APPENDIX A

Preparers and Qualifications

Ryan Mountain, PWS

Senior Environmental Scientist/Specialist

Education:	Bachelor of Science, Fisheries and Wildlife Management
Licenses:	Professional Wetland Scientist, 2745
Experience:	16 years (firm) 22 years (total)

Ryan Mountain is an environmental special studies manager and senior environmental scientist with 22 years of environmental and project management experience. Primary responsibilities include managing special environmental studies provided to Garver's aviation, transportation, industrial, federal, development, construction, and water business lines. This includes authoring and co-authoring NEPA documents, agency coordination, threatened and endangered species survey coordination, Phase I environmental site assessments, Section 404 permitting, wetland delineations, detailed wetland and stream mitigation planning and specifications, biological evaluations and habitat assessments, and preparing spill prevention and stormwater pollution prevention plans. He has previous experience in fish rearing, distribution, spawning, identification, and aging. Ryan is a Professional Wetland Scientist (PWS) and has completed USACE wetland delineation training and the FHWA Section 4(f) overview course. He has also completed TNM 2.5 Noise Modeling and Noise Fundamentals courses AEDT airport noise training, TDEC qualified hydrologic professional training, and wildlife hazard management training required by the FAA for conducting wildlife hazard assessments. Additionally, he has received NEPA documents training and air/industrial stormwater permitting training.

Project Experience:

Fort Smith Regional Airport Runway 25 Extension Environmental Assessment *(Fort Smith, AR)*
Senior environmental scientist and lead author of an environmental assessment (EA) for a major runway extension project. Responsibilities included environmental project management, quality assurance reviews, document preparation, coordination with the airport, client, local, state, and federal agencies, and consultant coordination for cultural resources and noise/air quality emissions. The project included a wetland delineation and Section 404 Individual permitting with mitigation planning and USACE field verification, and conducting a public meeting.

Muhlenberg County Airport Environmental Assessment *(Muhlenberg, KY)*
Senior environmental scientist and co-author of a short-form environmental assessment (EA) for a corporate hangar and fixed wing flight school facility project. Responsibilities included coordination with the airport director; local, state and federal agencies. Additionally, served as the primary field biologist for completion of a wetland delineation required by the FAA. The project includes alternatives analysis and completion of an EA with FAA as the lead federal agency.

Northwest Arkansas National Airport Terminal Area Plan Categorical Exclusion *(Bentonville, AR)*
Senior environmental scientist responsible for completion of a CATEX involving FAA approval of Concourse B expansion and skybridge construction. Concourse B is proposed to be expanded to eight gates and include partial demolition of Concourse C. The skybridge will connect the recently developed parking garage to the main terminal building and spans Airport Drive.

Nashville International Airport Concourse and Gate Expansion Environmental Assessment *(Nashville, TN)*
Environmental project manager and primary author of an Environmental Assessment (EA) involving major infrastructure improvements at BNA as part of Vision 2.0. Significant project elements include a new 16-gate concourse, 8-gate satellite concourse, north apron expansion, stream encapsulation, AOA fence relocation and main terminal interior improvements related to the ticket lobby expansion, baggage handling, and concession upgrades. Ryan coordinated the completion of all special environmental studies with subconsultants, lead agency coordination and coordinated with the FAA throughout EA development. Specific studies included socioeconomic analysis, noise, air quality, wetlands, streams, and biological surveys. Additionally, Ryan is coordinating the completion of Section 404 and Aquatic Resources Alteration Permit (ARAP) permitting and mitigation banking coordination for over 1,600 linear feet of stream impacts.

Chris Maestri, PE

Project Manager

Chris Maestri is a project manager on Garver's Northwest Arkansas Aviation Team with seven years of experience in design, construction, and project management. His responsibilities include airport design, project management, construction management, client coordination, FAA and state agency coordination, and construction document production. He has worked with several airport throughout the state of Arkansas. His project experience includes construction of runways, taxiways, aprons, hangars, parking lots, and access roads.

Education:	Bachelor of Science in Civil Engineering
Licenses:	Professional Engineer, AR, 20075
Experience:	3 years (firm) 6 years (total)

Project Experience:

Bentonville Municipal Airport Hangar Development *(Bentonville, AR)*
Civil engineer responsible for the design of a new taxilane for future hangar development access. Responsibilities included stormwater drainage modeling, pavement design, Civil 3D modeling, utility layout, and construction plan production. Also attended airport meetings, bid opening, and coordinated with the FAA for airspacing studies.

Northwest Arkansas National Airport Concourse A North Apron Expansion *(Bentonville, AR)*
Civil engineer responsible for the design of an expansion to the terminal apron at XNA. This role included coordinating the apron expansion work with an adjacent gate adjustments project. We worked closely with AERO Systems Engineering to develop both plan sets and make sure projects could take place concurrently. Responsibilities included construction plans and specification review, bid opening, grant funding, and Owner and subconsultant coordination. Also responsible for construction management of the project including Owner / Contractor coordination, quantity and pay estimate review, and project closeout.

Northwest Arkansas National Airport Terminal Renovation and Improvement *(Bentonville, AR)*
Civil engineer responsible for the site civil design of the airport's Sky Bridge/Circulation Building terminal renovation. Responsibilities included roadway layout design, construction phasing coordination, Civil 3D modeling, and construction plan and specification production. Attended numerous meetings with architect and/or owner for project coordination, and helped coordinate with other Garver design groups (Mechanical/Plumbing, Electrical, Fire Protection) throughout the project duration.

Rogers Executive Airport Corporate Hangar Construction *(Rogers, AR)*
Civil engineer for the construction of a new 40,000 square foot hangar at Rogers Executive Airport. Responsibilities included site plan review and coordination, scheduling, progress meetings, drainage and utility coordination, quality control review, and communication with stakeholders.

Other Experience:

- Northwest Arkansas National Airport Air Traffic Control Tower Construction
- Northwest Arkansas National Airport Arrivals Lobby Renovation
- Northwest Arkansas National Airport Concourse A Seating Upgrades
- Northwest Arkansas National Airport Terminal Apron Expansion
- Northwest Arkansas National Airport Concourse B Construction

Cassie Schmidt

Environmental Scientist/Environmental Specialist

Education:	Master of Science, Biology Bachelor of Science, Zoology
Licenses:	Federal Fish & Wildlife Permit, AR, TE78650B-1
Experience:	7 years (firm) 10 years (total)

Cassie Schmidt is an environmental scientist with 10 years of environmental data collection and assessment experience. She joined Garver in 2015 where her skills and knowledge have been an asset to more than 400 projects. She has knowledge of local, state, and federal environmental regulations and guidelines. Her experience includes preparing NEPA documents, conducting Phase I and II Environmental Site Assessments; completing alternative analyses and functions and services assessments to satisfy Section 404 permitting requirements; and designing and drafting wetland and stream mitigation plans. Her responsibilities include co-authoring NEPA documents (Environmental Impact Statements, Environmental Assessments, and Categorical Exclusions); conducting wetland and stream delineations and other environmental field investigations; preparing Section 404 permitting applications for Nationwide and Individual Permits, performing Initial Site Assessments; preparing biological evaluations for threatened and endangered species and for jurisdictional waters and wetlands; and preparing spill prevention control and countermeasure plans, stormwater pollution prevention plans, and sediment control plans. Additional responsibilities include collecting reconnaissance level environmental data in support of large-scale impact analyses or constraints mapping; assisting with preliminary engineering studies and public involvement meetings; conducting Environmental Justice analyses; and coordinating with various federal, state, and local environmental agencies. In addition, she is a permitted biologist with USFWS who has experience conducting surveys of the endangered American Burying Beetle, *Nicrophorus americanus*. She also has multiple years of experience assisting with bridge inspections surveying for threatened or endangered bats.

Project Experience:

Nashville International Airport Concourse and Gate Expansion Environmental Assessment *(Nashville, TN)*
Environmental scientist responsible for assisting in the document review and research and co-authored the Environmental Assessment (appropriate NEPA documentation) being coordinated through the Federal Aviation Administration for the project. Cassie assisted with environmental resource categories such as waters, wetlands, groundwater, karst features, hazardous materials, pollution prevention, floodplains, and cumulative impacts.

Cynthiana-Harrison County Airport 6-Bay T-Hangar Development *(Cynthiana, KY)*
Environmental manager responsible for developing the area of potential effect (APE) in close collaboration with the SHPO and FAA for this T-hangar development project located adjacent to a site eligible for the National Register of Historic Places (NRHP). Prepared the NEPA document (a Categorical Exclusion) and necessary exhibits and attachments. Additionally, responsible for conducting initial agency coordination and obtaining agency concurrences from SHPO, USACE, USFWS, and the Kentucky Department of Wildlife Resources. Addressed FAA comments during the CE review process. Project was kept on schedule and FAA approval was obtained within the anticipated timeframe.

Other Experience:

- Fort Smith Regional Airport Runway 25 Extension Environmental Assessment
- Northwest Arkansas National Airport Concourse A North Apron Expansion
- Northwest Arkansas Regional Airport Runway 17-35 Environmental Assessment
- Corpus Christi International Airport Hangar Demolition Environmental

Adam White, PE

Senior Project Manager

Education:	Bachelor of Science in Civil Engineering
Licenses:	Professional Engineer, AR, 15425
Experience:	14 years (firm) 14 years (total)

Adam White is a senior project manager on Garver's Aviation Team and serves as the team leader for the Northwest Arkansas Aviation Team and serves as Aviation's Operations Manager. He has 16 years of experience specializing in design, evaluation, and maintenance of airfield pavements. Adam's responsibilities include airport design, project management, construction management, airport master planning, coordination with commercial service and general aviation clients, coordination with the FAA, and writing specifications. His project experience includes construction of runways, taxiways, aprons, hangars, perimeter fencing, parking lots, access roads, ARFF stations, and terminals. Adam has participated in the development of four greenfield airports. He also specializes in pavement rehabilitation and has inspected over 10 million square feet of airport pavement.

Project Experience:

Fort Smith Regional Airport Runway 25 Extension *(Fort Smith, AR)*
Senior project manager responsible for coordinating all project processes associated with the planned runway extension, including civil design, electrical and NAVAID design, development and approval of an Environmental Assessment, and acquisition of aerial data surveys and approach changes.

Northwest Arkansas National Airport Concourse B Construction *(Bentonville, AR)*
Subconsultant design manager responsible for managing design of mechanical, electrical, and fire protection building systems in support of a new seven-gate concourse expansion. Also responsible for the site civil design associated with the concourse development. Coordinated with the prime architect to make sure the building systems and site civil design correlated with the architectural design.

Northwest Arkansas National Airport Terminal Renovation and Improvement *(Bentonville, AR)*
Project manager responsible for site civil design, including roadway relocation, signage, pavement markings, grading, and drainage designs. Also responsible for site utilities, including water service, sewer services, and electrical. Managed all scope of work completing by the Garver Team, including building electrical, mechanical, fire protection, and telecommunications design.

Bill and Hillary Clinton National Airport Terminal Ramp Expansion and Rehabilitation *(Little Rock, AR)*
Design Center manager responsible for managing civil and electrical design teams for expansion of the terminal apron. Responsible for managing civil airfield design, drainage design, utility design, and electrical design.

Grand Junction Regional Airport West Terminal Apron Reconstruction *(Grand Junction, CO)*
Performed quality control reviews and developed construction safety and phasing plans for the West Terminal Apron reconstruction. In this role, Adam was responsible for refining the phasing plans and designing temporary bridge layouts to ensure that the phasing plans were accurately developed within the extent of the bridge's movement.

Other Experience:

- Northwest Arkansas National Airport Landside Pavement Management Plan
- Bentonville Municipal Airport Game Composites Maintenance Facility
- Bentonville Municipal Airport Corporate Hangar Construction
- Fayetteville Drake Field HVAC Replacement

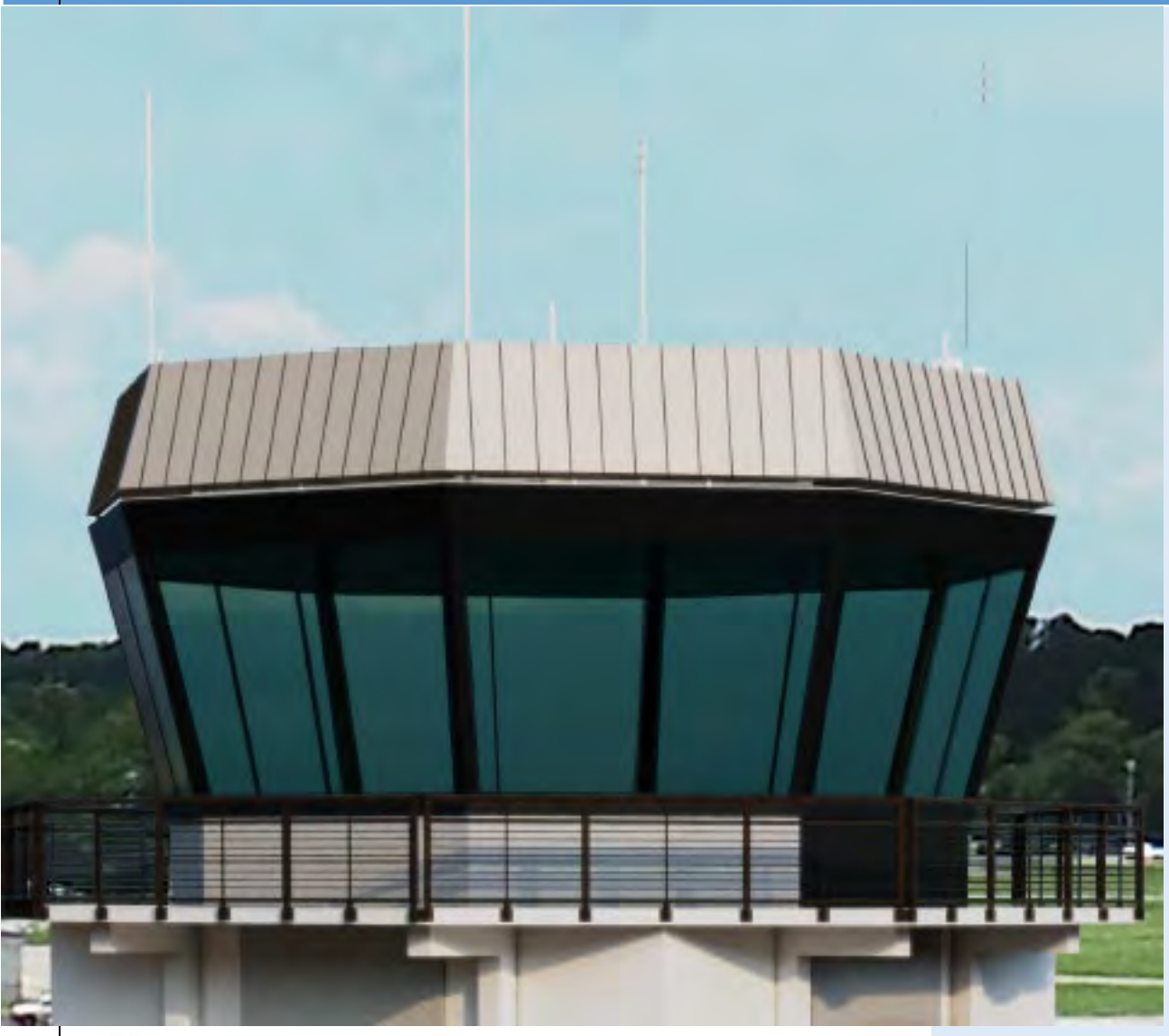
APPENDIX B

Siting Report

Northwest Arkansas National Airport

Siting Report

Safety Risk Management Document
Replacement Airport Traffic Control Tower
Northwest Arkansas National Airport
Bentonville, Arkansas



Revision 1
August 12, 2022

Quadrex Aviation, LLC
Airport Development Services

AJT ENGINEERING INC

GARVER

Siting Report Change Page

Action	Date	Version Number
Initial Draft	March 8, 2022	
Draft	May 10, 2022	
Basic Version	June 6, 2022	Basic
Revision 1 Update SRM Sig Page	August 12, 2022	Revision 1

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Section 1 EXECUTIVE SUMMARY

Background

The proposed replacement Airport Traffic Control Tower (ATCT) will be a low activity, Visual Flight Rules (VFR) ATCT open 17.5 hours per day and projected to handle 29,000 operations of very diverse and strategic traffic to include regularly scheduled commercial, private commercial jets and high-performance military training aircraft.

The existing ATCT does not conform to the Federal Aviation Administration (FAA) requirements for an ATCT for Line of Sight and Angle of Incidence. The maintenance costs of the existing facility have become excessive.

The replacement ATCT is located in Highfill, Arkansas on the Northwest Arkansas National Airport (XNA) which is approximately 6 miles west of Bentonville city center. The airport adjoins Highway 12 and Highway 264.

The average daily operations count is 94.4 based on 2021 data and includes 54% commercial air carrier and air taxi, (922K emplanements in 2019) 1% local GA, 13.3% itinerant GA, 31.4% military and 9% air taxi. There were 29,588 itinerant operations. There are a multitude of private corporate and aviation related tenants on the airport. There are approximately 16 based aircraft including based corporate jets, rotary wing and single engine airplanes.

XNA serves as a robust origination/destination airport for corporate and private citizens arriving by private and commercial aircraft. XNA is often used by the military for primary flight training operations. The airport opened in 1998 for commercial traffic and serves the local community as well as the thriving local economy fueled by the large retail and food company headquarters, related corporations and other commerce. Six commercial airlines offer direct flights to 18 US airports.

The Northwest Arkansas National Airport Authority (NWANAA), is the owner and operator of the Northwest Arkansas National Airport. The airport has two parallel runways. Runway 16/34 serves as the primary runway, which is 8801 feet long and 150 feet wide. Runway 17/35 is the Airport's secondary runway and is 8800 long and 150 feet wide. Runway 16/34 has a published standard instrument landing system (ILS) and Ground Positioning System (GPS) with precision approach minimums down to 200 feet above ground level (AGL) in visibility conditions down to ½ mile.

The airport will equip and maintain all equipment as required under FAA Order 7210.78 Minimum Equipment List (MEL) and all infrastructure as required. The airport, in addition to a no cost lease, will enter into a binding Tower Operating Agreement (TOA) which will guarantee, at a minimum, the obligations of the airport to adhere to contractual obligations with AJT-21 (formerly known as the FCT Program Office). FAA funding is being pursued for this project.

Proposed Action

The proposed action is to provide siting, site and utilities, building design and construction of a replacement VFR Airport Traffic Control Tower. The proposed tower will be constructed on the approved site. The ATCT will be complete with an approximately 500 Sq. Ft., 8-sided cab mounted on a single square functional shaft. The tower was sited with consideration of all movement areas.

The Recommended Site

Site 4, the recommended location, is located near the airport's central point, adjacent to the existing control tower. It is on an open and mowed area and can be accessed by an existing roadway named Tower Drive. It is west-southwest facing and is on the east side of the Runways and Taxiway Bravo. The proposed tower has unobstructed views of all movement areas. Site 4 has the best views of a majority of the most active non movement areas. The Site was also investigated for Line of Sight of the future runways to the east of the location. The current Airport Layout Plan positions a new ATCT within 200 feet of Site 4, is the same facing as the existing tower and does not change the controllers existing procedures.

The center coordinates and elevations for the recommended location are listed below:

Latitude: 36° 16' 46.2"N
Longitude: 94° 18' 06.72"W
Overall Height (AMSL): 1426'
Overall Height (AGL): 155'
Eye Height (AGL): 130'

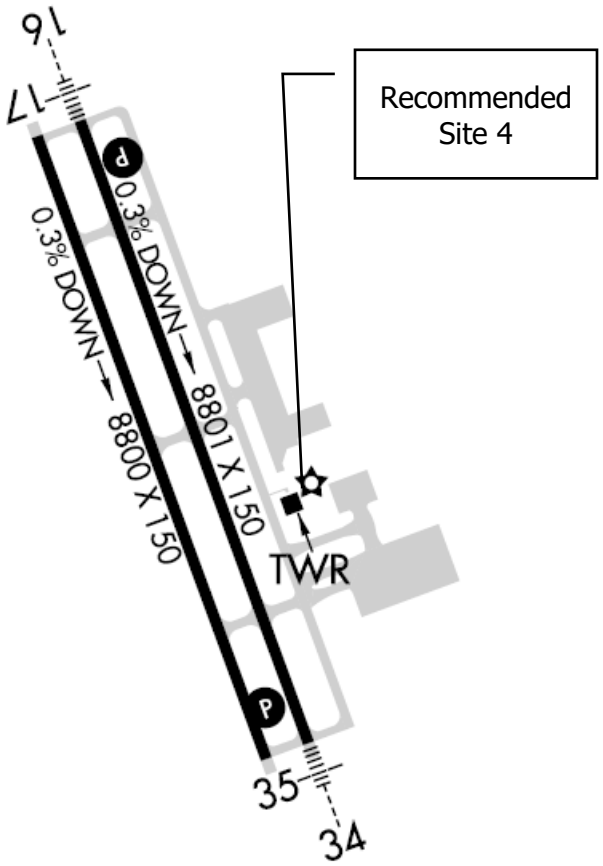


Figure 1 Existing Airport Diagram (from Approach Plates)

Site 4 is the first choice of all the siting team members and is the preferred site in the Safety Risk Management Document and analysis. This site is the shortest possible ATCT and meets all siting criteria and is deemed safe under the FAA Safety Management Sytem. The proposed tower provides completely unobstructed views of all controlled airport movement surfaces.

Impacts

The proposed ATCT constructed on Site 4, though not considered hazards, will have the following impacts:

- New tower construction will have Line of Sight issues to downwind pattern and potential minimal Line of Sight radio interference.
- Obstruction lighting will be installed to mitigate the Part 77 surface penetration.
- The FAA OEAAA analysis found the following which is acceptable to the Airport: OBJECT PENETRATES SECTION 1 OF MISSED APPROACH, NEH: 1426 W/1A. NEW REQURIED MINIMA: RNAV (GPS) RWY 34, LNAV/VNAV CAT E DA FROM 1550 TO 1567; ILS OR LOC RWY 34; SI LOC MDA FROM 1600 TO 1620. FUTURE PLANS ILS OR LOC TO PARALLEL RWY 34, SI LOC MDA 1620, NEH: 1426 W/1A.

There are no other known significant impacts related to NASWATCH, TERPS, LOS, Part 77, future airport development, and local weather phenomena with the potential to impair visibility.

This report is accompanied by a Safety Risk Management Report. This is an Alternative Siting Process candidate site completed in conjunction with the FAA's Virtual Immersive Siting Tower Assessment (VISTA) for a new Airport Traffic Control Tower in the Federal Contract Tower (FCT) program. All criteria are met as set forth in the FAA Order 6480.4B. In addition to the VISTA analysis, an unmanned aerial vehicle flew the preferred site recording both still and video images. The site was also surveyed for elevation verification and tied to local control providing better than 1A accuracy, +/- 0.1 ft., sealed certificate provided in the Appendix. The VISTA model was complete with eight column structural/glass support and slatwall consoles. The VISTA analysis and cab layout also reviewed the future runway and cab Line of Sight. The proposed runways will be located on opposite, east side of the airport. The Air Traffic Manager will be involved in the design reviews to ensure cab layout and Line of Sight to all movement areas.

Approval Signatures

This agreement does not constitute a waiver of any right guaranteed by law, rule, regulation, or contract on behalf of any party. The undersigned agree with the choice of Site 4 for the new Airport Traffic Control Tower at XNA.

_____

Director of Air Traffic Services, Eastern Service Area Date

_____

Director of Technical Operations, Eastern Service Area Date

_____

Director of Air Traffic Control Facilities, FAA Headquarters Date

Section 2 INITIAL SITES CONSIDERED

Seven (7) candidate sites were initially contemplated by the siting team and airport staff. Eventual elimination of three (3) sites was completed through analysis. The seven sites are shown on the graphic on Figure 2 with a larger view on Figure 3.

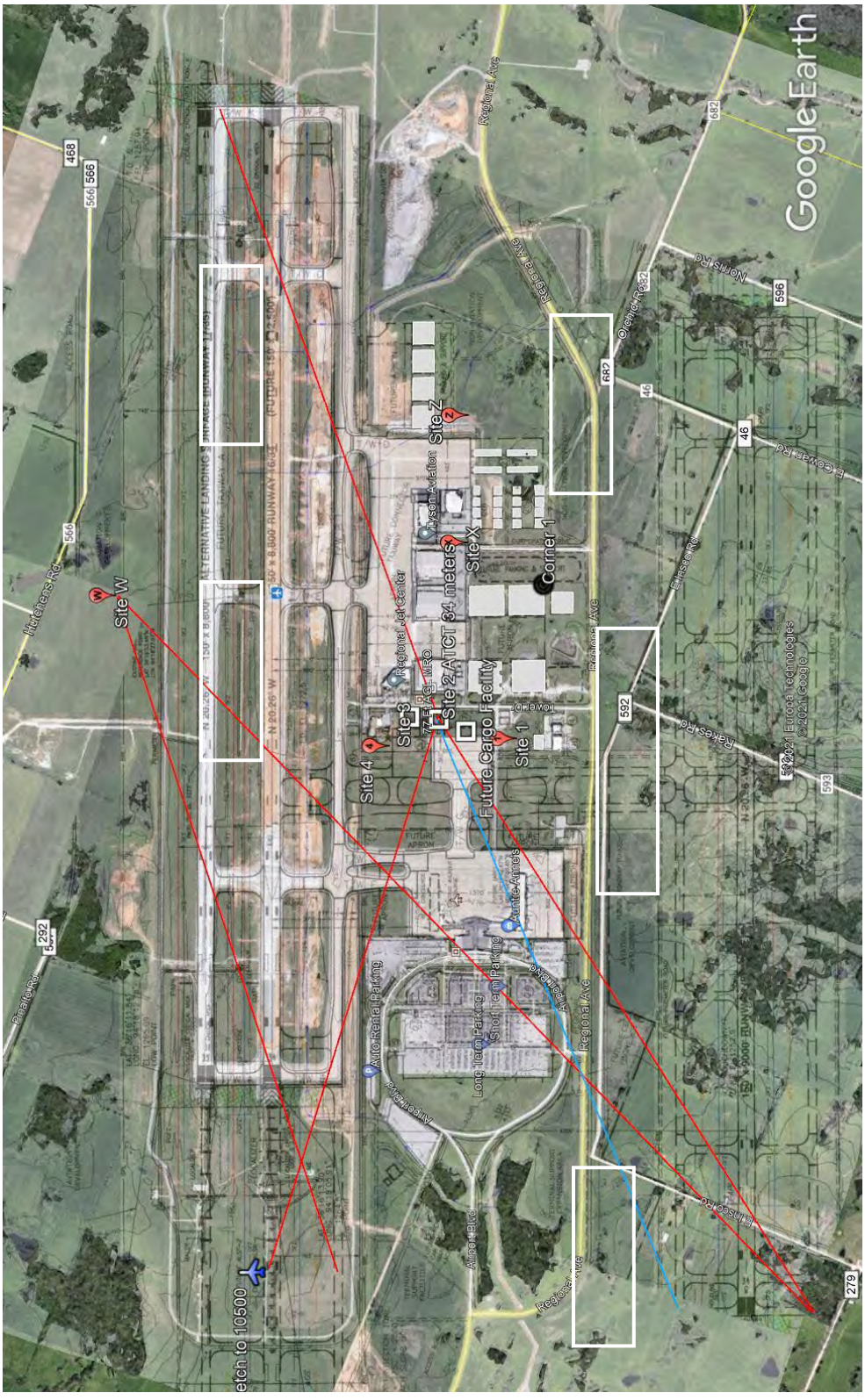


Figure 2 - Sites 1-7 on Google Earth Image

Table 1 Major Factors Eliminating Initial Sites

Site W	Undeveloped area, tall height required due to Line of Sight to movement areas. Exorbitant development costs.
Site X	Developed area but does not fit well with surrounding commercial development.
Site Z	Developed area but does not fit well with surrounding commercial development.
Site 1	Developed area, tall height required due to Line of Sight to future movement areas. High costs.

The major points eliminating sites not shortlisted as preferred are summarized above.

An ensuing comprehensive study was done on the four preferred alternatives, Sites 1,2,3 and 4. Site 1, with its required eye height of 242 ft. to overcome shadowing on the future movement areas, was eliminated by the Siting Panel due to excessive costs and vicinity to the Maintenance and Fuel tanks, so further study was ended.

This Siting Report, combined with the Comparative Site Assessment, which includes a comprehensive Hazard Analysis, comprises the Safety Risk Management Document. Sites 2,3 and 4 were found to have no hazards. Site 4 has been found to be the most advantageous. The site plans and Airfield Layout Plan are provided on the following pages.

All four sites were analyzed using preliminary calculated shadow analysis, follow on Garver Unmanned Aerial Vehicle (UAV) photography along with the FAA Virtual Immersive Siting Tower Assessment (VISTA) Process. The cab is configured to allow a second set of controller positions for Ground, Local and Flight Planning for the parallel future runway and taxiways.

Section 3 PREFERRED SITES

There were no identified hazards affecting Sites 2, 3 or 4 as determined by the Siting Panel.

The Preliminary Hazard List and all other factors were analyzed which resulted in the selection of Site 4. The following assumption was made:

1. Naturally occurring elements are not increased hazards to the NAS.
2. Any changes to the ATCT Siting Report for the XNA Comparative Safety Analysis (CSA) SRMD will be made upon concurrence of the XNA Safety Risk Management Panel.
3. It is expected that risk will need to be re-evaluated should the recommended safety requirements not be followed or implemented.
4. The CSA is not all-inclusive in that there may be unknown hazards within any operation or process. A panel will be required to access the operational impacts of the new tower prior to the start of Air Traffic operations to include such items as ATCS delineation of movement and non-movement areas, air traffic procedures and organizational agreements.
5. The existing and recommended safety requirements will be implemented and verified.
6. Airport model was developed accurately based upon the data supplied by the airport, the approved FAA Airport Layout Plan, UAV photography, vertical and horizontal certified surveying and Google Earth.

Reference Appendix for the Airport Layout Plan (ALP)

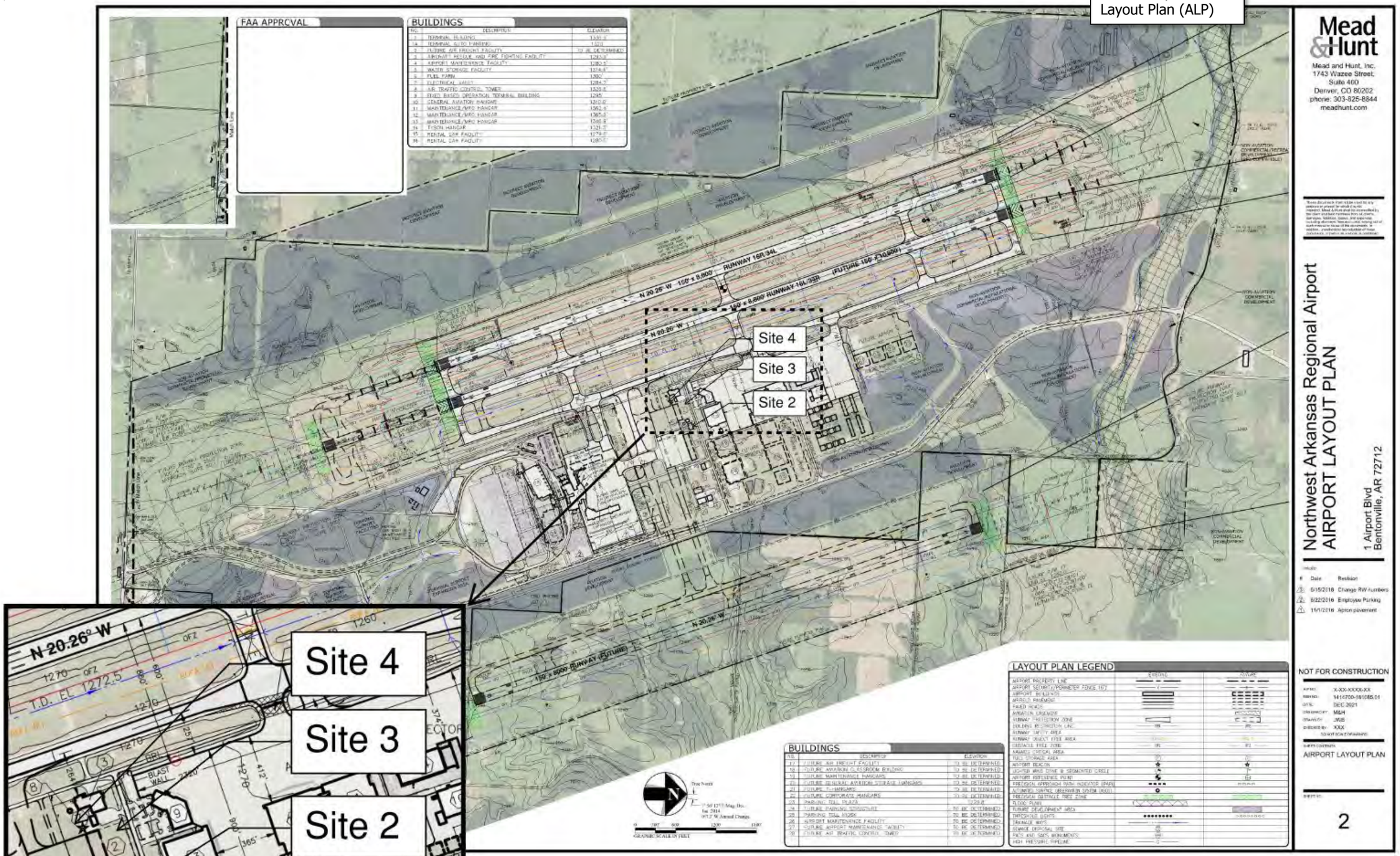


Figure 3 Preferred Sites on Airport Layout Plan

Site "2"

Description and Site Reference Data

Site 2 is located central area of the airport on a developed, cleared area. Reference Google Earth maps image below:

Figure 4 Site 2 Google Earth

Latitude: 36°16'48.66" N (Building Center)
Longitude: 094°18'6.68" W (Building Center)
Overall Height (AMSL): 1461'
Overall Height (AGL): 190'
Eye Height (AGL): 165'

The controllers required eye level for Site 2 is calculated to be at 165' above ground level. The ground elevation above sea level is 1271 ft. The cab would face west south west towards the primary runways and have an unobstructed view of all movement areas and the majority of non movement area aircraft ramps.

The maximum distance to the ultimate movement areas is the south end of Taxiway 17/35 (Ultimate) and is 6,000 ft. The siting panel used virtual reality headsets and model developed by FAA AFTIL. Additional tools include photos and movies taken by the UAV.

Siting Criteria

Criteria a. – TERPS.

TERPS analysis is provided in Appendix C with no findings of impacts for the Site 2. A preliminary evaluation was conducted by the VISTA FAA Flight Procedures member (based on the center of the tower).

Part 77. The tower penetrates the 7:1 transition surfaces of runway 16/34 by 54 ft. Obstruction Lights will be installed to mitigate this hazard as permitted by FAA Order.

Criteria b- Impacts to Communications, Navigation and Surveillance Equipment

Level 3 analysis needed. Using the provided tower cross sectional width as a reference, a slight impact is anticipated to the existing RCO frequency due to line of sight shadowing of the proposed new tower. Loss of radio coverage would occur in the shadow of the new tower in the following movement areas: Taxiway B, Taxiway E, Runway 16/34, Runway 17/35.
o XNA LOC 16 (CAT I) and FBS LOC 34 (CAT I) – Within small structure protection zone. Level 3 analysis needed and is underway.

Criteria c- Visibility Performance

The Line of Sight Angle of Incidence was measured using the ATCTVAT. Elevations for the existing and future Runways and Taxiways and the proposed ATCT sites were derived from the Airport Layout Plan and surveys conducted by licensed Professional Land Surveyors. As earlier stated, the maximum distance to the existing movement areas is to the ultimate runway/taxiway is 6,000 ft. This distance and the elevations were input into the ATCTVAT and the tool calculated a controllers eye height requirement with passing results for object discrimination were found at this controllers eye level as well. The tower height was based on Line of Sight requirements for future movement areas but adjusted during the Panel session and raised 40 feet to allow better LOS of the taxiway at the future parking garage. An unmanned aerial vehicle was flown and the VISTA VR verified Site 2 to have unobstructed line of sight to all movement areas.

Lookdown angle was found to be acceptable by the RVA controller using the VISTA VR.

Lateral Discrimination was not an issue as determined by the RVA controller using the VISTA VR.

Sunlight/Daylight. The tower is west south west facing with the primary approach to the east of the tower. The tower will be equipped with dual shades which will assist in the mitigation of any sunlight glare issues. The existing tower faces the same direction and the controllers are familiar with the situation and the mitigation.

Artificial Lighting. No potential impacts were identified with existing tower night-time ground operations caused by airport lighting/background clutter, municipal and industrial lighting and verified by the current controllers having a similar visual aspect. The UAV images verified the that there were no artificial lighting impacts.

Atmospheric Conditions. There were no naturally occurring atmospheric conditions found that created site limitations.

Industrial Municipal Discharge. There were no industrial/municipal discharges found that created site limitations.

Criteria d – Comparative Safety Assessment (CSA)

The CSA is included in Appendix E. It was determined that Site 2 has no potential hazards.

Criteria e- Operational Requirements

ATCT Orientation. Site 2 tower will be west south west facing which is not optimal for sun glare avoidance. The tower cab has been rotated to allow the most advantageous alignment of the positions and the orientation of the runways and movement areas. The sun glare has been an issue in the existing tower and mediation developed. The new tower will include dual shades which has been effective in sun glare resolution.

Weather. Interviews with the Airport Director revealed that there are no isolated low lying fog areas on the airport including the preferred sites.

There were no observed visibility conditions at XNA that would greatly influence the new ATCT's site location. Poor visibility is consistent throughout the airport when low visibility conditions occur. There have been very few incidents reported by airport management where patch fog occurs consistently in one area.

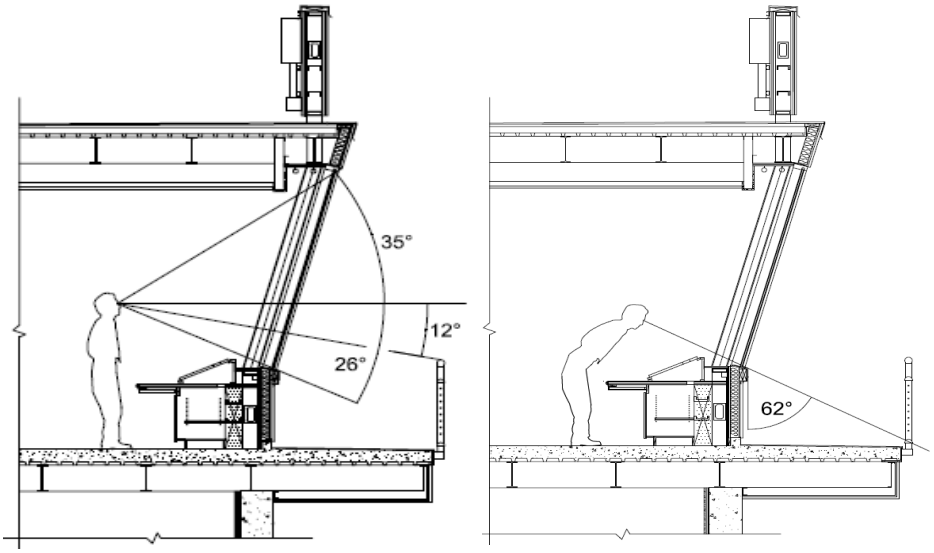
Look-down Angle. Visibility from the ATCT cab must consider the view of controlled movement (and non-movement) areas around the base of the ATCT. Lookdown angle was found to be acceptable by the RVA controller using the VISTA VR.

Look Across LOS. Cab size is not expected to impact any look across angle. The cab is 8 sided and provides good visibility of all approaches and most movement areas from any position in the cab. Lookdown across was found to be acceptable by the RVA controller using the VISTA VR.

Cab Mullion/Column Orientation. The cab design will be oriented such that any mullions are not obstructing Line of Sight for critical locations. The controller Subject Matter Expert from the XNA Airport checked all critical areas using the AFTIL virtual model and verified planned orientation.

After study it was determined that rotating the cab 10° counter clockwise provided a better view of runway/taxiway intersections.

Look-up Angle. Reference the Figure below. The calculated Look up angle is greater than the missed approach altitude with adequate view confirmed by the XNA controller.



Look Down Angle	**Site 2**
Controllers Eye Height	160
Distance of Shadow without Bending	408
Bending Shadow	305
Distance to Rwy or Twy	566
Look Up Angle	
Ht of vision at cl mid point Rwy 16/35 *Missed approach 1800*	1047

Figure 5 Look Down-Up Angles

Construction. Consideration has been given to the impacts of the new ATCT operations with potential impacts occurring to the existing tower and Line of Sight, radio and beacon shadowing. This was not determined to be a hazard and the impact is minimal.

Access. Access to Site 2 ATCT site does not cross existing ground/air traffic patterns. Access for vehicles will be through a remotely operated gate managed by the airport. Site will be adjacent to new parking. A remote-controlled personnel gate will be installed for access to the tower.

Non-Movement Areas. Site 2 has a good to fair view of a majority of non-movement areas. Most of the operations occur on the south and west side of the airport which is the same side as this site.

Criteria f Economic Considerations

Estimated Construction Cost. The engineer's Rough Order of Magnitude estimated probable cost for construction for Site 2 is $17.93M.

Included in this cost estimate is the following:

- Tower and Cab
- Engineering Design and Construction Support
- Environmental Analysis
- FAA Support for Equipment Installation ($300K)
- Utilities Improvements and Construction
- Site Improvements and Construction

There are no apparent environmental impacts as Site 2 is on previously disturbed land close to the existing control tower, airfield lighting vault and Aircraft Rescue and Fire Fighting building.

Table 2 Site 2 Infrastructure Requirements

Category	Action Required
Access	**Add gate**
Parking	**10 spots required, existing adjacent to site.**
Water	**50' of 6" Water (assumes hydrant and wet standpipe)**
Sewer	**50' of 3" Sanitary Sewer**
Power	**50' of Underground Electric**
Communications	**350' of Underground Telecommunications Cabling**
Airfield Lighting Vault	**350' of Underground Fiber**

NASWATCH Summary

No impacts were found with the NASWATCH study.

Conclusion

Site 2 was ranked 2nd among the preferred sites due to the distance from the existing infrastructure when compared to Site 4. It is the tallest site of the three preferred sites and is, like all other sites, west facing.

Site "3"

Description and Site Reference Data

Site 3 is also located in the central area of the airport on a developed, cleared area. Reference Google Earth maps image below:

Figure 6 Site 3 Google Earth

Latitude: 36°16'49.45" N (Building Center)
Longitude: 094°18'2.63" W (Building Center)
Overall Height (AMSL): 1456'
Overall Height (AGL): 185'
Eye Height (AGL): 160'

The controllers required eye level for Site 3 is calculated to be at 160' above ground level. The ground elevation above sea level is 1271 ft. The cab would face west south west towards the primary runways and have an unobstructed view of all movement areas and the majority of non movement area aircraft ramps.

The maximum distance to the ultimate movement areas is the north end of Taxiway 17/35 (Ultimate) and is 5,810 ft. The siting panel used virtual reality headsets and model developed by FAA AFTIL. Additional tools include photos and videos taken by the UAV.

Siting Criteria

Criteria a. – TERPS.

TERPS analysis is provided in Appendix C with no findings of impacts for the Site 3. A preliminary evaluation was conducted by the VISTA FAA Flight Procedures member (based on the center of the tower).

Part 77. The tower penetrates the 7:1 transition surfaces of runway 16/34 by 41 ft. Obstruction Lights will be installed to mitigate this hazard as permitted by FAA Order.

Criteria b- Impacts to Communications, Navigation and Surveillance Equipment

Level 3 analysis needed and is underway. Using the provided tower cross sectional width as a reference, a slight impact is anticipated to the existing RCO frequency due to line of sight shadowing of the proposed new tower. Loss of radio coverage would occur in the shadow of the new tower in the following movement areas: Taxiway B, Taxiway E, Runway 16/34, Runway 17/35.

o XNA LOC 16 (CAT I) – Within small structure protection zone. Level 3 analysis needed.
o FBS LOC 34 (CAT I) – Within small structure protection zone. Level 3 analysis needed.

Criteria c- Visibility Performance

The Line of Sight Angle of Incidence was measured using the ATCTVAT. Elevations for the existing and future Runways and Taxiways and the proposed ATCT sites were derived from the Airport Layout Plan and surveys conducted by licensed Professional Land Surveyors. As earlier stated, the maximum distance to the existing movement areas is to the ultimate runway/taxiway is less than 6,000 ft. This distance and the elevations were input into the ATCTVAT and the tool calculated a controllers eye height requirement with passing results for object discrimination were found at this controllers eye level as well. The tower height was based on Line of Sight requirements for future movement areas but was raised during the VR Panel session adding 42 feet to eliminate the LOS issues with the future parking garage. The cab was also rotated clockwise 10^0 to remediate the LOS issue with mullions and taxiway/runway intersection. An unmanned aerial vehicle was flown and the VISTA VR verified Site 3 to have unobstructed lne of sight to all movement areas.

Lookdown angle was found to be acceptable by the RVA controller using the VISTA VR.

Lateral Discrimination was not an issue as determined by the RVA controller using the VISTA VR.

Sunlight/Daylight. The tower is west south west facing with the primary approach to the east of the tower. The tower will be equipped with dual shades which will assist in the mitigation of any sunlight glare issues. The existing tower faces the same direction and the controllers are familiar with the situation and the mitigation.

Artificial Lighting. No potential impacts were identified with existing tower night-time ground operations caused by airport lighting/background clutter, municipal and industrial lighting and verified by the current controllers having a similar visual aspect. The UAV images verified the that there were no artificial lighting impacts.

Atmospheric Conditions. There were no naturally occurring atmospheric conditions found that created site limitations.

Industrial Municipal Discharge. There were no industrial/municipal discharges found that created site limitations.

Criteria d – Comparative Safety Assessment (CSA)

The CSA is included in Appendix E. It was determined that Site 3 has no potential hazards.

Criteria e- Operational Requirements

ATCT Orientation. Site 3 tower will be west south west facing which is not optimal for sun glare avoidance. The tower cab has been rotated to allow the most advantageous alignment of the positions and the orientation of the runways and movement areas. The sun glare has been an issue in the existing tower and mediation developed. The new tower will include dual shades which has been effective in sun glare resolution.

Weather. Interviews with the Airport Director revealed that there are no isolated low lying fog areas on the airport including the preferred sites.

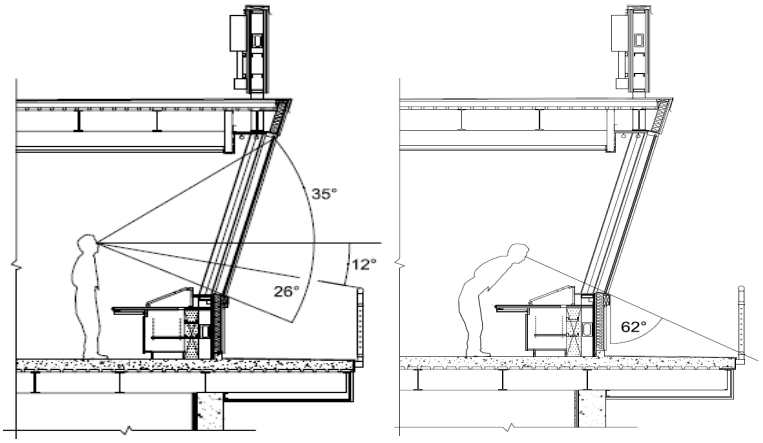
There were no observed visibility conditions at XNA that would greatly influence the new ATCT's site location. Poor visibility is consistent throughout the airport when low visibility conditions occur. There have been very few incidents reported by airport management where patch fog occurs consistently in one area.

Look-down Angle. Visibility from the ATCT cab must consider the view of controlled movement (and non-movement) areas around the base of the ATCT. Lookdown angle was found to be acceptable by the RVA controller using the VISTA VR.

Look Across LOS. Cab size is not expected to impact any look across angle. The cab is 8 sided and provides good visibility of all approaches and most movement areas from any position in the cab. Lookdown across was found to be acceptable by the RVA controller using the VISTA VR.

Cab Mullion/Column Orientation. The cab design will be oriented such that any mullions are not obstructing Line of Sight for critical locations. The controller Subject Matter Expert from the XNA Airport checked all critical areas using the AFTIL virtual model and verified planned orientation. After study it was determined that rotating the cab 10° counter clockwise provided a better view of runway/taxiway intersections.

Look-up Angle. Reference the Figure below. The calculated Look up angle is greater than the missed approach altitude with adequate view confirmed by the XNA controller.



Look Down Angle	**Site 3**
Controllers Eye Height	160
Distance of Shadow without Bending	384
Bending Shadow	286
Distance to Rwy or Twy	1515
Look Up Angle	
Ht of vision at cl mid point Rwy 16/35	1297
Missed approach 1800	

Figure 7 Look Down-Up Angles

Construction. Consideration has been given to the impacts of the new ATCT operations with potential impacts occurring to the existing tower and Line of Sight, radio and beacon shadowing. This was not determined to be a hazard and the impact is minimal.

Access. Access to Site 3 ATCT site does not cross existing ground/air traffic patterns. Access for vehicles will be through a remotely operated gate managed by the airport. Site will be adjacent to new parking. A remote-controlled personnel gate will be installed for access to the tower.

Non-Movement Areas. Site 3 has a good to fair view of a majority of non-movement areas. Most of the operations occur on the south and west side of the airport which is the same side as this site.

Criteria f Economic Considerations

Estimated Construction Cost. The engineer's Rough Order of Magnitude estimated probable cost for construction for Site 3 is $16.8M.

Included in this cost estimate is the following:

- Tower and Cab
- Engineering Design and Construction Support
- Environmental Analysis
- FAA Support for Equipment Installation ($300K)
- Utilities Improvements and Construction
- Site Improvements and Construction

There are no apparent environmental impacts as Site 3 is on previously disturbed land close to the existing control tower, airfield lighting vault and Aircraft Rescue and Fire Fighting building.

Table 3 Site 3 Infrastructure Requirements

Category	Action Required
Access	**Add gate**
Parking	**10 spots required, existing adjacent to site.**
Water	**50' of 6" Water (assumes hydrant and wet standpipe)**
Sewer	**50' of 3" Sanitary Sewer**
Power	**50' of Underground Electric**
Communications	**650' of Underground Telecommunications Cabling**
Airfield Lighting Vault	**650' of Underground Fiber**

NASWATCH Summary

No impacts were found with the NASWATCH study.

Conclusion

Site 3 was ranked 3rd among the preferred sites due to the distance from the existing infrastructure when compared to Site 4. It is the 2nd tallest site of the three preferred sites and is, like all other sites, west facing.

Site "4"

Description and Site Reference Data

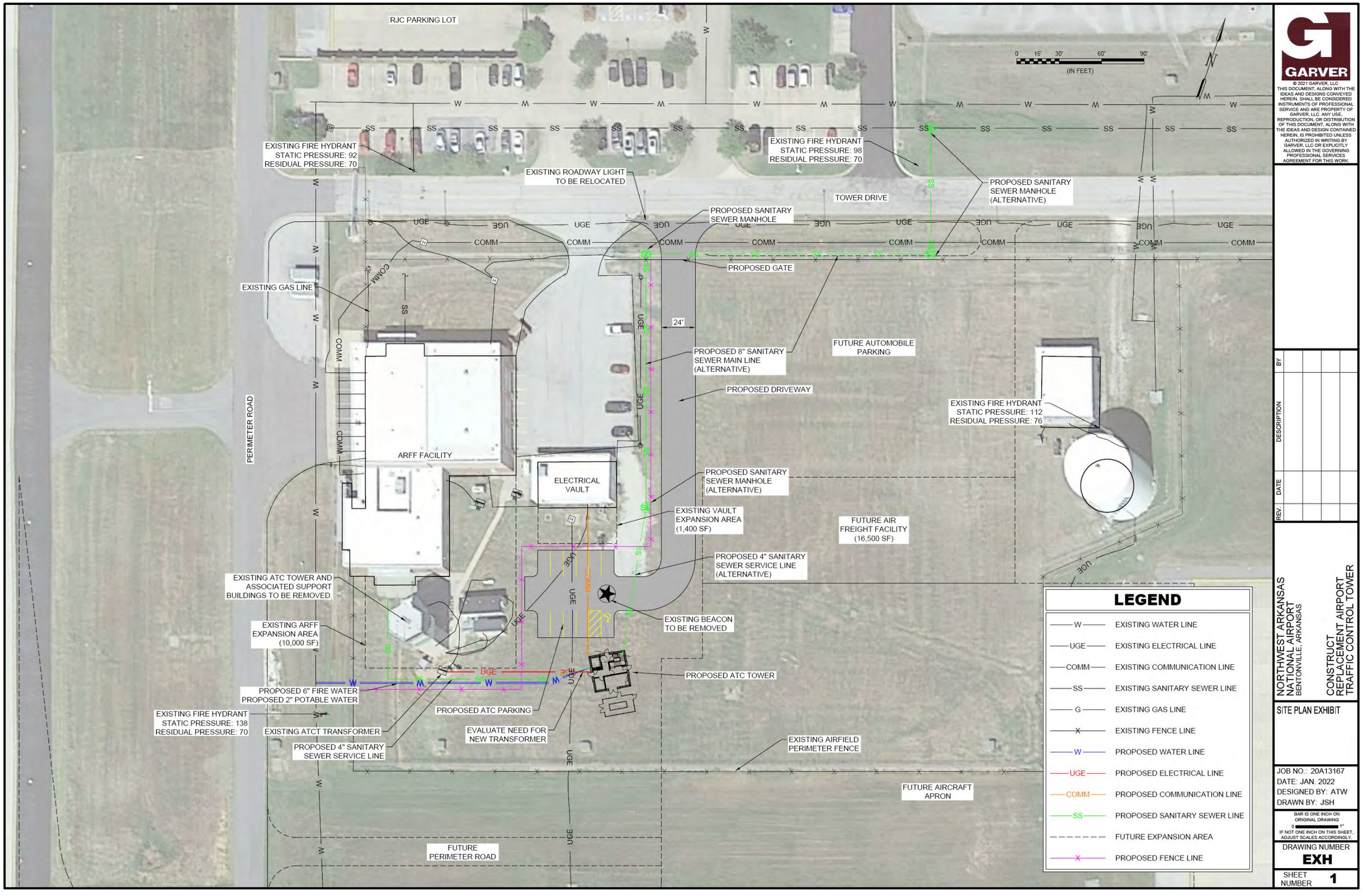
Site 4 is also located in the central area of the airport on a developed, cleared area. Reference Google Earth maps image below:

Figure 8 Site 4 Google Earth Aerial

Latitude: 30° 16' 46.2"N (Building Center)
Longitude: 094° 18' 6.72"W (Building Center)
Overall Height (AMSL): 1426'
Overall Height (AGL): 155'
Eye Height (AGL): 130'

The controllers required eye level for Site 4 is calculated to be at 130 above ground level. The ground elevation above sea level is 1271 ft. The cab would face west south west and have an unobstructed view of all movement areas and the majority of non movement area aircraft ramps.

The maximum distance to the ultimate movement areas is the SE end of SE taxiway (Rwy 34R) and is 6,400 ft. (ultimate) The Air Traffic Control Specialist SME prefers this site due to the proximity next to the existing tower, the Line of Sight of non-Movement areas, Line of Sight of Runway ends and approaches. The site will have the least impact on the current procedures.



REV.	DATE	DESCRIPTION	BY

NORTHWEST ARKANSAS
NATIONAL AIRPORT
BENTONVILLE, ARKANSAS

CONSTRUCT
REPLACEMENT AIRPORT
TRAFFIC CONTROL TOWER

SITE PLAN EXHIBIT

JOB NO.: 20A13167
DATE: JAN. 2022
DESIGNED BY: ATW
DRAWN BY: JSH

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
EXH

SHEET NUMBER 1

Figure 9 Site 4 Site Plan

Siting Criteria

Criteria a. – TERPS.

TERPS analysis is provided in Appendix C with findings of minor impacts for the Site 4. A preliminary evaluation was conducted by FAA Flight Procedures (based on the center of the tower) and found that there are no apparent impacts to existing procedures.

Part 77. The tower penetrates the 7:1 transition surfaces of runway 16/34 by 89 ft. Obstruction Lights will be installed to mitigate this hazard as permitted by FAA Order.

Criteria b- Impacts to Communications, Navigation and Surveillance Equipment

Impacts to the existing CTAF or ASOS transmissions are not expected. Level 3 analysis required and found no issues. Using the provided tower cross sectional width as a reference, a slight impact is anticipated to the existing RCO frequency due to line of sight shadowing of the proposed new tower. A level 3 analysis was completed with no findings of interference. The level 3 analysis did find that impacts on RNAV RWY 34 CAT E DA 1550 to 1567; ILS/LOC RWY 34; SI LOC MDA 1600 TO 1620; FUTURE ILS/LOC to parallel RWY 34 SI LOC MDA 1620. The Airport, ATM and local tenant pilots agreed to these procedure changes.

Criteria c- Visibility Performance

The Line of Sight Angle of Incidence was measured using the ATCTVAT. Elevations for the existing Runway and Taxiway and the proposed ATCT sites were derived from the Airport Layout Plan. As earlier stated, the maximum distance to the existing movement areas is to the east ultimate taxiway is 6,400 ft. (ultimate). This distance and the elevations were input into the ATCTVAT and the tool calculated a controllers eye height requirement of 91'. Passing results for object discrimination were found at this controllers eye level as well. Hangars to the northeast dictated the tower height based on the future movement areas. An unmanned aerial vehicle was flown and found Site 4 to have unobstructed line of sight to all movement areas. The cab mullions blocked runway/taxiway intersections and was mitigated by rotating the cab 10^{o} counter clockwise as discovered by the XNA ATCS during the 3D VR sessions.

There are no movement or non-movement areas obstructed by Look Down Angle on Site 4. Look up angles are acceptable through both runways. There are no other line of sight obstructions on any existing or proposed movement areas.

Lateral Discrimination does not impact this site which was checked with the virtual cab.

Sunlight/Daylight. The tower is west south west facing with the primary approach to the east of the tower. The tower will be equipped with dual shades which will assist in the mitigation of any sunlight glare issues. The existing tower faces the same direction and the controllers are familiar with the situation and the mitigation.

Artificial Lighting. No impacts were identified with existing tower night-time ground operations caused by airport lighting/background clutter, municipal and industrial lighting.

Atmospheric Conditions. There were no naturally occurring atmospheric conditions found that created site limitations.

Industrial Municipal Discharge. There were no industrial/municipal discharges found that created site limitations.

Criteria d – Comparative Safety Assessment (CSA)

The CSA is included in Appendix E. It was determined that there are no apparent hazards for Site 4.

Criteria e- Operational Requirements

ATCT Orientation. Site 3 tower will be west south west facing which is not optimal for sun glare avoidance. The tower cab has been rotated to allow the most advantageous alignment of the positions and the orientation of the runways and movement areas. The sun glare has been an issue in the existing tower and mediation developed. The new tower will include dual shades which has been effective in sun glare resolution.

Weather. Interviews with the Airport Director and ATCSs stated that there are no isolated low lying fog areas on the airport including the preferred sites.

There were no observed visibility conditions at XNA that would greatly influence the new ATCT's site location. Poor visibility is consistent throughout the airport when low visibility conditions occur. There have been very few incidents reported by airport management where patch fog occurs consistently in one area.

The optimal tower site is where the traffic patterns and movement areas can be best visually monitored from the ATCT, during all weather conditions. Visibility can be greatly reduced by weather conditions such as fog and precipitation. The geography, primarily the constant elevation between the possible site locations, will result in the same visibility readings from the ATCT for each site. Thus a centralized site in reference to the movement areas and traffic patterns is most beneficial to visual observations.

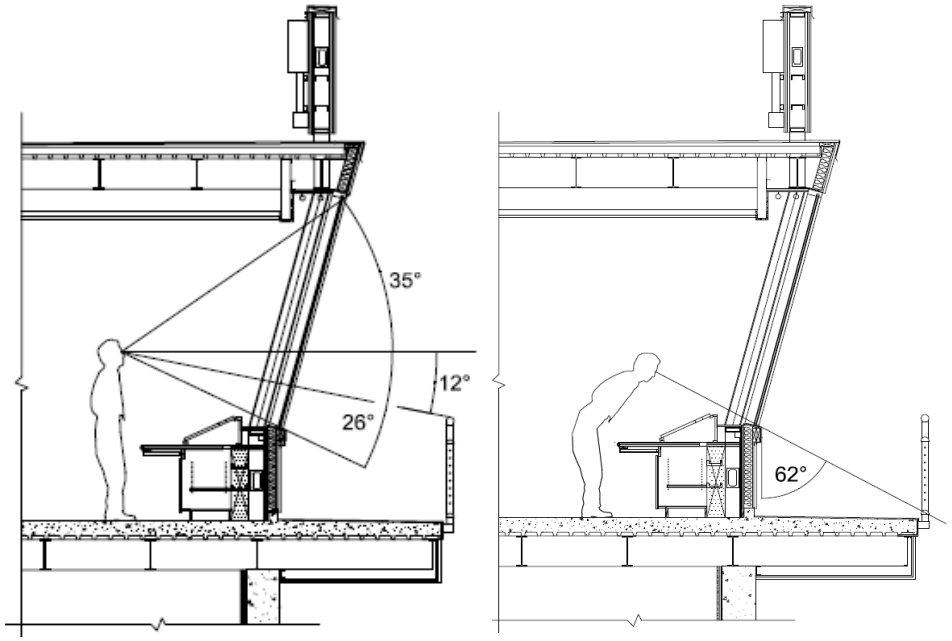
There were no observed visibility conditions at XNA that would greatly influence the new ATCT's site location. Poor visibility is consistent throughout the airport when low visibility conditions occur. There have been very few incidents reported by airport management where patch fog occurs consistently in one area.

Look-down Angle. Visibility from the ATCT cab must consider the view of controlled movement (and non-movement) areas around the base of the ATCT. Reference the Figure on the following page. Mapping the radius for Site 4 shows that there is no impact on any movement areas.

Look Across LOS. Cab size is not expected to impact any look across angle. The cab is 8 sided and provides good visibility of all approaches and most movement areas from any position in the cab.

Cab Mullion/Column Orientation. The cab design will be oriented such that any mullions are not obstructing Line of Sight for critical locations. This was verified by the XNA ATCS SME using the AFTIL Virtual model.

Look-up Angle. Reference the figure below. The calculated Look up angle is greater than the missed approach altitude



Look Down Angle	**Site 4**
Controllers Eye Height	130
Distance of Shadow without Bending	322
Bending Shadow	239
Distance to Rwy or Twy	1100
Look Up Angle	
Ht of vision at cl mid point Rwy 9-27	959
Missed approach climb to 1800 Ft.	

Figure 10 Look Down-Up Angles

Construction. Consideration has been given to the impacts of the existing/new ATCT operations. Reference Criteria d and the CSA.

Access. Access to Site 4 ATCT site does not cross existing ground/air traffic patterns. Access for vehicles will be through a remote controlled gate managed by the controllers. Roadways to the tower are secondary city streets that also provide access to the buildings in the area.

Non-Movement Areas. Site 4 has the best view of a majority of non-movement areas. Most of the operations occur on the west side of the airport allowing this Site the most optimum views.

Criteria f Economic Considerations

Estimated Construction Cost. The engineer's Rough Order of Magnitude estimated probable cost for construction for Site 4 is $14.12 M.

Included in this cost estimate is the following:

- Tower and Cab
- Engineering Design and Construction Support
- Environmental Analysis
- FAA Support for Equipment Installation ($300K)
- Utilities Improvements and Construction
- Site Improvements and Construction

There are no apparent environmental impacts as Site 4 which is on previously disturbed land, is mowed and used for the beacon and recently decommissioned weather sensors.

Table 4 Site 4 Infrastructure Requirements

Category	Action Required
Access	**300' drive to site**
Parking	**10 spot required, adjacent to site.**
Water	**300' of 6" Water (assumes hydrant and wet standpipe)**
Sewer	**300' of 3" Sanitary Sewer**
Power	**100' of Underground Electric**
Communications	**150' of Underground Telecommunications Cabling**
Airfield Lighting Vault	**150' of Fiber or Copper Connecton**

NASWATCH Summary

There were no NASWATCH impacts reported.

Conclusion

Site 4 was ranked 1st among the preferred sites due to the distance to the approach ends of proximity of the existing tower and runways. The site is closest to the most active movement and non-movement areas. Site 4 has the best full facing view of the airport and the current aircraft patterns. This site was concurred as best by the XMA ATCSs during the session.

Section 4 Site Comparison Chart

Criteria	**Site 2**	**Site 3**	**Site 4** [1]
Latitude: Longitude: Site Elevation:	36° 16' 48.66" N 94° 18' 6.68" W 1271'	36° 16' 49.45" N 94° 18' 2.63" W 1271'	36° 16' 46.2" N 94° 18' 6.72" W 1271'
Minimum Controller Eye Level *(AGL/AMSL)*	*165' / 1436'*	*155' / 1426'*	*130' / 1401'*
ATCT Structural Height *(AGL/AMSL)*	*190' / 1461'*	*185' / 1456'*	*155' / 1426'*
Maximum Distance to RW/TW End *(RW 17 - Existing) [RW 16R – Future]*	5,756'	5,906'	5,952'
1. Visual Performance			
a. Controlling Obstruction *(Shadow)*	Alpha Terminal [2]	Parking Garage [3]	Ult Rwy 16L/34R
b. ATCVAT Angle of Incidence *(min 0.80^{O})*	Pass	Pass	Pass
c. ATCVAT Object Discrimination *(C-172)*	Pass	Pass	Pass
d. Two-Point Lateral Discrimination *(min 0.13^{O})*	Pass	Pass	Pass
2. Impact to Instrument Approaches *(TERPS)*	See NASWATCH	See NASWATCH	See NASWATCH
3. Impact to 14 CFR Part 77 Surfaces	See NASWATCH	See NASWATCH	See NASWATCH
4. Sunlight/Daylight	No Impact	No Impact	No Impact
5. Artificial Lighting	Rotating Beacon [4]	Rotating Beacon [4]	Rotating Beacon [4]
6. Weather & Other Atmospheric Conditions	No Impact	No Impact	No Impact
7. Industrial/Municipal Discharge	No Impact	No Impact	No Impact
8. Site Access Road & Parking	new / 60 lf	new / 50 lf	new / 270 lf
9. Interior Physical Barriers			
a. ATCT Orientation	West	West	West
b. Look Across Line-of-Sight	Very Good	Very Good	Very Good
c. Cab Mullions *(design issue)*	Very Good	Very Good	Very Good
d. Look Up Angle	Very Good	Very Good	Very Good
10. Estimated Construction Cost	$17,928,000	$16,841,000	$14,125,000
11. Other Considerations			
a. Communications & NAVAIDS	See NASWATCH	See NASWATCH	See NASWATCH
b. Environmental (NEPA) *(preliminary)*	No Impact	No Impact	No Impact
c. Utilities *(new)*	Water/Sewer/Comms	Water/Sewer/Comms	Water/Sewer/Comms
d. Security *(new)*	Airside Fencing/Access	Airside Fencing/Access	Airside Fencing/Access
e. Aesthetics	Excellent	Excellent	Excellent
12. Safety Risk Assessment *(see CSA)*			
Hazard			
a. Initial Risk	None	None	None
b. Predicted Residual Risk *(after mitigation)*	None	None	None

Note: Site 1 was eliminated from further consideration due to restricted visibility of the airfield.

[1] Recommended Site

[2] Terminal blocks view of Terminal apron (non-movement area)

[3] Parking garage blocks view to T/W B

[4] Beacon to be relocated on top of ATCT Cab

Section 5 FINAL SITE RECOMMENDATION AND APPROVAL

Site 4 was evaluated to be the recommended site of all seven (7) sites investigated. The evaluation analyzed the sites and narrowed down to a shortlist of three (3) sites. These 3 sites were further analyzed with Site 4 resulting in the most preferred.

Site 4 was validated by the SMS panel as the recommended site providing the most favorable safety profile and least risk. The analysis conformed to the FAA Order 6480.4B Alternate Method. The site recommendation follows on the next page.

Signature page not used.

Final Site Recommendation
Northwest Arkansas National Airport, (XNA) Airport Traffic Control Tower

This Agreement is made by and between ATO Terminal Program Operations, the Terminal Area Office and the XNA Airport Sponsor, collectively known as the "Parties." The purpose of this agreement is to address the siting requirements for the new XNA Airport Traffic Control Tower (ATCT) Replacement planned for construction at XNA in Bentonville, Arkansas.

Section 1. The parties agree that the siting requirements shall be as follows:

Article 1: The location of the ATCT, herein after referred to as Site 4
Latitude: 36° 16' 46.2" N
Longitude: 94° 18' 6.72" W

Article 2: The Air Traffic Control Specialist (ATCS) eye height used at the site for the purposes of this agreement is 1,401 feet MSL or 130 feet AGL, 1,271 feet MSL site elevation.

Article 3: The total ATCT height including antennae and all other obstructions will be approximately 1,426 feet MSL or 155 feet AGL, assuming 30 feet from eye height level to top of lightning protection air terminals.

Article 4: The FAA OEAAA analysis found the following which is acceptable to the Airport: OBJECT PENETRATES SECTION 1 OF MISSED APPROACH, NEH: 1426 W/1A. NEW REQURIED MINIMA: RNAV (GPS) RWY 34, LNAV/VNAV CAT E DA FROM 1550 TO 1567; ILS OR LOC RWY 34; SI LOC MDA FROM 1600 TO 1620. FUTURE PLANS ILS OR LOC TO PARALLEL RWY 34, SI LOC MDA 1620, NEH: 1426 W/1A.

Article 5: The parties are in general concurrence with the assumptions documented in the final site selection report.

Section 2. The Airport Sponsor agrees to notify the assigned Technical Operations Engineering Services project engineer of any proposed, planned, envisioned projects that would be constructed on airport property that could possibly impact the LOS from the preferred ATCT sites.

Section 3. This agreement does not constitute a waiver of any right guaranteed by law, rule, regulation, or contract on behalf of any party. The undersigned unanimously agree with the choice of Site 4 for the new Airport Traffic Control Tower at XNA.

Please see External Clearance Record for this approval signature.

Service Area Director of Terminal Operations Date

Please see External Clearance Record for this approval signature.

Service Area Director of Technical Operations Date

Please see External Clearance Record for this approval signature.

Director of Terminal Program Operations Date

Signature page not used.

Final Recommended Site Comparative Safety Assessment
Final Site Approval
Regional Lines of Business
Northwest Arkansas National Airport, (XNA) Airport Traffic Control Tower
FAA Headquarters

The undersigned concur with the choice of Site 4 for the new Airport Traffic Control Tower at the Northwest Arkansas National Airport (XNA). The Terminal Facilities signature on this document indicates they accept a 20 ft. Decision Altitude reduction for the Runway 34 RNAV (GPS) LNAV approach if the tower is 160 ft. tall which has been identified through the SMS process for this site. The signature of the Director of ATO Terminal, Safety and Operations confirms the safety analysis was performed correctly.

Please see External Clearance Record for this approval signature.

Director, ATO Terminal Safety and Operations Date

Please see External Clearance Record for this approval signature.

ATO Safety Service Unit** Date

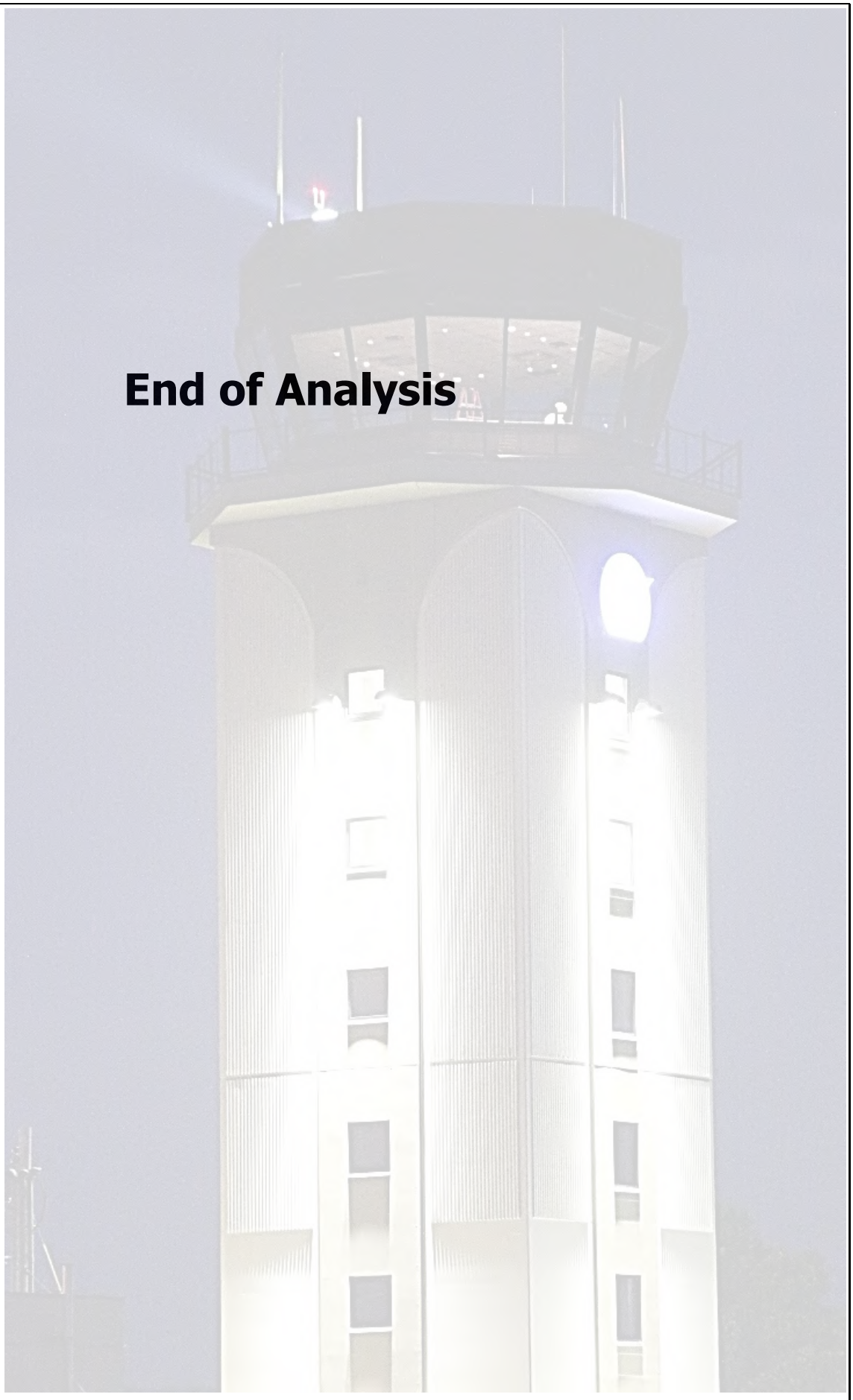
Please see External Clearance Record for this approval signature.

Director/Manager ATO Safety Service Unit/LOB Date
Date

Please see External Clearance Record for this approval signature.

Vice President ATO Safety Service Unit/LOB

**As required per the latest version of the FAA Safety Management System Manual.


End of Analysis

Appendix A Meeting Notes, Lists of Contacts and Sign In Sheets

Reference CSA for SRM Panel meeting notes and sign in sheet

Northwest National Airport, AK - (XNA)

	Organization	Name	Phone Number	E-Mail Address
	Consultants (Named by Airport Sponsor)			
	AJT Engineering, Inc.	Peter Deeks	321 863-2527	peted@ajteng.com
	Quadrex	Dave Byers	321 574-5633	dabyers@quadrex.aero
	Garver	Adam White	479-287-4635	atwhite@garverusa.com

Table 3-1. Siting Team Composition

Role	VISTA Process for FAA Towers	Alternate Siting Process for FCTs/NFTs
Terminal Facilities National Coordinator [1]	X	X
VISTA Modeler [1]	X	X
Service Center QCG SMS Specialist(s)[1]	X	X
Terminal Engineering – Lead Project Engineer [1]	X	X
Electronics Project Engineer?	X	
Service Center OSG [2]	X	
OSG Flight Procedures Team (TERPS) [2]	X	X
OESG Technical Operations (TOPR) [2]	X	X
Flight Technologies and Procedures Division (Part 77) [2]	X	X
Service Center PRG Air Traffic Requirements [1]	X	
Service Center PRG PIM [2]	X	X
Airports Districts Office [1]	X	X
Air Traffic District Manager [2]	X	X
Technical Operations District Manager [2]	X	
Local Technical Operations	X	
Local ATCT Personnel (max. 4 from ATM, FLM, CPC, NATCA) [1]	X	X
Airport Sponsor representative [1]	X	X
Terminal Facilities Execution [1]	X	X
Terminal Facilities Planning [1]	X	X
Air Traffic Services Requirements (HQ) [2]	X	
Office of Security and Hazardous Materials Safety – SSE [2]	X	
Air Traffic Safety Oversight Service [2]	X	
Safety and Technical Training (HQ) [2]	X	
Terminal Services Safety Engineering [2]	X	X
Runway Safety Group [2]	X	
Environmental Engineer or Environmental Protection Specialist [2]	X	
Policy and Portfolio Planning Branch [2]	X	X

1 Expected to travel to in-person sitings. Must be available for the designated siting activity or ensure a replacement SME is present.

Document Review Comments

ID	Page	Paragr	Comment	Created by	Date Created	AJT Response
1	12		Fix title sentence format to eliminate large spacing	C. McMurray	5/18/2022	Corrected
2	18		Fix title sentence format to eliminate large spacing	C. McMurray	5/18/2022	Corrected
3	7460 Appendix		Provide complete submittal and letter, title page and form missing.	C. McMurray	5/18/2022	Corrected
4			Please check the lat/longs for site 4- I show 36 1646.2/94 18 6.72 - is different in several places	F. Boyer	5/19/22	Corrected
5			Please verify the heights for Site 4 in the various areas, ensure they are the same	F. Boyer	5/19/22	Corrected
6	6		Did not see any reference to the selection of slatwall and columns by the ATM	F. Boyer	5/19/22	Corrected
7	6		Did not see any reference to the need for additional operational positions, i.e. There is a proposed new runway located on the back side of the cab operation. The new runway will require at least two new positions will need to be conducted by the FAA required equipment, etc. If these requirements are not implemented, another safety assessment operations; these two sectors are required to be included in the future cab layout and for (LC/GC) to safely control the movement area	F. Boyer	5/19/22	Corrected
8	6		Include the action to allow ATM to make a check of the sector layout during design phase	F. Boyer	5/19/22	Provided statement.
9	6		Replace all references to the AFTIL with VISTA as this siting was conducted with the VISTA process	S. Teel	5/23/22	Removed references to AFTIL
10			Please check the site elevations for all sites; there are discrepancies with the Site Comparison Chart	S. Teel	5/23/22	Corrected
11	45		Report Page 45 – NASWATCH – Note that the Tech Ops Preliminary Report (TOPR) (PDF page 67) serves as the preliminary NASWATCH report	S. Teel	5/23/22	Added note to page 44
12	99		The Airport Concurrence form (PDF page 99) indicates the tower will be built in Bentonville, AL.	S. Teel	5/23/22	Corrected
13	4	1	ATCT is open for 17.5 hours. 0530-2300L	D. Monger	5/25/2022	Corrected
14	22	3	"Impacts on exisitng CTAF or AWOS". XNA has an ASOS not AWOS.	D. Monger	5/25/2022	Corrected
15	36		Site 4 looking south. It shows Terminal Building, this is actually the parking garage. Terminal building is a little farther east.	D. Monger	5/25/2022	Corrected

Document Review Distribution

From: Pete Deeks - AJT Engineering, Inc.
To: Boyer, Franklin E-CTR (FAA); Seliga, John (FAA); Teel, Shari A-CTR (FAA)
Cc: Howard, Karl (FAA); Nicholas Fondano; Kelly Johnson; Ryan Hannan; XNA ATCT; Dave Byers; Blanco, Ivan (FAA); Fornito, John (FAA); Howard, Karl (FAA); Leake, Kristen (FAA); Hrisco, Lynn (FAA); Olufemi.O.Adeoye@faa.gov; Maupin, Travis L (FAA); glenn.a.boles@faa.gov; Natoli, Michael (FAA); Hrisco, Lynn (FAA); Woolridge, David L (FAA); Barker, Justin (FAA)
Subject: RE: XNA ATCT SRMD Draft for Review
Date: Wednesday, May 11, 2022 10:18:00 AM
Attachments: XNA Siting Study SRMD 51022 Reduced.pdf
image001.png
AJT Comment Sheet XNA SRMD.xlsx

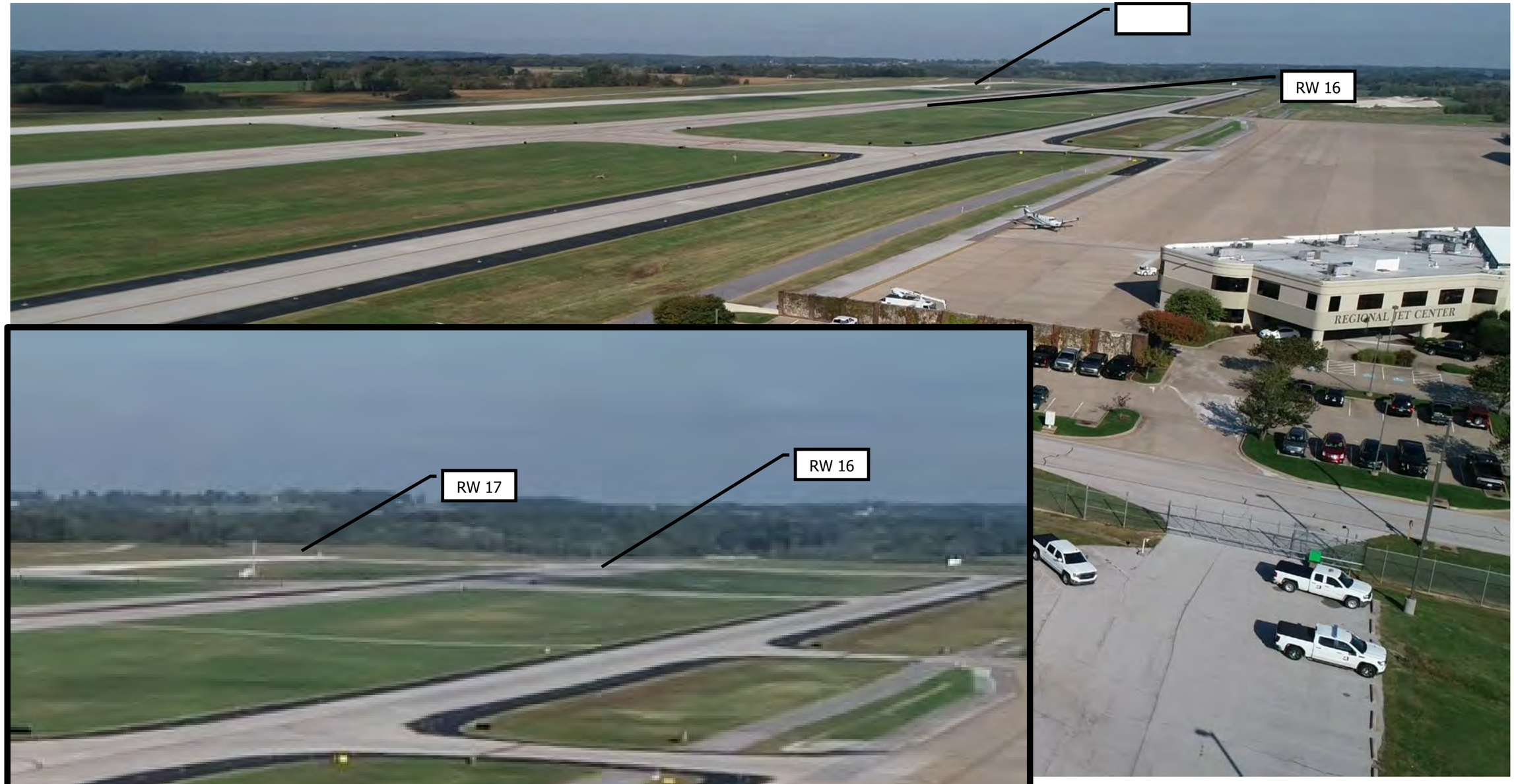
Reduced file size as the FAA server kicked the original 19M file back. Hope this works.
Pete

From: Pete Deeks - AJT Engineering, Inc.
Sent: Wednesday, May 11, 2022 10:08 AM
To: Boyer, Franklin E-CTR (FAA) <franklin.e-ctr.boyer@faa.gov>; Seliga, John (FAA) <John.Seliga@faa.gov>; Teel, Shari A-CTR (FAA) <Shari.A-CTR.Teel@faa.gov>
Cc: Howard, Karl (FAA) <Karl.Howard@faa.gov>; Nicholas Fondano <Nicholas.Fondano@flyxna.com>; Kelly Johnson <Kelly.Johnson@flyxna.com>; Ryan Hannan <ryan.hannan@flyxna.com>; XNA ATCT <xna@rvainc.com>; Dave Byers <DAByers@quadrex.aero>; Blanco, Ivan (FAA) <ivan.blanco@faa.gov>; Fornito, John (FAA) <John.Fornito@faa.gov>; Howard, Karl (FAA) <Karl.Howard@faa.gov>; Leake, Kristen (FAA) <kristen.leake@faa.gov>; Hrisco, Lynn (FAA) <Lynn.Hrisco@faa.gov>; Olufemi.O.Adeoye@faa.gov; Maupin, Travis L (FAA) <Travis.L.Maupin@faa.gov>; glenn.a.boles@faa.gov; Natoli, Michael (FAA) <Michael.Natoli@faa.gov>; Hrisco, Lynn (FAA) <Lynn.Hrisco@faa.gov>; Woolridge, David L (FAA) <David.L.Woolridge@faa.gov>; Barker, Justin (FAA) <Justin.Barker@faa.gov>
Subject: XNA ATCT SRMD Draft for Review

Please find attached our Draft copy of the subject SRMD. Please note that the VISTA Study is included in the Appendix.

Appendix B Panoramic Photographs at Controllers Eye Height

Please email peted@ajteng.com for access to copies of these photos as well as videos which can be viewed at https://www.dropbox.com/s/rcecdbmseefpi4s/120%20show.MOV?dl=0



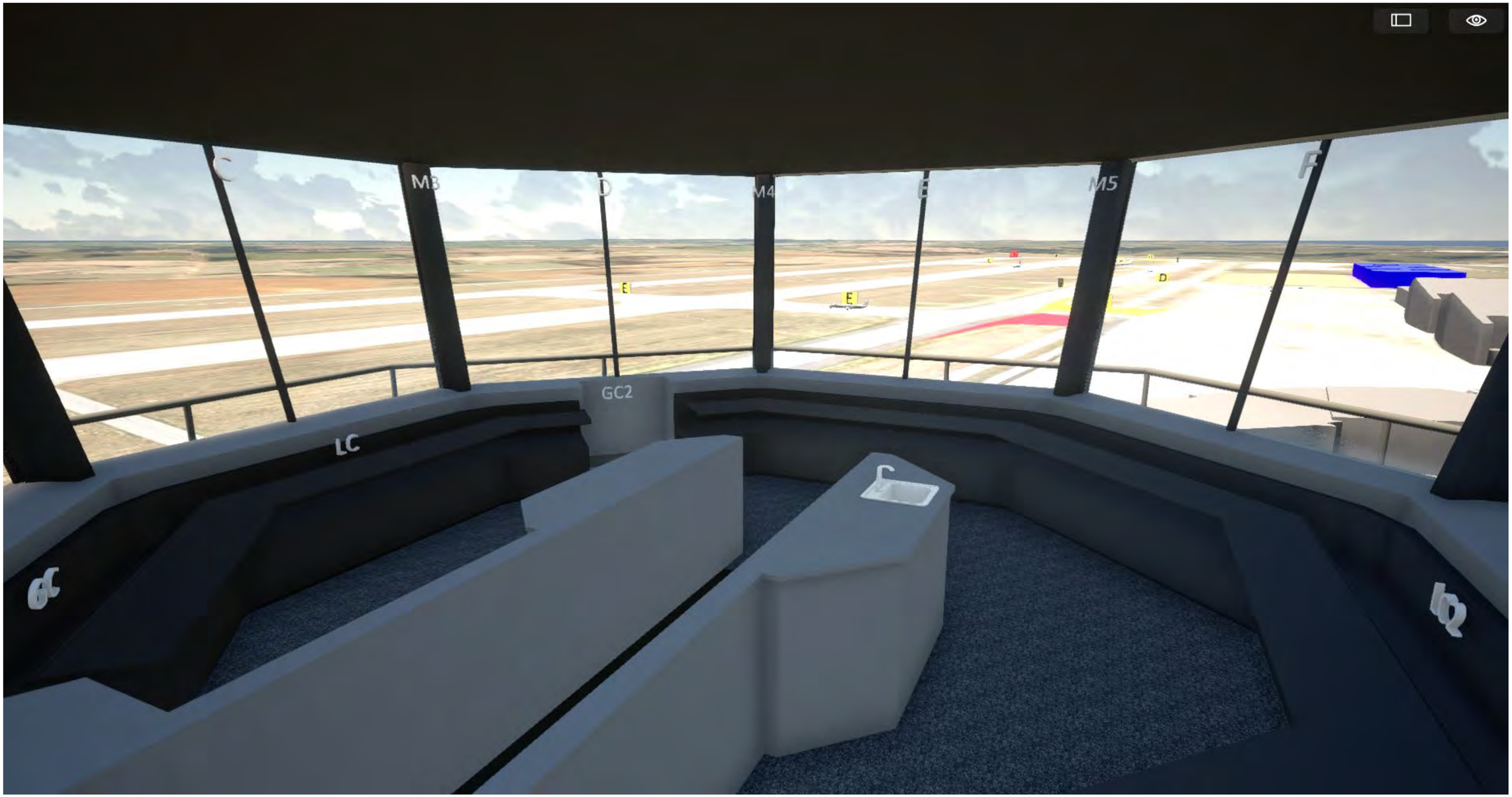
Site 4 looking North

Site 4 looking South

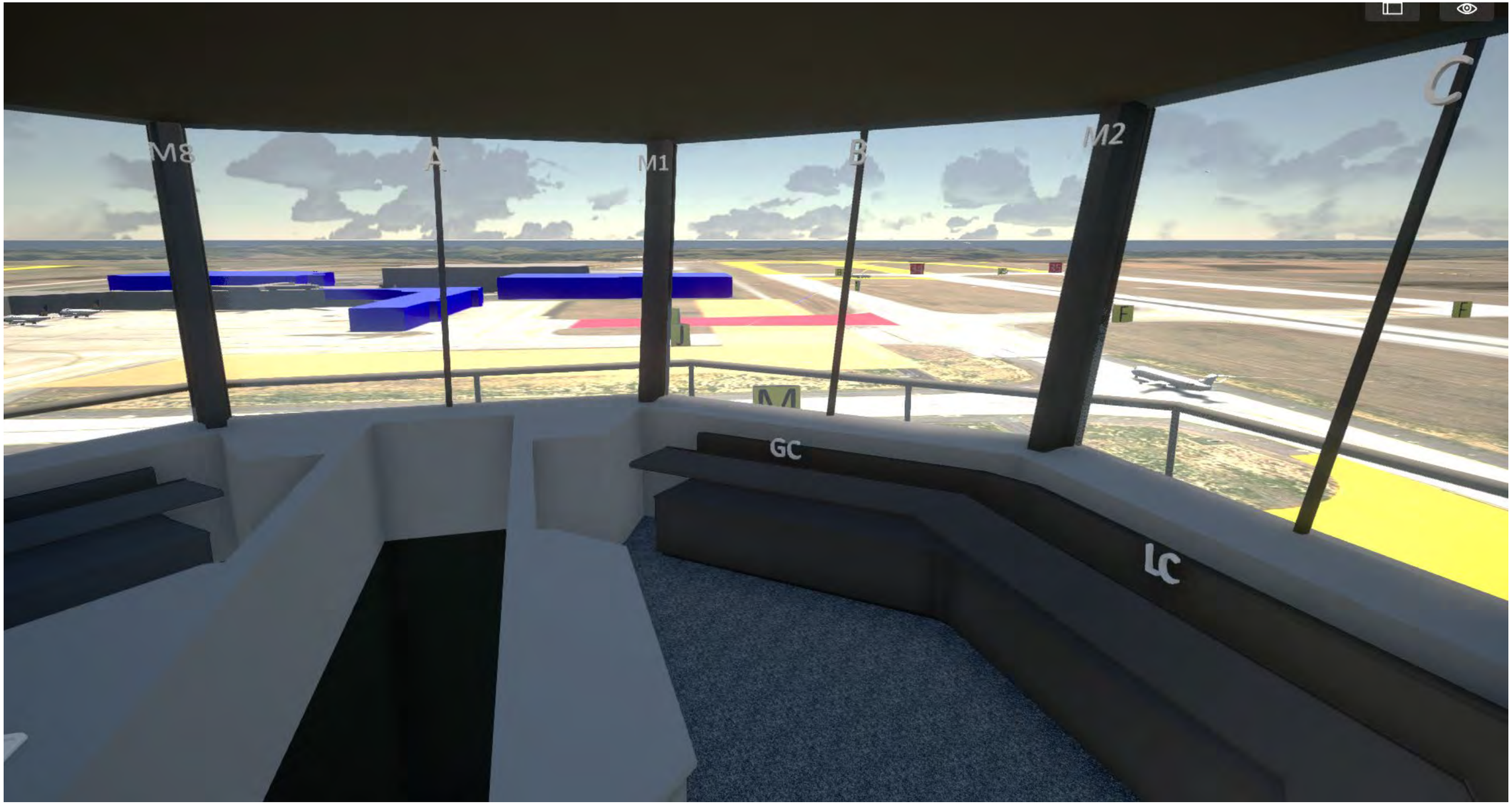
Site 4 looking Northeast

Site 4 looking Southeast

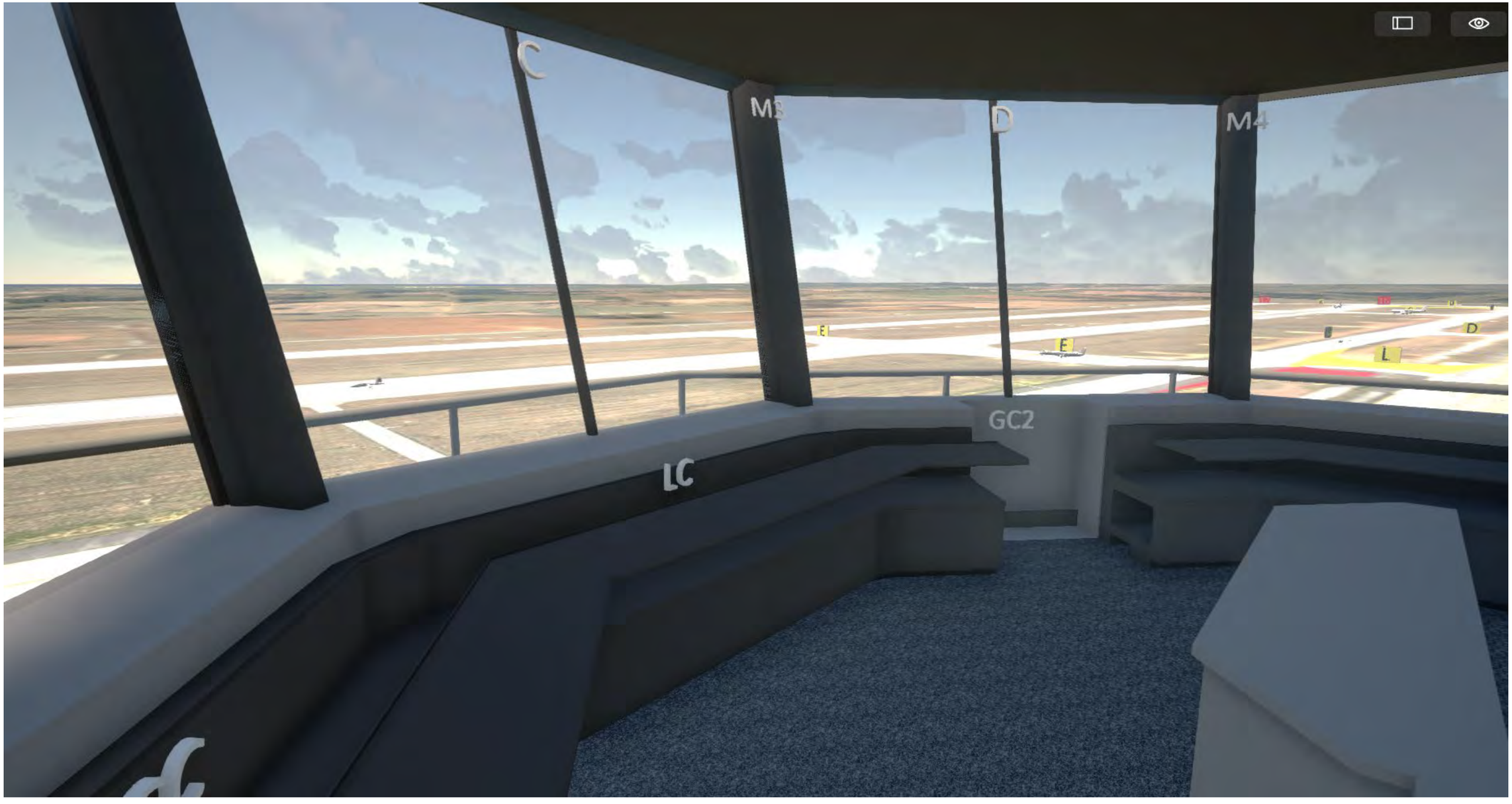
Views from VISTA Model



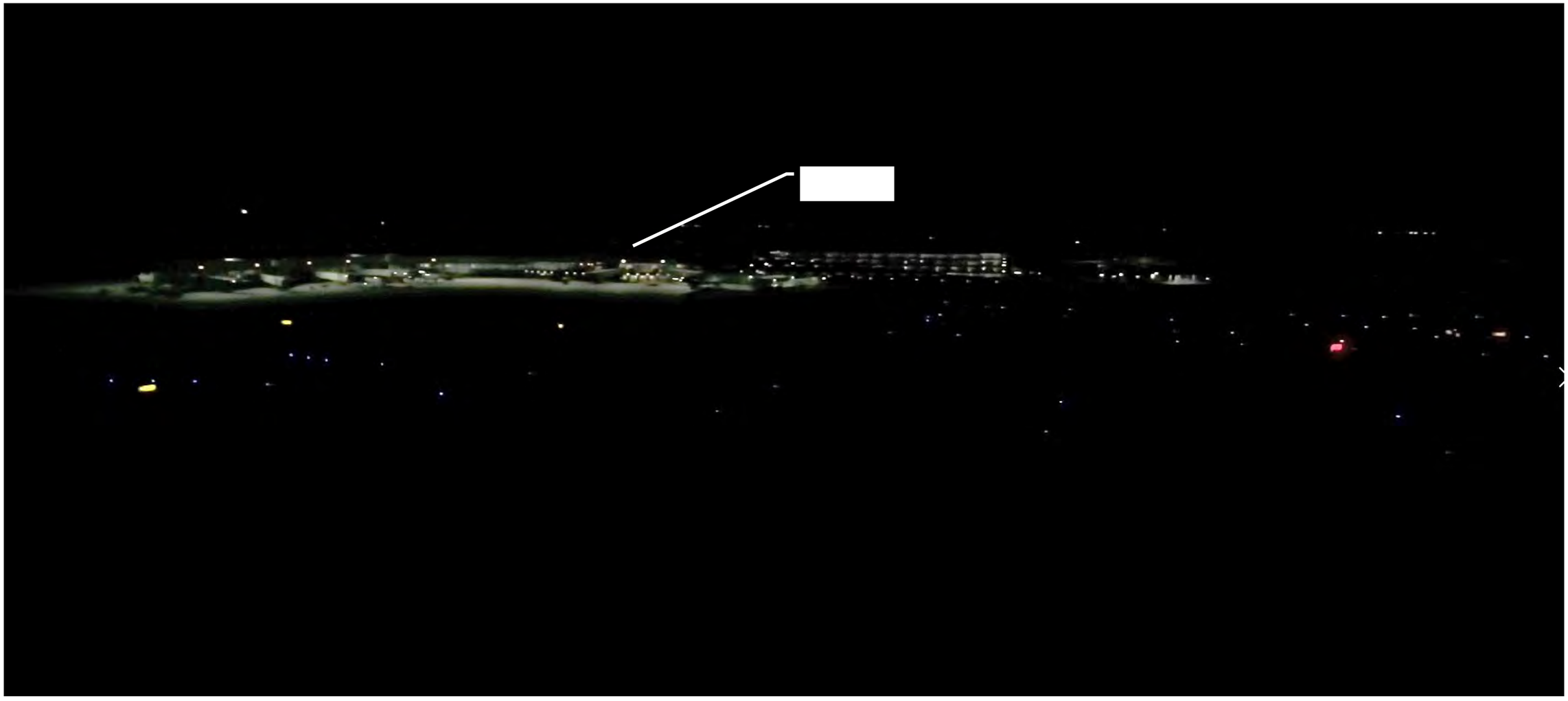
Site 4 looking North



Site 4 looking South



Site 4 looking West



Site 4 looking South Night

Note: All other night shots had no light glare into the cab and were not distinguishable.

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Appendix C Terminal Instrument Procedures (TERPS)

See Determination Letter for Minimums Changes. See page 67 for Preliminary NASWATCH (TOPR)

Appendix D NASWATCH Report

No adverse NASWATCH effects and no reports provided See CSA for preliminary.

Appendix E Safety Risk Management Document

Proposed New Federal Contract Tower For: Northwest Arkansas National Airport (XNA)

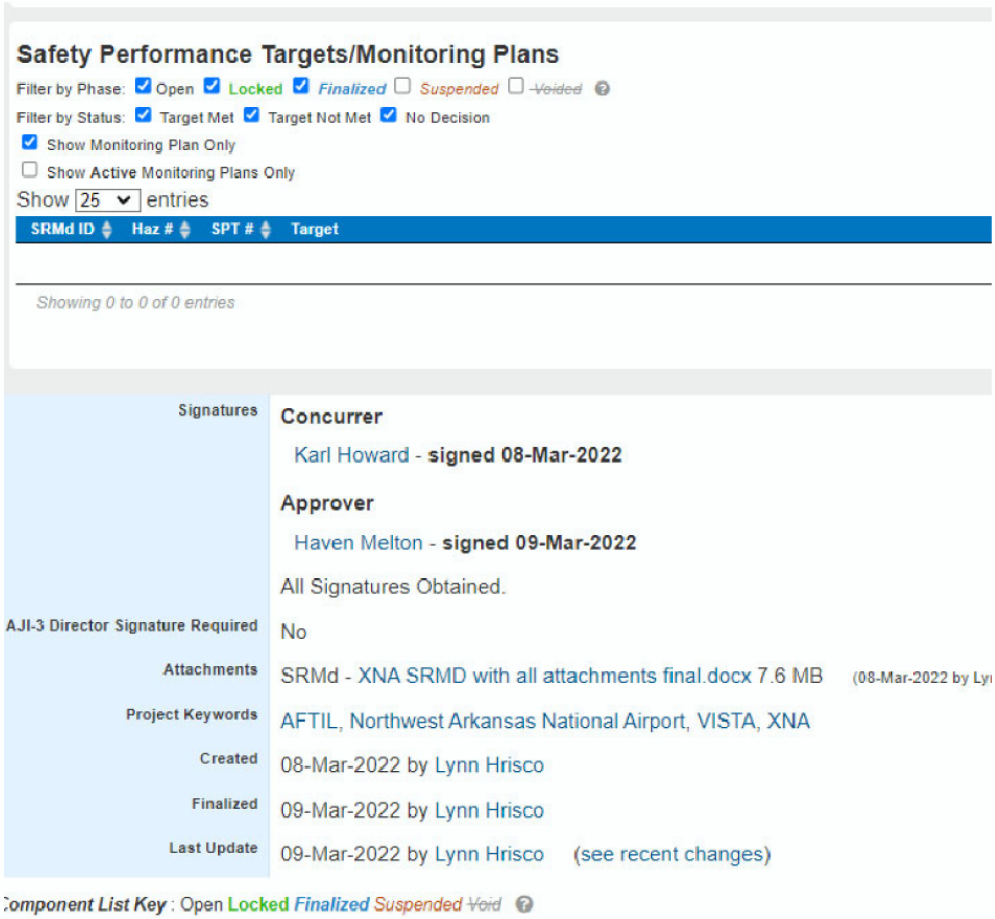
Federal Aviation Administration

December 14, 2021

Signature Page

Title: Comparative Safety Assessment (CSA) for Proposed New Airport Traffic Control Tower (ATCT)at Northwest Arkansas National Airport (XNA)

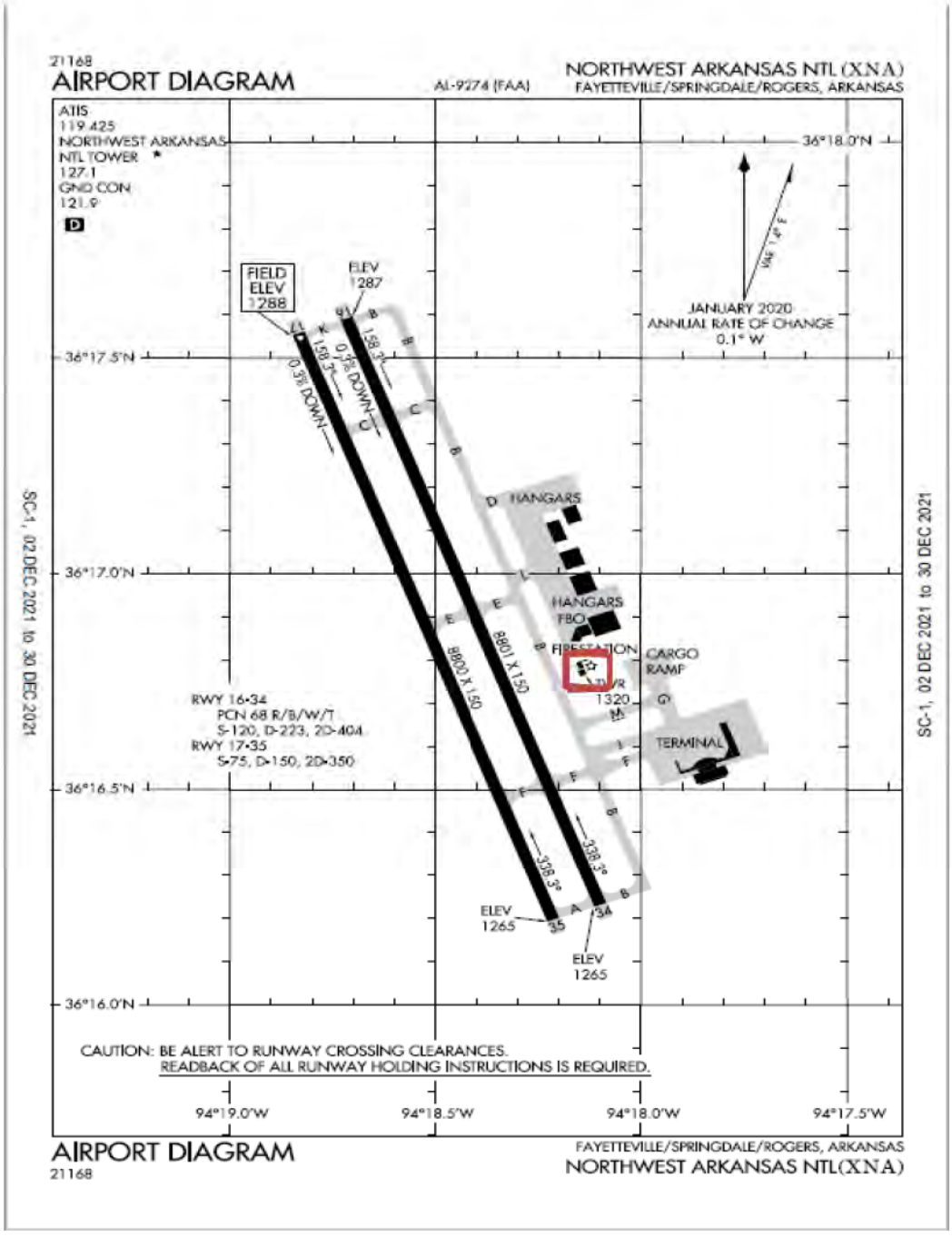
Submitted by:	Electronically Signed in SMTS **Karl Howard, SMS Specialist, AJV-C12**	08 Mar 2022 **Date**
Concurrence by:	Electronically Signed in SMTS **Karl Howard, SMS Specialist, AJV-C12**	08 Mar 2022 **Date**
Approved by:	Electronically Signed in SMTS **Haven Melton, Air Traffic District Manager**	09 Mar 2022 **Date**



SECTION 1: CURRENT SYSTEM

The Northwest Arkansas National Airport (XNA) is located in Highfill, Arkansas, about 17 miles northwest of Fayetteville, Arkansas. The airport has two parallel runways: Runway (RWY) 16/34 (8,801 feet) and RWY 17/35 (8,800 feet). Both surfaces are 150 feet wide. The current Airport Traffic Control Tower (ATCT) is located in on the eastern side of the airfield, near the Taxiway (TWY) B, as circled in Figure 1 below.

Figure 1 Current Airport Diagram



SECTION 2: DESCRIPTION OF PROPOSED CHANGE

A new ATCT is being explored for XNA. A 3-D model, Virtual Reality (VR) proof-of-concept siting took place December 14, 2021 at the airport and via Zoom during which the FAA Terminal Facilities Siting team conducted an assessment using site data provided by the FAA personnel and the airport authority. The siting assessment was completed using 3-D goggles. The goal was to assess efforts and apply the best outcome in order to determine the best possible position on the airfield for the new tower.

After looking at several possible new tower sites, one location was recommended by the siting team and staff at XNA. Two other locations were considered that had no additional issues regarding line of sight; however, the recommended site had advantages. "Site 4" is the recommended location and Sites 2 and 3 are discussed in Section 4 in this Safety Risk Management Document (SRMD). Additional sites (Site 2 and 3) were also evaluated; information regarding Site 2 and 3 can be found in the attached Hazard Analysis Worksheet (HAW).

Details for site 4 are as follows:

- The location of the tower's four corners based off preliminary TERPS data are:
  - PT #1 – 36°16'46.00"N, 94°18'7.01"W
  - PT #2 – 36°16'45.75"N, 94°18'6.91"W
  - PT #3 – 36°16'45.83"N, 94°18'6.60"W
  - PT #4 – 36°16'46.08"N, 94°18'6.71"W
- Cab Floor Level – 125 feet Above Ground Level (AGL)
- The site's location is 30°16'46.2"N / 94°18'6.72"W
- Eye Level – 125 feet AGL
- Top of Tower – 155 feet AGL (35 feet above cab floor; 30 feet above eye level)

Details for site 2 are as follows:

- The location of the tower's four corners based off preliminary TERPS data are:
  - PT #1 – 36°16'48.52"N, 94°18'6.82"W
  - PT #2 – 36°16'48.28"N, 94°18'6.71"W
  - PT #3 – 36°16'48.36"N, 94°18'6.41"W
  - PT #4 – 36°16'48.61"N, 94°18'6.51"W
- Cab Floor Level – 160 feet Above Ground Level (AGL)
- The site's location is 36°16'48.66"N / 94°18'6.68"W
- Eye Level – 160 feet AGL
- Top of Tower – 190 feet AGL (35 feet above cab floor; 30 feet above eye level)

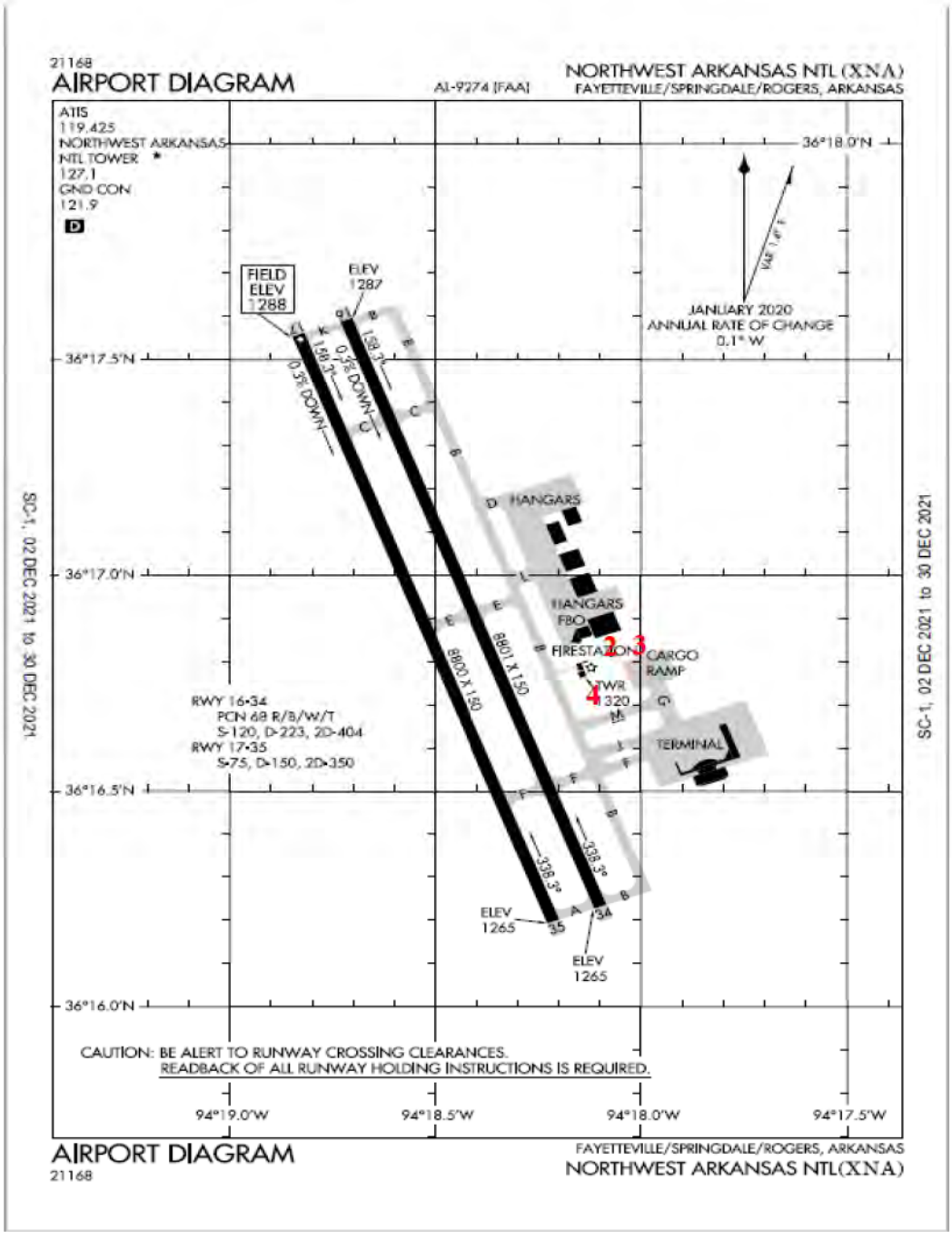
Details for site 3 are as follows:

- The location of the tower's four corners based off preliminary TERPS data are:
  - PT #1 – 36°16'49.53"N, 94°18'2.88"W
  - PT #2 – 36°16'49.28"N, 94°18'2.76"W
  - PT #3 – 36°16'49.39"N, 94°18'2.46"W
  - PT #4 – 36°16'49.62"N, 94°18'2.58"W
- Cab Floor Level – 155 feet Above Ground Level (AGL)

- The site's location is 36°16'49.45"N / 94°18'2.63"W
- Eye Level – 155 feet AGL
- Top of Tower – 185 feet AGL (35 feet above cab floor; 30 feet above eye level)

Figure 2 represents an approximation of the site determined to be a feasible location during the siting process. There is no negative impact on published precision and non-precision approaches.

Figure 2 Proposed New Tower Site



SECTION 3: SRM Panel Members

An Air Traffic Organization (ATO) Safety Risk Management Panel (SRMP) was conducted December 14, 2021 to analyze and assess the XNA preferred site and the impact to air traffic safety.

Participants included:

Panel Members:

- Debbie Monger, XNA Air Traffic Manager, RVA

Subject Matter Experts:

- Franklin E. Boyer, AJW Terminal Facilities National Coordinator (Liaison)
- Jeff Fischer, 3-D Modeler
- Matthew Ballon, 3-D Modeler
- Shari Teel, AJW Terminal Facilities National Coordinator
- Ron Wolf, XNA Air Traffic Control Specialist, RVA
- Kristen Leake, Airspace & Procedures Specialist
- John Fornito, Airspace and Procedures, Management and Program Analyst
- John Bratcher, NATCA Representative
- Andrew Tamanaha, ASW, Lead Civil Engineer
- Travis Maupin, Supervisor Ft Smith Air Traffic Control TRACON
- Ivan Blanco, Flight Procedures, Aeronautical Information Specialist
- Nicholas Fondano,XNA Director of Construction and PIM
- Dave Byers, AICP, CM, Airport Planner Quadrex Aviation, LLC
- Ron Berry, SAIC
- Oluferni (Femi) Adeoye,AXM-420 Program Manager Civil Engineer
- Peter Deeks, Project Manager AST Engineering Inc, Quadrex Aviation, LLC

Observer:

- Darrin Catania, Manager, Technical Evaluations

SECTION 4: Rational for Safety Finding Without Hazards

A Comparative Safety Analysis (CSA) was conducted for the proposed new ATCT at XNA. The purpose of conducting the assessment was to apply the Safety Risk Management (SRM) process as defined by the ATO Safety Management System (SMS) Manual, April 2019 version.

The CSA was used to determine relative risk between viable/preferred sites; one site was eliminated prior to the assessment. The same procedures were applied to the final three sites to determine whether or not any additional risk would be introduced into the National Airspace System (NAS) by their proposed locations. The Terminal Facilities Siting team used XNA ATC personnel to conduct the evaluation of the preferred sites using the 3-D model and VR goggles to assess the Line-Of-Sight (LOS) and detect any obstructions. Representatives from the FAA, XNA ATCT, user groups and the XNA airport authority also participated in siting activities. The team followed the alternate siting process in the FAA Siting Order 6480.4B, *Airport Traffic Control Tower Siting Process,* to determine the viable/preferred/recommended site(s).

SRMP attendees conducted a safety analysis on Site 2, Site 3 and Site 4 based on the Preliminary Hazard List (PHL) method from the ATO SMS Manual, April 2019 version, and using Appendix C, Table C-3 of the draft FAA Siting Order 6480.4B. The PHL is shown below with a list of SRMP attendees' comments, observations and findings for Sites 2, 3 and 4 according to PHL section topics.

While wearing VR goggles, XNA representatives were able to view movement and non-movement areas from the sites. They were able to see all critical airport locations and easily identify objects without impact to performance or depth perception.

Site 2, was originally at 120 feet AGL, but presented some LOS issues from the Ground Control (GC) position with mullion M3 which was blocking the hold-short line at TWY E and RWY 16 as well as a portion of Alpha ramp (non-movement). Controller movement eliminated all obstructions from the mullions. During the VR session, the tower cab was raised to 160 feet AGL and presented no further issues. It was also noted, there will be LOS issues from the west side looking east and vice versa. The plan is for the ATC East position to control the east side and the ATC West position will control the west side when using simultaneous runway operations.

Site 3, was originally at 108 feet AGL, but presented some LOS issues from GC with mullion M3 which was blocking intersections of TWYs B and E and TWYs B and L; controller movement eliminated all obstructions from the mullions. At 150 feet AGL it also presented a possible LOS issue with a proposed parking garage that could block 2,000 – 3,000 feet of a proposed taxiway extension (appx 20-30 seconds of viewable time). During the siting the tower cab was raised to 155 feet AGL and still presented LOS issues with intersections of TWYs B and E and TWYs B and L, and hold-short line of RWY 16, but eliminated any LOS hazards with the proposed parking garage and a proposed taxiway extension. The tower cab was rotated 10 degrees clockwise, and this cleared these particular LOS issues. It was also noted, there will be LOS issues from the west side looking east and vice versa. The plan is for the ATC East position to control the east side and the ATC West position will control the west side when using simultaneous runway operations.

The Site 4, tower cab will be at 125 feet AGL. The GC2 positon has slight LOS issues at the intersections of TWYs B and M and TWYs B and L due to the head wall. Mullion M4 presents a small overlap of TWYs B and L and the approach end of RWY 16. Controller movement eliminated all obstructions from the mullions and head wall issues. The tower cab was turned 10 degrees counter clock wise. It was noted that during construction the cargo ramp (non-movement) will be blocked; however, the aircraft will have to contact and start communication with ATC prior to entering a movement area. There is not much concrete on the Alpha Ramp; ATC will hold an aircraft on TWY J when one aircraft is taxiing in and one is taxiing out to ensure smooth movement. Downwind traffic, from the existing ATCT, will be blocked (the entire window pane) by construction, but the work around solutions for the controllers is the Tower Display Work Station (TDWS).

A detailed review of siting questions for both Site 2, 3 and 4 are included.

It was also stated that the current position of the airport beacon could shine into the proposed tower cab, and it would be shielded prior to the opening of the ATCT using methods in place at other facilities in the NAS or moved to the top of the new ATCT. The airport beacon shield would block west and southwest thus aircraft would not be able to see rotating beacon. A Notice to Airman would have to be issued.

Based on controller observations, it was determined that Site 4 was the best site and meets the needs of local ATC. Site 4 introduces no risk into the NAS and further analysis is not required per the ATO SMS Manual. The facility came up with the following advantage/disadvantage for each proposed location sit.

Rank	Site	Advantage	Disadvantage
2	2	Height provides overall best visibility Better Construction Site Better view of ramp	Most costly Tallest Could cause airspace issues Further from existing infrastructure
3	3	Height provides overall better visibility Better Construction Site Best view of east side of terminal and ramps	Furthest from Runway Furthest from existing infrastructure Costly Taller Could cause airspace issues Further from existing infrastructure
1	4	Closest to Infrastructure Closest to existing tower, allowing no change of procedures Shortest Controllers' choice	Proximity of existing tower Potential radio interference Construction proximity

XNA Site 2

AFTIL Trip #1 XNA Site 2		
Item	**Concerns, Causes and Effects**	**Description**
2. Potential interference with communication equipment both planned and existing	TBD	
3. Potential interference with existing and or proposed surveillance equipment	TBD	
4. TERPS surfaces penetrations	TBD	
5. Part 77 surfaces penetrations	TBD	
6. Relevant Airport Design standards violated	no issues	
7. Direction of view		
7 a. North	no issues	
7 b. East	no issues	
7 c. West	no issues	
7 d. South	no issues	
8. Line of sight/angle of view		
8 a. Up	no issues	
8 b. Down	no issues	Lost cargo ramp (non-movement), southend of GA ramp other than that no issues. GC: loss of visibility of GA ramp. East Cargo ramp. All else normal.
9. Visual Performance		
9 a. Unobstructed view	concerned with mullions size	Controller movement eliminated all obstructions from mullions. M3 blocking hold short TWY E at RWY 16. Some non-movement areas were not visible. There will be LOS issues from the West side looking East and vice versa. ATC will only operate East Side and West Side simultaneously when staffing allows, otherwise will be independent operations.
9 b. Object Discrimination	no issues	No discrimination of acft; vehicles etc.
9 c. Line of Sight (LOS) Angle of Incidence	no issues	
9 d. Two-Point Lateral Discrimination	no issues	
10. Lighting and Atmospheric Limitations – Daylight		
10 a. Sun Angle	sunrise 0600: no issues; nothing than typically expected sunset 1859: no issues, evening 2134: no issues	Positioned in the same direction of existing tower
10 b. Sun Glare	no issues	Might be some glare on the STARS
10 c. Sun Shadows	no issues	
10 d. Thermal Distortion	no issues	
10 e. Light changes/contrast eye adaptation	no issues	
11. Lighting and Atmospheric Limitations – Night		
11 a. Dawn	no issues	
11 b. Dusk	no issues	
11 c. Night	no issues	
12. Artificial Lighting		
12 a. Airport lighting equipment outages	no issues	
12 b. Lighting shadows	no issues	
12 c. Airport lighting	no issues	
12 d. Construction lighting (existing tower)	no issues	Existing height 44 AGL height
12 e. Residential/industrial lighting	no issues	
12 f. Background clutter	no issues	
13. Naturally occurring atmospheric conditions		
13 a. Dust	no issues	
13 b. Ash	no issues	
13 c. Smoke	no issues	
13 d. Haze	no issues	
13 e. Fog	no issues	Fog level will be ground level. Future TWR will be above fog
13 f. Rain	no issues	
13 g. Sleet	no issues	
13 h. Snow	no issues	
13 i. Sun glare off snow	no issues	Normal angle of sun versus angle of snow
13 j. Minimum ceiling heights (historical data)	no issues	
14. Industrial/municipal discharges		
14 a. Dust	n/a	
14 b. Ash	n/a	
14 c. Smoke	n/a	
15. Access to proposed site does not cross existing ground/air traffic patterns	will not cross movement or non-movement areas to get to new tower	
16. Interior physical barriers		
16 a. Position of ATC in Tower Cab	no issues	Plan on working on west side for west side and east for east side
16 b. Position of Tower Cab equipment	no issues	
16 c. Position of Tower Cab mullions	no issues	
17. Exterior physical barriers		
17 a. Construction equipment	Will not be able to see the cargo ramp	200 ft crane will be there 2-3 days and 30 ft will stay during first have of construction;
17 b. Proposed new structures and Airport expansion (ALP)	no issues	
17 c. Existing ATCT	no issues	Already know there will be construction and know have to work around conditions.
18. Other		
RWY 17/35	Will remain as a TWY	
Proposed Rwy and Taxiway	No issues with all the above	
Position of GC2 & LC2	GC2: if you have two controllers…ground could become iffy. Condusive to be working close together. Adding GC3 & GC4 as solution to a more condusive work condition.	
Rotating Beacon	Will be on top of TWR	
Head Wall Blockage	Blocking TWY M from LC position	
Cargo Ramp	Multiple non-movement areas are slightly blocked	
Alpha Ramp	When one acft is taxiing in and one taxiing out, will hold a acft on TWY J to ensure smooth movement	

XNA Site 3

AFTIL Trip #1 XNA Site 3		
Item	**Concerns, Causes and Effects**	**Description**
1. Potential interference with navigation equipment both planned and existing	TBD	
2. Potential interference with communication equipment both planned and existing	TBD	
3. Potential interference with existing and or proposed surveillance equipment	TBD	
4. TERPS surfaces penetrations	TBD	
5. Part 77 surfaces penetrations	TBD	
6. Relevant Airport Design standards violated	TBD	
7. Direction of view		
7 a. North	no issues	
7 b. East	no issues	
7 c. West	no issues	
7 d. South	no issues	
8. Line of sight/angle of view		
8 a. Up	no issues	
8 b. Down	no issues	
9. Visual Performance		
9 a. Unobstructed view	concerned with mullions size	Rotated tower to right, 10 degrees; this clears up the TWY E/B/L and hold short RWY 16
9 b. Object Discrimination	no issues	
9 c. Line of Sight (LOS) Angle of Incidence	no issues	
9 d. Two-Point Lateral Discrimination		
10. Lighting and Atmospheric Limitations – Daylight		
10 a. Sun Angle	no issues	
10 b. Sun Glare	no issues	
10 c. Sun Shadows	no issues	
10 d. Thermal Distortion	no issues	
10 e. Light changes/contrast eye adaptation	no issues	
11. Lighting and Atmospheric Limitations – Night		
11 a. Dawn	no issues	
11 b. Dusk	no issues	
11 c. Night	no issues	
12. Artificial Lighting		
12 a. Airport lighting equipment outages	no issues	
12 b. Lighting shadows	no issues	
12 c. Airport lighting	no issues	
12 d. Construction lighting	no issues	
12 e. Residential/industrial lighting	no issues	
12 f. Background clutter	no issues	
13. Naturally occurring atmospheric conditions		
13 a. Dust	no issues	
13 b. Ash	no issues	
13 c. Smoke	no issues	
13 d. Haze	no issues	
13 e. Fog	no issues	
13 f. Rain	no issues	
13 g. Sleet	no issues	
13 h. Snow	no issues	
13 i. Sun glare off snow	no issues	
13 j. Minimum ceiling heights (historical data)	no issues	
14. Industrial/municipal discharges		
14 a. Dust	n/a	
14 b. Ash	n/a	
14 c. Smoke	n/a	
15. Access to proposed site does not cross existing ground/air traffic patterns		
16. Interior physical barriers		
16 a. Position of ATC in Tower Cab	no issues	
16 b. Position of Tower Cab equipment	no issues	
16 c. Position of Tower Cab mullions	no issues	
17. Exterior physical barriers		
17 a. Construction equipment	no issues	Might lose downwind due to construction; same with cranes;
17 b. Proposed new structures and Airport expansion (ALP)	no issues	
17 c. Existing ATCT	no issues	
18. Other		
Proposed Rwy	no issues	
Radio attena - blind spot between existing and new tower	no issues	
possible comm issues - loss on downwind for 2 - 3	no issues	Since such a short term no issues; no PET 2000 do have a light gun to send communications if there is a loss of communication and back up radios
beacon blind spot (south)	no issues	Already have blocker in place. Will arpts put in a temporary beacon. Can issue a NOTAM. Give suggestive heading, no they do not. Only for traffic purposes but not for the airport. Already not visible for the West and SW. Beacon will go on top of new twr
STARS (tower display work station)	Downwind traffic, from the existing ATCT, will be blocked (the entire window panc) by construction	TDWS is work around solutions for the controllers for the blocked window

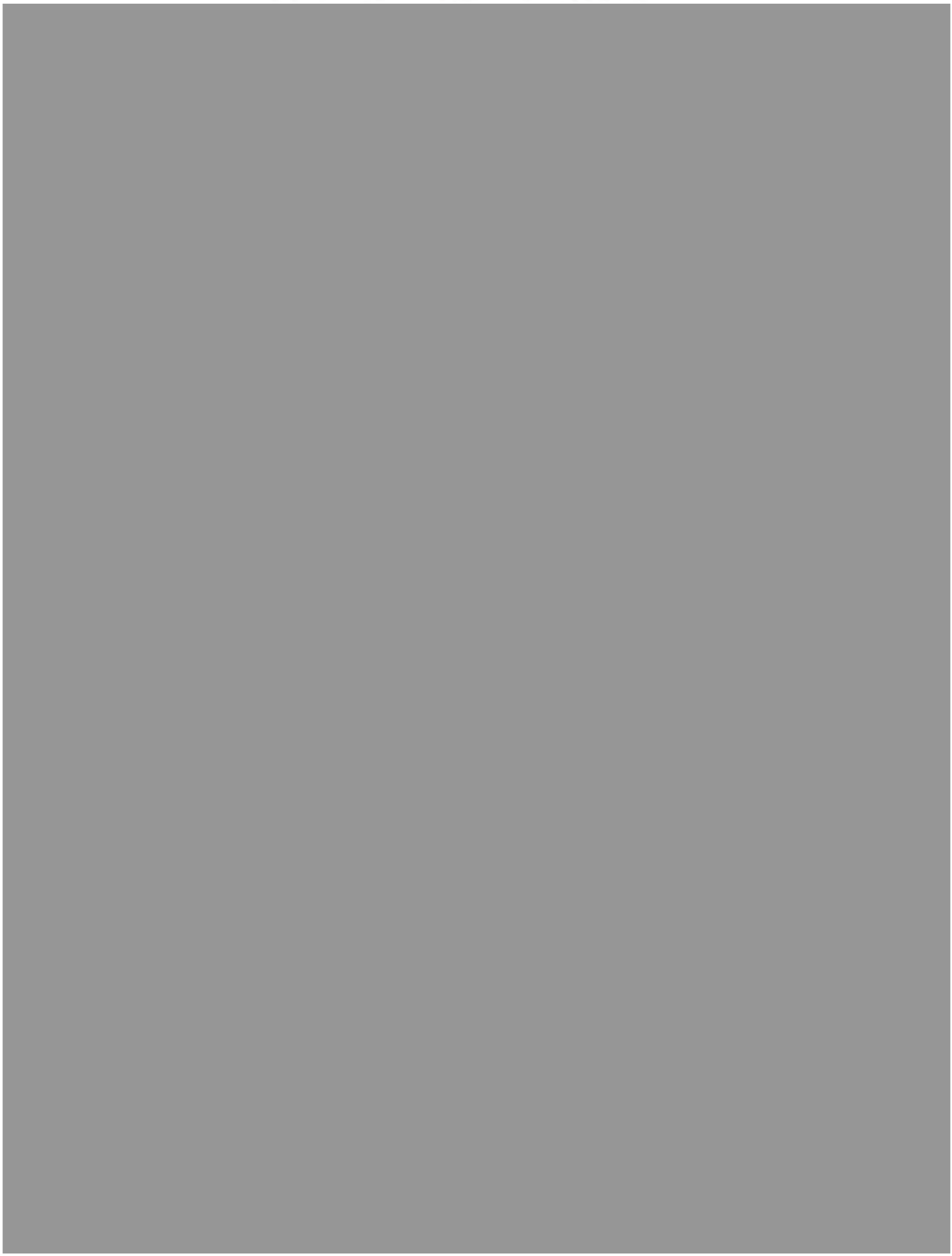
XNA Site 4

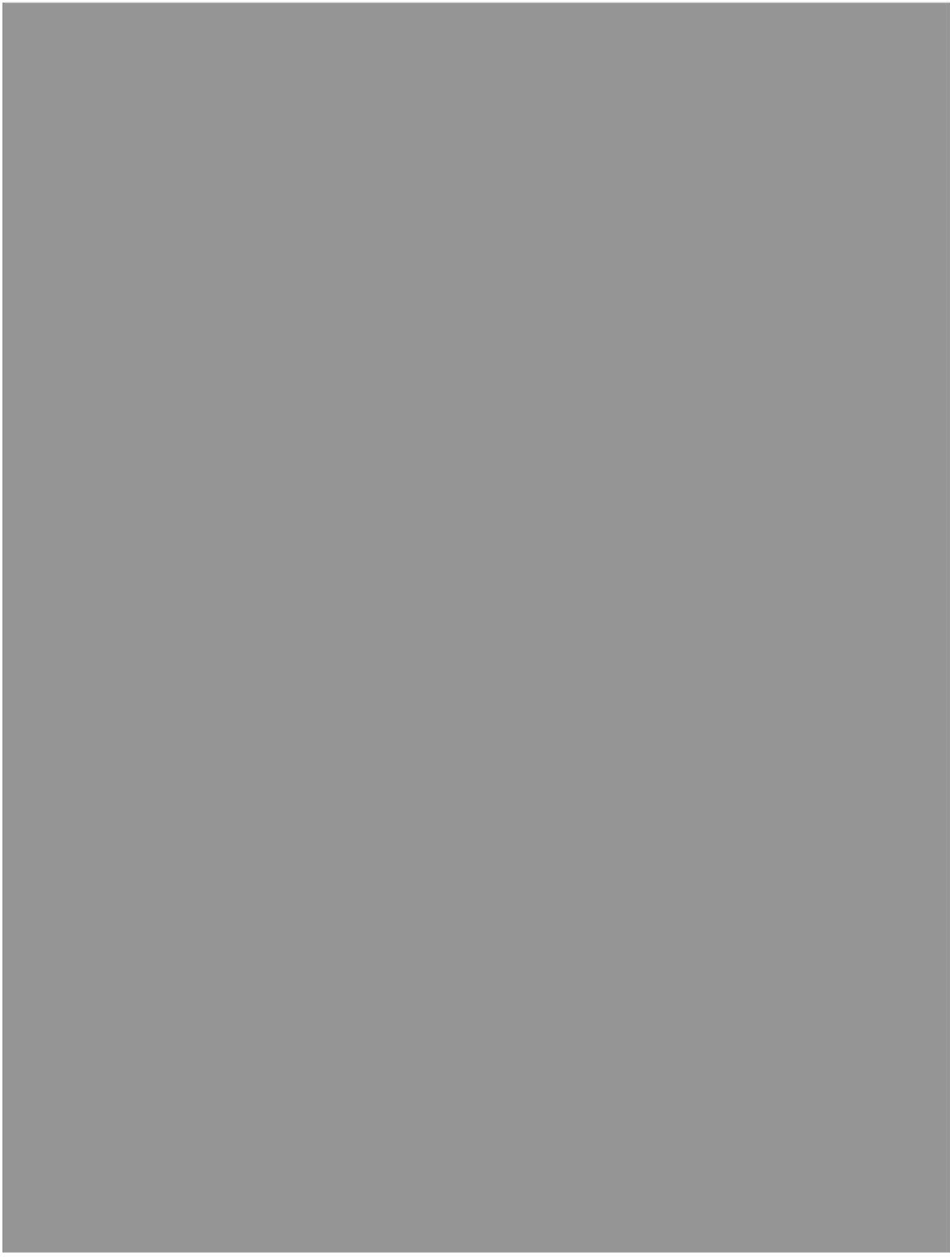
AFTIL Trip #1 XNA Site 4		
Item	**Concerns, Causes and Effects**	**Description**
1. Potential interference with navigation equipment both planned and existing	TBD	
2. Potential interference with communication equipment both planned and existing	TBD	
3. Potential interference with existing and or proposed surveillance equipment	TBD	
4. TERPS surfaces penetrations	TBD	
5. Part 77 surfaces penetrations	TBD	
6. Relevant Airport Design standards violated	TBD	
7. Direction of view		
7 a. North	no issues	
7 b. East	no issues	
7 c. West	no issues	
7 d. South	no issues	
8. Line of sight/angle of view		
8 a. Up	no issues	
8 b. Down	no issues	
9. Visual Performance		
9 a. Unobstructed view	no issues	
9 b. Object Discrimination	no issues	
9 c. Line of Sight (LOS) Angle of Incidence	no issues	
9 d. Two-Point Lateral Discrimination	no issues	
10. Lighting and Atmospheric Limitations – Daylight		
10 a. Sun Angle	no issues	
10 b. Sun Glare	no issues	
10 c. Sun Shadows	no issues	
10 d. Thermal Distortion	no issues	
10 e. Light changes/contrast eye adaptation	no issues	
11. Lighting and Atmospheric Limitations – Night		
11 a. Dawn	no issues	
11 b. Dusk	no issues	
11 c. Night	no issues	
12. Artificial Lighting		
12 a. Airport lighting equipment outages	no issues	
12 b. Lighting shadows	no issues	
12 c. Airport lighting	no issues	
12 d. Construction lighting	no issues	
12 e. Residential/industrial lighting	no issues	
12 f. Background clutter	no issues	
13. Naturally occurring atmospheric conditions		
13 a. Dust	no issues	
13 b. Ash	no issues	
13 c. Smoke	no issues	
13 d. Haze	no issues	
13 e. Fog	no issues	
13 f. Rain	no issues	
13 g. Sleet	no issues	
13 h. Snow	no issues	
13 i. Sun glare off snow	no issues	
13 j. Minimum ceiling heights (historical data)	no issues	
14. Industrial/municipal discharges		
14 a. Dust	n/a	
14 b. Ash	n/a	
14 c. Smoke	n/a	
15. Access to proposed site does not cross existing ground/air traffic patterns		
16. Interior physical barriers		
16 a. Position of ATC in Tower Cab	no issues	
16 b. Position of Tower Cab equipment	no issues	
16 c. Position of Tower Cab mullions	no issues	slight obstruction and can look around, standing up and moving removes the mullions obstruction. Rotated mullions 10 degress counter clock wise.
17. Exterior physical barriers		
17 a. Construction equipment	downwind traffic, will block the entire window pane. - no issues	Has STARS as a back up; and ramp is a non-movement area
17 b. Proposed new structures and Airport expansion (ALP)	no issues	
17 c. Existing ATCT	no issues	
18. Other		
Cargo Ramp (non-movement)	Downwind leg blocked due to construction	Acft will call and start communication with ATCT prior to movement
Beacon		South and SW will need a blocker; Will be on top on future tower

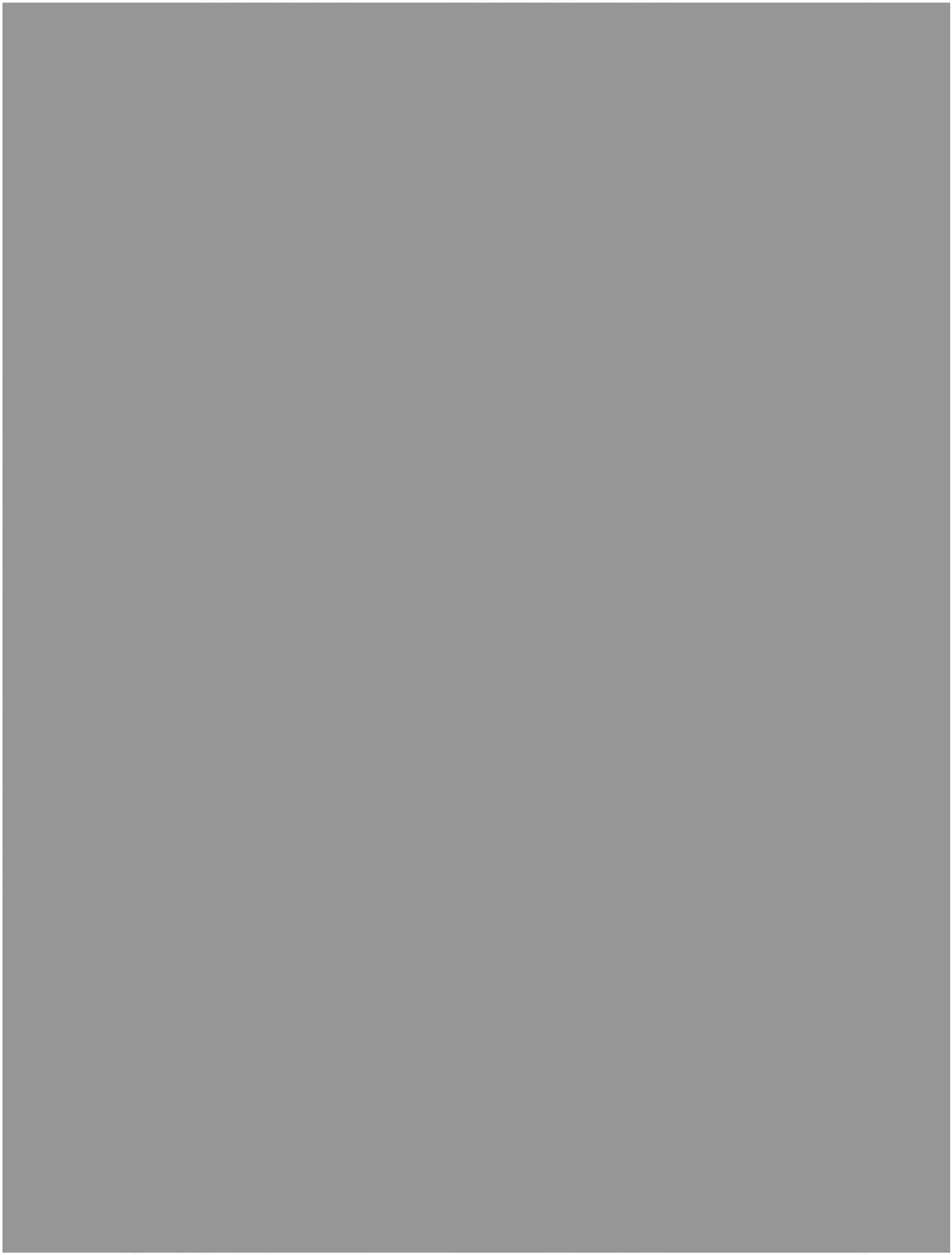
SECTION 5: Attachments

The following attachments are located below and in SMTS, including this document. These include the following

- Meeting minutes
- Tower Selection Worksheet
- Tech Ops Preliminary Report (TOPR)
- Visibility Siting Requirements Human Factors Analysis
- XNA Preliminary TERPS Analysis







Appendix F Preliminary Hazard Assessment (PHA)

The PHA is provided with the FAA CSA in the previous Appendix

Appendix G Notice of Proposed Construction or Alteration (FAA 7460)

Federal Aviation Administration
10101 Hillwood Parkway
Fort Worth, Texas, TX 76177

Glenn Boles

April 26, 2022

TO:
Northwest Arkansas Regional Airport Authority
Attn: Kelly Johnson
One Airport Boulevard
Suite 100
Bentonville, AR 72712
kelly.johnson@flyxna.com

CC:
NW ARKANSAS RGNL ARPT AUTH.
1 AIRPORT BLVD, SUITE 100
BENTONVILLE, AR 72712
Nicholas.Fondano@flyxna.com

CC:
AJT Engineering, Inc.
Attn: Peter Deeks
200 Willard Street
Suite 2C
Cocoa, FL 32922
peted@ajteng.com

RE: *(See attached Table 1 for referenced case(s))*
FINAL DETERMINATION

Table 1 - Letter Referenced Case(s)

ASN	Prior ASN	Location	Latitude (NAD83)	Longitude (NAD83)	AGL (Feet)	AMSL (Feet)
2022-ASW-1958-NRA	2022-ASW-1117-NRA	FAYETTEVILLE/ SPRINGDALE/ ROGERS,AR	36-16-45.99N	94-18-07.02W	155	1427
2022-ASW-1959-NRA		FAYETTEVILLE/ SPRINGDALE/ ROGERS,AR	36-16-46.13N	94-18-06.71W	155	1427
2022-ASW-1960-NRA		FAYETTEVILLE/ SPRINGDALE/ ROGERS,AR	36-16-45.87N	94-18-06.53W	155	1427
2022-ASW-1961-NRA		FAYETTEVILLE/ SPRINGDALE/ ROGERS,AR	36-16-45.73N	94-18-06.85W	155	1427

If FDC NOTAMS ARE REQUIRED, the following Airport Operations Contact(s) (AOC) are approved to handle FDC NOTAM coordination.
The AOC must create and/or log into their OE/AAA account and select “Search Archives”. The aeronautical study number (ASN) associated with the proposed obstruction is to be entered (see FAA determination letter for ASN). The NOTAM can be extended or cancelled through the AOC’s account. If the AOC is having difficulty using the tool, please contact the OE/AAA support desk at 202-580-7500 or refer to the online instructions.

Name	Email	Phone
Ryan Hannan	Ryan.Hannan@flyxna.com	(479) 205-1448
Nicholas Fondano	Nicholas.Fondano@flyxna.com	(479) 205-1420

Description: Input above is NW Air Terminal (tallest point). Additional 3 corners provided as added points. Construction of a replacement Airport Traffic Control Tower (ATCT) on the airport property. The new ATCT will be constructed of concrete shaft 25 ft square which will support a steel structure cab. This 8 sided cab is approximately 28 ft across at the roof line. The cab roof supports a parapet and lends support to antenna and instrumentation. Lighting protection air terminals are the highest point. Crane height will have separate filing prior to contruction start.

We do not object to the construction described in this proposal provided:

You comply with the requirements set forth in FAA Advisory Circular 150/5370-2, "Operational Safety on Airports During Construction."

FAYETTEVILLE/SPRINGDALE/ROGERS, AR (XNA) – OBJECT PENETRATES SECTION 1 OF MISSED APPROACH, NEH: 1426 W/1A. NEW REQURIED MINIMA: RNAV (GPS) RWY 34, LNAV/VNAV CAT E DA FROM 1550 TO 1567; ILS OR LOC RWY 34; SI LOC MDA FROM 1600 TO 1620. FUTURE PLANS ILS OR LOC TO PARALLEL RWY 34, SI LOC MDA 1620, NEH: 1426 W/1A. IFP AMENDMENTS REQUIRED. SUBMISSION OF AN IFP GATEWAY REQUEST AT: https://www.faa.gov/air_traffic/flight_info/aeronav/procedures/ifp_form/ IS REQUIRED TO INITIATE IFP AMENDMENTS AND SHOULD BE SUBMITTED AT LEAST 18-24 MONTHS PRIOR TO CONSTRUCTION COMPLETION TO AVOID PROCEDURE NOTAMS FOR EXTENDED PERIODS OF TIME.

As a condition to this Determination, the structure is marked and/or lighted in accordance with (Buildings, Structures, Antennas, etc.) Chapters 4 and 5 of Advisory Circular 70/7460-1M, Obstruction Marking and Lighting.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

This Structure will exceed the RWY 16/34 Part 77 Transitional surface. Structure must be lighted with red obstruction lights in accordance with FAA Advisory Circular 70/7460-1, Obstruction Marking and Lighting, Chapters 4, 5, and 12. Copy of the current AC 70/7460-1 can be viewed and/or downloaded at https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.current/documentNumber/70_7460-1.

For current Advisory Circulars go to www.oeaaa.faa.gov

Further, you should contact the Airport Traffic Control Tower (ATCT) Watch Supervisor at 479-205-0175 prior to the crane(s) being raised for purposes of establishing a procedure to have the crane(s) immediately lowered upon request of the ATCT. When the crane(s) is no longer needed and has been permanently lowered, you should contact the ATCT at the telephone numbers given above and log back into your registered E-file account to provide the Flight Data Center (FDC) with notification that the NOTAM can be cancelled.

A separate notice to the FAA is required for any construction equipment, such as temporary cranes, whose working limits would exceed the height and lateral dimensions of your proposal.

This determination does not constitute FAA approval or disapproval of the physical development involved in the proposal. It is a determination with respect to the safe and efficient use of navigable airspace by aircraft and with respect to the safety of persons and property on the ground.

In making this determination, the FAA has considered matters such as the effects the proposal would have on existing or planned traffic patterns of neighboring airports, the effects it would have on the existing airspace structure and projected programs of the FAA, the effects it would have on the safety of persons and property on the ground, and the effects that existing or proposed manmade objects (on file with the FAA), and known natural objects within the affected area would have on the airport proposal.

This determination expires on October 26, 2023 unless:
(a) extended, revised or terminated by the issuing office.

(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for the completion of construction, or the date the FCC denies the application.

NOTE: Request for extension of the effective period of this determination must be obtained at least 30 days prior to expiration date specified in this letter.

If you have any questions concerning this determination contact Femi Adeoye (817) 222-5986 olufemi.o.adeoye@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-ASW-1958-NRA.

Femi Adeoye
ADO
Signature Control No: 516088239-526067306

Federal Aviation Administration

« OE/AAA

Notice of Proposed Construction or Alteration - On Airport

Project: **Sponsor:** Northwest Arkansas Regional Airport Authority

Details for Case

Show Project Summary

Add New Case On Airport - Desk Reference Guide V_2018.2.0

- If you are filing for a Modification of Standards please login to https://adip.faa.gov to submit your proposal to the FAA.
- Required fields indicated with an asterisk*

Sponsor (person, company, etc. proposing this action)

Sponsor: Northwest Arkansas Regional Airport Authority

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary **:**	Months: Days:
Work Schedule - Start:	12/01/2022
Work Schedule - End:	12/01/2023
Operations Staff:	View/Update

Case Information

ASN:	2022-ASW-1958-NRA
Component Type:	BUILDINGS
Development Type:	BUILDINGS - Construction
Other Desc:	
Prior Study:	2022-ASW-1117-NRA
Date Determined:	
Letters:	None
Documents:	03/06/2022 OEAAA Site and AT...

Project Documents:
None

Structure Details

State:	Arkansas
Loc ID:	XNA(NASR)
Airport:	NORTHWEST ARKANSAS NTL
City:	FAYETTEVILLE/SPRINGDALE/ROGERS
Latitude:	36° 16' 45.99" N
Longitude:	94° 18' 7.02" W
Horizontal Datum:	NAD83
Site Elevation (SE):	1272 (nearest foot)
Structure Height (AGL):	155 (nearest foot)

Proposed Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit
Low Freq	High Freq	Freq Unit	ERP	ERP Unit
118	135	MHz	10	W
119	135	MHz	10	W

Describe/Remarks

Input above is NW Air Terminal (tallest point). Additional 3 corners provided as added points.
Construction of a replacement Airport Traffic Control Tower (ATCT) on the airport property. The new ATCT will be constructed of concrete shaft 25 ft square which will support a steel structure cab. This 8 sided cab is approximately 28 ft across at the roof line. The cab roof supports a parapet and lends support to antenna and instrumentation. Lighting protection air terminals are the highest point. Crane height will have separate filing prior to contruction start.

Previous Back to Search Result Next

Federal Aviation Administration

« OE/AAA

Notice of Proposed Construction or Alteration - On Airport

Project: Nort-511672549-22 **Sponsor:** Northwest Arkansas Regional Airport Authority

Add New Case On Airport - Desk Reference Guide V_2018.2.0

- If you are filing for a Modification of Standards please login to https://adip.faa.gov to submit your proposal to the FAA.
- Required fields indicated with an asterisk*

Sponsor (person, company, etc. proposing this action)

Sponsor:* Northwest Arkansas Regional Airport Authority

Construction / Alteration Information

Notice Of:* Construction

Duration:* Permanent

if Temporary : Months: Days:

Work Schedule - Start: 12/01/2022 (mm/dd/yyyy)

Work Schedule - End: 12/01/2023 (mm/dd/yyyy)

Operations Staff: View/Update

Structure Details

State:* Arkansas

Loc ID:* XNA (NASR) FAYETTEVILLE/SPRINGDALE/ROGERS, NORTHWEST ARKANSAS NTL

Airport: NORTHWEST ARKANSAS NTL

City: FAYETTEVILLE/SPRINGDALE/ROGERS

Latitude:* 36 ° 16 ' 45.99 " N Get ARP Data

Longitude:* 094 ° 18 ' 7.02 " W

Horizontal Datum: NAD83

Site Elevation (SE):* 1272 (nearest foot)

Structure Height (AGL):* 155 (nearest foot)

Describe/Remarks *

```
Input above is NW Air Terminal (tallest point).
Additional 3 corners provided as added points.
Construction of a replacement Airport Traffic
Control Tower (ATCT) on the airport property.  The
new ATCT will be constructed of concrete shaft 25
ft square which will support a steel structure
cab.  This 8 sided cab is approximately 28 ft
across at the roof line.  The cab  roof supports a
```

Additional Location(s)

Latitude	Longitude	Datum	SE	AGL
36° 16' 46.13" N	094° 18' 6.71" W	NAD83	1272	155
36° 16' 45.87" N	094° 18' 6.53" W	NAD83	1272	155
36° 16' 45.73" N	094° 18' 6.85" W	NAD83	1272	155

Add/Update New Location(s)

Case Information

Component Type:* BUILDINGS

Development Type:* BUILDINGS - Construction

Other Desc:

Prior Study: 2022 - ASW - 1117 - NRA

Documents: None

Project Documents:
None

Proposed Frequency Bands

Select any combination of the applicable frequencies/powers identified in the Colo Void Clause Coalition, Antenna System Co-Location, Voluntary Best Practices, effective 21 Nov 2007, to be evaluated by the FAA with your filing. If not within one of the frequency bands listed below, manually input your proposed frequency(ies) and power using the Add Specific Frequency link.

Add Specific Frequency

	Low Freq	High Freq	Freq Unit	ERP	ERP Unit
☐	6	7	GHz	55	dBW
☐	6	7	GHz	42	dBW
☐	10	11.7	GHz	55	dBW
☐	10	11.7	GHz	42	dBW
☐	17.7	19.7	GHz	55	dBW
☐	17.7	19.7	GHz	42	dBW
☐	21.2	23.6	GHz	55	dBW
☐	21.2	23.6	GHz	42	dBW
☐	614	698	MHz	1000	W
☐	614	698	MHz	2000	W
☐	698	806	MHz	1000	W
☐	806	901	MHz	500	W
☐	806	824	MHz	500	W
☐	824	849	MHz	500	W
☐	851	866	MHz	500	W
☐	869	894	MHz	500	W
☐	896	901	MHz	500	W
☐	901	902	MHz	7	W
☐	929	932	MHz	3500	W
☐	930	931	MHz	3500	W
☐	931	932	MHz	3500	W
☐	932	932.5	MHz	17	dBW
☐	935	940	MHz	1000	W
☐	940	941	MHz	3500	W
☐	1670	1675	MHz	500	W
☐	1710	1755	MHz	500	W
☐	1850	1910	MHz	1640	W
☐	1850	1990	MHz	1640	W
☐	1930	1990	MHz	1640	W
☐	1990	2025	MHz	500	W
☐	2110	2200	MHz	500	W
☐	2305	2360	MHz	2000	W
☐	2305	2310	MHz	2000	W
☐	2345	2360	MHz	2000	W
☐	2496	2690	MHz	500	W

	Low Freq	High Freq	Freq Unit	ERP	ERP Unit
☐					
☑	118	135	MHz	10	W

Clone Prior ASN frequencies

Note: Selecting this link will only add frequency(ies)/power from the prior ASN listed in Structure Summary. Additional frequency(ies)/power must be manually added before submitting to the FAA if they are to be considered with your new filing.

Please Type or Print on This Form

Form Approved OMB No.2120-0001
Expiration Date: 10/31/2017

U.S. Department of Transportation
Federal Aviation Administration

Failure To Provide All Requested Information May Delay Processing of Your Notice

Notice of Proposed Construction or Alteration

FOR FAA USE ONLY
Aeronautical Study Number

1. Sponsor *(person, company, etc. proposing this action):*
Attn. of:
Name: Kelly Johnson, Airport Director
Address: 1 AIRPORT BLVD, SUITE 100
City: Bentonville State: AR Zip: 72712
Telephone: 479-205-1000 Fax: Kelly.Johnson@flyxna.com

2. Sponsor's Representative *(if other than #1):*
Attn. of:
Name: Peter Deeks, AJT Engineering, Inc.
Address: 200 Willard Street
Suite 2C
City: Cocoa State: FL Zip: 32922
Telephone: 321-863-2527 Fax: peted@ajteng.com

3. Notice of: ☑ New Construction ☐ Alteration ☐ Existing

4. Duration: ☑ Permanent ☐ Temporary (___ months, ____days)

5. Work Schedule: Beginning December, 2022 End December, 2023

6. Type: ☐ Antenna Tower ☐ Crane ☑ Building ☐ Power Line
☐ Landfill ☐ Water Tank ☐ Other

7. Marking/Painting and/or Lighting Preferred:
☐ Red Lights and Paint ☐ Dual - Red and Medium Intensity
☐ White-Medium Intensity ☐ Dual - Red and high Intensity
☐ White -High Intensity ☑ Other - Red Obs AC70/7460-1K

8. FCC Antenna Structure Registration Number *(if applicable)*:
NA

9. Latitude: 36 0 17 , 45.93 , "

10. Longitude: -094 0 18 , 06.52 ,

11. Datum: ☑ NAD 83 ☐ NAD 27 ☐ Other

12. Nearest: City: Bentonville State AL

13. Nearest *Public-use* *(not private-use)* or Military Airport or Heliport:
Northwest Arkansas Regional Airport

14. Distance from #13. to Structure: ON Airport

15. Direction from #13. to Structure: ON Airport

16. Site Elevation ***(AMSL)***: 1271.75 ft.

17. Total Structure Height ***(AGL)***: 155.25 ft.

18. Overall Height (#16 + #17) ***(AMSL)***: 1427 ft.

19. Previous FAA Aeronautical Study Number *(if applicable)*:
FAA VISTA Siting Team/no study number -OE

20. Description of Location: *(Attach a USGS 7.5 minute Quadrangle Map with the precise site marked and any certified survey)*
See attached USGS Map

21. Complete Description of Proposal:

Construction of a replacement Airport Traffic Control Tower (ATCT) on the airport property. The new ATCT will be constructed of a concrete shaft 25 ft square which will support a steel structure cab. This 8 sided cab is approximately 28 ft across at the roof line. The cab roof supports a parapet above that screens the roof mounted equipment and lends support to antenna and instrumentation. Lighting protection air terminals are the highest point on this structure. Radio communications antenna will be mounted to the parapet as well. The height is included in # 18 above. Crane height during construction estimated at 200' for an estimated 7-10 events, not to exceed 8 hours duration for each event. A separate 7460-1 will be filed for the crane prior to start of construction.

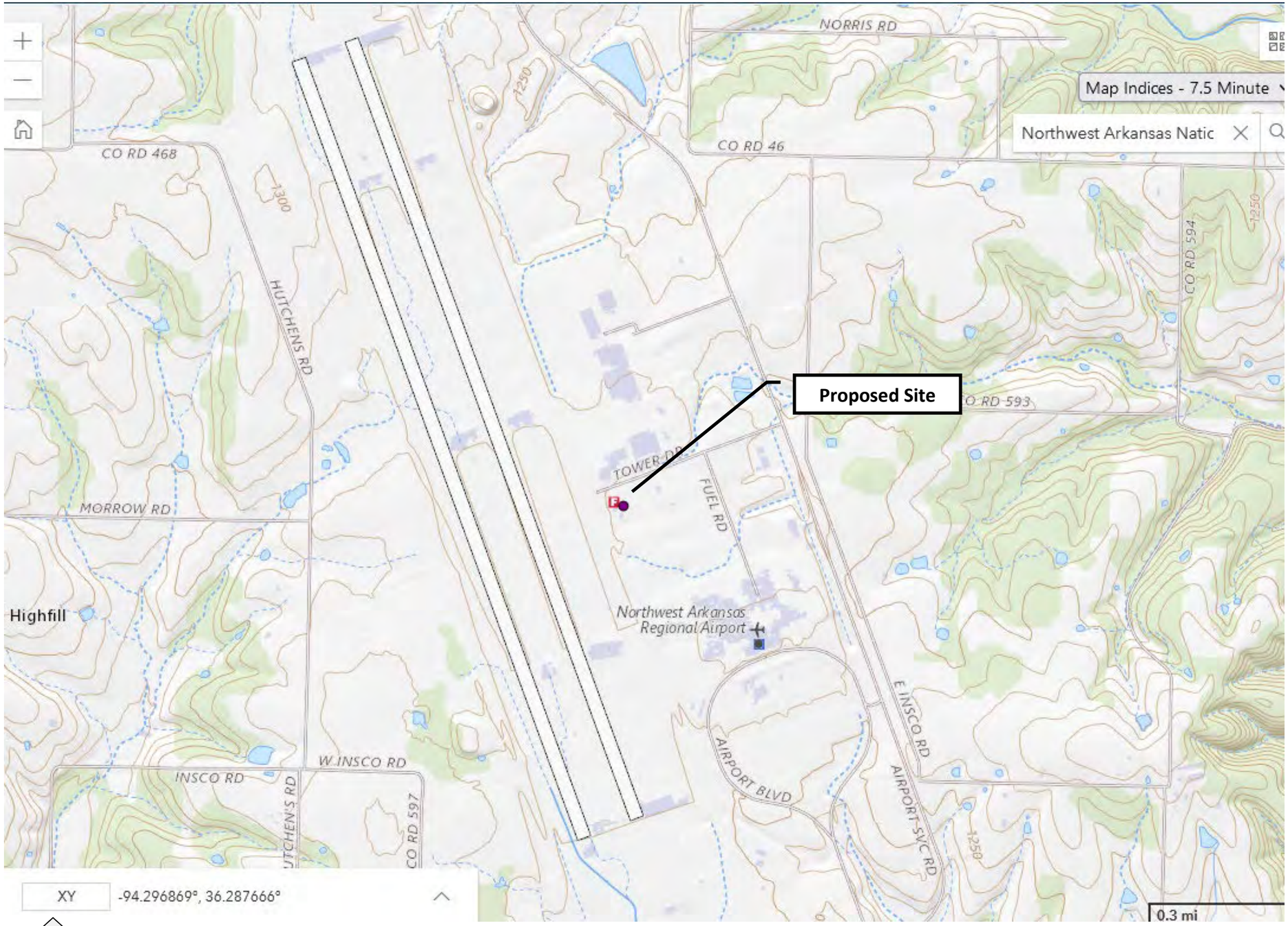
See attached sketches for site plans and distances

Frequency/Power (kW)	

Notice is required by 14 Code of Federal Regulations, part 77 pursuant to 49 U.S.C., Section 44718. Persons who knowingly and willingly violate the notice requirements of part 77 are subject to a civil penalty of $1,000 per day until the notice is received, pursuant to 49 U.S.C., Section 46301(a)

I hereby certify that all of the above statements made by me are true, complete, and correct to the best of my knowledge. In addition, I agree to mark and/or light the structure in accordance with established marking & lighting standards as necessary.

Date	Typed or Printed Name and Title of Person Filing Notice	Signature
	Kelly Johnson, Airport Director	



USGS 7.5 MINUTE TOPO

XNA Airport Traffic Control Tower Site

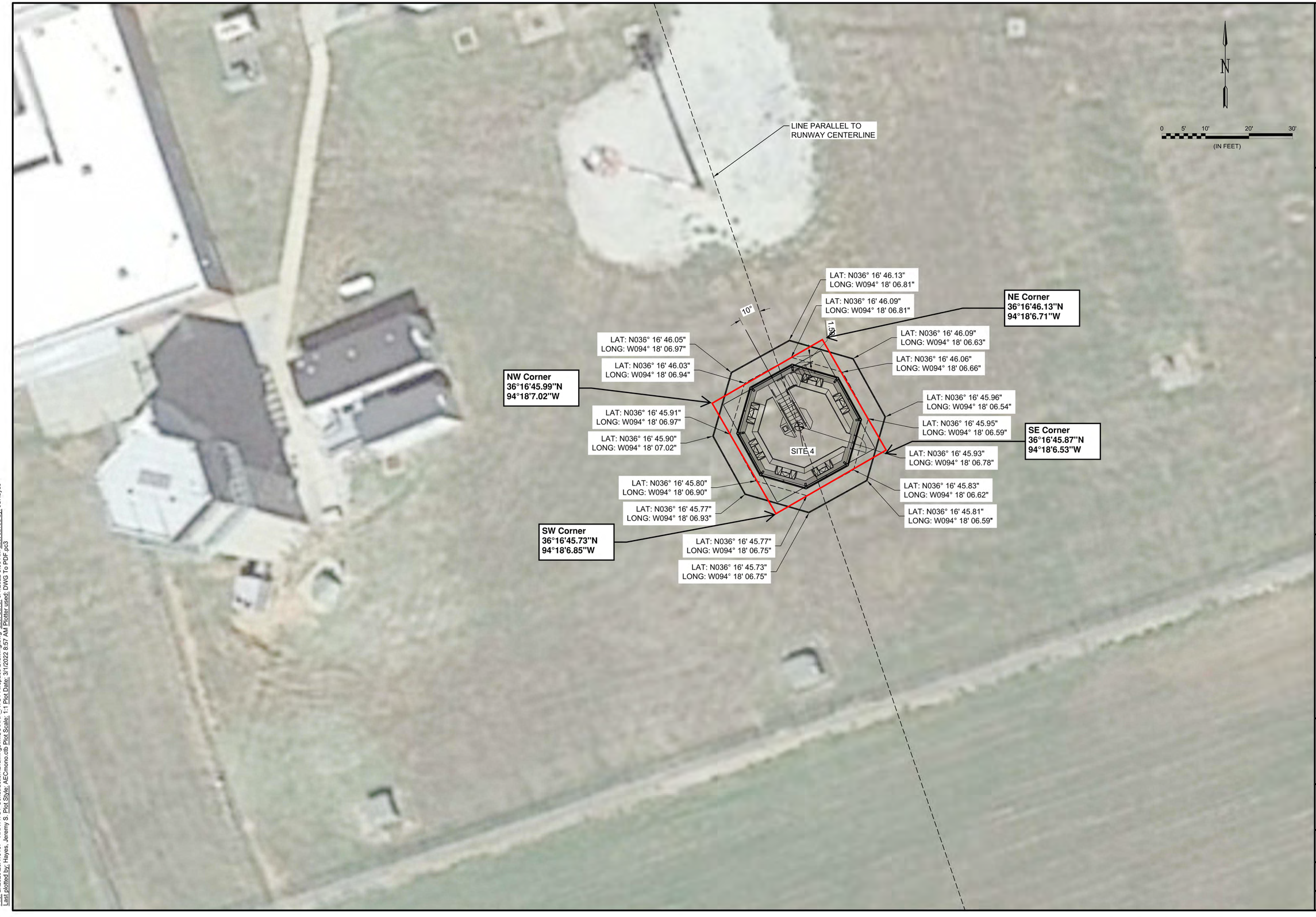
AJT ENGINEERING INC

1/28/22

N

AIRFIELD LAYOUT PLAN EXCERPT ON GOOGLE EARTH

AIRFIELD LAYOUT PLAN EXCERPT ON GOOGLE EARTH



REV.	DATE	DESCRIPTION	BY

NORTHWEST ARKANSAS
NATIONAL AIRPORT
BENTONVILLE, ARKANSAS

CONSTRUCT
REPLACEMENT AIRPORT
TRAFFIC CONTROL TOWER

AIRSPACE EXHIBIT

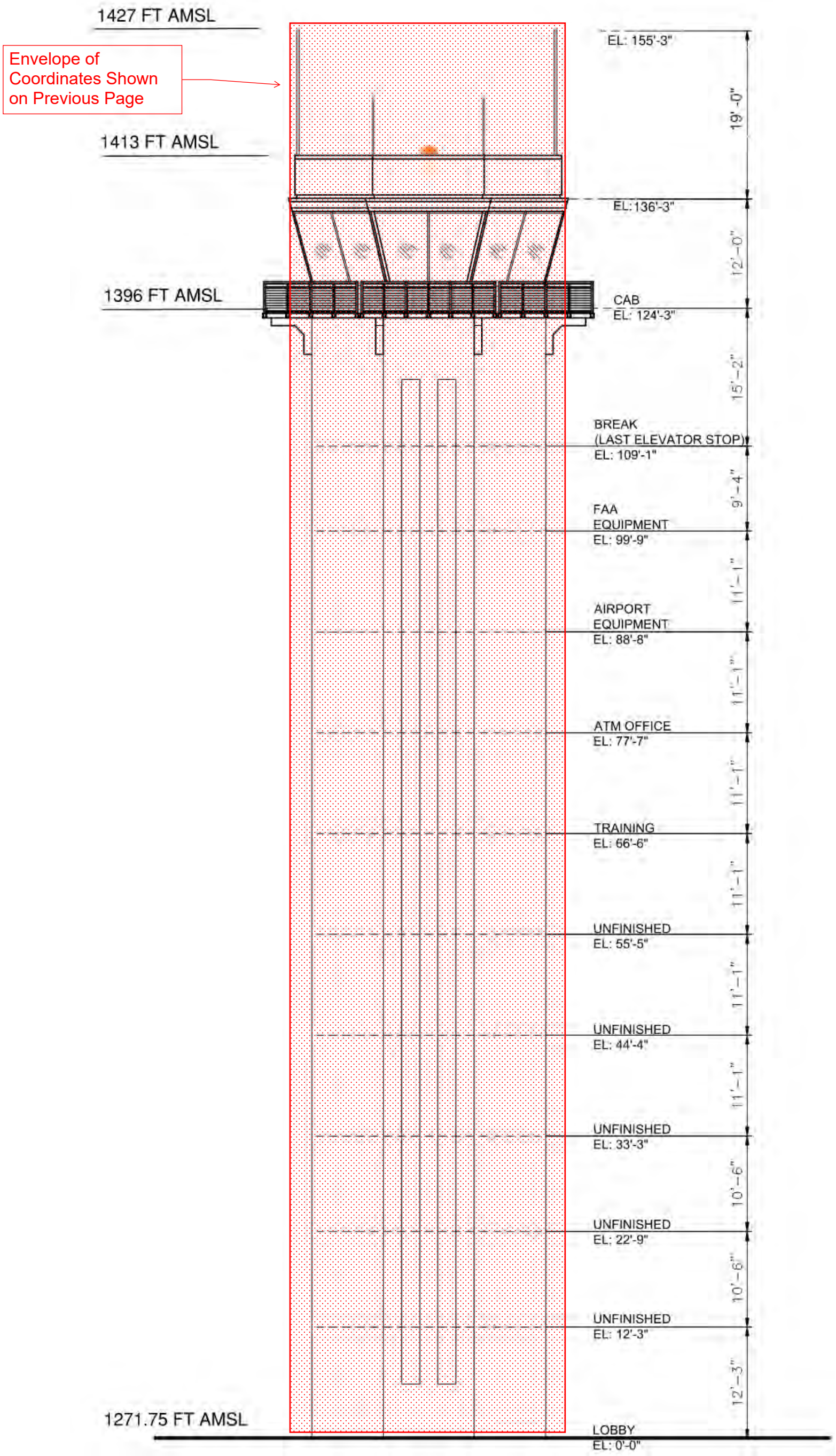
JOB NO.: 20A13167
DATE: JAN. 2022
DESIGNED BY: ATW
DRAWN BY: JSH

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
EXH

SHEET NUMBER **1**

File: L:\2020\20A13167 - XNA ATCT Construction\Drawings\MISC\XNA_ATCT Airspace Drawing.dwg Last Save: 3/1/2022 8:55 AM Last saved by: JSHayes
Last plotted by: Hayes, Jeremy S Plot Style: AECmono.ctb Plot Scale: 1:1 Plot Date: 3/1/2022 8:57 AM Plotter used: DWG To PDF.pc3


1427 FT AMSL
Envelope of Coordinates Shown on Previous Page
1413 FT AMSL
1396 FT AMSL
1271.75 FT AMSL
EL: 155'-3"
19'-0"
EL: 136'-3"
12'-0"
CAB
EL: 124'-3"
15'-2"
BREAK
(LAST ELEVATOR STOP)
EL: 109'-1"
9'-4"
FAA
EQUIPMENT
EL: 99'-9"
11'-1"
AIRPORT
EQUIPMENT
EL: 88'-8"
11'-1"
ATM OFFICE
EL: 77'-7"
11'-1"
TRAINING
EL: 66'-6"
11'-1"
UNFINISHED
EL: 55'-5"
11'-1"
UNFINISHED
EL: 44'-4"
11'-1"
UNFINISHED
EL: 33'-3"
10'-6"
UNFINISHED
EL: 22'-9"
10'-6"
UNFINISHED
EL: 12'-3"
12'-3"
LOBBY
EL: 0'-0"

Elevation

GARVER
4300 South J.B. Hunt Drive
Suite 240
Rogers, AR 72758
TEL 479.257.9188
www.GarverUSA.com

February 2, 2022

Ms. Kelly Johnson, A.A.E.
Northwest Arkansas National Airport
1 Airport Boulevard
Suite 100
Bentonville, AR 72713

Re: Survey Accuracy of Field Work for Siting of Air Traffic Control Tower at XNA

Dear Ms. Johnson:

Garver, LLC surveyed multiple locations at XNA on October 20-21, 2021 using a Trimble R12I receiver referenced to XNA's S.A.C. (NWARA-1) to compile the data on areas known as Site 1, 2, 3, and 4 for future air traffic control tower location siting. We previously located the latitude/longitude and elevation of each Runway End on Runway 16-34, as well as other spot location checks to verify that the Airport Layout Plan and our data is accurately cross-referenced using this control.

Our surveyors tied to known and established benchmarks on the airport to also allow us to verify our data against the horizontal coordinates of the North American Datum (NAD83 Arkansas North Zone) as well as the vertical values of the National American Vertical Datum (NAVD88).

Our procedures were completed in accordance with the current requirements of the standards of practice for Land Surveying in the State of Arkansas, to the best of my knowledge, information, and belief. I, Jeffery A Jones, certify that the survey data compiled for the above-mentioned sites exceed FAA Survey 1A accuracy requirements for towers (Horizontal tolerance of 20 feet, Vertical tolerance of 3 feet).

Please call me if you have any questions.

Sincerely,

GARVER

Jeff Jones

Digitally signed by Jeffery A Jones
Date: 2022.02.02 10:41:07-06'00'

Jeff Jones, P.S.
Project Surveyor

Attachments: None

Appendix H Results from AFTIL Trip #2 – Appendix Not Used

Appendix I Visibility Performance Analysis and 3DAAP Shadow Study

Shadow study no longer required by VISTA. FAA Visibility Tool provided next page to most remote movement area for Site 4

NEW ATCT PRELIMINARY SITE EVALUATION (RW END LINE-OF-SIGHT ANALYSIS)
Northwest Arkansas International Airport

Site	Position		ATCT Data			RW 16R (E) 1,286.9			RW 34L(E) 1,264.5			RW 16R (F) 1,286.9			RW 34L (F) 1,257.0			RW 16L (E) 1,287.9			RW 34R (E) 1,265.1			RW 17 (F) 1,250.0			RW 35 (F) 1,288.0		
			Ground el. (MSL)	Min. Eye Level (AGL) *[1]*	Min. Eye Level (MSL)	ATCT - RW Distance	Elevation @	Minimum Eye Level *[1]*	ATCT - RW Distance	Elevation @	Minimum Eye Level *[1]*	ATCT - RW Distance	Elevation @	Minimum Eye Level *[1]*	ATCT - RW Distance	Elevation @	Minimum Eye Level *[1]*	ATCT - RW Distance	Elevation @	Minimum Eye Level *[1]*	ATCT - RW Distance	Elevation @	Minimum Eye Level *[1]*	ATCT - RW Distance	Elevation @	Minimum Eye Level *[1]*	ATCT - RW Distance	Elevation @	Minimum Eye Level *[1]*
Existing ATCT	Northing	716,267.175	1,265	105.6	1,371	5,793.3	(21.9)	102.8	3,212.5	0.5	45.4	5,793.3	(21.9)	102.8	5,161.7	8.0	80.1	5,917.9	(22.9)	105.6	3,432.4	(0.1)	48.0	5,100.1	15.0	86.2	5,382.8	(23.0)	98.2
	Easting	633,736.675																											
Site 1	Northing	716,928.368	1,262	112.6	1,375	5,951.8	(24.9)	108.0	4,022.7	(2.5)	58.7	5,951.8	(24.9)	108.0	5,780.5	5.0	85.7	6,208.6	(25.9)	112.6	4,392.5	(3.1)	64.4	4,111.9	12.0	69.4	4,848.5	(26.0)	93.7
	Easting	634,964.265																											
Site 1A	Northing	716,596.611	1,261	116.0	1,377	6,148.3	(25.9)	111.8	3,679.5	(3.5)	54.9	6,148.3	(25.9)	111.8	5,443.3	4.0	80.0	6,379.1	(26.9)	116.0	4,052.4	(4.1)	60.7	4,454.2	11.0	73.2	4,677.1	(27.0)	92.3
	Easting	634,876.257																											
Site 2	Northing	716,573.152	1,271	97.3	1,368	5,601.5	(15.9)	94.1	3,515.7	6.5	55.6	5,601.5	(15.9)	94.1	5,444.6	14.0	90.0	5,755.9	(16.9)	97.3	3,756.9	5.9	58.4	4,759.2	21.0	87.5	5,427.3	(17.0)	92.8
	Easting	633,888.797																											
Site 3	Northing	716,645.271	1,271	99.4	1,370	5,719.7	(15.9)	95.8	3,605.1	6.5	56.8	5,719.7	(15.9)	95.8	5,488.2	14.0	90.6	5,905.8	(16.9)	99.4	3,893.1	5.9	60.3	4,574.2	21.0	84.9	5,204.8	(17.0)	89.7
	Easting	634,222.183																											
Site 4	Northing	716,324.523	1,271	100.0	1,371	5,811.8	(15.9)	97.1	3,267.1	6.5	52.1	5,811.8	(15.9)	97.1	5,198.9	14.0	86.6	5,951.7	(16.9)	100.0	3,510.0	5.9	54.9	4,993.3	21.0	90.7	5,293.6	(17.0)	90.9
	Easting	633,879.707																											
Site 5	Northing	717,571.561	1,260	110.1	1,370	4,932.4	(26.9)	95.8	4,522.7	(4.5)	67.7	4,932.4	(26.9)	95.8	6,417.2	3.0	92.6	5,174.2	(27.9)	100.2	4,784.5	(5.1)	71.9	3,740.0	10.0	62.2	5,878.6	(28.0)	110.1
	Easting	634,148.010																											

Notes:
[1] Assumes Cab Floor Height + 5 feet
[2] FAA Minimum LOS Angle of Incidence = 0.7999
Note: Tan 0.8 = 0.013964

Source: Google Earth

rev. 5/8/2022

Appendix J Environmental Information

PRELIMINARY ENVIRONMENTAL CONSEQUENCES SUMMARY
XNA ATCT - Site 4

Project: Construct 125' Air Traffic Control Tower at Site 4 including a 25' x 25' structural shaft, base building, 300' access drive, and parking.

EVALUATION CRITERIA *(refer to FAA Order 1050.1F – Desk Reference, Sections 1 - 16)*	**Potential Impact** Yes	No	N/A
1. Air Quality *[para 1.3.6]*			
a. Is the project located in a Clean Air Act non-attainment or maintenance area?	☐	☒	☐
b. Does the project have the potential to increase landside or airside capacity, including an increase of surface vehicles?	☐	☒	☐
c. Could the project impact air quality or violate local, State, Tribal or Federal air quality standards under the Clean Air Act Amendments of 1990 either during construction or operations?	☐	☒	☐
2. Biological Resources *[para 2.3.1]*			
a. Does the project area contain resources protected by the Fish and Wildlife Coordination Act?	☐	☒	☐
b. Are there any federal or state listed endangered, threatened, or candidate species or designated critical habitat in or near the project area?	☐	☒	☐
c. Does the project affect or have the potential to affect, directly or indirectly, any federal or state-listed, threatened, endangered or candidate species, or designated habitat under the Endangered Species Act?	☐	☒	☐
d. Does the project have the potential to take birds protected by the Migratory Bird Treaty Act?	☐	☒	☐
3. Climate *[para 3.3.4]*			
Will the project create significant amount of greenhouse gases (GHGs)?	☐	☒	☐
4. Coastal Resources *[para 4.3.1]*			
a. Will the project occur in or impact a coastal zone as defined by the State's Coastal Zone Management Plan?	☐	☐	☒
b. Will the project occur in or impact the Coastal Barrier Resource System as defined by the US Fish and Wildlife Service?	☐	☐	☒
5. Department of Transportation Act Section 4(f) & 6(f) Resources *[para 5.3.7]*			
a. Are there any properties protected under Section 4(f) (as defined by FAA Order 1050.1F) in or near the project area?	☐	☒	☐
b. Will project construction or operation physically or constructively "use" any Section 4(f) resource?	☐	☒	☐
c. Will the project affect any recreational or park land purchased with Section 6(f) Land and Water Conservation Funds?	☐	☒	☐
d. Is a Wilderness Area located in the project area?	☐	☒	☐
6. Farmland *[para 6.3.1]*			
a. Is there prime, unique, state, or locally important farmland in/near the project area?	☐	☒	☐
b. Does the project include the acquisition and conversion of farmland?	☐	☒	☐
7. Hazardous Materials, Solid Waste, & Pollution Prevention *[para 7.3.5]*			
a. Will the project by affected by federal, state, local, or tribal hazardous materials and/or solid waste standards?	☐	☒	☐
b. Will the project involve a contaminated site?	☐	☒	☐
c. Will the project produce an appreciably different quantity or type of hazardous waste?	☐	☒	☐
d. Will the project generate an appreciably different quantity or type of solid waste	☐	☒	☐
e. adversely affect human health and the environment	☐	☒	☐
f. Will the project use a different method of collection or disposal?	☐	☒	☐
g. Will the project exceed local capacity of current solid waste facilities?	☐	☒	☐

PRELIMINARY ENVIRONMENTAL CONSEQUENCES SUMMARY
XNA ATCT - Site 4

EVALUATION CRITERIA *(refer to FAA Order 1050.1F and 1050.1F – Desk Reference, Sections 1 - 16)*	**Potential Impact** Yes	No	N/A
8. National Historic Preservation Act (NHPA) Resources ***[para 8.3.2]***			
a. Are there historic/cultural resources listed (or eligible for listing) on the National Register of Historic Places located in the Area of Potential Effect?	☐	☒	☐
b. Does the project have the potential to cause effects?	☐	☒	☐
c. Is the project area undisturbed?	☐	☒	☐
d. Will the project impact tribal land or land of interest to tribes?	☐	☒	☐
9. Land Use ***[para 9.3.1]***			
a. Will the project disrupt a community, planned development or be inconsistent with plans or goals of the community?	☐	☒	☐
b. Are residents or businesses being relocated as part of the project?	☐	☒	☐
c. Will there be any induced socioeconomic impacts (positive or negative)?			
10. Natural Resources & Energy Supply ***[para 10.3.2]***			
a. Will the project change energy requirements or use consumable natural resources either during construction or during operations?	☐	☒	☐
b. Will the project change aircraft/vehicle traffic patterns that could alter fuel usage either during construction or operations?	☐	☒	☐
11. Noise & Noise Compatible Land Use ***[para 11.3.1]***			
a. Does the forecast exceed 90,000 annual propeller operations, 700 annual jet operations or 10 daily helicopter operations or a combination of the above?	☒	☐	☐
b. Will the project result in an increase in aircraft operations, nighttime operations, or change aircraft fleet mix?	☐	☒	☐
c. Will the project cause a change in airfield configuration, runway use, or flight patterns either during construction or after the project is implemented?	☐	☒	☐
d. Could the project have a significant impact (DNL 1.5 dB or greater increase) on noise levels over noise sensitive areas within the 65+ DNL noise contour?	☐	☒	☐
e. Has a noise analysis been conducted, including but not limited to generated noise contours, a specific point analysis, area equivalent method analysis, or other screening method.	☐	☒	☐
12. Socioeconomics, Environmental Justice, Children's Environmental Health & Safety Risks			
a. Socioeconomics *[para 12.1.3.1]*			
Will the project cause a significant increase in surface traffic congestion or cause a degradation of level of service provided?	☐	☒	☐
Will the project require a permanent road relocation or closure?	☐	☒	☐
b. Environmental Justice *[para 12.2.3.2]*			
Are there minority and/or low-income populations in/near the project area?	☐	☒	☐
Will the project cause any disproportionately high and adverse impacts to minority and/or low-income populations?	☐	☒	☐
c. Children's Environmental Health and Safety Risks *[para 12.3.3.2]*			
Will the project have the potential to lead to a disproportionate health or safety risk to children.	☐	☒	☐
13. Visual Effects ***[para 13.3.3]***			
a. Will the project have the potential to create annoyance or interfere with normal activities from light emissions?	☐	☒	☐
b. Will the project have the potential to affect the visual character (e.g., importance, uniqueness, or aesthetic value) of the area due to the light emissions?	☐	☒	☐
c. Will the project would have the potential to block or obstruct the views of visual resources (even if the resources would still be viewable from other locations)?	☐	☒	☐

PRELIMINARY ENVIRONMENTAL CONSEQUENCES SUMMARY
XNA ATCT - Site 4

EVALUATION CRITERIA *(refer to FAA Order 1050.1F – Desk Reference, Sections 1 - 16)*	**Potential Impact** Yes	No	N/A
14. Water Resources			
a. Wetlands and Other Waters of the U.S. *[para 14.1.3.1]*			
Are there any wetlands or other waters of the U.S. in or near the project area?	☐	☒	☐
Has wetland delineation been completed within the proposed project area?	☐	☒	☐
If wetlands are present, will the project result in impacts, directly or indirectly (including tree clearing)?	☐	☐	☒
Is a USACE Clean Water Act Section 404 permit required?	☐	☒	☐
b. Floodplains *[para 14.2.3.5]*			
Will the project be located in, encroach upon or otherwise impact a floodplain?	☐	☒	☐
c. Surface Water *[para 14.3.3.1]*			
Will the project adversely affect federal , state, local or tribal water quality standards?	☐	☒	☐
Will the project contaminate public drinking water supplies?	☐	☒	☐
Will the project potentially affect stormwater drainage during construction?	☐	☒	☐
d. Groundwater *[para 14.4.3.1]*			
Will the project adversely affect federal, state, local, or tribal groundwater quality standards?	☐	☒	☐
Will the project contaminate the aquifer used for public drinking water supplies?	☐	☒	☐
e. Wild and Scenic Rivers *[para 14.5.3.1]*			
Is there a river on the Nationwide Rivers Inventory, a designated river in the National System, or river under State jurisdiction (including study or eligible segments) near the project?	☐	☒	☐
Will the project directly or indirectly affect the river or an area within ¼ mile of its ordinary high water mark?	☐	☐	☒
15. Cumulative Impacts			
Will the project potentially add to the adverse effects of other past, present, or reasonably foreseeable future actions?	☐	☒	☐
16. Irreversible and Irretrievable Commitment of Resources			
a. Will the project require the significant use of resources (e.g., fossil fuels, electricity, etc,)?	☐	☒	☐
b. Will the project require the significant use of natural resources (e.g., metals, raw building materials, water, etc.)?	☐	☒	☐
c. Will the project significantly alter or destroy biological resources (such as soil or habitat) or cultural resources (such as archeological sites or historic properties)?	☐	☒	☐
17. Public Involvement			
Has the public been offered a meaningful opportunity to comment on the project?	☐	☒	☐

Notes:
Item 11.a - The airport had 922,000 enplanements in 2019. XNA is a medium hub airport with six commercial airlines offer direct flights to 18 US airports..
Item 14.c – Generally accepted methods to control and contain stormwater runoff will be incorporated into the design and construction of the ATCT to prevent excessive erosion and siltation.
Item 17 – Public information and consultation meeting has not yet been conducted.

Appendix K Airport Concurrence Form

AIRPORT CONCURRENCE FORM

This form identifies the siting requirements and impacts of the new FAA Airport Traffic Control Tower (ATCT) planned to be constructed at the Northwest Arkansas National Airport (XNA) in Bentonville, AR. The signed document will satisfy FAA national policy regarding written confirmation from the Airport owner/operator stating they have advised the XNA airport user community about the new ATCT and the impacts the above project would have on their operations.

Section 1. The siting requirements are as follows:

Item 1: The location of the ATCT
Latitude: 36° 16' 46.2" N
Longitude: 94° 18' 6.72" W

Item 2: The ATCT height is approximately 1,431 feet MSL (155' AGL).
Item 3. The ATCS eye height used is approximately 1,401 feet MSL (130' AGL).
Item 4: The exact location of the ATCT is subject to moving no more than 20 ft. within the boundaries of the site to efficiently accommodate infrastructure. This may impact the ATCT height no more than 5 ft.
Item 5: The exact ATCT height is subject to Official Air Space Approval per FAA Form 7460-1.
Item 6: The new ATCT shall be equipped with obstruction lighting.
Item 7: Construction of the new ATCT shall be carefully coordinated with the ATCS regarding potential Line of Sight obstructions. NOTAMs shall be issued as required.
Item 8: Sunrise, sunset, fog, snow, rain, look down angle, ramp lighting, glare and other issues that can adversely affect the ATCS sight have been considered for the ATCT location.

Section 2. Identified impacts.

- Radio and beacon will be shadowed for down wind aircraft during construction.
- Impacts on RNAV RWY 34 CAT E DA 1550 to 1567; ILS/LOC RWY 34; SI LOC MDA 1600 TO 1620; FUTURE ILS/LOC to parallel RWY 34 SI LOC MDA 1620.
- No other impacts identified.

Section 3. The submission of this signed document constitutes concurrence and adherence to FAA construction policy concerning appropriate public notification of the airport community regarding the intent to build a new ATCT and any impacts therein concerning the use of said airfield. The submission of this document does not waive the requirement of public comment as defined in the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) regulations implementing NEPA (Title 40 of the United States Code of Federal Regulations [CFR]), Parts 1500-1517, and other statues, orders, directives, or policy concerning environmental assessment and alternatives.

Section 4. Airport Submission

For the Airport Sponsor, Northwest Arkansas National Airport Authority
Bentonville, Arkansas

_____

By Kelly Johnson (Date)
Airport Director
Chief Operating Officer

Appendix L Construction Cost Estimates

ROM ROM ROM Concept Engineers Estimate of Probable Construction Cost			TYPE OF ESTIMATE Concept		REV. DATE 3/17/2022		AJT PROJ. NO.	
PROJECT TITLE Northwest Arkansas National Airport XNA	CONTRACT NO.				DESIGN BY AJT Engineering, Inc.			
CUSTOMER								
LOCATION Bentonville, AR	ESTIMATOR Deeks/Frady		CHECKER		APPROVED BY		125 foot cab floor tower	
Cost data from: RS Means , Quotations, and Previous Control Tower Actual Costs	Quant	Unit	LABOR Unit	 TOTAL	MAT'L Unit	 TOTAL		LINE TOTAL
SUMMARY LEVELS TOTAL								
SITE CIVIL UTILITIES								$ 344,156
MOBILIZATION								$ 250,000
SITE ELECTRICAL (Includes Generator								$ 167,440
FIRE PROTECTION								$ 143,920
GROUND LEVEL 1 (Includes Elevator)								$ 540,490
FUTURE LEVEL 2								$ 115,584
FUTURE LEVEL 3								$ 115,584
UNFINISHED LEVEL 4								$ 133,842
FUTURE LEVEL 5								$ 115,584
FUTURE LEVEL 6								$ 115,584
TRAINING LEVEL 7								$ 181,926
OFFICE LEVEL 8								$ 181,926
Equipment LEVEL 9								$ 199,954
Equipment LEVEL 10								$ 199,954
Break LEVEL 11								$ 207,572
CAB LANDING LEVEL 11.5								$ 115,584
CAB LEVEL 12								$ 564,258
Architectural Building Enhancements								$ 1,000,000
GENERAL CONDITIONS								$ 403,300
Subtotal Construction Including Markup								$ 5,096,655
Location Factor		20%	to 2024	currently unknown				**$ 1,019,331**
Construction Subtotal								**$ 6,115,987**
Escalation Factor through 2022		27%	2019 to 2022	Fred Economic Data				**$ 1,667,130**
Subtotal				Turner 1150 to 1250=9%, ENR 7.5%				**$ 7,783,116**
Escalation Factor through 2024		8%	2022-2024	Navfac escalation rates 5% but too low				**$ 622,649**
Subtotal								**$ 8,405,765**
Contingency (bidding environment, Covid)		30%						**$ 2,521,730**
				$ 5,830,840	Factors			**$ 10,927,495**
Construction Subtotal								**$ 10,927,495**
Sitng and Design Through Construction Documents								$ 1,000,000
Construction Support Estimate (full time RPR for project duration)								$ 700,000
Estimated FAA MOU for Design Review								$ 25,000
Estimated FAA MOU for FTI and Installation (as high as)								$ 800,000
Airport Owned Equipment, Assumes no FAA equipment for Voice Switch, Recorder, Radios, Weather								$ 600,000
Special Inspection and Testing During Construction								$ 60,000
Other Expenses								$ 12,000
Furnishings		$ 12,000						
Construction Support Subtotal								**$ 3,197,000**
Grand Total Construction								**$ 14,124,495**

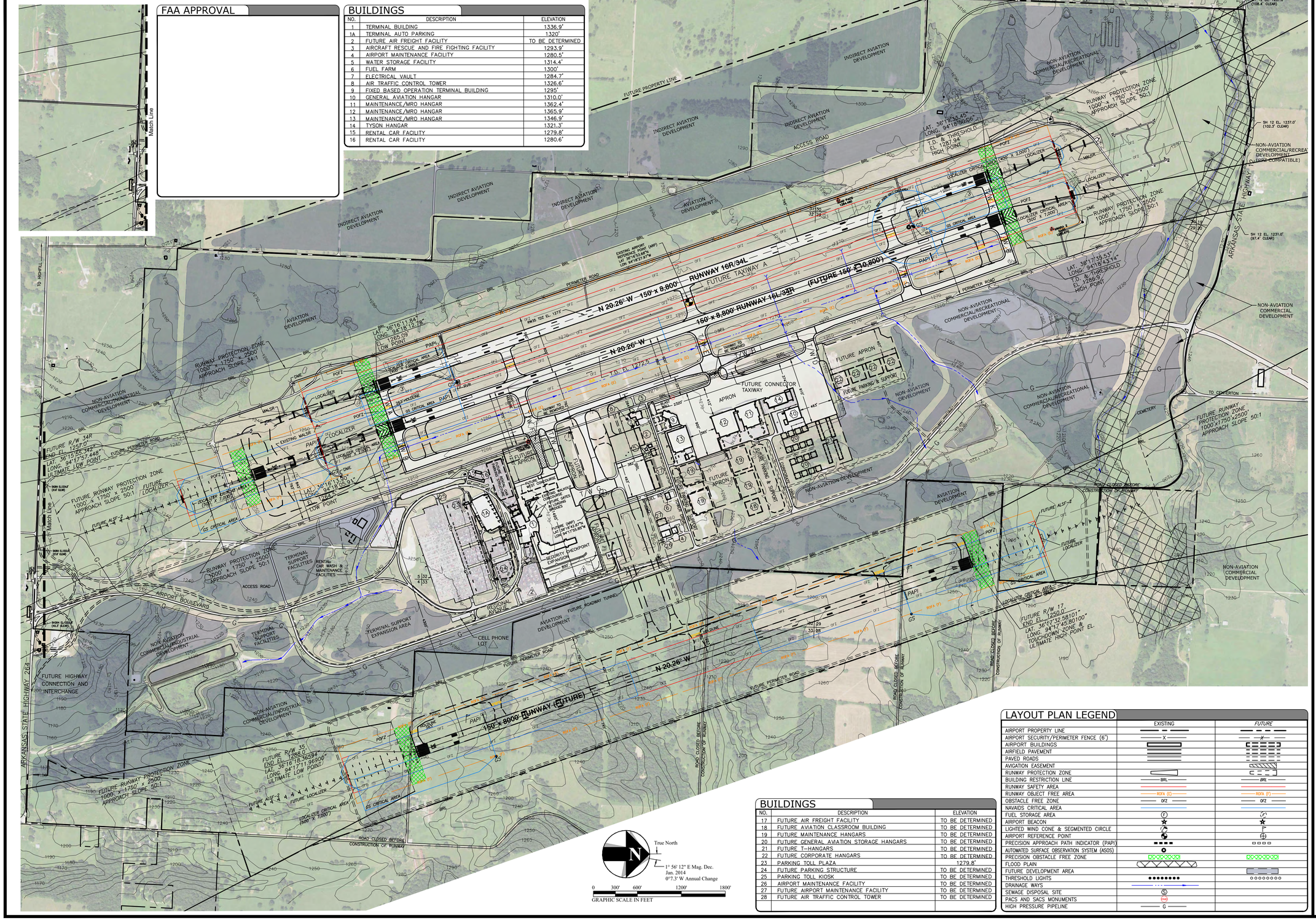
Estimate from 2019-Gulf Shores AL

Appendix M Airfield Layout Plan (ALP), FAA 5010 and Drawings

FAA APPROVAL

BUILDINGS

NO.	DESCRIPTION	ELEVATION
1	TERMINAL BUILDING	1336.9'
1A	TERMINAL AUTO PARKING	1320'
2	FUTURE AIR FREIGHT FACILITY	TO BE DETERMINED
3	AIRCRAFT RESCUE AND FIRE FIGHTING FACILITY	1293.9'
4	AIRPORT MAINTENANCE FACILITY	1280.5'
5	WATER STORAGE FACILITY	1314.4'
6	FUEL FARM	1300'
7	ELECTRICAL VAULT	1284.7'
8	AIR TRAFFIC CONTROL TOWER	1326.6'
9	FIXED BASED OPERATION TERMINAL BUILDING	1295'
10	GENERAL AVIATION HANGAR	1310.0'
11	MAINTENANCE/MRO HANGAR	1362.4'
12	MAINTENANCE/MRO HANGAR	1365.9'
13	MAINTENANCE/MRO HANGAR	1346.9'
14	TYSON HANGAR	1321.3'
15	RENTAL CAR FACILITY	1279.8'
16	RENTAL CAR FACILITY	1280.6'



BUILDINGS

NO.	DESCRIPTION	ELEVATION
17	FUTURE AIR FREIGHT FACILITY	TO BE DETERMINED
18	FUTURE AVIATION CLASSROOM BUILDING	TO BE DETERMINED
19	FUTURE MAINTENANCE HANGARS	TO BE DETERMINED
20	FUTURE GENERAL AVIATION STORAGE HANGARS	TO BE DETERMINED
21	FUTURE T-HANGARS	TO BE DETERMINED
22	FUTURE CORPORATE HANGARS	TO BE DETERMINED
23	PARKING TOLL PLAZA	1279.8'
24	FUTURE PARKING STRUCTURE	TO BE DETERMINED
25	PARKING TOLL KIOSK	TO BE DETERMINED
26	AIRPORT MAINTENANCE FACILITY	TO BE DETERMINED
27	FUTURE AIRPORT MAINTENANCE FACILITY	TO BE DETERMINED
28	FUTURE AIR TRAFFIC CONTROL TOWER	TO BE DETERMINED

LAYOUT PLAN LEGEND

	EXISTING	FUTURE
AIRPORT PROPERTY LINE		
AIRPORT SECURITY/PERIMETER FENCE (6')	X	X
AIRPORT BUILDINGS		
AIRFIELD PAVEMENT		
PAVED ROADS		
AVIGATION EASEMENT		
RUNWAY PROTECTION ZONE		
BUILDING RESTRICTION LINE	BRL	BRL
RUNWAY SAFETY AREA		
RUNWAY OBJECT FREE AREA	ROFA (E)	ROFA (F)
OBSTACLE FREE ZONE	OFZ	OFZ
NAVAIDS CRITICAL AREA		
FUEL STORAGE AREA	F	F
AIRPORT BEACON		
LIGHTED WIND CONE & SEGMENTED CIRCLE		
AIRPORT REFERENCE POINT		
PRECISION APPROACH PATH INDICATOR (PAPI)		
AUTOMATED SURFACE OBSERVATION SYSTEM (ASOS)		
PRECISION OBSTACLE FREE ZONE		
FLOOD PLAIN		
FUTURE DEVELOPMENT AREA		
THRESHOLD LIGHTS		
DRAINAGE WAYS		
SEWAGE DISPOSAL SITE	S	
PACS AND SACS MONUMENTS	(PACS)	
HIGH PRESSURE PIPELINE	G	

Mead & Hunt

Mead and Hunt, Inc.
1743 Wazee Street,
Suite 400
Denver, CO 80202
phone: 303-825-8844
meadhunt.com

Northwest Arkansas Regional Airport
AIRPORT LAYOUT PLAN

1 Airport Blvd
Bentonville, AR 72712

ISSUED

#	Date	Revision
3	6/15/2018	Change RW numbers
2	6/22/2016	Employee Parking
1	11/1/2016	Apron pavement

NOT FOR CONSTRUCTION

AIP NO.:	X-XX-XXXX-XX
M&H NO.:	1414700-181085.01
DATE:	DEC 2021
DESIGNED BY:	M&H
DRAWN BY:	JWB
CHECKED BY:	XXX

DO NOT SCALE DRAWINGS

SHEET CONTENTS

AIRPORT LAYOUT PLAN

SHEET NO.

2

\\CORP.MEADHUNT.COM\SHARED\FOLDERS\ENTP\1414700\181085.01\TECH\CAD\ALP\NWA_ALP.DWG
10/11/2023 3:09:05 PM

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

AIRPORT MASTER RECORD

PRINT DATE: 12/14/2021
AFD EFF 12/02/2021
FORM APPROVED OMB 2120-0015

> 1 ASSOC CITY:	FAYETTEVILLE/SPRINGDALE/ ROGERS	4 STATE: AR	LOC ID:	XNA	FAA SITE NR: 00975.01*A
> 2 AIRPORT NAME:	NORTHWEST ARKANSAS NTL		5 COUNTY: BENTON, AR		
3 CBD TO AIRPORT (NM): 15 NW		6 REGION/ADO: ASW /AOK	7 SECT AERO CHT: KANSAS CITY		

GENERAL

10 OWNERSHIP:	PUBLIC
> 11 OWNER:	NW ARKANSAS RGNL ARPT AUTH.
> 12 ADDRESS:	1 AIRPORT BLVD, SUITE 100 BENTONVILLE, AR 72712
> 13 PHONE NR:	479-205-1000
> 14 MANAGER:	KELLY L JOHNSON
> 15 ADDRESS:	1 AIRPORT BLVD, SUITE 100 BENTONVILLE, AR 72712
> 16 PHONE NR:	479-205-1000

> 17 ATTENDANCE SCHEDULE:

MONTHS	DAYS	HOURS
ALL	ALL	ALL

18 AIRPORT USE:	PUBLIC
19 ARPT LAT:	36-16-53.685N ESTIMATED
20 ARPT LONG:	94-18-27.956W
21 ARPT ELEV:	1288.2 SURVEYED
22 ACREAGE:	2,184
> 23 RIGHT TRAFFIC:	NO
> 24 NON-COMM LANDING:	
25 NPIAS/FED AGREEMENTS:	YES / NGY
> 26 FAR 139 INDEX:	I B S 10/1998

SERVICES

> 70 FUEL:	100LL A
> 71 AIRFRAME RPRS:	
> 72 PWR PLANT RPRS:	
> 73 BOTTLE OXYGEN:	
> 74 BULK OXYGEN:	LOW
75 TSNT STORAGE:	HGR TIE
76 OTHER SERVICES:	AFRT,CHTR

FACILITIES

> 80 ARPT BCN:	CG
> 81 ARPT LGT SKED:	SEE RMK
BCN LGT SKED:	SS-SR
> 82 UNICOM:	
> 83 WIND INDICATOR:	YES-L
84 SEGMENTED CIRCLE:	YES
85 CONTROL TWR:	YES
86 FSS:	JONESBORO
87 FSS ON ARPT:	NO
88 FSS PHONE NR:	
89 TOLL FREE NR:	1-800-WX-BRIEF

BASED AIRCRAFT

90 SINGLE ENG:	1
91 MULTI ENG:	3
92 JET:	4
93 HELICOPTERS:	0
TOTAL:	8
94 GLIDERS:	0
95 MILITARY:	0
96 ULTRA-LIGHT:	0

OPERATIONS

100 AIR CARRIER:	12,826
102 AIR TAXI:	2,695
103 G A LOCAL:	1,060
104 G A ITNRNT:	3,238
105 MILITARY:	8,621
TOTAL:	28,440

OPERATIONS FOR 12 MONTHS ENDING 05/31/2021

RUNWAY DATA

		16/34	17/35
> 30 RUNWAY IDENT:			
> 31 LENGTH:		8,801	8,800
> 32 WIDTH:		150	150
> 33 SURF TYPE-COND:		CONC-G	CONC-G
> 34 SURF TREATMENT:		GRVD	GRVD
35 GROSS WT:	S	120.0	75.0
36 (IN THSDS)	D	223.0	150.0
37	2D	404.0	350.0
38	2D/2DS		
> 39 PCN:		68/R/B/W/T	////

LIGHTING/APCH AIDS

> 40 EDGE INTENSITY:	HIGH	MED
> 42 RWY MARK TYPE-COND:	PIR- G / PIR- G	PIR- G / PIR- G
> 43 VGSI:	P4L / P4L	/
44 THR CROSSING HGT:	52 / 51	/
45 VISUAL GLIDE ANGLE:	3.00 / 3.00	/
> 46 CNTRLN-TDZ:	- / -	- / -
> 47 RVR-RVV:	TR - N / TR - N	- / -
> 48 REIL:	/	/
> 49 APCH LIGHTS:	MALSR / MALSR	/

OBSTRUCTION DATA

50 FAR 77 CATEGORY:	PIR / PIR	PIR / PIR
> 51 DISPLACED THR:	/	/
> 52 CTLG OBSTN:	/	/
> 53 OBSTN MARKED/LGTD:	/	/
> 54 HGT ABOVE RWY END:	/	/
> 55 DIST FROM RWY END:	0 / 0	0 / 0
> 56 CNTRLN OFFSET:	/	/
57 OBSTN CLNC SLOPE:	50:1 / 50:1	50:1 / 50:1
58 CLOSE-IN OBSTN:	N / N	N / N

DECLARED DISTANCES

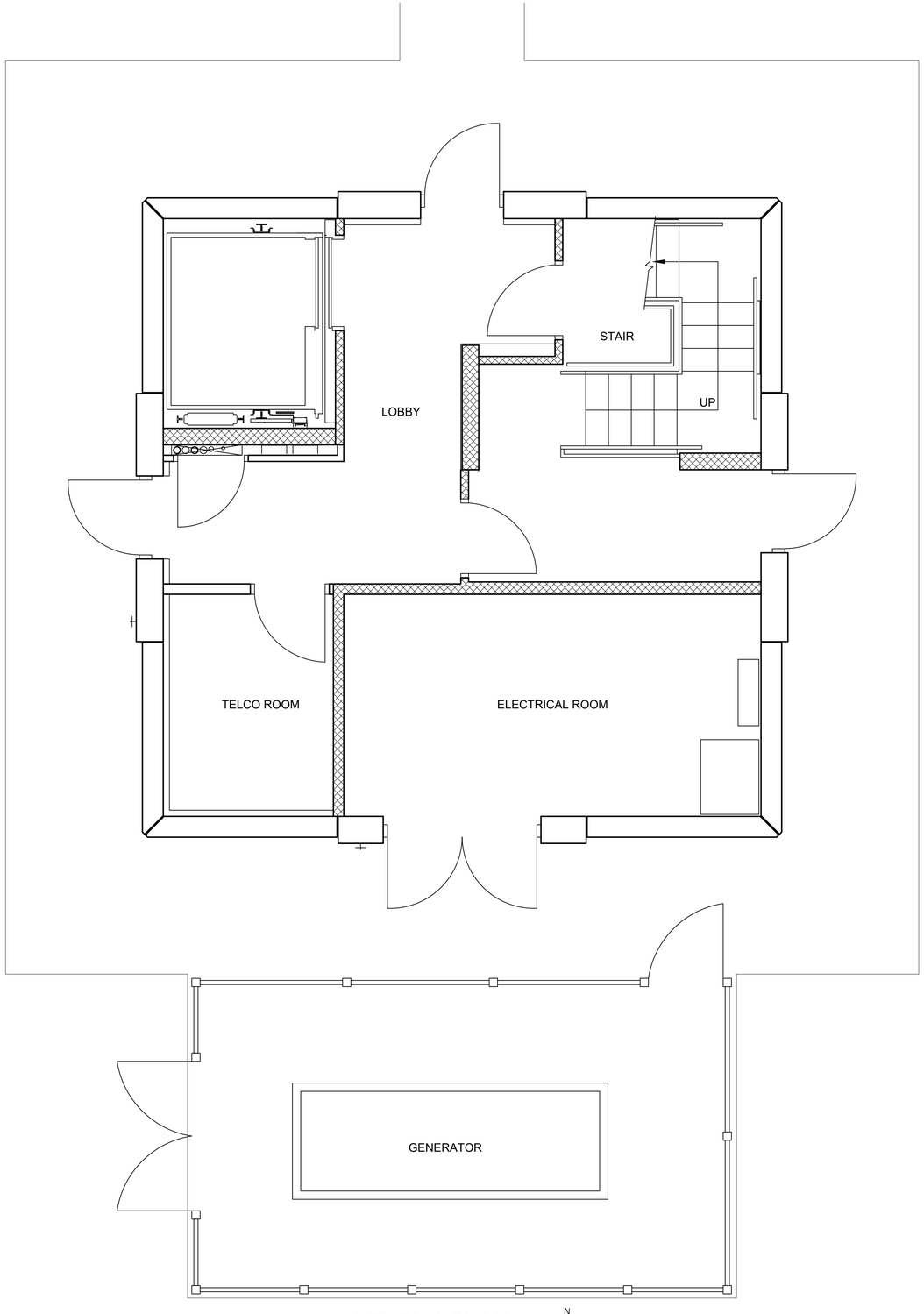
> 60 TAKE OFF RUN AVBL (TORA):	8,800 / 8,800	8,800 / 8,800
> 61 TAKE OFF DIST AVBL (TODA):	8,800 / 8,800	8,800 / 8,800
> 62 ACLT STOP DIST AVBL (ASDA):	8,800 / 8,800	8,800 / 8,800
> 63 LNDG DIST AVBL (LDA):	8,800 / 8,800	8,800 / 8,800

(>) ARPT MGR PLEASE ADVISE FSS IN ITEM 86 WHEN CHANGES OCCUR TO ITEMS PRECEDED BY >

> 110 REMARKS:

A 003	DSTC & DIRECTION TO ARPT FM SPRINGDALE IS 10 NM NW & FM ROGERS MSA IS 9 NM SW.
A 070	FOR FUEL SERVICES USE FREQ 130.05.
A 081	WHEN ATCT CLSD ACTVT MALSR RWY 16 & 34; PAPI RWY 16 & 34; HIRL RWY 16/34 - CTAF.
A 110-003	BIRD ACTIVITY ON & INVOF ARPT.
A 110-004	CTN ELEVATED RWY THLD LGTS AER RWYS 16 & 34.
A 110-005	FOR CD CTC MEMPHIS ARTCC AT 901-368-8453/8449.

111 INSPECTOR: (F) 112 LAST INSP: 07/26/2021 113 LAST INFO REQ: 03/05/1997



LEVEL 1 PLAN

SCALE: 3/8"=1'-0"
FIN. FL. EL: 0'-0"

N

AJT Engineering, Inc.
200 Willard Street, Suite 2C
Cocoa, Florida 32922
(321) 783-5001

CONSTRUCT REPLACEMENT AIRPORT TRAFFIC CONTROL TOWER
NORTHWEST ARKANSAS NATIONAL AIRPORT
BENTONVILLE, ARKANSAS

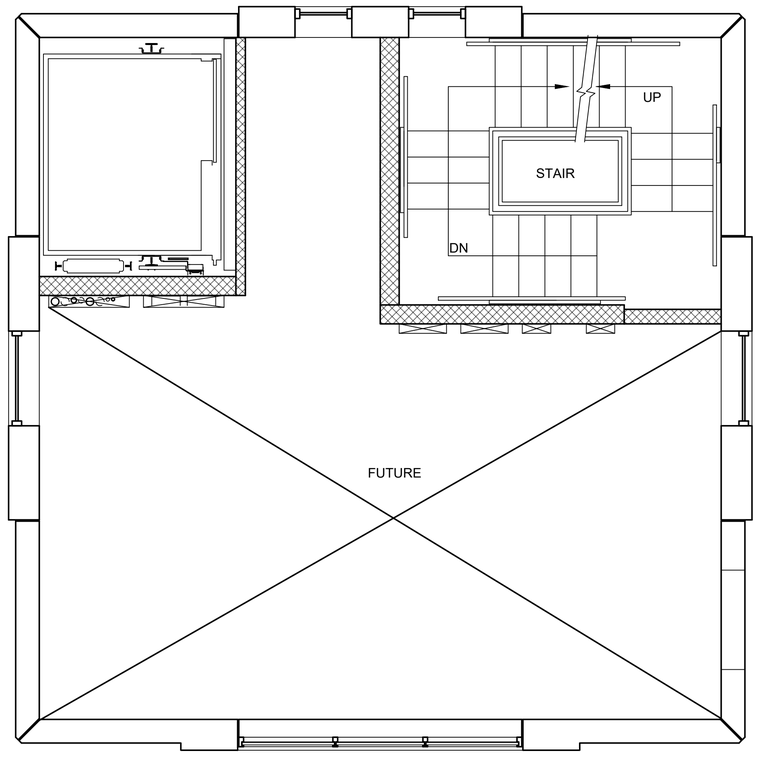
NO.	D-TE	REVISION	BY

DWG TITLE: LEVEL 1 FLOORPLAN

ENGINEER P.D.	CHECKED BY K.F.
JOB NO -	DR-WN BY L.L.
SC-LE AS NOTED	D-TE 12/31/21

DWG NO

SHEET NO A-100



LEVEL 2 PLAN

SCALE: 3/8"=1'-0"
FIN. FL. EL: 14'-0"

N

AJT Engineering, Inc.
200 Willard Street, Suite 2C
Cocoa, Florida 32922
(321) 783-5001

CONSTRUCT REPLACEMENT AIRPORT TRAFFIC CONTROL TOWER
NORTHWEST ARKANSAS NATIONAL AIRPORT
BENTONVILLE, ARKANSAS

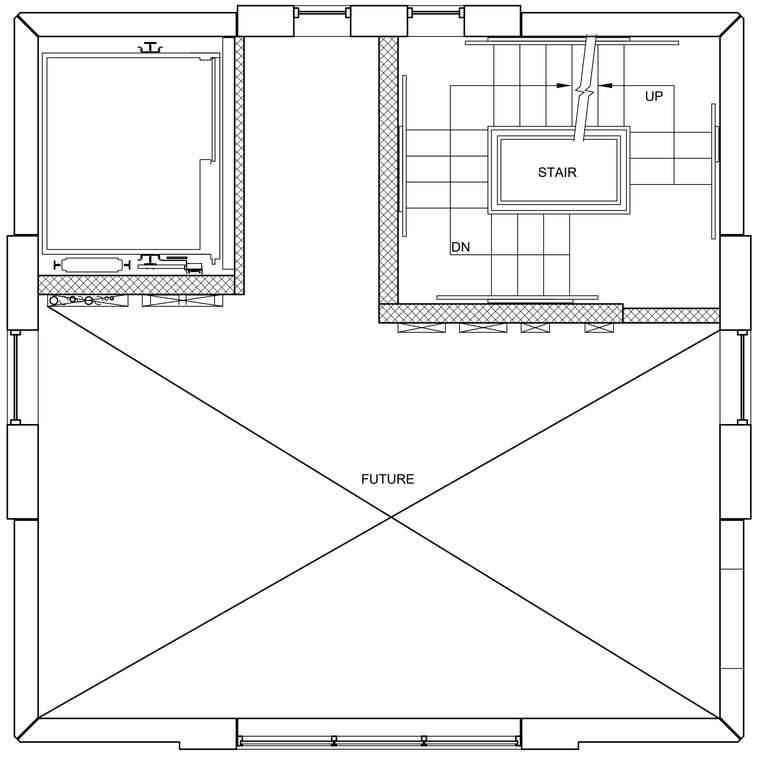
NO.	D-TE	REVISION	BY

DWG TITLE
LEVEL 2 FLOORPLAN

ENGINEER P.D.	CHECKED BY K.F.
JOB NO -	DR-WN BY L.L.
SC-LE AS NOTED	D-TE 12/31/21

DWG NO

SHEET NO
A-101



LEVELS 3, 5 AND 6 PLANS

SCALE: 3/8"=1'-0"

FIN. FL. EL: 23'-11", 43'-9", 53'-8"

N

AJT Engineering, Inc.
200 Willard Street, Suite 2C
Cocoa, Florida 32922
(321) 783-5001

CONSTRUCT REPLACEMENT
AIRPORT TRAFFIC CONTROL TOWER
NORTHWEST ARKANSAS NATIONAL AIRPORT
BENTONVILLE, ARKANSAS

NO.	D-TE	REVISION	BY

DWG TITLE

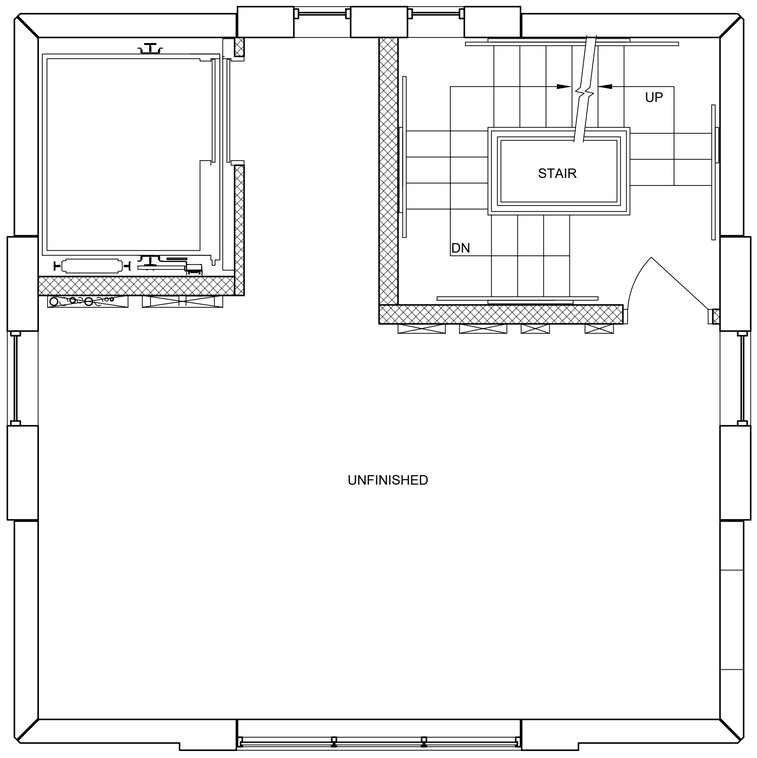
LEVELS 3, 5 AND 6 FLOORPLANS

ENGINEER P.D.	CHECKED BY K.F.
JOB NO -	DR-WN BY L.L.
SC-LE AS NOTED	D-TE 12/31/21

DWG NO

SHEET NO

A-102



LEVEL 4 PLAN

SCALE: 3/8"=1'-0"

FIN. FL. EL: 33'-10"

N

AJT Engineering, Inc.
200 Willard Street, Suite 2C
Cocoa, Florida 32922
(321) 783-5001

CONSTRUCT REPLACEMENT AIRPORT TRAFFIC CONTROL TOWER
NORTHWEST ARKANSAS NATIONAL AIRPORT
BENTONVILLE, ARKANSAS

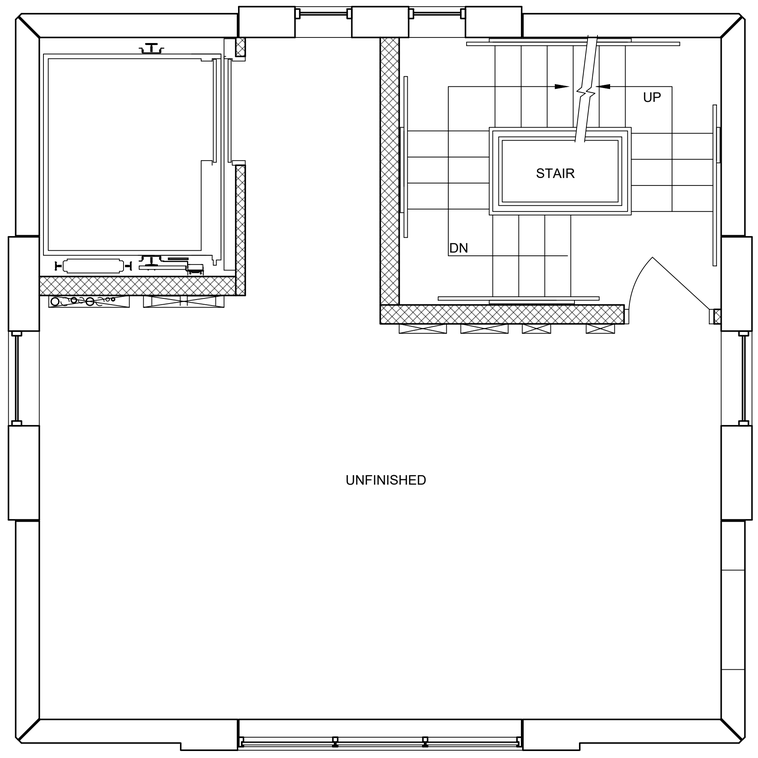
NO.	D-TE	REVISION	BY

DWG TITLE: LEVEL 4 FLOORPLAN

ENGINEER P.D.	CHECKED BY K.F.
JOB NO -	DR-WN BY L.L.
SC-LE AS NOTED	D-TE 12/31/21

DWG NO

SHEET NO A-103



LEVEL 7 PLAN

SCALE: 3/8"=1'-0"
FIN. FL. EL: 63'-7"

N

AJT Engineering, Inc.
200 Willard Street, Suite 2C
Cocoa, Florida 32922
(321) 783-5001

CONSTRUCT REPLACEMENT AIRPORT TRAFFIC CONTROL TOWER
NORTHWEST ARKANSAS NATIONAL AIRPORT
BENTONVILLE, ARKANSAS

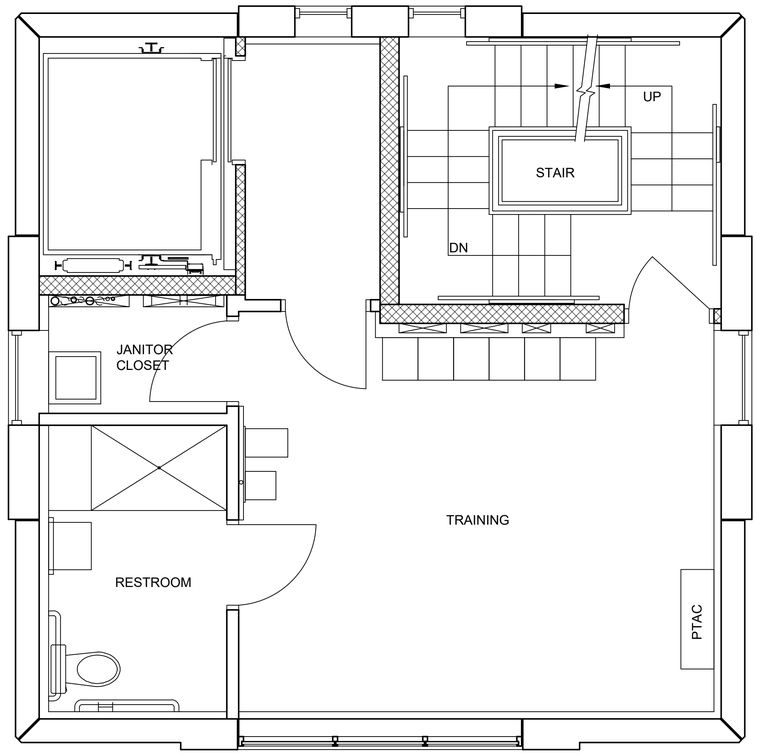
NO.	D-TE	REVISION	BY

DWG TITLE
LEVEL 7 FLOORPLAN

ENGINEER P.D.	CHECKED BY K.F.
JOB NO -	DR-WN BY L.L.
SC-LE AS NOTED	D-TE 12/31/21

DWG NO

SHEET NO
A-104



LEVEL 8 PLAN

SCALE: 3/8"=1'-0"

FIN. FL. EL: 74'-1"

N

AJT Engineering, Inc.
200 Willard Street, Suite 2C
Cocoa, Florida 32922
(321) 783-5001

CONSTRUCT REPLACEMENT AIRPORT TRAFFIC CONTROL TOWER
NORTHWEST ARKANSAS NATIONAL AIRPORT
BENTONVILLE, ARKANSAS

NO.	D-TE	REVISION	BY

DWG TITLE

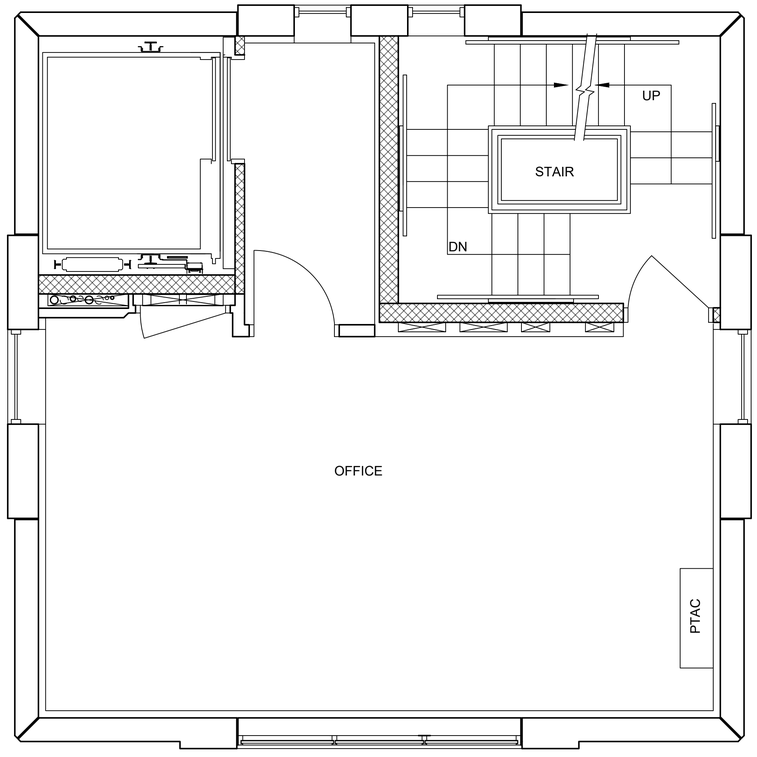
LEVEL 8 FLOORPLAN

ENGINEER P.D.	CHECKED BY K.F.
JOB NO -	DR-WN BY L.L.
SC-LE AS NOTED	D-TE 12/31/21

DWG NO

SHEET NO

A-105



LEVEL 9 PLAN

SCALE: 3/8"=1'-0"
FIN. FL. EL: 84'-7"

N

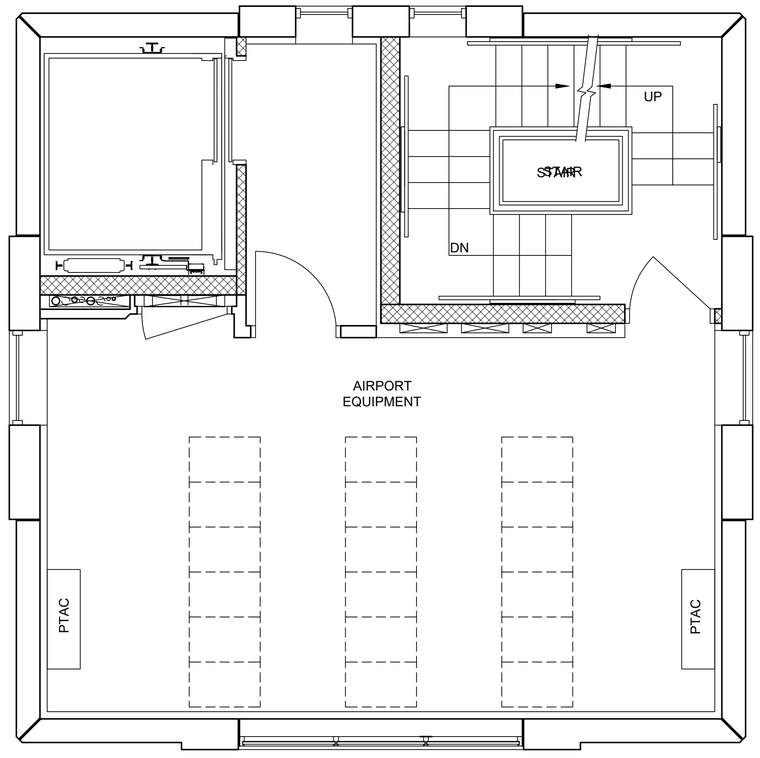
AJT Engineering, Inc.
200 Willard Street, Suite 2C
Cocoa, Florida 32922
(321) 783-5001

CONSTRUCT REPLACEMENT AIRPORT TRAFFIC CONTROL TOWER
NORTHWEST ARKANSAS NATIONAL AIRPORT
BENTONVILLE, ARKANSAS

NO.	D-TE	REVISION	BY

DWG TITLE
LEVEL 9 FLOORPLAN

ENGINEER P.D.	CHECKED BY K.F.
JOB NO -	DR-WN BY L.L.
SC-LE AS NOTED	D-TE 12/31/21
DWG NO	
SHEET NO A-106	



LEVEL 10 PLAN

SCALE: 3/8"=1'-0"

FIN. FL. EL: 94'-6"

N

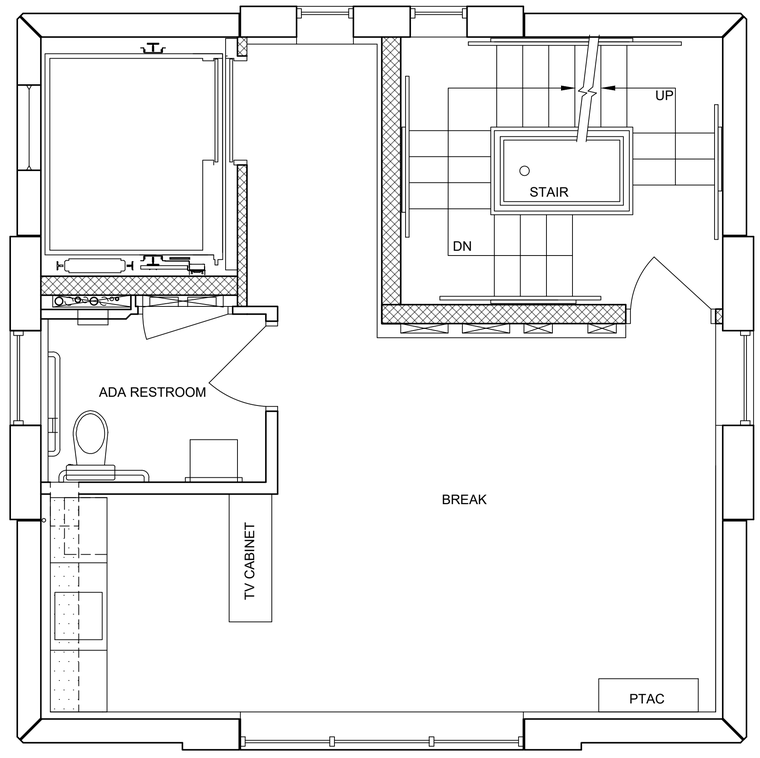
AJT Engineering, Inc.
200 Willard Street, Suite 2C
Cocoa, Florida 32922
(321) 783-5001

CONSTRUCT REPLACEMENT AIRPORT TRAFFIC CONTROL TOWER
NORTHWEST ARKANSAS NATIONAL AIRPORT
BENTONVILLE, ARKANSAS

NO.	D-TE	REVISION	BY

DWG TITLE: LEVEL 10 FLOORPLAN

ENGINEER P.D.	CHECKED BY K.F.
JOB NO -	DR-WN BY L.L.
SC-LE AS NOTED	D-TE 12/31/21
DWG NO	
SHEET NO A-107	



LEVEL 11 PLAN

SCALE: 3/8"=1'-0"
FIN. FL. EL: 104'-9"

N

AJT Engineering, Inc.
200 Willard Street, Suite 2C
Cocoa, Florida 32922
(321) 783-5001

CONSTRUCT REPLACEMENT AIRPORT TRAFFIC CONTROL TOWER
NORTHWEST ARKANSAS NATIONAL AIRPORT
BENTONVILLE, ARKANSAS

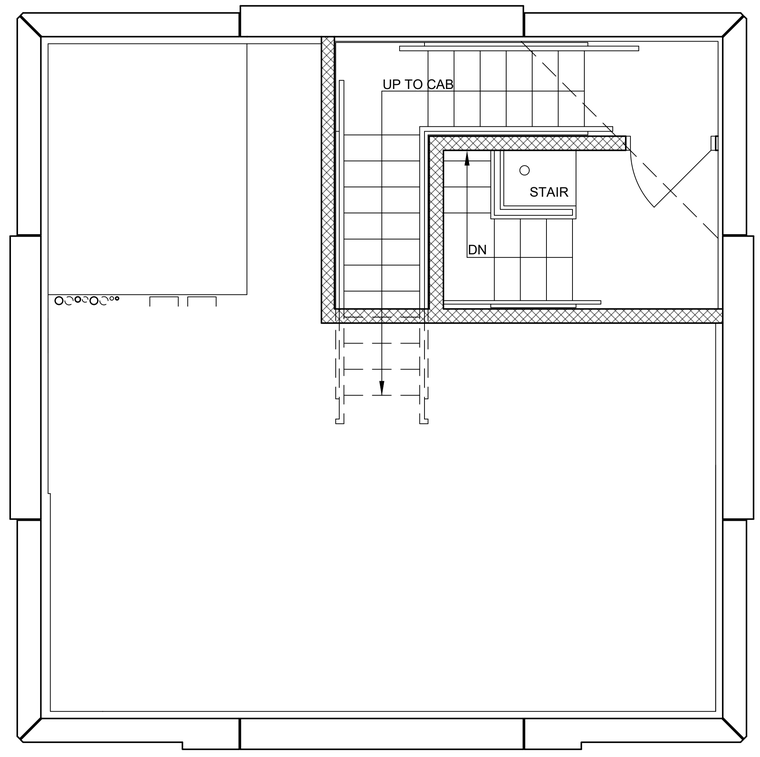
NO.	D-TE	REVISION	BY

DWG TITLE
LEVEL 11 FLOORPLAN

ENGINEER P.D.	CHECKED BY K.F.
JOB NO -	DR-WN BY L.L.
SC-LE AS NOTED	D-TE 12/31/21

DWG NO

SHEET NO
A-108



LEVEL 11.5 PLAN

SCALE: 3/8"=1'-0"
FIN. FL. EL: 115'-3"

N

AJT Engineering, Inc.
200 Willard Street, Suite 2C
Cocoa, Florida 32922
(321) 783-5001

CONSTRUCT REPLACEMENT AIRPORT TRAFFIC CONTROL TOWER
NORTHWEST ARKANSAS NATIONAL AIRPORT
BENTONVILLE, ARKANSAS

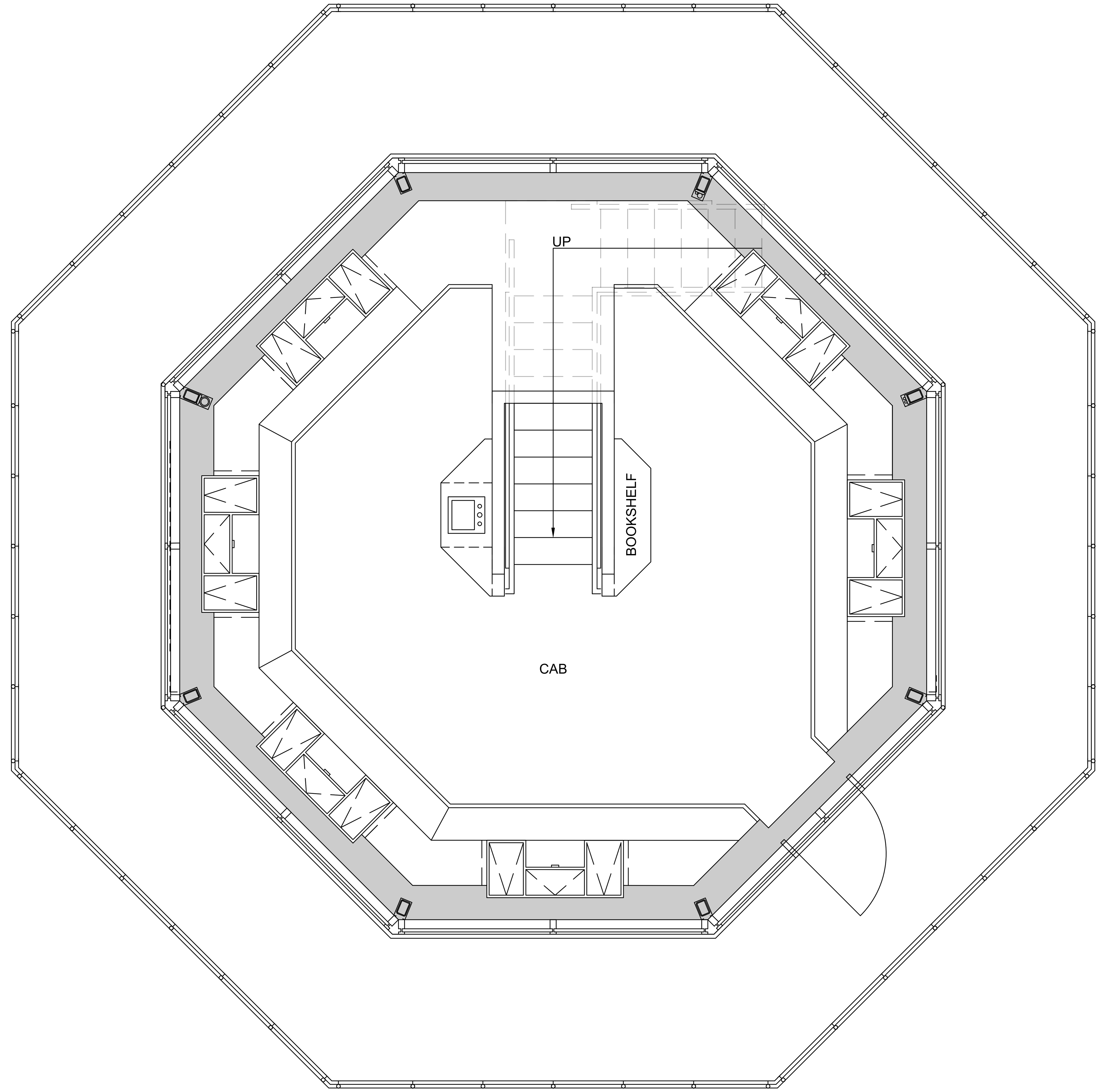
NO.	D-TE	REVISION	BY

DWG TITLE
LEVEL 11.5 FLOORPLAN

ENGINEER P.D.	CHECKED BY K.F.
JOB NO -	DR-WN BY L.L.
SC-LE AS NOTED	D-TE 12/31/21

DWG NO

SHEET NO
A-109



LEVEL 12 PLAN

SCALE: 3/8"=1'-0"
FIN. FL. EL: 124'-3"

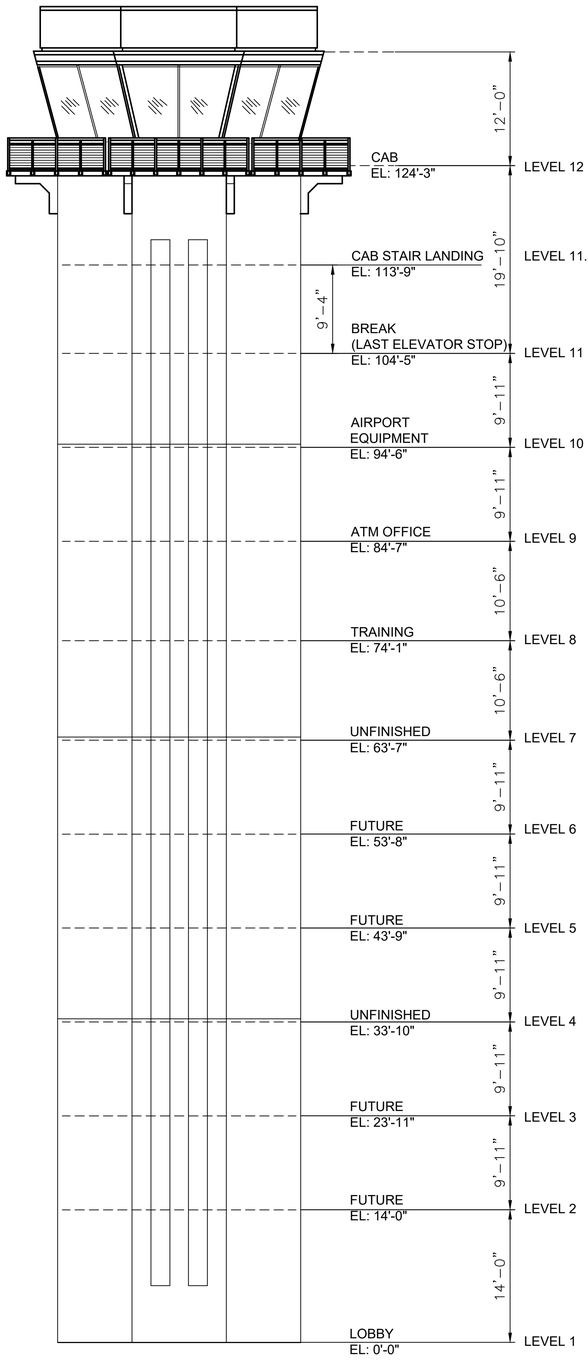
AJT Engineering, Inc.
200 Willard Street, Suite 2C
Cocoa, Florida 32922
(321) 783-5001

CONSTRUCT REPLACEMENT AIRPORT TRAFFIC CONTROL TOWER
NORTHWEST ARKANSAS NATIONAL AIRPORT
BENTONVILLE, ARKANSAS

NO.	D-TE	REVISION	BY

DWG TITLE: LEVEL 12 FLOORPLAN

ENGINEER P.D.	CHECKED BY K.F.
JOB NO -	DR-WN BY L.L.
SC-LE AS NOTED	D-TE 12/31/21
DWG NO	
SHEET NO A-110	



ELEVATION A

SCALE: 1/8"=1'-0"
CAB FIN. FL. EL: 124'-3"

N

AJT Engineering, Inc.
200 Willard Street, Suite 2C
Cocoa, Florida 32922
(321) 783-5001

CONSTRUCT REPLACEMENT AIRPORT TRAFFIC CONTROL TOWER
NORTHWEST ARKANSAS NATIONAL AIRPORT
BENTONVILLE, ARKANSAS

NO.	D-TE	REVISION	BY

DWG TITLE
ELEVATION A

ENGINEER P.D.	CHECKED BY K.F.
JOB NO -	DR-WN BY L.L.
SC-LE AS NOTED	D-TE 12/31/21

DWG NO
SHEET NO
A-200

APPENDIX C

ATCT Equipment Relocation List

RELOCATED ATCT EQUIPMENT LIST
Airport Traffic Control Tower Replacement
Northwest Arkansas National Airport

Item No.	Quantity	Item	Mfg'r	Location
Airport Owned ATCT Equipment to be relocated				
1	3	ATCT Equipment Racks	Great Lakes	Level 9
2	5	VHF Radio Transmitter/Receiver	Jotron	Level 9
5	1	VHF Transceiver (Backup / Mobile)	Jotron	Cab
6	5	VHF Radio Antennas	TACO	Cab (Roof)
7	3	Cavity Filters (VHF)	Telewave	Level 9
8	1	Voice Switch Processor	Harris	Level 9
9	3	Voice Switch Touch Screen Control	Harris	Cab
10	1	ATIS /ASOS Interface Unit (AAIU)	DME	Level 9
11	1	ATIS Recorder/Transmitter	Interalia	Cab
12	1	Voice Recorder Processor	Stancil	Cab
13	1	Voice Recorder Workstation	Frequentis	Cab/Base
14	1	Barometric Pressure Sensor	Setra	Level 9
15	1	Backup Weather Altimeter Display	Setra	Cab
16	1	Backup Weather Temperature/Dew Point Sensor	RM Young	Remote
17	1	Backup Weather Temperature Display	RM Young	Cab
18	1	Backup Weather Wind Sensor	RM Young	Remote
19	1	Backup Weather Wind Display	RM Young	Cab
20	1	Master Time Code Generator	ESE	Level 9
21	2	Digital Clock Display	ESE	Cab
22	1	Airfield Lighting Control Panel	Unknown	Cab
23	4	Speakers w/ Volume Control	Kenwood	Cab
24	1	Signal Light Gun	PPS Technical Ltd	Cab
26	10	Desk Telephone (Landline)	Unknown	Cab/ATCT/Base
27	1	Crash Phone	Kova	Cab
28	4	Portable Computers		Cab/Base
29	1	Counter		Cab
30	5	All Spares		Base
31	2	Binoculars		Cab
32	5	Waste Receptacles		Cab/Base
33	15	Chairs		Cab/Base
34	4	Desks		Base
35	1	Shredder		Cab
36	2	File Cabinet		Base
FAA Owned ATCT Equipment to be relocated				
37	6	ATCT Equipment Racks (FAA)	Various	Level 10
38	1	STARS Radar Processor	Raytheon	Level 10
39	1	STARS Radar Display (Primary)	Raytheon	Cab
40	1	STARS Radar Display Control (Primary)	Raytheon	Cab
41	1	STARS Radar Processor (Secondary)	Raytheon	Cab
42	1	STARS Radar Display Control (Secondary)	Raytheon	Cab
43	1	Flight Strip Printer	Boca	Cab
44	1	Flight Data Input/Output (FDIO) Terminal		Cab
45	1	ILS/RVR Monitor		Cab
46	1	MALSR/PAPI Control Panel		Cab
47	1	IDS NIDS		Cab

APPENDIX D

Agency and Tribal Coordination

Sarah Huckabee Sanders
Governor
Mike Mills
Secretary

April 14, 2023

Mr. Ryan Mountain
Senior Environmental Scientist/Specialist
Garver
4300 South J.B. Hunt Drive, Suite 240
Rogers, AR 72758

Re: Benton County: General
Section 106 Review: FAA
Proposed Undertaking: XNA Airport Traffic Control Tower Relocation
Cultural Resources Report: *A Cultural Resources Survey of the Proposed XNA Air Traffic Control Tower in Benton County, Arkansas*
Flat Earth Archeology Report Number: 2023-15
AHPP Tracking Number: 110459.01

Dear Mr. Mountain:

The staff of the Arkansas Historic Preservation Program (AHPP) reviewed Phase I cultural resources survey for the above-referenced undertaking in Section 32, Township 19 North, Range 31 West Benton County, Arkansas. The proposed project entails the removal of the existing airport traffic control tower (ATCT) and the construction of a new 155-foot tall ATCT 130-feet to the east. Flat Earth Archeology, LLC. conducted a cultural resources survey of the proposed area of potential effect (APE) to determine if any historic properties were present in the tract and if so, to make management recommendations regarding these properties.

A total of 44 shovel tests were excavated within the APE, all of which are negative for cultural materials. There are eight previously recorded archeological sites within 1-mile radius of the project area, though none of them are within the APE.

In addition, eight extant structures were identified and evaluated for inclusion on the National Register of Historic Places (NRHP). The AHPP concurs that only Structure 2 (BE3673, a wood-framed transverse crib style barn) is eligible for inclusion on the NRHP under Criterion C for its embodiment of distinctive characteristics of a type of early twentieth century regional agricultural architecture. The AHPP also concurs that there will be no adverse effect for the indirect APE on Structure 2.

Based on the provided information, the AHPP concurs with the finding of **no historic properties affected pursuant to 36 CFR § 800.4(d)(1)** that no further cultural resources investigation is needed for the proposed undertaking.

Tribes that have expressed an interest in the area include the Cherokee Nation, the Osage Nation, the Shawnee Tribe, and the United Keetoowah Band of Cherokee Indians. We recommend consultation in accordance with 36 CFR § 800.2(c)(2).

We appreciate the opportunity to review this undertaking. If you have any questions, please contact Kathryn Bryles of my staff at (501) 324-9784 or kathryn.bryles@arkansas.gov. Please refer to the AHPP Tracking Number above in any correspondence.

Sincerely,

Kathryn Bryles

Digitally signed by Kathryn Bryles
Date: 2023.04.14 08:40:35 -05'00'

for
Scott Kaufman
AHPP Director and State Historic Preservation Officer

cc: Dr. Melissa Zabecki, Arkansas Archeological Survey

Mountain, Ryan C.

From: Kathryn Bryles (DAH) <Kathryn.Bryles@arkansas.gov>
Sent: Wednesday, September 28, 2022 3:42 PM
To: Mountain, Ryan C.
Subject: AHPP 110459 XNA Airport Traffic Control Tower Relocation
Attachments: 110459_FAA_Benton_XNAatctRelocation.pdf

Good afternoon Mr. Mountain,

Attached is the AHPP letter regarding a project in Benton County, Arkansas. If you have any questions, please feel free to contact me.

KATHRYN BRYLES
Section 106 Archeologist

Division of Arkansas Heritage
1100 North Street
Little Rock, AR 72201
kathryn.bryles@arkansas.gov
p: 501.324.9784

ArkansasHeritage.com

Asa Hutchinson
Governor
Stacy Hurst
Secretary

September 28, 2022

Mr. Ryan Mountain
Senior Environmental Scientist/Specialist
Garver
4300 South J.B. Hunt Drive, Suite 240
Rogers, AR 72758

RE: Benton County: General
Section 106 Review: FAA
Proposed Undertaking: XNA Airport Traffic Control Tower Relocation
AHPP Tracking Number: 110459

Dear Mr. Mountain:

The staff of the Arkansas Historic Preservation Program (AHPP) reviewed the submission for the above referenced undertaking in Section 32, Township 19 North, Range 31 West in Benton County, Arkansas. The proposed undertaking entails the removal of the existing airport traffic control tower (ATCT) and construction of a new 155-foot tall ATCT 130 feet to the east.

The area of potential effect (APE) has been previously surveyed and disturbed by the construction of the XNA airport. No previously recorded archeological sites or historic properties are located within the APE.

Based on the provided information, the AHPP concurs that no historic properties should be affected by this undertaking. In the event of a post-review discovery of historic properties within the area of potential effects, please contact the AHPP and other consulting parties in accordance with 36 CFR § 800.13(b)(3).

Tribes that have expressed an interest in the area include the Cherokee Nation, the Osage Nation, the Shawnee Tribe, and the United Keetoowah Band of Cherokee Indians. We recommend consultation in accordance with 36 CFR § 800.2(c)(2).

Thank you for the opportunity to review this undertaking. Please refer to the AHPP Tracking Number listed above in all correspondence. If you have any questions, call Kathryn Bryles at 501-324-9784 or email kathryn.bryles@arkansas.gov.

Sincerely,

Kathryn Bryles

Digitally signed by Kathryn Bryles
Date: 2022.09.28 09:36:35 -05'00'

for
Scott Kaufman
Director, AHPP

cc: Dr. Melissa Zabecki, Arkansas Archeological Survey

Asa Hutchinson
Governor
Stacy Hurst
Secretary

Date: November 15, 2022
Subject: Elements of Special Concern
XNA ATCT Relocation Project
Benton County, Arkansas
ANHC No.: P-CF..-22-109

Mr. Ryan Mountain
Garver
4300 J.B. Hunt Drive
Suite 240
Rogers, AR 72758

Dear Mr. Mountain:

Staff members of the Arkansas Natural Heritage Commission have reviewed our files for records indicating the occurrence of rare plants and animals, outstanding natural communities, natural or scenic rivers, or other elements of special concern within or near the Airport Traffic Control Tower (ATCT) relocation project. We find no records at present time.

You should be aware that the airport falls within the recharge area for Hewlett's Spring Hole which is known to support the federally threatened Ozark cavefish (*Troglichthys rosae*). Use of Best Management Practices for Cave Recharge Zones should be carefully followed and monitored during project construction.

A Benton County Element list is enclosed for your reference. Represented on this list are elements for which we have records in our database. The list has been annotated to indicate those elements known to occur within a one and a five mile radius of the project site. A legend is enclosed to help you interpret the codes used on this list.

Please keep in mind that the project area may contain important natural features of which we are unaware. Staff members of the Arkansas Natural Heritage Commission have not conducted a field survey of the study site. Our review is based on data available to the program at the time of the request. It should not be regarded as a final statement on the elements or areas under consideration. Because our files are updated constantly, you may want to check with us again at a later time.

Thank you for consulting us. It has been a pleasure to work with you on this study.

Sincerely,

Cindy Osborne

Cindy Osborne
Data Manager/Environmental Review Coordinator

Enclosures: Legend
Benton County Element List (annotated)
Invoice

Ryan Mountain, PWS
Senior Environmental Scientist/Specialist
Transportation Team

479-257-9188
479-903-2041

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arkansas Ecological Services Field Office
110 South Amity Suite 300
Conway, AR 72032-8975
Phone: (501) 513-4470 Fax: (501) 513-4480

In Reply Refer To: December 16, 2022
Project code: 2023-0026080
Project Name: XNA Air Traffic Control Tower (ATCT) Construction

Subject: Concurrence verification letter for 'XNA Air Traffic Control Tower (ATCT) Construction' for specified federally threatened and endangered species and designated critical habitat that may occur in your proposed project area consistent with the Arkansas Determination Key for project review and guidance for federally listed species (Arkansas Dkey).

Dear Kelly Oliver-Amy:

The U.S. Fish and Wildlife Service (Service) received on **December 16, 2022** your effect determination(s) for the 'XNA Air Traffic Control Tower (ATCT) Construction' (the Action) using the Arkansas DKey within the Information for Planning and Consultation (IPaC) system. The Service developed this system in accordance with the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based on your answers, and the assistance in the Service's Arkansas DKey, you made the following effect determination(s) for the proposed Action, including species protective measures that you confirmed will be implemented.

Species	**Listing Status**	**Determination**
Benton County Cave Crayfish (*Cambarus aculabrum*)	Endangered	NLAA
Eastern Black Rail (*Laterallus jamaicensis ssp. jamaicensis*)	Threatened	NLAA
Gray Bat (*Myotis grisescens*)	Endangered	No effect
Indiana Bat (*Myotis sodalis*)	Endangered	No effect
Missouri Bladderpod (*Physaria filiformis*)	Threatened	No effect
Neosho Mucket (*Lampsilis rafinesqueana*)	Endangered	NLAA
Northern Long-eared Bat (*Myotis septentrionalis*)	Endangered	No effect
Ozark Big-eared Bat (*Corynorhinus (=Plecotus) townsendii ingens*)	Endangered	No effect
Ozark Cavefish (*Amblyopsis rosae*)	Threatened	NLAA
Piping Plover (*Charadrius melodus*)	Threatened	NLAA

Red Knot (*Calidris canutus rufa*) Threatened NLAA

Status

The Service concurs with the NLAA determination(s) for the species listed above. No further consultation for this project is required for these species.Your agency has met consultation requirements by informing the Service of your “No Effect” determinations. No consultation for this project is required for species that you determined will not be affected by this action.

This concurrence verification letter confirms you may rely on effect determinations you reached by considering the Arkansas DKey to satisfy agency consultation requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat. 884, as amended 16 U.S.C. 1531 et seq.; ESA). No further consultation for this project is required for species that you determined will not be affected by this action.

The Service recommends that your agency contact the Arkansas Ecological Services Field Office or re-evaluate this key in IPaC if: 1) the scope, timing, duration, or location of the proposed project changes, 2) new information reveals the action may affect listed species or designated critical habitat; 3) a new species is listed or critical habitat designated. If any of the above conditions occurs, additional consultation with the Arkansas Ecological Services Field Office should take place before project changes are final or resources committed.

Bald and Golden Eagle Protection Act: The following resources are provided to project proponents and consulting agencies as additional information. Bald and golden eagles are not included in this section 7(a)(2) consultation and this information does not constitute a determination of effects by the Service.

The Service developed the National Bald Eagle Management Guidelines to advise landowners, land managers, and others who share public and private lands with Bald Eagles when and under what circumstances the protective provisions of the Bald and Golden Eagle Protection Act may apply to their activities. The guidelines should be consulted prior to conducting new or intermittent activity near an eagle nest. Activity specific guidelines begin on page 10 of the document. To access a copy of the National Bald Eagle Management Guidelines please visit the Service's Bald and Golden Eagle Management webpage and scroll down to the Guidance and Tools section: https://www.fws.gov/library/collections/bald-and-golden-eagle-management

If the recommendations detailed in the National Bald Eagle Management Guidelines cannot be followed, you may apply for a permit to authorize removal or relocation of an eagle nest in certain instances. To obtain an application form or contact information for Regional Migratory Bird Permit Offices please visit the Service's Bald and Golden Eagle Management webpage and scroll down to the Permits section: https://www.fws.gov/library/collections/bald-and-golden-eagle-management

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

XNA Air Traffic Control Tower (ATCT) Construction

2. Description

The following description was provided for the project 'XNA Air Traffic Control Tower (ATCT) Construction':

> Northwest Arkansas National Airport (XNA) is proposing to construct a replacement Air Traffic Control Tower (ATCT), which is needed to bring the ATCT into compliance with FAA standards. Removal and relocation of associated utilities, equipment, buildings, access road, parking, and security fence associated with the ATCT is also needed.

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@36.28071045,-94.30159180615279,14z

Species Protection Measures
Benton County Cave Crayfish
https://www.fws.gov/southeast/pdf/species-protective-measures/benton-county-cave-crayfish-hell-creek-cave-crayfish-ozark-crayfish.pdf

Ozark cavefish
https://www.fws.gov/southeast/pdf/species-protective-measures/benton-county-cave-crayfish-hell-creek-cave-crayfish-ozark-crayfish.pdf

Development
https://www.fws.gov/southeast/pdf/species-protective-measures/development-projects.pdf

Qualification Interview

1. Have you made an effects determination of "no effect" for all species in the area of the project? A "no effect" determination means the project will have no beneficial effect, no short-term adverse effects, and no long-term adverse effects on any of the species on the IPaC-generated species list for the proposed project or those species habitat. A project with effects that cannot be meaningfully measured, detected or evaluated, effects that are extremely unlikely to occur, or entirely beneficial effects should not have a "no effect" determination. (If unsure, select "No").

   No

2. Is the action authorized, funded, or being carried out by a Federal agency?

   Yes

3. Are you the the action agency or the designated non-federal representative?

   Yes

4. Choose the agency you represent in this consultation with the U.S. Fish and Wildlife Service:

   g. All other federal agencies or agency designees

5. [Semantic] Does the project intersect designated critical habitat for the Leopard Darter?

   Automatically answered
   No

6. [Semantic] Does the project intersect designated critical habitat for the Neosho Mucket?

   Automatically answered
   No

7. [Semantic] Does the project intersect designated critical habitat for Yellowcheek Darter?

   Automatically answered
   No

8. [Semantic] Does the project intersect designated critical habitat for Rabbitsfoot?

   Automatically answered
   No

9. [Semantic] Does the project intersect the American burying beetle consultation area?

   Automatically answered
   No

10. [Semantic] Does the project intersect the red-cockaded woodpecker AOI?

    Automatically answered
    No

11. [Semantic] Does the project intersect the Eastern black rail AOI?

    Automatically answered
    Yes

12. Will the project take place in freshwater herbaceous wetlands and/or wet prairies?

    Yes

13. Will any part of the project take place between March 15 and May 15 OR between July 15 and October 1?

    Yes

14. [Semantic] Does the project intersect the red knot AOI?

    Automatically answered
    Yes

15. Will the project affect sand and gravel areas or shorelines along rivers, lakes, or reservoirs?

    No

16. Does the project take place in marshy or flooded open field habitat?

    Yes

17. [Semantic (same answer as "8.3"] Will any part of the project take place between March 15 and May 15 OR between July 15 and October 1?

    Automatically answered
    Yes

18. [Semantic] Does the project intersect the Piping Plover AOI?

    Automatically answered
    Yes

19. [Semantic (same answer as "8.3" or "9.9")] Will any part of the project take place between March 15 and May 15 OR between July 15 and October 1?

    Automatically answered
    Yes

20. [Semantic] Does the project intersect the Whooping Crane AOI?

    Automatically answered
    No

21. [Semantic] Does the project intersect the interior least tern AOI?

    Automatically answered
    No

22. [Semantic] Does the project intersect the Gray Bat AOI?

    Automatically answered
    Yes

23. Are there any caves within 0.5 mile of the project area?

    No

24. Does the project occur in a subdivision or urban area (housing on 0.5 acres or less and/or structures present)?

    Yes

25. [Semantic] Does the project intersect the Ozark Big-eared Bat AOI?

    Automatically answered
    Yes

26. [Sematic (same answer as question "13.2")] Is there a cave known on the site or within 0.5 mile of the project area?

    Automatically answered
    No

27. [Sematic (same answer as question "13.2.1")] Does the project occur in a subdivision or urban area?

    Automatically answered
    Yes

28. [Semantic] Does the project intersect the Indiana bat AOI?

    Automatically answered
    Yes

29. [Sematic (same answer as question "13.2" or "14.4")] Are there any caves within 0.5 mile of the project area?

    Automatically answered
    No

30. [Sematic (same answer as question "13.2.1" or ""14.7")] Does the project occur in a subdivision or urban area?

    Automatically answered
    Yes

31. [Semantic] Does the project intersect the Northern Long-eared bat AOI?

    Automatically answered
    Yes

32. Have you determined that the proposed action will have “no effect” on the northern long-eared bat? (If you are unsure select "No")

    Yes

33. [Semantic] Does the project intersect the Benton County Cave Crayfish AOI?

    Automatically answered
    Yes

34. Does the project involve the manufacturing, storage, or disposal of chemicals, hazardous materials, waste products, or other pollutants that may adversely affect water quality?

    No

35. Is the project a road, airport, or other large project that may have indirect effects to listed species? Indirect effects are effects caused by the action and reasonably certain to occur, but may occur later in time as a result of the project. Effects may occur at the site of the project, or off-site.

    No

36. Will project proponents follow Species Protective Measures for avoidance and minimization measures for cave obligate species in Arkansas?

    Yes

37. [Semantic] Does the project intersect the Hell Creek Cave Crayfish AOI?

    Automatically answered
    No

38. [Semantic] Does the project intersect the Ozark cavefish AOI?

    Automatically answered
    Yes

39. [Semantic] Does the project intersect the TriCity shapefile?

    Automatically answered
    No

40. [Semantic (Same answer as "17.1.3" or "18.3")] Does the project involve the manufacturing, storage, or disposal of chemicals, hazardous materials, waste products, or other pollutants that may adversely affect water quality?

    Automatically answered
    No

41. [Semantic] Does the project intersect the Ozark cavefish standard AOI?

    Automatically answered
    No

42. [Semantic (same answer as "17.4" or "18.10")] Will project proponents follow Species Protective Measures for avoidance and minimization measures for cave obligate species in Arkansas?

    Automatically answered
    Yes

43. [Semantic] Does the project intersect the Missouri bladderpod AOI?

    Automatically answered
    Yes

44. Is the proposed project in or near an open glade (an area with thin, poor soil and bedrock close to the surface or in rocky outcrops) or in shale barrens (Ouachita Mountains ecoregion)?

    No

45. [Semantic] Does the project intersect the Geocarpon AOI?

    Automatically answered
    No

46. [Semantic] Does the project intersect the running buffalo clover AOI?

    Automatically answered
    No

47. [Semantic] Does the project intersect the Pondberry AOI?

    Automatically answered

    No

48. Does the project contain any of the following activity types: Dams or Impoundments (including berms or levees), Municipal or industrial effluent discharge, Mining, Mine reclamation, Disposal of mine wastewater or tailings, Construction of natural gas or oil well pads, Construction greater than 40 acres, Dredging or snag removal, Energy development within floodplain, or OHV trail construction or maintenance?

    No

49. Does the project contain any of the following activity types: Boat Ramps, Bridges, Culverts, Residential or Commercial Development, Streambank Stabilization (or other streambank work), Pipeline and linear projects, Water intakes/withdrawls, Forest conversion within 100 feet of occupied streams, or Stream or ditch relocation, straightening, or armoring?

    Yes

50. Does the project include Streambank Stabilization (or other streambank work)?

    No

51. Does the project include Boat Ramps?

    No

52. Does the project include Bridges and Culverts?

    No

53. Does the project include Development?

    Yes

54. Does the project include the Development species protective measures, as applicable to the project and site characteristics?

    Yes

55. Is the project a Pipeline or Linear Project?

    No

56. Does the project include Water Intakes/Withdrawals?

    No

57. Does the project include Stream or Ditch Relocation, Straightening, or Armoring?

    No

58. [Semantic] Does the project intersect the rabbitsfoot AOI?

    Automatically answered

    No

59. [Semantic] Does the project instersect the neosho mucket AOI?

    Automatically answered

    Yes

60. [Semantic] Does the project intersect the Neosho mucket survey coordination area?
    Automatically answered
    No
61. [Semantic] Does the project instersect the Spectaclecase AOI?
    Automatically answered
    No
62. [Semantic] Does the project instersect the snuffbox AOI?
    Automatically answered
    No
63. [Semantic] Does the project instersect the speckled pocketbook AOI?
    Automatically answered
    No
64. [Semantic] Does the project instersect the ouachita rock pocketbook AOI?
    Automatically answered
    No
65. [Semantic] Does the project instersect the fat pocketbook AOI?
    Automatically answered
    No
66. [Semantic] Does the project instersect the Curtis pearlymussel AOI?
    Automatically answered
    No
67. [Semantic] Does the project instersect the scaleshell AOI?
    Automatically answered
    No
68. [Semantic] Does the project instersect the pink mucket AOI?
    Automatically answered
    No
69. [Semantic] Does the project instersect the Arkansas fatmucket AOI?
    Automatically answered
    No
70. [Semantic] Does the project instersect the winged mapleleaf AOI?
    Automatically answered
    No
71. [Semantic] Does the project instersect the leopard darter AOI?
    Automatically answered
    No
72. [Semantic] Does the project instersect the Yellowcheek darter AOI?
    Automatically answered
    No

73. [Semantic] Does the project instersect the Ozark hellbender AOI?

    Automatically answered

    No

74. [Semantic] Does the project instersect the harperella AOI?

    Automatically answered

    No

75. [Semantic] Does the project instersect the pallid sturgeon AOI?

    Automatically answered

    No

76. [Semantic] Does the project intersect the interior least tern range?

    Automatically answered

    No

IPaC User Contact Information

Agency: Federal Aviation Administration
Name: Kelly Oliver-Amy
Address: 10101 Hillwood Parkway
City: Ft Worth
State: TX
Zip: 76177
Email kelly.m.oliver-amy@faa.gov
Phone: 8172225645

Mountain, Ryan C.

From: CESWL-Regulatory <PR-R.CESWL-PR-R@usace.army.mil>
Sent: Thursday, November 10, 2022 8:31 AM
To: Mountain, Ryan C.; CESWL-Regulatory
Cc: Maestri, Christopher M.; White, Adam T.; Nicholas Fondano
Subject: RE: XNA ATCT Relocation - Benton County, AR

Categories: Filed by Newforma

This is official notification that we have received your project and are now assigning it to our Regulatory Project Manager, Mr. Pablo Bacon. You can contact him either through email at Pablo.Bacon@usace.army.mil or on the phone at 501-340-1386.

The Administrative Record Number assigned to this project is: SWL-1993-11618. Please use this number when communicating with us about your project.

For more information on the Regulatory Program, visit our website at:
http://www.swl.usace.army.mil/Missions/Regulatory.aspx

Please let us know how we are doing by submitting your comments or suggestions on our Customer Service Survey: https://regulatory.ops.usace.army.mil/customer-service-survey/

Willis A. Bullard
Legal Instruments Examiner
Regulatory Division
USACE, Little Rock District

From: Mountain, Ryan C. <RCMountain@GarverUSA.com>
Sent: Friday, November 4, 2022 4:31 PM
To: CESWL-Regulatory <PR-R.CESWL-PR-R@usace.army.mil>
Cc: Maestri, Christopher M. <CMMaestri@GarverUSA.com>; White, Adam T. <ATWhite@GarverUSA.com>; Nicholas Fondano <nicholas.fondano@flyxna.com>
Subject: [URL Verdict: Neutral][Non-DoD Source] XNA ATCT Relocation - Benton County, AR

To Whom It May Concern,

Attached is a wetland delineation report and supporting materials for a project located at the Northwest Arkansas National Airport. Please let me know if you need additional information.

Thanks,
Ryan

DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 867
LITTLE ROCK, ARKANSAS 72203-0867
www.swl.usace.army.mil

January 27, 2023

Regulatory Division

FILE No. **SWL 1993-11618-12**

Ryan Mountain
Sr. Environmental Scientist
4300 South J.B. Hunt Drive
Rogers, AR 72758

Dear Mr. Mountain:

Please refer to your request on behalf of your client, The Northwest Arkansas National Airport, on November 2, 2022, concerning U.S. Army Corps of Engineers permit requirements pursuant to Section 404 of the Clean Water Act (33 U.S. Code 1344). You proposed removal and replacement of the existing Airport Traffic Control Tower and ancillary features. The proposed project is located in part of section 32, T. 19N., R. 31 W., Bentonville, Benton County, Arkansas.

A site inspection and evaluation on January 4, 2023, utilizing United States Geological Survey Quadrangle Maps, aerial photography, National Hydrography Dataset, and the Natural Resources Conservation Service Benton County Soil Survey, by Corps personnel indicates that this area does not meet the definition of wetlands and waters of the United States, as determined by the 1987 Corps of Engineers Wetlands Delineation Manual, Regional Supplements, appropriate guidance, and Department of the Army regulations. Therefore, a Section 404 Department of the Army permit is not required.

This letter contains an Approved Jurisdictional Determination for your subject site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 Code of Federal Regulations (CFR) Part 331. Enclosed you will find a Notification of Appeals Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the Southwestern Division Office at the following address:

Administrative Appeals Review Officer (CESWD-PD-O)
U.S. Army Corps of Engineers
1100 Commerce Street, Suite 831
Dallas, Texas 75242-1317

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to

submit an RFA form, it must be received at the above address by March 27, 2023. It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this letter.

This approved jurisdictional determination is valid for a period of 5 years from the date of this letter unless new information warrants revision of the determination before the expiration date.

The delineation included herein has been conducted to identify the location and extent of the aquatic resource boundaries and/or the jurisdictional status of aquatic resources for purposes of the Clean Water Act for the particular site identified in this request. This delineation and/or jurisdictional determination may not be valid for the Wetland Conservation Provisions of the Food Security Act of 1985, as amended. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should discuss the applicability of a certified wetland determination with the local USDA service center, prior to starting work.

Please be advised that the discharge of dredged or fill material in waters of the United States, including wetlands, requires a Department of the Army permit prior to beginning work in most situations. A permit is required pursuant to Section 404 of the Clean Water Act and Corps of Engineers implementing regulations, 33 CFR 320 - 332. The clearing of wetlands with mechanized equipment; landleveling; construction of ditches, dikes, and dams; placement of fill to raise the elevation of a site; and stabilization of banks are examples of activities that routinely require a permit. All of these activities involve the discharge of dredged or fill material in waters of the United States.

Your cooperation in the Regulatory Program is appreciated. If you have any questions, please contact me at (501) 340-1312 and refer to Permit No. **SWL 1993-11618-12**.

Sincerely,

BACON.PABLO.ANDRES.1604082567
2023.01.27 09:21:26 -06'00'

Pablo Bacon
Regulatory Specialist

Enclosures

cc:
Proj Mgr, Beaver Lake PO
Ch, Regulatory Enf
David Rupe, Regulatory Enf Branch

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): January 6, 2023

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: CESWL-RD **SWL 1993-11618-12**

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: Arkansas County/parish/borough: Benton City: Bentonville
Center coordinates of site (lat/long in degree decimal format): Lat. 36.279867° N, Long. -94.301904° W
Universal Transverse Mercator: NAD 83/UTM Zone 15, Northing, Easting
Name of nearest waterbody: Unnamed tributary to Little Osage Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Illinois River
Name of watershed or Hydrologic Unit Code (HUC): HUC 8: 11110103 (Illinois River); HUC 12: 111101030303 (Little Osage)

☑ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc.…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☑ Office (Desk) Determination. Date: December 23, 2022
☑ Field Determination. Date(s): January 4, 2023

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.
There are no "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. **[*Required*]**
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.
There are no "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. ***[Required]***

1. Waters of the U.S.
a. Indicate presence of waters of U.S. in review area (check all that apply): [1]
☐ TNWs, including territorial seas
☐ Wetlands adjacent to TNWs
☐ Relatively Permanent Waters[2] (RPWs) that flow directly or indirectly into TNWs
☐ Non-RPWs that flow directly or indirectly into TNWs
☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
☐ Impoundments of jurisdictional waters
☐ Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:
Non-wetland waters: linear feet: width (ft) and/or acres.
Wetlands:

c. Limits (boundaries) of jurisdiction based on:
Elevation of established OHWM (if known):

2. Non-regulated waters/wetlands (check if applicable):[3]
☑ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: The proposed project area contains a wetland (0.11-acre) that based on desktop evaluation and field inspection appears to be isolated with no observable surface connection to jurisdictional waters. The surrounding area has been heavily manipulated and developed since construction began on the XNA airport facility (circa 1995) and the wetland no longer exhibits a surface connection to other waters due to historical development; therefore, it has been determined that the wetland feature is non-jurisdictional.

---
[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW:

   Summarize rationale supporting determination:

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent":

B. Characteristics of Tributary (That Is Not a TNW) and Its Adjacent Wetlands (If Any):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e., tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) General Area Conditions:
   Watershed size:
   Drainage area:

   Average annual rainfall: inches
   Average annual snowfall: inches

   (ii) Physical Characteristics:
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☐ Tributary flows through tributaries before entering TNW.

   Project waters are river miles from TNW.
   Project waters are river miles from RPW.
   Project waters are aerial (straight) miles from TNW.
   Project waters are aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain:

   Identify flow route to TNW[5]:
   Tributary stream order, if known:

   (b) General Tributary Characteristics (check all that apply):
   Tributary is: ☐ Natural
   ☐ Artificial (man-made). Explain:
   ☐ Manipulated (man-altered). Explain:

   Tributary properties with respect to top of bank (estimate):
   Average width: feet

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Average depth: feet
Average side slopes:

Primary tributary substrate composition (check all that apply):

☐ Silts	☐ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain:		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain:
Presence of run/riffle/pool complexes. Explain:
Tributary geometry:
Tributary gradient (approximate average slope): %

(c) Flow:
Tributary provides for:
Estimate average number of flow events in review area/year:
Describe flow regime:
Other information on duration and volume:
Surface flow is: Characteristics:
Subsurface flow: Explain findings:
☐ Dye (or other) test performed:

Tributary has (check all that apply):
☐ Bed and banks
☐ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☐ vegetation matted down, bent, or absent	☐ sediment sorting
☐ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain:

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain:
Identify specific pollutants, if known:

(iv) Biological Characteristics. Channel supports (check all that apply):
☐ Riparian corridor. Characteristics (type, average width):
☐ Wetland fringe. Characteristics:
☐ Habitat for:
☐ Federally Listed species. Explain findings:
☐ Fish/spawn areas. Explain findings:
☐ Other environmentally-sensitive species. Explain findings:

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

☐ Aquatic/wildlife diversity. Explain findings:

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:
Properties:
Wetland size: acres
Wetland type. Explain:
Wetland quality. Explain:
Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:
Flow is: Explain:

Surface flow is:
Characteristics:

Subsurface flow: Explain findings:
☐ Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:
☐ Directly abutting
☐ Not directly abutting
☐ Discrete wetland hydrologic connection. Explain:
☐ Ecological connection. Explain:
☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW
Project wetlands are river miles from TNW.
Project waters are aerial (straight) miles from TNW.
Flow is from:
Estimate approximate location of wetland as within the floodplain.

(ii) Chemical Characteristics:
Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:

Identify specific pollutants, if known:

(iii) Biological Characteristics. Wetland supports (check all that apply):
☐ Riparian buffer. Characteristics (type, average width):
☐ Vegetation type/percent cover. Explain:
☐ Habitat for:
☐ Federally Listed species. Explain findings:
☐ Fish/spawn areas. Explain findings:
☐ Other environmentally-sensitive species. Explain findings:
☐ Aquatic/wildlife diversity. Explain findings:

3. Characteristics of all wetlands adjacent to the tributary (if any)
All wetland(s) being considered in the cumulative analysis:
Approximately () acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed:

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the

tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   - ☐ Tributary waters: linear feet width (ft).
   - ☐ Other non-wetland waters: acres.
     Identify type(s) of waters:

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   - ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   - ☐ Tributary waters: linear feet width (ft).
   - ☐ Other non-wetland waters: acres.
     Identify type(s) of waters:

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   - ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
     - ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

     - ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

     Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**

[8]See Footnote # 3.

☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.

☐ Wetlands adjacent to such waters and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. Impoundments of jurisdictional waters.[9]

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

☐ Demonstrate that impoundment was created from "waters of the U.S.," or

☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or

☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.

☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.

☐ which are or could be used for industrial purposes by industries in interstate commerce.

☐ Interstate isolated waters. Explain:

☐ Other factors. Explain:

Identify water body and summarize rationale supporting determination:

Provide estimates for jurisdictional waters in the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters:

☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.

☑ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.

☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).

☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:

☐ Other: (explain, if not covered above):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).

☐ Lakes/ponds: acres.

☐ Other non-wetland waters: acres. List type of aquatic resource: .

☑ Wetlands: 0.11 acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).

☐ Lakes/ponds: acres.

☐ Other non-wetland waters: acres. List type of aquatic resource: .

[9] To complete the analysis, refer to the key in Section III.D.6 of the Instructional Guidebook.

[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- ☑ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: XNA ATCT Wetland_Report 1122022
- ☑ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☑ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps:
- ☐ Corps navigable waters' study:
- ☑ U.S. Geological Survey Hydrologic Atlas: HUC 8: 11110103 (Illinois River); HUC 12: 111101030303 (Little Osage)
  - ☑ USGS NHD data.
  - ☑ USGS 8 and 12 digit HUC maps.
- ☑ U.S. Geological Survey map(s). Cite scale & quad name: 1:24K Centerton, AR
- ☑ USDA Natural Resources Conservation Service Soil Survey. USDA-NRCS Web Soil Survey
- ☑ National wetlands inventory map(s). Cite name: Citation: U. S. Fish and Wildlife Service. Publication date (found in metadata). National Wetlands Inventory website (accessed Nov 2022)
- ☐ State/Local wetland inventory map(s):
- ☐ FEMA/FIRM maps:
- ☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- ☑ Photographs: ☑ Aerial (Name & Date): SWL 1993-11618-12 Maps & Figures
- ☐ or ☑ Other (Name & Date): XNA ATCT Wetland_Report 1122022
- ☑ Previous determination(s). File no. and date of response letter: SWL 1993-11618-11 Date: 12-3-2014
- ☐ Applicable/supporting case law:
- ☐ Applicable/supporting scientific literature:
- ☑ Other information (please specify): Google Earth Pro. (2012-2021 Imagery). *Lat. 36.271813°, Long. -94.174517°* (accessed Nov 2022).

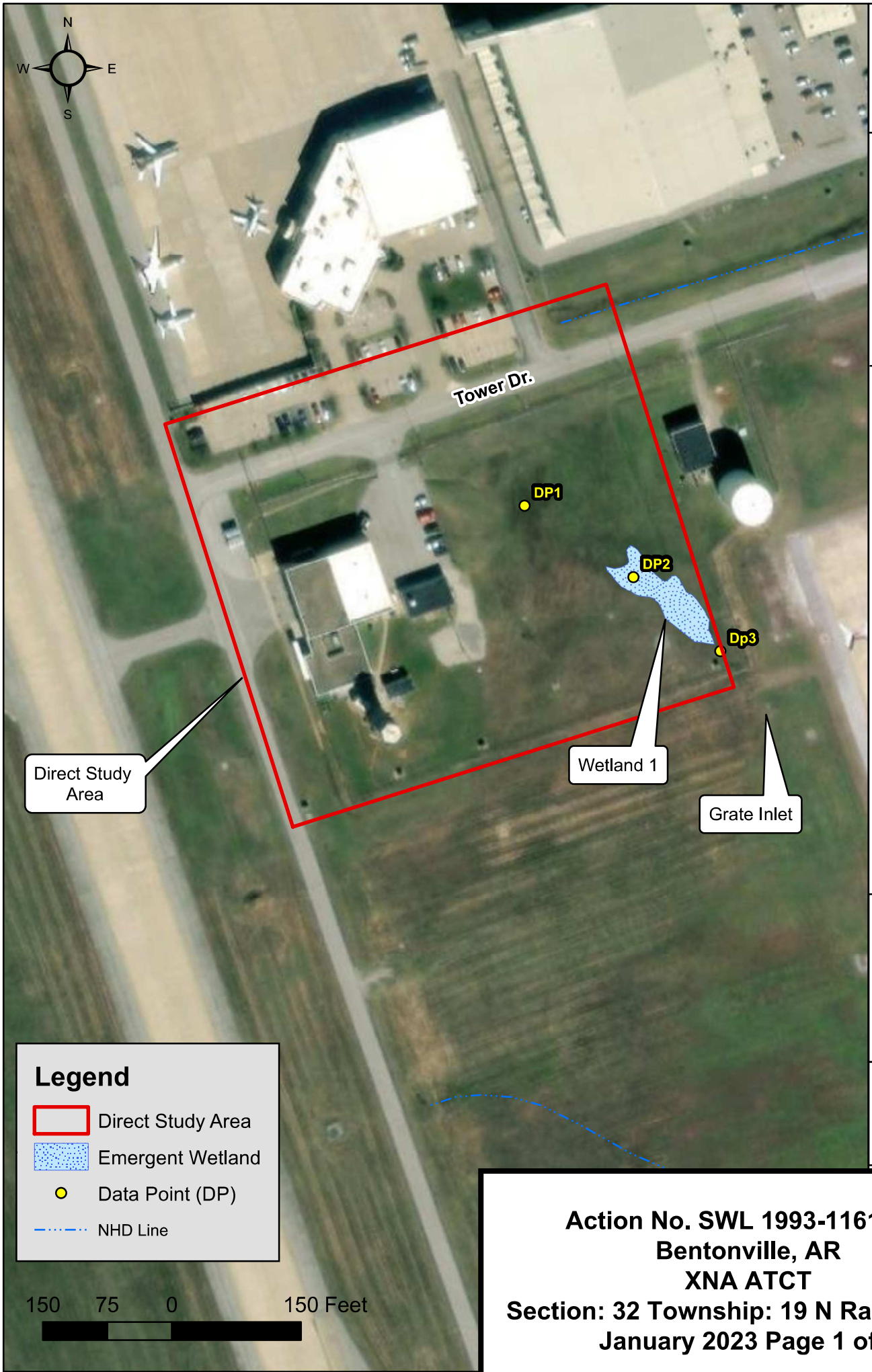
B. ADDITIONAL COMMENTS TO SUPPORT JD:

The proposed project area contains an emergent wetland (0.11-acre) that is isolated with no observable surface connection to jurisdictional waters. The surrounding area has been heavily manipulated and developed since construction began on the XNA airport facility (circa 1 995) that the wetland no longer exhibits a connection, therefore, it has been determined that the wetland feature is a non-jurisdictional feature.

BACON.PABLO.ANDRES.1
604082567
2023.01.27 07:59:46
-06'00'

Pablo Bacon
Regulatory Specialist

January 6, 2023
Date



ESRI Aerial, Topo, USGS NHD

GARVER

4300 J.B. Hunt Drive
Suite 240
Rogers, AR 72758
(479) 257-9188

NORTHWEST ARKANSAS NATIONAL AIRPORT
BENTONVILLE, AR
ATCT RELOCATION EA

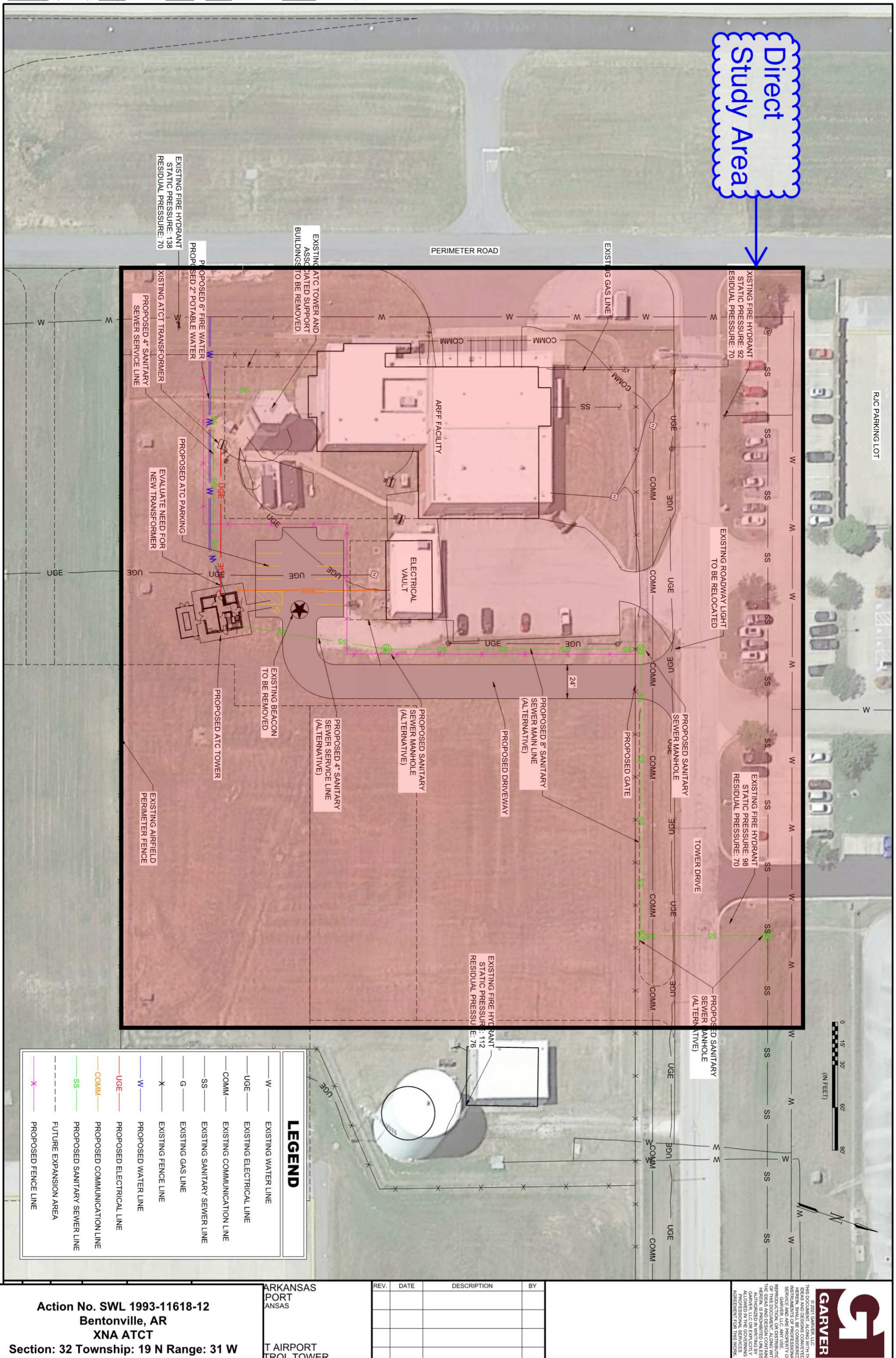
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

JOB NO.: 20A13167
DATE: SEPT. 2022
DESIGNED BY: RCM
DRAWN BY: RCM

Action No. SWL 1993-11618-12
Bentonville, AR
XNA ATCT
Section: 32 Township: 19 N Range: 31 W
January 2023 Page 1 of 2

Document Path: \\garverinc.local\gdata\Projects\2020\20A13167 - XNA ATCT Construction\GIS\Maps\Wetland Rpt. Figures\XNA ATCT Wetland_Detail.mxd Saved: 11/3/2022 6:25:17 PM User Name: RCMountain

File: L:\2020\20A13167 - XNA ATCT Construction\Drawings\MISC\XNA_ATCT Site Plan.dwg Last Save: 3/7/2022 1:31 PM Last saved by: JSHayes
Last plotted by: Hayes, Jeremy S. Plot Style: AECmono.ctb Plot Scale: 1:1 Plot Date: 3/7/2022 1:40 PM Plotter used: DWG To PDF.pc3



Action No. SWL 1993-11618-12
Bentonville, AR
XNA ATCT
Section: 32 Township: 19 N Range: 31 W
January 2023 Page 2 of 2

U.S. Department
of Transportation
Federal Aviation
Administration

Arkansas/Oklahoma Airports District Office
Southwest Region

FAA ASW-630
10101 Hillwood Parkway
Fort Worth, Texas 76177

November 2, 2022

Ms. Elizabeth Toombs
Tribal Historic Preservation Officer
Cherokee Nation
P.O. Box 948
Tahlequah, OK 74465-0948

Re: Air Traffic Control Tower Construction-Environmental Assessment
Northwest Arkansas National Airport (XNA), Bentonville, Arkansas

Dear Ms. Toombs:

The Federal Aviation Administration (FAA) is consulting with your tribe regarding the above-referenced project, located at the Northwest Arkansas National Airport (XNA) in Benton County, Arkansas. Due to federal permitting, the proposed project is a federal undertaking subject to compliance with Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations found at 36 CFR Part 800. This letter is written in order to initiate consultation between the Cherokee Nation and the FAA regarding these project improvements that may potentially affect ancestral lands or properties that may be of religious or cultural significance to your Tribe.

The FAA has initiated an Environmental Assessment (EA) to evaluate potential impacts associated with the Air Traffic Control Tower (ATCT) Construction Project at XNA in Benton County, Arkansas. The proposed limits for the project are shown in the enclosed exhibits. A response received from the Arkansas Historic Preservation Program (AHPP) indicates there will be no historic properties affected pursuant to 36 CFR 800.4(d)(1) for the proposed undertaking (see enclosed correspondence). The AHPP tracking number is 110459.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe.

Any comments provided will be fully considered by the FAA prior to implementation of the undertaking. If you wish to comment on this undertaking, please respond to this letter within 30 days by email at: Kelly.M.Oliver-Amy@faa.gov or to the following address:

Federal Aviation Administration
Arkansas/Oklahoma Airports District Office
Attn: Kelly Oliver-Amy
10101 Hillwood Parkway
Fort Worth, Texas 76177

We value the government-to-government relationship that exists between the FAA and the Cherokee Nation, and we appreciate this opportunity to consult and work with you on this undertaking. Please feel free to contact me if you have any questions or concerns regarding this project at (817) 222-5645.

Sincerely,

Kelly Oliver-Amy
FAA Environmental Protection Specialist

Enclosures:
Study Area Exhibits

U.S. Department
of Transportation
**Federal Aviation
Administration**

Arkansas/Oklahoma Airports District Office
Southwest Region

FAA ASW-630
10101 Hillwood Parkway
Fort Worth, Texas 76177

November 2, 2022

Dr. Andrea Hunter
Tribal Historic Preservation Officer
The Osage Nation
P.O. Box 779
Pawhuska, OK 74056

Re: Air Traffic Control Tower Construction-Environmental Assessment
Northwest Arkansas National Airport (XNA), Bentonville, Arkansas

Dear Dr. Hunter:

The Federal Aviation Administration (FAA) is consulting with your tribe regarding the above-referenced project, located at the Northwest Arkansas National Airport (XNA) in Benton County, Arkansas. Due to federal permitting, the proposed project is a federal undertaking subject to compliance with Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations found at 36 CFR Part 800. This letter is written in order to initiate consultation between the Osage Nation and the FAA regarding these project improvements that may potentially affect ancestral lands or properties that may be of religious or cultural significance to your Tribe.

The FAA has initiated an Environmental Assessment (EA) to evaluate potential impacts associated with the Air Traffic Control Tower (ATCT) Construction Project at XNA in Benton County, Arkansas. The proposed limits for the project are shown in the enclosed exhibits. A response received from the Arkansas Historic Preservation Program (AHPP) indicates there will be no historic properties affected pursuant to 36 CFR 800.4(d)(1) for the proposed undertaking (see enclosed correspondence). The AHPP tracking number is 110459.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe.

Any comments provided will be fully considered by the FAA prior to implementation of the undertaking. If you wish to comment on this undertaking, please respond to this letter within 30 days by email at: Kelly.M.Oliver-Amy@faa.gov or to the following address:

Federal Aviation Administration
Arkansas/Oklahoma Airports District Office
Attn: Kelly Oliver-Amy
10101 Hillwood Parkway
Fort Worth, Texas 76177

We value the government-to-government relationship that exists between the FAA and the Osage Nation, and we appreciate this opportunity to consult and work with you on this undertaking. Please feel free to contact me if you have any questions or concerns regarding this project at (817) 222-5645.

Sincerely,

Kelly Oliver-Amy
FAA Environmental Protection Specialist

Enclosures:
Study Area Exhibits

Osage Nation Historic Preservation Office

Date: January 19, 2023 **File: 2223-4045AR-12**

FAA, Arkansas/Oklahoma Airports District Office Southwest Region, Air Traffic Control-Tower Environmental Assessment Northwest Arkansas National Airport (XNA), Bentonville, Benton County, Arkansas

Southwest Region, FAA
Kelly Oliver-Amy
10101 Hillwood Parkway
Fort Worth, TX 76177

Dear Ms. Oliver-Amy,

The Osage Nation Historic Preservation Office has received notification and accompanying information for the proposed project listed as FAA, Arkansas/Oklahoma Airports District Office Southwest Region, Air Traffic Control-Tower Environmental Assessment Northwest Arkansas National Airport (XNA), Bentonville, Benton County, Arkansas. **The Osage Nation requests that a cultural resources survey be conducted for this project.**

In accordance with the National Historic Preservation Act, (NHPA) [54 U.S.C. § 300101 et seq.] 1966, undertakings subject to the review process are referred to in 54 U.S.C. § 302706 (a), which clarifies that historic properties may have religious and cultural significance to Indian tribes. Additionally, Section 106 of NHPA requires Federal agencies to consider the effects of their actions on historic properties (36 CFR Part 800) as does the National Environmental Policy Act (43 U.S.C. 4321 and 4331-35 and 40 CFR 1501.7(a) of 1969).

The Osage Nation has a vital interest in protecting its historic and ancestral cultural resources. **The Osage Nation anticipates reviewing and commenting on the planned Phase I cultural resources survey report for the proposed FAA, Arkansas/Oklahoma Airports District Office Southwest Region, Air Traffic Control-Tower Environmental Assessment Northwest Arkansas National Airport (XNA), Bentonville, Benton County, Arkansas.**

Should you have any questions or need any additional information please feel free to contact Luke Morris at luke.morris@osagenation.nsn.gov. Thank you for consulting with the Osage Nation on this matter.

Andrea A. Hunter, Ph.D.
Director, Tribal Historic Preservation Officer

Luke A. Morris, MA
Archaeologist

627 Grandview Ave. * Pawhuska, OK 74056 Telephone 918-287-5328 * Fax 918-287-5376
www.osagenation-nsn.gov/who-we-are/historic-preservation * HistoricPreservation@osagenation-nsn.gov

Osage Nation Historic Preservation Office

Date: April 3, 2023 **File: 2223-4045AR-11**

RE: FAA, Arkansas/Oklahoma Airports District Office Southwest Region, Air Traffic Control-Tower Environmental Assessment Northwest Arkansas National Airport (XNA), Bentonville, Benton County, Arkansas

Southwest Region, FAA
Kelly Oliver-Amy
10101 Hillwood Parkway
Fort Worth, TX 76177

Dear Ms. Oliver-Amy,

The Osage Nation Historic Preservation Office has evaluated your submission regarding the proposed FAA, Arkansas/Oklahoma Airports District Office Southwest Region, Air Traffic Control-Tower Environmental Assessment Northwest Arkansas National Airport (XNA), Bentonville, Benton County, Arkansas and determined that the proposed project **most likely will not adversely affect any sacred properties and/or properties of cultural significance to the Osage Nation.** For direct effect, the finding of this NHPA Section 106 review is a determination of "**No Properties**" eligible or potentially eligible for the National Register of Historic Places.

In accordance with the National Historic Preservation Act, (NHPA) [54 U.S.C. § 300101 et seq.] 1966, undertakings subject to the review process are referred to in 54 U.S.C. § 302706 (a), which clarifies that historic properties may have religious and cultural significance to Indian tribes. Additionally, Section 106 of NHPA requires Federal agencies to consider the effects of their actions on historic properties (36 CFR Part 800) as does the National Environmental Policy Act (43 U.S.C. 4321 and 4331-35 and 40 CFR 1501.7(a) of 1969). **The Osage Nation concurs that the U.S. Department of Transportation fulfilled NHPA compliance by consulting with the Osage Nation Historic Preservation Office in regard to the proposed project referenced as FAA, Arkansas/Oklahoma Airports District Office Southwest Region, Air Traffic Control-Tower Environmental Assessment Northwest Arkansas National Airport (XNA), Bentonville, Benton County, Arkansas.**

The Osage Nation has vital interests in protecting its historic and ancestral cultural resources. We do not anticipate that this project will adversely impact any cultural resources or human remains protected under the NHPA, NEPA, the Native American Graves Protection and Repatriation Act, or Osage law. **If, however, artifacts or human remains are discovered during project-related activities, we ask that activities cease immediately and the Osage Nation Historic Preservation Office be contacted.**

Should you have any questions or need any additional information please feel free to contact Luke Morris at **luke.morris@osagenation-nsn.gov**. Thank you for consulting with the Osage Nation on this matter.

Andrea A. Hunter, Ph.D.
Director, Tribal Historic Preservation Officer

Luke A. Morris, MA
Archaeologist

627 Grandview Ave. * Pawhuska, OK 74056 Telephone 918-287-5328 * Fax 918-287-5376
www.osagenation-nsn.gov/who-we-are/historic-preservation * HistoricPreservation@osagenation-nsn.gov

U.S. Department
of Transportation
**Federal Aviation
Administration**

Arkansas/Oklahoma Airports District Office
Southwest Region

FAA ASW-630
10101 Hillwood Parkway
Fort Worth, Texas 76177

November 2, 2022

Ms. Tonya Tipton
Tribal Historic Preservation Officer
Shawnee Tribe
P.O. Box 189
Miami, OK 74355

Re: Air Traffic Control Tower Construction-Environmental Assessment
Northwest Arkansas National Airport (XNA), Bentonville, Arkansas

Dear Ms. Tipton:

The Federal Aviation Administration (FAA) is consulting with your Tribe regarding the above-referenced project, located at the Northwest Arkansas National Airport (XNA) in Benton County, Arkansas. Due to federal permitting, the proposed project is a federal undertaking subject to compliance with Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations found at 36 CFR Part 800. This letter is written in order to initiate consultation between the Shawnee Tribe and the FAA regarding these project improvements that may potentially affect ancestral lands or properties that may be of religious or cultural significance to your Tribe.

The FAA has initiated an Environmental Assessment (EA) to evaluate potential impacts associated with the Air Traffic Control Tower (ATCT) Construction Project at XNA in Benton County, Arkansas. The proposed limits for the project are shown in the enclosed exhibits. A response received from the Arkansas Historic Preservation Program (AHPP) indicates there will be no historic properties affected pursuant to 36 CFR 800.4(d)(1) for the proposed undertaking (see enclosed correspondence). The AHPP tracking number is 110459.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe.

Any comments provided will be fully considered by the FAA prior to implementation of the undertaking. If you wish to comment on this undertaking, please respond to this letter within 30 days by email at: Kelly.M.Oliver-Amy@faa.gov or to the following address:

Federal Aviation Administration
Arkansas/Oklahoma Airports District Office
Attn: Kelly Oliver-Amy
10101 Hillwood Parkway
Fort Worth, Texas 76177

We value the government-to-government relationship that exists between the FAA and the Shawnee Tribe, and we appreciate this opportunity to consult and work with you on this undertaking. Please feel free to contact me if you have any questions or concerns regarding this project at (817) 222-5645.

Sincerely,

Kelly Oliver-Amy
FAA Environmental Protection Specialist

Enclosures:
Study Area Exhibits

U.S. Department
of Transportation
Federal Aviation
Administration

Arkansas/Oklahoma Airports District Office
Southwest Region

FAA ASW-630
10101 Hillwood Parkway
Fort Worth, Texas 76177

November 2, 2022

The Honorable Joe Bunch
The United Keetoowah Band of Cherokee Indians
P.O. Box 746
Tahlequah, OK 74465

Re: Air Traffic Control Tower Construction-Environmental Assessment
Northwest Arkansas National Airport (XNA), Bentonville, Arkansas

Dear Chief Bunch:

The Federal Aviation Administration (FAA) is consulting with your Tribe regarding the above-referenced project, located at the Northwest Arkansas National Airport (XNA) in Benton County, Arkansas. Due to federal permitting, the proposed project is a federal undertaking subject to compliance with Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations found at 36 CFR Part 800. This letter is written in order to initiate consultation between the United Keetoowah Band of Cherokee Indians and the FAA regarding these project improvements that may potentially affect ancestral lands or properties that may be of religious or cultural significance to your Tribe.

The FAA has initiated an Environmental Assessment (EA) to evaluate potential impacts associated with the Air Traffic Control Tower (ATCT) Construction Project at XNA in Benton County, Arkansas. The proposed limits for the project are shown in the enclosed exhibits. A response received from the Arkansas Historic Preservation Program (AHPP) indicates there will be no historic properties affected pursuant to 36 CFR 800.4(d)(1) for the proposed undertaking (see enclosed correspondence). The AHPP tracking number is 110459.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe.

Any comments provided will be fully considered by the FAA prior to implementation of the undertaking. If you wish to comment on this undertaking, please respond to this letter within 30 days by email at: Kelly.M.Oliver-Amy@faa.gov or to the following address:

Federal Aviation Administration
Arkansas/Oklahoma Airports District Office
Attn: Kelly Oliver-Amy
10101 Hillwood Parkway
Fort Worth, Texas 76177

We value the government-to-government relationship that exists between the FAA and the United Keetoowah Band of Cherokee Indians, and we appreciate this opportunity to consult and work with you on this undertaking. Please feel free to contact me if you have any questions or concerns regarding this project at (817) 222-5645.

Sincerely,

Kelly Oliver-Amy
FAA Environmental Protection Specialist

Enclosures:
Study Area Exhibits

APPENDIX E

Threatened and Endangered Species Habitat Assessment & Preliminary Effect Determination

4300 South J.B. Hunt Drive
Suite 240
Rogers, AR 72758

TEL 479.257.9188

www.GarverUSA.com

November 3, 2022

Kelly Oliver-Amy
Environmental Protection Specialist
FAA-Southwest Region
Arkansas/Oklahoma Airports District Office, ASW-630
10101 Hillwood Pkwy, Fort Worth, TX 76177-1524
#817-222-5645; Kelly.M.Oliver-Amy@FAA.gov

Re: Northwest Arkansas National Airport (XNA) Air Traffic Control Tower Construction
Threatened & Endangered Species Habitat Assessment & Preliminary Effect Determination
Bentonville, Benton County, Arkansas

Dear Ms. Oliver-Amy:

This letter serves to provide information on the occurrence of suitable habitat for the federally protected threatened or endangered species listed on the official species list provided by the Information for the USFWS Planning and Consulting (IPaC) project planning tool (attached) for the Northwest Arkansas National Airport (XNA) Air Traffic Control Tower Construction project located near Bentonville, Benton County, Arkansas (see **Figure 1**).

The XNA desires to relocate the Airport Traffic Control Tower (ATCT) approximately 130 feet to the east and has retained Garver to prepare a National Environmental Policy Act (NEPA) Environmental Assessment (EA) for the referenced project. The purpose of the project is to provide an ATCT that meets Federal Aviation Administration (FAA) Line of Sight and Angle of Incidence requirements as specified in FAA Order 6480.4B. The proposed action's EA will evaluate potential environmental impacts and analyze alternatives to the proposed action. The project is currently in the planning stages and a habitat assessment has been completed as summarized in this report.

A site investigation of the Study Area (SA) being evaluated in the EA was conducted on September 23, 2022. All areas where construction and/or physical disturbance may occur are included in the SA as shown in **Figure 1** and **Figure 2**. There is no visible suitable habitat within the SA for any of the listed species. The official species list indicates that no critical habitat is located within the SA. Completion of the IPaC Arkansas Determination Key (DKey) resulted in issuance of a Consistency Letter with a "may affect" determination for the Benton County Cave Crayfish. Due to lack of flowing, losing streams, or sinkholes within the SA, we respectfully disagree with the USFWS determination of "May affect" and are of the opinion that the project will have a "may affect, not likely to adversely affect" determination for the Benton County Cave Crayfish. See **Table 1** for the species, habitat requirements, and preliminary effect determinations identified for this project.

Table 1: Threatened & Endangered Listed Species and Habitat Requirements

Species/Status	Habitat Requirements	Suitable Habitat within SA	Preliminary Effect Determination
Gray Bat (*Myotis grisescens*) Endangered	The gray bat occurs in limestone karst areas and primarily uses caves throughout the year, although they move from one cave to another seasonally. Smaller colonies also occasionally roost under bridge structures.	No caves, bridges, or suitable roosting structures are located within or adjacent to SA.	No effect
Indiana Bat (*Myotis sodalis*) Endangered	The Indiana bat hibernates in cool caves and mines in the winter and wooded areas in the spring and summer. During summer, colonies are found behind slabs of exfoliating bark of dead trees, often in bottomland or floodplain habitats, but also in upland situations.	No caves, mines, or trees are located within or adjacent to SA.	No effect
Northern Long-eared Bat (*Myotis septentrionalis*) Threatened	In winter, northern long-eared bats use caves, mine portals, abandoned tunnels, protected sites along cliff lines and similar situations that afford protection from cold. During the summer they roost singly or in colonies underneath bark, in cavities, or in crevices of both live and dead trees.	No caves, mines, tunnels, cliffs, or trees are within or adjacent to SA.	No effect
Ozark Big-eared Bat (*Corynorhinus townsendii ingens*) Endangered	The Ozark big-eared bat inhabits caves year-round, typically located in oak-hickory hardwood forests.	No known caves or forested areas are located within or directly adjacent to SA.	No effect
Piping Plover (*Charadrius melodus*) Threatened	Piping plovers are usually found along sandbars of major rivers, salt flats, and mudflats of reservoirs.	No sandbars, salt flats, or mudflats are located within or adjacent to the SA.	No effect
Red Knot (*Calidris cantus rufa)* Threatened	Red knots are usually found along mudflats associated with reservoirs.	No mudflats are located within or adjacent to the SA.	No effect
Eastern Black Rail (*Laterallus jamaicensis*) Threatened	Eastern black rails typically inhabit emergent shallow wetlands. They require dense vegetative cover that allows movement underneath the canopy such as rushes, sedges, and grasses.	No emergent shallow wetlands with dense vegetation are located within or adjacent to the SA. The area is routinely mowed, which includes a small isolated emergent wetland.	No effect

Species/Status	Habitat Requirements	Suitable Habitat within SA	Preliminary Effect Determination
Ozark Cavefish (*Amblyopsis rosae*) Threatened	The Ozark cavefish occurs in dark cave waters, primarily clear upwelling streams with chert or rubble substrate, and occasionally in pools over silt and sand. They have also been found in wells, springs, and sinkholes.	Karst region has documented caves in Benton County. However, no caves, springs, wells, or flowing and/or losing streams have been observed in the SA. Geotech borings completed near the project did not indicate any subterranean voids.	Not likely to adversely affect
Neosho Mucket (*Lampsilis rafinesqueana)* Endangered	The Neosho mucket is associated with streams having shallow riffles and runs composed of gravel substrate and moderate to swift currents.	No streams occur within or directly adjacent to the SA.	No effect
Monarch Butterfly (*Danaus plexippus*) Candidate	Monarch butterflies require the presence of milkweed (*Asclepias spp*.), flowering or potentially flowering nectar plants (defined as forbs that can provide nectar for monarchs at some point in the growing season), and additional native habitat such as meadows, prairies, and grasslands.	No native grassland or presence of flowering plants was observed within or adjacent to the SA.	No Impact (Candidate)
Benton County Cave Crayfish (*Cambarus aculabrum*) Endangered	The Benton County cave crayfish occurs in clean cave springs, near walls of pools, or in stream edges in chert/limestone cave streams.	Karst region has documented caves in Benton County. However, no caves, springs, or flowing and/or losing streams have been observed in the SA. Geotech borings completed near the project did not indicate any subterranean voids.	Not likely to adversely affect
Missouri Bladderpod (*Physaria filiformis*) Threatened	Missouri bladderpods are usually found in open limestone glades, barrens, and outcrops within unglaciated prairie areas. Glades are naturally dry, treeless areas with shallow, loose soil and areas of exposed rock. They are occasionally in dolomitic glades and are often associated with grazed pastures. Cedar invasion of glade sites is common. Sometimes the bladderpod is found on highway right-of-way and pastures where mowing and grazing have kept the area open. Occasionally it is found in open rocky woods.	No dry limestone or dolomitic glades or barrens occur within the SA.	No effect

The photographs below show the typical habitat observed within the SA.

Typical SA Habitat – Looking West	1

Description	View of typical vegetation and topography in the SA. An emergent, isolated wetland is located in this area, but will not be impacted.

Typical SA Habitat – Looking Northwest	2

Description	Same area as shown in Photo 1, but 1 month later after mowing.

Eastern Side of SA	3
	
Description	View is to the south of the eastern side of the study area.
Existing ATCT	**4**
	
Description	Existing buildings to be removed and relocated (ATCT and two outbuildings). No migratory birds were observed.

This information is provided to aid in effects determinations for the species listed on the official species list. We respectfully request coordination of the May Affect determination provided for the Benton County Cave Crayfish as provided in the Consistency Letter and request Section 7 clearance from USFWS regarding threatened and endangered species. Thank you for your assistance and please call me (479-287-4628) or email (rcmountain@GarverUSA.com) if you have any questions or need any additional information.

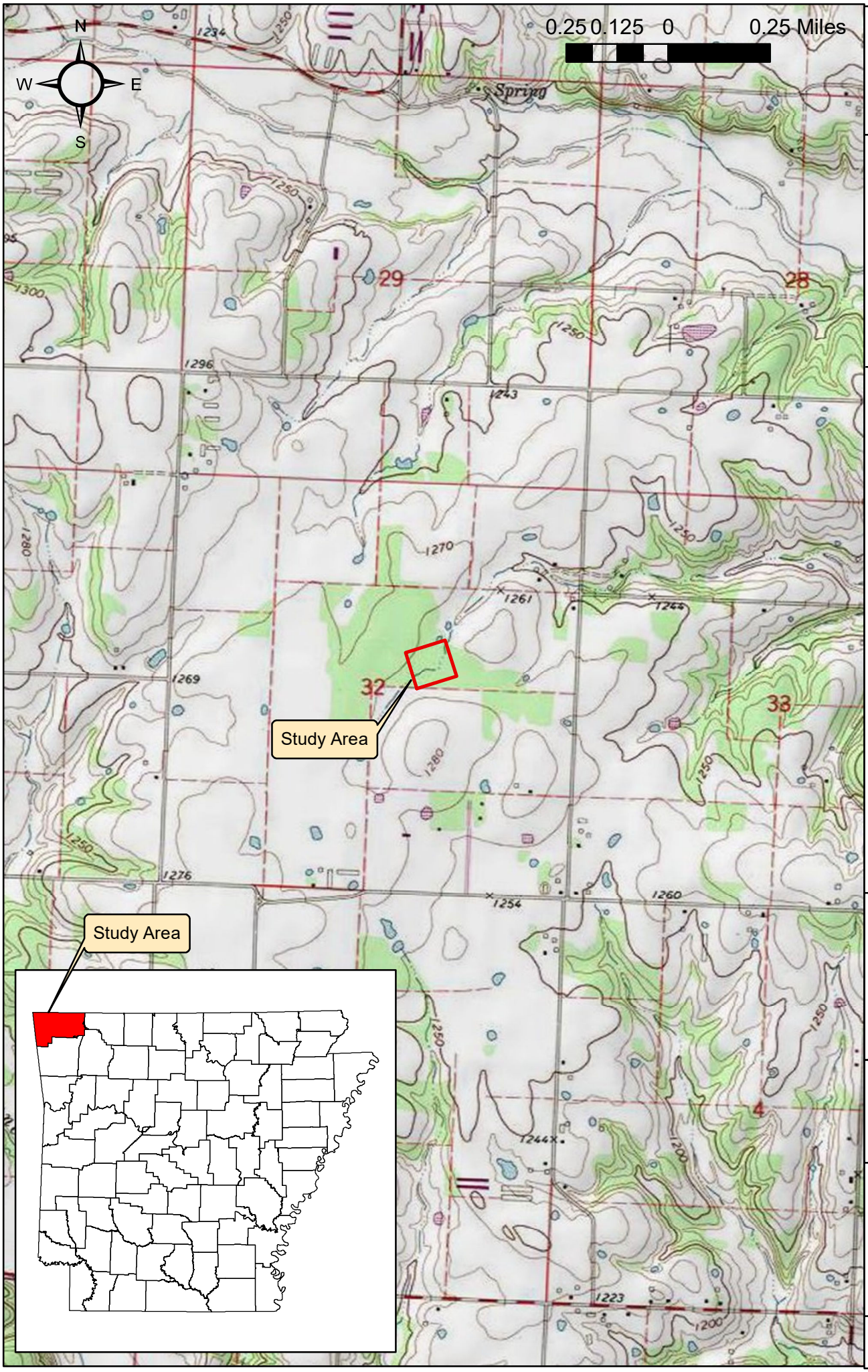
Sincerely,

GARVER, LLC

Ryan Mountain, PWS
Senior Environmental Scientist

Copies To: Adam White – Garver
Chris Maestri – Garver
Nicholas Fondano – XNA

Enclosures: Figure 1 - Site Location Map
Figure 2 - Habitat Overview Map
Site Plan
USFWS Official Species List
USFWS Consistency Letter



ESRI USA Topo Map

GARVER
4300 J.B. Hunt Drive
Suite 240
Rogers, AR 72758
(479) 257-9188

NORTHWEST ARKANSAS NATIONAL AIRPORT
BENTONVILLE, AR
ATCT RELOCATION EA

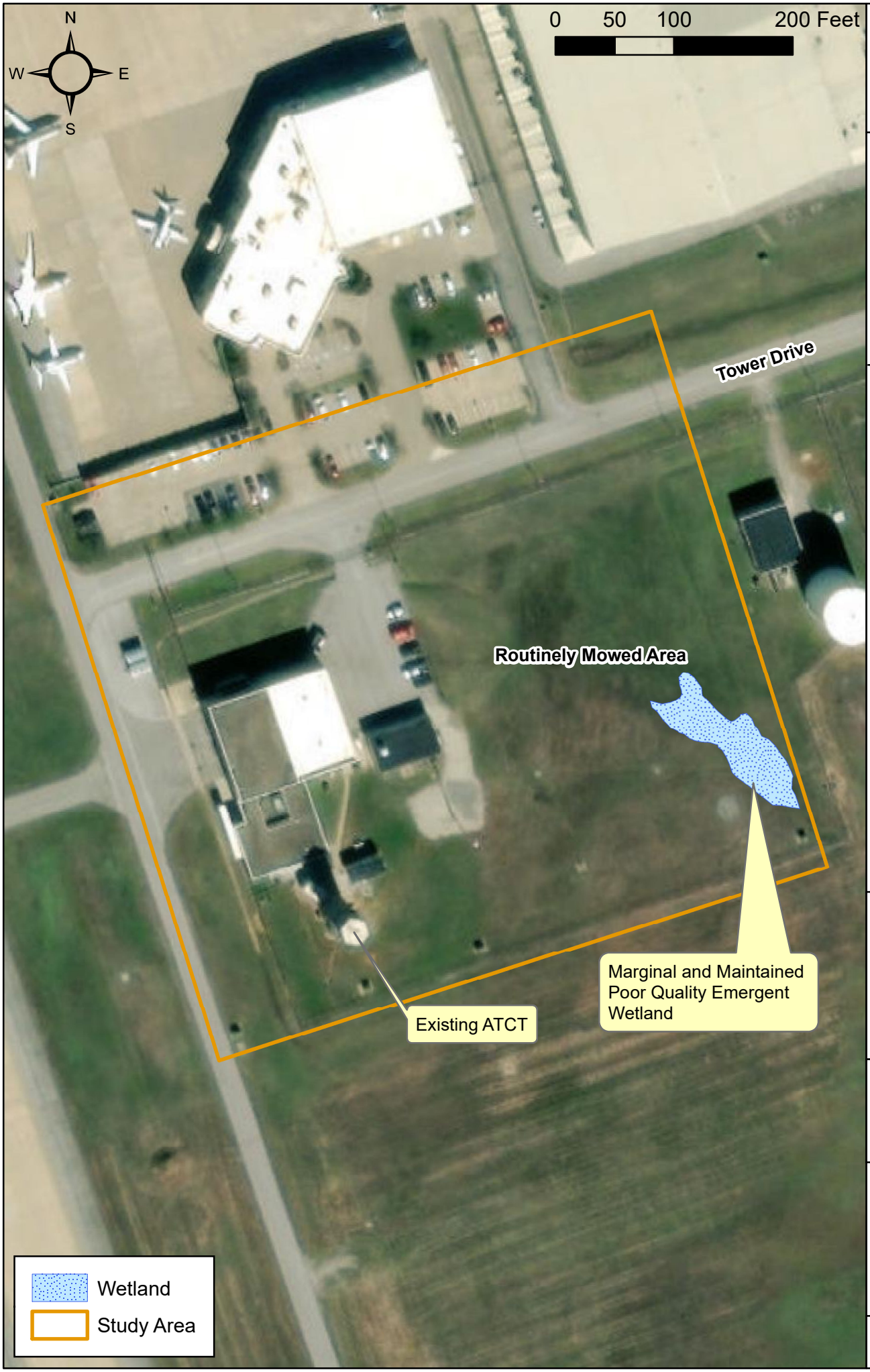
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

JOB NO.: 20A13167
DATE: SEPT. 2022
DESIGNED BY: RCM
DRAWN BY: RCM

SITE LOCATION MAP

FIGURE: 1

Document Path: G:\Projects\2020\20A13167 - XNA ATCT Construction\GIS\Maps\T&E XNA ATCT Figure 1 Site Location Map.mxd
Date Saved: 9/28/2022 4:55:02 PM
User Name: JCRujawitz



GARVER

4300 J.B. Hunt Drive
Suite 240
Rogers, AR 72758
(479) 257-9188

NORTHWEST ARKANSAS NATIONAL AIRPORT
BENTONVILLE, AR
ATCT RELOCATION EA

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

JOB NO.: 20A13167
DATE: SEPT. 2022
DESIGNED BY: RCM
DRAWN BY: RCM

HABITAT OVERVIEW MAP

FIGURE: 2

Date Saved: 10/26/2022 3:56:53 PM User Name: RCMountain

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ESRI USA Aerial Imagery Map

Direct Study Area

RJC PARKING LOT

EXISTING FIRE HYDRANT
STATIC PRESSURE: 92
RESIDUAL PRESSURE: 70

EXISTING ROADWAY LIGHT
TO BE RELOCATED

EXISTING FIRE HYDRANT
STATIC PRESSURE: 98
RESIDUAL PRESSURE: 70

PROPOSED SANITARY
SEWER MANHOLE
(ALTERNATIVE)

TOWER DRIVE

PROPOSED SANITARY
SEWER MANHOLE

PROPOSED GATE

EXISTING GAS LINE

24'

FUTURE AUTOMOBILE
PARKING

PROPOSED 8" SANITARY
SEWER MAIN LINE
(ALTERNATIVE)

PROPOSED DRIVEWAY

EXISTING FIRE HYDRANT
STATIC PRESSURE: 112
RESIDUAL PRESSURE: 76

PERIMETER ROAD

ARFF FACILITY

ELECTRICAL
VAULT

PROPOSED SANITARY
SEWER MANHOLE
(ALTERNATIVE)

EXISTING VAULT
EXPANSION AREA
(1,400 SF)

FUTURE AIR
FREIGHT FACILITY
(16,500 SF)

PROPOSED 4" SANITARY
SEWER SERVICE LINE
(ALTERNATIVE)

EXISTING ATCT TOWER AND
ASSOCIATED SUPPORT
BUILDINGS TO BE REMOVED.

EXISTING BEACON
TO BE REMOVED

EXISTING ARFF
EXPANSION AREA
(10,000 SF)

PROPOSED ATC TOWER

PROPOSED 6" FIRE WATER
PROPOSED 2" POTABLE WATER

EXISTING FIRE HYDRANT
STATIC PRESSURE: 138
RESIDUAL PRESSURE: 70

PROPOSED ATC PARKING

EXISTING ATCT TRANSFORMER

EVALUATE NEED FOR
NEW TRANSFORMER

PROPOSED 4" SANITARY
SEWER SERVICE LINE

EXISTING AIRFIELD
PERIMETER FENCE

FUTURE AIRCRAFT
APRON

FUTURE
PERIMETER ROAD

0 15' 30' 60' 90'
(IN FEET)

N

LEGEND

W	EXISTING WATER LINE
UGE	EXISTING ELECTRICAL LINE
COMM	EXISTING COMMUNICATION LINE
SS	EXISTING SANITARY SEWER LINE
G	EXISTING GAS LINE
X	EXISTING FENCE LINE
W	PROPOSED WATER LINE
UGE	PROPOSED ELECTRICAL LINE
COMM	PROPOSED COMMUNICATION LINE
SS	PROPOSED SANITARY SEWER LINE
- - - -	FUTURE EXPANSION AREA
X	PROPOSED FENCE LINE

REV.	DATE	DESCRIPTION	BY

NORTHWEST ARKANSAS
NATIONAL AIRPORT
BENTONVILLE, ARKANSAS

CONSTRUCT
REPLACEMENT AIRPORT
TRAFFIC CONTROL TOWER

SITE PLAN EXHIBIT

JOB NO.: 20A13167
DATE: JAN. 2022
DESIGNED BY: ATW
DRAWN BY: JSH

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER
EXH

SHEET NUMBER **1**

File: L:\2020\20A13167 - XNA ATCT Construction\Drawings\MISC\XNA_ATCT Site Plan.dwg Last Save: 3/7/2022 1:31 PM Last saved by: JSHayes
Last plotted by: Hayes, Jeremy S Plot Style: AECmono.ctb Plot Scale: 1:1 Plot Date: 3/7/2022 1:40 PM Plotter used: DWG To PDF.pc3

ited States Departme t of the I terior

FISH AND WILDLIFE SERVI E
Arka sas Ecological Services Field Office
11 South Amity Suite 3
o way AR 2 32-89 5
Pho e: (5 1) 513-44 Fax: (5 1) 513-448

I Reply Refer To: September 2 2 22
Project ode: 2 22- 89553
Project Name: XNA Air Traffic o trol Tower o structio

Subject: List of threate ed a d e da gered species that may occur i your proposed project locatio or may be affected by your proposed project

To Whom It May o cer :

The e closed species list ide tifies threate ed e da gered proposed a d ca didate species as well as proposed a d fi al desig ated critical habitat that may occur withi the bou dary of your proposed project a d/or may be affected by your proposed project. The species list fulfills the requireme ts of the .S. Fish a d Wildlife Service (Service) u der sectio (c) of the E da gered Species Act (Act) of 19 3 as ame ded (16 .S. . 1531 *et seq.*).

New i formatio based o updated surveys cha ges i the abu da ce a d distributio of species cha ged habitat co ditio s or other factors could cha ge this list. Please feel free to co tact us if you eed more curre t i formatio or assista ce regardi g the pote tial impacts to federally proposed listed a d ca didate species a d federally desig ated a d proposed critical habitat. Please ote that u der 5 FR 4 2.12(e) of the regulatio s impleme ti g sectio of the Act the accuracy of this species list should be verified after 9 days. This verificatio ca be completed formally or i formally as desired. The Service recomme ds that verificatio be completed by visiti g the E OS-IPa website at regular i tervals duri g project pla i g a d impleme tatio for updates to species lists a d i formatio . A updated list may be requested through the E OS-IPa system by completi g the same process used to receive the e closed list.

The purpose of the Act is to provide a mea s whereby threate ed a d e da gered species a d the ecosystems upo which they depe d may be co served. der sectio s (a)(1) a d (a)(2) of the Act a d its impleme ti g regulatio s (5 FR 4 2 *et seq.*) Federal age cies are required to utilize their authorities to carry out programs for the co servatio of threate ed a d e da gered species a d to determi e whether projects may affect threate ed a d e da gered species a d/or desig ated critical habitat.

A Biological Assessme t is required for co structio projects (or other u dertaki gs havi g similar physical impacts) that are major Federal actio s sig ifica tly affecti g the quality of the huma e viro me t as defi ed i the Natio al E viro me tal Policy Act (42 .S. . 4332(2)(c)). For projects other tha major co structio activities the Service suggests that a biological

eva a n s m ar a B g ca Assessmen be prepared de erm ne whe her he pr jec may affec s ed r pr p sed spec es and/ r des gna ed r pr p sed cr ca hab a Rec mmended c n en s f a B g ca Assessmen are descr bed a 50 CFR 402 12

If a Federa agency de erm nes, based n he B g ca Assessmen r b g ca eva a n, ha s ed spec es and/ r des gna ed cr ca hab a may be affec ed by he pr p sed pr jec , he agency s req red c ns w h he Serv ce p rs an 50 CFR 402 In add n, he Serv ce rec mmends ha cand da e spec es, pr p sed spec es and pr p sed cr ca hab a be addressed w h n he c ns a n M re nf rma n n he reg a ns and pr ced res f r sec n 7 c ns a n, nc d ng he r e f perm r cense app can s, can be f nd n he "Endangered Spec es C ns a n Handb k" a :

h p://www fws g v/endangered/esa- brary/pdf/TOC-GLOS PDF

Migratory Birds: In add n resp ns b es pr ec hrea ened and endangered spec es nder he Endangered Spec es Ac (ESA), here are add na resp ns b es nder he M gra ry B rd Trea y Ac (MBTA) and he Ba d and G den Eag e Pr ec n Ac (BGEPA) pr ec na ve b rds fr m pr jec -re a ed mpac s Any ac v y, n en na r n n en na , res ng n ake f m gra ry b rds, nc d ng eag es, s pr h b ed n ess herw se perm ed by he U S F sh and W d fe Serv ce (50 C F R Sec 10 12 and 16 U S C Sec 668(a)) F r m re nf rma n regard ng hese Ac s see h ps://www fws g v/b rds/p c es-and-reg a ns php

The MBTA has n pr v s n f r a w ng ake f m gra ry b rds ha may be n n en na y k ed r nj red by herw se awf ac v es I s he resp ns b y f he pr jec pr p nen c mp y w h hese Ac s by den fy ng p en a mpac s m gra ry b rds and eag es w h n app cab e NEPA d c men s (when here s a federa nex s) r a B rd/Eag e C nserva n P an (when here s n federa nex s) Pr p nen s sh d mp emen c nserva n meas res av d r m n m ze he pr d c n f pr jec -re a ed s ress rs r m n m ze he exp s re f b rds and he r res rces he pr jec -re a ed s ress rs F r m re nf rma n n av an s ress rs and rec mmended c nserva n meas res see h ps://www fws g v/b rds/b rd-en h s as s/ hrea s- - b rds php

In add n MBTA and BGEPA, Exec ve Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, b ga es a Federa agenc es ha engage n r a h r ze ac v es ha m gh affec m gra ry b rds, m n m ze h se effec s and enc rage c nserva n meas res ha w mpr ve b rd p p a ns Exec ve Order 13186 pr v des f r he pr ec n f b h m gra ry b rds and m gra ry b rd hab a F r nf rma n regard ng he mp emen a n f Exec ve Order 13186, p ease v s h ps://www fws g v/b rds/p c es-and-reg a ns/ exec ve- rders/e0-13186 php

We apprec a e y r c ncern f r hrea ened and endangered spec es The Serv ce enc rages Federa agenc es nc de c nserva n f hrea ened and endangered spec es n he r pr jec p ann ng f r her he p rp ses f he Ac P ease nc de he C ns a n C de n he header f h s e er w h any req es f r c ns a n r c rresp ndence ab y r pr jec ha y s bm r ff ce

A en (s):

- Offi i l Spe ies Lis

Off Spe es L st

This list is provid d pursuant to S ction 7 of th Endang r d Sp ci s Act, and fulfills th r quir m nt for F d ral ag nci s to "r qu st of th S cr tary of th Int rior information wh th r any sp ci s which is list d or propos d to b list d may b pr s nt in th ar a of a propos d action".

This sp ci s list is provid d by:

Arkansas Ecological Services Field Office
110 South Amity Suit 300
Conway, AR 72032-8975
(501) 513-4470

Pro Summary

Project Code: 2022 0089553
Project Name: XNA Air Traffic Control Tower Construction
Project Type: Airport New Construction
Project Description: The Northwest Arkansas Regional Airport (XNA) is proposing to construct a new air traffic control tower.
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@36.27988795, 94.30203320000001,14z

Counties: Benton County, Arkansas

ere Species Act Species

There is a o al of 12 hrea ened, endangered, or candida e species on his species lis .

Species on his lis should be considered in an effec s analysis for your projec and could include species ha exis in ano her geographic area. For example, cer ain fish may appear on he species lis because a projec could affec downs ream species.

IPaC does no display lis ed species or cri ical habi a s under he sole jurisdic ion of NOAA Fisheries[1], as USFWS does no have he au hori y o speak on behalf of NOAA and he Depar men of Commerce.

See he "Cri ical habi a s" sec ion below for hose cri ical habi a s ha lie wholly or par ially wi hin your projec area under his office's jurisdic ion. Please con ac he designa ed FWS office if you have ques ions.

---

1. NOAA Fisheries, also known as he Na ional Marine Fisheries Service (NMFS), is an office of he Na ional Oceanic and A mospheric Adminis ra ion wi hin he Depar men of Commerce.

M mm ls

NAME	STATUS
Gray Ba *Myotis grisescens* No cri ical habi a has been designa ed for his species. Species profile: h ps://ecos.fws.gov/ecp/species/6329	Endangered
Indiana Ba *Myotis sodalis* There is **final** cri ical habi a for his species. Your loca ion does no overlap he cri ical habi a . Species profile: h ps://ecos.fws.gov/ecp/species/5949	Endangered
Nor hern Long-eared Ba *Myotis septentrionalis* No cri ical habi a has been designa ed for his species. Species profile: h ps://ecos.fws.gov/ecp/species/9045	Threa ened
Ozark Big-eared Ba *Corynorhinus (=Plecotus) townsendii ingens* No cri ical habi a has been designa ed for his species. Species profile: h ps://ecos.fws.gov/ecp/species/7245	Endangered

Bi

ME	ST TUS
Eastern Black Rail *aterallus jamaicensis ssp. jamaicensis*	Threatened
o critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/10477	
Piping Plover *Charadrius melodus*	Threatened
Population: [tlantic Coast and orthern Great Plains populations] - Wherever found, except those areas where listed as endangered.	
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.	
Species profile: https://ecos.fws.gov/ecp/species/6039	
Red Knot *Calidris canutus rufa*	Threatened
There is **proposed** critical habitat for this species.	
Species profile: https://ecos.fws.gov/ecp/species/1864	

Fi he

ME	ST TUS
Ozark Cavefish *Amblyopsis rosae*	Threatened
o critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/6490	

Clam

ME	ST TUS
eosho Mucket *ampsilis rafinesqueana*	Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.	
Species profile: https://ecos.fws.gov/ecp/species/3788	

In ect

ME	ST TUS
Monarch Butterfly *Danaus plexippus*	Candidate
o critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/9743	

C u tacean

ME	ST TUS
Benton County Cave Crayfish *Cambarus aculabrum*	Endangered
o critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/5011	

Fl ng Plants

NAME	STATUS
Missou i Bladde pod *Physaria filiformis*	Th eatened

No c itical habitat has been designated fo this species.

Species p ofile: https://ecos.fws.gov/ecp/species/5361

C t cal hab tats

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

IP er ont ct Inform tion

Agency: Ga ve
Name: Ga ve LLC
Add ess: 4300 South J.B Hunt D ive, Suite 240
Add ess Line 2: Suite 240
City: Roge s
State: AR
Zip: 72758
Email a biologist@ga ve usa.com
Phone: 4792874628

Le d Agency ont ct Inform tion

Lead Agency: Fede al Aviation Administ ation

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arkansas Ecological Services Field Office
110 South Amity Suite 300
Conway, AR 72032-8975
Phone: (501) 513-4470 Fax: (501) 513-4480

In Reply Refer To: October 26, 2022
Project code: 2022-0089553
Project Name: XNA Air Traffic Control Tower Construction

Subject: Consistency letter for 'XNA Air Traffic Control Tower Construction' for specified federally threatened and endangered species and designated critical habitat that may occur in your proposed project area consistent with the Arkansas Determination Key for project review and guidance for federally listed species (Arkansas Dkey).

Dear Garver LLC:

The U.S. Fish and Wildlife Service (Service) received on **October 26, 2022** your effect determination(s) for the 'XNA Air Traffic Control Tower Construction' (the Action) using the Arkansas DKey within the Information for Planning and Consultation (IPaC) system. The Service developed this system in accordance with the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based on your answers and the assistance in the Service's Arkansas DKey, you made the following effect determination(s) for the proposed Action:

Species	**Listing Status**	**Determination**
Benton County Cave Crayfish (*Cambarus aculabrum*)	Endangered	May affect
Eastern Black Rail (*Laterallus jamaicensis ssp. jamaicensis*)	Threatened	NLAA
Gray Bat (*Myotis grisescens*)	Endangered	No effect
Indiana Bat (*Myotis sodalis*)	Endangered	No effect
Missouri Bladderpod (*Physaria filiformis*)	Threatened	No effect
Neosho Mucket (*Lampsilis rafinesqueana*)	Endangered	NLAA
Northern Long-eared Bat (*Myotis septentrionalis*)	Threatened	No effect
Ozark Big-eared Bat (*Corynorhinus (=Plecotus) townsendii ingens*)	Endangered	No effect
Ozark Cavefish (*Amblyopsis rosae*)	Threatened	NLAA
Piping Plover (*Charadrius melodus*)	Threatened	NLAA
Red Knot (*Calidris canutus rufa*)	Threatened	NLAA

Status

Consultation with the Service is not complete. Further consultation or coordination with the Arkansas Ecological Services Office is necessary for those species with a determination of "may affect" (MA) listed above. Please contact our office at 501-513-4470, arkansas_es_clearance@fws.gov, or your agency point of contact in the Arkansas Ecological Services Office to discuss methods to avoid or minimize potential adverse effects to those species.

The Service concurs with the NLAA determination(s) for the species listed above. Your agency has met consultation requirements by informing the Service of the "No Effect" determinations. No further consultation for this project is required for these species. This letter confirms you may rely on effect determinations provided in the Arkansas Determination Key for project review and guidance for federally listed species to satisfy agency consultation requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat. 884, as amended 16 U.S.C. 1531 et seq.; ESA).

The Service recommends that your agency contact the Arkansas Ecological Services Field Office or re-evaluate this key in IPaC if: 1) the scope, timing, duration, or location of the proposed project changes, 2) new information reveals the action may affect listed species or designated critical habitat; 3) a new species is listed or critical habitat designated. If any of the above conditions occurs, additional consultation with the Arkansas Ecological Services Field Office should take place before project changes are final or resources committed.

Bald and Golden Eagle Protection Act: The following resources are provided to project proponents and consulting agencies as additional information. Bald and golden eagles are not included in this section 7(a)(2) consultation and this information does not constitute a determination of effects by the Service.

The Service developed the National Bald Eagle Management Guidelines to advise landowners, land managers, and others who share public and private lands with Bald Eagles when and under what circumstances the protective provisions of the Bald and Golden Eagle Protection Act may apply to their activities. The guidelines should be consulted prior to conducting new or intermittent activity near an eagle nest. Activity specific guidelines begin on page 10 of the document. To access a copy of the National Bald Eagle Management Guidelines please visit the Service's Bald and Golden Eagle Management webpage and scroll down to the Guidance and Tools section: https://www.fws.gov/library/collections/bald-and-golden-eagle-management

If the recommendations detailed in the National Bald Eagle Management Guidelines cannot be followed, you may apply for a permit to authorize removal or relocation of an eagle nest in certain instances. To obtain an application form or contact information for Regional Migratory Bird Permit Offices please visit the Service's Bald and Golden Eagle Management webpage and scroll down to the Permits section: https://www.fws.gov/library/collections/bald-and-golden-eagle-management

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

XNA Air Traffic Control Tower Construction

2. Description

The following description was provided for the project 'XNA Air Traffic Control Tower Construction':

> The Northwest Arkansas National Airport (XNA) desires to relocate the Airport Traffic Control Tower (ATCT)
> approximately 130 feet to the east and has retained Garver to prepare a National Environmental Policy Act
> (NEPA) Environmental Assessment (EA) for the referenced project. The purpose of the project is to provide an
> ATCT that meets Federal Aviation Administration (FAA) Line of Sight and Angle of Incidence requirements as
> specified in FAA Order 6480.4B.

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@36.27988795,-94.30203320000001,14z

Species Protection Measures

Ozark cavefish
https://www.fws.gov/southeast/pdf/species-protective-measures/benton-county-cave-crayfish-hell-creek-cave-crayfish-ozark-crayfish.pdf

Development
https://www.fws.gov/southeast/pdf/species-protective-measures/development-projects.pdf

Qualification Interview

1. Have you made an effects determination of "no effect" for all species in the area of the project? A "no effect" determination means the project will have no beneficial effect, no short-term adverse effects, and no long-term adverse effects on any of the species on the IPaC-generated species list for the proposed project or those species habitat. A project with effects that cannot be meaningfully measured, detected or evaluated, effects that are extremely unlikely to occur, or entirely beneficial effects should not have a "no effect" determination. (If unsure, select "No").

   No

2. Is the action authorized, funded, or being carried out by a Federal agency?

   Yes

3. Are you the the action agency or the designated non-federal representative?

   Yes

4. Choose the agency you represent in this consultation with the U.S. Fish and Wildlife Service:

   g. All other federal agencies or agency designees

5. [Semantic] Does the project intersect designated critical habitat for the Leopard Darter?

   Automatically answered
   No

6. [Semantic] Does the project intersect designated critical habitat for the Neosho Mucket?

   Automatically answered
   No

7. [Semantic] Does the project intersect designated critical habitat for Yellowcheek Darter?

   Automatically answered
   No

8. [Semantic] Does the project intersect designated critical habitat for Rabbitsfoot?

   Automatically answered
   No

9. [Semantic] Does the project intersect the American burying beetle consultation area?

   Automatically answered
   No

10. [Semantic] Does the project intersect the red-cockaded woodpecker AOI?

    Automatically answered
    No

11. [Semantic] Does the project intersect the Eastern black rail AOI?

    Automatically answered
    Yes

12. Will the project take place in freshwater herbaceous wetlands and/or wet prairies?

    Yes

13. Will any part of the project take place between March 15 and May 15 OR between July 15 and October 1?

    Yes

14. [Semantic] Does the project intersect the red knot AOI?

    Automatically answered
    Yes

15. Will the project affect sand and gravel areas or shorelines along rivers, lakes, or reservoirs?

    No

16. Does the project take place in marshy or flooded open field habitat?

    Yes

17. [Semantic (same answer as "8.3"] Will any part of the project take place between March 15 and May 15 OR between July 15 and October 1?

    Automatically answered
    Yes

18. [Semantic] Does the project intersect the Piping Plover AOI?

    Automatically answered
    Yes

19. [Semantic (same answer as "8.3" or "9.9")] Will any part of the project take place between March 15 and May 15 OR between July 15 and October 1?

    Automatically answered
    Yes

20. [Semantic] Does the project intersect the Whooping Crane AOI?

    Automatically answered
    No

21. [Semantic] Does the project intersect the interior least tern AOI?

    Automatically answered
    No

22. [Semantic] Does the project intersect the Gray Bat AOI?

    Automatically answered
    Yes

23. Are there any caves within 0.5 mile of the project area?

    No

24. Does the project occur in a subdivision or urban area (housing on 0.5 acres or less and/or structures present)?

    Yes

25. [Semantic] Does the project intersect the Ozark Big-eared Bat AOI?

    Automatically answered
    Yes

26. [Sematic (same answer as question "13.2")] Is there a cave known on the site or within 0.5 mile of the project area?

    Automatically answered
    No

27. [Sematic (same answer as question "13.2.1")] Does the project occur in a subdivision or urban area?

    Automatically answered
    Yes

28. [Semantic] Does the project intersect the Indiana bat AOI?

    Automatically answered
    Yes

29. [Sematic (same answer as question "13.2" or "14.4")] Are there any caves within 0.5 mile of the project area?

    Automatically answered
    No

30. [Sematic (same answer as question "13.2.1" or ""14.7")] Does the project occur in a subdivision or urban area?

    Automatically answered
    Yes

31. [Semantic] Does the project intersect the Northern Long-eared bat AOI?

    Automatically answered
    Yes

32. Have you determined that the proposed action will have “no effect” on the northern long-eared bat? (If you are unsure select "No")

    Yes

33. [Semantic] Does the project intersect the Benton County Cave Crayfish AOI?

    Automatically answered
    Yes

34. Does the project involve the manufacturing, storage, or disposal of chemicals, hazardous materials, waste products, or other pollutants that may adversely affect water quality?

    No

35. Is the project a road, airport, or other large project that may have indirect effects to listed species? Indirect effects are effects caused by the action and reasonably certain to occur, but may occur later in time as a result of the project. Effects may occur at the site of the project, or off-site.

    Yes

36. [Semantic] Does the project intersect the Hell Creek Cave Crayfish AOI?

    Automatically answered
    No

37. [Semantic] Does the project intersect the Ozark cavefish AOI?

    Automatically answered
    Yes

38. [Semantic] Does the project intersect the TriCity shapefile?

    Automatically answered
    No

39. [Semantic (Same answer as "17.1.3" or "18.3")] Does the project involve the manufacturing, storage, or disposal of chemicals, hazardous materials, waste products, or other pollutants that may adversely affect water quality?

    Automatically answered
    No

40. [Semantic] Does the project intersect the Ozark cavefish standard AOI?

    Automatically answered
    No

41. Will project proponents follow Species Protective Measures for avoidance and minimization measures for cave obligate species in Arkansas?

    Yes

42. [Semantic] Does the project intersect the Missouri bladderpod AOI?

    Automatically answered
    Yes

43. Is the proposed project in or near an open glade (an area with thin, poor soil and bedrock close to the surface or in rocky outcrops) or in shale barrens (Ouachita Mountains ecoregion)?

    No

44. [Semantic] Does the project intersect the Geocarpon AOI?

    Automatically answered
    No

45. [Semantic] Does the project intersect the running buffalo clover AOI?

    Automatically answered
    No

46. [Semantic] Does the project intersect the Pondberry AOI?

    Automatically answered
    No

47. Does the project contain any of the following activity types: Dams or Impoundments (including berms or levees), Municipal or industrial effluent discharge, Mining, Mine reclamation, Disposal of mine wastewater or tailings, Construction of natural gas or oil well pads, Construction greater than 40 acres, Dredging or snag removal, Energy development within floodplain, or OHV trail construction or maintenance?

    No

48. Does the project contain any of the following activity types: Boat Ramps, Bridges, Culverts, Residential or Commercial Development, Streambank Stabilization (or other streambank work), Pipeline and linear projects, Water intakes/withdrawls, Forest conversion within 100 feet of occupied streams, or Stream or ditch relocation, straightening, or armoring?

    Yes

49. Does the project include Streambank Stabilization (or other streambank work)?

    No

50. Does the project include Boat Ramps?

    No

51. Does the project include Bridges and Culverts?

    No

52. Does the project include Development?

    Yes

53. Does the project include the Development species protective measures, as applicable to the project and site characteristics?

    Yes

54. Is the project a Pipeline or Linear Project?

    No

55. Does the project include Water Intakes/Withdrawals?

    No

56. Does the project include Stream or Ditch Relocation, Straightening, or Armoring?

    No

57. [Semantic] Does the project intersect the rabbitsfoot AOI?

    Automatically answered
    No

58. [Semantic] Does the project instersect the neosho mucket AOI?

    Automatically answered
    Yes

59. [Semantic] Does the project intersect the Neosho mucket survey coordination area?

    Automatically answered
    No

60. [Semantic] Does the project instersect the Spectaclecase AOI?

    Automatically answered
    No

61. [Semantic] Does the project instersect the snuffbox AOI?

    Automatically answered
    No

62. [Semantic] Does the project instersect the speckled pocketbook AOI?

    Automatically answered
    No

63. [Semantic] Does the project instersect the ouachita rock pocketbook AOI?

    Automatically answered
    No

64. [Semantic] Does the project instersect the fat pocketbook AOI?

    Automatically answered
    No

65. [Semantic] Does the project instersect the Curtis pearlymussel AOI?

    Automatically answered
    No

66. [Semantic] Does the project instersect the scaleshell AOI?

    Automatically answered
    No

67. [Semantic] Does the project instersect the pink mucket AOI?

    Automatically answered
    No

68. [Semantic] Does the project instersect the Arkansas fatmucket AOI?

    Automatically answered
    No

69. [Semantic] Does the project instersect the winged mapleleaf AOI?

    Automatically answered
    No

70. [Semantic] Does the project instersect the leopard darter AOI?

    Automatically answered
    No

71. [Semantic] Does the project instersect the Yellowcheek darter AOI?

    Automatically answered
    No

72. [Semantic] Does the project instersect the Ozark hellbender AOI?

    Automatically answered
    No

73. [Semantic] Does the project instersect the harperella AOI?

    Automatically answered
    No

74. [Semantic] Does the project instersect the pallid sturgeon AOI?

    Automatically answered
    No

75. [Semantic] Does the project intersect the interior least tern range?

    Automatically answered
    No

IPaC User Contact Information

Agency:	Federal Aviation Administration
Name:	Garver LLC
Address:	4300 South J.B Hunt Drive, Suite 240
Address Line 2:	Suite 240
City:	Rogers
State:	AR
Zip:	72758
Email	arbiologist@garverusa.com
Phone:	4792874628

APPENDIX F

USFWS Special Protective Measures

SPECIES PROTECTIVE MEASURES

for Benton County Cave Crayfish, Hell Creek Cave Crayfish, and Ozark Cavefish

Construction in Sensitive Areas

To avoid or minimize potential negative effects to listed species that inhabit karst features, project proponents should implement the following:

1. Survey project area for karst features such as caves, sinkholes, losing streams and springs.
    - Anytime caves or sinkholes are identified, notify the Arkansas Ecological Services Field Office of their presence and the project details. Do not place fill in an opening without consulting with the Arkansas Ecological Services field office.
2. Establish a 300-foot buffer around all caves, sinkholes, losing streams, and springs and adequately mark the area so that construction personnel are aware of the buffer boundaries. Buffer width extends outward from the edge of the feature.
    - No construction, staging, or storage should occur within the buffer area.
    - Do not apply pesticides, herbicides, or fertilizers within the buffer area.
    - If stream crossings are unavoidable, follow the guidelines outlined in the Stream Crossings section of this document.
3. Implement control measures as necessary to successfully prevent sediment or other contaminants from entering karst features.
    - Redundant perimeter controls are normally necessary to ensure sediment does not enter karst features.
4. If water is rerouted into a karst feature, cease all activities and contact the Arkansas Ecological Service Field Office.
5. Consult with the Arkansas Ecological Services Field Office prior to any blasting.
6. If closing water wells contact the Arkansas Ecological Services Field Office prior to closure.

The Arkansas Ecological Services Field Office can be reached at (501) 513-4470.

Erosion and Sediment Control

The majority of Best Management Practices (BMPs) are designed to remove larger sediment and cannot eliminate turbidity in stormwater runoff. The only methods that successfully eliminate fine silt and clay particles are filtering practices such as tall vegetation buffers. Therefore, it is key to prevent erosion by minimizing disturbance, sequencing construction and immediate revegetation of disturbed areas.

Stabilizing soil immediately after completing earth work is critical. Protect all streams, wetlands, and karst features adjacent to disturbed areas with erosion and sediment controls. Constructed wetlands, sediment ponds, reinforced silt fences, interceptor dikes and swales, sediment traps, check dams,

nets, blankets, mulching, seeding, and/or tree planting are recommended types of controls/BMPs. Specifications for these and other appropriate BMPs are provided in the BMPs for Construction in Karst Regions of Arkansas available from the Arkansas Ecological Services Field Office. Routinely monitor BMPs and clean, repair, and replace infrastructure as necessary.

Stream Crossings

Use elevated pipelines or directional drilling methods for proposed pipeline crossings of losing streams, perennial streams, and wetlands.

Directional Drilling

Prior to directional drilling, conduct a geotechnical investigation using the least intrusive means possible (e.g. ground penetrating radar, minimal exploratory bore hole drilling, seismic refraction and reflections, cave radio, resistivity, magnetometry, etc.) This will assist in determining subsurface/geologic conditions and ensure that a directional drill pipeline at the location is feasible and to avoid unnecessary damage to a sensitive area, such as a karst void. Capture and account for all drilling fluids during drilling activities.

Directional drilling greatly reduces stream channel disturbance compared to trenching. To prevent sediment reaching the stream, construct secondary containment structures (i.e. berms and filter fences) along with runoff dispersion and sediment traps around staging areas on either side of the stream. Additionally, do not operate equipment in stream channels.

If elevated pipelines or directional drilling cannot be used, the following stream crossing guidelines apply:

- Construct stream crossings during a period of low stream flow (July to October during most years).
- Maintain natural stream features such as riffles or pools.
- Limit operation of construction equipment in streams to only what is necessary to complete construction.
- Place unused spoils 300 feet away from the stream and ensure spoils will not wash into the stream.
- Limit the removal of riparian vegetation to the minimum necessary to complete the project.
- Plant only native riparian plants.
- On approaches to stream crossings, drainage control structures should be placed at appropriate intervals along slope to disperse water velocity and volume to minimize erosion, including at the base – but do not direct runoff at the base into the stream.

Post Construction Stormwater Management

Stormwater runoff contains sediment, fuel/oil/grease, brake dust, herbicide, pesticide, and other contaminants. Utilize constructed wetlands, rain gardens or sediment ponds in compliance with state and local regulations to reduce contaminant loads contained in stormwater. Accepted alternatives for treatment of stormwater are separation systems or an established community stormwater collection system.

Reclamation of construction sites

Restore and stabilize all work areas immediately following construction activities. Use native vegetation, nets and blankets, and other BMPs to stabilize banks and return the area to pre-project conditions. Use instream deflectors and anchored logs in high velocity streams to protect vulnerable banks and allow for

reestablishment of vegetation. Riprap may also be necessary. When possible, use rock typical of the local geology. Routinely monitor BMPs and implement additional BMPs or other improvements as necessary to minimize impacts.

- Revegetate all disturbed areas immediately following or concurrent with project implementation. Plant native trees, shrubs and grasses to ensure long-term stability in areas where the soil erosion threat is not critical. Plant annual non-native cover crops (e.g., grasses such as rye or wheat) in conjunction with native species to provide short-term erosion control. Plant non-native mixtures or use erosion control materials, such as mats, nets, mulch, wattles, or adhesive mixed with seed in areas judged to be subject to immediate soil loss due to steep slopes or other factors causing critical erosion conditions. However, final revegetation of disturbed areas should use native plant species.
- Remove and dispose of temporary sediment and erosion controls within 30 days after final site stabilization is achieved or after temporary practices are no longer needed.
    - Biodegradable stabilization measures may remain in place if they will assist in long-term soil stabilization.
- Remove and properly dispose of all debris and excess materials that do not help stabilize soil or are not natural upon completion of the project.

Staging, Vehicle Maintenance, Petroleum, and Chemicals

- Establish all staging/storage areas at least 300 feet away from streams, wetlands, and karst features
    - Install and maintain erosion and sediment controls to prevent discharge from staging/storage sites.
- Do not dump excess concrete or wash water on the ground. Dispose of excess concrete and wash water according to local regulations in an area well away from karst features, streams and wetlands.
- Properly maintain construction equipment and vehicles to prevent leakage of petroleum products.
- Use drip pans and tarps or other containment systems when changing oil or other vehicle/equipment fluids.
- Dispose of contaminated soils or materials off-site in proper receptacles at an approved disposal facility.
- Attend vehicle and equipment fueling at all times. Store spill cleanup materials on site and train employees in spill control procedures.
- Wash vehicles offsite at a washing area with appropriate facilities to manage contaminated wash water. Wash water should never be discharged directly into water bodies or karst features.

APPENDIX G

Preliminary Wetland Delineation

4300 South J.B. Hunt Drive
Suite 240
Rogers, AR 72758

TEL 479.257.9188

www.GarverUSA.com

November 2, 2022

Sarah Chitwood
Chief Regulatory Division
U.S. Army Corps of Engineers
ATTN: CESWL-RD, Rm 6323
700 W. Capitol Avenue
Federal Building 7th Floor
Little Rock, AR 72203
#501-324-5295; CESWL-Regulatory@usace.army.mil

Re: Northwest Arkansas National Airport (XNA) Air Traffic Control Tower Construction
Bentonville, Benton County, Arkansas
Wetland Delineation Report

Ms. Chitwood:

The Northwest Arkansas National Airport (XNA) desires to relocate the Airport Traffic Control Tower (ATCT) approximately 130 feet to the east. The purpose of the project is to provide an ATCT that meets Federal Aviation Administration (FAA) Line of Sight and Angle of Incidence requirements as specified in FAA Order 6480.4B. The project will include: removal of the existing ATCT and associated support buildings; construction of a new 155-foot tall ATCT; relocation of associated utilities (water, sanitary sewer, electric, gas, and telecommunications); removal of approximately 80 feet of airport security fence; installation of approximately 515 feet of airport security fence; installation of a new airport security gate; installation of a new access drive from Tower Drive and associated parking area; and relocation of the existing beacon to the top of the new ATCT. Garver, LLC has been retained to complete a NEPA Environmental Assessment, wetland delineation, and other environmental research. This report summarizes our findings and requests an Approved Jurisdictional Determination (AJD).

Site visits were conducted September 23 and October 20, 2022. According to the Northwest Arkansas National Airport weather station, the area received only trace amounts of rainfall between September 9 and September 23 and 0.6 inches of rainfall within a week prior to the October site visit. The United States Army Corps of Engineers (USACE) Antecedent Precipitation Tool (APT) was used to determine precipitation was considered normal for the time of year. According to the Natural Resources Conservation Service Web Soil Survey, hydric soils are present in the project area.

One marginal emergent wetland and no other waters were delineated within the study area. Three data points were collected at an area that appeared to be saturated on aerial imagery. Remnants of a redirected ephemeral ditch were also observed within the study area on the north side of Tower Drive.

Wetland 1
Wetland 1 is classified as a PEM1E (Palustrine, Emergent, Persistent, Seasonally Flooded/Saturated Wetland) and appears isolated with no surface hydrology connection to downstream waters of the US. Observed hydrolgy included saturation visible on aerial imagery, algal mat, and geomorphic position. Vegetation observed included barnyard grass, switchgrass, yellow foxtail, sedges, spike rush, and dallisgrass. Approximately 0.11 acre of Wetland 1 occurs within the study area; however, the entire wetland is located outside the limits of disturbance and will not be impacted by the project. This feature is not likely subject to regulation by the USACE due to a lack of surface hydrology connection to downstream jurisdictional features. It should be noted that the entire study area was previously distrubed and hydrology manipulated during construction of the airport and subsequent airport developments. Hydrology features shown on the US Geological Survey maps are not entirely present or accurate.

Enclosed with this wetland report are several attachments to aid in your review, including site maps, a plan sheet, site photographs, data forms, weather data, and APT data. We respectfully request USACE review this information and provide an Approved Jurisdictional Determination.

Please call me at 479-287-4628 or email me at rcmountain@GarverUSA.com if you have any questions.

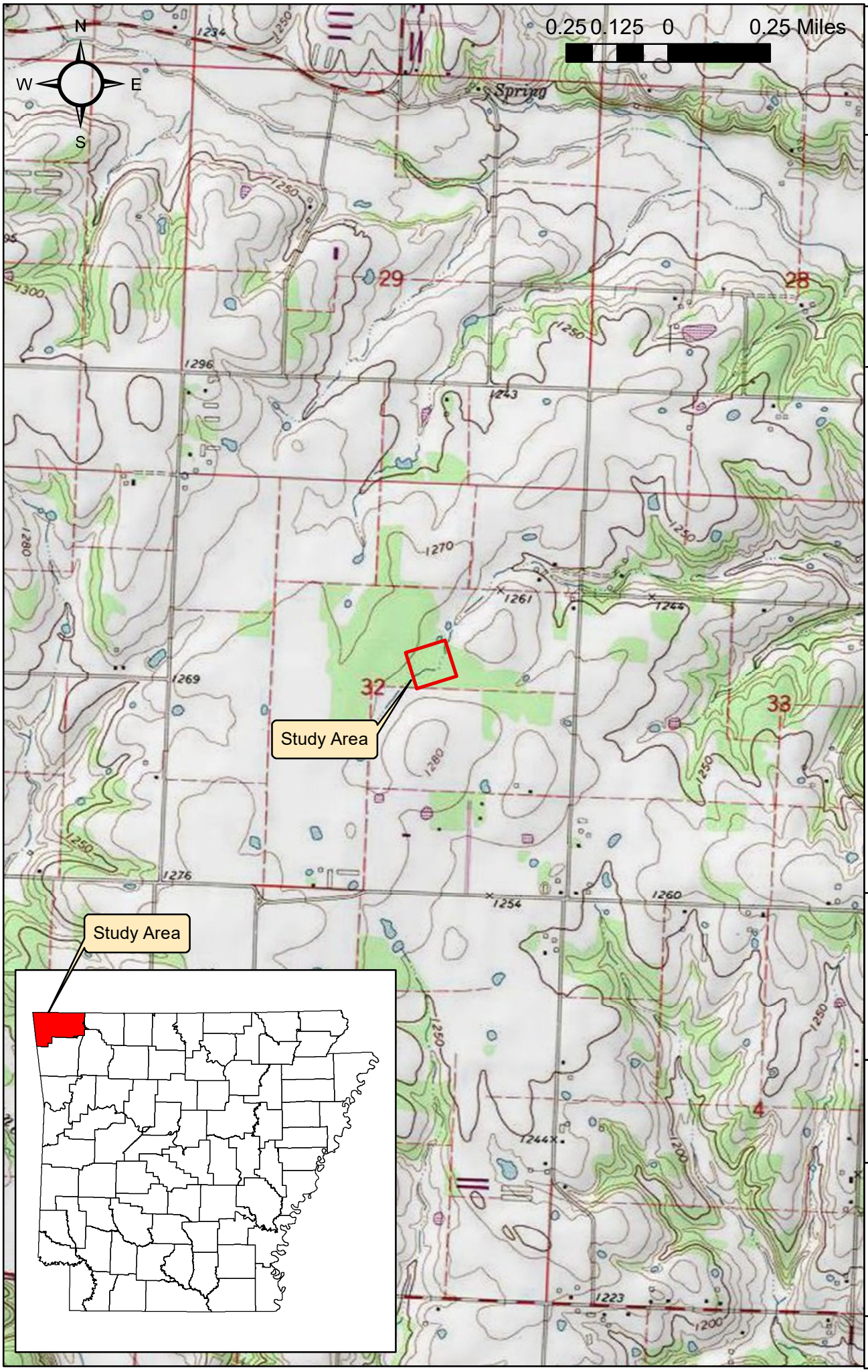
Sincerely,

GARVER

Ryan Mountain, PWS
Sr. Environmental Scientist

cc: Adam White, PE – Garver
Chris Maestri, PE – Garver
Nicholas Fondano – XNA

Attachments:
Figure 1 - Site Location Map
Figure 2 - Wetland Detail Map
Figure 3 - NRCS Soils Map
Site Photographs
Plan Sheet
Wetland Data Forms
Weather Data
APT Data



ESRI USA Topo Map

GARVER
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Rogers, AR 72758
(479) 257-9188

NORTHWEST ARKANSAS NATIONAL AIRPORT
BENTONVILLE, AR
ATCT RELOCATION EA

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

JOB NO.: 20A13167
DATE: SEPT. 2022
DESIGNED BY: RCM
DRAWN BY: RCM

SITE LOCATION MAP

FIGURE: 1

Document Path: G:\Projects\2020\20A13167 - XNA ATCT Construction\GIS\Maps\T&E XNA ATCT Figure 1 Site Location Map.mxd
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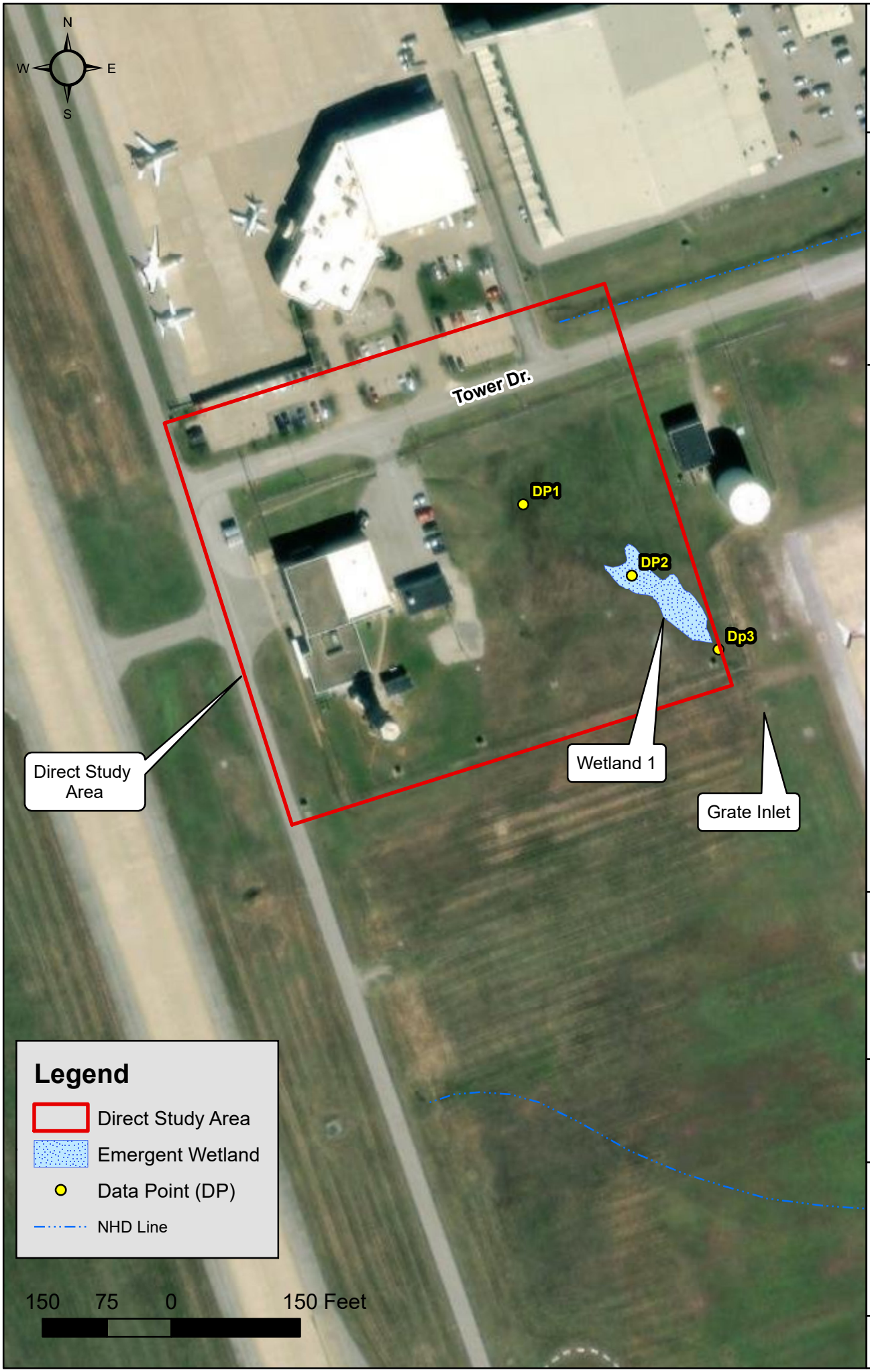
User Name: JCRujawitz



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ATCT RELOCATION EA

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0 1"

JOB NO.: 20A13167
DATE: SEPT. 2022
DESIGNED BY: RCM
DRAWN BY: RCM

WETLAND DETAIL MAP

FIGURE: 2

ESRI Aerial, Topo, USGS NHD

Document Path: \\garverinc.local\gdata\Projects\2020\20A13167 - XNA ATCT Construction\GIS\Maps\Wetland Rpt. Figures\XNA ATCT Wetland_Detail.mxd Date Saved: 11/3/2022 6:25:17 PM User Name: RCMountain

CODE	DESCRIPTION	HYDRIC
CnB	Captina silt loam, 1 to 3 percent slope	N
Cs	Cherokee silt loam	Y

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NORTHWEST ARKANSAS NATIONAL AIRPORT
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JOB NO.: 20A13167
DATE: SEPT. 2022
DESIGNED BY: RCM
DRAWN BY: RCM

NRCS SOILS MAP

FIGURE: 3

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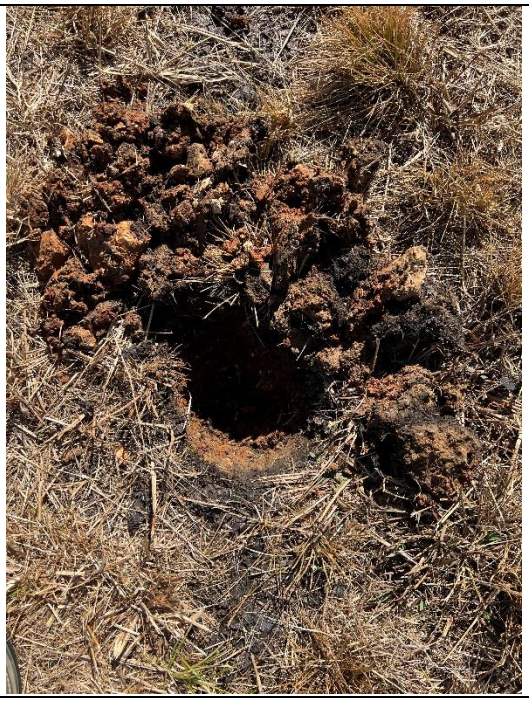
User Name: JCRujawitz

ESRI USA Topo Map

1	
Wetland 1	
	
Description	The study area contains a small, isolated emergent wetland occurring as micro-depressions. View is to the northwest. Photograph taken 9/23/2022.
2	
Wetland 1	
	
Description	View is of Wetland 1 to the north. Photograph taken 10/20/2022.

3	
Upland Swale	
	
Description	This swale was observed in the southeast corner of the study area and contained a dominance of upland vegetation and non-hydric soils. View is to the north.
4	
Data Point 2	
	
Description	DP2 contained hydric soils and met all wetland criteria.

5	
Data Point 1	
	
Description	Data point 1 indicated no hydric soils.
6	
Data Point 3	
	
Description	Data point 3. This area did not meet hydric soils and vegetation criteria.

Direct Study Area

RJC PARKING LOT

EXISTING FIRE HYDRANT
STATIC PRESSURE: 92
RESIDUAL PRESSURE: 70

EXISTING ROADWAY LIGHT
TO BE RELOCATED

EXISTING FIRE HYDRANT
STATIC PRESSURE: 98
RESIDUAL PRESSURE: 70

PROPOSED SANITARY
SEWER MANHOLE
(ALTERNATIVE)

TOWER DRIVE

PROPOSED SANITARY
SEWER MANHOLE

PROPOSED GATE

EXISTING GAS LINE

24'

FUTURE AUTOMOBILE
PARKING

PROPOSED 8" SANITARY
SEWER MAIN LINE
(ALTERNATIVE)

PROPOSED DRIVEWAY

EXISTING FIRE HYDRANT
STATIC PRESSURE: 112
RESIDUAL PRESSURE: 76

PERIMETER ROAD

ARFF FACILITY

ELECTRICAL
VAULT

PROPOSED SANITARY
SEWER MANHOLE
(ALTERNATIVE)

EXISTING VAULT
EXPANSION AREA
(1,400 SF)

FUTURE AIR
FREIGHT FACILITY
(16,500 SF)

PROPOSED 4" SANITARY
SEWER SERVICE LINE
(ALTERNATIVE)

EXISTING ATCT TOWER AND
ASSOCIATED SUPPORT
BUILDINGS TO BE REMOVED.

EXISTING BEACON
TO BE REMOVED

EXISTING ARFF
EXPANSION AREA
(10,000 SF)

PROPOSED ATC TOWER

PROPOSED 6" FIRE WATER
PROPOSED 2" POTABLE WATER

EXISTING FIRE HYDRANT
STATIC PRESSURE: 138
RESIDUAL PRESSURE: 70

PROPOSED ATC PARKING

EXISTING ATCT TRANSFORMER

EVALUATE NEED FOR
NEW TRANSFORMER

PROPOSED 4" SANITARY
SEWER SERVICE LINE

EXISTING AIRFIELD
PERIMETER FENCE

FUTURE AIRCRAFT
APRON

FUTURE
PERIMETER ROAD

0 15' 30' 60' 90'
(IN FEET)

N

LEGEND

W	EXISTING WATER LINE
UGE	EXISTING ELECTRICAL LINE
COMM	EXISTING COMMUNICATION LINE
SS	EXISTING SANITARY SEWER LINE
G	EXISTING GAS LINE
X	EXISTING FENCE LINE
W	PROPOSED WATER LINE
UGE	PROPOSED ELECTRICAL LINE
COMM	PROPOSED COMMUNICATION LINE
SS	PROPOSED SANITARY SEWER LINE
- - - -	FUTURE EXPANSION AREA
X	PROPOSED FENCE LINE

REV.	DATE	DESCRIPTION	BY

NORTHWEST ARKANSAS
NATIONAL AIRPORT
BENTONVILLE, ARKANSAS

CONSTRUCT
REPLACEMENT AIRPORT
TRAFFIC CONTROL TOWER

SITE PLAN EXHIBIT

JOB NO.: 20A13167
DATE: JAN. 2022
DESIGNED BY: ATW
DRAWN BY: JSH

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER
EXH

SHEET NUMBER **1**

File: L:\2020\20A13167 - XNA ATCT Construction\Drawings\MISC\XNA_ATCT Site Plan.dwg Last Save: 3/7/2022 1:31 PM Last saved by: JSHayes
Last plotted by: Hayes, Jeremy S Plot Style: AECmono.ctb Plot Scale: 1:1 Plot Date: 3/7/2022 1:40 PM Plotter used: DWG To PDF.pc3

Print Form

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: XNA ATCT City/County: Benton Sampling Date: 10/20/2022

Applicant/Owner: XNA State: AR Sampling Point: DP1

Investigator(s): RCM Section, Township, Range: S32 T19N R31W

Landform (hillslope, terrace, etc.): Maintained airfield Local relief (concave, convex, none): concave to level Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 36.280057° Long: -94.301716° Datum: WGS 84

Soil Map Unit Name: Cherokee, Cs NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✗ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✗ No

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:
Data point is not located within a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ✗ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✗ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✗ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✗ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✗ Depth (inches): -

Water Table Present? Yes _____ No ✗ Depth (inches): >8

Saturation Present? (includes capillary fringe) Yes _____ No ✗ Depth (inches): >8

Wetland Hydrology Present? Yes ✗ No

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

Remarks:
Wetland hydrology present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP1

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size:)			
1. *N/A*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. *N/A*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	= Total Cover		
Herb Stratum (Plot size: 20')			
1. *Echinochloa crus-galli*	25	Yes	FAC
2. *Panicum virgatum*	25	Yes	FACW
3. *Cyperus species***	10	No	FACW
4. *Eleocharis species**	40	Yes	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1. *N/A*			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✗ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✗ No

Remarks: (Include photo numbers here or on a separate sheet.)

**Of the 28 species of Cyperus listed for Arkansas in the Eastern Mountains and Piedmont, 82% are FAC or wetter with the majority being FACW.

*Of the 18 species of Eleocharis species listed for Arkansas in the Eastern Mountains and Piedmont, 100% are FACW or wetter with the majority being OBL.

Hydrophytic vegetation present.

SOIL

Sampling Point: DP1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/3	98	10YR 5/8	2	C	M	Clay Loam	
2-8	5YR 5/4	100					Rocky Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Dense rocky layer

Depth (inches): 8"

Hydric Soil Present? Yes _____ No ✗

Remarks:

Hydric soils not present.

Print Form

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: XNA ATCT City/County: Benton Sampling Date: 10/20/2022

Applicant/Owner: XNA State: AR Sampling Point: DP2

Investigator(s): RCM Section, Township, Range: S32 T19N R31W

Landform (hillslope, terrace, etc.): Maintained airfield Local relief (concave, convex, none): concave to level Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 36.279832° Long: -94.301306° Datum: WGS 84

Soil Map Unit Name: Cherokee, Cs NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✗ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✗ No

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:
Site meets wetland criteria.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ✗ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✗ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✗ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✗	Depth (inches): -
Water Table Present?	Yes _____	No ✗	Depth (inches): >10
Saturation Present? (includes capillary fringe)	Yes _____	No ✗	Depth (inches): >10

Wetland Hydrology Present? Yes ✗ No

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

Remarks:
Wetland hydrology present. Hard/dense rock at 10".

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP2

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	= Total Cover		
Herb Stratum (Plot size: 20')			
1. *Echinochloa crus-galli*	10	No	FAC
2. *Panicum virgatum*	10	No	FAC
3. *Cyperus species***	25	Yes	FACW
4. *Eleocharis species**	25	Yes	OBL
5. *Paspalum dilatatum*	30	Yes	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✗ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✗ **No**

Remarks: (Include photo numbers here or on a separate sheet.)

**Of the 28 species of Cyperus listed for Arkansas in the Eastern Mountains and Piedmont, 82% are FAC or wetter with the majority being FACW.

*Of the 18 species of Eleocharis species listed for Arkansas in the Eastern Mountains and Piedmont, 100% are FACW or wetter with the majority being OBL.

Hydrophytic vegetation present.

SOIL

Sampling Point: DP2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/2	95	10YR 5/8	5	C	M	Clay Loam	Silty
2-10	5YR 6/2	95	10YR 5/8	5	C	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✗ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ✗ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Dense rocky layer

Depth (inches): 10"

Hydric Soil Present? **Yes** ✗ **No**

Remarks:

Hydric soils present.

Print Form

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: XNA ATCT City/County: Benton Sampling Date: 10/20/2022

Applicant/Owner: XNA State: AR Sampling Point: DP3

Investigator(s): RCM Section, Township, Range: S32 T19N R31W

Landform (hillslope, terrace, etc.): Maintained swale Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 36.279603° Long: -94.300956° Datum: WGS 84

Soil Map Unit Name: Cherokee, Cs NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✗ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✗ No

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:
Site does not meet wetland criteria.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✗ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✗ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✗	Depth (inches): -
Water Table Present?	Yes _____	No ✗	Depth (inches): >16
Saturation Present? (includes capillary fringe)	Yes _____	No ✗	Depth (inches): >16

Wetland Hydrology Present? Yes ✗ No

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

Remarks:
Wetland hydrology present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP3

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	= Total Cover		
Herb Stratum (Plot size: 20')			
1. *Cynodon dactylon*	50	Yes	FACU
2. *Seteria pumila*	10	No	FAC
3. *Andropogon virginicus*	25	Yes	FACU
4. *Cyperus species***	10	No	FACW
5. *Paspalum dilatatum*	25	Yes	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	120 = Total Cover		
Woody Vine Stratum (Plot size:)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	
FACW species	10	x 2 =	20
FAC species	35	x 3 =	105
FACU species	75	x 4 =	300
UPL species		x 5 =	
Column Totals:	120 (A)		425 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No ✗

Remarks: (Include photo numbers here or on a separate sheet.)

**Of the 28 species of Cyperus listed for Arkansas in the Eastern Mountains and Piedmont, 82% are FAC or wetter with the majority being FACW.

Hydrophytic vegetation not present.

SOIL

Sampling Point: DP3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100					Silt Loam	
2-10	10YR 4/2	100					Clay Loam	
10-16	10YR 4/2	90	10YR 5/1	10	D	M	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes _____ No ✗

Remarks:

Hydric soils present.

U.S. Depar e C erce
Na i al Ocea ic & A spheric Ad i is ra i
Na i al E vir e al Sa elli e, Da a, a d I r a i Service
Curre L ca i : Elev: 1278 . La : 36.2898° N L : -94.3115° W
S a i : **FAYETTEVILLE SPRINGDALE NW AR REGL AIRPORT, AR US**
USW00053922

Record of Climatological O servations

These data are quality controlled and may not e identical to the original o servations.

Ge era ed 09/28/2022

Na i al Ce ers r E vir e al I r a i
151 Pa Ave ue
Asheville, N r h Car li a 28801

Observa i Ti e Te pera ure: U k w Observa i Ti e Precipi a i : U k w

Year	Month	Day	Temperature (F)			Precipitation					Evaporation		Soil Temperature (F)					
			24 Hrs. Ending at O servation Time		At O s.	24 Hour Amounts Ending at O servation Time				At O s. Time	24 Hour Wind Movement (mi)	Amount of Evap. (in)	4 in. Depth			8 in. Depth		
			Max.	Min.		Rain, Melted Snow, Etc. (in)	Flag	Snow, Ice Pellets, Hail (in)	Flag	Snow, Ice Pellets, Hail, Ice on Ground (in)			Ground Cover (see *)	Max.	Min.	Ground Cover (see *)	Max.	Min.
2022	09	01	86	67		0.24		0.0										
2022	09	02	82	66		0.64		0.0										
2022	09	03	86	66		0.00		0.0										
2022	09	04	88	67		0.07		0.0										
2022	09	05	84	68		0.00		0.0										
2022	09	06	88	64		T		0.0										
2022	09	07	84	64		0.00		0.0										
2022	09	08	85	61		0.00		0.0										
2022	09	09	86	60		0.00		0.0										
2022	09	10	87	59		0.00		0.0										
2022	09	11	76	52		T		0.0										
2022	09	12	80	49		0.00		0.0										
2022	09	13	86	54		0.00		0.0										
2022	09	14	85	53		0.00		0.0										
2022	09	15	84	56		0.00		0.0										
2022	09	16	86	55		0.00		0.0										
2022	09	17	90	63		0.00		0.0										
2022	09	18	93	67		0.00		0.0										
2022	09	19	93	70		0.00		0.0										
2022	09	20	94	67		0.00		0.0										
2022	09	21	95	67		0.00		0.0										
2022	09	22	74	60		T												
2022	09	23	87	59		0.00												
2022	09	24																
2022	09	25																
2022	09	26																
2022	09	27																
2022	09	28																
2022	09	29																
2022	09	30																
		Su ary	86	61		0.95		0.0										

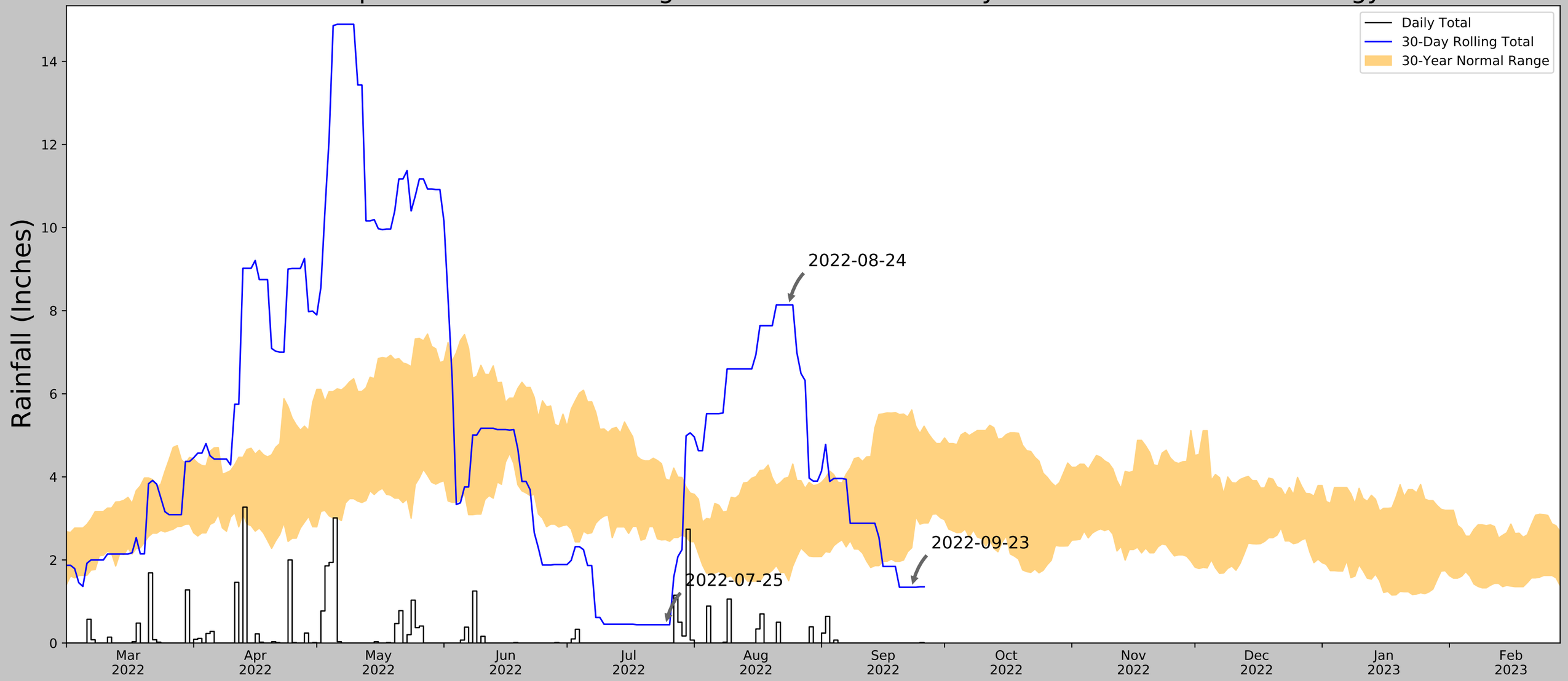
E p y, r bla k, cells i dica e ha a da a bserva i was rep r ed.
*Gr u d C ver: 1=Grass; 2=Fall w; 3=Bare Gr u d; 4=Br e grass; 5=S d; 6=S raw ulch; 7=Grass uck; 8=Bare uck; 0=U k w
"s" This da a value ailed e NCDC's quali y c r l es s. "A Obs." = Te pera ure a i e bserva i
"T" values i he Precipi a i r S w ca eg ry ab ve i dica e a " race" value was rec rded.
"A" values i he Precipi a i Flag r he S w Flag c lu i dica e a ul iday al, accu ula ed si ce las easure e , is bei g used.
Da a value i c sis e cy ay be prese due r u di g calcula i s duri g he c versi pr cess r Sl e ric u i s s a dard i perial u i s.

Climatological ata o AYETTEVILLE RAKE IEL , AR - Octobe 2022

ate	Tempe atu e					C	P ecipitation	New Snow	Snow epth
	Maximum	Minimum	Ave age	epa tu e					
2022-10-01	81	40	60.5	-2.9	4	0	0.00	0.0	0
2022-10-02	83	40	61.5	-1.5	3	0	0.00	0.0	0
2022-10-03	85	42	63.5	0.8	1	0	0.00	0.0	0
2022-10-04	84	44	64.0	1.7	1	0	0.00	0.0	0
2022-10-05	85	45	65.0	3.1	0	0	0.00	0.0	0
2022-10-06	83	49	66.0	4.4	0	1	0.00	0.0	0
2022-10-07	78	47	62.5	1.3	2	0	0.00	0.0	0
2022-10-08	72	43	57.5	-3.4	7	0	0.00	0.0	0
2022-10-09	78	46	62.0	1.5	3	0	0.00	0.0	0
2022-10-10	77	49	63.0	2.9	2	0	T	0.0	0
2022-10-11	82	68	75.0	15.2	0	10	T	0.0	0
2022-10-12	81	46	63.5	4.1	1	0	0.08	0.0	0
2022-10-13	72	40	56.0	-3.1	9	0	0.00	0.0	0
2022-10-14	83	38	60.5	1.8	4	0	0.04	0.0	0
2022-10-15	**88**	53	70.5	12.1	0	6	0.21	0.0	0
2022-10-16	74	46	60.0	2.0	5	0	0.35	0.0	0
2022-10-17	59	38	48.5	-9.2	16	0	0.00	0.0	0
2022-10-18	49	26	37.5	-19.8	27	0	0.00	0.0	0
2022-10-19	57	**22**	39.5	-17.5	25	0	0.00	0.0	0
2022-10-20	76	30	53.0	-3.6	12	0	0.00	0.0	0
2022-10-21	84	35	59.5	3.2	5	0	0.00	0.0	0
2022-10-22	82	65	73.5	17.6	0	9	0.00	0.0	0
2022-10-23	82	67	74.5	18.9	0	10	0.00	0.0	0
2022-10-24	72	58	65.0	9.8	0	0	**1.36**	0.0	0
2022-10-25	59	39	49.0	-5.9	16	0	0.96	0.0	0
2022-10-26	68	34	51.0	-3.5	14	0	0.00	0.0	0
2022-10-27	69	34	51.5	-2.7	13	0	0.00	0.0	0
2022-10-28	70	43	56.5	2.7	8	0	T	0.0	0
2022-10-29	64	54	59.0	5.5	6	0	0.21	0.0	0
2022-10-30	60	56	58.0	4.9	7	0	T	0.0	0
2022-10-31	73	45	59.0	6.2	6	0	0.00	0.0	0
Sum	2310	1382	-	-	197	36	3.21	0.0	-
Ave age	74.5	44.6	59.5	1.5	-	-	-	-	0.0
No mal	70.9	45.2	58.0	-	244	29	4.48	0.0	-

Obse vations o each day cove the 24 hou s ending at the time given below (Local Standa d Time).
Max Temperature : midnight
Min Temperature : midnight
Precipitation : midnight
Snowfall : midnight
Snow Depth : 6am

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	36.279655, -94.301852
Observation Date	2022-09-23
Elevation (ft)	1266.19
Drought Index (PDSI)	Mild drought (2022-08)
WebWIMP H_2O Balance	Dry Season

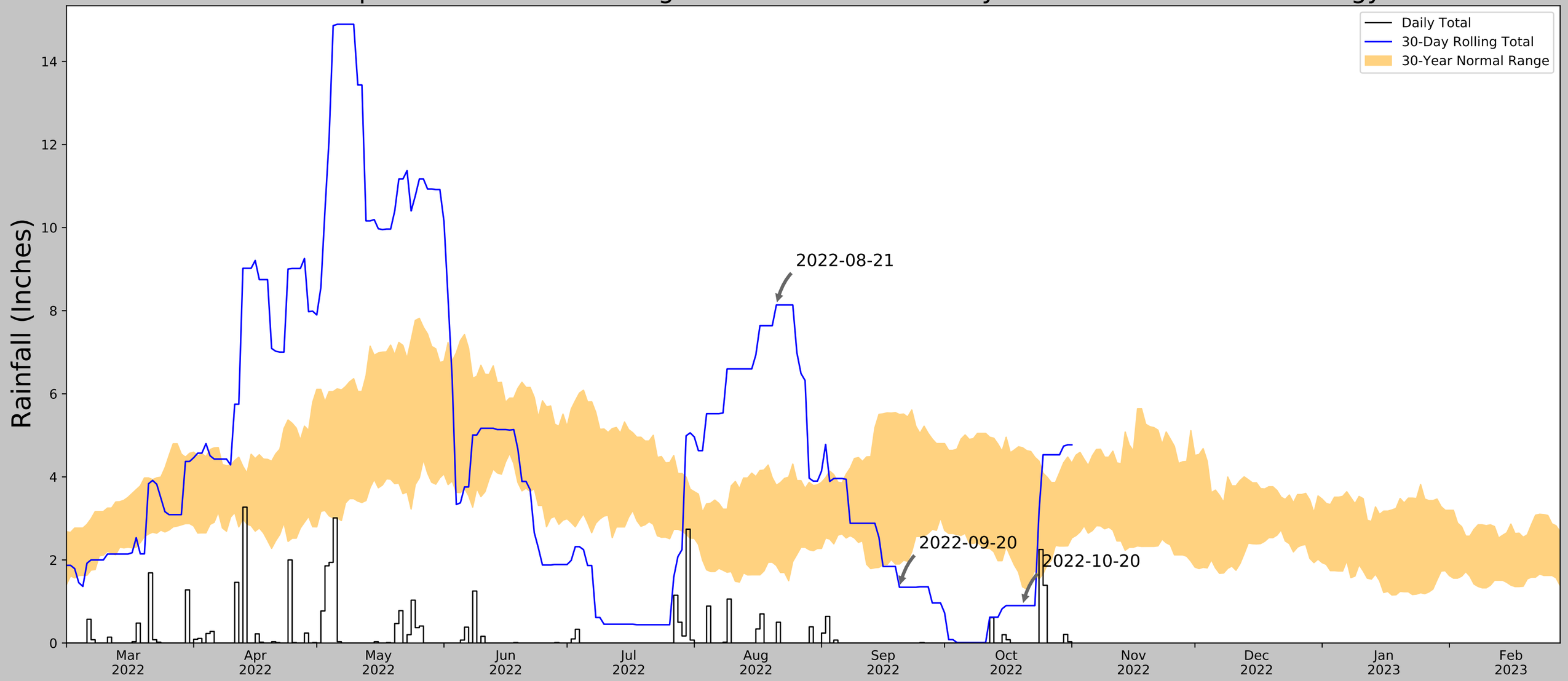
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-09-23	2.294095	5.61063	1.34252	Dry	1	3	3
2022-08-24	1.499606	3.992126	8.137796	Wet	3	2	6
2022-07-25	2.489764	3.95	0.440945	Dry	1	1	1
Result							Normal Conditions - 10

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
FAYETTEVILLE NW AR AP	36.2833, -94.3	1287.074	0.272	20.884	0.128	8168	90
BENTONVILLE 6.6 SSW	36.2788, -94.2437	1234.908	3.151	52.166	1.582	2	0
CENTERTON 0.8 WSW	36.3573, -94.2992	1307.087	5.113	20.013	2.403	2	0
BENTONVILLE 2.8 SSW	36.3344, -94.2328	1261.155	5.144	25.919	2.448	1	0
BENTONVILLE 4 S	36.3219, -94.215	1220.144	5.433	66.93	2.808	3171	0
GRAVETTE	36.4261, -94.4481	1259.843	12.855	27.231	6.135	9	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	36.279948, -94.301792
Observation Date	2022-10-20
Elevation (ft)	1264.52
Drought Index (PDSI)	Mild drought (2022-09)
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-10-20	1.351575	4.701575	0.901575	Dry	1	3	3
2022-09-20	1.901575	5.501181	1.34252	Dry	1	2	2
2022-08-21	1.866535	3.795669	8.137796	Wet	3	1	3
Result							Drier than Normal - 8

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
FAYETTEVILLE NW AR AP	36.2833, -94.3	1287.074	0.252	22.554	0.119	8532	90
BENTONVILLE 6.6 SSW	36.2788, -94.2437	1234.908	3.151	52.166	1.582	3	0
CENTERTON 0.8 WSW	36.3573, -94.2992	1307.087	5.113	20.013	2.403	2	0
BENTONVILLE 2.8 SSW	36.3344, -94.2328	1261.155	5.144	25.919	2.448	1	0
BENTONVILLE 4 S	36.3219, -94.215	1220.144	5.433	66.93	2.808	2808	0
GRAVETTE	36.4261, -94.4481	1259.843	12.855	27.231	6.135	7	0