area would not affect the prairie dog colony located on the east side of the project area, but a small portion of the prairie dog colony on the north edge of the project area would be displaced or potentially subject to population control measures. The Pantex facility uses Phostoxin to control prairie dog populations in critical areas. To minimize secondary poisoning, application is conducted during the burrowing owl non-breeding season, and burrowing owl surveys are performed before application. The disturbance or removal of the prairie dog colony on the north edge of the project area would displace or eradicate the prairie dogs themselves and the habitat that the colony provides. However, the majority of the northern prairie dog colony is outside of the project area with only a small portion occurring within the project area. Thus, while a small portion of the northern prairie dog colony would be displaced or killed, the majority of the northern prairie dog colony and the habitat it provides would remain unaffected.

The Proposed Action would lead to the removal of approximately 18 acres of potentially suitable Texas horned lizard habitat over the 10-year project period; however, the amount of habitat removed would be relatively small compared to the availability of potential habitat in the surrounding vicinity. The lack of direct observations during the 2022 survey period indicates that the project area does not contain a substantial population of this species. The Proposed Action could disturb or displace any lizards potentially present in the project area. Additionally, construction could possibly lead to the injury or death of lizards during earth-moving, transportation, or other activities due to the lizards' tendency to utilize the dirt roads within the project area. However, there would be no population-level impacts to this species due to the lack of high-quality habitat within the project area and the overall stability of west Texas horned lizard populations. If a lizard is observed during construction, then all construction activities would halt in the vicinity of the sighting until the lizard had exited the project area. TPWD would be contacted if relocation services are required. General reptile and amphibian BMPs recommended by TWPD include avoiding disturbing or removing cover objects (Downed trees, brush piles, etc.), examining heavy equipment after rain events to ensure use will not harm individuals seeking cover, and avoiding construction activities in the spring due to increased mating activity.

The Proposed Action would lead to the removal of approximately 65 acres of western burrowing owl habitat over the 10-year project period; however, the amount of habitat removed would be relatively small compared to the availability of potential habitat in the surrounding vicinity. Construction activities could displace or disturb individual burrowing owls from their normal activities. However, work to be conducted in prairie dog colonies should be planned to occur outside of the March through August

burrowing owl nesting season. The Pantex Environmental Compliance Department (ECD) Natural Resources Coordinator would be contacted prior to fieldwork should the work need to occur during that time frame. At any time if soil is disturbed during project activities, the ECD Natural Resources Coordinator would be contacted should burrowing owls be observed in the direct path of such work (CNS, 2021b). Additional BMPs that would reduce impacts include the mitigation of disturbed owl habitat and the use of passive relocation techniques rather than trapping if owls must be relocated. If a burrow must be destroyed, a video probe or excavation with hand tools should be used to confirm that the burrow is unoccupied. There would be no population-level impacts to western burrowing owls due to the implementation of BMPs throughout the construction period.

Two other species on the Texas SGCN list, the ferruginous hawk and mountain plover, have been documented on the Pantex facility and, therefore, could possibly occur within the project area. Construction activities could disturb these species if present, but any disturbance or displacement is not likely to increase their energy expenditure or resource competition outside of the range of natural variation. Additionally, the amount of habitat removed would be relatively small compared to the availability of potential habitat in the surrounding vicinity.

Migratory birds could potentially occur or nest throughout the project area. However, construction would not take place during the majority of the nesting season, March through August, because of burrowing owl BMPs. Construction activity could displace migratory birds temporarily while humans or equipment are present, but the disturbance would not be outside of the range of natural variation. Additionally, there are no trees at the existing site where migratory birds could nest, thus no tree clearing would occur. It is not anticipated that migratory birds would be adversely impacted by the Proposed Action.

Since this Proposed Action is an outdoor project, the ECD Natural Resource Coordinator would be contacted if the nest of any bird were encountered prior to or during construction. With the exception of rock pigeons (*Columba livia*), house sparrows (*Passer domesticus*), Eurasian collared doves (*Streptopelia decaocto*), and European starlings (*Sturnus vugaris*), all migratory birds and their nests are protected by the Migratory Bird Treaty Act and/or state regulations. Nests of protected species cannot be disturbed (CNS, 2021a).

The Proposed Action would permanently remove approximately 65 acres of wildlife habitat present in the western grassland area over the 10-year project period. The presence of nearby unimpacted habitat, however, could provide suitable areas for the wildlife populations occurring onsite. Any displacement is not likely to increase their energy expenditure or resource competition outside of the range of natural variation. Additionally, impacts to state-threatened species would be reduced or minimized with the implementation of BMPs. These impacts have been submitted to TPWD for review; any comments received will be incorporated into the Final EA.

Thus, the Proposed Action would have recurring, short-term and permanent, minor, localized, adverse impacts to biological resources with a high likelihood of occurrence. There would be no effect to federally listed species since none are expected to occur in the project area. Impacts would not be significant.

3.5.2.2 No Action Alternative

Under the No Action Alternative, no structures would be constructed in the project area and OST personnel would continue to operate within the existing Pantex facility. No changes to wildlife and vegetation species and communities would be expected. Thus, the No Action Alternative would not have any effects on biological resources and would be less than significant.

3.6 UTILITIES AND INFRASTRUCTURE

Utilities are services brought to a property that enable it to operate, such as water and sewage services, natural gas and electricity, or trash and recycling services. The Pantex facility is a 2,000-acre complex that has approximately 650 buildings and maintains its own water-treatment, sewage, and stream-generating plants. This section describes the utilities and infrastructure features within and surrounding the project area, such as potable water supply and wastewater systems, energy supply and systems, stormwater management, and fencing/security features, and discusses the impacts to those utilities from the Proposed Action and the No Action Alternative. This analysis uses resource metrics ranging from 2018 to 2021 and represents the most recent, readily available data.

3.6.1 AFFECTED ENVIRONMENT

The only utility infrastructure that currently exists within the project area are power lines and the water main that traverse the site, in addition to low barbed wire fencing that surrounds the perimeter of the area. There are also four groundwater water quality monitoring wells located on the project area, but these wells would not be disturbed by the project. Therefore, the affected environment for utilities and infrastructure is comprised of the Pantex facility utilities that would be extended to the project area.

3.6.1.1 Potable Water Supply and Wastewater Systems

The Pantex facility provides potable water to its own facility by pumping groundwater out of the Ogallala Aquifer and treating it through its own water treatment facility (WTF) on site. The water is obtained from drinking water production wells, treated by the WTF, and transferred through a distribution system across the entire Pantex facility. The system supplies all of the water needs at the Pantex facility, and also provides water to the adjacent TTU-owned property for domestic and agricultural use. The Pantex facility pumped approximately 115 million gallons of water from the Ogallala Aquifer in 2019, which is an increase of four million gallons of water from 2018 (CNS, 2019).

Domestic and industrial wastewater generated at the Pantex facility is treated at an on-site WWTF. The WWTF is a clay-lined, lagoon that covers approximately 4 acres and has a capacity of 11 million gallons. Treated wastewater can be discharged through permitted outfalls to an underground irrigation system or an on-site playa lake, which is a temporary lake that is not connected to other lakes, rivers, or streams. During 2019, the Pantex facility discharged approximately 145 million gallons of treated wastewater to the on-site playa lake. The underground irrigation system was not used during 2019 due to ongoing repairs.

3.6.1.2 Energy Supply and Systems

The two primary energy sources at the Pantex facility are electricity and natural gas. Xcel Energy supplies electricity to the Pantex facility, while the Pantex Renewable Energy Project (PREP) Wind Farm provides supplemental electricity via wind energy to the facility. Constellation was the natural gas supplier to the Pantex facility until their contract expired in May 2021. Atmos Energy was the transporter of natural gas to the Pantex facility under the Constellation contract, and will continue to supply natural gas to the Pantex facility until the facility can secure a new supplier. Natural gas consumed in 2021 totaled about 360,000 one-thousand cubic feet (MCF), and future use is not projected to increase over the next five years.

NNSA built the 11.5-megawatt PREP Wind Farm in 2013 as a renewable energy alternative for the Pantex facility. PREP consists of five wind turbines, each 400 feet tall, located on 1,500 acres of federal land adjacent to the Pantex facility. The wind farm is designed to produce about 47 million kilowatt-hours of

electricity each year, which supplies the Pantex facility with 60% of its energy needs (NNSA, 2022). During 2019, the PREP supplied 47,515 megawatt-hours of electricity to the Pantex facility and the local electrical grid, which exceeded the clean energy targets established by the DOE (CNS, 2019).

In 2021, the PREP reduced the amount of energy purchased for consumption at the Pantex facility. This led to a 0.2 percent decrease in Energy Intensity in 2021 compared to 2015, and a 2 percent decrease in Energy Intensity from 2020 to 2021. Currently, excess electricity produced by the PREP cannot be transmitted to the Pantex facility due to the limited capabilities of the single substation responsible for routing all the energy. The Pantex facility is working on upgrades to their northern substation to accommodate this excess electricity, which will give Pantex the capability to use the majority of the PREP energy produced.

3.6.1.3 Stormwater Management

The Pantex facility is located in a region with a semi-arid climate and a relatively flat topography. As such, surface water runoff typically drains into isolated playa lakes. These playa lakes are shallow, temporary lakes that provide a source of recharge for the Ogallala Aquifer, the area's primary source of groundwater. Most of the stormwater runoff at the Pantex facility flows to three on-site playa lakes via man-made ditches, natural drainage channels, or by sheet-flow. Some stormwater flows to a fourth off-site playa located on TTU property. Pantex Lake is a basin located on DOE property to the northeast of the Pantex facility, and a fifth playa is located nearby on TTU property to the southeast; however, neither of these basins receive stormwater runoff from the Pantex facility despite their close proximity. Water quality data collected during 2019 at stormwater outfalls indicated that stormwater discharges at the Pantex facility were of relatively good quality and that operations at the plant were not negatively affecting the water quality of the playas (CNS, 2019).

3.6.1.4 Fencing

There are two types of areas at the Pantex facility: the limited security area and the general property protection area. The limited security area consists of the VMF and the FAF. This area consists of perimeter fencing that is typically 10 feet in height and topped with razor wire. The general property protection area has barbed wire cattle perimeter fencing that is typically four feet in height.

3.6.2 ENVIRONMENTAL CONSEQUENCES

This section discusses the potential impacts of the Proposed Action and the No Action Alternative on utilities and infrastructure within and surrounding the project area.

3.6.2.1 Proposed Action

The impacts of the Proposed Action to utilities and infrastructure could potentially result from the extension of utilities from the Pantex facility to the project area. The utilities to be extended would include potable water, electricity, natural gas, and wastewater; although, the project area would use local septic tanks (otherwise known as OSSFs) and a decentralized wastewater treatment system for sewer and vehicle wash water treatment respectively rather than extending existing sewer lines. Utility extension may also include erection of fencing and/or construction of temporary access roads. The preparation of the new campus's utility infrastructure would occur prior to the construction of any new facilities at the project area.

While utilities would be extended immediately, the construction of the new campus would take place over a 10-year period. This would likely result in an incremental, short-term increase on utility demands

of potable water, wastewater, electricity, and natural gas to power and support construction activities. The demand of the facility's utility services during construction would likely be slightly greater than the current levels, although these demands would be spread out over the 10-year timeframe and would be expected to decrease once the projects are complete. Temporary access roads would likely be constructed to facilitate the transportation of construction personnel, vehicles, and supplies to project sites, and temporary fencing would likely be erected around project locations to mark-off construction sites.

However, sewer lines from the Pantex facility would not be extended to the project area; OSSFs and a decentralized wastewater treatment system would be used to collect, store, and treat wastewater from administrative and vehicle wash areas respectively. OSSFs would be installed, planned, and permitted per the requirements of 30 TAC § 285. Installation of each OSSF would include a detailed site evaluation by a registered professional engineer, permitting from the Region 1 TCEQ OSSF authority, installation of the OSSF by a licensed individual/company, and a follow-up site inspection by the TCEQ. The decentralized wastewater treatment would be assembled using off the shelf components and would consist of equalization tank(s), a grit chamber, an oil-water separator, aeration tank(s), a clarifier basin, and disinfection and microfiltration tanks/outlets. The system would be designed, installed, permitted, and tested per the effluent system requirements of 30 TAC § 285.33. OSSFs and the decentralized wastewater treatment system will be pumped periodically in accordance with their use rates (approximately every 3 – 5 years) and sludge/waste will be transported and disposed of offsite by licensed waste transporters.

Upon completion of construction, the newly-built campus would feature eight new facilities that would all require ongoing utilities services, including potable water, wastewater, electricity, and natural gas. This would result in a long-term increase on utility demands, which would likely be slightly greater in comparison to current levels. The limited security area, which consists of the VMF, FAF, Vehicle Wash Rack, and Ammunition Storage Magazines Facility, would be encompassed by a new fence line, and the VMF would also feature security lights around the perimeter entry/exit roads. A ready line would also be contained with the VMF, which are tractor/trailer parking spaces with 110-watts/208-volt connectors per space. However, these additional utility loads would not be expected to exceed the capacity of the municipal infrastructure or the utility systems. The new buildings are designed to be more energy and water efficient compared to existing buildings. In addition, the Pantex facility is in the process of decommissioning older, inefficient buildings to reduce and consolidate its footprint, which would reduce utility demands at the complex once these buildings are deactivated and demolished. Moreover, proposed utility upgrades and facility expansions have been planned and designed to meet these needs, including the use of local septic tanks and a decentralized wastewater treatment system instead of extending sewer lines and the upgrade to the northern substation to transmit most of the power produced to PREP to the Pantex facility. Swales with rock embankments would be designed around the buildings to prevent erosion and direct stormwater runoff into the proper stormwater channels.

Therefore, while construction activities and the newly-built campus would likely increase utility demands, the impacts are expected to be minimal. Utility demands from construction activities would decrease once the projects are complete, and utility demands during facility operations would be offset by the decommissioning of older, inefficient buildings and by proposed utility upgrades and facility expansions. As such, the impacts to utilities and infrastructure under the Proposed Action would be localized, short term and long term, minor in magnitude, and with a high likelihood of occurrence, and therefore, not significant.

3.6.2.2 No Action Alternative

Under the No Action Alternative, the new parcel of land would not be acquired and the construction and operation of the proposed project would not occur. As such, the conditions described in the affected

environment would remain constant. There would be no extension of utility infrastructure, no new septic tanks or decentralized wastewater treatment systems built, and no erection of fencing and/or construction of temporary access roads. The upgrade to the northern substation would likely occur along with the decommissioning of older buildings, resulting in a decrease in electrical demand and electricity purchased for consumption. Therefore, impacts to utilities and infrastructure under the No Action Alternative would be negligible, localized, long-term, and therefore, not significant.

3.7 CULTURAL RESOURCES

This section describes the current setting and evaluates potential effects to cultural resources that would occur as a result of the Proposed Action. Cultural resources, while not defined in statute or regulation, are generally historic properties as defined by the National Historic Preservation Act of 1966 (NHPA); cultural items as defined by the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA); archeological resources as defined by the Archeological Resources Protection Act of 1979 (ARPA); sacred sites as defined by Executive Order (EO) 13007, Indian Sacred Sites; and collections and associated records as defined by 36 CFR § 79. Cultural resources are associated with human use of an area and may include archeological sites, historic properties, or locations of ethnographic interest associated with the past and present use of an area. A cultural resource can be physical remains, intangible traditional use areas, or an entire landscape encompassing past cultures or present, modern-day cultures. Physical remains of cultural resources are usually referred to as archeological sites, while buildings or structures are usually referred to as historic resources.

3.7.1 AFFECTED ENVIRONMENT

This section describes the affected environment in terms of the area's history and the associated potential cultural resources. The area of potential effect (APE) is the geographic area where historic properties, if present, could be directly or indirectly impacted by the Proposed Action and alternatives. For cultural resources, the APE is the 374-acre project area on the western edge of the existing Pantex facility that is under consideration for development.

3.7.1.1 Historic Context

The Pantex facility is located in the Llano Estacado region of the Texas Panhandle. This region has been occupied by Native American groups continuously for over 11,500 years. For the purpose of this EA, the cultural timeline of the area is divided into five major periods: Paleoamerican, Archaic, Late Prehistoric or "Early and Middle Ceramic", Proto-Historic or "Late Ceramic", and Historic (Quigg et. Al, 2010).

3.7.1.1.1 Paleoamerican Period (~11,500 – 8500 years before present [BP])

The Paleoamerican period flourished during the transition from the Late Pleistocene into the Holocene, when now extinct forms of megafauna still roamed Texas (Quigg et. Al, 2010). The earliest recognizable culture of the Paleoamerican period is the Clovis. Populations of the Clovis culture hunted now extinct mammals (i.e., mammoth and mastodon) and were followed by Folsom peoples who hunted extinct species of bison between 11,000 and 10,000 BP (Quigg et. Al, 2010).

3.7.1.1.2 Archaic Period (~8500 – 2000 BP)

The Archaic period occurred during the Holocene and is characterized by cultures that used notched and stemmed dart points to hunt a wide variety of large and small modern game animals (Quigg et. Al, 2010). This new technology was presumably propelled by the atlatl, a spear-throwing tool, and replaced the

earlier Paleoamerican lanceolate points. Perhaps the most recognized kind of Late Archaic sites are bison kill sites, where herds of bison were apparently driven into narrow gullies, killed, and processed.

3.7.1.1.3 Late Prehistoric Period (~2000 – 400 BP)

The Late Prehistoric period, or early and middle ceramic period, is hallmarked by two notable technological changes: the appearance of the bow and arrow and the introduction of ceramic technology. It is not believed that these technologies were introduced simultaneously or by a single group (Quigg et. Al, 2010). The Late Prehistoric period also involved an adaptive transition from highly mobile Late Archaic hunters and gatherers to the more semisedentary village and hamlet dwellers of the Late Prehistoric. These people are theorized to rely on hunting and gathering, along with the limited practice of horticulture (Quigg et. Al, 2010).

3.7.1.1.4 Proto-Historic Period (~400 – 200 BP)

The Proto-Historic period, sometimes referred to as the Late Ceramic period, is a relatively short period of considerable change across the Texas Panhandle. The start of this period is marked by the arrival of Europeans explorers, beginning with Spanish and French explorers in 409 B.P. (1541 A.D.) (Quigg et. Al, 2010). However, throughout most of this period the region was still dominated by Native Americans who had only sporadic interactions with Europeans. With the introduction of the horse, various Native groups became mounted raiders who, in ~350 BP (early A.D. 1600s), began to harass the sedentary Pueblo groups of present-day New Mexico (Quigg et. Al, 2010).

3.7.1.1.5 Historic Period (~200 BP – present)

The Apache reigned throughout most of eastern New Mexico and western Texas throughout much of the seventeenth century. Throughout the eighteenth and early nineteenth centuries, the upper Texas Panhandle region was additionally inhabited by the Comanche, Kiowa, Cheyenne, and Arapahoe. By about 110 BP (A.D. 1840s), the Kiowa, Kiowa-Apache, Comanche, Cheyenne and Arapahoe made peace with each other and unified their interests against the encroachment of non-Native people into the region. The Comanches and other Southern Plains groups generally prevented settlement of the region by most Euro-American groups until the conclusion of the "Indian Wars" of 84 – 75 BP (A.D. 1866 – 1875) (Quigg et. Al, 2010).

3.7.1.2 History of the Pantex Plant

The need for munitions to fight WWII led to the creation of the Pantex Ordnance Plant, built on 16,000 acres of land 27 kilometers (17 miles) east of Amarillo, Texas (Anderson and Jasinski, 2008). Upon conclusion of the war, the Pantex Plant was closed and the land was leased (or sold) to TTU, but the government retained the right to repossess the facility under a national-security clause (Pantex, No Date; Anderson and Jasinski, 2008). In 1951, the heightened nuclear threat to the United States led to the reclamation of the land to create a nuclear weapons complex. Since 1975, Pantex has been the nation's primary assembly, disassembly, retrofit, and modification center for nuclear weapons (Pantex, No Date).

3.7.1.2.1 History of Zone 8

The project APE is located in Zone 8 of the Pantex Nuclear Facility, which during WWII consisted of three areas through which all supplies for the facility passed: the Safety-Car Opening Yard, the Railroad Classification Yard, and the Inert Storage Area. Additional buildings in the project APE include the Dispatcher's Office (Yard Office), two guard houses, a guard tower, and two light towers. The Yard Office was a renovated two-story Bungalow style farmhouse. The Railroad Classification Yard was not a building,

but an area set aside far from the main facility for securely opening the boxcars in case they were sabotaged. Two earthen barricades protected other areas from the Classification Yard should there be an explosion. The Inert Storage Area consisted of six large rectangular warehouses and two Guard Houses. In 1945 a seventh warehouse was built, and a guard house appeared to be removed. After the war, the buildings were sold for scrap and any remainders of the buildings were torn down. None of the buildings remain in Zone 8 today.

3.7.1.3 Potential Cultural Resources

A previous archeological survey covered the entire Pantex facility, but was focused on the playa basins and did not search the current project APE. This survey documented the presence of 42 prehistoric Native American camps and three pre-World War II farmsteads. All sites were located in or near playa basins, except for one farmstead that was located in an upland area. No sites were recommended for inclusion on the National Register (Hughes and Speer, 1981). It is believed that prehistoric archeological sites at the Pantex Plant are most likely to be located within approximately ¼ mile of playas or their major drainages. It is not anticipated that any activities from this project would occur within ¼ mile of a playa. None of the known, protected archaeological sites are located within or adjacent to the current project APE, and no WWII era or earlier structures remain within the APE.

Pantex Plant sites have not documented evidence of more permanent occupation (such as hearths, tipi rings, fire-cracked rock concentrations, architectural evidence, or human burials). Since at least the early 1900s, historic agricultural activities, such as plowing and grazing, have extensively and aggressively modified virtually all of the Llano Estacado and consequently disturbed any surface or shallow archeological sites (Abbe, 2020).

3.7.2 ENVIRONMENTAL CONSEQUENCES

This section describes the potential impacts associated with the Proposed Action and alternatives on cultural resources within the project area and vicinity.

3.7.2.1 Proposed Action

Class III Intensive Archeological Surveys did not locate any eligible cultural resources within the direct and indirect Area of Potential Effect (APE). Survey efforts only uncovered two, isolated surface finds of limited information potential which were not recommended as eligible for listing in the National Register of Historic Places. As such, a determination of no historic properties affected was submitted to the Texas State Historic Preservation Officer (SHPO) and is currently under review pursuant to Section 106 of the NHPA; any comments received during consultation efforts will be incorporated into the Final EA.

There is always the possibility that previously unsuspected archeological remains may be uncovered during the process of project construction. In the unlikely event of an unanticipated discovery of cultural resources, work will halt immediately and would not continue until a qualified archeologist inspects the find. If it is determined that the discovery requires further consultation, the consultation would be initiated State Historic Preservation Office.

Under the Proposed Action, OST would construct a new complex including: a VMF, a FAF, a physical training/IUF facility, a shipping/receiving facility, a live fire shoothouse, an indoor shooting rack, a vehicle wash rack, and ammunition storage magazines. Dedicated cultural resource surveys did not uncover any eligible cultural resources within the APE. The Proposed Action would have no effect on cultural resources.

3.7.2.2 No Action Alternative

Under the No Action Alternative, no structures would be constructed in the project area and OST personnel would continue to operate within the existing Pantex facility. No changes to the project area would be expected. Thus, the No Action Alternative would not have any effects on cultural resources.

3.8 CLIMATE CHANGE

This section presents an overview of the existing climate conditions at the project area and vicinity and an estimate of each alternative's potential impact to those conditions.

It is well documented that the Earth's climate has fluctuated throughout its history from entirely natural causes. However, recent scientific evidence indicates a correlation between increasing global temperatures over the past century and the worldwide increase in anthropogenic greenhouse gas (GHG) emissions. Climate change associated with global warming is predicted to produce future worldwide adverse environmental, economic, and social consequences. Recent observed changes due to climate change include rising temperatures, shrinking glaciers and sea ice, thawing permafrost, a lengthened growing season, and shifts in plant and animal ranges (IPCC, 2013). International and national organizations independently confirm these findings. These global impacts would have effects on resources and ecosystems in Texas.

3.8.1 AFFECTED ENVIRONMENT

This section describes the affected environment with regard to construction and operations activities. The region is classified as windy, with wind speeds above seven miles per hour more than 95 percent of the year. The wind blows predominately from the south and southwest (BWXT Pantex LLC, 2004).

Climate change has evolved into a matter of global concern because it is expected to have widespread, adverse effects on natural resources and systems. A growing body of evidence points to anthropogenic sources of GHGs such as carbon dioxide (CO_2) as major contributors to climate change.

Air emissions in the form of greenhouse gases (CO_2, methane [CH_4], and nitrous oxide [N_2O]) occur through the use of electricity generated from coal or natural gas operated power plants. All of the Plant's electrical energy needs are generated from coal or natural gas operated power plants (B&W Pantex 2010).

GHGs are components of the atmosphere that contribute to the greenhouse effect and global warming. Some GHGs occur naturally in the atmosphere, while others result from human activities such as burning of fossil fuels. The accumulation of GHGs in the atmosphere affects the earth's temperature. Federal agencies, states, and local communities address global warming by preparing GHG inventories and adopting policies that will result in a decrease of GHG emissions. Pursuant to *Executive Order (E.O.) 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*, agencies are encouraged to use appropriate tools and methodologies for quantifying GHG emissions for any projects they may undertake.

GHGs are each assigned a global warming potential (GWP) by the USEPA. The GWP is the ability of a gas or aerosol to trap heat in the atmosphere. The GWP rating system is standardized to CO_2, which is given a value of one. To simplify GHG analyses, total GHG emissions from a source are often expressed as a CO_2 equivalent (CO_2e), which is calculated by multiplying the emissions of each GHG by its GWP and adding the results together to produce a single, combined emission rate representing all GHGs. While CH_4 and N_2O have much higher GWPs than CO_2, CO_2 is emitted in such large quantities that it is the chief contributor to global CO_2 equivalent emissions from both natural processes and anthropogenic sources.

Methane (CH_4) and nitrous oxide (N_2O) are also emitted to the atmosphere during the operation of the power plants (B&W Pantex 2010).

3.8.2 ENVIRONMENTAL CONSEQUENCES

This section discusses the potential impact to air quality and climate change under each alternative.

3.8.2.1 Proposed Action

The effects of the Proposed Action are analyzed for the following activities: the construction phase, and day-to-day operations at the site once the project is completed.

It is not expected that construction activities would discernibly increase levels of GHGs. These effects to air quality and climate would both be negligible, short term during the construction period, large extent by affecting the GHGs concentrations on a global scale, with a high likelihood of occurrence.

Under the Proposed Action, daily operations would involve an increase local traffic by employees once the project is completed. The effects on climate change would be negligible, long term during the life of the facilities, large affecting the GHGs concentrations on a global scale, with a high likelihood of occurrence. Overall, the effects are climate change are not significant.

3.8.2.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be constructed, and existing conditions would continue as described above. There would be no changes to current air quality emissions, and the Pantex facility's consumption of electricity, natural gas, and fuel would continue to contribute to GHG emissions. Under the No Action Alternative, short- and long-term impacts for both air quality and climate would continue to be negligible, large in extent affecting global GHG levels, with a high likelihood.

3.9 TRANSPORTATION AND TRAFFIC

This section presents an overview of the existing transportation and traffic conditions at the Pantex facility and vicinity and an evaluation of each alternative's potential impact to those transportation and traffic conditions.

3.9.1 AFFECTED ENVIRONMENT

This section describes the existing local transportation and traffic as well as ongoing and planned construction activity on local roadways.

3.9.1.1 Local Transportation and Traffic

The project area is located approximately 30 miles east of the City of Amarillo and the Rick Husband Amarillo International Airport. The Pantex facility is bounded by county roads FM 683 to the west, FM 293 to the north, and FM 2372 to the east. The county roads connect to highway US 60 south of the Pantex property. US 60 is a major arterial roadway with approximately 9,500 average annual daily vehicles (TXDOT 2022). The county Farm to Market (FM) roads are owned and maintained by TXDOT. US 60 is owned and maintained by DOT FHWA.

3.9.1.2 Existing Transportation and Traffic

The Pantex facility has approximately 650 buildings where operations occur on approximately 2,000 acres of the 18,000-acre property. The secured, limited access section of the existing AOCC facilities complex

includes government vehicle parking and two facilities: a VMF and the agent operation building. The VMF building is used to perform vehicle maintenance activities similar to those performed at a local automotive service center. The VMF has parking spaces for government vehicles and 10 designated tractor trailer spots. Existing traffic is attributed mainly to the delivery of supply and materials and movement of employees and vehicles between facilities typical of a business park or light industrial area.

3.9.2 ENVIRONMENTAL CONSEQUENCES

This section discusses the potential impact to transportation and traffic within the Pantex facility and vicinity under each alternative. The area of analysis for transportation and traffic is the entire Pantex facility, all roads within a mile in the county and surrounding counties where employees are hired to commute to, and where shipments are arriving from or being delivered to. Areas that would impact transportation and traffic would be significant to the human environment if:

- Project activities would create substantial traffic congestion or hazard;
- Project activities would cause the failure or deterioration of an existing or proposed transportation feature; or
- Project activities would contribute to a violation of any federal, state, or local law or regulation.

3.9.2.1 Proposed Action

The effects of the Proposed Action are analyzed for the following activities: the construction phase, OST shipments and daily deliveries, and local traffic at the Pantex facility.

Under the Proposed Action, OST would complete eight future development projects over a 10-year period of construction at the project area. Site utilities such as water, electricity, and natural gas would be extended to the new OST campus immediately. Work would involve grading and excavation, framing and finishing, and paving. Construction vehicles would access the project area via the local county roads from US 60, and traverse the new OST campus via temporary construction access roads. The OST campus is proposed to be tied into the county road at FM 683. The construction would have some effects on traffic at the US 60 junction when construction vehicles must enter or exit US 60 to the Pantex facility. During construction, employees and vehicles would also move between the new VMF and existing facilities on an as-needed basis until the full campus buildout is completed. No substantial increase in traffic is expected, but certain construction activities that require more vehicles may cause more traffic for a short period of time. These effects would be negligible to minor in the short term as there would be little effects to existing traffic patterns on US 60 and for employee traffic within the construction site, medium affecting the areas surrounding the construction site, with a high likelihood of affecting the flow of traffic on the highway.

With construction of the OST campus, standard shipments would be moved to the OST campus at the new Shipping/Receiving facility. OST will receive all shipments at the new facility and the new occupants of OST's previous facility will likely continue to receive shipments, but the total shipment volume is not likely to noticeably increase. Therefore, there are no changes to transportation and traffic expected as compared to the No Action Alternative (NAA) due to OST shipments. OST shipments and daily deliveries would have a large extent because the shipments would be delivered out of the county or outside the state. Effects would be negligible, long term, large, and with a high likelihood for OST shipments and daily deliveries.

Under the Proposed Action, local traffic by employees would increase with the facility expansions once the project is completed. It is estimated that approximately 55 vehicles per week would traverse between

the existing site and the VMF immediately once construction is completed. Although 15-20 employees are expected to be hired for the expanded facility, transit of these employees is not expected to result in any noticeable increases in traffic. There is no vehicle travel expected between the new buildings within the OST campus because the new buildings will be close to another and walkable from the new parking lot. Therefore, effects would be minor, long-term, medium in extent for the daily traffic of employees commuting from surrounding counties, and with high likelihood due to this increase in the travel by employees between existing the site and the following new facilities:

- VMF
- FAF
- Physical Training/IUF Facility
- Shipping/Receiving Facility
- Live Fire Shoothouse
- Indoor Shooting Range
- Vehicle Wash Rack
- Ammunition Storage Magazines and Buffer Zone

The effects of the Proposed Action were analyzed for the construction phase, OST shipments, and local traffic at the Pantex facility once the project is completed. These effects of construction would be negligible to minor in the short term as there would be little effects to existing traffic patterns on US 60 and for employee traffic within the construction site, medium affecting the areas surrounding the construction site, with a high likelihood of affecting the flow of traffic on the highway. Effects of shipments and deliveries would be negligible, long term, large, and with a high likelihood of occurrence. Effects of traffic after the facility is constructed would be minor, long-term, medium, and with high likelihood due to the employee traffic. All impacts to traffic and transportation resources would not be significant.

3.9.2.2 No Action Alternative

Under the No Action Alternative, transportation and traffic activities would continue per the current AOCC operations described in the Affected Environment above. An approximately equivalent amount of trips per year for OST shipments which would continue to occur annually. Effects of traffic related to shipments, deliveries, and employee and staff traffic to and from US 60 and travel between facilities within the Pantex property under the No Action Alternative would continue to be negligible to minor in the short and long term as there are no changes to traffic expected, medium in extent for the daily traffic of employees commuting from surrounding counties and large in extent for OST shipments out of the county or outside the state, and where shipments and deliveries are made, with a high likelihood of occurring. The No Action Alternative would continue to be negligible to minor in the short and long term as there are no changes to traffic expected, medium in extent for the daily traffic of employees commuting from surrounding counties and large in extent for OST shipments, with a high likelihood of occurrence.

3.10 NOISE

This section presents an overview of noise, the existing ambient noises in the Pantex OST campus project area and vicinity, and an evaluation of the Proposed Action's potential impact from noise. For the purpose of this section, the area of analysis includes both the project area and any surrounding areas that may be impacted by noise originating from within the project area.

3.10.1 AFFECTED ENVIRONMENT

Noise is typically defined as sound that is unwanted by the receiver. For both human and wildlife receptors, unwanted sounds include those that interfere with common activities such as sleep, communication, or concentration (Suter, 1991; EPA, 1981). Impacts of noise on wildlife are described in Section 3.5, Biological Resources.

Sound is the result of rapid variations of pressure in a medium, usually air, caused by a disturbance or vibration, and is commonly measured in decibels (dB). A-weighted decibels (dBA) are adjusted to sounds levels that can be detected by the human ear by filtering out lower frequency sounds. Decibels are measured on a logarithmic scale rather than a linear scale, meaning humans perceive a 10-dB increase as a doubling of loudness. For reference, the typical measurement for quieter sounds, such as rustling leaves or a quiet room, is from 20 to 30 dBA; the sound level of a normal conversation is about 60 dBA; and the threshold of pain is considered to be 140 dBA (OSHA, 2013).

Table 3.10-1. Estimated Construction Noise from Construction Activities Equipment

	Typical Noise Level at 50 feet (dBA)	Typical Noise Level at 500 feet (dBA)	Typical Noise Level at 1,000 feet (dBA)	Typical Noise Level at 1,500 feet (dBA)
Backhoe, excavator	80	60	54	50
Roller	85	65	59	55
Grader	85	65	59	55
Truck	84	64	58	54

Source: Lamancusa, 2009; DOT, 2018

dBA = A-weighted decibel

Ambient or background noise is a combination of various sources heard simultaneously. Calculating noise levels for combinations of sounds does not involve simple addition, but instead uses a logarithmic scale (NIOSH, 2007). As a result, the addition of two noises, such as a garbage truck (100 dBA) and a lawn mower (95 dBA) would result in a cumulative sound level of 101.2 dBA, not 195 dBA.

Noise levels decrease (attenuate) with distance from the source. The decrease in sound level from any single noise source normally follows the “inverse square law.” That is, the sound level change is inversely proportional to the square of the distance from the sound source. A generally accepted rule is that the sound level from a stationary source drop approximately 6 dB each time the distance from the sound source is doubled. The sound level from a moving “line” source (e.g., a train or vehicle) drops 3 dB each time the distance from the source is doubled (USDOT, 2018). Sound traveling over a distance can be affected by many factors. Temperature, humidity, wind direction, barriers such as walls, forests, hills, and absorbent materials, such as soft ground and light snow, are all factors in how sound is perceived at different distances.

3.10.1.1 Relevant Laws and Regulations

The city of Amarillo currently has no city codes or ordinances regarding noise levels of construction. Additionally, the state of Texas has no state laws pertaining to noise. Relevant federal regulations include the Noise Control Act of 1972 (42 USC § 4901 et seq.) and 29 CFR § 1910.95, Occupational Noise Exposure. The Noise Control Act, as amended, has a broad goal of protecting all people from noise that jeopardizes their health or welfare. The Act further states that federal agencies are authorized and directed to further this policy to the fullest extent consistent with their authority. Occupational Noise Exposure regulations

are administered by the Occupational Safety and Health Administration (OSHA) and are broadly intended to protect workers from harmful noise exposures, both in real-time and in the long term.

3.10.1.2 Ambient Noise around the Pantex Plant

Ambient noise refers to the existing levels and sources of noise in a community. The most common sources of noise in the region surrounding the Pantex OST campus project area are from existing plant operations, transportation, and agriculture. In addition, there is an existing and variable level of natural ambient noise from sources such as wind, wildlife, and other sources.

Existing plant operations create sounds from industrial processes, routine operations, occasional high explosive testing, firearms training of security officers and federal agents, and ongoing construction. The operation of heavy equipment during agricultural activities also contributes to ambient noise levels. The land directly west of the project area is agricultural and therefore the operations of heavy agricultural equipment could take place as close as 400 feet from the project area boundary.

Sources of transportation-based noise include onsite traffic, railroad traffic, and could include distant vehicular traffic on US 60 (>three miles away) and airport traffic from the Rick Husband Amarillo International Airport (>seven miles away). Data from the Department of Transportation (DOT) indicate that cars, planes, and trains are not notable sources of ambient noise in the project area (DOT, 2020).

3.10.1.3 Sensitive Noise Receptors

The region surrounding the Pantex Plant that is closest to the project area consists primarily of agricultural land. Sensitive receptors in the vicinity include residential homes on ranches adjacent to the project area. The closest home is approximately 3,170 feet from the project area and 3,900 feet from the nearest construction area. There are no additional homes, hospitals, schools, or churches within one mile of the project area.

3.10.2 ENVIRONMENTAL CONSEQUENCES

This section presents an analysis of the Proposed Action's potential impact from noise within the project area and vicinity.

3.10.2.1 Proposed Action

Under the Proposed Action, OST would construct a new complex including: a VMF, a FAF, a physical training/IUF facility, a shipping/receiving facility, a live fire shoothouse, an indoor shooting rack, a vehicle wash rack, and ammunition storage magazines. Noise during construction would primarily be caused by the operation of heavy equipment, which can cause relatively high noise levels during daytime periods, especially at locations within several hundred feet of active construction. Individual construction activities such as use of a bulldozer, grader, truck, or backhoe typically generate noise levels of 77 to 130 dBA directly at the source of the sound (Berger et al., 2018). The construction crew would follow OSHA regulations and are not anticipated to be adversely impacted by the noise of heavy equipment. Relatively high construction noise levels typically occur within distances of 400 to 800 feet from the site of major equipment operations; however, no sensitive receptors or residential properties are located within 800 feet of the project area and the closest residence is approximately 3,170 feet away. Typical construction activities would be between 50 and 60 dB at a distance of 3,170 feet. Higher than ambient noise levels would be expected temporarily during construction activities, but it would be unlikely that the elevated levels would result in more than a temporary annoyance to employees or adjacent landowners. Construction activities are proposed to occur Monday to Friday during normal working hours, 7:00 am to

4:00 pm, to reduce disturbance to the surrounding areas. Thus, there is a high likelihood that construction activities would result in minor, localized, adverse impacts to ambient noise in the short term.

Operations of the proposed OST campus and facilities would result in new sources of noise in addition to existing sources of noise on the Pantex facility as described in the No Action Alternative. Operations of the FAF, physical training/ IUF facility, and shipping/receiving facility could include additional sources of noise such as air ducts or human speech. Thus, there is a high likelihood that operations of these facilities would result in negligible, localized, adverse impacts to ambient noise in the long term.

In addition to the existing shooting ranges on the Pantex facility described in the No Action Alternative, the operations of the proposed live fire shoothouse and the indoor shooting range would result in increases to ambient noise levels due to the discharge of various firearms. Noise exposure due to weapons fire has been cited as a source for noise-induced hearing loss. Impulses due to the discharge of a small-caliber weapon exceed peak levels of 140 dB and frequently would exceed 160 dB at the point of discharge depending on the caliber and the amount of gunpowder used (Murphy and Tubbs, 2007). Proper hearing protection would be utilized on the ranges to prevent hearing loss from the personnel using the ranges (NIOSH, 2014). Firearm discharges would be between 70 and 90 dB at the distance of the closest residence (3,170 feet), which is the equivalent of the noise of a freight train from 100 feet away (OSHA, 2013). These noise levels from firearm discharges would not be sustained and would be likely to cause hearing damage. However, the long-term operations of the shooting ranges could annoy employees or adjacent landowners and disrupt activities requiring quiet or concentration. Thus, there is a high likelihood that the operation of indoor and outdoor shooting ranges would result in minor to moderate, localized, adverse impacts to ambient noise in the long term.

Operation of the VMF and the other planned facilities would result in increased noise from vehicle traffic in the long term. This increase in noise is unlikely to be perceptible to any potential human receptors since they are not likely to be distinguished from existing traffic noise already occurring at the Pantex Plant. Thus, there is a high likelihood that the operation of the new campus area would result in minor, localized, adverse impacts to ambient noise in the long term.

Overall noise impacts in and around the Pantex Plant project area under the Proposed Action would be minor to moderate, adverse, and localized in the long term with a high likelihood of occurrence. Impacts would not be significant.

3.10.2.2 No Action Alternative

Under the No Action Alternative, there would be no construction, expansion of utility infrastructure, or operations of new facilities; therefore, no new noise impacts would be expected to occur. However, existing operations of the Pantex facility would continue to create impacts to ambient noise from sources including industrial processes, routine operations, occasional high explosive testing, firearms training of security police officers, and ongoing construction. Operation of heavy equipment during agricultural activities offsite of the Pantex facility also contributes to ambient noise levels. Therefore, there would be a high likelihood of negligible to minor, localized, adverse effects in the long term under the No Action Alternative. Impacts would not be significant.

3.11 SOCIOECONOMICS

The analysis of socioeconomic impacts identifies those aspects of the social and economic environment that are sensitive to changes and that may be affected by activities associated with the Proposed Action. Socioeconomic factors describe the local demographics, income characteristics, and employment of the region of influence (ROI) that could be potentially affected by the proposed project. The proposed OST

campus is located in Carson County, TX and is bordered by farmland to the south and west and by the Pantex campus to the north and east. Though the Proposed Action would occur at the land parcel adjacent to the Pantex facility, potential impacts would most likely be experienced by populations residing in Amarillo, TX and Panhandle, TX, since these are the closest population centers to the project area. The City of Amarillo is located approximately 30 miles to the west of the proposed OST campus and is spread across Potter and Randall Counties. The town of Panhandle is located approximately 10 miles to the east of the OST parcel and occurs in Carson County. Therefore, Carson County, Potter County, and Randall County are the regions of influence (ROI) for any direct and indirect impacts that may be associated with the implementation of the Proposed Action. For purposes of comparison, the State of Texas is defined as the region of comparison (ROC), or the "general population" as it corresponds to the Center on Environmental Quality's (CEQ's definition.

3.11.1 AFFECTED ENVIRONMENT

The data supporting this analysis were collected from standard sources, including the U.S. Census Bureau (USCB), the Bureau of Economic Analysis (BEA), and the Texas Workforce Commission (TWC). Demographic data for Carson, Potter, and Randall Counties are presented and compared to the State of Texas overall. Economic data presented in this section focus on Carson, Potter, and Randall Counties. The most recent and best available data are presented throughout the section.

3.11.1.1 Population

A review of U.S. Census data was conducted to compare the socioeconomic characteristics of Carson, Potter, and Randall Counties with the State of Texas (USCB, 2010; USCB, 2015; USCB, 2020a). The overall population in Carson and Potter Counties decreased by 5.2 percent and 1.5 percent respectively over the 10-year period from 2010 to 2020. During the same time period, total population in Randall County and the State of Texas increased by 16.4 percent and 17.8 percent respectively (Table 3.11-1).

Table 3.11-1. Population Growth in Carson, Potter, and Randall Counties and the State of Texas from 2010 to 2020

	Population			
Location	2010	2015	2020	Population Percent Change (2010 – 2020)
Carson County	6,284	6,068	5,957	-5.2%
Potter County	120,124	122,352	118,323	-1.5%
Randall County	116,811	126,782	136,005	16.4%
Texas	24,311,891	26,538,614	28,635,442	17.8%

Sources: USCB, 2010; USCB, 2015; USCB, 2020a

3.11.1.2 Labor

Labor in the ROI is discussed in this section by subtopic: civilian labor force, unemployment, and earnings (by per capita personal income and by industry compensation).

Civilian Labor Force

The size of a county's civilian labor force is measured as the sum of those currently employed and unemployed. People are classified as unemployed if they do not have a job, have actively looked for work in the prior four weeks, and are currently available for work. As shown in Table 3.11-2, from 2010 to 2020 Carson and Potter Counties' labor force shrunk by 14.6 percent and 9.1 percent respectively. In contract, the labor force in Randall County and the State of Texas grew by 9.3 percent and 16.1 percent respectively. The labor force decreased by 500 and 5,300 people in Carson and Potter Counties respectively over the last decade. During the same time, Randall County added over 6,000 people to its labor force, while the State of Texas added approximately 2 million to its labor force (TX LMI, 2020a; TX LMI, 2020b).

Table 3.11-2. Civilian Labor Force 2010 – 2020

Location	2010	2015	2020	Percent Change in Labor Force (2010-2020)
Carson County	3,356	3,069	2,854	-14.6%
Potter County	58,112	56,271	52,804	-9.1%
Randall County	66,327	69,109	72,526	9.3%
Texas	12,240,591	13,088,205	14,214,242	16.1%

Sources: TX LMI, 2020a; TX LMI, 2020b

Unemployment

The unemployment rate is calculated based on the number of unemployed persons divided by the labor force, where the labor force is the number of unemployed persons plus the number of employed persons. Table 3.11-3 shows the annual unemployment rates in Carson, Potter, and Randall Counties, and the State of Texas overall for the years 2010, 2015, and 2020. Unemployment rates in all three counties of the ROI were lower than the State of Texas for all three years and showed a trend similar to that of the ROC. Unemployment rates steadily decreased from 2010 to 2019 before sharply increasing in 2020 due to the COVID-19 pandemic (TX LMI, 2020a; TX LMI, 2020b).

Table 3.11-3. Unemployment Rate (%) 2010 – 2020

Location	2010	2015	2020
Carson County	5.5	3.2	4.2
Potter County	6.3	3.4	5.5
Randall County	5.2	2.9	4.5
Texas	8.2	4.5	7.7

Sources: TX LMI, 2020a; TX LMI, 2020b

Earnings

Several measures are used to describe earnings, including per capita personal income (PCPI), total industry income, and compensation by industry. Personal income data are measured and reported for the county of residence. PCPI is the total personal income for county residents divided by the county's total population. Compensation data, however, is measured and reported for the county of work location and is typically reported on a per job basis. Compensation data indicates the wages and salaries for work done

in a particular place (e.g., a county), but if the worker does not live in the county where the work occurred then a sizeable portion of the compensation will be spent elsewhere. These expenditures will not remain in or flow back into the economy of the county where the work is done. Total compensation includes wages and salaries as well as employer contribution for employee retirement funds, social security, health insurance, and life insurance.

Per Capita Personal Income

Personal income is the income received by a person from all sources, representing the sum of net earnings by place of residence, property income, and personal current transfer receipts or government social benefits. This includes earnings from work, interest and dividends received, as well as government transfer payments, such as social security checks. Personal income is measured before the deduction of income taxes and other personal taxes and is reported in current dollars.

Table 3.11-4 shows 2010, 2015, and 2020 annual PCPI for Carson, Potter, and Randall Counties, and the State of Texas. All dollar estimates are in current dollars (not adjusted for inflation). In 2020, the PCPI values in Carson, Potter, and Randall Counties were $48,021, $49,498, and $52,391 respectively, representing a percent average annual increase of 2.33 percent, 3.51 percent, and 2.51 percent respectively since 2010; while on average, the state's PCPI increased 3.60 percent per year from 2010 to 2020. As such, the PCPI of the ROI was lower than Texas' PCPI during the 10-year interval as shown in Table 3.11-4, and on average, the state PCPI grew roughly 0.8 percent faster than the average PCPI of the ROI.

Table 3.11-4. Per Capita Personal Income 2010 – 2020

Location	2010	2015	2020	Average Annual Growth Rate (2010 – 2020)
Carson County	$38,997	$43,189	$48,021	2.33
Potter County	$35,233	$40,892	$49,498	3.51
Randall County	$40,894	$46,596	$52,391	2.51
Texas	$39,034	$47,465	$55,399	3.60

Sources: BEA, 2020a; BEA 2020b

Industry Compensation

The term "Total Industry Compensation," often used in economic data, is somewhat of a misnomer in that a portion of the "industry earnings" stems from government-related activity. For example, government and government enterprises account for 4.6 percent, 21.8 percent, and 14.3 percent of the total compensation to employees in Carson, Potter, and Randall Counties respectively. Nevertheless, total industry compensation provides a good picture of the relative sizes of market-related economic activity or business activity performed in a county (Table 3.11-5).

Income is generated by economic activity in the ROI through a variety of sectors, including various types of business, as well as the government. This income is not always received by a person living in the county; for example, a person from a neighboring county may cross county lines when commuting to work. The employee compensation by industry, however, is a measure of economic activity generated in the county, regardless of where the employee resides.

The sources of economic activity in the ROI are shown in Table 3.11-5. Compensation data for certain industries in the ROI were not available due to their confidential nature. The government and government

enterprises; construction; manufacturing; wholesale and retail trade; finance and insurance; and health care and social assistance accounted for majority of the total compensation to employees in the ROI in 2020.

Table 3.11-5. Compensation of Employees by Industry in Carson, Potter, and Randall Counties, TX (2020)

Industry Description	Compensation ($000)		
	Carson County (% of total)	Potter County (% of total)	Randall County (% of total)
Farm	1,913 (0.4)	1,192 (0.0)	7,619 (0.4)
Forestry, fishing, and related activities	6,276 (1.2)	2,771 (0.1)	6,619 (0.3)
Mining, quarrying, and oil and gas extraction	(D)	29,250 (0.6)	6,754 (0.3)
Utilities	4,657 (0.9)	138,198 (2.7)	(D)
Construction	(D)	270,139 (5.3)	195,781 (9.6)
Manufacturing	(D)	584,286 (11.5)	103,642 (5.1)
Wholesale trade	2,169 (0.4)	283,092 (5.6)	123,414 (6.1)
Retail trade	6,377 (1.2)	308,702 (6.1)	246,460 (12.1)
Transportation and warehousing	4,927 (0.9)	301,944 (6.0)	(D)
Information	(D)	59,506 (1.2)	39,981 (2.0)
Finance and insurance	(D)	341,285 (6.7)	103,328 (5.1)
Real estate and rental and leasing	(D)	50,979 (1.0)	32,320 (1.6)
Professional, scientific, and technical services	6,512 (1.2)	231,704 (4.6)	94,145 (4.6)
Management of companies and enterprises	0 (0.0)	62,632 (1.2)	171,464 (8.4)
Administrative and support and waste management	5,522 (1.0)	130,618 (2.6)	50,327 (2.5)
Educational services	(D)	24,060 (0.5)	20,512 (1.0)
Health care and social assistance	11,020 (2.1)	787,348 (15.6)	189,517 (9.3)
Arts, entertainment, and recreation	439 (0.1)	21,490 (0.4)	6,671 (0.3)
Accommodation and food services	1,561 (0.3)	164,533 (3.3)	97,789 (4.8)
Other services (except government and government enterprises)	(D)	162,576 (3.2)	111,488 (5.5)
Government and government enterprises	24,396 (4.6)	1,105,368 (21.8)	289,881 (14.3)
Total Compensation of Employees	**533,922**	**5,061,673**	**2,033,947**

Source: BEA, 2020c; (D) denotes data not shown to avoid disclosure of confidential information.

3.11.2 ENVIRONMENTAL CONSEQUENCES

This section discusses potential impacts to the social and economic environment of the ROI from the activities associated with the Proposed Action and No Action Alternative.

3.11.2.1 Proposed Action

The implementation of eight development projects over the next 10 years at the proposed OST campus would likely increase construction expenditures within the ROI for the duration of the construction phases. Construction expenditures associated with the Proposed Action are expected to total $100M; approximately 45 percent of the capital would be spent on labor and the remaining would be expended on construction materials. These revenues would result in the creation of new construction jobs intermittently over the proposed 10-year project period. It is anticipated that approximately 100 personnel would be hired for each construction job. The number of construction jobs created under the Proposed Action at any given time would vary based on the number of buildings undergoing construction at that time. Construction materials such as dirt and concrete are readily available locally and would be sourced from local suppliers to the extent possible. This, and the hiring of local construction workers could contribute to the indirect creation of jobs within the ROI by likely increasing revenues at local retail stores and restaurants during the construction period, resulting in induced (i.e., third-order) economic benefits. These benefits would primarily be experienced by businesses and populations located in Amarillo and Panhandle, since they are the closest population centers to the project area. In the long-term, the Proposed Action would create additional jobs for a crew of 20 vehicle maintenance personnel and 20 facility maintenance personnel to support the new facilities. Only personnel from outside contractors would be hired to fill these positions; OST does not anticipate expanding their own staff for the operation of the newly constructed facilities. These workers would indirectly contribute to the local economy in the same mechanism as construction workers, although they would likely not have a substantial effect on the overall economy. Furthermore, no populations are expected to migrate into the ROI to meet any increased demand that does occur in either the short or long term.

No substantial changes to traffic conditions are anticipated during construction since the proposed OST parcel is not located in the vicinity of any population centers and the overall Pantex facility is primarily surrounded by agricultural fields (See Traffic and Transportation Section). Construction projects would increase air emissions and noise levels at and near the project area and may adversely impact the physical health and well-being of construction personnel and the staff at the nearby Pantex facility for the duration of the construction job. Construction workers would be issued appropriate personal protective equipment (PPE) to minimize adverse impacts to their health, resulting in negligible overall impacts to their health and wellness.

Overall, construction of facilities for the consolidation of OST operations under the Proposed Action would cause short-term, minor to moderate beneficial direct, indirect, and induced economic impacts within the ROI due to the creation of construction jobs for the duration of the construction phase. A small number of permanent jobs would also be created as a result of the Proposed Action, leading to long-term, negligible beneficial impacts. These impacts would be large in extent since personnel from some or all counties encompassing the ROI may be hired to work at the project area. The Proposed Action would also result in short-term, negligible adverse impacts to the health and well-being of construction personnel due to increased air emissions and noise levels during construction. All impacts discussed above would have a high likelihood of occurrence. There would be no significant impacts to socioeconomics under the Proposed Action.

3.11.2.2 No Action Alternative

No construction would occur at the proposed OST site under the No Action Alternative. Minor repairs would occur as needed, and maintenance and operation of the existing facilities would continue. The beneficial impacts to socioeconomic resources described under the Proposed Action would not occur in the short or long term; current socioeconomic conditions would continue to persist for the duration of the project life within the ROI. There would be no significant impacts under the No Action Alternative.

3.12 ENVIRONMENTAL JUSTICE

The US Environmental Protection Agency (EPA) defines environmental justice (EJ) as "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." The goal of "fair treatment" is not to shift risks among populations, but to identify potential disproportionately high adverse impacts on minority communities and low-income communities and identify and address any adverse impacts.

Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires that federal agencies consider as a part of their action any disproportionately high and adverse human health or environmental effects to minority populations and low-income populations. Federal agencies are required to ensure that these potential effects are identified and addressed.

The proposed OST campus is located in Carson County, TX and is bordered by farmland to the south and west and bordered by the Pantex campus to the north and east. Though the Proposed Action would occur at the land parcel adjacent to the Pantex facility, potential impacts would most likely be experienced by minority and low-income communities in the neighboring population centers of Amarillo, TX and Panhandle, TX. As discussed in Section 3.11, Socioeconomics, Carson County, Potter County, and Randall County are the ROI for any direct and indirect impacts that may be associated with the implementation of the Proposed Action. For purposes of comparison, State of Texas is the ROC.

3.12.1 AFFECTED ENVIRONMENT

In this section, demographic and income data for Carson, Potter, and Randall Counties (the ROI) are compared to race, ethnicity, and income data for the State of Texas (the ROC). All figures and calculations are based on the USCB 2016 - 2020 USCB American Community Survey (ACS) datasets.

3.12.1.2 Minority Populations

The CEQ defines "minority" as including the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic Origin; or Hispanic (CEQ, 1997). The CEQ defines a minority population in the following ways:

- "…If the percentage of minorities exceeds 50 percent... (CEQ, 1997)." As this definition applies to the Proposed Action, if more than 50 percent of either Carson County, Potter County, or Randall County populations consist of minorities, this would qualify as an EJ population.
- "… [If the percentage of minorities] is substantially higher than the percentage of minorities the general population or other appropriate unit of geographic analysis (CEQ, 1997)." For purposes of this analysis, a discrepancy of 10 percent or more between minorities (the sum of all minority groups) in either Carson County, Potter County, or Randall County and the State of Texas would be considered "substantially" higher, and would categorize both counties as constituting an EJ

population. This approach also applies to individual minority groups. A discrepancy of 10 percent or more between individual minority groups (American Indian or Alaska Native; Asian or Pacific Islander; Black, not of Hispanic Origin; or Hispanic) in Carson, Potter or Randall Counties and the percentage of individual minority groups in the State of Texas would be considered "substantially" higher, and would categorize the ROI as constituting an EJ population.

As Table 3.12-1 indicates, Potter County meets the regulatory definition of a minority population or minority group(s) because minorities represent more than 50 percent of the county's total population (USCB, 2020a). The demographic composition of the Potter County is similar to that of the State of Texas. By this CEQ definition of a minority population, the ROI constitutes an EJ population.

Table 3.12-1. Summary of Minorities in the ROI and ROC in 2016 – 2020

Location	Total Population	Minority (%)	American Indian and Alaska Native (%)	Black or African American (%)	Asian (%)	Native Hawaiian and Other Pacific Islander (%)	Hispanic or Latino (%)
Carson County[a]	5,975	14.7	2.7	1.1	0.3	0.0	10.2
Potter County[a]	118,323	56.4	0.5	10.0	5.1	0.1	38.8
Randall County[a]	136,005	29.7	0.4	2.6	1.8	0.2	22.4
State of Texas[b]	28,635,442	58.6	0.2	11.8	4.9	0.1	39.4

Sources: USCB, 2020a. [a] ROI. [b] ROC.

3.12.1.2 Low-Income Populations

Low-income populations are defined as households with incomes below the federal poverty level. There are two slightly different versions of the federal poverty measure: poverty thresholds defined by the USCB and poverty guidelines defined by the Department of Health and Human Services (DHHS).

The poverty thresholds are the original version of the federal poverty measure and are updated each year by the USCB. The USCB uses a set of income thresholds that vary by family size and composition (number of children and elderly) to determine poverty status. If a family's total income is less than the family's threshold, then that family and every individual in it is considered in poverty. The same applies for a single individual. The official poverty thresholds do not vary geographically but are updated for inflation. The official poverty definition considers pre-tax income and does not include capital gains or non-cash benefits such as public housing, Medicaid, and food stamps (CEQ, 1997). Poverty thresholds are primarily used for statistical purposes, such as calculating poverty population figures or estimating the number of Americans in poverty each year. Poverty threshold figures are reported in the annual poverty report and provide a measurement for progress or regress in antipoverty efforts. Environmental Justice Guidance under the NEPA recommends that USCB poverty thresholds be used to identify low-income populations (CEQ, 1997). As such, this section uses USCB poverty thresholds to identify low-income populations.

Because CEQ guidance does not specify a threshold for identifying low-income populations, the same approach used to identify environmental justice minority populations is also applied to low-income

populations. Carson, Potter, or Randall Counties would be defined as a low-income population or an EJ population if:

- More than 50 percent of any of the three counties in the ROI consists of families or persons below the poverty threshold; or
- The percentage of low-income families or persons in any of the three counties in the ROI is substantially higher than the percentage in the State of Texas. A discrepancy of 10 percent or more between any of the counties and the State of Texas would be considered "substantially" higher and would categorize the ROI as constituting a low-income population.

As Table 3.12-2 indicates, the percentages of all people and all families below the poverty threshold in all three counties constituting the ROI neither exceed the 50 percent threshold, nor are they substantially higher than the corresponding values for the State of Texas. Only Potter County has higher percentages of people and families below the poverty threshold compared to the ROC. As such, the ROI does not constitute an EJ population on this basis.

Table 3.12-2. Summary of Income and Poverty Statistics in the ROI and ROC in 2016 – 2020

Location	People Below the Poverty Threshold (%)	Families Below the Poverty Threshold (%)
Carson County[a]	8.6	3.8
Potter County[a]	20.1	16.5
Randall County[a]	10.1	6.6
State of Texas[b]	14.2	10.9

Sources: USCB, 2020b; USCB, 2020c. [a] ROI. [b] ROC.

3.12.2 ENVIRONMENTAL CONSEQUENCES

Consideration of the potential consequences for environmental justice requires three main components:

1. A demographic assessment of the affected community to identify the presence of minority populations and low-income populations that may be potentially affected.
2. An assessment of all potential impacts identified to determine if any result in adverse impact to the affected environment.
3. An integrated assessment to determine whether any disproportionately high and adverse impacts exist for minority populations or low-income populations present in the ROI.

As described in the Affected Environment (Section 3.12.1), Carson, Potter, and Randall Counties represent the ROI for any direct and indirect impacts to EJ populations that may be associated with the implementation of the Proposed Action and No Action Alternative. For purposes of comparison, the State of Texas was defined as the geographic unit of comparison and the "general" population (the ROC). The percentage of minority population in the Potter County represents more than 50 percent of its total population. Therefore, the ROI consists of an EJ population on the basis of the presence of minority population. The potential for the minority population in the ROI to be displaced, suffer a loss of employment or income, or otherwise experience adverse effects to general physical health and well-being was assessed. Additionally, potential impacts resulting from the Proposed Action as well as the No Action

Alternative are evaluated below. In general, the types of potential impacts on EJ communities could include:

- Social and economic benefits of indirect and induced jobs created;
- Health risks from increased fugitive dust and exhaust emissions;
- Noise disturbances;
- Restricted or delayed access to schools due to traffic and time delays;
- Restricted or delayed access to residential areas and public transportation due to traffic and time delays; and
- Restricted or delayed access to hospital or health care facilities due to traffic and time delays.

3.12.2.1 Proposed Action

As discussed in Section 2.1, the Proposed Action involves the completion of eight development projects at the proposed OST campus over a 10-year period. The OST parcel is located adjacent to the Pantex site and is surrounded by agricultural farmlands and the Pantex facility. The closest population center is the Town of Panhandle, which is approximately 10 miles to the east of the project area. The other population center, the City of Amarillo, is located approximately 30 miles to the west.

The Proposed Action would likely result in the short-term hiring of local community members from Amarillo and Panhandle, to include those from EJ populations, in support of construction activities. In the long-term, the Proposed Action would create additional jobs for a crew of 20 vehicle maintenance and 20 facility maintenance personnel to support the new facilities. Personnel from outside contractors would be hired for these positions. Indirect economic impacts (discussed in Section 3.12, Socioeconomics) would also result from directly impacted industries (i.e., contractors) purchasing building supplies and materials from other industries. Local vendors from whom construction companies would make purchases and local retail stores and establishments where the vehicle and facility maintenance workers would shop would also be benefited, potentially creating several additional jobs. Induced impacts could also occur when employees of the directly and indirectly affected industries spend the wages they receive. The indirect and induced jobs that would be created would likely be relatively low-wage and low-skill jobs, such as restaurant workers or convenience store clerks. Beneficial impacts to the labor force or employment would be most pronounced in Potter County within the ROI.

Potential economic and health benefits associated with jobs could disproportionately benefit job-seeking EJ populations in the ROI. Jobs and income are strongly associated with beneficial health outcomes such as an increase in life expectancy, improved child health status, improved mental health, and reduced rates of chronic and acute disease morbidity and mortality (HDA, 2004; Cox et al., 2004). The likelihood of these beneficial impacts is high because the link between jobs and income and beneficial health outcomes mentioned above is well-established. The magnitude of this impact would likely be minor to moderate and would be determined by the number of buildings undergoing construction at the project area at any given time, i.e., economic and health-related impacts to populations residing in the ROI would be greater if more facilities are constructed at the same time since that would necessitate large-scale hiring of construction personnel. The extent of impacts would be large because job-seeking minority populations across the entire ROI could potentially benefit. However, the greatest social and economic benefits of job creation would be associated with the construction phases of the project and would largely revert to currently existing levels in the long term after construction is complete, albeit with the creation of a small number of permanent jobs to provide maintenance support to the newly constructed facilities.

The use of heavy equipment during construction activities under the Proposed Action would cause negligible adverse air quality and noise impacts to the construction workers hired to work at the potential OST campus in the short term, many of whom may be members of the minority community. The operation of heavy machinery would increase emissions of NO_x, SO_2, CO, airborne dust, and soil surface disturbance within the project area and its immediate vicinity. Given that these emissions would occur at ground level, they would likely cause short-term increases in the concentration of air pollutants in the immediate vicinity of the construction activities, but it is unlikely that these emissions would be transported more than a few miles. Increased emissions would reduce the air quality of the area and prolonged exposure could potentially degrade the health and well-being of the construction personnel in the short term. Workers in the nearby Pantex facility would also experience these impacts in the short term. There are no population centers located in the vicinity of the project area and therefore, no impacts to the EJ residents within the ROI would occur. Similarly, heavy machinery operated during the construction phases of the project would produce noise of 77 to 130 dBA directly at the source of the sound during daytime hours, which would adversely impact the construction workers and workers at the Pantex facility. Construction would primarily occur during normal weekday business hours, and construction equipment mufflers would be properly maintained and in good working order to minimize the effects of noise impacts. Both adverse noise and air quality impacts would have a high likelihood of occurring and a medium extent, primarily affecting construction personnel and workers at the Pantex facility. Once construction ceases, ambient pollutant concentrations and noise occurrence would return to existing levels. In the long term, after the completion of construction activities, adverse noise and air quality impacts would not occur.

All project activities under the Proposed Action would take place on the proposed OST campus, and no public road closures would be required. However, offsite traffic impacts could occur due to project worker commutes and the transport of heavy equipment to and from the project area via heavy trucks, though the impacts would be negligible. Increased use of surface roads in the vicinity of the project area is not expected to delay traffic flows for the duration of the construction phases, and would not reduce the access of EJ communities to essential healthcare and community services (e.g., schools, houses of worship, community centers, etc.) since the proposed site is fairly removed from any population centers.

Upon conclusion of the 10-year construction period, both beneficial and adverse impacts associated with the project would cease. As mentioned in Section 3.11.2, only a few permanent positions would be created for facility support and maintenance, all of which would be filled by outside contractors. Impacts to air quality, noise, traffic, and human health would return to current levels once OST resumes their day-to-day operations at the newly constructed campus. Therefore, there would be no substantial impacts to employment and human and environmental health in the long term.

Overall, the short- and long-term creation of direct, indirect, and induced jobs from construction activities would create minor health benefits for EJ communities; however, the majority of these benefits would only persist for the duration of the construction phases with only a small number of permanent jobs created. The use of heavy equipment would cause negligible to minor short-term adverse noise and air quality impacts to the construction personnel hired to work at the project area and workers at the neighboring Pantex facility. The impacts discussed in this section would have a high likelihood of occurrence. Overall, impacts under the Proposed Action on EJ communities in the ROI would not be disproportionately high and adverse on EJ populations in either the short or long term. There would be no significant impacts to EJ communities under the Proposed Action.

3.12.2.2 No Action Alternative

No property construction would occur at the potential OST campus under the No Action Alternative. Minor repairs would occur as needed and maintenance and operation of the existing facilities would

continue. The adverse and beneficial impacts to EJ communities described under the Proposed Action would not occur in the short or long term; current conditions would continue to persist for the duration of the project life within the ROI. There would be no significant impacts under the No Action Alternative.

3.13 WASTE MANAGEMENT AND HAZARDOUS MATERIALS

Specific environmental statutes and regulations govern hazardous material and hazardous waste management activities at federal operations and facilities. For this analysis, the terms hazardous waste, hazardous materials, and toxic substances include those substances defined as hazardous by the Resource Conservation and Recovery Act (RCRA), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and the Spill Prevention, Control, and Countermeasure (SPCC) Rule under the CWA. In general, these regulations cover substances that, because of their quantity, concentration, or physical, chemical or toxic characteristics, may present a danger to public health and welfare or the environment when released into the environment. RCRA provides for "cradle to grave" regulation of hazardous wastes. The purpose of CERCLA, often referred to as Superfund, is to clean up contaminated sites so that public health and welfare are not compromised. A SPCC plan outlines the methods and procedures established to minimize the potential for spills and discharges at a facility. Other federal laws applicable to hazardous waste and materials include:

- Clean Air Act (CAA) – regulates air emissions from stationary and mobile sources and authorizes the U.S. EPA to establish National Ambient Air Quality Standards (NAAQS) to protect public health and welfare and regulate emissions of hazardous air pollutants (EPA, 2022a);
- Safe Drinking Water Act (SDWA) – protects public health by regulating the nation's public drinking water supply. This act authorizes the EPA to set national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water (EPA, 2022b);
- OSHA – ensures safe and healthful working conditions for workers by setting and enforcing standards. Employers are required to comply with all applicable OSHA standards to keep their workplace free of serious recognized hazards (OSHA, No Date); and
- Toxic Substances Control Act (TSCA) – provides EPA with the authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures, particularly polychlorinated biphenyls, asbestos, radon, and lead-based paint (EPA, 2021).

In addition to the acts and laws mentioned above, EO 12088, Federal Compliance with Pollution Control, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved. Hazardous waste in Texas is regulated primarily under the authority of the RCRA of 1976 and Title 30 of the Texas Administrative Code (TAC). Title 30 under the TAC regulates wastewater treatment, soil and water conservation, groundwater protection, and radioactive waste disposal. Worker health and safety and public safety, managed under OSHA, are key issues when dealing with hazardous materials that may affect human health and the environment.

3.13.1 AFFECTED ENVIRONMENT

The Pantex facility was established in 1942 to build conventional munitions and high explosive (HE) compounds to support World War II efforts. The plant was deactivated and sold to TTU in 1945. In 1951, Atomic Energy Commission reclaimed the site to build nuclear weapons. The Pantex Plant currently functions as an active USDOE/NNSA facility where operations such as development, testing, and

fabrication of HE components, nuclear weapons assembly and disassembly, interim storage of plutonium and weapon components, and component surveillance are conducted (NNSA, 2018; EPA, No Date). The Pantex facility is a Superfund Site (EPA Site #TX4890110527). Over the years, the Pantex facility has undergone several rounds of cleanup and remediation processes to reduce the threat of exposure of soils contaminated by hazardous and toxic substances to facility employees and neighbors, to minimize the migration of contamination plumes in perched groundwater, and to limit the potential for impacts to the Ogallala aquifer. These include soil removal, landfill covers, ditch lining, soil vapor extraction (SVE), and extraction and treatment of perched groundwater (NNSA, No Date).

3.13.1.1 History of Contamination at the Pantex Site

Historically, the facility's waste management practices have included thermal treatment of explosives, explosive components, and contaminated liquids and solvents (including test residues of explosives and depleted uranium); burial of industrial, construction, and sanitary waste in unlined landfills; disposal of solvents in pits or sumps; discharge of untreated industrial wastewaters to unlined ditches and playas[1]; and the use of surface impoundments for the disposal of chemical constituents. These prior practices have led to the release of both chemical constituents and radionuclides to the environment, particularly the soil and perched groundwater[2] underneath the facility (NNSA, 2018). Contaminants in soil and perched groundwater, had they been left untreated, could have potentially posed a health risk to onsite workers and offsite neighbors. In addition, contaminants in soil and perched groundwater also have the potential to impact the Ogallala Aquifer beneath the facility, which is protected by SDWA (CNS, 2019; CNS, 2020).

Operations at the Pantex facility during the Cold War era were accompanied by discharges of industrial process wastewaters directly to the unlined ditches that were used to carry water from effluent sources (industrial wastewater, treated sanitary wastewater, cooling water discharge, and stormwater runoff) at the facility to the playas. This discharge of high volume of treated and untreated wastewater to the playas adversely impacted the perched groundwater beneath the Pantex facility. The discharge of these wastewater streams to the ditch system was eliminated in the 1980s and 1990s. Since 1999, all wastewaters have been discharged to the sanitary sewer system and directed to the Pantex Plant WWTF (NNSA, 2018).

As a final nuclear weapons assembly plant, the Pantex facility currently primarily handles sealed nuclear weapon components. The potential for radiological release at the Pantex facility is low because of the type of nuclear material handled (primarily sealed nuclear components), the facility's historical reporting requirements, and stringent safety controls in place. Three primary types of nuclear materials have been handled at the Pantex Plant: a) Non-weapon nuclear sources (calibration sources and radiography/equipment sources – the majority of which are sealed sources); b) Weapon nuclear sources (sealed and tracked special nuclear material and unencapsulated DU and thorium); and c) Other sources

[1] Playas are natural depressions in land surface that are ephemeral water bodies and serve as areas of focused recharge to the subsurface. They typically do not drain to other surface water tributaries or bodies and are considered closed drainage basins. Historically, industrial wastewater was discharged to playas at Pantex through a series of drainage ditches, with Playa 1 receiving most of the wastewater and Playas 2 and 4 receiving less. Discharge of wastewater to these playas has been discontinued and saturation currently consists of natural drainage and rainfall. Release of treated wastewater to Playa 1 is permitted, when necessary (NNSA, No Date).

[2] Perched groundwater, or shallow groundwater, is created by water pooling on a thin zone of fine-grained soil at an average depth of about 276 feet below ground surface. This water body has an average thickness of about 7 feet and its horizontal extent is limited (NNSA, No Date).

not produced at the Pantex Plant (stored U.S. Department of Defense [DoD] nuclear weapon accident debris and Depleted Uranium [DU] components for high explosive firing tests).

3.13.1.2 Site Investigation and Cleanup

In the 1980s, Pantex facility staff began investigating historical release locations and sites impacted by past waste management practices, and conducted cleanup operations to remediate the affected sites. The EPA conducted a RCRA facility assessment (RFA), an assessment performed to identify areas where hazardous substances may have been released, that identified Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) that potentially required investigation/corrective action. The EPA issued an Administrative Order (AO) to USDOE/NNSA, outlining requirements for performing interim corrective measures (ICMs), RCRA facility investigations (RFIs), corrective measure studies, and corrective measures implementations at identified or potential release sites at the facility.

In 1991, EPA and the TCEQ jointly issued Hazardous Waste Permit No. 50284 (HW-50284) that authorized the Pantex Plant to store and process hazardous waste. The Pantex Plant was listed in the National Priorities List (NPL) in 1994, making it subject to CERCLA requirements in addition to RCRA requirements. The Hazardous Waste permit has been renewed and modified since it was first issued and was supplemented by the Compliance Plan (CP-50284) in 2003, which established a RCRA Interim Stabilization Measure (ISM) program at the facility. A Site-wide ROD was issued in 2008 to select a remedy for releases across the Pantex Plant, including select RCRA ICMs and ISMs, as appropriate (NNSA, 2018).

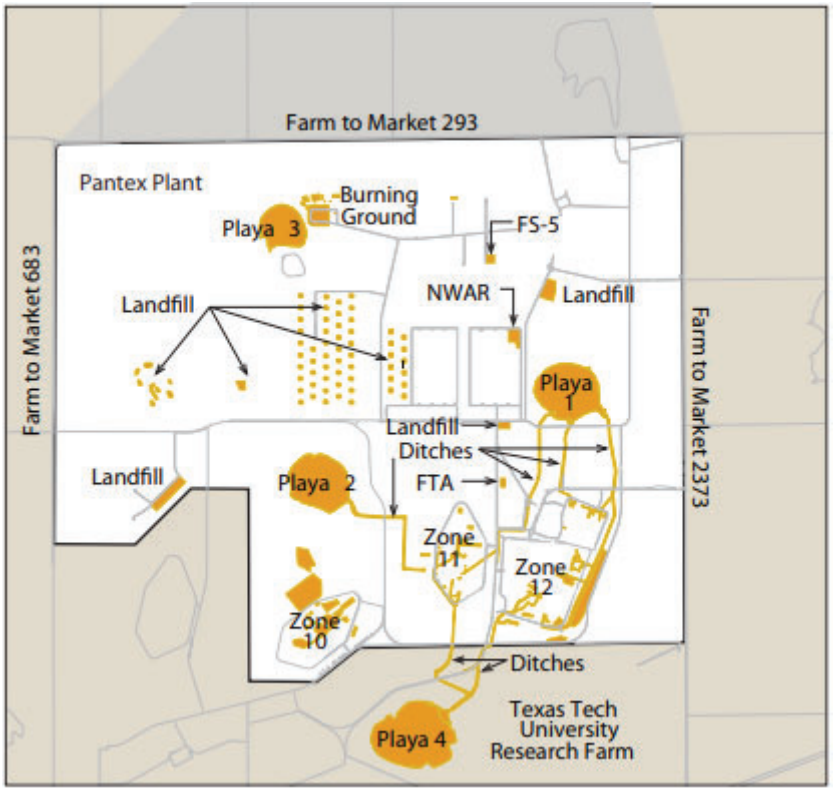
During site investigations, several release sites were identified across the facility that warranted further investigation and/or cleanup actions. Based on these investigations, release sites have either been closed (administratively or by remediating them to background or to naturally-occurring concentrations) or are still actively in use and will require a full investigation and cleanup process once the site is no longer in use by Pantex (NNSA, 2018). The site's long-term remedy, selected in the 2008 ROD, addressed 47 contaminated soil units and, in particular, contaminated perched groundwater. Remedies for contaminated soil included SVE[3], containment and covering, and institutional controls to restrict access and land use. The final remedy for contaminated groundwater included pumping and treatment, in-place bioremediation to treat high explosive contaminants, and institutional controls to restrict usage. Site activities have also included numerous ICMs that reduced the risk to human health and the environment once posed by the soil units (EPA, No Date).

EPA has conducted several five-year, annual, and quarterly reviews of the site's remedy to ensure that they are continuing to function as intended to protect public health and the environment. The most recent review concluded that response actions at the facility are in accordance with the remedy selected by EPA and that they continue to protect human health and the environment in the short term. All soil remedies are performing as intended. Institutional controls and engineered controls (e.g., fencing, protective covers, and ditch liner) continue to protect workers and the general public from exposure to soil by restricting access and from impacted perched groundwater by restricting use, drilling, and access.

[3] SVE is a process which physically removes contaminants from subsurface soil by inducing air flow. Flowing air strips volatile compounds from the soil solids and carries them to extraction wells through which they are collected and treated. It is a presumptive remedy for Superfund sites with VOC-contaminated soil (NNSA, No Date).

3.13.1.3 Ongoing Hazardous Materials Use and Management at Pantex Facility

The Pantex facility currently consists of several functional areas, commonly referred to as numbered zones (NNSA, No Date; NNSA, 2018). **Figure 3.13-1** shows major areas at the facility that were investigated for cleanup.



Source: NNSA, No Date

Figure 3.13-1. Locations Investigated for Cleanup at Pantex

Zones 10, 11, and 12 – these are active operational areas. Facilities in these zones were originally built to manufacture conventional bombs during World War II. These zones currently contain both active and inactive areas and have been reconstructed to serve as assembly/disassembly areas, staging areas, and support areas for other Plant functions.

Burning Ground (BG) – is an active operational area. This facility was historically used for the disposal of HE waste and contaminated materials. Its current usage includes thermal treatment of HE-contaminated waste.

Playa 3 – is adjacent to the BG and receives stormwater runoff from the BG. Release of treated wastewater to Playa 3 is permitted, when necessary. It has not been used for industrial purposes but has received overflow from the solvent evaporation pit in the past.

Playas 1, 2, and 4 – Historically, these playas received treated and untreated industrial wastewater discharges. These discharges have been discontinued for Playas 2 and 4, and saturation at these playas currently consists of natural drainage and rainfall. Release of treated wastewater to Playa 1 is currently permitted.

Fire Training Area (FTA) – was used for Pantex Fire Department training exercises; a portion of this area is still used by the fire department.

Firing Site 5 (FS-5) – is an inactive area that was previously used for research and development testing of HEs. Explosives were detonated at a surface test pad or in a gravel pit to test the firing of HEs with parts made of DU and other metals.

Ditches – are associated with the playa drainage basins and like the playas, they historically received treated and untreated industrial wastewater discharges. The discharge of wastewaters to ditches across the facility was eliminated and the ditches were lined to prevent contamination of soils and perched groundwater.

Landfills – are inactive units located across the facility that were used for general sanitary waste, construction debris, and demolition debris, including asbestos-containing materials and industrial wastes.

Nuclear Weapons Accident Residue Storage Unit (NWAR) – was a radioactive materials storage unit. Wastes stored at NWAR included radioactive debris from military aircraft accidents, residue from Pantex Plant Firing Site test shots, and low-level radioactive wastes from Pantex facility production lines. All wastes were removed from the site by 1986 and it was decontaminated.

Currently, the following contaminants are most commonly found across the Pantex facility:

- HEs
- Volatile organic compounds (VOCs)
- Metals
- Perchlorate
- Polycyclic aromatic hydrocarbons (PAHs)
- DU

Current VMF facilities on the Pantex Plant produce typical wastes including used oil, PAHs, metals, and diesel exhaust fluid. These wastes are handled and disposed following all relevant regulations, including RCRA.

3.13.1.4 Current Conditions at the Project Area

The project area (proposed OST parcel) is contiguous to a piece of land consisting of SWMU 66, Landfill 15. Landfill 15 is a demolition debris landfill that received construction debris from the demolition of warehouse structures at the Pantex facility (NNSA, 2008). SWMU 66 is categorized as RRS 3, indicating that a human health and ecological risk assessment was conducted for this unit to determine the areas that needed remedial action (RA). Additionally, it required deed recordation of the contamination, restriction of property use to industrial, and appropriate institutional controls to prevent contaminated groundwater usage and cross-contamination from perched groundwater to the drinking water aquifer, and is subject to post-closure care (NNSA, 2021a).

EPA's RA for landfills, including Landfill 15, involved containment of the site by installing and maintaining protective covers for the sites. Covers consist of compacted and seeded soil placed on top of the landfill. The soil placement is slightly crowned to prevent stormwater ponding and infiltration. These protective covers were either placed after landfilling operations ceased or were installed as ICMs to prevent worker contact and shaped in order to avoid the infiltration of water through landfill materials that could lead to migration of contaminants to the underlying aquifer. Construction of all protective covers was completed and approved in 2009. However, landfills are regularly impacted by soil disturbances and voids/holes from wildlife and during heavy rainfall or drought conditions. To ensure consistent comprehensive support with

the landfill covers, Pantex has contracted for long-term maintenance of the landfills. The landfills are inspected each year and then maintenance is contracted based on the evaluation. Larger issues are planned, budgeted, and contracted separately for design and construction. Each contracting effort is followed up with inspections to evaluate the effectiveness of the actions (NNSA, 2021b).

Additionally, institutional controls have been implemented at the landfills to limit worker activity and excavation in the vicinity of these sites and to help protect the long-term integrity of the landfill covers. The implementation of the RAs manages uncertainties about landfill contents and leaching through two long-term groundwater monitoring wells located near the project area (PTX06-1060 and PTX-1058) (NNSA, No Date). As such, SMWU 66, Landfill 15 currently does not pose any direct contact risks to industrial workers and construction/excavation workers, is not at risk of exposing constituents of concern, and does not have the potential to impact perched groundwater above background levels (NNSA, 2008).

Other than the landfill and Tract 10, there is no evidence of contamination at the proposed OST parcel. Currently, OST does not anticipate the need to conduct any further environmental investigations regarding potential contaminants at the site.

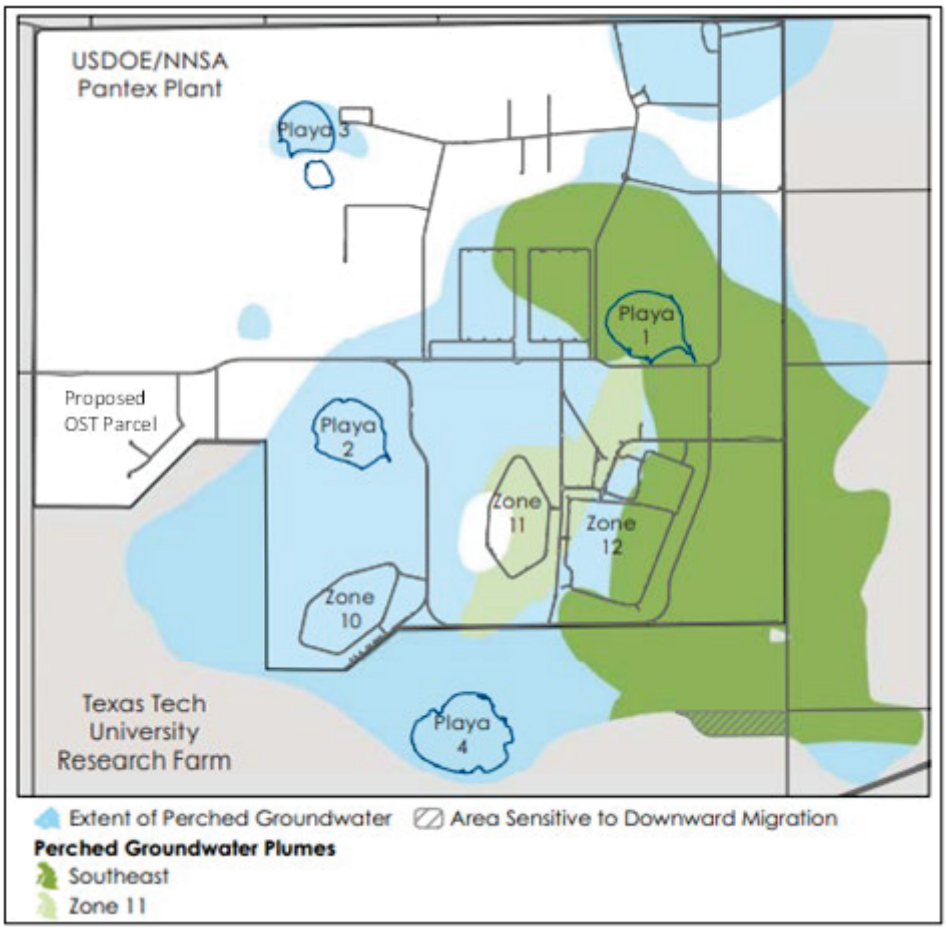
3.13.2 ENVIRONMENTAL CONSEQUENCES

Potential environmental consequences from the Proposed Action and the No Action Alternative are discussed in detail in the following sections. Potential environmental consequences from construction and potential contact with hazardous waste and materials during implementation of the Proposed Action would be largely minimized or avoided by using industry standard BMPs as discussed below.

3.13.2.2 No Action Alternative

Under the Proposed Action, OST would complete eight future development projects over a 10-year period at an adjacent parcel of land acquired from Pantex. The facilities to be constructed include a VMF, FAF, physical training/IUF facility, shipping/receiving facility, live fire shoothouse, indoor shooting range, vehicle wash rack, and ammunition storage magazines and buffer zone. Pantex site utilities would be extended to the new OST campus and would include water, electrical, and natural gas. Utility extension may also include erection of fencing and/or construction of temporary access roads.

Construction activities would require the onsite use and storage of hazardous materials, such as diesel fuel, paint, adhesives, thinners, and solvents, all of which would inherently increase the risk of an accidental spill. Additionally, construction vehicles operating onsite may occasionally contribute to minor oil and fuel leaks, but impacts would be minimized by following BMPs, such as regular vehicle inspections and maintenance. Operation of heavy machinery during construction could also result in an increased chance of fuel or oil spills. Any spills or releases of hazardous materials, pollutants, contaminants, or petroleum products would result in short-term, adverse impacts to the affected soil resources. Impacts to perched groundwater or the Ogallala Aquifer are not anticipated since the proposed parcel lies beyond the areal extent of the perched groundwater as shown in **Figure 3.13-2** below. The magnitude of these impacts would be minor because events would be addressed with BMPs as soon as a release is noticed, and steps would be taken such as application of absorbents and removal of soil. Following appropriate BMPs, including usage of drop cloths, proper storage, and maintaining a clean working environment, would also lower the risk of spills, resulting in a low likelihood of adverse impacts.



Source: NNSA, No Date

Figure 3.13-2. Extent of Perched Groundwater and Groundwater Plumes at Pantex

The storage, containment, or disposal of any municipal trash, construction debris, soil stockpiles, and potentially hazardous waste generated during construction would be addressed in accordance with applicable authorities such as RCRA, SPCC, and TAC. Debris, trash, and soils from construction would only impart a nuisance to the immediate surroundings before cleanup. As noted in Section 3.13.1.4, a portion of the proposed OST parcel contains a SWMU extent and is adjacent to SWMU 66, Landfill 15. Any excavation or soil disturbance in the SWMU extent area would require a SWMU Interference Notification permit prior to excavation. Pantex facility Environmental Projects personnel would be contacted prior to any excavation within 100 feet of SWMU 66, Landfill 15. The Environmental Projects Department Manager at the Pantex facility will be contacted for evaluation of the construction project and potential impact on the SWMU area. If necessary, controls to be implemented that control the spread of contamination and protect the workers form potential exposure will be identified. Construction workers would be issued necessary protective equipment to ensure safe working conditions and disturbed soils would be managed appropriately during the execution of work. Under the Proposed Action, potential impacts from construction activities would be minor and adverse with a low likelihood and localized extent. As such, impacts would be short-term and would end once construction activities were completed.

Once operational, spent ammunition at the live fire shoothouse and indoor shooting range would be sanitized and placed in approved containers at the end of each training event, which would then be

managed and disposed of by contractors. Only non-leaded ammunition (mostly brass) would be used and stored at the new construction site and therefore, no contamination of soils is anticipated. No fueling station would be constructed at the VMF, but diesel exhaust fluid (DEF) would be stored in containers as is done at the current VMF building. The VMF would be equipped with spill kits to manage accidental spills or leaks of the fluid. VMF wastewater would be treated using a decentralized wastewater treatment system assembled out of off the shelf components. Oil and sludge would be separated from wastewater within this decentralized system and transported offsite for disposal. It is important to note that the VMF will not have floor drains and bulk quantities of spilled oil will not be provided a pathway to the water treatment center. After microfiltration and disinfection, treated vehicle wash water would be discharged onsite through an underground drip irrigation system. The new OST campus would also discharge OSSF sludge via licensed sludge transporters to offsite disposal facilities. There would be no further impact to the perched groundwater.

All construction activities and management of waste post construction would follow applicable procedures to be in compliance with the hazardous waste permit requirements of the Pantex facility and the Resource Conservation and Recovery Act (RCRA). Under the Proposed Action, the effects of hazardous materials and waste would be adverse, short-term, and minor with a localized extent and a low likelihood of occurrence. Impacts would not be significant.

3.13.2.1 Proposed Action

The No Action Alternative assumes that no construction, extension of utility infrastructure, or consolidation of OST operations would occur at Pantex. No new land parcel would be acquired under the No Action Alternative. Minor repairs would occur as needed, and current maintenance and operation of the existing facilities would continue. Other ongoing impacts would be similar to those resulting from current operations, consistent with the existing hazardous material use and disposal practices. The Pantex facility would continue to operate in a manner consistent with the requirements of the RCRA permit. Thus, the No Action Alternative would not have any new effects from hazardous materials and waste, and there would be no significant impacts.

4.0 CUMULATIVE IMPACTS

Cumulative impacts are the impacts on the environment that result from the incremental impact of the Proposed Action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time. Cumulative impacts include the direct and indirect impacts of a project together with the past, present, and reasonably foreseeable future actions of other projects.

The Pantex facility is located in a relatively remote area of the Texas Panhandle and major private development activity is not expected in the vicinity of the site. Past and ongoing major actions within the vicinity of the project area have typically consisted of demolition, renovation, and construction of Pantex facilities, extension of roadways and pavement, and rural development in agricultural areas. Current and foreseeable future development projects within Pantex and in the vicinity of the project area are identified below in Table 4.0-1.

Table 4.0-1. Past, Present, and Foreseeable Development Projects Within and Surrounding the Project Area

Project	Lead Agency	Scope	Status
High Explosive Synthesis, Formulation, and Production Facility (HESFP)	NNSA	The HESFP facility will be comprised of bays dedicated to specific High explosive synthesis, formulation, and staging functions with adjacent administrative functions. High explosive packaging, shipping, and magazine functions will be connected to the bays via enclosed ramp structures. A separate blending facility would be located at a distance dictated by explosives safety requirements. The total footprint of the facility will total approximately 98,092 sf.	In construction, expected completion date in 2026
Flexible Project Support Facility	NNSA	The Flexible Project Support Facility (FPSF) will provide two office space buildings to house general plant staff. One of the buildings will also provide new work space for the Network Operating Center and Security Operation Center (NOC/SOC) personnel, presently housed in temporary quarters. Each FPSF facility will be approximately 14,000 sf.	In construction, expected completion date in 2023.
Advanced Fabrication Facility	NNSA	The Advanced Fabrication Facility (AFF) will consolidate and replace capabilities presently housed in other facilities which need to be replaced to preserve the long-term mission needs at Pantex for the fabrication of inert parts and	In construction, expected completion date 2022.

Project	Lead Agency	Scope	Status
		test fixtures and the sanitization of parts from dismantled components to facilitate their final disposition in an unclassified manner. The AFF facility will be approximately 20,000 sf and will be composed of a steel structure with exterior masonry infill.	
High Explosive Science & Engineering Facility	NNSA	The High Explosive Science & Engineering Facility (HE S&E) facility will consolidate and replace capabilities presently housed in fifteen other facilities into three new buildings. The HE S&E will serve as the scientific and engineering hub supporting all High Explosive (HE) Center of Excellence activities and technology development activities at Pantex. The footprint of the facility will total approximately 72,762 sf.	In construction, expected completion date in 2025.

4.1 LAND USE AND VISUAL RESOURCES

Other cumulative actions as listed in Table 4.0-1, in combination with the new facilities to be constructed under the Proposed Action, would have additive, adverse cumulative impacts to land use and visual resources at and near the project area. Previous actions have changed land use patterns from an undeveloped area to disturbed grasslands and cultivated cropland, with some smaller installations including monitoring wells and a pumphouse station in the project area and residences, the highway, powerlines, dirt roads, wind turbines, etc., within the surrounding area. Future projects would further alter land use by permanently converting this agricultural land to developed sites consisting of infrastructure, buildings, roads, and other developed and industrialized facilities. Similarly, past actions on the landscape have altered the viewshed at or near the project area by introducing new and different features, such as the Pantex facility and other human-made structures scattered throughout the area. Future development projects would contribute cumulative impacts to visual resources by introducing additional industrial features to the landscape, shifting it further away from the characteristic landscape of flat, grassy, rolling plains and natural playas. Adverse cumulative impacts to land use and visual resources associated with the Proposed Action would be small as compared to cumulative past, present, and foreseeable future actions. Impacts would also likely be minimal due to the limited number of observers traveling on roadways in the vicinity of these projects and due to the limited visibility of these projects from the surrounding roadways. Thus, impacts may be seen, but would not be easily discernable and would not attract attention or dominate the landscape. Overall, cumulative impacts on land use and visual resources would be minor to moderate and adverse, and therefore, insignificant. The Proposed Action would contribute negligible cumulative impacts on land use and visual resources.

4.2 GEOLOGY, TOPOGRAPHY, AND SOILS

Other cumulative actions in the vicinity of the project area that could contribute cumulative impacts to geology, topography, and soils (including prime farmland) include the expansion of roadways, ongoing

rural development, construction of HESFP, the Flexible Project Support Facility, and the Pantex Advanced Fabrication Facility. These other actions would not be expected to impact geological resources, but could result in changes to the overall topography. Although the grading required for each project would be relatively small, the grading could collectively be more extensive and result in negligible changes to the surrounding topography.

These other actions would impact soils through increases in impervious surface coverage and involve earthwork and grading which would result in the loss of the soil's ecological function, soil erosion, and soil compaction. Impacts to soil structure and drainage capacity over a larger area would make it more difficult for water to drain through the soil. Although the individual area of disturbance of each project would be relatively small as compared to undisturbed soils in the vicinity, the combined area of these projects would result in the disturbance and alteration of larger localized areas of soil. As such, the overall cumulative impacts to geology, topography, and soils would have a high likelihood of occurrence and would be adverse, localized, long-term to permanent, and minor in magnitude. The contribution of the Proposed Action to these adverse cumulative impacts would be negligible and therefore not significant.

4.3 WATER RESOURCES

The cumulative impacts scenario considers the potential impacts on the environment which may result from the incremental impact of the Proposed Action when added to the other past, present, and reasonably foreseeable future actions within or near the project area. All projects listed in Table 4.0-1, in conjunction with the new facilities to be constructed at the project area, would likely contribute additive, adverse and beneficial, cumulative impacts to utility services and infrastructure at and near the project site.

The combined impact of the agricultural land conversion, road expansion, and proposed development projects may lead to increased ground disturbance during construction; however, it is expected that the impacts of these activities would be mitigated through the use of BMPs as required by TCEQ and outlined through a site-specific SWPPPs with each project. These projects would cumulatively result it increased impervious area, which contribute to additional runoff volume, reduced stormwater quality, and the prevention of groundwater recharge. However, stormwater BMPs to control the rate and volume of stormwater runoff leaving each site would be implemented, resulting in a negligible impact to surface water. Unless vast areas of the Pantex facility were to become paved, the groundwater recharge impacts would be negligible or minor. The combined impact of the projects may lead to the additional use of potable water and additional generation of wastewater, which would constitute minor impacts. As such, cumulative impacts on water resources from the proposed alternatives would be minor or negligible, adverse, and therefore, not significant.

4.4 BIOLOGICAL RESOURCES

Other actions occurring near the project area that could contribute cumulative impacts to biological resources include present and future operations of the Pantex facility, vehicle traffic, ongoing construction of HESFP, construction of the Flexible Project Support Facility, and construction of the Pantex Advanced Fabrication Facility, conversion of agricultural land to rural development, and expansion of roadways. Wildlife impacts related to these activities include harassment, displacement, and mortality of individuals; interruption of breeding; the loss, fragmentation, and degradation of habitat; introduction of invasive species which outcompete native species, particularly vegetation that then alters and degrades habitat; and higher levels of human presence and activity which increases noise and disturbs wildlife. Although the individual area of disturbance for each project would be comparatively small, these activities would result in the additive removal of wildlife habitat and vegetation over a larger area. As such, the cumulative

impacts to biological resources, including special status wildlife, would have a high likelihood of occurrence and would result in adverse, localized, moderate impacts in the short term and permanently. The contribution of the Proposed Action to cumulative impacts would be negligible and therefore not significant.

4.5 UTILITIES AND INFRASTRUCTURE

The cumulative impacts scenario considers the potential impacts on the environment which may result from the incremental impact of the Proposed Action when added to the other past, present, and reasonably foreseeable future actions within or near the project area. All projects listed in Table 4.0-1, in conjunction with the new facilities to be constructed at the project area, would likely contribute additive, adverse and beneficial, cumulative impacts to utility services and infrastructure at and near the project site. The combined impact of the projects may lead to increased demand of utility services and/or temporary interruptions in water and/or electrical services during the construction phase; however, it is expected that the local area utilities are currently sufficient to provide all services needed. If required, these services would be expanded to accommodate additional utility loads, local and regional infrastructure additions associated with the Proposed Action, and the current and foreseeable development projects listed in Table 4.0-1. These projects would also impact the infrastructure at and near the project site in a beneficial manner because the newer buildings would be constructed in accordance with the latest building codes and would be more energy and water efficient compared to existing buildings. As such, cumulative impacts on utilities and infrastructure from the proposed alternatives would be minor, adverse and beneficial, localized, high in likelihood, and therefore, not significant.

4.6 CULTURAL RESOURCES

The cumulative impacts scenario considers the potential impact on the environment which may result from the incremental impact of the Proposed Action when added to the other past, present, and reasonably foreseeable future actions within or near the project area. All projects identified in Table 4.0-1 are associated with new development and could contribute additive, adverse, cumulative impacts on cultural resources due to increased excavation, ground disturbance, and erosion. These activities could potentially uncover, damage, or destroy potential cultural resources in the area. However, even when considered cumulatively, these projects are not likely to substantially impact the cultural resources of the area. Recent cultural resource surveys did not uncover any eligible cultural resources and existing known cultural resources are isolated finds restricted to the playa basins on the Pantex Facility. As such, the overall direct, indirect, and induced cumulative impacts of the Proposed Action on cultural resources would be adverse, negligible in magnitude, long-term in duration, low in likelihood, and not significant.

4.7 CLIMATE CHANGE

The cumulative impacts scenario considers the potential impacts on the environment which may result from the incremental impact of the Proposed Action when added to the other past, present, and reasonably foreseeable future actions within or near the project area. All projects listed in Table 4.0-1, in conjunction with the new facilities to be constructed at the project area, would likely contribute additive, adverse and beneficial, cumulative impacts to utility services and infrastructure at and near the project site.

The combined impact of the projects may lead to a small increase in the generation of criteria pollutants during construction (from generating dust and burning fuel), which would have a negligible impact to air

quality; and small increase of generation of criteria pollutants during day-to-day operations (from increased vehicle traffic).

The combined impact of the projects may lead to a small increase in energy usage during construction, which leads to additional production of GHGs. These projects would cumulatively result in a small increase in energy usage during daily operations, which also generates a small increase in GHGs. These cumulative impacts are relatively miniscule compared to the overall energy usage of the Pantex facility.

As such, cumulative impacts on air quality from the proposed alternative would be minor or negligible, adverse, large scale, long-term and therefore, not significant. Cumulative impacts on climate change from the proposed alternative would be minor or negligible, adverse, and therefore, not significant.

4.8 TRANSPORTATION AND TRAFFIC

The cumulative impacts scenario considers the potential impacts on the environment which may result from the incremental impact of the Proposed Action when added to the other past, present, and reasonably foreseeable future actions within or near the project area. Projects in the vicinity of the project area that could contribute cumulative impacts to transportation and traffic include the construction of HESFP, the Flexible Project Support Facility, and the Pantex Advanced Fabrication Facility. These other projects would increase traffic associated with construction of the buildings and the number of staff vehicles and deliveries to the new buildings. The combined effects of each of these projects results in a larger area in which transportation infrastructure (i.e., roadways and parking lots) would be needed.

Traffic would also increase due to the planned roadway improvement work which includes seal coating the county roads and highway improvements on US 60. This could occur several times over the 10-year construction for a period of few days or weeks. In order to complete the roadway improvements, lane closures would be required, thereby adversely impacting traffic.

As such, the cumulative impacts to transportation and traffic would have a high likelihood of occurrence and would be adverse, short and long term, medium, and minor in magnitude for the planned facilities and the roadway improvement work on the county roads and US 60. These impacts would not be significant.

4.9 NOISE

Cumulative noise impacts would occur when other past, present, and reasonably foreseeable future actions affect the same geographic area. Other cumulative actions occurring near the project area that could contribute cumulative impacts to noise include agricultural activities utilizing heavy equipment, road repaving, the ongoing construction of HESFP, construction of the Flexible Project Support Facility, and construction on the Pantex Advanced Fabrication Facility.

These projects could contribute additive, adverse, cumulative increases to noise in and adjacent to the project area when considered with the Proposed Action, but it is unlikely that the cumulative increase to noise would be perceptible due to the isolation of the project area. However, the other actions would increase the ambient noise over a larger area if the projects occur at the same time, making it more difficult for potential sensitive receptors to avoid unwanted noise. As such, the cumulative impacts to noise would have a medium likelihood of occurrence and would result in negligible to minor, localized, adverse effects in the short and long term. Impacts would not be significant.

4.10 SOCIOECONOMICS

The cumulative impacts scenario considers the potential impact on the environment which may result from the incremental impact of the Proposed Action when added to the other past, present, and reasonably foreseeable future actions within or near the project area. All projects identified in Table 4.0-1 are associated with new development and likely would contribute additive, beneficial, cumulative impacts on socioeconomic resources due to increased construction revenues during their respective construction periods and additional indirect and induced impacts from the expenditures of construction workers within the ROI. Similarly, the projects may have a slightly greater, short-term adverse impact on air quality, noise levels, and traffic flows during overlapping construction periods. However, even when considered cumulatively, these projects are not likely to substantially impact the socioeconomic resources of the area; the level of employment and revenues within the ROI would not likely be appreciably impacted by these actions, and no appreciable population impacts would occur. As such, the overall direct, indirect, and induced cumulative socioeconomic impacts of the Proposed Action would be beneficial, minor in magnitude, short-term and long-term in duration, and high in likelihood and not significant.

4.11 ENVIRONMENTAL JUSTICE

The cumulative impacts scenario considers the potential impact on the environment which may result from the incremental impact of the Proposed Action when added to the other past, present, and reasonably foreseeable future actions within or near the project area. All projects identified in Table 4.0-1 are associated with new development and likely would contribute additive, beneficial, cumulative impacts on environmental justice communities due to increased construction revenues during their respective construction periods and additional indirect and induced impacts from the expenditures of construction workers within the ROI. Similarly, the projects may have a slightly greater, short-term adverse impact on air quality, noise levels, and traffic during overlapping construction periods. However, even when considered cumulatively, these projects are not likely to substantially impact environmental justice communities of the area; the level of employment and revenues within the ROI would not likely be appreciably impacted by these actions; and the overall air quality, noise levels, and traffic conditions would not be appreciably changed. As such, the overall direct, indirect, and induced cumulative impacts on environmental justice communities under the Proposed Action would not be disproportionately high and adverse in either the short or long term. Therefore, cumulative impacts to environmental justice communities would not be significant.

4.12 WASTE MANAGEMENT AND HAZARDOUS RESOURCES

The cumulative impacts scenario considers the potential impacts on the environment resulting from the incremental impact of Proposed Action when added to other past, present, and reasonably foreseeable future actions within or near the project area. Impacts on hazardous materials and waste from construction activities occurring under the Proposed Action and from other projects in the vicinity, such as construction of HESFP, Flexible Project Support Facility, and Advanced Fabrication Facility (see Table 4.0-1), would be short term, adverse, and minor, with a localized extent and low likelihood due to the potential for accidental spills and discharge of hazardous chemicals (e.g., fuel, paints, solvents) into the surrounding environment. However, by following appropriate BMPs and regulations, the magnitude of these impacts would be low as the chemicals would be used in relatively small quantities, and discharges can be easily cleaned before entering water supplies. Once operational, HESFP in particular could substantially impact hazardous waste generation and management at Pantex in the long term due to the nature of operations at the facility (synthesis and formulation of HE and associated by-products such as

solvents, toluene, process water, and reaction acids). The quantity of hazardous waste produced would increase beyond current levels.

Under the No Action Alternative, the overall quantity of hazardous materials and waste generated at the Pantex facility would increase beyond current levels due to the construction and operation of three new facilities.

Therefore, when considered in tandem with the other projects described in the cumulative scenario, the Proposed Action and the No Action Alternative would result in minor short-term, and moderate long-term cumulative impacts to hazardous waste and management at the Pantex facility. It is anticipated that operations at all newly constructed facilities would adhere to Pantex's hazardous waste permit requirements.

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APPENDIX A: AGENCY CONSULTATION AND PUBLIC INVOLVEMENT

National Nuclear Security Administration
Office of Secure Transportation
P.O. Box 5400
Albuquerque, New Mexico 87185-5400

11/4/22

Bobby Komardley, Chairman
Apache Tribe of Oklahoma
511 E. Colorado
Anadarko, OK 73005

Dear Mr. Komardley,

The U.S. Departement of Energy, National Nuclear Security Administration (NNSA), Office of Secure Transportation (OST), has determined that an Environmental Assessment (EA) will be prepared for NNSA's proposal to construct and consolidate OST facilities over a ten-year period at the NNSA Pantex Plant in Carson County, TX. The scope of the proposed activities would include: construction (vegetation removal, earthwork, utility extension) and operation of a new OST campus on a currently vacant plot of land adjacent to the main Pantex Plant facility. The proposed projects evaluated in the EA include: preparation of campus infrastructure (roads, utilities, etc.), construction of a vehicle maintenance facility, construction of a federal agent facility, construction of a physical training/intermediate use of force facility, construction of a shipping/receiving facility, construction of a live fire shoothouse, construction of an indoor shooting range, construction of vehicle wash rack, and installation of ammunition storage magazines/establishment of appropriate buffer zone.

DOE National Environmental Policy Act (NEPA) regulations provide for the notification to host states and tribes of a determination to prepare an EA and for the opportunity to review EAs prior to DOE approval. The process is intended to improve coordination and facilitate early and open communication between DOE and host states and tribes. DOE will also issue this EA to other interested stakeholders for review and comment. DOE is preparing the EA and expects to provide the Draft EA in December of 2022 to interested parties from the State of Texas, potentially affected tribes, and other interested stakeholders for a 30-day review period.

If you are interested in the project and would like to receive a copy of the Draft EA, then please send a notification within 30 days of receipt of this letter to Lisa Swift at lisa.swift@nnsa.doe.gov or P.O. Box 5400, Kirkland AFB East, Albuquerque, NM 87185, or call at (505) 737-0279. For further information about the NEPA process, please contact Jim Sanderson at james.sanderson@nnsa.doe.gov or NNSA Office of General Council, P.O. Box 5400, Albuquerque, NM 87185, or call at (202) 586-1402. Thank you for your consideration.

Sincerely,

LISA SWIFT Digitally signed by LISA SWIFT
Date: 2022.11.04 14:29:43 -06'00'

Lisa Swift
General Engineer

National Nuclear Security Administration
Office of Secure Transportation
P.O. Box 5400
Albuquerque, New Mexico 87185-5400

11/4/22

William Nelson Sr., Chairman
Comanche Nation of Oklahoma
P.O. Box 908
Lawton, OK 73502

Dear Mr. Nelson,

The U.S. Departement of Energy, National Nuclear Security Administration (NNSA), Office of Secure Transportation (OST), has determined that an Environmental Assessment (EA) will be prepared for NNSA's proposal to construct and consolidate OST facilities over a ten-year period at the NNSA Pantex Plant in Carson County, TX. The scope of the proposed activities would include: construction (vegetation removal, earthwork, utility extension) and operation of a new OST campus on a currently vacant plot of land adjacent to the main Pantex Plant facility. The proposed projects evaluated in the EA include: preparation of campus infrastructure (roads, utilities, etc.), construction of a vehicle maintenance facility, construction of a federal agent facility, construction of a physical training/intermediate use of force facility, construction of a shipping/receiving facility, construction of a live fire shoothouse, construction of an indoor shooting range, construction of vehicle wash rack, and installation of ammunition storage magazines/establishment of appropriate buffer zone.

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Sincerely,

LISA SWIFT Digitally signed by LISA SWIFT
Date: 2022.11.04 14:36:32
-06'00'

Lisa Swift
General Engineer

National Nuclear Security Administration
Office of Secure Transportation
P.O. Box 5400
Albuquerque, New Mexico 87185-5400

11/4/22

Levi Pesata, President
Jicarilla Apache Nation
P.O. Box 507
Dulce, NM 87528

Dear Mr. Pesata,

The U.S. Departement of Energy, National Nuclear Security Administration (NNSA), Office of Secure Transportation (OST), has determined that an Environmental Assessment (EA) will be prepared for NNSA's proposal to construct and consolidate OST facilities over a ten-year period at the NNSA Pantex Plant in Carson County, TX. The scope of the proposed activities would include: construction (vegetation removal, earthwork, utility extension) and operation of a new OST campus on a currently vacant plot of land adjacent to the main Pantex Plant facility. The proposed projects evaluated in the EA include: preparation of campus infrastructure (roads, utilities, etc.), construction of a vehicle maintenance facility, construction of a federal agent facility, construction of a physical training/intermediate use of force facility, construction of a shipping/receiving facility, construction of a live fire shoothouse, construction of an indoor shooting range, construction of vehicle wash rack, and installation of ammunition storage magazines/establishment of appropriate buffer zone.

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Sincerely,

LISA SWIFT Digitally signed by LISA SWIFT
Date: 2022.11.04 14:42:19 -06'00'

Lisa Swift
General Engineer

National Nuclear Security Administration
Office of Secure Transportation
P.O. Box 5400
Albuquerque, New Mexico 87185-5400

11/4/22

Matt Komalty, Chairman
Kiowa Indian Tribe of Oklahoma
P.O. Box 369
Carnegie, OK 73015

Dear Mr. Komalty,

The U.S. Departement of Energy, National Nuclear Security Administration (NNSA), Office of Secure Transportation (OST), has determined that an Environmental Assessment (EA) will be prepared for NNSA's proposal to construct and consolidate OST facilities over a ten-year period at the NNSA Pantex Plant in Carson County, TX. The scope of the proposed activities would include: construction (vegetation removal, earthwork, utility extension) and operation of a new OST campus on a currently vacant plot of land adjacent to the main Pantex Plant facility. The proposed projects evaluated in the EA include: preparation of campus infrastructure (roads, utilities, etc.), construction of a vehicle maintenance facility, construction of a federal agent facility, construction of a physical training/intermediate use of force facility, construction of a shipping/receiving facility, construction of a live fire shoothouse, construction of an indoor shooting range, construction of vehicle wash rack, and installation of ammunition storage magazines/establishment of appropriate buffer zone.

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Sincerely,

LISA SWIFT Digitally signed by LISA SWIFT
Date: 2022.11.04 14:50:43 -06'00'

Lisa Swift
General Engineer

National Nuclear Security Administration
Office of Secure Transportation
P.O. Box 5400
Albuquerque, New Mexico 87185-5400

11/4/22

Russell Martin, President
Tonkawa Tribe of Oklahoma
1 Rush Buffalo Rd.
Tonkawa, OK 74653

Dear Mr. Martin,

The U.S. Departement of Energy, National Nuclear Security Administration (NNSA), Office of Secure Transportation (OST), has determined that an Environmental Assessment (EA) will be prepared for NNSA's proposal to construct and consolidate OST facilities over a ten-year period at the NNSA Pantex Plant in Carson County, TX. The scope of the proposed activities would include: construction (vegetation removal, earthwork, utility extension) and operation of a new OST campus on a currently vacant plot of land adjacent to the main Pantex Plant facility. The proposed projects evaluated in the EA include: preparation of campus infrastructure (roads, utilities, etc.), construction of a vehicle maintenance facility, construction of a federal agent facility, construction of a physical training/intermediate use of force facility, construction of a shipping/receiving facility, construction of a live fire shoothouse, construction of an indoor shooting range, construction of vehicle wash rack, and installation of ammunition storage magazines/establishment of appropriate buffer zone.

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Sincerely,

LISA SWIFT Digitally signed by LISA SWIFT
Date: 2022.11.04 14:54:22
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Lisa Swift
General Engineer

United States Department of Agriculture

Natural Resources
Conservation Service

State Office

101 S. Main Street
Temple, TX 76501
Voice 254.742.9800
Fax 254.742.9819

Attention: Lisa Swift

Subject: Construction and Consolidation of Office Campus at Pantex Project
NEPA/FPPA Evaluation

We have reviewed the information provided in your correspondence concerning the proposed project This review is part of the National Environmental Policy Act (NEPA) evaluation. We have evaluated the proposed site as required by the Farmland Protection Policy Act (FPPA).

The proposed site contains areas of Prime Farmland and we have completed the Farmland Conversion Impact Rating form (AD-1006) for the proposed site. The combined rating of the site is 154. The FPPA law states that sites with a rating less than 160 will need no further consideration for protection and no additional evaluation is necessary. We encourage the use of accepted erosion control methods during the construction of this project.

If you have further questions, please contact me at 505-516-7822 or by email at mark.palmer@tx.usda.gov.

Sincerely,

Mark V. Palmer Jr. Digitally signed by Mark V. Palmer Jr.
Date: 2022.11.07 11:16:51 -06'00'

Mark V. Palmer Jr.

APPENDIX B: BIOLOGICAL SURVEY REPORT

BIOLOGICAL SURVEY REPORT

Environmental Assessment of the Development of the National Nuclear Safety Administration, Office of Secure Transportation / Agent Operations Central Command Campus at Pantex
Amarillo, Texas

Task Order 8933122FNA400437

Prepared for:

National Nuclear Security Administration

Office of Secure Transportation / Agent Operations Central Command

Submitted by:

8201 Greensboro Dr.
Suite 700
McLean, VA 22102

August 26, 2022

CONTENTS

TABLES:

FIGURES:

ABBREVIATIONS

BMP	Best Management Practices
DOE	Department of Energy
IPaC	Information for Planning and Consultation
MBTA	Migratory Bird Treaty Act
NNSA	National Nuclear Security Administration
OST	Office of Secure Transportation
SGCN	Species of Greatest Conservation Need
TBBA	Texas Breeding Bird Atlas
TPWD	Texas Parks and Wildlife Division
USFWS	United States Fish and Wildlife Service

1.0 PURPOSE

The Office of Secure Transportation (OST), National Nuclear Security Administration (NNSA) has completed a conceptual plan outlining projected construction projects for the next ten years to consolidate and modernize facilities at a location adjacent to Department of Energy (DOE) Pantex's secure site. This new campus includes the construction of a vehicle maintenance facility, a federal agent facility, a physical training/ intermediate use of force facility, a shipping/receiving facility, a live fire shoot house, an indoor shooting rack, a vehicle wash rack, and ammunition storage magazines.

The project area for the new OST campus includes 374 acres of cultivated land and disturbed prairie. Preliminary biological review indicated that sensitive and special status species potentially occur within the project area. Previous surveys documented the presence of two species of greatest conservation need (SGCN) in Texas: the western burrowing owl (*Athene cunicularia hypugaea*) and Texas horned lizard (*Phrynosoma cornutum*). Other avian SGCN, such as the ferruginous hawk (*Buteo regalis*), have been documented throughout the Pantex plant**.** U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) online review has additionally identified two Federally threatened species with potential to occur within the project area: red knot (*Calidris canutus rufa*) and piping plover (*Charadrius melodus*).

Given that the project area had not been surveyed in over 15 years, NNSA contracted Solv, LLC to perform targeted biological surveys for special status species. The purpose of this Biological Survey Report is to describe the methodology, findings, recommendations, and conclusions based on the results of targeted and general biological surveys within the project area from 8/8/2022 to 8/10/2022.

2.0 EXISTING CONDITIONS

The designated project area for the proposed OST campus is a 374-acre parcel of land west of the existing Pantex plant facility. The project area primarily consists of cultivated cropland and disturbed shortgrass prairie. The site is bordered by paved roads to the north, and there is existing human disturbance within the project area including two-track roads, monitoring wells, and a pumphouse station.

Native shortgrass prairie, primarily consisting of buffalograss (*Buchloe dactyloides*) and blue grama (*Bouteloua gracilis*), can support a variety of grassland species, including raptors and prairie dogs. Located or partially located within the project area are two substantial black-tailed prairie dog (*Cynomys ludovicianus*) colonies. Prairie dog colonies are used as nesting grounds, shelter, or foraging grounds by many other grassland species, including ferruginous hawk, western burrowing owl, and mountain plover (*Charadrius montanus*). Several ephemeral wet areas are located in low drainage areas throughout the project area. These drainages do not support perennial wetland vegetation and only persist after intensive rainfall. **Figure 1** depicts the proposed OST campus project area.

Figure 1. Proposed OST Campus Project Area

Previous biological surveys have documented western burrowing owl and Texas horned lizard within the project area. Burrowing owls were observed associating with the prairie dog colonies to the north of the project area (Chipman, 2006). During past surveys, Texas horned lizards were detected regularly on the dirt roads throughout the project area (Kazmaier, 2006 & 2007).

3.0 SPECIES PROFILES

This chapter summarizes the basic life histories of targeted survey species and the relevant background regarding their conservation status.

3.1 Western Burrowing Owl

Western burrowing owl (*Athene cunicularia hypugaea*) is a small, migratory raptor that inhabits open areas throughout the western United States. The species inhabits open, treeless areas characterized by low, sparse vegetation (USFWS, No Date). Although burrowing owls will dig their own burrows, they readily use burrows from other animals and are strongly associated with prairie dog colonies. Additionally, they also use man-made burrow substitutes such as pipes or culverts when available. Burrowing owls are small predatory raptors which primarily feed upon insects and small mammals, but will pursue any potential prey they can physically handle (USFWS, No Date).

Burrowing owls breed throughout the central and western U.S., southern Canada, and northern Mexico during the summer months. In Texas, the breeding season can last from March through September (TPWD, No Date-c). In the winter, burrowing owls migrate to the southwestern U.S., northwestern and southern Mexico, and parts of Central America (USFWS, No Date). Some owls winter in areas of Texas, including the northern panhandle (TPWD, No Date-c).

Threats to burrowing owl populations include the conversion of suitable habitat to agriculture and the decline of black-tailed prairie dog populations. Burrowing owls have declined significantly in Texas from 1980 to 2005 and are designated a species of greatest conservation need (SGCN) by the Texas Parks and Wildlife Department (TBBA, 2006; TPWD, 2020). As a migratory bird species, burrowing owls are also protected under the Migratory Bird Treaty Act (MBTA).

Much of the Pantex plant consists of suitable habitat for Burrowing Owls due to the presence of shortgrass prairie and mature prairie dog colonies which provide ample vacant burrows. This includes the project area, which contains grasslands and sections of two prairie dog colonies. Historically, burrowing owls have been found within the boundary of the project area (Chipman, 2006).

3.2 Texas Horned Lizard

Texas horned lizards (*Phrynosoma cornutum*) are small, flat-bodied lizards that inhabit open, arid and semiarid environments with sparse plant cover (TPWD, No Date-a). They are commonly found in loose sand or loamy soils which they excavate for hibernation and nesting purposes. Texas horned lizards are associated with robust populations of harvester ants, their primary food source.

The Texas horned lizard currently is listed as a threatened species and a species of greatest conservation need (SGCN) in Texas (TPWD, 2020). They have historically been distributed throughout most of the state, although recent surveys have documented apparent declines in portions of the state. Texas Horned Lizard populations in eastern and central Texas seem to have experienced declines and now seem to be scarce and local. Horned lizards are still commonly found in south Texas and the lower Rio Grande Valley, but some declines have been reported in these regions. West Texas remains the stronghold for this species (TPWD, 2008). Some data has indicated the spread of invasive fire ants as one factor in the decline of the Texas horned lizards (TPWD, 2008).

Past herpetological surveys have documented Texas horned lizard presence throughout the Pantex plant, including within the project area. Detections were concentrated along the southeastern edge and the north-south road on the western side of the project area. Surveys found that horned lizards at the Pantex plant associated with roads and were most often detected during road surveys (Kazmaier, 2006 & 2007).

4.0 SURVEY METHODS

Surveys at the Pantex plant took place from August 8-10 of 2022. All surveys were conducted by a two-member team of qualified biological surveyors over a consecutive three-day period. The field team(s) were equipped with following data collection and support equipment:

- Handheld GPS
- Binoculars
- Paper datasheets and pencil

4.1 Burrowing Owl Survey Procedures

Survey teams systematically inventoried all potential burrowing owl habitat present in the study area. Burrowing owls are generally associated with dry, open, short-grass, treeless plains (Haug et al. 1993). Burrowing owls rarely dig their own burrows and will use both burrows dug from other animals and man-made holes. Therefore, survey effort was primarily focused upon the black-tailed prairie dog colonies with numerous burrows in the northeast and northwest sections of the survey area.

A combination of point count surveys and walking surveys were used to survey for owls in the morning and evening. **Figure 2** displays all transect routes and point count locations in relation to the prairie dog colonies in the project area. Surveys were conducted in the morning and evening (two hours before sunset until ½ hour after sunset; and ½ hour before sunrise until two hours after sunrise). Surveys were not conducted in inclement weather including rain, fog, high winds (>20 mph), or excessively high temperatures (>90 °F). Point count surveys were conducted at specifically selected points for 20 minutes.

Walking survey routes were planned to ensure complete coverage of the project area to the maximum extent possible. Surveyors proceeded along the transect line, stopping approximately every 200 m to scan for ten minutes. Burrowing owls are very likely to either flush or hide in a burrow if approached at distances closer than 200 m. Therefore, transect start locations were located outside the prairie dog colony, with observers surveying ahead of their route if it is necessary to enter the colony.

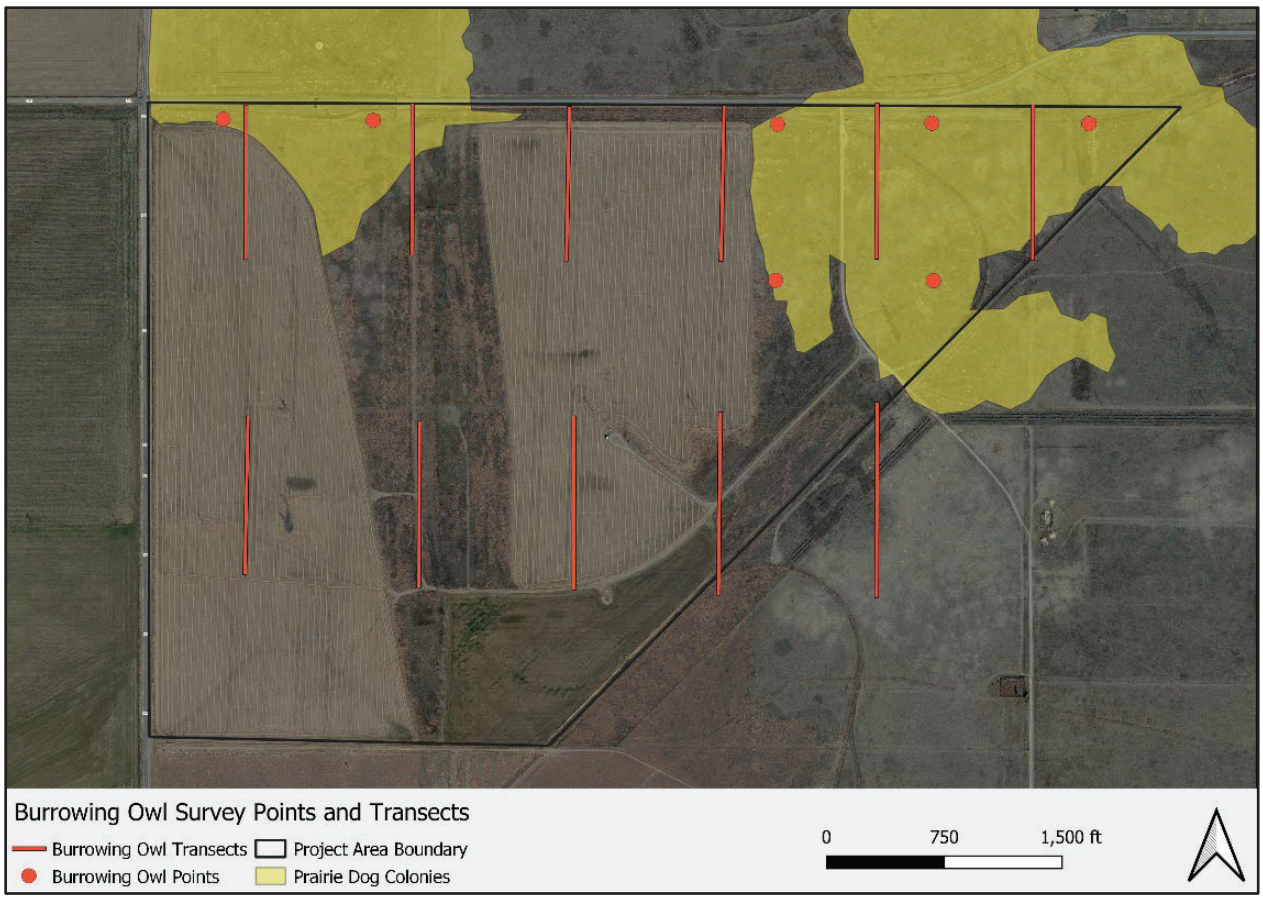

Figure 2. Burrowing Owl Survey Points and Transects

4.1.1 Detections

For each owl detection, the time, number, and estimated GPS coordinates were noted. Given the lack of prominent topography and high vegetation at the site, owls could be observed hundreds of meters away from the observation location and could not be directly marked with handheld GPS units. Outside of the dedicated surveys, any incidental observations of owls were also recorded.

4.2 Texas Horned Lizard Survey Procedure

Survey teams systematically inventoried potential Texas horned lizard habitat present in the study area with focus on the western strip of habitat that had the highest concentration of past horned lizard detections. Surveys were conducted in conditions ideal for basking lizards to the extent possible: dry, sunny, or partly sunny weather with high temperatures (80 - 95 ^{o}F).

Survey teams used transects along all unpaved roads and trails within and bordering the project area as well as systematic coverage of ideal habitat areas to search for Texas Horned Lizards. Surveyors walked all dirt trails and roads at the facility daily. Transects were also established in the ideal, Texas horned lizard prairie habitat areas in the western portion of the study area. Survey technique consisted of walking through appropriate habitat while keeping their eyes constantly on the ground and paying attention to the slightest of movements. GPS coordinates of any lizard

observations were recorded at the time of observation. Lizard scat and sign was also recorded if observed.

4.3 General Avian Point Count Procedure

General avian point counts were conducted at four points on 8/12/2022 to observe other potential bird species using the project area. Point counts lasted for one hour and each point was sampled twice: once in the morning and once in the evening. Point count locations were chosen near ephemeral wetlands and grassland habitat areas within the project area to maximize the potential diversity of bird species encountered. All birds encountered were identified visually or auditorily. Surveyors shifted observation direction from each of the cardinal directions every five minutes, with constant scanning across the horizon during the survey. **Figure 3** displays the location of the four, point count locations within the project area.

Figure 3. General Avian Point Count Locations

4.4 Field Notes

Surveyors also recorded other pertinent notes and/or data not captured elsewhere in the assessment form as necessary in a write-in field. Common field notes include but are not limited to special access restrictions, signs of habitat deterioration, or observations of potential burrowing owl / horned lizard sign including, but not limited to, scat, feathers, and pellets.

4.5 Survey Schedule

On 8/8/2022, lizard surveys were conducted along roads and ideal habitat from 1000 to 1230. In the evening, owl point count and transect surveys were conducted from 1900 to 2130.

On 8/9/2022, owl point count and transect surveys were conducted from 0630 to 1015. Systematic surveys of ideal lizard habitat and roads began at 1015 and continued until 1230. Possible lizard scat was observed during this survey, but there were no other observations. Owl point counts and transects began again at 1900 and concluded by 2115.

On 8/10/2022, general avian point counts were conducted from 0643 to 0743 and from 0753 to 0853. Surveys of roads and ideal lizard habitat began at 1015 and concluded at 1230. Evening avian point counts were conducted from 1900 to 2000 and from 2005 to 2105.

5.0 RESULTS

Over the three-day survey period, 27 individual observations of burrowing owls occurred within the project area. There were no direct observations of Texas horned lizards, however lizard scat was observed at one location. During the general avian point count surveys, 12 species of birds were observed and no special status bird species were observed other than burrowing owls. **Figure 4** displays all burrowing owl observations over the three-day period; **Figure 5** displays the results of the burrowing owl point counts surveys; **Figure 6** displays the results of the burrowing owl transect surveys; and **Figure 7** displays the location of the potential horned lizard scat**. Table 1** summarizes the number of each bird species detected.

5.1 Burrowing Owl

Figure 4 displays all burrowing owls detected along with the ranges of nearby prairie dog colonies. The majority of owl observations were located in the northwest colony near the guard post. Burrowing owls were also observed in the eastern prairie dog colony and some owls were observed in areas of the project site without nearby colonies.

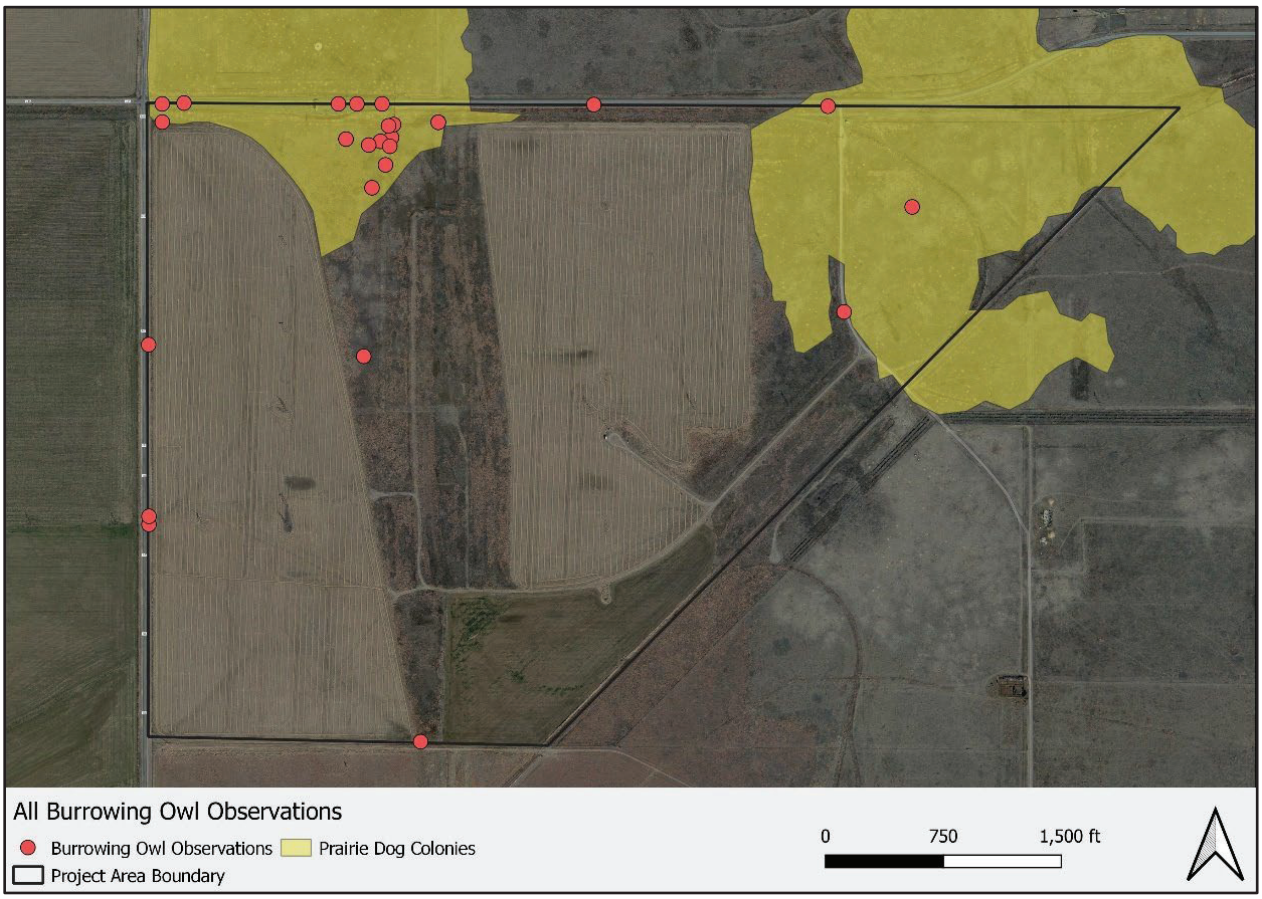

Figure 4. All Burrowing Owl Observations

Figure 5 displays the burrowing owls detected during point count. The majority of owls detected during these surveys were present in the prairie dog colony located in the northwest section of the project area near the guard post.

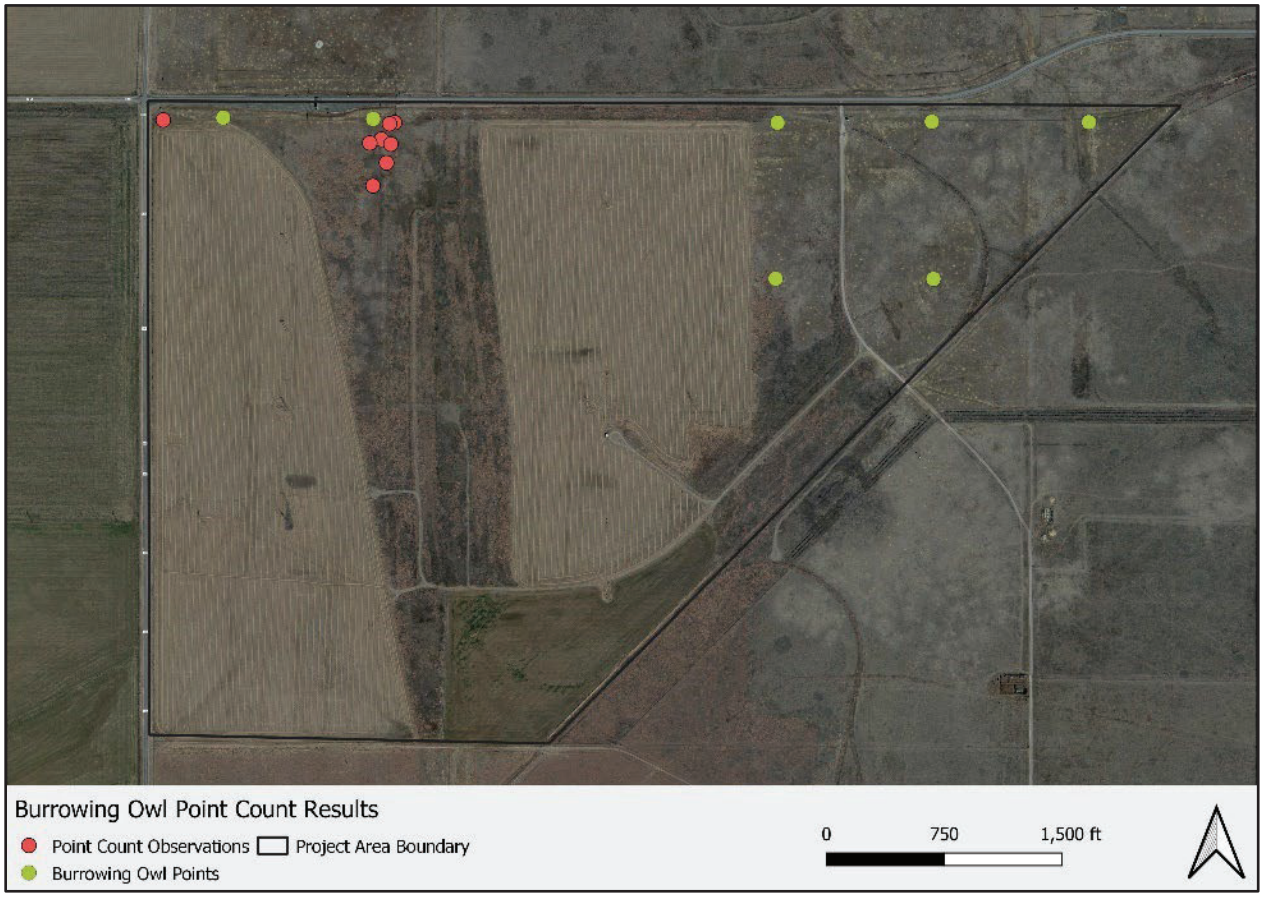

Figure 5. Burrowing Owl Point Count Observations

Figure 6 displays burrowing owls detected during transect surveys. Owls were most prevalent along the northern half of the project area that contained the prairie dog colonies. Some burrowing owls were also detected along the fence line bordering the western edge of the project area.

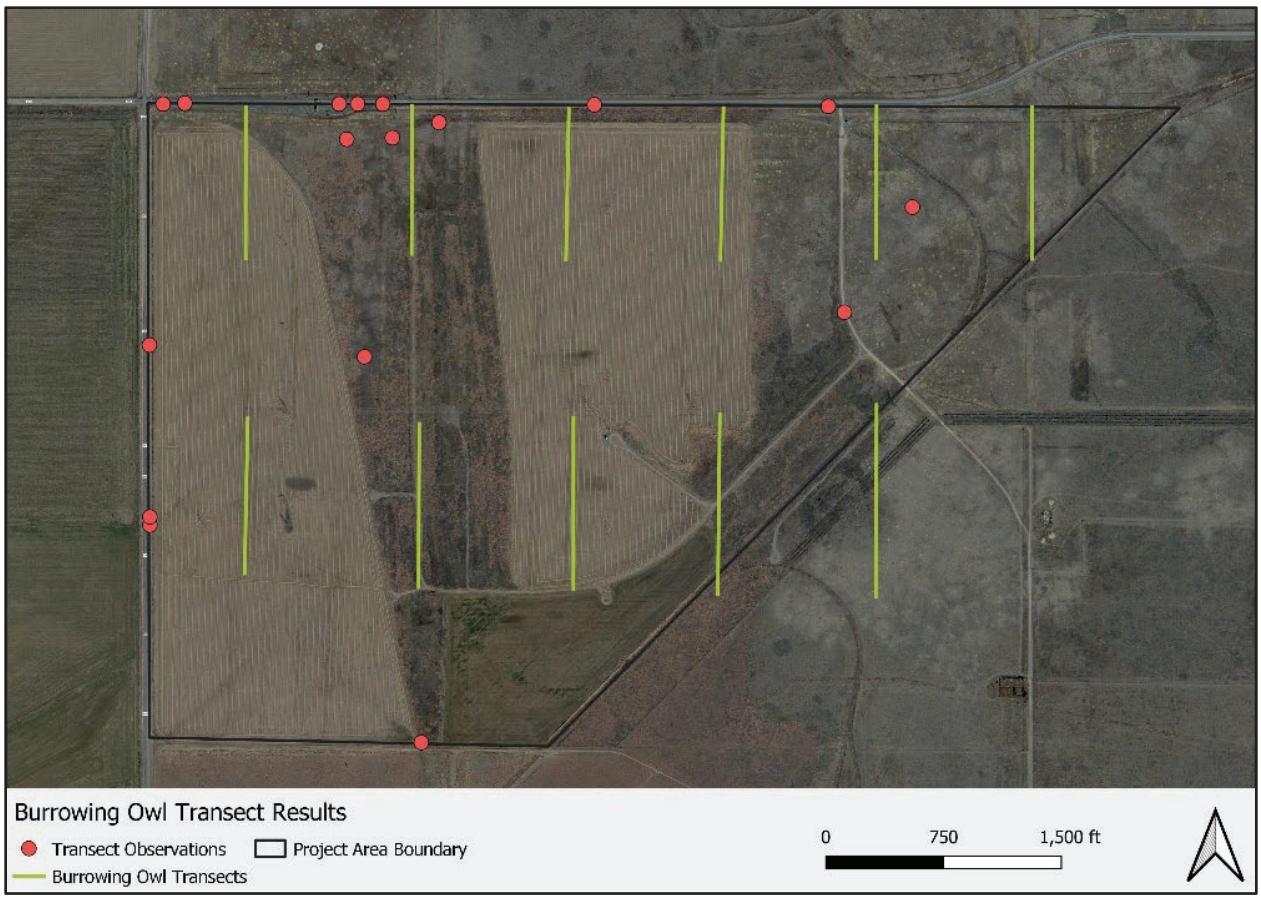

Figure 6. Burrowing Owl Transect Observations

5.2 Texas Horned Lizard

Over the three-day survey period, there were no direct observations of Texas horned lizard. However, **Figure 7** details one observation of scat that could potentially belong to a horned lizard. The scat indicates the potential presence of horned lizards because it was the correct size and primarily consisted of ants. Other than this observation, there were no other direct or indirect observations of Texas horned lizards in or adjacent to the project area.

Figure 7. Potential Horned Lizard Scat Observation

5.3 General Avian Point Counts

Table 1 summarizes the results of the general point count surveys by listing each bird species by the number of detections. The general bird surveys were conducted on 8/12 and did not identify any Federal or State special status species.

Table 1. Summary of General Bird Surveys by Species

Species	Number of Observations
Mourning dove (*Zenaida macroura*)	17
Barn swallow (*Hirundo rustica*)	16
Killdeer (*Charadrius vociferus*)	10
Unknown Sparrow (*Passerellidae* sp.)	5
Western meadowlark (*Sturnella neglecta*)	5
Upland sandpiper (*Bartramia longicauda*)	3
Burrowing owl (*Athene cunicularia*)	2

Species	Number of Observations
Canada goose (*Branta canadensis*)	1
Common grackle (*Quiscalus Quiscula*)	1
Unknown Shorebird (*Scolopacidae* sp.)	1
Red-shouldered hawk (*Buteo lineatus*)	1
Red-winged blackbird (*Agelaius phoeniceus*)	1

6.0 CONCLUSIONS

This biological survey provided conclusive evidence of burrowing owls presence and nesting within the project area, as well as potential indication of Texas horned lizard presence. Thus, Texas horned lizards could be present within the project area. However, the lack of harvester ant mounds observed in the project area indicates that any population present would likely be small. The general avian point counts did not document any additional special status bird species within the project area.

6.1 Burrowing Owls

Burrowing owls were observed within the project area during both targeted point and transect surveys. Burrowing owls were observed throughout the project area, but were most concentrated in the northwest section of the project area near the guard post. The majority of burrowing owls were observed within boundaries of the prairie dog colonies at the edges of the project area; however, some owls were also observed in short grass prairie areas. Due to the presence of burrowing owls throughout the site, Solv recommends that the following Best Management Practices (BMPs) be implemented to minimize the potential for adverse construction impacts to these birds.

6.1.1 Suggested BMPs

The following BMPs are commonly implemented to minimize and mitigate potential impacts to western burrowing owls:

- Conduct activities outside the breeding season (March to September). No disturbance should occur within 75 m (approx. 250 ft.) of occupied burrows during the breeding season or within 50 m (approx. 160 ft.) during the nonbreeding season (October to February). Occupancy should be verified by qualified biologists using visual survey methods at least 3 days prior to the start of the construction period.
- Delay ground disturbance, prairie dog control, and construction activities in preferred burrowing owl habitat areas until owls have migrated out of the project area.
- Mitigate disturbed owl habitat. Mitigation measures could include but are not limited to formally protecting equal areas of disturbed habitat elsewhere within the Pantex campus or enhancing remaining owl habitat within the project area with artificial nest burrows at the conclusion of the construction period.
- Use passive relocation techniques rather than trapping if owls must be relocated. Owls should be excluded from burrows within a 50-m buffer zone of the area of disturbance by installing one-way doors in burrow entrances. One-way doors should be left in place for at least 48 hours and up to one week to ensure that owls have left burrows before excavation.
- Prior to burrow destruction a video probe should be used to confirm that the burrow is unoccupied. If a video probe is not available burrows should be excavated with hand tools to ensure that the burrows are unoccupied.

6.2 Texas Horned Lizard

Although Texas horned lizards were not observed over the three-day survey period, presence of potential sign and generally poor observation conditions do not allow for a conclusion of species absence. The observation of potential Texas horned lizard scat indicates that some individual

lizards could be present within the project area. Similarly, weather conditions were not ideal for horned lizard activity throughout the three-day survey period; temperatures ranged from 74° to 90° F, with most days under 85° F during lizard surveys. Hotter temperatures are correlated with higher levels of Texas horned lizard activity due to their basking behavior in open areas or roads and higher activity levels of their preferred prey, harvester ants (TPWD, No Date-b). However, the lack of any direct observations during the targeted surveys and the small number of observed harvester ant mounds indicates that, a substantial Texas horned lizard population does not exist within the project area.

6.2.1 Suggested BMPs

The following BMPs are suggested mitigation measures to implement in the event that Texas horned lizards are located or observed during construction activities. The following recommended BMPs include:

- Educate crew on Texas horned lizard identification and implement stop construction observers. If a horned lizard is observed, construction should halt and Texas Parks & Wild Department (TPWD) should be contacted immediately.

General BMPs recommended by the TPWD for amphibians and reptiles that are relevant to Texas horned lizards include:

- For open trenches and excavated pits, install escape ramps at an angle of less than 45 degrees (1:1) in areas left uncovered. Visually inspect excavation areas for trapped wildlife prior to backfilling
- Avoid or minimize disturbing or removing cover objects, such as downed trees, rotting stumps, brush piles, and leaf litter. If avoidance or minimization is not practicable, consider removing cover objects prior to the start of the project and replace them at project completion.
- Examine heavy equipment stored on site before use, particularly after rain events when reptile and amphibian movements occur more often, to ensure use will not harm individuals that might be seeking temporary refuge.
- Due to increased activity (mating) of reptiles and amphibian during the spring, construction activities like clearing or grading should attempt to be scheduled outside of the spring (March-May) season. Also, timing ground disturbing activities before October when reptiles and amphibians become less active and may be using burrows in the project area is also encouraged.
- When designing roads with curbs, consider using Type I or Type III curbs to provide a gentle slope to enable turtles and small animals to get out of roadways.

6.3 General Avian Point Counts

No additional special status species were detected during the general avian point counts. It is very unlikely that red knot and piping plover, federally threatened species with the potential to occur in the project area, would utilize the project area as a stopover location considering the poor quality of habitat and the low density of migrants in the Panhandle region. Additionally, the lack of substantial trees, shrubs, or other woody plants limits the overall diversity of species that could potentially nest within the project area.

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