ENVIRONMENTAL ASSESSMENT

Cutoff Dredging and Spoil Pond Construction
Johnston's Port 33
Rogers County, Oklahoma

Prepared for:

Johnston's Port 33, Inc.
328 N. 321 E. Avenue
Catoosa, Oklahoma 74015

Prepared by:

Eagle Environmental Consulting, Inc.

P.O. Box 335
Vinita, Oklahoma 74301
918-272-7656

P.O. Box 5446
Fort Smith, Arkansas 72913
918-697-3936

December 2013

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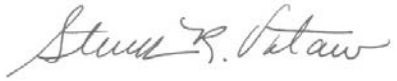

Steven R. Votaw
President

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SECTION 1.0: PROJECT PURPOSE, NEED, AND SCOPE

Barge traffic is planned to increase due to steady growth in the river transportation industry and additional barge fleeting space is needed to accommodate barge tonnage increases on the McClellan-Kerr Arkansas River Navigation System (MKARNS). Navigation Pool 18 along the MKARNS has limited opportunity to meet this need. To meet the additional need for barge fleeting space, Johnston's Port 33 (JP33) proposes the following actions:

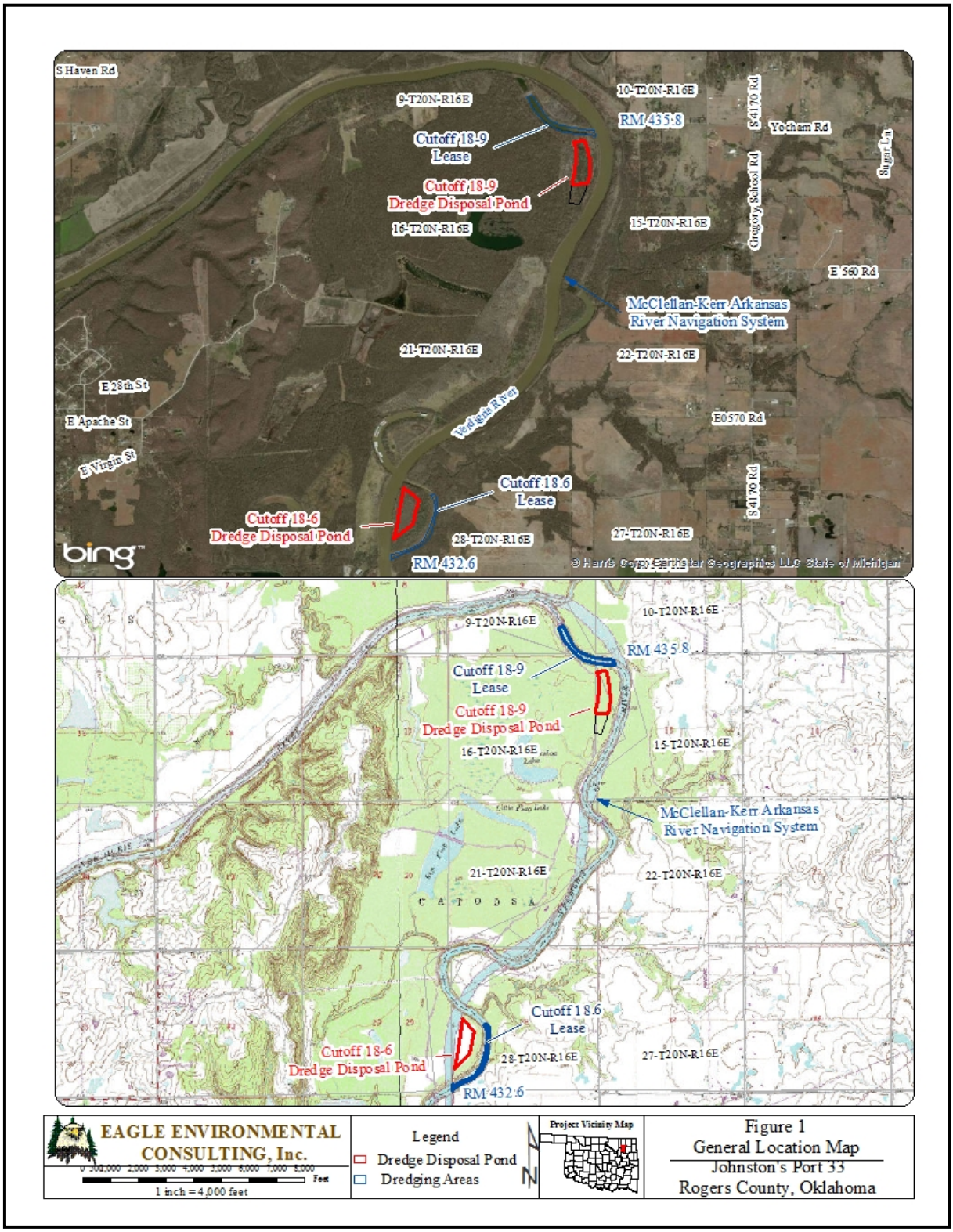
- Dredging of existing Cutoff 18-9 lease located on the right descending bank of the MKARNS at river mile (RM) 435.8 in Sections 9, 15, and 16 in Township 20 North, Range 16 East.
- Utilize a portion of an existing dredge material placement pond. Install a new berm within the existing pond area to create an approximate fifteen-acre (15 ac.) dredge spoil pond located immediately south of Cutoff 18-9 lease in Section 15, Township 20 North, Range 16 East. The new berm would be constructed to segment the existing dredge material holding pond, leaving the southern portion of the existing pond available for future use.
- Dredging of existing Cutoff 18-6 lease located on the left descending bank of the MKARNS at RM 432.6 in Section 28, Township 20 North, Range 16 East.
- Construction of a 15-acre dredge disposal pond on the island to the immediate west of Cutoff 18-6.

The general project location is shown on **Figure 1** and is located on the United States Geological Survey Inola 7.5 minute topographic map in Rogers County, Oklahoma. This environmental assessment (EA) was prepared to identify and address potential impacts associated with the proposed action. The purpose of this environmental assessment was to ensure that the completion of the proposed action complies with the National Environmental Policy Act (NEPA) 1969 (Public Law 91-190) and all other applicable laws and to address potential impacts of any federal action on the natural and human environment. The intent of NEPA is to ensure that applicable environmental information is available to the public officials and citizens regarding actions undertaken by Federal agenciesGuidance for complying with NEPA is contained in the Council on Environmental Quality's (CEQ) NEPA regulations (40 CFR, Parts 1500-1508), and the USACE Procedures for Implementing NEPA (ER 200-2-2).

This EA discloses the direct, indirect, and cumulative environmental effects that would result from the proposed action. The document is organized into the following ten sections:

Section 1 – Project Purpose Need and Scope: This section includes a brief description of the proposed action, scope of analysis, purpose of and need for the project, and the location of USACE administered lands affected by the proposed action.

Section 2 – Alternatives: This section provides a more detailed description of the proposed action and alternatives considered.


S Haven Rd
9-T20N-R16E
10-T20N-R16E
RM 435.8
Cutoff 18-9 Lease
Cutoff 18-9 Dredge Disposal Pond
16-T20N-R16E
15-T20N-R16E
S 4170 Rd
Yocham Rd
Sugar Ln
Gregory School Rd
E 560 Rd
McClellan-Kerr Arkansas River Navigation System
21-T20N-R16E
22-T20N-R16E
E 28th St
E Apache St
E Virgin St
Verdigris River
E0570 Rd
Cutoff 18-6 Lease
Cutoff 18-6 Dredge Disposal Pond
28-T20N-R16E
27-T20N-R16E
RM 432.6
bing
EAGLE ENVIRONMENTAL CONSULTING, Inc.
1 inch = 4,000 feet
Legend
Dredge Disposal Pond
Dredging Areas
Project Vicinity Map
Figure 1
General Location Map
Johnston's Port 33
Rogers County, Oklahoma

Section 3 – Affected Environment: This section provides a baseline description of the natural and human environment within USACE lands affected by the proposed action.

Section 4 – Environmental Impacts: This section describes the environmental effects of implementing the proposed action.

Section 5 – Compensatory Mitigation Plan: This section provides the replanting of native species.

Section 6 – Resource Agency Consultation: A list of federal and state agencies that were provided information about the project and the request for comments and responses.

Section 7 – References: List of sources cited and referenced used toward completion of this assessment.

Section 8 – List of Preparers: Those involved with the preparation of the environmental assessment.

Section 9 – Applicable Laws: List of laws and regulations that govern protection.

Appendices: The appendices provide more detailed information to support the analyses presented in the environmental assessment.

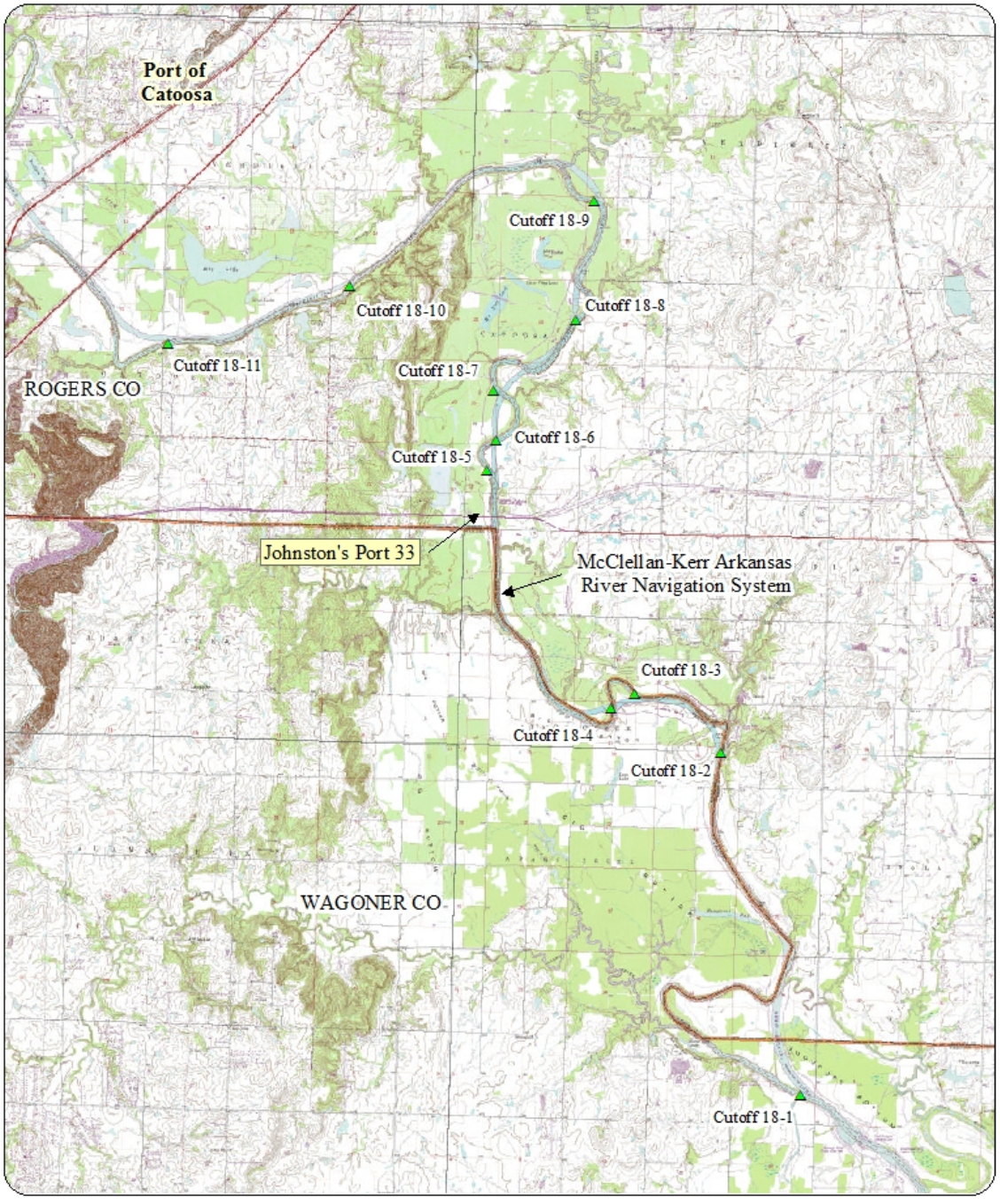
SECTION 2.0: ALTERNATIVES

This section describes the reasonable alternatives considered for the proposed action that includes the No-Action Alternative and the Action Alternative and clearly defines the differences between them. Alternatives determined not to meet the project purpose and need were eliminated from further study.

Consideration was given to other cutoff locations within Pool 18 along the MKARNS for barge fleeting purposes. Eleven cutoffs were identified upstream and downstream of JP33 and considered for additional barge fleeting space and are shown on **Figure 2a**. **Figure 2b** shows the same cutoffs on photographic background. Cutoff locations were identified along the MKARNS between the Interstate 44 bridge crossing and the Newt Graham Lock and Dam 18. Cutoff location details are provided in Table 1.

Cutoff 18-1 is located approximately 7.8 miles south of US Highway 412 and is adjacent to Bluff Landing Park. The USACE (1975) designated this area specifically for public use for recreational purposes and was eliminated from further consideration.

Cutoff 18-2 is approximately 3.8 miles south of US Highway 412 and occupied by Old Rocky Point Park. Cutoff 18-2 was eliminated from further considered because this area is designated for public use for recreational purposes.


Port of
Catoosa
Cutoff 18-9
Cutoff 18-10
Cutoff 18-8
Cutoff 18-11
Cutoff 18-7
ROGERS CO
Cutoff 18-6
Cutoff 18-5
Johnston's Port 33
McClellan-Kerr Arkansas
River Navigation System
Cutoff 18-3
Cutoff 18-4
Cutoff 18-2
WAGONER CO
Cutoff 18-1
EAGLE ENVIRONMENTAL
CONSULTING, Inc.
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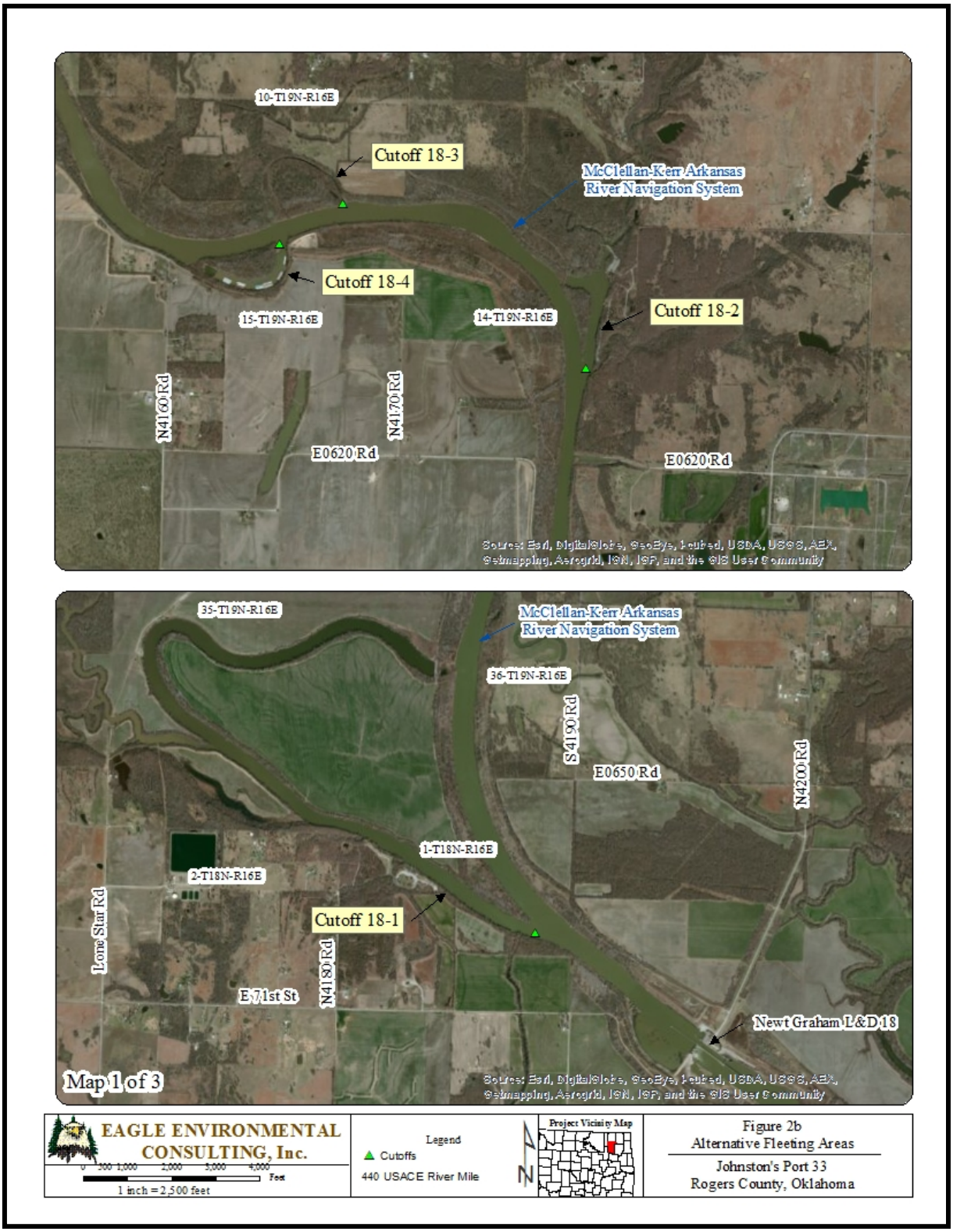
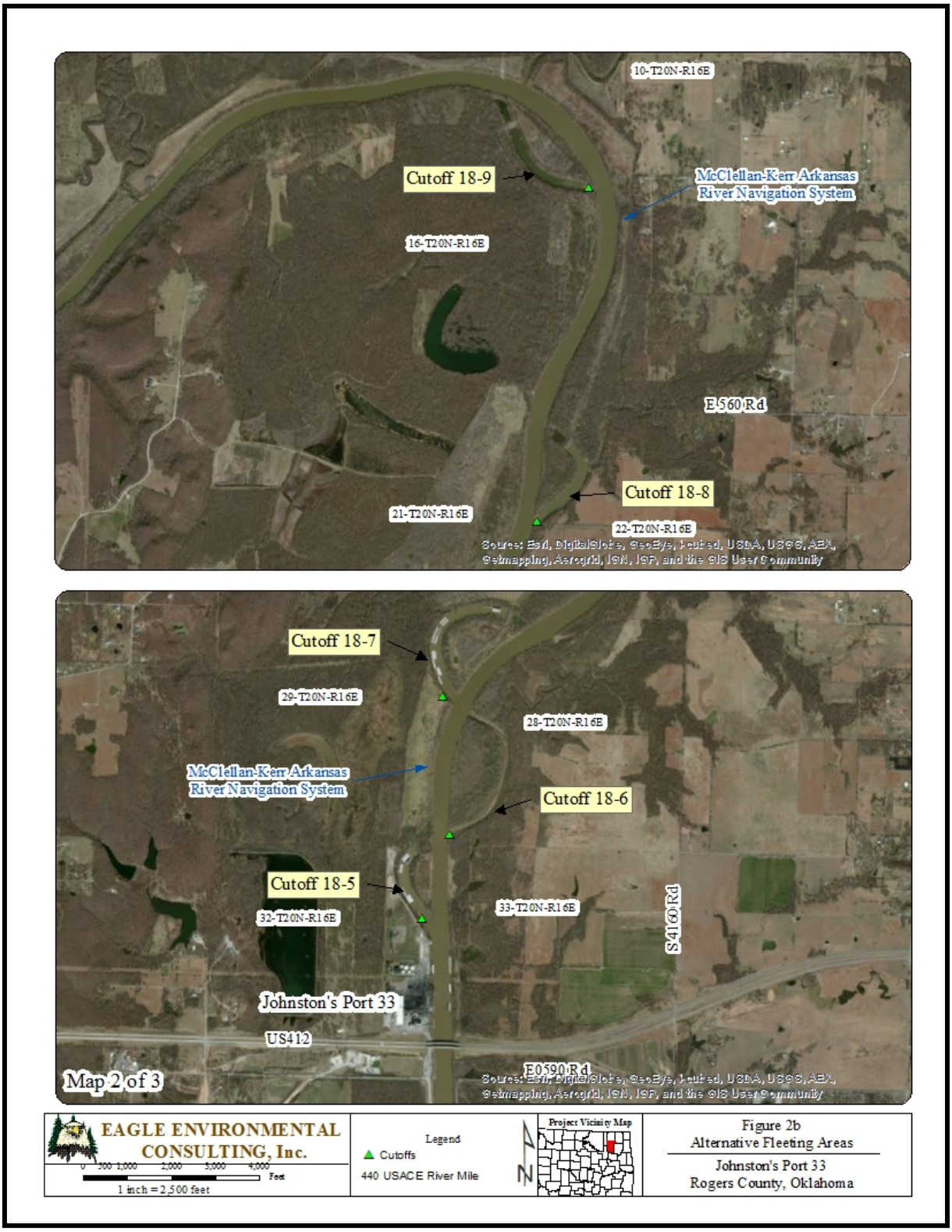
Cutoff Locations
County Bdry
N
Oklahoma Vicinity Map
Figure 2a
Alternative Fleeting Areas
Johnstons Port 33
Rogers County, Oklahoma


10-T19N-R16E
Cutoff 18-3
McClellan-Kerr Arkansas River Navigation System
Cutoff 18-4
15-T19N-R16E
14-T19N-R16E
Cutoff 18-2
N4160 Rd
N4170 Rd
E0620 Rd
E0620 Rd
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, GeoMapping, Aerogrid, IGN, IGP, and the GIS User Community
35-T19N-R16E
McClellan-Kerr Arkansas River Navigation System
36-T19N-R16E
S4190 Rd
E0650 Rd
N4200 Rd
1-T18N-R16E
2-T18N-R16E
Lone Star Rd
Cutoff 18-1
N4180 Rd
E 71st St
Newt Graham L&D 18
Map 1 of 3
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, GeoMapping, Aerogrid, IGN, IGP, and the GIS User Community
EAGLE ENVIRONMENTAL CONSULTING, Inc.
0 500 1,000 2,000 3,000 4,000 Feet
1 inch = 2,500 feet
Legend
Cutoffs
440 USACE River Mile
Project Vicinity Map
Figure 2b
Alternative Fleeting Areas
Johnston's Port 33
Rogers County, Oklahoma


10-T20N-R16E
Cutoff 18-9
McClellan-Kerr Arkansas River Navigation System
16-T20N-R16E
E560 Rd
Cutoff 18-8
21-T20N-R16E
22-T20N-R16E
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, GeoMapping, Aerogrid, IGN, IGP, and the GIS User Community
Cutoff 18-7
29-T20N-R16E
28-T20N-R16E
McClellan-Kerr Arkansas River Navigation System
Cutoff 18-6
Cutoff 18-5
32-T20N-R16E
33-T20N-R16E
S4160 Rd
Johnston's Port 33
US412
E0590 Rd
Map 2 of 3
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, GeoMapping, Aerogrid, IGN, IGP, and the GIS User Community
EAGLE ENVIRONMENTAL CONSULTING, Inc.
0 500 1,000 2,000 3,000 4,000
Feet
1 inch = 2,500 feet
Legend
Cutoffs
440 USACE River Mile
N
Project Vicinity Map
Figure 2b
Alternative Fleeting Areas
Johnston's Port 33
Rogers County, Oklahoma

Cutoff 18-3 is approximately 2.7 miles south of US Highway 412 and designated by the USACE for low-density recreational use. Cutoff 18-3 was eliminated from further consideration because it is completely filled in with sediment.

Cutoff 18-4 is approximately 2.7 miles south of US Highway 412 and is currently used as barge fleeting space for JP33 and was eliminated from further consideration.

Cutoff 18-5 is approximately 0.5 miles north of US Highway 412 and is currently used by JP33 for barge fleeting space and was dropped from further consideration.

Cutoff 18-6 is approximately 0.6 miles north of US Highway 412 and designated by the USACE for multiple purpose use and is proposed by JP33 for future fleeting space.

Cutoff 18-7 and Cutoff 18-8 are north of JP33 and currently used for barge fleeting and thus eliminated from further consideration.

Cutoff 18-9 is approximately 3.7 miles north of JP33. The USACE designated this cutoff for multiple purpose use and is proposed for future fleeting space by JP 33 under this action.

Cutoff 18-10 is approximately 4.0 miles northwest of JP33 and 2.7 miles east of the I-44 crossing of the MKARNS. This area was designated by the USACE for multiple purpose use. This cutoff is too far from JP33 to be used efficiently for harbor activities and was eliminated from further consideration.

Cutoff 18-11 is approximately 4.2 miles northwest of JP33 and 1.2 miles downstream of the I-44 crossing of the MKARNS. This area is allocated for industrial and municipal port terminal activities and was eliminated from further consideration.

Table 1
Alternative Cutoff Location Considerations

Cutoff Name	Coordinates	River Mile	Land Use Classification[1]
18-1	36.065765, -95.549976	422.26	Public Use Area
18-2	36.124654, -95.568846	426.8	Public Use Area
18-3	36.134493, -95.5877728	428.1	Low Density/Recreation
18-4	36.131825, -95.592529	428.5	In Use
18-5	36.172448, -95.620651	432.2	In Use
18-6	36.17777, -95.618734	432.6	Proposed
18-7	36.186251, -95.618648	433.1	Multipurpose
18-8	36.200190, -95.602966	434.4	Multipurpose
18-9	36.219813, -95.599095	435.8	Proposed
18-10	36.203982, -95.650890	435.9	Multipurpose
18-11	36.193090, -95.689366	439.7	Industrial

Source: USACE, 1975.

Cutoff 18-9 and 18-6 were carried forward for more detailed analysis for additional fleeting space for JP33 because they met the proposed project purpose and need and are at the preferred distance from JP33 to provide a safe location for moored barges and operation at the proposed locations would provide competitive transportation costs.

An environmental inventory of Cutoff 18-6 and Cutoff 18-9 was conducted to identify any potential areas of concern that could preclude development of the proposed action. The anticipated impacts relative to the identified public interest review factors are summarized in the Impact Assessment Matrix in Section 4.0.

In July 2012, solicitation letters were mailed to appropriate state and federal regulatory/resource agencies to identify environmental and socioeconomic issues that should be considered as part of this study. It was emphasized that identification of environmental concerns was an essential component of this assessment. A copy of the solicitation letters are provided in **Appendix A.** Agencies contacted and their respective project-related comments are provided in Section 6 of this EA.

Alternative A: No Action

The National Environmental Policy Act (NEPA) and the (CEQ) provided regulations on the implementation of NEPA and require consideration and analysis of the No Action Alternative. Under the "No Action" alternative, no dredging or spoil pond construction would be conducted. The condition of the natural and social environments would remain unchanged on USACE property along the MKARNS. The No-Action alternative would not meet the purpose and need for the proposed action.

Alternative B: Proposed Action

Johnston's Port 33 proposes to remove accumulated riverbed sediments from Cutoff lease 18-9 and 18-6 to restore original water depths and provide sufficient draft for barges and utilization/construction of associated dredge spoil ponds. Detailed descriptions of the construction activities are provided below.

Cutoff Lease 18-9 and Dredge Disposal Pond

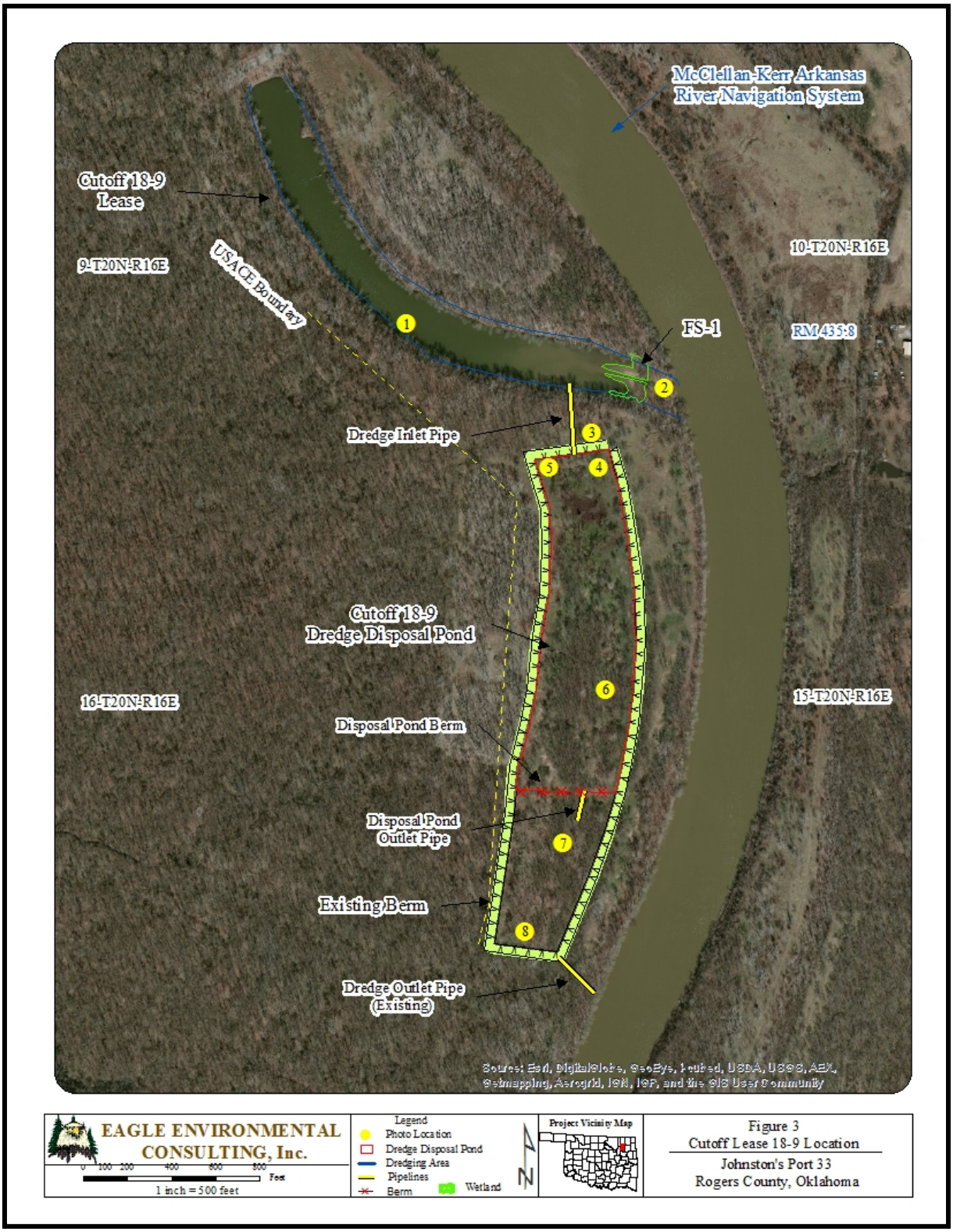
This cutoff would be dredged to a depth of twelve feet and would create a 3 to 1 slope on the right and left descending bank. A total of 95,000 cubic yards of dredge material would be removed to return the cutoff to its original depth. At the southern end of the cutoff, 12,000 cubic yards of soil would be removed above the normal pool elevation which would be removed using a hydraulic excavator and trucked to the adjacent dredge pond disposal area. Sediment from below the normal pool elevation would be removed using a hydraulic cutter head and pumped into the disposal area. Twelve deadman anchors would be installed on the right descending bank starting at the southern end and placed every 200 feet.

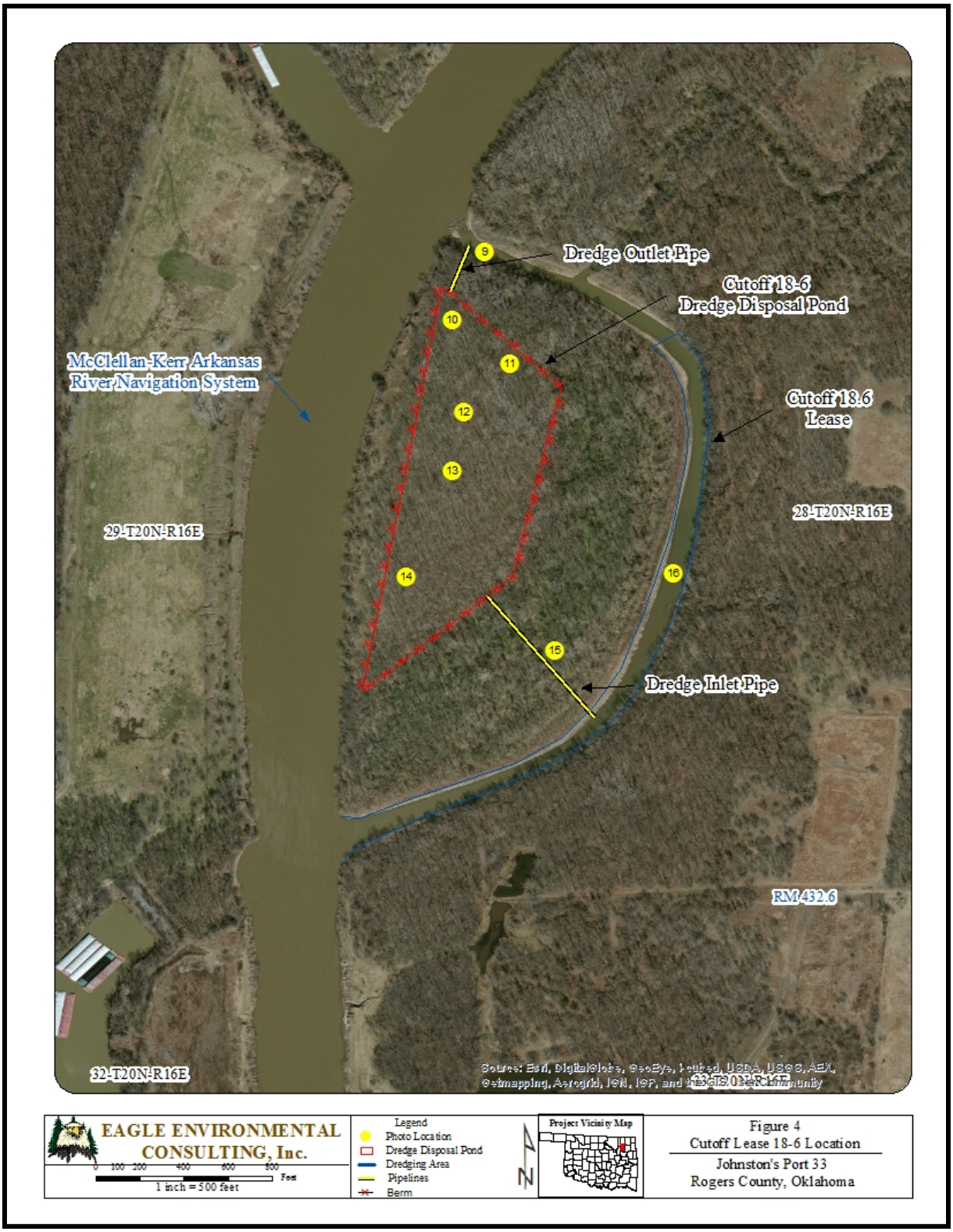
The disposal pond is located approximately 100 yards south of Cutoff 18-9. This spoil pond was previously constructed and is approximately 20+ acres in size. JP33 proposes to install a berm within the existing pond to segment the basin and only disturb/utilize the northern 15 acres. JP33 would construct a new berm on the north side and south side of the pond (**Figure 3**). A new discharge pipe would be installed in the new (southern) cross berm approximately six to eight feet above the disposal pond floor. The discharge pipe will be set at an elevation to be determined in the field which will maintain sufficient freeboard to ensure the surface elevation of the dredged material does not overtop the existing spoil pond berms. Dredged material will be discharged into the northern portion of the newly segmented spoil pond and the return water will flow, via the new drainage pipe, into the southern segment of the existing spoil pond. The southern portion of the existing spoil pond will not be used for dredged material placement. Return water will transition overland through the southern portion of the spoil pond before discharging through an existing drainage pipe in the southeast corner of the existing spoil pond. Once water levels reach the drainage pipe elevation, the return water will vacate the spoil pond and transition overland across a wide vegetated area in which no pilot channel is present. The return water will then collect in a previously excavated stilling basin before returning to the MKARNS. Vegetation in the existing spoil pond will be removed, piled, and burned inside the pond. Remnants of trees will be distributed throughout the spoil pond basin to dissipate dredged material velocities. The depth of the spoil pond ranged from four feet on the north end to eight feet on the south end with an average of about six feet. The holding capacity of the spoil pond would be approximately 653,400 square feet or 120 acre feet. Figure 3 shows the location of Cutoff 18-9 and associated spoil pond.

Cutoff Lease 18-6 and Dredge Disposal Pond

This cutoff would be dredged to a depth of twelve feet leaving a 3 to 1 slope on the right and left descending bank from the existing riverbank to the channel floor. A total of 85,000 cubic yards of dredge material would be removed returning the cutoff to its original depth.– Sediment from below the normal pool elevation would be removed using a hydraulic cutter head and pumped into the disposal area. The upper 800 feet of the cutoff would not be disturbed to allow the existing shallow aquatic habitat to remain. Twelve deadman anchors would be installed on the left descending bank starting at the southern end and placed every 200 feet.

The new dredge material spoil pond would be constructed on the highest elevations of the present island and occupy approximately 15 acres to the immediate west of the cutoff. A dozer would be used to assist in moving the dredge material in and around the spoil cell. When the dredge disposal pond is not in use, the cell would be kept free of tree growth and mowed routinely. The surrounding property could not be used for construction due to private ownership and hardwood timber growth. The proposed depth of the new created spoil pond is four (4) feet. The holding capacity of the spoil pond would be approximately 653,400 square feet or 90 acre feet. **Figure 4** shows the location of the Cutoff 18-6 and associated spoil pond. Representative photographs are provided in **Appendix B**.


McClellan-Kerr Arkansas River Navigation System
Cutoff 18-9 Lease
9-T20N-R16E
USACE Boundary
10-T20N-R16E
FS-1
RM 435.8
Dredge Inlet Pipe
Cutoff 18-9 Dredge Disposal Pond
16-T20N-R16E
15-T20N-R16E
Disposal Pond Berm
Disposal Pond Outlet Pipe
Existing Berm
Dredge Outlet Pipe (Existing)
1
2
3
4
5
6
7
8
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, GeoMapping, Aerogrid, IGN, IGP, and the GIS User Community
EAGLE ENVIRONMENTAL CONSULTING, Inc.
0 100 200 400 600 800
Feet
1 inch = 500 feet
Legend
Photo Location
Dredge Disposal Pond
Dredging Area
Pipelines
Berm
Wetland
N
Project Vicinity Map
Figure 3
Cutoff Lease 18-9 Location
Johnston's Port 33
Rogers County, Oklahoma


9
Dredge Outlet Pipe
Cutoff 18-6
Dredge Disposal Pond
10
11
McClellan-Kerr Arkansas
River Navigation System
12
Cutoff 18.6
Lease
13
28-T20N-R16E
29-T20N-R16E
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16
15
Dredge Inlet Pipe
RM 432.6
32-T20N-R16E
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CONSULTING, Inc.
0 100 200 400 600 800
Feet
1 inch = 500 feet
Legend
Photo Location
Dredge Disposal Pond
Dredging Area
Pipelines
Berm
Project Vicinity Map
N
Figure 4
Cutoff Lease 18-6 Location
Johnston's Port 33
Rogers County, Oklahoma

SECTION 3.0: THE AFFECTED ENVIRONMENT

3.1 Land Use

The proposed action is located on USACE-administered land on the eastern and western side of the MKARNS. Land is undeveloped and mostly covered with woody species within the area proposed for the spoil pond and transport pipe. The existing ox bows are used for fishing, hunting, and habitat. Topography is relatively flat and around 560 feet above mean sea level.

The general climate of Rogers County consists of warm, humid, and continental to subtropical. The summers are hot and humid; winters are typically mild. Rainfall averages about 47 inches with most of the rain falling in April, May, and June. August is the warmest month with an average temperature of nearly 83 degrees Fahrenheit; January is the coldest month with an average temperature of nearly 44 degrees Fahrenheit (OSC, 2011).

3.2 Social and Economic Conditions

Table 2 summarizes the available Year 2005-2009 estimates for socioeconomic information for Rogers County, Oklahoma. An estimated 13,184 people live in Rogers County. Ethnic diversity estimates predominantly consisted of about 80 % White, 1% black or African American, and 11 % American Indian and Alaska Native, and 3% Hispanic or Latino. The civilian labor force in Rogers County was approximately 66 %. Individual below poverty was reported to be 9% which was lower than the state rate of 16%. About 87% of housing units were occupied. About 81% of housing was owner occupied followed by 19% renters and 8% vacant.

The 2009 county business patterns were obtained from the U.S. Census Bureau. Approximately 1,645 business enterprises were located in Rogers County. The dominant industries were in fields related to retail trade, health care and social assistance, and construction (U.S. Census Bureau, 2009).

The January 2010 economic report prepared by the Economic Research and Analysis Division of the Oklahoma Employment Security Commission was referenced to identify employment trends of the Northeast Workforce Investment Area (WIA). This WIA includes eight counties one of which is Rogers County. Between 2000 and 2008 the Southern WIA increased its average annual workforce from 103,147 to 135,250, an increase of 31%. Rogers County is responsible for 29% of the Northeast WIA's workforce. Per capita personal income in Rogers County is close to the statewide average and then increase after 2001. Rogers and Washington Counties consistently had higher average annual salaries than other counties in the WIA.

Table 2 YEAR 2005-2009 DEMOGRAPHIC ESTIMATES OF ROGERS COUNTY		
Characteristics	**County**	**State**
Population Characteristics	**Rogers County**	**Oklahoma**
Population	82,890	3,610,073
Persons under 5 years old	6.0%	7.0%
Persons 18 years old and over	74%	75%
Persons 65 years old and over	13%	13%
Female persons	50%	52%
Male Persons	49%	48%
Ethnic Characteristics		
White persons	80%	75%
Black or African American persons	1.0%	7.0%
American Indian and Alaska Native persons	11.0%	7.0%
Hispanic or latino	3.0%	15.0%
Housing Characteristics		
Total Housing units	31,343	1,624,039
Occupied Housing Units	28,982	87.0%
Owner Occupied Housing Units	81.0%	68.0%
Renter Occupied Housing Units	19.0%	32.0%
Vacant Housing Units	8.0%	14.0%
Economic Characteristics		
Median household income	$56,438	$41,861
Per capita money income	$24,171	$22,561
Families below poverty	6.0%	12.0%
Persons below poverty	9%	16.0%
In Labor Force	66%	63.0%

Source: US Bureau of Census

3.2.1 Environmental Justice

Executive Order (EO) 12898 "Federal Actions to Address Environmental Justice in Minority and Low-Income Populations" (February 11, 1994) states that if possible, no federal actions should place any adverse environmental, economic, social, or health effects on minority or low-income groups. The project area is located on USACE administered lands and is not occupied nor does it have any residential development and no displacements would result of the proposed action.

Data from the 2005-2009 U.S. Census Bureau (estimates at the census tract level) were examined to evaluate potential impacts to low income and minority groups. The proposed action is located within Census Tract 505.01. Further discussion and analysis of Environmental Justice is provided in Section 4.2.1.

3.2.2 Protection of Children

Executive Order 13045 pertains to "Protection of Children for Environmental Health and Safety Risks", April 21, 1997. This mandate requires that federal agencies are to identify and assess environmental health and safety risks that may affect children. EO 13045 states that to the extend permitted by law and appropriate, each federal agency shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children and ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks. The project is located in a rural area adjacent to pastureland and residential development.

3.3 Natural Resources

3.3.1 Soils

The Web Soil Survey for Rogers County was used to broadly assess the soils within the proposed action area. The respective soil series included the Barge silty clay loam found on 0 to 30 percent slopes and the Verdigris silty clay loam. These soils generally form in a linear fashion and located on down slopes or across slopes. Parent material consists of alluvial sediments and/or dredge spoils. Both soils are considered to be well drained.

3.3.2 Wild and Scenic Rivers

No waterways classified as wild and scenic pursuant to the Federal Wild and Scenic Rivers Act, Public Law 90-542 are located within the proposed action.

3.3.3 Vegetation

The U.S. Fish and Wildlife Service defines an ecosystem as a geographic area and all its living components, their physical surroundings, and the natural cycles that sustain them. The project area is located in the Osage Cuestas ecoregion. This ecoregion is composed of gently to steeply sloping rolling hills (Woods et.al., 2005) and is mostly used as rangeland and cropland on flatter topography. The proposed action is located adjacent to the MKARNS. The assessed areas within the proposed action consisted of a mixture of herbaceous and upland woody species adjacent to the MKARNS in early to mid successional stage.

The general habitat associated with the proposed construction of the Cutoff 18-9 Spoil Pond consisted of a mixture of woody and herbaceous species and included pecan (*Carya illnoinensis*), hackberry (*Celtis occidentalis*), hickory (*Carya sp.),* Kentucky coffee (*Gymnocladus dioicus*), honey locust (*Gledtisia triacanthos*), deciduous holly (*Ilex decidua),* Indian sea oats (*Chasmanthium latifolium*), fescue (*Festuca arundincea*), wood nettle, sercecia (S*erecia lespedeza),* fescue (*Festuca pratensis*), little bluestem (*Schizachyrium*

scoparium) and horse nettle (*Solanum carolinense*). The general habitat associated with the proposed construction of the Cutoff 18-6 Spoil Pond consisted of a floodplain forestland and included green ash (*Fraxinus pennsylvanica*), box elder (*Acer negundo*), sycamore (*Platanus occidentalis*), hackberry (*Celtis occidentalis*), American elm (*Ulmus americana*), black walnut (*Juglans nigra*), grape (*Vitis sp.*), greenbrier (*Smilax bona-nox.*), coralberry (*Symphoricarpos orbiculatus*), and deciduous holly.

3.3.4 Water Resources

Surface Water

The proposed action would consist of dredging silt and alluvial riverbed sediment from both cutoffs to allow for fleeting of full draft barges. The MKARNS provides a hydrologic connection to both cutoffs. No wetlands, perennial or intermittent streams were identified within the area proposed for the spoil pond or the pipeline that would be used to transport dredged material from or return water to the oxbows.

Groundwater

The Oklahoma Water Resources Board website was used to broadly assess groundwater resources beneath land within the proposed action. The proposed action is underlain by Reach II of the MKARNS within the Cherokee Group Groundwater Basin. The youngest geologic sediments are the Quaternary alluvium along the river. The thickness of the alluvium can vary between 15 and 70 feet (Belden, 1996). Bedrock of Pennsylvanian age underlies the alluvial sediments. On a regional basis, sources of ground water are obtained from three sandstone units within the Cherokee Section of the Pennsylvanian bedrock that include the Hartshorne, McAlester and Savanna Formations. No water wells were identified within the proposed action.

Public Water Supplies

The Oklahoma Department of Environmental Quality website was used to broadly assess the presence of public water supplies wells, public water supply intakes, and wellhead protection areas that may be affected by the proposed action. None would be affected by the proposed action.

Sole Source Aquifers

The United States Environmental Protection Agency's website was utilized to identify the location of any sole source aquifers. No sole source aquifers are located near the proposed action.

3.3.5 Floodplains

The protection of floodplains and floodways is required by Executive Order 11988 in order to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains to avoid direct or indirect support of floodplain development.

Coordination with the Oklahoma Water Resources Board determined that Rogers County participates in the NFIP and has a floodplain development permitting system. The Federal Emergency Management Agency's (FEMA) website was used to determine whether any floodplains were located within the proposed action. Cutoff 18-9 is located on Map Number 40131C0380H, Panel 380 of 475 dated April 3, 2012. Cutoff 18-6 is located on Map Number 40131C0390H, Panel 390 of 475 dated April 3, 2012. Both cutoffs are located within the 100 year floodplain of the MKARNS.

3.3.6 Wetlands

The U.S. Army Corps of Engineers (USACE) 1987 Wetland Delineation Manual defines wetlands as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. A survey for wetlands was performed within the proposed action. Results are provided in Section 4.3.3.

3.3.7 Fish and Wildlife

The species of wildlife expected to use or be present within the area proposed for the dredge pond and transport pipeline may include such species as white-tailed deer (*Odocoileus virginianus*), fox squirrel (*Sciurus niger*), gray squirrel (*S. caroliniensis*), cottontail rabbit (*Sivilagus floridanus*), raccoon (*Procyon lotor*), mink (*Mustela vison*), opossum (*Didelphis virginiana*), skunk (*Mephitis mephitis*), muskrat (*Ondatra zibethicus*), and beaver (*Castor canadensis*). Various avian species comprised of raptors, waterfowl, neo-tropical migrants, as well as a variety of herpetofauna including timber rattle snakes (*Crotalus horridus*), copperhead (*Agkistrodon contortrix*), cottonmouth (*A. piscivorus*), water snakes (*Nerodia sp*.), amphibians, salamanders, lizards, skinks, tortoise and turtles are present in and/or migrate through the general area. Predatory mammals including the coyote (*Canis latrans*) are expected in above average density while the numbers of red fox (*Vulpes vulpes*) or grey fox (*Urocyon cinereoargenteus*) are expected to be relatively low despite the presence of suitable habitat. Local bobcat (*Lynx rufus*) populations are anticipated to be normal to above average based on the available habitat, well-developed riparian zone travel corridors, and forage opportunities.

The typical fish species that may use both oxbows can include largemouth bass (*Micropterus salmoides*), sunfish (*Lepomis sp*.), white crappie (*Poximus annularis*), channel catfish (*Ictalurus punctatus*), blue catfish (*I. furcatus*), flathead catfish (*Pylodictus olivaris*), along with rough fish species including carp (*Cyprinus carpio*), bigmouth buffalo (*Ictiobus cyprinellus*), smallmouth buffalo (*I. bubalus*), drum (*Aplodinotus grunniens*), suckers (*Carpoides sp*.), and forage species including minnows, shiners, and gizzard shad.

3.3.8 Threatened and Endangered Species

In accordance with the Endangered Species Act of 1973, Federally-listed threatened and endangered species were identified for the proposed project. These species have the potential to be present in or migrate through Rogers County. Federally listed and candidate species in Rogers County include the American Burying Beetle, Interior least tern, Piping Plover, Arkansas darter, Neosho mucket mussel, Rabbitsfoot mussel, and the Whooping Crane. The official list of threatened and endangered species potentially present within or adjacent to the study area was generated for the proposed project by the United States Fish and Wildlife Service's on-line Information, Planning, and Conservation (IPaC) decision support system (USFWS, 2012a) and shown in **Table 3**.

Table 3
Threatened and Endangered Species
Rogers County, Oklahoma

Common Name	Scientific Name	Status
American Burying Beetle	*Nicrophorous americanus*	Endangered
Interior least tern	*Sterna antillarum*	Endangered
Piping Plover	*Charadrius melodus*	Threatened
Whooping Crane	*Grus americana*	Endangered
Arkansas Darter	*Etheostoma cragini*	Candidate
Neosho Mucket Mussel	*Lampsilis rafinesqueana*	Candidate
Rabbitsfoot Mussel	*Quadrula cylindrica*	Candidate

Source: USFWS, 2012

American Burying Beetle

The American Burying Beetle (ABB) is large beetle and has a shiny black appearance with four orange-red spots on the wing covers (elytra). A large red spot on the pronotum of the beetle is indicative of the species. The habitat requirements for this beetle are not fully known; however, the ABB is considered a habitat generalist and is known to occupy a diverse range of habitats. Habitats associated with the ABB include open grasslands, forests, as well as transitional areas. The beetle is a carrion feeder and utilizes small vertebrate carcasses for food and reproductive purposes. Adult ABB's locate suitable food sources and mates through olfactory senses. Adults prepare and preserve the carrion by covering the carcass with mucilaginous secretions and burying in a shallow grave. Eggs are laid in a small chamber adjacent to the buried carrion by the adults (Schnell, et. al.1993). Both the male and female adults remain with the young until pupation is complete. The ABB appears to utilize a

mixture of woodlands and open grasslands for protective cover, foraging, and brooding purposes however their potential presence in these areas may be more predicated on prey/forage availability rather than specific habitat selection.

Interior Least Tern

The Interior Least Tern is the smallest member of the tern family with a wingspan of about 20 inches. They have a grayish back and wings, and snowy white undersides. Interior Least Terns can be distinguished from all other terns by their combination of a black crown, white forehead, and a variable black-tipped yellow bill. Interior Least Terns nest in small colonies on exposed salt flats, river sandbars, or reservoir beaches. Nests are small scrapes in the sand, and usually two or three eggs are laid. The sand must be mostly clear of vegetation to be used by terns.

Natural habitat for Interior Least Terns includes islands, beaches, and sandbars. Interior Least Terns are generally restricted to larger meandering rivers with broad floodplains, slow currents and greater sedimentation rates, which allow for the formation of suitable habitat. The historic distribution of the Interior Least Tern was the major river systems of the mid-western United States; the Red, Rio Grande, Arkansas, Missouri, Ohio, and Mississippi river systems. Currently, they occur as small remnant colonies throughout their former range. In Oklahoma, Interior Least Terns nest along most of the larger rivers, as well as at the Salt Plains National Wildlife Refuge.

Piping Plover

The Piping Plover is a small, stocky, sandy-colored bird resembling a sandpiper. The adult has yellow-orange legs, a black band across the forehead from eye to eye, and a black ring around the base of its neck. The habitat requirements for the Piping Plover include sandy shorelines on lakes and sandbars along the major river systems for forage and resting areas. The Piping Plover is identified as a migrant in Oklahoma. The migration pattern includes Oklahoma during the spring and fall. Piping Plovers do not generally nest in Oklahoma. Plovers often gather in groups on undisturbed beaches prior to their southward migration. By mid-September, both adult and young plovers will have departed for their wintering areas.

Whooping Crane

The Whooping Crane is described as a very large, long-legged crane in the Family *Gruidae*. Diagnostic characteristics include an overall white plumage with a red head crown and grayish black legs. Marshy wetlands areas provide suitable migration stopover habitat.

The Whooping Crane spends the spring and summer in the wetlands of Wood Buffalo National Park in northern Canada and uses the Texas coast at Aransas National Wildlife Refuge (ANWR) near Rockport, Texas during the winter. Whooping Cranes live in family groups made up of the parents and 1 or 2 offspring. The Whooping Crane is classified as a winter migrant with rare occurrences of over-wintering in extreme southwest and northwest

Oklahoma. The Salt Plains National Wildlife Refuge in Oklahoma is an important stopover and designated as critical habitat. Their historic migration path includes the central United States including Oklahoma.

Whooping Cranes will use favorable foraging and resting areas during migratory stopovers. While Whooping Cranes could traverse the project corridor it appears very unlikely Whooping Cranes would not be present within the study area based on lack of habitat.

Arkansas Darter

The Arkansas darter (*Ethesostoma cragini*) is listed as a candidate species. The Arkansas darter is a stout-bodied, relatively short member of the perch family. These darters are olive brown in color on the sides and yellowish white underneath. Six to nine indistinct dusky saddles are present across the back. During spawning, males are a colorful orange along their lower abdomen. Arkansas Darters prefer shallow, clear, spring-fed tributary and headwater streams having sand or sandy-gravel substrates. The fish are usually associated with vegetative cover in spring-fed channels and generally found in near-shore areas away from swift currents. Spawning occurs in early spring. The Arkansas Darter has been identified as being present in Little Cabin Creek and Big Cabin Creek in Craig County, Oklahoma.

Neosho Mucket

Neosho Muckets are freshwater mussels that are elongated with a slightly rounded shell. The shell is relatively thin and an average size of approximately 4 inches. The shell is light brown and has a dull, waxy luster that may become dark brown with age and exhibits distinct growth lines. The riverine species prefers shallow clean flowing water in fine to medium gravel substrates. The Neosho Mucket Mussel is found in the Fall, Verdigris, Neosho and Spring Rivers. It is one of the predominant mussels in a short stretch of the Spring River but most of the specimens found in the other rivers appear well-worn and old. The younger shells are often marked with greenish rays and chevrons. The female Neosho mucket waves a lure that imitates a small fish to attract its host fish. Only black bass (largemouth, smallmouth and spotted) serve as the host for Neosho mucket larvae, called glochidia, which the female releases in late spring. Sufficient numbers of bass may be lacking in the lower Neosho, Fall and MKARNSs. Attempts to grow this mussel on hatchery bass and restocking larval mussels into suitable habitat have proven successful. The Neosho Mucket Mussel has a historical record of occurring in the MKARNS; however it is not a recent occurrence. The last known occurrence was in the early to mid 90's in the upper Verdigris River near South Coffeyville, Oklahoma. Suitable habitat for the Neosho Mucket Mussell consists of shallow riffles and runs with gravel substrate and moderate swift currents and substrate that allows for burrowing.

The historical distribution for the Neosho Mucket Mussel was reported for the Illiniois River, the Neosho River, the MKARNS, and the Spring River and its tributaries in Oklahoma. It is one of the predominant mussels in a short stretch of the Spring River but most of the

specimens found in the other rivers appear well-worn and old. The younger shells are often marked with greenish rays and chevrons. The female Neosho mucket waves a lure that imitates a small fish to attract its host fish. Only black bass (largemouth, smallmouth and spotted) serve as the host for Neosho mucket larvae, called glochidia, which the female releases in late spring. Sufficient numbers of bass may be lacking in the lower Neosho, Fall and MKARNSs. Attempts to grow this mussel on hatchery bass and restocking larval mussels into suitable habitat have proven successful.

In the early 1990's, surveys indicated that living muckets were found in a stretch of the Illiniois River from the Oklahoma Arkansas state line downstream to the headwaters of Lake Tenkiller on Cherokee County and were not found within or downstream of the lake. However, more recent surveys conducted suggest that the Neosho Mucket Mussell has been extirpated from the Caney, Verdigris, Neosho, and Spring Rivers in Oklahoma. As of 2010, the Neosho Mucket has been extirpated from approximately 62% of its river miles of its historical range. Currently, only the Spring River supports a viable population of the species (USFWS, 2010).

Rabbitsfoot Mussel

The rabbitsfoot (*Quadrula cylindrica cylindrica* Say 1817) was originally described from the type locality in the Wabash River in Indiana (USFWS, 2009). The rabbitsfoot is a medium to large-sized mussel that reaches about six inches in length. Key characters useful for distinguishing it from other mussels include its elongated shape, sculpture, and color pattern. The shell shape is elongate, rectangular and moderately inflated in mature specimens. The rabbitsfoot is primarily an inhabitant of small to medium-sized streams and some larger rivers. It usually occurs in shallow areas along the bank and adjacent runs and shoals where the water velocity is reduced. Specimens may also occupy deep water runs, having been reported in 9-12 feet of water. Bottom substrates generally include sand and gravel. The rabbitsfoot was historically known from 139 streams within the lower Great Lakes Sub-basin and Mississippi River Basin. The historical range included 15 states: Alabama, Arkansas, Georgia, Illinois, Indiana, Kansas, Kentucky, Louisiana, Mississippi, Missouri, Ohio, Oklahoma, Pennsylvania, Tennessee, and West Virginia. Within Oklahoma, extant populations occur within the Neosho River, Illinois River, Little River, Glover River and the MKARNS.

Bald Eagle

Although the Bald Eagle (*Haliaeetus leucocephalus*) has been removed from the threatened and endangered species list, the eagle continues to be protected by the Bald and Golden Eagle Protection Act. Bald eagles are rather large raptorial birds measuring 3 feet in height with a 7-foot wingspan. The bald eagle prefers large trees or high cliffs along large waterways for perching and nesting purposes. Fish is the preferred diet of eagles, but they also eat small mammals, waterfowl, turtles and dead animals. Preferred foraging areas include quiet coastal areas, rivers or lakeshores with large tall trees. Generally, bald eagles migrate through Oklahoma in early spring and return by September or October.

Methods used to identify potential or suitable habitat included investigations of waterbodies potentially used for foraging, large nesting or perching trees adjacent to such water features, and other areas of which Bald Eagles are known to use or frequent.

No Bald Eagles or nests were observed during the site visit. If Bald Eagles are encountered during construction, the National Bald Eagle Management Guidelines should be implemented.

3.4 Cultural Resources

Field archeological investigations were performed within the proposed action (Henry, 2012). The identification and assessment of potential cultural resources within the proposed action was based on a review of available records regarding archeological and historic resources in the region. Section 106 of the National Historic Preservation Act of 1966, as amended, protects those properties that are listed or eligible for listing in the National Register of Historic Places (NRHP).

No historical property or archaeological site is on record within the proposed action at the State Historic Preservation Office (SHPO) or the Oklahoma Archeological Survey (OAS). One site that contained a lithic scatter recorded in 1976 was identified 1.25 miles to the north of the proposed action. Review of 1898 General Land Office map indicated the that nearest structure was about one mile to the south of Cutoff 18-6.

3.5 Air Quality

The U.S. Environmental Protection Agency established the National Ambient Air Quality Standards (NAAQS). Ambient air quality monitoring exists at various locations throughout Oklahoma. Currently, all Oklahoma counties are in attainment with regard to the NAAQS with respect to the criteria pollutants CO, SO_2, O_3, NO_x, PM-10, and Pb. No natural, man made, point, or non-point air pollutant sources were identified near the project area to define the area's air as being of low quality.

3.6 Hazardous, Toxic, and Radiological Waste

The websites of the Oklahoma Department of Environmental Quality's GIS Map Data Viewer and the U.S. Environmental Protection Agency's Envirofacts were used to assess the proposed action for hazardous, toxic, and radiological waste. Additionally, an initial site assessment was performed within the proposed action. No superfund sites were identified in Rogers County. No regulated facilities were observed within the area planned for the proposed action.

3.7 Geology

The proposed action is underlain by Quaternary deposits that overlies relatively flat lying Pennsylvanian aged sedimentary bedrock and is located within the Claremore Cuesta Plains geomorphic province of Oklahoma (Curtis and Ham, 1979).

SECTION 4.0: ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

The proposed action consists of the dredging of Cutoff 18-9 and Cutoff 18-6 and the utilization/construction of adjacent spoil ponds. Details of each are provided below.

Cutoff Lease 18-9 and Dredge Disposal Pond

This cutoff would be dredged to a depth of twelve feet and create a 3 to 1 slope of the right and left descending bank. A total of 95,000 cubic yards of dredge material would be removed to return the cutoff to its original depth. At the southern end of the cutoff, 12,000 cubic yards of soil would be removed above the normal pool elevation using a hydraulic excavator and trucked to the disposal area. Sediment from below the normal pool elevation would be removed using a hydraulic cutter head and pumped into the disposal area. Twelve deadman anchors would be installed on the right descending bank starting at the southern end and placed every 200 feet.

Cutoff Lease 18-6 and Dredge Disposal Pond

This cutoff would be dredged to a depth of twelve feet and create a 3 to 1 slope of the right and left descending bank. A total of 85,000 cubic yards of dredge material would be removed returning the cutoff to its original depth. The upper 800 feet of the cutoff would not be disturbed to allow for shallow habitat to remain. Twelve deadman anchors would be installed on the left descending bank starting at the southern end and placed every 200 feet.

The No-Action Alternative would be that no dredging would occur, no sediment or return water transport pipe would be installed, no vegetation would be disturbed, and no dredge spoil pond use or construction would take place on USACE property. Adverse impacts or modifications to the current land use patterns at or near the project area would occur.

4.1 Land Use

Cutoff 18-6

The proposed action would result in the removal of early succession stage forested land with limited understory on the island located between the former Verdigris River and MKARNS channels. Approximately 15 acres of young-aged woodland would be converted to an open spoil pond used for dredged material placement surrounded by berms. The land use would change from a wooded to an open landscape. However, the area would remain open to recreational use but also be utilized as commercial/private.

Cutoff 18-9

The proposed action would result in the removal of early to mid-succession stage forested areas within the existing dredged material spoil pond. Approximately 10 acres of young- to medium-aged trees along with saplings and associated understory would be converted to an open spoil pond used for dredged material placement within the existing berms. Some portions of the existing spoil pond (approximately 3.31 acres) are open and dominated by herbaceous vegetation. Since this area was originally created for dredged material spoilage, land use would not change from the original intent.

Generally, the areas will remain available and open to public use (except during construction or dredging activities), thus indirect impacts are not anticipated. Effectively, vegetation will be removed and the areas are temporarily anticipated to transition to a semi-aquatic habitat then ultimately (in time) to a terrestrial habitat upon cutoff dredging completion. JP33 may elect to remove the dredged material from each pond at some date in the future predicated on the need to perform subsequent dredging activities to restore barge draft that may become compromised by recurring cutoff sedimentation.

The No-Action Alternative would result in no development at this property and would not result in any development beyond what the current development trends would indicate. Adverse impacts or modifications to the current land use patterns near the project area are not expected as the result of the proposed action.

4.2 Social and Economic Conditions

The social and economic environments are expected to follow historic trends in the project area vicinity. Population trends of the past would most likely continue. The proposed action may temporarily increase noise affecting people living nearby, but will be short term in nature. The nearest residence is about one mile from the proposed action. The project is not expected to have an effect on the employment opportunities in the county or immediate area. Job opportunities should continue to be associated with future population dynamics in the county. The overall unemployment rate should not be affected and is expected to remain at or slightly above current levels. The dominant industries would remain an important part of the local economy. Services and retail industries in the local area should not appreciably change for the long or short term. Income within the county should remain at or slightly above the current levels. Adverse impacts are not expected.

4.2.1 Environmental Justice

The 2005-2009 Census data estimates were used to determine if there would be any disproportionate impacts. The proposed action is located in Census Tract 505.01. Rogers County was used as the reference population. The percentage of minority and low income population is provided below.

	Percent Minority	Percent Below Poverty Level
Census Tract 505.01	5.7%	5.7%
Rogers County	20%	9%

Census data indicates that no disproportionate or adverse effects on minorities or low-income populations are anticipated as the result of the proposed action.

The No-Action Alternative would not cause impacts on the human environment. Therefore, there would be no disproportionate negative impacts on minority or low-income populations.

4.2.2 Protection of Children

The construction of the project will be conducted in a safe manner to prevent accidents by using the standard precautionary measures. Due to the proposed projects location in a rural area, direct access to children is highly unlikely. However, in conformance with the EO, children will be restricted at or near the construction areas. All construction areas would be restricted on a short-term basis from general public access.

4.3 Natural Resources

4.3.1 Soils

Adverse impacts on soils of the project area are not expected. Soils encountered within the proposed action were derived from previously disturbed soils with respect to development and/or maintenance of the MKARNS. All soil disturbing and construction activities associated with the proposed project will be performed in accordance with the standard best management practices (BMP's). Best Management Practices are used to minimize soil erosion and sedimentation from construction while the site undergoes removal of the soil, transporting soil and vegetation and compacting and regrading the site.

Silt fencing will be deployed down gradient from the cross berm constructed in the existing spoil pond for 18-9. Hay bale barriers will be installed down gradient of the final discharge location of 18-9 to dissipate velocities and trap fugitive sediment. Silt fencing will be deployed around the spoil pond berm for 18-6. All newly constructed berms would be seeded when completed. Seed would be planted in the fall and over seeded in the following spring. Disturbed soils will be re-vegetated using Stock Native Grass Seed @ the rate of 4.015 lbs per acre. Stock Native Grass Seed will consist of Little Blue Stem, Big Blue Stem, Switch Grass, Sideoats Grama, Buffalo Grass, Tall Drop seed, Sand Drop seed, and Western Wheat grass.

Under the No-Action Alternative, no soils would be impacted.

4.3.2 Floodplains

All work associated with the proposed action would conform to applicable state or local floodplain protection standards. The flood capacity of the MKARNS would not be compromised. Best managements practices will keep disturbance to a minimum. Best Management practices are described in Section 4.3.1.

The No-Action Alternative would not impact floodplains.

4.3.3 Wetlands

In August 2012, a wetland survey was performed within the proposed action. One 0.47 acre herbaceous wetland (FS-2) was observed within the proposed action associated with the planned dredging of Cutoff 18-9 (**See Figure 2**). The wetland is considered to be jurisdictional. A Wetland and Waterway Delineation Report of Survey documenting these findings is provided at **Appendix C**. Wetland mitigation, if required, will be determined through coordination with the USACE Regulatory Office through the Section 10 permit review.

There would be no impacts to existing wetlands under the No-Action Alternative.

4.3.4 Water Resources

Surface Water

The proposed dredging at Cutoff 18-9 and 18-6 would require permitting under Section 10 of Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act. JP33 has prepared the proposed project descriptions, provided the relevant information and calculated the volume of dredge material to be removed from each cutoff and provided this information to the USCE Regulatory Division to facilitate the Section 10 and 404 permit application review. Disturbed sediments and turbidity are expected during dredging operations within each cutoff. Based on the vacuum process of cutterhead dredging, suspended sediments or plumes of turbidity will transition into the cutter, through the piping, and be discharged as a slurry into the spoil ponds. Accordingly, suspended sediments and turbidity are expected to be relatively minor and localized. Prop wash from the dredge may generate suspended sediment but this action is expected to be minimal and temporary since the dredge will be operating in deeper water downstream of the cutterhead. Additionally, dredge maneuvering will be minimal primarily anticipated to be parallel with the channel. Since the cutoffs are not associated with 'flow', significant downstream plume migration is not expected. If determined appropriate, JP 33 may elect to deploy suspended silt curtains to

prevent/minimize downstream turbidity migration in the MKARNS. No adverse impacts are anticipated to surface water resources.

Groundwater

The proposed action will result in minimal disturbance of land within the local watershed, which will alter the natural infiltration of recharge to underlying aquifers. However, the change in land use associated with this project should have a negligible, if any, effect on groundwater recharge.

No water resources would be impacted under the No-Action Alternative.

4.3.5 Vegetation

Removal of herbaceous and woody vegetation will result from preparation of the existing 18-9 and construction of the new 18-6 spoil ponds. The majority of the expected tree impacts would be associated with Oxbow 18-6 since the natural levee/floodplain area is dominated by early to mid- successional stage species. The dominant species of tree consists of hackberry and box elder. The Oxbow 18-9 spoil pond area is somewhat open and herbaceous with an approximate 70% coverage of trees. The calculated area of impact is 30 acres. Revegetation of the disturbed areas outside of the spoil ponds is proposed as compensatory mitigation (Section 5.0).

The No-Action Alternative would allow vegetative species to occur naturally and wildlife species to occupy or pass through the property.

4.3.6 Fish and Wildlife

Oxbow Dredging at 18-9 and 18-6

Impacts from dredging on aquatic species are considered to be short term and localized and cease when the dredging activities are completed. The dominant change includes a topography modification to the bottom of the cutoff and habitat modification to biological resources within the water column and channel floor. Dredging involves immediate changes to the benthic environment at the location of dredging. However, when the dredging stops, bottom dwelling species should begin to re-inhabit the freshly contoured portion of the cutoff bottom when turbidity subsides. The newly exposed substrate should provide sufficient and comparable area for repopulation of the same species currently occupying the area with time.

Sediment removal from the cutoffs would be accomplished by using a hydraulic cutterhead dredging method to pump sediment into the spoil ponds. Introduction of dredging equipment into the aquatic environment would have a short term impact to any fish species that inhabit the cutoff. The presence of humans, introduction of the dredging equipment and associated noise into the aquatic environmental should alert fish species to move to the portion of the cutoff that is not being disturbed or escape to the MKARNS. As the dredging process

advances upstream, fish species are expected to return and seek their preferred habitat once the turbidity has settled. No vegetation removal is proposed other than woody debris currently in the oxbow or buried in sediments. No terrestrial woody vegetation is proposed to be removed in the areas adjacent to the cutoff. The shoreline along the former riverbanks will not be disturbed, excavated, or dredged. The average distance between the shoreline and the closest extent of dredging would be approximately 20 to 30 feet. The natural angle of repose along the riverbank and subsurface is not expected to change based on this operation. Spawning habitat, except for the shallow areas near the mouth of the oxbow, should not be affected in the majority of the cutoffs. The relatively shallow 18-9 cutoff is nearly separated from the MKARNS except for a small narrow and shallow inlet channel. Sedimentation since construction of the MKARNS over time has contributed to the degradation of this aquatic area in terms of aquatic species use. Some fish spawning inevitably occurs but due to the limited structural habitat, poor water quality, low dissolved oxygen levels during the warmest part of the growing season, the extent of fish usage, other than rough fish, is expected to be limited. Additionally, the narrow and shallow inlet channel appears to restrict fish species ingress and egress. No fish passage is possible during periods of lower water levels in the MKARNS. Suction of motile aquatic species invertebrates and some smaller fish is possible and likely. However, presence of the dredge, disruption of the water by the cutterhead, and protective cage should encourage such species to vacate the prospective work area in advance of dredging operations. The cutterhead cage will also create a barrier between suction and fish species. Invertebrates present in or adjacent to the sediments to be removed will likely be killed.

Impacts from pond preparation and construction activities to terrestrial species are expected to be short term, relatively minor, and localized based on the quantity and quality of the affected habitat. Direct impacts relative to equipment and human presence will cease when the dredging activities are completed. EEC believes both spoil pond areas are utilized by multiple species of game and non-game wildlife at nearly all levels of the food chain. The vegetation present in these areas is certainly sufficient to harbor many animal species. Neither spoil pond area evidenced a native stand of herbaceous species. Rather a mixture of non-native and introduced herbaceous species coupled with several different native forb species and vines were observed. Woody vegetation varied within each site from a coverage, density and species standpoint. However, neither site exhibited more than a scattered mature tree.

Animal species and their respective uses are expected to be varied, opportunistic, and relative to the preferred or utilized habitats for each. Based on the observed habitat characteristics, the most predominant species expected to be present or utilize the spoil pond areas consist of small mammals and birds. The diversity of bird species varies between summer and winter migrants however, few nests were observed. Larger mammals can and do utilize the areas however their density should be far less. Actual sighting and/or evidence of cottontail rabbit, raccoon, opossum, fox squirrel, coyote, and white-tailed deer was observed. Red-tailed hawks, great-horned owls, and barred owls were observed or near 18-9 and believed to be a function of the more open habitat types and edges. No raptorial birds were observed at the 18-6 spoil pond area presumably due to the dense to very dense sapling shrub understory coupled with a limited number of mature trees. Predatory or omnivorous animals such as

coyote, skunk, raccoon, and snakes are expected to utilize both areas primarily during foraging. However, prospective denning habitat was observed for each of the aforementioned. Incidentally, most if not all of these same terrestrial animals will likely return to use the spoil pond areas upon project completion. Some avian, neo-tropical migrants or forest dwellers, usage will likely be less based on the absence of trees. However, the spoil ponds may provide forage opportunities for other bird species upon completion such as herons, egrets, or other shore/wading species. Additionally, the open pond areas may also afford forage opportunities for raptorial species.

The island associated with the 18-6 spoil pond is formerly an open area cleared well prior to this action. Upon USACE property acquisition and MKARNS construction, the subject area was allowed to regenerate to its current condition described as an early succession stage wooded area dominated by relatively young-aged trees and saplings. The island is afforded wildlife access across the riprap dike blocking flows from the MKARNS into the cutoff, across the channels, and through the air. The habitat quality is subjectively described as fair for the potential wide range of species known to occur within or adjacent to the project area. For example, white-tailed deer may use the area for cover and foraging due to its relative isolation and vegetation density. Fox squirrels may use the area but the very limited extent of hard-mast bearing trees should not be considered suitable or preferred. Avian species obviously utilize this area but appeared to be relegated primarily to neo-tropical migrants. Ground nesting species were not observed and are not expected in any consistent appreciable extent or numbers. Ground-dwelling rodents and their evidence were observed within the proposed spoil pond area. Suitable forage and cover is provided by deadfall, vines, and some seed producing herbaceous vegetation (albeit limited). Accordingly, predatory species and herptofuana are expected to utilize the area however, their presence and/or frequency is assumed, not confirmed and expected to be associated primarily with hunting.

The 18-9 spoil pond area is an existing dredged material spoil pond constructed during development of the MKARNS situated between the MKARNS, Cutoff 18-9, existing mature forested areas and an herbaceous opening containing scattered younger trees. Unrestricted access is currently available to all terrestrial and avian species to this area and no change in physical access is expected. The habitat quality is subjectively described as moderate to good for the potential wide range of species known or expected to occur within or adjacent to the project area. White-tailed deer use the area for cover, bedding, and foraging. Fox squirrels use the area and utilize the mast bearing trees within. Avian species are present in this area in greater diversity and are able to use the area for multiple reasons, chiefly access and vegetation diversity. Ground nesting species were not observed and are not expected in any consistent appreciable extent or numbers. Ground-dwelling rodents and their evidence were observed within the proposed spoil pond area. Suitable forage and cover is provided by deadfall, vines, and a greater diversity of seed producing species. Predatory mammals, birds, and herptofuana utilize the area (confirmed by sighting and/or evidence).

Based on this assessment, the overall impacts to terrestrial species are expected to be minor and minimal. The majority of the terrestrial species should be able to flee the proposed work areas prior to construction. Some nesting habitat for avian species will also be removed.

However, more than sufficient suitable and preferred habitat is available in very close proximity to the spoil pond areas for terrestrial species to utilize for cover, nesting, denning, and/or foraging.

Under the No-Action Alternative, terrestrial and aquatic species would not be affected by existing human activities associated with the proposed action. However in the event continued siltation is allowed to occur, the mouths of the oxbows are expected to become separated from the MKARNS during normal and below normal pool water surface elevations. In this event, water quality degredation is expected and would occur rapidly during winter and summer periods of low oxygen, algae blooms, and due to lack of oxbow flushing. Fish kills and other aquatic species die off's would most likely occur on an annual basis.

The proposed dredging operations are actually expected to improve the aquatic resources by providing deeper water habitats, substrate shelf areas, changes in oxbow floor topography, improved water ingress/egress from the MKARNS, increased flushing, increased oxygen levels, decreased algae blooms, and improved spawning habitat.

4.3.7 Threatened and Endangered Species

The Interior Least Tern and Piping Plover are species typically associated with habitats associated with larger bodies of water and rivers (natural and/or channelized) for spawning, nesting, foraging, and loafing. No suitable habitat for these species was identified within the project area. No effective foraging, loafing, nesting/spawning areas, and/or sand bars were observed within or adjacent to the project.

The Interior Least Tern and Piping Plover should not be present within the proposed action. The proposed action should have a no effect determination on the Interior Least Tern or Piping Plover.

Whooping Crane migration across the area of the proposed action is possible. However, their presence is considered unlikely based on the lack of suitable or preferred habitat. Crane usage of some shoreline areas for temporary stopover is possible but not anticipated in the proposed project areas based on the limited number and small size of work areas in relation to the extensive shoreline areas along the MKARNS. The proposed action should have a no effect determination on the whooping crane. No suitable habitat was observed in drainages within the study area.

Potential habitat for the ABB is present within the area of the proposed action. In September 2013, an ABB presence/absence survey was conducted and maintained for three nights. No American Burying Beetles were captured during the survey effort. According to the USFWS database of presence absence surveys conducted in Oklahoma for the ABB, no positive surveys have occurred in the last year in Rogers County. Furthermore, no positive surveys are on record to have occurred within Township 20 North, Range 16 East. The proposed action should have a no effect determination for the ABB.

The proposed action should have a no effect determination for the Neosho Mucket Mussel. No suitable habitat was observed within the study area.

The proposed action should have a no effect determination for the Arkansas Darter. No suitable habitat was observed within the study area.

The proposed action should have a no effect determination for the Rabbitsfoot Mussell. No suitable habitat was observed within the study area.

No Bald Eagles or nests were observed during the site visits. Methods used to identify potential or suitable habitat included investigations of waterbodies potentially used for foraging, large nesting or perching trees adjacent to such water features, and other areas of which Bald Eagles are known to use or frequent. No potential or suitable nesting trees or areas were identified within the study corridor. Eagle presence has been documented along this reach of the MKARNS and their presence does not have appeared to be affected by normal boat and/or barge traffic along the MKARNS. If Bald Eagles are encountered during construction, the National Bald Eagle Management Guidelines should be implemented.

In the event that these species are observed in or near the construction zones, temporary stoppage of work is recommended until coordination with the USFWS to establish a protocol to avoid impacts to this species. A survey report is provided in **Appendix D**.

The No-Action Alternative would result in no execution of the proposed action alternative. No additional impacts to threatened and endangered species or their habitat would result from the No-Action Alternative.

4.4 Cultural Resources

The proposed action was assessed for cultural resources. The Tulsa District conducted coordination under Section 106 of the National Historic Preservation Act of 1966 (as amended). The USACE archeologist has submitted the cultural resources report to the State Historic Preservation Office and the Oklahoma Archeological Survey for review.

The No-Action Alternative would not impact cultural resources. Natural processes including erosion would continue to affect the general area.

4.5 Air Quality

During construction, vehicular traffic and construction-related equipment operation may result in temporary emissions. Exhaust fumes from vehicles and particulate matter (PM) in the form of dust created by the installation process would be released into the air. Considering the current land use and construction in the surrounding area, the addition of similar pollutants resulting from development of the proposed project should be negligible. Adverse impacts are not anticipated.

There would be no air quality impacts associated with the No-Action Alternative.

4.6 Hazardous, Toxic, and Radiological Waste

Potentially hazardous materials used during the proposed project construction could include fuel for the construction equipment. No readily observable features, markers, and/or evidence of hazardous materials were observed.

The No-Action Alternative would not impact hazardous waste or materials.

4.7 Geology

No geologic resources would be directly affected by the proposed action.

The No-Action would not impact geologic resources.

4.8 Cumulative Effects

Table 4 presents a comparison of potential impacts to the social and natural environment. No adverse impacts to any physical, chemical, biological, and cultural environment were identified for the proposed action. Land use within areas of the proposed action planned for spoil pond construction would be changed from its current woodland setting. However, the planned changes are not anticipated to effect any changes in land use adjacent to the proposed spoil pond locations as a result of the proposed action.

No habitat fragmentation would result from the proposed action. Terrestrial and aquatic species would be able to move to adjacent areas and have free moment. Some terrestrial habitat would be removed, but the activities should not result in adverse cumulative effects to any aquatic or terrestrial species. Development of the project as proposed is expected to provide predominantly positive and beneficial impacts.

Table 4
IMPACT SUMMARY

	Beneficial Impact	No Impact	Minimal Adverse Impact	Adverse Impact	Significant Adverse Impact	Mitigation Measure(s) Proposed
Land Use			●			
Air Quality		●				
Aesthetics		●				
Soils & Geology		●				
Floodplain		●				

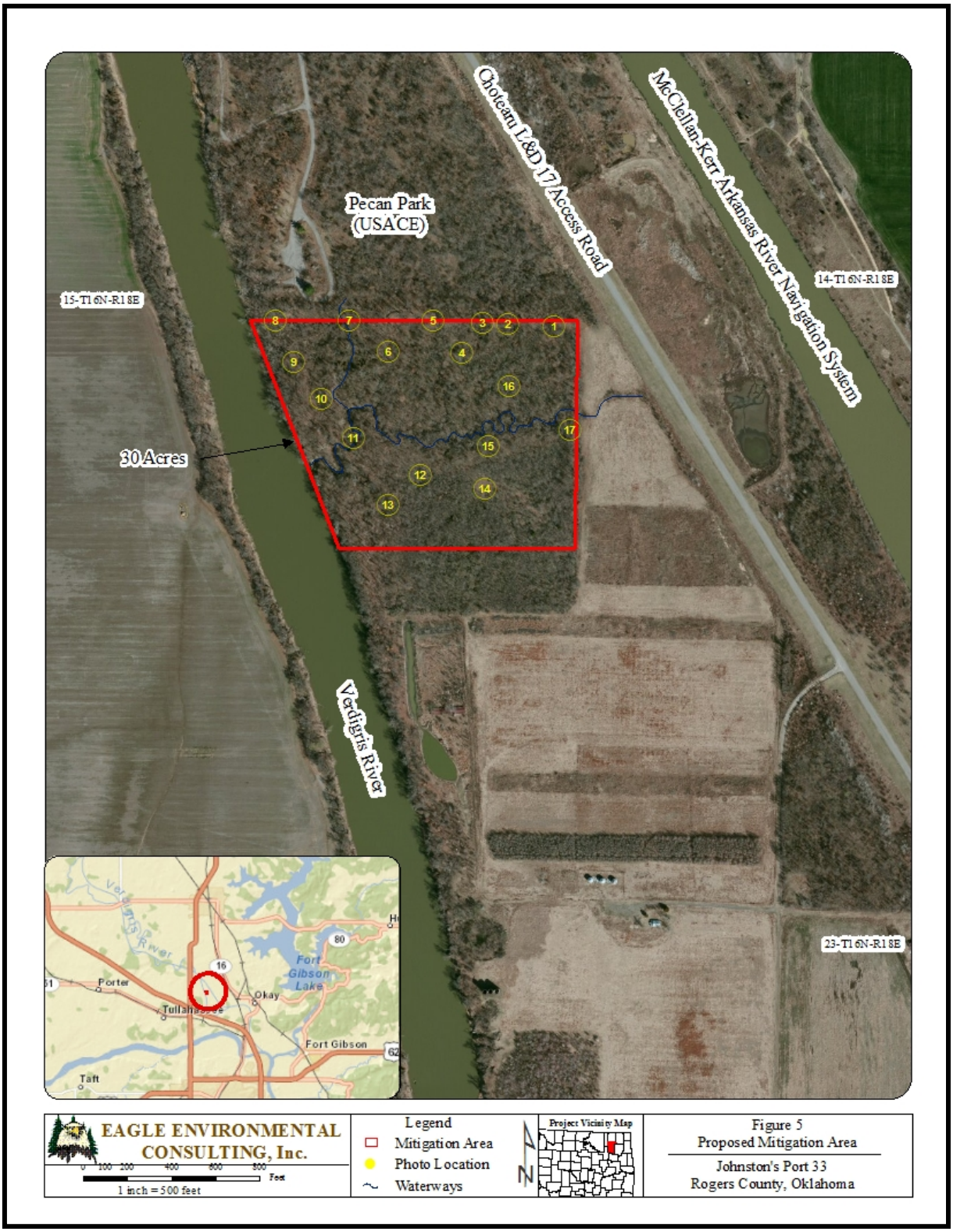
Table 4
IMPACT SUMMARY

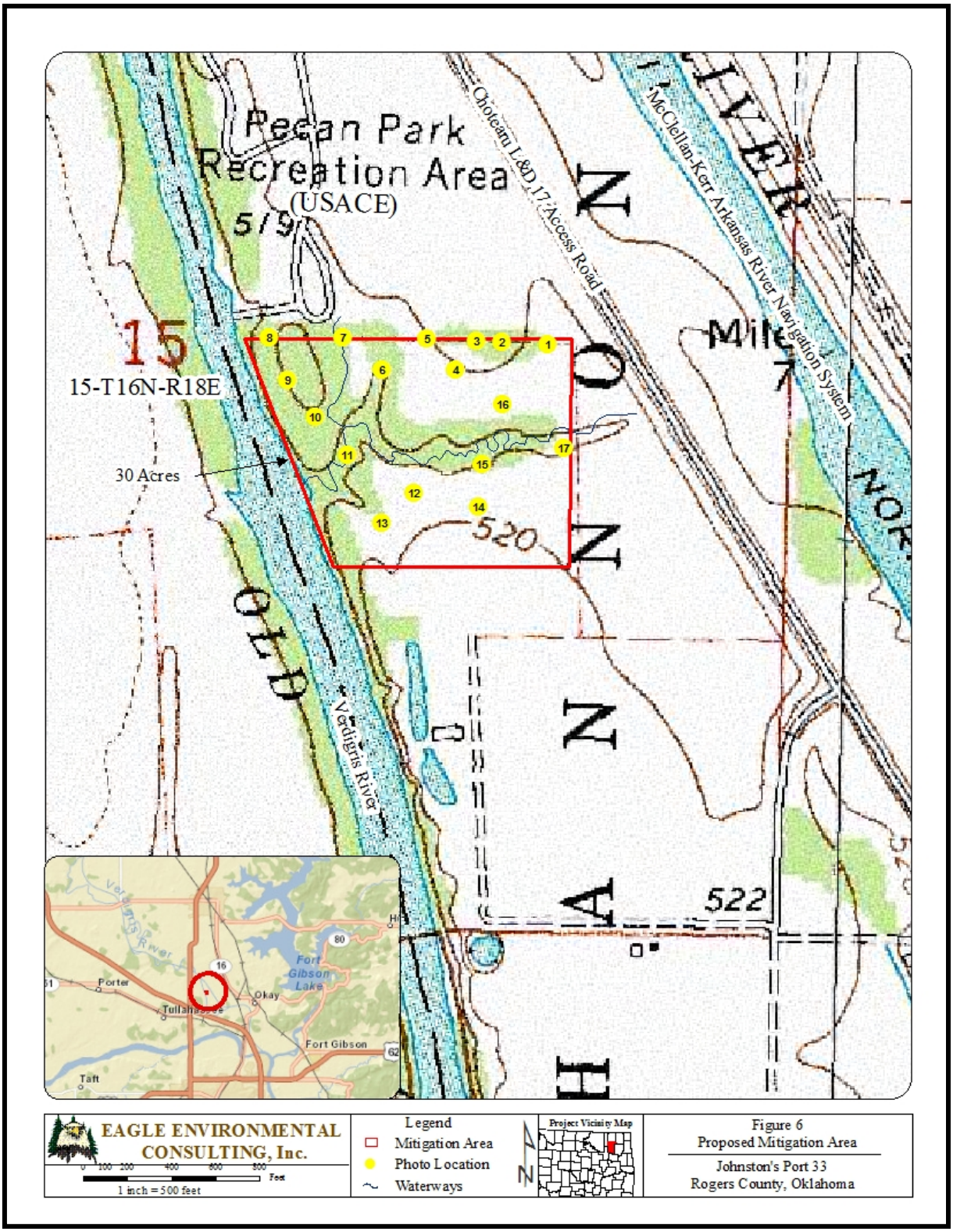
	Beneficial Impact	No Impact	Minimal Adverse Impact	Adverse Impact	Significant Adverse Impact	Mitigation Measure(s) Proposed
Water Resources		●	● Temporary			
Fish & Wildlife Resources			●			●
Threatened & Endangered Species		●				
Cultural Resources		●				
Economic	●					
Socio-Economic	●					
E.O. 12898		●				
E.O. 13045		●				
Haz. Mat. Or Waste		●				
Cumulative Effects		●				
Vegetation			●			●

SECTION 5.0: COMPENSATORY MITIGATION PLAN

JP33 proposes to acquire a 30-acre parcel of land with deed restrictions and keep ownership. The parcel is located in Section 15, Township 16 North, Range 18 East, Wagoner County, Oklahoma. The subject parcel is situated between a remnant section of the Verdigris River and the MKARNS near Lock and Dam 17 between Wagoner and Muskogee, Oklahoma **(Figure 5 and Figure 6)**. The parcel is adjacent to USACE-administered property and will become an extension thereof utilized for recreational purposes.

The property is described as predominantly forested but includes some partially open successional areas. EEC does not consider that the entire mitigation area should be characterized as an intact mature bottomland hardwood habitat type. Rather, portions of the mitigation site can be considered mature and are generally located in the northern and


Choteau L&D 17 Access Road
McClellan-Kerr Arkansas River Navigation System
Pecan Park (USACE)
15-T16N-R18E
14-T16N-R18E
23-T16N-R18E
30 Acres
Verdigris River
Fort Gibson Lake
Porter
Okay
Fort Gibson
Taft
EAGLE ENVIRONMENTAL CONSULTING, Inc.
1 inch = 500 feet
Legend
Mitigation Area
Photo Location
Waterways
Project Vicinity Map
Figure 5
Proposed Mitigation Area
Johnston's Port 33
Rogers County, Oklahoma


Pecan Park
Recreation Area
(USACE)
Choteau L&D 17 Access Road
McClellan-Kerr Arkansas River Navigation System
15
15-T16N-R18E
30 Acres
519
520
522
Verdigris River
Fort Gibson Lake
Porter
Okay
Fort Gibson
Taft
EAGLE ENVIRONMENTAL CONSULTING, Inc.
1 inch = 500 feet
Legend
Mitigation Area
Photo Location
Waterways
Project Vicinity Map
Figure 6
Proposed Mitigation Area
Johnston's Port 33
Rogers County, Oklahoma

western portions of the property. Additionally, canopy openings are present among the areas of taller timber allowing sunlight penetration and subsequently dense to very dense understory. Within the forested component two glades dominated by winged elm and deciduous holly were observed. Two small and one relatively large creek channels traverse the parcel and provide multiple additional habitat benefits for animals. The northern portion of the parcel contains several mature trees comprised of pecan, Shumard oak, pin oak, and red oak. The understory in this area varies from somewhat open to very dense in the understory based on the extent of canopy closure. The dominant vine species consisted of green brier, honeysuckle, poison ivy and trumpet vine. The western perimeter of the proposed mitigation area bordered by the Verdigris River and associated riparian zone. The riparian zone transitions eastward into the upland bottomland hardwood forest. This area is generally described as a mixture of mature and relatively mature bottomland hardwoods with an interspersion of open areas that transitions south along the river channel to the south property border. The southern border is a combination of bottomland hardwoods nearest the river channel transitioning into previously disturbed areas that have been allowed to regenerate into upland open forest glade areas and then into non-maintained tree row areas associated with the former tree farm on near the eastern edge of the forest block.

Overall, the habitat quality associated with the proposed mitigation area is varied and diverse. Habitat characteristics in terms of the observed or expected species ranges from good to optimum, with multiple unique and valuable habitat components therein. The habitat types observed include; mature riparian, mature bottomland hardwood, developing bottomland hardwood, developing upland hardwood, glade, mid-successional, early successional, aquatic, upland herbaceous, and non-maintained tree/shrub rows. Incidentally, there were several stable community areas along the old river channel one would expect to be associated with such an area. Specifically, several areas of spicebush were observed in the understory associated with the relatively mature forested area situated between the large creek channel and the Verdigris River. Multiple habitat features unique to a relatively preserved area were also observed including the winged-elm glade areas and interspersed riparian areas. Good to high quality nesting habitat is afforded within the mitigation area especially for neo-tropical migrants. Forage opportunities for a large array of avian species is also provided. Suitable to preferred habitat is provided for many mammalian species especially ground dwelling rodents, squirrels, opossum, raccoon, white-tailed deer, coyote, bobcat, and potentially fox. Traditional herpetofauna habitat is very much present and characterized as good to very good for a variety of species. Comparing the habitat of the mitigation area to that of the proposed impact sites, the proposed mitigation area should be considered higher to much higher quality relative to the species expected to be present in, migrate through, or opportunistically utilize the area.

The following list provides the dominant plant species observed within the proposed mitigation area:

Trees	**Typical Size (DBH)**
Pecan (*Carya illinoensis*)	4 to 36”
Pin oak (*Quercus palustris*)	4 to 24”
Shumard oak (*Q. shumardii*)	4 to 32”
Red oak (*Q. rubra*)	4 to 60”
Bur oak (*Q. macrocarpa*)	4 to 12”
Winged elm (*Ulmus allata*)	4 to 12”
Sassafras (*Sassafras albidum*)	4 to 12”
Hackberry (*Celtis occidentalis*)	4 to 18”
Black cherry (*Prunus serotina*)	4 to 12”
Sycamore (*Platanus occidentalis*)	4 to 18”
Hickory (*Carya spp*.)	4 to 16”
Box elder (*Acer negundo*)	4 to 8”
Green ash (*Fraxinus pennsylvanica*)	4 to 24”
Black walnut (*Juglans nigra*)	4 to 18”
Silver maple (*Acer saccharinum*)	4 to 8”
Chittam (*Bumelia lanuginosa*)	4 to 8”
Honey locust (*Gleditsia triacanthos*)	4 to 8”
Chinaberry (*Sapindus drumondii*)	4 to 6”
Persimmon (*Diospyros virginiana*)	4 to 8”
Black willow (*Salix nigra*)	4 to 18”

Saplings/Shrubs

Pecan
Red bud (*Cercis canadensis*)
Common privet (*Ligustrum vulgare*)
Bur oak
Shumard oak
Deciduous holly (*Ilex decidua*)
Sassafras
Rough leaf dogwood *(Cornus drumondii*)
Persimmon
Spice bush (*Lindera benzoin*)
Sycamore
Box elder
Black willow
Hickory
Eastern red cedar
American plum (*Prunus Americana*)
Black cherry
Bradford pear (*Pyrus calleryiana*)

Vines
Green brier *(Smilax bona-nox*)
Poison ivy (*Toxicodendron radicans*)
Coral berry (*Symphoricarpos orbiculata*)
Honeysuckle (*Lonicera japonica*)
Trumpet vine (*Campsis radicans*)
Virginia creeper (*Parthenocissus quinquefolia*)
Passion flower (*Passiflora incarnata*)
Snail seed (*Cocculus carolinus*)
Moon seed (*Menispermum canadense*)
Grape (*Vitis spp.)*
Rose (*Rosa multiflora*)

Herbaceous
Golden rod (*Solidago canadensis)*
Serecia *(Lespedeza cuneata*)
Great ragweed (*Ambrosia trifida*)
Annual ragweed (*A. artemissiifolia*)
Mint (*Mentha spp*.)
Bee balm (*Monarda spp.)*
Indian sea oats (*Chasmanthium latifolia*)
Spanish needles (*Bidens bipinnata*)
Aster (*Aster spp*.)
Heath aster (*Aster ericoides*)
Purple top (*Tridens flavus*)
Virginia rye (*Elymus virginicus*)
Croton (*Croton sp*.)
Dark eyed Susan (*Rudbeckia hirta*)
Wood sedge (*Carex radiata*)
Sneezeweed (*Helenium officinale*)
Bermuda grass (*Cynodon dactylon*)
Bidens (*Bidens frondosa*)
Three awn (*Aristida sp.)*
Common lespedeza (*Lespedeza striata*)
Dallis grass (*Paspalum sp.)*
Foxtail (*Setaria gracilis*)
Thistle (*Cirsium sp.)*
Dropseed (*Sporobolus cryptandrus*)

Mitigation measures will be taken to restore any effected environment to its original or natural state as possible. The standard BMP's that have been identified and discussed, will be employed during all project phases. Best Management Practices are described in Section 4.3.1.

Vegetation removal would be required to accomplish the project as proposed. Replacement of the affected vegetation is proposed and would be accomplished through installation of native herbaceous species providing the most benefit for wildlife, habitat, and aesthetics. A suggested planting ratio of native grass species to forbs should be 70% grasses and 30% forbs. However native grasses are proposed to be used during exposed soil seeding. The planting (seeding) rate would be determined based on the selected species and required aerial coverage. Depending on the seasonal timing of seeding, planting area slope, and topography, a light straw mulching may be utilized to increase germination rates and disturbed soil stability. The preferred planting season for herbaceous species is between spring and early summer and/or mid-fall. Additional compensatory mitigation measures recommended to offset the expected temporary and/or permanent adverse impacts to wildlife and their habitat include:

1) Revegetation of exposed soil areas using native species;
2) Placement of silt fences around the spoil pond areas,
3) Trees and brush would be placed in the center of the spoil pond and burned.

During all land disturbing activities, Best Management Practices (BMPs) would be followed to ensure sediment control. The sediment control devices are used primarily for the trapping of sediment as runoff leaves the area caused by storm water induced erosion. The intent would be to prevent accelerated erosion to the extent practicable. The BMPs would be designed specific to the site and maintained during the construction process. The temporary devices would be removed after completion of construction activities.

Specific aquatic habitat mitigation measures are not proposed. EEC believes the proposed actions will actually improve the available aquatic habitat and water quality for many or not most of the species currently utilizing the oxbows and the MKARNS.

SECTION 6.0 RESOURCE AGENCY COORDINATION

Appropriate federal and state resource agencies were contacted to solicit views and provide input on the proposed project resources. Copies of letters sent to the resource agencies are provided in the Appendix. Letters of solicitation sent to the various federal and state resource agencies, along with type of comments received, are provided in **Table 5.**

Table 5 **SUMMARY OF COMMENTS**	
Dr. Dixie Bounds U.S. Fish and Wildlife Service, 9014 E. 21st Street, Tulsa, Oklahoma 74129	
Comment:	**Endangered Species Act Species List** Species lists are not entirely based upon the current range of a species but may also take into consideration actions that affect a species that exists in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Please contact the designated FWS office if you have questions. Species identified for this proposed action include:

Table 5 SUMMARY OF COMMENTS	
	American Burying beetle *(Nicrophorus americanus)* Listing Status: Endangered Arkansas darter *(Etheostoma cragini)* Listing Status: Candidate Least tern *(Sterna antillarum)* Population: interior pop. Listing Status: Endangered Condition(s): Wind Turbines and Wind Farms Towers (i.e. radio, television, cellular, microwave, meterological) Neosho Mucket *(Lampsilis rafinesqueana)* Listing Status: Candidate Piping Plover *(Charadrius melodus)* Population: except Great Lakes watershed Listing Status: Threatened rabbitsfoot *(Quadrula cylindrica ssp. cylindrica)* Listing Status: Candidate Whooping crane *(Grus americana)* Population: except where EXPN Listing Status: Endangered
Response:	Comment noted. No threatened, endangered, or candidate species should be impacted by the proposed action.
Mr. Ron Hilliard/Cord Colwell USDA-NRCS, 100 USDA, Suite 206, Stillwater, Oklahoma 74074	
Comment:	I have reviewed the project and find that there are no significant environmental impacts.
Response:	Comment noted.
Mr. Richard Hatcher Oklahoma Department of Wildlife Conservation, PO. Box 53465, Oklahoma City, Oklahoma	
Comment:	No comments received
Response:	
Ms. Cathy Gilmore U.S. Environmental Protection Agency, 1445 Ross Avenue, Suite 1200, Dallas, Texas 75202	
Comment:	No comments received
Response:	
Mr. Ken Morris	

Table 5 SUMMARY OF COMMENTS	
Oklahoma Water Resources Board, 3800 North Classen Blvd, Oklahoma City, Oklahoma 73118	
Comment:	Rogers County participates in the NFIP and has a floodplain development permitting system.
Response:	Comment noted.
Ms. Jennifer Wright Oklahoma Department of Environmental Quality, P.O. Box 1677, Oklahoma City, OK 7301	
Comment:	In response to your request, we have completed a general environmental review of the above referenced project. Based upon the current available information, we have no comments or objections.
Response:	Comment noted.
Dr. Robert Brooks Oklahoma Archeological Survey, University of Oklahoma, Norman, Oklahoma 73019	
Comment:	A cultural resource report of investigations has been received by this agency on the above referenced project. This agency confirms the recommendations contained in the report. The review was conducted in cooperation with the State Historic Preservation Office, Oklahoma Historical Society.
Response:	A survey has been conducted and results are summarized in Section 4.4.
Mr. Joe Thacker Oklahoma Corporation Commission, POB 52000, Oklahoma City, OK 73152	
Comment:	No comments received.
Response:	
Mr. Andrew Commer U.S. Army Corps of Engineers, 1645 S. 101st East Ave, Tulsa, Oklahoma 74127	
Comment:	Please reference your July 13,2012 correspondence regarding: Solicitation of Views, Proposed Cutoffs 18-6 and 18-9 Lease and Dredge Disposal Ponds, Rogers County, Oklahoma. We have reviewed the submitted data to determine whether a Department of the Army (DA) permit would be required pursuant to Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act. A preliminary review indicates possible jurisdictional waters or wetlands may be present on described lands within the proposal. A DA Section 10 permit would be required for any proposed dredging activity within the described area of the Verdigris River and a DA Section 404 permit may be required if the

Table 5 SUMMARY OF COMMENTS	
	proposed activity requires placement of dredge or fill material into these areas. We ask that you re-submit your request with more detailed site specific information, including construction plans, concerning any planned impacts to possible jurisdictional areas which may be present on the described lands.
Response:	Comment noted. See Appendix C
Ms. Megan Delozier Rogers County Floodplain Administrator, 212 S. Missouri, Claremore, OK 74017	
Comment:	No comments received.
Response:	
Mr. Chris Dubois/Brooks Tramell Oklahoma Conservation Commission, 2800 N Lincoln Blvd, Oklahoma City, Oklahoma 73105	
Comment:	Your request for views for the referenced project, as described in your letter of July 13, 2012 has been reviewed using the Soil Survey of Rogers County and the US Fish and Wildlife Service National Wetland Inventory maps. Neither hydric soils nor wetlands are indicated on the maps. It is likely, however, that fringe wetlands occur in the proposed dredge area. It is the opinion of the Oklahoma Conservation Commission (OCC) that at the appropriate time, the US Army Corps of Engineers should carefully consider this proposal before a determination is issued. In addition, the OCC has concern over the construction and maintenance of the dredge spoil ponds. Little information is provided in regards to these ponds. From the maps, it appears that the proposed pond locations are upland sites but in proximity to the channel. Specifically, the OCC is concerned about reintroduction of sediment, potentially sediment containing pollutants, into the main stem of the Verdigris River. The OCC asks that this project go through a careful planning and review process before permits are issued, so that immediate and future impacts are minimized. And finally, the OCC recognizes the benefits of stable, natural undisturbed riparian areas in the protection of water quality. Although this system is highly modified to meet the needs of society, the system benefits greatly from stable banks and connected floodplains. Careful and thorough planning should account for these functions that are lost in the spoil pond areas.
Response:	Commented noted. A wetland and waterway delineation was conducted for the proposed action and provided in Appendix C
U.S. Coast Guard – District 8 Waterways Management Division, 1222 Spruce St, Suite 7103 St. Louis, Missouri 63103	
Comment:	No comment received.
Response:	

SECTION 7.0 REFERENCES

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SECTION 8.0: LIST OF PREPARERS

Steven Votaw **President**

Steven Votaw has 25 years of experience in biological and ecological studies. Mr. Votaw is the President of Eagle Environmental Consulting, Inc. (14+ years) and has been the Project Manager on various environmental impact statements, environmental site assessments, biological resource evaluations, wetland delineations, and threatened and endangered species surveys. Mr. Votaw was previously a Senior Regulatory Project Manager (10 years) with the U.S. Army Corps of Engineers and Fisheries Technician with the Oklahoma Department of Wildlife Conservation (2 years). Mr. Votaw received a Bachelor of Science degree in Fisheries Management and Wildlife Biology from Northeastern Oklahoma State University with post-graduate work in environmental science.

David M. Bednar Jr. **Environmental Specialist**

David M. Bednar, Jr. has 25 years of multidisciplinary environmental experience focusing on National Environmental Policy Act (NEPA) documentation (EIS, EA and CE) for transportation, communications, and petroleum exploration projects. His experience involved NEPA related projects in the states of Arkansas, Louisiana, Mississippi, West Virginia, Texas, Virginia and Oklahoma. Additional experience includes Phase I environmental site assessments, American Burying Beetle surveys, traffic noise modeling, wetland delineations, groundwater dye tracing in karst terrain, and public outreach. Mr. Bednar received his Bachelor of Science degree in geology and his Master of Science degree in earth science from California University of Pennsylvania.

Jeff London **National Resource and GIS Specialist**

Jeff London has 42 years of experience in the environmental field. Mr. London was previously a Lake and Project Manager for the U.S. Army Corps of Engineers (32 years). Mr. London was responsible for managing the O&M, recreation, and natural resource programs. He also served as an outdoor recreation planner and project manager for District-wide recreation, environmental and interagency support programs. Additionally, he uses Geographic Information System (GIS) and CAD technology to analyze and display environmental features in support of biological and ecological studies and NEPA documentation. Mr. London received a Batchelor of Science degree in forestry from Oklahoma State University with postgraduate work in GIS.

SECTION 9.0: APPLICABLE ENVIRONMENTAL LAWS AND REGULATIONS

APPLICABLE ENVIRONMENTAL LAWS AND REGULATIONS	
Archeological and Historical Preservation Act	1974, 16 U.S.C. 469, et seq
Clean Air Act, as amended	1990, 42 U.S.C. 7609, et seq
Clean Water Act, as amended	1977, U.S.C. 1251, et seq
Endangered Species Act, as amended	1973, 16 U.S.C. 1531, et seq
Federal Water Project Recreation Act, as amended	1965, 16 U.S.C. 460-1-12, et seq
Fish and Wildlife Coordination Act, as amended	1934, 16 U.S.C. 661, et seq
Land and Water Conservation Fund Act, as amended	1965, 16 U.S.C. 661, et seq
National Historic Preservation Act, as amended	1966, 16 U.S.C. 470a, et seq
National Environmental Policy Act, as amended	1969, 42 U.S.C. 4321, et seq
Native American Graves Protection and Repatriation Act	1990, 25 U.S.C. 3001-13, et seq
Rivers and Harbors Act	1899, 33 U.S.C. 401, et seq
Watershed Protection and Flood Prevention Act	1954, 16 U.S.C. 1001, et seq
Floodplain Management	1977, Executive Order 11988
Protection of Wetlands	1977, Executive Order 11990
Environmental Justice	1994, Executive Order 12898
Environmental Health and Safety Risks	1997, Executive Order 13045
Federal Facilities on Historic Properties	1996, Executive Order 13006
Accommodation of Native American Sacred Sites	1996, Executive Order 13007
Farmland Protection Policy Act	1981, 7 U.S.C. 4201, et seq
National Invasive Species Act	1966, 16 U.S.C. 4701, et seq
Invasive Species	1999, Executive Order 13112
Non-indigenous Aquatic Nuisance Species Prevention and Control Act	1990, 16 U.S.C. 4701, et seq

APPENDIX A

Agency Coordination

Oklahoma Archeological Survey

THE UNIVERSITY OF OKLAHOMA

November 14, 2013

Stephen L. Nolen
US Army Corps of Engineers
1645 South 101 East Ave.
Tulsa, Oklahoma 74128-4609

Re: Two proposed disposal pits Johnston's Port 33, McClellan-Kerr Arkansas River Navigation System. Legal Description: W ½ Section 15 and W ½ Section 28 T20N R16E, Rogers County, Oklahoma.

Dear Mr. Nolen:

A cultural resources report of investigations has been received by this agency on the above referenced project. This agency confirms the recommendations contained in the report. The review was conducted in cooperation with the State Historic Preservation Office, Oklahoma Historical Society.

Please contact this office at (405) 325-7211 if buried archaeological materials such as chipped stone tools, pottery, bone, historic crockery, glass, metal items, or building materials are exposed during construction activities.

In addition to our comment on the cultural resource inventory conducted for this project, under 36CFR Part 800.3 you are reminded of your responsibility to consult with the appropriate Native American tribe/groups for any concerns they may have pertaining to this report.

Sincerely,

Robert L. Brooks
State Archaeologist

:ls

Cc: SHPO

111 E. Chesapeake, Room 102, Norman, Oklahoma 73019-5111 PHONE: (405) 325-7211 FAX: (405) 325-7604
A UNIT OF ARTS AND SCIENCES SERVING THE PEOPLE OF OKLAHOMA

DEPARTMENT OF THE ARMY
UNITED STATES ARMY CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101 EAST AVENUE
TULSA OK 74128-4609

November 1, 2013

REPLY TO ATTENTION OF

Planning and Environmental Division

Dr. Bob Blackburn
State Historic Preservation Officer
Oklahoma Historical Society
Oklahoma History Center
800 Nazih Zuhdi Dr.
Oklahoma City, OK 73105

Dear Dr. Blackburn:

This letter is to initiate consultation as required by Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) for the proposed lease of two parcels of federal land along the McClellan-Kerr Arkansas River Navigation System (MKARNS). Both parcels of federal land are owned and managed by the U.S. Army Corps of Engineers, Tulsa District.

Johnston's Port 33 on the MKARNS plans to lease the land parcels for the purpose of constructing barge fleeting areas on the navigation system. In order to accommodate barge traffic in the planned locations, the channels will require dredging. Consequently, dredge material will be pumped into dredge disposal pits, which will be constructed on the land parcels proposed for lease. The proposed lease areas are located in W ½ Sec. 15, T20N, R16E and W ½ Sec. 28, T20N, R16E, Rogers, County, Oklahoma.

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In order to comply with Section 106, Johnston's Port 33 asked Dr. Don Henry of the University of Tulsa to conduct pedestrian archaeological survey and to investigate the project area's potential for buried cultural horizons (see enclosed report). As the enclosed report illustrates, soils at both locations consist of dredge material derived from the initial

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We request your comment on our determination of "no historic properties identified" for the proposed lease of two parcels of federal land for the purpose of constructing barge fleeting areas and associated dredge disposal pits at those locations. If you have questions please contact Mr. Ken Shingleton at 918-669-7661.

Sincerely,

Stephen L. Nolen
Chief, Planning and
Environmental Division

Enclosure

DEPARTMENT OF THE ARMY
UNITED STATES ARMY CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101 EAST AVENUE
TULSA OK 74128-4609

November 1, 2013

REPLY TO ATTENTION OF

Planning and Environmental Division

Dr. Robert Brooks
Oklahoma Archeological Survey
111 E. Chesapeake
Norman, OK 73019-5111

Dear Dr. Brooks:

This letter is to initiate consultation as required by Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) for the proposed lease of two parcels of federal land along the McClellan-Kerr Arkansas River Navigation System (MKARNS). Both parcels of federal land are owned and managed by the U.S. Army Corps of Engineers, Tulsa District.

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Stephen L. Nolen
Chief, Planning and
Environmental Division

Enclosure

DEPARTMENT OF THE ARMY
UNITED STATES ARMY CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101 EAST AVENUE
TULSA OK 74128-4609

November 1, 2013

REPLY TO
ATTENTION OF

Planning and Environmental Division

Chairperson Brenda Shemayme Edwards
Caddo Indian Tribe of Oklahoma
P.O. Box 487
Binger, OK 73009

Dear Chairperson Edwards:

This letter is to initiate consultation as required by Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) for the proposed lease of two parcels of federal land along the McClellan-Kerr Arkansas River Navigation System (MKARNS). Both parcels of federal land are owned and managed by the U.S. Army Corps of Engineers, Tulsa District.

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Sincerely,

Stephen L. Nolen
Chief, Planning and
Environmental Division

Enclosure

DEPARTMENT OF THE ARMY
UNITED STATES ARMY CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101 EAST AVENUE
TULSA OK 74128-4609

November 1, 2013

REPLY TO
ATTENTION OF

Planning and Environmental Division

Principal Chief Bill John Baker
Cherokee Nation, Oklahoma
P.O. Box 948
Tahlequah, OK 74465

Dear Chief Baker:

This letter is to initiate consultation as required by Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) for the proposed lease of two parcels of federal land along the McClellan-Kerr Arkansas River Navigation System (MKARNS). Both parcels of federal land are owned and managed by the U.S. Army Corps of Engineers, Tulsa District.

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Sincerely,

Stephen L. Nolen
Chief, Planning and
Environmental Division

Enclosure

DEPARTMENT OF THE ARMY
UNITED STATES ARMY CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101 EAST AVENUE
TULSA OK 74128-4609

November 1, 2013

REPLY TO
ATTENTION OF

Planning and Environmental Division

Mekko Tiger Hobia
Kialegee Tribal Town, Oklahoma
P.O. Box 332
Wetumka, OK 74883

Dear Mekko Hobia:

This letter is to initiate consultation as required by Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) for the proposed lease of two parcels of federal land along the McClellan-Kerr Arkansas River Navigation System (MKARNS). Both parcels of federal land are owned and managed by the U.S. Army Corps of Engineers, Tulsa District.

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Sincerely,

Stephen L. Nolen
Chief, Planning and
Environmental Division

Enclosure

DEPARTMENT OF THE ARMY
UNITED STATES ARMY CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101 EAST AVENUE
TULSA OK 74128-4609

November 1, 2013

REPLY TO
ATTENTION OF

Planning and Environmental Division

Principal Chief A.D. Ellis
Muscogee (Creek) Nation, Oklahoma
P.O. Box 580
Okmulgee, OK 74447

Dear Chief Ellis:

This letter is to initiate consultation as required by Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) for the proposed lease of two parcels of federal land along the McClellan-Kerr Arkansas River Navigation System (MKARNS). Both parcels of federal land are owned and managed by the U.S. Army Corps of Engineers, Tulsa District.

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Stephen L. Nolen
Chief, Planning and
Environmental Division

Enclosure

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UNITED STATES ARMY CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101 EAST AVENUE
TULSA OK 74128-4609

November 1, 2013

REPLY TO ATTENTION OF

Planning and Environmental Division

Principal Chief John Red Eagle
Osage Nation, Oklahoma
P.O. Box 779
Pawhuska, OK 74056

Dear Chief Red Eagle:

This letter is to initiate consultation as required by Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) for the proposed lease of two parcels of federal land along the McClellan-Kerr Arkansas River Navigation System (MKARNS). Both parcels of federal land are owned and managed by the U.S. Army Corps of Engineers, Tulsa District.

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Stephen L. Nolen
Chief, Planning and
Environmental Division

Enclosure

DEPARTMENT OF THE ARMY
UNITED STATES ARMY CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101 EAST AVENUE
TULSA OK 74128-4609

November 1, 2013

REPLY TO
ATTENTION OF

Planning and Environmental Division

Principal Chief Leonard Harjo
Seminole Nation of Oklahoma
P.O. Box 1498
Wewoka, OK 74884

Dear Chief Harjo:

This letter is to initiate consultation as required by Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) for the proposed lease of two parcels of federal land along the McClellan-Kerr Arkansas River Navigation System (MKARNS). Both parcels of federal land are owned and managed by the U.S. Army Corps of Engineers, Tulsa District.

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Stephen L. Nolen
Chief, Planning and
Environmental Division

Enclosure

DEPARTMENT OF THE ARMY
UNITED STATES ARMY CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101 EAST AVENUE
TULSA OK 74128-4609

November 1, 2013

REPLY TO ATTENTION OF

Planning and Environmental Division

Mekko George Scott
Thlopthlocco Tribal Town, Oklahoma
P.O. Box 188
Okemah, OK 74859

Dear Mekko Scott:

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Chief, Planning and
Environmental Division

Enclosure

DEPARTMENT OF THE ARMY
UNITED STATES ARMY CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101 EAST AVENUE
TULSA OK 74128-4609

November 1, 2013

REPLY TO ATTENTION OF

Planning and Environmental Division

Chief George Wickliffe
United Keetoowah Band
of Cherokee Indians in Oklahoma
P.O. Box 746
Tahlequah, OK 74465-0746

Dear Chief Wickliffe:

This letter is to initiate consultation as required by Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) for the proposed lease of two parcels of federal land along the McClellan-Kerr Arkansas River Navigation System (MKARNS). Both parcels of federal land are owned and managed by the U.S. Army Corps of Engineers, Tulsa District.

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Stephen L. Nolen
Chief, Planning and
Environmental Division

Enclosure

DEPARTMENT OF THE ARMY
UNITED STATES ARMY CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101 EAST AVENUE
TULSA OK 74128-4609

November 1, 2013

REPLY TO
ATTENTION OF

Planning and Environmental Division

President Terri Parton
Wichita and Affiliated Tribes of Oklahoma
P.O. Box 729
Anadarko, OK 73005

Dear President Parton:

This letter is to initiate consultation as required by Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) for the proposed lease of two parcels of federal land along the McClellan-Kerr Arkansas River Navigation System (MKARNS). Both parcels of federal land are owned and managed by the U.S. Army Corps of Engineers, Tulsa District.

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The proposed dredge disposal pits will be constructed by use of heavy equipment, including bulldozers, backhoes, and track-hoes. For each disposal pit, bulldozers will push existing soil into berms to form a "bowl" covering several acres of government property. Backhoes and trackhoes will excavate the bottom of each "bowl" approximately 5-10 feet in depth, and that material will be utilized to further build up the edges of the pit.

In order to comply with Section 106, Johnston's Port 33 asked Dr. Don Henry of the University of Tulsa to conduct pedestrian archaeological survey and to investigate the project area's potential for buried cultural horizons (see enclosed report). As the enclosed report illustrates, soils at both locations consist of dredge material derived from the initial excavation and construction of MKARNS several decades ago. This aged dredge material is 10-15 feet thick in most places.

Because each dredge disposal pit will be excavated to only 10 feet thick in approximate depth, the construction of those disposal pits does not have the potential to affect historic properties. Accordingly, no archaeological materials were identified during the investigation.

Please review this area for information that you may be willing to share with us on archaeological or historic sites, sacred sites, or traditional cultural properties that may be significant to you. Information you may be able to provide will assist us in assessing the effects of the proposed project on cultural resources. Any information or comments you may be able to provide will be appreciated. If you have any questions, please contact Mr. Ken Shingleton at 918-669-7661.

Sincerely,

Stephen L. Nolen
Chief, Planning and
Environmental Division

Enclosure

United States Department of the Interior

FISH AND WILDLIFE SERVICE
OKLAHOMA ECOLOGICAL SERVICES FIELD OFFICE
9014 EAST 21ST STREET
TULSA, OK 74129
PHONE: (918)581-7458 FAX: (918)581-7467
URL: www.fws.gov/southwest/es/Oklahoma/

Consultation Tracking Number: 02EKOK00-2012-SLI-1106 July 30, 2012
Project Name: Johnstons Port 33 Proposed Dredging

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having

similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

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http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

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If your species list does not contain the American burying beetle and your projects falls within Marshall, Love, Carter, Murray, Garvin, McClain, Cleveland or Adair counties, the Service reccomends that you consider the American burying beetle in your project planning process. There is evidence to suggest (Crawford and Hoagland 2010), that the American burying beetle may occur in these counties.

Attachment

United States Department of Interior
Fish and Wildlife Service

Project name: Johnstons Port 33 Proposed Dredging

Official Species List

Provided by:

OKLAHOMA ECOLOGICAL SERVICES FIELD OFFICE
9014 EAST 21ST STREET
TULSA, OK 74129
(918) 581-7458
http://www.fws.gov/southwest/es/Oklahoma/

Consultation Tracking Number: 02EKOK00-2012-SLI-1106
Project Type: Dredge / Excavation
Project Description: Johnstons Port 33 proposed to dredge Cutoff 18-6 lease for additional fleeting space at river mile 432.6 in Section 28, T20 North, Range 16 East.

Project Location Map:

Project Coordinates: MULTIPOLYGON (((-95.6187648 36.1779764, -95.6174559 36.1782543, -95.6163615 36.1787384, -95.6156964 36.1792598, -95.6151599 36.1800374, -95.6147951 36.1811295, -95.6145591 36.1820301, -95.6143016 36.1819608, -95.61472 36.1803076, -95.6153959 36.1790675, -95.6168551 36.1782543, -95.6177348 36.1778551, -95.6188292 36.1774741, -95.6187648 36.1779764)))

Project Counties: Rogers, OK

Endangered Species Act Species List

Species lists are not entirely based upon the current range of a species but may also take into consideration actions that affect a species that exists in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Please contact the designated FWS office if you have questions.

American Burying beetle *(Nicrophorus americanus)*

Listing Status: Endangered

Arkansas darter *(Etheostoma cragini)*

Listing Status: Candidate

Least tern *(Sterna antillarum)*

Population: interior pop.

Listing Status: Endangered

Condition(s):

- Wind Turbines and Wind Farms
- Towers (i.e. radio, television, cellular, microwave, meterological)

Neosho Mucket *(Lampsilis rafinesqueana)*

Listing Status: Candidate

Piping Plover *(Charadrius melodus)*

Population: except Great Lakes watershed

Listing Status: Threatened

rabbitsfoot *(Quadrula cylindrica ssp. cylindrica)*

Listing Status: Candidate

Whooping crane *(Grus americana)*

Population: except where EXPN

Listing Status: Endangered

United States Department of the Interior

FISH AND WILDLIFE SERVICE
OKLAHOMA ECOLOGICAL SERVICES FIELD OFFICE
9014 EAST 21ST STREET
TULSA, OK 74129
PHONE: (918)581-7458 FAX: (918)581-7467
URL: www.fws.gov/southwest/es/Oklahoma/

Consultation Tracking Number: 02EKOK00-2012-SLI-1107 July 30, 2012
Project Name: Johnstons Port 33 Proposed Dredging

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.

To Whom It May Concern:

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If your species list does not contain the American burying beetle and your projects falls within Marshall, Love, Carter, Murray, Garvin, McClain, Cleveland or Adair counties, the Service reccomends that you consider the American burying beetle in your project planning process. There is evidence to suggest (Crawford and Hoagland 2010), that the American burying beetle may occur in these counties.

Attachment

United States Department of Interior
Fish and Wildlife Service

Project name: Johnstons Port 33 Proposed Dredging

Official Species List

Provided by:

OKLAHOMA ECOLOGICAL SERVICES FIELD OFFICE
9014 EAST 21ST STREET
TULSA, OK 74129
(918) 581-7458
http://www.fws.gov/southwest/es/Oklahoma/

Consultation Tracking Number: 02EKOK00-2012-SLI-1107
Project Type: Dredge / Excavation
Project Description: Johnstons Port 33 proposes to construct a dredge spoil pond on the island to the immediate west of Cutoff 18-6 lease location.

Project Location Map:

Project Coordinates: MULTIPOLYGON (((-95.6181161 36.1784048, -95.6173222 36.1843108, -95.614919 36.1838605, -95.6148149 36.1826308, -95.6154983 36.179825, -95.6168716 36.1788205, -95.6181161 36.1784048)))

Project Counties: Rogers, OK

Endangered Species Act Species List

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American Burying beetle *(Nicrophorus americanus)*

Listing Status: Endangered

Arkansas darter *(Etheostoma cragini)*

Listing Status: Candidate

Least tern *(Sterna antillarum)*

Population: interior pop.

Listing Status: Endangered

Condition(s):

- Wind Turbines and Wind Farms
- Towers (i.e. radio, television, cellular, microwave, meterological)

Neosho Mucket *(Lampsilis rafinesqueana)*

Listing Status: Candidate

Piping Plover *(Charadrius melodus)*

Population: except Great Lakes watershed

Listing Status: Threatened

rabbitsfoot *(Quadrula cylindrica ssp. cylindrica)*

Listing Status: Candidate

Whooping crane *(Grus americana)*

Population: except where EXPN

Listing Status: Endangered

United States Department of the Interior

FISH AND WILDLIFE SERVICE
OKLAHOMA ECOLOGICAL SERVICES FIELD OFFICE
9014 EAST 21ST STREET
TULSA, OK 74129
PHONE: (918)581-7458 FAX: (918)581-7467
URL: www.fws.gov/southwest/es/Oklahoma/

Consultation Tracking Number: 02EKOK00-2012-SLI-1105 July 30, 2012
Project Name: Johnstons Port 33 Proposed Dredging

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

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Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

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Attachment

United States Department of Interior
Fish and Wildlife Service

Project name: Johnstons Port 33 Proposed Dredging

Official Species List

Provided by:

OKLAHOMA ECOLOGICAL SERVICES FIELD OFFICE
9014 EAST 21ST STREET
TULSA, OK 74129
(918) 581-7458
http://www.fws.gov/southwest/es/Oklahoma/

Consultation Tracking Number: 02EKOK00-2012-SLI-1105
Project Type: Dredge / Excavation
Project Description: Johnstons Port 33 proposes to dredge Cutoff 18-9 ar river mile 435.8 on the right descending bank for additional fleeting space in Sections 9, 15, and 16, T20 North, Range 16 East.

Project Location Map:

Project Coordinates: MULTIPOLYGON (((-95.5986772 36.2195171, -95.6010376 36.2196383, -95.6029269 36.2201576, -95.60387 36.2210751, -95.6046425 36.222131, -95.60518 36.2231861, -95.6047508 36.2233947, -95.6041929 36.2222868, -95.6035063 36.2212136, -95.6023046 36.2204519, -95.6010601 36.2202095, -95.5987212 36.2200191, -95.5986772 36.2195171)))

Project Counties: Rogers, OK

Endangered Species Act Species List

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Listing Status: Endangered

Arkansas darter *(Etheostoma cragini)*

Listing Status: Candidate

Least tern *(Sterna antillarum)*

Population: interior pop.

Listing Status: Endangered

Condition(s):

- Wind Turbines and Wind Farms
- Towers (i.e. radio, television, cellular, microwave, meterological)

Neosho Mucket *(Lampsilis rafinesqueana)*

Listing Status: Candidate

Piping Plover *(Charadrius melodus)*

Population: except Great Lakes watershed

Listing Status: Threatened

rabbitsfoot *(Quadrula cylindrica ssp. cylindrica)*

Listing Status: Candidate

Whooping crane *(Grus americana)*

Population: except where EXPN

Listing Status: Endangered

United States Department of the Interior

FISH AND WILDLIFE SERVICE
OKLAHOMA ECOLOGICAL SERVICES FIELD OFFICE
9014 EAST 21ST STREET
TULSA, OK 74129
PHONE: (918)581-7458 FAX: (918)581-7467
URL: www.fws.gov/southwest/es/Oklahoma/

Consultation Tracking Number: 02EKOK00-2012-SLI-1108 July 30, 2012
Project Name: Johnstons Port 33 Dredging

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.

To Whom It May Concern:

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Attachment

United States Department of Interior
Fish and Wildlife Service

Project name: Johnstons Port 33 Dredging

Official Species List

Provided by:

OKLAHOMA ECOLOGICAL SERVICES FIELD OFFICE
9014 EAST 21ST STREET
TULSA, OK 74129
(918) 581-7458
http://www.fws.gov/southwest/es/Oklahoma/

Consultation Tracking Number: 02EKOK00-2012-SLI-1108
Project Type: Dredge / Excavation
Project Description: A dredge pond is proposed to be constructed south of the proposed location of dredging of Cutoff 18-9.

Project Location Map:

Project Coordinates: MULTIPOLYGON (((-95.5995542 36.2124625, -95.6008417 36.212601, -95.6000692 36.2189355, -95.5987817 36.2188299, -95.5988246 36.2156099, -95.5995542 36.2124625)))

Project Counties: Rogers, OK

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Listing Status: Candidate

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Population: interior pop.

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Condition(s):

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Population: except Great Lakes watershed

Listing Status: Threatened

rabbitsfoot *(Quadrula cylindrica ssp. cylindrica)*

Listing Status: Candidate

Whooping crane *(Grus americana)*

Population: except where EXPN

Listing Status: Endangered

STEVEN A. THOMPSON
Executive Director

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY

MARY FALLIN
Governor

July 19, 2012

Mr. David Bednar, Jr.
Eagle Environmental Consulting, Inc.
P.O. Box 5446
Fort Smith, AR 72913

Re: Proposed cutoffs 18-6 and 18-9 Lease and Dredge Disposal Pond project – Rogers County, Oklahoma

Dear Mr. Bednar,

In response to your request, we have completed a general environmental review of the above referenced project. Based upon the current available information, we have no comments or objections.

Attached is a list of environmental recommendations that you should consider as you complete your project.

If you have any questions or need clarification, please contact me at 405.702.1077, 1.800.869.1400 or jennifer.wright@deq.ok.gov.

Best Wishes,

Jennifer Wright
External Affairs Manager

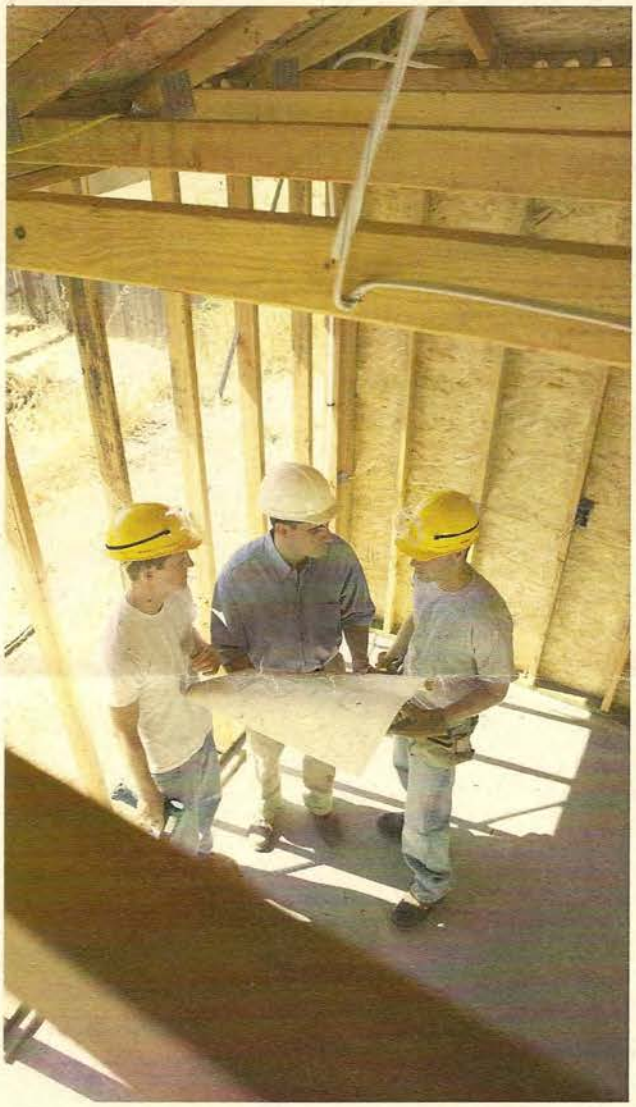
Enclosure

October 2010

AIR, LAND & WATER

Recommendations for General Construction/Improvement Projects

During the environmental review process for general construction/improvement projects, the following recommendations are offered to assist in ensuring environmental compliance throughout the project.



- Any project which includes the removal or installation of water and/or sewer lines shall conform to all relevant local and/or state plumbing codes.
- Any project which includes the removal of paint shall conform to all relevant lead-based paint regulations.
- Any project which includes the handling and/or removal of asbestos shall conform to all relevant asbestos regulations.
- During any construction, demolition, and/or rehabilitation reasonable precautions should be taken to protect air quality by minimizing fugitive dust emissions.
- If construction, demolition, and/or rehabilitation will disturb more than one acre of land, a determination should be made as to whether an Oklahoma Pollutant Discharge Elimination System (OPDES) permit for storm water is required during the construction phase.
- Any solid or hazardous waste from the site shall be recycled and/or disposed of in accordance with all relevant solid waste and/or RCRA regulations.

DEQ
OKLAHOMA
DEPARTMENT OF ENVIRONMENTAL QUALITY

This publication is issued by the Oklahoma Department of Environmental Quality authorized by Steven A. Thompson, Executive Director. Copies have been prepared at a cost of $0.0535 each. Copies have been deposited with the publications clearinghouse of the Oklahoma Department of Libraries. (\fact sheets\sels\GenConstructionImprovement) 3/2012.

United States Department of Agriculture

NRCS
Natural Resources Conservation Service
Claremore Field Office
1900 W. Will Rogers Circle, Ste C
Claremore, Oklahoma 74017
Telephone (918) 341-0536, Ext. #3

August 16, 2012

Eagle Environmental Consulting, Inc.
David Bednar
P.O. Box 5446
Fort Smith, Arkansas 72913

RE: Proposed Cutoffs 18-6 and 18-9 Lease and Dredge Disposal Ponds.
Rogers County

I have reviewed the project and find that there are no significant environmental impacts.

If I can provide more information or if you have any questions please contact me.

Cord Colwell
District Conservationist
Claremore FO

Oklahoma Archeological Survey
THE UNIVERSITY OF OKLAHOMA

July 23, 2012

David Bednar, Jr.
Eagle Environmental Consulting
PO Box 335
Vinita, Oklahoma 74301

Re: Proposed additional fleeting capacity along the McClellan Kerr Arkansas River Navigation System north of Johnstons Port 33 – cutoffs 18-6 and 18-9 Lease and dredge disposal ponds. Legal Description: Sections 9, 15, 16, 28, T20N R16E, Rogers County, Oklahoma.

Dear Mr. Bednar:

The Community Assistance Program staff of the Oklahoma Archeological Survey has reviewed the above referenced project in order to identify areas that may potentially contain prehistoric or historic archeological materials (historic properties). The location of your project has been crosschecked with the state site files containing approximately 18,000 archaeological sites, which are currently recorded for the state of Oklahoma. **No sites are listed in your project area, but based on the topographic and hydrologic setting of your project, archeological materials are likely to be encountered. An archaeological field inspection is considered necessary prior to project construction in order to identify significant archaeological resources that may exist in the project area.** Please contact this office at (405) 325-7211 if you require additional information on this project.

This environmental review and evaluation is performed in order to locate, record, and preserve Oklahoma's prehistoric and historic cultural heritage in cooperation with the State Historic Preservation Office, Oklahoma Historical Society, and you must also have a letter from that office to document your consultation pursuant to Section 106 of the National Historic Preservation Act. In addition to our review comments, under 36CFR Part 800.3 you are reminded of your responsibility to consult with the appropriate Native American tribe/groups to identify any concerns they may have pertaining to this undertaking and potential impacts to properties of traditional and/or ceremonial value. Thank you for your cooperation.

Sincerely,

Ali Livesay
Staff Archaeologist

Robert L. Brooks
State Archaeologist

:ls

Cc: SHPO

111 E. Chesapeake, Room 102, Norman, Oklahoma 73019-5111 PHONE: (405) 325-7211 FAX: (405) 325-7604
A UNIT OF ARTS AND SCIENCES SERVING THE PEOPLE OF OKLAHOMA

OKLAHOMA CONSERVATION COMMISSION

Responsible Care For Oklahoma's Natural Resources

July 31, 2012

David Bednar, Jr.
Eagle Environmental Consulting, Inc.
PO Box 5446
Fort Smith, Arkansas 72913

RE: Solicitation of Views
Proposed Cutoffs 18-6 and 18-9 Lease and Dredge Disposal Ponds
Rogers County, Oklahoma

Dear Mr. Bednar:

Your request for views for the referenced project, as described in your letter of July 13, 2012 has been reviewed using the Soil Survey of Rogers County and the US Fish and Wildlife Service National Wetland Inventory maps. Neither hydric soils nor wetlands are indicated on the maps. It is likely, however, that fringe wetlands occur in the proposed dredge area. It is the opinion of the Oklahoma Conservation Commission (OCC) that at the appropriate time, the US Army Corps of Engineers should carefully consider this proposal before a determination is issued.

In addition, the OCC has concern over the construction and maintenance of the dredge spoil ponds. Little information is provided in regards to these ponds. From the maps, it appears that the proposed pond locations are upland sites but in proximity to the channel. Specifically, the OCC is concerned about reintroduction of sediment, potentially sediment containing pollutants, into the main stem of the Verdigris River. The OCC asks that this project go through a careful planning and review process before permits are issued, so that immediate and future impacts are minimized.

And finally, the OCC recognizes the benefits of stable, natural undisturbed riparian areas in the protection of water quality. Although this system is highly modified to meet the needs of society, the system benefits greatly from stable banks and connected floodplains. Careful and thorough planning should account for these functions that are lost in the spoil pond areas.

If you have any further questions or concerns, please contact me at 405/522-6908.

Sincerely,

Brooks Tramell
Wetlands Program Coordinator
Water Quality Division

cc: Wetlands file

J. D. STRONG
EXECUTIVE DIRECTOR

MARY FALLIN
GOVERNOR

STATE OF OKLAHOMA
WATER RESOURCES BOARD
www.owrb.ok.gov

OKLAHOMA WATER RESOURCES BOARD
Planning & Management Division
Oklahoma City, OK

PUBLIC NOTICE REVIEW

___ We have no comments to offer. _X_ We offer the following comments.

WE RECOMMEND THAT YOU CONTACT THE LOCAL FLOODPLAIN ADMINISTRATOR FOR POSSIBLE PERMIT REQUIREMENTS FOR THIS PROJECT. THE OWRB WEB SITE, www.owrb.ok.gov, contains a directory of floodplain administrators and is located under forms/floodplain management/floodplain administrators, listed alphabetically by name of community. **If this development would fall on STATE OWNED or operated property, a floodplain development permit is required from OWRB.** The Chapter 55 Rules and permit application for this requirement can be found on the OWRB web site listed above. If this project is proposed in a non-participating community, try to ensure that this project is completed so that it is reasonably safe from flooding and so that it does not flood adjacent property if at all possible.

Reviewer: Cathy Poage, CFM **Date:** 07/26/2012

Project Name: Proposed Cutoffs 18-6 & 18-9 Lease & Construction of 2 Dredge Disposal Ponds, Located in Sections 9, 15, 16, & 28, T20N, R16EIM Rogers County, OK

FIRM Name: Eagle Environmental Consulting, Inc., David Bednar, Jr.

* Rogers County participates in the NFIP and has a floodplain development permitting system. Please see paragraph above.

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

July 30, 2012

Regulatory Office

Mr. David Bednar, Jr.
Eagle Environmental Consulting Inc.
Post Office Box 5446
Fort Smith, Arkansas 72913

Dear Mr. Bednar:

Please reference your July 13, 2012 correspondence regarding: Solicitation of Views, Proposed Cutoffs 18-6 and 18-9 Lease and Dredge Disposal Ponds, Rogers County, Oklahoma. We have reviewed the submitted data to determine whether a Department of the Army (DA) permit would be required pursuant to Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act.

A preliminary review indicates possible jurisdictional waters or wetlands may be present on described lands within the proposal. A DA Section 10 permit would be required for any proposed dredging activity within the described area of the Verdigris River and a DA Section 404 permit may be required if the proposed activity requires placement of dredge or fill material into these areas.

We ask that you re-submit your request with more detailed site specific information, including construction plans, concerning any planned impacts to possible jurisdictional areas which may be present on the described lands.

Your request has been assigned Identification Number SWT-2012-519. Please reference this number during any future correspondence. If you have any questions please contact Mr. Ed Parisotto at 918-669-7549.

Sincerely,

Andrew R. Commer
Chief, Regulatory Office

Eagle Environmental Consulting, Inc.

July 13, 2012

Dr. Dixie Bounds
U.S. Fish and Wildlife Service
9014 E. 21st Street
Tulsa, Oklahoma 74129

RE: **Solicitation of Views**
Proposed Cutoffs 18-6 and 18-9 Lease and Dredge Disposal Ponds
Rogers County, Oklahoma

Dear Dr. Bounds,

Eagle Environmental Consulting, Inc. (EEC) has been retained by Johnston's Port 33, Inc. to prepare an environmental assessment (EA) concerning the need for additional fleeting capacity along the McClellan-Kerr Arkansas River Navigation System (MKARNS) north of Johnston's Port 33. Cutoff 18-9 Lease is proposed for dredging to accommodate additional fleeting space and is located on the right descending bank at river mile 435.8 in Sections 9, 15, and 16 in Township 20 North, Range 16 East. A dredge pond is proposed to be constructed to the south. Cutoff 18-6 Lease is proposed for dredging for additional fleeting storage and is located on the right descending bank at river mile 432.6 in Section 28, Township 20 North, Range 16 East. A dredge disposal pond is proposed to be constructed on the island to the immediate west. The proposed project is subject to the issuance of a Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act permit and approval of a real estate easement//license from the United States Army Corps of Engineers. The purpose of this EA is to identify and address any potential impacts associated with the proposed project in accordance with the National Environmental Policy Act (NEPA) and all other applicable laws. An aerial and topographic view of each site is provided on the attached map.

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Sincerely,

EAGLE ENVIRONMENTAL CONSULTING, INC.

Steven R. Votaw
Project Manager

Attachment

P.O. Box 335
Vinita, Oklahoma 74301
(T) 918-272-7656 • (F) 918.256.6131

P.O. Box 5446
Fort Smith, Arkansas 72913
(T) 918-697-3936

Eagle Environmental Consulting, Inc.

July 13, 2012

Mr. Ron Hilliard
USDA-NRCS
100 USDA, Suite 206
Stillwater, Oklahoma 74074

RE: **Solicitation of Views**
Proposed Cutoffs 18-6 and 18-9 Lease and Dredge Disposal Ponds
Rogers County, Oklahoma

Dear Mr. Hilliard,

Eagle Environmental Consulting, Inc. (EEC) has been retained by Johnston's Port 33, Inc. to prepare an environmental assessment (EA) concerning the need for additional fleeting capacity along the McClellan-Kerr Arkansas River Navigation System (MKARNS) north of Johnston's Port 33. Cutoff 18-9 Lease is proposed for dredging to accommodate additional fleeting space and is located on the right descending bank at river mile 435.8 in Sections 9, 15, and 16 in Township 20 North, Range 16 East. A dredge pond is proposed to be constructed to the south. Cutoff 18-6 Lease is proposed for dredging for additional fleeting storage and is located on the right descending bank at river mile 432.6 in Section 28, Township 20 North, Range 16 East. A dredge disposal pond is proposed to be constructed on the island to the immediate west. The proposed project is subject to the issuance of a Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act permit and approval of a real estate easement//license from the United States Army Corps of Engineers. The purpose of this EA is to identify and address any potential impacts associated with the proposed project in accordance with the National Environmental Policy Act (NEPA) and all other applicable laws. An aerial and topographic view of each site is provided on the attached map.

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Sincerely,

EAGLE ENVIRONMENTAL CONSULTING, INC.

Steven R. Votaw
Project Manager

Attachment

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Vinita, Oklahoma 74301
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P.O. Box 5446
Fort Smith, Arkansas 72913
(T) 918-697-3936

Eagle Environmental Consulting, Inc.

July 13, 2012

Mr. Richard Hatcher
Oklahoma Department of Wildlife Conservation
P.O. Box 53465
Oklahoma City, Oklahoma 73152

RE: **Solicitation of Views**
Proposed Cutoffs 18-6 and 18-9 Lease and Dredge Disposal Ponds
Rogers County, Oklahoma

Dear Mr. Hatcher,

Eagle Environmental Consulting, Inc. (EEC) has been retained by Johnston's Port 33, Inc. to prepare an environmental assessment (EA) concerning the need for additional fleeting capacity along the McClellan-Kerr Arkansas River Navigation System (MKARNS) north of Johnston's Port 33. Cutoff 18-9 Lease is proposed for dredging to accommodate additional fleeting space and is located on the right descending bank at river mile 435.8 in Sections 9, 15, and 16 in Township 20 North, Range 16 East. A dredge pond is proposed to be constructed to the south. Cutoff 18-6 Lease is proposed for dredging for additional fleeting storage and is located on the right descending bank at river mile 432.6 in Section 28, Township 20 North, Range 16 East. A dredge disposal pond is proposed to be constructed on the island to the immediate west. The proposed project is subject to the issuance of a Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act permit and approval of a real estate easement//license from the United States Army Corps of Engineers. The purpose of this EA is to identify and address any potential impacts associated with the proposed project in accordance with the National Environmental Policy Act (NEPA) and all other applicable laws. An aerial and topographic view of each site is provided on the attached map.

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Sincerely,

EAGLE ENVIRONMENTAL CONSULTING, INC.

Steven R. Votaw
Project Manager

Attachment

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Vinita, Oklahoma 74301
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P.O. Box 5446
Fort Smith, Arkansas 72913
(T) 918-697-3936

Eagle Environmental Consulting, Inc.

July 13, 2012

Ms. Cathy Gilmore
U.S. Environmental Protection Agency
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202

RE: **Solicitation of Views**
Proposed Cutoffs 18-6 and 18-9 Lease and Dredge Disposal Ponds
Rogers County, Oklahoma

Dear Ms. Gilmore,

Eagle Environmental Consulting, Inc. (EEC) has been retained by Johnston's Port 33, Inc. to prepare an environmental assessment (EA) concerning the need for additional fleeting capacity along the McClellan-Kerr Arkansas River Navigation System (MKARNS) north of Johnston's Port 33. Cutoff 18-9 Lease is proposed for dredging to accommodate additional fleeting space and is located on the right descending bank at river mile 435.8 in Sections 9, 15, and 16 in Township 20 North, Range 16 East. A dredge pond is proposed to be constructed to the south. Cutoff 18-6 Lease is proposed for dredging for additional fleeting storage and is located on the right descending bank at river mile 432.6 in Section 28, Township 20 North, Range 16 East. A dredge disposal pond is proposed to be constructed on the island to the immediate west. The proposed project is subject to the issuance of a Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act permit and approval of a real estate easement//license from the United States Army Corps of Engineers. The purpose of this EA is to identify and address any potential impacts associated with the proposed project in accordance with the National Environmental Policy Act (NEPA) and all other applicable laws. An aerial and topographic view of each site is provided on the attached map.

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Sincerely,

EAGLE ENVIRONMENTAL CONSULTING, INC.

Steven R. Votaw
Project Manager

Attachment

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Vinita, Oklahoma 74301
(T) 918-272-7656 • (F) 918.256.6131

P.O. Box 5446
Fort Smith, Arkansas 72913
(T) 918-697-3936

Eagle Environmental Consulting, Inc.

July 13, 2012

Mr. Ken Morris
Oklahoma Water Resources Board
3800 North Classen Blvd
Oklahoma City, Oklahoma 73118

RE: **Solicitation of Views**
Proposed Cutoffs 18-6 and 18-9 Lease and Dredge Disposal Ponds
Rogers County, Oklahoma

Dear Mr. Morris,

Eagle Environmental Consulting, Inc. (EEC) has been retained by Johnston's Port 33, Inc. to prepare an environmental assessment (EA) concerning the need for additional fleeting capacity along the McClellan-Kerr Arkansas River Navigation System (MKARNS) north of Johnston's Port 33. Cutoff 18-9 Lease is proposed for dredging to accommodate additional fleeting space and is located on the right descending bank at river mile 435.8 in Sections 9, 15, and 16 in Township 20 North, Range 16 East. A dredge pond is proposed to be constructed to the south. Cutoff 18-6 Lease is proposed for dredging for additional fleeting storage and is located on the right descending bank at river mile 432.6 in Section 28, Township 20 North, Range 16 East. A dredge disposal pond is proposed to be constructed on the island to the immediate west. The proposed project is subject to the issuance of a Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act permit and approval of a real estate easement//license from the United States Army Corps of Engineers. The purpose of this EA is to identify and address any potential impacts associated with the proposed project in accordance with the National Environmental Policy Act (NEPA) and all other applicable laws. An aerial and topographic view of each site is provided on the attached map.

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Sincerely,

EAGLE ENVIRONMENTAL CONSULTING, INC.

Steven R. Votaw
Project Manager

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P.O. Box 5446
Fort Smith, Arkansas 72913
(T) 918-697-3936

Eagle Environmental Consulting, Inc.

July 13, 2012

Ms. Margaret Graham
Oklahoma Department of Environmental Quality
P.O. Box 1677
Oklahoma City, Oklahoma 73101

RE: **Solicitation of Views**
Proposed Cutoffs 18-6 and 18-9 Lease and Dredge Disposal Ponds
Rogers County, Oklahoma

Dear Ms. Graham,

Eagle Environmental Consulting, Inc. (EEC) has been retained by Johnston's Port 33, Inc. to prepare an environmental assessment (EA) concerning the need for additional fleeting capacity along the McClellan-Kerr Arkansas River Navigation System (MKARNS) north of Johnston's Port 33. Cutoff 18-9 Lease is proposed for dredging to accommodate additional fleeting space and is located on the right descending bank at river mile 435.8 in Sections 9, 15, and 16 in Township 20 North, Range 16 East. A dredge pond is proposed to be constructed to the south. Cutoff 18-6 Lease is proposed for dredging for additional fleeting storage and is located on the right descending bank at river mile 432.6 in Section 28, Township 20 North, Range 16 East. A dredge disposal pond is proposed to be constructed on the island to the immediate west. The proposed project is subject to the issuance of a Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act permit and approval of a real estate easement//license from the United States Army Corps of Engineers. The purpose of this EA is to identify and address any potential impacts associated with the proposed project in accordance with the National Environmental Policy Act (NEPA) and all other applicable laws. An aerial and topographic view of each site is provided on the attached map.

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EAGLE ENVIRONMENTAL CONSULTING, INC.

Steven R. Votaw
Project Manager

Attachment

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Vinita, Oklahoma 74301
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P.O. Box 5446
Fort Smith, Arkansas 72913
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Eagle Environmental Consulting, Inc.

July 13, 2012

Dr. Robert Brooks
Oklahoma Archeological Survey
University of Oklahoma
Norman, Oklahoma 73019

RE: **Solicitation of Views**
Proposed Cutoffs 18-6 and 18-9 Lease and Dredge Disposal Ponds
Rogers County, Oklahoma

Dear Dr. Brooks,

Eagle Environmental Consulting, Inc. (EEC) has been retained by Johnston's Port 33, Inc. to prepare an environmental assessment (EA) concerning the need for additional fleeting capacity along the McClellan-Kerr Arkansas River Navigation System (MKARNS) north of Johnston's Port 33. Cutoff 18-9 Lease is proposed for dredging to accommodate additional fleeting space and is located on the right descending bank at river mile 435.8 in Sections 9, 15, and 16 in Township 20 North, Range 16 East. A dredge pond is proposed to be constructed to the south. Cutoff 18-6 Lease is proposed for dredging for additional fleeting storage and is located on the right descending bank at river mile 432.6 in Section 28, Township 20 North, Range 16 East. A dredge disposal pond is proposed to be constructed on the island to the immediate west. The proposed project is subject to the issuance of a Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act permit and approval of a real estate easement//license from the United States Army Corps of Engineers. The purpose of this EA is to identify and address any potential impacts associated with the proposed project in accordance with the National Environmental Policy Act (NEPA) and all other applicable laws. An aerial and topographic view of each site is provided on the attached map.

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Steven R. Votaw
Project Manager

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Eagle Environmental Consulting, Inc.

July 13, 2012

Mr. Andrew Commer
U.S. Army Corps of Engineers
1645 S. 101st East Ave
Tulsa, Oklahoma 74127

RE: **Solicitation of Views**
Proposed Cutoffs 18-6 and 18-9 Lease and Dredge Disposal Ponds
Rogers County, Oklahoma

Dear Mr. Commer,

Eagle Environmental Consulting, Inc. (EEC) has been retained by Johnston's Port 33, Inc. to prepare an environmental assessment (EA) concerning the need for additional fleeting capacity along the McClellan-Kerr Arkansas River Navigation System (MKARNS) north of Johnston's Port 33. Cutoff 18-9 Lease is proposed for dredging to accommodate additional fleeting space and is located on the right descending bank at river mile 435.8 in Sections 9, 15, and 16 in Township 20 North, Range 16 East. A dredge pond is proposed to be constructed to the south. Cutoff 18-6 Lease is proposed for dredging for additional fleeting storage and is located on the right descending bank at river mile 432.6 in Section 28, Township 20 North, Range 16 East. A dredge disposal pond is proposed to be constructed on the island to the immediate west. The proposed project is subject to the issuance of a Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act permit and approval of a real estate easement//license from the United States Army Corps of Engineers. The purpose of this EA is to identify and address any potential impacts associated with the proposed project in accordance with the National Environmental Policy Act (NEPA) and all other applicable laws. An aerial and topographic view of each site is provided on the attached map.

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EAGLE ENVIRONMENTAL CONSULTING, INC.

Steven R. Votaw
Project Manager

Attachment

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Vinita, Oklahoma 74301
(T) 918-272-7656 • (F) 918.256.6131

P.O. Box 5446
Fort Smith, Arkansas 72913
(T) 918-697-3936

Eagle Environmental Consulting, Inc.

July 13, 2012

Ms. Patricia Newell
U.S. Army Corps of Engineers
1645 S. 101st East Ave
Tulsa, Oklahoma 74127

RE: **Solicitation of Views**
Proposed Cutoffs 18-6 and 18-9 Lease and Dredge Disposal Ponds
Rogers County, Oklahoma

Dear Ms. Newell,

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Sincerely,

EAGLE ENVIRONMENTAL CONSULTING, INC.

Steven R. Votaw
Project Manager

Attachment

P.O. Box 335
Vinita, Oklahoma 74301
(T) 918-272-7656 • (F) 918.256.6131

P.O. Box 5446
Fort Smith, Arkansas 72913
(T) 918-697-3936

Eagle Environmental Consulting, Inc.

July 13, 2012

Mr. Chris Dubois
Oklahoma Conservation Commission
2800 N Lincoln Blvd
Oklahoma City, Oklahoma 73105

RE: **Solicitation of Views**
Proposed Cutoffs 18-6 and 18-9 Lease and Dredge Disposal Ponds
Rogers County, Oklahoma

Dear Mr. Dubois,

Eagle Environmental Consulting, Inc. (EEC) has been retained by Johnston's Port 33, Inc. to prepare an environmental assessment (EA) concerning the need for additional fleeting capacity along the McClellan-Kerr Arkansas River Navigation System (MKARNS) north of Johnston's Port 33. Cutoff 18-9 Lease is proposed for dredging to accommodate additional fleeting space and is located on the right descending bank at river mile 435.8 in Sections 9, 15, and 16 in Township 20 North, Range 16 East. A dredge pond is proposed to be constructed to the south. Cutoff 18-6 Lease is proposed for dredging for additional fleeting storage and is located on the right descending bank at river mile 432.6 in Section 28, Township 20 North, Range 16 East. A dredge disposal pond is proposed to be constructed on the island to the immediate west. The proposed project is subject to the issuance of a Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act permit and approval of a real estate easement//license from the United States Army Corps of Engineers. The purpose of this EA is to identify and address any potential impacts associated with the proposed project in accordance with the National Environmental Policy Act (NEPA) and all other applicable laws. An aerial and topographic view of each site is provided on the attached map.

Views from federal, state, and local agencies with special expertise are requested to assist in the early identification of potential environmental impacts associated with the proposed project. We are asking for your comments regarding available and pertinent data you might have to assist in this assessment. We would appreciate any information you might have relating to your specific involvement. To meet our expedited schedule to avoid and/or minimize potential construction-related impacts, we would appreciate your comments by August 11, 2012. **Replies should be addressed to David Bednar, Jr., Eagle Environmental Consulting, Inc, P.O. Box 5446, Fort Smith, Arkansas 72913 or by e-mail at david@eagle-env.com.** Thank you for your cooperation and prompt response.

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Vinita, Oklahoma 74301
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P.O. Box 5446
Fort Smith, Arkansas 72913
(T) 918-697-3936

Eagle Environmental Consulting, Inc.

July 13, 2012

Ms. Megan Delozier
Rogers County Floodplain Administrator
212 S. Missouri
Claremore, Oklahoma 74017

RE: **Solicitation of Views**
Proposed Cutoffs 18-6 and 18-9 Lease and Dredge Disposal Ponds
Rogers County, Oklahoma

Dear Ms. Delozier,

Eagle Environmental Consulting, Inc. (EEC) has been retained by Johnston's Port 33, Inc. to prepare an environmental assessment (EA) concerning the need for additional fleeting capacity along the McClellan-Kerr Arkansas River Navigation System (MKARNS) north of Johnston's Port 33. Cutoff 18-9 Lease is proposed for dredging to accommodate additional fleeting space and is located on the right descending bank at river mile 435.8 in Sections 9, 15, and 16 in Township 20 North, Range 16 East. A dredge pond is proposed to be constructed to the south. Cutoff 18-6 Lease is proposed for dredging for additional fleeting storage and is located on the right descending bank at river mile 432.6 in Section 28, Township 20 North, Range 16 East. A dredge disposal pond is proposed to be constructed on the island to the immediate west. The proposed project is subject to the issuance of a Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act permit and approval of a real estate easement//license from the United States Army Corps of Engineers. The purpose of this EA is to identify and address any potential impacts associated with the proposed project in accordance with the National Environmental Policy Act (NEPA) and all other applicable laws. An aerial and topographic view of each site is provided on the attached map.

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Steven R. Votaw
Project Manager

Attachment

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Fort Smith, Arkansas 72913
(T) 918-697-3936

Eagle Environmental Consulting, Inc.

July 13, 2012

U.S. Coast Guard
Waterways Management Division
1222 Spruce Street, Suite 7103
St. Louis, Missouri 63103

RE: **Solicitation of Views**
Proposed Cutoffs 18-6 and 18-9 Lease and Dredge Disposal Ponds
Rogers County, Oklahoma

Dear Sir or Madam,

Eagle Environmental Consulting, Inc. (EEC) has been retained by Johnston's Port 33, Inc. to prepare an environmental assessment (EA) concerning the need for additional fleeting capacity along the McClellan-Kerr Arkansas River Navigation System (MKARNS) north of Johnston's Port 33. Cutoff 18-9 Lease is proposed for dredging to accommodate additional fleeting space and is located on the right descending bank at river mile 435.8 in Sections 9, 15, and 16 in Township 20 North, Range 16 East. A dredge pond is proposed to be constructed to the south. Cutoff 18-6 Lease is proposed for dredging for additional fleeting storage and is located on the right descending bank at river mile 432.6 in Section 28, Township 20 North, Range 16 East. A dredge disposal pond is proposed to be constructed on the island to the immediate west. The proposed project is subject to the issuance of a Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act permit and approval of a real estate easement//license from the United States Army Corps of Engineers. The purpose of this EA is to identify and address any potential impacts associated with the proposed project in accordance with the National Environmental Policy Act (NEPA) and all other applicable laws. An aerial and topographic view of each site is provided on the attached map.

Views from federal, state, and local agencies with special expertise are requested to assist in the early identification of potential environmental impacts associated with the proposed project. We are asking for your comments regarding available and pertinent data you might have to assist in this assessment. We would appreciate any information you might have relating to your specific involvement. To meet our expedited schedule to avoid and/or minimize potential construction-related impacts, we would appreciate your comments by August 11, 2012. **Replies should be addressed to David Bednar, Jr., Eagle Environmental Consulting, Inc, P.O. Box 5446, Fort Smith, Arkansas 72913 or by e-mail at david@eagle-env.com.** Thank you for your cooperation and prompt response.

Sincerely,

EAGLE ENVIRONMENTAL CONSULTING, INC.

Steven R. Votaw
Project Manager

Attachment

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Vinita, Oklahoma 74301
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P.O. Box 5446
Fort Smith, Arkansas 72913
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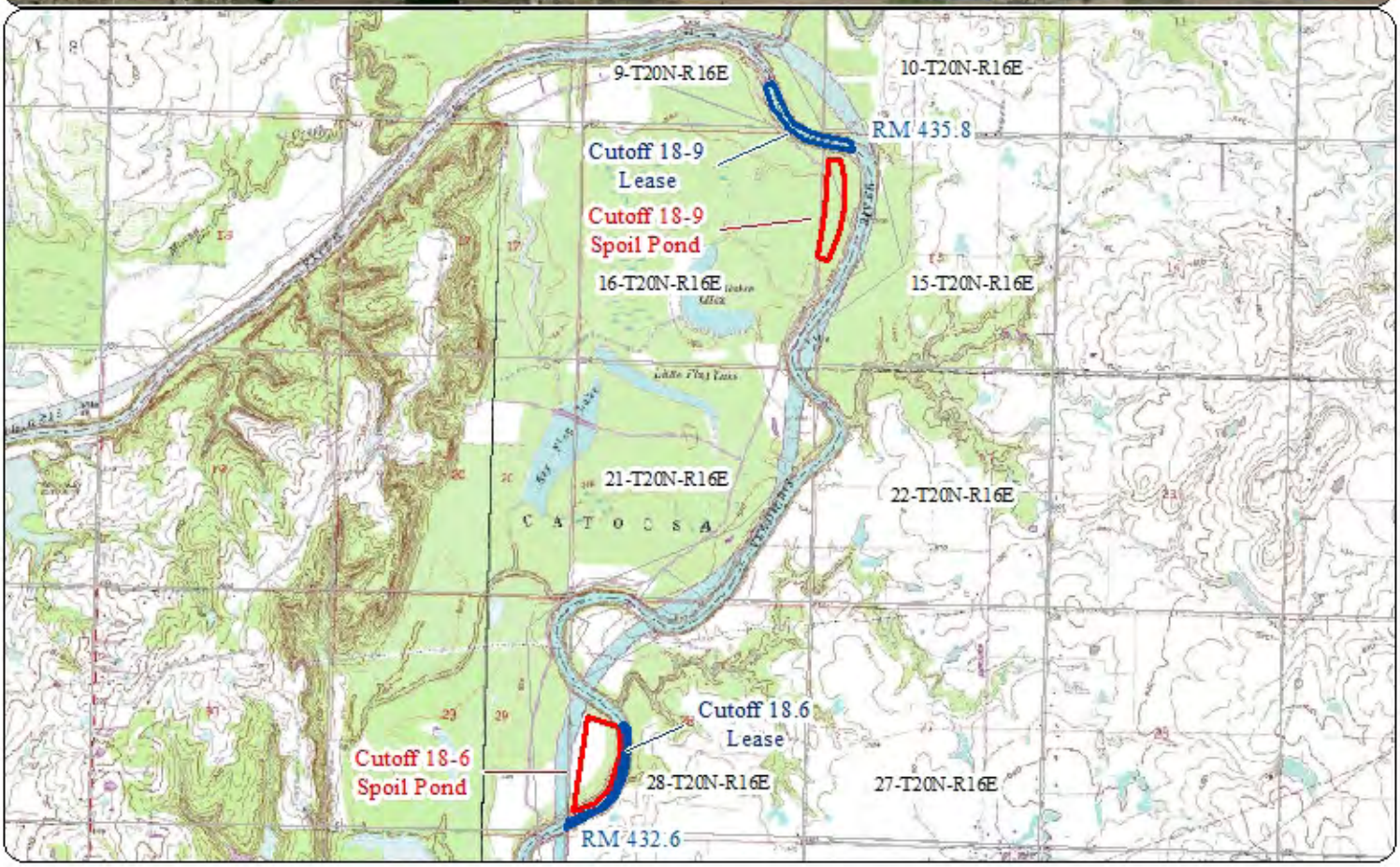


EAGLE ENVIRONMENTAL CONSULTING, Inc.

0 500 1,000 2,000 3,000 4,000 5,000 6,000 7,000 8,000 Feet

1 inch = 4,000 feet

Legend

- Spoil Pond
- Dredging Areas

N

Project Vicinity Map

Project Location Map

Johnston's Port 33
Rogers County, Oklahoma

APPENDIX B

REPRESENTATIVE PHOTOGRAPHS


Photo 1


Photo 2


Photo 3


Photo 4


Photo 5


Photo 6


Photo 7


Photo 10


Photo 8


Photo 11


Photo 9


Photo 12


Photo 13


Photo 14


Photo 15


Photo 16

APPENDIX C

Potentially Jurisdictional Waters and Wetlands Evaluation

POTENTIAL JURISDICTIONAL WATERS AND WETLANDS EVALUATION

Cutoff Dredging and Spoil Pond Construction
Johnston's Port 33
Rogers County, Oklahoma

Prepared for:

Johnston's Port 33, Inc.
328 N. 321 E. Avenue
Catoosa, Oklahoma 74015

Prepared by:

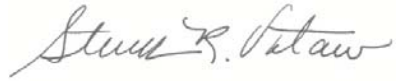
Eagle Environmental Consulting, Inc.

P.O. Box 335
Vinita, Oklahoma 74301
918-272-7656

P.O. Box 544
Ft. Smith, AR 72913
918-697-8978

Field Investigation Conducted By Steve Votaw

November 2013



Steven R. Votaw
President

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LIST OF APENDICES

1.0 PROJECT OVERVIEW

1.1 Project Description

The purpose of the proposed project is to dredge Cutoff 18-9 lease at river mile 435.8 on the right descending bank of the McClellan-Kerr Arkansas River Navigation System (MKARNS).and Cutoff Lease 18-6 on the right descending bank at river mile 432.6 to accommodate additional fleeting space. A dredge pond is proposed to be constructed to the south of Cutoff 18-9. Additionally, a dredge pond is proposed to be constructed on the island to the immediate west of Cutoff 18-6.

1.2 Project Location

The proposed project is located on the Inola 7.5 minute USGS topographic map. Cutoff 18-9 Lease and associated spoil pond would be located in Sections 9, 15, and 16 in Township 20 North, Range 16 East. Cutoff 18-6 Lease and associated spoil pond would be located in Section 28, Township 20 North, Range 16 East. The project location map is provided on **Figure 1**.

1.3 Study Area Description

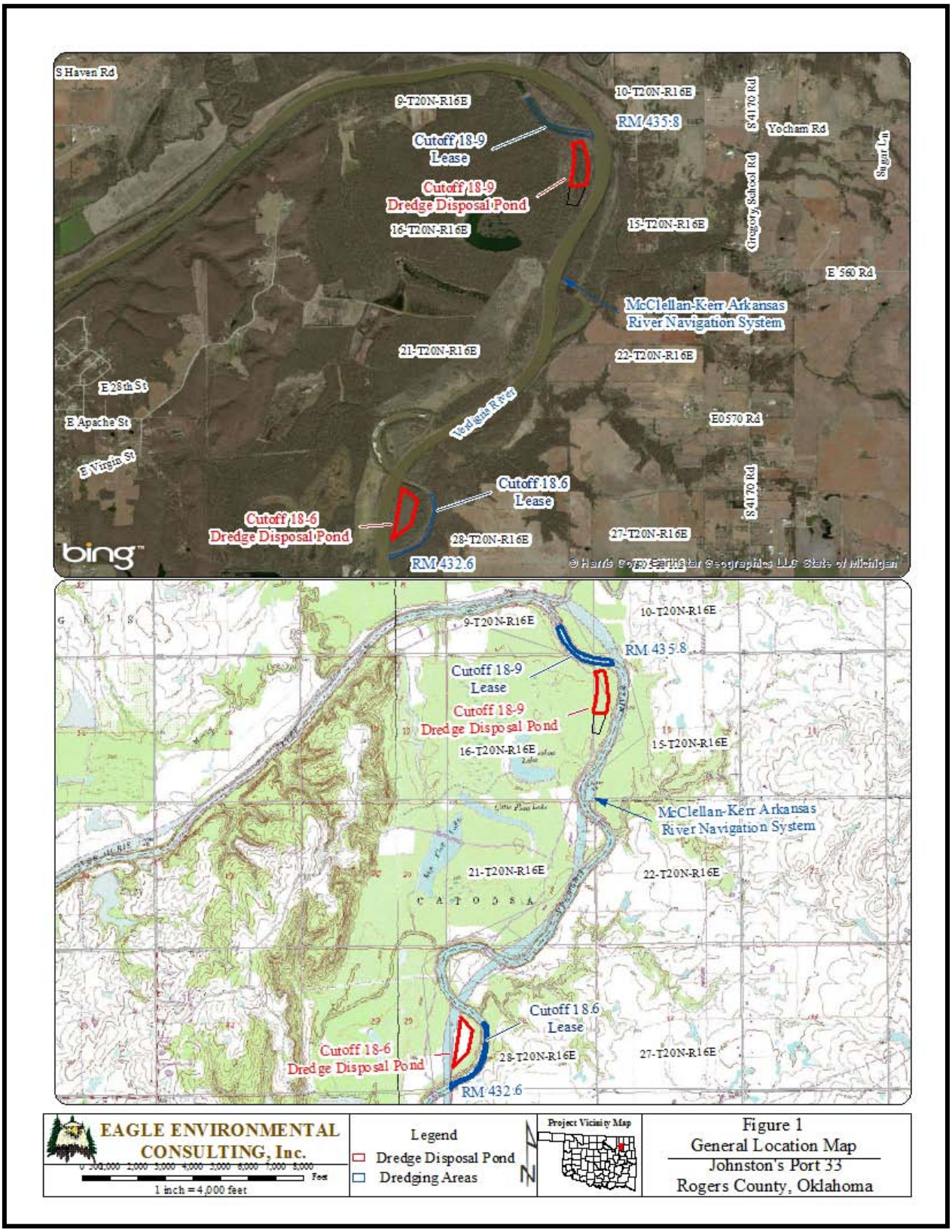
The areas investigated as part of the overall project included the existing oxbows associated with the former Verdigris River and the terrestrial areas associated with the proposed spoil ponds. All properties surveyed are under US Army Corps of Engineers (USACE) ownership and administration. The terrestrial study areas associated with the proposed spoil pond locations consisted of a mixture of herbaceous and woody vegetation and is undeveloped.

Vegetation

The general habitat associated with the proposed construction of the Cutoff 18-9 Spoil Pond consisted of a mixture of woody and herbaceous species and included pecan (*Carya illnoinensis*), hackberry (*Celtis occidentalis*), hickory (*Carya sp.),* Kentucky coffee (*Gymnocladus dioicus*), honey locust (*Gledtisia triacanthos*), deciduous holly (*Ilex decidua),* Indian sea oats (*Chasmanthium latifolium*), fescue (*Festuca arundincea*), wood nettle, Sercecia (S*erecia lespedeza),* little bluestem (*Schizachyrium scoparium*) and horse nettle (*Solanum carolinense*). The general habitat associated with the proposed construction of the Cutoff 18-6 Spoil Pond consisted of a floodplain forestland and included green ash (*Fraxinus pennsylvanica*), box elder (*Acer negundo*), sycamore (*Platanus occidentalis*), hackberry (*Celtis occidentalis*), American elm (*Ulmus americana*), black walnut (*Juglans nigra*), grape (*Vitis sp*.), greenbrier (*Smilax bona-nox.*), coralberry (*Symphoricarpos orbiculatus*), and deciduous holly.

Hydrology

The proposed action would consist of dredging silt and riverbed sediment from the Cutoff 18-9 and 18-6 to allow for fleeting of full draft barges. No wetlands, perennial or intermittent streams were identified within the area proposed for the spoil ponds or the pipeline that would be used to transport


S Haven Rd
9-T20N-R16E
10-T20N-R16E
RM 435.8
Cutoff 18-9 Lease
Cutoff 18-9 Dredge Disposal Pond
16-T20N-R16E
15-T20N-R16E
S4170 Rd
Yocham Rd
Gregory School Rd
Singer Ln
E 560 Rd
McClellan-Kerr Arkansas River Navigation System
21-T20N-R16E
22-T20N-R16E
E 28th St
E Apache St
E Virgin St
E0570 Rd
Cutoff 18-6 Lease
Cutoff 18-6 Dredge Disposal Pond
28-T20N-R16E
27-T20N-R16E
RM 432.6
bing
9-T20N-R16E
10-T20N-R16E
RM 435.8
Cutoff 18-9 Lease
Cutoff 18-9 Dredge Disposal Pond
16-T20N-R16E
15-T20N-R16E
McClellan-Kerr Arkansas River Navigation System
21-T20N-R16E
22-T20N-R16E
C A T O O S A
Cutoff 18-6 Lease
Cutoff 18-6 Dredge Disposal Pond
28-T20N-R16E
27-T20N-R16E
RM 432.6
EAGLE ENVIRONMENTAL CONSULTING, Inc.
1 inch = 4,000 feet
Legend
Dredge Disposal Pond
Dredging Areas
N
Project Vicinity Map
Figure 1
General Location Map
Johnston's Port 33
Rogers County, Oklahoma

dredged material from the Cutoff 18-9. The primary hydrology source associated with the project areas is the MKARNS and referenced oxbows.

Soils

The Natural Resources Conservation Service (NRCS) Web Soil Survey was used to identify soil units within the study area. Two distinct soil units were identified and included the Barge Silty Clay Loam and the Verdigris Silty Clay Loam (Table 1). No hydric soils were identified within the study area.

Table 1
Soils Within Study Area

Name	Soil Type	Percent Slope	Drainage Class	Hydric Rating
Barge	Silty Clay Loam	0-1	Well Drained	Not Hydric
Verdigris	Silty Clay Loam	3-50	Well Drained	Not Hydric

2.0 WATERS AND WETLANDS EVALUATION

2.1 Methods

The United States Army Corps of Engineers (USACE) Wetlands Delineation Manual (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (USACE 2010) were referenced in concert to identify wetlands. Wetland areas, if observed, were to be identified using the routine on-site (level 2) method, as described in Section D of the 1987 USACE Wetlands Delineation Manual. The identification of wetlands consists of a three-parameter approach that involves determining the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. Where differences in the two documents occur, the interim regional supplement takes precedence over the 1987 Corps Manual for applications in the Midwest Region.

Hydrophytic plant communities are determined after species identification based on the wetland status indicators (Reed, 1988) of the dominant plant species present within the sample plot. In accordance with the USACE delineation manual, plant species that have a wetland indicator status of facultative (FAC), facultative wetland (FACW), or obligate (OBL) represent hydrophytic vegetation.

Wetland hydrology implies a hydrologic regime involving periodic inundation or saturation within the upper portions of the soil profile, at sufficient frequency and for sufficient duration, during the growing season. Onsite indicators used as evidence of wetland hydrology include inundation, saturation, sediment deposition, drift lines, water marks, and scouring. Hydric soils are determined based on criteria established by the Soil Conservation Service (USDA, 2000) and described in the regional supplement. Indicators of hydric soils predominantly include soil color

and redox concentrations (reddish mottles). Matrix and redox colors, when appropriate, are identified according to Munsell Soil Color Charts (Kollormorgen, 2000).

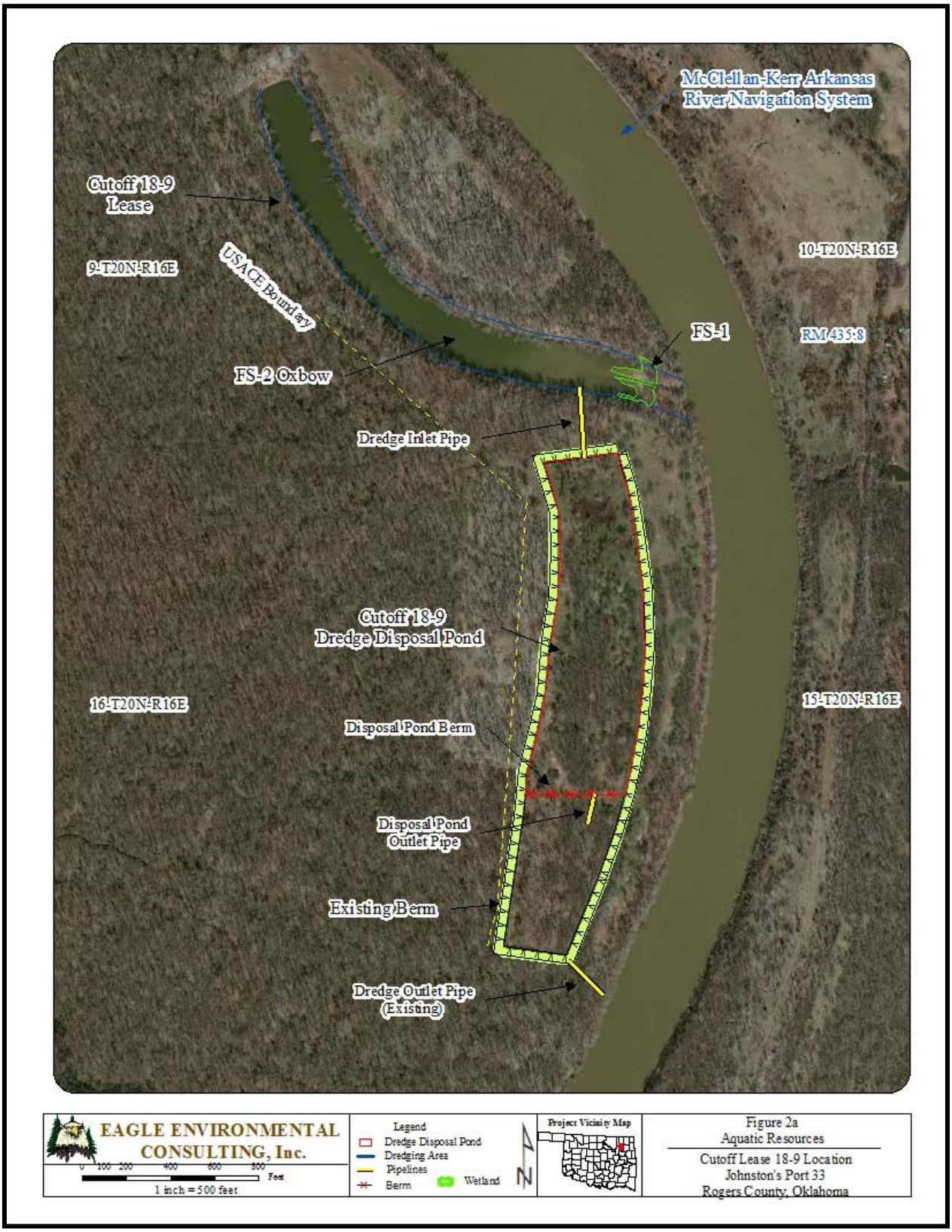
In most circumstances, all three parameters must be present for the area to be a wetland. Data sampling points are established in representative areas within the wetland areas and in the adjacent uplands. Vegetation, soils, and hydrology characteristics are recorded on data forms for each sampling point and boundaries are established based on the results of the individual sample plots, after further refining as necessary. Potentially jurisdictional waters of the United States, other than wetlands, were also to be defined if observed. These areas include creek channels, rivers, ponds, and/or lakes and the identification of the ordinary high water mark (OHWM).

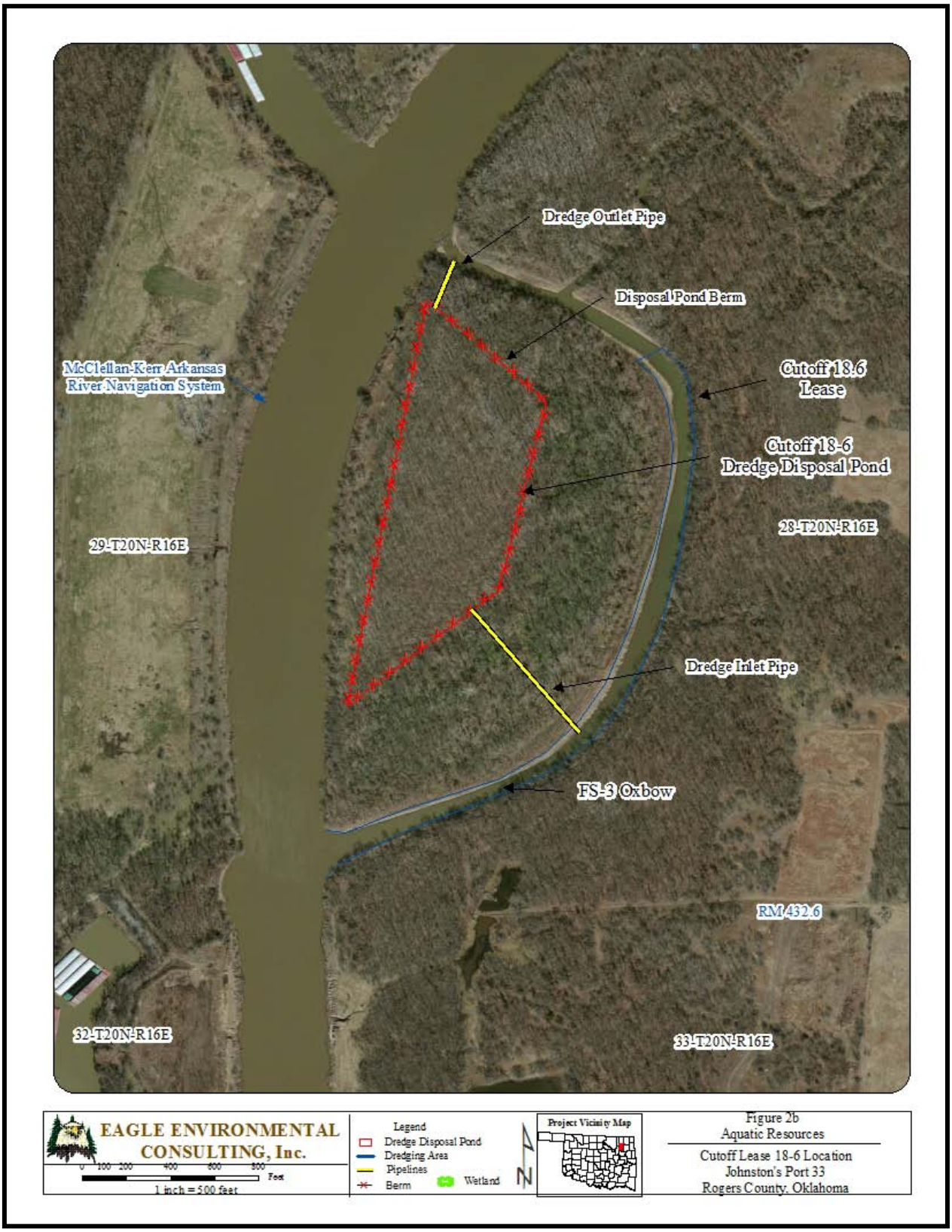
The OHWM is defined by the U.S. Army Corps of Engineers (2005) as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changed in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas." The OHWM is considered as a height above the water surface of a waterway. Waterways are identified and located according to size, flow patterns, watershed characteristics, and drainage basin.

The Wetlands Mapper available at the United States Fish and Wildlife Website was used to obtain digital National Wetland Inventory (NWI) features within the study area. NWI maps were reviewed as a tool for in determining the potential for wetland presence within the study area. The reference features on the NWI maps provide insight to aquatic and/or semi-aquatic areas and their associated vegetation signatures. These areas are presented as outline areas with acronym nomenclature based on the Cowardin et. al (1979) wetland and deepwater habitat classification system. Some of the typical nomenclature includes PFO1A (Palustrine, forested area that contained broadleaf deciduous vegetation and is temporarily flooded an a non-tidal area), PFO1C (Palustrine, forested area that contains broadleaf deciduous vegetation that is seasonally flooded and R2UBH (Riverine, lower perennial river system with an unconsolidated bottom that is permanently flooded).

2.2 Results

The onsite survey for wetlands and waterways was conducted to identify and locate any areas that exhibit the required wetland parameters and onsite characteristics for waters of the United States, if observed. Data has been collected for each investigated area to characterize and describe the required parameters. The descriptions for each identified area are provided below according to Field Site (FS) number. Three aquatic resources were identified and recorded during the field survey and are shown on **Figure 2a** and **Figure 2b**. This includes approximately 25 acres of oxbow lakes and 0.47 acres of partially forested wetlands. Photographs of the aquatic features are provided in **Appendix A**. The wetland form is provided in **Appendix B**.


McClellan-Kerr Arkansas River Navigation System
Cutoff 18-9 Lease
9-T20N-R16E
USACE Boundary
10-T20N-R16E
FS-1
RM 435.8
FS-2 Oxbow
Dredge Inlet Pipe
Cutoff 18-9 Dredge Disposal Pond
16-T20N-R16E
15-T20N-R16E
Disposal Pond Berm
Disposal Pond Outlet Pipe
Existing Berm
Dredge Outlet Pipe (Existing)
EAGLE ENVIRONMENTAL CONSULTING, Inc.
0 100 200 400 600 800
Feet
1 inch = 500 feet
Legend
Dredge Disposal Pond
Dredging Area
Pipelines
Berm
Wetland
N
Project Vicinity Map
Figure 2a
Aquatic Resources
Cutoff Lease 18-9 Location
Johnston's Port 33
Rogers County, Oklahoma


Dredge Outlet Pipe
Disposal Pond Berm
McClellan-Kerr Arkansas River Navigation System
Cutoff 18.6 Lease
Cutoff 18-6 Dredge Disposal Pond
29-T20N-R16E
28-T20N-R16E
Dredge Inlet Pipe
FS-3 Oxbow
RM 432.6
32-T20N-R16E
33-T20N-R16E
EAGLE ENVIRONMENTAL CONSULTING, Inc.
0 100 200 400 600 800
Feet
1 inch = 500 feet
Legend
Dredge Disposal Pond
Dredging Area
Pipelines
Berm
Wetland
N
Project Vicinity Map
Figure 2b
Aquatic Resources
Cutoff Lease 18-6 Location
Johnston's Port 33
Rogers County, Oklahoma

Field Site Descriptions

FS-1 was described 0.47-acre herbaceous wetland located on the eastern end of FS-2, either side of the inlet channel. This site is described as an oxbow wetland in the former river channel. Hydric soils were confirmed by the 10YR 3/2 matrix color silty clay soils with 20% of 2.5 YR 4/6 colored redoximorphic features. Wetland hydrology was confirmed by saturation, water marks, sediment deposits, and drift deposits. The dominant vegetation consisted of hibiscus (*Hibiscus coccinea*), switch grass (*Panicum virgatum*), and chufa (*Cyperus esculentus*). FS-1 will be considered jurisdictional by the USACE.

FS-2 was identified as an old oxbow channel (18-9 Lease) on the right descending bank of the Verdigris River. Approximately 19 acres of the oxbow would be disturbed by dredging activities. FS-2 is hydrologically connected to FS-1 and the MKARNS and is considered to be jurisdictional by the USACE. Adjacent vegetation consisted of pecan, hackberry, hickory, and honey locust.

FS-3 was identified as an old oxbow channel (18-6 Lease) on the left descending bank of the Verdigris River. Approximately 6 acres of the oxbow would be disturbed by dredging activities. Adjacent vegetation consisted of pecan, hackberry, hickory, and honey locust. FS-3 is hydrologically connected to the MKARNS and is considered to be jurisdictional by the USACE.

2.3 Summary

A survey was performed to evaluate potential jurisdictional waterways and wetlands for the proposed cutoff dredging and spoil pond construction project. The aquatic features observed included one 0.47 acre herbaceous wetland at Cutoff 18-9. No wetlands were observed at Cutoff 18-6.

3.0 LITERATURE CITED

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APPENDIX A

SITE PHOTOGRAPHS


FS-1, North West View.


FS-2, West View.


FS-1, North View.


FS-3, North View.


FS-1, West View.


FS-3, South View.

APPENDIX B

DATA FORMS

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Cutoff 18-9 City/County: Rogers County Date: 8/24/2012

Applicant/Owner: Johnstons Port 33, Inc. State: OK Sampling Point: FS-1

Investigator(s): Steve Votaw Section, Township, Range: S 25, T 21N, R 16 E

Landform: Oxbow outlet/inlet Local relief(concave, convex,none): None Slope (%): 0-1

Subregion(LRR): Central Rolling Red Prairies Lat: 36.219764 Long: -95.599387 Datum:

Soil Map Unit Name: Barge Silty Clay Loam NWI Classification: PEM

Are climatic/hydrologic conditions typical for this time of year? Yes **X** No (If no, explain in Remarks)

Are Vegetation **N** Soil **N** or hydrology **N** significantly disturbed?

Are Vegetation **N** Soil **Y** or hydrology **N** naturally problematic?

Are "Normal Circumstances" present ? Yes: No: (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, etc.

Hydrophytic Vegetation Present ?	**Yes**	No	Is the Sampled Area	Yes: **X**
Hydric Soil Present?	**Yes**	*No*	within a Wetland?	No:
Wetland Hydrology Present?	**Yes**	No		

Remarks: Linear depression wetland in old river channel owbow.

VEGETATION- Use scientific names of plants.

Tree Stratum Plot size:	Absolute % cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
Total Cover:			
Sapling/Shrub Stratum Plot size:			
1. Hibisus coccinea	10	X	OBL
2			
3			
4			
Total Cover:	10		
Herb Stratum Plot size:			
1. Panicum virgatum	60	X	FACW
2. Cyperus esculentus	30	X	FACW
3			
4			
5			
6			
7			
8			
9			
10			
Total Cover:	90		
Woody vine Stratum Plot size:			
1			
2			
3			
Total Cover:			
% Bare Ground in Herb Stratun	**0**		

Dominance Test Worksheet:
Number of Dominant Species That are OBL, FACW, or FAC (excluding FAC-): 3
Total Number of Dominant Species across all Strata: 3
Percent of Dominant Species OBL, FACW, or FAC: 1 (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	10	x1=	10
FACW specie	90	x2=	180
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals	100 (A)		190 (B)

Prevalence Index = B/A= 1.9

Hydrophitic Vegetation Indicators:
__X__ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
_____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
_____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytc Vegetation Present? **Yes:** **X** **No:**

Remarks:

SOIL **Sampling Point: FS-1**

Profile Description: (Describes to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color(Moist)	%	Color(Moist)	%	Type[1]	Loc[2]	Texture	Remarks
16-Jan	10 YR 3/2	100	2.5 YR 4/6	20	C	m, pl	silty clay loam	

[1]Type: C=Concentrations, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.
[2]Location: PL= Pore Lining, M= Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless ohterwise noted.) Indicators for Problematic Hydric Soils[3]:

	Histosol(A1)		Sndy Glyd Mtrx(S4)		1cm Muck(A9)
	Histic Epipedon (A2)		Sandy Redox (S5)		CoastPrairieRedox (A16)
	Black Histic (A3)		Stripped Matrix (S6)		Dark Surface (S7)
	Hydrogen Sulfide (A4)		Lmy Mucky Min (F1)		HighPlainsDepress'n(F16)
	Stratified Layers(A5)		Depleted Matrix (F3)		Red Parent Material(TF2)
	1cm Muck(A9)	X	Redox Dk Srfce (F6)		Other(Explain in Remarks
	DepletedbelowDarkSurfc		Deplted DkSrfce(F7)		Reduced Vertic (F18)
	Thick Dark Surface(A12)		Redox Dprssion (F8)	[3]Indicators of hydrophytic vegetation	
	Sandy Mucky Mineral(S1)		Lmy Glyd Mtrx(F2)	and wetland hydrology must be	
	2.5cm MuckyPeat or Peat		Hi Plns Dpressn(F16)	present, unless disturbed or	
	5cm Mucky Peat or Peat		MLRA 72&73 of LRRH	problematic.	

Restrictive Layer (If present):
Type: **Depth (Inches):**

Hydric Soil Present:
Yes: **X** **No:**

Remarks: **No Hydric Soils were identified.**

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

	Surface Water (A1)		Salt Crust (B11)		Surface Soil Cracks (B6)
	High Water Table (A2)		Aqutic Invert (B13)		Sparse Veg. Concave B8
X	Saturation (A3)		Hydr Sulfide Odr(C1)		Drainage Patterns (B10)
X	Water Marks (B1)		Dr Seasn Wtr Tbl(C2)		Oxidized Rhizospheres
X	Sediment Deposits (B2)	X	Oxidized Rhzosphrs		on Living Roots (C3)
X	Drift Deposits (B3)		on Living Roots (C3)		Crayfish Burrows (C8)
	Algal Mat or Crust (B4)		Prsnce Rducd Fe(C4)		Saturation(AerialMap)C9
	Iron Deposits (B5)		Thn Muck Srfce (C7)		Geomorphic Position (D2)
	Inundation(Aerial Map)B7		Other (Expl-Remarks)		FAC-Neutral Test (D5)
	Water Stained Leaves(B9)				FrostHeav Hummocks (D7)

Secondary Indicators (min of two req'd)

Field Observations:

Surface Water Present?	Yes	**No**	Depth(in.)	0
Water Table Present?	**Yes**	No	Depth(in.)	6
Saturation Present?	***Yes***	No	Depth(in.)	6

Wetland Hydrology Present?
Yes X
No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections, if available

Remarks:

APPENDIX D

Endangered, Threatened, and Candidate Species, Designated Critical Habitat, Bald Eagle and Swallow Assessment

ENDANGERED, THREATENED AND CANDIDATE SPECIES, DESIGNATED CRITICAL HABITAT, BALD EAGLE, AND SWALLOW ASSESSMENT

Cutoff Dredging and Spoil Pond Construction
Johnston's Port 33
Rogers County, Oklahoma

Prepared for:

Johnston's Port 33, Inc.
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Prepared by:

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November 2013

Steven R. Votaw
President

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1.0 PROJECT OVERVIEW

1.1 Federal Nexus

This Biological Assessment (BA) addresses the potential effects of the proposed dredging of Cutoffs 18-6 and 18-9 Lease and dredge disposal pond construction project on species that are federally listed. Section 7(c) of the Endangered Species Act (ESA) of 1973, as amended, requires that, through consultation with the U.S. Fish and Wildlife Service (Service), federal actions do not jeopardize the continued existence of any threatened, endangered, or proposed species or result in the destruction or adverse modification of critical habitat. This BA evaluates the potential effects of the proposed transportation project on species that are federally listed under the ESA.

1.2 Project Description

The purpose of the project is to dredge Cutoff 18-9 lease at river mile 435.8 on the right descending bank of the McClellan-Kerr Arkansas River Navigation System (MKARNS).and Cutoff Lease 18-6 on the right descending bank at river mile 432.6 to accommodate additional fleeting space at Johnstons Port 33. A dredge spoil pond is proposed to be constructed to the south of Cutoff 18-9. Additionally, a second spoil pond is proposed to be constructed on the island to the immediate west of Cutoff 18-6.

1.3 Project Area Setting

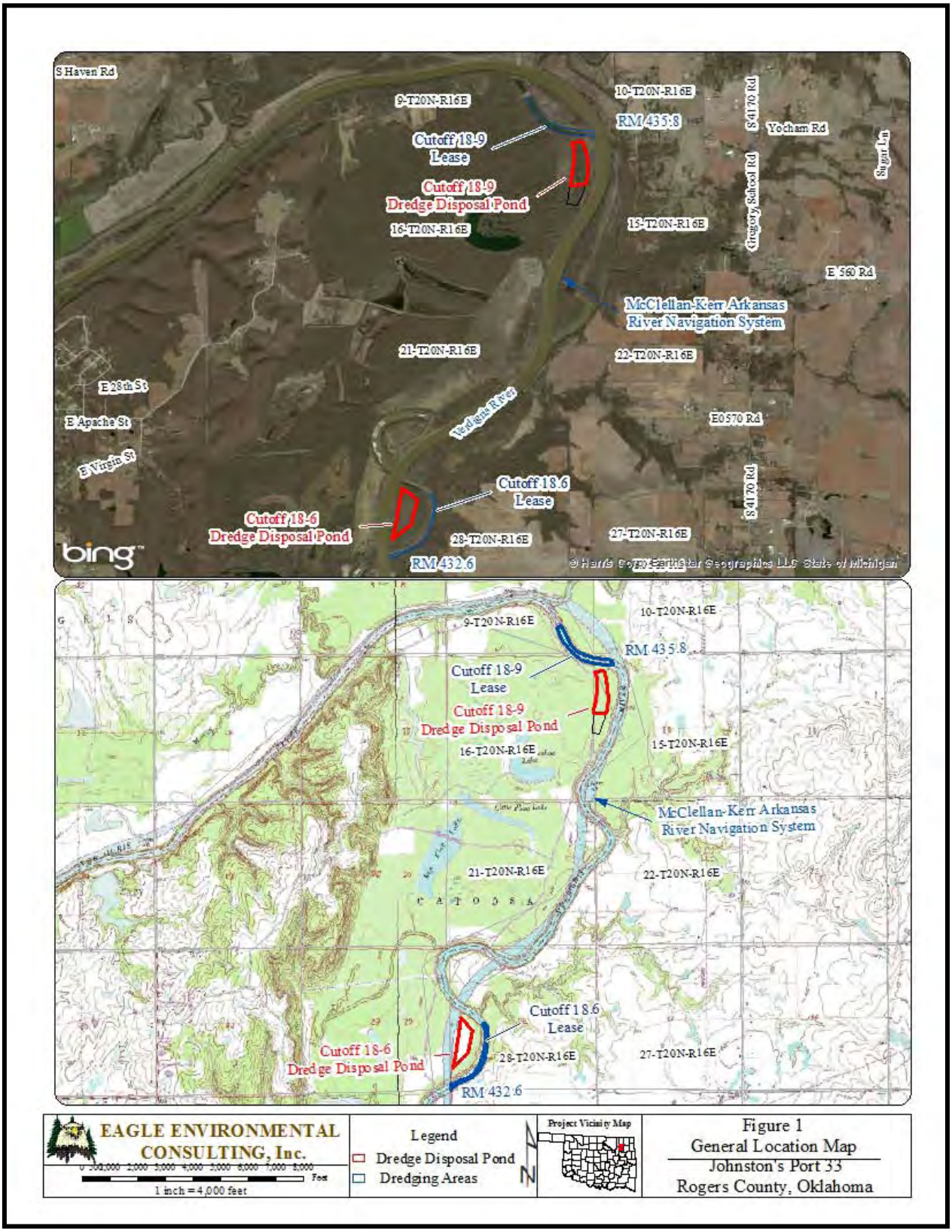
Project Location

The proposed project is located on the Inola 7.5 minute USGS topographic map. Cutoff 18-9 Lease and associated spoil pond would be located in Sections 9, 15, and 16 in Township 20 North, Range 16 East. Cutoff 18-6 Lease and associated spoil pond would be located in Section 28, Township 20 North, Range 16 East. The project location map is provided on **Figure 1**.

Ecoregion and Game Type

The study area is located in the Osage Cuestas Ecoregion (40b) within the Central Irregular Plains in Oklahoma (Woods et al., 2005). The westward dipping of sedimentary rocks composed of sandstone, shale and limestone has resulted in the formation of east facing cuestas and low hills within the ecoregion. This ecoregion mostly consists of tall grass prairie with the dominant herbaceous species that include big bluestem, little bluestem, switchgrass, and Indiangrass. Oak-hickory forests and tall grass prairie occurs in the eastern portion of the ecoregion. Dominant woody species consist of blackjack oak and post oak. Riparian forests in the Osage Cuestas include silver maple, box elder, pecan, walnut, sycamore, hackberry, American elm, and eastern cottonwood. Land cover predominantly consists of riparian forests, cropland, range land on gentle topography and oak forests on rocky hills.

The proposed action is located in the historic Tallgrass Prairie Game Type (Duck and Fletcher, 1943). Natural vegetation consists of a mixture of big bluestem *(Andropogon gerardii),*little bluestem *(Schizachyrium scoparium),* Indian grass *(Sorghastrum nutans),* and switch grass *(Panicum virgatum*).


S Haven Rd
9-T20N-R16E
10-T20N-R16E
RM 435.8
Cutoff 18-9 Lease
Cutoff 18-9 Dredge Disposal Pond
16-T20N-R16E
15-T20N-R16E
S 4170 Rd
Yocham Rd
Gregory School Rd
Slagel Ln
E 560 Rd
McClellan-Kerr Arkansas River Navigation System
21-T20N-R16E
22-T20N-R16E
E 28th St
E Apache St
E Virgin St
E0570 Rd
Cutoff 18-6 Lease
Cutoff 18-6 Dredge Disposal Pond
28-T20N-R16E
27-T20N-R16E
RM 432.6
bing
EAGLE ENVIRONMENTAL CONSULTING, Inc.
1 inch = 4,000 feet
Legend
Dredge Disposal Pond
Dredging Areas
Project Vicinity Map
Figure 1
General Location Map
Johnston's Port 33
Rogers County, Oklahoma

2.0 FEDERALLY LISTED SPECIES AND DESIGNATED CRITICAL HABITAT

The official list of threatened and endangered species potentially present within or adjacent to the study area was generated for the proposed project by the United States Fish and Wildlife Service's on-line Information, Planning, and Conservation (IPaC) decision support system (USFWS, 2012a). Species and associated habitat requirements identified that may be affected by the proposed project include the American burying beetle, least tern, piping plover, whooping crane, Arkansas darter, Neosho mucket mussel and the Rabittsfoot mussell. The official species list and action area map obtained from the USFWS is provided in the **Appendix A**.

Table 1
Federally Listed Species

Species	Listing Status	Habitat Requirements	Status within Action Area
American Burying Beetle (*Nicrophorus americana*)	Endangered	Breeding habitat: undisturbed, mature oak-hickory forests with substantial litter layers and deep, loose soils over grasslands or bottomland forests. Feeding habitat: undisturbed grasslands, grazed pasture, riparian zones, and oak-hickory forest, as well as a variety of various soil types	Potential suitable habitat was observed within the study area
Arkansas Darter *(Etheostoma cragini)*	Candidate	Prefer small, cool, spring-fed streams of low and medium gradient, and with sand, small gravel, or organic detritus substrates. Herbaceous aquatic vegetation is an important component of preferred habitat.	No suitable habitat occurs within the study area.
Least Tern (*Sterna antillarum)*	Endangered	Islands or sandbars along large rivers, mostly clear of vegetation for nesting and loafing and with shallow water nearby for fishing.	No suitable roosting or foraging habitat occurs within or near the study area.
Piping Plover (*Charadruis melodus*)	Threatened	Migratory stopover habitat includes sparsely vegetated sandy or gravelly shorelines and islands associated with the major river systems	No suitable loafing or foraging habitat occurs within or near the study area.
Whooping Crane (*Grus Americana*)	Endangered	Foraging habitat includes primarily croplands. Roosting habitat includes shallowly-submerged	No suitable loafing or foraging habitat occurs within the study area.

Table 1
Federally Listed Species

Species	Listing Status	Habitat Requirements	Status within Action Area
		sandbars in large river channels and large palustrine wetlands close to feeding areas.	
Neosho Mucket Mussel (*Lampsilis rafinesqueana*)	Candidate	Generally occurs in shallow water shoal and riffle habitat with moderate flow and clean, stable gravel and rubble substrates.	No suitable habit occurs within the study area.
Rabbitsfoot Mussel (*Quadrula cylindrical*)	Candidate	Sand and gravel substrates in small to medium rivers with moderate to swift current.	No suitable habit occurs within the study area.

3.0 ENVIRONMENTAL BASELINE

3.1 Ecological Processes and Conditions

Soils

The Natural Resources Conservation Service (NRCS) Web Soil Survey was used to identify soil units within the study area. The dredge spoil pond construction area for Cutoff 18-9 is underlain by the Barge silty clay loam. The Barge soils are considered as well drained. The proposed dredge spoil pond construction location for Cutoff 18-6 is underlain by the Barge silty clay loam and the Verdigris silty clay loam. Both soils are well drained. Parent material is from silty alluvium deposited in floodplains. Verdigris soils are frequently flooded (NRCS, 2012).

Climate

The climate within the study area is characterized as sub-humid and mesothermal. The average annual precipitation within the Tallgrass Prairie Game Type varies from 42 inches on the east and 26 inches on the west (Duck and Fletcher, 1943). Mean minimum temperatures in January is 22 degrees while mean maximum temperatures reach 45 degrees. Mean minimum temperature in July is 68 degrees and 91 degrees is reported to be the mean maximum (Woods et al, 2005). The growing season is approximately 190 days.

Land Use and Land Ownership

The property where both the oxbows and proposed spoil ponds would be constructed are owned and administered by the US Army Corps of Engineers associated with the MKARNS. No specific land use or management programs are known or were exhibited. The study area is located in the northeastern portion of this game type where corn and hay are ranking crops.

Vegetation

The general habitat associated with the proposed construction of the Cutoff 18-9 Spoil Pond consisted of a mixture of woody and herbaceous species and included pecan (*Carya illnoinensis*), hackberry (*Celtis occidentalis*), hickory (*Carya sp.),* Kentucky coffee (*Gymnocladus dioicus*), honey locust (*Gledtisia triacanthos*), deciduous holly (*Ilex decidua),* Indian sea oats (*Chasmanthium latifolium*), fescue (*Festuca arundincea*), wood nettle, Sercecia (S*erecia lespedeza),* little bluestem (*Schizachyrium scoparium*) and horse nettle (*Solanum carolinense*). The general habitat associated with the proposed construction of the Cutoff 18-6 Spoil Pond consisted of a floodplain forestland and included green ash (*Fraxinus pennsylvanica*), box elder (*Acer negundo*), sycamore (*Platanus occidentalis*), hackberry (*Celtis occidentalis*), American elm (*Ulmus americana*), black walnut (*Juglans nigra*), grape (*Vitis sp*.), greenbrier (*Smilax bona-nox.*), coralberry (*Symphoricarpos orbiculatus*), and deciduous holly.

3.2 Species Habitat Within the Action Area

American Burying Beetle

The American Burying Beetle (ABB) is a large beetle with a shiny black appearance with four orange-red spots on the wing covers (elytra). A large red spot on the pronotum of the beetle is indicative of the species. The habitat requirements for this beetle are not fully known; however, the ABB is considered a habitat generalist and is known to occupy a diverse range of habitats. Habitats associated with the ABB include open grasslands, forests, as well as transitional areas.

Suitable habitat exists for the ABB within the action area. The study area lies within the historic range of the ABB. The ABB presence within the action areas was conducted in September 2013. No ABB's were captured. The report of survey is provided in **Appendix B.**

Lest Tern

The least tern is a small migratory shorebird that breeds along inland river systems in Oklahoma. The least tern typically arrives in April and occupies breeding sites from June through August and forages on small fish in shallow water along sandbars associated within large rivers and reservoirs. Nesting habitat includes bare and sparsely vegetated sand and gravel bars. Currently, they occur as small remnant colonies throughout their former range. In Oklahoma, least terns nest along the Red River, Arkansas River, Cimarron River, and Canadian River, as well as at the Salt Plains National Wildlife Refuge (USFWS, 1985). Suitable habitat for the least tern was not observed within the action area.

Piping Plover

The piping plover is a small, stocky, sandy-colored bird resembling a sandpiper. The habitat requirements for the piping plover include sandy shorelines on lakes and sandbars along the major river systems for forage and resting areas. The piping plover is migratory in Oklahoma in the spring and fall. They do not generally nest in Oklahoma. Plovers often gather in groups on undisturbed beaches prior to their southward migration. By mid-September, both adult and young plovers will have departed for their wintering areas (USFWS, 2011). Suitable habitat for the piping plover was not observed within the action area.

Whooping Crane

The whooping crane is a very large, long-legged crane. Diagnostic characteristics include an overall white plumage with a red head crown and grayish black legs. Marshy wetland areas provide suitable migration stopover habitat. The whooping crane is a winter migrant with rare occurrences of over-wintering in extreme southwest and northwest Oklahoma. The Salt Plains National Wildlife Refuge is an important stopover and designated as critical habitat. Their historic migration path includes the central United States including Oklahoma (USFWS, 1978). Suitable habitat for the whooping crane was not observed within the study area.

Arkansas Darter

The Arkansas darter is a member of the perch family and prefers shallow, clear, spring-fed tributary and headwater streams having sand or sandy-gravel substrates as suitable habitat. The Arkansas darter's range includes sites in extreme northwestern Arkansas and northeastern Oklahoma within the Neosho River watershed. No perennial or intermittent streams were observed within the action area, therefore, no suitable habitat was observed for the Arkansas darter.

Neosho Mucket Mussel

The Neosho Mucket mussel prefers shallow riffles and runs with gravel substrate and moderate swift currents and substrate that allows for burrowing as suitable habitat. The historical distribution for the Neosho Mucket Mussel was reported for the Illinois River, the Neosho River, the Verdigris River, and the Spring River and its tributaries in Oklahoma. It is one of the predominant mussels in a short stretch of the Spring River but most of the specimens found in the other rivers appear well-worn and old. The younger shells are often marked with greenish rays and chevrons. The female Neosho mucket waves a lure that imitates a small fish to attract its host fish. Only black bass (largemouth, smallmouth and spotted) serve as the host for Neosho mucket larvae, called glochidia, which the female releases in late spring. Sufficient numbers of bass may be lacking in the lower Neosho, Fall and Verdigris rivers. In the early 1990's, surveys indicated that living muckets were found in a stretch of the Illinois River from the Oklahoma Arkansas state line downstream to the headwaters of Lake Tenkiller in Cherokee County and were not found within or downstream of the lake. However, more recent surveys conducted suggest that the Neosho Mucket Mussell has been extirpated from the Caney, Verdigris, Neosho, and Spring Rivers in Oklahoma. As of 2010, the Neosho Mucket has been extirpated from approximately 62% of its river miles of its historical range. Currently, only the Spring River supports a viable population of the species (USFWS, 2010). No suitable habitat for the Neosho mucket mussel was observed within the action area.

Rabbitsfoot Mussel

The rabbitsfoot mussel is a medium to large sized mussel about six inches in length and inhabits small to medium sized streams and some larger rivers in shallow areas along banks in adjacent runs and shoals in swiftly flowing water of high quality with substrates composed of sand and

gravel. Extant populations have been identified in Oklahoma below the Oologah Reservoir. No suitable habitat for the rabbitsfoot mussel was observed within the action area.

The Oklahoma Biological Survey's Natural Heritage Inventory Program was searched to identify any records of the least tern, piping plover, whooping crane, Arkansas darter, Neosho mucket mussel and the Rabittsfoot mussel with respect to the action area. No occurrences of these species were identified with reference to the proposed project. Correspondence is provided in **Appendix C**.

A field survey was conducted by Steve Votaw of Eagle Environmental Consulting on August 24, 2012. The study area was observed using pedestrian transects to identify the different types of vegetative communities. Eleven habitat assessment sample sites (HASS) were used to identify and describe the dominant habitat and development within the study corridor to determine if any of the federally-listed threatened or endangered or their habitat were present that could be affected by the project. Habitat assessment sample sites are shown on **Figure 2a** and **2b**. Photographs of the habitat assessment sites are provided in **Appendix D**.

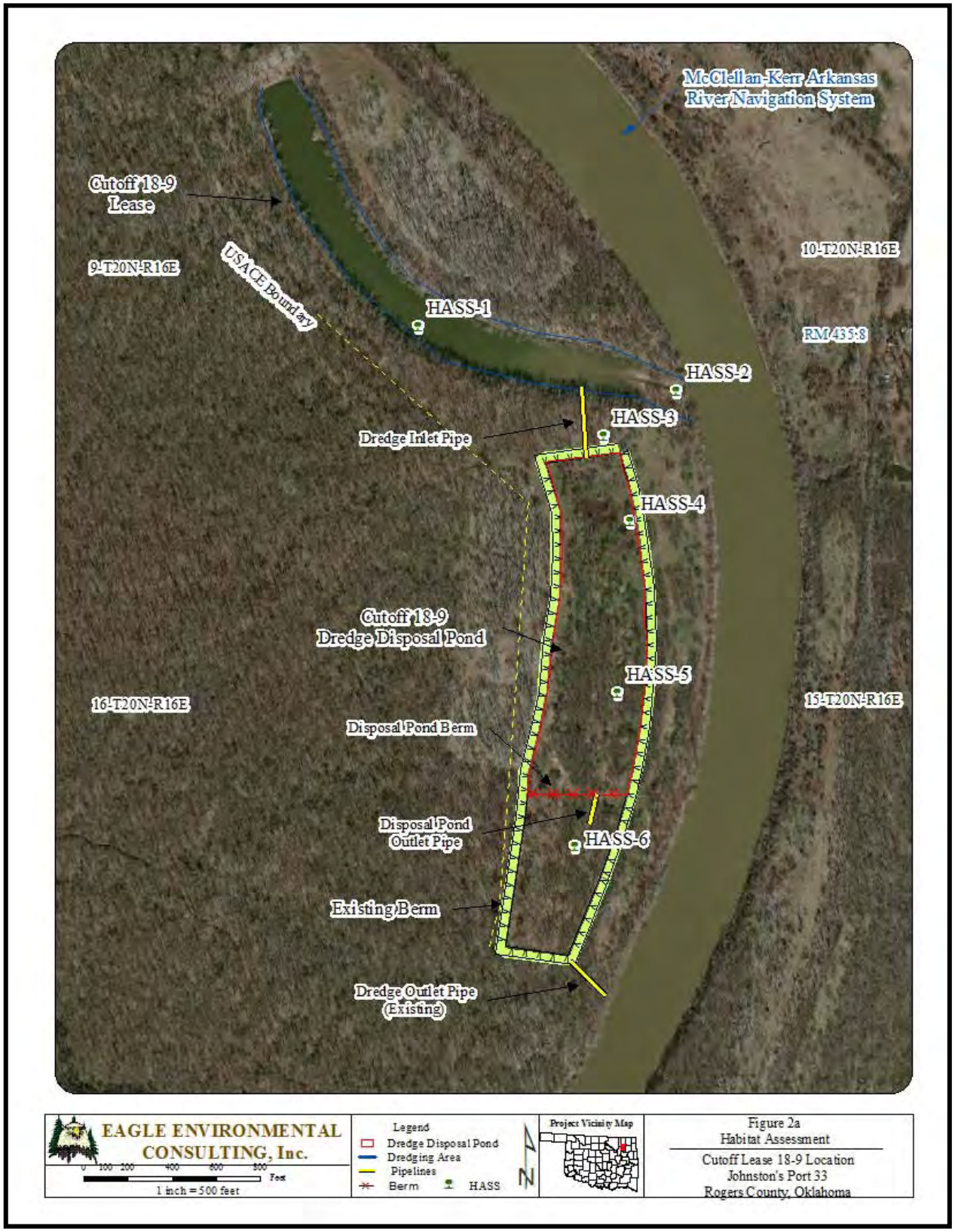
The general habitat associated with the proposed construction of the Cutoff 18-9 Spoil Pond consisted of a mixture of woody and herbaceous species and included pecan (*Carya illnoinensis*), hackberry (*Celtis occidentalis*), hickory (*Carya sp.),* Kentucky coffee (*Gymnocladus dioicus*), honey locust (*Gledtisia triacanthos*), deciduous holly (*Ilex decidua),* Indian sea oats (*Chasmanthium latifolium*), fescue (*Festuca arundincea*), wood nettle, Sercecia (S*erecia lespedeza),* little bluestem (*Schizachyrium scoparium*) and horse nettle (*Solanum carolinense*).

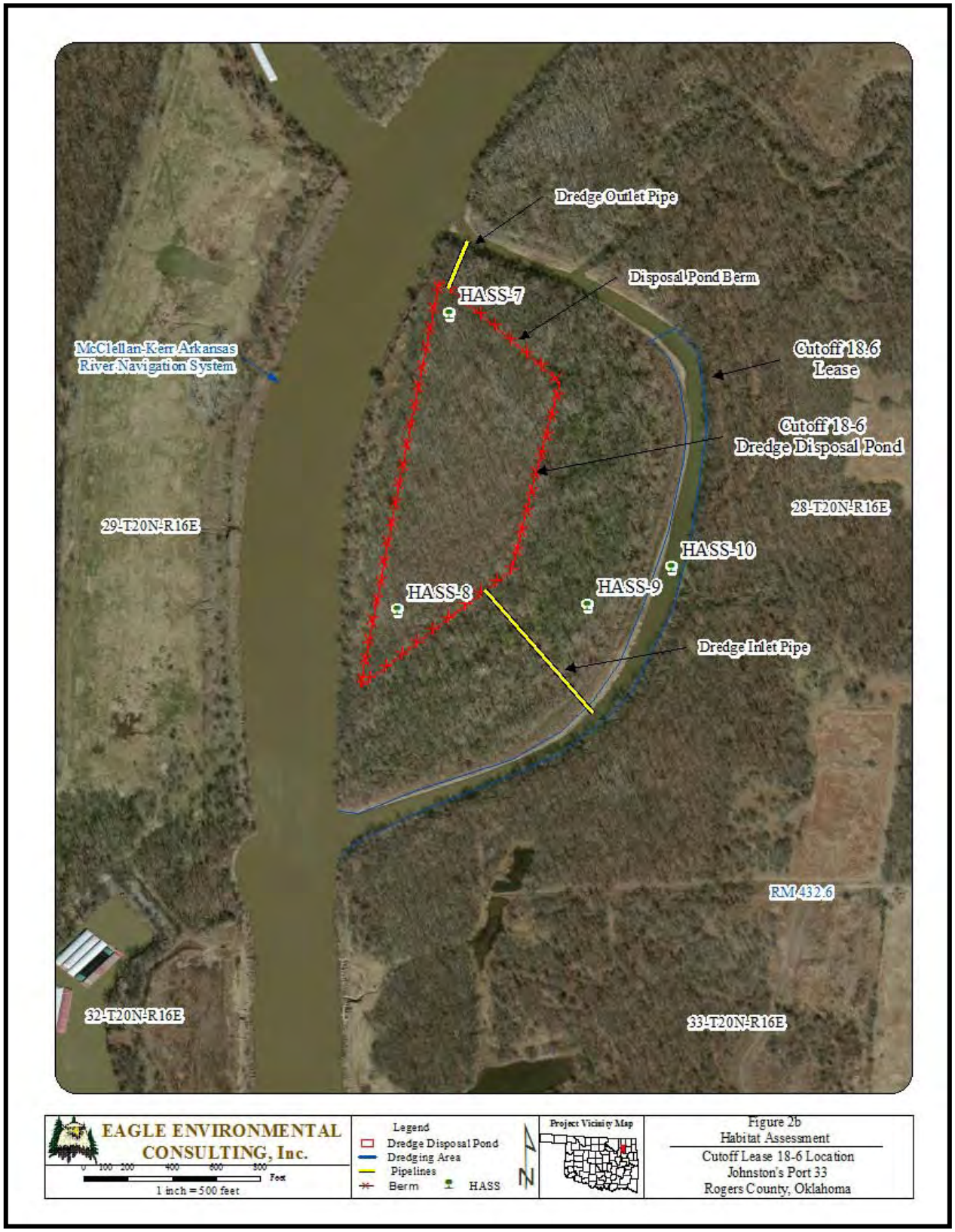
The general habitat associated with the proposed construction of the Cutoff 18-6 Spoil Pond consisted of a floodplain forestland and included green ash (*Fraxinus pennsylvanica*), box elder (*Acer negundo*), sycamore (*Platanus occidentalis*), hackberry (*Celtis occidentalis*), American elm (*Ulmus americana*), black walnut (*Juglans nigra*), grape (*Vitis sp*.), greenbrier (*Smilax bona-nox.*), coralberry (*Symphoricarpos orbiculatus*), and deciduous holly.

HASS-1 was described as a former Verdigris River oxbow on the right descending bank of the MKARNS. The oxbow is a perennial feature and is about 250 feet wide, eight feet deep with an Ordinary High Water Mark (OHWM) of about 2 feet. Substrate is composed of silty clay alluvium. The oxbow is surrounded by well-developed riparian zone. Dominant woody species observed included sycamore, American elm, Box elder, and black willow. No sandbars or beaches were observed.

HASS-2 was identified as a small inlet to HASS-1 from the Verdigris River. Dominant woody species observed included sycamore, American elm, Box elder, and black willow. No sandbars or beaches were observed.

HASS-3 was described as a mixture of a woody and herbaceous species located along the proposed route of the pipeline between the oxbow and proposed spoil pond to the south. Species observed included hackberry, deciduous holly, American elm, fescue, little bluestem, and horse nettle. No beaches or sand bars were observed.


McClellan-Kerr Arkansas River Navigation System
Cutoff 18-9 Lease
9-T20N-R16E
USACE Boundary
10-T20N-R16E
HASS-1
RM 435.8
HASS-2
HASS-3
Dredge Inlet Pipe
HASS-4
Cutoff 18-9 Dredge Disposal Pond
HASS-5
16-T20N-R16E
15-T20N-R16E
Disposal Pond Berm
Disposal Pond Outlet Pipe
HASS-6
Existing Berm
Dredge Outlet Pipe (Existing)
EAGLE ENVIRONMENTAL CONSULTING, Inc.
0 100 200 400 600 800 Feet
1 inch = 500 feet
Legend
Dredge Disposal Pond
Dredging Area
Pipelines
Berm
HASS
N
Project Vicinity Map
Figure 2a
Habitat Assessment
Cutoff Lease 18-9 Location
Johnston's Port 33
Rogers County, Oklahoma


Dredge Outlet Pipe
Disposal Pond Berm
HASS-7
McClellan-Kerr Arkansas River Navigation System
Cutoff 18-6 Lease
Cutoff 18-6 Dredge Disposal Pond
28-T20N-R16E
29-T20N-R16E
HASS-10
HASS-9
HASS-8
Dredge Inlet Pipe
RM 432.6
32-T20N-R16E
33-T20N-R16E
EAGLE ENVIRONMENTAL CONSULTING, Inc.
0 100 200 400 600 800
Feet
1 inch = 500 feet
Legend
Dredge Disposal Pond
Dredging Area
Pipelines
Berm
HASS
N
Project Vicinity Map
Figure 2b
Habitat Assessment
Cutoff Lease 18-6 Location
Johnston's Port 33
Rogers County, Oklahoma

HASS-4, 5, and 6 represent habitats within the proposed spoil pond area which consisted of a mixture of open areas, trees and saplings that are moderately to densely vegetated. The herbaceous level is dominated by fescue and serecia. Woody vegetation consisted mostly of hackberry (*Celtis occidentalis*), American elm (*Ulmus americana*), black walnut (*Juglans nigra*), grape (*Vitis sp*.), greenbrier (*Smilax bona-nox.*), coralberry (*Symphoricarpos orbiculatus*), and deciduous holly.

HASS-7 and HASS-8 represent habitat within the areas planned for the spoil pond adjacent to Cutoff 18-6. The area represents a landscape that was previously disturbed and regenerated to a relatively young forested riparian zone. The area is mostly flat with minor undulations typical of floodplain settings. The area shows no sign of inundation or flow and is considered an upland forested riparian zone. Areas of greater sunlight exhibited a higher herbaceous cover. Vegetation observed included green ash (*Fraxinus pennsylvanica*), box elder (*Acer negundo*), sycamore (*Platanus occidentalis*), hackberry (*Celtis occidentalis*), American elm (*Ulmus americana*), black walnut (*Juglans nigra*), grape (*Vitis sp*.), greenbrier (*Smilax bona-nox.*), coralberry (*Symphoricarpos orbiculatus*), and deciduous holly.

HASS-10 is described as Cutoff 18-6. Vegetation observed adjacent to the shore consisted of green ash, sycamore, black walnut, and American elm. No beaches or sandbars were observed.

4.0 ANALYSIS OF EFFECTS

4.1 Direct Effects

Table 2
Species Conclusions Table

Species/Resource	Conclusion	ESA Section 7	Notes and Documentation
American Burying Beetle	May Effect	Required	Suitable Habitat
Least tern	No effect	Not required	No suitable habitat
Piping plover	No effect	Not required	No suitable habitat
Whooping crane	No effect	Not required	No suitable habitat
Arkansas Darter	No effect	Not required	No suitable habitat
Rabbitsfoot Mussel	No effect	Not required	No suitable habitat
Neosho Mucket Mussel	No effect	Not required	No suitable habitat

4.2 Indirect Effects

The proposed project would have no indirect effects on these species.

4.3 Interrelated and Interdependent Actions and Activities

No interrelated or interdependent actions are expected as the result of the proposed project.

5.0 CONCLUSION

The project should have a no effect determination for the Arkansas Darter, Rabbitsfoot Mussel and Neosho Mucket. No waterways providing suitable habitat exists within the study area.

The project should have a no effect determination for the least tern and piping plover. No suitable loafing, foraging, or nesting habitat for the least tern and piping plover exists within the study area.

The project should have a no effect determination for the whooping crane. Whooping cranes will use favorable foraging and resting areas during migratory stopovers. While whooping cranes could fly over the study area it appears unlikely that the species would stop over based on lack of habitat.

In September 2013, an ABB presence/absence survey was conducted and maintained for three nights. No American Burying Beetles were captured during the survey effort. According to the USFWS database of presence absence surveys conducted in Oklahoma for the ABB, no positive surveys have occurred in the last year in Rogers County. Furthermore, no positive surveys are on record to have occurred within Township 20 North, Range 16 East. . The proposed action should have a no effect determination for the ABB.

6.0 BALD EAGLE AND SWALLOW ASSESSMENT

6.1 Bald Eagle Assessment

The Bald Eagle (*Haliaeetus leucocephalus*) is a raptor protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. Activities that would disturb eagles are prohibited under the Bald and Golden Eagle Protection Act. "Disturb" means to agitate an eagle to the degree that causes or is likely to (1) cause injury, (2) interfere with breeding, feeding or sheltering behavior, or (3) nest abandonment.

Methods used to identify suitable habitat included investigations of waterbodies potentially used for foraging, large nesting or perching trees adjacent to such water features and other areas which Bald Eagles are known to use.

No potential or suitable habitat was identified within the study area. No Bald Eagles or nests were observed during the site visits. This project is not expected to impact the Bald Eagle.

6.2 Swallow Assessment

Cliff Swallows (*Petrochelidon pyrrhonota*) and Barn Swallows *(Hirundo rustica)* are small colonial and semi-colonial nesting birds protected by the Migratory Bird Treaty Act. Barn Swallows use man-made structures for nesting and live in close association with humans. Both species commonly use bridges and culverts in Oklahoma for nesting (Brown and Brown, 1995, Brown and Brown, 1999).

Methods used to identify potential or suitable habitat included bridge and structure inspection within the study area. Investigation of suitable foraging habitat was also conducted. Habitats observed included creek channels, agricultural fields, hay meadows, maintained and un-maintained open areas as well as forested areas. Swallows prefer to nest on structures that provide sufficient height above ground or water (generally 3 feet or higher) to avoid nest or

fledgling predation and provide unrestricted flight access. No swallow nests were observed within the study area. This project is not expected to impact the swallow.

7.0 REFERENCES

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APPENDIX A

USFWS OFFICIAL SPECIES LIST

United States Department of the Interior

FISH AND WILDLIFE SERVICE
OKLAHOMA ECOLOGICAL SERVICES FIELD OFFICE
9014 EAST 21ST STREET
TULSA, OK 74129
PHONE: (918)581-7458 FAX: (918)581-7467
URL: www.fws.gov/southwest/es/Oklahoma/

Consultation Tracking Number: 02EKOK00-2012-SLI-1106 July 30, 2012
Project Name: Johnstons Port 33 Proposed Dredging

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

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A Biological Assessment is required for construction projects (or other undertakings having

similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

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If your species list does not contain the American burying beetle and your projects falls within Marshall, Love, Carter, Murray, Garvin, McClain, Cleveland or Adair counties, the Service reccomends that you consider the American burying beetle in your project planning process. There is evidence to suggest (Crawford and Hoagland 2010), that the American burying beetle may occur in these counties.

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United States Department of Interior
Fish and Wildlife Service

Project name: Johnstons Port 33 Proposed Dredging

Official Species List

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http://www.fws.gov/southwest/es/Oklahoma/

Consultation Tracking Number: 02EKOK00-2012-SLI-1106
Project Type: Dredge / Excavation
Project Description: Johnstons Port 33 proposed to dredge Cutoff 18-6 lease for additional fleeting space at river mile 432.6 in Section 28, T20 North, Range 16 East.

Project Location Map:

Project Coordinates: MULTIPOLYGON (((-95.6187648 36.1779764, -95.6174559 36.1782543, -95.6163615 36.1787384, -95.6156964 36.1792598, -95.6151599 36.1800374, -95.6147951 36.1811295, -95.6145591 36.1820301, -95.6143016 36.1819608, -95.61472 36.1803076, -95.6153959 36.1790675, -95.6168551 36.1782543, -95.6177348 36.1778551, -95.6188292 36.1774741, -95.6187648 36.1779764)))

Project Counties: Rogers, OK

Endangered Species Act Species List

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American Burying beetle *(Nicrophorus americanus)*

Listing Status: Endangered

Arkansas darter *(Etheostoma cragini)*

Listing Status: Candidate

Least tern *(Sterna antillarum)*

Population: interior pop.

Listing Status: Endangered

Condition(s):

- Wind Turbines and Wind Farms
- Towers (i.e. radio, television, cellular, microwave, meterological)

Neosho Mucket *(Lampsilis rafinesqueana)*

Listing Status: Candidate

Piping Plover *(Charadrius melodus)*

Population: except Great Lakes watershed

Listing Status: Threatened

rabbitsfoot *(Quadrula cylindrica ssp. cylindrica)*

Listing Status: Candidate

Whooping crane *(Grus americana)*

Population: except where EXPN

Listing Status: Endangered

United States Department of the Interior

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URL: www.fws.gov/southwest/es/Oklahoma/

Consultation Tracking Number: 02EKOK00-2012-SLI-1107 July 30, 2012
Project Name: Johnstons Port 33 Proposed Dredging

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.

To Whom It May Concern:

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http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

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Attachment

United States Department of Interior
Fish and Wildlife Service

Project name: Johnstons Port 33 Proposed Dredging

Official Species List

Provided by:

OKLAHOMA ECOLOGICAL SERVICES FIELD OFFICE
9014 EAST 21ST STREET
TULSA, OK 74129
(918) 581-7458
http://www.fws.gov/southwest/es/Oklahoma/

Consultation Tracking Number: 02EKOK00-2012-SLI-1107
Project Type: Dredge / Excavation
Project Description: Johnstons Port 33 proposes to construct a dredge spoil pond on the island to the immediate west of Cutoff 18-6 lease location.

Project Location Map:

Project Coordinates: MULTIPOLYGON (((-95.6181161 36.1784048, -95.6173222 36.1843108, -95.614919 36.1838605, -95.6148149 36.1826308, -95.6154983 36.179825, -95.6168716 36.1788205, -95.6181161 36.1784048)))

Project Counties: Rogers, OK

Endangered Species Act Species List

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American Burying beetle *(Nicrophorus americanus)*

Listing Status: Endangered

Arkansas darter *(Etheostoma cragini)*

Listing Status: Candidate

Least tern *(Sterna antillarum)*

Population: interior pop.

Listing Status: Endangered

Condition(s):

- Wind Turbines and Wind Farms
- Towers (i.e. radio, television, cellular, microwave, meterological)

Neosho Mucket *(Lampsilis rafinesqueana)*

Listing Status: Candidate

Piping Plover *(Charadrius melodus)*

Population: except Great Lakes watershed

Listing Status: Threatened

rabbitsfoot *(Quadrula cylindrica ssp. cylindrica)*

Listing Status: Candidate

Whooping crane *(Grus americana)*

Population: except where EXPN

Listing Status: Endangered

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PHONE: (918)581-7458 FAX: (918)581-7467
URL: www.fws.gov/southwest/es/Oklahoma/

Consultation Tracking Number: 02EKOK00-2012-SLI-1105 July 30, 2012
Project Name: Johnstons Port 33 Proposed Dredging

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.

To Whom It May Concern:

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United States Department of Interior
Fish and Wildlife Service

Project name: Johnstons Port 33 Proposed Dredging

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(918) 581-7458
http://www.fws.gov/southwest/es/Oklahoma/

Consultation Tracking Number: 02EKOK00-2012-SLI-1105
Project Type: Dredge / Excavation
Project Description: Johnstons Port 33 proposes to dredge Cutoff 18-9 ar river mile 435.8 on the right descending bank for additional fleeting space in Sections 9, 15, and 16, T20 North, Range 16 East.

Project Location Map:

Project Coordinates: MULTIPOLYGON (((-95.5986772 36.2195171, -95.6010376 36.2196383, -95.6029269 36.2201576, -95.60387 36.2210751, -95.6046425 36.222131, -95.60518 36.2231861, -95.6047508 36.2233947, -95.6041929 36.2222868, -95.6035063 36.2212136, -95.6023046 36.2204519, -95.6010601 36.2202095, -95.5987212 36.2200191, -95.5986772 36.2195171)))

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Listing Status: Candidate

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Listing Status: Endangered

Condition(s):

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URL: www.fws.gov/southwest/es/Oklahoma/

Consultation Tracking Number: 02EKOK00-2012-SLI-1108 July 30, 2012
Project Name: Johnstons Port 33 Dredging

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.

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United States Department of Interior
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Project name: Johnstons Port 33 Dredging

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Consultation Tracking Number: 02EKOK00-2012-SLI-1108
Project Type: Dredge / Excavation
Project Description: A dredge pond is proposed to be constructed south of the proposed location of dredging of Cutoff 18-9.

Project Location Map:

Project Coordinates: MULTIPOLYGON (((-95.5995542 36.2124625, -95.6008417 36.212601, -95.6000692 36.2189355, -95.5987817 36.2188299, -95.5988246 36.2156099, -95.5995542 36.2124625)))

Project Counties: Rogers, OK

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Population: except Great Lakes watershed

Listing Status: Threatened

rabbitsfoot *(Quadrula cylindrica ssp. cylindrica)*

Listing Status: Candidate

Whooping crane *(Grus americana)*

Population: except where EXPN

Listing Status: Endangered

Species Conclusions Table

Project Name: Johnston's Port Proposed 18-9 and 18-6 Cutoff Dredging and Spoil Pond Construction

Date: November 8, 2012

Species / Resource Name	Conclusion	ESA Section 7	Notes / Documentation
Arkansas Darter	No Effect	Not Required	No habitat present
Least Tern	No Effect	Not Required	No habitat present
Piping Plover	No Effect	Not Required	No habitat present
Whooping Crane	No Effect	Not Required	No habitat present
Neosho Mucket Mussel	No Effect	Not Required	No habitat present
Rabbitsfoot Mussel	No Effect	Not Required	No habitat present
American Burying Beetle	No Effect	Not Required	No habitat Present

Remember to save a copy of this form once you have filled it out. This table is part of your project review package.

APPENDIX B

AMERICAN BURYING BEETLE SURVEY REPORT

AMERICAN BURYING BEETLE SURVEY

Proposed Cutoffs 18-6 and 18-9 Dredge Disposal Ponds
Rogers County, Oklahoma

Prepared for:

Johnston's Port 33, Inc.

Prepared by:

Eagle Environmental Consulting, Inc.

P.O. Box 335
Vinita, Oklahoma 74301
Ph: 918-272-7656
Fax: 918-256-6131

P.O. Box 5446
Fort Smith, Arkansas 72913
Ph: 918-697-3936
Fax: 479-646-9406

September 2013

AMERICAN BURYING BEETLE SURVEY

Proposed Cutoffs 18-6 and 18-9 Dredge Disposal Ponds
Rogers County, Oklahoma

Prepared for:

Johnston's Port 33, Inc.

Prepared by:

Eagle Environmental Consulting, Inc.

P.O. Box 335
Vinita, Oklahoma 74301
Ph: 918-272-7656
Fax: 918-256-6131

P.O. Box 5446
Fort Smith, Arkansas 72913
Ph: 918-697-3936
Fax: 479-646-9406

September 2013

Steven R. Votaw
President

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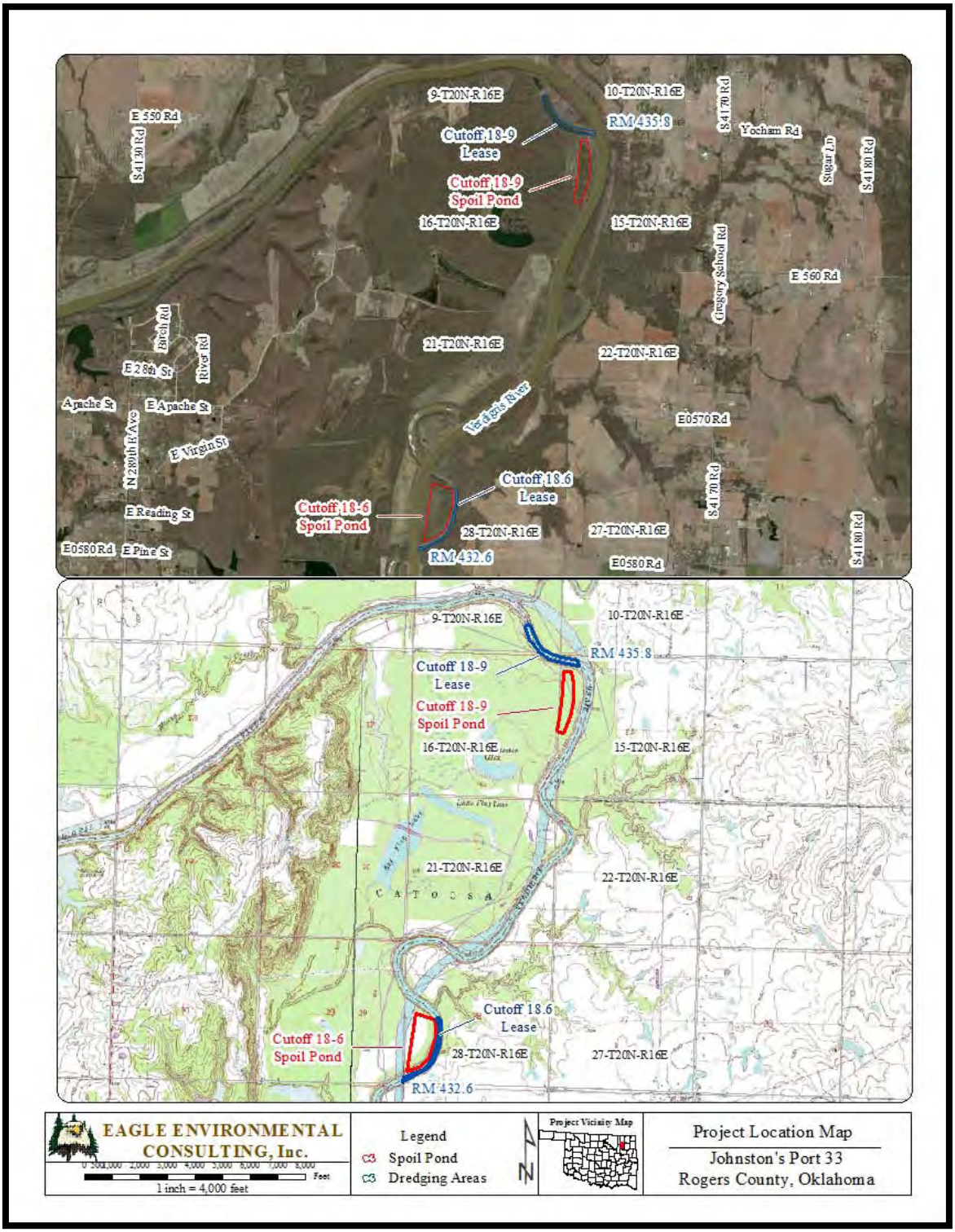
Rogers County, Oklahoma

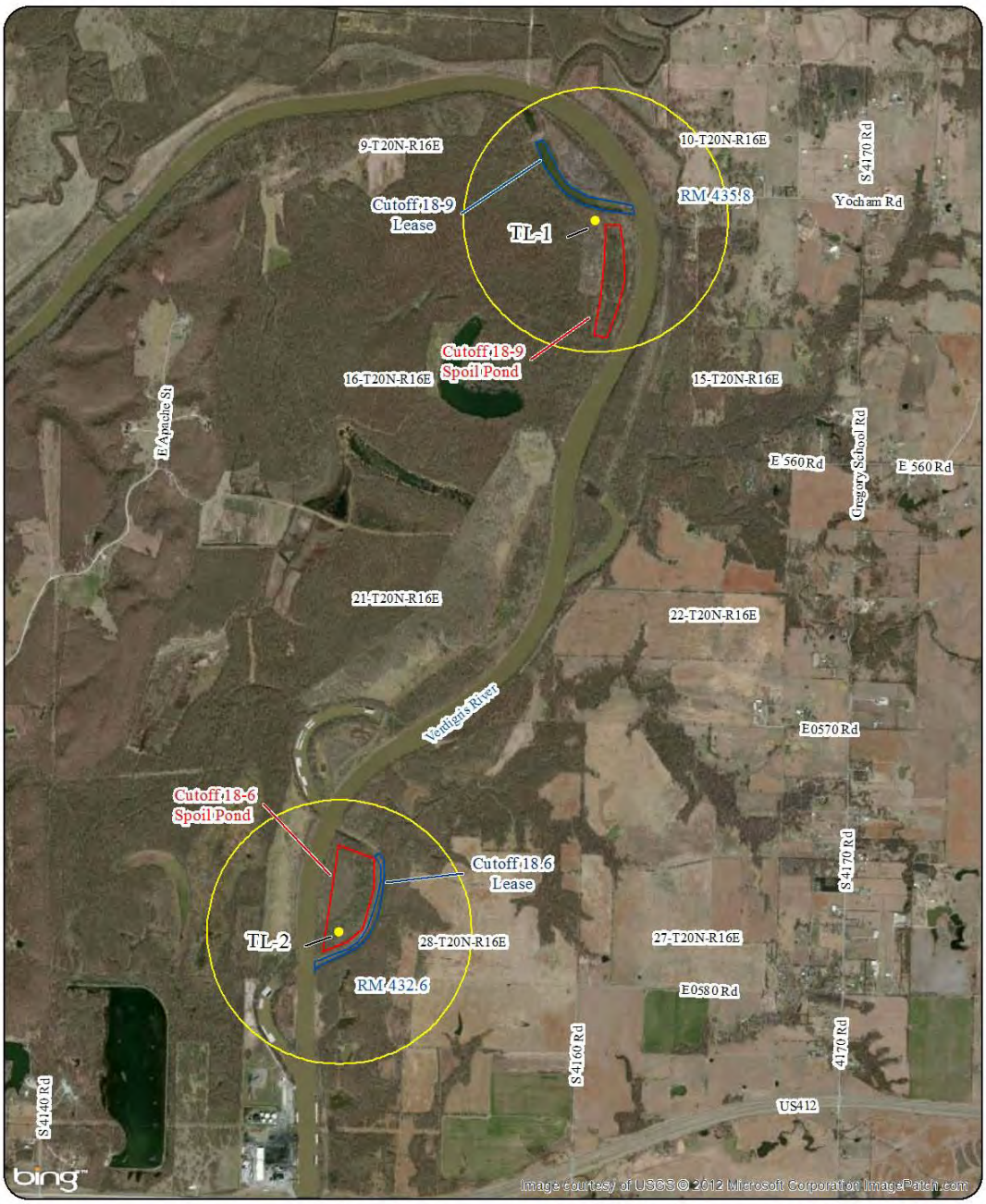
I. Introduction

The subject survey effort was conducted to identify the presence or absence of American Burying Beetles (*Nicrophorus americanus*) (ABB) associated with the proposed construction of proposed Oxbows 18-6 and 18-9 Lease and Dredge Disposal Ponds needed for additional fleeting capacity along the McClellan-Kerr Arkansas River Navigation System in Rogers County, Oklahoma. Trap Line 1 is located in Section 15, Township 20 North, Range 16 East and Trap Line 2 is in Section 28, Township 20 N, Range 16 East on the Inola 7.5 minute USGS topographic map (Figure 1). Trapping began the night of September 5, 2013 and continued until September 8, 2013 during which no ABB's were captured. Two trap locations were deployed and maintained for 3 nights. The trap locations are shown on ***Figure 2.*** The ABB has been a federally listed endangered species since 1989 and is also recognized as endangered at the State level. Based on the potential for impact to individuals of ABB, these surveys were performed in compliance with the Endangered Species Act of 1973 (16 U.S.C. 1539, et seq.) and the U.S. Fish and Wildlife Service Regulations (50 C.F.R. 17.22) under Endangered Species permit number TE043399-0.

II. General Site Description

The general habitat associated with the proposed construction of the Cutoff 18-9 Spoil Pond consisted of a mixture of woody and herbaceous species and included pecan (*Carya illnoinensis*), hackberry (*Celtis occidentalis*), hickory (*Carya sp.),* Kentucky coffee (*Gymnocladus dioicus*), honey locust (*Gledtisia triacanthos*), deciduous holly (*Ilex decidua),* Indian sea oats (*Chasmanthium latifolium*), fescue (*Festuca arundincea*), wood nettle, Sercecia (S*erecia lespedeza),* little bluestem (*Schizachyrium scoparium*) and horse nettle (*Solanum carolinense*). The general habitat associated with the proposed construction of the Cutoff 18-6 Spoil Pond consisted of a floodplain forestland and included green ash (*Fraxinus pennsylvanica*), box elder (*Acer negundo*), sycamore (*Platanus occidentalis*), hackberry (*Celtis occidentalis*), American elm (*Ulmus americana*), black walnut (*Juglans nigra*), grape (*Vitis sp*.), greenbrier (*Smilax bona-nox*.), coralberry (*Symphoricarpos orbiculatus*), and deciduous holly.


9-T20N-R16E
10-T20N-R16E
RM 435.8
Cutoff 18-9 Lease
Cutoff 18-9 Spoil Pond
16-T20N-R16E
15-T20N-R16E
21-T20N-R16E
22-T20N-R16E
Cutoff 18-6 Lease
Cutoff 18-6 Spoil Pond
28-T20N-R16E
27-T20N-R16E
RM 432.6
E 550 Rd
S4130 Rd
S4170 Rd
Yocham Rd
Sugar Ln
S4180 Rd
Gregory School Rd
E 560 Rd
Birch Rd
River Rd
E 260 St
Apache St
E Apache St
N 280th E Ave
E Virgin St
Verdigris River
E0570Rd
E Reading St
E0580Rd
E Pine St
EAGLE ENVIRONMENTAL CONSULTING, Inc.
1 inch = 4,000 feet
Legend
Spoil Pond
Dredging Areas
Project Vicinity Map
Project Location Map
Johnston's Port 33
Rogers County, Oklahoma


9-T20N-R16E
10-T20N-R16E
S 4170 Rd
Cutoff 18-9 Lease
TL-1
RM 435.8
Yocham Rd
Cutoff 18-9 Spoil Pond
16-T20N-R16E
15-T20N-R16E
E Apache St
E 560 Rd
Gregory School Rd
E 560 Rd
21-T20N-R16E
22-T20N-R16E
Verdigris River
E0570 Rd
Cutoff 18-6 Spoil Pond
Cutoff 18-6 Lease
S 4170 Rd
TL-2
28-T20N-R16E
27-T20N-R16E
RM 432.6
E0580 Rd
S 4160 Rd
4170 Rd
S 4140 Rd
US412
bing
Image courtesy of USGS © 2012 Microsoft Corporation ImageSatch.com
EAGLE ENVIRONMENTAL CONSULTING, Inc.
0 500 1,000 2,000 3,000 4,000 5,000 Feet
1 inch = 2,500 feet
Legend
ABB Trap
ABB Trap Buffer
Spoil Pond
Dredging Areas
Project Vicinity Map
Figure 2
ABB Trap Location Map
Johnston's Port 33
Rogers County, Oklahoma

III. Sampling Methodology

The ABB is large (1-1.5 inches) and has a shiny black appearance with four orange-red spots on the wing covers (elytra).A large red spot on the pronotum of the beetle is indicative of the species. The habitat requirements for this beetle are not fully known; however, the ABB is considered a habitat generalist and is known to occupy a diverse range of habitats. Habitats associated with the ABB include open grasslands, forests, as well as transitional areas. The beetle is a carrion feeder and utilizes small vertebrate carcasses for food and reproductive purposes. The ABB occurs in a variety of habitat types and will exploit virtually any possibilities where suitable forage and soil conditions may be found.

Two transects were selected to ensure appropriate survey coverage of the anticipated areas of disturbance. The trapping method for the ABB survey was performed according to the *American Burying Beetle Rangewide Survey Guidance* dated April 20, 2012 and updated April 2013. Two transects were used and included one five gallon bucket pitfall trap with a diameter of 11.2 inches. Bait consisted of a whole extra large rat carcass with hair intact and placed on 3 to 4 inches of soil.

According to the U.S. Fish and Wildlife Service a minimum of 3 successive trap-nights are required to establish a sampling effort. Temperatures cannot fall below 60°F and wind speed cannot exceed 10 miles per hour for greater than 20% of the trap night between 9 pm and 4 am. Failure to meet such specified trapping effort criteria would result in an additional trap night or trap nights. Meteorological data for this ABB survey effort was obtained from Weather Underground.

IV. Survey Findings

No American Burying Beetles were captured during the survey effort. Twenty four *N. pustulatus* and eleven *N. marginatus* and several species of crickets (*Gryllidae*), arachnids, isopods, arthropods and various other insects were collected. Atmospheric conditions during the ABB survey were fair with normal temperatures and wind velocities ranging from calm to moderate (0 to less than 10 mph). Nighttime low temperatures ranged between 64 and 71 degrees while daytime highs ranged between 77 and 78 (°F). The field survey data forms and survey summary sheet are found in ***Appendix A***. Meteorological data is provided in ***Appendix B.*** A representative photograph of the trap location is provided in ***Appendix C***.

V. Conclusion

The subject survey was performed in an effort to identify the presence of American Burying Beetles at or near the proposed construction area. Two transects were deployed near the proposed construction area to ensure adequate coverage and maintained for 3 trap nights. No American Burying Beetles were captured. Twenty four (24) *N. pustulatus* and eleven (11) *N. marginatus* and several species of crickets (*Gryllidae*), arachnids, isopods, arthropods and various other insects were collected which indicates trapping efforts and techniques were adequate and functional. Meteorological conditions during the survey were favorable for ABB activity.

VI. References

United States Department of Agriculture. Natural Resources Conservation Service, Soil Survey Staff. Web Soil Survey for Rogers County, OK. Available online at http://websoilsurvey.nrcs.usda.gov/. Accessed September 9, 2013.

USGS. 7.5-Minute Topographic Map

United States Fish and Wildlife Service. 2013. American Burying Beetle Nicrophorus americanus Rangewide Survey Guidance. 8 pages.

http://www.wunderground.com

Woods, et al 2004. Oklahoma (color poster with map, Ecoregions of descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey (map scale1:1,000,000).

Appendix A

Survey Data Forms

Appendix A. **AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM**

Project Name: Oxbow 18-9 Project Type: AREA (linear / area) Project Description: DISPOSAL POND COAST.

Time Checked[1]: 810 Date Checked[1]: 9/4/13 (M/D/Y) Transect #: TL1 Survey Night: 1

Survey Company: EEC Permittee: VOTAW (Spell out) Action Agency/Proponent: JOHNSTON'S PORT 33

State: OK County: ROGERS Legal Description[2]: 15/20N/16E (Sec Township Range) General Location: INOLA (nearest town, city, landmark)

Decimal Degrees[2]: 36.2192 / -95.6034 (NAD 83) Type of transect: 5 GAL (5-gallon, 1-gallon, pitfall traps)

Vegetation Type: WOODLAND (Prairie, woodland, forest, pasture)

Primary Soil Type: BARBE SI CL (Refer to County Soil Survey) Soil Moisture[4]: 2.9299

Temp[3]: Min 64.4 Max 77 °F Rain > 0.5 in.?[5] N (Yes/No) Wind >10 mph?[6] N (Yes/No)

Additional number of survey night(s) required because of wind, temperature, or rain?[7] N

Trap No.	Disturbed (Y/N)	*americanus*	*orbicollis*	*tomentosus*	*pustulatus*	*marginatus*	*carolinus*	*sayi*	*Other carrion beetles*
1.	N	0	0	0	3	4	0	0	
2.									
3.									
4.									
5.									
6.									
7.									
8.									
Totals									

Number of disturbed traps and/or bait (D): 0

Additional survey night(s) required because of disturbance?[8] : N (Yes/No)

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old[9]	New[9]	Age Unknown[9]	Recapture[10]	Newly Marked[11]	Tag #	Death	Pronotum Width
1										
2										
3										
4										
5										
6										

Comments: _____

1. Date and time refer to when trap is checked;
2. Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83
3. Max/Min temp from 9 pm to 4 am prior to checking traps, must use data from www.wunderground.com
4. Soil moisture must be obtained by obtaining the TR-05 report from http://www.mesonet.org/index.php/weather/daily_data_retrieval
5. Rain from 9 pm to 4 am prior to checking traps, must use data from www.wunderground.com
6. Wind exceeds 10 mph > than 20% of time between 9 pm to 4 am
7. Additional trapping required if > 0.5 in. of rainfall occurs between 9 pm and 4 am on the night of survey, must use data from www.wunderground.com
8. Determine total number of disturbed traps over all 3 survey nights. Any disturbance to 5-gallon traps requires an additional night of survey effort. When using (5) 1-gallon traps, an additional survey night are required for every 2-3 disturbed traps. When using (8) pitfall cups per transect, and additional night of survey effort is required for every 4-8 traps disturbed.
9. OLD=breeding adult; NEW=newly enclosed adult; UNK=age cannot be determined.
10. Recaptures refer to color and number of bee tag on beetles that have been previously marked.
11. Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old]).

Updated 4-29-2013

Appendix A. **AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM**

Project Name: Oxbow 18-9 Project Type: AREA (linear / area) Project Description: DISPOSAL POND CONST.

Time Checked[1]: 815 Date Checked[1]: 9/7/13 (M/D/Y) Transect #: TL-1 Survey Night: 2

Survey Company: EEC Permittee: V OTAW (Spell out) Action Agency/Proponent: JOHNSTON'S POWER 33

State: OK County: ROGERS Legal Description[2]: 15/20N/16E (Sec Township Range) General Location: INOLA (nearest town, city, landmark)

Decimal Degrees[2]: 36.2192 / -95.6034 (NAD 83) Type of transect: 5 GAL (5-gallon, 1-gallon, pitfall traps)

Vegetation Type: WOODLAND (Prairie, woodland, forest, pasture)

Primary Soil Type: PARGE SE CL (Refer to County Soil Survey) Soil Moisture[4]: 3,0027

Temp[3]: Min 69.8 Max 86 °F Rain > 0.5 in.?[5] N (Yes/No) Wind >10 mph?[6] N (Yes/No)

Additional number of survey night(s) required because of wind, temperature, or rain?[7] N

Trap No.	Disturbed (Y/N)	*americanus*	*orbicollis*	*tomentosus*	*pustulatus*	*marginatus*	*carolinus*	*sayi*	*Other carrion beetles*
1.	N	0	0	0	7	3	0	0	
2.									
3.									
4.									
5.									
6.									
7.									
8.									
Totals									

Number of disturbed traps and/or bait (D): 0

Additional survey night(s) required because of disturbance?[8] : N (Yes/No)

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old[9]	New[9]	Age Unknown[9]	Recapture[10]	Newly Marked[11]	Tag #	Death	Pronotum Width
1										
2										
3										
4										
5										
6										

Comments: _____

1. Date and time refer to when trap is checked:
2. Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees. NAD 83
3. Max/Min temp from 9 pm to 4 am prior to checking traps, must use data from www.wunderground.com
4. Soil moisture must be obtained by obtaining the TR-05 report from http://www.mesonet.org/index.php/weather/daily_data_retrieval
5. Rain from 9 pm to 4 am prior to checking traps, must use data from www.wunderground.com
6. Wind exceeds 10 mph > than 20% of time between 9 pm to 4 am
7. Additional trapping required if > 0.5 in. of rainfall occurs between 9 pm and 4 am on the night of survey, must use data from www.wunderground.com
8. Determine total number of disturbed traps over all 3 survey nights. Any disturbance to 5-gallon traps requires an additional night of survey effort. When using (5) 1-gallon traps, an additional survey night are required for every 2-3 disturbed traps. When using (8) pitfall cups per transect, and additional night of survey effort is required for every 4-8 traps disturbed.
9. OLD=breeding adult; NEW=newly enclosed adult; UNK=age cannot be determined.
10. Recaptures refer to color and number of bee tag on beetles that have been previously marked.
11. Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old]).

Updated 4-29-2013

Appendix A. **AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM**

Project Name: Oxbow 18-9 Project Type: Area (linear / area) Project Description: Disposal Pond Closst.

Time Checked[1]: 800 Date Checked[1]: 9/8/13 (M/D/Y) Transect #: TL-1 Survey Night: 3

Survey Company: EEC Permittee: V Otaw (Spell out) Action Agency/Proponent: Johnston's Point 33

State: OK County: Rogers Legal Description[2]: 15/20N/14E (Sec Township Range) General Location: Inola (nearest town, city, landmark)

Decimal Degrees[2]: 36.2192 / -95.6034 (NAD 83) Type of transect: 5 6AL (5-gallon, 1-gallon, pitfall traps)

Vegetation Type: Woodland (Prairie, woodland, forest, pasture)

Primary Soil Type: Barbe Sic Cl (Refer to County Soil Survey) Soil Moisture[4]: 3,0572

Temp[3]: Min 71.6 Max 77 °F Rain > 0.5 in.?[5] N (Yes/No) Wind >10 mph?[6] N (Yes/No)

Additional number of survey night(s) required because of wind, temperature, or rain?[7] N

Trap No.	Disturbed (Y/N)	*americanus*	*orbicollis*	*tomentosus*	*pustulatus*	*marginatus*	*carolinus*	*sayi*	*Other carrion beetles*
1.	N	0	0	0	6	1	0	0	
2.									
3.									
4.									
5.									
6.									
7.									
8.									
Totals									

Number of disturbed traps and/or bait (D): 0

Additional survey night(s) required because of disturbance?[8]: N (Yes/No)

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old[9]	New[9]	Age Unknown[9]	Recapture[10]	Newly Marked[11]	Tag #	Death	Pronotum Width
1										
2										
3										
4										
5										
6										

Comments: _____

1. Date and time refer to when trap is checked;
2. Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83
3. Max/Min temp from 9 pm to 4 am prior to checking traps, must use data from www.wunderground.com
4. Soil moisture must be obtained by obtaining the TR-05 report from http://www.mesonet.org/index.php/weather/daily_data_retrieval
5. Rain from 9 pm to 4 am prior to checking traps, must use data from www.wunderground.com
6. Wind exceeds 10 mph > than 20% of time between 9 pm to 4 am
7. Additional trapping required if > 0.5 in. of rainfall occurs between 9 pm and 4 am on the night of survey, must use data from www.wund.rground.com
8. Determine total number of disturbed traps over all 3 survey nights. Any disturbance to 5-gallon traps requires an additional night of survey effort. When using (5) 1-gallon traps, an additional survey night are required for every 2-3 disturbed traps. When using (8) pitfall cups per transect, and additional night of survey effort is required for every 4-8 traps disturbed.
9. OLD=breeding adult; NEW=newly enclosed adult; UNK=age cannot be determined.
10. Recaptures refer to color and number of bee tag on beetles that have been previously marked.
11. Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old]).

Updated 4-29-2013

Appendix A. **AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM**

Oxbow 18-6

Project Name: _____ Project Type: AREA (linear / area) Project Description: DISPOSAL POND CONST

Time Checked[1]: 850 Date Checked[1]: 9/6/13 (M/D/Y) Transect #: TL-2 Survey Night: 1

Survey Company: EEC Permittee: V OTAW (Spell out) Action Agency/Proponent: JOHNSTON'S PORT 33

State: OK County: ROGERS Legal Description[2]: 28/20N/16E (Sec Township Range) General Location: INOLA (nearest town, city, landmark)

Decimal Degrees[2]: 36.1789 / -95.4178 (NAD 83) Type of transect: 5 BAL (5-gallon, 1-gallon, pitfall traps)

Vegetation Type: WOODLAND (Prairie, woodland, forest, pasture)

Primary Soil Type: VERDIGRIS SICL (Refer to County Soil Survey) Soil Moisture[4]: 2.9299

Temp[3]: Min 64.4 Max 77 °F Rain > 0.5 in.?[5] N (Yes/No) Wind >10 mph?[6] N (Yes/No)

Additional number of survey night(s) required because of wind, temperature, or rain?[7] N

Trap No.	Disturbed (Y/N)	*americanus*	*orbicollis*	*tomentosus*	*pustulatus*	*marginatus*	*carolinus*	*sayi*	*Other carrion beetles*
1.	N	0	0	0	0	0	0	0	
2.									
3.									
4.									
5.									
6.									
7.									
8.									
Totals									

Number of disturbed traps and/or bait (D): 0

Additional survey night(s) required because of disturbance?[8] : N (Yes/No)

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old[9]	New[9]	Age Unknown[9]	Recapture[10]	Newly Marked[11]	Tag #	Death	Pronotum Width
1										
2										
3										
4										
5										
6										

Comments: _____

1. Date and time refer to when trap is checked;
2. Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83
3. Max/Min temp from 9 pm to 4 am prior to checking traps, must use data from www.wunderground.com
4. Soil moisture must be obtained by obtaining the TR-05 report from http://www.mesonet.org/index.php/weather/daily_data_retrieval.
5. Rain from 9 pm to 4 am prior to checking traps, must use data from www.wunderground.com
6. Wind exceeds 10 mph > than 20% of time between 9 pm to 4 am
7. Additional trapping required if > 0.5 in. of rainfall occurs between 9 pm and 4 am on the night of survey, must use data from www.wunderground.com
8. Determine total number of disturbed traps over all 3 survey nights. Any disturbance to 5-gallon traps requires an additional night of survey effort. When using (5) 1-gallon traps, an additional survey night are required for every 2-3 disturbed traps. When using (8) pitfall cups per transect, and additional night of survey effort is required for every 4-8 traps disturbed.
9. OLD=breeding adult; NEW=newly enclosed adult; UNK=age cannot be determined.
10. Recaptures refer to color and number of bee tag on beetles that have been previously marked.
11. Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old]).

Updated 4-29-2013

Appendix A. AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM

Project Name: Oxbow 18-6 Project Type: AREA (linear / area) Project Description: DISPOSAL POND CONST

Time Checked[1]: 845 Date Checked[1]: 9/7/13 (M/D/Y) Transect #: TL-2 Survey Night: 2

Survey Company: EEC Permittee: V OTAW (Spell out) Action Agency/Proponent: JOHNSTON'S PORT 33

State: OK County: ROGERS Legal Description[2]: 28/20N/16E (See Township Range) General Location: INOLA (nearest town, city, landmark)

Decimal Degrees[2]: 36.1789 / -95.6178 (NAD 83) Type of transect: 5 GAL (5-gallon, 1-gallon, pitfall traps)

Vegetation Type: WOODLAND (Prairie, woodland, forest, pasture)

Primary Soil Type: VERDIGRIS SICL (Refer to County Soil Survey) Soil Moisture[4]: 3,0027

Temp[3]: Min 69.8 Max 84 °F Rain > 0.5 in.?[5] N (Yes/No) Wind >10 mph?[6] N (Yes/No)

Additional number of survey night(s) required because of wind, temperature, or rain?[7] N

Trap No.	Disturbed (Y/N)	*americanus*	*orbicollis*	*tomentosus*	*pustulatus*	*marginatus*	*carolinus*	*sayi*	*Other carrion beetles*
1.	N	0	0	0	3	0	0	0	
2.									
3.									
4.									
5.									
6.									
7.									
8.									
Totals									

Number of disturbed traps and/or bait (D): 0

Additional survey night(s) required because of disturbance?[8] : N (Yes/No)

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old[9]	New[9]	Age Unknown[9]	Recapture[10]	Newly Marked[11]	Tag #	Death	Pronotum Width
1										
2										
3										
4										
5										
6										

Comments: _____

1. Date and time refer to when trap is checked;
2. Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees, NAD 83
3. Max/Min temp from 9 pm to 4 am prior to checking traps, must use data from www.wunderground.com
4. Soil moisture must be obtained by obtaining the TR-05 report from http://www.mesonet.org/index.php/weather/daily_data_retrieval
5. Rain from 9 pm to 4 am prior to checking traps, must use data from www.wunderground.com
6. Wind exceeds 10 mph > than 20% of time between 9 pm to 4 am
7. Additional trapping required if > 0.5 in. of rainfall occurs between 9 pm and 4 am on the night of survey, must use data from www.wunderground.com
8. Determine total number of disturbed traps over all 3 survey nights. Any disturbance to 5-gallon traps requires an additional night of survey effort. When using (5) 1-gallon traps, an additional survey night are required for every 2-3 disturbed traps. When using (8) pitfall cups per transect, and additional night of survey effort is required for every 4-8 traps disturbed.
9. OLD=breeding adult; NEW=newly enclosed adult; UNK=age cannot be determined.
10. Recaptures refer to color and number of bee tag on beetles that have been previously marked.
11. Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old]).

pdated 4-29-2013

Appendix A. **AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM**

Oxbow 18-6

Project Name: Project Type: AREA (linear / area) Project Description: DISPOSAL POND CONST

Time Checked[1]: 850 Date Checked[1]: 9/8/13 (M/D/Y) Transect #: TL-2 Survey Night: 3

Survey Company: EEC Permittee: V OTAW (Spell out) Action Agency/Proponent: JOHNSTON'S PORT 33

State: OK County: ROGERS Legal Description[2]: 28/20N/16E (See Township Range) General Location: INOLA (nearest town, city, landmark)

Decimal Degrees[2]: 36.1789 / -95.6178 (NAD 83) Type of transect: 5 GAL (5-gallon, 1-gallon, pitfall traps)

Vegetation Type: WOODLAND (Prairie, woodland, forest, pasture)

Primary Soil Type: VERDIGRIS SICL (Refer to County Soil Survey) Soil Moisture[4]: 3.0572

Temp[3]: Min 71.4 Max 77 °F Rain > 0.5 in.?[5] N (Yes/No) Wind >10 mph?[6] N (Yes/No)

Additional number of survey night(s) required because of wind, temperature, or rain?[7] N

Trap No.	Disturbed (Y/N)	*americanus*	*orbicollis*	*tomentosus*	*pustulatus*	*marginatus*	*carolinus*	*sayi*	*Other carrion beetles*
1.	N	0	0	0	5	3	0	0	
2.									
3.									
4.									
5.									
6.									
7.									
8.									
Totals									

Number of disturbed traps and/or bait (D): 0

Additional survey night(s) required because of disturbance?[8]: N (Yes/No)

List each individual American burying beetle captured below and complete the appropriate columns.

ABB	Male	Female	Old[9]	New[9]	Age Unknown[9]	Recapture[10]	Newly Marked[11]	Tag #	Death	Pronotum Width
1										
2										
3										
4										
5										
6										

Comments:

. Date and time refer to when trap is checked;
. Check that legal description fits decimal degrees location. Lat/long MUST be in decimal degrees. NAD 83
. Max/Min temp from 9 pm to 4 am prior to checking traps, must use data from www.wunderground.com
. Soil moisture must be obtained by obtaining the TR-05 report from http://www.mesonet.org/index.php/weather/daily_data_retrieval
. Rain from 9 pm to 4 am prior to checking traps, must use data from www.wunderground.com
. Wind exceeds 10 mph > than 20% of time between 9 pm to 4 am
. Additional trapping required if > 0.5 in. of rainfall occurs between 9 pm and 4 am on the night of survey, must use data from www.wunderground.com
. Determine total number of disturbed traps over all 3 survey nights. Any disturbance to 5-gallon traps requires an additional night of survey effort. When using (5) 1-gallon traps, an additional survey night are required for every 2-3 disturbed traps. When using (8) pitfall cups per transect, and additional night of survey effort is required for every 4-8 traps disturbed.
. OLD=breeding adult; NEW=newly enclosed adult; UNK=age cannot be determined.
0. Recaptures refer to color and number of bee tag on beetles that have been previously marked.
1. Newly marked males and females refers to color, number of bee tag, and age of beetle (e.g. R54[old]).

pdated 4-29-2013

Appendix B

Weather Data

Weather History for Claremore, OK

Thursday, September 5, 2013

Thursday, September 5, 2013

« Previous Day | September 5 2013 View | Next Day »

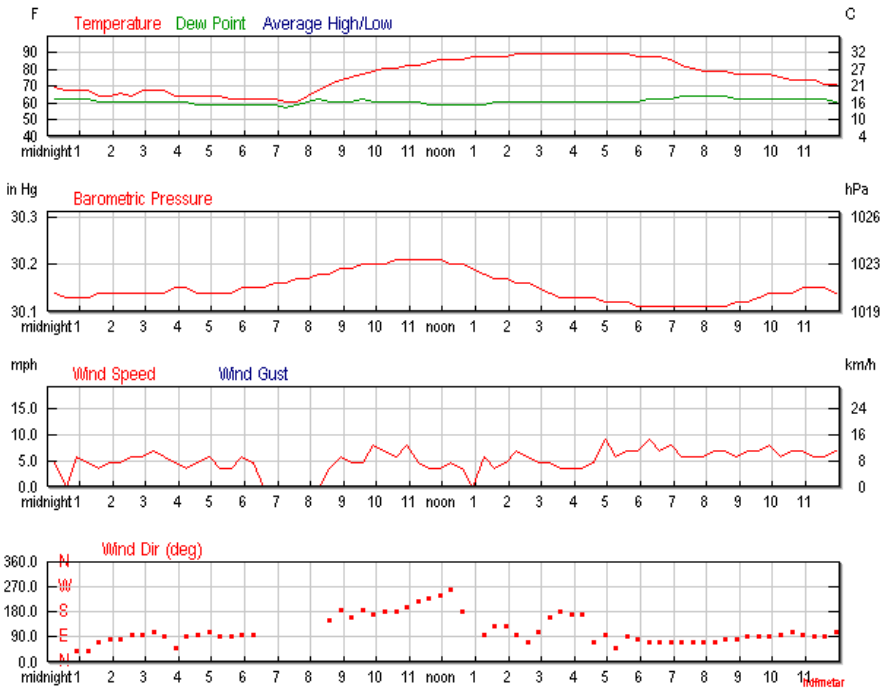
Daily | Weekly | Monthly | Custom

	Actual	Average (KTUL)	Record (KTUL)
Temperature			
Mean Temperature	**74** °F	**77** °F	
Max Temperature	**89** °F	**88** °F	**107** °F (1913)
Min Temperature	**60** °F	**67** °F	**49** °F (1974)
Degree Days			
Heating Degree Days	0	0	
Month to date heating degree days		0	
Since 1 July heating degree days		0	
Cooling Degree Days	10	12	
Month to date cooling degree days		66	
Year to date cooling degree days		1767	
Growing Degree Days	24 (Base 50)		
Moisture			
Dew Point	**61** °F		
Average Humidity	62		
Maximum Humidity	94		
Minimum Humidity	38		
Precipitation			
Precipitation	**0.00** in	**0.13** in	**1.62** in (1926)
Month to date precipitation		0.67	
Year to date precipitation		28.15	
Sea Level Pressure			
Sea Level Pressure	**30.15** in		
Wind			
Wind Speed	**5** mph (ESE)		
Max Wind Speed	**9** mph		
Max Gust Speed	-		
Visibility	**10** miles		
Events			

Click here for data from the nearest station with official NWS data (KTUL).

T = Trace of Precipitation, **MM** = Missing Value

Source: NWS Daily Summary



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Hourly Weather History & Observations

Time (CDT)	Temp.	Heat Index	Dew Point	Humidity	Pressure	Visibility	Wind Dir	Wind Speed	Gust Speed	Precip	Events	Conditions
12:15 AM	69.8 °F	-	62.6 °F	78%	30.14 in	10.0 mi	ENE	4.6 mph	-	N/A		Clear
12:35 AM	68.0 °F	-	62.6 °F	83%	30.13 in	10.0 mi	Calm	Calm	-	N/A		Clear
12:55 AM	68.0 °F	-	62.6 °F	83%	30.13 in	10.0 mi	NE	5.8 mph	-	N/A		Clear
1:15 AM	68.0 °F	-	62.6 °F	83%	30.13 in	10.0 mi	NE	4.6 mph	-	N/A		Clear
1:35 AM	64.4 °F	-	60.8 °F	88%	30.14 in	10.0 mi	ENE	3.5 mph	-	N/A		Clear
1:55 AM	64.4 °F	-	60.8 °F	88%	30.14 in	10.0 mi	East	4.6 mph	-	N/A		Clear
2:15 AM	66.2 °F	-	60.8 °F	83%	30.14 in	10.0 mi	East	4.6 mph	-	N/A		Clear
2:35 AM	64.4 °F	-	60.8 °F	88%	30.14 in	10.0 mi	East	5.8 mph	-	N/A		Clear
2:55 AM	68.0 °F	-	60.8 °F	78%	30.14 in	10.0 mi	East	5.8 mph	-	N/A		Clear
3:15 AM	68.0 °F	-	60.8 °F	78%	30.14 in	10.0 mi	ESE	6.9 mph	-	N/A		Clear
3:35 AM	68.0 °F	-	60.8 °F	78%	30.14 in	10.0 mi	East	5.8 mph	-	N/A		Clear
3:55 AM	64.4 °F	-	60.8 °F	88%	30.15 in	10.0 mi	NE	4.6 mph	-	N/A		Clear
4:15 AM	64.4 °F	-	60.8 °F	88%	30.15 in	10.0 mi	East	3.5 mph	-	N/A		Clear
4:35 AM	64.4 °F	-	59.0 °F	83%	30.14 in	10.0 mi	East	4.6 mph	-	N/A		Clear
4:55 AM	64.4 °F	-	59.0 °F	83%	30.14 in	10.0 mi	ESE	5.8 mph	-	N/A		Clear
5:15 AM	64.4 °F	-	59.0 °F	83%	30.14 in	10.0 mi	East	3.5 mph	-	N/A		Clear

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Time (CDT)	Temp.	Heat Index	Dew Point	Humidity	Pressure	Visibility	Wind Dir	Wind Speed	Gust Speed	Precip	Events	Conditions
5:35 AM	62.6 °F	-	59.0 °F	88%	30.14 in	10.0 mi	East	3.5 mph	-	N/A		Clear
5:55 AM	62.6 °F	-	59.0 °F	88%	30.15 in	10.0 mi	East	5.8 mph	-	N/A		Clear
6:15 AM	62.6 °F	-	59.0 °F	88%	30.15 in	10.0 mi	East	4.6 mph	-	N/A		Clear
6:35 AM	62.6 °F	-	59.0 °F	88%	30.15 in	10.0 mi	Calm	Calm	-	N/A		Clear
6:55 AM	62.6 °F	-	59.0 °F	88%	30.16 in	10.0 mi	Calm	Calm	-	N/A		Clear
7:15 AM	60.8 °F	-	57.2 °F	88%	30.16 in	10.0 mi	Calm	Calm	-	N/A		Clear
7:35 AM	60.8 °F	-	59.0 °F	94%	30.17 in	10.0 mi	Calm	Calm	-	N/A		Clear
7:55 AM	64.4 °F	-	60.8 °F	88%	30.17 in	10.0 mi	Calm	Calm	-	N/A		Clear
8:15 AM	68.0 °F	-	62.6 °F	83%	30.18 in	10.0 mi	Calm	Calm	-	N/A		Clear
8:35 AM	71.6 °F	-	60.8 °F	69%	30.18 in	10.0 mi	SSE	3.5 mph	-	N/A		Clear
8:55 AM	73.4 °F	-	60.8 °F	65%	30.19 in	10.0 mi	South	5.8 mph	-	N/A		Clear
9:15 AM	75.2 °F	-	60.8 °F	61%	30.19 in	10.0 mi	SSE	4.6 mph	-	N/A		Clear
9:35 AM	77.0 °F	-	62.6 °F	61%	30.20 in	10.0 mi	South	4.6 mph	-	N/A		Clear
9:55 AM	78.8 °F	-	60.8 °F	54%	30.20 in	10.0 mi	South	8.1 mph	-	N/A		Clear
10:15 AM	80.6 °F	81.5 °F	60.8 °F	51%	30.20 in	10.0 mi	South	6.9 mph	-	N/A		Clear
10:35 AM	80.6 °F	81.5 °F	60.8 °F	51%	30.21 in	10.0 mi	South	5.8 mph	-	N/A		Clear
10:55 AM	82.4 °F	82.9 °F	60.8 °F	48%	30.21 in	10.0 mi	SSW	8.1 mph	-	N/A		Clear
11:15 AM	82.4 °F	82.9 °F	60.8 °F	48%	30.21 in	10.0 mi	SW	4.6 mph	-	N/A		Clear
11:35 AM	84.2 °F	83.8 °F	59.0 °F	42%	30.21 in	10.0 mi	SW	3.5 mph	-	N/A		Clear
11:55 AM	86.0 °F	85.4 °F	59.0 °F	40%	30.21 in	10.0 mi	WSW	3.5 mph	-	N/A		Clear
12:15 PM	86.0 °F	85.4 °F	59.0 °F	40%	30.20 in	10.0 mi	West	4.6 mph	-	N/A		Clear
12:35 PM	86.0 °F	85.4 °F	59.0 °F	40%	30.20 in	10.0 mi	South	3.5 mph	-	N/A		Clear
12:55 PM	87.8 °F	87.1 °F	59.0 °F	38%	30.19 in	10.0 mi	Calm	Calm	-	N/A		Clear
1:15 PM	87.8 °F	87.1 °F	59.0 °F	38%	30.18 in	10.0 mi	East	5.8 mph	-	N/A		Clear
1:35 PM	87.8 °F	87.6 °F	60.8 °F	40%	30.17 in	10.0 mi	SE	3.5 mph	-	N/A		Clear
1:55 PM	87.8 °F	87.6 °F	60.8 °F	40%	30.17 in	10.0 mi	SE	4.6 mph	-	N/A		Clear
2:15 PM	89.6 °F	89.5 °F	60.8 °F	38%	30.16 in	10.0 mi	East	6.9 mph	-	N/A		Clear
2:35 PM	89.6 °F	89.5 °F	60.8 °F	38%	30.16 in	10.0 mi	ENE	5.8 mph	-	N/A		Clear
2:55 PM	89.6 °F	89.5 °F	60.8 °F	38%	30.15 in	10.0 mi	ESE	4.6 mph	-	N/A		Clear
3:15 PM	89.6 °F	89.5 °F	60.8 °F	38%	30.14 in	10.0 mi	SSE	4.6 mph	-	N/A		Clear
3:35 PM	89.6 °F	89.5 °F	60.8 °F	38%	30.13 in	10.0 mi	South	3.5 mph	-	N/A		Clear
3:55 PM	89.6 °F	89.5 °F	60.8 °F	38%	30.13 in	10.0 mi	South	3.5 mph	-	N/A		Clear
4:15 PM	89.6 °F	89.5 °F	60.8 °F	38%	30.13 in	10.0 mi	South	3.5 mph	-	N/A		Clear
4:35 PM	89.6 °F	89.5 °F	60.8 °F	38%	30.13 in	10.0 mi	ENE	4.6 mph	-	N/A		Clear
4:55 PM	89.6 °F	89.5 °F	60.8 °F	38%	30.12 in	10.0 mi	East	9.2 mph	-	N/A		Clear
5:15 PM	89.6 °F	89.5 °F	60.8 °F	38%	30.12 in	10.0 mi	NE	5.8 mph	-	N/A		Clear
5:35 PM	89.6 °F	89.5 °F	60.8 °F	38%	30.12 in	10.0 mi	East	6.9 mph	-	N/A		Clear
5:55 PM	87.8 °F	87.6 °F	60.8 °F	40%	30.11 in	10.0 mi	East	6.9 mph	-	N/A		Clear
6:15 PM	87.8 °F	88.5 °F	62.6 °F	43%	30.11 in	10.0 mi	ENE	9.2 mph	-	N/A		Clear
6:35 PM	87.8 °F	88.5 °F	62.6 °F	43%	30.11 in	10.0 mi	ENE	6.9 mph	-	N/A		Clear
6:55 PM	86.0 °F	86.6 °F	62.6 °F	45%	30.11 in	10.0 mi	ENE	8.1 mph	-	N/A		Clear
7:15 PM	82.4 °F	83.9 °F	64.4 °F	54%	30.11 in	10.0 mi	ENE	5.8 mph	-	N/A		Clear
7:35 PM	80.6 °F	82.3 °F	64.4 °F	58%	30.11 in	10.0 mi	ENE	5.8 mph	-	N/A		Clear

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Time (CDT)	Temp.	Heat Index	Dew Point	Humidity	Pressure	Visibility	Wind Dir	Wind Speed	Gust Speed	Precip	Events	Conditions
7:55 PM	**78.8** °F	-	**64.4** °F	61%	**30.11** in	**10.0** mi	ENE	**5.8** mph	-	N/A		Clear
8:15 PM	**78.8** °F	-	**64.4** °F	61%	**30.11** in	**10.0** mi	ENE	**6.9** mph	-	N/A		Clear
8:35 PM	**78.8** °F	-	**64.4** °F	61%	**30.11** in	**10.0** mi	East	**6.9** mph	-	N/A		Clear
8:55 PM	**77.0** °F	-	**62.6** °F	61%	**30.12** in	**10.0** mi	East	**5.8** mph	-	N/A		Clear
9:15 PM	**77.0** °F	-	**62.6** °F	61%	**30.12** in	**10.0** mi	East	**6.9** mph	-	N/A		Clear
9:35 PM	**77.0** °F	-	**62.6** °F	61%	**30.13** in	**10.0** mi	East	**6.9** mph	-	N/A		Clear
9:55 PM	**77.0** °F	-	**62.6** °F	61%	**30.14** in	**10.0** mi	East	**8.1** mph	-	N/A		Clear
10:15 PM	**75.2** °F	-	**62.6** °F	65%	**30.14** in	**10.0** mi	East	**5.8** mph	-	N/A		Clear
10:35 PM	**73.4** °F	-	**62.6** °F	69%	**30.14** in	**10.0** mi	ESE	**6.9** mph	-	N/A		Clear
10:55 PM	**73.4** °F	-	**62.6** °F	69%	**30.15** in	**10.0** mi	East	**6.9** mph	-	N/A		Clear
11:15 PM	**73.4** °F	-	**62.6** °F	69%	**30.15** in	**10.0** mi	East	**5.8** mph	-	N/A		Clear
11:35 PM	**71.6** °F	-	**62.6** °F	73%	**30.15** in	**10.0** mi	East	**5.8** mph	-	N/A		Clear
11:55 PM	**71.6** °F	-	**60.8** °F	69%	**30.14** in	**10.0** mi	ESE	**6.9** mph	-	N/A		Clear

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Weather History for Claremore, OK

Friday, September 6, 2013

Friday, September 6, 2013

« Previous Day | September 6 2013 View | Next Day »

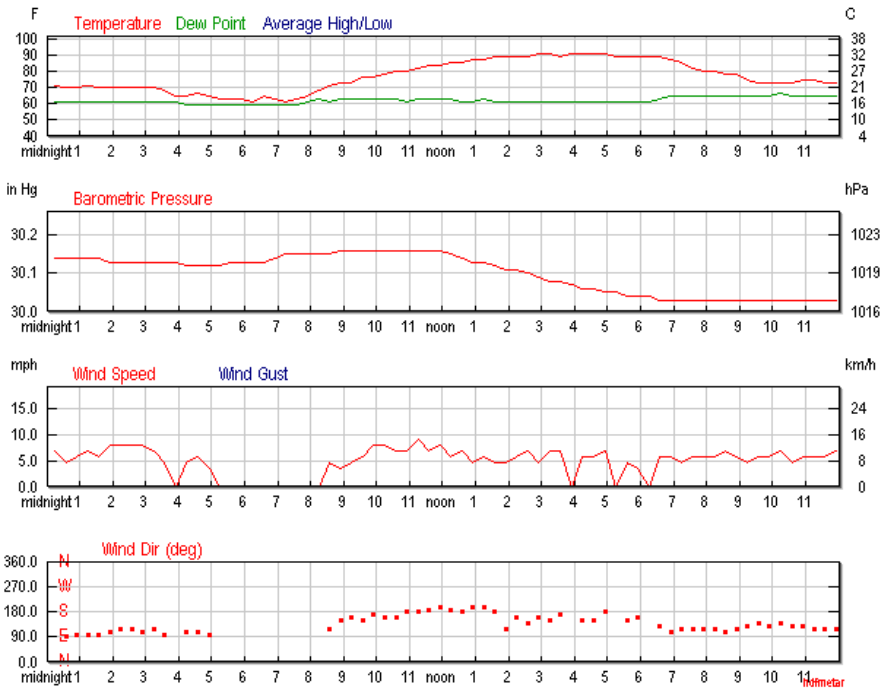
Daily | Weekly | Monthly | Custom

	Actual	Average (KTUL)	Record (KTUL)
Temperature			
Mean Temperature	**76** °F	**77** °F	
Max Temperature	**91** °F	**88** °F	**107** °F (1907)
Min Temperature	**60** °F	**66** °F	**48** °F (2011)
Degree Days			
Heating Degree Days	0	0	
Month to date heating degree days		0	
Since 1 July heating degree days		0	
Cooling Degree Days	10	12	
Month to date cooling degree days		78	
Year to date cooling degree days		1779	
Growing Degree Days	26 (Base 50)		
Moisture			
Dew Point	**62** °F		
Average Humidity	62		
Maximum Humidity	94		
Minimum Humidity	36		
Precipitation			
Precipitation	**0.00** in	**0.13** in	**4.05** in (1971)
Month to date precipitation		0.80	
Year to date precipitation		28.28	
Sea Level Pressure			
Sea Level Pressure	**30.10** in		
Wind			
Wind Speed	**5** mph (SE)		
Max Wind Speed	**9** mph		
Max Gust Speed	-		
Visibility	**10** miles		
Events			

Click here for data from the nearest station with official NWS data (KTUL).

T = Trace of Precipitation, **MM** = Missing Value

Source: NWS Daily Summary



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Hourly Weather History & Observations

Time (CDT)	Temp.	Heat Index	Dew Point	Humidity	Pressure	Visibility	Wind Dir	Wind Speed	Gust Speed	Precip	Events	Conditions
12:15 AM	**71.6** °F	-	**60.8** °F	69%	**30.14** in	**10.0** mi	East	**6.9** mph	-	N/A		Clear
12:35 AM	**69.8** °F	-	**60.8** °F	73%	**30.14** in	**10.0** mi	East	**4.6** mph	-	N/A		Clear
12:55 AM	**69.8** °F	-	**60.8** °F	73%	**30.14** in	**10.0** mi	East	**5.8** mph	-	N/A		Clear
1:15 AM	**71.6** °F	-	**60.8** °F	69%	**30.14** in	**10.0** mi	East	**6.9** mph	-	N/A		Clear
1:35 AM	**69.8** °F	-	**60.8** °F	73%	**30.14** in	**10.0** mi	East	**5.8** mph	-	N/A		Clear
1:55 AM	**69.8** °F	-	**60.8** °F	73%	**30.13** in	**10.0** mi	ESE	**8.1** mph	-	N/A		Clear
2:15 AM	**69.8** °F	-	**60.8** °F	73%	**30.13** in	**10.0** mi	ESE	**8.1** mph	-	N/A		Clear
2:35 AM	**69.8** °F	-	**60.8** °F	73%	**30.13** in	**10.0** mi	ESE	**8.1** mph	-	N/A		Clear
2:55 AM	**69.8** °F	-	**60.8** °F	73%	**30.13** in	**10.0** mi	ESE	**8.1** mph	-	N/A		Clear
3:15 AM	**69.8** °F	-	**60.8** °F	73%	**30.13** in	**10.0** mi	ESE	**6.9** mph	-	N/A		Clear
3:35 AM	**68.0** °F	-	**60.8** °F	78%	**30.13** in	**10.0** mi	East	**4.6** mph	-	N/A		Clear
3:55 AM	**64.4** °F	-	**60.8** °F	88%	**30.13** in	**10.0** mi	Calm	Calm	-	N/A		Clear
4:15 AM	**64.4** °F	-	**59.0** °F	83%	**30.12** in	**10.0** mi	ESE	**4.6** mph	-	N/A		Clear
4:35 AM	**66.2** °F	-	**59.0** °F	78%	**30.12** in	**10.0** mi	ESE	**5.8** mph	-	N/A		Clear
4:55 AM	**64.4** °F	-	**59.0** °F	83%	**30.12** in	**10.0** mi	East	**3.5** mph	-	N/A		Clear
5:15 AM	**62.6** °F	-	**59.0** °F	88%	**30.12** in	**10.0** mi	Calm	Calm	-	N/A		Clear

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Time (CDT)	Temp.	Heat Index	Dew Point	Humidity	Pressure	Visibility	Wind Dir	Wind Speed	Gust Speed	Precip	Events	Conditions
5:35 AM	62.6 °F	-	59.0 °F	88%	30.13 in	10.0 mi	Calm	Calm	-	N/A		Clear
5:55 AM	62.6 °F	-	59.0 °F	88%	30.13 in	10.0 mi	Calm	Calm	-	N/A		Clear
6:15 AM	60.8 °F	-	59.0 °F	94%	30.13 in	10.0 mi	Calm	Calm	-	N/A		Clear
6:35 AM	64.4 °F	-	59.0 °F	83%	30.13 in	10.0 mi	Calm	Calm	-	N/A		Clear
6:55 AM	62.6 °F	-	59.0 °F	88%	30.14 in	10.0 mi	Calm	Calm	-	N/A		Clear
7:15 AM	60.8 °F	-	59.0 °F	94%	30.15 in	10.0 mi	Calm	Calm	-	N/A		Clear
7:35 AM	62.6 °F	-	59.0 °F	88%	30.15 in	10.0 mi	Calm	Calm	-	N/A		Clear
7:55 AM	64.4 °F	-	60.8 °F	88%	30.15 in	10.0 mi	Calm	Calm	-	N/A		Clear
8:15 AM	68.0 °F	-	62.6 °F	83%	30.15 in	10.0 mi	Calm	Calm	-	N/A		Clear
8:35 AM	71.6 °F	-	60.8 °F	69%	30.15 in	10.0 mi	ESE	4.6 mph	-	N/A		Clear
8:55 AM	73.4 °F	-	62.6 °F	69%	30.16 in	10.0 mi	SSE	3.5 mph	-	N/A		Clear
9:15 AM	73.4 °F	-	62.6 °F	69%	30.16 in	10.0 mi	SSE	4.6 mph	-	N/A		Clear
9:35 AM	77.0 °F	-	62.6 °F	61%	30.16 in	10.0 mi	SSE	5.8 mph	-	N/A		Clear
9:55 AM	77.0 °F	-	62.6 °F	61%	30.16 in	10.0 mi	South	8.1 mph	-	N/A		Clear
10:15 AM	78.8 °F	-	62.6 °F	57%	30.16 in	10.0 mi	SSE	8.1 mph	-	N/A		Clear
10:35 AM	80.6 °F	81.8 °F	62.6 °F	54%	30.16 in	10.0 mi	SSE	6.9 mph	-	N/A		Clear
10:55 AM	80.6 °F	81.5 °F	60.8 °F	51%	30.16 in	10.0 mi	South	6.9 mph	-	N/A		Clear
11:15 AM	82.4 °F	83.4 °F	62.6 °F	51%	30.16 in	10.0 mi	South	9.2 mph	-	N/A		Clear
11:35 AM	84.2 °F	85.0 °F	62.6 °F	48%	30.16 in	10.0 mi	South	6.9 mph	-	N/A		Clear
11:55 AM	84.2 °F	85.0 °F	62.6 °F	48%	30.16 in	10.0 mi	SSW	8.1 mph	-	N/A		Clear
12:15 PM	86.0 °F	86.6 °F	62.6 °F	45%	30.15 in	10.0 mi	South	5.8 mph	-	N/A		Clear
12:35 PM	86.0 °F	86.1 °F	60.8 °F	43%	30.14 in	10.0 mi	South	6.9 mph	-	N/A		Clear
12:55 PM	87.8 °F	87.6 °F	60.8 °F	40%	30.13 in	10.0 mi	SSW	4.6 mph	-	N/A		Scattered Clouds
1:15 PM	87.8 °F	88.5 °F	62.6 °F	43%	30.13 in	10.0 mi	SSW	5.8 mph	-	N/A		Clear
1:35 PM	89.6 °F	89.5 °F	60.8 °F	38%	30.12 in	10.0 mi	South	4.6 mph	-	N/A		Clear
1:55 PM	89.6 °F	89.5 °F	60.8 °F	38%	30.11 in	10.0 mi	ESE	4.6 mph	-	N/A		Clear
2:15 PM	89.6 °F	89.5 °F	60.8 °F	38%	30.11 in	10.0 mi	SSE	5.8 mph	-	N/A		Clear
2:35 PM	89.6 °F	89.5 °F	60.8 °F	38%	30.10 in	10.0 mi	SE	6.9 mph	-	N/A		Clear
2:55 PM	91.4 °F	91.4 °F	60.8 °F	36%	30.09 in	10.0 mi	SSE	4.6 mph	-	N/A		Clear
3:15 PM	91.4 °F	91.4 °F	60.8 °F	36%	30.08 in	10.0 mi	SSE	6.9 mph	-	N/A		Clear
3:35 PM	89.6 °F	89.5 °F	60.8 °F	38%	30.08 in	10.0 mi	South	6.9 mph	-	N/A		Clear
3:55 PM	91.4 °F	91.4 °F	60.8 °F	36%	30.07 in	10.0 mi	Calm	Calm	-	N/A		Clear
4:15 PM	91.4 °F	91.4 °F	60.8 °F	36%	30.06 in	10.0 mi	SSE	5.8 mph	-	N/A		Clear
4:35 PM	91.4 °F	91.4 °F	60.8 °F	36%	30.06 in	10.0 mi	SSE	5.8 mph	-	N/A		Clear
4:55 PM	91.4 °F	91.4 °F	60.8 °F	36%	30.05 in	10.0 mi	South	6.9 mph	-	N/A		Clear
5:15 PM	89.6 °F	89.5 °F	60.8 °F	38%	30.05 in	10.0 mi	Calm	Calm	-	N/A		Clear
5:35 PM	89.6 °F	89.5 °F	60.8 °F	38%	30.04 in	10.0 mi	SSE	4.6 mph	-	N/A		Clear
5:55 PM	89.6 °F	89.5 °F	60.8 °F	38%	30.04 in	10.0 mi	SSE	3.5 mph	-	N/A		Clear
6:15 PM	89.6 °F	89.5 °F	60.8 °F	38%	30.04 in	10.0 mi	Calm	Calm	-	N/A		Clear
6:35 PM	89.6 °F	90.1 °F	62.6 °F	40%	30.03 in	10.0 mi	SE	5.8 mph	-	N/A		Clear
6:55 PM	87.8 °F	89.4 °F	64.4 °F	46%	30.03 in	10.0 mi	ESE	5.8 mph	-	N/A		Clear
7:15 PM	86.0 °F	87.3 °F	64.4 °F	48%	30.03 in	10.0 mi	ESE	4.6 mph	-	N/A		Clear

Show full METARS | METAR FAQ | Comma Delimited File

Time (CDT)	Temp.	Heat Index	Dew Point	Humidity	Pressure	Visibility	Wind Dir	Wind Speed	Gust Speed	Precip	Events	Conditions
7:35 PM	**82.4** °F	**83.9** °F	**64.4** °F	54%	**30.03** in	**10.0** mi	ESE	**5.8** mph	-	N/A		Clear
7:55 PM	**80.6** °F	**82.3** °F	**64.4** °F	58%	**30.03** in	**10.0** mi	ESE	**5.8** mph	-	N/A		Clear
8:15 PM	**80.6** °F	**82.3** °F	**64.4** °F	58%	**30.03** in	**10.0** mi	ESE	**5.8** mph	-	N/A		Clear
8:35 PM	**78.8** °F	-	**64.4** °F	61%	**30.03** in	**10.0** mi	ESE	**6.9** mph	-	N/A		Clear
8:55 PM	**78.8** °F	-	**64.4** °F	61%	**30.03** in	**10.0** mi	ESE	**5.8** mph	-	N/A		Clear
9:15 PM	**75.2** °F	-	**64.4** °F	69%	**30.03** in	**10.0** mi	SE	**4.6** mph	-	N/A		Clear
9:35 PM	**73.4** °F	-	**64.4** °F	73%	**30.03** in	**10.0** mi	SE	**5.8** mph	-	N/A		Clear
9:55 PM	**73.4** °F	-	**64.4** °F	73%	**30.03** in	**10.0** mi	SE	**5.8** mph	-	N/A		Clear
10:15 PM	**73.4** °F	-	**66.2** °F	78%	**30.03** in	**10.0** mi	SE	**6.9** mph	-	N/A		Clear
10:35 PM	**73.4** °F	-	**64.4** °F	73%	**30.03** in	**10.0** mi	SE	**4.6** mph	-	N/A		Clear
10:55 PM	**75.2** °F	-	**64.4** °F	69%	**30.03** in	**10.0** mi	SE	**5.8** mph	-	N/A		Clear
11:15 PM	**75.2** °F	-	**64.4** °F	69%	**30.03** in	**10.0** mi	ESE	**5.8** mph	-	N/A		Clear
11:35 PM	**73.4** °F	-	**64.4** °F	73%	**30.03** in	**10.0** mi	ESE	**5.8** mph	-	N/A		Clear
11:55 PM	**73.4** °F	-	**64.4** °F	73%	**30.03** in	**10.0** mi	ESE	**6.9** mph	-	N/A		Clear

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Weather History for Claremore, OK

Saturday, September 7, 2013

Saturday, September 7, 2013

« Previous Day | September 7 2013 View | Next Day »

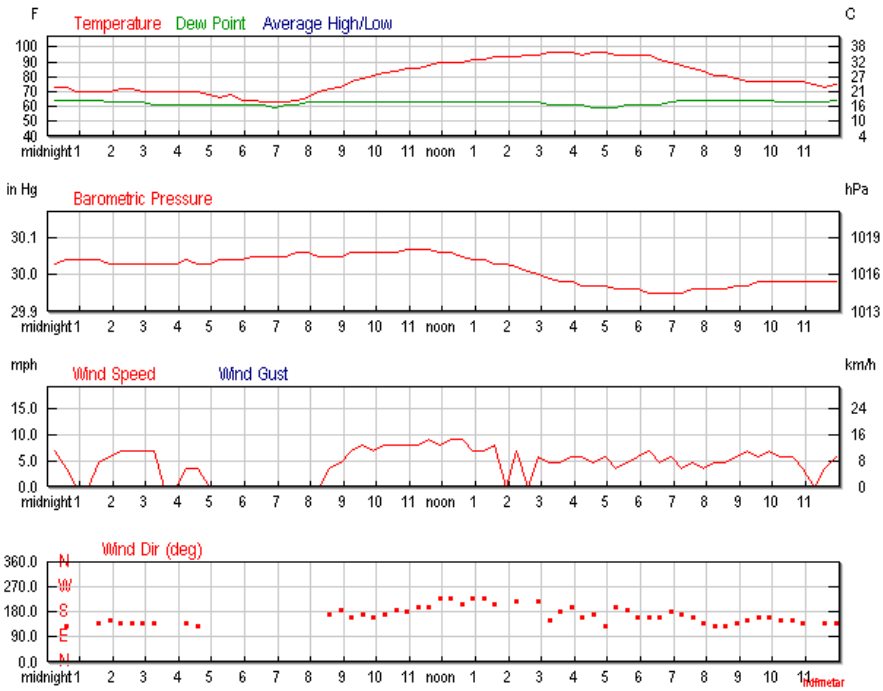
Daily | Weekly | Monthly | Custom

	Actual	Average (KTUL)	Record (KTUL)
Temperature			
Mean Temperature	**79** °F	**77** °F	
Max Temperature	**96** °F	**88** °F	**106** °F (1936)
Min Temperature	**62** °F	**66** °F	**49** °F (2011)
Degree Days			
Heating Degree Days	0	0	
Month to date heating degree days		0	
Since 1 July heating degree days		0	
Cooling Degree Days	14	12	
Month to date cooling degree days		90	
Year to date cooling degree days		1791	
Growing Degree Days	29 (Base 50)		
Moisture			
Dew Point	**62** °F		
Average Humidity	58		
Maximum Humidity	94		
Minimum Humidity	28		
Precipitation			
Precipitation	**0.00** in	**0.15** in	**1.90** in (1905)
Month to date precipitation		0.95	
Year to date precipitation		28.43	
Sea Level Pressure			
Sea Level Pressure	**30.02** in		
Wind			
Wind Speed	**4** mph (SSE)		
Max Wind Speed	**9** mph		
Max Gust Speed	-		
Visibility	**10** miles		
Events			

Click here for data from the nearest station with official NWS data (KTUL).

T = Trace of Precipitation, **MM** = Missing Value

Source: NWS Daily Summary



Certify This Report

Hourly Weather History & Observations

Time (CDT)	Temp.	Heat Index	Dew Point	Humidity	Pressure	Visibility	Wind Dir	Wind Speed	Gust Speed	Precip	Events	Conditions
12:15 AM	**73.4** °F	-	**64.4** °F	73%	**30.03** in	**10.0** mi	ESE	**6.9** mph	-	N/A		Clear
12:35 AM	**73.4** °F	-	**64.4** °F	73%	**30.04** in	**10.0** mi	SE	**3.5** mph	-	N/A		Clear
12:55 AM	**69.8** °F	-	**64.4** °F	83%	**30.04** in	**7.0** mi	Calm	Calm	-	N/A		Clear
1:15 AM	**69.8** °F	-	**64.4** °F	83%	**30.04** in	**10.0** mi	Calm	Calm	-	N/A		Clear
1:35 AM	**69.8** °F	-	**64.4** °F	83%	**30.04** in	**10.0** mi	SE	**4.6** mph	-	N/A		Clear
1:55 AM	**69.8** °F	-	**62.6** °F	78%	**30.03** in	**10.0** mi	SSE	**5.8** mph	-	N/A		Clear
2:15 AM	**71.6** °F	-	**62.6** °F	73%	**30.03** in	**10.0** mi	SE	**6.9** mph	-	N/A		Clear
2:35 AM	**71.6** °F	-	**62.6** °F	73%	**30.03** in	**10.0** mi	SE	**6.9** mph	-	N/A		Clear
2:55 AM	**69.8** °F	-	**62.6** °F	78%	**30.03** in	**10.0** mi	SE	**6.9** mph	-	N/A		Clear
3:15 AM	**69.8** °F	-	**60.8** °F	73%	**30.03** in	**10.0** mi	SE	**6.9** mph	-	N/A		Clear
3:35 AM	**69.8** °F	-	**60.8** °F	73%	**30.03** in	**10.0** mi	Calm	Calm	-	N/A		Clear
3:55 AM	**69.8** °F	-	**60.8** °F	73%	**30.03** in	**10.0** mi	Calm	Calm	-	N/A		Clear
4:15 AM	**69.8** °F	-	**60.8** °F	73%	**30.04** in	**10.0** mi	SE	**3.5** mph	-	N/A		Clear
4:35 AM	**69.8** °F	-	**60.8** °F	73%	**30.03** in	**10.0** mi	SE	**3.5** mph	-	N/A		Clear
4:55 AM	**68.0** °F	-	**60.8** °F	78%	**30.03** in	**10.0** mi	Calm	Calm	-	N/A		Clear
5:15 AM	**66.2** °F	-	**60.8** °F	83%	**30.04** in	**10.0** mi	Calm	Calm	-	N/A		Clear

Show full METARS | METAR FAQ | Comma Delimited File

Time (CDT)	Temp.	Heat Index	Dew Point	Humidity	Pressure	Visibility	Wind Dir	Wind Speed	Gust Speed	Precip	Events	Conditions
5:35 AM	68.0 °F	-	60.8 °F	78%	30.04 in	10.0 mi	Calm	Calm	-	N/A		Clear
5:55 AM	64.4 °F	-	60.8 °F	88%	30.04 in	10.0 mi	Calm	Calm	-	N/A		Clear
6:15 AM	64.4 °F	-	60.8 °F	88%	30.05 in	10.0 mi	Calm	Calm	-	N/A		Clear
6:35 AM	62.6 °F	-	60.8 °F	94%	30.05 in	10.0 mi	Calm	Calm	-	N/A		Clear
6:55 AM	62.6 °F	-	59.0 °F	88%	30.05 in	10.0 mi	Calm	Calm	-	N/A		Clear
7:15 AM	62.6 °F	-	60.8 °F	94%	30.05 in	10.0 mi	Calm	Calm	-	N/A		Clear
7:35 AM	64.4 °F	-	60.8 °F	88%	30.06 in	10.0 mi	Calm	Calm	-	N/A		Clear
7:55 AM	66.2 °F	-	62.6 °F	88%	30.06 in	10.0 mi	Calm	Calm	-	N/A		Clear
8:15 AM	69.8 °F	-	62.6 °F	78%	30.05 in	10.0 mi	Calm	Calm	-	N/A		Clear
8:35 AM	71.6 °F	-	62.6 °F	73%	30.05 in	10.0 mi	South	3.5 mph	-	N/A		Clear
8:55 AM	73.4 °F	-	62.6 °F	69%	30.05 in	10.0 mi	South	4.6 mph	-	N/A		Clear
9:15 AM	77.0 °F	-	62.6 °F	61%	30.06 in	10.0 mi	SSE	6.9 mph	-	N/A		Clear
9:35 AM	78.8 °F	-	62.6 °F	57%	30.06 in	10.0 mi	South	8.1 mph	-	N/A		Clear
9:55 AM	80.6 °F	81.8 °F	62.6 °F	54%	30.06 in	10.0 mi	SSE	6.9 mph	-	N/A		Clear
10:15 AM	82.4 °F	83.4 °F	62.6 °F	51%	30.06 in	10.0 mi	South	8.1 mph	-	N/A		Clear
10:35 AM	84.2 °F	85.0 °F	62.6 °F	48%	30.06 in	10.0 mi	South	8.1 mph	-	N/A		Clear
10:55 AM	86.0 °F	86.6 °F	62.6 °F	45%	30.07 in	10.0 mi	South	8.1 mph	-	N/A		Clear
11:15 AM	86.0 °F	86.6 °F	62.6 °F	45%	30.07 in	10.0 mi	SSW	8.1 mph	-	N/A		Clear
11:35 AM	87.8 °F	88.5 °F	62.6 °F	43%	30.07 in	10.0 mi	SSW	9.2 mph	-	N/A		Clear
11:55 AM	89.6 °F	90.1 °F	62.6 °F	40%	30.06 in	10.0 mi	SW	8.1 mph	-	N/A		Clear
12:15 PM	89.6 °F	90.1 °F	62.6 °F	40%	30.06 in	10.0 mi	SW	9.2 mph	-	N/A		Clear
12:35 PM	89.6 °F	90.1 °F	62.6 °F	40%	30.05 in	7.0 mi	SSW	9.2 mph	-	N/A		Clear
12:55 PM	91.4 °F	92.1 °F	62.6 °F	38%	30.04 in	10.0 mi	SW	6.9 mph	-	N/A		Clear
1:15 PM	91.4 °F	92.1 °F	62.6 °F	38%	30.04 in	10.0 mi	SW	6.9 mph	-	N/A		Clear
1:35 PM	93.2 °F	94.1 °F	62.6 °F	36%	30.03 in	10.0 mi	SSW	8.1 mph	-	N/A		Clear
1:55 PM	93.2 °F	94.1 °F	62.6 °F	36%	30.03 in	10.0 mi	Calm	Calm	-	N/A		Clear
2:15 PM	93.2 °F	94.1 °F	62.6 °F	36%	30.02 in	10.0 mi	SW	6.9 mph	-	N/A		Clear
2:35 PM	95.0 °F	96.0 °F	62.6 °F	34%	30.01 in	10.0 mi	Calm	Calm	-	N/A		Clear
2:55 PM	95.0 °F	96.0 °F	62.6 °F	34%	30.00 in	10.0 mi	SW	5.8 mph	-	N/A		Clear
3:15 PM	96.8 °F	97.1 °F	60.8 °F	30%	29.99 in	10.0 mi	SSE	4.6 mph	-	N/A		Clear
3:35 PM	96.8 °F	97.1 °F	60.8 °F	30%	29.98 in	10.0 mi	South	4.6 mph	-	N/A		Clear
3:55 PM	96.8 °F	97.1 °F	60.8 °F	30%	29.98 in	10.0 mi	SSW	5.8 mph	-	N/A		Clear
4:15 PM	95.0 °F	95.2 °F	60.8 °F	32%	29.97 in	10.0 mi	SSE	5.8 mph	-	N/A		Clear
4:35 PM	96.8 °F	96.2 °F	59.0 °F	28%	29.97 in	10.0 mi	South	4.6 mph	-	N/A		Clear
4:55 PM	96.8 °F	96.2 °F	59.0 °F	28%	29.97 in	10.0 mi	SE	5.8 mph	-	N/A		Clear
5:15 PM	95.0 °F	94.4 °F	59.0 °F	30%	29.96 in	10.0 mi	SSW	3.5 mph	-	N/A		Clear
5:35 PM	95.0 °F	95.2 °F	60.8 °F	32%	29.96 in	10.0 mi	South	4.6 mph	-	N/A		Clear
5:55 PM	95.0 °F	95.2 °F	60.8 °F	32%	29.96 in	10.0 mi	SSE	5.8 mph	-	N/A		Clear
6:15 PM	95.0 °F	95.2 °F	60.8 °F	32%	29.95 in	10.0 mi	SSE	6.9 mph	-	N/A		Clear
6:35 PM	91.4 °F	91.4 °F	60.8 °F	36%	29.95 in	10.0 mi	SSE	4.6 mph	-	N/A		Clear
6:55 PM	89.6 °F	90.1 °F	62.6 °F	40%	29.95 in	10.0 mi	South	5.8 mph	-	N/A		Clear
7:15 PM	87.8 °F	89.4 °F	64.4 °F	46%	29.95 in	10.0 mi	South	3.5 mph	-	N/A		Clear
7:35 PM	86.0 °F	87.3 °F	64.4 °F	48%	29.96 in	10.0 mi	SSE	4.6 mph	-	N/A		Clear

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Time (CDT)	Temp.	Heat Index	Dew Point	Humidity	Pressure	Visibility	Wind Dir	Wind Speed	Gust Speed	Precip	Events	Conditions
7:55 PM	**84.2** °F	**85.6** °F	**64.4** °F	51%	**29.96** in	**10.0** mi	SE	**3.5** mph	-	N/A		Clear
8:15 PM	**80.6** °F	**82.3** °F	**64.4** °F	58%	**29.96** in	**10.0** mi	SE	**4.6** mph	-	N/A		Clear
8:35 PM	**80.6** °F	**82.3** °F	**64.4** °F	58%	**29.96** in	**10.0** mi	SE	**4.6** mph	-	N/A		Clear
8:55 PM	**78.8** °F	-	**64.4** °F	61%	**29.97** in	**10.0** mi	SE	**5.8** mph	-	N/A		Clear
9:15 PM	**77.0** °F	-	**64.4** °F	65%	**29.97** in	**10.0** mi	SSE	**6.9** mph	-	N/A		Clear
9:35 PM	**77.0** °F	-	**64.4** °F	65%	**29.98** in	**10.0** mi	SSE	**5.8** mph	-	N/A		Clear
9:55 PM	**77.0** °F	-	**64.4** °F	65%	**29.98** in	**10.0** mi	SSE	**6.9** mph	-	N/A		Clear
10:15 PM	**77.0** °F	-	**62.6** °F	61%	**29.98** in	**10.0** mi	SSE	**5.8** mph	-	N/A		Clear
10:35 PM	**77.0** °F	-	**62.6** °F	61%	**29.98** in	**10.0** mi	SSE	**5.8** mph	-	N/A		Clear
10:55 PM	**77.0** °F	-	**62.6** °F	61%	**29.98** in	**10.0** mi	SE	**3.5** mph	-	N/A		Clear
11:15 PM	**75.2** °F	-	**62.6** °F	65%	**29.98** in	**10.0** mi	Calm	Calm	-	N/A		Clear
11:35 PM	**73.4** °F	-	**62.6** °F	69%	**29.98** in	**10.0** mi	SE	**3.5** mph	-	N/A		Clear
11:55 PM	**75.2** °F	-	**64.4** °F	69%	**29.98** in	**10.0** mi	SE	**5.8** mph	-	N/A		Clear

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Weather History for Claremore, OK

Sunday, September 8, 2013

Sunday, September 8, 2013

« Previous Day | September 8 2013 View | Next Day »

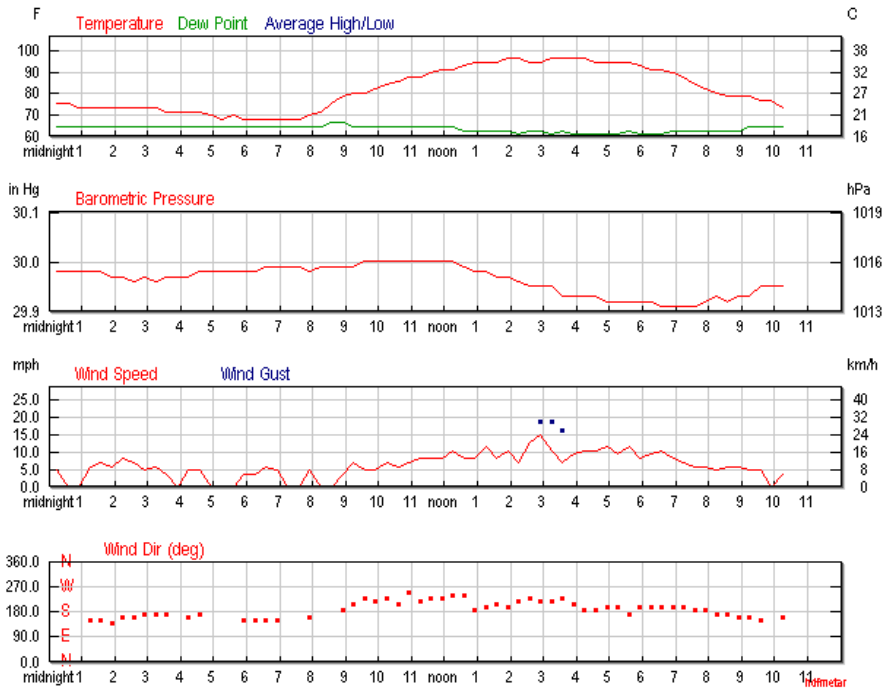
Daily | Weekly | Monthly | Custom

	Actual	Average (KTUL)	Record (KTUL)
Temperature			
Mean Temperature	**82** °F	**76** °F	
Max Temperature	**96** °F	**87** °F	**103** °F (1925)
Min Temperature	**68** °F	**65** °F	**50** °F (1956)
Degree Days			
Heating Degree Days	0	0	
Month to date heating degree days		0	
Since 1 July heating degree days		0	
Cooling Degree Days	17	11	
Month to date cooling degree days		101	
Year to date cooling degree days		1802	
Growing Degree Days	32 (Base 50)		
Moisture			
Dew Point	**63** °F		
Average Humidity	57		
Maximum Humidity	88		
Minimum Humidity	30		
Precipitation			
Precipitation	**0.00** in	**0.14** in	**5.70** in (2007)
Month to date precipitation		1.09	
Year to date precipitation		28.57	
Sea Level Pressure			
Sea Level Pressure	**29.96** in		
Wind			
Wind Speed	**5** mph ()		
Max Wind Speed	**15** mph		
Max Gust Speed	**18** mph		
Visibility	**9.6** miles		
Events			

Click here for data from the nearest station with official NWS data (KTUL).

T = Trace of Precipitation, **MM** = Missing Value

Source: Averaged Metar Reports



Certify This Report

Hourly Weather History & Observations

Time (CDT)	Temp.	Heat Index	Dew Point	Humidity	Pressure	Visibility	Wind Dir	Wind Speed	Gust Speed	Precip	Events	Conditions
12:15 AM	75.2 °F	-	64.4 °F	69%	29.98 in	10.0 mi	SE	4.6 mph	-	N/A		Clear
12:35 AM	75.2 °F	-	64.4 °F	69%	29.98 in	10.0 mi	Calm	Calm	-	N/A		Clear
12:55 AM	73.4 °F	-	64.4 °F	73%	29.98 in	10.0 mi	Calm	Calm	-	N/A		Clear
1:15 AM	73.4 °F	-	64.4 °F	73%	29.98 in	10.0 mi	SSE	5.8 mph	-	N/A		Clear
1:35 AM	73.4 °F	-	64.4 °F	73%	29.98 in	10.0 mi	SSE	6.9 mph	-	N/A		Clear
1:55 AM	73.4 °F	-	64.4 °F	73%	29.97 in	10.0 mi	SE	5.8 mph	-	N/A		Clear
2:15 AM	73.4 °F	-	64.4 °F	73%	29.97 in	10.0 mi	SSE	8.1 mph	-	N/A		Clear
2:35 AM	73.4 °F	-	64.4 °F	73%	29.96 in	10.0 mi	SSE	6.9 mph	-	N/A		Clear
2:55 AM	73.4 °F	-	64.4 °F	73%	29.97 in	10.0 mi	South	4.6 mph	-	N/A		Clear
3:15 AM	73.4 °F	-	64.4 °F	73%	29.96 in	10.0 mi	South	5.8 mph	-	N/A		Clear
3:35 AM	71.6 °F	-	64.4 °F	78%	29.97 in	10.0 mi	South	3.5 mph	-	N/A		Clear
3:55 AM	71.6 °F	-	64.4 °F	78%	29.97 in	10.0 mi	Calm	Calm	-	N/A		Clear
4:15 AM	71.6 °F	-	64.4 °F	78%	29.97 in	10.0 mi	SSE	4.6 mph	-	N/A		Clear
4:35 AM	71.6 °F	-	64.4 °F	78%	29.98 in	10.0 mi	South	4.6 mph	-	N/A		Clear
4:55 AM	69.8 °F	-	64.4 °F	83%	29.98 in	10.0 mi	Calm	Calm	-	N/A		Clear
5:15 AM	68.0 °F	-	64.4 °F	88%	29.98 in	7.0 mi	Calm	Calm	-	N/A		Clear

Show full METARS | METAR FAQ | Comma Delimited File

Time (CDT)	Temp.	Heat Index	Dew Point	Humidity	Pressure	Visibility	Wind Dir	Wind Speed	Gust Speed	Precip	Events	Conditions
5:35 AM	69.8 °F	-	64.4 °F	83%	29.98 in	10.0 mi	Calm	Calm	-	N/A		Clear
5:55 AM	68.0 °F	-	64.4 °F	88%	29.98 in	7.0 mi	SSE	3.5 mph	-	N/A		Clear
6:15 AM	68.0 °F	-	64.4 °F	88%	29.98 in	7.0 mi	SSE	3.5 mph	-	N/A		Clear
6:35 AM	68.0 °F	-	64.4 °F	88%	29.99 in	7.0 mi	SSE	5.8 mph	-	N/A		Clear
6:55 AM	68.0 °F	-	64.4 °F	88%	29.99 in	7.0 mi	SSE	4.6 mph	-	N/A		Clear
7:15 AM	68.0 °F	-	64.4 °F	88%	29.99 in	7.0 mi	Calm	Calm	-	N/A		Clear
7:35 AM	68.0 °F	-	64.4 °F	88%	29.99 in	7.0 mi	Calm	Calm	-	N/A		Clear
7:55 AM	69.8 °F	-	64.4 °F	83%	29.98 in	7.0 mi	SSE	4.6 mph	-	N/A		Clear
8:15 AM	71.6 °F	-	64.4 °F	78%	29.99 in	10.0 mi	Calm	Calm	-	N/A		Clear
8:35 AM	75.2 °F	-	66.2 °F	73%	29.99 in	10.0 mi	Calm	Calm	-	N/A		Clear
8:55 AM	78.8 °F	-	66.2 °F	65%	29.99 in	10.0 mi	South	3.5 mph	-	N/A		Clear
9:15 AM	80.6 °F	82.3 °F	64.4 °F	58%	29.99 in	10.0 mi	SSW	6.9 mph	-	N/A		Clear
9:35 AM	80.6 °F	82.3 °F	64.4 °F	58%	30.00 in	10.0 mi	SW	4.6 mph	-	N/A		Clear
9:55 AM	82.4 °F	83.9 °F	64.4 °F	54%	30.00 in	10.0 mi	SW	4.6 mph	-	N/A		Clear
10:15 AM	84.2 °F	85.6 °F	64.4 °F	51%	30.00 in	10.0 mi	SW	6.9 mph	-	N/A		Clear
10:35 AM	86.0 °F	87.3 °F	64.4 °F	48%	30.00 in	10.0 mi	SSW	5.8 mph	-	N/A		Clear
10:55 AM	87.8 °F	89.4 °F	64.4 °F	46%	30.00 in	10.0 mi	WSW	6.9 mph	-	N/A		Clear
11:15 AM	87.8 °F	89.4 °F	64.4 °F	46%	30.00 in	10.0 mi	SW	8.1 mph	-	N/A		Clear
11:35 AM	89.6 °F	91.1 °F	64.4 °F	43%	30.00 in	10.0 mi	SW	8.1 mph	-	N/A		Clear
11:55 AM	91.4 °F	93.2 °F	64.4 °F	41%	30.00 in	10.0 mi	SW	8.1 mph	-	N/A		Clear
12:15 PM	91.4 °F	93.2 °F	64.4 °F	41%	30.00 in	10.0 mi	WSW	10.4 mph	-	N/A		Clear
12:35 PM	93.2 °F	94.1 °F	62.6 °F	36%	29.99 in	10.0 mi	WSW	8.1 mph	-	N/A		Clear
12:55 PM	95.0 °F	96.0 °F	62.6 °F	34%	29.98 in	10.0 mi	South	8.1 mph	-	N/A		Clear
1:15 PM	95.0 °F	96.0 °F	62.6 °F	34%	29.98 in	10.0 mi	SSW	11.5 mph	-	N/A		Clear
1:35 PM	95.0 °F	96.0 °F	62.6 °F	34%	29.97 in	10.0 mi	SSW	8.1 mph	-	N/A		Clear
1:55 PM	96.8 °F	98.0 °F	62.6 °F	32%	29.97 in	10.0 mi	SSW	10.4 mph	-	N/A		Clear
2:15 PM	96.8 °F	97.1 °F	60.8 °F	30%	29.96 in	10.0 mi	SW	6.9 mph	-	N/A		Clear
2:35 PM	95.0 °F	96.0 °F	62.6 °F	34%	29.95 in	10.0 mi	SW	12.7 mph	16.1 mph	N/A		Clear
2:55 PM	95.0 °F	96.0 °F	62.6 °F	34%	29.95 in	10.0 mi	SW	15.0 mph	18.4 mph	N/A		Clear
3:15 PM	96.8 °F	97.1 °F	60.8 °F	30%	29.95 in	10.0 mi	SW	10.4 mph	18.4 mph	N/A		Clear
3:35 PM	96.8 °F	98.0 °F	62.6 °F	32%	29.93 in	10.0 mi	SW	6.9 mph	16.1 mph	N/A		Clear
3:55 PM	96.8 °F	97.1 °F	60.8 °F	30%	29.93 in	10.0 mi	SSW	9.2 mph	-	N/A		Clear
4:15 PM	96.8 °F	97.1 °F	60.8 °F	30%	29.93 in	10.0 mi	South	10.4 mph	-	N/A		Clear
4:35 PM	95.0 °F	95.2 °F	60.8 °F	32%	29.93 in	10.0 mi	South	10.4 mph	-	N/A		Clear
4:55 PM	95.0 °F	95.2 °F	60.8 °F	32%	29.92 in	10.0 mi	SSW	11.5 mph	-	N/A		Clear
5:15 PM	95.0 °F	95.2 °F	60.8 °F	32%	29.92 in	10.0 mi	SSW	9.2 mph	-	N/A		Clear
5:35 PM	95.0 °F	96.0 °F	62.6 °F	34%	29.92 in	10.0 mi	South	11.5 mph	-	N/A		Clear
5:55 PM	93.2 °F	93.3 °F	60.8 °F	34%	29.92 in	10.0 mi	SSW	8.1 mph	-	N/A		Clear
6:15 PM	91.4 °F	91.4 °F	60.8 °F	36%	29.92 in	10.0 mi	SSW	9.2 mph	-	N/A		Clear
6:35 PM	91.4 °F	91.4 °F	60.8 °F	36%	29.91 in	10.0 mi	SSW	10.4 mph	-	N/A		Clear
6:55 PM	89.6 °F	90.1 °F	62.6 °F	40%	29.91 in	10.0 mi	SSW	8.1 mph	-	N/A		Clear
7:15 PM	87.8 °F	88.5 °F	62.6 °F	43%	29.91 in	10.0 mi	SSW	6.9 mph	-	N/A		Clear
7:35 PM	84.2 °F	85.0 °F	62.6 °F	48%	29.91 in	10.0 mi	South	5.8 mph	-	N/A		Clear

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Time (CDT)	Temp.	Heat Index	Dew Point	Humidity	Pressure	Visibility	Wind Dir	Wind Speed	Gust Speed	Precip	Events	Conditions
7:55 PM	**82.4** °F	**83.4** °F	**62.6** °F	51%	**29.92** in	**10.0** mi	South	**5.8** mph	-	N/A		Clear
8:15 PM	**80.6** °F	**81.8** °F	**62.6** °F	54%	**29.93** in	**10.0** mi	South	**4.6** mph	-	N/A		Clear
8:35 PM	**78.8** °F	-	**62.6** °F	57%	**29.92** in	**10.0** mi	South	**5.8** mph	-	N/A		Clear
8:55 PM	**78.8** °F	-	**62.6** °F	57%	**29.93** in	**10.0** mi	SSE	**5.8** mph	-	N/A		Clear
9:15 PM	**78.8** °F	-	**64.4** °F	61%	**29.93** in	**10.0** mi	SSE	**4.6** mph	-	N/A		Clear
9:35 PM	**77.0** °F	-	**64.4** °F	65%	**29.95** in	**10.0** mi	SSE	**4.6** mph	-	N/A		Clear
9:55 PM	**77.0** °F	-	**64.4** °F	65%	**29.95** in	**10.0** mi	Calm	Calm	-	N/A		Clear
10:15 PM	**73.4** °F	-	**64.4** °F	73%	**29.95** in	**10.0** mi	SSE	**3.5** mph	-	N/A		Clear

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Appendix C

Representative Photographs

TL-1

TL-2

APPENDIX C

AGENCY CORRESPONDENCE

David Bednar

From: "Sasha Kirk" <sashagkirk@gmail.com>
To: "David Bednar" <david@eagle-env.com>
Sent: Wednesday, August 08, 2012 2:01 PM
Subject: OBS Information Request: Proposed Cutoffs 186 and 189 Leases and Dredge Disposal Ponds
OBS Ref. 2012-347-BUS-BED

Dear Mr. Bednar,

We have reviewed occurrence information on federal and state threatened, endangered or candidate species, as well as non-regulatory rare species currently in the Oklahoma Natural Heritage Inventory database for the following location you provided:

Proposed Cutoffs 186 and 189 Leases and Dredge Disposal Ponds
Sections 09, 15, 16 & 28, T20N, R16E, Rogers County, Oklahoma

We found no occurrence(s) of relevant species within the project location as described.
If you have any questions about this response, please send me an email, or call us at the number given below.

Although not specific to your project, you may find the following links helpful.

ONHI guide to ranking codes for endangered and threatened species:
http://vmpincel.ou.edu/heritage/ranking_guide.html

Information regarding the Oklahoma Natural Areas Registry:
http://www.oknaturalheritage.ou.edu/registry_faq.htm

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Sasha Kirk
(for)Ian Butler
Oklahoma Biological Survey
111 East Chesapeake St.
Norman, OK 73019
405.325.1985

APPENDIX D

HABITAT ASSESSMENT AREA PHOTOS


HASS-1, West View.


HASS-4


HASS-2, West View.


HASS-5


HASS-3, North View.


HASS-6


HASS-7


HASS-9


HASS-8


HASS-10, South View.