FINAL
ENVIRONMENTAL ASSESSMENT

SOUTH WOLF CREEK
EXPANSION/UPGRADE PROJECT
LAWTON, OKLAHOMA

PREPARED BY:

PREPARED FOR:

US ARMY CORPS OF ENGINEERS
TULSA DISTRICT

October 2007

FINDING OF NO SIGNIFICANT IMPACT

In accordance with the National Environmental Policy Act of 1969, including guidelines in 33 code of Federal Regulations Part 230, the City of Lawton has assessed the environmental impacts of the new parallel installation of approximately 33,296 LF of sanitary sewer trunk line. The project is identified in the Sewer System Evaluation Study (SSES) Report, Volume 1, prepared by Biggs and Mathews, Byrd Forbes, and CH2M Hill, as South Wolf Creek Trunk Expansion 1, South Wolf Creek Trunk Expansion 2, and South Wolf Creek Expansion 3. The project has been undertaken by the City of Lawton for compliance with State of Oklahoma, Department of Environmental Quality, Division of Water Quality Consent Order, Case No. 02-0397, issued January 17, 2004. The project is designed to remediate sanitary sewer overflows (SSOs) by increasing the carrying capacity of the existing collection system and/or replacing (or repairing) deteriorated sewer lines as outlined in the SSES Report mentioned above. The purpose of this project is to bring the City of Lawton into compliance with its NPDES permit pertaining to overflows of the sewer collection system. This assessment was prepared in accordance with U.S. Army Corps of Engineers regulations, Part 230, Policy and Procedures for implementing the National Environmental Policy Act. It has been determined from the enclosed Environmental Assessment that the project will have no significant adverse effects on the natural or human environment. Therefore an environmental impact statement will not be prepared.

14 OCT 07
Date

Anthony C. Funkhouser, P. E.
Colonel, U.S. Army
District Commander

Enclosure:
Environmental Assessment

ENVIRONMENTAL ASSESSMENT ORGANIZATION

This EA will facilitate the decision process regarding the proposed action and alternatives.

SECTION 1	*AUTHORITY, PURPOSE, AND SCOPE* of the proposed action summarizes the purpose of and need for the proposed action, provides relevant background information, and describes the scope of the EA.
SECTION 2	*ALTERNATIVES* examines alternatives for implementing the proposed action.
SECTION 3	*PROPOSED ACTION* describes the recommended action.
SECTION 4	*AFFECTED ENVIRONMENT* describes the existing environmental and socioeconomic setting.
SECTION 5	*ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION* identifies the potential environmental and socioeconomic effects of implementing the proposed action and alternatives.
SECTION 6	*RESTORATION PLAN* summarizes the restoration prescribed for the proposed alternative.
SECTION 7	*FEDERAL, STATE AND LOCAL AGENCY COORDINATION* provides a listing of individuals and agencies consulted during preparation of the EA.
SECTION 8	*REFERENCES* provides bibliographical information for cited sources.
SECTION 9	*APPLICABLE ENVIRONMENTAL LAWS AND REGULATIONS* provides a listing of environmental protection statutes and other environmental requirements.
SECTION 10	*LIST OF PREPARERS* identifies persons who prepared the document and their areas of expertise.

APPENDICES

A	Coordination/Correspondence
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SECTION 1.0 AUTHORITY, PURPOSE AND SCOPE

This is an Environmental Infrastructure project federally authorized by Section 219 (f) (40) of the Water Resource Development Act of 1992 as amended by Section 502 of the Water Resources Development Act of 1999. The legislation authorized the United States Army Corps of Engineers to provide technical, planning, and construction assistance at a Federal expense not to exceed $5,000,000 for a water-related infrastructure project. The project will be cost shared at the rate of 75% Federal and 25% non-Federal. Any project cost that exceeds the $5,000,000 will be borne entirely by the sponsor. The sponsor may meet its 25% share by providing lands, easements, rights-of-way, disposal areas, and funding for construction.

The project described in this proposal provides for the new parallel installation of approximately 37,000 linear feet (LF) of existing sanitary sewer trunk line in the City of Lawton, Oklahoma (Figure 1.0, Figure 2.0). There are 26 projects identified in the Sewer System Evaluation Study (SSES) Report, Volume I (Appendix D). This environmental assessment addresses the projects identified in the SSES Report as South Wolf Creek Trunk Expansion 1, South Wolf Creek Trunk Expansion 2, and South Wolf Creek Expansion 3. The SSES Report was presented in April 1997 to the City of Lawton by Biggs and Mathews, Byrd Forbes and CH2M Hill, Inc. The City of Lawton is constructing the project to remediate sanitary sewer overflows (SSO's) under State of Oklahoma, Department of Environmental Quality, Division of Water Quality Consent Order, Case No. 02-0397, issued January 17, 2004. The project is designed to remediate sanitary sewer overflows (SSO's) by increasing the carrying capacity of the existing collection system as outlined in the SSES Report.

Total estimated cost for this project is $6,800,000 to be funded from Sewer Rehab Phase I cost savings and a $5,000,000 Federal Grant administered through the Corps of Engineers.

The purpose of this project is to bring the City of Lawton into compliance with its NPDES permit pertaining to overflows of the sewer collection system.

Several alternatives were considered by the City to alleviate the SSO's. The proposed project includes installing a new line parallel to the existing sewer trunk line.

The National Environmental Policy Act (NEPA) of 1969 (Public Law 91-190) requires all Federal agencies to address the environmental impacts of any major Federal action on the natural and human environment. Guidance for complying with the NEPA is contained in Title 40 of the code of Federal Regulations (CFR), Parts 1500 through 1508, and Engineering Regulation (ER) 200-2-2, Procedures for Implementing NEPA. The primary intent of NEPA is to ensure that environmental information is made available to public officials and citizens regarding major actions taken by Federal agencies. This environmental assessment was developed to assure that construction of the proposed project complies with the intent of NEPA.

SECTION 2.0 ALTERNATIVES

Alternatives include a No Action Plan, which would retain existing conditions; and a proposed action plan, which would increase the sewer carrying capacity by the new parallel construction of additional sewer lines. The purpose of this project is to help bring the City of Lawton into compliance with the NPDES Permit pertaining to overflows of the sewer collection system. Under the existing conditions, it is not possible to meet the NPDES Permit conditions. A Cost Analysis (Appendix D) was used to determine the best method for preventing sanitary sewer system overflows as required by the EPA Administrative Order and the ODEQ Consent Order. The proposed action is a component of Option II which is designed to help reduce the inflow and infiltration by 25% and increase treatment capacity to 18 million gallons per day ADF.

2.1 No Action

The Council on Environmental Quality (CEQ) regulations implementing the provisions of the National Environmental Policy Act of 1969 (NEPA) requires Federal agencies to consider a "no action" alternative. These regulations define the "no action" alternative as the continuation of existing conditions and their effects on the environment, without implementation of, or in lieu of, a proposed action. This alternative represents the existing

condition and serves as the baseline against which to compare the effects of the other alternatives. The “no action” alternative would retain the existing conditions and would not result in any change in environmental conditions or fish and wildlife habitat.

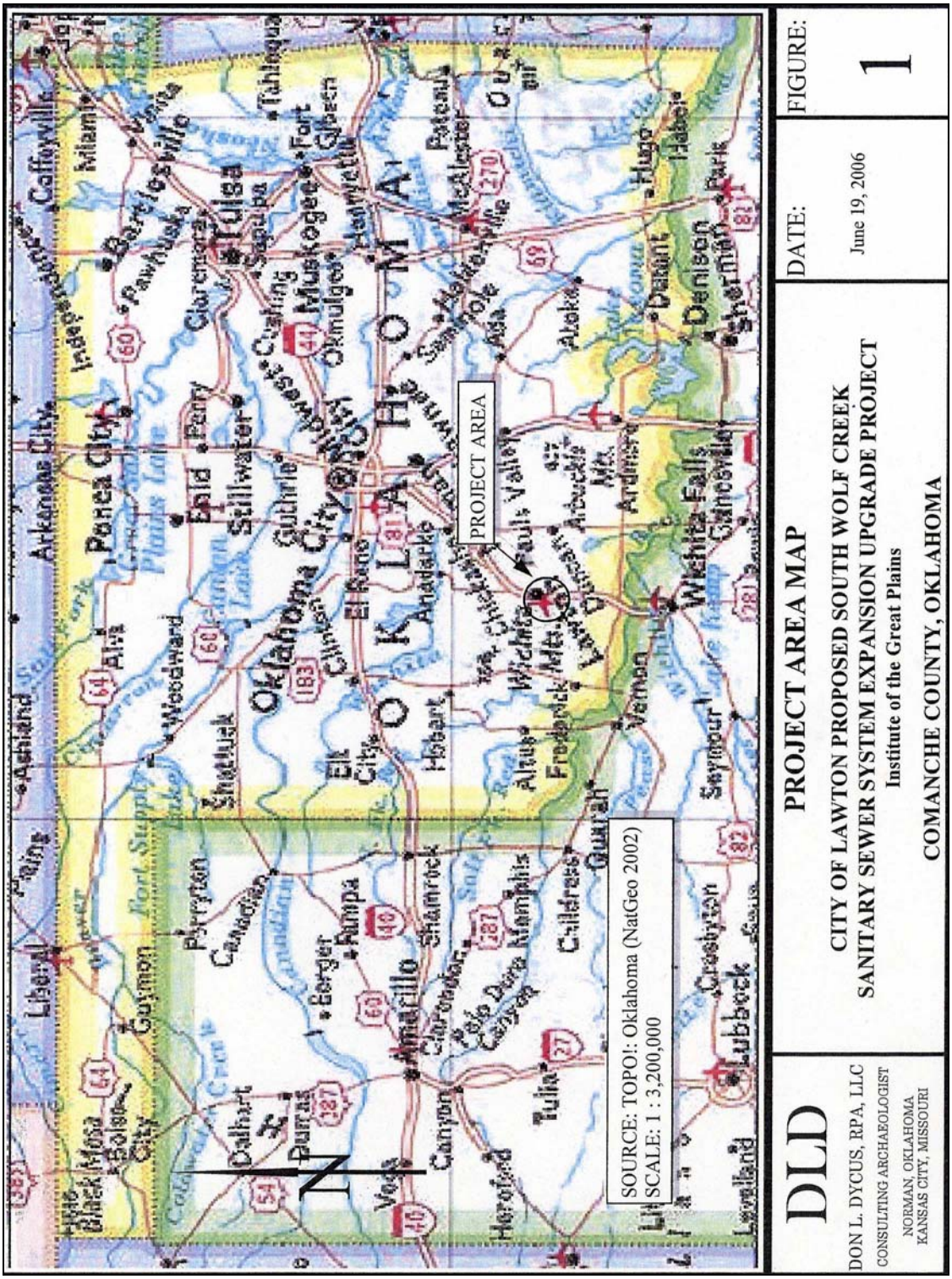

Figure 1.0. Project Area Map.

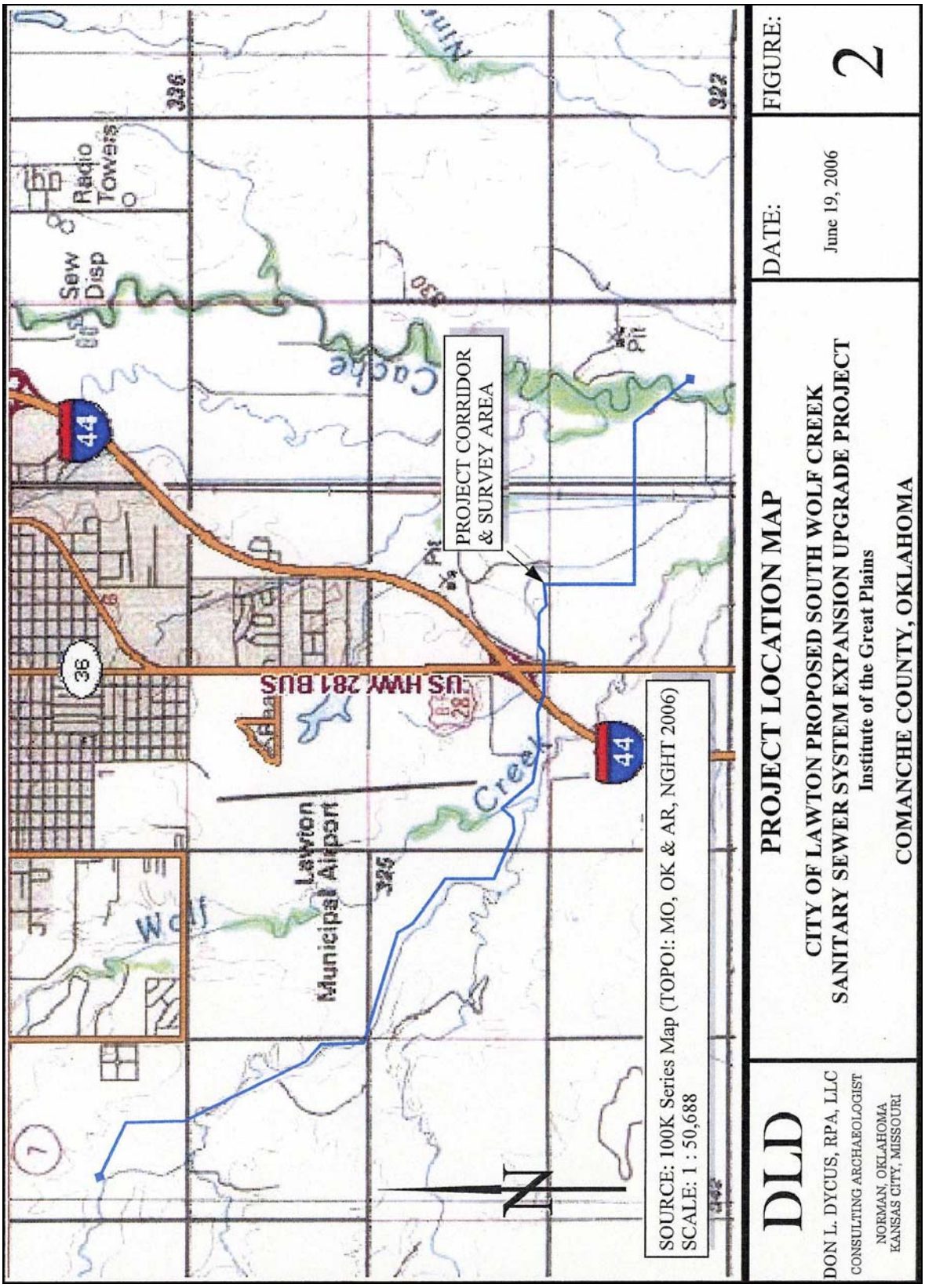

Figure 2.0. Project Location Map within the City of Lawton.

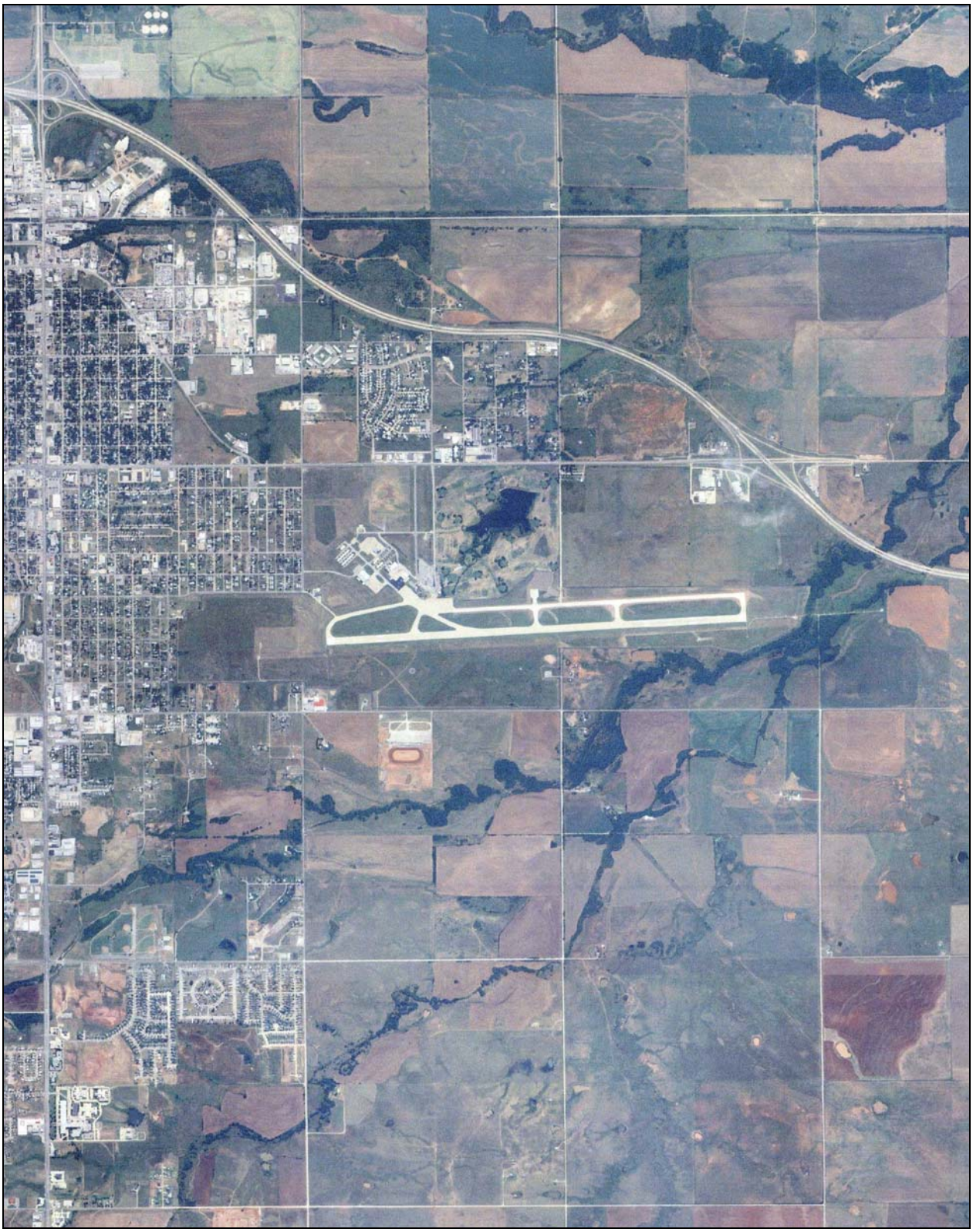

Photo 1.0. Aerial View of Project Site.

2.2 Action Alternatives

The project described in this proposal provides for the parallel installation of approximately 37,000 LF of new sewer line alongside the existing sanitary sewer trunk line as outlined in the Sewer System Evaluation Study (SSES) Report, Volume I, as presented in April 1997 to the City of Lawton by Biggs and Mathews, Byrd Forbes and CH2M Hill, Inc., as South Wolf Creek Trunk Expansion 1, South Wolf Creek Trunk Expansion 2, and South Wolf Creek Expansion 3 (See Appendix D).

This alternative was selected on the basis of cost analysis for preventing sanitary sewer system over flow. The proposed action is discussed in Section 3.0, Proposed Action; and referenced in Appendix D.

2.3 Cost Analysis (See Appendix D)

SECTION 3.0 PROPOSED ACTION

The proposed action is to complete three of the 26 projects listed in the SSES Report. They are identified as Project Number 17, South Wolf Creek Trunk Expansion 1; Project Number 18, South Wolf Creek Trunk Expansion 2; and Project Number 24, South Wolf Creek Expansion 3. South Wolf Creek Trunk Expansion 1 consists of construction of a new 42 inch line parallel to an existing 36 inch line between manhole numbers W085012M and C096014M (approximately 14,000LF). South Wolf Creek Trunk Expansion 2 consists of construction of a new 36 inch line parallel to an existing 30 inch line and a new 30 inch line parallel to an existing 27 inch line between manhole numbers W086009M and W085012M (approximately 10,000 LF). South Wolf Creek Expansion 3 consists of construction of a new 30 inch line parallel to an existing 27 inch line between manhole numbers W086012 and W086009M (approximately 13,000 LF). The total estimated cost for this project is about $6,800,000. Funding will come from Sewer Rehab Phase I cost savings plus a $5,000,000 Federal Grant administered through the U. S. Army Corps of Engineers.

SECTION 4.0 AFFECTED ENVIRONMENT

Comanche County has a temperate, continental climate of the dry, sub-humid type. The weather patterns that influence this area are sustained by the alternate movement of warm, moist air from the Gulf of Mexico and of either contrasting cooler, modified marine air from the West Coast or colder, dry air from around the Arctic Circle. Rapid changes are common and result in distinct fluctuations of temperature, humidity, cloudiness, wind, and precipitation.

Changes between seasons are usually gradual, and distinct seasonal characteristics vary in severity from year to year. Winters are mild; cold spells normally last only 2 to 5 days before the return of sunny skies and warm, southerly winds. Spring, the most variable season, normally has the heaviest rainfall and the greatest number of severe local storms and tornadoes. Summers are long and fairly warm. The discomfort caused by hot spells is often eased by southerly breezes and low humidity. Considerable precipitation occurs, generally as heavy local storms or as light ineffective showers toward the end of summer and rainfall increases early in fall. Fall is a season of pleasant, sunny days and cool nights.

Comanche County has an average annual temperature of 62.7° F. The average monthly temperature ranges from 40.7° in January to 83.7° in August. The average daily variation of 25.9° normally provides welcome relief during periods of extreme temperature. Freezing temperatures occur on an average of 74 days each year, between October and April, and on 5 of these days the highest temperature is below freezing. Minimum readings of 0° or below occur in about one year out of six.

The average annual precipitation ranges from about 27 inches along the western border of the county to 32.5 inches in the northeast corner. Records for the period 1931 to 1960 indicate a normal of 29.19 inches at the Wichita Mountains Wildlife Refuge and of 30.18 inches at Lawton. About 34 percent of the total precipitation falls in spring, 27 percent in summer, 24 percent in fall, and 15 percent in winter.

May, which is the wettest month, normally receives about 20 percent of the annual precipitation. January, the driest month, normally receives only 5 percent of the annual precipitation. The longest period during which no measurable precipitation was recorded at Lawton lasted from September 21, 1950 to January 1, 1951. Heavy 24-hour rains of at least 2 inches have occurred in all months, but 24-hour rains of 3 to 4 inches have occurred only in April, May and June and in September and October.

The average annual snowfall ranges from 5 inches in the southwestern part of the county to 7.5 inches in the north-central part. The snowfall season usually begins in November and continues through April. Heavy snow normally melts within 4 days.

The prevailing wind direction is northerly in January and February and southerly to southeasterly the rest of the year. The average wind speed is a little more than 12 miles per hour, but winds of 30 to 50 miles per hour are common. Gusts of up to 85 miles per hour occur occasionally in the vicinity of severe thunderstorms, which are most common from April through June. Tornadoes have struck in most parts of the county. During the past 89 years, a total of 26 damaging tornadoes have occurred; 14 of these have occurred in May. During the past 40 years, there have been 35 severe hailstorms, and more than half of these have occurred in May. Hailstones 3½ inches in diameter, some weighing 2 pounds, fell in the south-central part of the county in May, 1957.

The evaporation rate is high and is highest between May and October. The average annual lake evaporation is about 63.5 inches.

The dates of freezing temperatures are representative of the southeastern third of the county. At the higher elevations in the northeastern quarter, freezing temperatures occur 10 to 12 days later in spring and 5 to 9 days earlier in fall. The average freeze-free season is 216 days at Lawton and 200 days at the Wichita Mountains Wildlife Refuge.

4.1 Social and Economic Conditions

Lawton is the third largest city in Oklahoma. According to the Oklahoma Department of Commerce the population of Lawton in 2000 was 92,757. A projected 2030 population was prepared by the Lawton Chamber of Commerce (2030 Transportation Plan Update) based upon information released by the U. S. Army for Base Realignment and Closure (BRAC). The projected 2030 population for the City of Lawton is 121,700 and for Fort Sill is 15,700.

The low/moderate income areas are where at least 51% of families living in those areas are of low/moderate income level of $11,800-$31,450 annually. All areas where construction is proposed on this project are outside these low/moderate income areas. Thus it is concluded that none of the proposed project will disproportionately or unfairly impact any low income or minority communities within the area of construction.

4.2 Executive Order 12898

Executive Order 12898 requires each Federal agency to make environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.

Under NEPA, the identification of a disproportionately high and adverse human health or environmental effect on a low-income population, minority population, or Indian tribe does not preclude a proposed agency action from going forward, nor does it necessarily compel a conclusion that a proposed action is environmentally unsatisfactory. Rather, the identification of such an effect serves to heighten agency attention to alternatives (including alternative sites), mitigation strategies, monitoring needs, and preferences expressed by the affected community or population.

Low-income populations in an affected area are identified with the annual statistical poverty thresholds from the Bureau of the Census Reports in Income and Poverty. In identifying low-income populations, agencies may consider as a community either a group of individuals living in geographic proximity to one another, or a set of

individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure or effect.

Minorities are comprised of individual(s) who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic.

Minority populations are identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) 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. In identifying minority communities, agencies may consider as a community either a group of individuals living in geographic proximity to one another, or a geographically dispersed/transient set of individuals (such as migrant workers or Native American), where either type of group experiences common conditions of environmental exposure or effect. The selection of the appropriate unit of geographic analysis may be a governing body's jurisdiction, a neighborhood, census tract, or other similar unit that is to be chosen so as to not artificially dilute or inflate the affected minority population. A minority population also exists if there is more than one minority group present and the minority percentage, as calculated by aggregating all minority persons, meets one of the above-stated thresholds.

Disproportionately high and adverse human health effects: When determining whether human health effects are disproportionately high and adverse, agencies are to consider the following three factors to the extent practicable: (a) Whether the health effects, which may be measured in risks and rates, are significant or above generally accepted norms. Adverse health effects may include bodily impairment, infirmity, illness, or death; and (b) Whether the risk or rate of hazard exposure by a minority population, low-income population, or Indian tribe to an environmental hazard is significant and appreciably exceeds or is likely to appreciably exceed the risk or rate to the general population or other appropriate comparison group; and (c) Whether health effects occur in a minority population, low-income population, or Indian tribe affected by cumulative or multiple adverse exposures from environmental hazards.

Disproportionately high and adverse environmental effects: When determining whether environmental effects are disproportionately high and adverse, agencies are to consider the following three factors to the extent practicable: (a) Whether there is or will be an impact on the natural or physical environment that significantly and adversely affects a minority population, low-income population, or Indian tribe. Such effects may include ecological, cultural, human health, economic, or social impacts on minority communities, low-income communities, or Indian tribes when those impacts are interrelated to impacts on the natural or physical environment; and (b) Whether environmental effects are significant and are or may be having an adverse impact on minority populations, low-income populations, or Indian tribes that appreciably exceeds or is likely to appreciably exceed those on the general population or other appropriate comparison group; and (c) Whether the environmental effects occur or would occur in a minority population, low-income population, or Indian tribe affected by cumulative or multiple adverse exposures from environmental hazards.

4.3 Executive Order 13045

On 21 April 1997, President Clinton issues Executive Order 13045 (EO 13045), Protection of Children from Environmental Health Risks and Safety Risks, which notes that children often suffer disproportionately from environmental health and safety risks, due in part to a child's size and maturing bodily systems. The executive order defines environmental health and safety risks as risks to health or to safety that are attributable to products or substances that the child is likely to come in contact with or ingest (such as the air we breathe, the food we eat, the water we drink or use for recreation, the soil we live on, and the products we use or are exposed to). Executive Order 13045 requires Federal agencies, to the extent permitted by law and mission, to identify and assess environmental health and safety risks that may affect children disproportionately. The Order further requires Federal agencies to ensure that its policies, programs, activities, and standards address these disproportionate risks. Executive Order 13045 is addressed in this NEPA document to examine the effects this action will have on children.

4.4 Natural Resources

4.4.1 Terrestrial

The land use in the project area is predominantly cropland with some pasture and mixedgrass prairie (Photo 4.4.1). Mixedgrass prairie is considered a combination of shortgrass prairie and tallgrass prairie and contains more plant species than any other prairie type. Both short and tall grass plant species are here. Whereas grasses of a uniform height blanket tallgrass prairies, mixedgrass prairies are more open and feature grasses and plants of different heights. Little bluestem (*Schizachyrium scoparium)* is the dominant grass in mixedgrass prairie. Other species characteristic of tallgrass prairies include big bluestem (*Andropogon gerardii*), Indian grass (*Sorghastrum nutans*), switchgrass (*Panicum virgatum*), buffalo pea (*Astragalus spp.*), purple prairie clover (*Dalea purpurea*), sunflowers (*Helianthus spp.*), goldenrod (*Solidago canadensis*), blazing star (*Liatris punctata*), prairie purple coneflower (*Echinacea angustifolia*), and aster (*Aster spp*). Characteristic shortgrass prairie species include blue grama (*Bouteloua gracilis*), buffalograss (*Buchloe dactyloides*), red false mallow (*Sphaeralcea coccinea*), purple locoweed (*Oxytropis lambertii*), false indigo bush (*Amorpha fruticosa),* and prickly pear cactus (*Opuntia macrorhiza*). Trees include cottonwood (*Populus deltoides*), pecan (*Carya illinoensis),* sugarberry (*Celtis laevigata),* willow (*Salix nigra),* Chinaberry (*Sapindus drummondii),* and American elm (*Ulmus americana).*

4.4.2 Soils

Most of the soils of Comanche County are underlain by clastic sedimentary rocks. The more common of these are the sandstones and shales of the Permian system.

Meers quartzite, a metamorphic rock of the Precambrian system, is probably the oldest sedimentary rock in Oklahoma. It was derived from an ancient sedimentary rock that was engulfed in younger igneous rocks before the molten mass cooled and crystallized. Exposures have been reported in sec. 34, T. 4 N., R. 14 W.; in secs. 2 and 3, T. 3 N., R. 14 W.; and directly south of Meers.

Gabbro, anorthosite, granite, and rhyolite are all igneous rocks, late Precambrian in age. These are not the oldest igneous rocks in Oklahoma, but a study of radioactive minerals indicated that one sample was almost 600 million years old.

The Timbered Hills group and the lower part of the Arbuckle group are Cambrian in age. The oldest, the Reagan sandstone, rests on igneous rocks and contains weathered debris from them. Above the Reagan sandstone, from oldest to youngest, are the Honey Creek formation, which is largely sandstone and limestone; Fort Sill limestone; Royer dolomite; and Signal Mountain limestone.

The upper part of the Arbuckle group belongs to the Ordovician system. It is essentially limestone and contains, from oldest to youngest, the McKenzie Hill, Cool Creek, and Kindblade formations.

The Wichita formation, Hennessey shale, the El Reno group, the Marlow formation, Rush Springs sandstone, and the Cloud Chief formation are all Permian in age. The Wichita formation is the oldest of the Permian rocks in Comanche County. It is essentially shale but contains a considerable amount of sandstone and some conglomerate. The base bituminous gray sandstone is probably equivalent to the Garber sandstone north of the Arbuckle Mountains. The conglomerate, the Post Oak conglomerate member, is in the lower part of the Wichita formation. It rests on older sedimentary rocks and on igneous rocks near the Wichita Mountains and contains weathered debris from all of them. Near igneous exposures it contains igneous boulders and pebbles; near limestone exposures it contains limestone boulders and pebbles; in some areas it contains both types of debris. The debris is course near the mountains, becomes increasingly finer with distance, and finally grades into the shales and sandstones typical of the Wichita formation. Hennessey shale is mostly red shale but contains some reddish-brown to red sandstone. The El Reno group consists of Duncan sandstone in the lower part and the Chickasha.

The project appears to cross primarily Port clay loam (Pc) and Vernon soils on 5 to 12 percent slopes (VeD) with lesser areas of Broken alluvial land (Br), Lela clay (Lc), and Vernon soils on 3 to 5 percent slopes (VeC) being crossed. The Port clay loam and the Lela clay are listed as prime farmland.

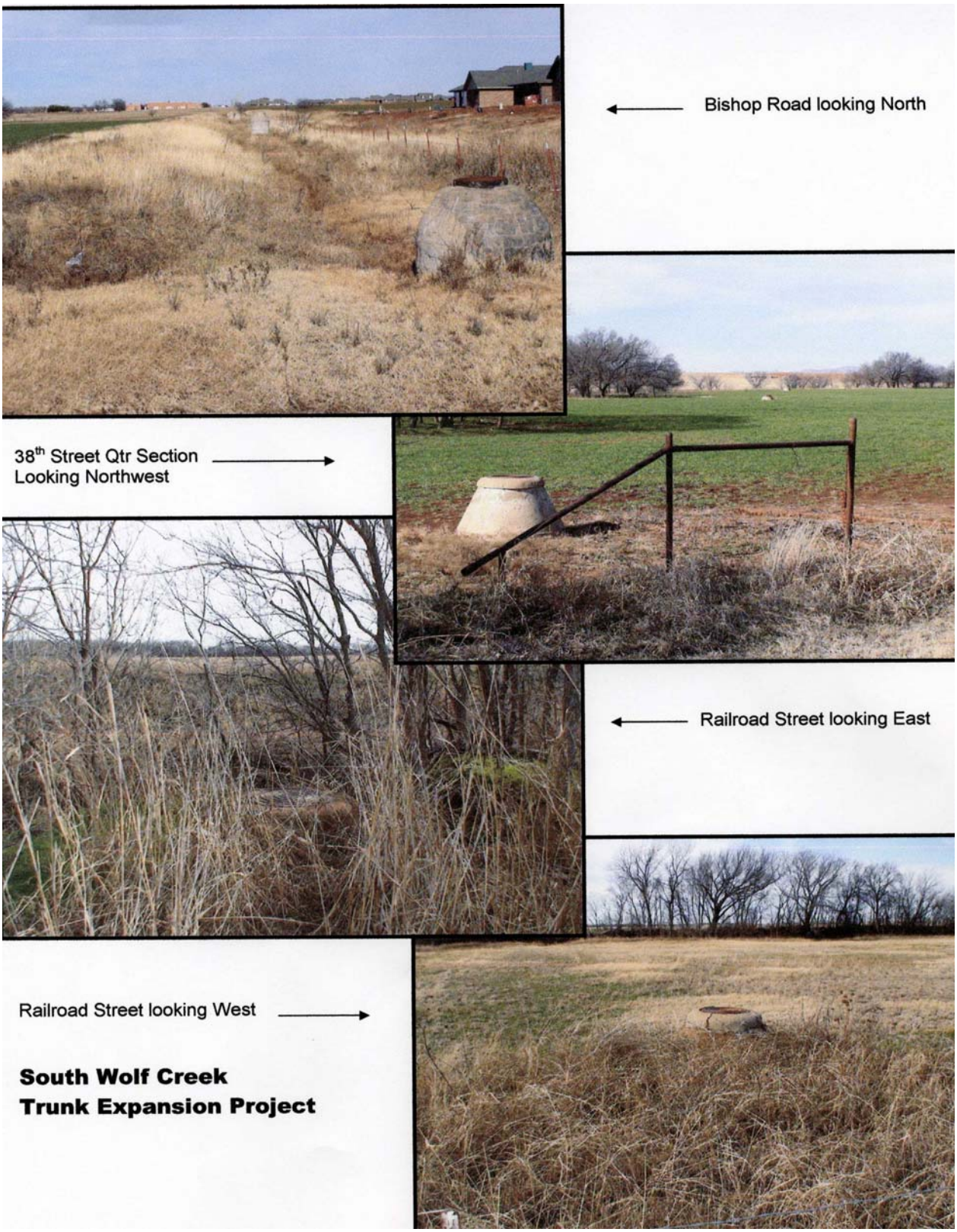

Photo 4.4.1. Land Use is Predominantly Cropland and Grassland.

4.4.3 Prime Farmland

Soil that is prime or unique farmland as defined in the Farmland Protection Policy Act is classified as prime farmland. According to the U.S. Department of Agriculture, it is soil that is best suited for producing food, feed, forage, fiber, and oilseed crops. Port clay loam is classified as prime farmland. The area classified as Port clay loam within the immediate project area is located at the southwest part of the project area.

4.4.4 Wild and Scenic Rivers

There are no streams within the project area that are classified as wild and scenic pursuant to the Federal Wild and Scenic Rivers Act, Public Law 90-542.

4.4.5 Aquatic and Wetlands

Several small areas along the project are classified as wetlands on National Wetlands Inventory maps published by the U. S. Fish and Wildlife Service. Essentially all are classified as palustrine unconsolidated bottom or unconsolidated shore, permanently flooded. They are mostly diked ponds with some being excavated. The alignment of the sewer line is such that it would avoid each of the listed wetlands. Topographic maps published by the U. S. Geological Survey (7.5 minute series) indicate that the proposed South Wolf Creek Interceptor crosses jurisdictional waters of the United States regulated by Section 404 of the Clean Water Act at ten (10) locations. The City of Lawton plans to cross these locations through directional boring. No dredged or fill material will be placed, permanently or temporarily, into any "waters of the United States," including jurisdictional wetlands.

4.4.6 Fish and Wildlife

The diversity and abundance of fish and wildlife in the project area is limited by the proximity of the sewer line to an urban area and by the abundance of pasture and agricultural land. The sewer alignment would avoid aquatic habitat as described in Section 4.4.5. Various species of amphibians, reptiles, birds, and mammals would occur in the project area. Common amphibians in the area include Texas horned lizard (*Phrynosoma cornutum*), Texas toad (*Bufo speciosus*), and cricket frog *(Acris crepitans*). Reptiles found in the area include collared lizard (*Crotaphytus collaris*), blind snake (*Leptotyphlops dulcis*), lesser earless lizard (*Holbrookia maculata*), fence lizard (*Sceloporus undulatus*), eastern box turtle (*Terrapene carolina*), western ribbon snake (*Thamnophis proximus*), copperhead (*Agkistrodon contortrix*), and black rat snake (*Elaphe obsoleta*). Common birds in the area include American goldfinch, American robin, cattle egret, Cooper's hawk, eastern meadowlark, house sparrow, Mississippi kite, mourning dove, northern mockingbird, northern cardinal, and red-winged blackbird. Mammals most likely to occur in the project area include species that are tolerant of urban activity. These include fox squirrel (*Sciurus niger*), eastern cottontail (*Sylvilagus floridanus*), Virginia opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), coyote (*Canus latrans*), and several species of rodents.

4.4.7 Executive Order 13112

On 3 February 1999, President Clinton issued Executive Order 13112 (EO 13112), Invasive Species, which notes that invasive species annually cause significant economic, ecological, and human health impacts in the United States. The executive order defines invasive species as an alien species whose introduction does or is likely to cause economic and environmental harm or harm to human health. Executive Order 13112 requires Federal agencies to not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States; and that all feasible and prudent measures to minimize risk or harm will be taken in conjunction with the actions. Executive Order 13112 is addressed in this NEPA document to incorporate measures that will prevent the inadvertent spread of exotic and invasive species. These preventative measures are described in Section 6.0, Restoration Plan.

4.5 Threatened and Endangered Species

The U. S. Fish and Wildlife Service indicates five species of birds are listed on the threatened or endangered species list that could potentially occur in Comanche County. These include the black-capped vireo,

interior least tern, whooping crane, bald eagle, and piping plover. Of these only the black-capped vireo potentially could occur in the project area. However, the project area does not contain suitable habitat for the black-capped vireo.

4.6 Cultural Resources

In accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended), in May, 2005, consultation was initiated with the Oklahoma State Historic Preservation Office (SHPO) and the Oklahoma Archeological Survey (OAS). Additionally, appropriate Native American tribes were contacted to request information, including the Apache Tribe of Oklahoma; the Caddo Indian Tribe of Oklahoma; the Cheyenne-Arapaho Tribes of Oklahoma; the Chickasaw Nation, Oklahoma; the Choctaw Nation of Oklahoma; the Comanche Nation, Oklahoma; the Delaware Nation, Oklahoma the Fort Sill Apache Tribe of Oklahoma; the Kiowa Indian Tribe of Oklahoma; and the Wichita and Affiliated Tribes of Oklahoma (see correspondence in appendices).

An archaeological survey of the project area was completed in 2006 by Mr. Don Dycus for the Institute of the Great Plains in Lawton, Oklahoma (Appendix C). Two archaeological sites previously recorded, 34CM224 and 34CM227, are located near the project corridor, but no materials from either site were observed during the survey. Additional archaeological sites and standing structures were not observed and therefore none were recorded. Mr. Dycus recommended a "no historic properties affected" determination for the project. In subsequent letters from the SHPO and the OAS, these state agencies agreed with Mr. Dycus' recommendation of "no historic properties affected" for the South Wolf Creek project. Section 106 coordination under the National Historic Preservation Act is therefore complete for this project.

4.7 Water Quality

The purpose of this project is to improve water quality. In September 1994 the City of Lawton, Oklahoma was placed under an EPA Administrative Order for non-compliance with their National Pollutant Discharge Elimination System (NPDES) permit relative to unauthorized overflows from the sewer collection system. In May 1995 the Oklahoma Department of Environmental Quality and the City executed a Consent Order Agreement to perform a Sanitary Sewer Evaluation Study to identify necessary collection system repairs and required expansion/improvements to reduce sewage overflows as a result of inflow, infiltration, and/or lack of capacity. This project is one of several designed to bring the City into compliance with its NPDES permit requirements.

4.8 Air Quality

Construction activity would have a minor temporary impact on air quality caused by heavy equipment operation and from fugitive dust (particulate) emissions in and around the project site. Contractors will comply with all appropriate Federal air quality regulations to limit the dispersal of particulate matter. A temporary increase in exhaust emissions would be expected during the project.

4.9 Hazardous, Toxic, and Radiological Waste

Potential for discovery of hazardous material during installation of the sewer trunk main was evaluated through examination of historic and current land use, review of environmental databases, and visual observations. Avoidance of HTRW during construction is desirable in order to minimize project delays, remediation costs, and environmental damage.

Lands in the project area are primarily composed of agricultural land. As such, these lands have not been subject to industrial development or other land use activities with associated potential for significant contamination. In addition, lands along the project corridor are also primarily agricultural and have a low potential for contaminant transport to the project. Accordingly, there is no reason to believe that environmental media in the project area have been significantly contaminated by past or current land practices or by releases from adjoining properties. No hazardous, toxic, or radiological waste has been observed and the potential for encountering these materials does not appear likely.

Finally, a site visit was conducted on April 3, 2006 that included a search for visual evidence of potential HTRW-related problems. This involved walking the project area as well as visual reconnaissance of surrounding areas. Areas of soil staining, evidence of unusual vegetative distress, drums of containerized waste, unusual topography (mounds or depressions), or other visual evidence of potential contamination were not noted at any location within the proposed project area.

SECTION 5.0 ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

5.1 Social and Economic Impacts

5.1.1 Future Without-Project Conditions

Under the 'without-project' conditions, the City would continue to be in violation of its' NPDES permit requirements and the continued overflows of the sewer collection system would continue to have an adverse effect on the environment and the health of local populations. Under the existing conditions it is not possible to meet the NPDES permit conditions.

5.1.2 Future With-Project Conditions

Under 'with-project' conditions, the carrying capacity of the existing collection system would be increased and the sanitary sewer overflows during the wet weather conditions would be significantly reduced or eliminated. The reduced contamination of local streams from sewage overflows would improve public health and safety. The project is being constructed to reduce sewage overflows especially during high rainfall events so the City would be able to comply with EPA regulations and meet NPDES permit requirements.

5.2 Executive Order 12898

Increasing the carrying capacity of the collection system would have a positive economic and health effect on minorities and low-income populations.

5.3 Executive Order 13045

Increasing the carrying capacity of the collection system would have a positive effect on children's health and safety.

5.4 Natural Resources Impacts

5.4.1 Terrestrial

The proposed project would not result in the loss of any significant habitat or cause any long term adverse effects on natural environment.

5.4.2 Prime Farmland

There would be no impact on prime farmland (letter from NRCS, Appendix A).

5.4.3 Aquatic and Wetlands

By upgrading/replacing the sewer lines, there will be a positive impact on aquatic habitat and wetlands due to the improvement of water quality through the reduction of sewage contamination.

Table 5.0 Impact Assessment Matrix							
	Magnitude of Probable Impact						
	Increasing Beneficial Impact			**No Appreciable Effect**	**Increasing Adverse Impact**		
Name of Parameter	**Significant**	**Substantial**	**Minor**		**Minor**	**Substantial**	**Significant**
A. Social Effects							
1. Noise Levels				X			
2. Aesthetic Values				X			
3. Recreational Opportunities				X			
4. Transportation				X			
5. Public Health and Safety		X					
6. Community Cohesion (Sense of Unity)			X				
7. Community Growth and Development			X				
8. Business and Home Relocations				X			
9. Existing/Potential Land Use				X			
10. Controversy				X			
B. Economic Effects							
1. Property Values			X				
2. Tax Revenues				X			
3. Public Facilities and Services				X			
4. Regional Growth			X				
5. Employment				X			
6. Business Activity				X			
7. Farmland/Food Supply				X			
8. Flooding Effect			X				
C. Natural Resource Effects							
1. Air Quality				X			
2. Terrestrial Habitat				X			
3. Public Facilities and Services			X				
4. Aquatic Habitat			X				
5. Habitat Diversity and Interspersion				X			
6. Biological Productivity			X				
7. Surface Water Quality		X					
8. Water Supply			X				
9. Groundwater				X			
10. Soils				X			
11. Threatened and Endangered Species				X			
D. Cultural Resources Effects							
1. Historic Architectural Values				X			
2. Pre-Historic & Historic Archeological Values				X			

5.4.4 Wildlife

Wildlife habitat is very limited along the construction route. Temporary disturbance would occur during construction of the sewer main but the disturbance would be minor and short term. There would be no long term negative affect on wildlife.

5.4.5 Wetlands and Water Quality Permits

Topographic maps published by the United States Geological Survey (7.5 minute series) indicate that the proposed South Wolf Creek Interceptor crosses jurisdictional waters of the United States at ten (10) locations. The City of Lawton plans to cross each of these locations through directional boring. No dredged or fill material will be placed, permanently or temporarily, into any "waters of the United States," including jurisdictional wetlands. Since the project does not involve the placement of dredge or fill material into regulated waters of the United States a Department of the Army permit pursuant to Section 404 of the Clean Water Act is not required (Appendix B).

5.5 Threatened and Endangered Species

There would be no impact on endangered species.

5.6 Cultural Resources

As outlined in Section 4.6 of this report, Section 106 coordination (National Historic Preservation Act of 1966, as amended) is complete. The proposed project will have no effect on historic properties.

5.7 Water Quality

By upgrading/replacing the sewer lines, there will be a substantial improvement in surface water quality.

5.8 Air Quality

Construction activity would have a minor temporary impact on air quality caused by heavy equipment operation and from fugitive dust (particulate) emissions in and around the project site. Contractors will comply with all appropriate Federal air quality regulations to limit the dispersal of particulate matter. A temporary increase in exhaust emissions would be expected during the project.

5.9 Hazardous, Toxic, and Radiological Waste

Based on the findings of the HTRW survey discussed in Section 4.8, the potential for discovery and significant problems related to HTRW during project construction or operation is believed to be low.

5.10 Noise

There would be an increase in noise from heavy equipment during the project, but this would be temporary and last only during the construction period.

5.11 Cumulative Impacts

No cumulative negative impacts are anticipated to occur as a result of the proposed project

SECTION 6.0 RESTORATION PLAN

The proposed project would be located in utility easements adjacent to existing outfall lines. Appropriate measures would be taken to control dust and noise during the construction phase. There would be no blasting or burning, or the use of herbicides or defoliants on this project. All soil and vegetation that must be disposed of will be disposed of only in approved areas outside the regulated floodplain.

During the construction process, adequate measures will be taken to minimize erosion and to protect area water courses from siltation and sedimentation. Vegetation removal will be kept at a minimum and complete restoration will occur upon completion of construction.

Following project completion all agricultural areas with compacted, disturbed, or exposed soil will be disked, fertilized, and returned to existing conditions (cropland or pasture). Areas outside croplands will be seeded with a native grass/forb mixture including side-oats grama, buffalograss, Tobosa, big bluestem, indiangrass and switchgrass. This is a mixture of grasses that are native to the area. Application rates for soil amendments (lime and fertilizer) will be determined by soil tests. Mulch will be applied as necessary, particularly on slopes and erodible soils (See Appendix E).

SECTION 7.0 FEDERAL, STATE, AND LOCAL AGENCY COORDINATION

The draft environmental assessment (EA) was coordinated with the following agencies having legislative and administrative responsibilities for environmental protection. A copy of the correspondence from those agencies that replied is in Appendix A. Each of these agencies is on the mailing list to review the draft EA during the public comment period.

Bureau of Indian Affairs
Federal Emergency Management Agency
Museum of Great Plains
Natural Resources Conservation Service
National Park Service
Oklahoma Department of Environmental Quality
Oklahoma Department of Tourism & Recreation
Oklahoma Historical Society
Oklahoma Water Resources Board
Southwestern Oklahoma Development Authority
Oklahoma Archeological Survey
U. S. Army Corps of Engineers
U. S. Fish and Wildlife Service

SECTION 8.0 REFERENCES

Biggs and Mathews, Byrd Forbes and CH2M Hill, Inc. *Sewer System Evaluation Study Report for Wastewater Collection System Improvements, Volume 1*. City of Lawton. April 1997.

Oklahoma Biological Survey. Website. www.biosurvey.ou.edu/

Oklahoma Climatological Survey. Website www.ocs.ou.edu/

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Soil Conservation Service. 1983. *Soil Survey of Comanche County, Oklahoma.* USDA, Stillwater, Oklahoma. p55-56.

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U.S. Bureau of Census. 201. *2000 Census of Population and Housing, STF3.* www.census.gov/

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www.epa.gov/superfund/sites/cursites

U. S. Environmental Protection Agency. Enforcement & Compliance History Online (ECHO). Website. www.epa.gov/echo/

U. S. Environmental Protection Agency. Western Ecology Division, Corvallis, OR. *Ecoregions of Oklahoma.* Website. www.epa.gov/wed/pages/ecoregions/ok_eco.htm

SECTION 9.0 APPLICABLE ENVIRONMENTAL LAWS AND REGULATION

Archeological and Historic Preservation Act, 1974, as amended, 16 U.S.C. 469, et seq
Clean Air act, as amended, 42 U.S C 7609, et seq
Clean Water Act, 1977, as amended (Federal Water Pollution Control Act, 33 U.S.C. 1251,et seq
Endangered Species act. 1973, as amended, 16 U.S.C. 1531, et seq
Environmental Justice (E.O. 12898)
Farmland Protection Policy Act, 7 U.S.C. 4201, et seq
Federal Water Project Recreation Act, as amended, 16 U.S.C. 460-1-12, et seq
Fish and Wildlife Coordination Act as amended, 16 U.S.C. 661, et seq.
Floodplain Management (E.O. 11988)
Invasive Species (E.O. 13112)
Land and Water Conservation Fund Act, 1965, as amended, 16 U.S.C. 4601, et seq
National Historic Preservation Act, 1966, as amended, 16 U.S.C 4601, et seq
National Environmental Policy Act as amended, 42 U.S.C. 4321, et seq
Native American Graves Protection and Repatriation Act, 1990, 25 U.S, C 3001-13, et seq
Protection of Children from Environmental Health Risks and Safety Risks (E.O. 13045)
Protection of Wetlands (E.O.11990)
Rivers and Harbors Act, 33 U.S.C.401, et seq
Watershed Protection and Flood Prevention Act, 16 U.S.C. 1001, et seq
Wild and Scenic Rivers Act, as amended, 16 U.S.C.1271, et seq
Water Resources Planning Act, 1965

Note: Full Compliance - Having met all requirements of the statutes, Executive Orders, or environmental requirements for the current state of planning.

SECTION 10.0 LIST OF PREPARERS

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