ENVIRONMENTAL ASSESSMENT

CONSTRUCTION AND OPERATION OF A NEW ACCESS CONTROL POINT FORT GORDON, GEORGIA

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NEW ACCESS CONTROL POINT
FORT GORDON, GEORGIA

June 2016

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ENVIRONMENTAL ASSESSMENT

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Acronyms and Abbreviations

°C	degrees Celsius
°F	degrees Fahrenheit
µg/m^3	micrograms per cubic meter
ACHP	Advisory Council on Historic Preservation
ACP	Access Control Point
AIA	Artillery Impact Area
ANSI	American National Standards Institute
AQCR	air-quality control region
ARCYBER	Army Cyber Command
ASP	Ammunition Supply Point
ATV	Artesian treatment vessel
AUD	Augusta Utilities Department
BSV	Background screening value
CAA	Clean Air Act
CAP	Corrective Action Plan
CARB	California Air Resources Board
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
COC	Constituent of Concern
CS	Confirmatory Sampling
dB	decibel
dBA	A-weighted decibel
DCE	dichloroethene
DDEAMC	Dwight D. Eisenhower Army Medical Center
de minimis	of minimal importance
DO	dissolved oxygen
DOD	Department of Defense
DNL	Day Night Sound Level
EA	Environmental Assessment
EESOHMIS	Enterprise Environmental Safety and Occupational Health Management Information System
EIFS	Economic Impact Forecast System
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act
EO	Executive Order
FEMA	Federal Emergency Management Agency

FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Maps
FPPA	Farmland Protection Policy Act
GADNR	Georgia Department of Natural Resources
GAEPD	Georgia Environmental Protection Division
GASHPO	Georgia State Historic Preservation Office
GC	Garrison Commander
GDOT	Georgia Department of Transportation
GHG	greenhouse gas
FNSI	Finding of No Significant Impact
HMCP	Hazardous Materials Control Point
HMU	Habitat Management Unit
HWMP	Hazardous Waste Management Plan
IAW	in accordance with
ICRMP	Integrated Cultural Resources Management Plan
IMCOM	Installation Management Command
INRMP	Integrated Natural Resources Management Plan
IRP	Installation Restoration Program
ISCP	Installation Spill Contingency Plan
IWQS	In-Stream Water Quality Standards
JLUS	Joint Land Use Study
kW	kilowatt
L_{eq}	equivalent sound level
LID	Low Impact Design
LOD	limit of detection
LOS	Level of Service
LUC	Land Use Control
MCL	maximum contaminant level
MGD	million gallons per day
MOA	Memorandum of Agreement
MS4	Municipal Separate Storm Sewer System
MSWL	Municipal Solid Waste Landfill
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NCO	Non-Commissioned Officer
NEPA	National Environmental Policy Act
NETCOM	Network Enterprise Technology Command
NHPA	National Historic Preservation Act
NO_2	Nitrogen Dioxide
NPDES	National Pollutant Discharge Elimination System
NRFL	Non-Reimbursable forestland
NRHP	National Register of Historic Places
NSAG	National Security Agency Georgia

PEA	Programmatic Environmental Assessment
$PM_{2.5}$	particulate matter 2.5 microns
PM_{10}	particulate matter 10 microns
Ppb	parts per billion
ppm	parts per million
O_3	ozone
PA	Programmatic Agreement
RCRA	Resource Conservation and Recovery Act
RCW	Red-Cockaded Woodpecker
RFI	RCRA Facility Investigation
RFL	Reimbursable forestland
ROI	Region of Influence
RONA	record of non-applicability
RPM	reasonable and prudent measures
RPPB	Real Property Planning Board
RSL	Regional Screening Level
RTG	Road to Growth
RTV	rational threshold value
SAIA	Small Arms Impact Area
SAR	Species at Risk
SIP	State Implementation Plan
SO_2	sulfur dioxide
SO_x	oxides of sulfur
SOP	standard operating procedures
SPCCP	Spill Prevention, Control, and Countermeasures Plans
SSL	Soil screening level
SVOC	Semi-volatile organic compound
SWMU	Solid Waste Management Unit
SWPPP	Stormwater Pollution Prevention Plan
TA	Training Area
TCE	Trichloroethene
TCLP	Toxic Characteristic Leaching Procedure
TNM	Traffic Noise Model
tpy	tons per year
TSCA	Toxic Substance Control Act
USACE	United States Army Corps of Engineers
USCB	United States Census Bureau
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VCC	Visitor Control Center
VEC	Valued Environmental Components
VOC	volatile organic compounds
WWTP	Wastewater Treatment Plant

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1.0 Purpose, Need and Scope

1.1 *Background*

Fort Gordon encompasses approximately 55,590 acres in east-central Georgia. Most of the Installation and the entire cantonment area lie within Richmond County, with portions of some training areas in Jefferson, Columbia, and McDuffie counties (Figure 1). Fort Gordon is located approximately 145 miles east of Atlanta, Georgia and approximately 115 miles northwest of Savannah, Georgia. Augusta, Georgia is the nearest urban center and is located approximately 9 miles northeast of the Installation. Fort Gordon is bounded on the north by U.S. Highway 78/State Highway 10 (Gordon Highway), on the west by U.S. Highway 221, and on the south by U.S Highway 1. Interstate 20 (I-20), located 2 miles north of the Installation, and Interstate 520 (Bobby Jones Expressway), located 2 miles east of Gate One, provide access to the Installation. There are no public roads or highways on the Installation. Approximately 50,000 acres (90 percent) of Fort Gordon are used for training missions. The Installation is subdivided into 49 training areas, two restricted impact areas (small arms and artillery), and two cantonment areas (main and industrial) (Figure 2). Impact areas occupy approximately 13,000 acres and on-post maneuver and training areas occupy approximately 37,000 acres (Fort Gordon 2014a). The remaining 5,590 acres are cantonment areas that include military housing, administrative offices, community facilities, medical facilities, industrial facilities, maintenance facilities, supply/storage facilities, lakes and ponds, recreational areas, and forested areas (Fort Gordon 2014a).

The U.S. Army Garrison at Fort Gordon operates the Installation on behalf of the Cyber Center of Excellence and numerous other units and organizations that are housed and headquartered at Fort Gordon. The garrison supports the post through directorates and agencies that provide a full range of city services and quality-of-life functions — everything from facilities maintenance, recreation and family programs to training support and emergency services. The garrison is part of the Atlantic Region of the Installation Management Command (IMCOM), which operates Army

installations around the world. The mission of the U.S. Army Garrison at Fort Gordon is to provide Installation services, facilities, and infrastructure that support mission readiness and provide an enhanced quality of life for the Soldiers, families and civilians of Fort Gordon.

Fort Gordon is the home of the newly established U.S. Army Cyber Center of Excellence, and was previously called the Signal Center of Excellence. Fort Gordon is the largest communications training facility in the Armed Forces, and is the focal point for the development of tactical communications, information systems, and cyber security. The Leader College of Information Technology, located at Fort Gordon, is the U.S. Army's premiere site for all automation training and home to the Regimental Non-Commissioned Officer (NCO) Academy.

Fort Gordon is also the home to the 706th Military Intelligence Group; the Naval Security Group Activity; United States Air Force 480th Intelligence, Surveillance, and Reconnaissance Group; 67th Signal Battalion; the Southeast Region Medical Command; the Southeast Region Dental Command; Southeast Region Veterinary Command; the Dwight D. Eisenhower Army Medical Center (DDEAMC); U.S. Army Dental Lab; Regional Training Site-Medical; 35th Signal Brigade (deployable); 513th Military Intelligence Brigade (deployable); and Georgia National Guard Youth Challenge Academy.

Additionally, numerous Army Reserve and National Guard units from Georgia and South Carolina use Fort Gordon's weapons ranges and training areas. The current workforce population on Fort Gordon (military and civilian) is approximately 23,950, of which approximately 14,150 are active and reserve military and 9,800 are civilians and contractors (Fort Gordon 2015b).

1.2 Purpose and Need for the Proposed Action

1.2.1 *Background to the Purpose and Need*

On October 1, 2010, the U.S. Army activated the Army Cyber Command/2nd Army (ARCYBER). This command leads a corps of 21,000 Soldiers and civilians who serve worldwide, operating and defending Army communications networks along

Figure 1: Fort Gordon Vicinity Map

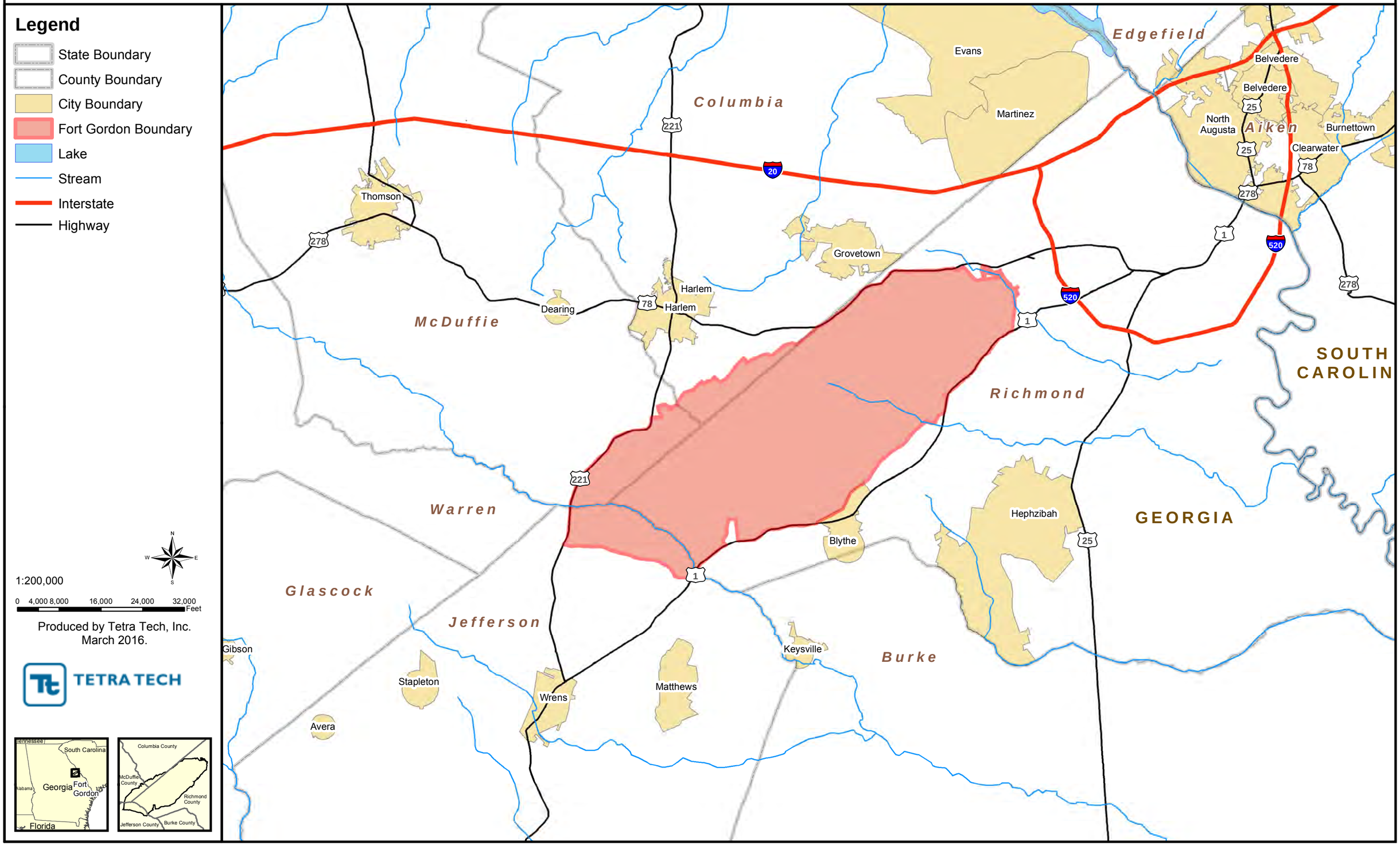
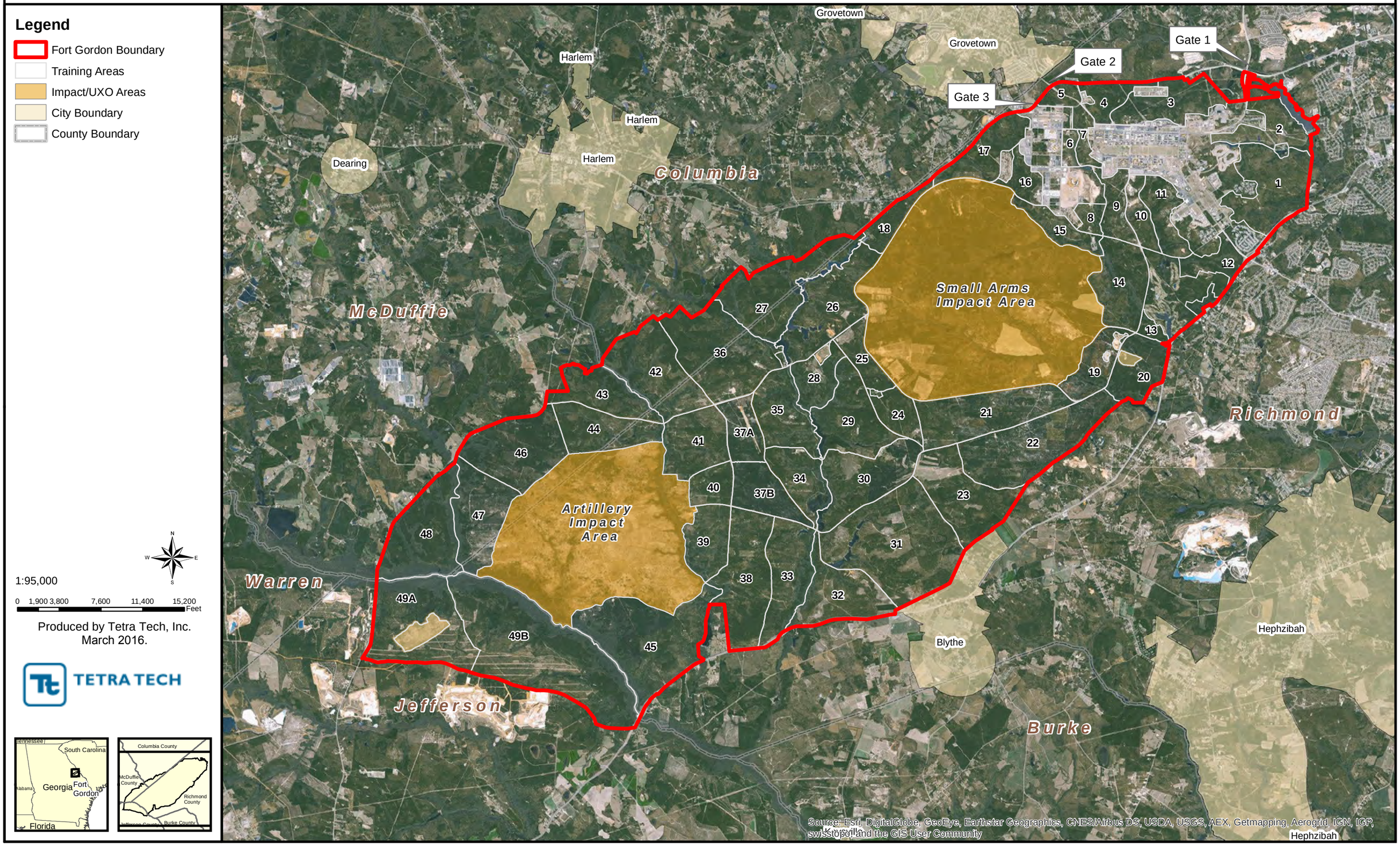


Figure 2: Fort Gordon Map



with supporting organizations such as the Army Network Enterprise Technology Command (NETCOM). ARCYBER's mission is to plan, coordinate, integrate, synchronize, direct, and operate Army communication networks and to defend these networks. In August 2013, the Army proposed to consolidate the ARCYBER force structure at Fort Meade and Fort Belvoir into one location. This consolidation was expected to lead to a substantially larger workforce at a new consolidated ARCYBER command and control facility (up to 1,500 Soldiers and civilians). This action was analyzed in the *U.S. Army Cyber Command and Control Facility, Fort George G. Meade, Maryland and Fort Gordon, Georgia Final Environmental Assessment* (ARCYBER EA) that resulted in a Finding of No Significant Impact (FNSI) (ARCYBER 2013). In December 2013, the Army announced its decision to locate the consolidated ARCYBER facility at Fort Gordon.

As a result of the Army's decision to locate the consolidated ARCYBER facility at Fort Gordon, elements of a number of other cyber security-related organizations are expected to realign by either moving to Fort Gordon or increasing the size of units already stationed at Fort Gordon. The expected increase in the number of workers engaged in cyber security will likely require additional support staff, facilities, and infrastructure. Environmental impacts resulting from the increase in personnel (up to 6,000 Soldiers and civilians) were analyzed in *U.S. Army Garrison Fort Gordon, Georgia, Road to Growth Stationing Actions Programmatic Environmental Assessment* (Road to Growth PEA; Fort Gordon 2014a) which resulted in a FNSI in March 2015.

As analyzed in the ARCYBER EA and Road to Growth PEA, as many as 7,500 soldiers and civilians could be added to the Fort Gordon workforce over the next five to ten years as a result of ARCYBER relocation and other stationing actions. FNSIs for the ARCYBER EA and Road to Growth PEA both stated that traffic mitigation measures would be required to reduce impacts to less than significant. Fort Gordon employees and visitors who enter the Installation by way of Gates 1 and 2 are currently experiencing congestion and delays during peak commuting hours. This congestion frequently affects the flow of traffic on Gordon Highway, on

the Installation, and into and out of the Grovetown area. There is concern that continued workforce expansion at Fort Gordon will exacerbate the traffic situation in these areas and could even pose a threat to public safety if movement of fire, police, and rescue vehicles is hindered. During peak traffic times, traffic backs up on Gordon Highway and into Grovetown on East Robinson Avenue due to the lack of stacking space on Fort Gordon (i.e. sufficient space for queued-up vehicles between the Installation entrance and the access control point [ACP], where drivers' credentials are inspected). There is also significant traffic congestion on Fort Gordon between the entrance gates and critical mission support locations during these peak traffic times. In addition, the existing Visitor Control Center (VCC) is too small to accommodate the number of visitors that are processed on a typical weekday. Gate 3, which is 0.6 mile southwest of Gate 2 on Gordon Highway and sometimes referred to as the "commercial gate," also lacks sufficient stacking space for the large delivery and tractor-trailer trucks that use it. Further, the Gate 3 vehicle search area and background check trailer are too small for the increasing number of delivery trucks and service vehicles that use it.

1.2.2 Purpose and Need

The purpose of the Proposed Action is to establish a new access point onto Fort Gordon that will reduce traffic congestion on roadways servicing Fort Gordon and to provide a shorter, more-direct route to areas of Fort Gordon that are experiencing the greatest growth. This access point is needed to accommodate mission expansions and personnel increases that Fort Gordon is experiencing and to improve traffic flow in and out of the Installation. It will also help alleviate public safety concerns on Fort Gordon and in neighboring communities caused by traffic congestion.

1.3 *Decision to be Made*

The proponent for this project is the Garrison Commander (GC) of Fort Gordon. It is the responsibility of the GC to review the information and analyses in this environmental assessment (EA) and decide which alternative to execute.

1.4 *Project Scoping and Public Involvement*

1.4.1 Scoping Letter

A scoping letter was sent out on January 21, 2016 to state and federal agencies listed in Chapter 7. The purpose of this letter was to inform the agencies of the study effort and request:

- any information the agencies had on file that might be pertinent to the analysis,
- information on issues that the agencies felt should be considered in the EA process, and
- assistance in identifying additional interested parties that should be contacted.

A sample scoping letter sent to the agencies is in Appendix A.

1.4.2 Public Participation Process

The EA and draft FNSI were made available to federal, state, and local agencies and the public for review and comment for 30 days. A Notice of Availability for the EA and draft FNSI were published in the *Augusta Chronicle*. During the public review and comment period, copies of the EA were made available at the Fort Gordon Public Affairs Office (Building 33720, Darling Hall, Chamberlain Ave., Fort Gordon, GA), Woodworth Library (Building 33500, Rice Road, Fort Gordon, GA), and the Augusta-Richmond County Library (823 Telfair St., Augusta, GA). During and immediately following this public comment period, the Army collected, logged, and incorporated any comments received into the EA and FNSI as necessary. The Army will prepare and release a final FNSI and EA to the appropriate local, state, and federal repositories after receiving all comments. The signed FNSI and EA will remain on record with the Fort Gordon, DPW, Environmental Division Office.

1.5 *Scope of this EA*

Title 32 Code of Federal Regulations (CFR) Part 651 (29 March 2002) implements the National Environmental Policy Act (NEPA) of 1969 for the Army and requires Army installations to consider the environmental impacts of a proposed action and its alternatives prior to proceeding with those actions. The purpose of this EA is to inform the decision makers and public of the likely environmental consequences of the proposed action and alternatives.

This EA was written with the best data and information available at the time of its development. Any changes to the project scope or its potential impacts require that the project manager responsible for this project coordinate with the Fort Gordon NEPA team to re-evaluate this document for consistency and applicability to the revised project. This re-evaluation shall be performed based on the new information and shall result in either a finding of sufficiency between this EA and the new project scope, or the completion of supplemental NEPA analysis to assess the potential impacts of the new project scope. All work on the action exceeding that described in the EA shall be halted until the new assessment is completed.

This EA is tiered from the Road to Growth PEA, a much broader-based evaluation, and is fairly narrowly focused on the potential impacts of building and operating a new ACP/Gate 6 on Fort Gordon. The impacts of adding up to 7,500 personnel to the Fort Gordon workforce over the next five to ten years, as a result of ARCYBER and other stationing actions, on Fort Gordon's infrastructure and natural resources were analyzed in the (2013) ARCYBER EA and (2014) Road to Growth PEA and are not within the scope of this EA. Issues and resources of concern identified during the planning process for this EA include cultural resources; geology and soils; noise; ecological resources; water resources; traffic and transportation; land use; and visual and aesthetic resources. However, other resource areas will also be analyzed.

1.6 Applicable Environmental Statutes and Regulations

This EA was prepared in accordance with the provisions of the National Environmental Policy Act of 1969 as amended (42 U.S. Code [U.S.C.] 4321 et seq.), the Council on

Environmental Quality's (CEQ) NEPA implementing regulations at 40 CFR Part 1500, and 32 CFR Part 651. Table 1 summarizes the pertinent environmental regulations, laws, and Executive Orders (E.O.) that guided the development of this EA.

Table 1: Applicable Environmental Statutes and Regulations

Federal Laws and Regulations
Archaeological Resources Protection Act
Clean Air Act of 1970, as amended
Clean Water Act of 1987, as amended
Comprehensive Environmental Response, Compensation and Liability Act of 1986
Endangered Species Act of 1973, as amended
Energy Independence and Security Act of 2007
Farmland Protection Policy Act
Magnuson-Stevens Fisheries Conservation and Management Act
Migratory Bird Treaty Act of 1972
National Environmental Policy Act of 1969, as amended
National Historic Preservation Act of 1966, as amended
Native American Graves Protection and Repatriation Act of 1990
Resource Conservation and Recovery Act of 1976
Safe Drinking Water Act of 1974
Watershed Protection and Flood Prevention Act of 1954
10 U.S.C. 2665 (Provides for reimbursable forestry funds)
10 U.S.C. 2687 (Base Closures and Realignments)
40 CFR Part 1500-1508, Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act

Executive Orders and Army Regulations
Army Regulatory Guidance Memorandum for Reimbursable Agriculture/Grazing and Forestry Programs dated 17 August 1999
Environmental Effects of Army Actions (32 CFR Part 651)
Environmental Protection and Enhancement (AR 200-1)
Invasive Species (E.O. 13112)
Protection of Migratory Birds and Game Mammals (E.O. 11629)
Executive Orders and Army Regulations
Army's 2007 Management Guidelines for the RCW on Army Installations
Army's 2008 Management Guidelines for the Gopher Tortoise on Army Installations
Floodplain Management (E.O. 11988); Protection of Wetlands (E.O. 11990)
Federal Actions to Address Environmental Justice in Minority Populations And Low-Income Populations (E.O. 12898)
Protection of Children from Environmental Health Risks and Safety Risks (E.O. 13045)

2.0 Description of Proposed Action and Alternatives

2.1 *Description of the Proposed Action*

The Proposed Action is to construct and operate a new ACP on Fort Gordon. As discussed in Section 1.2.2, establishing a new ACP onto Fort Gordon will help to reduce traffic congestion on roadways servicing the Installation and will provide a shorter, more-direct route to areas of Fort Gordon that are experiencing the greatest growth. A new ACP will accommodate the personnel and mission increases that Fort Gordon is experiencing and will improve traffic flow in and out of the Installation. This EA will assess the potential impacts of constructing and operating the new ACP and associated infrastructure.

2.2 *Alternatives Considered in this EA*

Three alternative locations for the new ACP will be evaluated. As noted previously in Section 1.3, this EA is tiered from the Road to Growth PEA (Fort Gordon 2014a), a wide-ranging assessment that was intended to serve as the basis for "follow-on, site-specific" NEPA evaluations such as this one. The alternatives under consideration reflect the fact that the scope of this assessment is relatively narrow and site specific, and that project activities will take place in a relatively small geographic area. A No Action Alternative will be included as required by the CEQ regulations to identify the existing baseline conditions against which potential impacts will be evaluated.

Although each of the three proposed action alternatives (1, 2 and 3) is associated with a different gate location and a different route from Gordon Highway to the central part of Fort Gordon, the three action alternatives share certain common features. All three would include widening Gordon Highway between Gate 2 and the new entrance in order to accommodate more traffic lanes through that area. The widening would occur on Fort Gordon property (south of the highway); no widening would happen north of the highway. In each of these alternatives, the VCC currently located at Gate 1 would be placed in an inactive status and a new VCC would be constructed near the new ACP. Gate 1 would become a Department of Defense (DOD) gate only and all visitor traffic would be through the new ACP. Gate 2 would be placed in an inactive status

and may be used in the future for special events or emergencies but would not be used on a regular basis. Gate 3 would be closed permanently and contractors would use the new ACP.

2.2.1 Alternative 1: Parham Road Alternative

Under Alternative 1, GDOT would widen Gordon Highway between Gate 2 and a new entrance that would be aligned with Parham Road. A new ACP and access road would be built in the northern part of Training Area (TA) 17, where Parham Road intersects with Gordon Highway (Figure 3). The new access road would extend east from Gordon Highway to connect to Chamberlain Avenue in the vicinity of 9th Street and Building 995 (the Recycling Center).

2.2.2 Alternative 2 (Preferred Alternative): Training Area 17 Alternative

Under Alternative 2, GDOT would widen Gordon Highway between Gate 2 and a new entrance that would be established approximately 0.5 mile southwest of the Parham Road/Gordon Highway intersection near an existing cell phone tower (Figure 4). Two or more traffic lanes would be added south of the existing highway (on Fort Gordon property) to facilitate the flow of traffic onto the Installation. The new multi-lane road would narrow to two lanes after exiting a new ACP, which would be located a short distance east of the new entrance. The two-lane access road would traverse TA 17 as shown in Figure 4, then extend southeast into TA 16, curve east around the southern boundary of the Ammunition Supply Point (ASP), and, a short distance southeast of the ASP, would either (1) continue east, crossing the tank trail and entering the cantonment area at the intersection of 107th Avenue and 12th Street or (2) extend southeast, paralleling North Range Road for approximately 3,000 feet before turning east to enter the cantonment area at the intersection of 110th Avenue and 12th Street. Up to 150 acres of land located within the Area of Potential Disturbance shown in Figure 4 could be disturbed under Alternative 2. Substantially less than 150 acres --- as little as a third of that acreage --- would be permanently altered, cleared for the new roadways, buildings, parking lots, and infrastructure. The remainder of the 150 acres could be temporarily

disturbed for construction-phase parking, construction laydown areas, construction trailers, and equipment storage.

2.2.3 Alternative 3: Newmantown Road Alternative

Under Alternative 3, GDOT would widen Gordon Highway between Gate 2 and a new entrance that would be aligned with Newmantown Road. A new ACP and access road would be built in the northern portion of TA 18 near the intersection of Newmantown Road and Gordon Highway (Figure 5). The new access road would curve north, then east, to merge with Range Road southwest of the ASP at the Small Arms Impact Area (SAIA). It would then continue east, cross the tank trail and connect to 107th Avenue at 12th Street.

2.2.4 Alternative 4: No Action Alternative

The No Action Alternative would be to continue to manage the flow of traffic at Fort Gordon as it is currently managed. Installation personnel and visitors would continue using the existing system of gates and access roads.

2.3 *Alternative Evaluation*

This EA evaluates the impacts of the Proposed Action and Alternatives for every resource area, herein referred to as Valued Environmental Components (VEC). Impacts to VECs are largely qualitative, but where a unit of measure is available, quantitative evaluation is used. In compliance with CEQ and Army NEPA guidance, this EA will only identify the impacts that are expected and determine if the impact is significant. Table 2 defines the significance thresholds for each VEC**.**

Table 2: Thresholds of Significance for Valued Environmental Components

Resource	Significance Threshold
Geology and Soils	A significant impact would occur if the project would (a) expose people or structures to substantial adverse effects, including the risk of loss, injury, or death; (b) result in substantial soil erosion or loss of topsoil; (d) be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

Resource	Significance Threshold
Water Resources	A significant impact would (a) violate any water quality standards or waste discharge requirements; (b) substantially deplete groundwater supplies or interfere substantially with groundwater recharge; (c) substantially alter the existing drainage pattern of the site or area in a manner which would result in substantial erosion or siltation on- or off-site; (d) substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site; (e) create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or (f) otherwise substantially degrade water quality.
Wetlands	A significant impact would occur if the project would have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act.
Floodplains	A significant impact would substantially increase the rate or amount of surface runoff in a manner that would result in flooding on-site or off-site.
Ecological Resources	A significant impact would occur if the project would (a) have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies or regulations by the Georgia Department of Natural Resources (GADNR) or the U.S. Fish and Wildlife Service (USFWS); (b) have a substantial adverse effect on any sensitive or unique natural community identified in local or regional plans, policies or regulations GADNR or USFWS; (c) interfere substantially with the movement of native resident or migratory fish or wildlife, obstruct wildlife corridors, or harm wildlife nursery sites; (d) conflict with local policies ordinances protecting biological resources, such as a tree preservation policy or ordinance; or (e) conflict with the provisions of an approved local, regional, or state habitat conservation plan. Specific significance thresholds for Fort Gordon include (a) reduction of the Installation red cockaded woodpecker (RCW) population; (b) reduction of forage habitat at active clusters below threshold levels and (c) direct effect to a living RCW or active cavity tree.

Resource	Significance Threshold
Air	A significant impact would occur if the project would (a) exceed the general conformity rule *de minimis* (of minimal importance) threshold values; (b) exceed the greenhouse gas (GHG) threshold in the draft CEQ guidance; or (c) contribute to a violation of any federal, state, or local air regulation.
Hazards and Hazardous Materials	A significant impact would occur if the project would (a) create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials; (b) 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; (c) emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within 0.25 mile of an existing or proposed school; (d) result in a safety hazard for people residing or working in the project vicinity; or (e) impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
Noise	A significant impact would occur if the project would (1) result in the violation of applicable federal, state, or local noise regulation, or (2) create appreciable areas of incompatible land use off-post.
Cultural Resources	A significant impact would occur if the project would (a) cause a significant adverse change in the significance of a historical or archeological resource as defined in the National Historic Preservation Act; (b) directly or indirectly damage a unique paleontological resource or site with a unique geologic feature; (c) disturb any human remains, including those buried outside of formal cemeteries.
Land Use	A significant impact would occur if the project would (a) physically divide an established community; (b) conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project; or (c) conflict with any applicable habitat conservation plan or natural community conservation plan.
Facilities	A significant impact would occur if the project would result in the need for new or physically altered facilities, construction for which could cause significant environmental impacts.

Resource	Significance Threshold
Infrastructure and Utilities	A significant impact would occur if the project would result in a 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 system.
Traffic/ Transportation	A significant impact would occur if the project would (a) cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system; (b) cause 50% or more of the intersections evaluated in the Region of Influence (ROI) to decline from Level of Service (LOS) D or better to LOS E or F; (c) substantially increase hazards due to a design feature; (d) noticeably hinder emergency access; or (e) overwhelm existing parking capacity.
Socioeconomics	A significant impact would occur if the project would (a) induce a substantial population growth or decline in an area, either directly or indirectly; (b) displace substantial numbers of existing housing units or people, necessitating the construction of replacement housing elsewhere; (c) produce an impact to the regional economy that would exceed the historical precedent for past economic fluctuation for employment and regional income according to the EIFS (Economic Impact Forecast System) economic model; (d) produce substantial disproportionate adverse environmental, economic, social, or health impacts on minority or low-income populations; (e) produce disproportionate environmental health or safety risk to children; (f) produce a substantial increased public safety hazard from military operations; or (g) produce a long-term substantial loss of recreational opportunities and resources relative to baseline.

Figure 3: Alternative 1 - Parham Road Alternative

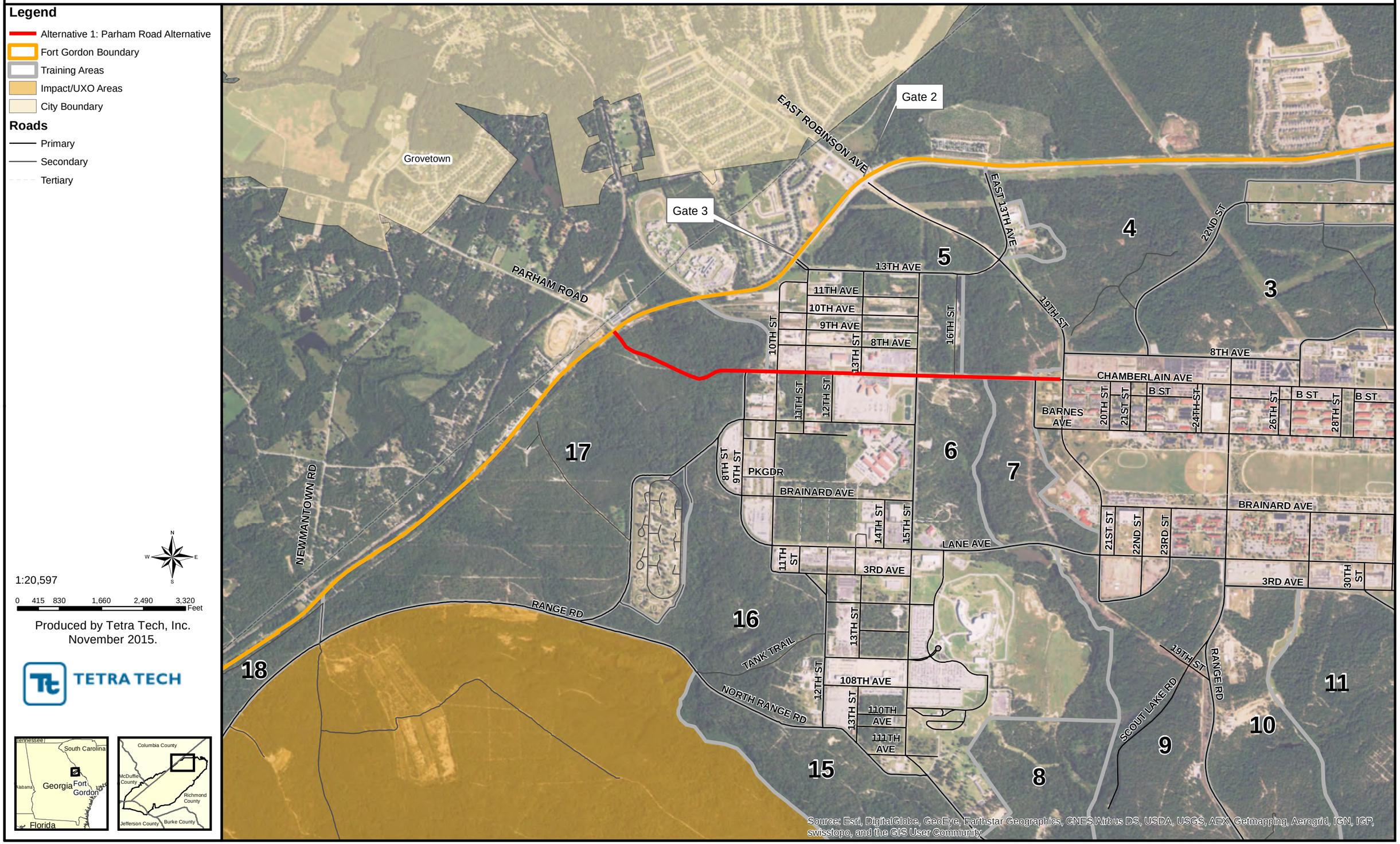


Figure 4: Alternative 2 (Preferred Alternative) - TA 17 Alternative

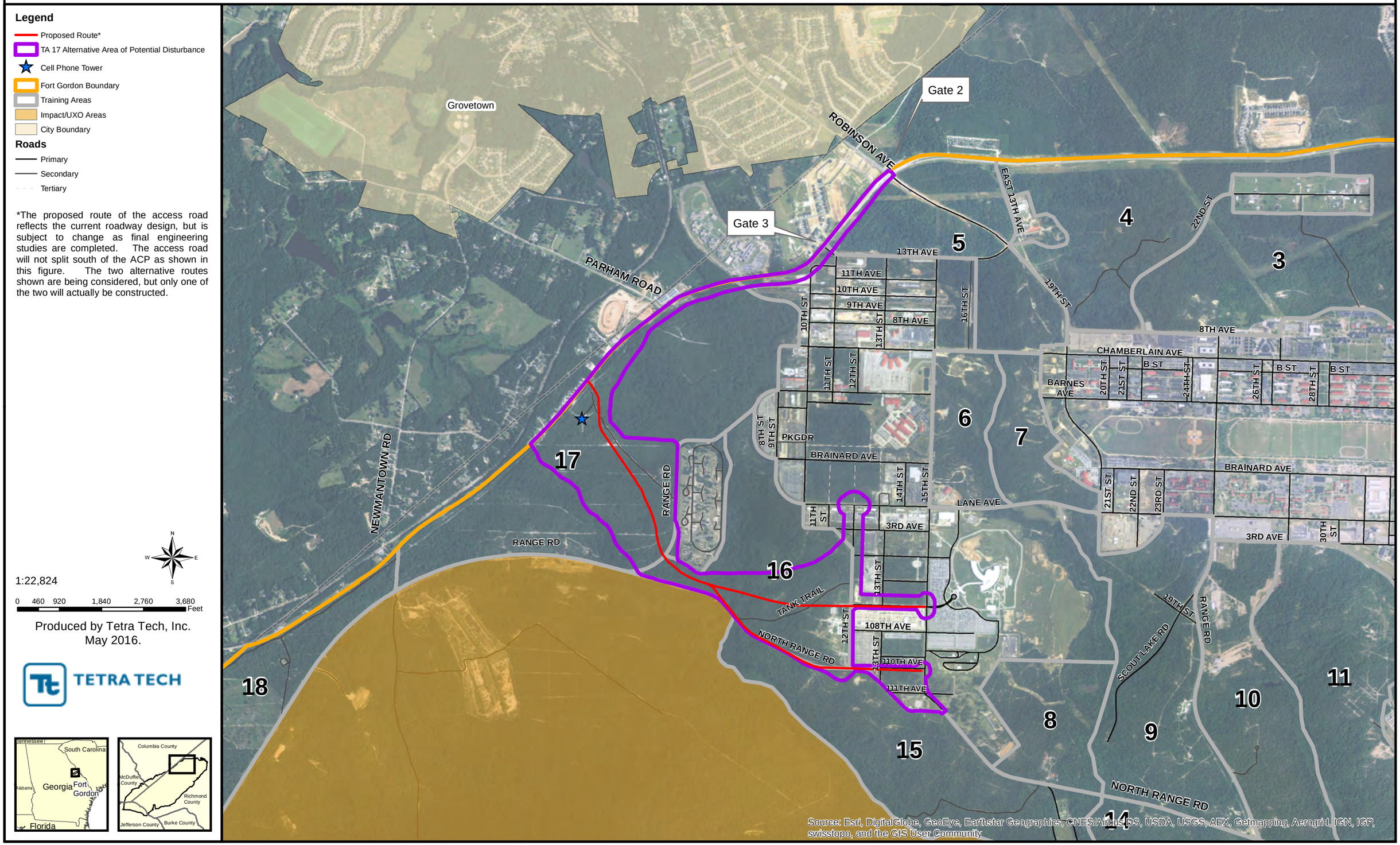
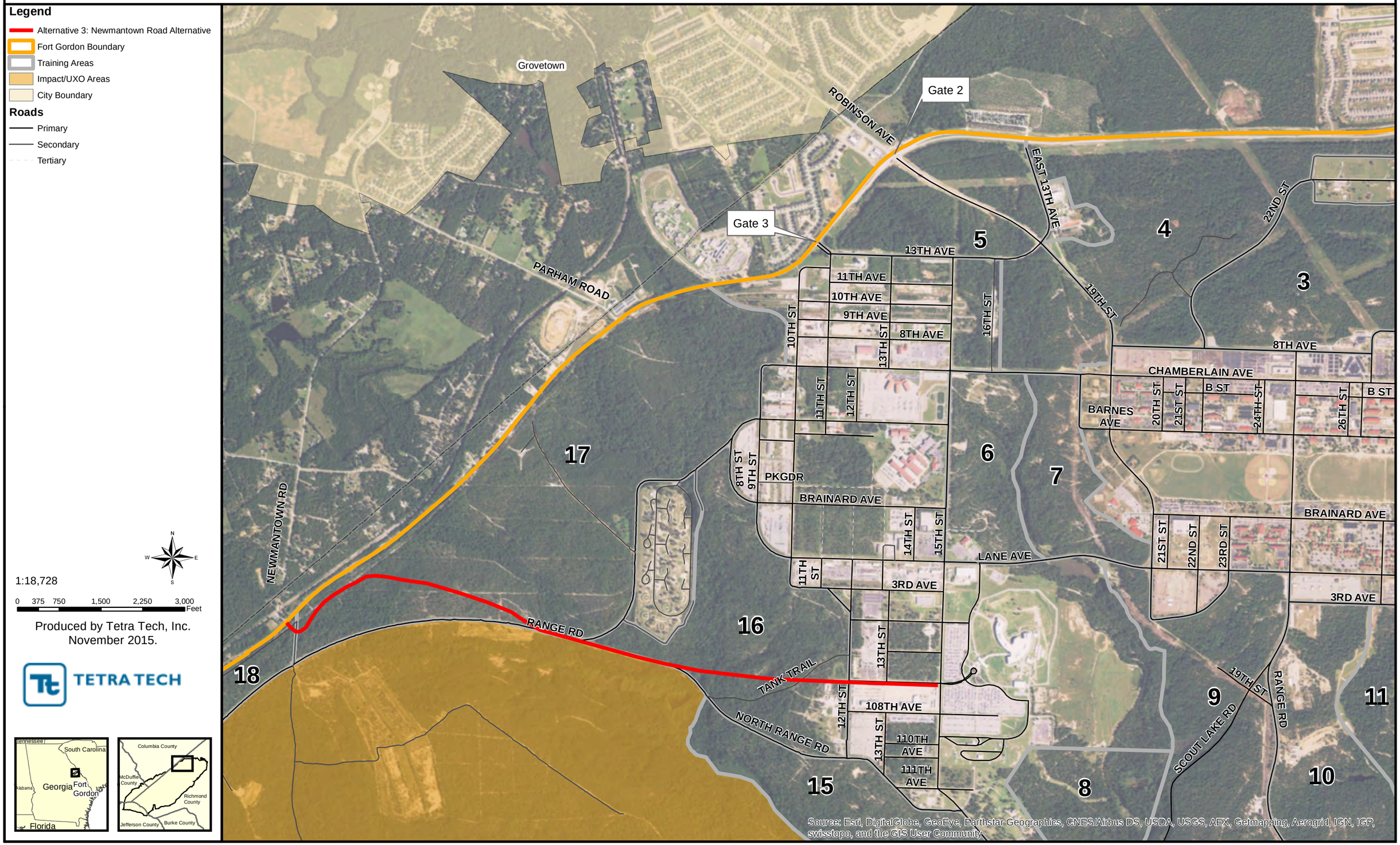


Figure 5: Alternative 3 - Newmantown Road Alternative



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2.3.1 Alternative Selection Criteria

Based on the goals and objectives of the Proposed Action, the following screening criteria will be used to assess the reasonable alternatives being considered in this EA:

1. **Conflict with existing and future mission activities and assignments.** Alternatives considered in this EA may not conflict with existing or future mission assignments and training activities. Alternatives that would disrupt, displace or eliminate necessary mission activities will be eliminated from full consideration because this does not meet the purpose and need of the project.
2. **Adequate Stacking Space on Fort Gordon.** Alternatives considered must allow adequate traffic stacking space on Fort Gordon (i.e. sufficient space for queued-up vehicles between the Installation entrance and the ACP, where driver's credentials are inspected) in order to meet the purpose and need of the Proposed Action. Alternatives that allow adequate stacking space on Fort Gordon are considered feasible with respect to this criterion. Alternatives that would not allow adequate stacking space on Fort Gordon will not be considered feasible and will be eliminated from full consideration.
3. **Significant Impacts that cannot be mitigated**. Alternatives considered must not cause significant impacts to the environment that cannot be mitigated to less than significant. Alternatives that would not cause these impacts will be considered feasible with respect to this criterion. Alternatives that would cause significant impacts that cannot be mitigated to less than significant will not be considered feasible and will be eliminated from full consideration.
4. **Regulatory compliance.** Alternatives considered must comply with all applicable federal, state, local, and installation laws, regulations and

policies. Any alternative that fails to comply with one or more of these will be eliminated from further consideration.

Alternatives (except the No Action Alternative) will be eliminated from further consideration if they fail to meet any of these screening criteria. The No Action Alternative must be carried forward for consideration as per 32 CFR Part 651 and CEQ NEPA regulations (40 CFR 1500-1508) even if it fails to meet the screening criteria. Table 3 summarizes the results of the alternative screening process. Based on the screening process, Alternatives 2 and 4 will be carried through for full assessment in this EA and Alternatives 1 and 3 will be eliminated from full assessment.

Table 3: Alternatives Assessed through Screening Criteria

Screening Criteria	**Alternatives Considered (see Section 2.2 for Description)**			
	Alternative 1: Parham Road Alternative	Alternative 2: Training Area 17 Alternative	Alternative 3: Newmantown Road Alternative	Alternative 4: No Action Alternative
1. Conflict with Existing or Future Missions	No	No	No	No
2. Adequate stacking space on Fort Gordon	**No***	Yes	Yes	**No***
3. Significant Impacts that cannot be mitigated	No	No	**Yes***	No
4. Regulatory compliance	Yes	Yes	Yes	Yes
Status of Alternative	Eliminate from discussion	Carry Forward	Eliminate from discussion	Carry Forward

Notes: Responses in red and with an asterisk indicate conflict with the screening criteria described in Section 2.3. These alternatives will be eliminated from discussion (except No Action Alternative).

2.4 *Assessing Impacts*

2.4.1 General Information

As discussed in Section 2.2, potential implementation alternatives being analyzed for environmental impacts are the following:

- Alternative 2 (Preferred Alternative) – Training Area 17 Alternative and
- No Action Alternative.

An impact is defined as a noticeable change in a resource from the existing environmental baseline conditions caused by an action. The degree of change is determined by measuring the difference between the baseline conditions and the conditions that result following the assessed action. Any difference between the baseline conditions and the site conditions following an action suggests that the action has an impact on that resource.

2.4.2 Types of Impacts

Context and intensity are taken into consideration in determining a potential impact's significance, as defined in 40 CFR Part 1508.27. The intensity of a potential impact refers to the impact's severity and includes consideration of beneficial and adverse impacts, the level of controversy associated with a project's impacts on human health, whether the action establishes a precedent for future actions with significant effects, the level of uncertainty about project impacts, or whether the action threatens to violate federal, state, or local law requirements imposed for the protection of the environment.

The severity of environmental impacts may be characterized as none, minor, moderate, significant, or beneficial.

- **None** – No measurable impacts are expected. Any environmental impact would be barely perceptible, confined to a single location, or would not require a long recovery period (days to months).

- **Minor** – Short-term but measurable impacts are expected. The resource would recover in a relatively short period of time (days to months).
- **Moderate** – Measurable and long term impacts that may not remain localized. Recovery may require several years or decades.
- **Significant** – Impacts that result in a substantial change in the current or future condition of the VEC. The threshold of significance, developed for each VEC, identifies when an impact would result in a substantial or permanent adverse change. Thresholds of significance were developed for each resource (Table 2).
- **Beneficial** – Impacts that result in a positive change in the current or future condition of the VEC.

Quantitative and qualitative analyses were used, as appropriate, in determining whether, and the extent to which, a threshold would be exceeded. Based on the results of these analyses, this EA identifies whether a particular potential impact would be adverse or beneficial, and to what extent. Impacts can further be categorized as direct, indirect, or cumulative.

- **Direct** – Caused by the action, occurring at the same time and place
- **Indirect** – Caused by the action and foreseeable, but occur at a later time or different place
- **Cumulative** – Effects on the environment that result from the incremental effect of a project in combination with other past, present, or reasonably foreseeable future actions, regardless of jurisdiction or entity. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over time.

2.4.3 Intensity of Impact

Once an impact is identified, it must also be determined if an impact approaches a level of significance. Significance, as defined by the CEQ in 40 CFR 1508.27 (Regulations for Implementing NEPA), requires consideration of both the context

and intensity of the impact evaluated. Significance can vary in relation to the context of the Proposed Action and thus, where significance is not defined by regulation or policy it must be evaluated in several contexts. These contexts vary with the setting of the Proposed Action, and can include consideration of effects across both time (short vs. long-term effects) and space (local vs. regional scale). Thresholds of significance for each resource were defined for the analysis of the Proposed Action and are shown in Table 2.

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3.0 Affected Environment and Environmental Consequences

3.1 *Geology and Soils*

3.1.1 Affected Environment

Geology

Fort Gordon is located near the Fall Line, the imaginary dividing line between the Lower Piedmont and Upper Coastal Plains physiographic provinces (Fort Gordon 2015c). The hilly Piedmont is associated with hard, erosion-resistant igneous and metamorphic rock; the relatively flat Coastal Plain is associated with more-erodible sedimentary rock. Sedimentary rock in the Fall Line area of east-central Georgia is composed primarily of two formations, the Barnwell Formation of the Jackson Group formed during the Eocene Period, and the Tuscaloosa Formation of the Cretaceous Period. Geologic components associated with the Tuscaloosa Formation include phyllite, quartzose, arkosic sands, kaolin, quartz gravel, and glint kaolin (Fort Gordon 2015c).

Soils

The Sand Hills (also known as “Fall Line Hills”) Eco-Region of the Upper Coastal Plain, in which Fort Gordon is located, consist of mostly unconsolidated soils derived from Eocene and Cretaceous marine sands, loams, and clays that were deposited over acid crystalline and metamorphic rocks (Fort Gordon 2015c). These soils are predominantly sandy in character, acidic, low in organic matter and moisture holding capacity and very low in natural fertility. Crops grown in the Sand Hills require varying applications of lime, potash, and phosphate. The surface and subsurface soil drainage is excessive, requiring more frequent fertilization.

Upland areas of Fort Gordon are generally associated with deep, well-drained, medium-to-fine sands. Stream floodplains on the Installation are more often associated with poorly-drained hydric soils. Twenty-six soil classes have been identified on Fort Gordon (Fort Gordon 2015c). The predominant soil types are the Troup and Lakeland series. Vaucluse and Ailey soil series are also found across the Installation. Twelve of the soil types on Fort Gordon are considered

Prime Farmland and six of the soil types are considered Farmland of Statewide Importance under the Farmland Protection Policy Act (FPPA) (Fort Gordon 2015c). However, land used for national defense purposes, like that on Fort Gordon, is not subject to the provisions of the FPPA. Table 4 lists the most common soil types at Fort Gordon and their characteristics, including suitability for silviculture and "urban uses" (e.g., for building foundations).

The project area (TAs 16 and 17) is dominated by a series of northwest-southeast trending sand ridges that are dissected by several small headwater streams, all of which are in the Spirit Creek drainage. Within the area of potential disturbance, upland soils are mapped mostly as Troup fine sand, Troup-urban complex, Ailey loamy sand, and Vaucluse-Ailey complex (Figure 6). Soils in the project area associated with the small stream drainages are mostly of the Bibb-Osier series.

Table 5 lists characteristics of soils in the area of potential disturbance, including "erodibility," or susceptibility to erosion. Approximately 2 percent of soils in the area of potential disturbance are classified as "highly erodible" whereas 76 percent of project area soils are classified as "not highly erodible." The remaining 22 percent have a moderately high erosion potential. Soils in the area of potential disturbance classified as highly erodible are Vaucluse-Ailey complex sands on pronounced (8 to 17 percent) slopes.

Table 4: Common Soil Series Occurring on Fort Gordon

Soil Series	Characteristics
Troup	Deep, well-drained, gently sloping sands, occurring on Coastal Plains ridgetops. Low in natural fertility, strongly acidic, rapid permeability in the surface layer. Slopes typically to 10 percent, up to 17 percent on steep slopes. Moderately suitable for loblolly, longleaf, and slash pine; well suited for most urban uses; not suitable for recreational uses.
Lakeland	Deep, excessively drained soils occurring on Sand Hills ridgetops and hillsides. Low fertility, strongly acidic, and very permeable. Slopes range from 0 to 10 percent and greater on steep slopes. Moderately suitable for common pine species. Suitable for urban uses but unsuitable for recreational uses.
Orangeburg	Deep, well-drained soils on gently sloping Coastal Plain hillsides. Medium fertility, strongly acidic, and moderately permeable. Suitable for loblolly and slash pine and well suited to urban uses.
Lucy	Deep, well-drained, level to gently sloping soils on broad ridgetops and hillsides of the Coastal Plain. Low natural fertility, strongly acidic, and moderately permeable. Moderately suitable to longleaf and slash pine. Suited to urban land uses and limited recreational uses.
Dothan	Deep, well-drained, level to gently sloping soils on broad ridgetops and hillsides of the Coastal Plain uplands. Low natural fertility, strongly acidic, and moderately permeable. Well suited to loblolly and slash pine and urban uses.
Vaucluse-Ailey Complex	Well-drained, gently sloping soils occurring on narrow ridgetops and hillsides of upland Sand Hills and Coastal Plain. Low fertility and strongly acidic. Permeability is slow in Vaucluse soils and the subsurface of Ailey soils, but rapid in the surface layer of Ailey soils. Moderately suitable for loblolly and slash pine. Well suited to urban uses but too sandy for recreational uses.
Bibb-Osier	Poorly drained, level, frequently flooded soils of the Coastal Plain floodplains. Strongly acidic with moderate to rapid permeability. Moderately suited to loblolly and slash pine, sweetgum *(Liquidambar styraciflua*), and water tupelo (*Nyssa aquatica*). Poorly suited to agriculture and urban land use.

Source: Fort Gordon 2015c

3.1.2 Environmental Consequences

Threshold of Significance for Geology and Soils: A significant impact would occur if the project would (a) expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death; (b) result in substantial soil erosion or loss of topsoil; (d) be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

3.1.3 Alternative 2 (Preferred Alternative): Training Area 17 Alternative

Under the Preferred Alternative, GDOT would widen Gordon Highway between Gate 2 and a new entrance, which would be established on Gordon Highway 0.5 mile southwest of the Parham Road/Gordon Highway intersection. A new multi-lane road would carry vehicles from the new entrance to a new ACP; a narrower two-lane access road would connect the new ACP to the developed portion of the Installation (Figure 4).

Up to 150 acres could be disturbed by construction activities associated with developing these facilities. This acreage total would include (1) land cleared for the new entrance, entrance road, ACP, access road, and VCC (badging office); (2) land cleared or significantly altered in the course of widening Gordon Highway or for supporting infrastructure such as power and water lines, security fencing, lighting, and stormwater controls; and (3) land disturbed to create temporary, construction-phase parking areas, materials storage areas, and equipment laydown areas. Areas cleared for facilities and infrastructure would be permanently altered. Areas cleared for temporary parking and storage would either be restored (returned to pre-construction state by planting native grasses and shrubs), replanted with an appropriate pine species, or allowed to revegetate naturally.

The State of Georgia requires entities disturbing one acre or more to obtain coverage under a National Pollutant Discharge Elimination System (NPDES) general (construction) permit. Applicants are required to prepare an *Erosion,*

Sedimentation, and Pollution Control Plan (ES&PCP) prior to conducting any construction work. This ES&PCP must contain a detailed project description (site conditions, planned land-disturbing activities, and timeline) and erosion control measures that will be implemented at construction sites. Erosion control measures are to be based on Best Management Practices (BMPs) for controlling erosion that are detailed in the *Manual for Erosion and Sediment Control in Georgia* (GSWCC 2014).

Land clearing, grubbing, earth moving, grading, ditching, and other construction-related activities expected under the Preferred Alternative would inevitably lead to some erosion of exposed soils and reduced soil productivity. Contractors engaged in land clearing and road building would be required to stabilize and re-vegetate disturbed areas as soon as practicable, which would limit these impacts. Land clearing and re-contouring would be coordinated with road construction and facility/infrastructure development to minimize the amount of time disturbed soils are exposed to the elements. The *Manual for Erosion and Sediment Control in Georgia* stresses that timely application of BMPs that minimizes the amount of time that soils are exposed is as important as the particular combination of BMPs selected.

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Figure 6: Soils in Project Area

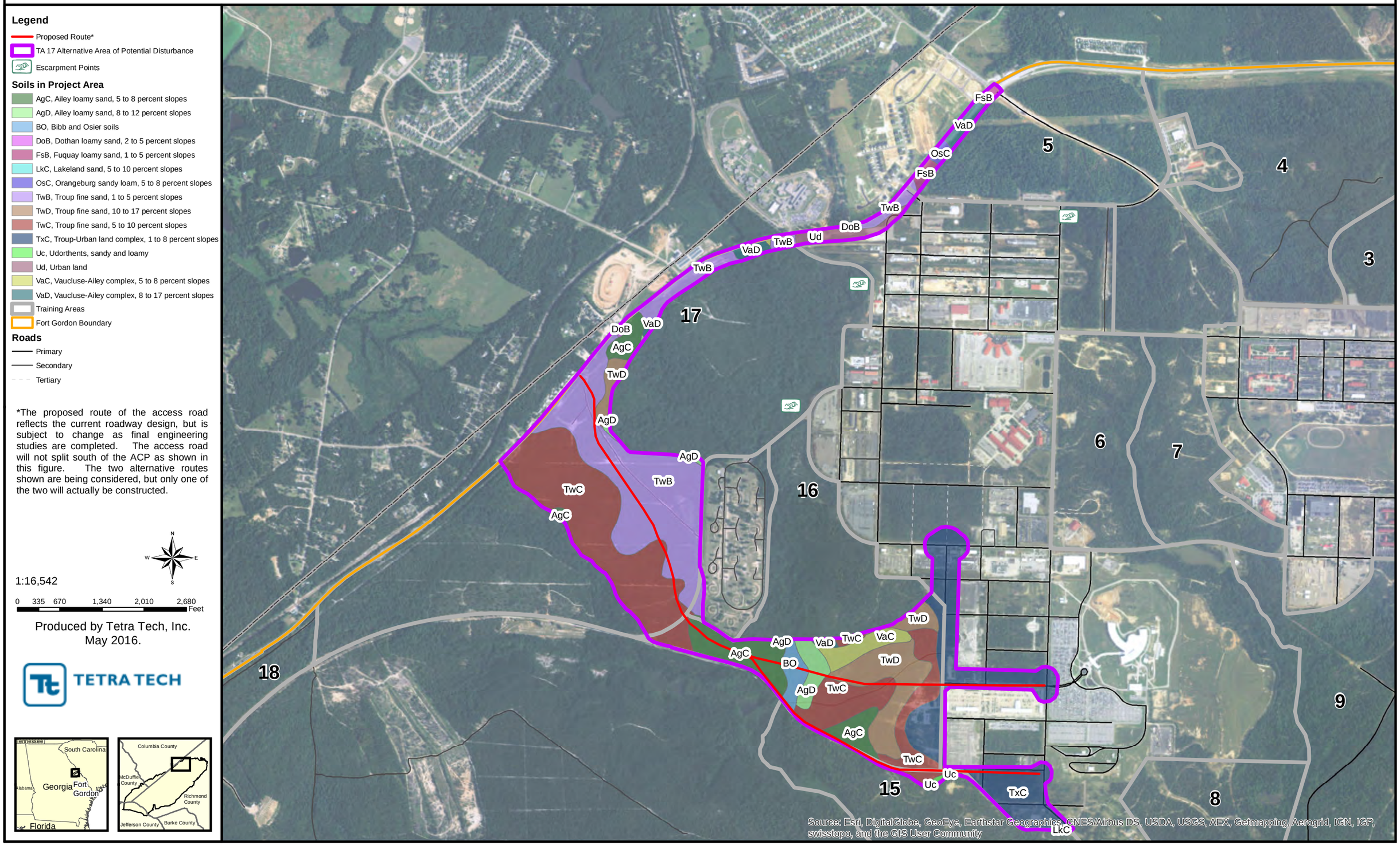

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Table 5: Soil Characteristics in the Area of Potential Disturbance

Soil Series	Drainage Characteristics	Hydric	Prime Farmland	Statewide Importance	Erodibility	Area (ac)	Occurrence in Project Area (%)
Ailey loamy sand, 5 to 8 percent slopes	Well drained	No	No	No	Potential highly erodible land	34.05	8.3
Ailey loamy sand, 8 to 12 percent slopes	Well drained	No	No	No	Potential highly erodible land	9.39	2.3
Bibb and Osier soils	Poorly drained	Yes	No	No	Not highly erodible land	6.59	1.6
Dothan loamy sand, 2 to 5 percent slopes	Well drained	No	Yes	No	Not highly erodible land	1.14	0.3
Fuquay loamy sand, 1 to 5 percent slopes	Well drained	No	No	Yes	Not highly erodible land	3.65	0.9
Lakeland sand, 5 to 10 percent slopes	Excessively drained	No	No	No	Not highly erodible land	0.26	0.1
Orangeburg sandy loam, 5 to 8 percent slopes	Well drained	No	Yes	No	Potential highly erodible land	1.77	0.4
Troup fine sand, 1 to 5 percent slopes	Somewhat excessively drained	No	No	No	Not highly erodible land	100.59	24.5

Soil Series	Drainage Characteristics	Hydric	Prime Farmland	Statewide Importance	Erodibility	Area (ac)	Occurrence in Project Area (%)
Troup fine sand, 10 to 17 percent slopes	Somewhat excessively drained	No	No	No	Potential highly erodible land	35.95	8.8
Troup fine sand, 5 to 10 percent slopes	Somewhat excessively drained	No	No	No	Not highly erodible land	119.51	29.1
Troup-Urban land complex, 1 to 8 percent slopes	Somewhat excessively drained	No	No	No	Not highly erodible land	71.85	17.5
Udorthents, sandy and loamy	Well drained	No	No	No	Not highly erodible land	0.68	0.17
Urban land	N/A	No	No	No	Not highly erodible land	6.71	1.6
Vaucluse-Ailey complex, 5 to 8 percent slopes	Well drained	No	No	No	Potential highly erodible land	9.34	2.3
Vaucluse-Ailey complex, 8 to 17 percent slopes	Well drained	No	No	No	Highly erodible land	8.87	2.2

Because all of the land-disturbing work associated with the Gate 6 project would take place in Richmond County, it would also be subject to the requirements of the Augusta-Richmond County *Soil Erosion, Sedimentation and Pollution Control Ordinance.* Land disturbing activity in Augusta-Richmond County that isn't specifically exempted (e.g., mining operations, agricultural operations, forestry operations, construction of single-family residences) falls under this ordinance, which requires developers/project proponents to obtain a permit for land disturbance from the Augusta-Richmond County Planning Commission. The permit application must include an Erosion, Sedimentation, and Pollution Control Plan, which is reviewed for technical adequacy by both the Augusta-Richmond County Planning Commission and Brier Creek Soil and Water Conservation District of the Georgia Soil and Water Conservation Commission.

Georgia's "Erosion and Sedimentation Act of 1975" (O.C.G.A. 12-7-1 et seq.) stipulates that any "rules and regulations, ordinances, or resolutions adopted (by counties and municipalities) pursuant to the Act for the purpose of governing land disturbing activities shall require, as a minimum, protections at least as stringent as the state general permit; and best management practices, including sound conservation and engineering practices to prevent and minimize erosion and resultant sedimentation, which are consistent with, and no less stringent than, those practices contained in the Manual for Erosion and Sediment Control in Georgia published by the Georgia Soil and Water Conservation Commission as of January 1 of the year in which the land disturbing-activity was permitted."

Implementation of the Preferred Alternative would have little to no impact on geological resources because highway widening, road construction, ACP construction, VCC construction, and utility installation would not require excavating below the soil horizon (to bedrock). Impacts on soils from the implementation of the Preferred Alternative would be moderate but temporary, as construction activities would be carefully planned to minimize the time between soil/ground disturbance and soil stabilization and revegetation. Therefore, no significant,

permanent, direct impacts to geology and soils on Fort Gordon would be anticipated as a result of implementing this alternative.

Inadvertent spills of chemicals, oils, or solvents during the construction phase have the potential to contaminate soils in the project area and underlying groundwater. Contractors engaged in land clearing, road construction, and facility development would be required to prepare and implement project-specific Spill Prevention, Control, and Countermeasures Plans (SPCCPs) that are consistent with Fort Gordon's SPCCP and Installation Spill Contingency Plan (ISCP). Adhering to these plans and procedures would reduce the likelihood of chemical/oil spills during construction and minimize the impact of any small spill that does occur. Consequently, short- or long-term indirect impacts to geology and soils are expected to be negligible under this alternative.

3.1.4 No Action Alternative

Under the No Action Alternative there would be no road or facility construction, and no ground disturbance, therefore there would be no impacts to geological resources or soils.

3.2 *Water Resources*

Up-to-date information on Fort Gordon's water resources may be found in the current Integrated Natural Resources Management Plan (INRMP) (Fort Gordon 2015c) and in two recently-published NEPA documents (ARCYBER 2013 and Fort Gordon 2014a). Protection of water resources is always a major concern at Fort Gordon when planning for development projects, military training exercises, and forest management activities.

Groundwater

Fort Gordon is located in the Coastal Plain hydrogeologic province of Georgia. The principal groundwater source in this province is the Southeastern Coastal Plain aquifer system. This aquifer system is composed of interbedded Cretaceous- and Tertiary-age sediments. The Upper Cretaceous Dublin-Midville aquifer, which is part of the regional Southeastern Coastal Plain aquifer system, underlies Fort Gordon. The

Dublin-Midville aquifer system consist of two distinct aquifers (from oldest to youngest): the Upper and Lower Midville aquifers and the Lower Dublin aquifer. They are separated by the Upper Midville Confining Unit. The Lower Dublin aquifer is overlain by the Huber Formation (Lower Dublin Confining Unit) and occurs at depths of approximately 340- to 380-ft above mean sea level.

Depth to groundwater ranges from approximately 56 feet to 0 feet below ground surface at locations where seeps discharge to surface water along streams. Fort Gordon lies within the recharge area where the aquifer is relatively thin; therefore, there is limited storage capacity and only moderate supplies of potable water are available. Typical yields in this area range from 29,000 to 72,000 gallons per day. Wells installed in the aquifer supply potable water to the range, training, and recreation areas. Because of the high levels of dissolved carbon dioxide, pH of groundwater can range from 3.8 to 7.4, with a mean of 5.8. Potable water to the cantonment area is provided by Augusta-Richmond County through the public water supply system (ARCYBER 2013).

Surface Water

Five major stream systems drain Fort Gordon: Butler Creek, Spirit Creek, Sandy Run, Boggy Gut, and Brier Creek (Fort Gordon 2015c). Although Sandy Run and Boggy Gut are substantial streams that drain significant portions of Fort Gordon, both are actually tributaries of Brier Creek, into which they flow a short distance south of Fort Gordon. Headstall Creek, another tributary of Briar Creek, joins Brier Creek in the southwestern corner of the Installation. All of these streams flow in a southeasterly direction to the Savannah River, which is approximately 9 miles from Fort Gordon's eastern boundary.

GADNR's Environmental Protection Division (GAEPD) establishes and enforces state water quality standards. Every two years, in compliance with sections 303(d) and 305(b) of the Clean Water Act, GAEPD publishes "Water Quality in Georgia," a comprehensive assessment of the state's water quality. This report details the quality of water in the streams, lakes, and reservoirs of all major river basins in the state and

identifies those waterbodies that are impaired and do not meet designated uses. The 2014 305(b)/303(d) Draft Integrated Report listed three streams with impaired segments within the boundaries of Fort Gordon: Butler Creek, Spirit Creek, and Headstall Creek (GAEPD 2014). A segment of Butler Creek that flows through Fort Gordon (Boardman's Pond to Phinizy Ditch) does not support its designated use, fishing, because of fecal coliform levels. Spirit Creek below its confluence with Marcum Branch does not support its designated use, fishing, because biota (macroinvertebrate community) appear to have been impacted by urban runoff. Headstall Creek, the lower portion of which flows through Fort Gordon (separates Training Areas 47 and 48), does not support its designated use, fishing, because its biota (fish community) apparently have been impacted by non-point source pollution.

In the course of preparing a Comprehensive Wildlife Conservation Strategy that was implemented in 2005, GADNR's Wildlife Resources Division identified "High Priority Waters," streams and river reaches that were deemed significant and worthy of preservation, based primarily on the uniqueness and diversity of their aquatic communities (GADNR Undated). As part of the same planning effort, GADNR delineated watersheds that contained high priority streams or tributaries of these streams and designated them "High Priority Watersheds." GADNR works with private, corporate, and government land owners to protect and preserve these valuable streams and watersheds. The sections of Sandy Run, Boggy Gut, and Brier Creeks that flow through the western half of Fort Gordon have all been designated High Priority Waters (GADNR Undated). The watersheds associated with these stream reaches have been designated High Priority Watersheds. Spirit Creek, Butler Creek, and their watersheds have not been designated High Priority, reflecting their proximity to the developed portion of Fort Gordon and generally less-pristine character.

Spirit Creek's headwaters are in the northwest part of Fort Gordon. From its headwaters, Spirit Creek flows approximately 20 miles to the southeast, entering the Savannah River two miles downstream of Augusta's Bush Field. Spirit Creek drains approximately 19,200 acres of Fort Gordon (Fort Gordon 2015c). The other major

stream systems drain smaller areas of the Installation, from 3,840 acres (Butler Creek) to 13,440 acres (Sandy Run).

3.2.1 Environmental Consequences

Water Resources

Threshold of Significance for Water Resources: A significant impact would (a) violate any water quality standard or waste discharge requirement; (b) substantially deplete groundwater supplies or interfere substantially with groundwater recharge; (c) substantially alter the existing drainage pattern of the site in a manner which would result in substantial erosion or siltation on-site or off-site; (d) substantially increase the rate or amount of surface runoff in a manner that would result in flooding on-site or off-site; (e) create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or (f) otherwise substantially degrade water quality.

3.2.2 Alternative 2 (Preferred Alternative): Training Area 17 Alternative

Under the Preferred Alternative, GDOT would widen Gordon Highway between Gate 2 and a new entrance, which would be established on Gordon Highway 0.5 mile southwest of the Parham Road/Gordon Highway intersection. A new multi-lane road would carry vehicles from the entrance to a new ACP; a narrower two-lane access road would carry vehicles from the new ACP to the developed portion of the Installation (Figure 4).

From the ACP, the new, two-lane access road would follow a northwest-southeast trending ridge in TA 17 that separates two small watersheds associated with tributaries of Marcum Branch (Figure 7). Marcum Branch and the Middle Fork of Spirit Creek combine to form Spirit Creek approximately 0.5 mile south of the intersection of North Range Road and 13th Street (Figure 7). McCoy's Creek joins Spirit Creek 5,000 feet further downstream.

Having crossed TA 17, the new two-lane access road would extend southeast into TA 16, curve east around the southern boundary of the Ammunition Supply Point (ASP), and then either (1) continue east, crossing the tank trail and entering the cantonment area at the intersection of 107th Avenue and 12th Street or (2) extend southeast, paralleling North Range Road for approximately 3,000 feet before turning east to enter the cantonment area at the intersection of 110th Avenue and 12th Street. The two possible configurations are shown in Figure 4. If the northern leg is ultimately selected, it would probably be necessary to build a low, two-lane bridge over the unnamed tributary that drains the northern part of TA 17 and flows south by the ASP to join Marcum Branch. If the southern leg is selected, it would probably be necessary to widen North Range Road where it crosses this tributary in order to accommodate two more traffic lanes.

The northern leg, although slightly (approximately 500 feet) shorter, would require more land clearing, as the proposed route moves through mixed pine-hardwood or pine forests for most of its length (see Figure 12). The southern leg would probably involve less land clearing, as it would be built adjacent to existing North Range Road and would be able to take advantage of an existing cleared right-of-way. If the southern leg is chosen, it appears it would be necessary to widen North Range Road where it crosses the small tributary. Road widenings at stream crossings normally involve placement of fill within a hardened containment structure, such as a bulkhead or concrete wall. A wider road would almost certainly require a new culvert system, which would likely involve both streamside and in-stream construction. Whether a bridge is built or North Range Road is widened, heavy equipment would operate in the floodplain and streamside soils would be disturbed; therefore, the potential for erosion and sedimentation clearly exists.

GAEPD requires parties with operational control of construction sites that disturb one acre or more to obtain an NPDES General Permit for Stormwater Discharges. This entails filing a Notice of Intent, in essence a permit application that includes a project description and an Erosion, Sedimentation, and Pollution Control Plan prepared by a certified individual. The Plan must include Best Management

Practices, including sound conservation and engineering practices to minimize erosion and sedimentation that are consistent with practices described in the "Manual for Erosion and Sediment Control in Georgia" published by the Georgia Soil and Water Conservation Commission. BMPs chosen would be appropriate to soils and terrain and would encompass erosion control and stabilization practices (e.g., silt fences, mulching, geotextiles, establishment of temporary or permanent vegetation) and could include sediment control practices (e.g., temporary or permanent sedimentation basins). All necessary permitting would be carried out by the construction contractor but would be coordinated with, reviewed by, and submitted through the Fort Gordon DPW, Environmental Division.

The Georgia Erosion and Sedimentation Control Act (The Act; O.C.G.A. 12-7-1 et seq.) restricts land disturbance within a 25 foot buffer zone adjacent to intermittent and permanent streams and rivers in Georgia's Coastal Plain and within a 50-foot buffer zone adjacent to trout streams in North Georgia. The Act prohibits land-disturbing activities within this buffer zone unless a variance is granted by the Director of GAEPD. Landowners/project proponents seeking variances are required to submit an application and a plan that demonstrates water quality downstream of the project will be protected "even with the proposed land-disturbing activity within the buffer." Before any land-disturbing work commences in the floodplain of the unnamed stream, Fort Gordon's DPW, Environmental Division would determine if the 25-foot buffer zone is to be disturbed and take appropriate action to secure a variance under Section 12-7-6(b)(15) of the Act.

In addition to the county, state, and federal stormwater management requirements discussed in detail in Section 3.1.3 and reviewed in this section, Fort Gordon will be required to adhere to the stormwater runoff requirements of the Energy Independence and Security Act of 2007 (EISA). The EISA was intended to move the U.S toward greater energy independence and security by increasing the production and use of bio-fuels, requiring American automakers to manufacture more fuel-efficient vehicles (the so-called CAFÉ standards), and requiring Federal facilities to make more efficient use of water and energy. Section 438 of the EISA

directs "sponsors" of federal development projects involving a facility with a footprint that exceeds 5,000 square feet to "…use site planning, design, and construction, and maintenance strategies…to maintain or restore, to the maximum extent feasible, the predevelopment hydrology of the property."

DOD issued a policy memorandum ("Memorandum on DoD Implementation of Storm Water Requirements under Section 438 of the Energy Independence and Security Act (EISA)") in January 2010 establishing a process for achieving compliance with EISA Section 438. The process was based largely on EPA's (2009) "Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act." The Army is required to consider stormwater management when evaluating project design options with the design objective of maintaining predevelopment hydrology and preventing any net increase in stormwater runoff to the maximum extent technically feasible. Project proponents may use any combination of approved green infrastructure/low impact development tools to meet the requirements of Section 438, including (1) bio-retention areas, (2) porous/permeable pavement, (3) cisterns, and (4) green roofs (USEPA 2009).

Based on the fact that any land-disturbing activities would be of relatively short duration, permitted and overseen by both county and state conservation agencies, and guided by an approved Erosion, Sedimentation, and Pollution Control Plan, impacts to water quality from construction are expected to be small and temporary. Some soil disturbed during construction could be carried with stormwater into a small tributary of Spirit Creek, but disturbed areas would be quickly stabilized (recontoured and revegetated), limiting impacts. Once slopes are stabilized and revegetated, the amount of erosion and sedimentation should be greatly reduced.

As discussed in the "Geology and Soils" Section 3.1.3, minor spills and leaks of fuel, lubricants, and hydraulic fluids could occur during construction. The Fort Gordon SPCCP and ISCP ensure that personnel are trained to respond to petroleum and chemical spills and that necessary spill control equipment is on site

and immediately accessible. There is a very small likelihood that spilled petroleum products or industrial chemicals would make their way into down-gradient waterways because (1) refueling, lubrication, and degreasing of vehicles and heavy equipment would take place in designated areas well removed from waterways and (2) plans would be in place to ensure that trained personnel with spill control equipment are on hand to deal quickly with spills.

3.2.3 No Action Alternative

Under the No Action Alternative there would be no road or facility construction, and no ground disturbance, therefore there would be no impacts to water resources.

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Figure 7: Surface Water in Project Area

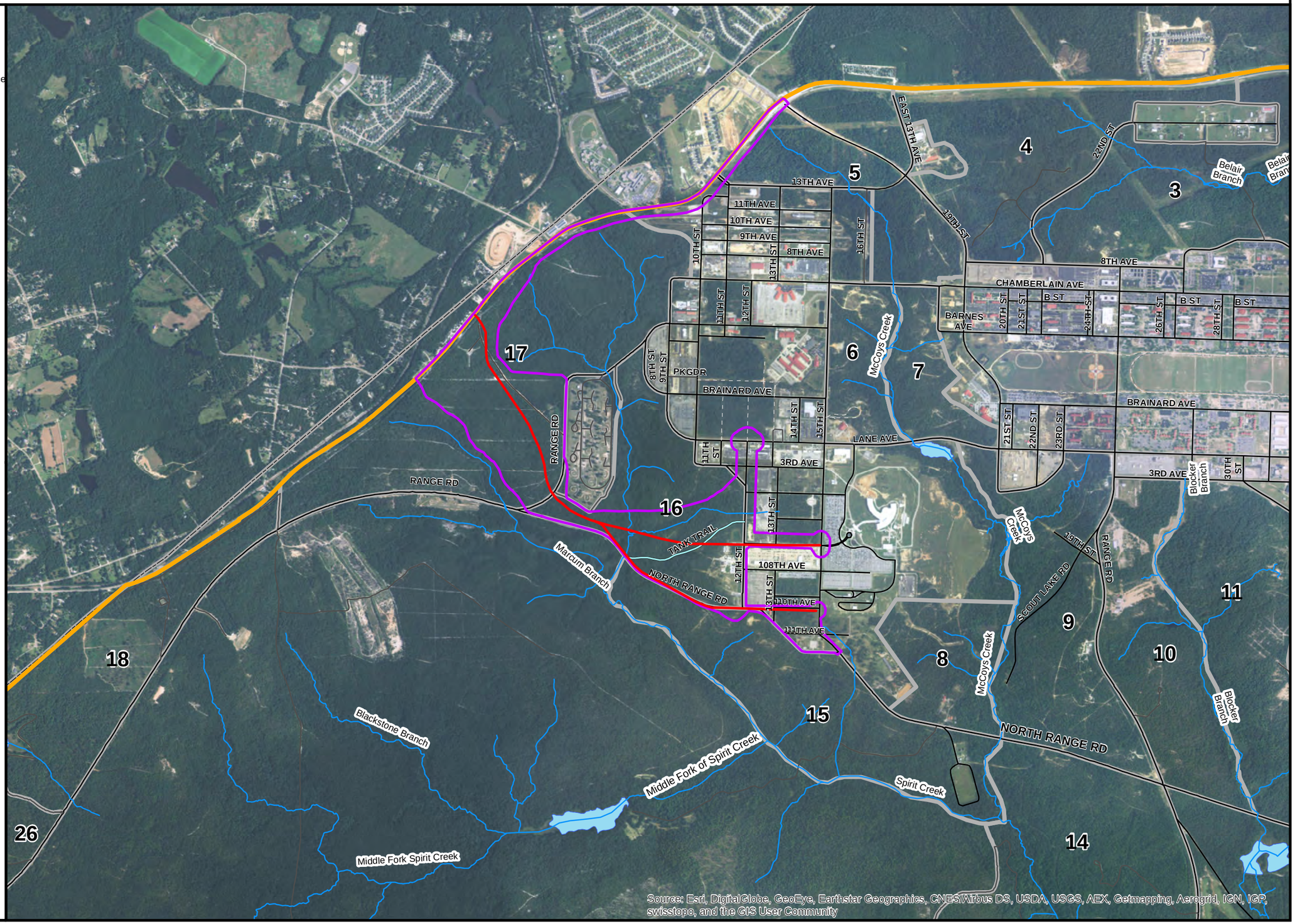
Legend

- Proposed Route*
- TA 17 Alternative Area of Potential Disturbance
- Streams
- Training Areas
- Fort Gordon Boundary

Roads

- Primary
- Secondary
- Tertiary
- Tank Trail

*The proposed route of the access road reflects the current roadway design, but is subject to change as final engineering studies are completed. The access road will not split south of the ACP as shown in this figure. The two alternative routes shown are being considered, but only one of the two will actually be constructed.



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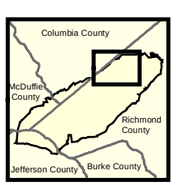
0 490 980 1,960 2,940 3,920 Feet

Produced by Tetra Tech, Inc.
May 2016.

TETRA TECH



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3.3 *Floodplains and Wetlands*

Floodplains

Surface waters (such as streams and creeks) that are periodically subject to flooding during intervals of overbank flow create a relatively broad and flat valley area immediately adjacent to the waterbody, known as a floodplain. Floodplain areas are divided into two types: 100-year floodplains and 500-year floodplains. The 100-year floodplain is regulated by the Federal Emergency Management Agency (FEMA) and is defined as typically dry land that has a 1 percent or greater chance of flooding each year. The 500-year floodplain is defined as land that has a 0.2 percent chance of a flooding each year. Floodplains within the project area are shown in Figure 8.

E.O. 11988, Floodplain Management, requires federal agencies to determine whether a proposed action would occur within a floodplain. This determination typically involves consultation of appropriate FEMA Flood Insurance Rate Maps (FIRMs), which contain enough general information to determine the relationship of the project area to nearby floodplains. E.O. 11988 directs federal agencies to avoid floodplains unless the agency determines that there is no practicable alternative to undertaking the action in a floodplain. Where the only practicable alternative is to locate in a floodplain, a specific step-by-step process must be followed to comply with EO 11988. This "eight-step" process is detailed in FEMA's *Further Advice on EO 11988 Floodplain Management*.

A flood zone is an area that FEMA has defined according to varying levels of flood risk. These zones are depicted on a community's or county's FIRM or Flood Hazard Boundary Map. Each zone reflects the severity or type of flooding in the area. Examples of flood zones include the 1-percent-annual-chance flood hazard area (this is also known as a 100-year flood event) and the 0.2-percent-annual-chance flood hazard area (this is also known as a 500-year flood event).

Wetlands

Approximately 4,395 acres of wetlands occur on Fort Gordon and consist of both alluvial and non-alluvial wetlands (Fort Gordon 2015c). Alluvial wetlands are found along stream channels, and their hydrology depends on the flooding regime of the stream system. Most alluvial wetlands on Fort Gordon are commonly known as "small stream swamps." Non-alluvial wetlands are located in areas where groundwater emerges or precipitation is held close to the soil surface. Non-alluvial wetlands on Fort Gordon include seepage areas and isolated wetlands. Seepage areas occur on saturated soils where the water table remains immediately below the soil surface (Fort Gordon 2015c).

Wetlands in the project area and in the surrounding vicinity are shown in Figure 9. The wetland boundaries in Figure 9 are based on field investigations conducted in 2014 and 2015 to identify the limits of jurisdictional wetlands within TAs 15, 16, and 17 (Dial Cordy 2014, 2015).

The wetlands depicted in Figure 9 consist of small stream swamps along stream channels with fringing pine/shrub bog communities on adjoining seepage slopes. Vegetation of the small stream swamp forest communities is characterized by an overstory of hardwoods such as swamp tupelo (*Nyssa biflora*), red maple (*Acer rubrum*), sweet-gum, yellow poplar (*Liriodendron tulipifera*), and sweetbay (*Magnolia virginiana*), and a moderately-dense-to-open understory being dominated by giant cane (*Arundinaria gigantea*), tall gallberry (*Ilex coriacea*), sweetbay, red bay (*Persea palustris*), and highbush blueberry (*Vaccinium corymbosum*). The generally sparse herbaceous layer is dominated by cinnamon fern (*Osmunda cinnamomea*), netted chain-fern (*Woodwardia areolata*), sedges (*Carex* spp.), and beaksedges (*Rhynchospora* spp.). The fringing pine/shrub bog communities have a sparse to moderately dense overstory of pond pine (*Pinus serotina*) and/or loblolly pine (*Pinus ta*eda) with occasional hardwoods such as swamp tupelo and red maple. The understory is dominated by dense shrubs, consisting of the species associated with small stream swamps along with additional species such as fetterbush (*Lyonia lucida*),

inkberry (*Ilex glabra*), sweet-pepperbush (*Clethra alnifolia*), and wax myrtle (*Morella cerifera*) (Dial Cordy 2014, 2015).

3.3.1 Environmental Consequences

Threshold of Significance for Floodplains: A significant impact would substantially increase the rate or amount of surface runoff in a manner that would result in flooding on-site or off-site.

Threshold of Significance for Wetlands: A significant impact would occur if the project would have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act.

3.3.2 Alternative 2 (Preferred Alternative): Training Area 17 Alternative

Floodplains

FEMA FIRMs were used to identify floodplains in the project area (Figure 8). If the northern leg is ultimately selected (see Sections 2.2.2 and 3.2.2 for details), it would probably be necessary to build a low, two-lane bridge over the unnamed tributary that drains the northern part of TA 17 and flows south by the ASP to join Marcum Branch. If the southern leg is selected, it would almost certain be necessary to widen North Range Road where it crosses this tributary, which would in turn require upgrading the existing culvert system. In either case, some land clearing and construction work would likely be carried out in the 100-year floodplain of the stream. Some fill would presumably be placed in the 100-year floodplain as a consequence, as discussed in Section 3.2.2. The placement of fill in a floodplain may be construed as an "encroachment" under FEMA regulations (44 CFR 9.11/60.3).

Fort Gordon project planners have not made a final determination about the precise alignment of the access road or the manner in which the access road would traverse the unnamed stream. But any roadway/stream crossing would be designed so that it would not "significantly" encroach on the floodplain, meaning it would not hinder emergency vehicles, block a community's emergency evacuation

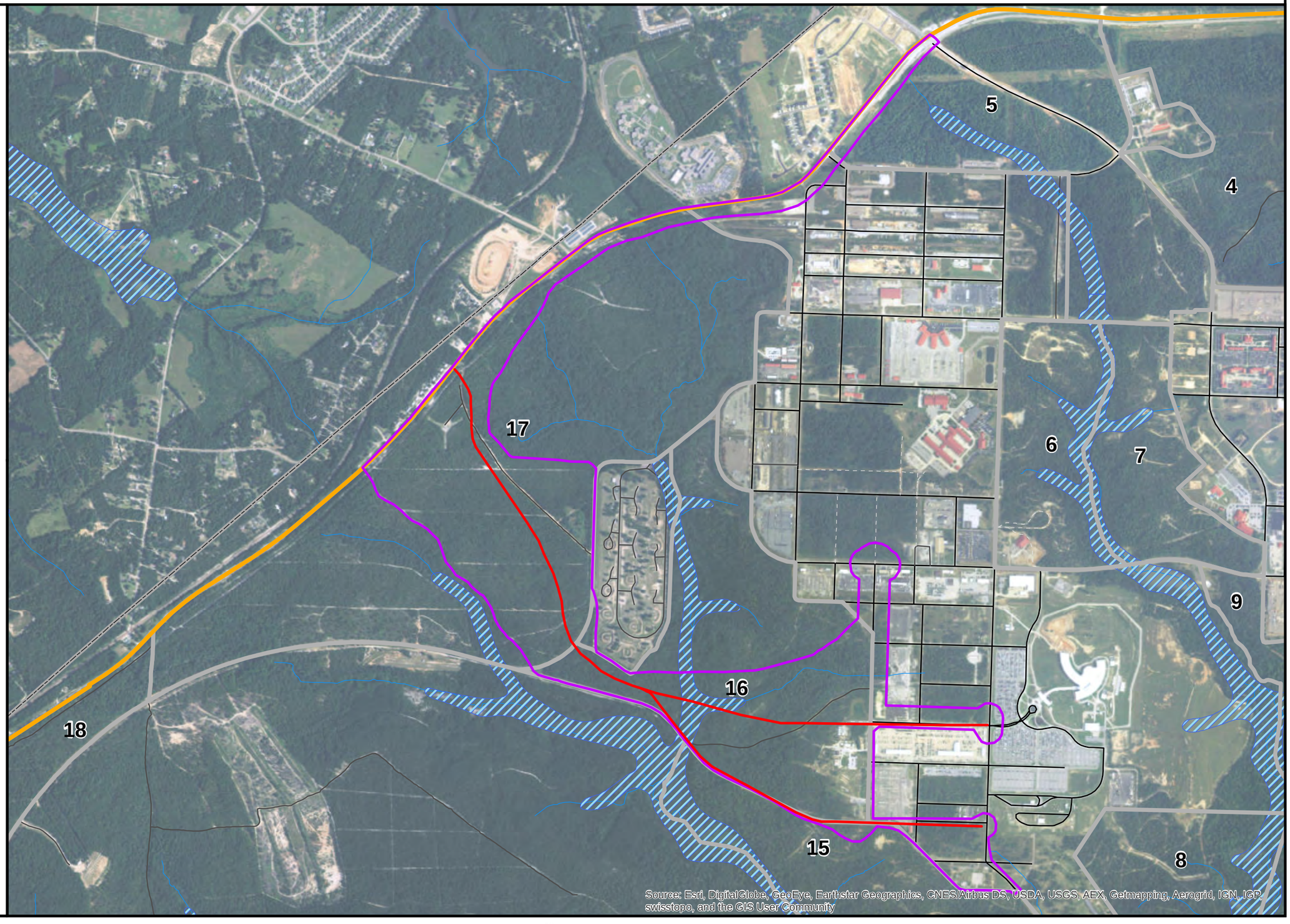
route, adversely impact natural and beneficial floodplain values, or have the effect of encouraging or stimulating incompatible floodplain development, as defined in the Federal Highway Administration's regulations at 23 CFR 650.105(q).

Any stream crossing would be designed so that stream levels would not be measurably affected and stream flows would not be restricted. Consequently, the Preferred Alternative would not appreciably change stream hydraulics or increase flooding risks. Potential minor impacts on stream flow and stream level from changes in stormwater hydrology during the construction phase of the project would be mitigated by judiciously sequencing work and employing BMPs; the post-construction impact of the additional impervious surface area (from a new bridge or wider road) would be small and mitigated by appropriate design features and engineering controls.

Wetlands

When choosing the location of the new entrance and the routes of the new entrance road and access road, project planners used GIS tools, satellite imagery, and field studies to identify and avoid stream drainages and wetlands where possible. Project facilities and roads should not encroach on wetlands except for a single location where the proposed access road will cross a small stream and riparian wetland along the southern boundary of TA 16 (Figure 9). A final design of the access road has not been completed, but neither of the routes under consideration (see Sections 2.2.2 and 3.2.2) would cross more than 300 feet of wetland, based on the (2015) Dial Cordy wetland survey. Appropriate Clean Water Act Section 401/404 permitting and mitigation requirements would apply. Wetland impacts will be avoided to the extent practicable and any (unavoidable) impacts would be mitigated in consultation with the Corps of Engineers. Therefore, direct adverse impacts to wetlands under the Preferred Alternative are expected to be small.

Figure 8: Floodplans in Project Area



Legend

- Proposed Route*
- TA 17 Alternative Area of Potential Disturbance
- 100-yr Floodplain (DFIRM)
- Streams
- Training Areas
- Fort Gordon Boundary

Roads

- Primary
- Secondary
- Tertiary

*The proposed route of the access road reflects the current roadway design, but is subject to change as final engineering studies are completed. The access road will not split south of the ACP as shown in this figure. The two alternative routes shown are being considered, but only one of the two will actually be constructed.

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Produced by Tetra Tech, Inc.
May 2016.

TETRA TECH

Figure 9: Delineated Wetlands in the Project Area

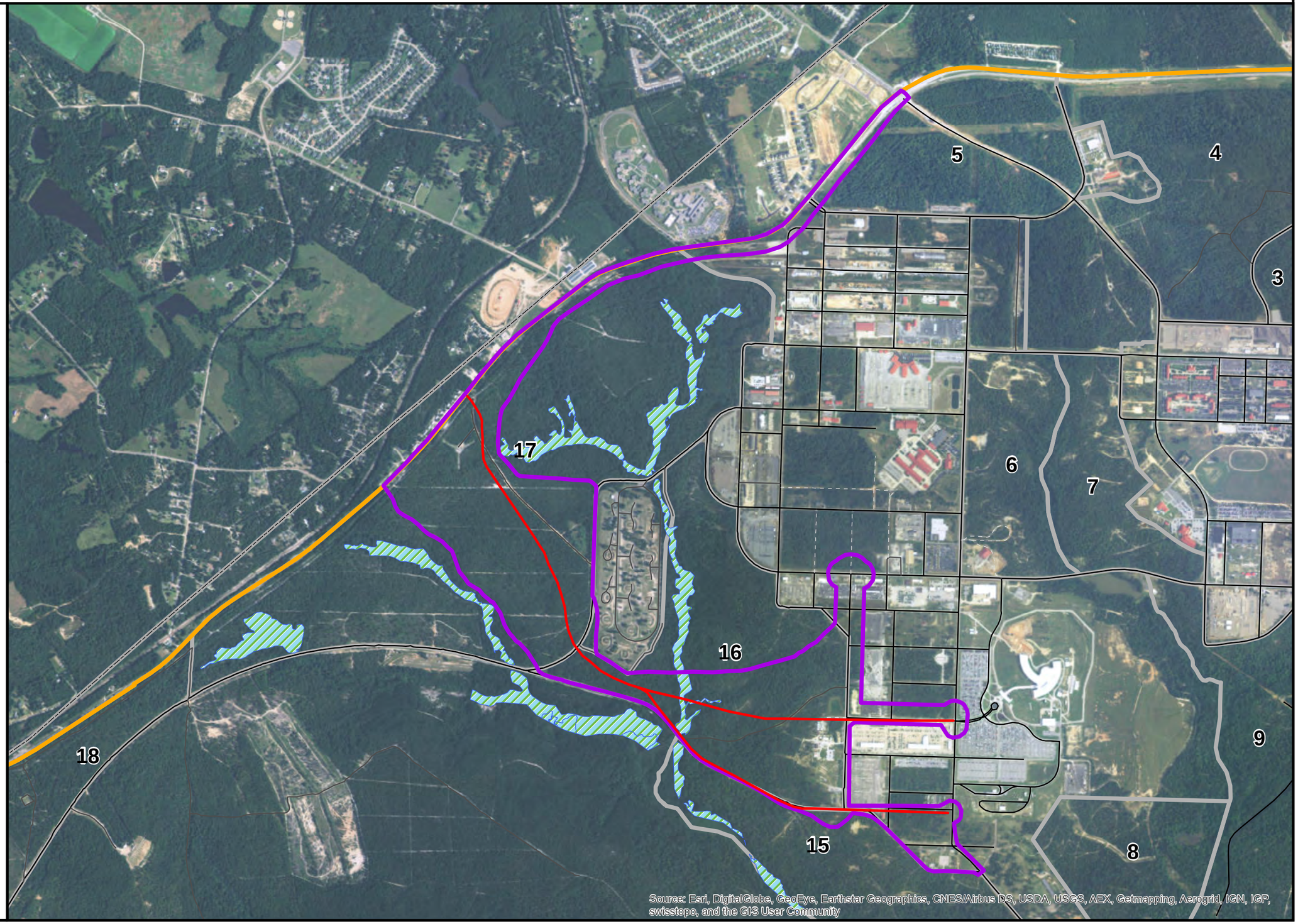
Legend

- Proposed Route*
- TA 17 Alternative Area of Potential Disturbance
- TA 15 16 & 17 Wetlands Delineation
- Fort Gordon Boundary

Roads

- Primary
- Secondary
- Tertiary
- Training Areas

*The proposed route of the access road reflects the current roadway design, but is subject to change as final engineering studies are completed. The access road will not split south of the ACP as shown in this figure. The two alternative routes shown are being considered, but only one of the two will actually be constructed.



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May 2016.

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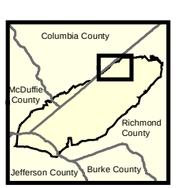

Implementation of the Preferred Alternative could potentially have minor, indirect, adverse impacts to wetlands. Erosion from soil disturbance during construction could potentially result in runoff accumulation in wetlands. However, BMPs such as silt fences, straw bale dikes, diversion ditches, riprap channels, water bars, and water spreaders would be used during construction to minimize erosion and sedimentation. Soils in the disturbed areas would be stabilized immediately after construction to minimize future runoff into wetlands. Therefore, any indirect impacts to wetlands are expected to be temporary and minor.

3.3.3 No Action Alternative

No impacts to floodplains or wetlands would occur under this alternative, since there would be no change to the existing natural and environmental resource conditions. There would be no direct or indirect adverse impacts to floodplains or wetlands on Fort Gordon.

3.4 *Ecological Resources*

Ecological resources include native or naturalized plants and animals and the habitats (i.e., wetlands, forests, and grasslands) that sustain them. Protected ecological resources include plant and animal species listed by the State of Georgia as rare, threatened, or endangered or by the USFWS as threatened or endangered. Special concern species are not afforded the same level of protection, but their presence is taken into consideration by resource agency biologists involved in reviewing projects and permit applications.

3.4.1 Affected Environment

Terrestrial Communities

Plant Communities

Fort Gordon encompasses approximately 55,590 acres, nearly 78 percent of which are forested. Common plant species at Fort Gordon include longleaf pine (*Pinus palustris*), loblolly pine (*P. taeda*), southern wiregrass (*Aristida stricta*), white oak (*Quercus alba*), water oak (*Q. nigra*), hickory (*Carya* spp.), dogwood (*Cornus*

florida), blueberry (*Vaccinium* spp.), and broomsedge (*Andropogon virginicus*) (USAG Fort Gordon 2015). Fort Gordon completed a forest vegetation inventory for the entire Installation in 2012. Based on the 2012 inventory, forests on the Installation can be categorized into four broad stand types, each of which is described below (Fort Gordon 2015c).

Pine Forest

Pine forest is the most common plant community at Fort Gordon and is located throughout the Installation. Pine forests make up approximately 52 percent of the Installation's vegetation communities. Dominant overstory species are longleaf pine, loblolly pine, shortleaf pine (*Pinus echinata*), and slash pine (*P. elliottii*). Typical understory species consist of immature pines, scrub oak (*Quercus ilicifolia*), honeysuckle (*Lonicera japonica*), sumac (*Rhus spp*.), poison oak (*Toxicodendron pubescens*), and short grasses. Approximately 20 percent of the pine forests are planted pine stands that have been established as a result of reforestation or restoration practices. The remaining 32 percent are natural pine stands.

Mixed Pine/Hardwood Forest

Mixed pine/hardwood forests are found in scattered small tracts throughout the Installation, and comprise approximately 16 percent of the Installation's vegetation communities. Dominant species include loblolly pine, longleaf pine, sweetgum, hickory, yellow poplar, and various oak species. Undergrowth varies from sparse to dense, and typically consists of honeysuckle, wax myrtle, sumac, and scrub oak.

Bottomland Hardwood Forest

Bottomland hardwood forests are common along Fort Gordon's streams and especially surrounding Brier Creek in the southwest portion of the Installation. Approximately 7 percent of the Installation's vegetation communities are bottomland hardwood forest. Common overstory species include white oak, American beech (*Fagus grandifolia*), hickory, red maple, ash (*Fraxinus spp*.), blackgum (*Nyssa biflora*), swamp chestnut oak (*Quercus michauxii*), willow oak

(*Q. stellata*), and yellow poplar. The understory is medium to dense and consists of wax myrtle, sumac, scrub oak, and honeysuckle.

Upland Hardwood Forest

Upland hardwood forest are found in small patches throughout the Installation, often adjacent to upland mixed pine/hardwood stands. These forests occupy approximately 3 percent of the Installation land area. Species in this community include white oak, hickory, sweetgum, dogwood, and various red oak species. The understory is often sparse and often consists of grape (*Vitis spp*.) vines, honeysuckle, and various *Vaccinium* species.

Wildlife

Fort Gordon is inhabited by a wide variety of wildlife species. One hundred thirty six bird species have been identified on the Installation. Approximately 31 species of mammals and 67 species of reptiles and amphibians probably inhabit Fort Gordon. These species are dispersed throughout the various habitats on the Installation (Fort Gordon 2015c).

Common mammal species found on the Installation include white-tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), eastern gray squirrel (*Sciurus carolinensis*), eastern cottontail rabbit (*Sylvilagus floridanus*), opossum (*Didelphis marsupialis*), gray fox (*Urocyon cinereoargenteus*), and coyote (*Canis latrans*). Based on mist netting and acoustic surveys conducted in the early summer of 2015, common bat species on the Installation include the big brown bat (*Eptesicus fuscus*), eastern red bat (*Lasiurus borealis*), Seminole bat (*Lasiurus seminolus*), and evening bat (*Nyctisceius humeralis*) (Eco-Tech 2015).

Common bird species found on Fort Gordon include northern bobwhite quail (*Colinus virginianus*), turkey vulture (*Cathartes aura*), pileated woodpecker (*Dryocopus pileatus*), northern mockingbird (*Mimus polyglottos*), red-eyed vireo (*Vireo olivaceus*), tufted titmouse (*Parus biocolor*), and Carolina chickadee (*Parus carolinensis*). Common reptile and amphibian species found on the Installation include eastern box turtle (*Terrapene carolina carolina*), eastern mud turtle

(*Kinosternon subrubrum subrubrum*), southern fence lizard (*Sceloporus undulatus undulatus*), brown water snake (*Nerodia taxispilota*), and eastern kingsnake (*Lampropeltis getula getula*) (Fort Gordon 2015c).

White-tailed deer, red fox (*Vulpes fulva*), eastern gray squirrel, raccoon, eastern cottontail rabbit, wood duck (*Aix sponsa*), eastern wild turkey (*Meleagris gallopavo silvestris*), northern bobwhite quail, and mourning dove (*Zenaida macroura*) are actively managed for sport hunting on Fort Gordon (Fort Gordon 2015c).

Aquatic Communities

Water quality may be the single most important factor shaping aquatic communities, including benthic macroinvertebrates and fish. Section 3.2 presents information on water quality in Fort Gordon streams, including Spirit Creek, the waterbody most likely to be affected by the Gate 6 project. Spirit Creek received treated wastewater from the Fort Gordon Wastewater Treatment Plant (WWTP) for many years, but this facility was permanently shut down in 2011. The Installation's wastewater is now pumped to the Augusta Utilities Department (AUD) wastewater treatment facility.

Hoover and Kilgore (1999) surveyed the fish of the Spirit Creek, Sandy Run, Boggy Gut, and Brier Creek drainages in 1995 and 1996 to assess the degree to which development, and particularly erosion, had affected fish community structure. Spirit Creek had the lowest measures of species richness and species diversity of the four streams evaluated. Spirit Creek also supported fewer rare and special-status fishes than the other three drainages. Hoover and Kilgore (1999) asserted that the high turbidity, high conductivity, and comparative lack of species diversity in Spirit Creek were indications of "anthropogenic disturbance" (erosion and sedimentation).

Gregory, Stamey, and Wellborn (2001) evaluated physical and biological conditions of seven stream reaches in three major drainages at Fort Gordon: Butler Creek, Spirit Creek, and Boggy Gut. This ecological characterization was intended to determine if stormwater runoff from "urbanized areas" of Fort Gordon

had degraded stream water quality or aquatic habitats. Streams adjacent to the cantonment area receive stormwater from streets, parking lots, and other impervious surfaces. Contaminants (oil, grease, some metals) are carried into these streams with stormwater runoff. The pulses of stormwater from developed areas also tend to scour stream banks and stream beds, degrading aquatic habitats.

Conductivity and pH were relatively low in all of the stream reaches studied by Gregory, Stamey, and Wellborn (2001), but dissolved oxygen levels were more than adequate (> 5 mg/L at all locations) to support aquatic biota, including sensitive species. Macroinvertebrate taxa richness was lowest in streams draining urbanized areas (Butler Creek and McCoy's Creek) and highest in reference streams (Marcum Branch and Boggy Gut). The EPT (Ephemeroptera-Plecoptera-Trichoptera) Index was likewise higher in the two reference streams than in streams draining the cantonment area. No clear correlations between watershed development/urbanization and fish communities were found, as difference in stream size appeared to have a significant influence on fish abundance and species richness and likely obscured any water quality-related effects.

Fort Gordon's Natural Resources Branch commissioned surveys of four Fort Gordon streams (Spirit Creek, Sandy Run, Boggy Gut, and Brier Creek) in 2010 to update the information collected by Hoover and Kilgore in 1995-1996 and ascertain if any protected fish or mussels were present. Most fish collected in 2010 were small-bodied, short-lived, schooling species, representatives of two families, the minnows (family Cyprinidae) and the livebearers (family Poeciliidae) (Tetra Tech 2010). Five cyprinid species [golden shiner (*Notemigonus crysoleucas*), dusky shiner (*Notropis cummingsae*), yellowfin shiner (*Notropis lutipinnis*), coastal shiner (*Notropis petersoni*), and lowland shiner (*Pteronotropis stonei*)] and a single poecilid (mosquitofish, *Gambusia holbrooki*) appeared in collections. Substantial numbers of brook silversides (family Atherinidae) were also collected. Other species were collected less frequently.

Electrofishing catch-per-unit-effort was relatively low in all four streams surveyed in 2010, but particularly low in Spirit Creek. Habitat quality in Spirit Creek was the poorest of the four streams surveyed, particularly in the upper reaches. Spirit Creek was the shallowest of the four streams surveyed and the stream with the least structure/cover. Spirit Creek's substrate was mostly shifting sand with a relative scarcity of woody material.

These surveys suggest that the Spirit Creek fish community is less diverse than the fish communities of drainages to the south and west (Sandy Run, Boggy Gut, Brier Creek), which are further removed from the cantonment area and appear to be less affected by Installation operations. A small number of hardy, drought-tolerant species, most notably the golden shiner (*Notemigonus crysoleucas*) and dusky shiner (*Notropis cummingsae*), appear to predominate in Spirit Creek.

Limited mussel surveys were conducted in association with the 2010 Tetra Tech fish surveys at sites in Spirit Creek, Sandy Run, Boggy Gut, and Brier Creek. Habitat quality at these sites ranged from very good (Sandy Run, Boggy Gut, Brier Creek) to adequate (Spirit Creek). Sandy Run and Brier Creek contained thriving mussel populations that were dominated by common southeastern species, including three Elliptio species (*Elliptio complanata*, *E. icterina*, and *E. producta*) (Tetra Tech 2010). Five species were collected at the Brier Creek site and four species at the Sandy Run site. No mussels were found in Spirit Creek or Boggy Gut. Survey results mirrored those of Hoover and Kilgore (1999), who also found mussels in Sandy Run and Brier Creek and no mussels in Spirit Creek and Boggy Gut. No protected mussel species were collected in either survey.

Rare and Protected Species

The INRMP (Fort Gordon 2015c) uses the term "target species" to refer to species that are protected by state or federal law or that receive special management attention due to their rarity. These include species that are federally listed as threatened or endangered, state-protected/listed species (threatened, endangered, rare, or unusual) and Army Species at Risk (SARs). The Army

applies the SAR designation to species that are not legally protected but are candidates for federal listing or are categorized by NatureServe as “imperiled” or “critically imperiled.” Based on these criteria, 18 target species (8 plants and 10 animals) have been identified on Fort Gordon (Fort Gordon 2015c). Table 6 list these species, their status, and describes each species’ optimum habitat requirement.

Two federally listed species are known to occur on Fort Gordon: the red-cockaded woodpecker (RCW) (*Picoides borealis*) and the wood stork (*Mycteria americana*). The RCW is federally listed as endangered and the wood stork is federally listed as threatened.

The RCW is the only federally listed species known to breed on Fort Gordon. This species is actively managed on Fort Gordon under a Biological Opinion issued by the USFWS. RCWs occur in "families,” which are referred to as groups or clusters. High-quality foraging habitat for RCWs includes large old pines, low densities of small and medium pines, sparse or no hardwood midstory, and groundcover consisting of bunchgrasses and forbs. In addition, all foraging habitat in high quality habitats is within 0.5 mile of the center of the cluster, and preferably 50 percent or more is within 0.25 mile of the cluster center.

Fort Gordon has established a RCW Habitat Management Unit (HMU) consisting of all potential habitat for this species, excluding the cantonment area, the Artillery Impact Area (AIA), areas where the future or current military mission is not compatible with target species management, and areas of non-habitat (e.g., bottomland hardwood forest). The RCW HMU encompasses approximately 25,543 acres (Fort Gordon 2015c). A large portion of the project area lies within the RCW HMU (Figure 10), but the project area does not encompass any RCW clusters. The nearest RCW cluster is 0.9 mile from the project area.

The wood stork’s federal listing was changed from endangered to threatened in 2014 (79 Federal Register 125, 30 June 2014, pp. 37078 – 37103). Wood storks have been observed foraging and roosting on Fort Gordon, but are not known to

nest on the Installation. Wood storks feed primarily in open, shallow wetlands such as marshes, managed impoundments, seasonally flooded roadside ditches, and swamp sloughs (USFWS 1996).

Biologists conducting bat surveys at Fort Gordon in 2012-2013 recorded calls that an acoustical analysis software indicated were those of the gray bat (gray myotis) (*Myotis grisescens*), which is a federally listed species. However, historic records on the distribution of the species and the absence of geological and landscape features typically associated with the species suggested that the calls had been mis-attributed to gray bats. Follow-up studies in the summer of 2015 that included both mist-netting and more-refined acoustic surveys found no evidence that the gray bat occurs on the Installation (Eco-Tech 2015). No gray bats were captured in mist nets, and analysis of acoustical data concluded that no recorded call sequences were likely to have been produced by the gray bat. The nearest historic record of the gray bat is approximately 78 miles west of Fort Gordon; the nearest recent record is approximately 135 miles west of the Installation (Eco-Tech 2015). Fort Gordon is approximately 170 miles from the nearest karst area, which is an important geologic feature for gray bat summer maternity and summer bachelor roosting habitat (Eco-Tech 2015). Fort Gordon does not provide the exposed rock or caves preferred by this species (Fort Gordon 2015c). The weight of evidence suggests that gray bats do not occur in the Fort Gordon area and the calls attributed to the gray bat during the 2012-2013 surveys by acoustical analysis software were produced by another species (Eco-Tech 2015).

The bald eagle (*Haliaeetus leucocephalus*) is listed by GADNR as threatened. The USFWS removed the bald eagle from the federal list of threatened and endangered species in 2007. At the federal level, the bald eagle is still protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. The bald eagle is known to forage on Fort Gordon but there are no known nests on the Installation.

The gopher tortoise (*Gopherus polyphemus*) is state threatened and a federal candidate species, and is managed by the Army as a Species at Risk under a Candidate Conservation Agreement with federal and state agencies. Fort Gordon has established a gopher tortoise HMU that includes all potential gopher tortoise habitat excluding the cantonment area, and areas where the future or current military mission is not compatible with target species management. A large portion of the project area lies within the gopher tortoise HMU, but only one gopher tortoise burrow has been recorded in this area (Figure 11). That burrow is on the margin of the area of potential disturbance. Construction-related activities would be planned so that this burrow is avoided.

Southeastern American kestrels (*Falco sparverius paulus*), state listed as rare, are located in open or partly open habitats with scattered trees, including cultivated and semi-urban areas. Kestrel nest boxes have been installed throughout Fort Gordon, and kestrels are monitored through their use of nest boxes and the banding of live nestlings. The nest boxes are cleaned and repaired annually in February prior to the Spring and Summer nesting season and checked monthly during the nesting season (Fort Gordon 2015c). Kestrel nest boxes in and around the Gate 6 project area are shown in Figure 11.

One protected fish species, the bluebarred pygmy sunfish (*Elassoma okatie*; state-listed as endangered), has been documented on Fort Gordon (Fort Gordon 2015c). Its primary habitat is roadside ditches and backwaters of creeks with brown-stained water and dense aquatic vegetation. Bluebarred pygmy sunfish have been found at several locations on the Installation, including McCoy's Creek, a tributary of Spirit Creek (Fort Gordon 2015c). Marcum Branch and the Middle Fork of Spirit Creek combine to form Spirit Creek approximately 0.5 mile south of the intersection of North Range Road and 13th Street (Figure 7). McCoy's Creek joins Spirit Creek 5,000 feet further downstream, and is assumed to be outside of the area of potential impact for the Gate 6 project.

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Figure 10: RCW HMU and RCW Clusters

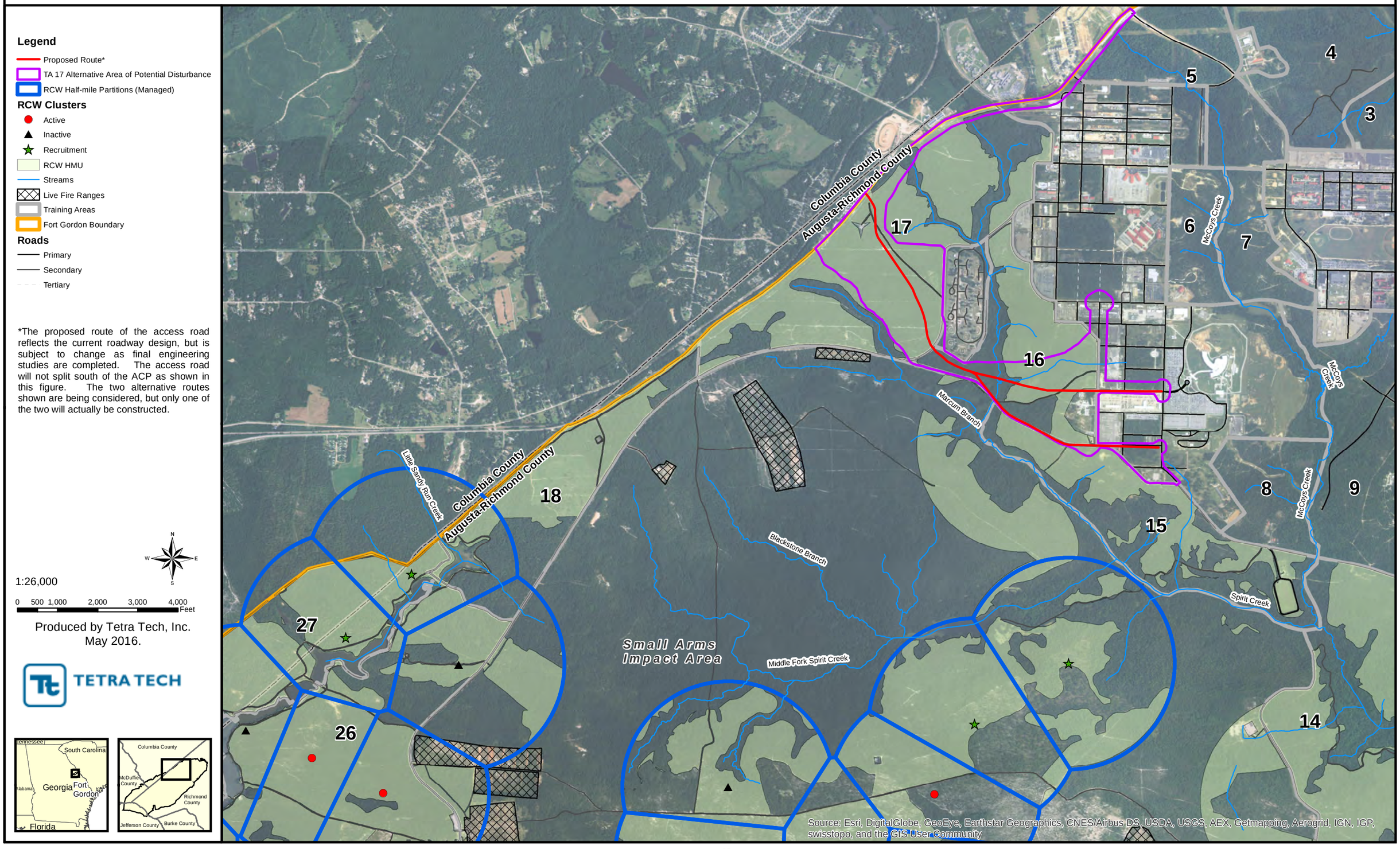


Figure 11: Threatened and Endangered Species in Project Area

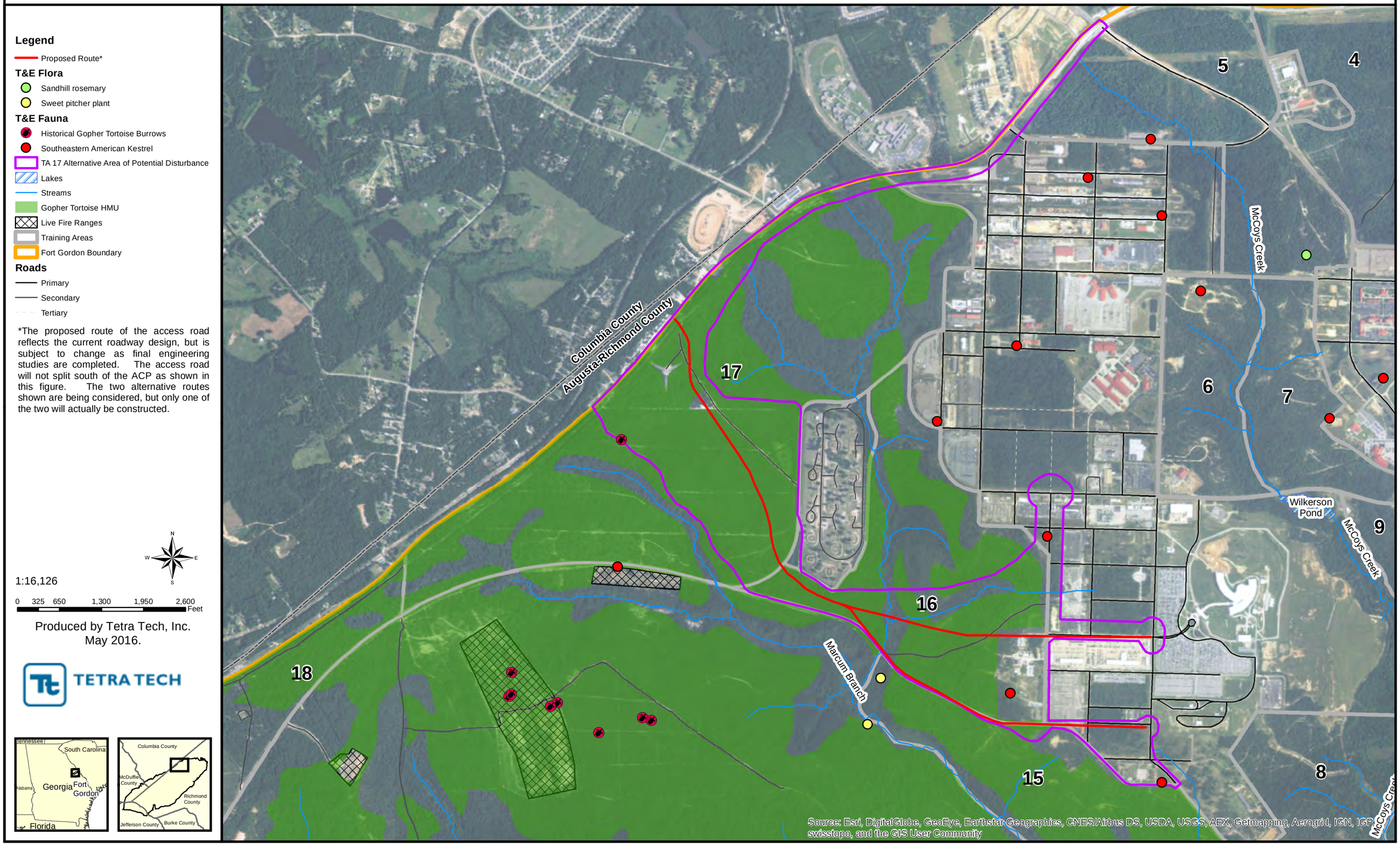


Table 6: Federal/State Protected Species Recorded at Fort Gordon

Common Name	Scientific Name	Status			Description of Habitat
		Federal	State	NatureServe	
Birds					
Bachman's sparrow	*Aimophila aestivali*	NL	R	G3	Abandoned fields with scattered shrubs, pines, or oaks.
Southeastern American kestrel	*Falco sparverius paulus*	NL	R	G5T4	Breed in open or partly open habitats with scattered trees and in cultivated or urban areas.
Bald eagle	*Haliaeetus leucocephalus*	NL	T	G5	Inland waterways and estuarine areas.
Wood stork*	*Mycteria americana*	T	E	G4	Primarily feed in fresh and brackish wetlands and nest in cypress or other wooded swamps.
Red-cockaded woodpecker	*Picoides borealis*	E	E	G3	Nest in mature pine with low understory vegetation; forage in pine and pine hardwood stands.
Mammals					
Rafinesque's big-eared bat	*Corynorhinus rafinesquii*	NL	R	G3G4	Buildings in forested regions.
Reptiles and Amphibians					
Gopher tortoise	*Gopherus polyphemus*	C	T	G3	Well-drained, sandy soils in forest and grassy area, associated with pine overstory.
Southern hognose snake	*Heterodon simus*	NL	T	G2	Open, sandy woods, fields, and floodplains.
American alligator	*Alligator mississippiensis*	T (S/A)	NL	G5	Marshes, swamps, rivers, farm ponds, and lakes. Nest in shallow, heavily vegetated, and secluded areas.
Fish					
Bluebarred pygmy sunfish	*Elassoma okatie*	NL	E	G2G3	Heavily vegetated creeks, sloughs, and roadside ditches.

Common Name	Scientific Name	Status			Description of Habitat
		Federal	State	NatureServe	
Plants					
Rosemary	*Ceratiola ericoides*	NL	T	G4	Dry, openly vegetated, scrub oak sandhills and river dunes with deep white sands of the Kershaw soil series.
Atlantic white cedar	*Chamaecyparis thyoides*	NL	R	G4	Wet sandy terraces along clear streams and in acidic bogs.
Pink ladyslipper	*Cypripedium acaule*	NL	U	G5	Upland oak-hickory pine forest.
Carolina bogmint	*Macbridea caroliniana*	SC	R	G2G3	Bogs, marshes, and alluvial woods.
Indian olive	*Nestronia umbellula*	SC	R	G4	Dry open upland forest of mixed hardwood and pine.
Sweet pitcher plant	*Sarracenia rubra rubra*	NL	T	G4	Acid soils of open bogs, sandhill seeps, Atlantic white cedar swamps, and wet savannahs.
Pickering morning glory	*Stylisma pickeringii var. pickeringil*	SC	T	G4T3	Coarse white sands on sandhills near the Fall line and on a few ancient dunes along the Flint and Ohoopee rivers.
Silky camelia	*Stewartia malacodendron*	NL	R	G4	Steepheads, bayheads, and edge of swamps.

*Transient presence on Fort Gordon
Status Key: E = Endangered, T = Threatened, T(S/A) = Threatened due to similarity of appearance to Threatened Species C= Candidate, R = Rare, U = Unusual, SC=Species of Concern, NL = not listed, G1 = Critically Imperiled, G2 = Imperiled, G3 = Vulnerable, G4 = Apparently Secure, G5= Secure, T3 = Vulnerable (subspecies), T4 = Apparently Secure (subspecies)

3.4.2 Environmental Consequences

Threshold of Significance for Ecological Resources: A significant impact would occur if the project would (a) have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies or regulations by the GADNR or the USFWS; (b) have a substantial adverse effect on any sensitive or unique natural community identified in local or regional plans, policies or regulations by GADNR or USFWS; (c) interfere substantially with the movement of native resident or migratory fish or wildlife, obstruct wildlife corridors, or harm wildlife nursery sites; (d) conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or (e) conflict with the provisions of an approved local, regional, or state habitat conservation plan. Specific significance thresholds for Fort Gordon include (a) reduction of the installation RCW population; (b) reduction of forage habitat at active RCW clusters below threshold levels; and (c) direct effect to a living RCW or active cavity tree.

3.4.3 Alternative 2 (Preferred Alternative): Training Area 17 Alternative

Terrestrial Resources

Figure 12 shows the area of potential disturbance overlaid over existing forest stands, which are primarily planted pine forest, pine-hardwood forest, and natural pine forest. Some non-forested areas, shown as “No Inventory” in Figure 12, are also found in the project area, mostly clear-cuts and disturbed areas adjacent to the cell tower, existing roadways, and cantonment. Up to 150 acres of forested land could be disturbed if the Preferred Alternative is implemented. Substantially less than 150 acres --- perhaps a third of that acreage --- would be permanently altered, cleared for the new roadways, buildings, parking lots, and infrastructure. The remainder of the 150 acres could be temporarily disturbed for construction-phase parking, construction laydown areas, construction trailers, and equipment storage. Every effort will be made to place these temporary parking lots and laydown yards in previously disturbed areas to limit potential impacts to plant and animal communities.

Widening Gordon Highway and building the new entrance, entrance road, ACP, VCC, and access road would eliminate wildlife habitat in these areas and displace wildlife ranging from reptiles to songbirds to small and large mammals. The establishment and use of temporary parking and equipment storage areas during the construction phase of the project would result in minor disturbance impacts to wildlife. Overall, impacts of implementing the preferred alternative would be small and localized and would not affect wildlife populations on a landscape or regional scale.

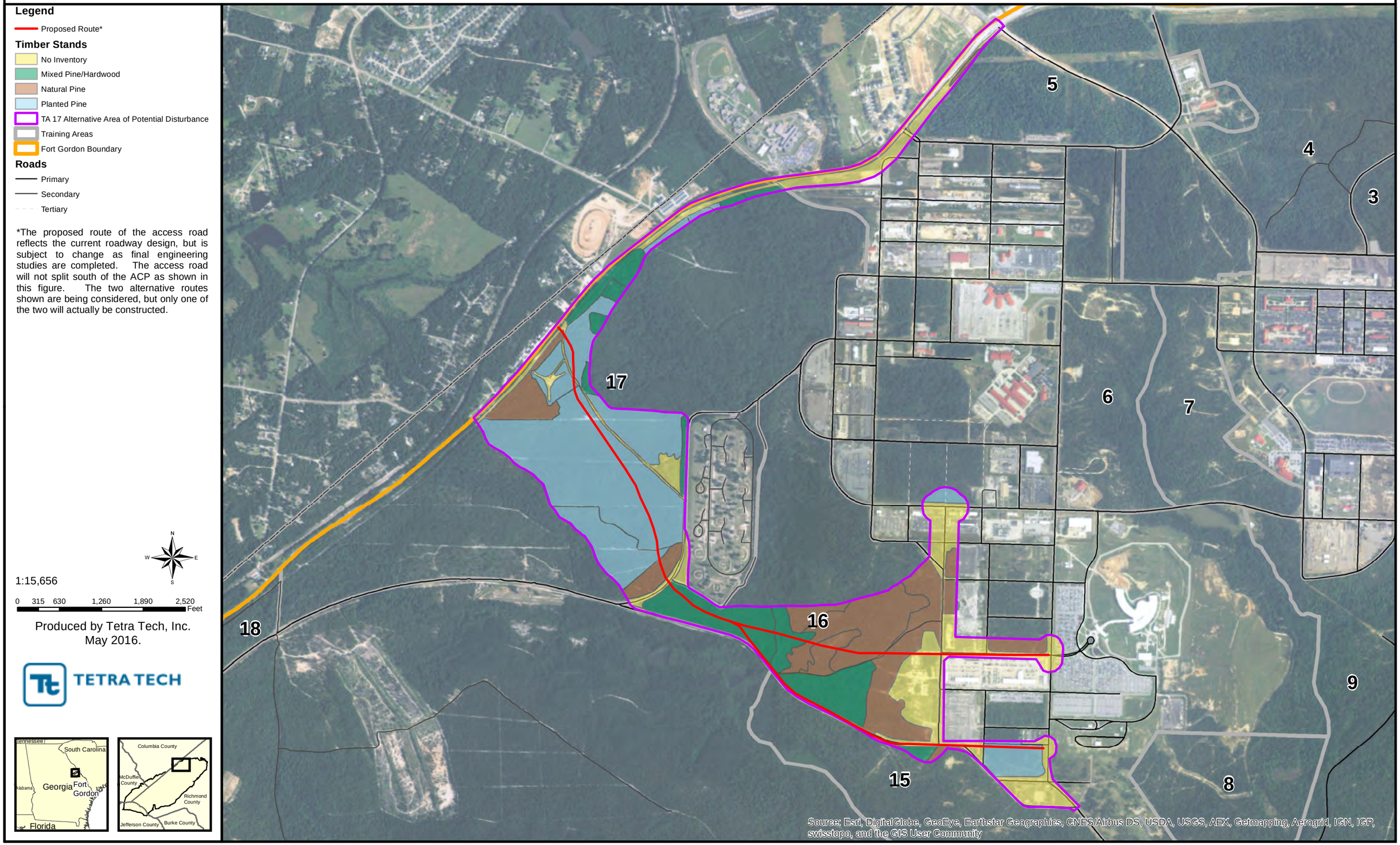
The land clearing and grading required prior to construction will increase the potential for the introduction and spread of noxious weeds. To minimize this, Fort Gordon has a program to control noxious weeds, which includes the stabilization of disturbed areas with native seed or other approved plantings. Therefore, minor impacts would be anticipated.

Much of the project area lies within the RCW HMU (Figure 10). Based on the presence of potential habitat, the INRMP and Biological Opinion issued by USFWS require that the project area be surveyed to ensure that no active RCW cavity trees exist there. In 2015, Fort Gordon Environmental Division biologists surveyed the project area following protocols in place for the RCW at Fort Gordon. All pine, pine/hardwood, and hardwood/pine stands with any trees at least 60 years old within 0.5 mile of the project boundary were surveyed. No RCW cavity trees were discovered.

Because the project area does not encompass any RCW clusters, and there are no clusters within 0.9 mile of the project area, the project will not decrease the Installation's RCW recovery goal, and no impacts to this species are expected.

A large portion of the project area lies within the gopher tortoise HMU (Figure 11). A gopher tortoise survey of the project area was conducted by Environmental Division biologists in December 2015 and no gopher tortoise burrows were observed. Because there are no known gopher tortoise burrows within the area of the Preferred Alternative, no tortoises or their burrows would be adversely impacted from project implementation. Fort Gordon will follow gopher tortoise

FIgure 12: Timber Stands in Project Area



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management guidelines in Appendix J of the INRMP (Fort Gordon 2015c). Prior to timber harvest/clearing, equipment operators will be briefed on gopher tortoise burrow identification and accidental discovery procedures.

Clearing and construction activities associated with the Gate 6 project could disturb nesting migratory birds including Southeastern American kestrels. However, planned seasonal restrictions on tree and brush clearing would limit impacts to migratory birds. Where possible, land clearing would be scheduled outside of the nesting season (i.e., from April 1 through July 31), to limit adverse impacts to migratory birds and their young. Avoiding land clearing during the April 1 through July 31 period would also be protective of bats, as this is the time of year when their young are flightless and most vulnerable.

While conducting surveys in 2015 for RCWs and gopher tortoises within the project area, Fort Gordon Environmental Division biologists also searched for other rare and protected animal and plant species; none was observed.

In summary, implementation of the Preferred Alternative is expected to have only small, localized impacts on Fort Gordon's plant and animal communities, and no adverse effects on rare and protected terrestrial species.

Aquatic Resources

Under the Preferred Alternative, GDOT would widen Gordon Highway and create a new entrance on Gordon Highway adjacent to TA 17. Vehicles will enter the Installation and travel a short distance to a new ACP, where drivers' credentials will be checked. A new two-lane access road will connect the ACP to the developed center of the Installation. The new access road would traverse TA 17, extend southeast into TA 16, curve east around the southern boundary of the ASP, and then either (1) continue east, crossing the tank trail and entering the cantonment area at the intersection of 107th Avenue and 12th Street or (2) extend southeast, paralleling North Range Road for approximately 3,000 feet before turning east to enter the cantonment area at the intersection of 110th Avenue and 12th Street. If the northern leg is ultimately selected, it would probably be necessary to build a low, two-lane bridge over the unnamed tributary that drains the northern

part of TA 17 and flows south by the ASP to join Marcum Branch. If the southern leg is selected, it would probably be necessary to widen North Range Road where it crosses this tributary in order to accommodate two more traffic lanes. The two possible access road configurations are shown in Figure 7. Whether a bridge is built or North Range Road is widened, heavy equipment would operate in the floodplain and streamside soils would be disturbed; therefore, the potential for erosion and sedimentation clearly exists.

As discussed in more detail in Sections 3.1.3 and 3.2.2, GAEPD requires parties with operational control of construction sites that disturb one acre or more to obtain an NPDES General Permit for Stormwater Discharges. This entails filing a Notice of Intent that includes a project description and an Erosion, Sedimentation, and Pollution Control Plan. The Plan must include BMPs, including sound conservation and engineering practices to minimize erosion and sedimentation that are consistent with practices described in the "Manual for Erosion and Sediment Control in Georgia" published by the Georgia Soil and Water Conservation Commission.

Construction-related sedimentation could, depending on the effectiveness of mandated erosion controls, have a small, localized effect on common benthic macroinvertebrates, but would have no effect on freshwater mussels (none are present). Impacts to fish would depend on stream flows during the construction period, and would likely be limited to displacement (fish moving upstream or downstream in response to sedimentation) of individuals (common minnow species). Based on the fact that any land-disturbing activities would be of relatively short duration, permitted and overseen by state and county conservation agencies, and guided by an approved Erosion, Sedimentation, and Pollution Control Plan, impacts to aquatic communities from implementation of the Preferred Alternative would be small and temporary in nature. No critical habitats, no "High Priority Waters," no anadromous fish species (species that migrate from salt water to spawn in fresh water), and no aquatic species that have been listed by the USFWS or protected by the State of Georgia occur in the project area; therefore

no project impact would approach the significance thresholds described in Section 2.3 (Table 2) of this EA.

3.4.4 No Action Alternative

Under the No Action Alternative, there would be no change to the existing natural and environmental resource conditions on Fort Gordon. There would be no direct or indirect adverse impacts on terrestrial or aquatic communities at Fort Gordon.

3.5 *Air Quality*

3.5.1 Affected Environment

Air Quality

The United States Environmental Protection Agency (USEPA) Region 4 and the GAEPD regulate air quality in Georgia. The Clean Air Act (CAA) (42 U.S.C. 7401-7671q), as amended, assigns the USEPA responsibility to establish the primary and secondary National Ambient Air Quality Standards (NAAQS) (40 CFR Part 50) that specify acceptable concentration levels of six criteria pollutants: particulate matter (measured as both particulate matter less than 10 microns in diameter [PM_{10}] and particulate matter less than 2.5 microns in diameter [$PM_{2.5}$]), sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), and lead. Short-term NAAQS (1-, 8-, and 24-hour periods) have been established for pollutants contributing to acute health effects, while long-term NAAQS (annual averages) have been established for pollutants contributing to chronic health effects. While each state has the authority to adopt standards stricter than those established under the federal program, the State of Georgia has accepted the federal standards.

Federal regulations designate Air Quality Control Regions (AQCRs) in violation of the NAAQS as nonattainment areas. Federal regulations designate AQCRs with levels below the NAAQS as attainment areas. Richmond County (and therefore all areas associated with the action) is within the Augusta (Georgia)-Aiken (South Carolina) Interstate AQCR (40 CFR 81.114). The USEPA has designated Richmond County (therefore all areas associated with the action) as in attainment

for all criteria pollutants (USEPA 2015a). Since the area is in attainment for all criteria pollutants, the General Conformity Rule does not apply. A record of non-applicability (RONA) is provided in Appendix B.

The USEPA monitors levels of criteria pollutants at representative sites in each region throughout Georgia. For reference purposes, Table 7 shows the monitored concentrations of criteria pollutants at nearby monitoring locations (USEPA 2015b).

Operations at Fort Gordon are covered under a Georgia Part 70 Operating Permit (9711-245-0021-V-03-0) for air emissions (USEPA 2016). Primary sources of air emissions include boilers, generators, and paint booth(s). The permit requirements include periodic inventory for all stationary sources of air emissions, and covers monitoring, record-keeping and reporting requirements. The National Security Agency has its own Minor CAA permit for air emissions at its campus on Fort Gordon. Table 8 shows annual emissions from Fort Gordon and the National Security Agency Georgia (NSAG) campus.

Greenhouse Gases and Climate Change

The City of Augusta has an average high temperature of 92.0° Fahrenheit (°F) (33.3° Celsius (°C)) in the hottest month of July, and an average low temperature of 33.1°F (0.6°C) in the coldest month of January. Augusta has average annual precipitation of 44.6 inches (113.3 centimeters) per year. The wettest month of the year is March with an average rainfall of 4.6 inches (11.7 centimeters) (Idcide 2016).

GHGs are components of the atmosphere that trap heat relatively near the surface of the earth, and therefore, contribute to the greenhouse effect and climate change. Most GHGs occur naturally in the atmosphere, but increases in their concentration result from human activities such as the burning of fossil fuels. Global temperatures are expected to continue to rise as human activities continue to add carbon dioxide (CO_2), methane, nitrous oxide, and other greenhouse (or heat-trapping) gases to the atmosphere. Whether or not rainfall will increase or decrease remains difficult to project for specific regions (USEPA 2015c and IPCC 2014).

Table 7: Air Quality Standards and Monitored Data

Pollutant	Air Quality Standard		Monitored Concentrations		
	Level	Averaging Period	2012	2013	2014
CO					
1-hour (ppm)	35	Not to be exceeded more than once per year	1.7	1.7	2.1
8-hour (ppm)	9		1.4	1.2	1.7
Nitrogen Dioxide (NO_2)					
1-hour (ppb)	100	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years	53	43	53
O_3					
8-hour (ppm)	0.070	3-year average of the fourth highest daily maximum	0.072	0.063	0.062
SO_2					
1-hour (ppm)	75	98th percentile, averaged over 3 years	11	63	58
3-hour (ppb)	0.5	Not to be exceeded more than once per year	No Data	No Data	No Data
$PM_{2.5}$					
24-hour ($\mu g/m^3$)	35	98th percentile, averaged over 3 years	23	19	19
Annual mean ($\mu g/m^3$)	12	Averaged over 3 years	10.7	9.2	10.3
PM_{10}					
24-hour ($\mu g/m^3$)	150	Not to be exceeded more than once per year over 3 years	15	28	61

Source: 40 CFR 50.1-50.12, USEPA 2015b.
ppm = parts per million; ppb = parts per billion; $\mu g/m^3$ = micrograms per cubic meter

Table 8: Annual Emissions at Fort Gordon and NSAG Campus (tpy)

Criteria Pollutant	VOC	NO_x	CO	SO_2	$PM_{10}/PM_{2.5}$
Fort Gordon[1]	50.5	31.5	20.1	0.18	27.0
NSAG Campus[2]	2.3	15.9	19.7	-	0.9

Sources: [1]Fort Gordon 2015a (Fort Gordon 2014 data) and [2]Fort Gordon 2014a (NASG data from 1 July 2013 – 30 June 2014).

Executive Order (EO) 13693, *Planning for Federal Sustainability in the Next Decade* outlines policies intended to ensure that federal agencies evaluate climate-change risks and vulnerabilities, and to manage the short- and long-term effects of climate change on their operations and mission. The EO specifically requires agencies within the DOD to measure, report, and reduce their GHG emissions from both their direct and indirect activities. The DOD has committed to reduce GHG emissions from non-combat activities 34 percent by 2020 (DOD 2014). In addition, the CEQ recently revised draft guidance on when and how federal agencies should consider GHG emissions and climate change in NEPA analyses. The draft guidance includes a presumptive effects threshold of 27,563 tons per year (25,000 metric tons per year) of CO_2 equivalent emissions from a federal action (CEQ 2014).

3.5.2 Environmental Consequences

Threshold of Significance for Air Quality: A significant impact would occur if the project would (a) exceed the general conformity rule de minimis (of minimal importance) threshold values; (b) exceed the GHG threshold in the draft CEQ guidance; or (c) contribute to a violation of any federal, state, or local air regulation.

3.5.3 Alternative 2 (Preferred Alternative): Training Area 17 Alternative

Short-term minor adverse effects would be expected. Short-term effects would be due to generating airborne dust and other pollutants during construction. There would be no long-term changes in operational emissions and no new stationary sources of air emissions. Air emissions would not (a) exceed the general conformity rule *de minimis* (of minimal importance) threshold values; (b) exceed

the GHG threshold in the draft CEQ guidance; or (c) contribute to a violation of any federal, state, or local air regulation.

Construction emissions were estimated for fugitive dust, on- and off-road diesel equipment and vehicles, worker trips, architectural coatings, and paving off-gasses (Table 9). Operational emissions were primarily derived from a back-up generator that may be installed at the proposed ACP. Although the area is in attainment and the general conformity rules do not apply, the *de minimis* threshold values were carried forward to determine the level of effects under NEPA. The estimated emissions from the Preferred Alternative would be below the *de minimis* thresholds; therefore, the level of effects would be minor. Detailed emission calculations and a record of non-applicability are in Appendix B.

Table 9: Estimated Air Emissions Compared to De Minimis Thresholds

	Emissions(tons per year)							
Activity/Source	CO	NO_x	VOC	SO_x	PM_{10}	$PM_{2.5}$	*De minimis Threshold [tpy]*	*Exceeds De Minimis Thresholds? [Yes/No]*
Construction	3.7	5.7	0.9	0.6	5.1	0.7	100	No
Operations	2.1	1.9	0.3	0.4	0.1	0.1		

For purposes of analysis, it was assumed that all construction activities would be compressed into one 12-month period; therefore, regardless of the ultimate implementation schedule, annual emissions would be less than those specified herein. It was also assumed that a 700-kilowatt (kW) backup generator would be located at the facility either initially or in the future. Small changes in facilities site and ultimate design, and moderate changes in quantity and types of equipment used would not substantially change these emissions estimates, and would not change the determination under the general conformity rule or level of effects under NEPA.

Regulatory Review

The CAA, as amended in 1990, mandates that state agencies adopt and implement State Implementation Plans (SIPs) to eliminate or reduce the severity

and number of violations of the NAAQS. Since 1990, Georgia has developed a core of air quality regulations that USEPA has approved. These approvals signified the development of the general requirements of the SIP. The Georgia program for regulating air emissions affects industrial sources, commercial facilities, and residential development activities. As part of these requirements, GAEPD oversees programs for permitting the construction and operation of new or modified stationary source air emissions in Georgia. GAEPD air permitting is required for many industries and facilities that emit regulated pollutants. These requirements include Title V permitting of major sources, New Source Review, Prevention of Significant Deterioration, New Source Performance Standards for selected categories of industrial sources, and the National Emission Standards for Hazardous Air Pollutants. GAEPD air permitting regulations do not apply to mobile sources, such as automobiles or trucks. An overview of the applicability of these regulations to the project is outlined in Table 10.

Table 10: Air Quality Regulatory Review for Proposed Stationary Sources

Regulation	Project status
New Source Review	The potential emissions would not exceed New Source Review threshold and would be exempt from New Source Review permitting requirements.
Prevention of Significant Deterioration	Potential emissions would not exceed the 250-tpy Prevention of Significant Deterioration threshold. Therefore, the project would not be subject to Prevention of Significant Deterioration review.
Title V Permitting Requirements	Any new stationary source of air emissions would be added to the installation's Title V permit.
National Emission Standards for Hazardous Air Pollutants	Potential Hazardous Air Pollutant emissions would not exceed National Emission Standards for Hazardous Air Pollutants thresholds; therefore, the use of Maximum Available Control Technology would not be required.
New Source Performance Standards	Emergency generators would be subject to New Source Performance Standards.

In addition, GAEPD has published requirements applicable to construction projects, such as controlling fugitive dust and open burning. All persons

responsible for any operation, process, handling, transportation, or storage facility that could result in fugitive dust would take reasonable precautions to prevent such dust from becoming airborne. Reasonable precautions might include using water to control dust from building construction, road grading, or land clearing. In addition, construction would proceed in full compliance with current GAEPD requirements, with compliant practices and/or products. These requirements include the following:

- General Air Quality Rules (GAEPD 391-3-1-.02)
- Air pollution from Volatile Organic Compounds (GAEPD 391-3-1-.02-6)
- Visible Emissions and Particulate Matter (GAEPD 391-3-1-.02-10)
- Open Burning (GAEPD 391-3-1-.02)

This listing is not all-inclusive; the Army and any contractors would comply with all applicable air pollution control regulations.

Greenhouse Gases and Climate Change

All construction activities combined would generate approximately 647 tons (588 metric tons) of CO_2 per year, and operation of the back-up generator would generate approximately 118 tons (107 metric tons) of CO_2 per year. Both construction and operational emissions would be below the CEQ threshold of 25,000 metric tons per year. These effects would be minor. Notably, the Army is continuing to implement initiatives to reach its GHG reduction goals in accordance with EO 13693, such as LEED standards and the Net Zero initiative.

3.5.4 No Action Alternative

Selecting the No Action Alternative would result in no effect on air quality. There would be no short- or long-term emissions changes due to the action. Air-quality would remain unchanged when compared to existing conditions.

3.6 *Hazardous Materials, Hazardous Waste and Installation Restoration Program Sites*

3.6.1 Affected Environment

A hazardous material is defined as any substance that is 1) listed in Section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); 2) designated as a biologic agent and other disease causing agent which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any person, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions or physical deformations in such persons or their offspring; or 3) listed by the U.S. Department of Transportation as hazardous materials under 49 CFR 172.101 and appendices. Hazardous materials are federally regulated by the USEPA in accordance with the Federal Water Pollution Control Act; Clean Water Act; Toxic Substance Control Act (TSCA); Resource Conservation and Recovery Act (RCRA); CERCLA; and CAA.

Hazardous materials are substances that cause human physical or health hazards (29 CFR 1910.1200). Materials that are physically hazardous include combustible and flammable substances, compressed gases, and oxidizers. Health hazards are associated with materials that cause acute or chronic reactions, including toxic agents, carcinogens, and irritants.

The promulgation of the TSCA (40 CFR Parts 700 to 766) represented an effort by the federal government to address those chemical substances and mixtures for which it was recognized that the manufacture, processing, distribution, use, or disposal may present unreasonable risk of personal injury or health of the environment, and to effectively regulate these substances and mixtures in interstate commerce. The TSCA Chemical Substances Inventory lists information on more than 62,000 chemicals and substances.

A hazardous waste is defined as a solid waste which is either listed as being hazardous or is hazardous by characteristics it may display such as reactivity,

corrosivity, ignitability, or Toxic Characteristic Leaching Procedure (TCLP) toxicity, as defined by 40 CFR 261-270, and 40 CFR 279. The RCRA defines hazardous waste as wastes or combination of wastes that, because of quantity, concentration, or physical, chemical, or infectious characteristics, may either cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

The Fort Gordon Environmental Division maintains the Hazardous Waste Management Plan (HWMP) and an installation-wide inventory of all hazardous materials and hazardous wastes. The HWMP provides guidance on the management of hazardous materials and hazardous wastes (Fort Gordon 2003).

Fort Gordon has a Hazardous Materials Control Point (HMCP) that provides materials on an as-needed basis to reduce the quantities of materials that are stored throughout the Installation. The mission of the HMCP is to track all hazardous materials, look for efficiencies, and promote pollution prevention and waste minimization. The materials are tracked via the Enterprise Environmental Safety and Occupational Health Management Information System (EESOHMIS).

Fort Gordon maintains an SPCCP and an ISCP. The SPCCP identifies areas that are at risk for spills, such as Underground Storage Tanks and Aboveground Storage Tanks, which could cause harm to human health and the environment. It also lists measures that have been taken to reduce or eliminate the risk of potential contamination in the event of a spill. The SPCCP was last updated in 2014.

Fort Gordon has an active Installation Restoration Program (IRP). Under the IRP, an Installation Assessment was completed in 1982 that identified 36 Solid Waste Management Units (SWMUs) on Fort Gordon. Since that time, additional sites have been added bringing the total to 41 SWMUs on Fort Gordon (Fort Gordon 2014c). Two SWMUs could be affected if the Preferred Alternative is implemented; SWMUs CCFTGD-057 and 009 (Figure 13). They are described in the sections that follow.

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Figure 13: Solid Waste Management Units in Project Area

Legend

- Proposed Route*
- TA 17 Alternative Area of Potential Disturbance

Environmental Wells

- Extraction
- Injection
- Monitoring
- Sentinel Monitoring

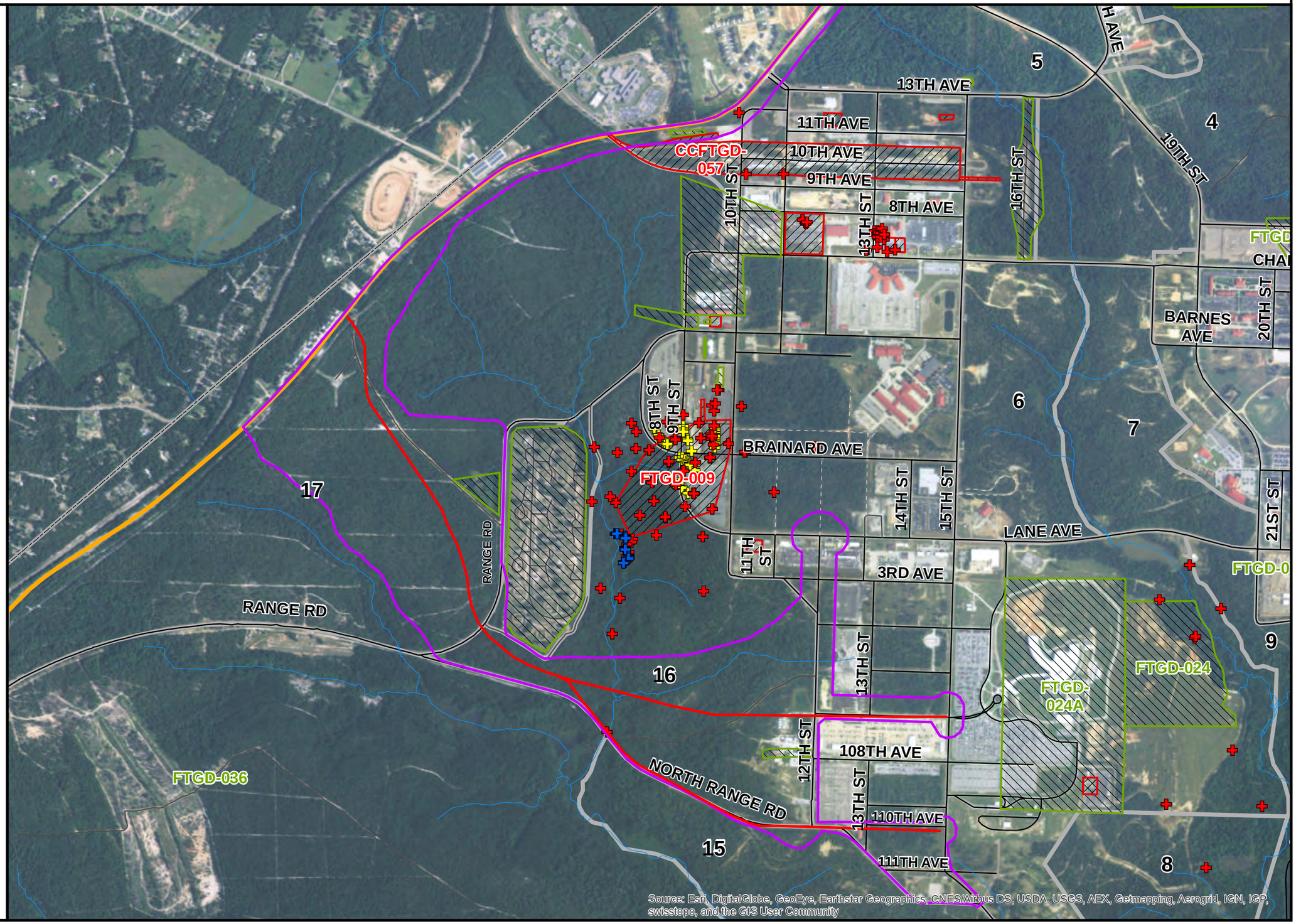
Solid Waste Management Units

- Active
- Closed
- Streams
- Fort Gordon Boundary

Roads

- Primary
- Secondary
- Tertiary
- Training Areas

*The proposed route of the access road reflects the current roadway design, but is subject to change as final engineering studies are completed. The access road will not split south of the ACP as shown in this figure. The two alternative routes shown are being considered, but only one of the two will actually be constructed.



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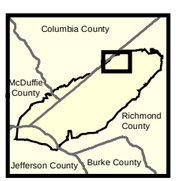

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CCFTGD-057: SWMU CCFTGD-057 is located within the railhead area of the cantonment on Fort Gordon. This area was used for industrial activities from the 1940s through the 1970s. It covers approximately 20 acres and contains the currently unused railhead, various buildings, and storage areas. Since the 1970s, many of the original storage buildings have been demolished. Initial investigations of soil gas, surface water and soil identified potential soil and groundwater impacts (USAEC 2015a). Confirmatory Sampling (CS) was conducted in 2015. Soil sampling results for CCFTGD-057 indicated:

- six metals are present above the background screening values (BSVs): arsenic, chromium (total), copper, lead, nickel, and zinc;
- several pesticides were detected in soils, but all concentrations were below their respective residential regional screening level (RSL), industrial RSL, and soil screening level (SSL) with the exception of dieldrin (which was detected above the SSL in one sample);
- no herbicides were detected above the laboratory limit of detection (LOD);
- acetone was the only volatile organic compound (VOC) detected and the reported concentrations were below the residential RSL, industrial RSL, and SSL; and
- approximately 20 semi-volatile organic compound (SVOCs) were detected in soils, generally at low concentrations; however, 2,6-dinitrotoluene and benzo(a)pyrene were detected above their residential RSLs and 1-1-Biphenyl, 2,6-dinitrotoluene, 2-Methylnapthalene, Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzofuran, Isophorone, naphthalene, and n-Nitrosodi-n-propylamine were detected above their respective SSLs.

Groundwater sampling results for CCFTGD-057 indicated:

- arsenic was detected at concentrations above the maximum contaminant level (MCL) and the tapwater RSL in two of the three wells;

- three pesticides were detected with the reported concentrations below their respective MCLs and tapwater RSL;
- no herbicides were detected above the laboratory LOD;
- perchloroethylene was detected in one well and the reported concentration was below the MCL and tapwater RSL;
- Trichloroethene (TCE) was detected in all three wells with the reported concentrations above the tapwater RSL, but below the MCL; and
- caprolactam was the only SVOC detected and the reported concentrations were below the tapwater RSL.

Soil and groundwater analytical results from the CS activities completed confirmed the presence of potential impacts to surface soil, subsurface soil, and groundwater. Based on these findings it was recommended that additional site characterization activities be performed and be carried forward into the RCRA Facility Investigation (RFI) process. With GAEPD concurrence, an RFI Work Plan will be prepared. It will be prepared in accordance with Fort Gordon's Hazardous Waste Facility Permit Number HW-081(S). The report will outline the technical approach and methods for conducting additional soil and groundwater sampling activities to identify, investigate, and delineate potential constituents of concern (USAEC 2015a).

SWMU-009: SWMU 009 is located on the west side of former Building 955 at the intersection of 10th Street and Brainard Avenue in the northwest portion of the Fort Gordon cantonment area. This area of Fort Gordon was historically used for industrial activities. SWMU 009 consisted of a concrete block sump and a subsurface clay tile leach field between former Buildings 954 and 955. Operations at Building 955 started in 1958; however, it is unknown when use of the sump and leach field started. Activities performed at Building 955 included small arms repairs (including solvent degreasing), parkerizing, and electroplating. Rinse water from these operations was discharged to a drain connected to a concrete block sump, which discharged to the clay tile leach

field. The repair of small arms at Building 955 was discontinued in the 1970s. Building 955 was demolished in 1998, and only the building foundation and adjacent sump and leach field remained. The concrete block sump, accumulated sediments, and approximately 50 cubic yards of underlying soil were removed from the site as part of an interim remedial action completed in 2005 (USAEC 2015b).

RFI Report Revision 6 for SWMU 009 concluded that corrective actions were necessary for the site to address the presence of constituents of concern (COCs) in groundwater. TCE was determined to be present in groundwater at concentrations that would signify an excess lifetime cancer risk above the USEPA benchmark range of 10^{-6} to 10^{-4}, under a hypothetical future residential land use scenario. The non-cancer hazard index associated with adult and child resident ingestion of groundwater was also found to exceed the benchmark value of 1 due to cis-1,2-dichloroethene (DCE). No unacceptable risks were identified with surface soil, subsurface soil, surface water, or sediment resources at the site; and groundwater was not found to present any unacceptable risks or hazards under the current and anticipated future military/industrial land use scenario (USAEC 2015b).

The highest TCE concentration in groundwater was observed in monitoring well MW-009-1, a shallow well located in the immediate vicinity of the former leach field. The maximum reported TCE concentration at the Site (16,000 µg/L) was detected in this well during a November 1994 sampling event. The TCE level in MW-009-1 has declined steadily since the initial sample was collected (USAEC 2015b).

The contamination plume for SWMU 009 has historically extended from the former leach field area to the west, and has been present in the shallow and intermediate zones of the aquifer. Sampling appears to indicate that contaminant migration in the northern lobe of the plume has slowed and there are no identified impacts within the deeper aquifer zone. The southern lobe of the plume extends southwest from the former leach field to the unnamed

tributary of Marcum Branch approximately 2,000 ft downgradient. Shallow zone impacts in the southern lobe are present only within the developed area of SWMU 009. The majority of residual dissolved-phase TCE mass is present in the intermediate zone of the formation. Impacts to the deep zone are minimal. Analytical data from the deepest wells identify a clean zone beneath the plume (USAEC 2015b).

Although identified as a COC and risk driver for the site, cis-1, 2-DCE was only detected sporadically during the RFI activities. Cis-1, 2-DCE is a daughter product associated with the degradation of TCE, as is vinyl chloride; therefore, as the TCE groundwater contaminant plume attenuates, it is possible that both cis-1, 2-DCE and vinyl chloride detections may become more frequent (USAEC 2015b).

A Corrective Action Plan (CAP) was prepared for SWMU 009 that selected a combination of institutional controls, focused groundwater capture and treatment, and groundwater and surface water monitoring as the final remedial strategy for SWMU 009. Fort Gordon implemented physical and administrative land use controls (LUCs) as a component of the selected corrective action for the site. The LUCs are intended to prohibit residential use and/or development of the property and other unauthorized activities (i.e., land disturbing activities, digging, and groundwater use). The LUCs specifically prohibit the installation of potable wells and consumption of groundwater due to the unacceptable potential risks associated with ingestion of contaminated groundwater at the site. Due to the potential for impacted groundwater to enter the unnamed stream downgradient of SWMU 009, the LUCs also restrict contact and consumption of surface water within the boundaries of the LUC area. LUCs will remain in place until (1) groundwater quality is consistently below the MCLs for TCE, cis-1, 2-DCE, and vinyl chloride, and (2) surface water detections remain below the In-Stream Water Quality Standards (IWQS) for VOCs (USAEC 2015b).

In addition to physical LUCs that are in place, Fort Gordon utilizes administrative mechanisms to prevent unauthorized land use at SWMU 009. The Hazardous Waste Facility Permit No. HW-081(S) is the primary administrative LUC and governing document for all Fort Gordon SWMUs. The permit outlines the regulations and requirements for all corrective actions, including LUCs (USAEC 2015b).

As part of the CAP, a full-scale focused groundwater capture and treatment system for SWMU 009 was completed between August and October 2011. The focused groundwater capture system serves multiple purposes. Primarily, the system serves as a hydraulic capture and control mechanism for the downgradient portion of the plume. This in turn limits the discharge of VOC impacted groundwater to the unnamed stream that serves as the discharge boundary for groundwater at SWMU 009. The capture and ex-situ treatment of the VOC impacted groundwater also directly reduces the total residual contaminant mass in the groundwater plume. Ex-situ technologies are remediation options where the affected medium (soil, water) is removed from its original location and cleaned on-site or off-site.

As part of the CAP and the Construction Completion and Baseline Monitoring Report, a long-term monitoring program was established for SWMU 009 to evaluate remedial performance over time (USAEC 2015b). The most recent CAP progress report from December 2015 indicates that TCE is still present at concentrations in excess of the USEPA MCLs and remains the most widely distributed COC at the site. Consistent with observations from previous monitoring events, the TCE plume extends from the former source area towards the unnamed stream located southwest of the site. The artesian extraction wells for the focused groundwater capture and treatment system appear to effectively bracket the downgradient core of the TCE plume, with the highest TCE concentrations being detected in the extraction wells located in the central portion of the capture zone. This indicates that that the system is optimally located to limit further downgradient migration of the contaminant

plume toward the unnamed stream that serves as the discharge boundary for groundwater at SWMU 009 (USAEC 2015b).

In addition to TCE, 1,1,2,2-TCA; carbon tetrachloride; and 1,2-DCA were detected in groundwater at concentrations in excess of the applicable USEPA MCLs or tap water RSLs. However, the detected concentrations and distribution of these constituents was far less than observed for TCE. Surface water sampling results from the February 2015 monitoring event indicate that no COCs were present at concentrations in excess of the Georgia IWQS (USAEC 2015b).

The focused groundwater capture system continues to effectively capture VOCs at the downgradient core of the SWMU 009 contaminant plume. Effluent samples collected from the focused groundwater capture system Artesian treatment vessels (ATVs) in February 2015 confirmed that VOCs in the extracted groundwater are being effectively treated prior to surface discharge. Influent and effluent sampling will continue on a quarterly basis to verify that the ATVs continue to successfully treat the extracted groundwater prior to discharge (USAEC 2015b).

3.6.2 Environmental Consequences

Threshold of Significance for Hazardous Materials, Hazardous Waste, Landfills, and Environmental Restoration Sites: A significant impact would occur if the project would (a) create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials; (b) 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; (c) emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within 0.25 mile of an existing or proposed school; (d) result in a safety hazard for people residing or working in the project vicinity; or (e) impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

3.6.3 Alternative 2 (Preferred Alternative): Training Area 17 Alternative

SWMU CCFTGD-057 is located within the railhead area of the cantonment on Fort Gordon. This site could potentially be impacted by the highway widening in this area. SWMU 009 is located on the west side of former Building 955 at the intersection of 10th Street and Brainard Avenue in the northwest portion of the Fort Gordon cantonment area near the ASP. This site could potentially be affected if any utility rights-of-way are installed in this area. Figure 13 shows both of these SWMUs in relation to the project area.

Design and construction of the Preferred Alternative will require close coordination between Fort Gordon, DPW Environmental Division and the design and construction contractors in order to mitigate impacts to these SWMUs. Pertinent information about these sites will be disclosed to the design and construction contractors in order to avoid impacts; develop any health and safety plans; and to establish soil disposal protocols in the event it is necessary.

Minor impacts may result from implementing the Preferred Alternative. Small quantity spills and leaks of fuels and oils could potentially occur from heavy equipment machinery during construction. Any spills would be responded to in accordance with Fort Gordon management plans and federal and state laws. Designated locations would be developed for heavy equipment and/or storage of fuels/oils during project construction. This would help minimize the potential for spills and spill contamination. Additionally, the construction contractor would be responsible for preparing and adhering to a SPCCP. The SPCCP would be designed to help prevent the discharge of oil.

There would be minimal storage and handling of hazardous materials and waste within the project footprint during construction. Storage or handling of hazardous materials and/or hazardous wastes would comply with the requirements of the Fort Gordon HWMP (Fort Gordon 2003). No hazardous materials will be used or stored at the proposed ACP or VCC once they are constructed and in operation.

3.6.4 No Action Alternative

Under the No Action Alternative, there would be no change to the existing natural and environmental resources conditions at Fort Gordon; therefore, hazardous waste generation amounts and types would remain consistent with current conditions. No impact to Hazardous Materials, Hazardous Waste, Landfills, and Environmental Restoration Sites would be anticipated under the No Action Alternative.

3.7 *Noise*

3.7.1 Affected Environment

Sound is a physical phenomenon consisting of vibrations that travel through a medium, such as air, and are sensed by the human ear. Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise intrusive. Human response to noise varies depending on the type and characteristics of the noise distance between the noise source and the receptor, receptor sensitivity, and time of day. Noise is often generated by activities essential to a community's *quality of life*, such as construction or vehicular traffic.

Sound varies by both intensity and frequency. Sound pressure level, described in decibels (dB), is used to quantify sound intensity. The dB is a logarithmic unit that expresses the ratio of a sound pressure level to a standard reference level. Hertz are used to quantify sound frequency. The human ear responds differently to different frequencies. "A-weighting", measured in A-weighted decibels (dBA), approximates a frequency response expressing the perception of sound by humans. Sounds encountered in daily life and their dBA levels are provided in Table 11.

Table 11: Common Sounds and Their Levels

Outdoor	Sound Level (dBA)	Indoor
Motorcycle	100	Subway train
Tractor	90	Garbage disposal
Noisy restaurant	85	Blender
Downtown (large city)	80	Ringing telephone
Freeway traffic	70	TV audio
Normal conversation	60	Sewing machine
Rainfall	50	Refrigerator
Quiet residential area	40	Library

Source: Harris 1998.

The dBA noise metric describes steady noise levels, although very few noises are, in fact, constant. Therefore, A-weighted Day-night Sound Level has been developed. Day-night Sound Level (DNL) is defined as the average sound energy in a 24-hour period with a 10-dB penalty added to the nighttime levels (10 p.m. to 7 a.m.). DNL is a useful descriptor for noise because: (1) it averages ongoing yet intermittent noise, and (2) it measures total sound energy over a 24-hour period. In addition, Equivalent Sound Level (L_{eq}) is often used to describe the overall noise environment. L_{eq} is the average sound level in dB.

The Noise Control Act of 1972 (PL 92-574) directs federal agencies to comply with applicable federal, state, and local noise control regulations. In 1974, the USEPA provided information suggesting continuous and long-term noise levels in excess of DNL 65 dBA are normally unacceptable for noise-sensitive land uses such as residences, schools, churches, and hospitals. Augusta-Richmond County maintains a nuisance noise ordinance where construction is permitted between the hours of 7:00 a.m. - 10:00 p.m. (Augusta-Richmond County Code §3-6-1).

The primary source of noise at Fort Gordon is military training activities. Other sources of noise include operation of civilian and military vehicles, lawn and landscape equipment, construction activities, and vehicle maintenance operations. Background noise levels without training activities operations (L_{eq} and DNL) were

estimated for the surrounding areas using the techniques specified in the *American National Standards Institute - Quantities and Procedures for Description and Measurement of Environmental Sound Part 3: Short-term measurements with an observer present*. Table 12 outlines the land use category and the estimated background noise levels for nearby noise sensitive areas (ANSI 2013).

Table 12: Estimated Background Noise Levels

Land Use Category	Average Residential Intensity (people per acre)	DNL	L_{eq} (dBA)	
			Daytime	Nighttime
Rural or remote	<2	<49	<48	<42
Suburban residential	2	49	48	42
	4	52	53	47
	4.5	52	53	47
Quiet urban residential	9	55	56	50
Quiet commercial, industrial, and normal urban residential	16	58	58	52
	20	59	60	54

Source: ANSI 2013.

Noise from small arms, demolition, and heavy artillery training is concentrated in the southwest areas of the Installation. Noise from training activities is clearly audible in the cantonment area and areas adjacent to the Installation. Noise from training is completely compatible with activities in the cantonment area, but noise sensitive land uses are not recommended for areas adjacent to the Installation boundary near active training areas. There is an active small arms range approximately 1,500 feet southwest of the proposed ACP that generates an appreciable amount of noise.

The Federal Highway Administration (FHWA) and Georgia Department of Transportation (GDOT) highway traffic noise policies outlines criteria associated with specific types of projects such as the physical alteration of existing highways, which increases the number of through-lanes. The FHWA regulations established Noise Abatement Criteria (NAC) that provide a benchmark to assess the level at which noise becomes for different land uses. The guidance suggests that an

average hourly sound level (i.e. L_{eq} (1hr)) of 66 dBA would be a clear source of annoyance for residential uses (FHWA 2011). A 15-dBA increase in the average hourly sound level would be considered a *substantial noise increase* under the GDOT noise policy (GDOT 2012).

To determine the level of effects under NEPA, a screening analysis using the FHWA Traffic Noise Model (TNM) 2.5 was performed to approximate the existing traffic noise levels in the project area between 19th Street and the proposed ACP. The noise was modeled assuming no special abatement measures, and the roadway was straight, at-grade, and surrounded by hard and flat surfaces. It was also assumed that the peak-hour traffic volumes would result in the noisiest conditions. Areas within 50 to 75 feet of the roadway would exceed the FHWA NAC of 66 dBA L_{eq} (1hr) for residential land uses. There are no residential areas within this distance of the roadway.

3.7.2 Environmental Consequences

Threshold of Significance for Noise: A significant impact would occur if the project would (1) result in the violation of applicable federal, state, or local noise regulation, or (2) create appreciable areas of incompatible land use off-post.

3.7.3 Alternative 2 (Preferred Alternative): Training Area 17 Alternative

The Preferred Alternative would have short-term minor and long-term moderate adverse effects. Short-term effects would be due to use of heavy equipment during construction. Long-term effects would be due to an appreciable increase in noise along Gordon Highway near the proposed ACP. The Preferred Alternative would not (1) result in the violation of applicable federal, state, or local noise regulation; or (2) create appreciable areas of incompatible land use outside the property boundary of the airport.

Construction Noise

Short-term increases in noise would be due to construction activities. Table 13 presents typical noise levels (dBA at 50 feet) that the USEPA has estimated for the main phases of outdoor construction. Individual pieces of construction equipment

typically generate noise levels of 80 to 90 dBA at a distance of 50 feet. With multiple items of equipment operating concurrently, noise levels can be relatively high during daytime periods at locations within several hundred feet of active construction sites. The zone of relatively high construction noise typically extends to distances of 400 to 800 feet from the site of major equipment operations. Given the temporary nature of proposed construction activities and the limited amount of noise that heavy equipment would generate, these effects would be minor.

Table 13: Noise Levels Associated With Outdoor Construction

Construction Phase	L_{eq} (dBA)
Ground clearing	84
Excavation, grading	89
Foundations	78
Structural	85
Finishing	89

Source: USEPA 1971.

Traffic Noise

Changes in traffic patterns would have long-term moderate adverse effects to the noise environment. Long-term effects would be due to appreciable increases in noise along Gordon Highway near the proposed ACP.

A detailed description of the effects to traffic and transportation resources is in Section 3.3 and in the RTG PEA.

The proposed gate closure and new ACP would add 2,260 vehicles to Gordon Highway west of 19th Ave and 2,241 west of 13th Avenue during the p.m. peak period. These additional vehicles would constitute a substantial change in traffic volumes along Gordon Highway. Because noise is measured on a logarithmic scale, two line sources of equal level (e.g. traffic along a roadway) added together result in an increase of 3 dBA at all distances. Therefore, a doubling in traffic volume would increase the noise level by 3 dBA. For example, traffic generating 60 dBA plus the same amount of traffic on the same roadway would yield a total

noise level of 63 dBA. Notably, a 5-dBA change in noise levels would be readily perceptible to individuals with average hearing (FHWA, 2011).

To determine the level of effects under NEPA, a screening analysis using TNM 2.5 was performed to approximate the future traffic noise in the project area between 19th Street and the proposed ACP. Similar to existing conditions, the noise was modeled, assuming no special abatement measures, and the roadway was straight, at-grade, and surrounded by hard and flat surfaces. The additional vehicles would increase traffic noise along this portion of Gordon Highway by approximately 10 dBA in the a.m. peak traffic period and two (2) dBA in the p.m. peak period. This would be a readily perceptible change in noise; however, would not be considered a substantial noise increase under the GDOT noise policy (GDOT 2012, FHWA 2011). Areas within 250 to 300 feet of the roadway would exceed the FHWA and GDOT NAC of 66 dBA L_{eq}(1hr) for residential land uses. There are approximately 30 to 40 residences within this distance of the roadway. These effects would be less than significant.

Military Training Noise

There would be no changes in military training, use of weaponry, demolitions, or associated noise from these activities. New construction and associated land uses would be fully compatible with existing training noise. These effects would be negligible.

3.7.4 No Action Alternative

Selecting the No Action Alternative would result in no impact to the noise environment. No construction would be undertaken. Noise conditions would remain unchanged when compared to existing conditions.

3.8 *Cultural Resources*

3.8.1 Affected Environment

The *Fort Gordon Integrated Cultural Resources Management Plan* (ICRMP) (Fort Gordon 2011) includes:

- detailed information on applicable cultural resources regulatory frameworks;
- regional prehistoric and historic background;
- the history of Fort Gordon;
- cultural resources investigations and recorded properties; and
- Installation-specific standard operating procedures for managing and protecting important sites.

This and other ICRMP information are incorporated here by reference and, therefore, are not repeated. In addition to the ICRMP, Fort Gordon has a *Programmatic Agreement among the United States Army and the Georgia State Historic Preservation Officer and the Advisory Council for Historic Preservation* (PA) and a Memorandum of Understanding with four federally recognized Tribes to help manage its cultural resources (Fort Gordon 2015d).

Fort Gordon has determined that the Proposed Action is a federal undertaking with the potential to adversely affect historic properties, as defined under 36 CFR 800.16(y), and, thus, is governed by Section 106 of the National Historic Preservation Act (NHPA) and the implementing regulations at 36 CFR Part 800. As stipulated in 36 CFR 800.8, compliance with Section 106 can be coordinated with the requirements of NEPA. Fort Gordon has elected to fulfill its NEPA and Section 106 compliance documentation, with the Georgia State Historic Preservation Officer (GASHPO), through this EA.

Archaeological Resources

Fort Gordon has completed archaeological surveys on 47,619 acres, or 95 percent of the total land area of the Installation. Areas that have not been surveyed include portions of the heavily disturbed cantonment area, impact areas that contain or are likely to contain unexploded ordnance, and lake bottoms. As of 2015, 1,153 archaeological sites had been identified on Fort Gordon. Of those, 998 are not eligible for listing on the National Register of Historic Places (NRHP), 114 are potentially eligible, and 41 are eligible for listing on the NRHP. Phase II testing to

evaluate the NRHP eligibility of archaeological sites has been completed at 29 sites. A majority of the prehistoric sites are adjacent to water features such as stream drainages. Many of the historic sites are relict mill sites and homesteads that were razed after the Army purchased the land.

Historic Architecture

Fort Gordon completed an Installation-wide architectural survey in 2005. Through the survey, no buildings or structures were determined to be eligible or potentially eligible for listing on the NRHP. However, on the basis of the recommendation of the GASHPO, Building 33500 (Woodworth Library) is considered eligible for the NRHP under Criteria C for the architectural significance of its New Formalism style and Criterion Consideration G for a building less than 50 years old because few buildings of this style remain intact in Georgia. Forty-three structures including the Signal School Campus have been recommended for reevaluation upon reaching 50 years of age.

Native American Resources

Fort Gordon has held on-site consultation meetings and sends out consultation requests for individual actions that could affect archaeological resources or that have widespread effects, such as cultural resource or natural resources management plans, to nine Native American tribes.

Cemeteries

There are 44 known historic (family) cemeteries on Fort Gordon that pre-date the Installation's establishment. Families associated with the family cemeteries are allowed new burials if space is available within the original cemetery footprint. Two prisoner-of-war cemeteries are on Fort Gordon near Gate 2. German and Italian POWs who died while in captivity from 1944 through the end of WWII were buried in those cemeteries. No new burials are allowed in the POW cemeteries. Fort Gordon provides grounds maintenance for all of the cemeteries. The NHPA specifically excludes most cemeteries for consideration for listing on the NRHP.

3.8.2 Environmental Consequences

Threshold of Significance for Cultural Resources: A significant impact would occur if the project would (a) cause a significant adverse change in the significance of a historical or archeological resource as defined in the National Historic Preservation Act; (b) directly or indirectly destroy a unique paleontological resource or site of unique geologic feature; (c) disturb any human remains, including those buried outside of formal cemeteries.

3.8.3 Alternative 2 (Preferred Alternative): Training Area 17 Alternative

The project area was surveyed for archaeological sites during the *Phase I Cultural Resource Survey of 682 Acres in the Cantonment Area* and the *Phase I Cultural Resource Survey FY93 Timber Harvest Area* (Figure 14). Three sites identified during those surveys are within the project area: sites 9RI1046, 9RI1047, and 9RI596. Site 9RI1046, a historic artifact scatter, was determined ineligible due to the sparseness of the artifacts. Site 9RI1047, a historic home site/artifact scatter, was determined ineligible due to disturbance. Site 9RI569, a Middle Woodland lithic scatter, which was also determined ineligible because of low artifact density. Additionally a section of the road widening would disturb the portion of the cantonment bordering Gordon Highway. Ground disturbance in the cantonment is exempt from further archaeological testing per the PA.

The closing of Gate 3 would have an effect on the guard shack (G0003), which is a vinyl-sided hexagonal building built in 1943. While a decision has not been made on the eventual disposition of G0003, it falls under the Programmatic Memorandum of Agreement concerning World War II temporary wood buildings.

The proposed widening of Gordon Highway would adversely affect the Edge Moor Railway Bridge (Figure 14). This bridge, identified by the GDOT as a historic resource in the early 1990s, is located on the northern boundary of Fort Gordon between Gate 3 and the proposed location of Gate 6. The Edge Moor Bridge was placed in its current location in the early 1940s to support troop and equipment deployment during WWII, but it was originally constructed in approximately 1898 by the Edge Moor Bridge Works, Delaware. The location of the bridge prior to its

purchase and relocation to Fort Gordon is unknown. It is eligible for the NRHP under Criteria A, for its contribution to military history, and Criteria C, for its construction.

Per Stipulation II.A.4, of the PA, Fort Gordon and the GASHPO will consult until the adverse effect is avoided, minimized, or mitigated. If this alternative is implemented, there is no feasible way to avoid or minimize the adverse effect, as the bridge would need to be removed for Gordon Highway to be widened. Consequently, a mitigation plan, laid out in a Memorandum of Agreement (MOA), would need to be finalized between Fort Gordon and the GASHPO. The terms of the MOA will determine how the mitigation will proceed before and/or after the removal of the Edge Moor Bridge.

3.8.4 No Action Alternative

Under the No Action Alternative, archaeological sites and architectural resources would continue to be managed in accordance with federal laws, regulations, and Army policies and procedures. The Edge Moor Railway Bridge would be adversely affected as a result of the No Action Alternative. Maintenance is not currently performed on the bridge and it is unlikely any would be performed in the future, so the bridge would continue to deteriorate in place. The bridge would likely have to be removed in the future due to demolition by neglect and becoming a safety issue for vehicles on Gordon Highway. No known archaeological resources would be adversely affected with the No Action Alternative.

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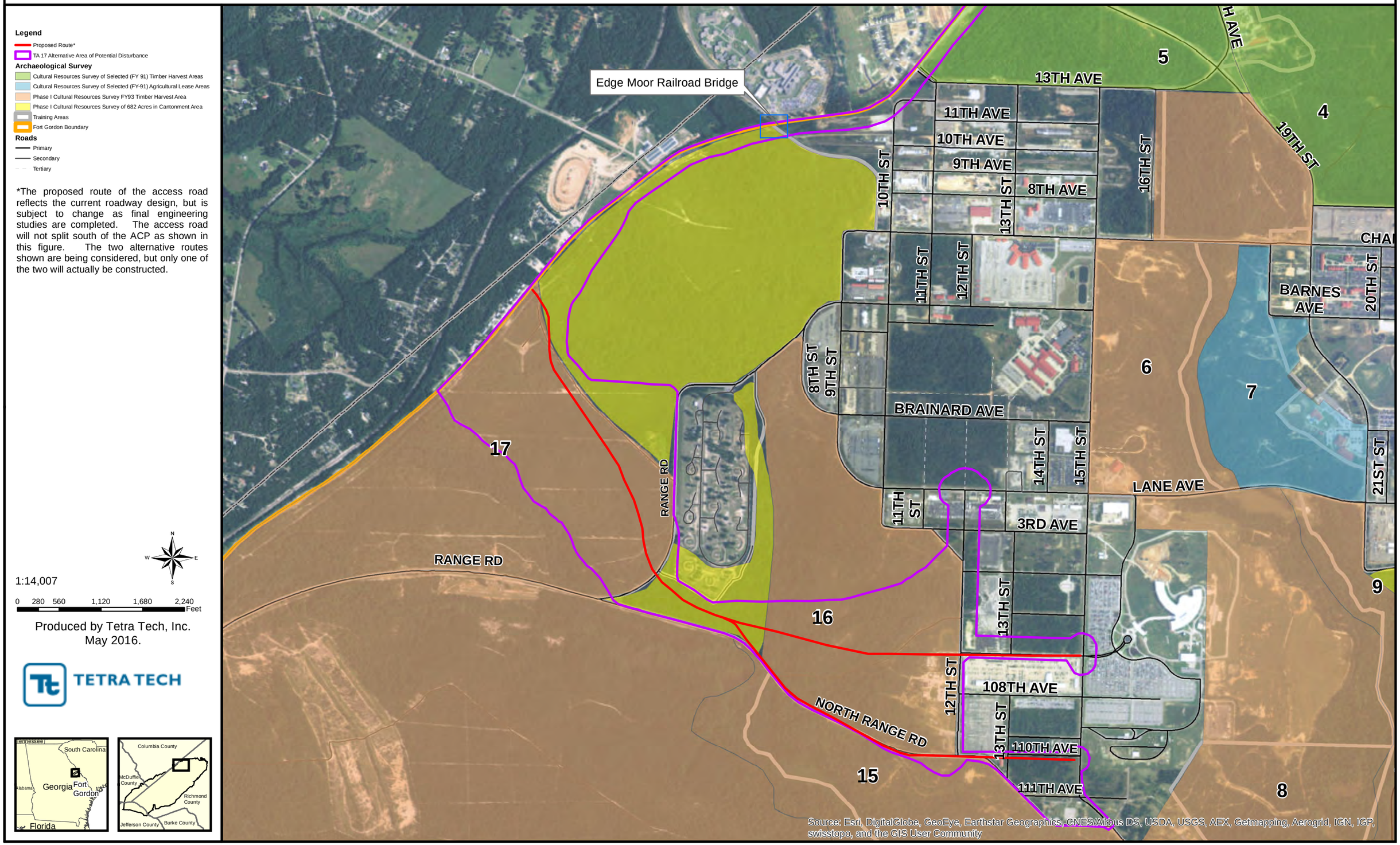
Figure 14: Cultural Resource Surveys around Project Area and Edge Moor Railway Bridge Location



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3.9 *Land Use*

3.9.1 Affected Environment

Installation Land Use

Fort Gordon encompasses approximately 55,590 acres. Approximately 50,000 acres are used for training missions and the remaining 5,590 acres are occupied by cantonment areas which include military housing, administrative offices, community facilities, medical facilities, industrial facilities, maintenance facilities, supply/storage facilities, lakes and ponds, and recreational areas. There are 49 TAs that occupy approximately 37,000 acres and two restricted impact areas (small arms and artillery) that occupy approximately 13,000 acres.

Land use management falls under the authority of the Directorate of Public Works and the Installation Real Property Planning Board (RPPB). The RPPB assists Fort Gordon's commander in managing the Installation and area facilities and in developing real estate in an orderly manner, consistent with current and projected Installation missions.

Fort Gordon operates 19 live fire ranges, one dud impact area; one demolition pit; one indoor shoot house; one convoy live fire familiarization course; two military operations on urban terrain sites; and one nuclear, biological, and chemical chamber. Training primarily consists of advanced individual signal training and unit employment of tactical communications/electronics operations. Additionally, artillery demolition, aerial gunnery load master drop zone, and airborne troop training are conducted on Fort Gordon.

Changing mission and training requirements are causing the ranges and TAs of Fort Gordon to be used in increasingly different ways. Some of the new and expanded mission requirements include:

- Convoy training, including convoy live fire, and qualification record fire response. In the future this will include night operations on major training complex roads with the use of night vision devices;

- Improvised Explosive Device situations incorporated into all tactical ground training events;
- Training in a projectile-based environment (paintball and Special Effects Small Arms Marking System); and
- Weapons qualifications for all Advanced Infantry Training soldiers.

U.S. Army regulations currently specify two forestland classifications: reimbursable (commercial) and non-reimbursable (noncommercial). Reimbursable forestland (RFL) is managed land that is capable of producing economical crops of industrial wood in excess of 20 cubic feet per acre per year and is not programmed for another use that would preclude future forest development. Non-reimbursable forestland (NRFL) consists of the cantonment areas, golf course and other designated recreation areas, the direct bullet impact areas on the SAIA and AIA, and the known dud areas in TAs (Fort Gordon 2015c). Table 14 shows the acreages of RFL and NRFL on Fort Gordon.

Table 14: Acreage of Fort Gordon Lands by Forestland Classification

Forestland Classification	Area (acres)
Reimbursable	45,000.0
Non-reimbursable	10,587.5
Total Installation	55,587.5

Source: Fort Gordon 2015c

The Installation also provides multiple-use recreation opportunities including camping, horseback riding, picnicking, water sports, archery, boating, hiking, and nature education. Hunting and fishing on the Installation are authorized for active and retired military, active and retired civilian federal government employees, base operations contractors with multiyear contracts, reserve and national guard soldiers, and a limited number of public access permits offered through a lottery draw. Hunters and fishermen accounted for 14,615 training area user days collectively in 2015.

Approximately 43,500 acres on-post are managed for hunting; the remaining 12,500 acres have been designated no-hunting areas for safety reasons (Fort

Gordon 2015c). Twenty-six of 28 impoundments on the Installation are actively managed for recreational fishing (Fort Gordon 2015c). Rules and regulations governing hunting and fishing on the Installation are set forth in the Army Signal Center and Fort Gordon Regulation 420-5, *Hunting, Fishing, Trapping, and Horseback Riding Regulations*. Fort Gordon allows hunting and fishing in most TAs.

A formal Outdoor Recreation Plan for Fort Gordon was last completed through contract with the United States Army Corps of Engineers (USACE) Savannah District in August 2006. Several projects in recent years have been implemented based on this plan, such as an outdoor water park and updated sports fields.

Regional Land Use

Land use within one mile of Fort Gordon varies from semi-urban to rural. The area east of Fort Gordon is developed and makes up the greater Augusta area. The major land use east of the Installation along U.S. Highway 1 and U.S. Highway 78/Gordon Highway is commercial. Further west of Augusta on the north and south sides of the Installation, land use becomes a mixture of rural residential, commercial, and undeveloped land. Land use south of the Installation along U.S. Highway 1 to the west of Gate 5 in western Richmond County is agricultural. In Columbia County, land use closest to Fort Gordon is mixed, with single-family residential and some mobile home development. Some multifamily development is also scattered throughout the area. Suburban areas are concentrated in the Evans-Martinez area and in the City of Grovetown. Land use adjacent to Fort Gordon in Jefferson and McDuffie counties is agricultural. More than 88 percent of Jefferson County's land is devoted to agriculture and forestry (Fort Gordon 2015b).

Land use planning in Richmond, Columbia, McDuffie, and Jefferson counties is conducted by local governmental entities through land development policies they enact for the benefit of their communities. No local governments currently have zoning or land use programs that directly affect Fort Gordon. However, allowing certain land uses adjacent to Fort Gordon's boundaries may impact the Installation's use of its lands. Richmond, Columbia, McDuffie, and Jefferson

counties each have land use development plans, and have worked with Fort Gordon regarding a Joint Land Use Study (JLUS). As a result of this study, these four counties have agreed to direct development in ways that should allow Fort Gordon's mission to continue without conflicts with land use outside the Installation (CSRA Regional Development Center 2005).

The 2005 JLUS made the following assumptions about future land use trends through 2025:

- moderate to high residential growth;
- moderate commercial growth;
- moderate industrial growth;
- declining agricultural and forestry uses; and
- moderate parks, recreation, and conservation growth.

The JLUS concluded that projected growth rates identified in local comprehensive plans would not raise compatibility issues with Fort Gordon. It also included the following conclusions:

- Columbia County will undergo substantial conversion from undeveloped to residential uses. The area to the northeast of Fort Gordon, around the Grovetown area, is expected to undergo significant population growth through the next two decades.
- Lands in Jefferson and McDuffie Counties, to the south and southwest of Fort Gordon, are projected to remain primarily agricultural and forestry.
- The future land use map for Richmond County includes growth areas away from Fort Gordon's noise zones.

Fort Gordon received approval and funding from the Office of Economic Adjustment in November 2014 to update the 2005 JLUS. The current JLUS has had limited success in preventing encroachment, as evidenced by recent explosive and uncontrolled growth along the Installation's boundary between Gate 1 and

Gate 2 and in Grovetown west of Gate 2 closer to Fort Gordon's weapons ranges and maneuver training areas. The new JLUS is scheduled for completion in June 2016 (Fort Gordon 2014a).

3.9.2 Environmental Consequences

Threshold of Significance for Land Use: A significant impact would occur if the project would (a) physically divide an established community; (b) conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project; or (c) conflict with any applicable habitat conservation plan or natural community conservation plan.

3.9.3 Alternative 2 (Preferred Alternative): Training Area 17 Alternative

Figure 12 shows the area of potential disturbance overlaid onto existing land cover, which is primarily planted pine forest, pine-hardwood forest, and natural pine forest. Some non-forested areas, shown as "No Inventory" in Figure 12, are also found in the project area, mostly clear-cuts and disturbed areas adjacent to the cell tower, existing roadways, and cantonment. Up to 150 acres of forested land could be disturbed if the Preferred Alternative is implemented. Substantially less than 150 acres --- perhaps a third of that acreage --- would be permanently altered, cleared for the new roadways, buildings, parking lots, and infrastructure. The remainder of the 150 acres could be temporarily disturbed for construction-phase parking, construction laydown areas, construction trailers, and equipment storage. Every effort will be made to place these temporary parking lots and laydown yards in previously disturbed areas to limit potential impacts to land use, visual and aesthetic resources, and wildlife.

From a traditional land use perspective, employing U.S. Geological Survey National Land Cover Database terminology (Homer, Fry, and Barnes 2012), up to 150 acres of upland Forest (consisting of Evergreen Forest and Mixed Forest) could therefore be converted to developed land (Developed - Open Space; Developed - Low Intensity; and Developed - Medium Intensity) if the Preferred Alternative is implemented. Given the scale of the silviculture operation at Fort Gordon and given the Natural Resource Branch's commitment to restoring longleaf

pine forests on the Installation, the conversion of even 150 acres of upland forest to developed land would have almost no effect on existing land use patterns. With regard to the significance thresholds in Section 2.3 (Table 2), implementation of the Preferred Alternative would be compatible with the Installation's land use plans and all Army policies and procedures regarding land use on DOD installations.

Implementation of the Preferred Alternative would also have the effect of permanently removing up to 150 acres from TAs 16 and 17 and could render other portions of TAs 16 and 17 unsuitable for military training activities because of the projected increase in vehicle traffic in the area, particularly during peak commuting hours. The impact on Fort Gordon's training activities would be negligible. TAs 16 and 17 are currently open for hunting at certain times of the year (subject to seasonal restrictions and restrictions on certain weapons) when forest management and military training activities allow it. Implementation of the Preferred Alternative could force the curtailment of hunting in portions of TAs 16 and 17, for safety reasons. Restricting hunting in limited portions of TAs 16 and 17 for safety reasons wouldn't meaningfully reduce Installation-wide hunting opportunities, as more than 43,000 acres are currently open to hunters (Fort Gordon 2015c).

3.9.4 No Action Alternative

Under the No Action Alternative, there would be no change in Fort Gordon's land use management policies. Installation properties would continue to be managed under current programs and plans, including the INRMP and Range Master Plan.

3.10 *Facilities*

3.10.1 Affected Environment

Fort Gordon has a large cantonment area with barracks, motor pools, shops, administrative buildings, drill fields, sports fields and other facilities. Housing facilities are provided through the Residential Communities Initiative to meet Army housing requirements.

Fort Gordon operates ranges for small arms, mortars, field artillery, aerial gunnery, and demolition. The Fort Gordon range and TA complex consists of 19 active ranges and 12 artillery firing points. The ranges are supported by a 7,645-acre SAIA and a 5,217-acre AIA.

3.10.2 Environmental Consequences

Threshold of Significance for Facilities: A significant impact would occur if the project would result in the need for new or renovated facilities and the required construction/renovation would produce significant environmental impacts.

3.10.3 Alternative 2 (Preferred Alternative): Training Area 17 Alternative

If the Preferred Alternative is implemented, GDOT would widen Gordon Highway and a new entrance, multi-lane entrance road, ACP, VCC, and two-lane access road would be constructed, as well as supporting infrastructure. The VCC currently located at Gate 1 would be placed in an inactive status. Gate 1 would become a DOD gate only and all visitor traffic would be through the new ACP. Gate 2 would be placed in an inactive status and may be used in the future for special events or emergencies but would not be used on a regular basis. Gate 3 would be closed permanently and contractors would use the new ACP. Since these actions would address deficiencies and safety issues with current facilities, implementing them would have a small-to-moderate beneficial effect on facility operations.

3.10.4 No Action Alternative

Under the No Action Alternative, there would be no new ACP or VCC and the existing system of gates and roadways would continue to operate as currently configured. The current VCC is undersized for the number of visitors processed daily and the Gate 2 ACP is undersized and causes safety issues. The Gate 3 vehicle search area and trailer used for background checks are both undersized for the amount of commercial traffic using this gate. Should the No Action Alternative be selected, traffic congestion issues would continue to have a small negative impact on facility operations.

3.11 *Infrastructure and Utilities*

3.11.1 Affected Environment

Electricity

Fort Gordon's electrical service was privatized in February 2007, and is currently provided by Georgia Power Company. The system receives 115 kV primary input at two jointly owned and operated substations (main and hospital), which provide electrical power to the entire Installation (Fort Gordon 2014c).

Natural Gas

Natural gas is provided by Atlanta Gas Light Company, which owns the main natural gas distribution piping on Fort Gordon and all system piping and components downstream of the regulators up to the facilities. An 8-inch main runs through Fort Gordon along a dedicated 10-foot easement for the 8.5 miles of pipe (Fort Gordon 2014c). Natural gas is supplied to heating and cooling plants, housing, barracks, medical facilities, classrooms, and other facilities.

Telecommunications

The Army owns and operates the on-post business telecommunication system. The switchboard has a capacity of 14,200 lines, 5,300 of which are currently in use. BellSouth provides commercial telephone service for the family housing, guest house, and bachelor officers' quarters. All telecommunications are transmitted throughout the Installation by buried cable and overhead lines (Fort Gordon 2014c).

Potable Water

Fort Gordon's potable water system was privatized to AUD in 2006. AUD is responsible for the operation and maintenance of the city's water systems. AUD's water is supplied from two sources – the Savannah River provides water for the Surface Water Treatment Plant and the Cretaceous Aquifer provides water for the Ground Water Treatment Plant (Fort Gordon 2014c). Treatment of the surface water occurs at the Highland Avenue surface water treatment plant. It has a design capacity of 60 million gallons per day (MGD) and provides the majority of the water

supply. Average daily plant flows are approximately 24 MGD (AUD 2016). Two ground water plants, Plants No. 1 and No. 2, have design capacities of approximately 10 MGD each. Ten wells provide raw water to Plant No. 2 and 14 wells provide raw water to Plant No. 1. There are a total of 28 ground water wells in operation. All wells withdraw water from the same aquifer. Average daily withdrawal from ground water is approximately 15 million gallons (AUD 2016). Fort Gordon also has numerous groundwater wells that supply potable water to the range, training, and recreation areas.

Domestic and Industrial Wastewater

Fort Gordon's wastewater system was also privatized to AUD in 2006. AUD is responsible for the operation and maintenance of the city's wastewater systems. AUD's main WWTP, the James B. Messerly WWTP, located near the Augusta Airport, has a permitted average design flow of 38.8 MGD and currently treats approximately 34 MGD (Luke 2016). AUD also operates a smaller treatment plant, the Spirit Creek WWTP, located south of Tobacco Road, which has a permitted average design flow of approximately 2.4 MGD (Luke 2016).

Fort Gordon is connected to the AUD system and gravity sewer collection system, which are in good condition and provide adequate service for all portions of the cantonment area. Septic tanks are used to treat sanitary wastewater at remote locations of the Installation not served by the sanitary sewer system. The septic systems remain Army-owned and maintained (Fort Gordon 2014c).

Stormwater

Fort Gordon has a Stormwater Pollution Prevention Plan (SWPPP) and the stormwater drainage system at Fort Gordon involves a series of pipes along with paved and channeled natural drainage ditches. (Fort Gordon 2014a).

Stormwater runoff associated with construction activities is regulated by the GAEPD General NPDES Permit. Also, Fort Gordon is regulated under the Municipal Separate Storm Sewer System (MS4) permitting program, for municipalities and entities serving a population of less than 100,000. Fort Gordon's

MS4 permit covers all new and existing point source discharges of stormwater from their small MS4 to the waters of the state of Georgia (GAEPD 2009).

Solid Waste Management

Fort Gordon operates one active landfill, the Fort Gordon Landfill on Gibson Road, which is permitted by Georgia under Permit 121-014D (SL). The landfill accepts nonhazardous demolition debris from the Installation that cannot be recycled; however, use of the landfill is restricted and must be coordinated through the DPW (Fort Gordon 2014a). The Fort Gordon Landfill receives approximately 1,334 cubic yards of waste per year and has 130,872 cubic yards of capacity remaining, or 98 years (ARCYBER 2013).

Other solid waste is disposed at the Augusta-Richmond County Landfill on Deans Bridge Road under contract (Fort Gordon 2014c). The landfill operates under Permit 121-018D Municipal Solid Waste Landfill (MSWL). The landfill receives approximately 406,536 cubic yards of waste per year and has approximately 65,857,376 cubic yards of remaining capacity, or 162 years (Fort Gordon 2014c).

Fort Gordon supports a variety of recycling/waste minimization initiatives. The Installation has a Qualified Recycling Program for demolition projects, and also provides drop-off services and drop-off locations for Fort Gordon personnel. Metals and paper/cardboard are collected for off-post recycling. Yard wastes and woody debris from grounds maintenance are taken to the DPW Roads and Grounds department facility for processing and use as mulch.

3.11.2 Environmental Consequences

Threshold of Significance for Infrastructure and Utilities: A significant impact would occur if the project would result in a substantial increase in any utility consumption to the extent that an existing or planned capacity is exceeded, based on currently available projections, or unacceptable demands are placed on infrastructure supply and distribution system.

3.11.3 Alternative 2 (Preferred Alternative): Training Area 17 Alternative

The facilities proposed under the Preferred Alternative would have to be connected to existing power, communication, potable water, and wastewater systems. This additional demand would be negligible and would not exceed the capacity of any of these utilities.

Timber harvesting under the Preferred Alternative would reduce the soil infiltration rate (amount of rainfall absorbed), thereby increasing the volume of stormwater and rate of erosion and sedimentation. The Georgia BMPs for Forestry would be used to mitigate the impacts of timber harvesting. BMPs such as silt fences, diversion ditches, riprap channels, water bars, and water spreaders would be used for mitigation during construction of the new roads and facilities. The Preferred Alternative would be required to adhere to Fort Gordon's SWPPP for post-construction BMPs. In accordance with the Energy Independence and Security Act of 2007, low impact development (LID) practices will be used in order to maintain pre and post development run off coefficients to the greatest extent possible, where technically feasible. Upon meeting these requirements, no adverse impacts would be anticipated to Fort Gordon's stormwater system.

Negligible effects on area landfills would be expected as a result of implementing the Preferred Alternative. Solid waste generated from the proposed construction activities would consist of building materials such as concrete, metals and lumber. Materials would be recycled to the greatest extent possible and remaining materials would be disposed of at a permitted facility.

In summary, implementation of the Preferred Alternative would not create significant new or additional demand for housing, office space, shop space, electric power, drinking/potable water, sewage treatment capacity, or landfill space, therefore would not significantly impact infrastructure or utilities.

3.11.4 No Action Alternative

Under the No Action Alternative, there would be no change in the way Fort Gordon's infrastructure and utilities are managed and operated, thus no impacts on either.

3.12 *Traffic*

3.12.1 Affected Environment

Transportation in and around Fort Gordon is achieved mainly via road and street networks and a rail system off-post for commodities. The transportation system serves Installation traffic consisting of everyday work, living, and recreational trips. Two highways, Gordon Highway (U.S. Highway 78) and U.S. Highway 1, border the Installation on the north and south, respectively. Access to Fort Gordon is provided through four gates, and Table 15 provides hours and accessibility information for each gate.

Fort Gordon employees and visitors who enter the Installation by way of Gates 1 and 2 experience congestion and delays during peak commuting hours. This congestion frequently affects the flow of traffic on Gordon Highway, the Installation, and throughout the Grovetown area. Planned workforce expansion at Fort Gordon will exacerbate the traffic situation in these areas and potentially hinder emergency access.

Table 15: Hours and Access to Fort Gordon Gates.

Gate	Access	Hours
1 - Main Gate	Accessible to all vehicles; Right lane to VCC; Alternate Commercial Gate after 1400 and weekends	24-hours daily
2	Accessible to DOD CAC holders and valid visitor passes	Monday-Friday; 0430 - 2000
3	Designated Commercial Entrance	Monday-Friday 0600 - 1400 Outbound Only 1400 – 1800
5	Accessible to all vehicles	0430 - 0100 daily

Source: Fort Gordon 2016

During peak traffic times, traffic backs up (i.e. queues) on Gordon Highway and into Grovetown on East Robinson Avenue due to the lack of stacking space on Fort Gordon (i.e. sufficient space for queued-up vehicles between the Installation entrance and the ACP where driver's credentials are inspected). Congestion also occurs on Fort Gordon between the existing ACPs and critical mission support locations during peak traffic times. In addition, the existing VCC is too small to accommodate the number of visitors that are processed on a typical weekday. Gate 3 also experiences safety concerns and extensive delays as a result of the increased amount of commercial traffic that uses this gate. There is insufficient stacking space for large commercial trucks between the Gate 3 check point and Gordon Highway. In addition, the Gate 3 vehicle search area and trailer used for background checks are both insufficiently sized for the amount of commercial traffic using this gate.

3.12.2 Environmental Consequences

Level of service (LOS) is a measure of the operational conditions on a roadway or at an intersection. LOS range from A to F, with "A" representing the best operating conditions (free flow, little delay) and "F" the worst (congestion, long delays). LOS A, B, or C are typically considered good operating conditions. Notably, some of the nearby roadways are already congested during peak traffic periods (i.e. LOS D, E, or F).

Threshold of Significance for Traffic: Effects would be considered significant if the project would (a) cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system; (b) cause 50 percent or more of the intersections evaluated to decline from LOS D or better to LOS E or F; (c) substantially increase hazards due to a design feature; (d) noticeably hinder emergency access; or (e) overwhelm existing parking capacity.

3.12.3 Alternative 2 (Preferred Alternative): Training Area 17 Alternative

The Preferred Alternative, as outlined in the RTG PEA, would have short- and long-term moderate adverse effects on traffic. Short-term effects would be due to additional vehicles and day-labor traffic during construction. Long-term effects

would be due to changes in traffic patterns due to the growth at Fort Gordon. The Preferred Alternative would not (a) cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the roadway network; (b) cause 50 percent or more of the intersections evaluated to decline from LOS D or better to LOS E or F; (c) substantially increase hazards due to a design feature; (d) noticeably hinder emergency access; or (e) overwhelm existing parking capacity.

The Preferred Alternative, as outlined in the RTG PEA, includes current traffic, natural growth in traffic, all traffic associated with the additional ARCYBER personnel, RTG personnel, and the implementation of all traffic improvements identified in the ARCYBER EA and RTG PEA including the proposed ACP (Fort Gordon 2014, ARCYBER 2013). With these traffic conditions and roadway improvements, the LOS at the 22 intersections investigated would be LOS to D or better.

Although the overall effects from RTG activities including the proposed ACP would be adverse, the proposed ACP in-and-of-itself would have minor beneficial effects. The proposed ACP would establish an access point onto Fort Gordon that would reduce traffic congestion on roadways servicing the Installation and provide a shorter, more-direct route to on-post areas that would experience the greatest growth. The proposed ACP would accommodate mission expansions and personnel increases at Fort Gordon, improve traffic flow in and out of the Installation, and allow for more effective processing of both visitors and commercial vehicles. Specifically, the proposed ACP would greatly reduce, and potentially eliminate, queuing along East Robinson Avenue toward Grovetown. In turn, this would help ensure public safety, and enhance emergency access to the Installation and other areas north of the post. These effects would be beneficial.

3.12.4 No Action Alternative

Environmental effects due to the increase in personnel of up to 6,000 Soldiers and civilians were analyzed in the RTG PEA, which resulted in a FNSI in March 2015 (Fort Gordon 2014a). The RTG PEA incorporated a comprehensive traffic study

including the effects of the No Action Alternative and the Preferred Alternative as outlined in this EA, and is hereby incorporated by reference in its entirety.

The No Action Alternative would have long-term minor adverse effects on traffic. As outlined in the RTG PEA, this comparative baseline includes current traffic, natural growth in traffic, all traffic associated with the additional ARCYBER personnel, and the implementation of all traffic improvements identified in the RTG PEA (Fort Gordon 2014a, ARCYBER 2013 *ARCYBER Command and Control Facility Traffic Study*). With these traffic conditions and roadway improvements, the LOS at the 22 intersections investigated would be LOS to D or better.

3.13 *Socioeconomics, Environmental Justice and Protection of Children*

3.13.1 Affected Environment

Most of the Installation and its cantonment areas, including the Gate 6 project area, are in Richmond County, Georgia. Small portions of the Installation's training areas are in Columbia, Jefferson, and McDuffie counties. Columbia County lies immediately north of Fort Gordon and immediately adjacent to TA 17, which occupies the western portion of the project area. The Region of Influence (ROI) for socioeconomic effects is therefore defined as Richmond, Columbia, Jefferson, and McDuffie counties. Socioeconomic data is also presented for Georgia and the United States for comparative purposes.

This EA is tiered from the RTG PEA, a broader-based assessment that analyzed the impacts of increasing the Installation's workforce (up to 6,000 personnel) because of stationing actions (see Section 1.3). As this EA is more narrowly focused on the short-term ACP construction project that would not result in permanent staffing increases or displace persons or housing units, the demand for housing, schools, recreational facilities, and family support and public services would not be affected and is not further evaluated in this EA. These analyses are presented in the RTG PEA.

Population

The ROI's 2014 population was about 378,300, an increase of 4 percent since 2010, the same as Georgia's population growth during the same time period (2010 – 2014). Within the ROI, Columbia County experienced almost all of the growth, as Jefferson and McDuffie counties saw declines in population, and Richmond County's population was almost unchanged (USCB 2016). The population of the United States grew by 3 percent from 2010 to 2014.

Employment

ROI labor force growth from 2005 to 2015 was lower compared to the state and nation, but the unemployment rate was about the same. The ROI's labor force increased 1 percent between 2005 and 2015; Georgia's labor force grew by 4 percent and the United States' by 5 percent during that same time period. The ROI's annual unemployment rate was 6.2 percent in 2005 compared to 6.6 percent in 2015; Georgia's was about 5 percent in 2005 and 6 percent in 2015. The national unemployment rate was about 5 percent in 2005 and in 2015 (BLS 2016).

The leading ROI industries (on the basis of employment by industry) were government and government enterprises (which includes federal civilian, military, and state and local government); health care and social assistance; retail trade; manufacturing; and construction. Together these five industry sectors accounted for about 55 percent of the ROI's total employment. The government and government enterprises sector (which includes Fort Gordon) was the largest sector, accounting for almost 25 percent of the ROI's employment (BEA 2015). Fort Gordon contributes significantly to the regional economy through employment and purchases from local businesses. The Installation employs about 23,000 military and civilian personnel and has a regional annual economic impact of $2.2 billion (Fort Gordon 2014b).

Income

ROI income levels were lower than the state and the nation. The ROI per capita personal income was $21,125. This per capita income was 83 percent of the

Georgia per capita personal income of $25,427, and 74 percent of the United States' per capita personal income of $28,555. The ROI's median household income of $42,729 was 87 percent of the Georgia median household income of $49,342, and 80 percent of the United States' median household income of $53,482 (USCB 2016).

Public Health and Safety

Fort Gordon has its own 911 call center, fire, and emergency services department. The Installation maintains mutual aid agreements regarding emergency services with Richmond and Columbia counties.

Police. The Fort Gordon Police Department, part of the Directorate of Emergency Services, provides law enforcement and property protection at Fort Gordon. Police functions include protecting life and property, enforcing criminal law, conducting investigations, regulating traffic, providing crowd control, and performing other public safety duties. City, county, and state police departments provide law enforcement in the ROI.

Fire. The Fort Gordon Fire Department, part of the Directorate of Emergency Services, provides emergency firefighting and rescue services and fire prevention. Fire prevention activities include providing fire safety advice and ensuring that structures are equipped with adequate fire precautions to ensure that in the event of a fire, people can safely evacuate the premises.

Medical. For Gordon supports a range of medical services. DDEAMC provides healthcare services for military personnel, military dependents, and military retirees and their dependents. In addition to the services at DDEAMC, Fort Gordon provides dental services and there are plans for a Blood Donor Center, a Consolidated Troop Medical Clinic, and a pharmacy at the Post Exchange.

Environmental Justice

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations*, was issued by President Clinton on February 11, 1994. The E.O. requires that federal agencies take into consideration

disproportionately high and adverse environmental effects of governmental decisions, policies, projects, and programs on minority and low-income populations.

Per CEQ guidance, minority populations should be identified where either the minority population of the affected area exceeds 50 percent or the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis (CEQ 1997). The U.S. Census Bureau (USCB) identifies minority populations as Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and other Pacific Islander; persons of two or more races; and persons of Hispanic or Latino origin. Minority population data is presented in Table 16. The ROI's minority population rate of 49 percent was higher compared to the state and the nation, which are at 45 percent and 37 percent, respectively. The minority population of the Census tracts in and around the project area (which are the Fort Gordon Census Tract 108, and the off-post adjacent Census Tract 102.04, and Tract 305.06, both to the north of the proposed project site, see Figure 15) are also listed in Table 16. Tracts 108 and 102.04 have a higher percentage of minority populations compared to that of the ROI, state, and nation (USCB 2015a).

Per CEQ guidance, poverty thresholds established by the USCB are used to identify low-income populations (CEQ 1997). Poverty status is reported as the number of persons or families with income below a defined threshold level. As of 2014, the USCB defined the poverty threshold level as $12,071 of annual income, or less, for an individual and $24,008 of annual income, or less, for a family of four (USCB 2015b). Poverty data is presented in Table 16. The ROI's poverty rate of 20 percent is comparable to that of Georgia (19 percent), but higher than the nation's (16 percent). The poverty rate for the Census tracts listed in Table 16 are below or the same as that of the ROI, state, or nation.

Census Tract 102.04 is just to the north of Fort Gordon and adjacent to Gordon Highway and the proposed project site. In this Census Tract along the north side

of Gordon Highway is a mix of private residences and commercial and recreational businesses. The proposed project includes widening Gordon Highway to the south on Fort Gordon property (between Gate 2 and the proposed new entrance) and would not impede on this off-post property. The project also includes a new entrance onto Fort Gordon in the central part of TA 17 and multi-lane entrance road to a new ACP, allowing for traffic stacking space on Fort Gordon (as opposed to on local roads).

Table 16: Minority Population and Persons in Poverty

Jurisdiction	Minority population	Persons in poverty
Census Tract 108 (Fort Gordon)	57%	14%
Census Tract 102.04 (bordering the project site to the north)	60%	13%
Census Tract 305.06 (north of Tract 102.04)	41%	16%
ROI	49%	20%
Georgia	45%	19%
United States	37%	16%

Source: USCB 2015a.

Protection of Children

On April 21, 1997, President Clinton issued E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*. The E.O. recognizes that a growing body of scientific knowledge demonstrates that children might suffer disproportionately from environmental health and safety risks. These risks arise because children's bodily systems are not fully developed; children eat, drink, and breathe more in proportion to their body weight; because their size and weight can diminish protection from standard safety features; and because their behavior patterns can make them more susceptible to accidents. On the basis of these factors, President Clinton directed each federal agency to make it a high priority to

identify and assess environmental health risks and safety risks that might disproportionately affect children.

Fort Gordon will fully comply with E.O. 13045 by incorporating these concerns in decision-making processes supporting the Installation's policies, programs, projects, and activities. In this regard, Fort Gordon ensures that it would identify, disclose, and respond to potential adverse social and environmental effects on children in the area affected by a proposed action. Children are present on Fort Gordon as residents and visitors (e.g., residing in on-post family housing or lodging, using recreational facilities, attending events) and in the neighboring residential communities. Precaution is taken for child safety through a number of means, including using fencing, limiting access to certain areas, and requiring adult supervision.

Figure 15: Census Tract Map

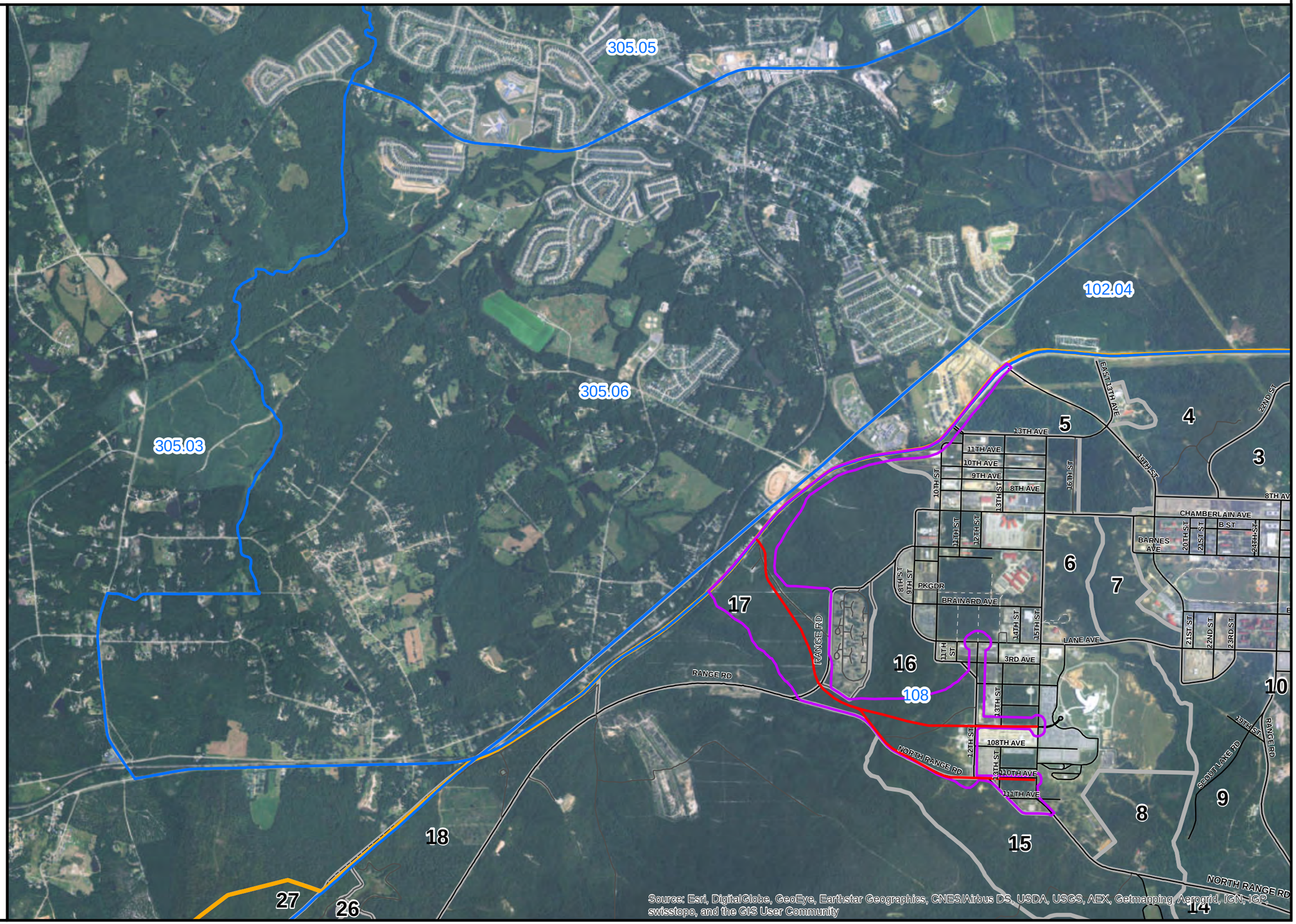
Legend

- Proposed Route*
- TA 17 Alternative Area of Potential Disturbance
- Census Tract
- Fort Gordon Boundary

Roads

- Primary
- Secondary
- Tertiary
- Training Areas

*The proposed route of the access road reflects the current roadway design, but is subject to change as final engineering studies are completed. The access road will not split south of the ACP as shown in this figure. The two alternative routes shown are being considered, but only one of the two will actually be constructed.



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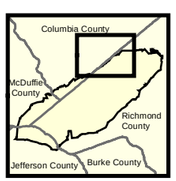

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3.13.2 Environmental Consequences

Threshold of Significance for Socioeconomics: A significant impact would occur if the project would (a) induce a substantial population growth or decline in an area, either directly or indirectly; (b) displace substantial numbers of existing housing units or people, necessitating the construction of replacement housing elsewhere; (c) produce an impact to the regional economy that would exceed the historical precedent for past economic fluctuation for employment and regional income according to the EIFS economic model; (d) produce substantial disproportionate adverse environmental, economic, social, or health impacts on minority or low-income populations; (e) produce disproportionate environmental health or safety risk to children; (f) produce a substantial increased public safety hazard from military operations; or (g) produce a long-term substantial loss of recreational opportunities and resources relative to baseline.

A military installation principally affects local communities through salaries paid to Soldiers and civilian employees, and subsequently spent in the local economy; and through procurements in the local economy, which can include purchases and contracts, such as for construction. Construction projects would be expected to result in beneficial economic impacts due to the increase in construction-related jobs, income, and sales in an affected region.

Alternative 2 (the Preferred Alternative) was evaluated using the EIFS model. This model has been used by the Army to estimate the economic impacts resulting from federal-related changes in local expenditures or employment. The No Action Alternative was not evaluated quantitatively using the EIFS model, as this alternative would be a continuation of the status quo and would not result in changes in expenditures or jobs in the ROI economy. Details of the EIFS model and the results are presented below in Section 3.11.4 and in Appendix C.

Environmental Justice (E.O. 12898) and E.O. 13045 (protection of children) are also analyzed below for Alternative 2 and the No Action Alternative.

3.13.3 Alternative 2 (Preferred Alternative): Training Area 17 Alternative

Population, Employment, and Income

The economic effects of implementing Alternative 2 are estimated using the EIFS model, a computer-based, economic tool that calculates multipliers to estimate the direct and indirect effects resulting from a given action. Changes in spending and employment that would be caused by a proposed action represent the direct effects of an action. Using the input data and calculated multipliers, the EIFS model estimates ROI changes in population, employment, income, and sales volume, accounting for the total direct and indirect effects of the action.

In the EIFS model, a change is considered significant if it falls outside the historical range of ROI economic variation. To determine that range, the EIFS model calculates a rational threshold value (RTV) profile for the ROI. That analytical process uses historical data for the ROI and calculates fluctuations in sales volume, income, employment, and population patterns. The historical extremes for the ROI become the thresholds of significance (i.e., the RTVs) for social and economic change. If the estimated effect of an action falls above the positive RTV or below the negative RTV, the effect is considered significant. Appendix C discusses the methodology in more detail and presents the model inputs and outputs developed for this analysis.

Short-term minor beneficial economic effects from implementing Alternative 2 would be expected on the regional economy, as determined by the EIFS model. The expenditures and employment associated with Alternative 2 would increase ROI employment, income, and sales volume (Table 17 and Appendix C). The economic benefits would be short-term, lasting for the duration of the construction period. The percentage changes in sales volume, employment, and income would fall within historical fluctuations (i.e., within the RTV ranges) and would be considered minor. No effects would be expected on population. Alternative 2 does not include assigning new personnel from outside the region to Fort Gordon; therefore, this action would not change the population of Fort Gordon or the ROI.

Table 17: EIFS Model Output

Variable	Projected Total Change	Percent Change	Percent Change RTV Range
Sales (business) volume	$22,475,000	0. 25%	-10.61% to 9.85%
Income	$4,785,788	0. 07%	-5.85% to 6.53%
Employment	133	0. 07%	-9.52% to 3.95%
Population	0	0.00%	-1.42% to 2.23%

Source: EIFS model

Public Health and Safety

Long-term minor beneficial effects would be expected. Implementation of Alternative 2 would reduce traffic congestion on local roads, improving traffic flow in and around Fort Gordon and thereby reducing or removing public safety concerns (e.g., hindrance of the movement of emergency vehicles) caused by such congestion (see also Section 3.12.4).

Environmental Justice

Short- and long-term minor adverse effects would be expected. Alternative 2 would require short-term road construction activities that would temporarily modify traffic patterns, as well as long-term alterations to traffic flow resulting in an increase in traffic on Gordon Highway in the area of the new Installation entrance. Census Tract 102.04, which has a higher minority population compared to the ROI, state, and nation, borders the proposed project area (see Table 16 and Figure 15), and these homes would see an increase in traffic and associated noise (see Section 3.12, *Traffic* and 3.7, *Noise*); however, these changes in traffic and noise would not exceed the thresholds of significance for traffic or noise, and would not result in disproportionate adverse effects.

Protection of Children

Short-term minor adverse effects on the protection of children could occur. Part of the proposed project would be near several residences along Gordon Highway. In the short-term, because construction sites can be enticing to children, construction activity could be an increased safety risk. Therefore, during road construction,

appropriate safety measures would be implemented and health regulations would be followed to protect the safety and health of citizens. Construction contractors would be responsible for complying with federal, state, and local regulations. The new ACP and VCC would be on Fort Gordon and would not be adjacent to residential areas. The ACP would have appropriate safety measures incorporated into its design, including parking lot and sidewalks for the VCC, and an appropriate speed limit for on-base traffic, and it would not pose a short- or long-term safety risk to children.

3.13.4 No Action Alternative

Population, Employment, and Income

No effects would be expected. There would be no change in the ROI's business sales, income, employment, or population as a result of implementing the No Action Alternative.

Public Health and Safety

Long-term minor adverse effects would be expected. If the proposed ACP/Gate 6 is not constructed, the public safety concerns on Fort Gordon and in neighboring communities caused by traffic congestion (because of the lack of on-post stacking space at Gates 1 and 2) would continue (see Section 3.12.4).

Environmental Justice

No effects would be expected. The No Action Alternative would not result in disproportionate adverse environmental or health effects on low-income or minority populations. The No Action Alternative is not an action with the potential to substantially affect populations covered by E.O. 12898 by excluding persons, denying persons benefits, or subjecting persons to discrimination or disproportionate environmental or human health risks.

Protection of Children

No effects would be expected. The No Action Alternative would not result in disproportionate adverse environmental or health effects on children.

4.0 Cumulative Impacts

4.1 *Regulatory Compliance*

The requirement to assess cumulative impacts as part of the EA process is set by NEPA (40 CFR 1508.7) and further discussed within the Army context by 32 CFR Part 651.16, *Environmental Analysis of Army Actions*. Further guidance on this process is provided by the CEQ in its document, *Considering Cumulative Impacts under the National Environmental Policy Act* (CEQ, 1997).

Cumulative impacts result from the incremental effect of separate past, present, and reasonably foreseeable future actions on the environment, regardless of what agency or person undertakes those actions. They can accrue from individually minor but collectively significant actions taking place over an extended period of time. Taken individually, environmental damage is incremental, occurring one action at a time. However, determining the significance of the collective actions requires an understanding of their effect on the larger environment.

4.2 *Cumulative Impact Analysis*

The cumulative impact analysis is prepared at a level of detail that is reasonable and appropriate to support an informed decision by the US Army in selecting a preferred alternative. To do this, it is necessary to identify those projects that may interact with the potential impacts of the alternatives. This is done by defining the greatest extent of potential impacts from the alternatives and then identifying those projects that also have impacts within that area. This is known as the cumulative impact analysis area.

Given the scale of the alternatives and the potential impacts, the cumulative impact analysis area for this EA for most of the resources is limited to Fort Gordon and the wetlands and watershed areas immediately downstream of the alternative locations. For traffic, noise and socioeconomics, the cumulative impacts analysis area is limited to Fort Gordon and the area immediately surrounding it.

Having defined the cumulative impact analysis area, the past, present, and reasonably foreseeable future actions that could interact with the Proposed Action to produce

cumulative impacts also must be identified. These actions are described briefly in the following sections.

The cumulative impacts on a resource become significant when the total impacts from individual projects are greater than the identified significance criterion for that resource. This determination depends on the resource being assessed and the individual project impacts on that resource.

A summary of cumulative impacts expected for each alternative is shown in Table 18.

4.3 *Past Actions*

Past actions are defined as actions within the cumulative impacts analysis areas under consideration that occurred before the year 2016. These include past actions at Fort Gordon and past demographic, land use, and development trends in the areas that surround the Installation, as generally described below:

- Training activities conducted by Fort Gordon's assigned personnel and units;
- Construction, alteration, repair, rehabilitation and maintenance of buildings, structures, site improvements, and utility systems as required ensuring that Fort Gordon is capable of meeting its training standards and military missions. Some construction activities include:
    - Hand Grenade Familiarization Range (refurbishment)
    - Construction of new Range Control Head Quarters
    - Construction of NSA/CSS Georgia Cryptologic Center
    - Augusta Utility Constructed Sewage Forced Main
    - Multi-Purpose Machine Gun Range in Training Area 46
    - Relocation of the Mini-Mute Site to Training Area 38

  Tables 19 and 20 show how much timber was removed for each action.
- Range maintenance at Fort Gordon as necessary to ensure the long–term viability of plant growth, reduce pest and insect infestations, reduce

the potential for inadvertent power outages caused by trees and tree limbs falling onto power lines, and maintain a professional, military appearance.

- Natural and cultural resources management programs including the continued adherence to Fort Gordon's management plans that have been designed to protect the existing diverse fish, wildlife and plant habitats present on the Installation. The Installation would continue coordination with the GASHPO and the Advisory Council on Historic Preservation (ACHP) concerning management of cultural resources. Natural and cultural resources management policies and actions at Fort Gordon include the continuation of programs to reduce and eliminate damage to the environment such as the INRMP, Endangered Species Management Plan, and ICRMP, as well as Endangered Species Act Section 7 Consultation with the USFWS when applicable.

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Table 18: Summary of Cumulative Impacts for Alternatives

Resource	Past Actions	Present Actions	Future Actions	TA 17 Alternative	No Action Alternative	Cumulative Effects
Geology & Soils	Past regional and Fort Gordon development has modified soils.	Current regional and Fort Gordon development will modify soils.	Continued development of Fort Gordon would locally impact soils.	Minor and temporary soil erosion during construction; and the increased potential for small spills or leaks of hazardous substances that could contaminate soil as a result of construction equipment.	No Impacts to geology and soils.	Cumulative impacts would be insignificant as a result of any of the alternatives.
Water Resources	Surface water in cantonment and training areas moderately impacted by development and training.	Pollution from industrial sources and training is generally low.	Continued development of Fort Gordon would result in sedimentation from construction activities and increase in impervious surfaces. Continued training will increase lead in surface and groundwater.	Minimal sedimentation in water from construction activities; and the increased potential for small spills or leaks of hazardous substances that could migrate to groundwater as a result of construction equipment.	No Impacts to water resources.	Cumulative impacts would be insignificant as a result of any of the alternatives.

Resource	Past Actions	Present Actions	Future Actions	TA 17 Alternative	No Action Alternative	Cumulative Effects
Floodplains and Wetlands	Wetlands in cantonment and training areas moderately impacted by development and training.	Impacts to wetlands in cantonment and training areas from development and training is generally low.	Impacts to wetlands in cantonment and training areas from development and training will remain generally low through mitigation by avoidance.	A minimal amount of wetlands will be disturbed and/or filled during construction and minimal sedimentation in wetlands from construction activities.	No impacts on wetlands.	A minimal amount of wetlands would be disturbed and/or filled and temporary increased sedimentation impacts resulting from construction. Cumulative impacts would be insignificant as a result of any of the alternatives.
Ecological Resources	Habitat and timber removal due to past regional and Fort Gordon development. Ecosystems converted back to longleaf/wiregrass ecosystem.	Habitat and timber removal due to present regional and Fort Gordon development. Ecosystems conversion to longleaf/wiregrass ecosystem.	Continued development of the region and Fort Gordon would require some habitat and timber removal. Continued ecosystems conversion to longleaf/wiregrass ecosystem.	Construction and operation of a new ACP will require some habitat/timber loss; and increased sedimentation could have a small impact some aquatic life	No impacts to biological resources.	As some areas are cleared, new habitat and timber are planted and longleaf/wiregrass ecosystem is restored. Cumulative impact of habitat/timber would be insignificant as a result of any of the alternatives.

Resource	Past Actions	Present Actions	Future Actions	TA 17 Alternative	No Action Alternative	Cumulative Effects
Air Quality	Attainment area for all criteria pollutants.	Emissions from vehicles and buildings.	Growth at Fort Gordon will result in increased traffic and emissions.	Potential dust generation during all phases of construction will be temporary; and Continued attainment and no permanent increase in any criteria pollutants.	No impacts to Air Quality.	No cumulative impacts to Air Quality would be anticipated as a result of any of the alternatives.
Hazardous Materials, Hazardous Waste and Installation Restoration Program Sites	Introduction of hazardous substances to support base operations.	Base manages hazardous materials and wastes through HMCC, EESOHMIS and Hazardous Waste Management Plan.	Continued development within Fort Gordon would result in increased use of hazardous materials and production of hazardous wastes.	Potential for a slight temporary increase in small spills or leaks of hazardous substances as a result of construction equipment; and minimal impacts to SWMU CCFTGD-057.	No impacts to Hazardous Materials & Hazardous Waste.	No cumulative impacts anticipated as a result of any of the alternatives.
Noise	Artillery and training are dominant noise source.	Artillery and training are dominant noise source.	Base growth will result in increased traffic and noise.	Potential increase in noise levels during all phases of construction will be temporary; long-term moderate increases in the noise environment from changes in traffic patterns along Gordon Highway.	No impacts to noise.	No other projects have been identified that when combined with the action would have greater than significant effects.

Resource	Past Actions	Present Actions	Future Actions	TA 17 Alternative	No Action Alternative	Cumulative Effects
Cultural Resources	Possible destruction of unknown artifacts.	Identification and recordation of historic and cultural resources.	Continued identification and management of historic and cultural resources as well as possible inadvertent discovery of cultural resources during training and construction.	Possible inadvertent discovery of cultural resources during construction; and adverse effect to the Edge Moor Railroad Bridge.	The Edge Moor Railway Bridge would be adversely affected as a result of demolition by neglect.	No cumulative impacts to Cultural Resources would be anticipated as a result of any of the alternatives.
Land Use	Development of Fort Gordon has extensively modified land use within cantonment area.	Military installation, commercial, residential, light industrial land uses.	Growth within cantonment area in accordance with the Installation Real Property Planning Board.	Approximately 60 acres of training land will be converted for use for the ACP and access road.	No impacts to land use.	No cumulative impacts anticipated as a result of any of the alternatives.
Facilities	Facilities developed to support installation operations.	Fort Gordon continues to build facilities as missions change and increase.	Future development of Fort Gordon would increase the demand on Fort Gordon facilities.	Beneficial impact as New ACP and VCC would address deficiencies and safety issues with current facilities.	Negative insignificant impact as the current VCC is undersized for the number of visitors processed daily and the Gate 2 ACP is undersized and causes safety issues.	No cumulative impacts anticipated as a result of any of the alternatives.

Resource	Past Actions	Present Actions	Future Actions	TA 17 Alternative	No Action Alternative	Cumulative Effects
Infrastructure and Utilities	Infrastructure developed to support base operations.	Base continues to improve infrastructure systems.	Future development of Fort Gordon would increase the demand on Fort Gordon's infrastructure and utilities. Future demolition projects would decrease the capacity of the Gibson Road landfill.	New ACP and VCC will be connected into existing utilities. Minimal new rights-of-way will be required.	No impacts to Infrastructure and Utilities.	No cumulative impacts anticipated as a result of any of the alternatives.
Traffic	Development of Fort Gordon has increased traffic on the base and in neighboring communities.	Fort Gordon continues to grow due to increase in Cyber mission and traffic on the base and in neighboring communities continues to increases.	Future Fort Gordon growth will continue to cause increases in traffic on the base and in neighboring communities.	Short- and long-term moderate adverse effects on traffic. Short-term effects would be due to additional vehicles and day-labor traffic during construction. Long-term effects would be due to changes in traffic patterns due to the growth at Fort Gordon.	Long-term minor adverse effects on traffic.	No other projects have been identified that when combined with the action would have greater than significant effects.

Resource	Past Actions	Present Actions	Future Actions	TA 17 Alternative	No Action Alternative	Cumulative Effects
Socioeconomics, Environmental Justice and Protection of Children	Base contributes to local economic community.	Continued support of local economic community.	Continued development of Fort Gordon would impact local economy and services.	Short-term minor beneficial economic effects on the regional economy.	Minor adverse impacts would occur as a result of the forgone economic benefit to the region from temporary increased spending and increase in employment. No impacts to Environmental Justice and Protection of Children.	Beneficial cumulative socioeconomic effects would be expected. In addition to the proposed gate realignment action analyzed in this EA, a number of other economic development projects would have short- and long-term beneficial effects on the ROI economy by increasing employment, income, and business sales volume.

4.4 *Present Actions*

Present actions are those that are taking place in the analysis area as of January 2016. These include:

- Current on-post operations at Fort Gordon, including current management and land use activities (to include natural and cultural resources)
- Current operations and training activities on the Installation ranges;
- Funded construction projects at Fort Gordon. Some of these include:
    - o expansion of the installation AAFES PX;
    - o Fort Gordon range construction and ongoing field training operations;
    - o construction of the photovoltaic solar array in TA 12 and transmission line to Fort Gordon sub-station;
    - o AIT Barracks, Phase 2;
    - o construction of three Air Force administration buildings on Lane Avenue; and
    - o complete renovation of building 35200 and associated buildings.

  Tables 19 and 20 show how much timber is being removed for each action.
- Current resource management programs and land use activities that are being implemented by other governmental agencies and the private sector within the cumulative impact analysis areas.

4.5 *Reasonably Foreseeable Future Actions*

Reasonably foreseeable future actions are limited to those that have been approved and can be identified and defined with respect to timeframe and location. Actions that meet these criteria and will be located in the cumulative impacts analysis area are listed below.

- Past and present actions discussed above would continue. Fort Gordon would continue to be used by the DOD as an operational and training post for active and reserve personnel and units.
- Facilities construction projects, similar to those listed above, would be performed in order to provide adequate training and support facilities to meet identified DOD missions. Some of these include:
    - Construction of the ARCYBER Command and Control Facility (to include a stationing with a total increase potential of up to 1,500 personnel).
    - RTG Stationing Actions (to include stationings with a total increase potential of up to 6,000 personnel).
    - Demolition and new construction at the Cyber Center of Excellence Campus (former Signal School Campus).
    - Construction of a Cyber Park Campus across from the NSA Facility on 15th Street.
    - National Guard Reserves Center.
    - Naval Reserves Operation Center.
- The Installation would continue to complete efficiency studies, in accordance with the Office of Management and Budget circular A-76, to determine the most efficient organization and staffing to use in the accomplishment of many administrative, maintenance, repair, and logistic functions.
- Additional agricultural and open land use areas near the Installation would be converted to urban areas, primarily residential.
- Road, bridge, and right-of-way maintenance and construction by county and local government units would continue.

- The continued construction on new off-post residential, commercial, and industrial development, primarily near the northern boundary of the Installation.
- The continuation of environmental restoration and pollution prevention activities.
- The continuation of forest management of properties in the proximate community, and the continued grazing by domestic livestock and tillage for planting of row crops.
- The continued construction of ponds and other erosion control features by farmers, developers, and other private and public organizations.
- The continued use of herbicides, pesticides, and fertilizer.

4.6 *Potential Cumulative Effects of the Proposed Alternatives*

Based on the above review of past, present and foreseeable actions, the cumulative effects concerns are primarily impacts to natural resources, specifically impacts to water quality and the longleaf-wiregrass ecosystem to include timber and endangered species management.

Approximately 47,000 acres on Fort Gordon are managed in accordance with the INRMP. The areas not included in management are the cantonment area; the AIA; and range footprints within the SAIA; primarily areas that were previously disturbed and are being re-developed or areas that are too unsafe to actively manage. Under the INRMP, Fort Gordon will remove timber for numerous reasons to include construction projects, timber harvests, and maintenance/repair type projects. In many cases, new timber is planted as sites are cleared and prepped for planting. In some cases, pine plantations are converted from one type of timber to another (i.e. slash pine to longleaf or loblolly pine) in order to restore the longleaf pine ecosystem. In other cases, an area might be thinned to the basal area that is appropriate for the RCW to live and forage. In both of these cases, the restoration and thinning are considered improvements to the ecosystem although timber was initially removed. Table 19 shows the amount of timber that has been or will be removed or thinned

within areas that are not actively managed under the INRMP (e.g., cantonment, range footprints). Table 20 shows the approximate amount of timber that has been or will be affected by projects that occur within areas that are managed in accordance with (IAW) the INRMP. Future timber harvests, are planned and discussed in the INRMP. They are not included in this analysis because the specifics have yet to be determined. Based on land available for RCW management, Fort Gordon must maintain 20,600 acres of current and potential RCW habitat IAW the INRMP.

4.6.1 Alternative 2: Training Area 17 Alternative (Preferred Alternative)

The construction activities associated with the implementation of Alternative 2 would have the potential for a slight increase in small spills or leaks of hazardous substances from construction equipment. These spills could generate small quantities of contaminated media (*i.e.*, soil, vegetation) requiring disposal. However, these impacts would be relatively minor and would be controlled through proper application of BMPs on the construction sites.

Future development within the cantonment and in the surrounding community would contribute to air emissions. However, the new Gate 6 would only contribute temporarily to air emissions during construction. Once the gate is in operation the air emissions would be a result of increased traffic that correlates with the Installation's growth. Additionally, future development and the gate and additional road infrastructure would increase the potential for sediment runoff and associated deposition in downstream areas. Both on and off the Installation, these impacts would be controlled by proper application of state recommended and required BMPs on the construction sites.

With the construction of the gate and additional roads the Army also requires the use of low-impact development LID technology. This will also minimize negative cumulative impacts to downstream areas. If not coordinated with ongoing and future mission activities, continued development along the Installation boundary could result in unintentional conflicts between mission requirements at the Installation and development in the surrounding communities. Continued communication and coordination with neighboring local planning agencies would

work to avoid such impacts to the Installation mission activities. The proposed site is available for military training, although it is infrequently utilized and Fort Gordon has no future plans for increased use of this site.

The State of Georgia takes into account the effects of all past, present, and reasonably foreseeable emissions during the development of the State Implementation Plan. The state accounts for all significant stationary, area, and mobile emission sources in the development of this plan. Estimated emissions generated by the action would be *de minimis* and it is understood that activities of this limited size and nature would not contribute significantly to adverse cumulative effects to air quality.

The Preferred Alternative would introduce short- and long-term moderate increases in the noise environment from construction and changes in traffic patterns along Gordon Highway. No other projects have been identified that when combined with the action would have greater than significant effects.

The Preferred Alternative includes current traffic, natural growth in traffic, all traffic associated with the additional ARCYBER personnel, RTG personnel, and the implementation of all traffic improvements identified in the ARCYBER EA and RTG PEA. This approach naturally includes all past, present, and reasonably foreseeable activities in the area. The Preferred Alternative would have short- and long-term moderate cumulative adverse effects on traffic. The proposed ACP in-and-of-itself would have minor beneficial effects. No other projects have been identified that when combined with the action would have greater than significant effects.

Beneficial cumulative socioeconomic effects would be expected. In addition to the proposed gate realignment action analyzed in this EA, a number of other economic development projects would have short- and long-term beneficial effects on the ROI economy by increasing employment, income, and business sales volume. These projects include Fort Gordon development projects (such as the stationing actions, solar photovoltaic generating array system construction, range construction), ongoing Fort Gordon field training operations, and commercial,

residential, and infrastructure development or improvements occurring off-post in the ROI.

In the recent past (the last 5-6 years), approximately 377 acres of timber have been cut and 21 acres have been thinned within areas not managed under the INRMP (e.g., cantonment, AIA) as shown in Table 19. Within the areas managed under the INRMP, past, present and future forestry actions include: cutting approximately 1,285 acres; restoring/planting approximately 3,613 acres; and thinning approximately 7,244 acres. These projects are shown in Table 20. If the Preferred Alternative is implemented, no more than 150 acres of timber would be removed, which represents less than one percent (0.7 percent) of the total acreage (25,543) that Fort Gordon has established as a RCW HMU (Fort Gordon 2015c). While Fort Gordon currently manages 25,543 acres for RCWs, the Natural Resources Branch has determined that 20,600 acres is sufficient to support the current population. Therefore, the removal of 150 acres or less of potential RCW habitat under the Preferred Alternative would have no effect on Fort Gordon's RCW management program. Table 21 shows the total acres cumulatively affected by past, present, and future actions within areas that are managed under the INRMP in addition to the Training Area 17 Alternative. Because more acres would be restored and thinned rather than removed; cumulatively, there would be a net gain of longleaf-wiregrass ecosystem.

Projects occurring on Fort Gordon (in addition to Alternative 2) would be required to follow the BMPs described in this EA. If these BMPs are properly implemented and maintained for each project, there would be only minor cumulative impacts. When necessary, appropriate state and federal agencies would be consulted, and impacts on the respective resources would be avoided by following the agency recommendations.

None of the impacts mentioned above would be anything more than insignificant.

Table 19: Amount of timber that has been or will be removed or thinned within areas that are not managed under the INRMP.

Project	Temporal Type of Action	Type of Forestry Action	Forestry Management Action		
			Acres Removed	Acres Restored	Acres Thinned
Construction of NSA/CSS Georgia Cryptologic Center	Past	Construction/ Harvest	157	0	21
AUD Raw Water Irrigation System and Gate 1 Sewer Line	Past	Construction	< 40	0	0
3rd Avenue Stormwater Improvements and Landfill Cap Project	Past	Construction/ Harvest	< 5	0	0
Addition to AAFES PX Exchange	Present	Construction	< 5	0	0
AIT Barracks (Phase 2)	Present	Construction	0	0	0
Eisenhower Stormwater Outfall Repair	Present	Construction/ Harvest	< 5	0	0
Jefferson Electric-Gordon Hwy Right-of-Way Relocation	Present	Construction/ Harvest	< 10	0	0
Privatized Army Lodging (PAL) Candlewood Suites	Future	Construction	0	0	0
Army Cyber Command and Control Facility	Future	Construction	0	0	0
Cyber Park Campus (adjacent to NSA)	Future	Construction/ Harvest	< 100	0	0
Naval Reserves Operation Center	Future	Construction/ Harvest	< 5	0	0
National Guard Readiness Center	Future	Construction/ Harvest	< 20	0	0
Tank Removal and Replacement at Building 310	Future	Construction/ Harvest	< 5	0	0

Project	Temporal Type of Action	Type of Forestry Action	Forestry Management Action		
			Acres Removed	Acres Restored	Acres Thinned
Cyber CoE Battle Lab Expansion	Future	Construction/ potential harvest	< 5	0	0
NCO Academy (Lane Ave.) Outfall Repair	Future	Construction/ Harvest	< 5	0	0
Cyber Center of Excellence Campus	Future	Demolition/ Construction/ Harvest	< 5	0	0
Cleanup of Skeet Range	Future	Harvest / Remediation	< 10	0	0
Total			< 377	0	21

Key for Tables 19 and 20 *Construction*: Timber removed at cost of project; *Construction/Harvest*: Fort Gordon Forestry harvested the timber for a project; *Harvest*: Fort Gordon Forestry timber harvest; *Planting*: Fort Gordon Forestry planted timber where a harvest had occurred or some other action occurred that involved the loss of timber.

Table 20: Approximate amount of timber that has been or will be affected by projects that occur within areas that are actively managed for natural resources under the INRMP.

Project	Temporal Type of Action	Type of Forestry Action	Forestry Management Action		
			Acres Removed	Acres Restored	Acres Thinned
Sewage Force Main	Past	Construction/Harvest	6	0	0
Hand grenade Familiarization Range/TA19	Past	Construction/Harvest	0	30	269
FY13 Timber Harvests	Past	Harvest	70	917	1,321
FY14 Timber Harvests	Past	Harvest	0	321	394
Modified Record Fire Upgrade Project - Range 6	Past	Construction/Harvest	< 5	0	0

Project	Temporal Type of Action	Type of Forestry Action	Forestry Management Action		
			Acres Removed	Acres Restored	Acres Thinned
Relocation of Mini-Mute Site to TA38	Past	Construction/Harvest	20	0	0
Multipurpose Machine Gun Range	Past	Construction/Harvest	187	0	0
Ice Storm Pax Damaged Timber Operations	Past	Silviculture/Harvest	0	41	157
FY 15 Timber Harvest	Past	Harvest	0	1,957	3,526
FY16 Timber Harvest	Present	Harvest	537	342	1,554
PV Solar Array and Transmission Line	Present	Construction/Harvest	< 300	0	0
Range Construction, Operations, and Integrated Training Land Management (ITAM) Projects					
Squad Defense Course	Future	Construction/Harvest	4	0	0
TA12 Troposcatter Site Improvements	Past	Harvest	6	0	0
Firing Point Rehabilitations	Present	Harvest/Construction	45	0	0
TA23 Expansion	Future	Harvest/Construction	105	5	23
Total			**1,285**	**3,613**	**7,244**

Table 21: Cumulative effects of forestry management actions from past, present and future actions in addition to the Training Area 17 Alternative

Action	Forestry Management Action		
	Acres Removed	Acres Restored	Acres Thinned
Past, Present, Future Actions	1,662	3,613	7,265
Training Area 17 Alternative	150	0	0
Totals	1,812	3,613	7,265

4.6.2 No Action Alternative

Under the No Action Alternative, traffic flow and control would continue as in the past. Installation personnel and visitors would continue to use the existing system of gates and access roads. Fort Gordon employees and visitors who enter the Installation by way of Gates 1 and 2 would continue to experience congestion and delays during peak commuting hours. This congestion would continue to affect the flow of traffic on Gordon Highway; on the Installation; and into and out of the Grovetown area. Continued workforce expansion at Fort Gordon could exacerbate the traffic situation in these areas and could even pose a threat to public safety if movement of fire, police, and rescue vehicles is hindered. During peak traffic times, traffic would continue to back up on Gordon Highway and into Grovetown on East Robinson Avenue due to the lack of stacking space on Fort Gordon. Traffic congestion on Fort Gordon between the entrance gates and critical mission support locations during these peak traffic times would continue and the existing VCC would remain undersized to accommodate the number of visitors that are processed on a typical weekday. No other cumulative impacts would be anticipated as a result of the No Action Alternative.

5.0 Summary of Environmental Consequences and Proposed Impact Reduction Measures

This section summarizes the discussion of impacts in Chapter 3 and identifies the alternative that was selected to fulfill the Proposed Action. This section also summarizes any necessary impact reduction activities for the selected alternative.

5.1 *Characterization of Impacts*

Table 22 summarizes by resource area the impacts of the alternatives discussed in this EA. Given the requirement of an EA to assess only the significance of an impact on a resource, these impacts were categorized using only three degrees of impact severity: “no impact,” “non-significant impact,” and “significant impact.” These impacts were also classified as either beneficial or adverse. As summarized in Table 22, none of the impacts identified for any of the alternatives assessed were deemed significant.

After consideration of the alternatives and associated impacts, as well as required mitigation measures, it has been determined that no significant impacts would occur as a result of implementing any of the alternatives analyzed. An Environmental Impact Statement (EIS) is therefore not required to proceed with implementation of any of the analyzed alternatives. Thus, the Army will prepare and publish a FNSI to document this decision. This FNSI will summarize briefly why the Proposed Action would not significantly affect the environment and why, therefore, an EIS is not required.

5.2 *Preferred Alternative*

Based on a review of the results of this EA, the Army has selected Alternative 2: Training Area 17 Alternative. Figure 16 shows Fort Gordon resources potentially affected by implementation of the Training Area 17 Alternative. The recommendations, requirements, and restrictions discussed throughout this EA and summarized in Section 5.3 should be incorporated into the planning, construction, and operation of the new ACP.

5.3 *Impact Reduction Measures for the Preferred Alternative*

Measures federal agencies employ to lessen the environmental impacts of their actions fall into three broad, sometimes-overlapping categories, ranked in order of regulatory importance:

(1) BMPs and standard operating procedures (SOPs), (2) permit stipulations and conditions, and (3) required mitigation measures.

Each of these is discussed in the sections that follow.

5.3.1 Best Management Practices and Standard Operating Procedures

Fort Gordon would follow widely-accepted or agency-approved BMPs and use existing SOPs to minimize the number and magnitude of adverse effects identified in this EA. For example:

- Clearing and grubbing would be timed with construction to minimize the exposure of cleared surfaces. Such activities would not be conducted during periods of wet weather. Construction activities would be staged to allow for the stabilization of disturbed soils.
- Fugitive dust-control techniques such as watering and stockpiling would be used to minimize adverse effects. All such techniques would conform to the applicable regulations.
- Erosion and sediment control measures such as soil erosion-control mats, silt fences, straw bales, diversion ditches, riprap channels, water bars, water spreaders, and hardened stream crossings, would be used as appropriate.
- Care would be taken to prevent pollutants from reaching soil, groundwater, or surface water. This would entail following procedures in the Fort Gordon SPCCP and Fort Gordon ISCP, and following standard wellhead protection procedures. During construction, contractors would be required to perform daily inspections of equipment, maintain appropriate spill containment materials onsite, and store all fuels and other materials in appropriate

containers. Equipment maintenance activities would not be conducted on the construction site.

- Consistent with requirements of EISA Section 438, low-impact development tools and green building techniques would be employed to promote natural infiltration of rain water and manage stormwater runoff, with the goal of maintaining pre-development hydrology to the extent technically feasible.

Fort Gordon is committed to complying with the NHPA and Endangered Species Act (and other federal laws designed to conserve important cultural and natural resources), and has developed procedures making clear the responsibilities of Installation employees and contractors with respect to these laws and associated regulations. With regard to the Gate 6 project, one SOP relating to the inadvertent discovery of cultural artifacts and two less-formal procedures relating to construction disturbance of sensitive wildlife are noteworthy and should greatly reduce the potential for impacts to these resources.

- Per (Integrated Cultural Resource Management Plan) SOP Number 4, if suspected archaeological/historic artifacts are discovered in the course of preparing, clearing, or excavating project sites, work would stop immediately and measures would be taken to secure the area and prevent disturbance of the suspected cultural resources. The suspected cultural resources would be evaluated for NRHP-eligibility with the GASHPO in accordance with Section 106 of the NHPA and the NRHP Federal Program (36 CFR 60.4).
- Project personnel will be made aware of seasonal restrictions on project-related timber and brush removal intended to limit impacts to migratory birds. To the extent feasible, land clearing will be scheduled outside of the nesting season (April 1 through July 31 for most species). Avoiding land clearing in spring and early summer will also serve to limit impacts to bats, as this is the time when their young are flightless and most vulnerable.
- Before any timber harvesting or land clearing commences, heavy equipment operators will be taught about gopher tortoises, briefed on

gopher tortoise burrow identification (and avoidance), provided with information about known burrow locations in the project area, and given instructions on whom to notify if new burrows are discovered.

5.3.2 Permit Stipulations and Conditions

Permits that Fort Gordon anticipates will be required to implement the Preferred Alternative are shown in Table 23. These permits are often issued with conditions and stipulations intended to lessen the environmental impacts of construction projects. For example:

- An *NPDES General Permit for Stormwater Discharges from Construction Activities* would require preparation of an Erosion, Sedimentation and Pollution Control Plan with site-specific BMPs designed to minimize erosion and sedimentation during construction.
- A stream buffer variance as required by the Georgia Erosion and Sedimentation Control Act (The Act; O.C.G.A. 12-7-1 et seq.) would be obtained before any land-disturbing work commences in the floodplain of any intermittent and permanent streams on Fort Gordon.
- Any construction involving navigable waters, stream crossings, or jurisdictional wetlands would be coordinated with the USACE. Fort Gordon would obtain required USACE permits for any construction work expected to impact navigable waters or wetlands and would abide by any permit conditions.

5.3.3 Required Mitigation Measures

Fort Gordon has determined that widening Gordon Highway would adversely affect the Edge Moor Railway Bridge, which is eligible for listing under the NRHP. The (2006) Programmatic Agreement requires Fort Gordon to consult with the GASHPO if a planned undertaking could have an adverse effect on a historic property and, if an adverse effect is likely, to provide documentation to the GASHPO detailing its plans for avoiding or minimizing adverse effects or proposing specific mitigation measures. If the Preferred Alternative is implemented, there is

no feasible way to avoid or minimize the adverse effect, as the bridge will need to be removed for Gordon Highway to be widened. Therefore, a mitigation plan will have to be prepared and an MOA executed between Fort Gordon and the GASHPO. The terms of the MOA will determine how the mitigation will proceed before and/or after the removal of the Edge Moor Bridge.

No other mitigation measures would be required to keep any of the impacts identified in this EA below the Significance Thresholds described in Section 2.3.

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Figure 16: Resources Evaluated in the Gate 6 Environmental Assessment

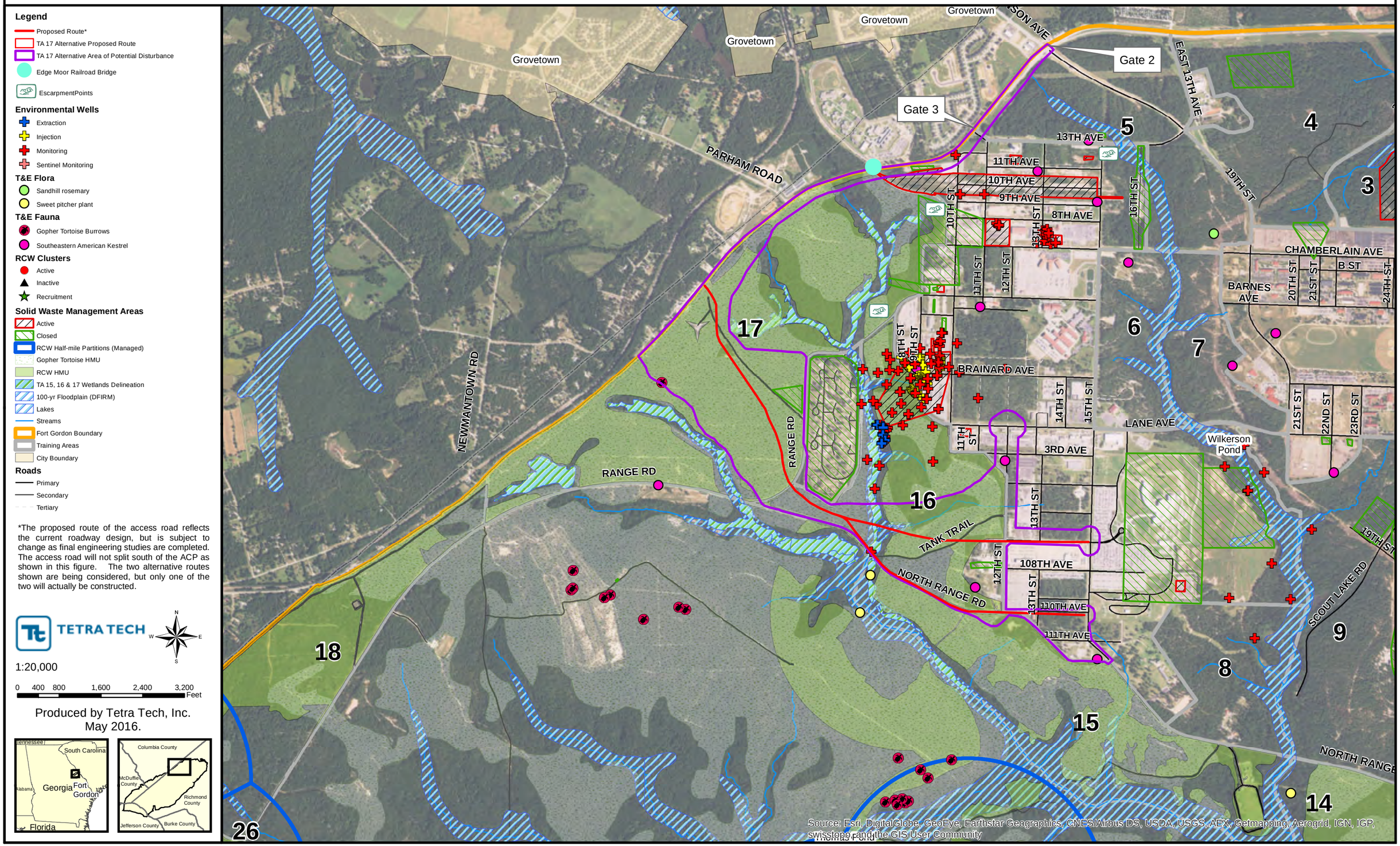

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Table 22: Summary of Potential Environmental and Socioeconomic Impacts

Resource	Potential Environmental Impacts Resulting from the Alternative	Mitigation to Negate Impacts from the Alternative	Summary of Impacts		Level of Significance
			Alternative 2: Training Area 17 Alternative (Preferred Alternative)	No Action Alternative	
Geology & Soils					
Soils	Land clearing and disturbance required for ACP and access road installation	Use of BMPs such as silt fences, straw bale dikes, diversion ditches, riprap channels, water bars, and water spreaders as well as no construction during periods of wet weather	**Negative**		Less than Significant
	Soil erosion during construction	Use of BMPs such as silt fences, straw bale dikes, diversion ditches, riprap channels, water bars, and water spreaders as well as no construction during periods of wet weather	**Negative**		Less than Significant
	Inadvertent releases of chemicals, oils, or solvents into the surrounding soils could eventually migrate down into the underlying groundwater	Following procedures required in the Fort Gordon SPCCP and ISCP as well as all fueling, lubricating, greasing and de-greasing activities would be performed in designated areas only.	**Negative**		Less than Significant
Water Resources					
Groundwater	Small potential for spills of fuel, lubricants, hydraulic fluid migrating to groundwater	All fueling, oiling, greasing, and de-greasing would be done in designated areas with spill control equipment.	**Negative**		Less than Significant

Resource	Potential Environmental Impacts Resulting from the Alternative	Mitigation to Negate Impacts from the Alternative	Summary of Impacts		Level of Significance
			Alternative 2: Training Area 17 Alternative (Preferred Alternative)	No Action Alternative	
Surface Water	Road-widening and installation of a new culvert system will likely involve streamside and in-stream construction	BMPs for sedimentation and erosion control will be used and Stream Buffer Variance will be obtained	**Negative**		Less than Significant
	Indirect impact: some erosion and sedimentation from ACP and access road construction	BMPs for sedimentation and erosion control will be used	**Negative**		Less than Significant
	Inadvertent releases of chemicals, oils, or solvents into the surrounding surface waters	Following procedures required in the Fort Gordon SPCCP and ISCP as well as all fueling, lubricating, greasing and de-greasing activities would be performed in designated areas only.	**Negative**		Less than Significant
Wetlands and Floodplains					
Wetlands	Disturb and/or fill in minimal amount of wetlands for construction of access road	Mitigate through the adhering to nationwide permit or purchase of wetlands credits if necessary	**Negative**		Less than Significant
	Increased sedimentation from construction of ACP and access road	BMPs for sedimentation and erosion will be used	**Negative**		Less than Significant
Floodplains	Placement of fill in floodplains	Design in order to minimize disturbance	**Negative**		Less than Significant

Resource	Potential Environmental Impacts Resulting from the Alternative	Mitigation to Negate Impacts from the Alternative	Summary of Impacts		Level of Significance
			Alternative 2: Training Area 17 Alternative (Preferred Alternative)	No Action Alternative	
Ecological Resources					
Flora	Up to 60 acres of forestland could be lost to road widening, access road and ACP		**Negative**		Less than Significant
Fauna	Impacts to terrestrial wildlife could result from the loss of vegetation and wildlife habitat due to construction of the ACP, VCC, and access road		**Negative**		Less than Significant
	Clearing and construction associated with this alternative could disturb nesting migratory birds including Southeastern American kestrels	Where possible, will avoid land clearing during the nesting season (i.e., from April 1 through July 31)	**Negative**		Less than Significant
Aquatic Species	Construction-related sedimentation could, depending on effectiveness of mandated erosion controls have a small, localized effect on aquatic life	BMPs for sedimentation and erosion will be used	**Negative**		Less than Significant
Noxious Weeds	land clearing and grading required prior to construction will increase the potential for the introduction and spread of noxious weeds	Fort Gordon has a program to control noxious weeds, which includes the stabilization of disturbed areas with native seed or other approved plantings	**Negative**		Less than Significant

Resource	Potential Environmental Impacts Resulting from the Alternative	Mitigation to Negate Impacts from the Alternative	Summary of Impacts		Level of Significance
			Alternative 2: Training Area 17 Alternative (Preferred Alternative)	No Action Alternative	
Air Quality					
Air Quality	Short-term effects would be due to generating airborne dust and other pollutants during construction	Use BMPs such as water trucks at construction sites to minimize dust generation	**Negative**		Less than Significant
Greenhouse Gases and Climate Change	Construction activities would generate approximately CO_2		**Negative**		Less than Significant
Hazardous Materials & Hazardous Waste					
POL	Spills and leaks could occur during construction	Implement preventive measures identified in the SPCCP and follow procedures identified in the Installation Spill Prevention and Response Plan	**Negative**		Less than Significant
Other Hazardous materials and Waste	Potential for temporary increase in small spills or leaks of hazardous substances as a result of construction equipment.	Implement preventive measures identified in the SPCCP and follow procedures identified in the Installation Spill Prevention and Response Plan and HWMP	**Negative**		Less than Significant

Resource	Potential Environmental Impacts Resulting from the Alternative	Mitigation to Negate Impacts from the Alternative	Summary of Impacts		Level of Significance
			Alternative 2: Training Area 17 Alternative (Preferred Alternative)	No Action Alternative	
IRP	SWMU CCFTGD-057 could be impacted by Gordon Highway widening	Design and construction will be closely coordinated with Fort Gordon, Environmental Division and GAEPD (if necessary) in order to mitigate impacts	**Negative**		Less than Significant
	SWMU 009 could be impacted if utility rights-of-way are routed through it or near it.	Design and construction will be closely coordinated with Fort Gordon, Environmental Division and GAEPD (if necessary) in order to mitigate impacts	**Negative**		Less than Significant
Noise					
Construction Noise	Short-term increases in noise would be due to construction activities	Limit work to daytime hours	**Negative**		Less than Significant
Traffic Noise	Long-term moderate adverse effects to the noise environment due appreciable increases in noise along Gordon Highway		**Negative**		Less than Significant

Resource	Potential Environmental Impacts Resulting from the Alternative	Mitigation to Negate Impacts from the Alternative	Summary of Impacts		Level of Significance
			Alternative 2: Training Area 17 Alternative (Preferred Alternative)	No Action Alternative	
Cultural Resources					
Archaeological Resources	Adverse impact to the Edge Moor Railroad Bridge	A mitigation plan, laid out in a MOA between the GASHPO and Fort Gordon, will be developed. The terms of the MOA will determine how the mitigation will proceed before and/or after the removal of the Edge Moor Bridge.	**Negative**	**Negative**	Less than Significant with GASHPO and Fort Gordon MOA
	Inadvertent discovery of archaeological sites	Work would immediately cease and the Environmental Division, DPW would begin NHPA Section 106 consultation with the GASHPO	**Negative**		Less than Significant
Land Use					
Land Use	Permanent conversion of land which would decrease training land		**Negative**		Less than Significant

Resource	Potential Environmental Impacts Resulting from the Alternative	Mitigation to Negate Impacts from the Alternative	Summary of Impacts		Level of Significance
			Alternative 2: Training Area 17 Alternative (Preferred Alternative)	No Action Alternative	
Facilities					
Facilities	Deficiencies and safety issues with current Fort Gordon ACP facilities would be addressed		**Positive**		
Facilities	Fort Gordon facilities would remain consistent with current conditions – the current VCC is undersized for the number of visitors processed daily and the Gate 2 ACP is undersized and causes safety issues. The Gate 3 vehicle search area and trailer used for background checks are both undersized for the amount of commercial traffic using this gate.			**Negative**	Less than Significant
Infrastructure & Utilities					
Infrastructure	Impacts to stormwater due to timber harvesting and construction, which would result in increased runoff and a reduction of natural infiltration	Georgia BMPs for Forestry would be used for mitigation of the timber harvest. BMPs such as silt fences, diversion ditches, riprap channels, water bars, and water spreaders would be used for mitigation during construction of the new access road and facilities.	**Negative**		Less than Significant

Resource	Potential Environmental Impacts Resulting from the Alternative	Mitigation to Negate Impacts from the Alternative	Summary of Impacts		Level of Significance
			Alternative 2: Training Area 17 Alternative (Preferred Alternative)	No Action Alternative	
Traffic					
Traffic	Short-term effects due to additional vehicles and day-labor traffic during construction. Long-term effects due to changes in traffic patterns due to the growth at Fort Gordon.		**Negative**		Less than Significant
	Reduction in traffic congestion on roadways servicing the installation and provide a shorter, more-direct route to on-post areas that would experience the greatest growth.		**Positive**		
	Long-term minor adverse effects on traffic due to congestion on roadways servicing the Installation and lack of stacking space on East Robinson Avenue and on Gordon Highway			**Negative**	Less than Significant

Resource	Potential Environmental Impacts Resulting from the Alternative	Mitigation to Negate Impacts from the Alternative	Summary of Impacts		Level of Significance
			Alternative 2: Training Area 17 Alternative (Preferred Alternative)	No Action Alternative	
Socioeconomics					
Economy	Short-term economic effects would be expected on the regional economy due to increases in expenditures and employment		**Positive**		
Public Health and Safety	Long-term impacts would result from a reduction in traffic congestion on local roads and would result in improved traffic flow in and around Fort Gordon and thereby reducing or removing public safety concerns		**Positive**		
Environmental Justice	Short-term road construction activities would temporarily modify traffic patterns, as well as long-term alterations to traffic flow resulting in an increase in traffic on Gordon Highway. Census Tract 102.04, which has a higher minority population compared to the ROI, state, and nation, borders the proposed project and these homes would see an increase in traffic and associated noise		**Negative**		Less than Significant

Resource	Potential Environmental Impacts Resulting from the Alternative	Mitigation to Negate Impacts from the Alternative	Summary of Impacts		Level of Significance
			Alternative 2: Training Area 17 Alternative (Preferred Alternative)	No Action Alternative	
Protection of Children	Short-term minor adverse effects on could occur since part of the proposed project would be near several residences along Gordon Highway. In the short-term, because construction sites can be enticing to children, construction activity could be an increased safety risk.	Safety measures would be implemented and health regulations would be followed to protect the safety and health of citizens.	**Negative**		Less than Significant
Cumulative Impacts					
Cumulative Impacts	A minimal amount of wetlands would be disturbed and/or filled and temporary increased sedimentation impacts resulting from construction. Other projects in the area could have similar impacts.		**Negative**		Less than Significant
	Beneficial cumulative socioeconomic effects would be expected. In addition to the proposed gate realignment action analyzed in this EA, a number of other economic development projects would have short- and long-term beneficial effects on the ROI economy by increasing employment, income, and business sales volume.		**Positive**		

Resource	Potential Environmental Impacts Resulting from the Alternative	Mitigation to Negate Impacts from the Alternative	Summary of Impacts		Level of Significance
			Alternative 2: Training Area 17 Alternative (Preferred Alternative)	No Action Alternative	
Cumulative Impacts	Future development within the cantonment and in the surrounding community would contribute to air emissions. This project would only contribute temporarily to air emissions during construction.		**Negative**		Less than Significant
	Future development within and around the ACP and additional road infrastructure would increase the potential for sediment runoff and associated deposition in downstream areas.		**Negative**		Less than Significant
	As some areas are cleared due to this project as well as other Fort Gordon projects, new habitat and timber would be planted and longleaf/wiregrass ecosystem is restored.		**Negative**		Less than Significant

Table 23: Anticipated required permits for the Training Area 17 Alternative

Permit	Regulator
NPDES General Permit for Storm Water Discharges from Construction Activities	GAEPD
Land Disturbing Activity Permit under the Georgia Sediment and Erosion Act	Richmond County (state delegated program)
Stream Buffer Variance	GAEPD
Clean Water Act Section 404 Permit	USACE

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Environmental Review Coordinator
2065 U.S. Highway 278 SE
Social Circle, GA 30025-4743

U.S. Environmental Protection Agency
Heinz J. Mueller, Chief
Atlanta Federal Center
61 Forsyth Street
Atlanta, GA 30303-8960

Georgia Department of Natural Resources
Wildlife Resources Division
ATTN: Lee Taylor
142 Bob Kirk Road, NW
Thomson, GA 30824

U.S. Army Corps of Engineers
ATTN: CESAS-OP-F
100 W. Oglethorpe Avenue
Savannah, GA 31401-3640

Georgia Department of Community Affairs
60 Executive Park South, NE
Atlanta, GA 30329

Georgia Department of Transportation
One Georgia Center
600 West Peachtree NW
Atlanta, GA 30308

Regional and Local Offices

Brier Creek Soil and Water Conservation District
151 Langston Chapel Road
Statesboro, GA 30459

CSRA Regional Commission
3626 Walton Way Extension
Suite 300
Augusta, GA 30909

Region II Georgia Soil and Water Conservation District (McDuffie and Columbia Counties)
4310 Lexington Road
Athens, GA 30603

George Patty, Director
Augusta-Richmond County Planning and Development Department
535 Telfair Street
Augusta, GA 30901

Lillian Easterlin, Executive Director
Jefferson County Chamber of Commerce
P.O. Box 630
302 East Broad Street
Louisville, GA 30434

Department of Planning
Columbia County Government Center
630 Ronald Reagan Drive
Building A, West Wing
P.O. Box 498
Evans, GA 30809

McDuffie County Planning Commission
City/County Government Complex
210 Railroad Street
Thomson, GA 30824

City of Harlem
Attn: David Jenkins
P.O. Box 99
Harlem, GA 30814

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Appendix A – Agency Correspondence

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT GORDON
307 CHAMBERLAIN AVENUE
FORT GORDON, GEORGIA 30905-5730

REPLY TO
ATTENTION OF

IMGO-PWE

January 15, 2016

Dr. David Crass, Director
Historic Preservation Office
254 Washington Street, SW
Ground Level
Atlanta, Georgia 30334-9007

Reference: Environmental Assessment for the Construction and Operation of a New Access Control Point, Fort Gordon, Georgia

Dear Sir/Madam:

The U.S. Army Garrison, Fort Gordon, Georgia, is preparing an Environmental Assessment (EA) to evaluate environmental and socioeconomic effects associated with the construction and operation of a new Access Control Point (ACP) at Fort Gordon, Georgia. The Proposed Action is to construct and operate a new ACP on Fort Gordon. The new access point is intended to reduce traffic congestion on roadways servicing the installation and provide a shorter, more-direct route to areas of Fort Gordon that are experiencing the greatest growth. Associated with this project is the demolition of the Edge Moor Railraod Bridge, which was previously submitted to your office for review under project number HP-151228-013.

This new access point is needed to accommodate new and expanded missions and personnel increases that Fort Gordon is experiencing and to improve traffic flow in and out of the installation. It will also help address potential public safety concerns on Fort Gordon and surrounding areas that have been created by traffic congestion. In accordance with the National Environmental Policy Act and 32 CFR Part 651 *Environmental Analysis of Army Actions; Final Rule* an evaluation of the potential effects (both beneficial and adverse) associated with implementing the proposed action is required. We are requesting your input regarding any concerns that your agency might have about this proposed action.

The alternatives to be evaluated in the EA include:

Alternative 1: Parham Road Alternative
Under Alternative 1, a new gate and access road would be built in the northern part of Training Area (TA) 17, where Parham Road intersects Gordon Highway (Enclosure 1). The new access road would extend east from Gordon Highway and connect to Chamberlain Avenue in the vicinity of 9th Street and Building 995 (the Recycling Center).

Alternative 2 (Preferred Alternative): Training Area 17 Alternative
Under Alternative 2, a new gate and access road would be built in the central part of TA 17 at Gordon Highway approximately 0.5 mile southwest of the Parham Road/Gordon Highway intersection (Enclosure 2). The new access road would extend southeast into TA 16, turn east south of the Ammunition Supply Point (ASP) and run parallel to Range Road for approximately 900 feet. From there, it would continue east, cross the tank trail and connect to 107th Avenue at 12th Street.

Alternative 3: Newmantown Road Alternative
Under Alternative 3, a new gate and access road would be built in the northern portion of TA 18 near the intersection of Newmantown Road and Gordon Highway (Enclosure 3). The new access road would curve north, then east, to merge with Range Road southwest of the ASP at the Small Arms Impact Area (SAIA). It would then continue east, cross the tank trail and connect to 107th Avenue at 12th Street.

Alternative 4: No Action Alternative
The No Action Alternative would be to continue to manage the flow of traffic at Fort Gordon as in the past, with installation personnel and visitors using the existing system of gates and access roads.

Inclusion of the No Action Alternative is prescribed by Council on Environmental Quality regulations. The No Action Alternative serves as a baseline against which the impacts of the action alternatives can be evaluated.

Fort Gordon looks forward to receiving any information and input you may have. We respectfully request that information be submitted no later than February 26, 2016 to be considered in the Draft EA. Your response should be sent to:

Mr. Robert Drumm
U.S. Army Garrison, Fort Gordon
Directorate of Public Works
IMGO-PWE, Bldg. 14500
Fort Gordon, GA 30905-5209

If you have any questions or require additional information, please do not hesitate to contact Mr. Robert Drumm of Fort Gordon's Environmental Division Office at (706) 791-6374.

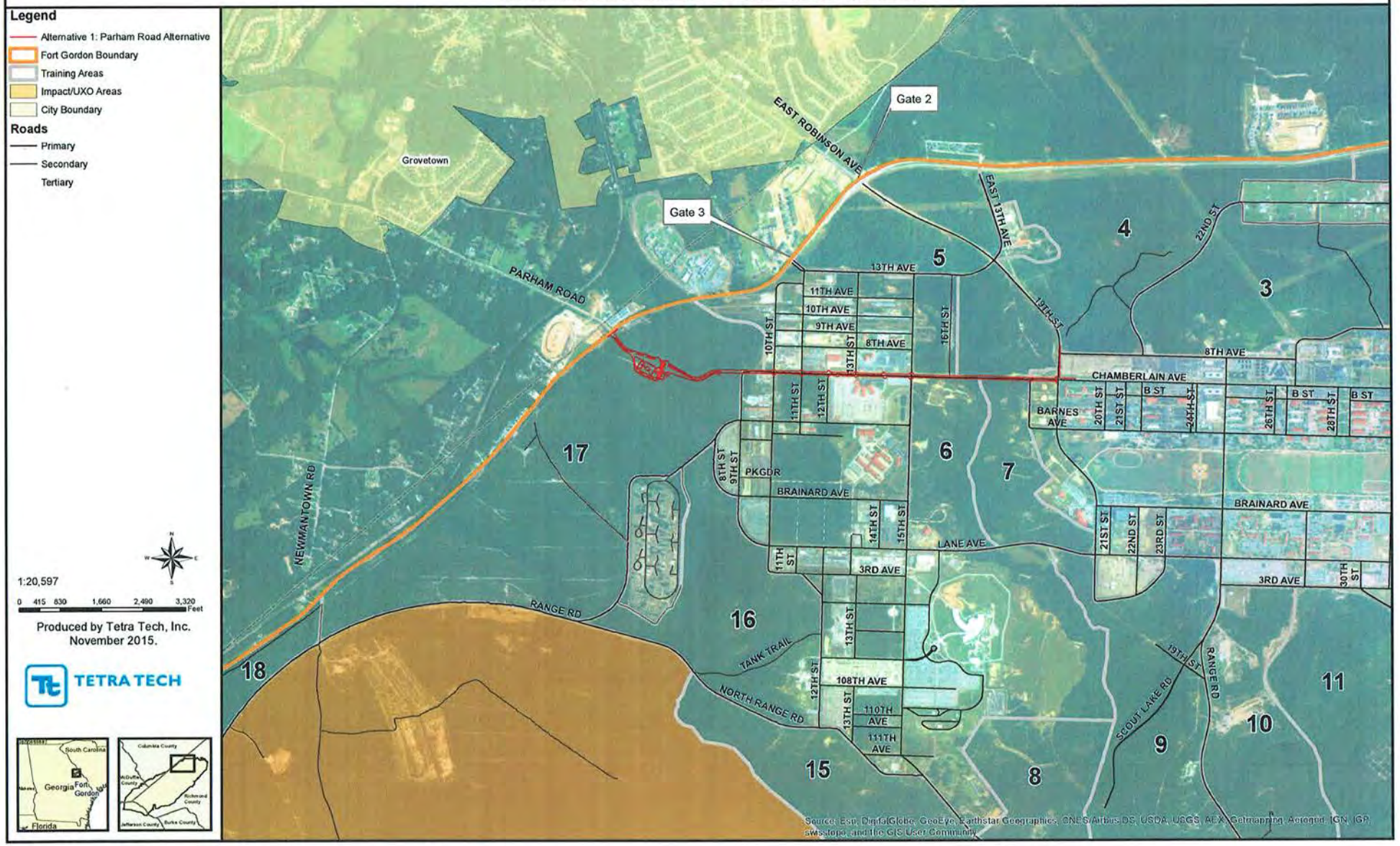
Sincerely,

John L. Ramey
Director of Public Works

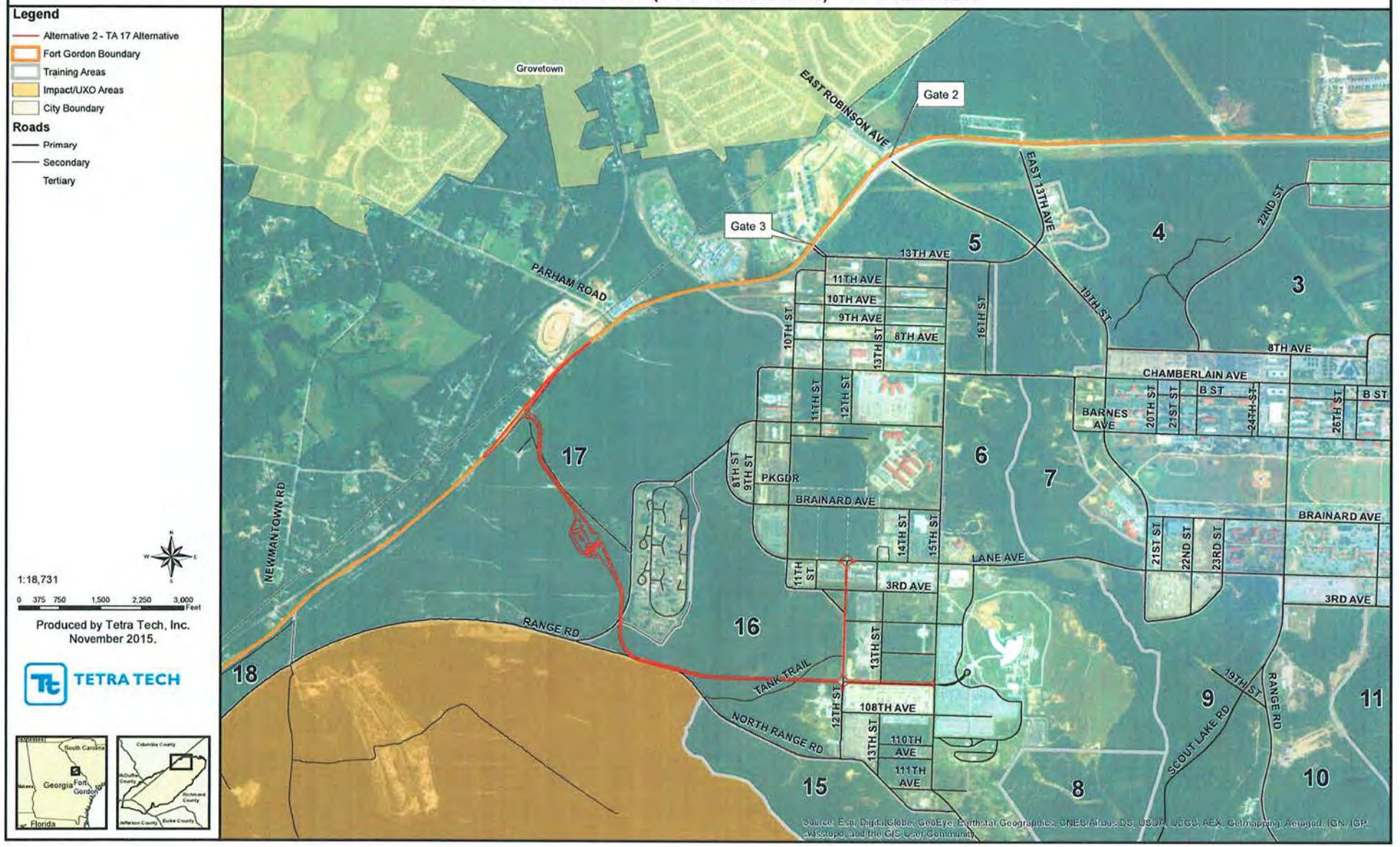
Enclosures

1. Alternative 1 Parham Road Alternative
2. Alternative 2 (Preferred Alternative) Training Area 17 Alternative
3. Alternative 3 Newmantown Road Alternative
4. List of Persons Contacted

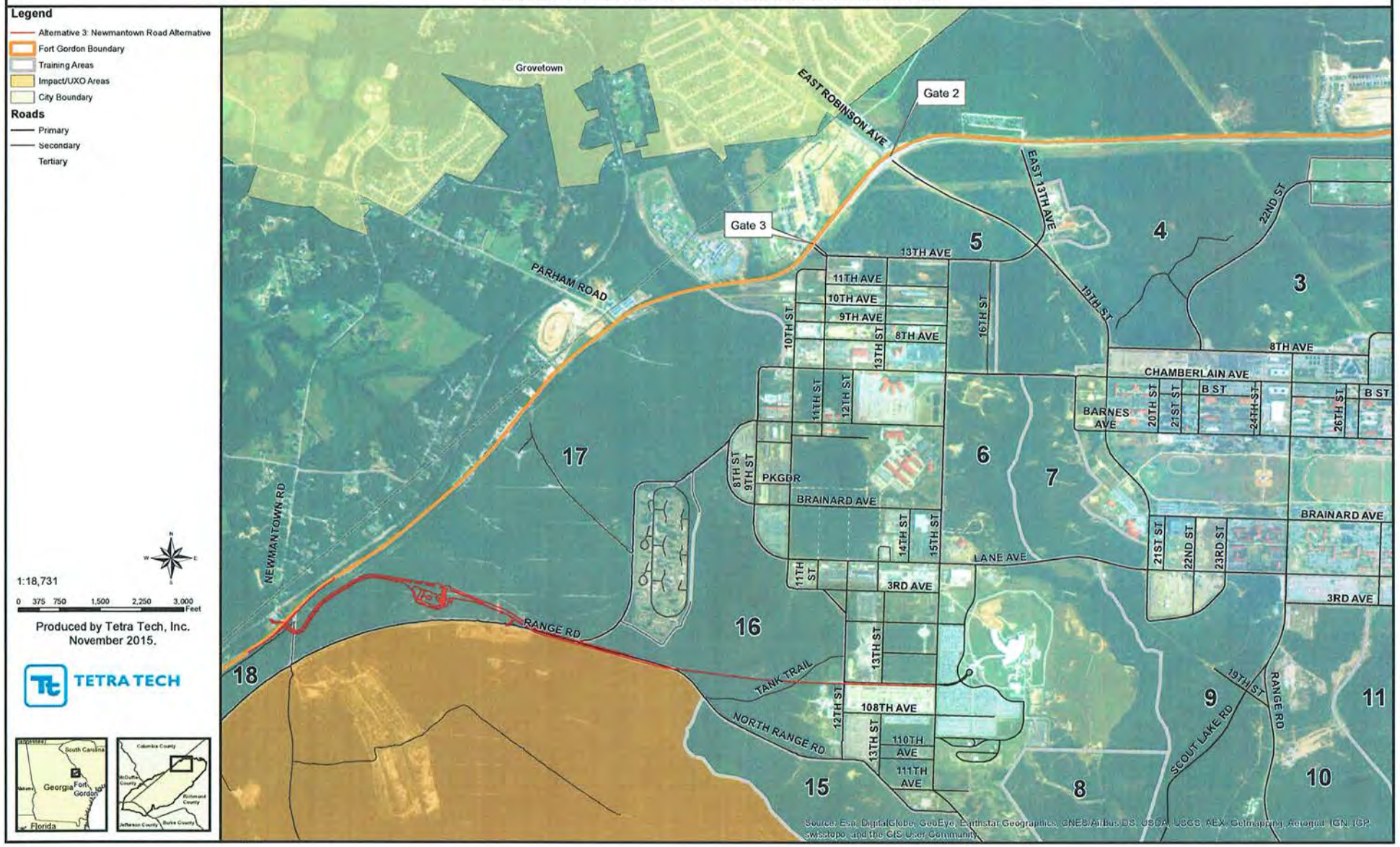
Enclosure 1: Alternative 1 - Parham Road Alternative



Enclosure 2: Alternative 2 (Preferred Alternative) - TA 17 Alternative



Enclosure 3: Alternative 3 - Newmantown Road Alternative



Enclosure 4
Scoping Mailing List
Environmental Assessment
Construction and Operation of a New Access Control Point, Fort Gordon, Georgia

State and Federal Agencies

U.S. Fish and Wildlife Service
Ecological Services Office
ATTN: Ms. Debbie Harris
105 Westpark Drive, Suite D
Athens, GA 30606

Dr. David Crass, Director
Historic Preservation Office
254 Washington Street, SW
Ground Level
Atlanta, Georgia 30334-9007

Georgia Department of Natural Resources
ATTN: Katrina Morris
Environmental Review Coordinator
2065 U.S. Highway 278 SE
Social Circle, GA 30025-4743

U.S. Environmental Protection Agency
Heinz J. Mueller, Chief
Atlanta Federal Center
61 Forsyth Street
Atlanta, GA 30303-8960

Georgia Department of Natural Resources
Wildlife Resources Division
ATTN: Lee Taylor
142 Bob Kirk Road, NW
Thomson, GA 30824

U.S. Army Corps of Engineers
ATTN: CESAS-OP-F
100 W. Oglethorpe Avenue
Savannah, GA 31401-3640

Georgia Department of Community Affairs
60 Executive Park South, NE
Atlanta, GA 30329

Georgia Department of Transportation
One Georgia Center
600 West Peachtree NW
Atlanta, GA 30308

Regional and Local Offices

Brier Creek Soil and Water Conservation District
151 Langston Chapel Road
Statesboro, GA 30459

CSRA Regional Commission
3626 Walton Way Extension
Suite 300
Augusta, GA 30909

Region II Georgia Soil and Water Conservation District (McDuffie and Columbia Counties)
4310 Lexington Road
Athens, GA 30603

George Patty, Director
Augusta-Richmond County Planning and Development Department
535 Telfair Street
Augusta, GA 30901

Lillian Easterlin, Executive Director
Jefferson County Chamber of Commerce
P.O. Box 630
302 East Broad Street
Louisville, GA 30434

Department of Planning
Columbia County Government Center
630 Ronald Reagan Drive
Building A, West Wing
P.O. Box 498
Evans, GA 30809

McDuffie County Planning Commission
City/County Government Complex
210 Railroad Street
Thomson, GA 30824

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
HISTORIC PRESERVATION DIVISION

MARK WILLIAMS
COMMISSIONER

DR. DAVID CRASS
DIVISION DIRECTOR

January 14, 2016

Robert Drumm
Cultural Resources Manager
Office of the Environmental Division
307 Chamberlain Avenue
Fort Gordon, Georgia 30905-5730

RE: Fort Gordon: Construct Entrance Gate, Demolish Bridge, US 78/SR 278
Richmond County, Georgia
HP-151228-013

Dear Mr. Drumm:

The Historic Preservation Division (HPD) has reviewed the information submitted concerning the above referenced project. Our comments are offered to assist the US Department of the Army (Army) and Fort Gordon in complying with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA).

The subject project consists of constructing a new entrance gate, which requires the widening of a section of US 78/SR 278 and the demolition of the Edge Moor Railroad Bridge on the west side of Fort Gordon. Based on the information provided, HPD concurs that the Edge Moor Railroad Bridge is eligible for listing in the National Register of Historic Places (NRHP) and within the proposed project's area of potential effect (APE). Additionally, HPD concurs that the subject project constitutes an **adverse effect** to historic properties located within the proposed project's APE, as defined in 36 CFR Part 800.5(a)(2).

When an adverse effect to a historic property is found, the federal agency must notify the Advisory Council on Historic Preservation and consult with the State Historic Preservation Officer on ways to avoid or reduce adverse effects to historic properties. HPD would like to make it clear that this determination of an adverse effect is not the end of the consultation process. HPD should be given the opportunity to review and comment on alternate approaches, as they become available, prior to proceeding with the work, as part of a selection process to choose an appropriate plan that will conform to a more favorable effects assessment. We would like to work with the Army and Fort Gordon in finding ways to avoid, minimize or mitigate this adverse effect. Should it be determined through consultation that avoidance or minimization is not possible, HPD concurs with the mitigation proposed, including moving the bridge and installing a plaque which discusses the bridge's history.

We look forward to discussing these options with you and working with you as this project progresses. Please refer to project number **HP-151228-013** in any future correspondence regarding this project. If we may be of further assistance, please do not hesitate to contact Jennifer Dixon, Environmental Review Program Manager, at jennifer.dixon@dnr.ga.gov or (770) 389-7851.

V/r,

Dr. David Crass
Division Director
Deputy State Historic Preservation Officer

DCC/jad

JEWETT CENTER FOR HISTORIC PRESERVATION
2610 GA HWY 155, SW | STOCKBRIDGE, GA 30281
770.389.7844 | FAX 770.389.7878 | WWW.GEORGIASHPO.ORG

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT GORDON
307 CHAMBERLAIN AVENUE
FORT GORDON, GEORGIA 30905-5730

REPLY TO
ATTENTION OF:

22 January 2016

Office of the Environmental Division Chief

Dr. David Crass, Director
DNR Historic Preservation Division
Mary Gregory Jewett Center for Historic
Preservation and Archaeology
2610 GA Hwy 155, SW
Stockbridge, GA 30281

Dear Dr. Crass:

This is in response to the request for additional information for alternatives considered to avoid or minimize adverse effects related to project HP-151228-013.

Enclosed is the Description of Proposed Action and Alternatives (DOPAA) for the new Fort Gordon gate project. This document covers the various alternatives explored for where the new gate could be placed and why two of these alternatives have been dismissed. Though the outcome for the Edge Moor Bridge would be the same for Alternatives 1, 2, and 3, the Environmental Assessement for this project will only discuss the Training Area 17 location (Alternative 2) and the no action alternative. So those will be the only options discussed in this response letter.

The placement of the new gate at Training Area 17 will involve the widening of a two-lane section US 78/ SR 278, where the Edge Moor Bridge current spans, completing a connection between two existing four-lane section of this road. The Edge Moor Bridge will be removed in order to complete the road widening. The two optional outcomes for the bridge, under this alternative, will be either demolition and scrap recyclying or the relocation of it to a new nature trail within Columbia County.

With regard to the no action alternative, the bridge will remain in its current location for the forseable future. However, the railroad system within Fort Gordon has not been in use for more than forty years and in 2008 the track and rails were removed from the bridge because of their deteriation (HP-081230-001). As the bridge is and will not be used or maintained it will continue to deteriorate until the decision is made to demolish it.

The only long term alternative to minimize the adverse affects to the Edge Moore Bridge is its relocation and continued use at Columbia County's new nature trail. The Columbia County Planning Office has expressed an enthusiastic interest in the bridge and Fort Gordon is working with them to encourage this moving forward.

Should you have any further questions or comments on this or any other matter, your point of contact is Mr. Robert Drumm, Cultural Resource Manager, telephone: (706) 791-6374, e-mail: robert.l.drumm6.civ@mail.mil.

Sincerely,

Robert Drumm
Cultural Resources Manager
Directorate of Public Works

Enclosure

From:	Drumm, Robert L CIV (US)
To:	Dixon, Jennifer; Lewis, Ruth R CTR (US)
Subject:	RE: Ft Gordon: Gate Projects, Richmond Co, HP 151228-013/HP-151117-002
Date:	Friday, March 04, 2016 3:16:48 PM
Attachments:	Railhead.pdf Gate 6_additional_info.docx

Ms. Dixon

Attached is some additional info on the Railroad Bridge and new gate project.

Rob

Robert Drumm
Chief, Environmental Division
Fort Gordon, DPW
706-791-6374
robert.l.drumm6.civ@mail.mil

-----Original Message-----
From: Drumm, Robert L CIV (US)
Sent: Wednesday, March 02, 2016 5:07 PM
To: 'Dixon, Jennifer' <Jennifer.Dixon@dnr.ga.gov>; Lewis, Ruth R CTR (US) <ruth.r.lewis8.ctr@mail.mil>
Subject: RE: [Non-DoD Source] Ft Gordon: Gate and Signal School Projects, Richmond Co, HP 151228-013/HP-151117-002

Ms. Dixon,

Below is some additional information in response to the signal school project. I should have the additional Gate info next week.

The Fort Gordon cantonment is managed under a central area development plan. This plan helps keep the "city" of Fort Gordon organized into functional areas of operation. Because some activates are incompatible, like industrial and motorpool activities and family housing, they are kept separate. Likewise due to similarity some missions and activities are grouped together, like housing and the elementary and middle schools. This master plan also helps the Army comply with several regulations. For example the area listed as AIT (Advanced Individual Training) on the map are barrack areas where student solders live while attending class in the Cyber\Signal school. Because these Soldiers are still considered trainees, they cannot be housed with permanent party Soldiers. So even though the area north and south of Barton field both contain barracks for Soldiers to live in as shown on page 2 of the included map, AIT Soldiers MUST be housed separately per Army regulations. The AIT student Soldiers also have many other different rules, they are not free to leave post without permission, they cannot have cars, etc. Whereas the permanent party Soldiers south of Barton field basically work a 9-5 job and go wherever they want when off duty.

In other areas of the installation because of the collaborative nature of several of the military Intelligence and cyber mission's active duty missions they are co-located in areas on the installation. Same with industrial activities in same area, medical and hospital activities in one area etc.

Below is some additional information that we hope provides the rational for how the project developed.

Consideration moving the new Cyber campus to another location on Fort Gordon and utilizing the Signal Campus for another use (avoid adverse effect):

. The Cyber Campus needs to be within easy walking distance from where the Cyber/Signal students are housed (see map) and the Cyber Campus requires more than a million square feet of space.

. The only other space large enough to fulfill these two requirements is by placing the new campus on Barton Field. Barton Field is used for Chain of Command ceremonies, annual events such as the Month of the Military Child, Octoberfest, and 4th of July Celebration, and is used daily for morning Physical Training. There is no other location to relocate these uses, thus Barton Field is not usable as the location of the Cyber Campus.

. There is not another mission or collection of missions on Fort Gordon large enough to occupy all the existing Signal Campus buildings.

Consideration of Cyber School requirements versus existing school complex:

. Operational Network and Data Center with Top Secret and Secure Compartmented Information (TS/SCI) capability.

o This facility cannot be placed into the existing school buildings as the technology and security requirements cannot be retrofitted

. Sensitive Compartmented Information Facility.

o The needs of this requirement are 139k sq ft. The current facilities are not large enough to accommodate this within one building. The logistics of having the SCIF in two facilities requires the repeated security vetting when moving between buildings. Also current spacing of buildings have them too far apart to make connecting several together a feasible option.

. The technological needs for Cyber training are significant

o The existing facilities were built in an era prior to computer usage. The IT, electrical infrastructure, and HVAC would all need to be completely replaced in order to bring the buildings up to Cyber training requirements.

. Cyber classes are done on a small scale involving only 12-20 students and require a specific set-up.

o Most of the renovations done-to-date in the individual classrooms has been piecemeal based on individual training requirements. All the classrooms would need to be completed renovated to fulfill the overarching Cyber training modules.

Consideration of designing the new mission/Cyber campus more sensitively to the historic resources (Minimize adverse effect):

. Construction of only the SCIF facility and Data Center and demolition of matching square footage, within the Signal School, per Army regulations. This would reduce the amount of demolition required.

. Leaving the remaining buildings would require their renovation (stripped back to the building shell) to meet Cyber training requirements.

o Major buildings systems, such as electrical, HVAC, and data, would need to be replaced.

o Classrooms would need to be renovated and reconfigured.

o Lead paint and asbestos abatement.

o New roofs on buildings that still require it

o New windows (in-kind) to increase energy efficiency

o Elevators and bathroom renovations for ADA, as appropriate
. As partially reflected in the figure on the second to last page of the last letter, the cost of renovating these buildings are incredibly costly and are just not low enough to justify renovation over new construction.

Please let us know if this answers your questions.

Rob

Robert Drumm
Chief, Environmental Division
Fort Gordon, DPW
706-791-6374
robert.l.drumm6.civ@mail.mil

-----Original Message-----
From: Dixon, Jennifer [mailto:Jennifer.Dixon@dnr.ga.gov]
Sent: Monday, February 15, 2016 8:52 AM
To: Lewis, Ruth R CTR (US) <ruth.r.lewis8.ctr@mail.mil>
Cc: Drumm, Robert L CIV (US) <robert.l.drumm6.civ@mail.mil>
Subject: [Non-DoD Source] Ft Gordon: Gate and Signal School Projects, Richmond Co, HP 151228-013/HP-151117-002

Morning!

I had some additional conversations with fellow reviewers to see if there was anything else I could tell you all to help you through this part of the process. I think the main issue is utilizing a separate process (NEPA) to show alternatives to a project rather than showing alternatives to the effects of the project. The intent is to consider alternatives to minimize the impact of the project on historic resources, instead of providing alternatives considered in selecting the preferred project alternative. What was presented appears as if minimizing/avoiding effects to historic resources was more of a last resort rather than part of the planning process from the beginning.

For the Gate project:
For our purposes, the gate location alternatives previously presented should be lumped together as an alternative to determine if different gate locations/routes would make a difference with the Adverse Effect to the

bridge (which, as already determined, would not, as all alternatives require the demolition of the bridge), along with considerations such as modifying the existing gates and associated ACP/VCC to accommodate queuing that wouldn't backup onto feeder highways and realignment of the route in the vicinity to allow the bridge to remain (such as a bypass of the bridge area or making the portion under the bridge one-way with the other looping around, along the lines of what was already suggested). In this context, the No Action Alternative should also be reworked.

For the Signal School:
These alternatives should focus on a campus-wide look at other alternatives that would either allow all Signal School buildings to be kept (ie. put the new mission/school elsewhere on campus) or at the least, more than what is currently proposed (ie. design the new mission/school more sensitively to the historic resource). Additionally, the programmatic requirements needed for the new mission/school should be outlined to show what rehab or new construction/additions would need to fit. This should then be compared to what exists within the historic resource and how it could/could not fit within the resource, or where certain uses could work with some minor modifications/additions. Keep in mind that aspects such as lead or asbestos are not reasons for demolition.

Hopefully this will help you with the process. Please let me know if you have any additional questions.

Jennifer Dixon, MHP, NCIDQ
LEED Green Associate

Program Manager
Environmental Review & Preservation Planning Historic Preservation Division
Georgia Department of Natural Resources

Jewett Center for Historic Preservation
2610 GA Hwy 155, SW | Stockbridge, GA 30281 P 770.389.7851 |
Caution-www.georgiashpo.org

-----Original Message-----
From: Lewis, Ruth R CTR (US) [Caution-mailto:ruth.r.lewis8.ctr@mail.mil]
Sent: Thursday, February 11, 2016 1:01 PM
To: Dixon, Jennifer
Cc: Drumm, Robert L CIV (US)
Subject: RE: [Non-DoD Source] Re: Ft Gordon: Construct Entrance Gate, Demo Bridge, US 78/SR 278, Richmond Co, HP 151228-013 (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

Jennifer,

The road widening impact onto Fort Gordon, along with the APE of the new

gate, will be covered within the Gate 6 EA. Part of it will be in the already disturbed Cantonment Area and part of it is in an area that was surveyed during the 1996 Phase I of 682 Acres Survey and during the FY93 Phase I Timber Harvest Survey. And there were no sites identified within these other project impact areas. If we need to send a letter stating that we are dealing with the Section 106 on the no adverse effect portions of the project through NEPA, we can do that.

Really we decided to start working through Section 106 with the bridge, as it is going to be more involved and drawn out, in order to accommodate Columbia County's needs and timelines. Their desire to take on the burden of this bridge is the only thing keeping it from ending up in the scrap pile.

How does 2:00 tomorrow sound?

Renee Lewis
Cultural Resource Specialist
Tetra Tech, Inc/ on-site contractor
Fort Gordon, GA
706.791.2403

-----Original Message-----
From: Dixon, Jennifer [Caution-mailto:Jennifer.Dixon@dnr.ga.gov]
Sent: Thursday, February 11, 2016 11:16 AM
To: Lewis, Ruth R CTR (US) <ruth.r.lewis8.ctr@mail.mil>
Cc: Drumm, Robert L CIV (US) <robert.l.drumm6.civ@mail.mil>
Subject: RE: [Non-DoD Source] Re: Ft Gordon: Construct Entrance Gate, Demo Bridge, US 78/SR 278, Richmond Co, HP 151228-013 (UNCLASSIFIED)

Sure, I should be available this afternoon and tomorrow afternoon, until 3:30 both days. Also noticed as we were looking over this submittal that it appears we have not received any 106 documentation as to the road itself (ie. the road being constructed within Fort Gordon to approach US 78/SR 278). Will we be seeing that or is it exempt or something along those lines?

Let me know when you want to chat!

Jennifer Dixon, MHP, NCIDQ
LEED Green Associate

Program Manager
Environmental Review & Preservation Planning Historic Preservation Division
Georgia Department of Natural Resources

Jewett Center for Historic Preservation

2610 GA Hwy 155, SW | Stockbridge, GA 30281 P 770.389.7851 |
Caution-Caution-www.georgiashpo.org

-----Original Message-----
From: Lewis, Ruth R CTR (US)
[Caution-Caution-mailto:ruth.r.lewis8.ctr@mail.mil]
Sent: Thursday, February 11, 2016 8:47 AM
To: Dixon, Jennifer
Cc: Drumm, Robert L CIV (US)
Subject: FW: [Non-DoD Source] Re: Ft Gordon: Construct Entrance Gate, Demo Bridge, US 78/SR 278, Richmond Co, HP 151228-013 (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

Jennifer,

Rob and I were wondering if we would be able to call you and discuss this project on Thursday or Friday next week. Let us know if one of those days would work for you.

Thanks!

Renee Lewis
Cultural Resource Specialist
Tetra Tech, Inc/ on-site contractor
Fort Gordon, GA
706.791.2403

-----Original Message-----
From: Drumm, Robert L CIV (US)
Sent: Wednesday, February 10, 2016 5:31 PM
To: Lewis, Ruth R CTR (US) <ruth.r.lewis8.ctr@mail.mil>
Subject: Fwd: [Non-DoD Source] Re: Ft Gordon: Construct Entrance Gate, Demo Bridge, US 78/SR 278, Richmond Co, HP 151228-013

Sent from my iPhone

Begin forwarded message:

From: "Dixon, Jennifer" <Jennifer.Dixon@dnr.ga.gov <Caution-Caution-mailto:Jennifer.Dixon@dnr.ga.gov> >
Date: February 10, 2016 at 3:52:05 PM EST
To: "robert.l.drumm6.civ@mail.mil <Caution-Caution-mailto:robert.l.drumm6.civ@mail.mil> " <robert.l.drumm6.civ@mail.mil

<Caution-Caution-mailto:robert.l.drumm6.civ@mail.mil> >
Subject: [Non-DoD Source] Re: Ft Gordon: Construct Entrance Gate, Demo Bridge, US 78/SR 278, Richmond Co, HP 151228-013

Oh, and of course a cost analysis for maintaining the bridge. Sorry, should have said that!

Jennifer Dixon, MHP, NCIDQ
LEED Green Associate

Program Manager, Environmental Review & Preservation Planning
Historic Preservation Division, Georgia Department of Natural Resources

Jewett Center for Historic Preservation
2610 GA Hwy 155, SW
Stockbridge, GA 30281
P 770.389.7851 | Caution-Caution-Caution-www.georgiashpo.org <Caution-Caution-http://caution-Caution-Caution-www.georgiashpo.org> < Caution-Caution-Caution-http://www.georgiashpo.org >

"We do not want to destroy unnecessarily what men spent so much time and care and skill in making...[for] these examples of craftsmanship tell us so much about our ancestors.... If these things are lost or broken or destroyed, we lose a valuable part of our knowledge about our forefathers. No age lives entirely alone; every civilization is formed not merely by its own achievements but by what it has inherited from the past. If these things are destroyed, we have lost a part of our past, and we shall be poorer for it." -British Monuments Man, Ronald Balfour, 1944

From: Dixon, Jennifer
Sent: Wednesday, February 10, 2016 3:50 PM
To: robert.l.drumm6.civ@mail.mil <Caution-Caution-mailto:robert.l.drumm6.civ@mail.mil>
Subject: Ft Gordon: Construct Entrance Gate, Demo Bridge, US 78/SR 278, Richmond Co, HP 151228-013

Robert,

Thank you for the additional information regarding the alternatives considered. While we understand the need/purpose of the project, and that all the alternatives considered (except the no build) would include the same fate for the bridge, in order to move to mitigation, HPD would like some additional options explored for avoidance or minimization. In particular, what about modifying the road widening plan in any way that would allow the bridge to remain in place? It is hard to tell from the photos provided, but maybe two lanes in one direction and add the two lanes in the other direction on the other side of the bent? Just a suggestion, but this at least gives you an idea of the sort of avoid/minimize we are looking for at this point.

Please let me know if you have any questions. Thank you,

Jennifer Dixon, MHP, NCIDQ
LEED Green Associate

Program Manager, Environmental Review & Preservation Planning
Historic Preservation Division, Georgia Department of Natural Resources

Jewett Center for Historic Preservation
2610 GA Hwy 155, SW
Stockbridge, GA 30281
P 770.389.7851 | Caution-Caution-Caution-www.georgiashpo.org <Caution-Caution-http://caution-Caution-Caution-www.georgiashpo.org> < Caution-Caution-Caution-http://www.georgiashpo.org >

"We do not want to destroy unnecessarily what men spent so much time and care and skill in making...[for] these examples of craftsmanship tell us so much about our ancestors.... If these things are lost or broken or destroyed, we lose a valuable part of our knowledge about our forefathers. No age lives entirely alone; every civilization is formed not merely by its own achievements but by what it has inherited from the past. If these things are destroyed, we have lost a part of our past, and we shall be poorer for it." -British Monuments Man, Ronald Balfour, 1944

CLASSIFICATION: UNCLASSIFIED
CLASSIFICATION: UNCLASSIFIED

SWMU 057 Railhead and Edge Moor Bridge Locations Fort Gordon, US Army

Legend

- County Boundaries
- Installation Boundary
- Training Areas
- US/State Highways

Roads

- Primary
- Secondary

Firebreaks

- open
- closed

- Proposed Gate/Road Widening
- Buildings
- Wetlands
- Stream/Creek
- Lake/Pond
- Cemetery

Environmental Remediation Sites

- Active
- Closed

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Produced by the Fort Gordon Env. Div.
February 2015.

FORT GORDON

Gate 6

Background

The overall need for the new gate and access control point is a fundamental change in the core mission of Fort Gordon, and where the core mission is located on the installation. Ten years ago the primary mission of Fort Gordon was the Signal school advanced training mission which taught new Soldiers how to operate communications equipment. We also had military intelligence which included a small National Security Agency (NSA) mission but these missions were a small percentage of the overall Fort Gordon population. The Signal School is located on the eastern end of the cantonment along with Eisenhower Army Hospital. These were the destinations for most of the people coming from off post and using Gate 1 as the main entrance worked well.

The primary missions for Fort Gordon began to change in 2006. Prior to 2006, the headquarters of the NSA and most of its operations were located in Maryland and the Washington DC area. The government began to decentralize the mission of the NSA and create large regional centers spread across the US with Maryland, Hawaii, Texas, and Georgia (Fort Gordon) all getting large regional NSA facilities and staffs. By 2010, the NSA was operational on Fort Gordon. In 2011, the Army realized the growing threat of cyber-attacks warranted the establishment of a new command. Based on the similarities in mission, the new Army Cyber Command (ARCYBER) would be co-located with the NSA at either the Maryland location or the Fort Gordon NSA facility. In 2013, the Army decided that ARCYBER would be established on Fort Gordon. In addition to the thousands of new Soldiers this new command would bring, it would bring a three star general who would out rank the current Signal School two star general, making ARCYBER the new Commander of the Installation and the primary mission. Subsequent to this decision, cyber and intelligence military units from all branches (Army, Navy, Air Force and Marines) are being relocated to Fort Gordon because military units with similar missions perform better when located together in the same area. With these changes, it is estimated that by 2025, 75% of the work force will be either Cyber, NSA or military intelligence. The remaining 25% will be the original Signal School (now Cyber School) mission. These new, large, missions are located on the western edge of the cantonment; which has affected where these thousands of new employees are choosing to live. This has not only directly impacted the need for a new gate but also where the gate should be located.

Fort Gordon occupies four counties: Richmond, Columbia, McDuffie and Jefferson. The majority of the installation and most of the cantonment is in Richmond County. The new jobs that are being added (NSA and ARCYBER) would be considered upper middle class and make above average salaries compared to the average income of the area. This population, when looking to buy homes, considers quality of schools, safety, amount and quality of amenities etc. Of the four counties, Columbia County is the more affluent county and considered to have better schools, lower crime, and better amenities. The majority of this population growth has been and is continuing to occur in Columbia County. Columbia County is on the north side of Fort Gordon and west of the current Main Gate 1. In the 2000-2010 US Census, Columbia County grew by 38.9% and was the 45th fastest growing county in the United States. During the same period, the cities of Grovetown and Harlem, both located in Columbia County, grew by 84.2% and 47% respectively. It is estimated that 65% or more of the new employees are choosing to live in Columbia County, which is north west of the current Main Gate 1. When this populations comes onto Fort Gordon, their place of work is on the western edge of the cantonment. The current Gate 2 is the

closest access point from where they live to where they need to go to work. This is why Gate 2 and the City of Grovetown, which is immediately north of Gate 2, are experiencing the greatest traffic problems.

Gate options

In developing alternatives for the new gate/access control point project, several options and locations were considered. The primary goal was to get the work force who live off post to the area where they work (NSA\ARCYBER area) as efficiently as possible.

Expand Gate 1: This gate is experiencing some traffic back up and issues, but they are mostly related to increased security requirements for getting on the installation and in traffic congestion on the installation. If this new work force enter Gate 1, they must travel completely across the cantonment from east to west to get to their place of work, the NSA\ARCYBER mission area. The on post road network is currently not developed to handle this volume of traffic, and in addition, new projects like the Signal\Cyber school renovation, will remove part of Chamberlain Avenue. This will increase safety for Soldiers walking to campus but will eliminate one of the major on post east/west roadways. There are major on post road upgrade projects that will be constructed over the next 5 years to correct on post traffic issues. Once they are complete, the volume at Gate 1 should be easily managed. There is a very long entrance and stacking distance which allows traffic backups, if they occur, to be on the installation and not blocking roadways off the installation. Additionally, this gate is connected directly to Interstate 20 which has an exit ramp that leads to the four lane Jimmy Dyess expressway that connects directly to Gate 1.

Expand Gate 5: This gate is located on the south east side of the cantonment and has not received any significant increase in traffic. It can easily handle the volume of traffic it receives.

Expand Gate 2: This gate has significant traffic backups and delays at both the morning and afternoon peak hours, effecting numerous miles of off post roadways in all directions. This is because of the reasons described above, significant increase in population taking the most direct route from home to their place of work (the NSA\ARCYBER area). There is an extremely short amount of stacking distance between Gate 2 and Gordon Highway/US 78, which causes the traffic to back up off of the installation. The delays are related to security requirements to get on post and the massive increase of traffic volume.

Improvements to Gate 2 were considered but were determined to be unfeasible for a number of reasons. There two primary reasons are as follows. The main thoroughfare through the City of Grovetown, Robinson Avenue, is a two lane road and cannot be easily widened. There are multiple private homes and businesses that line the sides Robinson Avenue through the City of Grovetown. To widen this road to four or more lanes, it would require the purchase and demolition of those homes and businesses to make room for the traffic. The City of Grovetown has grown by more than 84% in the last 15 years and it was not prepared with a traffic plan to handle what has occurred. The second reason why the gate cannot be easily expanded on the Fort Gordon side relates to physical security requirements of the Army and topography. The Army security regulations require an active barrier (a mechanism to physically block vehicle access) to be installed at entry gates. This is a net or bollards that pop up out of the roadway to stop a vehicle that is trying to crash the gate.

Included in the requirements are a minimum distance between the guard house and the barrier so it has time to deploy before a vehicle can get there when it is activated and the guard house must be able to see the installation boundary as well. There is a very large hill on the Gate 2 access road. The hill top is between the current guard house location and the active barrier. Moving the guard house further in on the installation causes problems by not allowing the minimum distance and by blocking the view to the installation boundary. The guard house could only be moved a few hundred feet and still meet the requirements of seeing both the barrier and installation boundary. This small increase in vehicle stacking distance would fail to help the traffic problems that are occurring outside of the gate during peak hours.

Create a new Gate (Gate 6)/Access Control Point: The most feasible solution was to create a new gate/access control point that would located to best serve where the off post population is, and most directly get them to where they need to go on post. In addition tied to the new primary mission, this new gate would be designed to become the new main gate for access to Fort Gordon. It would be designed to include a visitor access center and commercial vehicle delivery to the installation. Based on the location of population growth and the location of the new primary mission on Fort Gordon, it was determined by the Army, GA DOT, Columbia and Richmond counties, that it needed to be located on the north side of the installation and west of the current Gate 2 for the reasons mentioned above.

Options for Gate 6: The three potential options for the location of a new gate are discussed in the Environmental Assessment for the Gate 6/New ACP project. The long term goal will be an exit off of Interstate 20 connecting directly to the new gate, in addition to the east and west access provided by Gordon Highway/US 78.

In addition to the new gate, Gordon Highway needs to be expanded from two to four lanes to allow for increased traffic that may still come through Grovetown, or may come from the east past Gate 1 to the new main gate. The project is being funded and executed by two agencies. The Army will fund and construct the new gate and connect it to Gordon Highway and provide the land to Georgia DOT for widening Gordon Highway. The Georgia DOT will fund and construct the expansion of Gordon Highway.

Edge Moor Railroad bridge consideration: Building a new gate without increasing access to it will not relieve the traffic issues. So, the portion of Gordon Highway that crosses the Edge Moor Railroad bridge must be widened.

The land north of Gordon Highway is all in private ownership, or in the case at the bridge location, the land is owned by the Augusta Medical Prison. Based on cost and ease of land acquisition for GA DOT, the highway expansion will occur on Fort Gordon property south of the current Gordon Highway. The optimum location for two additional lanes on Gordon Highway is immediately adjacent to the existing two lanes. All of the land given for construction of right of way, road shoulder, road and median, would be lost from Fort Gordon's training land base and must be minimized. From a GA DOT maintenance perspective, one large road right of way is more easily maintained than two separated roadways.

Issues specifically with moving two lanes away from the rail road bridge to leave it in place

The Edge Moor bridge no longer has a useful purpose for the installation. The rail and bridge are not large enough to support the weight of a modern locomotive or train cars, and the Army no longer has

the need for rail service. Therefore, the rails and wood on the bridge have been removed for safety reasons, and much of the rail on the installation has been removed as well.

The Army has no use to repurpose the bridge in place. The number of access points onto the installation must have security, meet force protection requirements and be guarded. Due to limits in funding and manpower, Fort Gordon is very limited in the number of authorized access points. Gates 2 and 3 will be closed to provide the manpower to operate the new Main Gate 6. Due to these limitations, repurposing the bridge in place to provide access for something like a bike trail, for instance, is not feasible because that access would need the same protection and guarding as a vehicle access gate. Leaving the bridge in place is an increased risk to security. Additionally, the medical prison staff does not want people on the railroad right of way next to the prison property due to issues with items being thrown over the prison fence into the yard for inmates to retrieve.

Leave bridge in place and move road further in the installation

The bridge would be cut off from the installation and in the median of a state highway. The bridge would not be accessible from the prison side and would not be accessible from Fort Gordon property either. Maintenance would not be performed and the bridge will eventually be demolished when it becomes dangerous to the existing road underneath.

A more problematic issue with constructing the new road further on the interior to the installation is the rail head itself. Due to its past use and multiple small spills from locomotives and rail cars, sampling has confirmed the rail head is classified as a Solid Waste Management Unit (SWMU), and is under investigation for remedial clean up action in accordance with the Resource Conservation and Recovery Act and the Installation Restoration Program. Both the surface and sub soil are contaminated with heavy metals and the ground water contains Volatile Organic Compound contamination that must be remediated. In the attached map, crossing any area that is shaded green or red will greatly increase costs, will require disturbed soil to be tested and possibly disposed of as hazardous waste. Crossing this SWMU in the smallest footprint possible will require the least amount of coordination with State RCRA regulators and clean up. This most narrow point is the single rail that enters the bridge on the installation boundary. Moving a road further onto the installation will increase regulatory requirements, cause cleanup costs, and increase the amount of mission and training land lost to the installation.

For security of the installation, safety of the underlying roadway and minimal exposure to hazardous chemicals, the most feasible option is to remove the bridge and expand Gordon Highway as close to the installation boundary as possible. The Army does not have a location or need to repurpose the bridge. As previously mentioned, Columbia County does have a need and wishes to repurpose the bridge for their use.

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT GORDON
307 CHAMBERLAIN AVENUE
FORT GORDON, GEORGIA 30905-5730

REPLY TO
ATTENTION OF:

IMGO-PWE

January 15, 2016

McDuffie County Planning Commission
City/County Government Complex
210 Railroad Street
Thomson, GA 30824

Reference: Environmental Assessment for the Construction and Operation of a New Access Control Point, Fort Gordon, Georgia

Dear Sir/Madam:

The U.S. Army Garrison, Fort Gordon, Georgia, is preparing an Environmental Assessment (EA) to evaluate environmental and socioeconomic effects associated with the construction and operation of a new Access Control Point (ACP) at Fort Gordon, Georgia. The Proposed Action is to construct and operate a new ACP on Fort Gordon. The new access point is intended to reduce traffic congestion on roadways servicing the installation and provide a shorter, more-direct route to areas of Fort Gordon that are experiencing the greatest growth.

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Road/Gordon Highway intersection (Enclosure 2). The new access road would extend southeast into TA 16, turn east south of the Ammunition Supply Point (ASP) and run parallel to Range Road for approximately 900 feet. From there, it would continue east, cross the tank trail and connect to 107th Avenue at 12th Street.

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Inclusion of the No Action Alternative is prescribed by Council on Environmental Quality regulations. The No Action Alternative serves as a baseline against which the impacts of the action alternatives can be evaluated.

Fort Gordon looks forward to receiving any information and input you may have. We respectfully request that information be submitted no later than February 26, 2016 to be considered in the Draft EA. Your response should be sent to:

Mr. Robert Drumm
U.S. Army Garrison, Fort Gordon
Directorate of Public Works
IMGO-PWE, Bldg. 14500
Fort Gordon, GA 30905-5209

If you have any questions or require additional information, please do not hesitate to contact Mr. Robert Drumm of Fort Gordon's Environmental Division Office at (706) 791-6374.

Sincerely,

John L. Ramey
Director of Public Works

Enclosures

1. Alternative 1 Parham Road Alternative
2. Alternative 2 (Preferred Alternative) Training Area 17 Alternative
3. Alternative 3 Newmantown Road Alternative
4. List of Persons Contacted

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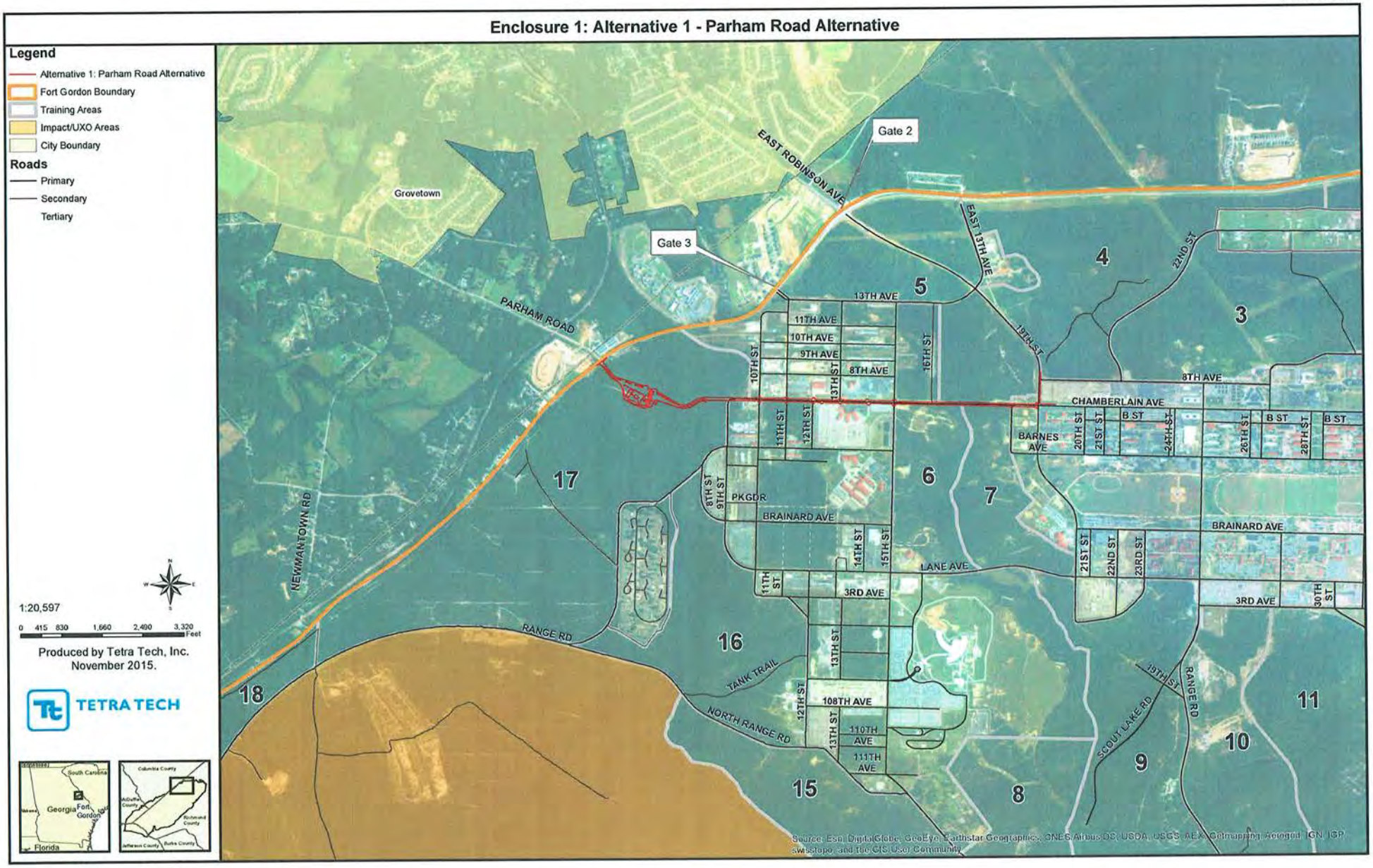
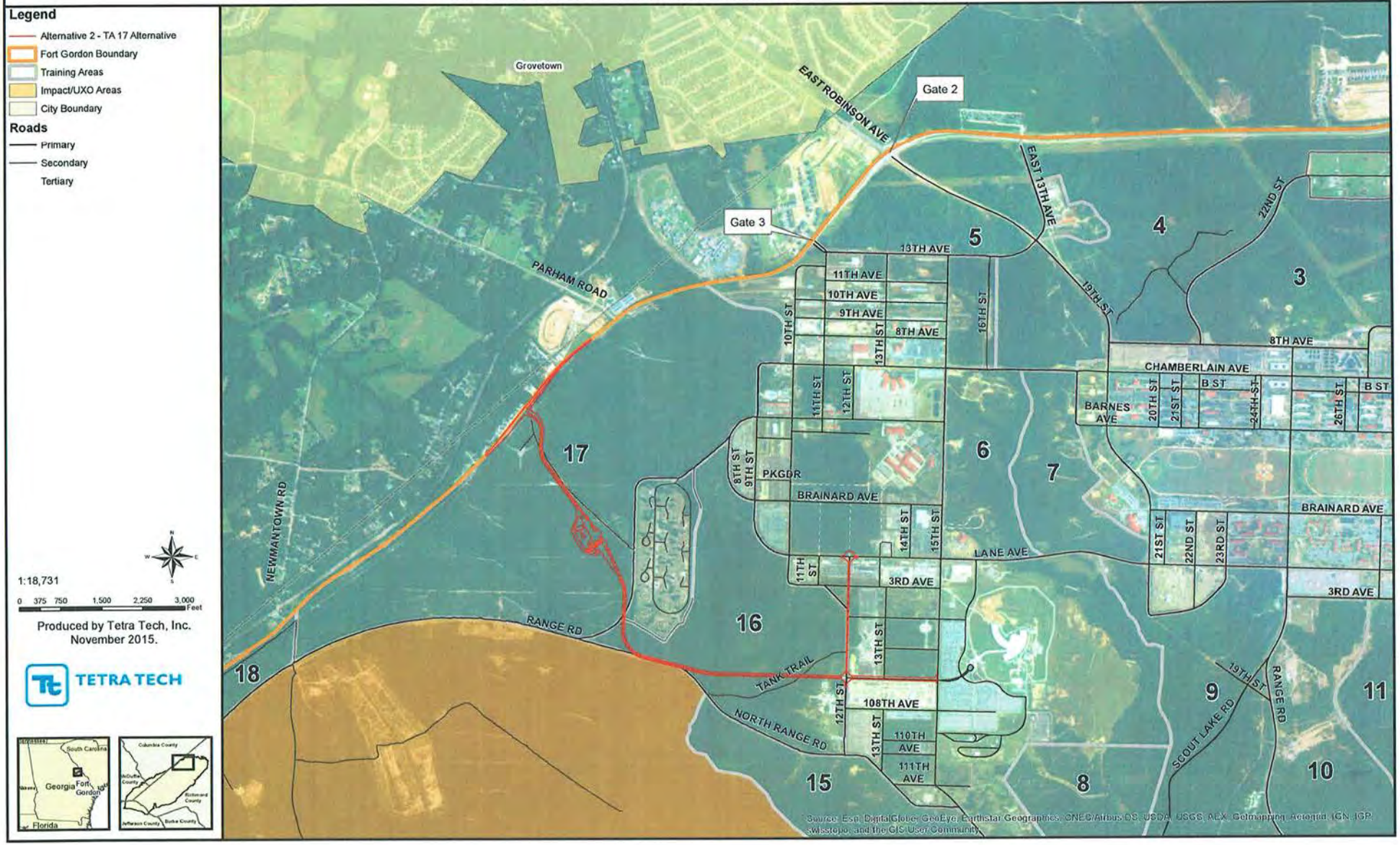
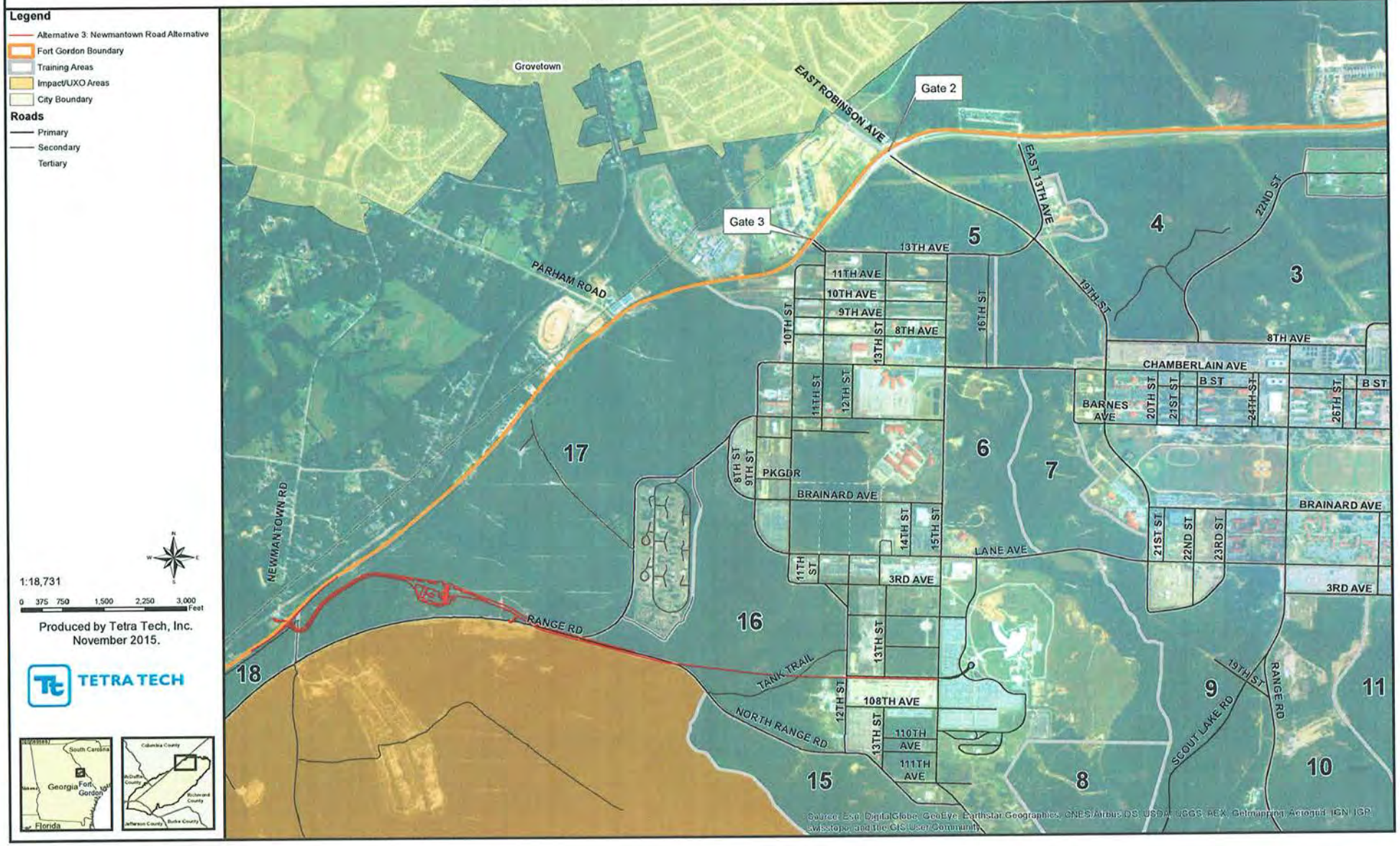


Enclosure 2: Alternative 2 (Preferred Alternative) - TA 17 Alternative



Enclosure 3: Alternative 3 - Newmantown Road Alternative



Enclosure 4
Scoping Mailing List
Environmental Assessment
Construction and Operation of a New Access Control Point, Fort Gordon, Georgia

State and Federal Agencies

U.S. Fish and Wildlife Service
Ecological Services Office
ATTN: Ms. Debbie Harris
105 Westpark Drive, Suite D
Athens, GA 30606

Dr. David Crass, Director
Historic Preservation Office
254 Washington Street, SW
Ground Level
Atlanta, Georgia 30334-9007

Georgia Department of Natural Resources
ATTN: Katrina Morris
Environmental Review Coordinator
2065 U.S. Highway 278 SE
Social Circle, GA 30025-4743

U.S. Environmental Protection Agency
Heinz J. Mueller, Chief
Atlanta Federal Center
61 Forsyth Street
Atlanta, GA 30303-8960

Georgia Department of Natural Resources
Wildlife Resources Division
ATTN: Lee Taylor
142 Bob Kirk Road, NW
Thomson, GA 30824

U.S. Army Corps of Engineers
ATTN: CESAS-OP-F
100 W. Oglethorpe Avenue
Savannah, GA 31401-3640

Georgia Department of Community Affairs
60 Executive Park South, NE
Atlanta, GA 30329

Georgia Department of Transportation
One Georgia Center
600 West Peachtree NW
Atlanta, GA 30308

Regional and Local Offices

Brier Creek Soil and Water Conservation District
151 Langston Chapel Road
Statesboro, GA 30459

CSRA Regional Commission
3626 Walton Way Extension
Suite 300
Augusta, GA 30909

Region II Georgia Soil and Water Conservation District (McDuffie and Columbia Counties)
4310 Lexington Road
Athens, GA 30603

George Patty, Director
Augusta-Richmond County Planning and Development Department
535 Telfair Street
Augusta, GA 30901

Lillian Easterlin, Executive Director
Jefferson County Chamber of Commerce
P.O. Box 630
302 East Broad Street
Louisville, GA 30434

Department of Planning
Columbia County Government Center
630 Ronald Reagan Drive
Building A, West Wing
P.O. Box 498
Evans, GA 30809

McDuffie County Planning Commission
City/County Government Complex
210 Railroad Street
Thomson, GA 30824

McDuffie County Planning Commission

Suite 1544, 210 Railroad Street, Thomson, Georgia 30824
(706) 595-5355 Fax (706) 595-4204

February 16, 2016

Mr. Robert Drumm
U.S. Army Garrison, Fort Gordon
Directorate of Public Works
IMGO-PWE, Bldg 14500
Fort Gordon, GA 30905-5209

Dear Mr. Drumm:

On behalf of the McDuffie County Planning Commission I would like to comment upon the January 15, 2016 correspondence referencing "Environmental Assessment for the Construction and Operation of a New Access Control Point, Fort Gordon, Georgia."

Review of the correspondence has been completed and there are no comments regarding the environmental aspects of the project.

Construction of a New Access Control Point will alleviate present congestion and should allow McDuffie County residents travelling to Fort Gordon and Augusta to complete their trips in a safer and quicker means.

Thank you for the opportunity to comment on this matter.

Sincerely,

David Jenkins

David Jenkins
Director

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT GORDON
307 CHAMBERLAIN AVENUE
FORT GORDON, GEORGIA 30905-5730

REPLY TO
ATTENTION OF:

IMGO-PWE

January 15, 2016

Department of Planning
Columbia County Government Center
630 Ronald Reagan Drive
Building A, West Wing
P.O. Box 498
Evans, GA 30809

Reference: Environmental Assessment for the Construction and Operation of a New Access Control Point, Fort Gordon, Georgia

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Fort Gordon looks forward to receiving any information and input you may have. We respectfully request that information be submitted no later than February 26, 2016 to be considered in the Draft EA. Your response should be sent to:

Mr. Robert Drumm
U.S. Army Garrison, Fort Gordon
Directorate of Public Works
IMGO-PWE, Bldg. 14500
Fort Gordon, GA 30905-5209

If you have any questions or require additional information, please do not hesitate to contact Mr. Robert Drumm of Fort Gordon's Environmental Division Office at (706) 791-6374.

Sincerely,

John L. Ramey
Director of Public Works

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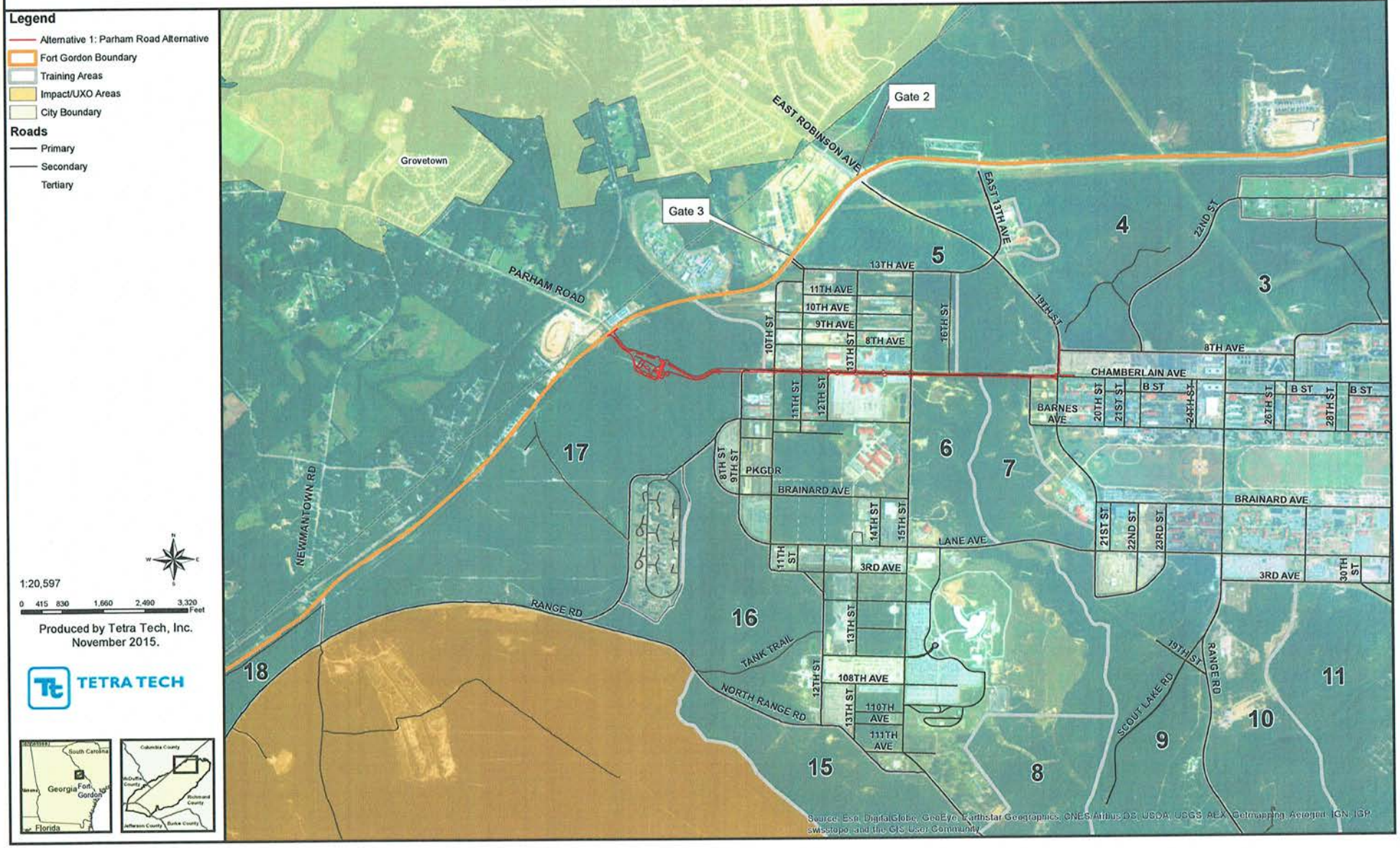

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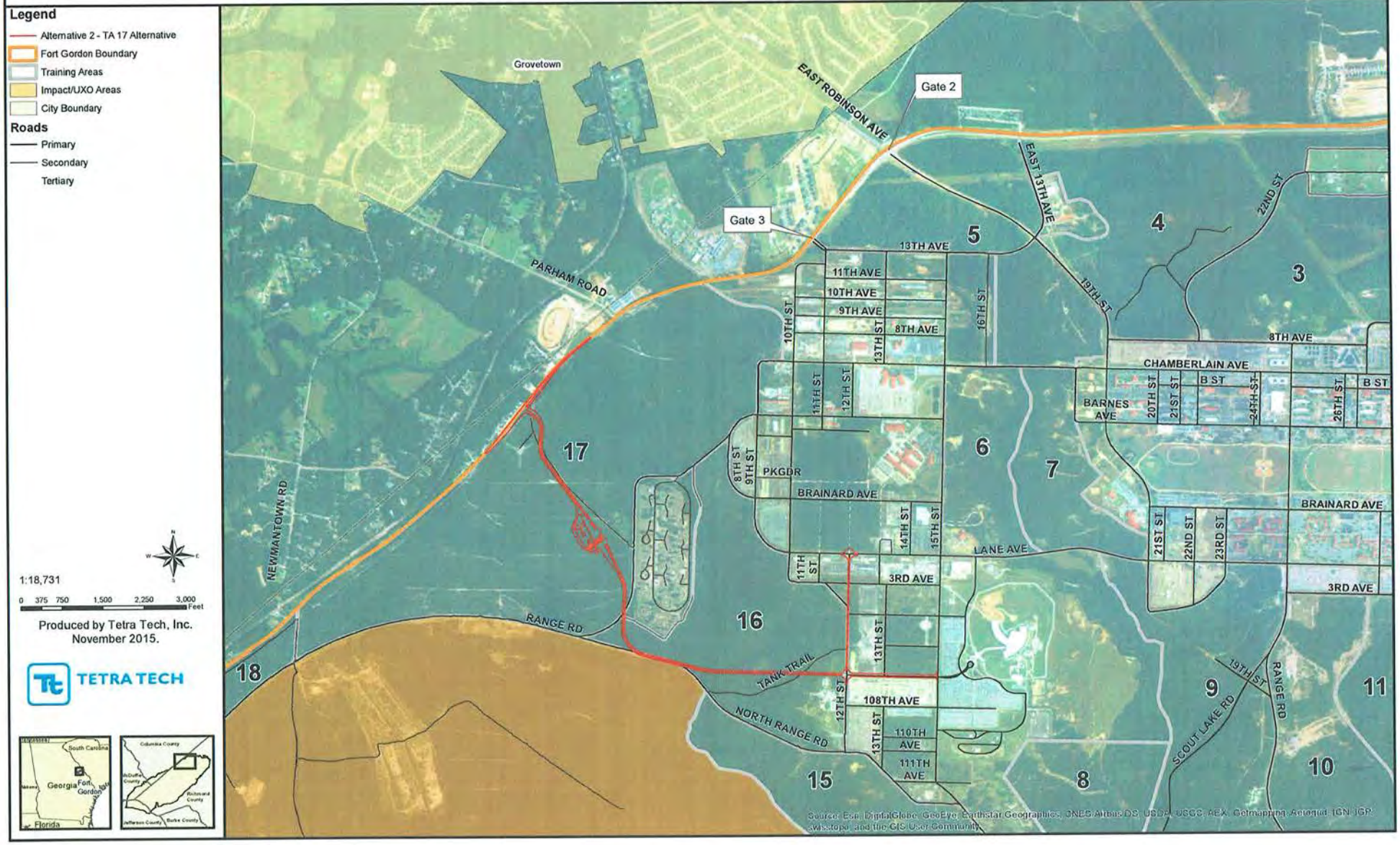

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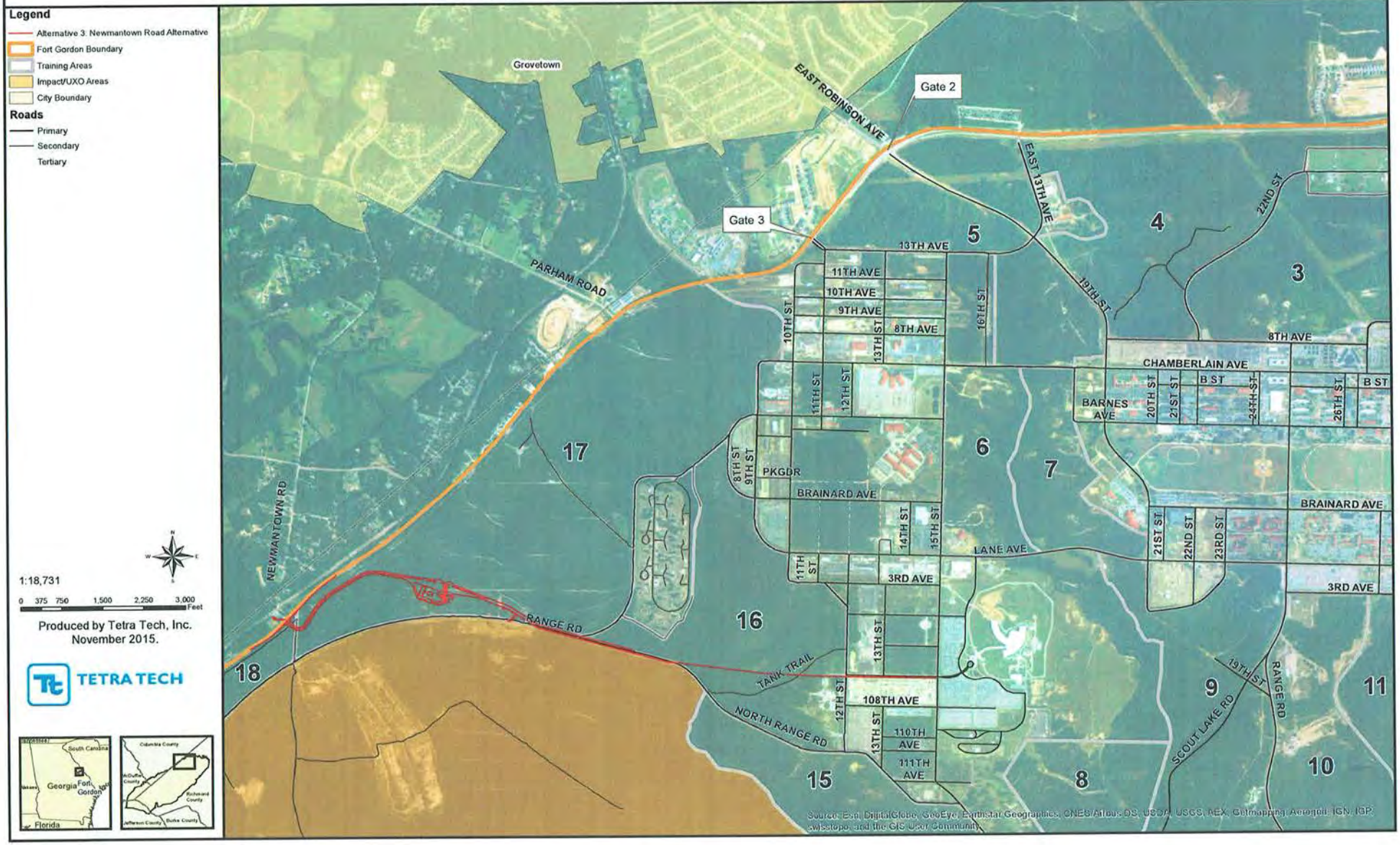

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Construction and Operation of a New Access Control Point, Fort Gordon, Georgia

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Ecological Services Office
ATTN: Ms. Debbie Harris
105 Westpark Drive, Suite D
Athens, GA 30606

Dr. David Crass, Director
Historic Preservation Office
254 Washington Street, SW
Ground Level
Atlanta, Georgia 30334-9007

Georgia Department of Natural Resources
ATTN: Katrina Morris
Environmental Review Coordinator
2065 U.S. Highway 278 SE
Social Circle, GA 30025-4743

U.S. Environmental Protection Agency
Heinz J. Mueller, Chief
Atlanta Federal Center
61 Forsyth Street
Atlanta, GA 30303-8960

Georgia Department of Natural Resources
Wildlife Resources Division
ATTN: Lee Taylor
142 Bob Kirk Road, NW
Thomson, GA 30824

U.S. Army Corps of Engineers
ATTN: CESAS-OP-F
100 W. Oglethorpe Avenue
Savannah, GA 31401-3640

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60 Executive Park South, NE
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307 CHAMBERLAIN AVENUE
FORT GORDON, GEORGIA 30905-5730

REPLY TO
ATTENTION OF:

IMGO-PWE

January 15, 2016

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Director of Public Works

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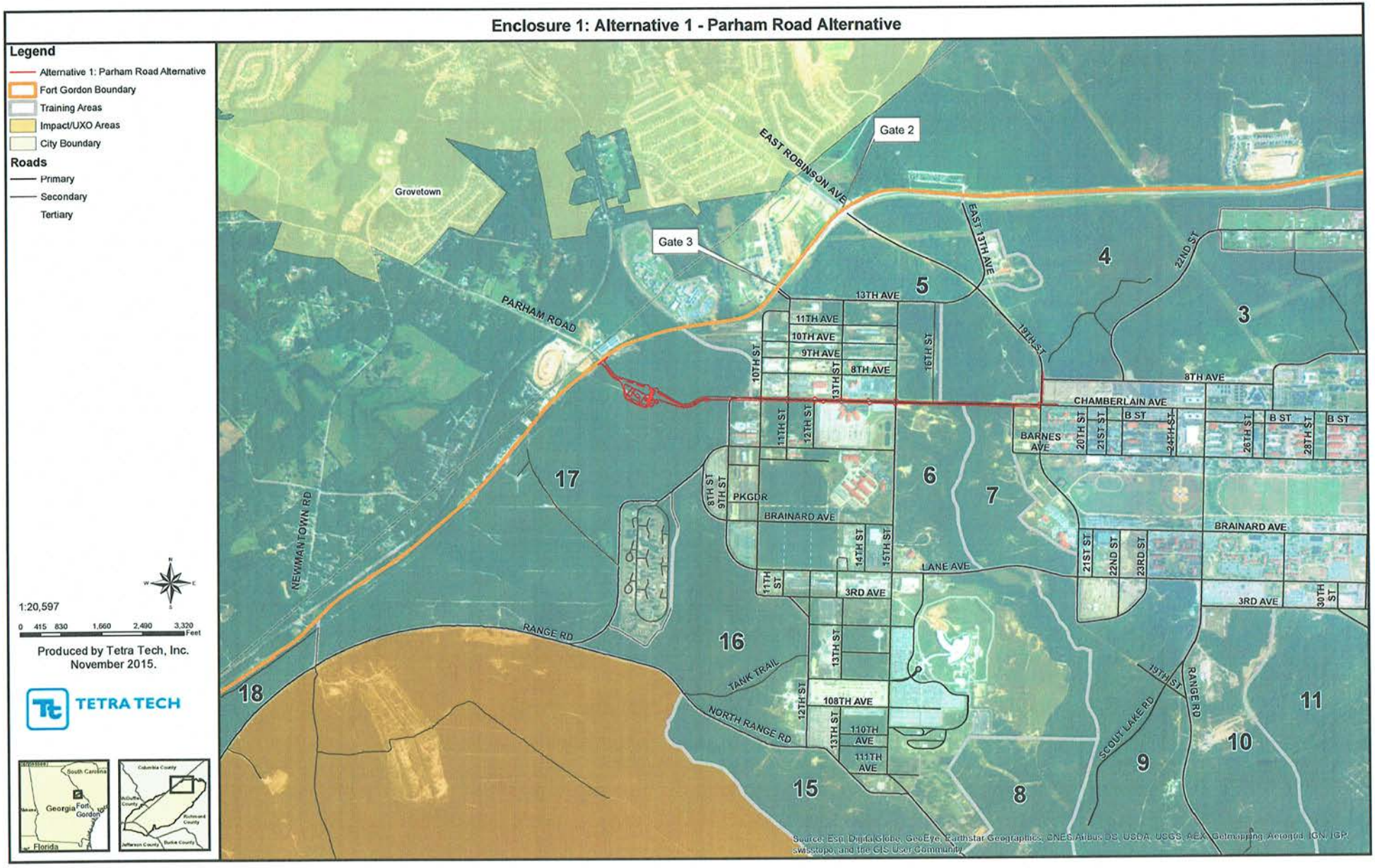

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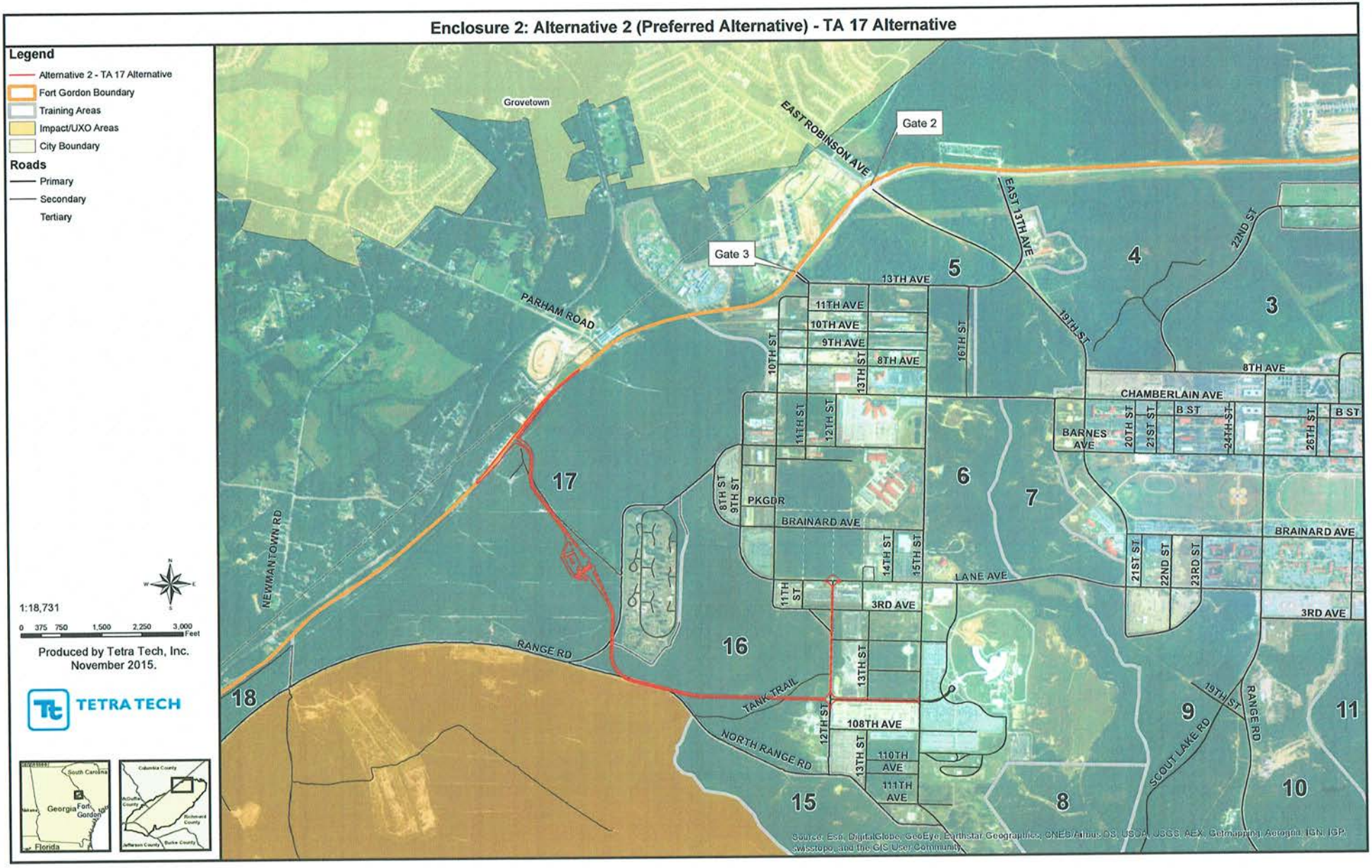

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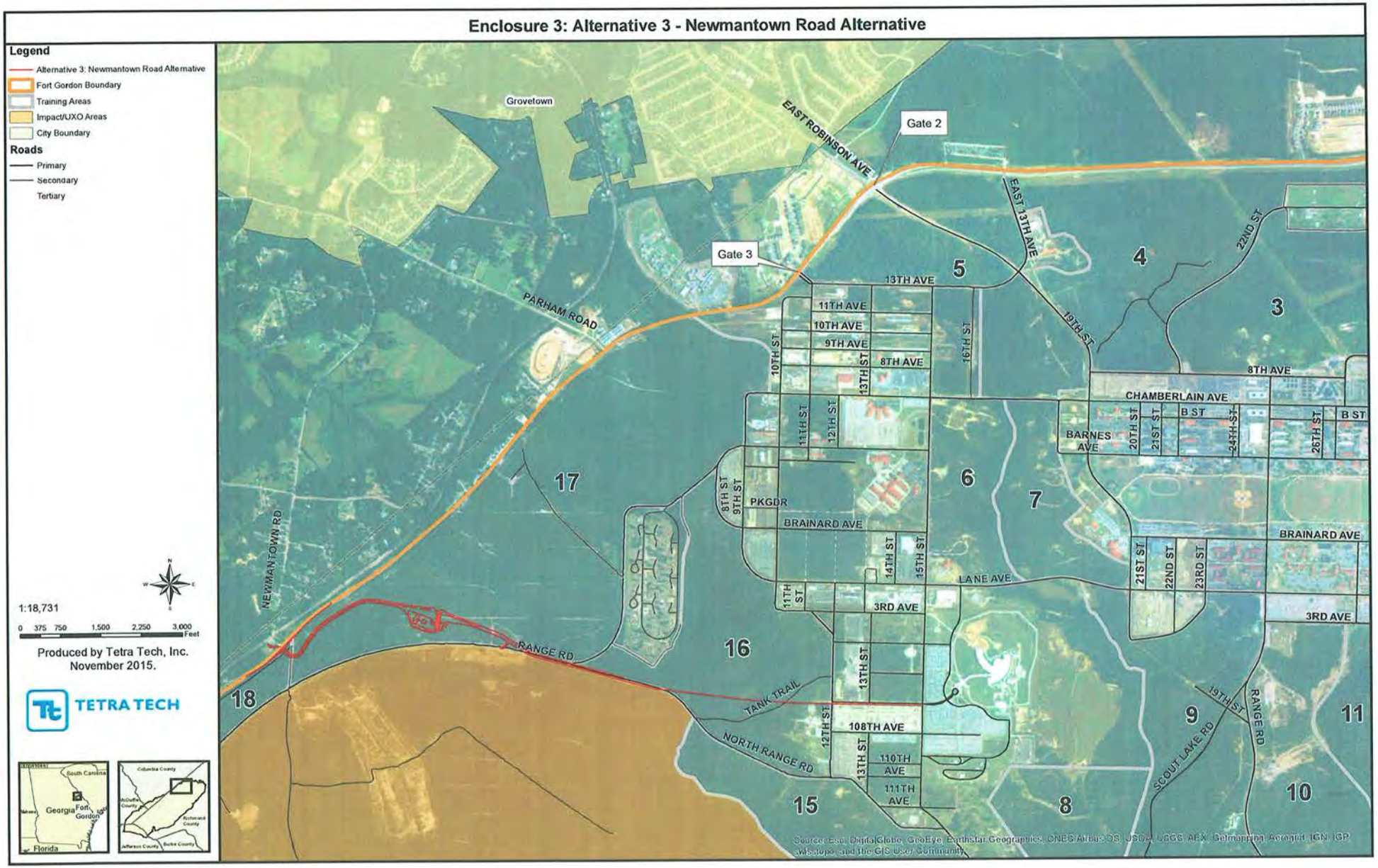

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Construction and Operation of a New Access Control Point, Fort Gordon, Georgia

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307 CHAMBERLAIN AVENUE
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REPLY TO
ATTENTION OF:

IMGO-PWE

January 15, 2016

George Patty, Director
Augusta-Richmond County Planning and Development Department
525 Telfair Street
Augusta, GA 30901

Reference: Environmental Assessment for the Construction and Operation of a New Access Control Point, Fort Gordon, Georgia

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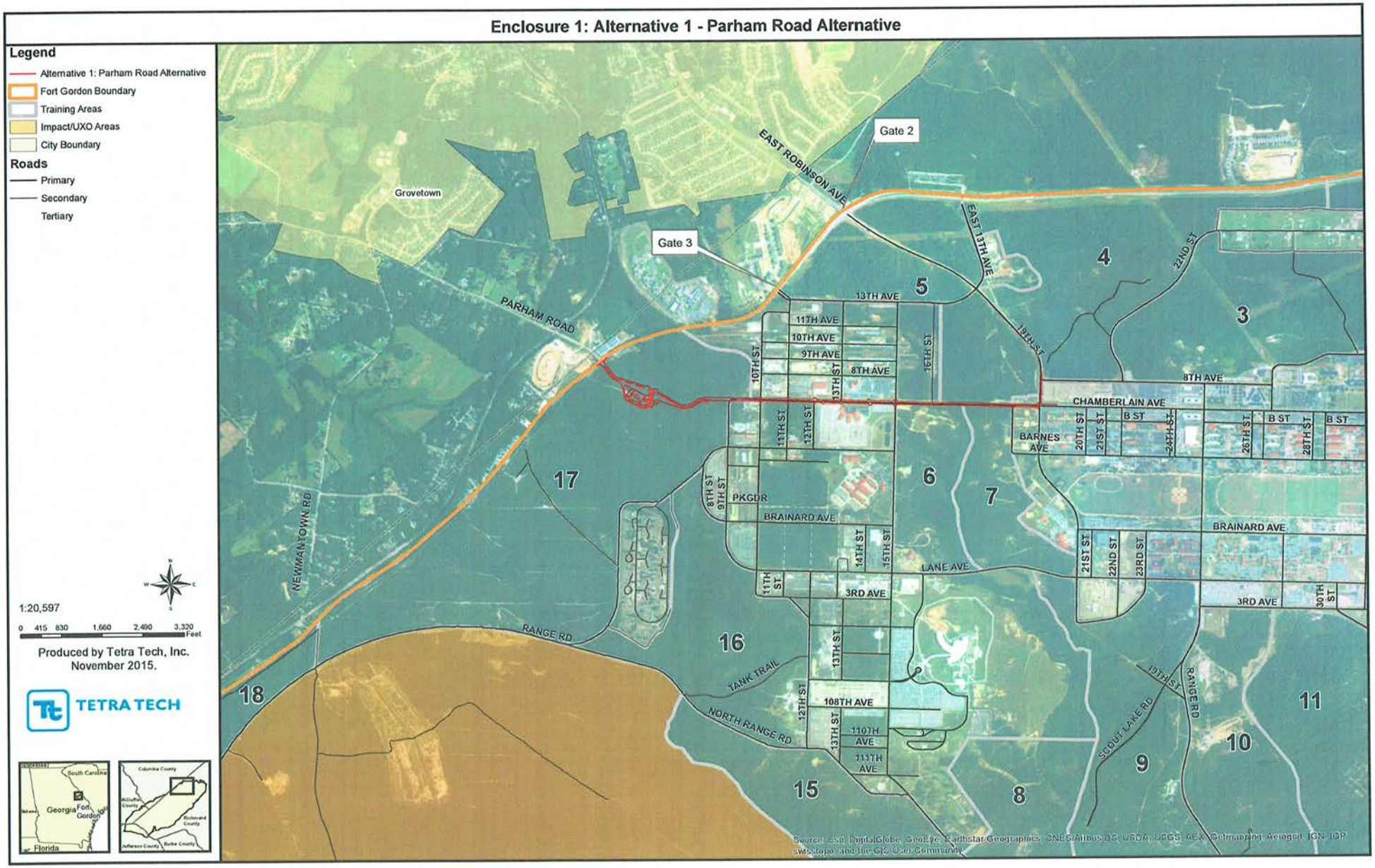

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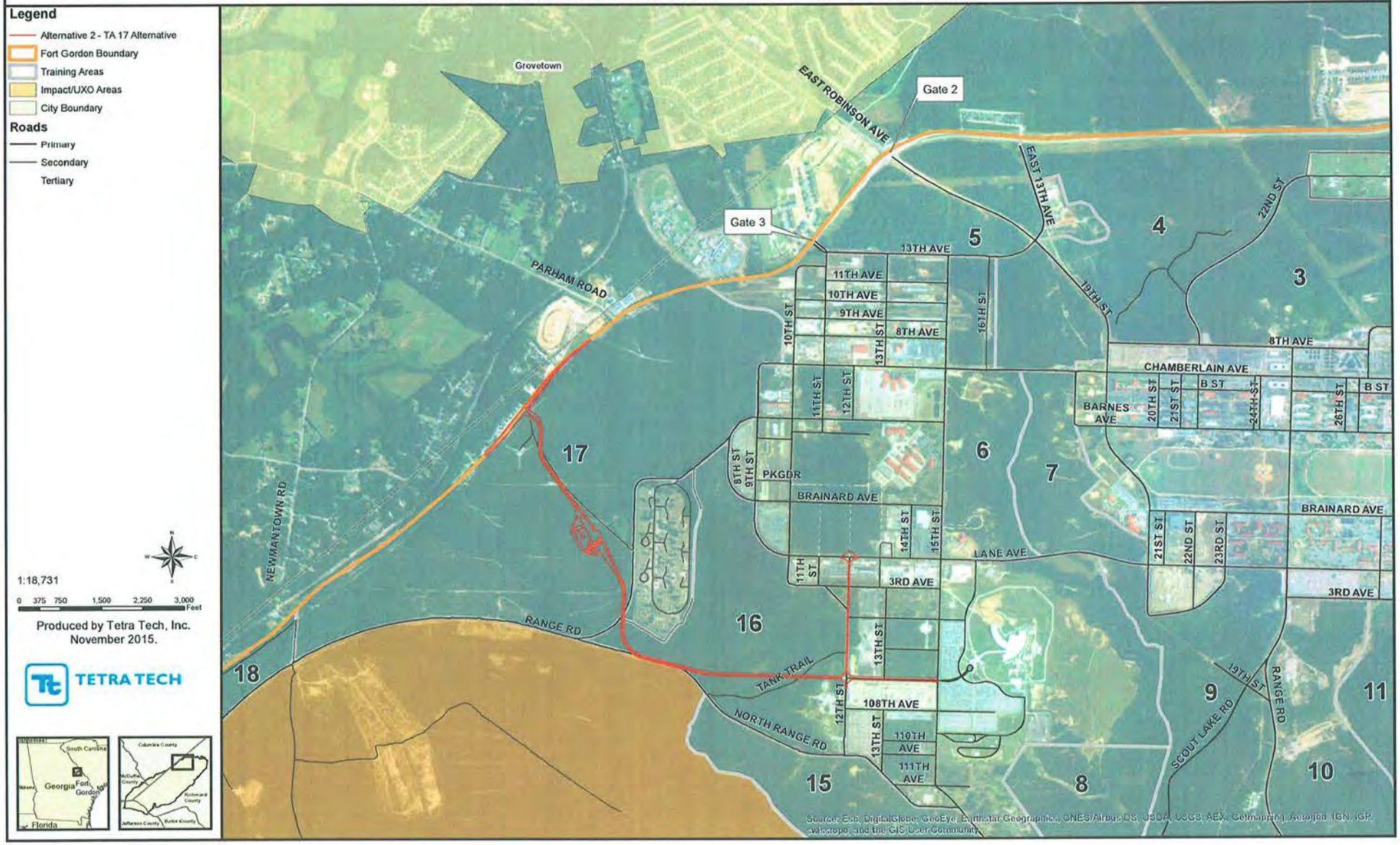

NEW ACP/GATE 6
FORT GORDON, GEORGIA
JANUARY 2016

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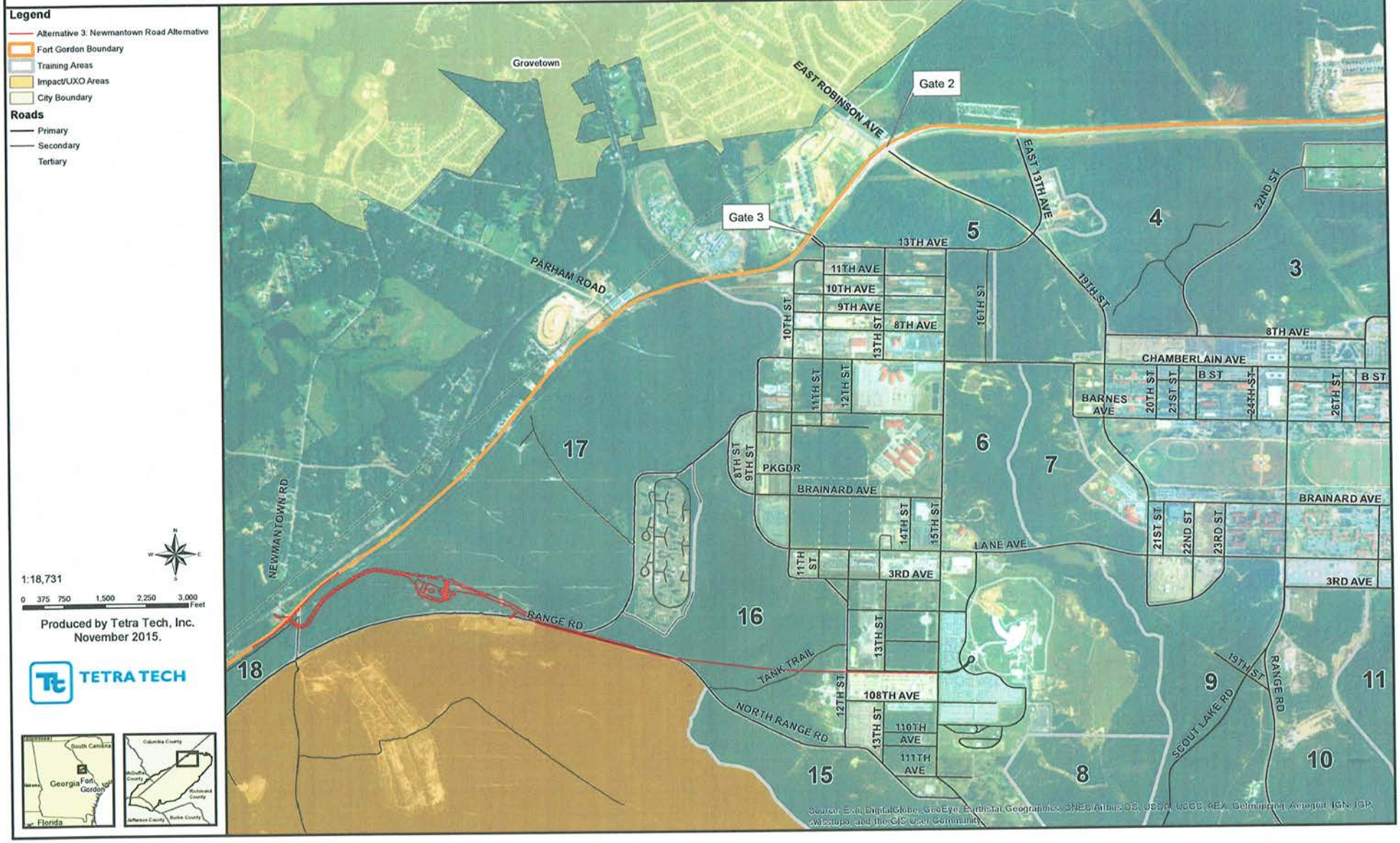

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REPLY TO
ATTENTION OF:

IMGO-PWE

January 15, 2016

McDuffie County Scil and Water Conservation District
P.O. Box 8024
Athens, GA 30603-8024

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IMGO-PWE, Bldg. 14500
Fort Gordon, GA 30905-5209

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Sincerely,

John L. Ramey
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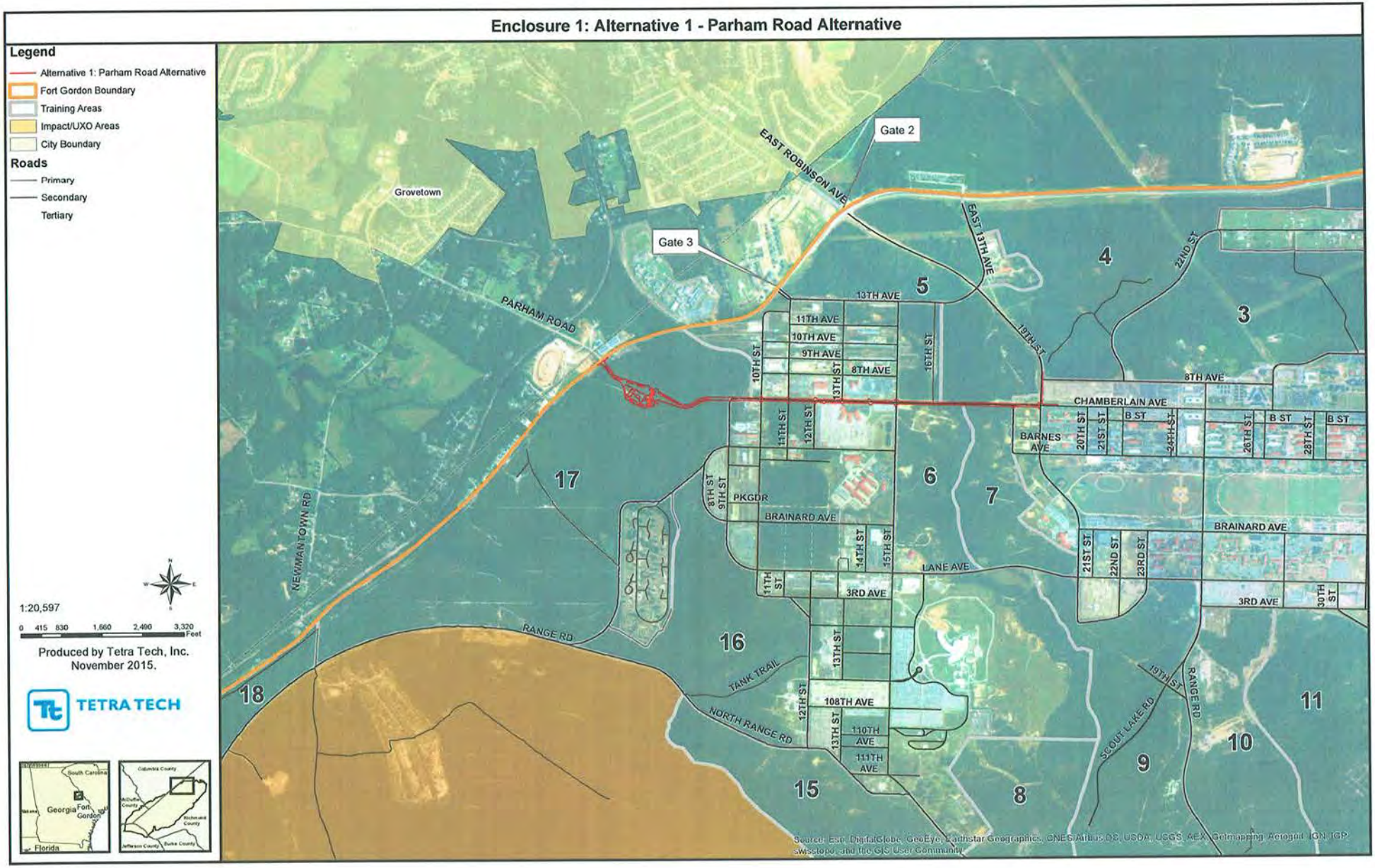

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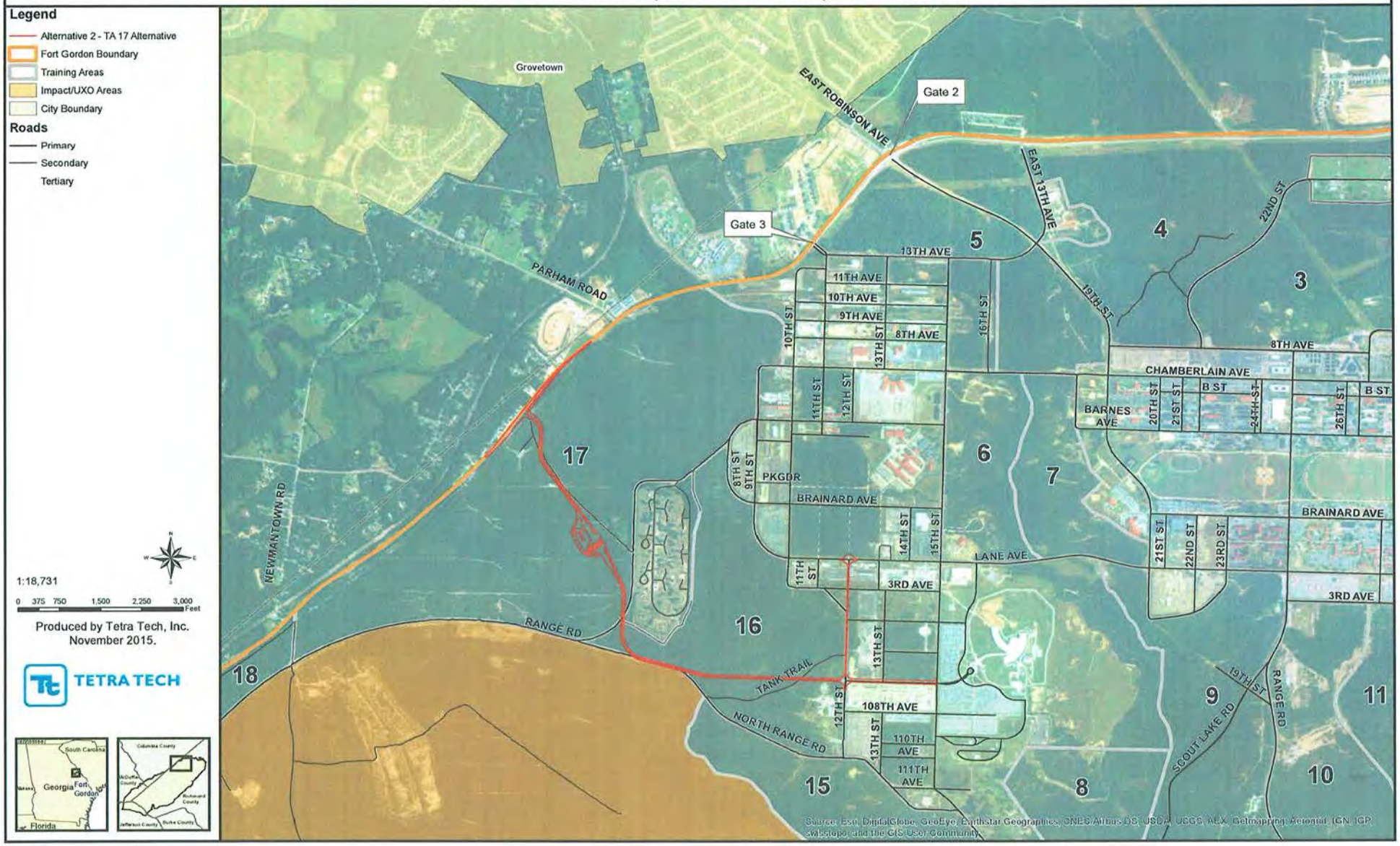

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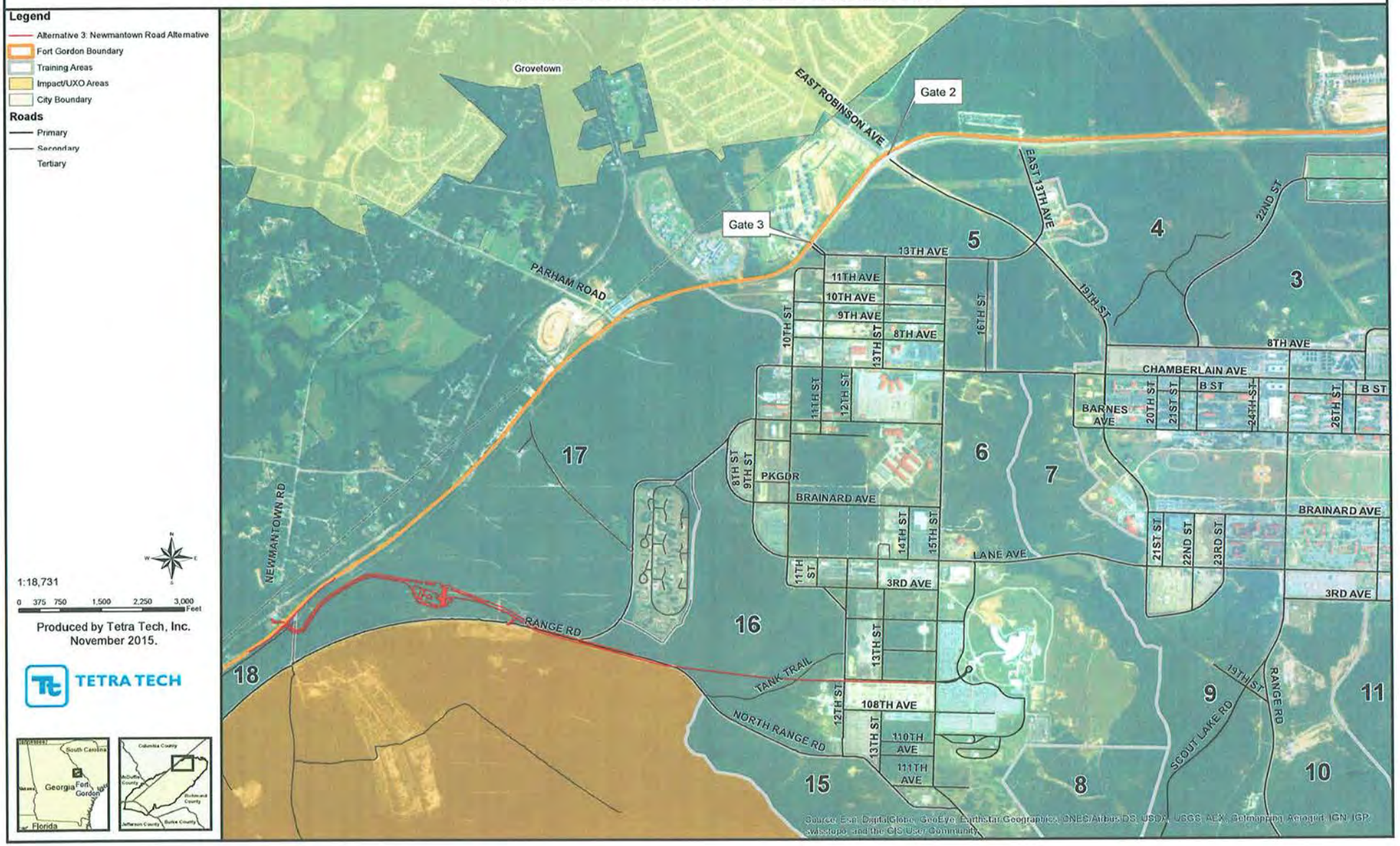

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FORT GORDON, GEORGIA 30905-5730

REPLY TO
ATTENTION OF:

IMGO-PWE

January 15, 2016

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3626 Walton Way Extension
Suite 300
Augusta, GA 30909

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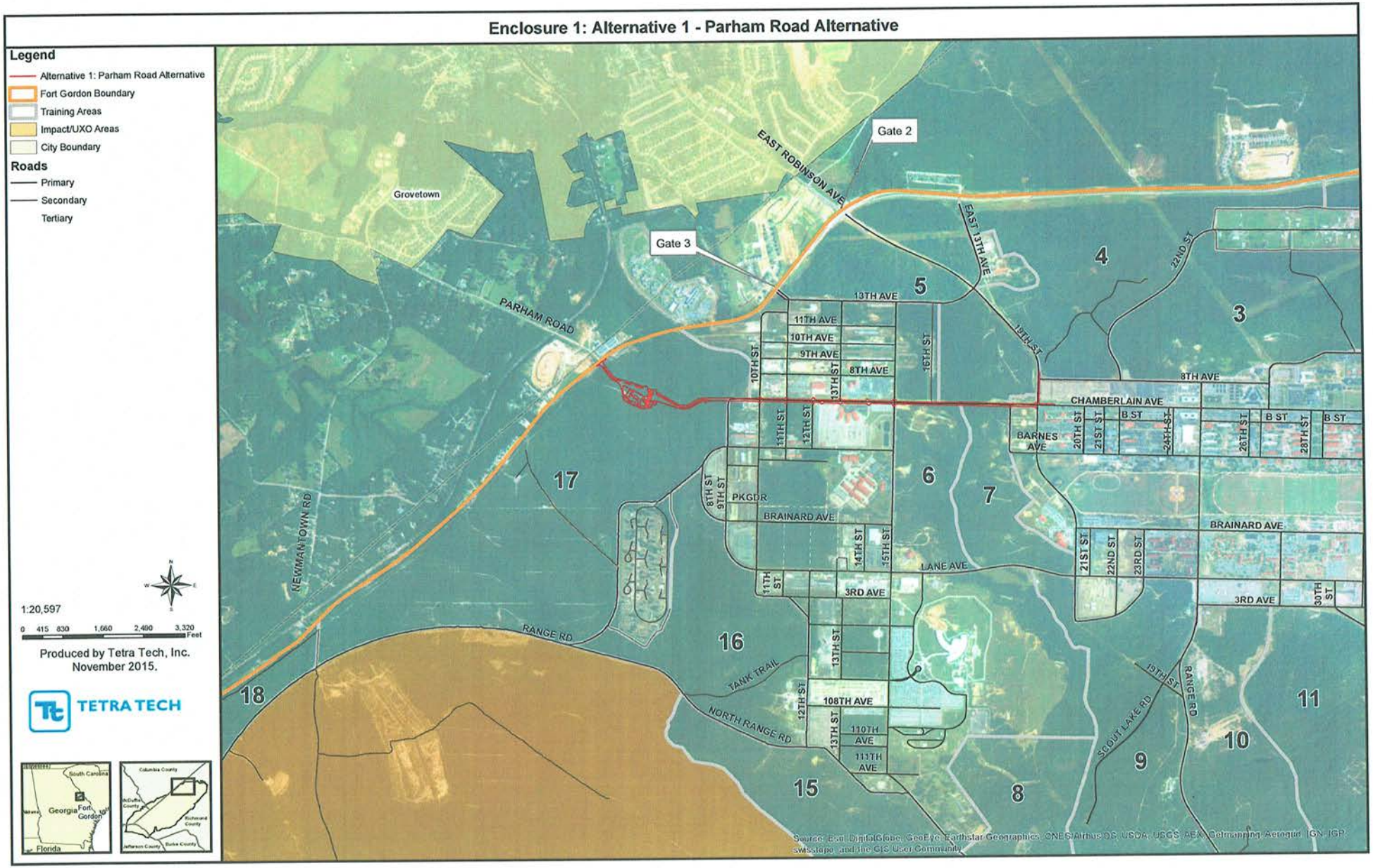

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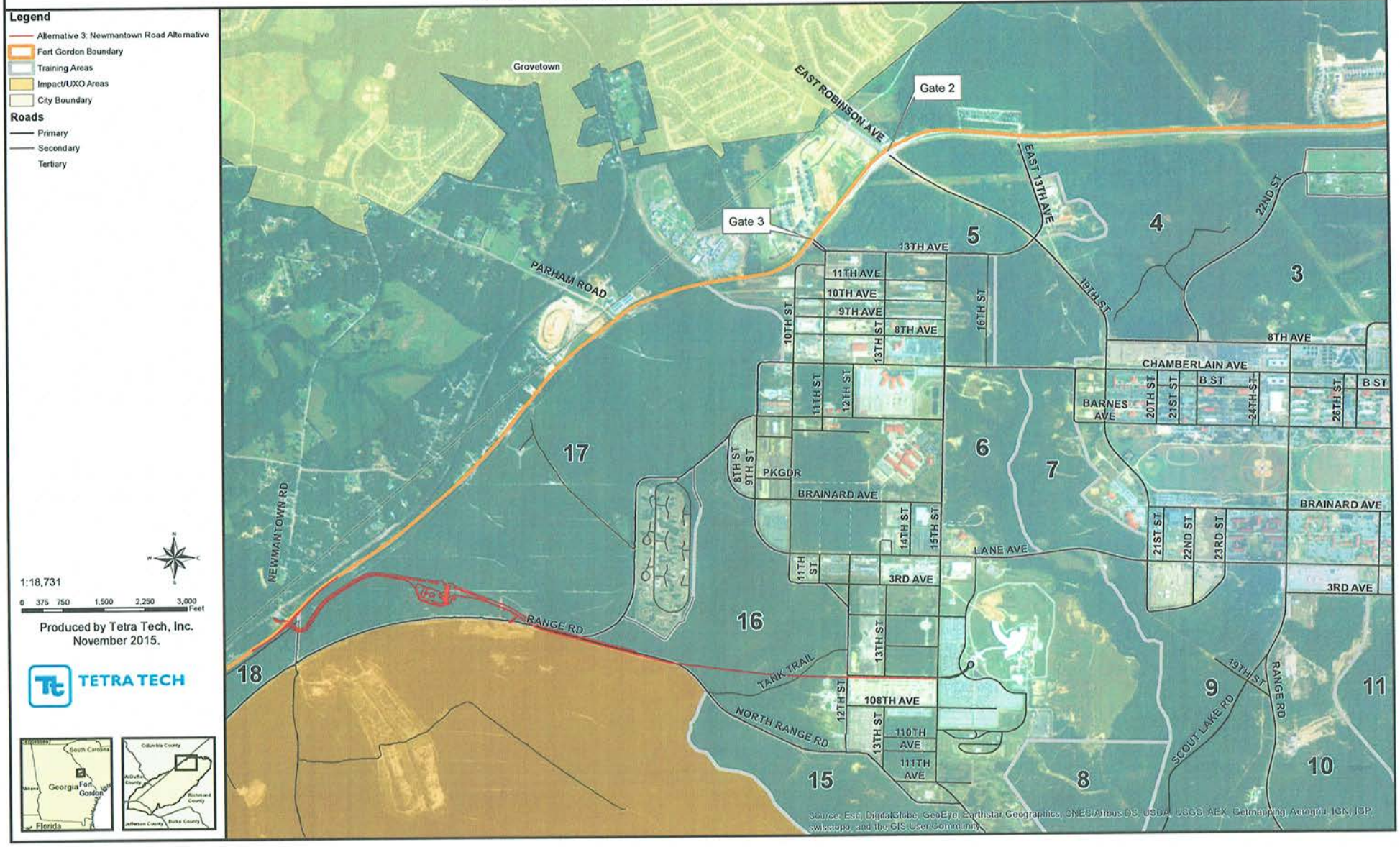

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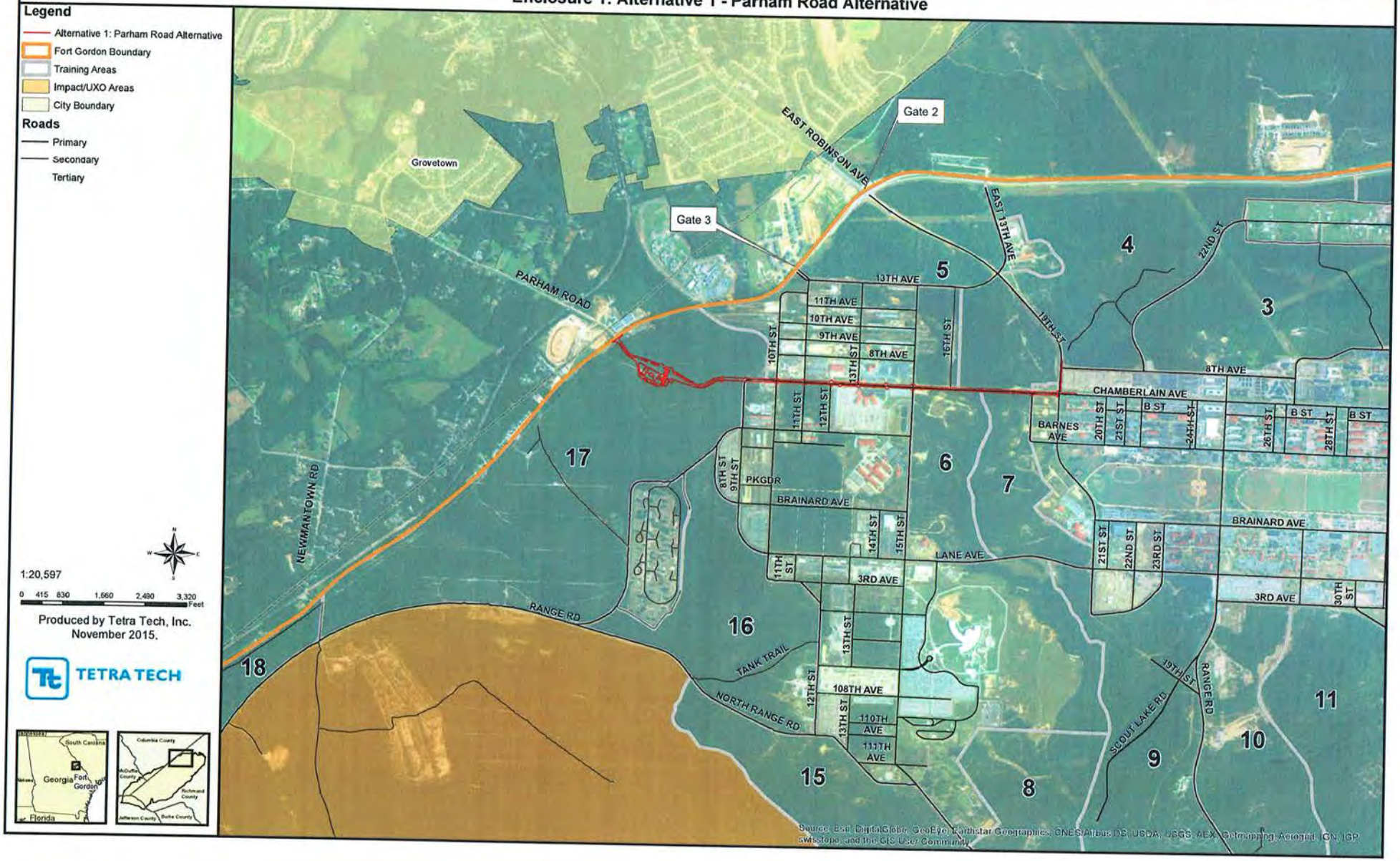

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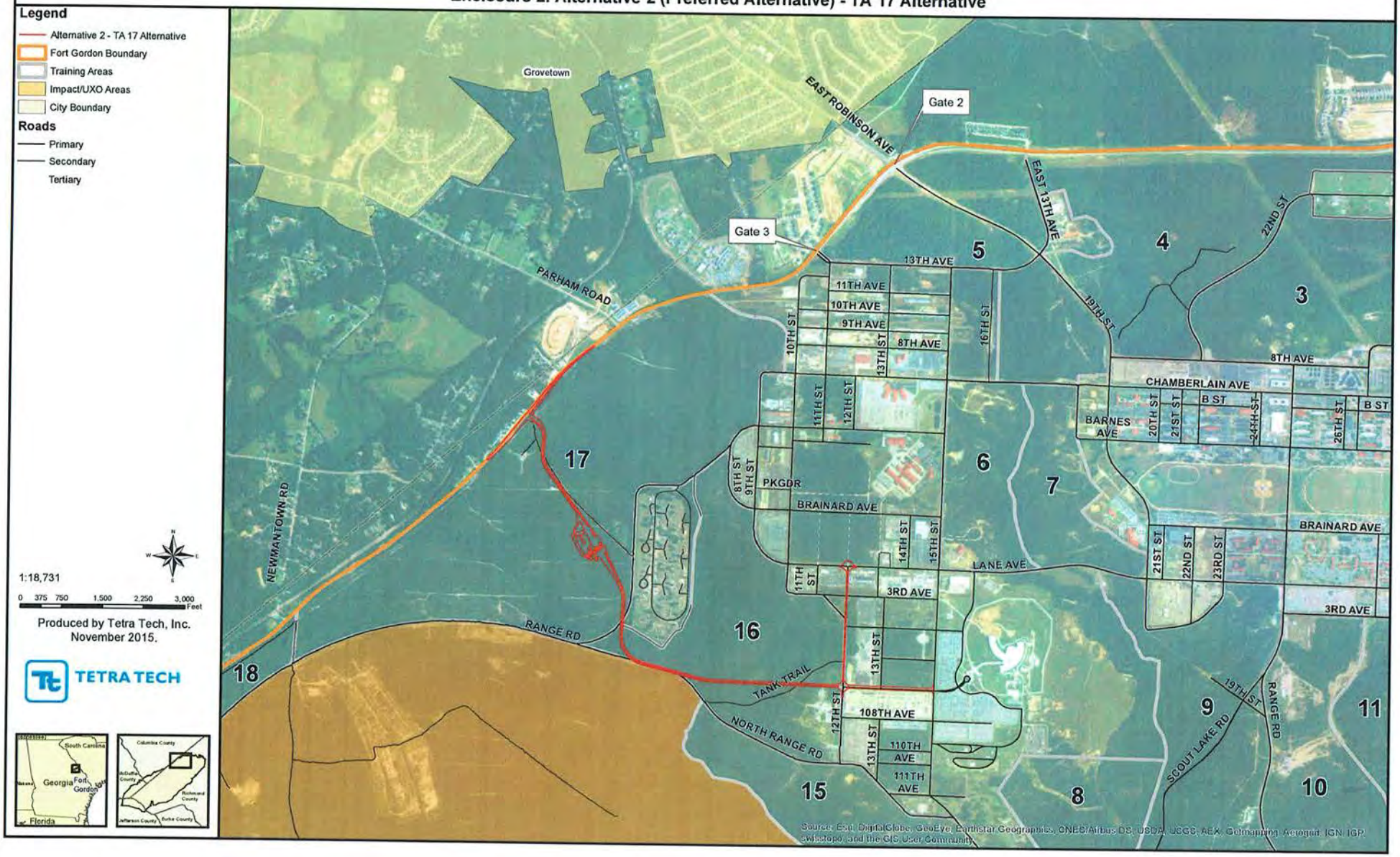

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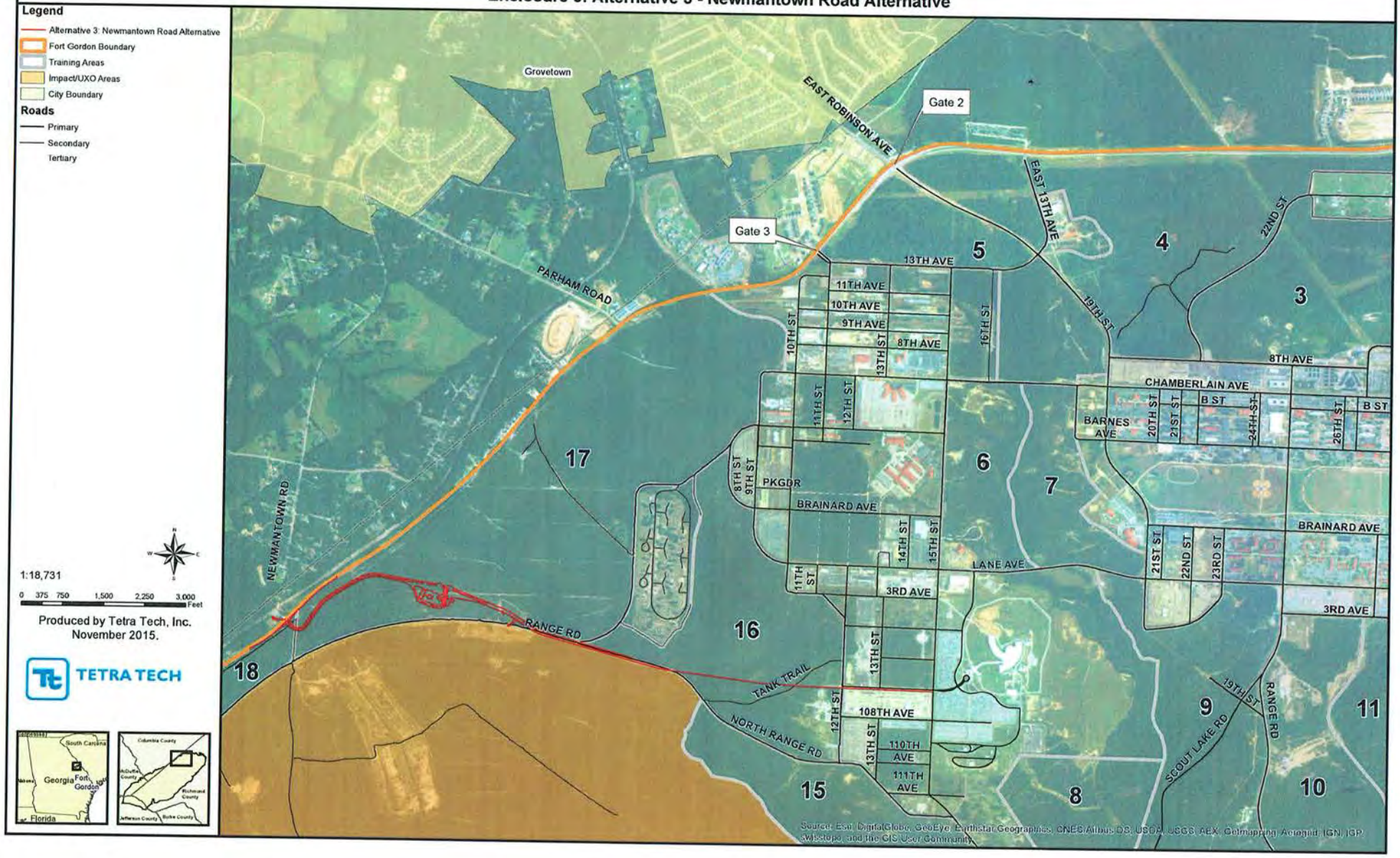

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Environmental Assessment
Construction and Operation of a New Access Control Point, Fort Gordon, Georgia

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REPLY TO
ATTENTION OF:

IMGO-PWE

January 15, 2016

Brier Creek Soil and Water Conservation District
2531 Perkins Green Fork Road
Perkins, GA 30822-5337

Reference: Environmental Assessment for the Construction and Operation of a New Access Control Point, Fort Gordon, Georgia

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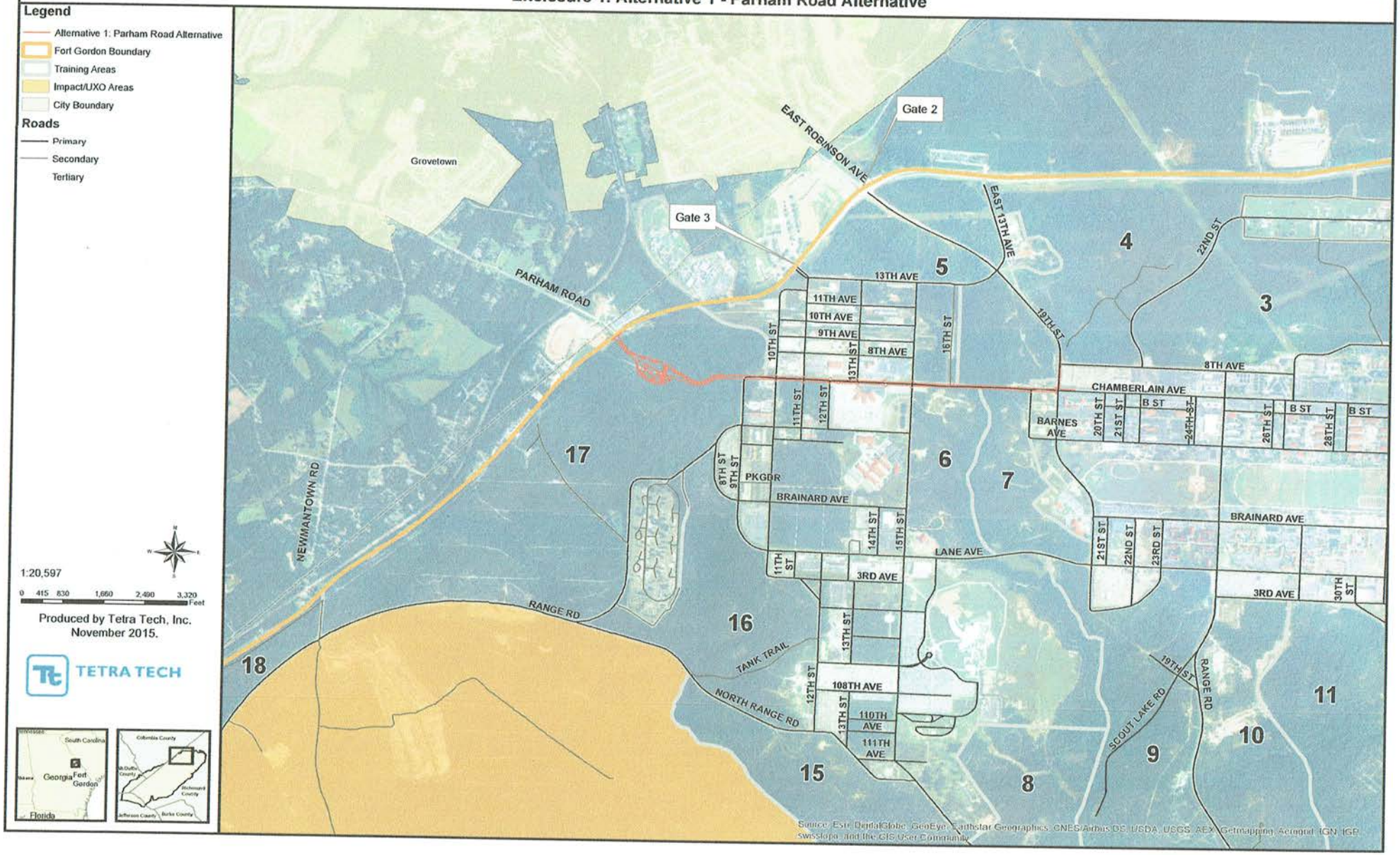

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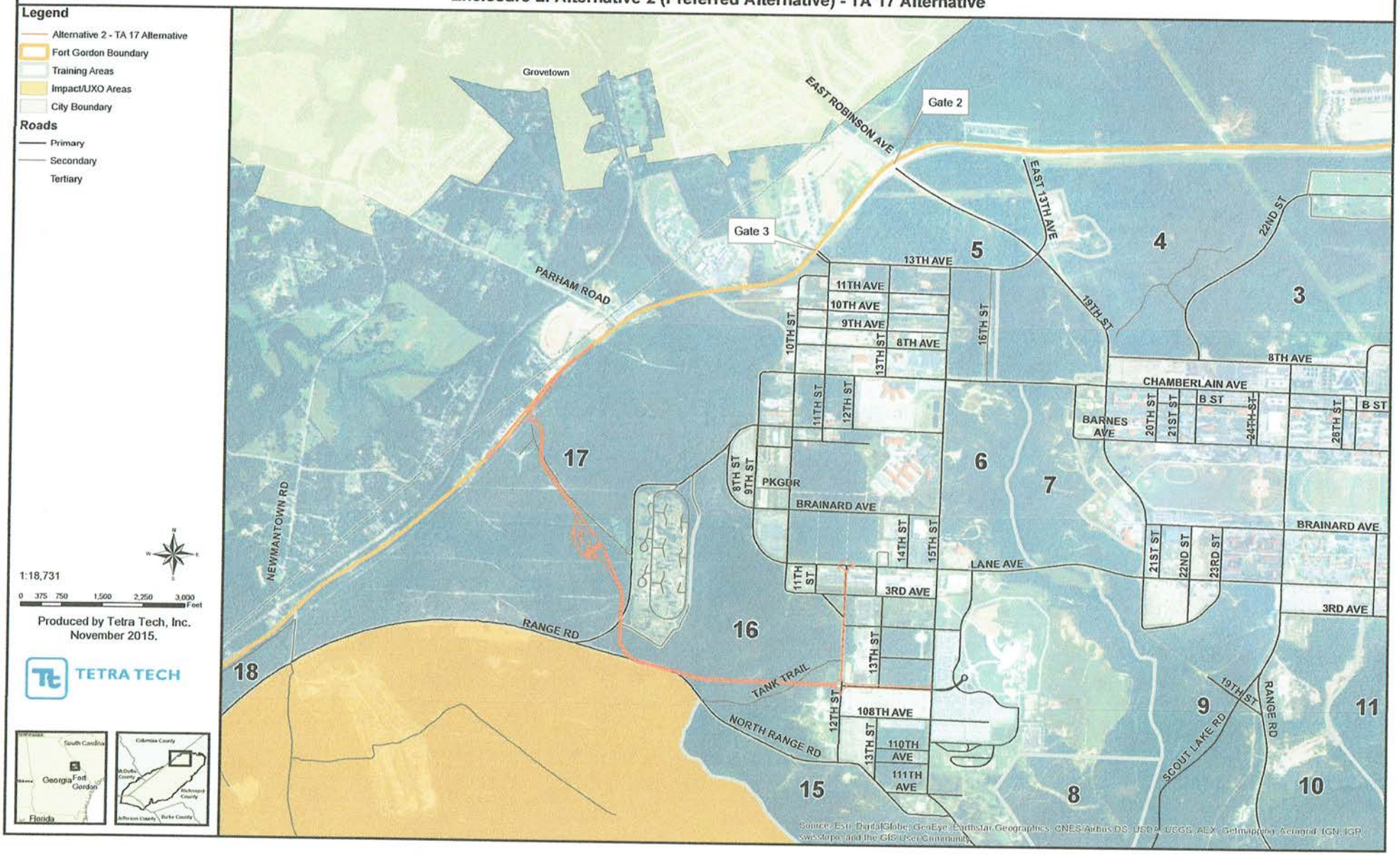
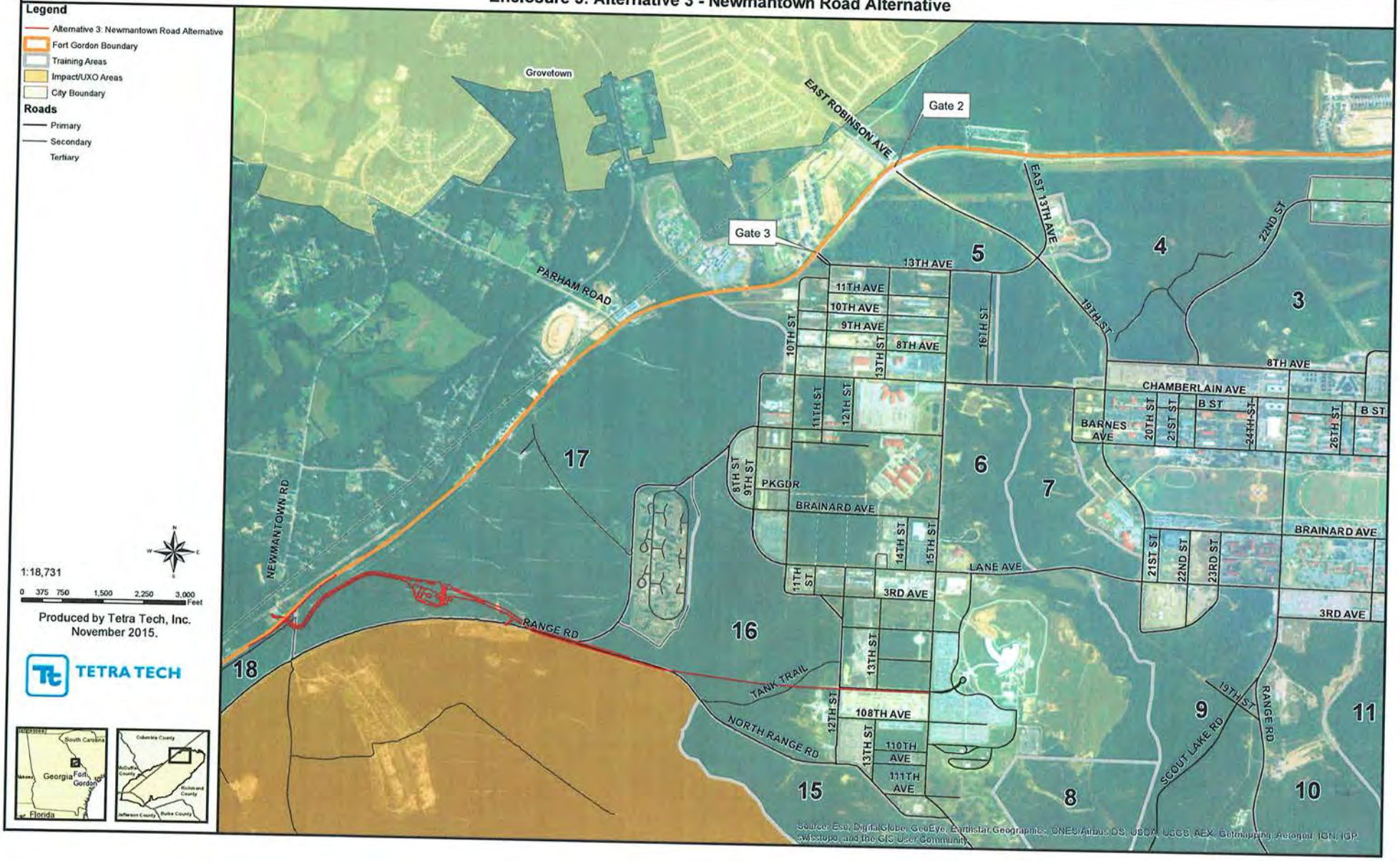


NEW ACP/GATE 6
FORT GORDON, GEORGIA
JANUARY 2016

Enclosure 3: Alternative 3 - Newmantown Road Alternative



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REPLY TO
ATTENTION OF

IMGO-PWE

January 15, 2016

Georgia Department of Transportation
One Georgia Center
600 West Peachtree NW
Atlanta, Georgia 30308

Reference: Environmental Assessment for the Construction and Operation of a New Access Control Point, Fort Gordon, Georgia

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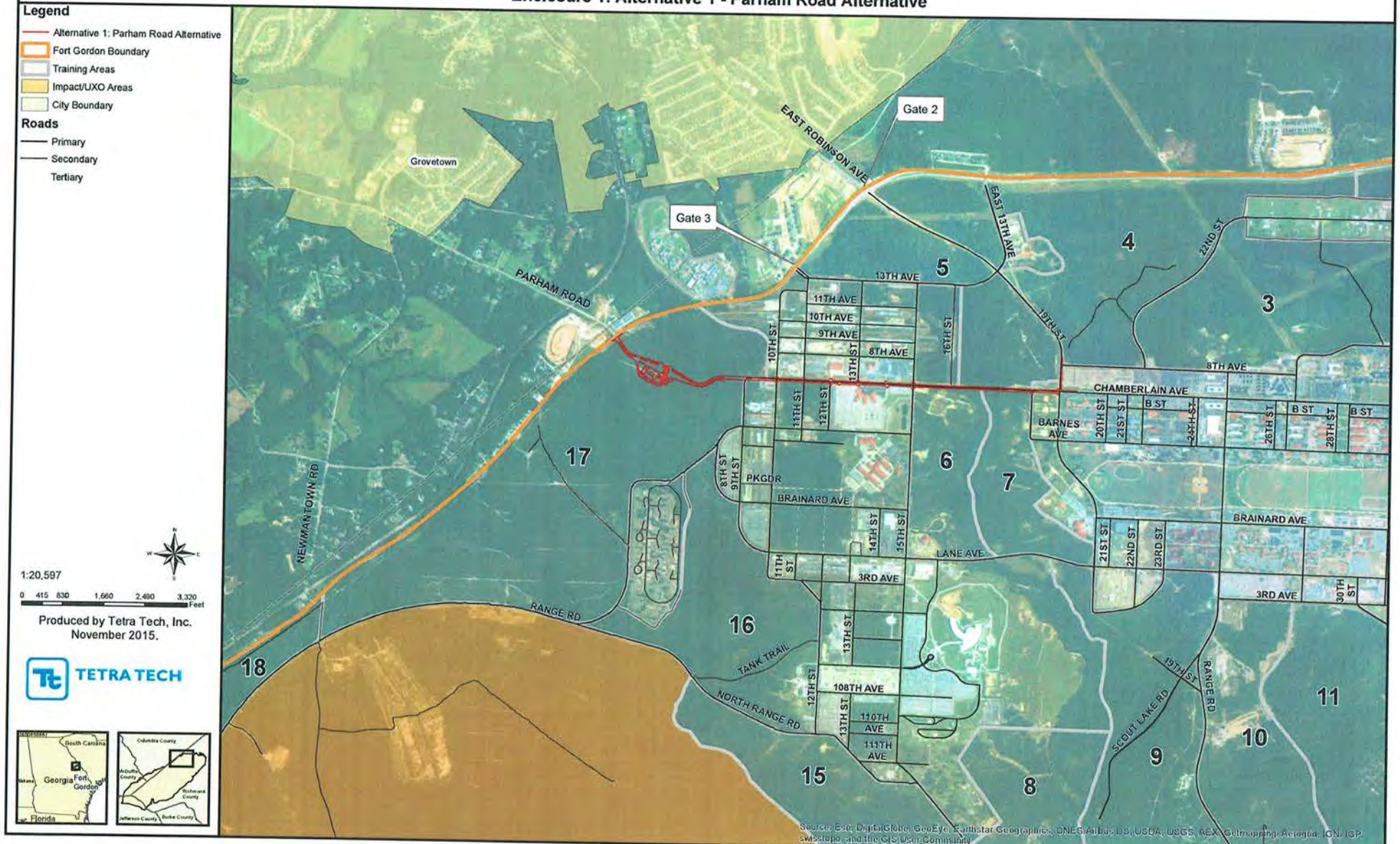

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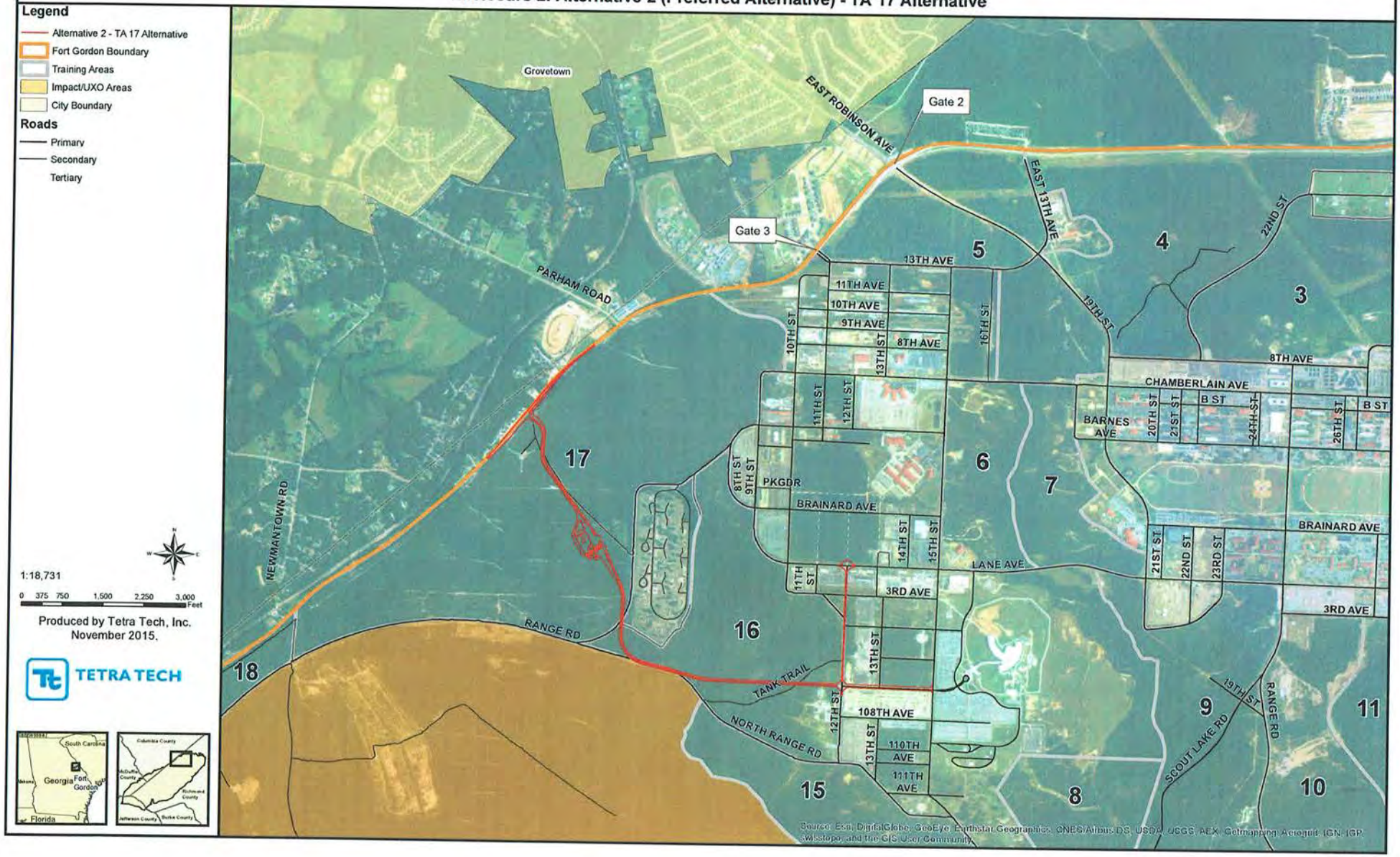

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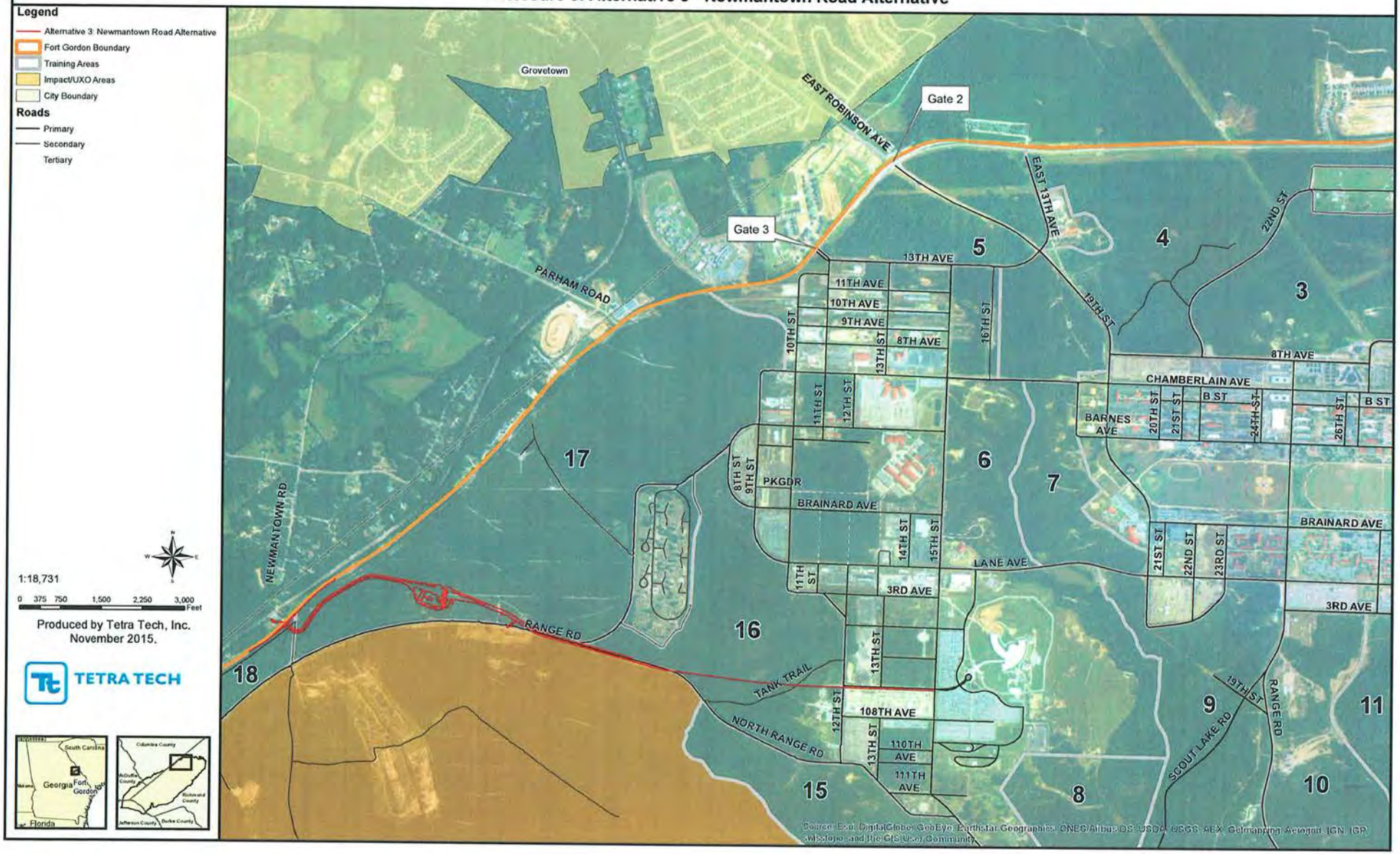

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Construction and Operation of a New Access Control Point, Fort Gordon, Georgia

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307 CHAMBERLAIN AVENUE
FORT GORDON, GEORGIA 30905-5730

REPLY TO
ATTENTION OF:

IMGO-PWE

January 15, 2016

Georgia Department of Community Affairs
60 Executive Park South, NE
Atlanta, GA 30329

Reference: Environmental Assessment for the Construction and Operation of a New Access Control Point, Fort Gordon, Georgia

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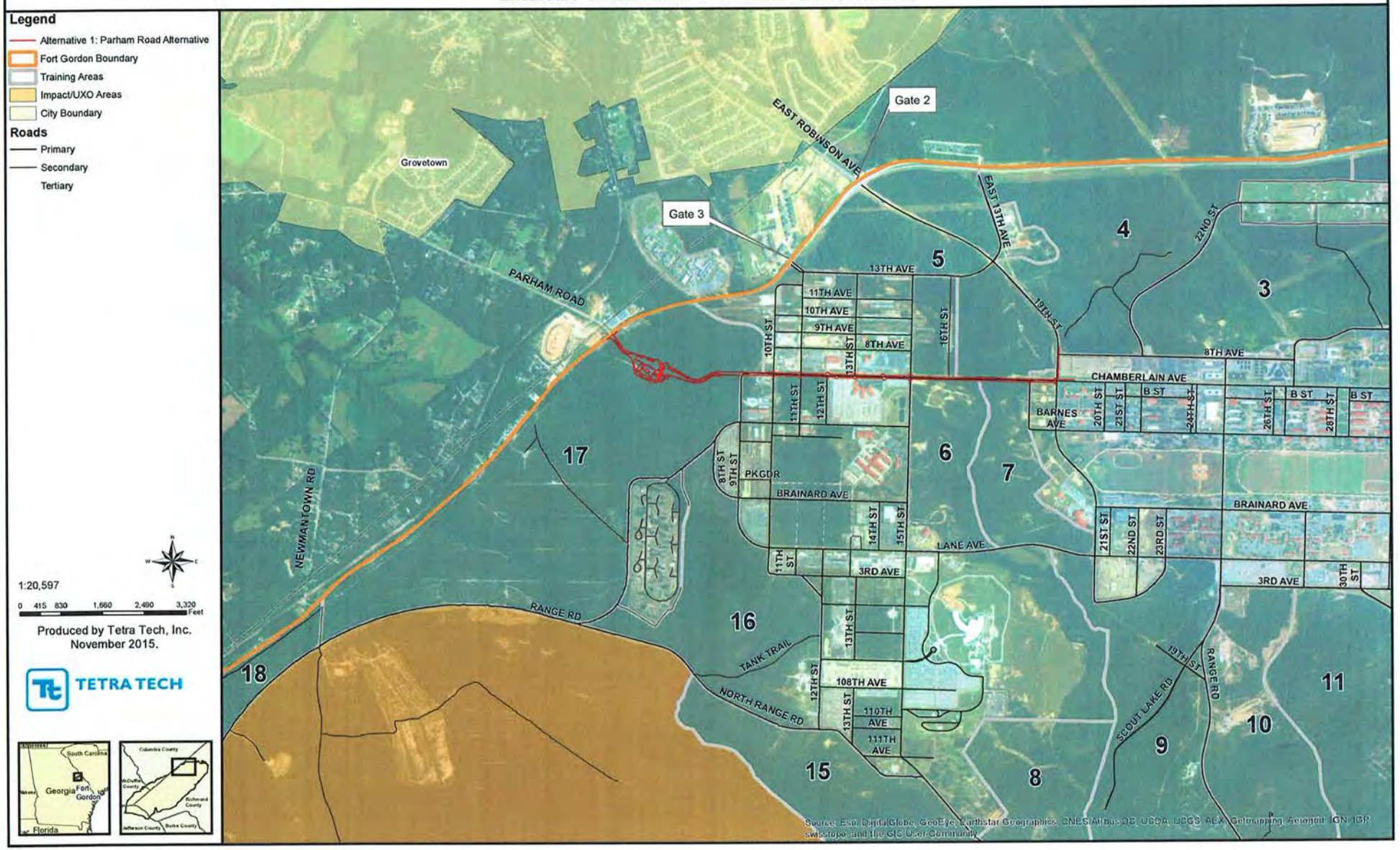

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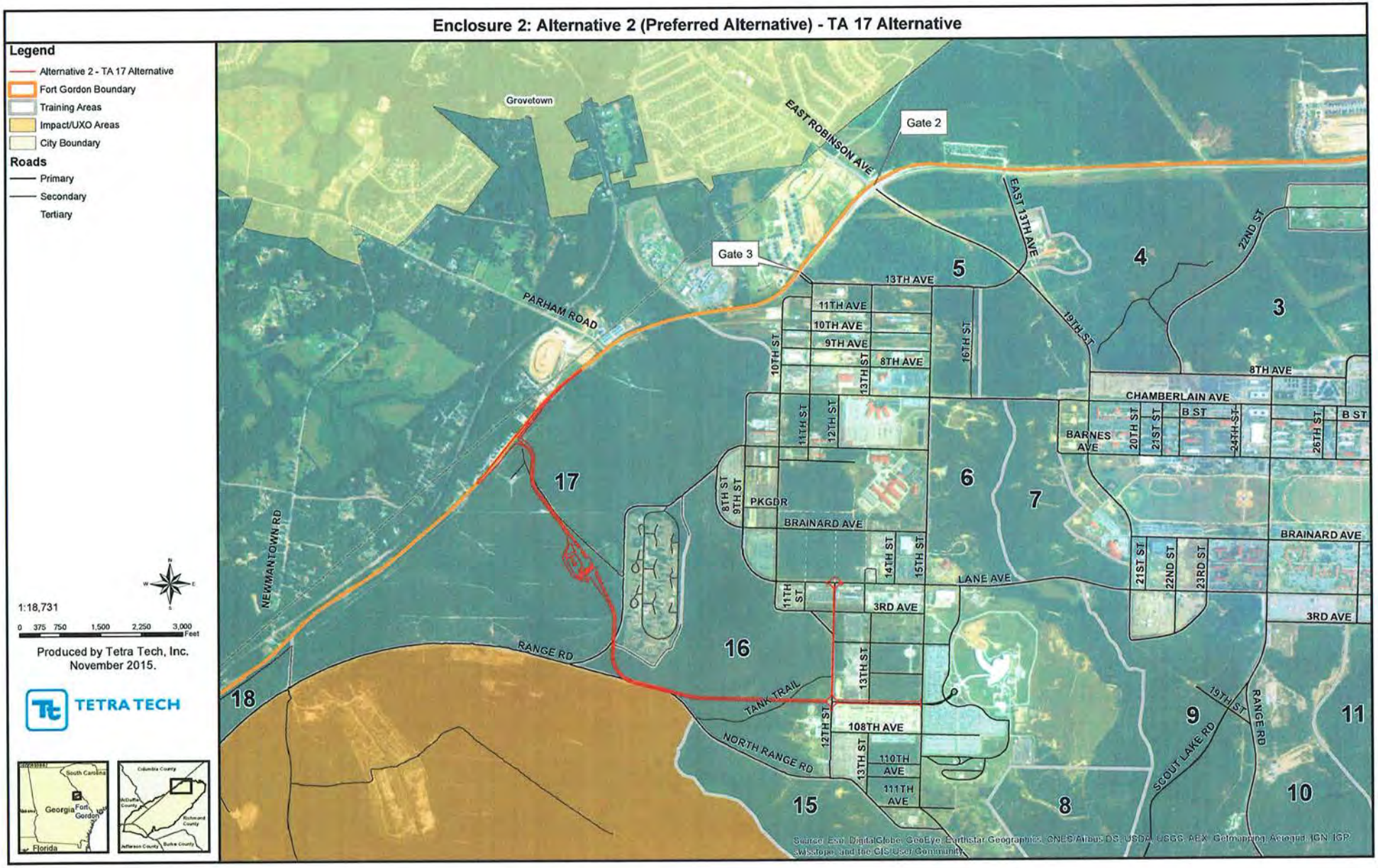

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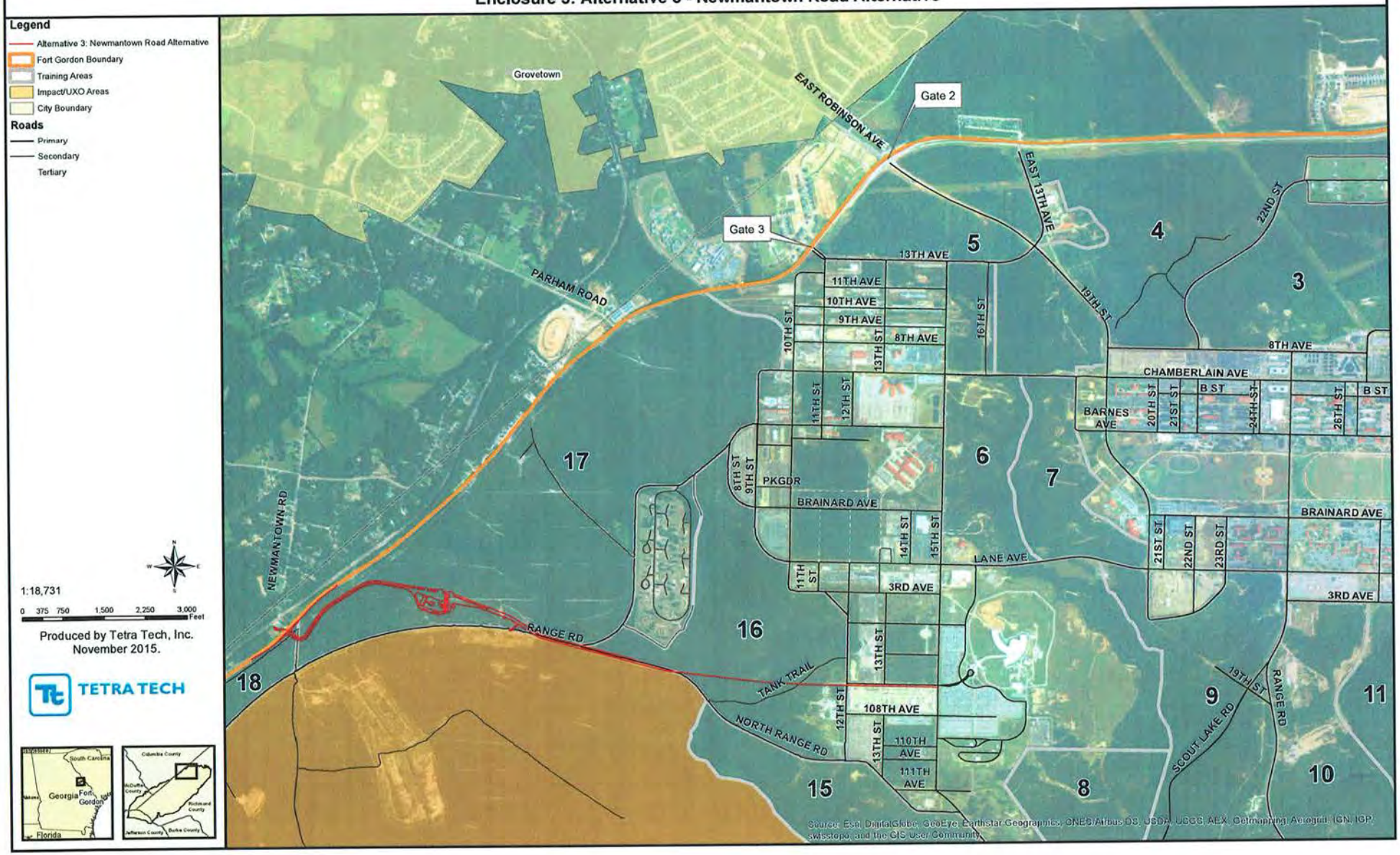

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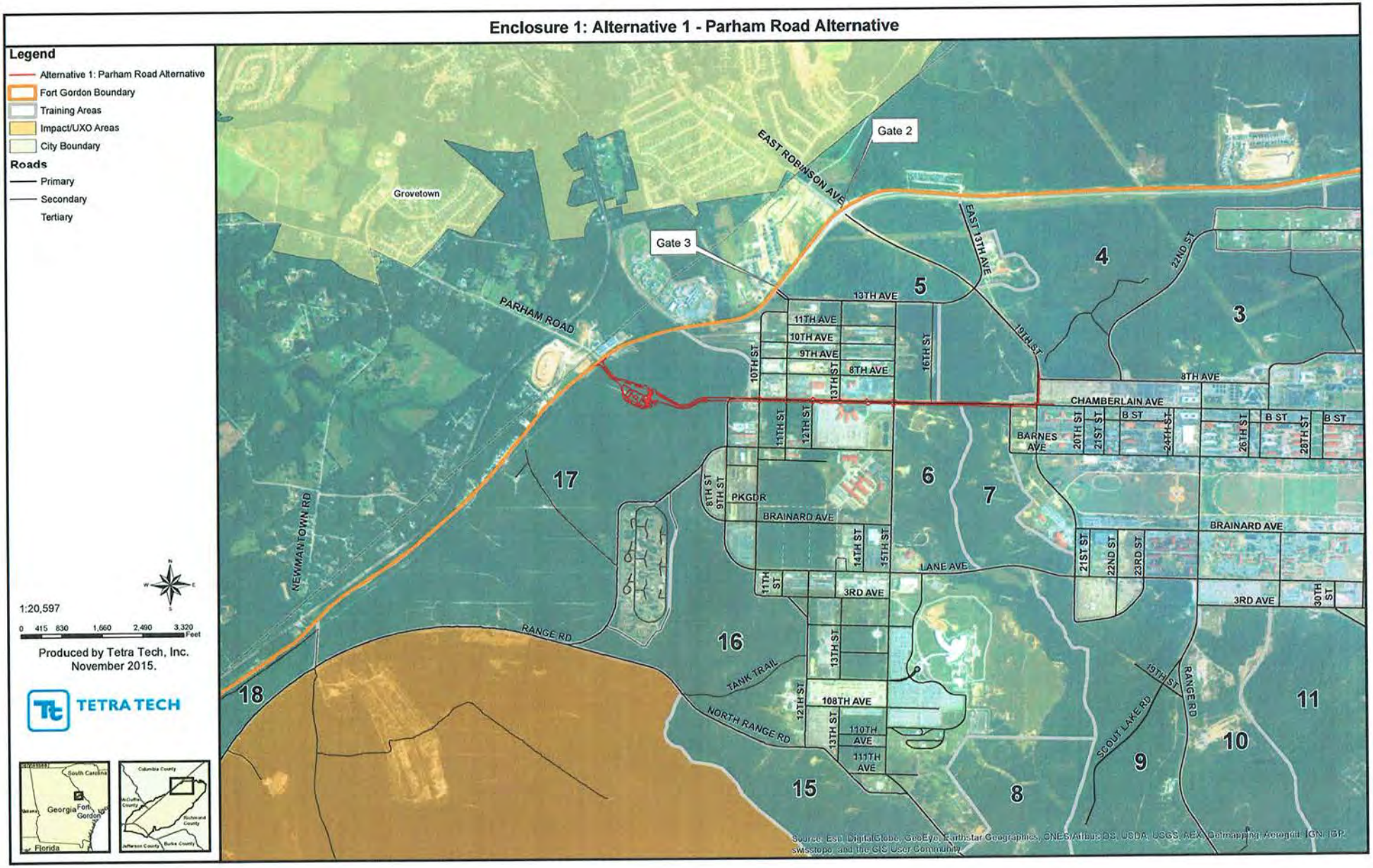

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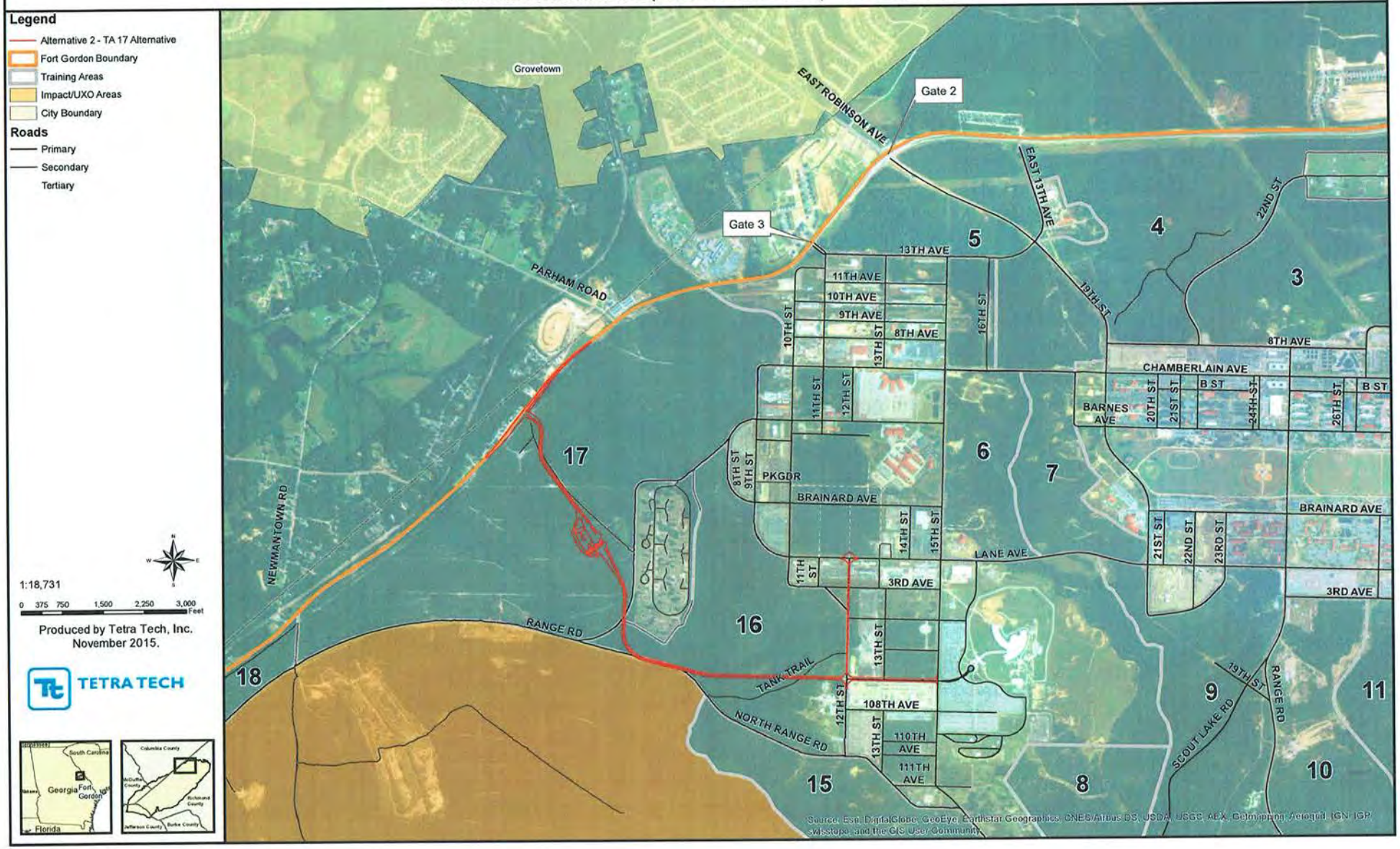

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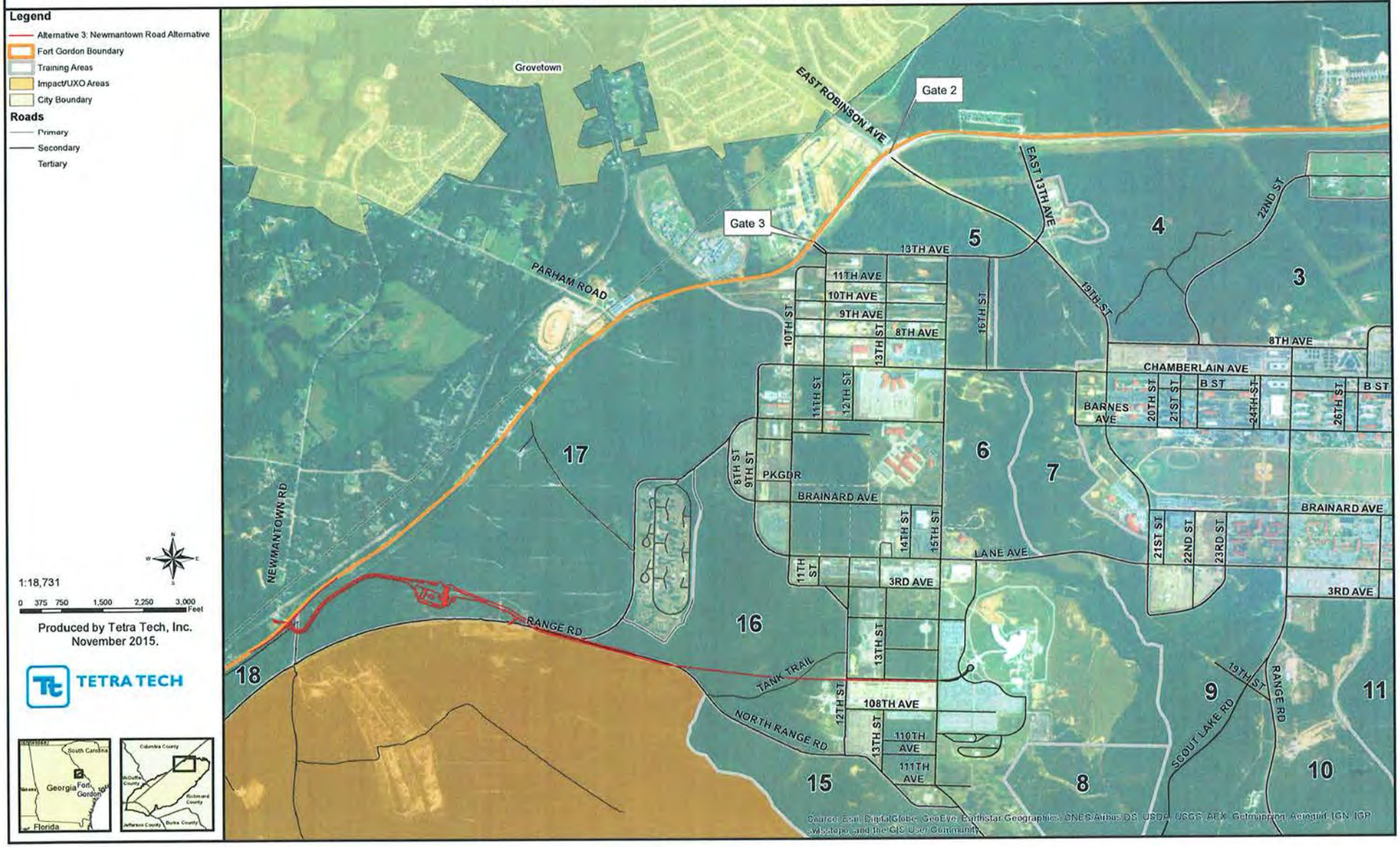

Enclosure 4
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Environmental Assessment
Construction and Operation of a New Access Control Point, Fort Gordon, Georgia

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DEPARTMENT OF THE ARMY
SAVANNAH DISTRICT, CORPS OF ENGINEERS
100 W. OGLETHORPE AVENUE
SAVANNAH, GEORGIA 31401-3604

REPLY TO
ATTENTION OF:

MARCH 0 3 2016

Regulatory Division
SAS-2015-00198

Mr. Robert Drumm
U. S. Army Garrison, Fort Gordon
Directorate of Public Works
IMGO-PWE, Bldg. 14500
Fort Gordon, Georgia 30905-5209

Dear Mr. Drumm:

We have received information that you are considering to construct and operate a new Access Control Point (ACP) which is intended to reduce traffic congestion on roadways servicing the installation, provide a shorter, more direct route to areas that are experiencing new and expanded missions and personnel growth on Fort Gordon, Richmond County, Georgia. This project has been assigned number SAS-2015-00198. Please refer to this number in any future correspondence regarding this matter.

Please be advised that if your project involves work in waters of the United States that are considered to be within the jurisdiction of Section 404 of the Clean Water Act (CWA) and/or Section 10 of the Rivers and Harbors Act, a permit may be required. The placement of dredged or fill material into any waterways and/or their adjacent wetlands, including material re-deposited during mechanized land clearing or excavation of those wetlands, would likely require prior Department of the Army authorization. Proceeding with such work, without proper authorization, may result in our initiating a CWA enforcement action.

If your project does not involve waters of the United States under the U.S. Army Corps of Engineers jurisdiction, then a Department of the Army permit is not required. To learn more about our program you may want to access our website located at http://www.sas.usace.army.mil/Missions/Regulatory.aspx.

Thank you in advance for completing our on-line Customer Survey Form located at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey. We value your comments and appreciate your taking the time to complete a survey each time you have interaction with our office.

If you have any questions, please contact me at 912-652-5690.

Sincerely,

Barbara A. Bass

Barbara Bass
Regulatory Specialist, Coastal Branch

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT GORDON
307 CHAMBERLAIN AVENUE
FORT GORDON, GEORGIA 30905-5730

REPLY TO
ATTENTION OF:

IMGO-PWE

January 15, 2016

Georgia Department of Natural Resources
Wildlife Resources Division
ATTN: Lee Taylor
142 Bob Kirk Road, NW
Thomson, GA 30824

Reference: Environmental Assessment for the Construction and Operation of a New Access Control Point, Fort Gordon, Georgia

Dear Sir/Madam:

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Alternative 4: No Action Alternative
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If you have any questions or require additional information, please do not hesitate to contact Mr. Robert Drumm of Fort Gordon's Environmental Division Office at (706) 791-6374.

Sincerely,

John L. Ramey
Director of Public Works

Enclosures

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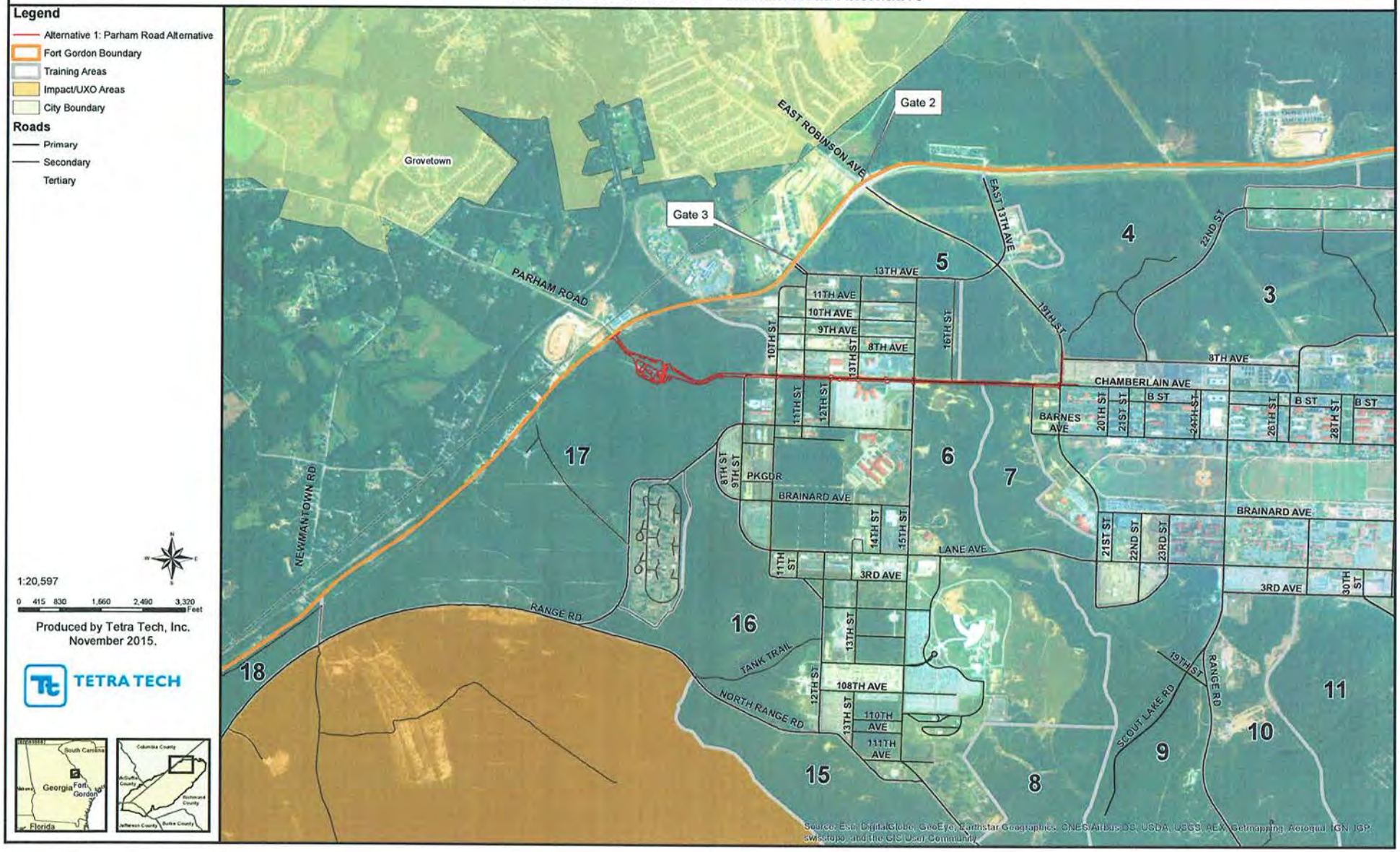

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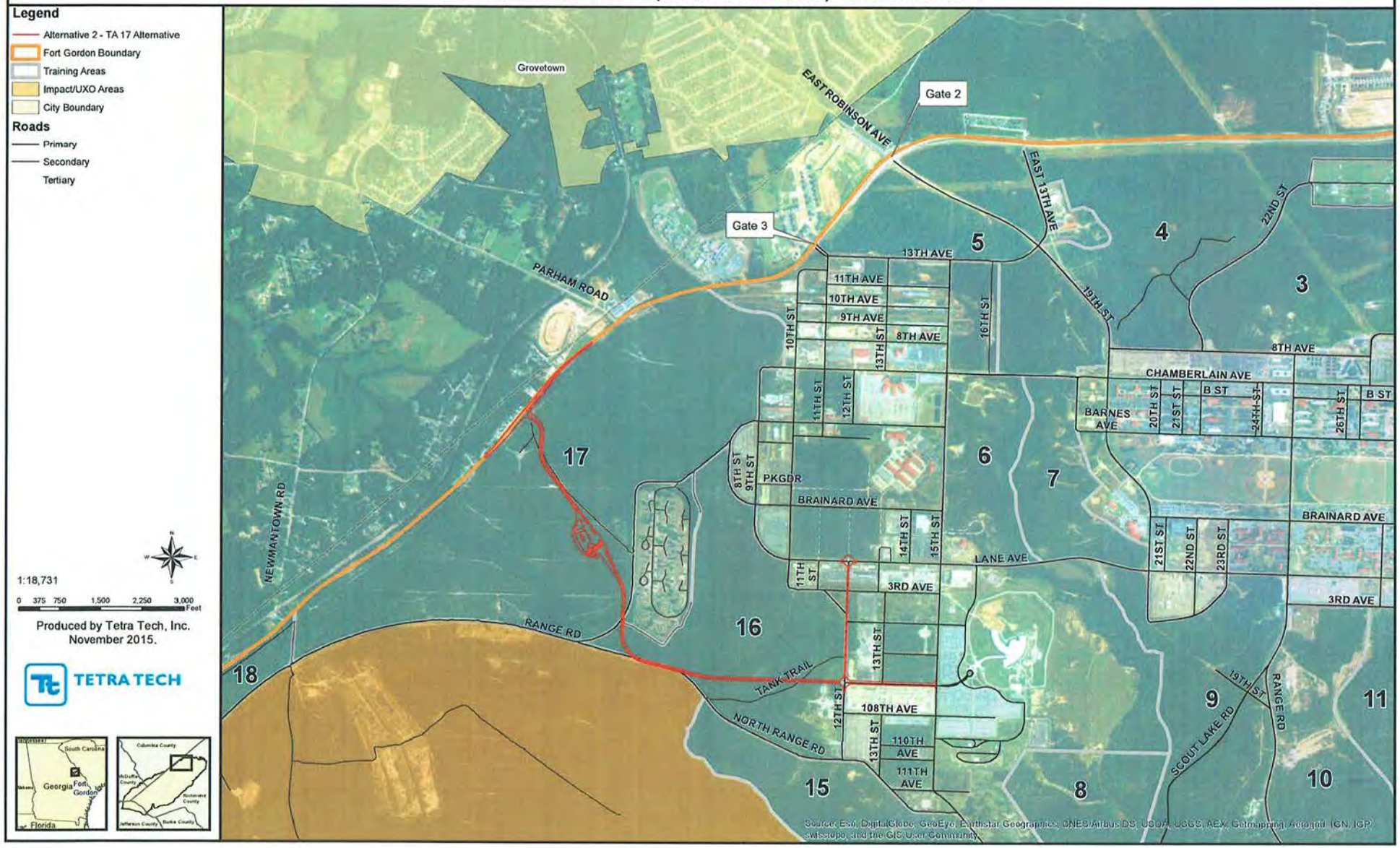

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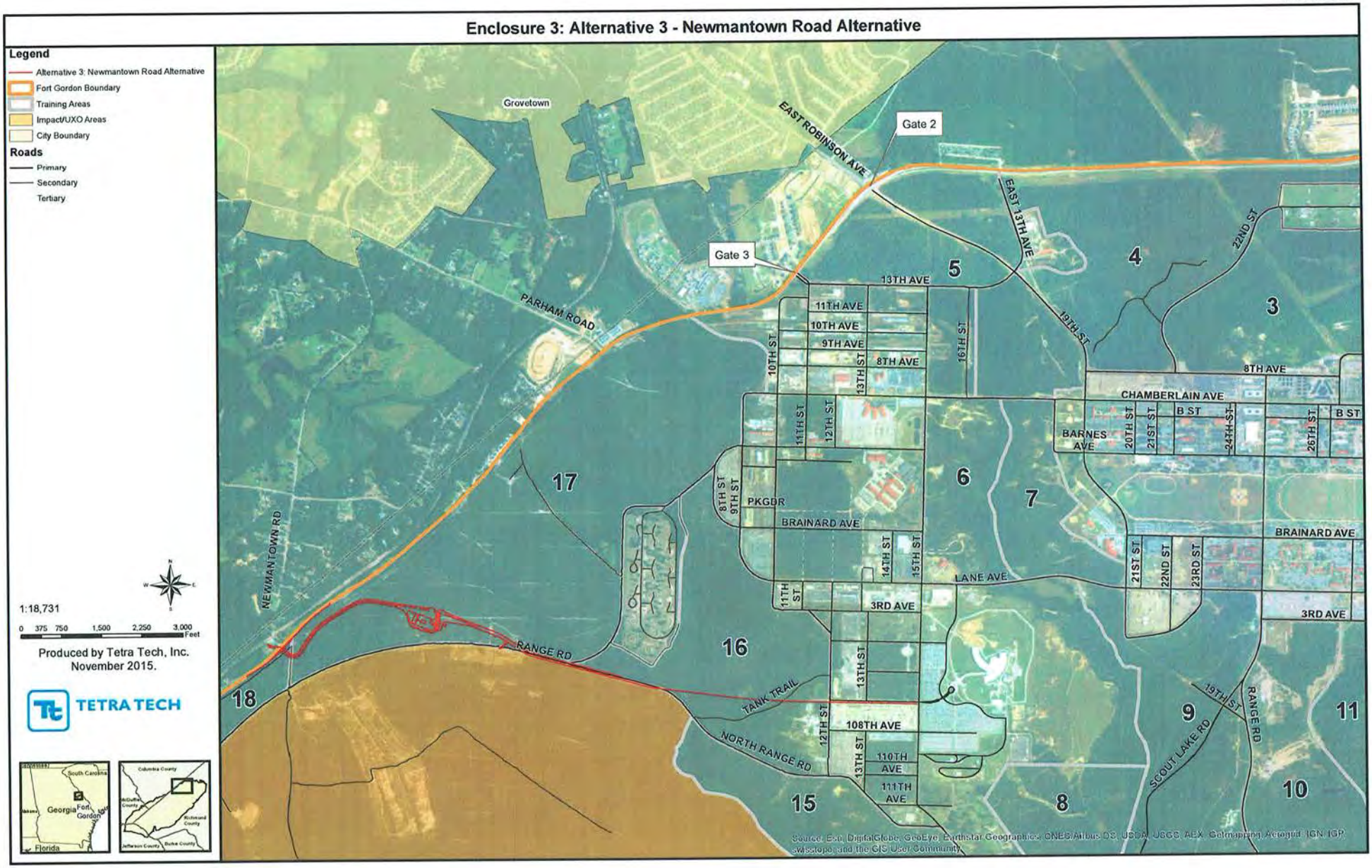

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HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT GORDON
307 CHAMBERLAIN AVENUE
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REPLY TO
ATTENTION OF:

IMGO-PWE

January 15, 2016

U.S. Environmental Protection Agency
Heinz J. Mueller, Chief
Atlanta Federal Center
61 Forsyth Street
Atlanta, GA 30303-8960

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Mr. Robert Drumm
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Directorate of Public Works
IMGO-PWE, Bldg. 14500
Fort Gordon, GA 30905-5209

If you have any questions or require additional information, please do not hesitate to contact Mr. Robert Drumm of Fort Gordon's Environmental Division Office at (706) 791-6374.

Sincerely,

John L. Ramey
Director of Public Works

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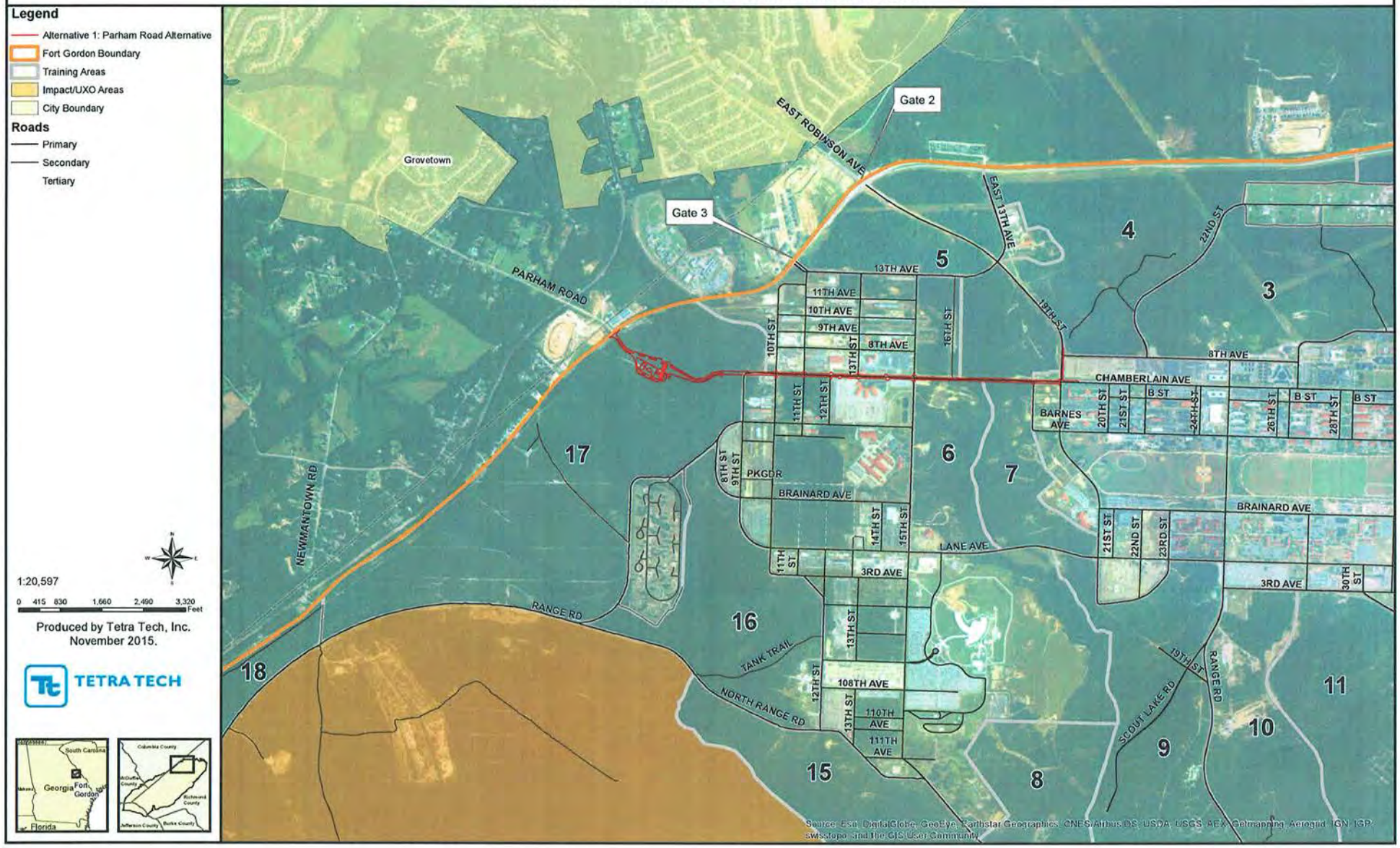

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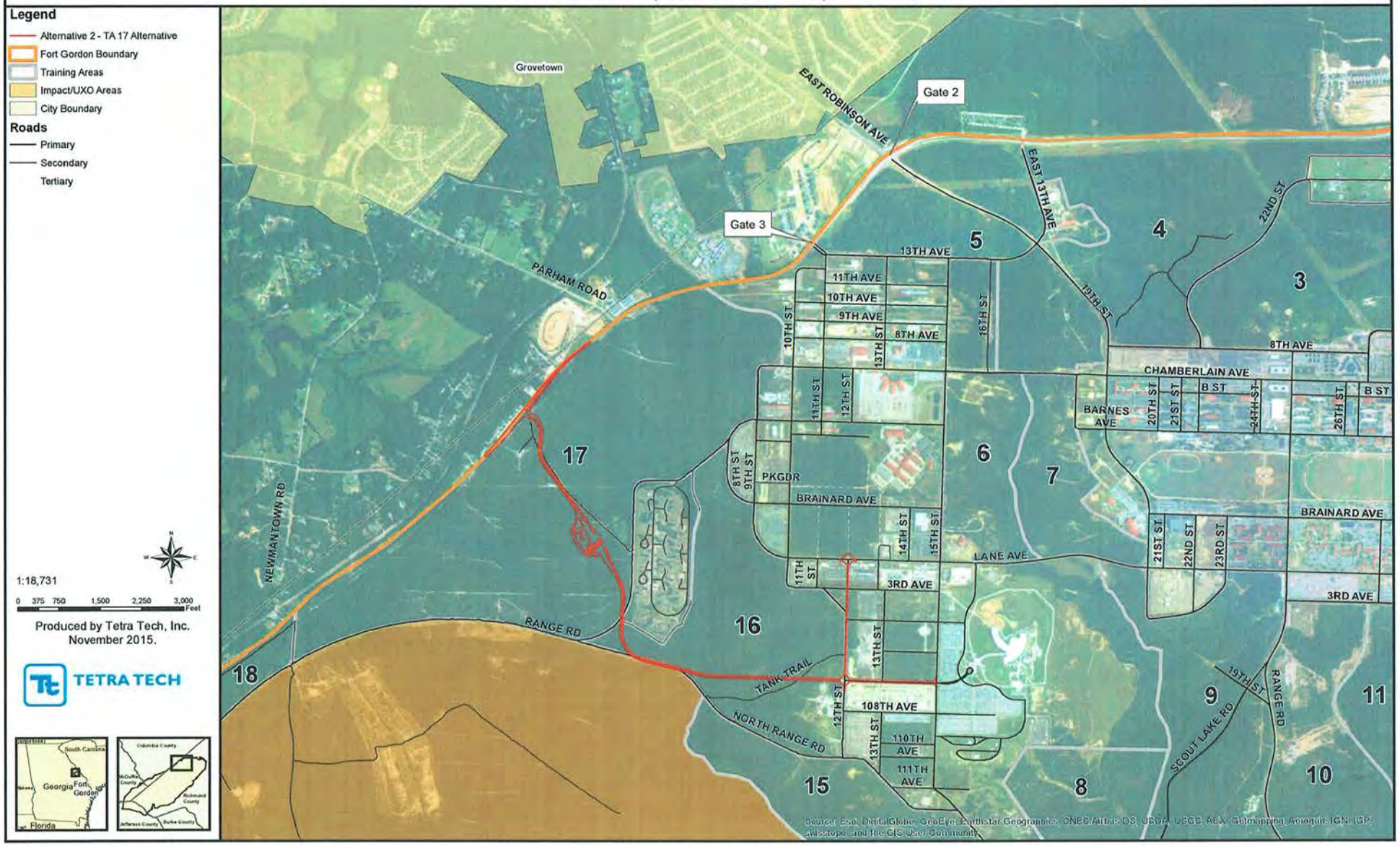

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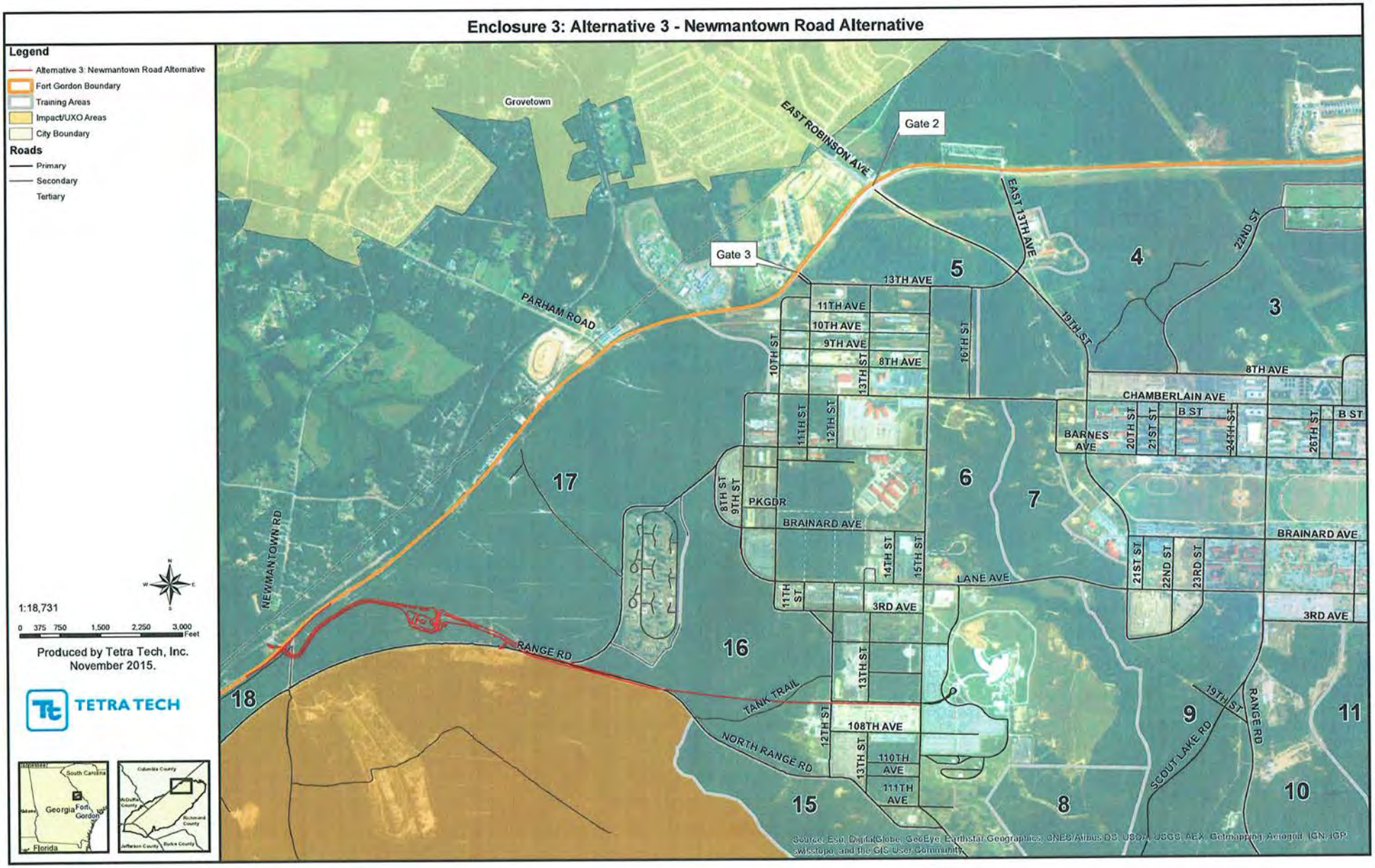

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IMGO-PWE

January 15, 2016

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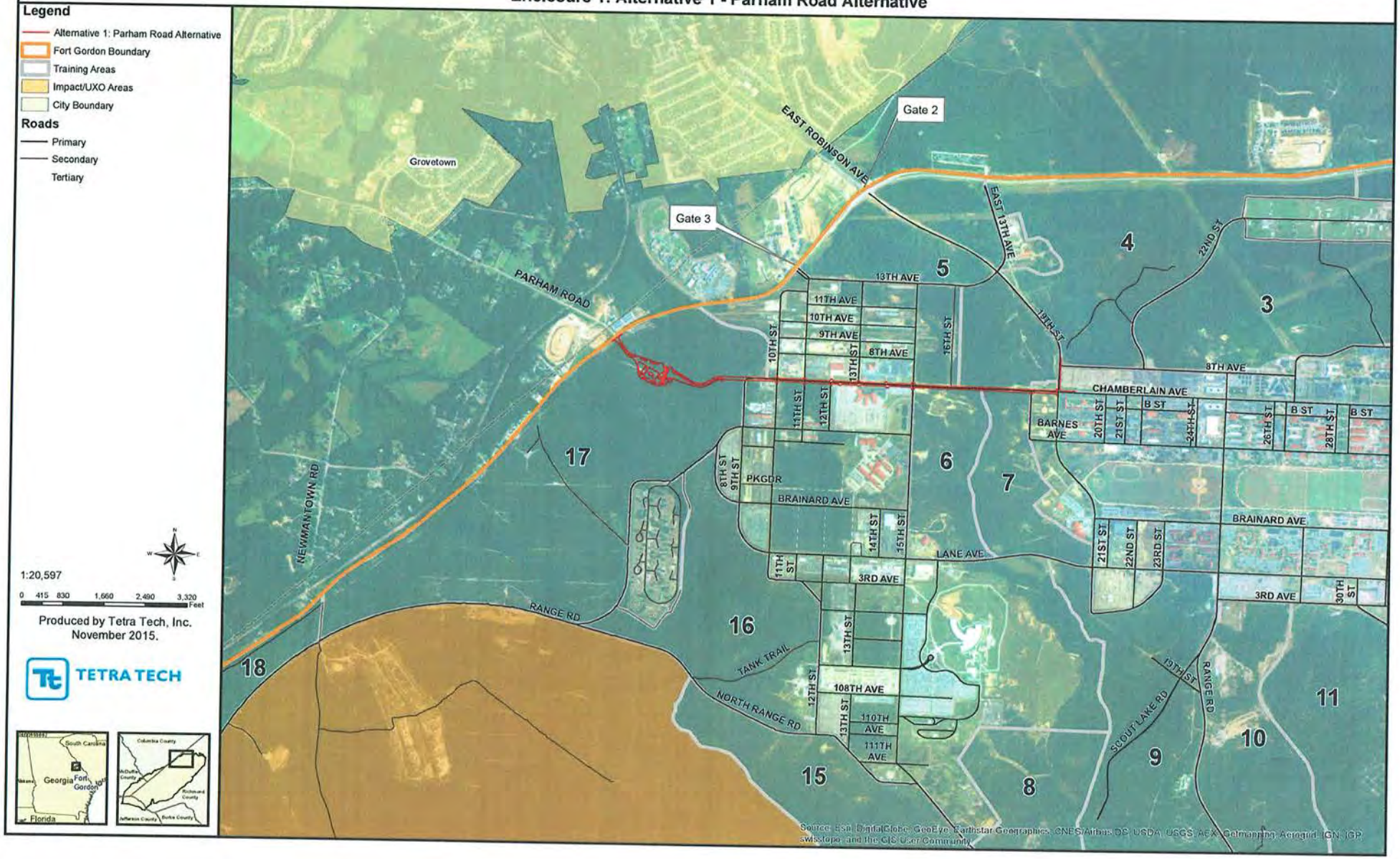

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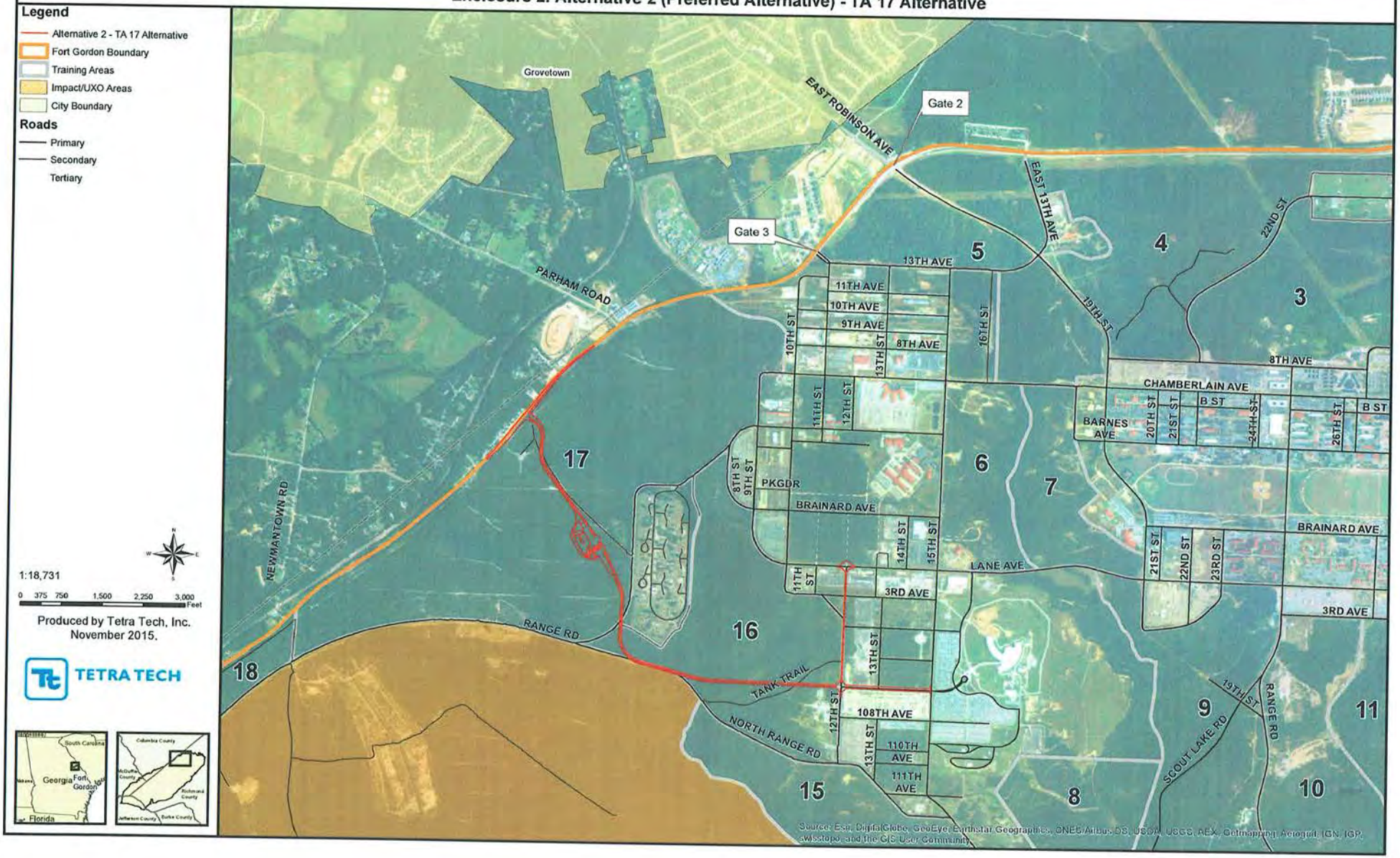

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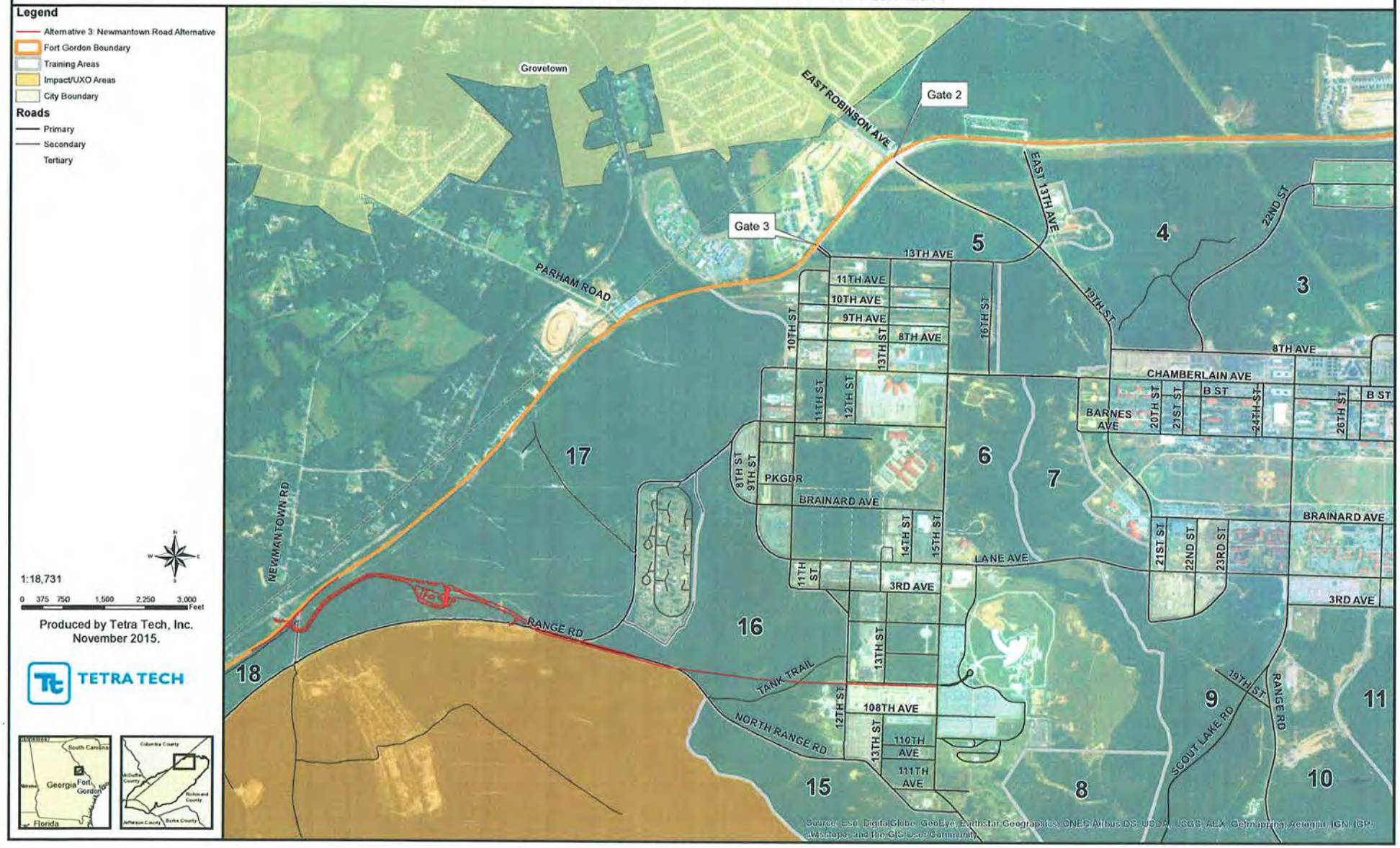

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Alternative 4: No Action Alternative
The No Action Alternative would be to continue to manage the flow of traffic at Fort Gordon as in the past, with installation personnel and visitors using the existing system of gates and access roads.

Inclusion of the No Action Alternative is prescribed by Council on Environmental Quality regulations. The No Action Alternative serves as a baseline against which the impacts of the action alternatives can be evaluated.

Fort Gordon looks forward to receiving any information and input you may have. We respectfully request that information be submitted no later than February 26, 2016 to be considered in the Draft EA. Your response should be sent to:

Mr. Robert Drumm
U.S. Army Garrison, Fort Gordon
Directorate of Public Works
IMGO-PWE, Bldg. 14500
Fort Gordon, GA 30905-5209

If you have any questions or require additional information, please do not hesitate to contact Mr. Robert Drumm of Fort Gordon's Environmental Division Office at (706) 791-6374.

Sincerely,

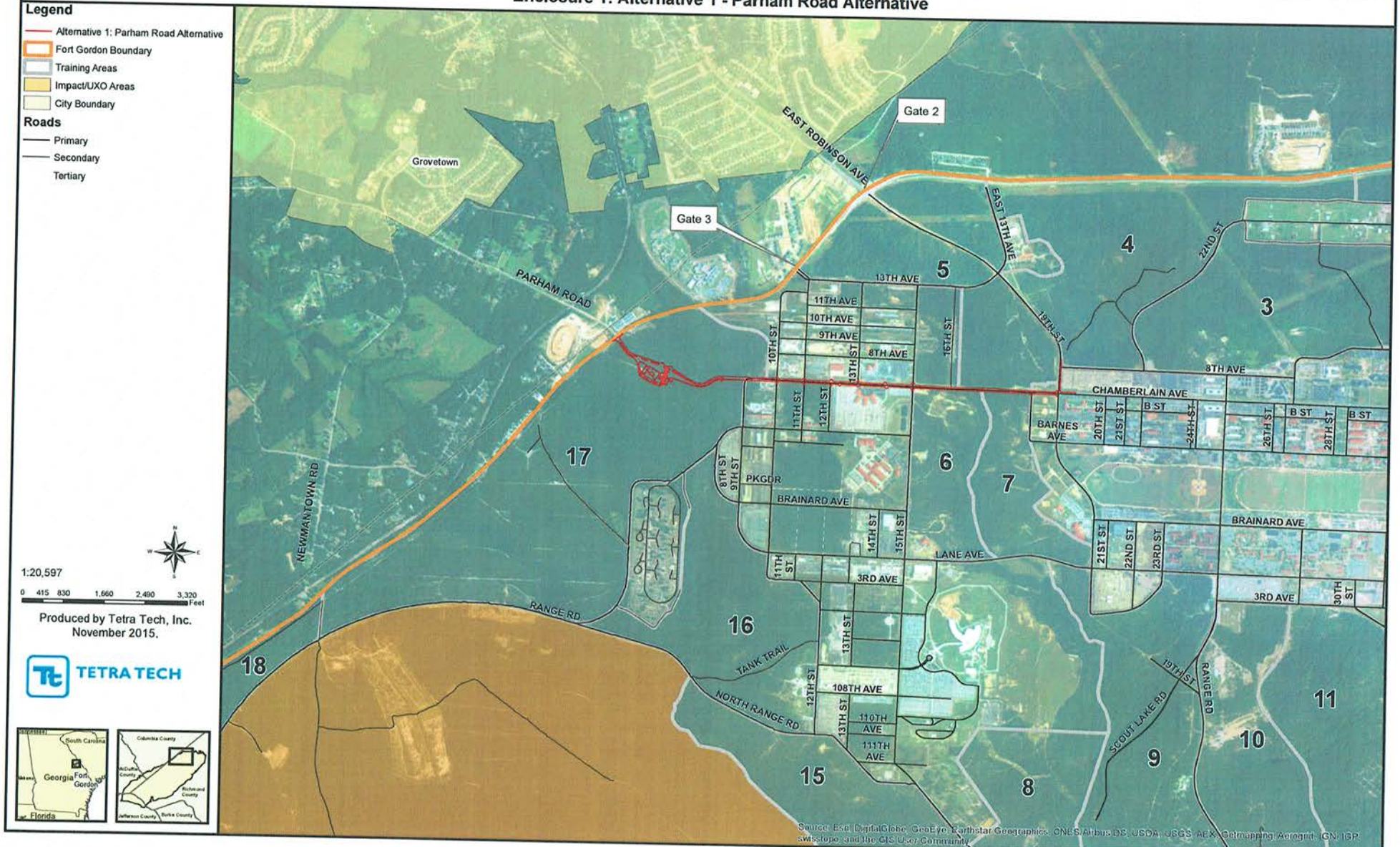
John L. Ramey
Director of Public Works

Enclosures

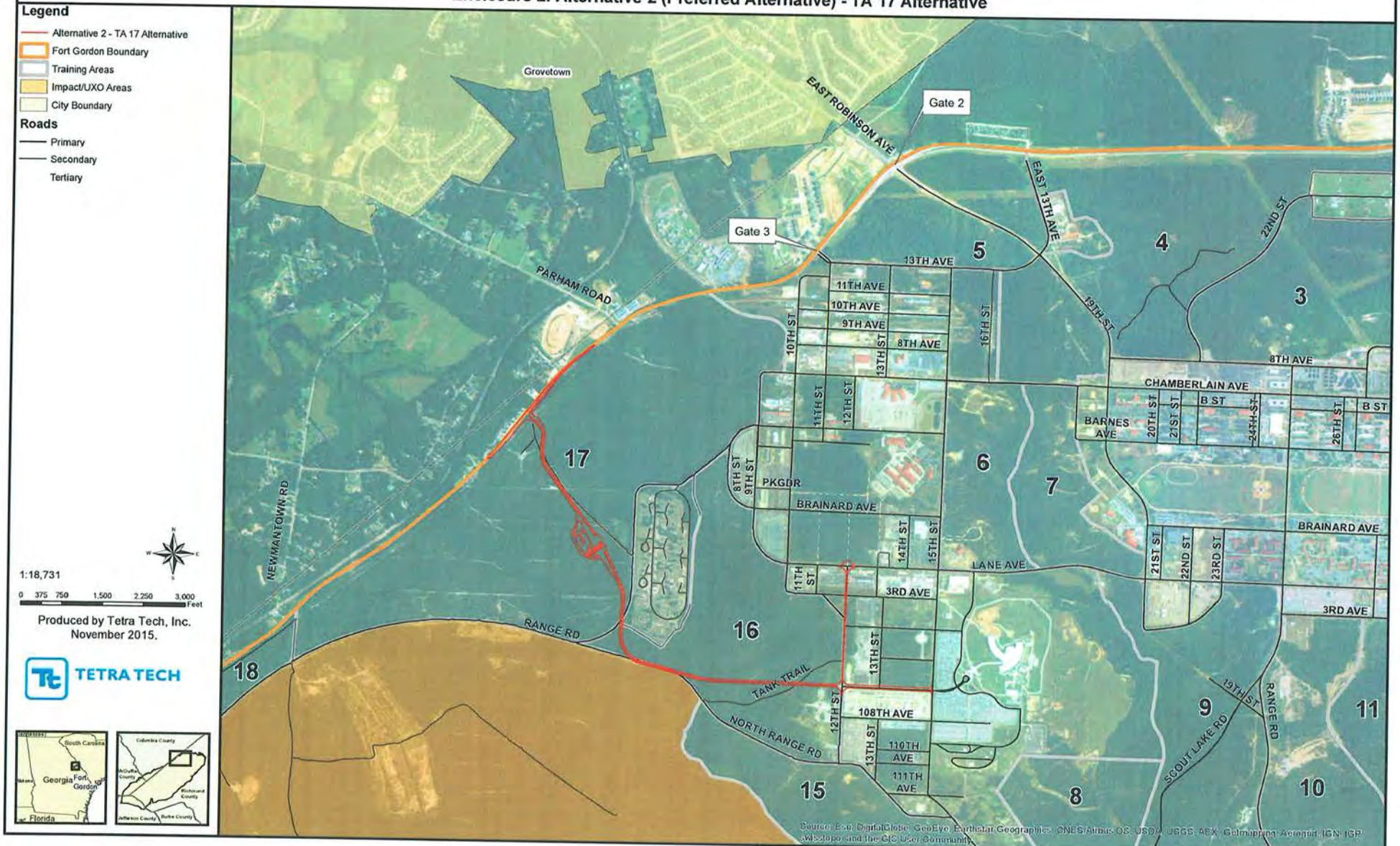
1. Alternative 1 Parham Road Alternative
2. Alternative 2 (Preferred Alternative) Training Area 17 Alternative
3. Alternative 3 Newmantown Road Alternative
4. List of Persons Contacted

NEW ACP/GATE 6
FORT GORDON, GEORGIA
JANUARY 2016

Enclosure 1: Alternative 1 - Parham Road Alternative

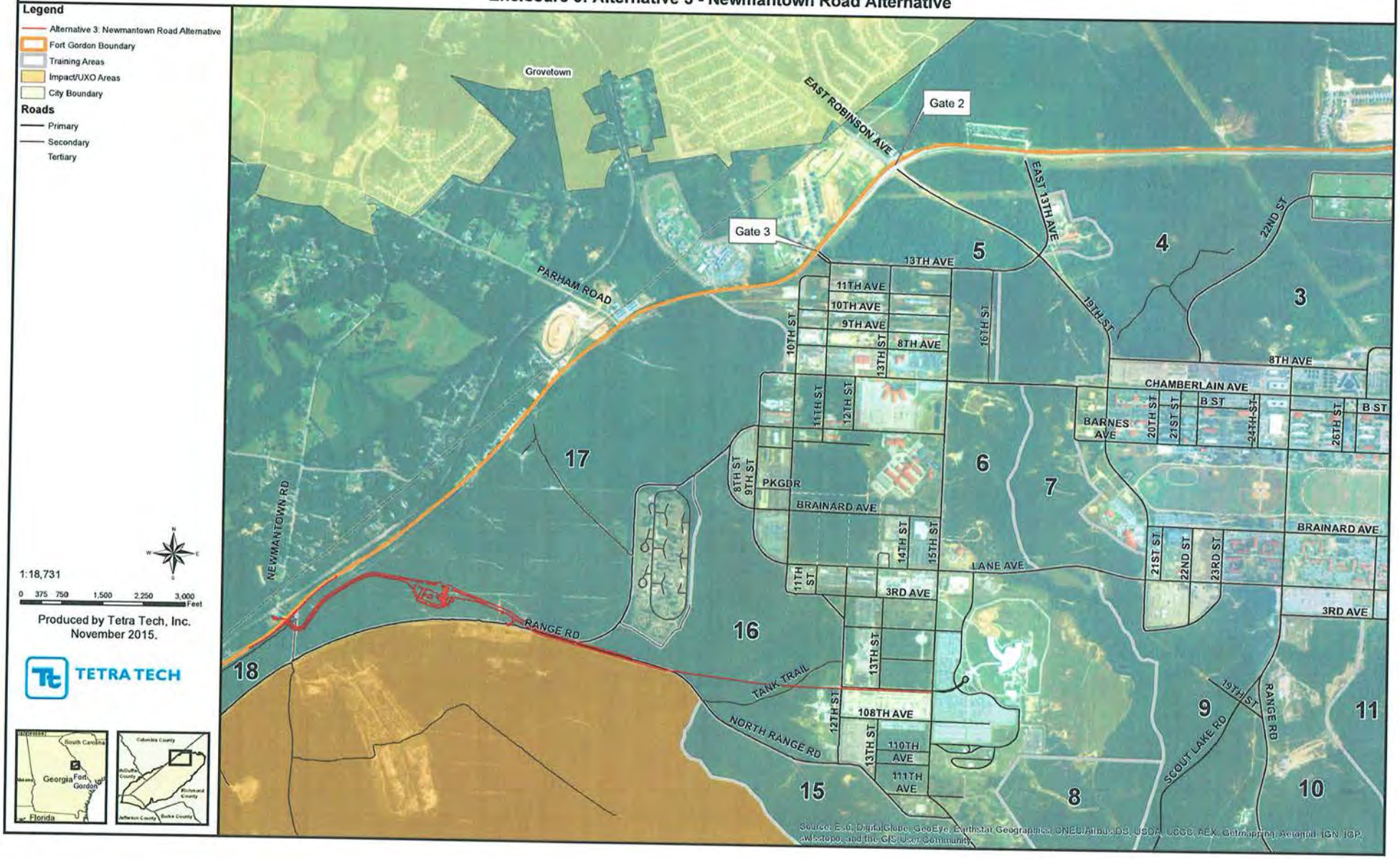


Enclosure 2: Alternative 2 (Preferred Alternative) - TA 17 Alternative



NEW ACP/GATE 6
FORT GORDON, GEORGIA
JANUARY 2016

Enclosure 3: Alternative 3 - Newmantown Road Alternative



Enclosure 4
Scoping Mailing List
Environmental Assessment
Construction and Operation of a New Access Control Point, Fort Gordon, Georgia

State and Federal Agencies

U.S. Fish and Wildlife Service
Ecological Services Office
ATTN: Ms. Debbie Harris
105 Westpark Drive, Suite D
Athens, GA 30606

Dr. David Crass, Director
Historic Preservation Office
254 Washington Street, SW
Ground Level
Atlanta, Georgia 30334-9007

Georgia Department of Natural Resources
ATTN: Katrina Morris
Environmental Review Coordinator
2065 U.S. Highway 278 SE
Social Circle, GA 30025-4743

U.S. Environmental Protection Agency
Heinz J. Mueller, Chief
Atlanta Federal Center
61 Forsyth Street
Atlanta, GA 30303-8960

Georgia Department of Natural Resources
Wildlife Resources Division
ATTN: Lee Taylor
142 Bob Kirk Road, NW
Thomson, GA 30824

U.S. Army Corps of Engineers
ATTN: CESAS-OP-F
100 W. Oglethorpe Avenue
Savannah, GA 31401-3640

Georgia Department of Community Affairs
60 Executive Park South, NE
Atlanta, GA 30329

Georgia Department of Transportation
One Georgia Center
600 West Peachtree NW
Atlanta, GA 30308

Regional and Local Offices

Brier Creek Soil and Water Conservation District
151 Langston Chapel Road
Statesboro, GA 30459

CSRA Regional Commission
3626 Walton Way Extension
Suite 300
Augusta, GA 30909

Region II Georgia Soil and Water Conservation District (McDuffie and Columbia Counties)
4310 Lexington Road
Athens, GA 30603

George Patty, Director
Augusta-Richmond County Planning and Development Department
535 Telfair Street
Augusta, GA 30901

Lillian Easterlin, Executive Director
Jefferson County Chamber of Commerce
P.O. Box 630
302 East Broad Street
Louisville, GA 30434

Department of Planning
Columbia County Government Center
630 Ronald Reagan Drive
Building A, West Wing
P.O. Box 498
Evans, GA 30809

McDuffie County Planning Commission
City/County Government Complex
210 Railroad Street
Thomson, GA 30824

United States Department of the Interior

Fish and Wildlife Service
105 West Park Drive, Suite D
Athens, Georgia 30606
Phone: (706) 613-9493
Fax: (706) 613-6059

West Georgia Sub-Office
Post Office Box 52560
Fort Benning, Georgia 31995-2560
Phone: (706) 544-6428
Fax: (706) 544-6419

Coastal Sub-Office
4980 Wildlife Drive
Townsend, Georgia 31331
Phone: (912) 832-8739
Fax: (912) 832-8744

February 24, 2016

Mr. Robert L. Drumm
Chief, Natural Resources Branch
Environmental Division
Fort Gordon, Georgia 30905-5209

Re: FWS Log Number; NG-16-91-Rich
Environmental Assessment for the Construction and Operation of a New Access Control Point, Fort Gordon, Georgia.

Dear Mr. Drumm:

Thank you for your January 15, 2016, letter requesting concerns we may have about the construction and operation of a new Access Control Point (ACP) at Fort Gordon Georgia. We submit the following comments as technical assistance in accordance with section 7(a) (2) of the Endangered Species Act of 1973, as amended, (16 U.S.C. 1531 *et seq.*).

Fort Gordon provides habitat for hundreds of species of fish, wildlife, and plants including the federally endangered Red-cockaded Woodpecker (RCW), and species of special concern such as migratory birds, gopher tortoise, and rare plants. In addition, the installation supports streams, riparian and wetland habitats, sandhills, and longleaf pine ecosystems valuable to a diverse array of wildlife.

Fort Gordon has been proactive in their conservation and recovery of endangered and threatened species in accordance with section 7(a) (1) of the ESA. We support these actions and recommend that the new ACP and road be designed to complement Fort Gordon's important environmental efforts. From our review of the maps and Fort Gordon RCW data, it does not appear that any of the new construction alternatives will occur in areas with the endangered RCW and will have minor impacts on other natural resources on Fort Gordon. However,in case there are impacts and resources of which we are unaware, we recommend that Fort Gordon include the following conservation measures during the early planning stages of this EA

- Any new development should avoid direct or indirect impacts to RCW, gopher tortoise, other rare species or their habitat.

- Any new development should avoid removal of habitat in the Habitat Management Units for RCW that could cause a decrease in the Installation Regional Recovery goal of 122 active RCW clusters.

Thank you again for including the Service in your early planning. Please contact Deborah Harris in our Athens office (706-613-9493 ext. 224) if you have any questions.

Sincerely,

FOR Donald W. Imm, Ph.D
Field Supervisor

cc: Alan Braswell, Natural Resources Branch, Fort Gordon, GA
Steve Camp, Natural Resources Branch, Fort Gordon, GA
John Doresky, FWS, Columbus, GA

Appendix B - Air Quality Supporting Documentation

Draft Record of Non-Applicability (RONA) to the General Conformity Rule for the Proposed New Access Control Point at Fort Gordon, Georgia

June 21, 2016

The Army proposes to construct and operate a new access control point (ACP) on Fort Gordon. The action would generate new direct and indirect emissions from the construction and operation of the proposed ACP. General Conformity under the Clean Air Act, Section 176 has been evaluated according to the requirements of 40 CFR Part 93, Subpart B. The requirements of this rule are not applicable because:

All activities associated with all alternatives are located in an area designated by the USEPA to be in attainment for all criteria pollutants.

Supported documentation and emission estimates:

( ) Are Attached
( ) Appear in the NEPA Documentation
(X) Other (Not Necessary)

_____
Signature

_____
Title

_____
Date

Table B-1. Construction Equipment Use

Equipment Type	Number of Units	Days on Site	Hours Per Day	Operating Hours
Excavators	1	115	4	460
Rollers	1	173	8	1,384
Rubber Tired Dozers	1	115	8	920
Plate Compactors	1	115	4	460
Trenchers	1	58	8	464
Air Compressors	1	115	4	460
Cement Mixers	1	115	6	690
Cranes	1	115	7	805
Generator Sets	1	115	4	460
Loaders/Backhoes	1	230	7	1,610
Pavers	4	58	8	1,856
Paving Equipment	4	58	8	1,856

Table B-2. Construction Equipment Emission Factors (lbs/hour)

Equipment	CO	NO_x	VOC	SO_x	PM_{10}	$PM_{2.5}$	CO_2
Excavators	0.5828	1.3249	0.1695	0.0013	0.0727	0.0727	119.6
Rollers	0.4341	0.8607	0.1328	0.0008	0.0601	0.0601	67.1
Rubber Tired Dozers	1.5961	3.2672	0.3644	0.0025	0.1409	0.1409	239.1
Plate Compactors	0.0263	0.0328	0.0052	0.0001	0.0021	0.0021	4.3
Trenchers	0.5080	0.8237	0.1851	0.0007	0.0688	0.0688	58.7
Air Compressors	0.3782	0.7980	0.1232	0.0007	0.0563	0.0563	63.6
Cement Mixers	0.0447	0.0658	0.0113	0.0001	0.0044	0.0044	7.2
Cranes	0.6011	1.6100	0.1778	0.0014	0.0715	0.0715	128.7
Generator Sets	0.3461	0.6980	0.1075	0.0007	0.0430	0.0430	61.0
Loaders/Backhoes	0.4063	0.7746	0.1204	0.0008	0.0599	0.0599	66.8
Pavers	0.5874	1.0796	0.1963	0.0009	0.0769	0.0769	77.9
Paving Equipment	0.0532	0.1061	0.0166	0.0002	0.0063	0.0063	12.6

Source CARB 2015.

Table B-3. Construction Equipment Emissions (tpy)

Equipment	CO	NO_x	VOC	SO_x	PM_{10}	$PM_{2.5}$	CO_2
Excavators	0.1341	0.3047	0.0390	0.0003	0.0167	0.0167	27.5
Excavators	0.3004	0.5956	0.0919	0.0005	0.0416	0.0416	46.4
Rollers	0.7342	1.5029	0.1676	0.0011	0.0648	0.0648	110.0
Rubber Tired Dozers	0.0061	0.0076	0.0012	0.0000	0.0005	0.0005	1.0
Plate Compactors	0.1179	0.1911	0.0429	0.0002	0.0160	0.0160	13.6
Trenchers	0.0870	0.1835	0.0283	0.0002	0.0130	0.0130	14.6
Air Compressors	0.0154	0.0227	0.0039	0.0000	0.0015	0.0015	2.5
Cement Mixers	0.2419	0.6480	0.0716	0.0006	0.0288	0.0288	51.8
Cranes	0.0796	0.1605	0.0247	0.0002	0.0099	0.0099	14.0
Generator Sets	0.3271	0.6235	0.0969	0.0006	0.0482	0.0482	53.8
Loaders/Backhoes	0.5451	1.0019	0.1822	0.0008	0.0714	0.0714	72.3
Pavers	0.0494	0.0984	0.0154	0.0001	0.0059	0.0059	11.7
Total	**2.64**	**5.34**	**0.77**	**<0.1**	**0.32**	**0.32**	**419.3**

Table B-4. Emissions from Painting

VOC Content	0.84	lbs/gallon		
Coverage	400	sqft/gallon		
Emission Factor	0.0021	lbs/sqft		
Building/Facility	Area [sqft]	Wall Surface	VOC [lbs]	VOC [tons]
All Buildings Combined	16,429	32,858	69.0	0.035
Total	16,429	32,858	69.0	0.03

Source: SCAQMD 1993.

Table B-5. Emissions from Delivery of Equipment

Number of Deliveries	2						
Number of Trips	2						
Miles Per Trip	30						
Days of Construction	230						
Total Miles	27,600						
Pollutant	CO	NO_x	VOC	SO_x	PM_{10}	$PM_{2.5}$	CO_2
Emission Factor (lbs/mile)	2.2E-02	2.4E-02	3.0E-03	2.6E-05	8.6E-04	7.4E-04	2.7E+00
Total Emissions (lbs)	605.8	654.5	82.6	0.7	23.6	20.4	75,056.4
Total Emissions (tons)	0.30	0.33	0.04	0.0004	0.01	0.01	37.5

Source: CARB 2015.

Table B-6. Particulates from Surface Disturbance

TSP Emissions	37.4	lb/acre				
PM_{10}/TSP	0.45					
$PM_{2.5}/PM_{10}$	0.15					
Period of Disturbance	30	days				
Capture Fraction	0.5					
Building/Facility	Area [acres]	TSP [lbs]	PM_{10} [lbs]	PM_{10} [tons]	$PM_{2.5}$ [lbs]	$PM_{2.5}$ [tons]
All Facilities	18.7	21,028	9,463	4.73	710	0.35
Total	18.7	21,028	9,463	4.73	710	0.35

Source: USEPA 1995.

Table B-7. Emissions from Worker Commutes

Number of Workers	24						
Number of Trips	2						
Miles Per Trip	20						
Days of Construction	58						
Total Miles	55,680						
Pollutant	CO	NO_x	VOC	SO_x	PM_{10}	$PM_{2.5}$	CO_2
Emission Factor (lbs/mile)	1.1E-02	1.1E-03	1.1E-03	1.1E-05	8.5E-05	5.3E-05	1.1E+00
Total Emissions (lbs)	587	61	60	1	5	3	61,222
Total Emissions (tons)	0.29	0.03	0.03	0.6	0.00	0.00	30.6

Source: CARB 2014.

Table B-8. Total Construction Emissions (tpy)

Activity/Source	**CO**	**NO_x**	**VOC**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**
Heavy Equipment	2.64	5.34	0.77	0.0047	0.32	0.32	419.28
Painting	0.00	0.00	0.03	0.0000	0.00	0.00	0.00
Delivery of Equipment	0.30	0.33	0.04	0.0004	0.01	0.01	37.53
Surface Disturbance	0.00	0.00	0.00	0.0000	4.73	0.35	0.00
Worker Commutes	0.29	0.03	0.03	0.5984	0.00	0.00	30.61
Total Emissions	3.2	5.7	0.9	0.6	5.1	0.7	487.4

Source: CARB 2014, SCAQMD 1993, USEPA 1995.

Table B-9. Generator Emissions

Pollutant	**CO**	**NO_x**	**VOC**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**		
Emission Factor [lb/hp-hr]	0.0055	0.024	0.000705	0.00809	0.0007	0.0007		
Generator Rating [kW]	**Estimated Run Time (hr/yr)**	**Annual Power Output [kW-hr/yr]**	**CO**	**NO_x**	**VOC**	**SO_x**	**PM 10**	**PM 2.5**
700	100	70000	0.26	1.13	0.03	0.38	0.03	0.03
	Total Emissions [tpy]		**0.26**	**1.13**	**0.03**	**0.38**	**0.03**	**0.03**

Source: USEPA 1995.

Appendix C - Economic Impact Forecast System (EIFS) Model

Economic Impact Forecast System (EIFS) Model

8.1 *Socioeconomic Impact Assessment*

Socioeconomic impacts are linked through cause-and-effect relationships. Military payrolls and local procurement contribute to the economic base for the ROI. In this regard, the proposed Fort Gordon Access Control Point (ACP)/Gate 6 construction project would have a multiplier effect on the local and regional economy. With the proposed action, direct jobs would be created (e.g., construction jobs), generating new income and increasing personal spending. This spending generally creates secondary jobs, increases business volume, and provides tax revenues for schools and other social services.

8.2 *The Economic Impact Forecast System*

The U.S. Army, with the assistance of many academic and professional economists and regional scientists, developed EIFS to address the economic impacts of NEPA-requiring actions and to measure their significance. As a result of its designed applicability, and in the interest of uniformity, EIFS should be used in NEPA assessments. The entire system is designed for the scrutiny of a populace affected by the actions being studied. The algorithms in EIFS are simple and easy to understand, but still have firm, defensible bases in regional economic theory.

EIFS was developed under a joint project of the U.S. Army Corps of Engineers, the U.S. Army Environmental Policy Institute, and the Computer and Information Science Department of Clark Atlanta University. EIFS is implemented as an on-line system supported by the U.S. Army Corps of Engineers, Mobile District. The system is available to anyone with an approved user-id and password. U.S. Army Corps of Engineers staff is available to assist with the use of EIFS.

The databases in EIFS are national in scope and cover the approximately 3,700 counties, parishes, and independent cities that are recognized as reporting units by federal agencies. EIFS allows the user to define an economic ROI by identifying the counties, parishes, or cities to be analyzed. Once the ROI is defined, the system aggregates the data, calculates multipliers and other variables used in the various models in EIFS, and prompts the user for forecast input data.

8.3 *The EIFS Model*

The basis of the EIFS analytical capabilities is the calculation of multipliers that are used to estimate the impacts resulting from federal-related changes in local expenditures or employment. In calculating the multipliers, EIFS uses the economic base model approach, which relies on the ratio of total economic activity to basic economic activity. Basic, in this context, is defined as the production or employment engaged to supply goods and services outside the ROI or by federal activities (such as military installations and their employees). According to economic base theory, the ratio of total income to basic income is measurable (as the multiplier) and sufficiently stable so that future changes in economic activity can be forecast. This technique is especially appropriate for estimating aggregate impacts and makes the economic base model ideal for the EA and EIS process.

The multiplier is interpreted as the total impact on the economy of the region resulting from a unit change in its base sector; for example, a dollar increase in local expenditures because of an expansion of its military installation. EIFS estimates its multipliers using a location quotient approach based on the concentration of industries within the region relative to the industrial concentrations for the nation.

The user inputs into the model the data elements which describe the action: the change in expenditures, or dollar volume of the construction project(s); change in civilian or military employment; average annual income of affected civilian or military employees; the percent of civilians expected to relocate because of the proposed action; and the percent of military living on-post. Once these are entered into the EIFS model, a projection of changes in the local economy is provided. These are projected changes in sales volume, income, employment, and population. These four indicator variables are used to measure and evaluate socioeconomic impacts. Sales volume is the direct and indirect change in local business activity and sales (total retail and wholesale trade sales, total selected service receipts, and value-added by manufacturing). Employment is the total change in local employment because of the proposed action, including not only the direct and secondary changes in local employment, but also those personnel who are initially affected by a military action. Income is the total change in local wages and salaries because of the proposed action, which includes the sum of the direct and indirect wages and salaries, plus the income of the civilian and military personnel affected by the proposed action. Population is the increase or decrease in the local population as a result of the proposed action.

The proposed action at Fort Gordon is the construction of a new ACP/Gate 6 in the central part of Fort Gordon's Training Area 17, including widening Gordon Highway (on Fort Gordon property) between Gate 2 and the new ACP, and construction of a new Visitor Control Center. The current working estimate for the total cost of this proposed project (about $29,000,000) was divided over the estimated design and construction period (about 4 years) and input in to the EIFS model as the change in expenditures (about $7,250,000 per year). As the proposed action is a short-term construction project with no permanent civilian jobs created on-post and no assignment of new military or civilian personnel to Fort Gordon from outside the region, no change was entered in to the model for military or civilian employment or military living on-post.

8.4 *The Significance of Socioeconomic Impacts*

Once model projections are obtained, the Rational Threshold Value (RTV) profile allows the user to evaluate the significance of the impacts. This analytical tool reviews the historical trends for the defined region and develops measures of local historical fluctuations in sales volume, income, employment, and population. These evaluations identify the positive and negative changes within which a project can affect the local economy without creating a significant impact. The greatest historical changes define the boundaries that provide a basis for comparing an action's impact on the historical fluctuation in a particular area. Specifically, EIFS sets the boundaries by multiplying the maximum historical deviation of the following variables:

		8.4.1 Increase	8.4.2 Decrease
Sales Volume	X	100%	75%
Income	X	100%	67%
Employment	X	100%	67%
Population	X	100%	50%

These boundaries determine the amount of change that will affect an area. The percentage allowances are arbitrary, but sensible. The maximum positive historical fluctuation is allowed with expansion because economic growth is beneficial. While cases of damaging economic growth have been cited, and although the zero-growth concept is being accepted by many local planning groups, military base reductions and closures generally are more injurious to local economics than are expansion.
The major strengths of the RTV are its specificity to the region under analysis and its basis on actual historical data for the region. The EIFS impact model, in combination with the RTV, has proven successful in addressing perceived socioeconomic impacts. The EIFS model and the RTV technique for measuring the intensity of impacts have been reviewed by economic experts and have been deemed theoretically sound.
The following are the EIFS input and output data for the proposed action and the RTV values for the ROI.

EIFS REPORT:

PROJECT NAME

Fort Gordon ACP/Gate 6 Construction

STUDY AREA

Columbia County, GA

Jefferson County, GA

McDuffie County, GA

Richmond County, GA

FORECAST INPUT

Change In Local Expenditures	$7,250,000
Change In Civilian Employment	0
Average Income of Affected Civilian	$0
Percent Expected to Relocate	0
Change In Military Employment	0
Average Income of Affected Military	$0
Percent of Military Living On-post	0

FORECAST OUTPUT

Employment Multiplier	3.1	
Income Multiplier	3.1	
Sales Volume – Direct	$7,250,000	

Sales Volume – Induced	$15,225,000	
Sales Volume – Total	$22,475,000	0.25%
Income – Direct	$1,543,803	
Income - Induced	$3,241,986	
Income – Total (place of work)	$4,785,788	0.07%
Employment – Direct	43	
Employment – Induced	90	
Employment – Total	133	0.07%
Local Population	0	
Local Off-base Population	0	0.00%

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	9.85%	6.53%	3.95%	2.23%
Negative RTV	-10.61%	-5.85%	-9.52%	-1.42%

RTV DETAILED

SALES VOLUME

Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	674771	2948749	0	0	0
1970	640288	2644390	-304360	-374067	-14.15
1971	690565	2734637	90248	20541	0.75
1972	742135	2842377	107740	38033	1.34
1973	813237	2935785	93408	23701	0.81
1974	915364	2974933	39148	-30559	-1.03
1975	958372	2855949	-118984	-188691	-6.61
1976	1139971	3214718	358770	289063	8.99
1977	1270049	3352929	138211	68504	2.04
1978	1404252	3454460	101530	31823	0.92
1979	1578606	3488719	34259	-35448	-1.02
1980	1721022	3338783	-149937	-219644	-6.58
1981	1823507	3209372	-129410	-199117	-6.2
1982	1978111	3283664	74292	4585	0.14
1983	2137368	3441163	157498	87791	2.55
1984	2409874	3711206	270043	200336	5.4
1985	2664754	3970483	259278	189571	4.77
1986	2857609	4172109	201626	131919	3.16
1987	3035558	4705115	533006	463299	9.85
1988	3220963	4380510	-324605	-394312	-9
1989	3412985	4402751	22241	-47466	-1.08
1990	3719470	4574948	172198	102491	2.24
1991	3738426	4411342	-163606	-233313	-5.29
1992	3955320	4509065	97722	28015	0.62
1993	4007740	4448591	-60473	-130180	-2.93
1994	4195613	4531262	82671	12964	0.29
1995	4364337	4582554	51291	-18416	-0.4
1996	4546698	4637632	55078	-14629	-0.32
1997	4796542	4796542	158910	89203	1.86
1998	5109454	5007265	210723	141016	2.82
1999	5306607	5094343	87078	17371	0.34
2000	5569230	5179384	85041	15334	0.3

INCOME

Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	647374	2829024	0	0	0
1970	670185	2767864	-61160	-201440	-7.28
1971	728632	2885383	117519	-22761	-0.79
1972	793494	3039082	153699	13419	0.44
1973	884417	3192745	153663	13383	0.42
1974	1010954	3285600	92855	-47425	-1.44
1975	1084125	3230693	-54908	-195188	-6.04
1976	1257462	3546043	315350	175070	4.94
1977	1391583	3673779	127737	-12543	-0.34
1978	1557401	3831207	157427	17147	0.45
1979	1785016	3944885	113679	-26601	-0.67
1980	1972613	3826869	-118016	-258296	-6.75
1981	2215920	3900019	73150	-67130	-1.72
1982	2526627	4194201	294182	153902	3.67
1983	2754275	4434383	240182	99902	2.25
1984	3149185	4849745	415362	275082	5.67
1985	3497969	5211974	362229	221949	4.26
1986	3815389	5570468	358494	218214	3.92
1987	3941923	6109980	539512	399232	6.53
1988	4226696	5748307	-361674	-501954	-8.73
1989	4546026	5864373	116067	-24213	-0.41
1990	5073023	6239818	375445	235165	3.77
1991	5256475	6202640	-37178	-177458	-2.86
1992	5579396	6360511	157871	17591	0.28
1993	5713181	6341631	-18880	-159160	-2.51
1994	6018917	6500431	158800	18520	0.28
1995	6227919	6539315	38884	-101396	-1.55
1996	6576665	6708198	168884	28604	0.43
1997	6824826	6824826	116628	-23652	-0.35
1998	7273003	7127543	302717	162437	2.28
1999	7493978	7194219	66676	-73604	-1.02
2000	7868796	7317980	123762	-16518	-0.23

EMPLOYMENT

Year	Value	Change	Deviation	%Deviation
1969	120452	0	0	0
1970	107306	-13146	-15250	-14.21
1971	107298	-8	-2112	-1.97
1972	106837	-461	-2565	-2.4
1973	110130	3293	1189	1.08
1974	112437	2307	203	0.18
1975	109769	-2668	-4772	-4.35
1976	116071	6302	4198	3.62
1977	121342	5271	3167	2.61
1978	124948	3606	1502	1.2
1979	129643	4695	2591	2
1980	130811	1168	-936	-0.72
1981	129250	-1561	-3665	-2.84
1982	130030	780	-1324	-1.02
1983	130746	716	-1388	-1.06
1984	138320	7574	5470	3.95
1985	144563	6243	4139	2.86
1986	149078	4515	2411	1.62
1987	151942	2864	760	0.5
1988	155265	3323	1219	0.79
1989	159472	4207	2103	1.32
1990	165129	5657	3553	2.15
1991	161931	-3198	-5302	-3.27
1992	162145	214	-1890	-1.17
1993	164846	2701	597	0.36
1994	168529	3683	1579	0.94
1995	172876	4347	2243	1.3
1996	174589	1713	-391	-0.22
1997	178546	3957	1853	1.04
1998	182482	3936	1832	1
1999	185630	3148	1044	0.56
2000	187782	2152	48	0.03

POPULATION

Year	Value	Change	Deviation	%Deviation
1969	215310	0	0	0
1970	216476	1166	-2356	-1.09
1971	215735	-741	-4263	-1.98
1972	213202	-2533	-6055	-2.84
1973	213739	537	-2985	-1.4
1974	221209	7470	3948	1.78
1975	227320	6111	2589	1.14
1976	235713	8393	4871	2.07
1977	239369	3656	134	0.06
1978	245862	6493	2971	1.21
1979	254661	8799	5277	2.07
1980	259212	4551	1029	0.4
1981	260780	1568	-1954	-0.75
1982	263871	3091	-431	-0.16
1983	267984	4113	591	0.22
1984	272903	4919	1397	0.51
1985	279212	6309	2787	1
1986	285147	5935	2413	0.85
1987	285755	608	-2914	-1.02
1988	286166	411	-3111	-1.09
1989	289061	2895	-627	-0.22
1990	295038	5977	2455	0.83
1991	303463	8425	4903	1.62
1992	313994	10531	7009	2.23
1993	312562	-1432	-4954	-1.58
1994	316716	4154	632	0.2
1995	319990	3274	-248	-0.08
1996	320313	323	-3199	-1
1997	322726	2413	-1109	-0.34
1998	324957	2231	-1291	-0.4
1999	326229	1272	-2250	-0.69
2000	328018	1789	-1733	-0.53

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