COLONEL JAMES JABARA AIRPORT

Commercial Site Development Study

Appendix E

Drainage Study

AAO Commercial Development Study

Drainage Study

Colonel James Jabara Airport, Wichita, KS

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Garver Project No.: 22A17000

Table of Contents

List of Figures

List of Tables

Attachments

1.0 Introduction and Background

This drainage report has been prepared to analyze the hydrology and stormwater drainage of three undeveloped areas at Jabara Airport and to determine impacts of future development to the system; specifically with regard to water quality and quantity. Hydrological modeling was performed to identify site drainage improvements which would likely be required for site development based on City of Wichita stormwater requirements. Other applicable State and local regulations and procedures are also discussed.

2.0 Site Overview

2.1 Location

The site is on airport property at Colonel James Airport (AAO) which is located northeast of the intersection of K-96 and North Webb Road. Specifically, the study area includes three undeveloped parcels and airfield areas near the north end of the airport. Area 1 is to the southwest of the WSU Tech – NCAT campus, Area 2 is generally located north and east of the NCAT campus with 45th Street as the north boundary, and Area 3 is located northeast of the Webb Road and 45th Street intersection. A map of the study areas is shown in Figure 1.

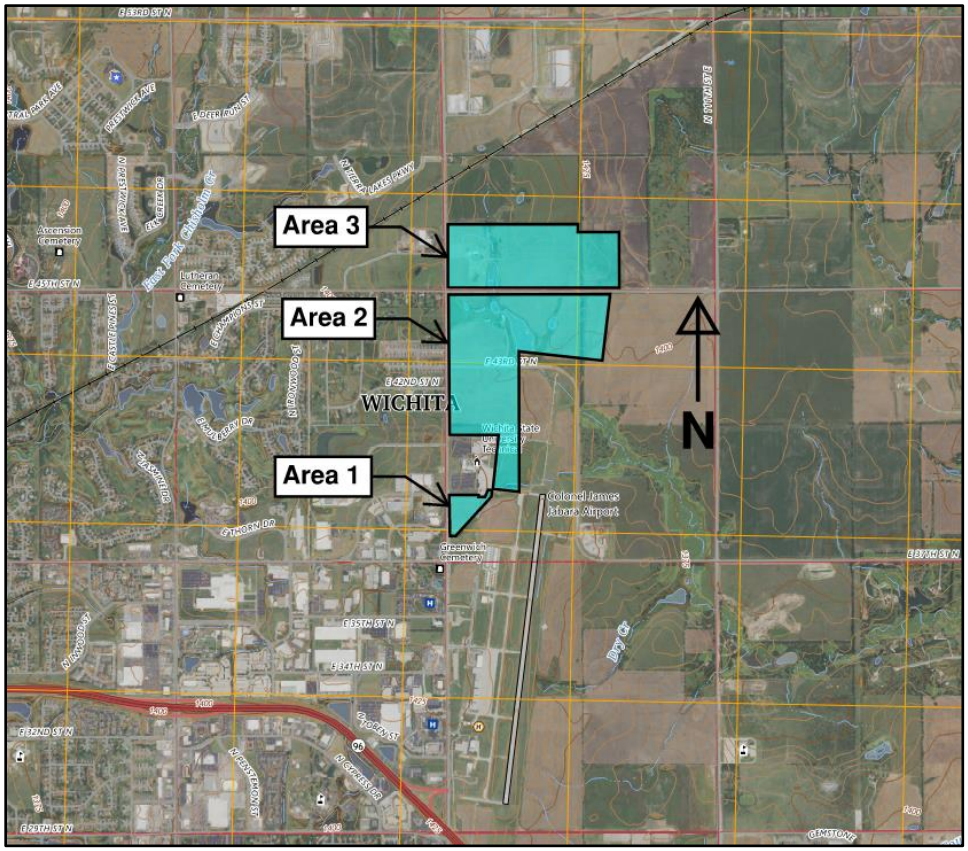


Figure 1: Study Areas

2.2 General Drainage Patterns

Overall, onsite runoff from these areas flows east into open channels, storm conduit, or tributaries and discharges into Upper Dry Creek, which flows southeast through the site. An area east of the WSU Tech campus currently provides some capacity as a dry detention pond; this area will be analyzed as part of this study. Offsite drainage from the west side of Webb Road and from north of Area 3 also contributes to the total discharge from the site. Figure 2 shows existing site contours and the general drainage patterns.

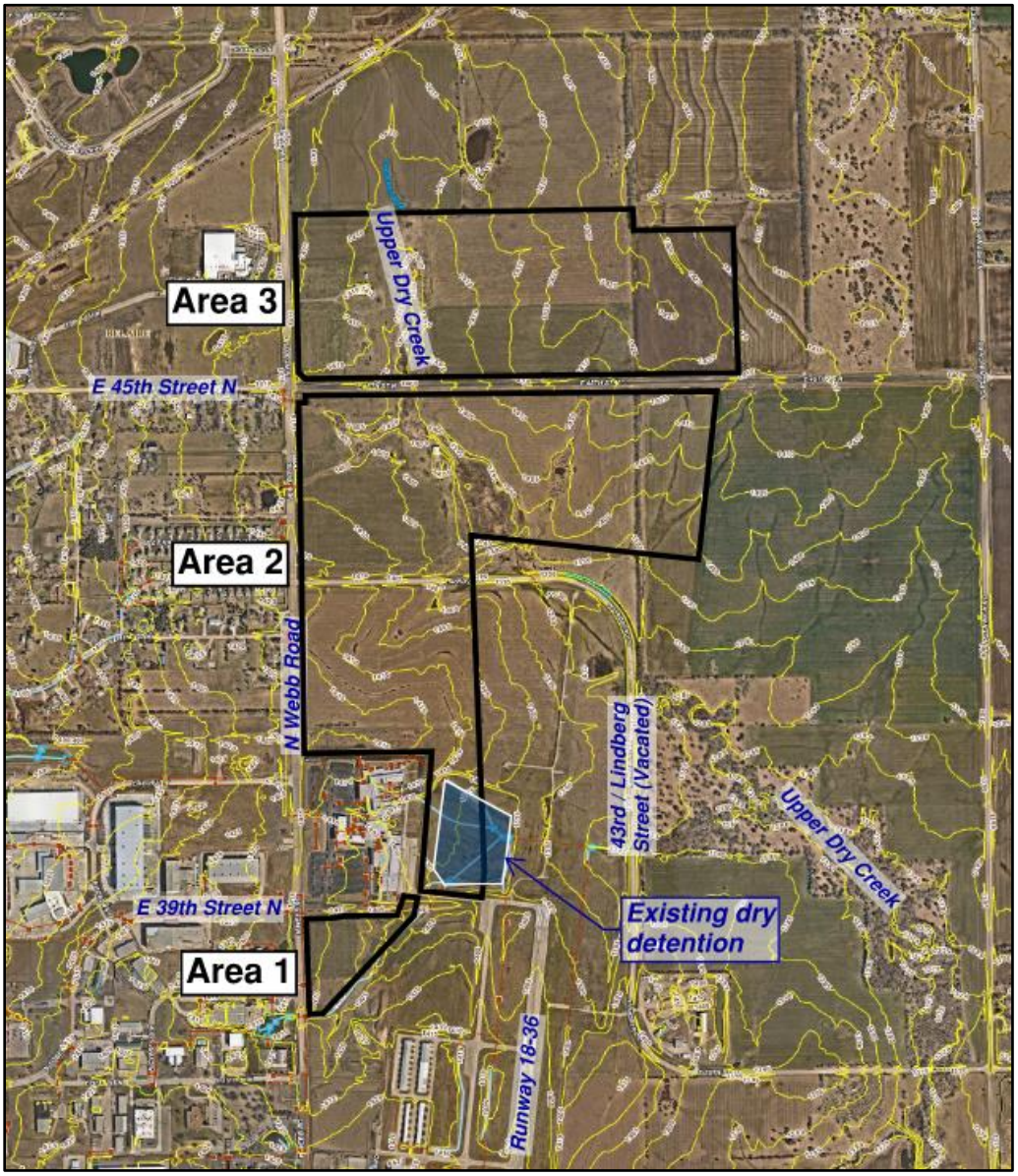


Figure 2: GIS Contours and Stormwater Sewer

3.0 Regulations

3.1 Federal Aviation Administration Standards

FAA standards for runoff quality and quantity are provided in *Advisory Circular 150/5320-5D Airport Drainage Design*.

3.1.1 Quality (Chapter 11)

The runoff volume to be treated with BMP's is the "first-flush volume" as this is known to carry the most significant non-point pollutant loads. Definitions of the first flush volume vary with the most common definitions being:

- The first 0.5 inch of runoff per acre of impervious area
- The first 0.5 inch of runoff per acre of catchment area
- The first 1.0 inch of runoff per acre of catchment area.

3.1.2 Quantity

For on-airport development, the following design storms shall be used for surface runoff calculations.

- Taxiways – 5-year design storm is recommended with no encroachment on taxiway pavement.
- Aprons – 5-year design storm in recommended such that ponding around apron inlets does not exceed 4 inches.
- Other Areas – 10-year design storm in recommended for other developed areas such as roadways, administrative areas, and industrial areas.
- Additional Considerations – In some designs, portions of the drainage system are based on as high as a 50-year design storms to reduce likelihood of flooding a facility essential to operations and to prevent loss of life.

3.1.3 On-Site Detention

FAA Advisory Circular 150-5200-33 Hazardous Wildlife Attractants on or near Airports provides recommended separation distances between Aircraft Operation Areas (AOA) and hazardous wildlife attractants.

- 10,000 feet is recommended from the hazardous wildlife attractant to the nearest AOA.
- 5-miles is recommended to protect approach, departure, and circling airspace.

On-site retention "wet ponds" will not be allowed due to the attraction of wildlife, especially waterfowl. Detention facilities shall be either underground storage or "dry ponds" capable of draining in 48 hours after a storm event.

In addition, where constant flow of water is anticipated through the basin, or where any portion of the basin bottom may remain wet, detention facilities should include a concrete or paved pad and/or ditch/swale in the bottom to prevent vegetation that may provide nesting habitat.

3.2 City of Wichita Standards

Stormwater and drainage improvements for any potential development projects on the site shall meet the City of Wichita Stormwater Manual requirements for water quality treatment, downstream stabilization, and water quantity management standards.

3.2.1 Quality

Water Quality Treatment Requirement for New Developments Stormwater state that “runoff must be treated for water quality prior in accordance with the standards and criteria presented in this section of the Stormwater Manual”.

To comply with the quality treatment standard, facilities shall be designed to remove 80% of the average annual total suspended solids load for typical urban runoff (post-development) from the stormwater quality treatment volume for the 85th percentile storm event for the Wichita area.

3.2.2 Downstream Stabilization

Downstream stabilization shall be provided for developments which create or add five acres or greater of impervious area. This standard can be met in one of the following ways.

- The runoff volume from the new development that results from the 1-year frequency, 24- hour storm event shall be detained for not less than 24 hours; or
- The volume difference between the pre-development and post-development runoff from the development that results from the 1-year frequency, 24-hour storm event must be infiltrated, reused or evaporated.

3.2.3 Quantity

The calculated peak discharge of stormwater runoff at each site stormwater outfall resulting from the 2-year, 5-year, 10-year, 25-year and 100-year return frequency, 24-hour duration storm events shall be no greater after development or redevelopment of the site than that which would result from the same 2-year, 5-year, 10-year, 25-year and 100-year return frequency, 24-hour duration storm events on the same site prior to development or redevelopment.

3.3 City of Bel Aire Standards

Chapter 14 of the Bel Aire City Code contains stormwater design and performance requirements for developments in the city.

3.3.1 Control of Downstream Flooding

“The Director will determine whether the proposed plan will cause downstream local flooding conditions based on existing downstream development, downstream drainage system capabilities, and analysis of the system before and after the proposed development. If it is determined that the development will cause downstream flooding, provisions to minimize flooding conditions shall be included in the design of improvements.”

3.3.2 Quantity

Detention of stormwater runoff may be used in developments in order to minimize downstream flooding conditions. Generally, stormwater detention basins shall be designed and constructed for the attenuation of the peak rate of runoff to an amount not greater than that occurring prior to development

3.4 Floodplain

Portions of the site are classified as Special Flood Hazard Area AE on the FEMA FIRM map. This is floodplain area that is susceptible to being inundated from the base flood (100-yr event). The FEMA FIRM map is shown in Figure 3. Cross sections with 1% annual chance are also identified on the map. State and local requirements and procedures are applicable for development projects located in floodplain areas.

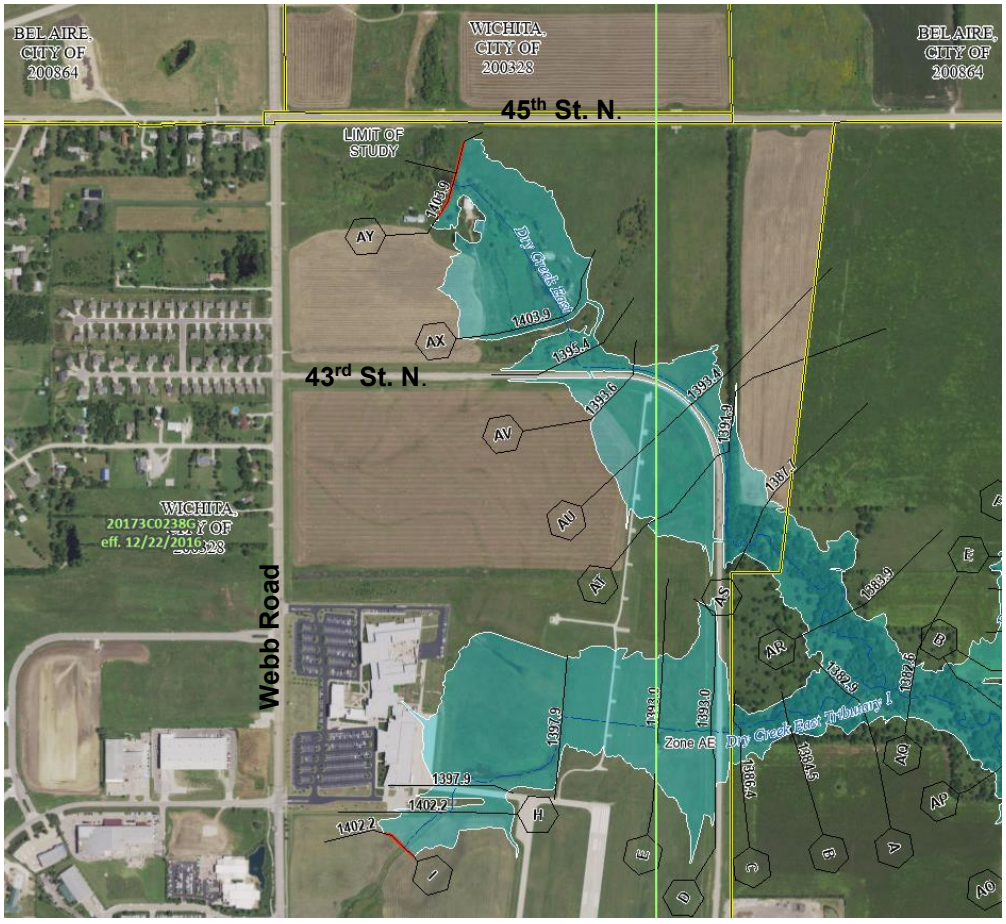


Figure 3: FEMA FIRM Map

3.4.1 State of Kansas

For any development involving the placement of fill or other material within the floodplain area, a Floodplain Fill permit must be obtained from the Kansas Department of Agriculture (KDA). A permit from KDA would also be necessary for any modifications to Upper Dry Creek.

3.4.2 City of Wichita & Sedgwick County

Prior to any proposed development or improvements within the floodplain, a Floodplain Development permit must be obtained from the Wichita-Sedgwick County MAPC. Any development or improvement must meet the requirements of Section 3.7 of the City Stormwater Manual and Title 27 of the Wichita Code of Ordinances. A summary of development requirements is provided below.

- New construction or substantial improvements of any commercial, industrial, or other non-residential structures, including manufactured homes, shall have the lowest floor, including basement, elevated a minimum of two (2) feet above the base flood elevation or, together with attendant utility and sanitary facilities, be floodproofed so that below two (2) feet above the base flood elevation the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

- Until a floodway is designated, no new construction, substantial improvement, or other development, including fill, shall be permitted within any unnumbered or numbered A zones, or AE zones on the FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one (1) foot at any point within the community.

- Provide compensatory storage when development or other encroachments occur in the floodplains of volume sensitive basins. Volume sensitive basins shall be defined by the local jurisdiction. Location and magnitude of compensatory excavations shall be incorporated in the construction plans and must be approved by the local jurisdiction.

3.5 U.S. Army Corps of Engineers

Wetlands and Waters of the United States are defined and regulated by the U.S. Army Corps of Engineers (USACE). Based on the U.S. Fish and Wildlife Service's National Wetlands Inventory map, wetland areas are located on or adjacent to the site. This map is shown in Figure 4 (wetland areas are shaded in bright green, freshwater ponds shaded in blue). Developments within defined wetland areas or with the potential to impact downstream wetland areas may require permitting under Section 404 of the Clean Water Act. Prior to any development on the site, coordination with the USACE should occur to see if a wetland delineation, Jurisdictional Determination, and any subsequent permitting is required. If wetlands / waters of the United States are present, wetland mitigation will need to be incorporated into the site design.

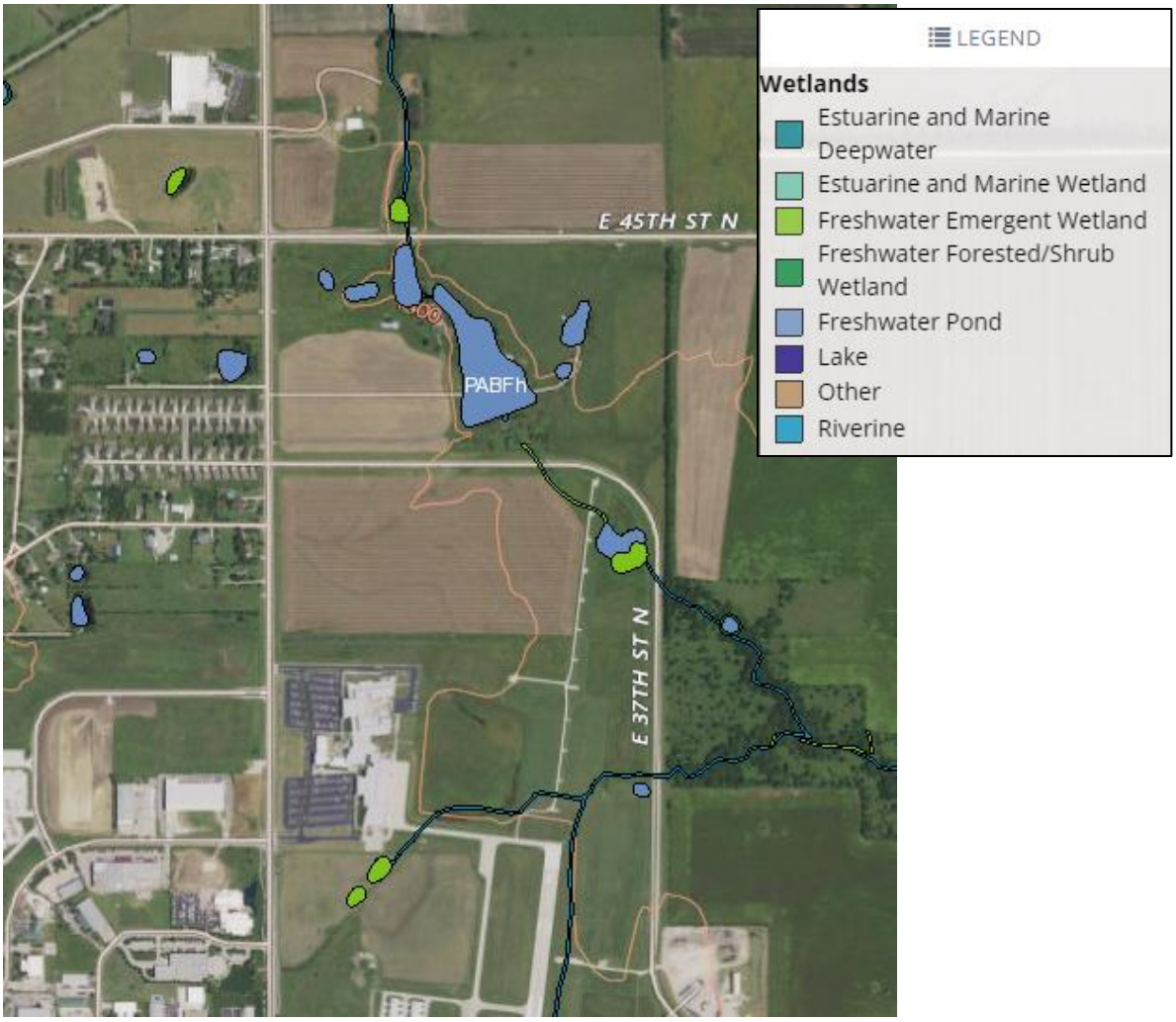


Figure 4: U.S. Fish and Wildlife Services Wetlands Map

4.0 Hydrologic Modeling

A conceptual hydrologic analysis was performed to evaluate impacts of development on water quantity and to indicate where new dry detention facilities might be required. Modeling was done using guidance from the City of Wichita Stormwater Manual. Hydrographs were developed for each condition using the NRCS Unit Hydrograph method, modeled in HEC-HMS software from the U.S. Army Corps of Engineers. The NRCS Curve Number method was used to account for rainfall losses. Hypothetical design storm events were modeled by applying local point rainfall depths for each return period to an NRCS 24-hour, Type 2 rainfall distribution.

4.1 Analysis Points

Four junction locations were analyzed. These points include culverts which could not practically be improved, inflow to the dry detention area, and the primary outlet to Upper Dry Creek which is not routed

through the dry detention area. Based on the City water quantity management requirements, it was assumed that the existing structures and conduits discharging into Upper Dry Creek on the east side of the site will remain constant.

Table 1: Analysis Points

Point	Description
Junction 1	5' x 10' RCB under TWY A1
Junction 2	Dry detention pond (total inflow)
Junction 3	Site outlet to Upper Dry Creek (SE Subbasin C)
Junction 4	Culvert under North 45th Street

4.2 Drainage Subbasins

Five subbasins, containing onsite and offsite areas, were delineated using lidar contours and USGS data. The subbasins ultimately outlet into Upper Dry Creek directly east of the site.

- Subbasins A and B discharge into Dry Creek East Tributary 1, which passes through the dry detention area and outlets the site to the east through conduits.
- Runoff from Subbasins C, D, and E enters Upper Dry Creek onsite and is carried southeast through the open channel.
- The far northeast corner of Area 3 is in a separate catchment which falls to the northeast and carries runoff into a tributary approximately 1.6 miles east of the site.

Subbasins are shown in Figure 5 on the following page.

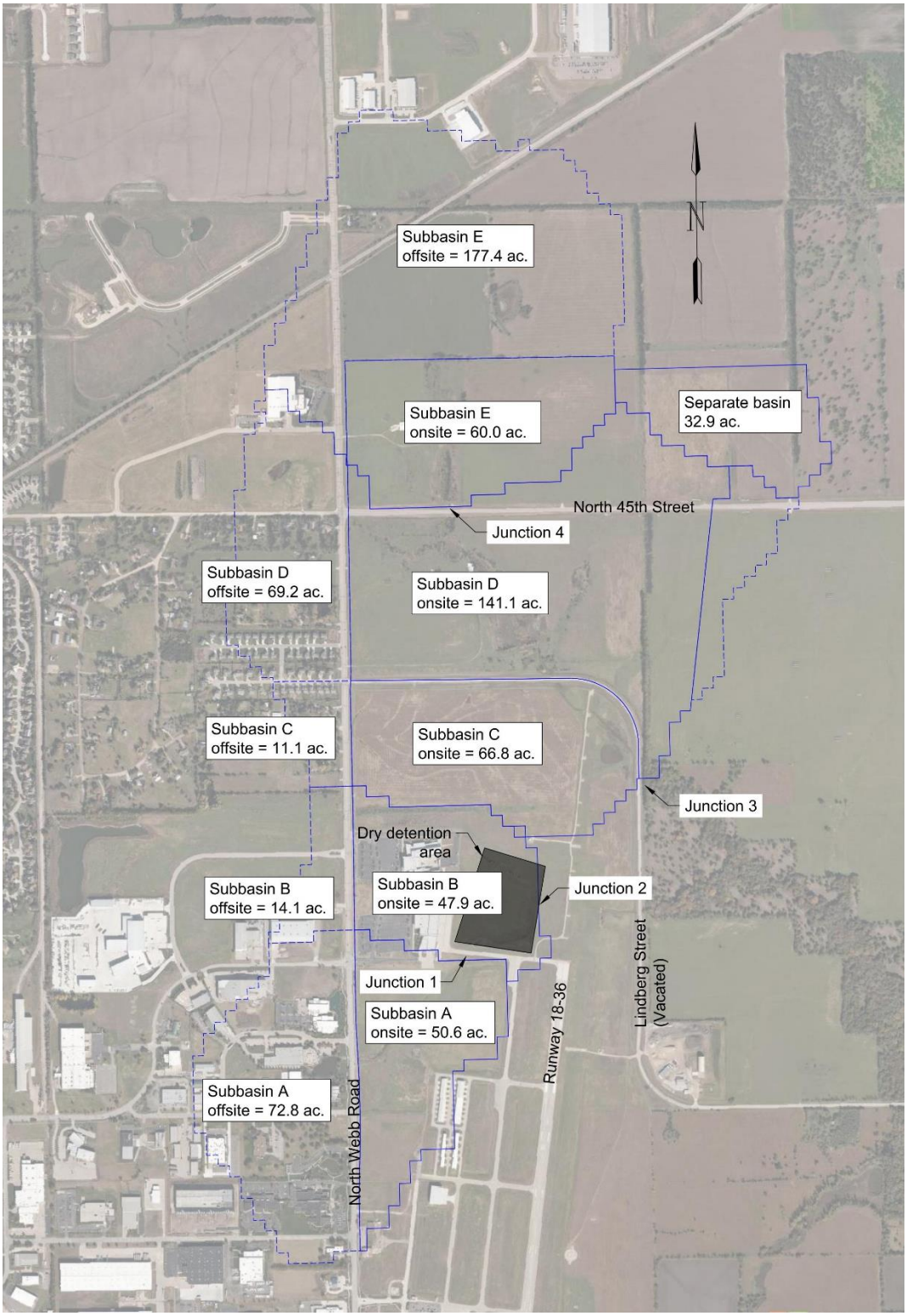


Figure 5: Subbasin Areas

4.3 Land Use and Engineering Properties

4.3.1 Soils and Current Land Use

A NRCS soils report was prepared for the project area. Soils onsite primarily consist of Rosehill silty clay, with some Farnum loam soils being present toward the west sides of Areas 2 and 3. Slopes are generally between 1 and 3 percent. Hydrologic soils groups are classified as group D for the Rosehill silty clay and B for the Farnum loam. Existing land use for the areas is undeveloped farmland / pasture.

4.3.2 Developed Land Use

For this study, the ultimate land use is assumed to be commercial and industrial developments, including airfield taxiway extensions and apron pavement to serve Areas 1 and 2. It is assumed that Area 3 will not have airfield access. The total area of developable land will be determined based on property lines, existing easements, local zoning setbacks, and FAA critical areas for the existing and proposed airfield infrastructure.

4.3.3 Impervious Areas and Curve Numbers

Curve numbers were developed using information from the City Stormwater Manual; composite values were calculated when required. Impervious areas were estimated using aerial imagery, Airport ALP drawings and average values from the Storm Manual. Offsite conditions were assumed constant pre- and post-development. Land use properties for the subbasins are provided in Table 2.

Table 2: Land Use Properties

	Subbasin A	Subbasin B	Subbasin C	Subbasin D	Subbasin E
Onsite area (acres)	50.6	47.9	66.8	141.1	60.0
Offsite area (acres)	72.8	14.1	11.2	69.2	177.4
Existing onsite impervious (%)	13.1	34.0	1.4	2.5	0.3
Developed onsite impervious (%)	57.9	36.3	25.8	24.6	56.7
Offsite impervious (%)	55.0	40.0	30.0	27.5	5
Impervious CN	98	98	98	98	98
Existing onsite pervious CN	84	88	84	84	84
Developed onsite pervious CN	88	88	88	88	88
Offsite pervious CN	88	84	88	84	84

4.3.4 Times of Concentration

Times of concentration were developed for each catchment area and for each design storm. Onsite, values were calculated for the existing and developed conditions. Calculations were performed using the NRCS method. Open channel travel time was calculated based on assumed velocities for curb, natural channel, and lined or conduit flows. A minimum value of 15 minutes was used in the models. Calculated times of concentration are provided in Table 3.

Table 3: Times of Concentration

min.	Subbasin A			Subbasin B			Subbasin C			Subbasin D			Subbasin E		
	Existing Onsite	*Developed Onsite*	*Offsite*	*Existing Onsite*	*Developed Onsite*	*Offsite*	*Existing Onsite*	*Developed Onsite*	*Offsite*	*Existing Onsite*	*Developed Onsite*	*Offsite*	*Existing Onsite*	*Developed Onsite*	*Offsite*
$T_{C,2}$	54.6	21.4	54.4	35.8	15.4	41.5	71.4	25.5	61.4	72.2	40.5	80.5	53.7	17.9	79.4
$T_{C,5}$	51.0	20.3	50.1	32.7	14.4	37.9	67.2	24.4	58.1	68.4	39.5	76.0	50.0	16.9	75.4
$T_{C,10}$	48.6	19.7	47.3	30.6	13.8	35.5	64.5	23.8	55.9	65.9	38.9	73.1	47.6	16.2	72.8
$T_{C,25}$	46.0	19.0	44.3	28.4	13.1	32.9	61.5	23.1	53.6	63.2	38.1	69.9	45.0	15.5	70.0
$T_{C,50}$	44.2	18.5	42.3	26.9	12.6	31.3	59.5	22.6	52.0	61.4	37.7	67.8	43.2	15.1	68.2
$T_{C,100}$	42.8	18.1	40.6	25.7	12.2	29.8	57.9	22.2	50.7	59.9	37.3	66.0	41.8	14.6	66.6

4.4 Results

Summary tables for each HEC-HMS simulation can be found on Page E-16. These show the peak discharge and total volumes at the junctions in the existing and developed conditions for each design storm event.

4.4.1 Detention

The results show that development in Areas 1 and 2 will require expansion or construction of additional dry detention facilities to maintain existing peak discharges and to handle the additional total runoff volume in the developed condition. For the portion of Area 3 which discharges to the south, results show a decrease in peak discharges for all but the 2-yr return period, indicating that no major detention facilities would be required to meet the water quantity standard. For the portion of Area 3 in Bel Aire, which discharges to the northeast, it is expected that detention will be required for development due to the upstream location of the area within the catchment.

Fill required for construction of a north taxilane through the existing dry detention basin would also impact the system due to reduction in storage volume. Because the base of the pond falls west to east, actual reduction in storage is dependent on the taxilane alignment.

- Taxilane Alternative 1 = 12,900 CY of storage volume loss
- Taxilane Alternative 2 = 2,400 CY of storage volume loss
- Taxilane Alternative 3 = 10,200 CY of storage volume loss

Since the basin currently overtops during at least the base flood event, a loss of storage would result in an increase of peak discharge. To offset this impact, compensatory storage could be provided when constructing the north taxilane by expanding the north side of the dry detention pond . This material could then be used as fill for the taxilane embankment. Taxiway alignment alternatives 2 & 3 would also dictate the potential need for equalizer structures to prevent an increase in base flood elevation west of the new taxilane.

4.4.2 Culverts

Because of uncertainty in the available data for the existing culverts, precise performance curves could not be developed.

The FEMA FIRM indicates that outlet flow from Area 1 currently overtops the Taxiway A1 RCB in at least the 100-yr rainfall event. Due to the increased peak discharge post-development, it can be expected that the overtopping would occur with a higher frequency. To determine any improvement that may be necessary, impacts to the overtopping flow condition and base flood elevations would need to be assessed based on the proposed site layout and topographical survey data.

The 45th Street culvert outlet for Area 3 is not identified on the FEMA FIRM, indicating that no overtopping occurs during the base flood event. Because peak discharges post-development are shown to decrease, no capacity issues with the existing culvert are anticipated.

HEC-HMS Simulation Results

Project: AAO development study Simulation Run: Existing - 002

Start of Run: 04Jul1776, 00:00
End of Run: 05Jul1776, 00:05
Compute Time:DATA CHANGED, RECOMPUTE
Basin Model: Existing - 002
Meteorologic Model: 002-yr
Control Specifications:Control 1

Show Elements: All Elements Volume Units: (•) IN ( ) ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Junction-1, A1 RCB	0.19283	170.8	04Jul1776, 12:25	2.49
Junction-2, dry pond inflow	0.28977	270.5	04Jul1776, 12:20	2.51
Junction-3, E site outlet	0.82111	473.4	04Jul1776, 12:40	1.92
Junction-4, 45th St culvert	0.37083	208.6	04Jul1776, 12:35	1.87

Project: AAO development study Simulation Run: Existing - 005

Start of Run: 04Jul1776, 00:00
End of Run: 05Jul1776, 00:05
Compute Time:DATA CHANGED, RECOMPUTE
Basin Model: Existing - 005
Meteorologic Model: 005-yr
Control Specifications:Control 1

Show Elements: All Elements Volume Units: (•) IN ( ) ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Junction-1, A1 RCB	0.19283	236.2	04Jul1776, 12:20	3.28
Junction-2, dry pond inflow	0.28977	372.6	04Jul1776, 12:15	3.30
Junction-3, E site outlet	0.82111	681.7	04Jul1776, 12:35	2.66
Junction-4, 45th St culvert	0.37083	301.7	04Jul1776, 12:30	2.61

Project: AAO development study Simulation Run: Existing - 010

Start of Run: 04Jul1776, 00:00
End of Run: 05Jul1776, 00:05
Compute Time:DATA CHANGED, RECOMPUTE
Basin Model: Existing - 010
Meteorologic Model: 010-yr
Control Specifications:Control 1

Show Elements: All Elements Volume Units: (•) IN ( ) ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Junction-1, A1 RCB	0.19283	298.2	04Jul1776, 12:20	3.98
Junction-2, dry pond inflow	0.28977	470.7	04Jul1776, 12:15	4.00
Junction-3, E site outlet	0.82111	877.5	04Jul1776, 12:35	3.33
Junction-4, 45th St culvert	0.37083	389.3	04Jul1776, 12:30	3.28

Project: AAO development study Simulation Run: Existing - 025

Start of Run: 04Jul1776, 00:00
End of Run: 05Jul1776, 00:05
Compute Time:DATA CHANGED, RECOMPUTE
Basin Model: Existing - 025
Meteorologic Model: 025-yr
Control Specifications:Control 1

Show Elements: All Elements Volume Units: (•) IN ( ) ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Junction-1, A1 RCB	0.19283	386.3	04Jul1776, 12:20	4.99
Junction-2, dry pond inflow	0.28977	610.9	04Jul1776, 12:15	5.01
Junction-3, E site outlet	0.82111	1159.0	04Jul1776, 12:35	4.30
Junction-4, 45th St culvert	0.37083	515.2	04Jul1776, 12:30	4.25

Project: AAO development study Simulation Run: Existing - 050

Start of Run: 04Jul1776, 00:00
End of Run: 05Jul1776, 00:05
Compute Time:DATA CHANGED, RECOMPUTE

Basin Model: Existing - 050
Meteorologic Model: 050-yr
Control Specifications:Control 1

Show Elements: All Elements | Volume Units: (•) IN ( ) ACRE-FT | Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Junction-1, A1 RCB	0.19283	461.0	04Jul1776, 12:15	5.84
Junction-2, dry pond inflow	0.28977	727.7	04Jul1776, 12:15	5.87
Junction-3, E site outlet	0.82111	1401.2	04Jul1776, 12:30	5.13
Junction-4, 45th St culvert	0.37083	623.0	04Jul1776, 12:25	5.07

Project: AAO development study Simulation Run: Existing - 100

Start of Run: 04Jul1776, 00:00
End of Run: 05Jul1776, 00:05
Compute Time:DATA CHANGED, RECOMPUTE

Basin Model: Existing - 100
Meteorologic Model: 100-yr
Control Specifications:Control 1

Show Elements: All Elements | Volume Units: (•) IN ( ) ACRE-FT | Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Junction-1, A1 RCB	0.19283	546.2	04Jul1776, 12:15	6.73
Junction-2, dry pond inflow	0.28977	854.0	04Jul1776, 12:10	6.76
Junction-3, E site outlet	0.82111	1665.1	04Jul1776, 12:30	6.00
Junction-4, 45th St culvert	0.37083	740.9	04Jul1776, 12:25	5.94

Project: AAO development study Simulation Run: Developed - 002

Start of Run: 04Jul1776, 00:00
End of Run: 05Jul1776, 00:05
Compute Time:DATA CHANGED, RECOMPUTE

Basin Model: Developed - 002
Meteorologic Model: 002-yr
Control Specifications:Control 1

Show Elements: All Elements | Volume Units: (•) IN ( ) ACRE-FT | Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Junction-1, A1 RCB	0.19283	202.8	04Jul1776, 12:10	2.84
Junction-2, dry pond inflow	0.28977	342.1	04Jul1776, 12:05	2.75
Junction-3, E site outlet	0.82111	621.3	04Jul1776, 12:15	2.28
Junction-4, 45th St culvert	0.37083	217.7	04Jul1776, 12:05	2.13

Project: AAO development study Simulation Run: Developed - 005

Start of Run: 04Jul1776, 00:00
End of Run: 05Jul1776, 00:05
Compute Time:DATA CHANGED, RECOMPUTE

Basin Model: Developed - 005
Meteorologic Model: 005-yr
Control Specifications:Control 1

Show Elements: All Elements | Volume Units: (•) IN ( ) ACRE-FT | Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Junction-1, A1 RCB	0.19283	274.2	04Jul1776, 12:10	3.66
Junction-2, dry pond inflow	0.28977	462.6	04Jul1776, 12:05	3.56
Junction-3, E site outlet	0.82111	842.2	04Jul1776, 12:15	3.06
Junction-4, 45th St culvert	0.37083	298.3	04Jul1776, 12:05	2.89

Project: AAO development study Simulation Run: Developed - 010

Start of Run: 04Jul1776, 00:00
End of Run: 05Jul1776, 00:05
Compute Time:DATA CHANGED, RECOMPUTE
Basin Model: Developed - 010
Meteorologic Model: 010-yr
Control Specifications:Control 1

Show Elements: All Elements Volume Units: (•) IN ( ) ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Junction-1, A1 RCB	0.19283	338.6	04Jul1776, 12:10	4.38
Junction-2, dry pond inflow	0.28977	571.4	04Jul1776, 12:05	4.28
Junction-3, E site outlet	0.82111	1039.4	04Jul1776, 12:15	3.75
Junction-4, 45th St culvert	0.37083	371.3	04Jul1776, 12:05	3.57

Project: AAO development study Simulation Run: Developed - 025

Start of Run: 04Jul1776, 00:00
End of Run: 05Jul1776, 00:05
Compute Time:DATA CHANGED, RECOMPUTE
Basin Model: Developed - 025
Meteorologic Model: 025-yr
Control Specifications:Control 1

Show Elements: All Elements Volume Units: (•) IN ( ) ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Junction-1, A1 RCB	0.19283	436.2	04Jul1776, 12:05	5.40
Junction-2, dry pond inflow	0.28977	730.2	04Jul1776, 12:05	5.30
Junction-3, E site outlet	0.82111	1332.7	04Jul1776, 12:10	4.74
Junction-4, 45th St culvert	0.37083	478.3	04Jul1776, 12:05	4.56

Project: AAO development study Simulation Run: Developed - 050

Start of Run: 04Jul1776, 00:00
End of Run: 05Jul1776, 00:05
Compute Time:DATA CHANGED, RECOMPUTE
Basin Model: Developed - 050
Meteorologic Model: 050-yr
Control Specifications:Control 1

Show Elements: All Elements Volume Units: (•) IN ( ) ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Junction-1, A1 RCB	0.19283	521.1	04Jul1776, 12:05	6.27
Junction-2, dry pond inflow	0.28977	866.1	04Jul1776, 12:05	6.16
Junction-3, E site outlet	0.82111	1584.0	04Jul1776, 12:10	5.59
Junction-4, 45th St culvert	0.37083	570.1	04Jul1776, 12:05	5.39

Project: AAO development study Simulation Run: Developed - 100

Start of Run: 04Jul1776, 00:00
End of Run: 05Jul1776, 00:05
Compute Time:DATA CHANGED, RECOMPUTE

Basin Model: Developed - 100
Meteorologic Model: 100-yr
Control Specifications:Control 1

Show Elements: All Elements Volume Units: (•) IN ( ) ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Junction-1, A1 RCB	0.19283	611.7	04Jul1776, 12:05	7.18
Junction-2, dry pond inflow	0.28977	1010.4	04Jul1776, 12:05	7.07
Junction-3, E site outlet	0.82111	1847.0	04Jul1776, 12:10	6.47
Junction-4, 45th St culvert	0.37083	668.6	04Jul1776, 12:05	6.27

Summary Results for Junction "Junction-2, dry pond inflow"

Project: AAO development study Simulation Run: Existing - 100
Junction: Junction-2, dry pond inflow

Start of Run: 04Jul1776, 00:00
End of Run: 05Jul1776, 00:05
Compute Time:DATA CHANGED, RECOMPUTE

Basin Model: Existing - 100
Meteorologic Model: 100-yr
Control Specifications:Control 1

Volume Units: ( ) IN (•) ACRE-FT

Computed Results

Peak Discharge:854.0 (CFS)
Volume: 104.5 (ACRE-FT)

Date/Time of Peak Discharge:04Jul1776, 12:10

Summary Results for Junction "Junction-2, dry pond inflow"

Project: AAO development study Simulation Run: Developed - 100
Junction: Junction-2, dry pond inflow

Start of Run: 04Jul1776, 00:00
End of Run: 05Jul1776, 00:05
Compute Time:DATA CHANGED, RECOMPUTE

Basin Model: Developed - 100
Meteorologic Model: 100-yr
Control Specifications:Control 1

Volume Units: ( ) IN (•) ACRE-FT

Computed Results

Peak Discharge:1010.4 (CFS)
Volume: 109.2 (ACRE-FT)

Date/Time of Peak Discharge:04Jul1776, 12:05

NRCS Soils Report

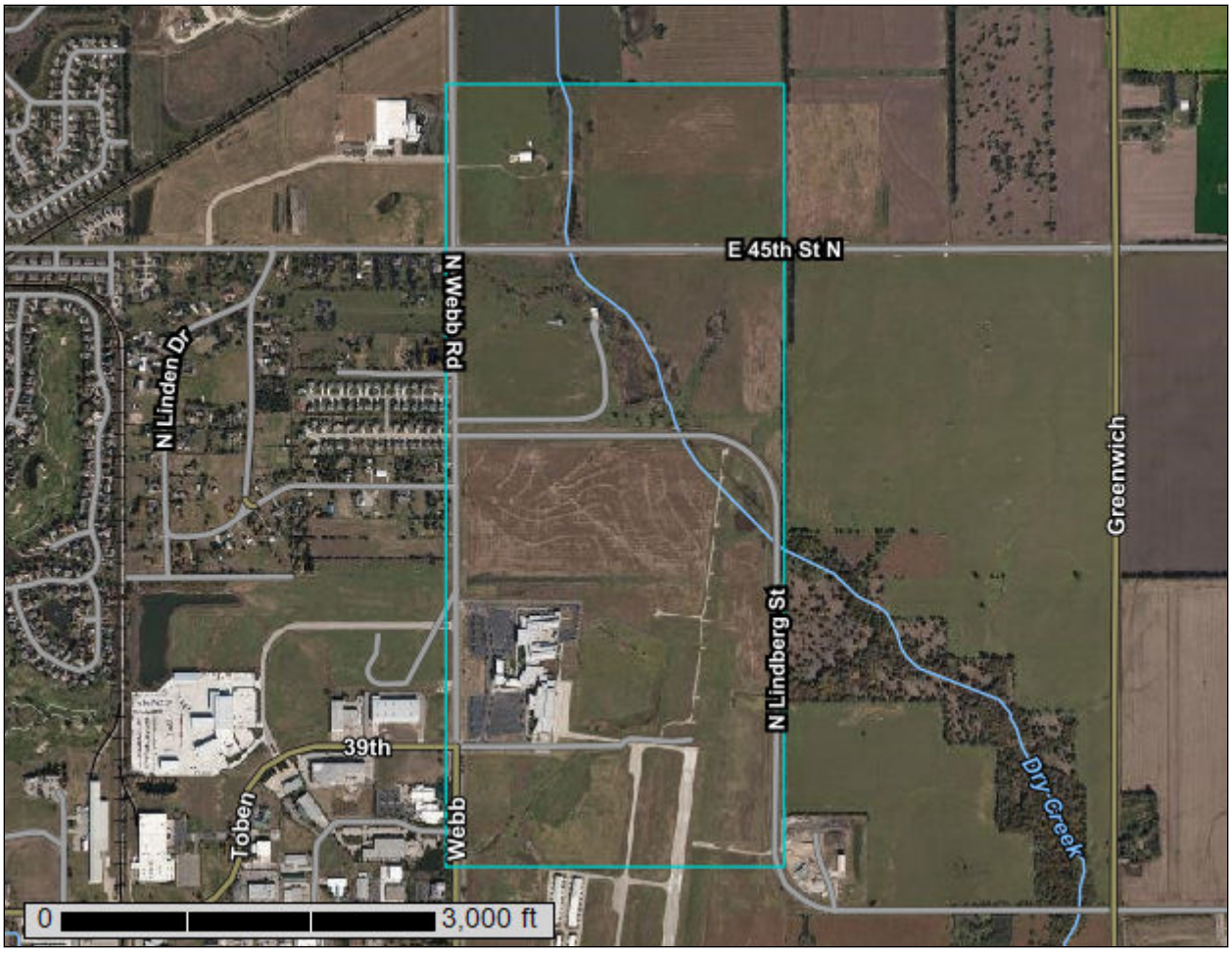
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Sedgwick County, Kansas



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.


97° 13' 54" W
97° 12' 43" W
37° 46' 19" N
37° 45' 5" N
655800
656000
656200
656400
656600
656800
657000
657200
657400
4182000
4181800
4181600
4181400
4181200
4181000
4180800
4180600
4180400
4180200
4180000
4179800
3858
N Webb Rd
E 45th St N
Private Dr
3911
E 42nd St N
5893
4570
Dry Creek
39th
E 39th St N
Webb
N Lindberg St
Soil Map may not be valid at this scale.
Map Scale: 1:11,200 if printed on A portrait (8.5" x 11") sheet.
N
Meters
0 150 300 600 900
Feet
0 500 1000 2000 3000
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Sedgwick County, Kansas
Survey Area Data: Version 18, Sep 13, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 23, 2018—Nov 29, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3858	Goessel silty clay, 1 to 3 percent slopes	0.3	0.1%
3911	Rosehill silty clay, 1 to 3 percent slopes	360.1	92.4%
4570	Clime silty clay, 3 to 7 percent slopes	0.2	0.1%
5893	Farnum loam, 1 to 3 percent slopes	29.1	7.5%
Totals for Area of Interest		**389.8**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Sedgwick County, Kansas

3858—Goessel silty clay, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tpvy
Elevation: 1,310 to 1,640 feet
Mean annual precipitation: 27 to 34 inches
Mean annual air temperature: 54 to 57 degrees F
Frost-free period: 165 to 200 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Goessel and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Goessel

Setting

Landform: Paleoterraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey alluvium over loamy alluvium

Typical profile

Ap - 0 to 6 inches: silty clay
A - 6 to 13 inches: silty clay
Bss - 13 to 31 inches: silty clay
BC - 31 to 51 inches: silty clay
2C - 51 to 79 inches: clay loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 24 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 3 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Ecological site: R076XY107KS - Clay Hills
Hydric soil rating: No

Minor Components

Ladysmith

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R076XY107KS - Clay Hills
Hydric soil rating: No

Irwin

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R076XY107KS - Clay Hills
Hydric soil rating: No

Rosehill

Percent of map unit: 4 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R076XY107KS - Clay Hills
Hydric soil rating: No

Aquolls, occasionally ponded

Percent of map unit: 1 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R074XY132KS - Subirrigated
Hydric soil rating: Yes

3911—Rosehill silty clay, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tt6d
Elevation: 1,310 to 1,640 feet
Mean annual precipitation: 27 to 34 inches
Mean annual air temperature: 54 to 57 degrees F
Frost-free period: 165 to 200 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Rosehill and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rosehill

Setting

Landform: Hillslopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Residuum weathered from clayey shale

Typical profile

Ap - 0 to 9 inches: silty clay
BA - 9 to 18 inches: silty clay
Bw - 18 to 29 inches: silty clay
C - 29 to 36 inches: silty clay
Cr - 36 to 79 inches: bedrock

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: 32 to 39 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Ecological site: R076XY107KS - Clay Hills
Hydric soil rating: No

Minor Components

Goessel

Percent of map unit: 5 percent
Landform: Paleoterraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R076XY107KS - Clay Hills
Hydric soil rating: No

Irwin

Percent of map unit: 4 percent
Landform: Interfluves
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R076XY107KS - Clay Hills
Hydric soil rating: No

Aquolls, occasionally ponded

Percent of map unit: 1 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R074XY132KS - Subirrigated
Hydric soil rating: Yes

4570—Clime silty clay, 3 to 7 percent slopes

Map Unit Setting

National map unit symbol: 2tt6x
Elevation: 1,310 to 1,640 feet
Mean annual precipitation: 27 to 34 inches
Mean annual air temperature: 54 to 57 degrees F
Frost-free period: 165 to 200 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Clime and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Clime

Setting

Landform: Hillslopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Residuum weathered from shale

Typical profile

A - 0 to 10 inches: silty clay
Bw - 10 to 19 inches: silty clay
C - 19 to 31 inches: silty clay
Cr - 31 to 41 inches: bedrock

Properties and qualities

Slope: 3 to 7 percent
Depth to restrictive feature: 20 to 39 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Ecological site: R076XY112KS - Limy Hills
Hydric soil rating: No

Minor Components

Rosehill

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R076XY107KS - Clay Hills
Hydric soil rating: No

Edalgo

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R074XY107KS - Clay Hills
Hydric soil rating: No

Irwin

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R076XY107KS - Clay Hills
Hydric soil rating: No

Longford

Percent of map unit: 3 percent
Landform: Interfluves

Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R074XY115KS - Loamy Hills
Hydric soil rating: No

Lancaster

Percent of map unit: 1 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R074XY115KS - Loamy Hills
Hydric soil rating: No

Aquolls, occasionally ponded

Percent of map unit: 1 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R074XY132KS - Subirrigated
Hydric soil rating: Yes

5893—Farnum loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2ww17
Elevation: 1,660 to 2,610 feet
Mean annual precipitation: 25 to 33 inches
Mean annual air temperature: 55 to 57 degrees F
Frost-free period: 180 to 200 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Farnum and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Farnum

Setting

Landform: Paleoterraces
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium

Typical profile

Ap - 0 to 9 inches: loam
Bt1 - 9 to 25 inches: loam

Bt2 - 25 to 48 inches: sandy clay loam
Bt3 - 48 to 73 inches: clay loam
Btk - 73 to 79 inches: loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 2c
Hydrologic Soil Group: B
Ecological site: R079XY115KS - Loamy Plains
Hydric soil rating: No

Minor Components

Penalosa

Percent of map unit: 8 percent
Landform: Paleoterraces
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R079XY107KS - Clayey Plains
Hydric soil rating: No

Nalim

Percent of map unit: 6 percent
Landform: Paleoterraces
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R079XY115KS - Loamy Plains
Hydric soil rating: No

Goessel

Percent of map unit: 5 percent
Landform: Paleoterraces
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R076XY107KS - Clay Hills
Hydric soil rating: No

Geary

Percent of map unit: 3 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear

Across-slope shape: Linear
Ecological site: R074XY115KS - Loamy Hills
Hydric soil rating: No

Naron

Percent of map unit: 2 percent
Landform: Dunes on paleoterraces
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Ecological site: R079XY122KS - Sandy Loam
Hydric soil rating: No

Aquolls, occasionally ponded

Percent of map unit: 1 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R074XY132KS - Subirrigated
Hydric soil rating: Yes

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COLONEL JAMES
JABARA AIRPORT

Appendix C

T&E SPECIES (GARVER)

Federally Protected Threatened & Endangered Species
Habitat Assessment & Preliminary Effects Determination Memo

Colonel James Jabara Airport Project
USFWS Project Code: 2023-0129156
Sedgwick County, Kansas
March 26, 2025

This memo serves to provide information on the occurrence of suitable habitat for the federally-protected threatened and endangered species listed by the U.S. Fish and Wildlife Service (USFWS), as documented by the Information for Planning and Consultation (IPaC) project planning tool (attached), for the Colonel James Jabara Airport (Airport) project in Sedgwick County, Kansas. **Figure 1** shows the project location. **Figure 2** shows the Action Area, consisting of a 1-mile buffer that includes agricultural land, the Union Pacific Railroad, residential and commercial areas in northeast Wichita, and the north portion of the existing Colonel James Jabara Airport.

Garver is a subconsultant to Coffman Associates, Inc. (Coffman), to provide environmental services to the Wichita Airport Authority (Owner) for future development on Airport property. The study area consists of an 80-acre parcel on the south side of E. 45th St. N., and a 95-acre parcel on the north side of E. 45th St. N, which combine for a total of 175 acres.

Coffman has retained Garver to develop documents and conduct a preliminary wetland delineation (see Preliminary Wetland Delineation Report), and a habitat assessment for federally-listed threatened and endangered species that may occur in the area. Garver completed a site visit of the study area on August 28 and 29, 2023. The majority of the study area consists of pastureland, wooded riparian areas, and scrub-shrub habitat. Land use adjacent to the study area consists primarily of cropland, urban neighborhoods, roadway, right-of-way, the Colonel James Jabara Airport, the National Institute for Aviation Research (Wichita State University), and a privately owned business. The study area is located within Wichita and Bel Aire city limits.

Suitable bald eagle (*Haliaeetus leucocephalus)* habitat is present within the study area in the form of large super canopy trees such as eastern cottonwood *(Populus deltoides)*. No bald eagles or nests were observed during the site visit. No migratory bird nest or use of a structure was observed during the field survey.

See **Table 1** for a list of species/habitats and preliminary effects determinations. Based on the official species list generated by IPaC (attached) on March 24, 2025, and on habitat observed in the study area, the project has a preliminary *no effect* determination for the peppered chub, and a preliminary *Not likely to jeopardize the continued existence of the species* determination for the tricolored bat, monarch butterfly, or the western regal fritillary.

Table 1: Habitat and Preliminary Effects Determination

Species and/or Critical Habitat	Federal Status	Habitat Requirements	Habitat Present within Study Area[3]	Preliminary Effects Determination
Peppered Chub *Macrhybopsis tetranema*	Endangered	Peppered chub habitat includes sandy-bottomed main channel rivers, designated as occupied water bodies or their direct tributaries, with slow moving shallow water.	No sandy-bottomed waters identified as an occupied water body, or their direct tributaries were observed within the study area.	No Effect
Tricolored Bat *Perimyotis sublfavus*	Proposed Endangered	Tricolored bat habitat includes live or dead trees and/or snags with a DBH* of ≥ 3 inches. Limestone karsts features, barns or sheds, and linear treed features can also be used by this species.	Multiple dead and live trees with a DBH* of ≥ 3 inches were observed in the wooded habitat within the study area. These trees would likely be removed during construction. Long-term habitat alterations include relatively minor reduction in the amount of overall habitat available for the Tricolored bat.	Not likely to jeopardize the continued existence of the species[1]
Monarch Butterfly *Danaus plexippus*	Proposed Threatened	Monarch butterfly habitat includes milkweed (*Asclepias* spp.) and native habitat with the presence of flowering or potentially flowering nectar plants.	Nectar producing plants were observed during the field investigation along streams in riparian zones, and in adjacent pastureland. Ground clearing during construction would likely remove a portion of the nectar producing plants; however, this will result in relatively minor reduction in the amount of overall habitat available for monarch butterflies.	Not likely to jeopardize the continued existence of the species[1]

Species and/or Critical Habitat	Federal Status	Habitat Requirements	Habitat Present within Study Area[3]	Preliminary Effects Determination
Western Regal Fritillary *Speyeria idalia*	Proposed Threatened	Fritillary habitat includes tall-grass prairie and other open and sunny locations such as damp meadows, marshes, wet fields, and mountain pastures. Three main habitat components consist of violet hostplants, nectar plants, and native warm-season bunch grasses.	Nectar producing plants were observed within the study area during the field investigation. Violet species capable of acting as hostplants have been recorded in nearby properties. Ground clearing during construction would likely remove a portion of the nectar producing plants; however, this will result in relatively minor reduction in the amount of overall habitat available for the Western regal fritillary.	Not likely to jeopardize the continued existence of the species[1]

* Diameter at breast height
[1] Effect determination for candidate and proposed species.

Prepared By:

GARVER, LLC

Shane Manion
Environmental Scientist
#918-858-4876;
Swmanion@garverusa.com

Attachments:
Figures 1-3
Photographic Log
USFWS Official IPaC List

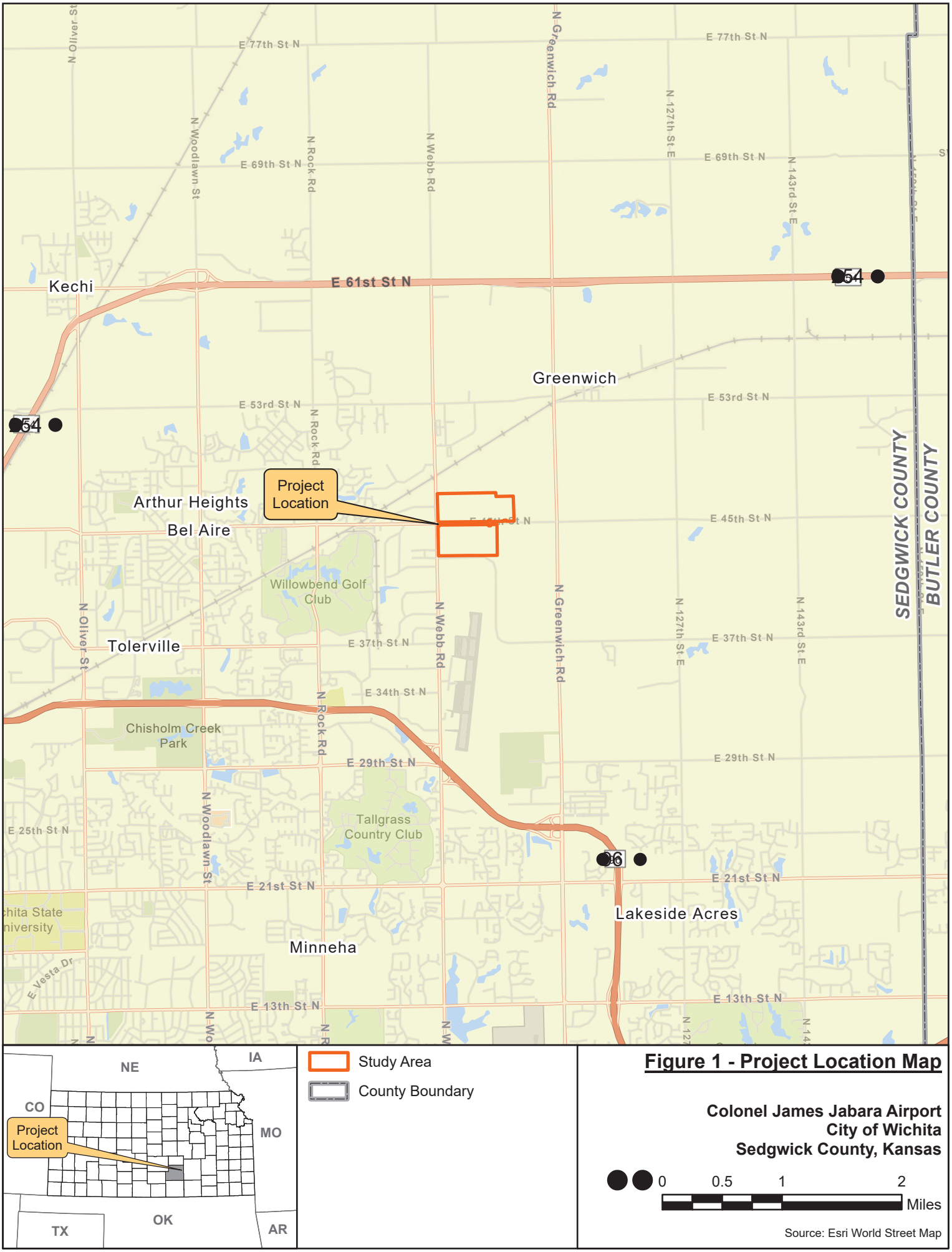


Figure 1 - Project Location Map

Colonel James Jabara Airport
City of Wichita
Sedgwick County, Kansas

Figure 2 - Environmental Study Footprint & Action Area Map

Colonel James Jabara Airport
City of Wichita
Sedgwick County, Kansas

Source: USDA NAIP 2021 Digital Orthophotography

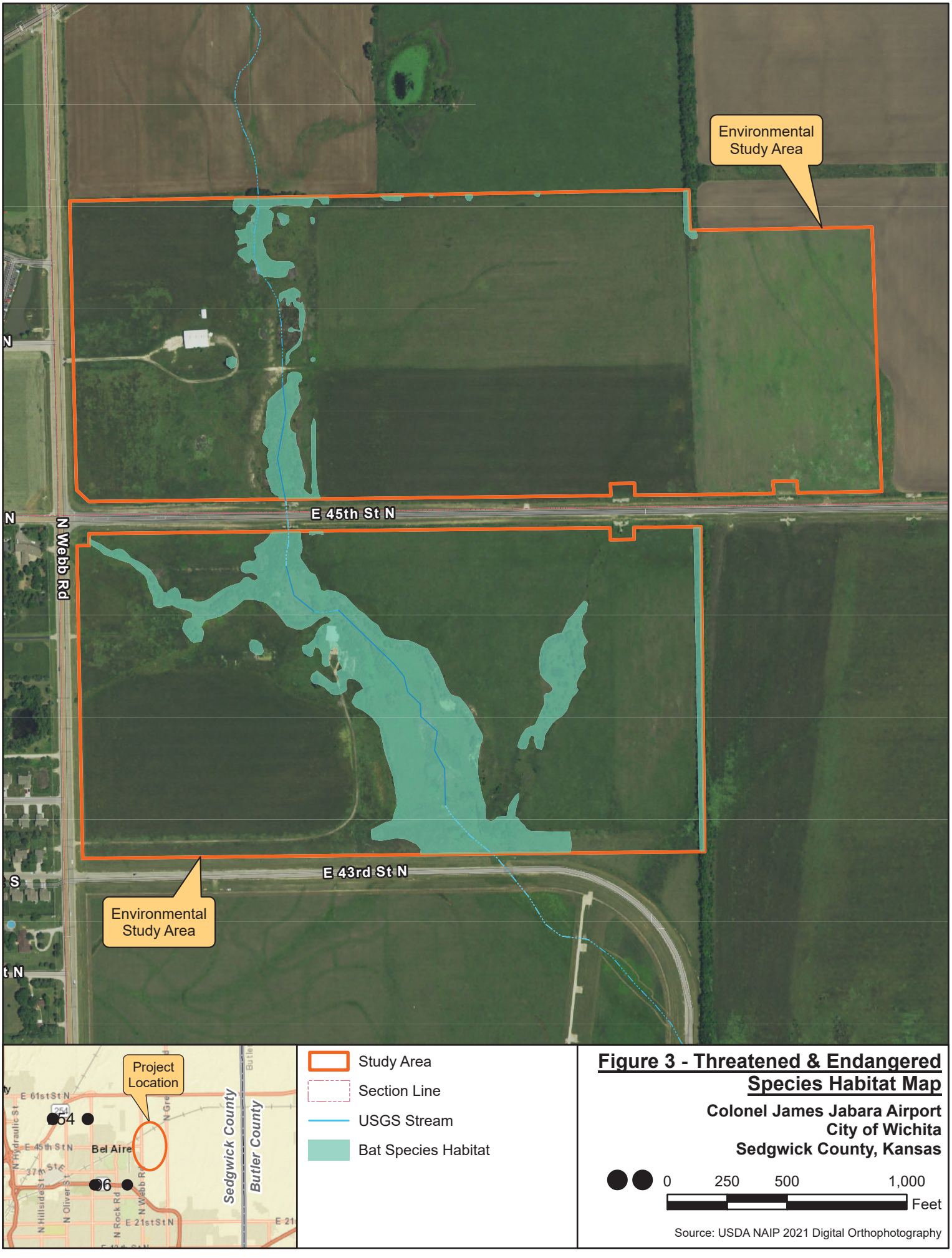


Figure 3 - Threatened & Endangered Species Habitat Map

Colonel James Jabara Airport
City of Wichita
Sedgwick County, Kansas

Source: USDA NAIP 2021 Digital Orthophotography

▲Suitable tricolored bat habitat in the south section of the study area. View is to the west.

▲Suitable tricolored bat habitat in the north section of the study area. View is to the north.

▲Monarch butterfly and western regal fritillary habitat in the south section of the study area. View is to the west.

▲Monarch butterfly and western regal fritillary habitat in the north section of the study area. View is to the west.

▲View of 45th Street. View is to the east.

▲View of 45th Street. View is to the west.

Sedgwick County, KS
Colonel James Jabara Airport

On-site photographs taken August 29 & 30, 2023
Garver Project No. 23A17000

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kansas Ecological Services Field Office
2609 Anderson Avenue
Manhattan, KS 66502-2801
Phone: (785) 539-3474 Fax: (785) 539-8567

In Reply Refer To: 03/24/2025 14:59:00 UTC
Project Code: 2023-0129156
Project Name: Jabara Airport - Wichita, KS 23A17000

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

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, 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 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 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.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

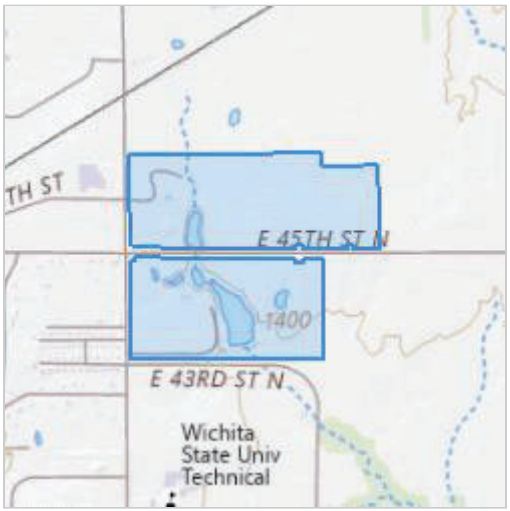
This species list is provided by:

Kansas Ecological Services Field Office
2609 Anderson Avenue
Manhattan, KS 66502-2801
(785) 539-3474

PROJECT SUMMARY

Project Code: 2023-0129156
Project Name: Jabara Airport - Wichita, KS 23A17000
Project Type: Airport - New Construction
Project Description: Colonel James Jabara Airport - Wichita, KS 23A17000
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.7687447,-97.2204461493153,14z



Counties: Sedgwick County, Kansas

ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

FISHES

NAME	STATUS
Peppered Chub *Macrhybopsis tetranema* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/532	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened
Western Regal Fritillary *Argynnis idalia occidentalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/12017	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency:	Wichita city
Name:	Garver LLC
Address:	6100 S. Yale Avenue
Address Line 2:	Suite 1300
City:	Tulsa
State:	OK
Zip:	74136
Email	okbiologist@garverusa.com
Phone:	9182505922

COLONEL JAMES
JABARA AIRPORT

Appendix D

WETLAND DELINEATION REPORT

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, KANSAS CITY DISTRICT
601 E. 12TH STREET, 635 FEDERAL BUILDING
KANSAS CITY, MO 64106-2824

CENWK-ODR-K 15 January 2025

MEMORANDUM FOR RECORD

SUBJECT: US Army Corps of Engineers (Corps) Pre-2015 Regulatory Regime Approved Jurisdictional Determination in Light of *Sackett v. EPA*, 143 S. Ct. 1322 (2023) ,[1] [NWK-2022-00637] [MFR 1 of 1] [2].

BACKGROUND. An Approved Jurisdictional Determination (AJD) is a Corps document stating the presence or absence of waters of the United States on a parcel or a written statement and map identifying the limits of waters of the United States on a parcel. AJDs are clearly designated appealable actions and will include a basis of JD with the document.[3] AJDs are case-specific and are typically made in response to a request. AJDs are valid for a period of five years unless new information warrants revision of the determination before the expiration date or a District Engineer has identified, after public notice and comment, that specific geographic areas with rapidly changing environmental conditions merit re-verification on a more frequent basis.[4] For the purposes of this AJD, we have relied on section 10 of the Rivers and Harbors Act of 1899 (RHA),[5] the Clean Water Act (CWA) implementing regulations published by the Department of the Army in 1986 and amended in 1993 (references 2.a. and 2.b. respectively), the 2008 *Rapanos-Carabell* guidance (reference 2.c.), and other applicable guidance, relevant case law and longstanding practice, (collectively the pre-2015 regulatory regime), and the *Sackett* decision (reference 2.d.) in evaluating jurisdiction.

This Memorandum for Record (MFR) constitutes the basis of jurisdiction for a Corps AJD as defined in 33 CFR §331.2. The features addressed in this AJD were evaluated consistent with the definition of “waters of the United States” found in the pre-2015 regulatory regime and consistent with the Supreme Court's decision in *Sackett*. This AJD did not rely on the 2023 “Revised Definition of ‘Waters of the United States,’” as

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[1] While the Supreme Court’s decision in *Sackett* had no effect on some categories of waters covered under the CWA, and no effect on any waters covered under RHA, all categories are included in this Memorandum for Record for efficiency.

[2] When documenting aquatic resources within the review area that are jurisdictional under the Clean Water Act (CWA), use an additional MFR and group the aquatic resources on each MFR based on the TNW, interstate water, or territorial seas that they are connected to. Be sure to provide an identifier to indicate when there are multiple MFRs associated with a single AJD request (i.e., number them 1, 2, 3, etc.).

[3] 33 CFR 331.2.

[4] Regulatory Guidance Letter 05-02.

[5] USACE has authority under both Section 9 and Section 10 of the Rivers and Harbors Act of 1899 but for convenience, in this MFR, jurisdiction under RHA will be referred to as Section 10.

amended on 8 September 2023 (Amended 2023 Rule) because, as of the date of this decision, the Amended 2023 Rule is not applicable in Kansas due to litigation.

1. SUMMARY OF CONCLUSIONS.

    a. Provide a list of each individual feature within the review area and the jurisdictional status of each one (i.e., identify whether each feature is/is not a water of the United States and/or a navigable water of the United States).

        i. S1, non-jurisdictional 1st order stream channel

        ii. S2, non-jurisdictional 1st order stream channel

        iii. S3, jurisdictional 2nd order stream channel, Section 404

        iv. W1, jurisdictional wetland, Section 404

        v. W2, jurisdictional wetland, Section 404

        vi. W3, jurisdictional wetland, Section 404

        vii. W4, jurisdictional wetland, Section 404

        viii. W5, non-jurisdictional wetland

        ix. W6, non-jurisdictional wetland

        x. W7, non-jurisdictional wetland

        xi. W8, jurisdictional wetland, Section 404

        xii. W9, jurisdictional wetland, Section 404

2. REFERENCES.

    a. Final Rule for Regulatory Programs of the Corps of Engineers, 51 FR 41206 (November 13, 1986).

    b. Clean Water Act Regulatory Programs, 58 FR 45008 (August 25, 1993).

c. U.S. EPA & U.S. Army Corps of Engineers, Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States & Carabell v. United States* (December 2, 2008)

d. *Sackett v. EPA*, 598 U.S. _, 143 S. Ct. 1322 (2023)

3. REVIEW AREA.

There are two separate review areas included in this approved jurisdiction determination. They are located on the north and south sides of E. 45th St. N, in Sections 21 & 28, Township 26 south, Range 2 east, Sedgwick County, Kansas [37.768709, -97.221838]. The north review area is approximately 95 acres in size, located in Section 21. The South review area is approximately 80 acres in size, located in Section 28. A map depicting the review area boundaries and the identified waterbodies within the review area is attached.

4. NEAREST TRADITIONAL NAVIGABLE WATER (TNW), INTERSTATE WATER, OR THE TERRITORIAL SEAS TO WHICH THE AQUATIC RESOURCE IS CONNECTED.

The Whitewater River is the closest downstream TNW to the waters listed above in Section 1.a. The Whitewater River has been determined a TNW from its confluence with the Walnut River, upstream to the confluence with the West Branch Whitewater River. Justification for this designation is provided in the District's Kansas TNW Designation MFR dated 5 October 2007.[6]

5. FLOWPATH FROM THE SUBJECT AQUATIC RESOURCES TO A TNW, INTERSTATE WATER, OR THE TERRITORIAL SEAS

Streams S1 & S2 converge within the south review area and flow into tributary S3, which flows south outside of the review area. All of the wetlands within the review areas except for W5, W6, and W7 have a continuous surface connection to tributary S3. Tributary S3 is the upper end of Dry Creek, which flows into the Whitewater River (TNW).

[6] This MFR should not be used to complete a new stand-alone TNW determination. A stand-alone TNW determination for a water that is not subject to Section 9 or 10 of the Rivers and Harbors Act of 1899 (RHA) is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where upstream or downstream limits or lake borders are established.

6. SECTION 10 JURISDICTIONAL WATERS[7]: Describe aquatic resources or other features within the review area determined to be jurisdictional in accordance with Section 10 of the Rivers and Harbors Act of 1899. Include the size of each aquatic resource or other feature within the review area and how it was determined to be jurisdictional in accordance with Section 10.[8] [N/A]

7. SECTION 404 JURISDICTIONAL WATERS: Describe the aquatic resources within the review area that were found to meet the definition of waters of the United States in accordance with the pre-2015 regulatory regime and consistent with the Supreme Court's decision in *Sackett*. List each aquatic resource separately, by name, consistent with the naming convention used in section 1, above. Include a rationale for each aquatic resource, supporting that the aquatic resource meets the relevant category of "waters of the United States" in the pre-2015 regulatory regime. The rationale should also include a written description of, or reference to a map in the administrative record that shows, the lateral limits of jurisdiction for each aquatic resource, including how that limit was determined, and incorporate relevant references used. Include the size of each aquatic resource in acres or linear feet and attach and reference related figures as needed.

    a. TNWs (a)(1): [N/A]

    b. Interstate Waters (a)(2): [N/A]

    c. Other Waters (a)(3): [N/A]

    d. Impoundments (a)(4): [N/A]

    e. Tributaries (a)(5):

        RPW Stream (S3): The consultant's delineation report labels this tributary as a portion of (S1); however, we have relabeled this tributary based on the stream order in accordance with current guidance. Tributary (S3) measures a total of approximately 550 feet in length and averages 5 feet wide within the review area. The lateral limits of this tributary extends to the stream's ordinary high water

[7] 33 CFR 329.9(a) A waterbody which was navigable in its natural or improved state, or which was susceptible of reasonable improvement (as discussed in § 329.8(b) of this part) retains its character as "navigable in law" even though it is not presently used for commerce, or is presently incapable of such use because of changed conditions or the presence of obstructions.

[8] This MFR is not to be used to make a report of findings to support a determination that the water is a navigable water of the United States. The district must follow the procedures outlined in 33 CFR part 329.14 to make a determination that water is a navigable water of the United States subject to Section 10 of the RHA.

mark (OHWM). The delineation report and the attached map depict the geographic limits of (S3). Tributary (S3) begins at the confluence of streams (S1) & (S2) within wetland (W3). As it exits (W3) it has a clear OHWM with well established bed and banks. The channel flows east and south until it enters wetlands (W2) & (W1). It flows through these wetlands and picks up a clear OHWM again as it flows south out of wetland (W1). It then flows south into and through wetland (W8). The northern portion that exists in between (W3) and (W2) measures approximately 335 feet, while the southern portion located in between (W1) and (W8) measures approximately 215 feet. Tributary S3 flows through all of these wetlands, but for the sake of delineation will be categorized as wetland while within the wetland boundaries and stream channel when outside of the wetland boundaries.

Tributary (S3) was formerly impounded, but the old dam has since been breached allowing flows to flow through the former dam. Tributary (S3) is a 2nd order stream that begins at the confluence of (S1) and (S2) within the review area and extends south of the review area until in connects with another 2nd order stream forming a 3rd order stream at [37.751249, -97.185307], approximately 3.2 river miles southeast of the review area. The stream reach in which the flow duration for (S3) will be assessed includes the entire 2nd order stream measuring approximately 3.5 miles in length. A map depicting this 2nd order extent is attached.

The flow regime for Tributary (S3) was assessed by reviewing the consultant's delineation report (2 separate field visits), a site visit conducted by the Corps, and review of multiple years of aerial imagery (Google Earth imagery 1996-2023). The Antecedent Precipitation Tool (APT) was used to determine the conditions of the site for the dates assessed. The first field visit recorded in the delineation report was completed on August 29 and 30, 2023. During that visit tributary (S3) on site was observed to be dry with a few small pools measuring 6-8 inches deep. The APT for these dates shows normal conditions, however it shows this was the dry season during a mild drought. The second field visit recorded in the delineation report was completed on January 29, 2024. During this visit the delineation report documented that there was 2 feet of water overflowing the streams banks and it had consistent flow. The APT data for this date showed normal conditions (condition value of 18) during the wet season. A site visit was conducted by the Corps on December 12, 2023. During this visit flowing water was observed throughout the channel. The APT data for this visit showed slightly wetter than normal conditions (condition value of 16) during the wet season during an incipient drought. The following aerial images from Google Earth were observed with visible standing or flowing water throughout the visible channel: 1/6/23, 10/26/18, & 2/20/17. APT data for these images record the

following 1/6/23 – wet season, normal conditions, moderate drought; 10/26/18 – wet season, wetter than normal conditions; 2/20/17 – wet season, normal conditions. Additionally, Google Street View images were observed with standing or flowing water within the channel where the stream crosses E 37th street and where it crosses Greenwich Road. The date for these images were only specific to the month (July 2021), therefore APT was not able to be obtained for these images. Based on review of all the data collected above and considering that the focus of the field visits and observation of the aerial images was on the upper end of this 3.5-mile-long 2nd order reach, where flows are expected to be drier than the majority of the rest of the reach, we have determined that tributary (S3) is a relatively permanent water (RPW). While the APT data for some of the dates may prove inconclusive, the preponderance of evidence combined demonstrates the stream has relatively permanent hydrology. Based on meeting the characteristics of a relatively permanent water, conveying consistent hydrology indirectly through the tributary system to the downstream TNW, (S3) satisfies the definition of an (a)(5) tributary and is jurisdictional.

f. The territorial seas (a)(6): [N/A]

g. Adjacent wetlands (a)(7):

Wetlands (W1), (W2), (W3), and (W8): Wetlands (W1) [1.45 acres], (W2) [0.24 acres], (W3) [0.38 acres], and (W8) [0.09 acres] all abut/touch RPW (S3), therefore they have a continuous surface connection with an RPW that connects with a downstream TNW. Wetlands (W2) and (W1) are part of the same wetland but are identified separately by the consultant, in order to differentiate their vegetation classification. (W2) is forested, while (W1) is emergent.

Wetland (W4): Wetland (W4) [0.20 acres] is a scrub-shrub wetland that abuts a NRPW stream (S2). This NRPW stream (S2) acts as a discrete conveyance connecting (W4) to RPW (S3) downstream through wetland (W3) as well. This discrete surface connection has a clear ordinary high water mark, indicating that during rain events there is frequent surface water flows connecting wetland (W4) to the downstream RPW. Army/EPA Joint Policy Memorandum on LRB-2023-00451 clarifies that “certain non-relatively permanent streams and other non-relatively permanent channels can serve as all or part of a continuous surface connection depending on the factual context. This is because these features often have physical indicators of flow (*e.g.*, bed and bank and other indicators of an ordinary high-water mark) that provide evidence that the features continuously, physically connect wetlands to jurisdictional waters including during storm events, bank full periods, and/or ordinary high flows.” This discrete

conveyance extends approximately 325 feet from (W4) to RPW (S3). These elements and conditions are factually similar to those found in the Army/EPA Joint Policy Memorandums for NAP-2023-01223, SWG-2023-00284, LRB-2023-00451, and POH-2023-00187. All of which concluded that a continuous surface connection existed between the wetland and the downstream RPW based on the number and type of connections, the physical indicators of flow, and the short length of the physical connection. Therefore, we have determined that wetland (W4) has a continuous surface connection with RPW (S3). As such (W4) is a jurisdictional wetland adjacent to RPW (S3).

Wetland (W9): Wetland (W9) [0.07 acres] is separated from (S3) by a natural stream berm. The natural berm that separates Wetland (W9) from (S3) was created from frequent overbank flows from (S3) depositing sediments. The existence of this natural berm demonstrates that stream (S3) regularly overtops and floods along the natural streambank. The natural stream berms formation and continued presence is a result of the direct hydrologic connection. Army/EPA Joint Memorandum on MVR-2023-00828 explains that "certain natural banks and similar natural landforms are indicators of a direct hydrologic surface connection between the wetland and the requisite covered water, as natural banks and similar natural landforms are formed through repeated hydrologic events. Natural banks can also provide evidence of a continuous surface connection because the processes that result in their formation can also be representative of the interconnected relationship between the wetlands and the requisite covered water." In this case the natural stream berm does not sever the continuous surface connection and provides evidence of a continuous surface connection to RPW (S3). As Such wetland (W9) is a jurisdictional adjacent wetland.

In summary wetlands (W1), (W2), (W3), (W4), (W8), and (W9) all have a continuous surface connection with (S3), an RPW tributary that connects indirectly through the tributary system downstream to the TNW. As such these wetlands are jurisdictional (a7) adjacent wetlands. The geographic limits of these wetlands extend to the wetland boundaries documented in the delineation report and depicted in both the delineation report and the attached map.

8. NON-JURISDICTIONAL AQUATIC RESOURCES AND FEATURES

a. Describe aquatic resources and other features within the review area identified as "generally non-jurisdictional" in the preamble to the 1986 regulations (referred to as "preamble waters").[9] Include size of the aquatic resource or feature within

[9] 51 FR 41217, November 13, 1986.

the review area and describe how it was determined to be non-jurisdictional under the CWA as a preamble water. [N/A]

b. Describe aquatic resources and features within the review area identified as "generally not jurisdictional" in the *Rapanos* guidance. Include size of the aquatic resource or feature within the review area and describe how it was determined to be non-jurisdictional under the CWA based on the criteria listed in the guidance. [N/A]

c. Describe aquatic resources and features identified within the review area as waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA. Include the size of the waste treatment system within the review area and describe how it was determined to be a waste treatment system. [N/A]

d. Describe aquatic resources and features within the review area determined to be prior converted cropland in accordance with the 1993 regulations (reference 2.b.). Include the size of the aquatic resource or feature within the review area and describe how it was determined to be prior converted cropland. [N/A]

e. Describe aquatic resources (i.e. lakes and ponds) within the review area, which do not have a nexus to interstate or foreign commerce, and prior to the January 2001 Supreme Court decision in "*SWANCC*," would have been jurisdictional based solely on the "Migratory Bird Rule." Include the size of the aquatic resource or feature, and how it was determined to be an "isolated water" in accordance with *SWANCC*. [N/A]

f. Describe aquatic resources and features within the review area that were determined to be non-jurisdictional because they do not meet one or more categories of waters of the United States under the pre-2015 regulatory regime consistent with the Supreme Court's decision in *Sackett* (e.g., tributaries that are non-relatively permanent waters; non-tidal wetlands that do not have a continuous surface connection to a jurisdictional water).

Stream (S1): Stream (S1) is a 1st order headwater stream with non-relatively permanent flows. It has approximately 200 acres of drainage that flows south through the channel connecting it to tributary (S3). This ephemeral non-RPW stream does not provide sufficient flow duration to constitute sustained flows during wet or dry seasons. The stream only exhibits ephemeral flow in direct response to precipitation runoff. A review of multiple years of aerial imagery (1996 to 2023) did not show any evidence of water within the channel. Based on the above observations and considering the annual rainfall (34 inches), relatively

small drainage size (200 acres), and location within the landscape, this ephemeral stream does not receive flows more than in a direct response to precipitation and does not have continuous flow at least seasonally. Stream (S1) is therefore a non-jurisdictional non-relatively permanent water.

Stream (S2): Stream (S2) is a 1st order headwater stream with non-relatively permanent flows. It has approximately 50 acres of drainage that flows east through the channel connecting it to tributary (S3). This ephemeral non-RPW stream does not provide sufficient flow duration to constitute sustained flows during wet or dry seasons. The stream only exhibits ephemeral flow in direct response to precipitation runoff. A review of multiple years of aerial imagery (1996 to 2023) did not show evidence of a relatively permanent flow regime. A small percentage of the aerial images showed a small area of pooling water in a low spot within the channel, but the majority of the stream channel was dry in almost every image reviewed. Based on the above observations and considering the annual rainfall (34 inches), relatively small drainage size (50 acres) and location within the landscape, this ephemeral stream does not receive flows more than in a direct response to precipitation and does not have continuous flow at least seasonally. Stream (S2) is therefore a non-jurisdictional non-relatively permanent water.

Wetland (W5): Wetland (W5) is isolated, with no discrete connection to the tributary system. It is 675 feet from the closest tributary. Only sheet flow during extreme rainfall events could connect this wetland to the downstream waters, therefore is not determined to be an adjacent wetland.

Wetlands (W6) and (W7): Wetlands (W6) [0.73 acres] and (W7) [0.49 acres] abut NRPW (S1). This NRPW stream (S1) connects with the downstream RPW (S3). This discrete conveyance extends approximately 600 feet from (W6) to RPW (S3) and 1,175 feet from W7 to RPW (S3), including its flows that go through (W6). Army/EPA Joint Memorandum on NWK-2024-00392 explains that "As the length of the connection increases, even with stronger indicators of flow (including actual flow, indicators of ordinary high water mark, etc.), the length of the connection can become no longer physically close (see Sackett, 598 U.S. at 667, referenced above), such that the discrete features are no longer providing a continuous physical connection." After consideration of flow, the number, the types, and the length of connection, the 600-foot and 1,175-foot length of connections between these wetlands and the downstream RPW is not physically close enough to meet the continuous surface connection requirement. Thus, wetlands (W6) and (W7) do not have a continuous surface connection to the downstream relatively permanent tributary and, consistent with *Sackett*, are not

"adjacent." Wetlands (W6) and (W7) are not jurisdictional waters of the United States.

In summary Wetlands (W5), (W6), and (W7) are not paragraph (a)(7) adjacent wetlands. Based on the resources consulted, it has been determined that these wetlands do not physically abut another water of the U.S. (i.e., a TNW, interstate water, jurisdictional impoundment, jurisdictional tributary, or the territorial seas). Additionally, these wetlands do not have a continuous surface connection to another water of the U.S. (i.e., Wetlands (W5), (W6), and (W7) do not abut another water of the U.S.; Therefore, it has been determined that Wetlands (W5), (W6), and (W7) are not adjacent to another water of the U.S and are not jurisdictional.

9. DATA SOURCES. List sources of data/information used in making determination. Include titles and dates of sources used and ensure that information referenced is available in the administrative record.

a. 12 Dec 2023 Corps site visit conducted.

b. 1:24k USGS Topographic Map (Greenwich), accessed 12 Dec 2023.

c. National Wetlands Inventory Map, https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/, accessed 12 Dec 2023.

d. Google Earth Aerial Imagery (1996-2023), accessed 5 Feb 2024.

e. Kansas Elevation Hillshade (LiDAR Shaded Relief) (2015-2018), accessed 12 Dec 2023.

f. National Hydrography Dataset Plus, accessed 12 Dec 2023.

g. Preliminary Wetland Delineation Report: Colonel James Jabara Airport, GarverUSA, February 2, 2024.

h. Antecedent Precipitation Tool data, accessed 6 Feb 2023.

10. OTHER SUPPORTING INFORMATION.

a. Army/EPA Joint Memorandum on NAP-2023-1223 - Headquarters Field Memo implementing the Pre-2015 Regulatory Regime Consistent with Sackett (June 25, 2024).

b. Army/EPA Joint Memorandum on SWG-2023-00284 - Headquarters Field Memo implementing the Pre-2015 Regulatory Regime Consistent with Sackett (June 25, 2024).

c. Army/EPA Joint Memorandum on LRB-2023-00451 - Headquarters Field Memo implementing the Pre-2015 Regulatory Regime Consistent with Sackett (September 3, 2024).

d. Army/EPA Joint Memorandum on POH-2023-00187 - Headquarters Field Memo implementing the Pre-2015 Regulatory Regime Consistent with Sackett (November 20, 2024)

e. Army/EPA Joint Memorandum on NWK-2024-00392 - Headquarters Field Memo implementing the Pre-2015 Regulatory Regime Consistent with Sackett (November 21, 2024)

f. Army/EPA Joint Memorandum on MVR-2023-00828 - Headquarters Field Memo implementing the Pre-2015 Regulatory Regime Consistent with Sackett (December 20, 2024).

11. NOTE: The structure and format of this MFR were developed in coordination with the EPA and Department of the Army. The MFR's structure and format may be subject to future modification or may be rescinded as needed to implement additional guidance from the agencies; however, the approved jurisdictional determination described herein is a final agency action.

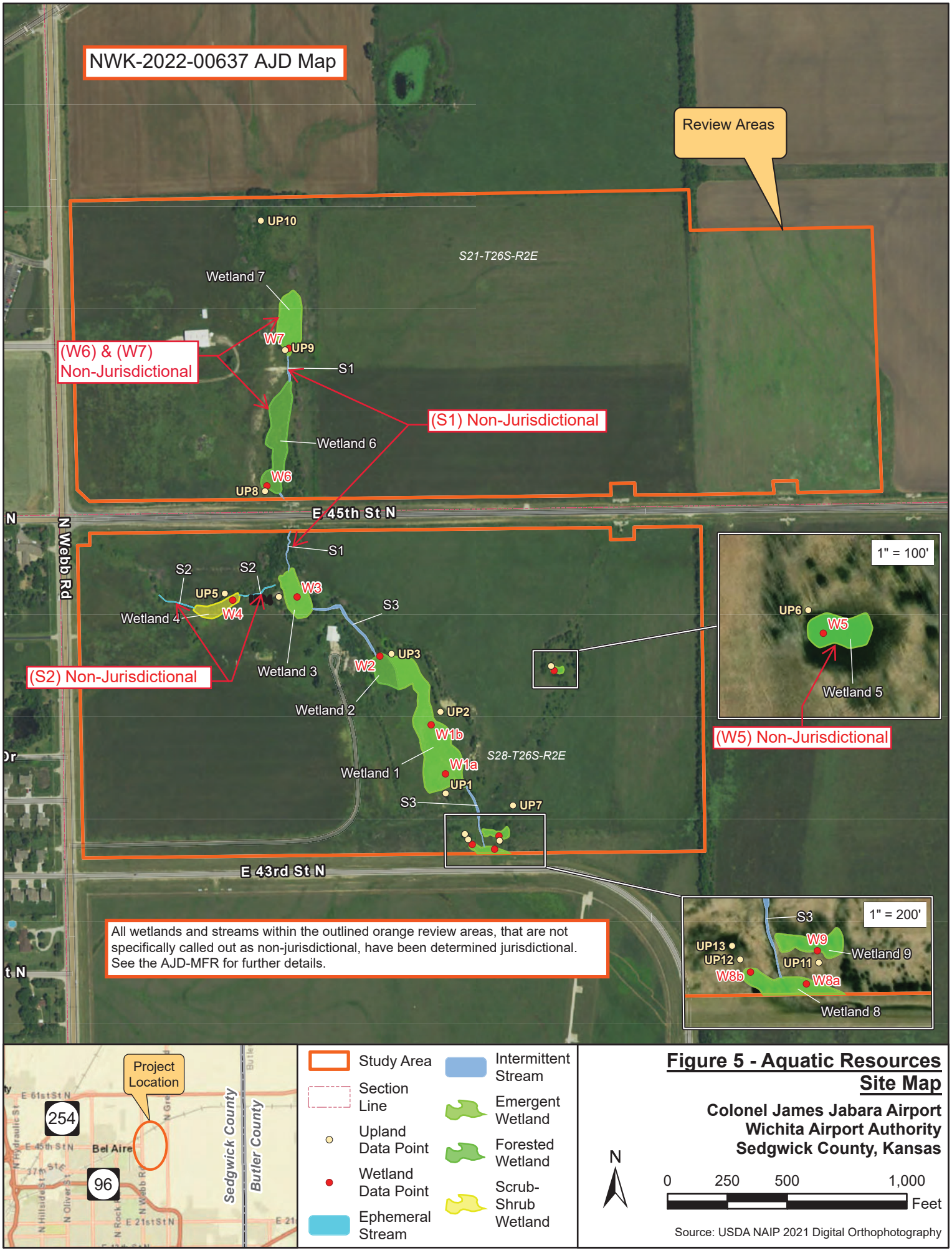
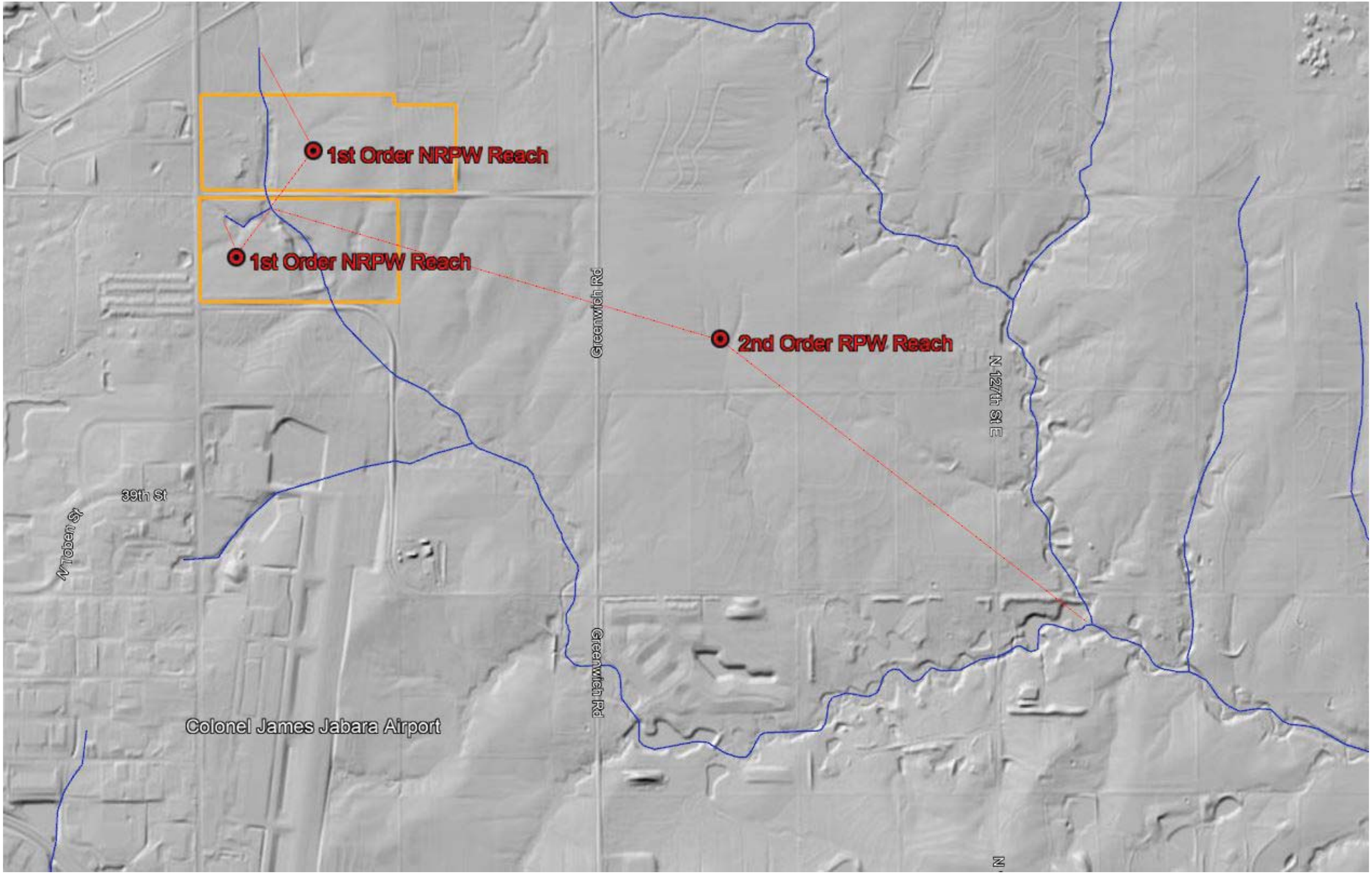


Figure 5 - Aquatic Resources Site Map

Colonel James Jabara Airport
Wichita Airport Authority
Sedgwick County, Kansas


1st Order NRPW Reach
1st Order NRPW Reach
2nd Order RPW Reach
Greenwich Rd
N 127th St E
39th St
N Tobey St
Greenwich Rd
Colonel James Jabara Airport

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U.S. Army Corps of Engineers (USACE)

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

For use of this form, see Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act of 1899, and Section 103 of the Marine Protection, Research, and Sanctuaries Act; the proponent agency is CECW-COR.

Form Approved -
OMB No. 0710-0003
Expires 2027-10-31

DATA REQUIRED BY THE PRIVACY ACT OF 1974

Authority The authorities for requesting this information are Sections 9, 10, 13, and 14, Rivers and Harbors Act of March 3, 1899; Section 404, Clean Water Act; and Section 103 Marine Protection Research and Sanctuaries Act of 1972.

Principal Purpose This information serves as notification to affected parties regarding the USACE administrative appeal options and process, as well as to facilitate requests for appeal of USACE decisions with which they disagree.

Routine Uses Routine uses will include: (a) To serve as notification to affected parties of the Corps administrative appeal options and process and to facilitate requests for appeal of Corps decisions with which they disagree. (b) Records may be referred to the Department of Justice for possible criminal prosecution. (c) Records may be referred to other Federal, State, and local agencies for evaluation and enforcement purposes.

Disclosure Disclosure of this information is voluntary on your part. However, failure of individual to provide requested information could result in inability to determine all pertinent information regarding a Department of the Army permit matter.

The Agency Disclosure Notice (ADN)

The Public reporting burden for this collection of information, 0710-0003, is estimated to average 1 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

PURPOSE: This form is used to facilitate the initiation of the administrative appeals process. The appeals process allows an affected party to pursue an administrative appeal of certain Corps of Engineers decisions with which they disagree.

Upon release, this form will also be available on the Corps website https://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/

Applicant: Wichita Airport Authority	File Number: NWK-2022-00637	Date: 2025-01-15

Documents Attached (*select all that apply*):		Form Reference Section:
☐	INITIAL PROFFERED PERMIT (*Standard Permit or Letter of Permission*)	A
☐	PROFFERED PERMIT (*Standard Permit or Letter of Permission*)	B
☐	PERMIT DENIAL WITHOUT PREJUDICE	C
☐	PERMIT DENIAL WITH PREJUDICE	D
☒	APPROVED JURISDICTIONAL DETERMINATION	E
☐	PRELIMINARY JURISDICTIONAL DETERMINATION	F

SECTION I

The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at https://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/appeals/ or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: *You may accept or object to the permit*

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: *You may accept or appeal the permit*

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C. PERMIT DENIAL WITHOUT PREJUDICE: *Not appealable*

You received a permit denial without prejudice because a required Federal, state, and/or local authorization and/or certification has been denied for activities which also require a Department of the Army permit before final action has been taken on the Army permit application. The permit denial without prejudice is not appealable. There is no prejudice to the right of the applicant to reinstate processing of the Army permit application if subsequent approval is received from the appropriate Federal, state, and/or local agency on a previously denied authorization and/or certification.

D: PERMIT DENIAL WITH PREJUDICE: *You may appeal the permit denial*

You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: APPROVED JURISDICTIONAL DETERMINATION: *You may accept or appeal the approved JD or provide new information for reconsideration*

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice means that you accept the approved JD in its entirety and waive all rights to appeal the approved JD.

- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

- RECONSIDERATION: You may request that the district engineer reconsider the approved JD by submitting new information or data to the district engineer within 60 days of the date of this notice. The district will determine whether the information submitted qualifies as new information or data that justifies reconsideration of the approved JD. A reconsideration request does not initiate the appeal process. You may submit a request for appeal to the division engineer to preserve your appeal rights while the district is determining whether the submitted information qualifies for a reconsideration.

F: PRELIMINARY JURISDICTIONAL DETERMINATION: *Not appealable*

You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also, you may provide new information for further consideration by the Corps to reevaluate the JD.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision you may contact:		If you have questions regarding the appeal process, or to submit your request for appeal, you may contact:	
Name:	David R. Hibbs	Name:	Melinda M. Larsen
Street Address, City, State:	US Army Corps of Engineers, Kansas City Regulatory Branch, 601 E. 12th Street, Room 402 Kansas City, MO 64106-2824	Street Address, City, State:	US Army Corps of Engineers, Northwestern Division 1201 NE Lloyd Blvd., Suite 400 Portland, OR 97232
Phone:	816-389-3990	Phone:	503-808-3888
Email:	David.R.Hibbs@usace.army.mil	Email:	Melinda.M.Larsen@usace.army.mil

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (*Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. Use additional pages as necessary. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.*)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation and will have the opportunity to participate in all site investigations.

Email address of appellant and/or agent	Telephone number
Signature of appellant or agent	Date