APPENDIX A: GLOSSARY OF TERMS

Introduction

Combining the extremely technical language of airports and aviation with the bureaucratic language of government organizations can create a myriad of unusual words and term. The combination of technical language and "governmentese" often results in many short-hand phrases or acronyms. This appendix presents many of the terms and acronyms used throughout the master plan.

Glossary of Terms

ABOVE GROUND LEVEL (AGL): The elevation of a point or surface above the ground.
ACCELERATE-STOP DISTANCE AVAILABLE (ASDA): See declared distances.
ADVISORY CIRCULAR: Publications issued by the FAA providing recommendations relative to policy, guidance, and information on specific aviation subject. The recommendations in these publications are considered mandatory requirements for airports that have received federal grants.
AIR CARRIER: An operator that: (1) performs at least five round trips per week between two or more points and publishes flight schedules specifying the times, days of the week, and places between which such flights are performed; or (2) transports mail by air under a current contract with the U.S. Postal Service. Certified in accordance with Federal Aviation Regulation (FAR) Parts 121 and 127.
AIRCRAFT OPERATION: The landing, takeoff, or touch-and-go procedure by an aircraft on a runway at an airport.
AIRCRAFT OPERATIONS AREA (AOA): A restricted and secure area on airport property designed to protect all aspects of aircraft operations.
AIRCRAFT OWNERS AND PILOTS ASSOCIATION (AOPA): A private organization serving the interests and needs of general aviation pilots and aircraft owners.
AIRCRAFT APPROACH CATEGORY (AAC): A grouping of aircraft based on 1.3 times their stall speed in landing configuration at their maximum certificated landing weight. The AAC categories are as follows:

- Category A: Speed less than 91 knots.
- Category B: Speed 91 knots or more, but less than 121 knots.
- Category C: Speed 121 knots or more, but less than 141 knots.
- Category D: Speed 141 knots or more, but less than 166 knots.
- Category E: Speed greater than 166 knots.

AIRCRAFT RESCUE AND FIRE FIGHTING (ARFF): An airport service and facility that provides emergency vehicles, extinguishing agents, and personnel responsible for minimizing the impacts of an aircraft accident or incident.
AIRFIELD: The portion of an airport that contains facilities necessary for aircraft operations.
AIRLINE HUB: A category of commercial service airports or group of commercial service airports in a metropolitan or urban area based on the percentage of annual national enplanements at the airport or airports. The categories are large hub, medium hub, small hub, or non-hub. The categories form the basis for the apportionment of entitlement funds.

AIRPLANE CLASSIFICATION NUMBER (ACN): An international method that expresses the effect of an individual aircraft on different pavements with a unique number that varies according aircraft weight and configuration, pavement type, and subgrade strength.
AIRPLANE DESIGN GROUP (ADG): A grouping of aircraft based on wingspan. The groups are:

- Group I: Up to but not including 49 feet.
- Group II: 49 feet up to but not including 79 feet.
- Group III: 79 feet up to but not including 118 feet.
- Group IV: 118 feet up to but not including 171 feet.
- Group V: 171 feet up to but not including 214 feet.
- Group VI: 214 feet or greater.

AIRPORT AUTHORITY: A quasi-governmental organization responsible for setting the policies governing the management and operation of an airport or system of airports under its jurisdiction.
AIRPORT BEACON: A navigational aid located at an airport that displays a rotating light beam to identify the type of airport.
AIRPORT CAPITAL IMPROVEMENT PLAN (ACIP): The Federal Aviation Administration planning program that identifies, prioritizes, and distributes airport development funds required to meet the needs of the National Airspace System as specified by national goals and objectives.
AIRPORT ELEVATION: The highest point on the runway system at an airport expressed in feet above mean sea level (MSL).
AIRPORT IMPROVEMENT PROGRAM (AIP): A program created under the Airport and Airway Improvement Act of 1982 to provide funding for airport planning and development.
AIRPORT LAYOUT PLAN (ALP): The airport drawing showing boundaries and proposed additions to all areas owned or controlled by the sponsor for airport purposes, including the location and nature of existing and proposed airport facilities and structures, and the location on the airport of existing and proposed non-aviation areas and improvements.
AIRPORT MASTER PLAN: A long-range plan for airport development, including descriptions of the data and analyses on which the plan is based.
AIRPOR T OBSTRUCTION CHAR T: A scaled drawing depicting the Federal Aviation Regulation (FAR) Part 77 surfaces, with representation of objects that penetrate these surfaces, runway, taxiway, and ramp areas, navigational aids, buildings, roads, and other airport vicinity details.
AIRPORT REFERENCE CODE (ARC): A coding system used to relate airport design criteria to the operational (Aircraft Approach Category) and physical characteristics (Airplane Design Group) of the most demanding airplanes projected to operate at an airport.
AIRPORT REFERENCE POINT (ARP): The latitude and longitude of the approximate center of the airport.
AIRPORT REFERENCE TEMPERATURE: The mean maximum temperature of the hottest month.
AIRPORT SPONSOR: The entity legally responsible for the management and operation of an airport, including the fulfillment of the requirements of applicable laws and regulations.
AIRPORT SURFACE DETECTION EQUIPMENT (ASDE): A radar system providing air traffic controllers with a visual representation of aircraft and other vehicles ground movements on the airfield.
AIRPORT SURVEILLANCE RADAR (ASR): The primary radar located at an airport or in an air traffic control terminal area that depicts the location of aircraft in the air. The signal only provides the azimuth and range of aircraft from the location of the antenna.

AIRPORT TRAFFIC CONTROL TOWER (ATCT): A central operations facility in the terminal air traffic control system, consisting of a tower, including an associated instrument flight rule (IFR) room if radar equipped, using air to ground communications and/or radar, visual signaling and other methods to provide safe and expeditious movement of terminal air traffic.

AIRPORTS GEOGRAPHIC INFORMATION SYSTEM (AIRPORTS GIS or AGIS): Used by the FAA to collect airport and aeronautical data to support the FAA's next generation (NextGen) aviation system. AGIS provides standards for surveying and data collection to assist the FAA in the development of instrument approaches and provides the basis for electronic ALPs (eALP).

AIR ROUTE TRAFFIC CONTROL CENTER (ARTCC): A facility established to provide air traffic control service to aircraft operating on an IFR flight plan within controlled airspace and principally during the enroute phase of flight.

AIRSIDE: The portion of an airport containing the facilities necessary for the operation of aircraft. This normally includes, runways, taxiways, aprons, and hangar areas.

AIRSPACE: The volume of space above the surface of the ground provided for the safe operation of aircraft.

AIR TAXI: An air carrier certificated in accordance with FAR Part 121 and FAR Part 135 and authorized to provide on demand, public transportation of persons and property by aircraft. Generally, operates small aircraft "for hire" for specific trips.

AIR TRAFFIC CONTROL (ATC): A service operated by an appropriate FAA designated organization for the purpose of providing for the safe, orderly, and expeditious flow of air traffic.

AIR TRANSPORT ASSOCIATION OF AMERICA (ATA): An organization that represents the interests of the airline industry on major aviation issues before federal, state, and local government bodies. The ATA promotes air transportation safety by coordinating industry and governmental safety programs and serves as a focal point for industry efforts to standardize practices and enhance the efficiency of the air transportation system.

ALERT AREA: See special-use airspace.

ALTITUDE: The vertical distance measured in feet above mean sea level or above ground level.

APPROACH LIGHTING SYSTEM (ALS): An airport lighting facility that provides visual guidance to landing aircraft by radiating light beams by which the pilot aligns the aircraft with the extended centerline of the runway on his final approach and landing.

APPROACH MINIMUMS: The altitude below which an aircraft may not descend while on an IFR approach unless the pilot has the runway in sight.

APPROACH SURFACE: See Part 77.

APRON: A specified portion of the air field used for passenger, cargo, or freight loading and unloading, aircraft parking, and the refueling, maintenance, and servicing of aircraft.

AREA NAVIGATION (RNAV): The air navigation procedure that provides the capability to establish and maintain a flight path on an arbitrary course.

AUTOMATED TERMINAL INFORMATION SERVICE (ATIS): The continuous broadcast of recorded non-control information at towered airports. Information typically includes wind speed, direction, and runway in use.

AUTOMATED SURFACE OBSERVATION SYSTEM (ASOS): A reporting system that provides frequent airport ground surface weather observation data through digitized voice broadcasts and printed reports.

AUTOMATED WEATHER OBSERVATION STATION (AWOS): Equipment used to automatically record and relay weather conditions (i.e. cloud height, visibility, wind speed and direction, temperature, dew point, etc.)

AUTOMATIC DEPENDENT SURVEILLANCE – BROADCAST (ADS-B): A major component of the FAA's NextGen system, where aircraft equipped with GPS receivers can transmit their location and altitude to other nearby aircraft and to air traffic control.

AUTOMATIC DIRECTION FINDER (ADF): An aircraft radio navigation system that senses and indicates the direction to a non-directional radio beacon (NDB) ground transmitter.

AVIGATION EASEMENT: A contractual right or property interest in land over which the unobstructed right of flight in the airspace is established.

AZIMUTH: Horizontal direction expressed as the angular distance between true north and the direction of a fixed point (as the observer's heading).

BASE LEG: See "traffic pattern."

BASED AIRCRAFT: The total number of active general aviation aircraft that use or may be expected to use a specific airport as a home base.

BEARING: The horizontal direction to or from any point, usually measured clockwise from true north or magnetic north.

BIPARTISAN INFRASTRUCTURE LAW (BIL): Legislation passed in 2021 providing $25 billion in additional airport funding for 5 years. Also referred to as the Infrastructure Investment and Jobs Act (IIJA).

BLAST FENCE: A barrier used to divert or dissipate jet blast or propeller wash.

BLAST PAD: A prepared surface beyond the end of a runway for the purpose of eliminating ground surface erosion caused by the wind generated by aircraft engines at the initiation of a takeoff.

BUILDING RESTRICTION LINE (BRL): A theoretical line on an airport layout plan beyond which airport buildings must not be located in order to maintain safe aircraft operations.

CAPITAL IMPROVEMENT PLAN (CIP): A program for the design and construction of airport improvements needed to accommodate the operational and passenger activity at an airport.

CEILING: The cloud height above the ground surface, which is reported as either broken or overcast.

CIRCLING APPROACH: A pilot maneuver to align the aircraft with the runway for landing when flying a predetermined circling instrument approach procedure under IFR.

CLASS A, B, C, D, E, G AIRSPACE: See Controlled Airspace

CLEAR ZONE: See Runway Protection Zone.

COMMERCIAL SERVICE AIRPORT: A public airport providing scheduled passenger service that enplanes at least 2,500 annual passengers.

COMMON TRAFFIC ADVISORY FREQUENCY (CTAF): A radio frequency designated for the purpose of transmitting airport advisory information and procedures while operating to or from an uncontrolled airport.

COMPASS LOCATOR (LOM): A low power, low/medium frequency radio-beacon installed in conjunction with the instrument landing system at one or two of the marker sites.

CONICAL SURFACE: See Part 77.

CONTROLLED AIRPORT: An airport that has an operating airport traffic control tower.

CONTROLLED AIRSPACE: Airspace of defined dimensions within which air traffic control services are provided to instrument flight rules (IFR) and visual flight rules (VFR) flights. Controlled airspace in the United States is designated as follows:

- **CLASS A**: Generally, the airspace from 18,000 feet mean sea level (MSL) up to but not including flight level FL600 (60,000 feet). All pilots must operate their aircraft under IFR.
- **CLASS B**: Generally, the airspace from the surface to 10,000 feet MSL surrounding the nation's busiest airports. The configuration of Class B airspace is unique to each airport, but typically consists of two or more layers of airspace and is designed to contain all published instrument approach procedures to the airport. An air traffic control clearance is required for all aircraft operating in the area.
- **CLASS C**: Generally, the airspace from the surface to 4,000 feet above the airport elevation (reported as MSL) surrounding those airports that have an operational control tower and radar approach control and are served by a qualifying number of IFR operations or passenger enplanements. Although individually tailored for each airport, Class C airspace typically consists of a surface area with a five nautical mile (nm) radius and an outer area with a 10 nautical mile radius that extends from 1,200 feet to 4,000 feet above the airport elevation. Two-way radio communication is required for all aircraft.
- **CLASS D**: Generally, that airspace from the surface to 2,500 feet above the airport elevation (reported as MSL) surrounding airports that have an operational control tower. Class D airspace is individually tailored and configured to encompass published instrument approach procedures. Unless otherwise authorized, all pilots must establish two-way radio communication.
- **CLASS E**: Generally, controlled airspace that is not classified as Class A, B, C, or D. Class E airspace extends upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace. When designated as a surface area, the airspace will be configured to contain all instrument procedures. Class E airspace encompasses all Victor Airways. Only aircraft following instrument flight rules are required to establish two-way radio communication with air traffic control.
- **CLASS G**: Generally, that airspace not classified as Class A, B, C, D, or E. Class G airspace is uncontrolled for all aircraft. Class G airspace extends from the surface to the overlying Class E airspace.

CONTROLLED FIRING AREA: See special-use airspace
CROSSWIND: A wind that is not parallel to a runway centerline or to the intended flight path of an aircraft.
CROSSWIND COMPONENT: The component of wind that is at a right angle to the runway centerline or the intended flight path of an aircraft.
CROSSWIND LEG: See "traffic pattern."
DECIBEL: A unit of noise representing a level relative to logarithmic scale.
DECISION HEIGHT: The height above the runway surface at which a decision must be made to either continue the approach or execute a missed approach.
DECLARED DISTANCES: The distances declared available for an airplane's: takeoff runway; takeoff distance; accelerate-stop distance; and landing distance requirements as defined below:

- **TAKEOFF RUNWAY AVAILABLE (TORA)**: The runway length declared available and suitable for the ground run of an airplane taking off;
- **TAKEOFF DISTANCE AVAILABLE (TODA)**: The TORA plus the length of any remaining runway and/or clearway beyond the far end of the TORA;

- **ACCELERATE-STOP DISTANCE AVAILABLE (ASDA)**: The runway plus stopway length declared available for the deceleration of an aircraft aborting a takeoff; and
- **LANDING DISTANCE AVAILABLE (LDA)**: The runway length declared available and suitable for landing.

DEPARTMENT OF TRANSPORTATION (DOT): The federal government organization including the Federal Aviation Administration, which was established to promote the coordination of federal transportation programs and to act as a focal point for research and development efforts in transportation.
DISCRETIONARY FUNDS: Federal grant funds that may be appropriated to an airport as designation by the Secretary of Transportation or Congress to meet a specified national priority such as enhancing capacity, safety, and security, or mitigating noise.
DISPLACED THRESHOLD: A threshold that is located at a point on the runway other than the physical beginning of the runway.
DISTANCE MEASURING EQUIPMENT (DME): Equipment (airborne and ground-based) used to measure in nautical miles, the slant range distance of an aircraft from the DME navigational aid.
DNL: (Day/Night Level) The 24-hour A-weighted average aircraft sound level between 10 PM and 7 AM as averaged over a span of one year. It is the FAA standard metric for deter mining the cumulative exposure of individuals to noise.
DOWNWIND LEG: see "traffic pattern."
EASEMENT: The agreed upon legal right of one party to use a portion of the real estate rights of another party as specified in the easement document.
ELEVATION: The vertical distance measured in feet above mean sea level.
ENROUTE: The portion of a flight between departure and arrival terminal areas.
ENPLANED PASSENGERS: The total number of revenue passengers boarding air craft, including originating, stop-over, and transfer passengers, in scheduled and non-scheduled services.
ENPLANEMENT: The loading of passengers, cargo, freight, or mail on an aircraft.
ENTITLEMENT: Federal funds for which a commercial service airport may be eligible based on its annual passenger enplanements.
ENVIRONMENTAL ASSESSMENT (EA): An environmental analysis performed in accordance with the National Environmental Policy Act (NEPA) to determine whether an action would significantly affect the environment and thus require a more detailed environmental impact statement.
ENVIRONMENTAL AUDIT: An assessment of a party's compliance with the applicable environmental requirements of an authority's environmental compliance policies, practices, and controls.
ENVIRONMENTAL IMPACT STATEMENT (EIS): A NEPA document required of federal agencies for major projects or legislative proposals affecting the environment. The EIS is a decision-making tool describing the positive and negative effects of a proposed action.
ESSENTIAL AIR SERVICE (EAS): A federal program that guarantees air carrier service to selected small communities by providing subsidies as needed to prevent these cities from losing such service.
FEDERAL AVIATION REGULATIONS (FAR): The rules established by the executive departments and agencies of the Federal Government for aviation. FAR's are the aviation subset of the Code of Federal Regulations.
FINAL APPROACH: See "traffic pattern."
FINDING OF NO SIGNIFICANT IMPACT (FONSI): A public document prepared by a Federal agency that presents the rationale why a proposed action will not have a significant effect on the environment and for which an environmental impact statement will not be prepared.

FIXED BASE OPERATOR (FBO): A provider of services to airport users. Such services include, but are not limited to: aircraft storage; fueling; flight training; repair; and maintenance.
FLIGHT LEVEL: An altitude designation within controlled airspace.
FLIGHT SERVICE STATION (FSS): An operations facility in the national flight advisory system that uses data interchange facilities for the collection and dissemination of Notices to Airmen, weather, and administrative data. An FSS provides pre-flight and in-flight advisory services to pilots through air and ground based communication facilities.
FRANGIBLE NAVAID: A navigational aid that retains its structural integrity and stiffness up to a designated maximum load, but on impact from a greater load, breaks, distorts, or yields in such a manner as to present the minimum hazard to aircraft.
GENERAL AVIATION: That portion of civil aviation that encompasses all facets of aviation except commercial or military aircraft.
GLIDESLOPE (GS): The electronic component of an ILS system that emits signals providing vertical guidance using airborne instruments during instrument approaches during approach and landing.
GLOBAL POSITIONING SYSTEM (GPS): A system of satellites that enables navigators equipped with GPS receivers to determine their latitude, longitude, and altitude.
GROUND ACCESS: The transportation system on and around the airport that provides access to and from the airport by ground transportation vehicles for passengers, employees, cargo freight, and airport services.
HELIPAD: A designated area for the takeoff, landing, and parking of helicopters.
HIGH INTENSITY RUNWAY LIGHTS (HIRL): The highest intensity or brightness of lights that delineate the lateral boundaries of a runway.
HIGH-SPEED EXIT TAXIWAY: A long radius taxiway designed to expedite aircraft movement off runways after landing (at speeds up to 60 knots), thus reducing runway occupancy time.
HORIZONTAL SURFACE: See 'Part 77'
INSTRUMENT APPROACH: An approach to an airport with the intent to land by an aircraft in accordance with an IFR flight plan when visibility is less than three miles and/or when the ceiling is at or below the minimum initial approach altitude.
INSTRUMENT APPROACH PROCEDURE (IAP): A series of predetermined maneuvers under instrument flight conditions for a landing, or to a point from which a landing may be made visually.
INSTRUMENT FLIGHT RULES (IFR): Procedures for the conduct of flight in weather conditions below Visual Flight Rules weather minimums. The term IFR is often also used to define weather conditions and the type of flight plan under which an air craft operates.
INSTRUMENT LANDING SYSTEM (ILS): A precision instrument approach system that normally consists of the following electronic components and visual aids:

1. Localizer;
2. Glide Slope;
3. Outer Marker;
4. Middle Marker;
5. Approach lights.

INSTRUMENT METEOROLOGICAL CONDITIONS (IMC): Specific visibility and ceiling conditions that are less than the minimums specified for visual meteorological conditions.

ITINERANT OPERATIONS: Arrivals and departures by aircraft to or from a location greater than 20 miles from the airport.
KNOTS: A unit of speed used in navigation that is equivalent to the number of nautical miles traveled in one hour.
LAND AND HOLD SHORT OPERATIONS (LAHSO): An air traffic control procedure intended to increase airport capacity without compromising safety that allows pilots to land and hold short of an intersecting runway, an intersecting taxiway, or some other designated point on a runway.
LANDSIDE: The portion of an airport that provides the facilities necessary for the processing of passengers, cargo, freight, and ground transportation vehicles.
LANDING DISTANCE AVAILABLE (LDA): See declared distances.
LARGE AIRPLANE: An airplane that has a maximum certified takeoff weight in excess of 12,500 pounds.
LOCAL AREA AUGMENTATION SYSTEM (LAAS): A differential GPS system that provides localized measurement correction signals to the basic GPS signals to improve navigational accuracy, integrity, continuity, and availability.
LOCAL OPERATIONS: Aircraft operations performed by aircraft based at the airport and operating in the local traffic pattern or within sight of the airport, including aircraft known to be departing for or arriving from flights in local practice areas within a prescribed distance from the airport, or that execute simulated instrument approaches at the airport.
LOCAL TRAFFIC: Aircraft operating in the traffic pattern or within sight of the tower, or aircraft known to be departing or arriving from the local practice areas, or aircraft executing practice instrument approach procedures. Typically, this includes touch-and-go training operations.
LOCALIZER (LOC): The component of an ILS that provides course guidance to the runway.
LOCALIZER TYPE DIRECTIONAL AID (LDA): A facility of comparable utility and accuracy to a localizer, but not part of a complete ILS and not aligned with the runway.
LOCALIZER PERFORMANCE WITH VERTICAL GUIDANCE (LPV): A Global Positioning System (GPS) runway instrument approach procedure providing horizontal and vertical guidance. Accuracy levels are 16 meters horizontally and 20 meters vertically.
LOW INTENSITY RUNWAY LIGHTS (LIRL): The lowest intensity or brightness of lights designated for use in delineating the sides of a runway.
MEDIUM INTENSITY RUNWAY LIGHTS (MIRL): The middle intensity or brightness of lights designated for use in delineating the sides of a runway.
MILITARY OPERATIONS: Aircraft operations performed by military aircraft.
MILITARY OPERATIONS AREA (MOA): See special-use airspace.
MILITARY TRAINING ROUTE: An air route depicted on aeronautical charts for the conduct of military flight training at speeds above 250 knots.
MISSED APPROACH COURSE (MAC): The flight route to be followed if, after an instrument approach, a landing is not completed. Missed approaches normally occur:
1. When an aircraft has descended to the decision height but has not established visual confirmation of the runway; or
2. When directed by air traffic control to pull up or to go around.
MOVEMENT AREA: The runways, taxiways, and other areas of an airport used for taxiing/hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and parking areas. At airports with an airport traffic control tower, air traffic control clearance is required for entry onto the movement area.

NATIONAL AIRSPACE SYSTEM (NAS): The network of air traffic control facilities, air traffic control areas, and navigational facilities through the U.S.
NATIONAL PLAN OF INTEGRATED AIRPORT SYSTEMS (NPIAS): The national airport system plan developed by the Secretary of Transportation on a biannual basis for the development of public use airports to meet national air transportation needs.
NATIONAL TRANSPORTATION SAFETY BOARD (NTSB): A federal government organization established to investigate and determine the probable cause of transportation accidents, to recommend equipment and procedures to enhance transportation safety, and to review on appeal the suspension or revocation of any certificates or licenses issued by the Secretary of Transportation.
NAUTICAL MILE: A unit of distance used in navigation that is equivalent to the distance spanned by one minute of arc in latitude, that is, 1,852 meters or 6,076 feet. It is equal to approximately 1.15 statute mile.
NAVIGATIONAL AID (NAVAID): A term used to describe lights, signs, and associated supporting electronic equipment (e.g., PAPI, VASI, ILS, etc.) to aid in aircraft navigation.
NEXT GENERATION AIR TRANSPORTATION SYSTEM (NextGen): An umbrella term for the FAA's ongoing upgrade to the National Airspace System from a ground-based system of air traffic control to a satellite-based system of air traffic management.
NOISE CONTOUR: A continuous line on a map of the airport vicinity connecting all points of the same noise exposure level.
NON-DIRECTIONAL BEACON (NDB): A radio beacon transmitting electronic signals in a 360-degree pattern. Pilot of an aircraft equipped with direction finding equipment can determine their bearing to/from the radio beacon and home on, or track to, the station. When the radio beacon is installed in conjunction with the ILS marker, it is normally called a Compass Locator.
NON-PRECISION APPROACH PROCEDURE: A standard instrument approach procedure using horizontal but no vertical course guidance, such as VOR, TACAN, NDB, or LOC.
NOTICE TO AIRMEN (NOTAM): A time sensitive notice to pilots containing information concerning the establishment, condition, or change in any component of or hazard in the National Airspace System that is considered essential to flight operations personnel.
OBJECT FREE AREA (OFA): An area on the ground free of objects, except those required for air navigation or aircraft ground maneuvering purposes, centered on a runway, taxiway, or taxilane to enhance the safety of aircraft operations.
OBSTACLE FREE ZONE (OFZ): The airspace below 150 feet above the established airport elevation and along the runway and extended runway centerline that provides clearance for aircraft landing or taking off from the runway, and for missed approaches. The OFZ is required to be kept clear of all objects, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function.
OPERATION: A take-off or a landing.
OUTER MARKER (OM): An ILS navigation facility located four to seven miles from the runway threshold on the extended centerline, indicating the pilot is passing over the facility and can begin final approach.
PART 77: Federal laws under Title 14 of the Code of Federal Regulations identifying standards for the Safe, Efficient Use and Preservation of the Navigable Airspace. Several different imaginary airspace surfaces are defined for airports purposes of identifying an obstruction to air navigation:

- **PRIMARY SURFACE:** An imaginary surface defined in FAR Part 77 that is specified as a rectangular surface longitudinally centered about a runway. The specific dimensions of this surface are a function of the type of approaches existing or planned for the runway.

- **APPROACH SURFACE:** An imaginary surface defined in FAR Part 77 that is longitudinally centered on an extended runway centerline and extends outward and upward from the primary surface at each runway end at a designated slope and distance based on the type of available or planned approach by aircraft to a runway.
- **TRANSITIONAL SURFACE:** An imaginary surface extending outward and upward at right angles to the runway centerline and the runway centerline extended at a slope of 7 to 1 from the sides of the primary surface and from the sides of the approach surfaces.
- **HORIZONTAL SURFACE:** An imaginary airspace surface with the horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs from the center of each end of the primary surface of each runway of each airport and connecting the adjacent arcs by lines tangent to those arcs.
- **CONICAL SURFACE:** An imaginary surface defined in FAR Part 77 that extends from the edge of the horizontal surface outward and upward at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

PAVEMENT CONDITION INDEX (PCI): A numerical index between 0 and 100 which is used to indicate the general condition of a pavement. Surveying processes and calculation methods are standardized for airport pavements.

PAVEMENT CLASSIFICATION NUMBER (PCN): An international method of expressing the load-carrying capacity of a pavement as a single unique number, without specifying a particular aircraft or detailed information about the pavement structure.

PILOT CONTROLLED LIGHTING: Airport runway lighting systems controlled by pilots activating their microphone on a specified radio frequency.

PRECISION APPROACH: A standard instrument approach procedure that provides runway alignment and descent (glide slope) information. Precision approaches are categorized as:

- **CATEGORY I (CAT I):** A precision approach providing a decision height of not less than 200 feet and visibility of not less than 1/2 mile or Runway Visual Range (RVR) 2400 (RVR 1800) with operative touchdown zone and runway centerline lights.
- **CATEGORY II (CAT II):** A precision approach that provides a decision height of not less than 100 feet and visibility not less than 1200 feet RVR.
- **CATEGORY III (CAT III):** A precision approach that provides approaches with a decision height and visibility lower than Category II.

PRECISION APPROACH PATH INDICATOR (PAPI): A lighting system providing visual approach slope guidance to aircraft during a landing approach. It is similar to a VASI but provides a sharper transition between the colored indicator lights.

PRECISION APPROACH RADAR (PAR): A radar facility in the terminal air traffic control system used to detect and display with a high degree of accuracy the direction, range, and elevation of an aircraft on the final approach to a runway.

PRECISION OBJECT FREE AREA (POFA): An area centered on the extended runway centerline, beginning at the runway threshold and extending beyond the runway threshold that is 200 feet long by 800 feet wide. The POFA is a clearing standard that requires the POFA to be kept clear of above ground objects protruding above the runway safety area edge elevation (except for frangible N AVAIDS). The POFA applies to all new authorized instrument approach procedures with less than 3/4 mile visibility.

PRIMARY AIRPORT: A commercial service airport that enplanes at least 10,000 annual passengers.

PRIMARY SURFACE: See Part 77.
PROHIBITED AREA: See special-use airspace.
PVC: Poor visibility and ceiling. Used in determining Annual Service Volume. PVC conditions exist when the cloud ceiling is less than 500 feet and visibility is less than one mile.
RADIAL: A radio signal generated by a Very High Frequency Omni-directional Range (VOR) station that is defined as an azimuth from the station.
REGRESSION ANALYSIS: A statistical technique used to identify and quantify the relationships between forecast factors.
REMOTE COMMUNICATIONS OUTLET (RCO): An unstaffed transmitter receiver/facility remotely controlled by air traffic personnel. RCOs serve flight service stations (FSSs)and are established to provide ground-to-ground communications between air traffic control specialists and pilots at satellite airports for delivering enroute clearances, issuing departure authorizations, and acknowledging instrument flight rules cancellations or departure/landing times.
REMOTE TRANSMITTER/RECEIVER (RTR): See remote communications outlet. RTRs serve ATCTs.
RELIEVER AIRPORT: An airport serving general aviation aircraft that might otherwise use a congested air-carrier airport.
REQUIRED NAVIGATION PERFORMANCE (RNP): A type of performance-based navigation that enables aircraft with required on-board navigation performance monitoring and alerting equipment to fly a specific path between defined points, fundamentally similar to RNAV.
RESTRICTED AREA: See special-use airspace.
RNAV: Area navigation: airborne equipment that permits flights over determined tracks within prescribed accuracy tolerances without the need to over-fly ground-based navigation facilities. Used enroute and for approaches to an airport.
RUNWAY: A defined rectangular area on an airport prepared for aircraft landing and takeoff. Runways are normally numbered in relation to their magnetic direction, rounded off to the nearest 10 degrees. For example, a runway with a magnetic heading of 180 degrees would be designated Runway 18. The heading on the opposite end of the runway is 180 degrees from that runway end. For example, the opposite runway heading for Runway 18 would be Runway 36 (magnetic heading of 360 degrees). Aircraft can takeoff or land from either end of a runway, depending on wind direction.
RUNWAY ALIGNMENT INDICATOR LIGHT (RAIL): A series of high intensity, sequentially flashing lights installed on the extended runway centerline, usually in conjunction with an approach lighting system.
RUNWAY END IDENTIFIER LIGHTS (REIL): Two synchronized flashing lights, one on each side of the runway threshold, that provide rapid and positive identification of the approach end of a particular runway.
RUNWAY GRADIENT: The average slope, measured in percent, between the two ends of a runway.
RUNWAY PROTECTION ZONE (RPZ): An area off the runway end to enhance the protection of people and property on the ground. The RPZ is trapezoidal in shape with dimensions determined by the aircraft approach speed and runway approach type and minima.
RUNWAY SAFETY AREA (RSA): A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway.
RUNWAY VISIBILITY ZONE (RVZ): A specified area on the airport to be kept clear of permanent objects that provides an unobstructed line-of-site from any point five feet above the runway centerline to any point five feet above an intersecting runway centerline within the specified area.

RUNWAY VISUAL RANGE (RVR): An electronically-derived value in feet, representing the horizontal distance a pilot can see down the runway.
SPECIALIZED AVIATION SERVICE OPERATOR (SASO): Sometime known as single-service providers or special FBOs, a SASO is a commercial service provider on an airport typically providing a single specialized aeronautical service that does not meet the minimum standards of a full service fixed based operator (FBO).
SCOPE: The document that identifies and defines the tasks, emphasis, and level of effort associated with a project or study.
SEGMENTED CIRCLE: Visual indicators designed to provide traffic patter n Information at airports without operating control towers.
SHOULDER: An area adjacent to the edge of paved runways, taxiways, or aprons providing a transition between the pavement and the adjacent surface that supports aircraft running off the pavement; provides enhanced drainage; and blast protection.
SLANT-RANGE DISTANCE: The straight line distance between an aircraft and a point on the ground.
SMALL AIRPLANE: An airplane that has a maximum certified takeoff weight of up to 12,500 pounds.
SPECIAL-USE AIRSPACE: Airspace of defined dimensions identified by a surface area where activities must be confined because of their nature and/or where limitations may be imposed on aircraft operations that are not a part of those activities. Special-use airspace classifications include:

- **ALERT AREA**: Airspace that may contain a high volume of pilot training activities or an unusual type of aerial activity, neither of which is hazardous to aircraft.
- **CONTROLLED FIRING AREA**: Airspace where activities are conducted under conditions so controlled as to eliminate hazards to nonparticipating aircraft and to ensure the safety of persons or property on the ground.
- **MILITARY OPERATIONS AREA (MOA)**: Designated airspace with defined vertical and lateral dimensions established outside Class A airspace to separate/segregate certain military activities from instrument flight rule (IFR) traffic and to identify for visual flight rule (VFR) traffic where these activities are conducted.
- **PROHIBITED AREA**: Designated airspace within which aircraft flight is prohibited.
- **RESTRICTED AREA**: Airspace designated under Federal Aviation Regulation (FAR) 73, where the flight of aircraft, while not wholly prohibited, is subject to restrictions. Most restricted areas are designated joint use. When not in use by the using agency, IFR/VFR operations can be authorized by the controlling air traffic control facility.
- **WARNING AREA**: Airspace that may contain hazards to nonparticipating aircraft.

STANDARD INSTRUMENT DEPARTURE (SID): A preplanned IFR departure routing, preprinted for pilot use in graphic and textual form.
STANDARD TERMINAL ARRIVAL (STAR): A pre-planned IFR arrival routing, preprinted for pilot use in graphic and textual or textual form only.
STOP-AND-GO: Procedures wherein an aircraft will land, make a complete stop on the runway, and then takeoff. A stop-and-go is recorded as two operations: one operation for the landing and one operation for the takeoff.
STOPWAY: An area beyond the end of a takeoff runway designed to support aircraft during an aborted takeoff without causing structural damage to the aircraft. It is not to be used for takeoff, landing, or taxiing of aircraft.

STRAIGHT-IN LANDING/APPROACH: A landing aligned within 30 degrees of the final approach course following completion of an instrument approach.
TACTICAL AIR NAVIGATION (TACAN): An ultra-high frequency electronic air navigation aid providing suitably equipped aircraft with a continuous indication of bearing and distance to the TACAN station.
TAKEOFF RUNWAY AVAILABLE (TORA): See declared distances.
TAKEOFF DISTANCE AVAILABLE (TODA): See declared distances.
TAXILANE: The portion of the aircraft parking area used for access between taxiways and aircraft parking positions.
TAXIWAY: A defined path established for the taxiing of aircraft from one part of an airport to another.
TAXIWAY SAFETY AREA (TSA): A defined surface on each side of the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway.
TERMINAL INSTRUMENT PROCEDURES: Published flight procedures for conducting instrument approaches to runways under instrument meteorological conditions
TERMINAL RADAR APPROACH CONTROL (TRACON): An element of the air traffic control system responsible for monitoring the enroute and terminal segment of air traffic in the airspace surrounding airports with moderate to high levels of air traffic.
TETRAHEDRON: A device used as a landing direction indicator. The small end of the tetrahedron points in the direction of landing.
THRESHOLD: The beginning of that portion of the runway available for landing. In some instances, the landing threshold may be displaced.
TOUCH-AND-GO: An operation by an aircraft that lands and departs on a runway without stopping or exiting the runway. A touch-and-go is recorded as two operations: one operation for the landing and one operation for the takeoff.
TOUCHDOWN: The point at which a landing aircraft makes contact with the runway surface.
TOUCHDOWN ZONE (TDZ): The first 3,000 feet of the runway beginning at the threshold.
TOUCHDOWN ZONE ELEVATION (TDZE): The highest elevation in the touchdown zone.
TOUCHDOWN ZONE (TDZ) LIGHTING: Two rows of transverse light bars located symmetrically about the runway centerline normally at 100-foot intervals. The basic system extends 3,000 feet along the runway.
TRAFFIC PATTERN: The traffic flow prescribed for aircraft landing at or taking off from an airport. The components of a typical traffic pattern are the upwind leg, crosswind leg, downwind leg, base leg, and final approach, described as follows:

- **UPWIND LEG**: A flight path parallel to the landing runway in the direction of landing.
- **CROSSWIND LEG**: A flight path at right angles to the landing runway off its upwind end.
- **DOWNWIND LEG**: A flight path parallel to the landing runway in the direction opposite to landing. The downwind leg normally extends between the crosswind leg and the base leg.
- **BASE LEG**: The flight path at right angles to the landing runway off its approach end. The base leg normally extends from the down-wind leg to the intersection of the extended runway centerline.
- **FINAL APPROACH**: A flight path in the direction of landing along the extended runway centerline. The final approach normally extends from the base leg to the runway.

UNCONTROLLED AIRPORT: An airport without an airport traffic control tower where Visual Flight Rules traffic is performed.
UNCONTROLLED AIRSPACE: Airspace within which aircraft are not subject to air traffic control.

UNIVERSAL COMMUNICATION (UNICOM): A non-government airport communications facility that may provide airport information. Locations and frequencies of UNICOM's are shown on aeronautical charts and publications.

UPWIND LEG: See "traffic pattern."

VECTOR: A heading issued to an aircraft to provide radar navigational guidance.

VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE STATION (VOR): A ground-based electronic navigation aid transmitting very high frequency radio signals, 360 degrees in azimuth, oriented from magnetic north. Used as the basis for navigation in the national airspace system. The VOR periodically identifies itself by Morse Code and may have an additional voice identification feature.

VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE STATION/ TACTICAL AIR NAVIGATION (VORTAC): A navigation aid providing co-located VOR azimuth, TACAN azimuth, and TACAN distance-measuring equipment (DME).

VICTOR AIRWAY: A control area or portion thereof established in the form of a corridor, whose centerline is defined by radio navigation aids.

VISUAL APPROACH: An aircraft approach conducted in VFR conditions.

VISUAL APPROACH SLOPE INDICATOR (VASI): An airport approach aid providing visual approach slope guidance to aircraft during a landing approach. The VASI emits a directional pattern of high intensity red and white focused light beams that indicate to the pilot they are on path when seeing red/white, above path if white/white, and below path if red/red. Some airports serving large aircraft have three-bar VASI's that provide two visual glide paths to the same runway.

VISUAL FLIGHT RULES (VFR): Rules that govern the procedures for conducting flight under visual conditions. The term VFR is also used in the United States to indicate weather conditions that are equal to or greater than minimum VFR requirements. In addition, pilots and controllers use VFR to indicate the type of flight plan.

VISUAL METEOROLOGICAL CONDITIONS: Meteorological conditions expressed in terms of specific visibility and ceiling conditions equal to or greater than the threshold values for instrument meteorological conditions.

VOR: See "Very High Frequency Omnidirectional Range Station."

VORTAC: See "Very High Frequency Omnidirectional Range Station/Tactical Air Navigation."

WARNING AREA: See special-use airspace.

WIDE AREA AUGMENTATION SYSTEM (WAAS): An enhancement of the Global Positioning System that includes integrity broadcasts, differential corrections, and additional ranging signals for the purpose of providing the accuracy, integrity, availability, and continuity required to support all phases of flight.

Acronyms and Abbreviations

AC:	advisory circular
ACN:	aircraft classification number
ADF:	automatic direction finder
ADG:	airplane design group
ADS-B:	automatic dependent surveillance - broadcast
AFSS:	automated flight service station
AGL:	above ground level
AGIS:	Airports Geographic Information System
AIP:	Airport Improvement Program
AIR-21:	Wendell H. Ford Aviation Investment and Reform Act for the 21st Century
ALS:	approach lighting system
ALSF-1:	standard 2,400-foot high intensity approach lighting system with sequenced flashers (CAT I configuration)
ALSF-2:	standard 2,400-foot high intensity approach lighting system with sequenced flashers (CAT II configuration)
APV:	instrument approach procedure with vertical guidance
ARC:	airport reference code
ARFF:	aircraft rescue and firefighting
ARP:	airport reference point
ARTCC:	air route traffic control center
ASDA:	accelerate-stop distance available
ASR:	airport surveillance radar
ASOS:	automated surface observation station
ATCT:	airport traffic control tower
ATIS:	automated terminal information service
AVGAS:	aviation gasoline - typically 100 low lead (100LL)
AWOS:	automated weather observation station
BIL:	Bipartisan Infrastructure Law
BRL:	building restriction line
CFR:	Code of Federal Regulations
CIP:	capital improvement program
DME:	distance measuring equipment
DNL:	day-night noise level
DWL:	runway weight bearing capacity for aircraft with dual-wheel type landing gear
DTWL:	runway weight bearing capacity of aircraft with dual-tandem type landing gear
FAA:	Federal Aviation Administration
FAR:	Federal Aviation Regulation
FBO:	fixed base operator
FY:	fiscal year
GPS:	global positioning system
GS:	glide slope

HIRL: high intensity runway edge lighting
IFR: instrument flight rules (FAR Part 91)
ILS: instrument landing system
IM: inner marker
LAAS: local area augmentation system
LAHSO: land and hold short operations
LDA: localizer type directional aid
LDA: landing distance available
LIRL: low intensity runway edge lighting
LMM: compass locator at middle marker
LOC: ILS localizer
LOM: compass locator at ILS outer marker
LPV: localizer performance with vertical guidance
MALS: medium intensity approach lighting system
MALSR: medium intensity approach lighting system with runway alignment indicator lights
MIRL: medium intensity runway edge lighting
MITL: medium intensity taxiway edge lighting
MLS: microwave landing system
MM: middle marker
MOA: military operations area
MSL: mean sea level
NAVAID: navigational aid
NDB: nondirectional radio beacon
NextGen: next generation air transportation system
NM: nautical mile (6,076 .1 feet)
NPES: National Pollutant Discharge Elimination System
NPIAS: National Plan of Integrated Airport Systems
NPRM: notice of proposed rulemaking
ODALS: omnidirectional approach lighting system
OFA: object free area
OFZ: obstacle free zone
OM: outer marker
PAC: planning advisory committee
PAPI: precision approach path indicator
PCN: pavement classification number
PFC: porous friction course
PFC: passenger facility charge
PCL: pilot-controlled lighting
PIW: public information workshop
PLASI: pulsating visual approach slope indicator
POFA: precision object free area
PVASI: pulsating/steady visual approach slope indicator
PVC: Poor visibility and ceiling.
RCO: remote communications outlet

REIL: runway end identifier lighting
RNAV: area navigation
RNP: required navigation performance
RPZ: runway protection zone
RSA: runway safety area
RTR: remote transmitter/receiver
RVR: runway visibility range
RVZ: runway visibility zone
SALS: short approach lighting system
SASO: specialized aviation service operator
SASP: state aviation system plan
SEL: sound exposure level
SID: standard instrument departure
SM: statute mile (5,280 feet)
SRE: snow removal equipment
SSALF: simplified short approach lighting system with sequenced flashers
SSALR: simplified short approach lighting system with runway alignment indicator lights
STAR: standard terminal arrival route
SWL: runway weight bearing capacity for aircraft with single-wheel type landing gear
STWL: runway weight bearing capacity for aircraft with single-wheel tandem type landing gear
TACAN: tactical air navigational aid
TDZ: touchdown zone
TDZE: touchdown zone elevation
TAF: Federal Aviation Administration (FAA) Terminal Area Forecast
TODA: takeoff distance available
TORA: takeoff runway available
TRACON: terminal radar approach control
VASI: visual approach slope indicator
VFR: visual flight rules (FAR Part 91)
VHF: very high frequency
VOR: very high frequency omni-directional range
VORTAC: VOR and TACAN collocated
WAAS: wide area augmentation system

APPENDIX B: GENERAL AVIATION AIRPORTS 101

Introduction

This appendix provides background information for various issues that are pertinent to airports. The issues covered in this appendix include the following:

- Airport Governance and Management
- Airport Classification
- Airport Funding
- Airport Design Standards

Airport Management/Governing Structure

Airports function as public entities and are managed or governed in a variety of forms. Before outlining the current governing and management structure for Terry Airport, this section will provide an overview of the variety of options that airports use to govern and manage their affairs.

Governing Structures

There are four predominant types of airport governing structures used to provide public oversight for airports:

City/County Department – the City/County governing board serves as the airport's governing board for all matters such as contracting, capital improvements, finance' and similar matters. The City/County may use its taxing authority to help support the airport or there may be provisions in state statutes that allow additional limited taxing authority to support the airport.

City/County Department with Advisory Board – the City/County governing board serves as the airport's governing board for all matters but looks to the Airport Advisory board for recommendations on actions. The City/County may use its taxing authority to help support the airport or there may be provisions in state statutes that allow additional some limited taxing authority to support the airport.

Airport Board – there are provisions in state statutes that allow for the creation of an Airport Board with limited and specific governing authority. The type of authority that exists with the board varies but in general this structure allows the airport to operate semi-autonomously from the City/County while final responsibility for the airport still rests with the City/County which owns the airport. The City/County may use its taxing authority to help support the airport or there may be provisions in state statutes that allow some limited taxing authority to support the airport.

Airport Authority – there are provisions in state statues that allow for the creation of an independent airport authority. These may be created by a City/County or created through a separate process. Once created, these entities have complete authority to govern the activities at the airport. Depending on state statutes, these governing bodies may also have independent, but limited, taxing authority to aid in funding the airport.

Management Structures

There are three general types of management structures for an airport. These different management structures are necessary to ensure that the policies established by the governing body can be carried out on a day by day basis in the operation and delivery of services at the airport. These are as follows:

Appointed Airport Manager – an appointed airport manager is one whose sole responsibility is the operation of the airport. The airport manager is selected by the governing body, the city/county manager or through the city/county's established human resources structure through a qualifications-based selection process. The airport manager then serves at the will of the city/county.

City/County Department Head also assigned as Airport Manager – this person is assigned as airport manager in title but often has larger responsibility such as public works director, city engineer, or transportation director. Like the appointed manager, this person is selected by the governing

Transition to Unleaded Aviation Gasoline

In October 2023, the Environmental Protection Agency (EPA) released a final endangerment finding regarding the lead emissions produced from piston engine aircraft. This finding created obligations for both the EPA and the Federal Aviation Administration (FAA).

Over the next 3-4 years, the EPA and FAA must create three separate rulemakings that will have an impact on airports in the NPIAS.

1. The EPA must develop lead emissions standards for aircraft engines
2. FAA must incorporate emissions standards into the engine certification process
3. FAA must regulate lead as a fuel component or additive to control or eliminate lead emissions

The FAA and others in the industry created the Eliminate Aviation Gasoline Lead Emissions (EAGLE) Initiative in March 2022 to work towards transitioning to lead free fuels for piston aircraft by the end of 2030. This initiative involves ensuring that supply chain and infrastructure is in place during the transition as well as creation of standards to authorize aircraft to begin using the newly developed fuel. This is imperative given that there are over 220,000 piston aircraft in the United States.

The EPA endangerment finding does not require airports to ban or restrict the use of 100LL. Therefore, airports will need to consider the space required to accommodate storage and dispensing of multiple types of fuel. Airports will also be responsible for choosing a supplier that can economically and reliably provide the fuel needed. Additionally, adequate training will need to be provided for airport users to ensure misfuelling does not occur.

There are currently four unleaded fuel alternatives available today: Autogas, UL91, Swift Fuels UL94, and GAMI G100UL. Aircraft owners can purchase Supplemental Type Certificates (STCs) in order to allow their aircraft to operate using the fuel alternatives. The two most common in the US right now include Autogas (for lower compression aircraft) and Swift Fuels UL94 (STC Approved Model List currently covers about 68% of certified aircraft). At this time, Swift Fuels UL94 is able to be intermixed with 100LL at any ratio, however the fuels cannot be stored together.

Airports should consider how they will begin to transition their fueling infrastructure to provide 100LL and an unleaded alternative until all certified aircraft can utilize the alternative. Part of this will involve conversations with based aircraft owners as well as transient users. For airports with multiple fuel storage tanks, this could involve utilizing one for the unleaded alternative.

Part of the EAGLE initiative involves advocating for policies that provide airports with funding to transition their fueling infrastructure to unleaded avgas. Currently there are several potential funding options to assist with the transition.

1. Airport Infrastructure Grant Program
2. Airport Improvement Program

See flyeagle.org for more information.

body, the city/county manager, or through the city/county's human resources system through a qualifications based selection process.

FBO Appointed as Airport Manager – this person is assigned as airport manager mostly in order to provide a physical presence at the airport and assure the day to day operation of the airport. This person also serves as the FBO at the airport and therefore has a concerted interest in the operation of their FBO business. When an FBO is appointed as airport manager, the governing body often retains more responsibility as to formulating capital improvement plans, financial planning, leasing, and similar matters.

FBO/Aircraft Services

The final element of the airport's management and governing structure has to do with the provision of Fixed Base Operator (FBO) type aircraft servicing. At many small airports, it is not financially feasible for an FBO to operate. At some larger airports, the airport has chosen to provide FBO-type aircraft servicing in order to retain the profits from such an activity to fund the airport. In accordance with FAA policy, airports have the 'Proprietary Exclusive Right' to provide any and all types of aeronautical services if they wish. Information regarding the 'Proprietary Exclusive Right' may be found in AC 150/5190-6 "Exclusive Rights at Federally-Obligated Airports" and FAA Order 5190-6b Airport Compliance Manual (Chapter 8). The decision to operate one way or another is an economic and policy choice made by the governing body.

Private FBO – this arrangement has a private company operating under an agreement with the governing body to use space at the airport. The FBO provides services for aircraft and pilots which may include fueling, maintenance, hangaring, aircraft handling, instruction etc.

Airport providing Aircraft Servicing (similar to an FBO) – this structure carries out all the traditional responsibilities of an airport to maintain the airfield and additionally provides FBO-type aircraft services. This direct customer service role adds another dimension to the variety of duties that an airport manager will encounter on a daily basis.

Terry Airport

Prairie County Airport Authority is the governing body which owns and is responsible for the operations and capital development of the airport. The airport does not have an airport manager onsite and does not have an FBO.

Airport Classification

Airports are given different classifications or designations, depending on the source. This section discusses the various sources or systems used nationally, regionally, or locally to classify an airport. The primary systems used to classify an airport include:

a. FAA National Plan of Integrated Airport Systems (NPIAS)
b. Regional or State Aviation System Plans (SASP)
c. FAA General Aviation Airport Report (ASSET)

National Plan of Integrated Airport Systems

The Airport and Airway Improvement Act of 1982 directed the Secretary of Transportation to prepare, publish, and biannually revise a national system plan – the National Plan of Integrated Airport Systems (NPIAS) – for the development of public-use airports in the United States. This requirement can be found in Public Law 49 United States Code § 47103. The NPIAS is a system that emphasizes system planning and development to meet current and future aviation needs. It includes the development considered necessary to provide a safe, efficient, and integrated airport system to meet the needs of civil aviation, national defense, and the United States Postal Service. It takes into account the relationship of each airport to the rest of the transportation system in a particular area, the forecast of technological developments in aeronautics, and the development forecast in other modes of transportation.

To be eligible for funding under the Airport Improvement Program (AIP), an airport must be included in the NPIAS. The FAA determines whether an airport can be included in the NPIAS and the requirements for inclusion in the NPIAS are defined by law and FAA policy. As general criteria, the airport must be a publicly-owned, public-use airport serving civil aviation (privately-owned, public use airports may be included under certain circumstances) with an eligible sponsor, must have at least 10 based aircraft, and must be located at least 20 miles from another NPIAS airport.

Although it is not a factor in determining an airport's classification in the NPIAS, it is important to note that, after an airport is included in the NPIAS and accepts a federal grant for AIP funds, the airport sponsor is contractually obligated to meet the terms and conditions of the AIP grant. These terms and conditions, typically called grant assurances, are established by federal law and define the requirements a sponsor must comply with in the safe and efficient operation and maintenance of the airport.

NPIAS Airport Classification

The public law that created the NPIAS plan defines airports by categories of airport activities. Those categories are defined as follows:

Commercial Service

Commercial service airports are defined as publicly owned airports that have at least 2500 passenger boardings each calendar year and receive scheduled passenger service. Commercial service airports are further categorized based on the number of annual passenger boardings.

> **Primary commercial service**: a commercial service airport with more than 10,000 passenger boardings each year.
>
> **Nonprimary commercial service**: a commercial service airport with at least 2,500 but no more than 10,000 passenger boardings each year. These airports are commonly referred to as **Commercial Service** airports.

Because of the wide range in levels of passenger boardings throughout the United States, primary commercial service airports are further categorized by the percentage of total passenger boardings in the United States.

> **Large Hub**: a primary commercial service airport with 1 percent or more of the annual national passenger boardings. Commonly referred to as **Large Hub** airports, annual passenger boardings typically range above 8 million.

Medium Hub: a primary commercial service airport with at least 0.25 percent but not more than 1 percent of the annual national passenger boardings. Commonly referred to as **Medium Hub** airports, passenger boardings typically range from 2 million to 8 million.

Small Hub: a primary commercial service airport with at least 0.05% but not more than 0.25 percent of the annual national passenger boardings. Commonly referred to as **Small Hub** airports, passenger boardings typically range from 350,000 to 2 million.

Non-hub: a primary commercial service airport with more than 10,000 but less than 0.05 percent of the annual national passenger boardings. Commonly referred to as **Non-hub Primary** airports, passenger boardings typically range from 10,000 to 350,000.

General Aviation

Most airports that are not considered commercial service airports fall into this category. Although some general aviation airports do have scheduled passenger service, they have fewer than 2500 annual boardings and therefore are not classified as commercial service airports. See the section **General Aviation Airport: A National Asset** for more detail on general aviation airports.

Reliever

Reliever airports are general aviation airports designated by the FAA to relieve congestion at a commercial service airport and to provide more general aviation access to the overall community.

Terry Airport Classification

Terry Airport is included in the NPIAS and is classified as a General Aviation Airport.

State Aviation System Plan

An integrated State airport system plan is the representation of facilities required to meet immediate and future needs as well as achieve overall goals of the State. It recommends the general role, location, and characteristics of new airports or the nature of expansion for existing ones. In order for an airport to be considered for inclusion in the NPIAS, it must first be included in the State's Aviation System Plan (SASP). Each SASP may use different terms or definitions for the role of an airport within the state, and those roles are defined below.

Montana State Aviation System Plan

Airports in Montana are organized in a variety of roles based on the users they serve and support. Montana airports are classified in one of seven categories, each with a unique set of characteristics and services. See the following section **Airport Design Standards** for more information on ARC codes. The airport roles are defined as follows:

Commercial Service Airport: These airports accommodate scheduled major/national or regional/commuter commercial air carrier service; or relieve scheduled air carrier airports of corporate aviation activity.

Essential Air Service (EAS) Airport: These airports provide a level of scheduled air service to communities that otherwise would have limited access to the nation's air transportation system.

General Aviation - Level 1 Airport: These airports maintain a consistent and contributing role in enabling the local, regional, and state-wide economy to have access to and from the national and global economy.

General Aviation - Level 2 Airport: These airports maintain a contributing role in supporting the local and regional economies and connecting the community to the state and national economies.

General Aviation - Level 3 Airport: These airports maintain a supplemental contributing role for the local economy and community access.

General Aviation - Level 4 Airport: These airports maintain a limited contributing role for the local economy and community access.

General Aviation - Level 4 Airport (Remote): These airports maintain a limited contributing role for the local economy and community access to rural regions of the state.

Terry Airport is classified as a Level 3 General Aviation airport in the current Montana State Aviation System Plan.

General Aviation Airports: A National Asset

This report, commonly known as the ASSET 1 Study, documented an 18-month study of the nearly 3000 general aviation (GA) airports, heliports, and seaplane bases identified in the FAA's National Plan of Integrated Airport Systems (NPIAS). The in-depth analysis highlighted the pivotal role GA airports play in our society, economy, and the aviation system. The study also aligned the GA airports into four categories – national, regional, local, and basic – based on their existing activity levels. The categories are a tool to help the FAA and state aeronautical agencies make more consistent planning decisions for the nation's GA airports. They reflect the current aviation activity at GA airports, such as the number and type of based aircraft, the number of passenger boardings, and the number of flights.

During the initial study, the FAA found that almost 500 GA airports did not clearly fit into the four defined categories. As a result, the FAA initiated a second phase of the study in 2013 to define a category for those airports, as well as reassign airports to different categories, based on updated information. That study, known as the ASSET 2 study, assigned 212 previously unclassified airports to one of the four categories.

ASSET Study Airport Categories

The current version of the ASSET study includes four categories. These categories are National, Regional, Local, and Basic. As the second phase of the study was completed, the number of airports considered unclassified was reduced from 497 to 281.

National Airports

These 84 GA airports are located in metropolitan areas near major business centers and support flying throughout the nation and the world. Currently located within 31 states, they account for 13 percent of total flying at the studied airports and 35 percent of all filed flight plans at the airports in the four categories. These 84 airports support operations by the most sophisticated aircraft in the GA fleet. Many flights are by jet aircraft, including corporate and fractional ownership operations and air taxi services. These airports also

provide pilots with an alternative to busy primary commercial service airports. There are no heliports or seaplane bases in this category. The criteria used to define the National category include:

- 5,000 + instrument operations, 11+ based jets, 20+ international flights, or 500+ interstate departures: or
- 10,000+ enplanements and at least 1+ charter enplanement by a large certificated air carrier: or
- 500+ million pounds of landed cargo weight.

Regional Airports

The 468 airports in the Regional Airport category are located in metropolitan areas and serve relatively large populations. These airports support interstate and some long distance (cross country) flying with more sophisticated aircraft. 49 states, with the exception of Hawaii, currently have Regional airports. These airports account for 37 percent of total flying at the studied GA airports and 42 percent of filed flight plans. There is a substantial amount of charter (air taxi), jet flying, and rotorcraft at regional airports. There are no heliports or seaplane bases in this category. The criteria used to define the Regional category include:

- Metropolitan Statistical Area (Metro or Micro) and 10+ domestic flights over 500 miles, 1,000+ instrument operations, 1+ based jet, or 100+ based aircraft; or
- The airport is located in a metropolitan or micropolitan statistical area, and the airport meets the definition of commercial service.

Local Airports

The 1,263 airports in the Local category are the backbone of the general aviation system, with at least one Local airport in every state. They are typically located near larger population centers but are not necessarily in metropolitan or micropolitan areas. Local airports account for 42 percent of the general aviation airports eligible for Federal funding. They also account for approximately 38 percent of the total flying at the studied GA airports and 17 percent of filed flight plans. Most of the flying is by piston aircraft in support of business and personal needs. In addition, these airports also typically accommodate flight training, emergency services, and charter passenger service, and the flying tends to be within a state or immediate region. There are no heliports, but there are four seaplane bases in this category. The criteria used to define the Local category include:

- 10+ instrument operations and 15+ based aircraft; or
- 2,500+ passenger enplanements.

Basic airports

The 852 airports in the Basic category are often able to fulfill their role with a single runway, helipads, seaplane area, and limited infrastructure. 43 states have Basic airports and these airports fulfill the role of a community airport providing a means for private GA flying and linking the community to the national airport system. Basic airports account for approximately 7 percent of the total flying at GA airports and 2 percent of filed flight plans. Most of the flying is self-piloted for business and personal reasons using propeller-driven aircraft. A fair amount of air charter (taxi) services is provided at these airports. There are also 3 heliports and 20 seaplane bases in this category. The criteria used to define the Basic category include:

- 10+ based aircraft; or

- 4+based helicopters; or
- The airport is located 30+ miles from the nearest NPIAS airport; or
- The airport is identified and used by the US Forest Service, US Marshals, US Customs and Border Protection (designated, international, or landing rights), or US Postal Service (air stops), or has Essential Air Service; or
- The airport is a new or replacement facility activated after January 1, 2001; and
- Publicly owned or privately owned and designated as a reliever with a minimum of 90 based aircraft.

General Aviation airports not classified

There are 281 airports that did not fit into one of the four categories. Most of these airport have been in the NPIAS for decades and may have seen an erosion of based aircraft and activity (because of population or economic shifts or recession) or may have no based aircraft. 54 of these airports are privately owned and were originally included in the national system as relievers for commercial service airports, but no longer met the entry criteria. Others may be seasonal airports, military airfields recently converted to general aviation use, or airports used to access important state airports with related national interests. These airports account for approximately 6 percent of total flying at the studied GA airports and 2 percent of filed flight plans. However, none are commercial service airports and none received scheduled air service through the Essential Air Service program.

Terry Airport ASSET Classification

Terry Airport is included in the NPIAS and is classified as a General Aviation Airport and is further classified as a Basic Airport in the current ASSET report.

Airport Funding

This section provides background information on available Federal, State, and local funding, and lists the various projects that have been undertaken at the Terry Airport (97M).

Federal Funding

Most funding for airport development comes from federal government programs. The predominant federal funding program is the Airport Improvement Program (AIP), managed by the Federal Aviation Administration.

Federal Funding Legislation

The Federal Aviation Administration (FAA) issues grants for airport planning and development in the United States under Public Law 49 United States Code (USC) § 47104(a). Two separate legislative actions - an authorization and an appropriation are needed in order to issue grants and operate the Airport Improvement Program (AIP) grant program.

- **Authorization.** The FAA authorization legislation has numerous titles but is often referred to as the FAA Reauthorization and is passed by Congress for varying lengths of time. The authorization sets yearly limits on AIP funding levels and gives the FAA contract authority to issue grants.
- **Appropriation.** Congress establishes an annual appropriation that allows the FAA to incur obligations and make payments for specific purposes. Although the FAA reauthorization typically establishes an

annual authorized funding level for the AIP program, Congress may also use the appropriation law to adjust the authorized AIP funding level for the current year.

Airport and Airway Trust Fund (Source of AIP)

AIP funds are drawn from the Airport and Airway Trust Fund, referred to as the Trust Fund. The Trust Fund receives revenues solely from a variety of sources in the aviation industry, including the domestic ticket tax, a domestic passenger flight segment fee, a departure tax for flights to Hawaii and Alaska, a passenger ticket tax at rural airports, international departure and arrival taxes, frequent flyer taxes, domestic freight and mail taxes, a commercial aviation fuel tax, and a general aviation fuel tax.

AIP Funding Categories

The AIP legislation determines the amount of funding available in each period. Once that amount is established, a complex set of formulas defined by the FAA authorization law, determines how much funding is available within each airport category. In general, AIP funding is distributed in the following categories:

Entitlements

Entitlement funds are AIP funds available to individual airports and fall into various categories based on the number of enplaned passengers.

Cargo Entitlements

Airports receiving cargo shipments may be eligible for cargo entitlements. Cargo entitlements are based on the distribution of 3.5 percent of the total available AIP funds, divided on a pro-rata basis according to an airport's share of total US landed cargo weight.

Primary Entitlements

These funds are available to airports with scheduled passenger service and enplaning more than 10,000 passengers per year. Passenger entitlements are calculated based on the following formula:

- $7.80 for each of the first 50,000 passenger enplanements
- $5.20 for each of the next 50,000 passenger enplanements
- $2.60 for each of the next 400,000 passenger enplanements
- $0.65 for each of the next 500,000 passenger enplanements
- $0.50 for each passenger enplanement greater than 1 million

The annual minimum is $650,000 and the annual maximum is $22 million per airport. By a special provision in the authorization, when $3,200,000,000 or more AIP is appropriated in the fiscal year, each level doubles (i.e., instead of $7.80 for each of the first 50,000, the rate becomes $15.60, etc.), the annual minimum becomes $1 million, and the maximum becomes $26 million per airport.

Nonprimary Entitlements

The special provision in the authorization (as noted above) stipulates that airports not receiving passenger entitlements will receive nonprimary entitlements when AIP appropriations are $3,200,000,000 or more in the fiscal year. These entitlements are the lesser of $150,000 or 20 percent of an airport's 5-year development costs listed in the biennial National Plan of Integrated Airport Systems (NPIAS) report to Congress.

State Apportionment

These funds are available for eligible airport development projects within a state. Normally, 18.5 percent of total available AIP grant funds are apportioned for airports based on an area/population formula. These funds are generally limited to commercial service, nonprimary, and general aviation airports.

Discretionary

The appropriated funds remaining after the other types of funds have been allocated are referred to as "discretionary" funds. A portion of the discretionary funds are directed toward specific, or "set-aside," programs, such as noise-related projects or the Military Airport Program. Of the discretionary funds remaining after set-asides, 75 percent are to be used for enhancing capacity, safety, security, and noise compatibility planning and programs. The remaining 25 percent, known as pure discretionary funds, may be used for any eligible project at any airport, as determined by the FAA.

As a general rule pure discretionary funds typically account for less than four percent of the available AIP funds. However, during the fiscal year some airport sponsors may decide not to proceed with an AIP project or may have funds remaining after the completion of a project. Those funds are returned to FAA and converted to discretionary funds, creating additional discretionary funds to be used for eligible projects.

Supplemental Funding

Beginning in 2018, the Airport Improvement Program included an additional allocation of funds identified as Supplemental Appropriation. The money comes from the General Fund rather than the Airport and Airway Trust fund and the appropriation varies in size but is distributed similar to discretionary funds.

Bipartisan Infrastructure Law

On November 6, 2021, the Bipartisan Infrastructure Law (Infrastructure Investment and Jobs Act) was passed. This included $ 1 trillion for improvements to highways, bridges, roads, passenger and freight rail, airports, water and wastewater treatment, internet access and modernizing the electric grid. The FAA awarded the $25 billion received from the law to 3,075 airports and divided it into three grant groups:

1. $5 billion for airport terminals to replace aging terminals, increase energy efficiency and accessibility.
2. $5 billion for air traffic facilities to update and upgrade equipment to improve safety, security and environmental standards and replace necessary facilities.
3. $15 billion for airport infrastructure for projects as defined under the existing Airport Improvement Grant and Passenger Facility Charge criteria including runways, taxiways, safety and sustainability projects, terminal, airport-transit, and roadway.

$113,000 was allocated from the Bipartisan Infrastructure Law to Terry for 2023 for improvements.

Federal Share of Project Funding

AIP funds typically do not cover the entire cost of an airport development project. Although there are some exceptions, the current legislation limits the federal share of allowable AIP costs to 90 percent for most non-hub primary or smaller airports. The remaining 10 percent is considered the local share and is the sponsor's responsibility.

Types of Potential AIP Funding Available for Terry Airport

By law, only public-use airports in the NPIAS are eligible for AIP funding. These airports are classified into various categories based on their usage and level of passenger enplanements, and those categories determine the type of airport funding eligibility. **Terry Airport meets the definition of a non-primary airport and will receive non-primary entitlement funding for eligible projects.**

Most AIP-eligible projects would also be eligible for discretionary funding. However, as stated earlier, the assignment of discretionary funds is determined by the FAA, and extensive coordination with the FAA is required to determine the potential availability of discretionary funding for specific projects.

The Federal AIP Grant Process

Once AIP funding has been identified, the airport sponsor must go through an established process to receive the federal funds and apply them towards an airport development project. The current version of FAA Order 5100.38 contains a detailed explanation of all requirements and processes. In addition, coordination with the Airports District Office (ADO) is strongly encouraged to ensure there is no confusion.

Basic Grant Steps

While there are numerous steps in the FAA AIP grant process, all AIP grants proceed through the same basic steps.

Pre-Grant Actions

Pre-grant actions must be taken before an AIP-eligible project is ready to be considered for inclusion in a grant. The most critical action is the need for early and extensive coordination between the sponsor and the FAA. The majority of the sponsor's interface with the FAA is at the local level with the appropriate ADO.

Sponsors must develop a Capital Improvement Plan (CIP), typically based on the airport's 20-year development plan. This CIP is submitted to the ADO, where it is reviewed to identify the projects that meet all of the applicable requirements. The ADO enters those projects into an automated AIP system, which is then used to create a five-year NPIAS report, outlining projects eligible for AIP funding. The FAA creates an Airports Capital Improvement Plan (ACIP) to identify the projects that may be funded with AIP over the next three years. Inclusion of a project in the ACIP represents the initial FAA concurrence with the project. However, inclusion of a project in the NPIAS or the ACIP is not a guarantee of funding, nor does the FAA consider the value of the project a final determination.

The ADO will typically notify the sponsor of the favorable potential for receiving federal funding in the upcoming fiscal years. However, it is not a commitment nor a guarantee of funds; rather, it is simply a notice that funding for the project appears favorable and the sponsor should consider initiating those actions that require long lead times in order to avoid delays in the grant process. In addition, the sponsor must develop a

realistic project schedule, setting realistic sponsor deadlines for key steps in the grant process and coordinate this schedule with the ADO.

Grant Programming

A grant is "programmed" when the ADO creates a proposed grant in the automated AIP system. These proposed grants are typically based on estimated costs. The grant is then reviewed within the FAA Office of Airports. If the grant is approved, it then enters into the congressional notification process.

The FAA posts the grant on the official FAA Office of Airports website after the congressional notification process is complete. This is considered formal notification that the ADO has authority to issue the grant. The sponsor is typically notified in writing through a Tentative Allocation letter.

Grant Application, Offer and Acceptance

The following steps must be completed after the sponsor has been notified that they will receive a grant:

- Submittal of Grant Application Package
- Grant Application Review
- Fund Reservation
- Grant Offer
- Grant Acceptance

Grant Acceptance

If the sponsor agrees with the grant offer an authorized representative of the sponsor must sign the grant agreement. The sponsor's attorney must also sign the grant agreement, confirming the sponsor is legally able to enter into the contract with the US government. No funds can be drawn from the grant allocation until the ADO receives an original signed agreement and enters it into the FAA's system.

Grant Payments

The sponsor may begin requesting payments from the FAA once the grant agreement has been fully executed and returned to the ADO. It is important to note a number of requirements in the payment process.

- All grant payment requests must be processed through the currently approved DOT grant payment system.
- Payment requests must be submitted at least annually, unless the ADO requests more frequent submissions. The sponsor may submit payment requests more frequently as costs are incurred.
- Payment requests must be based on costs already paid by the sponsor. Advance payments must be approved by the ADO.
- The last 10 percent of the federal share of the grant must be withheld until the ADO receives the final grant closeout report.
- The sponsor must retain all the documentation supporting the grant payment for the required time period and must make this information available on request.

Grant Amendments

A grant agreement can be amended under certain circumstances. Only the ADO can change a grant agreement and amendments are the process used to implement such changes. In general, a grant agreement can be amended with certain limitations for the following reasons:

- To increase or decrease the grant amount. Grants for planning projects cannot be increased. In addition, amendments to increase the grant amount are limited to a maximum of 15 percent.
- To clarify the project description.
- To add, delete or modify a project.

The Sponsor must coordinate with the ADO to determine requirements for grant amendments.

Grant Closeouts

The final step in the process after the project has been completed is to complete all the administrative actions to close out the grant. This step is particularly important to the sponsor, since the FAA is required to withhold the last 10 percent of the federal share of the grant amount until the closeout report has been submitted to the ADO. The basic steps of the process are:

- Physically complete all projects in the grant.
- Complete all grant administrative and financial requirements
- Complete the closeout process

A project is physically complete when all work funded by the grant has been satisfactorily completed in accordance with all specifications or requirements. Before the ADO can process the closeout, they must receive the appropriate documentation demonstrating that the grant project requirements have met, the sponsor has met all of the grant requirements and all project costs are properly documented.

After the ADO has received all required documentation and verified that all requirements have been met, they will prepare a FAA Final Project Report. The ADO will then send written notification to the sponsor of the final payment amount. After the final payment has been made, the ADO will coordinate with other FAA offices to close the grant. When all these actions have been completed, the ADO will notify the sponsor in writing that the grant is physically and financially complete and the grant is officially closed.

Post-Grant Actions

Once the FAA has officially closed the grant, the sponsor:

- Is required by law to retain all grant-related documentation for three years. If there is litigation, the sponsor must retain the documentation until the issue is resolved or three years, whichever is later;
- Must meet grant assurances and special conditions. Most grant assurances and special conditions remain in effect for 20 years after the grant was signed. Some assurances or special conditions are in effect for the life of the equipment or facility, while other obligations remain in effect for in perpetuity.
- Must comply with the Office of Management and Budget (OMB) single audit requirements If a sponsor expends more than $500,000 in federal funds (all federal funds, not just AIP) in a fiscal year. Unless the

sponsor is an independent airport authority, this requirement applies to the airport's governing organization, i.e., city, county, state, etc.

- Must receive FAA approval to dispose of equipment or land acquired with AIP funds.

NOTE: The above narrative on the AIP grant process is a summary of current program guidance and does not include all the available details and program requirements. A more detailed description of all of the elements of the AIP grant process can be found in the current version of *FAA Order 5100.38, Airport Improvement Program Handbook*. In addition, sponsors are strongly encouraged to consult their local ADO for the latest policy and guidance.

State Funding

State governments typically have a variety of airport development funding programs available. These funding programs typically use funds from a variety of sources, such as aviation fuel taxes or aircraft registration fees, and are often used to fund a portion of an airport sponsor's local share of federally-funded airport development projects.

Montana State Aviation Funding

The Montana Department of Transportation's Aeronautics Division, under the direction of the Montana Aeronautics Board, manages State funding for airport development. This funding comes primarily from aviation fuel taxes.

Airports may apply for funds to cover up to 100 percent of the local share for federal AIP-funded projects. For projects not eligible for federal AIP-funds or airports not included in the NPIAS, non-federal funding through state grants are available. Loans through the Aeronautics Division are also available to airports to cover 100% of project costs.

Local Funding

While funding for airport development is typically derived from federal or state sources, portions of most capital projects and the majority of airport operating expenses must be funded through local sources. Ideally, the airport generates sufficient revenue to meet those costs. For this reason, the FAA has included in Grant Assurance Number 24 which states:

> "It [the airport sponsor] will maintain a fee and rental structure for the facilities and services at the airport which will make the airport as self-sustaining as possible under the circumstances existing at the particular airport, taking into account such factors as the volume of traffic and economy of collection."

For most small airports airport expenses and funding requirements typically exceed available airport revenue and the airport must rely on other funding sources. This section reviews local revenue and identifies possible revenue or funding sources for airport capital development projects, growth, and operation and maintenance expenses. For comparison, Montana DOT Aeronautics Division annually conducts a survey of rates and charges and posts those results on their website.

Rates and Charges Revenue

The primary category of income for airports comes from rates and charges that are established by the airport sponsor for the use of the airport. These include fees for services as well as rental income from the use of airport property.

Fuel Flowage Fees – The airport sponsor can charge a fee per gallon for fuel pumped at the airport. This should be for all fuel pumped at the airport whether it is from an FBO or a private company/individual with their own tanks. The fuel flowage provides an easy to calculate and collect user fee based on the aircraft use of the airport. Larger aircraft use more fuel and pay more. Higher frequency activity uses more fuel and pays more. Each of these correspond with higher use of the airport's facilities. It is important to note that this fuel flowage fee is to cover some of the expenses of operating the airport. The airport sponsor may also be leasing the fuel facility to an FBO or trying to cover maintenance of the fuel facility. Charges for leasing the fuel facility may be based on fuel flowage but should be over and above the standard fuel flowage fee for using the airport.

Landing Fees – The airport sponsor can charge a landing fee for the use of the airport. This is charged as most large airports and is calculated based on maximum gross weight. For most general aviation airports, the landing fee is not used because of the challenges in collecting the fee. Some airports however may have a landing fee for aircraft over a certain weight such as above 12,500 pounds. The landing fee for larger aircraft then becomes a means to cover the cost to the airport from higher usage from these larger aircraft.

Leases for Aeronautical Uses -- The primary means that a general aviation airport has to produce income is through property leases. Two common options for aeronautical leases are land leases for private hangar development or airport funded hangars leased for aircraft storage. For Terry Airport, Carter County currently leases T-Hangar space for $100 per month.

Land Lease is a common method for allowing hangar construction. This is where a tenant will lease a tract of airport land that is connected to the airfield and public access. The tenant will construct a facility at their own expense and pay a land lease rate to the airport through a term of the lease sufficient for the tenant to amortize their investment. An important element to consider is reversion of the improved property to the airport following the initial 'amortization' term of the lease. The reason to consider reversion is addressed in more detail in this section and would be instituted equally for any person and varies only based on the level of investment made into the facility.

A guideline for setting the initial 'amortization' lease term with reversion is to expect a level of investment of a certain dollar amount per square foot for every 10-years of lease. The lower rates would be given to those who are providing services at the airport and higher rates to those just storing personal/company aircraft but not providing aviation services. An amortization schedule for a facility can also be used to determine the proper term. These are not absolute rules but are tools to use to determine the lease term. Here is an example of the calculation of lease term using $35 per square foot investment being worth a 10-year lease.

$$\frac{\$400{,}000\ investment}{5{,}000\ sf\ hangar} = \$80\ per\ SF \qquad \frac{\$80\ per\ SF}{\$35\ per\ 10\ Years} = 22\ years$$

What Is Reversion?

Reversion occurs after a private improvement has been constructed on public property and that improvement has been fully amortized. Any improvement to real property becomes an integral part of the underlying land, and in this case, the improvement is to public property. The question is posed quite often about why reversion. Why should an airport expect a tenant to build a facility on the airport then revert ownership of that facility after the term of a lease expires? The underlying question is, **Does the airport owner have a compelling need to control the airport? .. Yes**

The primary issue that drives this discussion is that an airport and its associated facilities (runways, taxiways, aprons, etc.) are constructed on a finite piece of public property. With limited access and ability to expand, **Is it in the public's interest to allow tenants to control the use of that finite property into perpetuity? .. No**

Reversion solves this potential issue and maintains the public's ability to control the airport by allowing the airport to redevelop portions of the airport after a notable period of time (usually 20 – 40 years). An airport may choose to redevelop for a variety of reasons, including conformity with current design standards, repurposing areas for changing demands, or renovation or upgrading existing structures. Airports are quite unique in that even though there are large amounts of acreage for an airport, there are only certain areas that have the proper access to both the airside and landside to make a facility functional. Airports generally have broad impacts on communities including improved medical services and stimulation of economic development, and as a result millions of public dollars are invested to make these hangar areas as functional as possible for all airport users.

The general argument against reversion is that it stifles tenant's ability to maximize the value of their investment, and as such, may prevent the airport from getting development that will allow it to be as self-sustaining as possible. With a reasonable amortization time period and a fair ability to negotiate an improved property lease, these concerns are addressed.

These arguments have been greatly simplified for this discussion, but this decision is one that each airport sponsor should consider carefully to determine what is best for them to meet demand and comply with grant conditions and local, state, and federal laws.

Please note that a person constructing a facility will often be interested in leasing the improved property after the original lease term expires. This is done by negotiating a new rental rate commensurate with the improved value of the property. Assuring that individuals are paying the improved value of the property, puts the proper economic incentive in place so the airports finite property is used to the best of its ability.

Airport Funded Hangars is the other option for the airport to maintain control and provide facilities for aircraft storage. Providing airport funding depends first on whether the airport has the funds to construct a hangar and second on the confidence the airport has in being able to lease the facility at a sufficient rental rate. The FAA allows airports to use non-primary entitlements for revenue producing facilities, such as hangars, but only if all other airport needs for federal funding have been met and no other projects are foreseen in the next three years.

Table B-1 – Hangar Funding Options

	Land Lease
Pros	Only private funds at risk, No public funds at risk
Cons	Individual hangars use more space than group hangars
Typical Uses	Individual Hangars, Specialized Facilities, Large Investments, Businesses
	Airport Funding
Pros	Can use Non-Primary Entitlement funds Airport maintains control immediately
Cons	Requires up front public funds Public money is at risk if there are no tenants
Typical Uses	Small Hangars, Group Hangars such as T-Hangars

Source: KLJ Analysis

Ownership of Hangars - Whether the city chooses Land Lease or Airport funding to construct hangars, the hangars will still at some point become property of the airport as a result of reversion. When the hangar is not owned by the airport, the hangar is subject to property taxes as an improvement to the property. Since airports are public entities, the property and improvements owned by airports are not subject to property taxes. An advantage to the tenant of reversion is not paying property taxes on the building. An option is to revert the property immediately after construction, but the tenant continues to pay the land lease rate through the initial term. The tenant would still be responsible for minor/major maintenance for the facility.

Leasing for Non-Aeronautical Uses – The only other significant asset that the airport has is land that can be used for agricultural purposes. The primary purpose of the land that the airport has is to provide sufficient safety surfaces for aircraft landing and taking off from 97M. Secondarily to that is to recover a reasonable amount of income while maintaining safety standards. The land is suitable for hay production and airports have received income by leasing the property for hay. Some airports do an annual cash lease for the property but others have found that a multi-year agreement based on shares of the crop mitigates the risk of changing market conditions and allows the airport to earn income reasonable to the market conditions at the time of the cutting rather than be based on a speculative bid very early in the production season.

Project Funding

An airport does not typically satisfy its capital development needs with internal funding sources alone. Federal, state, and private funding, together with airport funds and bond proceeds, are usually combined to produce the total funds required for capital projects. Federal sources, including Airport Improvement Program (AIP) funds, are subject to modification by Congress or other entities having authority over a funding source.

The specific project eligibility criteria may vary depending on the funding source. In identifying potential sources of funds, it is necessary to examine each project element to determine its eligibility for funding. It's also important to consider the availability of funds for each funding source. AIP funding, as the primary source of federal funding, is described in the previous **Federal Funding** section, and potential state funding is described in the previous **State Funding** section. The following paragraphs briefly describe other funding sources available to the airport.

General Obligation (GO) Bonds

GO bonds are backed by the creditworthiness and taxing power of the municipality operating the airport. They usually bear low interest rates because of their high degree of security. However, state laws may limit a municipality's overall debt, and competition from other community financing requirements may preclude their use for an airport project. Some states have an exemption from the debt limitation rule for general obligation bonds because they are used for a revenue producing enterprise.

Third Party Development

Third party financing may be appropriate in a case where an airport sponsor uses a third-party developer or a tenant to finance a construction project. Only projects with a strong positive cash flow can support this type of financing. Generally, the third party would lease the structure for a period of years to the tenant paying the airport ground rents. According to the terms of the agreement, the airport sponsor receives ownership of the asset upon expiration of the lease.

Airport Design Guidelines

Guidance on minimum FAA airport design standards is found in FAA AC 150/5300-13A, *Airport Design (Change 1)*. Airport design standards provide basic guidelines for a safe, efficient, and economic airport system. Careful selection of basic aircraft characteristics for which the airport will be designed is important. Airport designs based only on existing aircraft can severely limit the ability to expand the airport to meet future requirements for larger, more demanding aircraft. Airport designs that are based on large aircraft unlikely to operate at the airport are not economical.

Critical Design Aircraft

Planning a new airport or improvements to an existing airport requires the selection of one or more "critical aircraft." FAA design standards for an airport are determined by a coding system that relates the physical and operational characteristics of an aircraft to the design and safety separation distances of the airfield facility. The design aircraft is the most demanding aircraft operating or forecast to operate at the airport on a regular basis, which is typically considered 500 annual takeoff and landing operations. The design aircraft may be a single aircraft, or a grouping of aircraft.

The first consideration should be the safe operation of aircraft that regularly use the airport. According to FAA AC 150/5300-13A, any operation of an aircraft that exceeds design criteria of the airport may result in either an unsafe operation or a lesser safety margin unless air traffic control (ATC) Standard Operating Procedures (SOPs) are in place for those operations. However, the AC also states that it is not the usual practice to base the airport design on an aircraft that uses the airport infrequently, and it is appropriate and necessary to develop ATC SOPs to accommodate faster and/or larger aircraft that use the airport occasionally.[1]

The FAA typically only provides funding for design standards required by the existing and approved forecasted critical aircraft that are expected to exceed 500 annual operations.

Airport & Runway Classifications

The FAA has established aircraft classification systems that group aircraft types based on their performance and geometric characteristics. These classification systems (see **Figure B-1**) are used to determine the appropriate airport design standards for specific runway, taxiway, apron, or other facilities, as described in FAA AC 150/5300-13A.

- **Aircraft Approach Category (AAC):** a grouping of aircraft based on approach reference speed, typically 1.3 times the stall speed. Approach speed affects the dimensions and size of runway safety and object free areas.
- **Airplane Design Group (ADG)**: a classification of aircraft based on wingspan and tail height. When the aircraft wingspan and tail height fall in different groups, the higher group is used. Wingspan affects the dimensions of taxiway and apron object free areas, as well as apron and parking configurations.
- **Approach Visibility Minimums:** relates to the visibility minimums expressed by Runway Visual Range (RVR) values in feet. This is the minimum distance pilots must be able to see the runway to execute an

[1] FAA Advisory Circular 150/5300-13A, *Airport Design*

approach to land. Visibility categories include visual (V), non-precision (NPA), approach procedure with vertical guidance (APV) and precision (PA). Lower visibility minimums require more complex airfield infrastructure and enhanced protection areas.

- **Taxiway Design Group (TDG):** a classification of airplanes based on outer to outer Main Gear Width (MGW) and Cockpit to Main Gear (CMG) distance. TDG affects taxiway/taxilane pavement width and fillet design at intersections. See **Figure B-2** for the TDG chart.

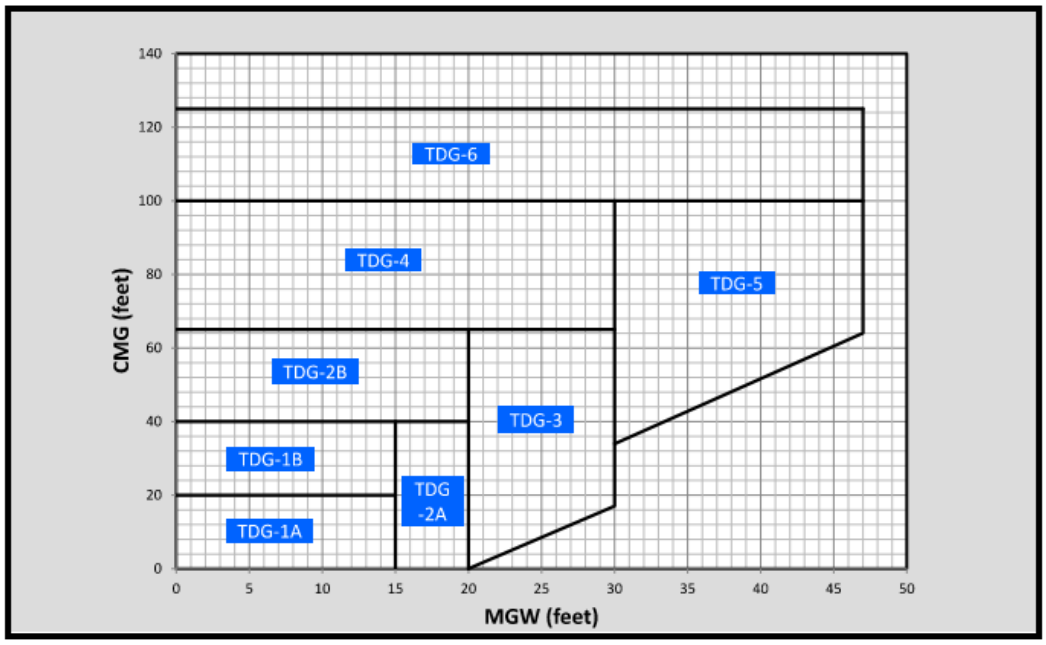
Figure B-1 – Airfield Classification Systems

Aircraft Approach Category (AAC)		
AAC	**Approach Speed**	
A	Approach speed less than 91 knots	
B	Approach speed 91 knots or more but less than 121 knots	
C	Approach speed 121 knots or more but less than 141 knots	
D	Approach speed 141 knots or more but less than 166 knots	
E	Approach speed 166 knots or more	
Airplane Design Group (ADG)		
ADG	**Tail Height (ft.)**	**Wingspan (ft.)**
I	< 20’	< 49’
II	20’ - < 30’	49’ - < 79’
III	30’ - < 45’	79’ - < 118’
IV	45’ - < 60’	118’ - < 171’
V	60’ - < 66’	171’ - < 214’
IV	66’ - < 80’	214’ - < 262’
Approach Visibility Minimums		
RVR (ft.)*	**Instrument Flight Visibility Category (statue mile)**	
N/A (VIS)	Visual (V)	
5000	Not lower than 1 mile (NPA)	
4000	Lower than 1 mile but not lower than ¾ mile (APV)	
2400	Lower than ¾ mile but not lower than ½ mile (CAT-I PA)	
1600	Lower than ½ mile but not lower than ¼ mile (CAT-II PA)	
1200	Lower than ¼ mile (CAT-III PA)	

*Source: FAA AC 150/5300-13B Airport Design; *Runway Visibility Range (RVR) values are not exact equivalents*
APV = Approach with Vertical Guidance, PA = Precision Approach

Figure B-2 – Taxiway Design Group

Source: FAA AC 150/5300-13B, Airport Design



Note: Values in the graph are rounded to the nearest foot. 1 foot = 0.305 meters.

Airport Design Principles

Other airport design principles are important to consider for a safe and efficient airport design:

- **Runway/Taxiway Configuration:** The configuration of runways and taxiways affects the airport's capacity/delay, risk of incursions with other aircraft on the runway and overall operational safety. Location of and type of taxiways connecting with runways correlates to runway occupancy time. The design of taxiway infrastructure should promote safety by minimizing confusing or complex geometry to reduce risk of an aircraft inadvertently entering the runway environment.
- **Approach and Departure Airspace & Land Use**: Runways each have imaginary surfaces that extend upward and outward from the runway end to protect normal flight operations. Runways also have land use standards beyond the runway end to protect the flying public as well as persons and property on the ground from potential operational hazards. Runways must meet grading and clearance standards considering natural and man-made obstacles that may obstruct these airspace surfaces. Surrounding land use should be compatible with airport operations. Airports should develop comprehensive land use controls to prevent new hazards outside the airport property line. Obstructions can limit the utility of a runway.
- **Meteorological Conditions**: An airport's runways should be designed so that aircraft land and takeoff into the prevailing wind. As wind conditions change, the addition of an additional runway may be needed to mitigate the effects of significant crosswind conditions that occur more than five percent of the year. Airports that experience lower cloud ceiling and/or visibility should also consider implementing an instrument procedures and related navigational aids to runways to maximize airport utility.

- **Controller Line of Sight**: The local Airport Traffic Control Tower (ATCT) relies on a clear line of sight from the controller cab to the airport's movement areas which includes the runways, taxiways, aprons, and arrival/departure corridors. Structures on an airport need to consider this design standard, and in some cases, require the completion of a shadow study to demonstrate no adverse impact. This standard only applies to airports with a local ATCT.
- **Navigation Aids & Critical Areas:** Visual navigational aids (NAVAIDs) to a runway or the airfield require necessary clear areas for these NAVAIDs to be effective for pilots. Instrument NAVAIDs on an airport require sufficient clear areas for the NAVAID to properly function without interference to provide guidance to pilots. These NAVAID protection areas restrict development.
- **Airfield Line of Sight:** Runways need to meet grading standards so that objects and aircraft can be seen along the entire runway. A clear line of sight is also required for intersecting runways within the Runway Visibility Zone to allow pilots to maintain visual contact with other objects and/or aircraft that may pose a hazard.
- **Interface with Landside:** The airfield configuration should be designed to provide for the safe and efficient operation of aircraft as they transition from the airfield to landside facilities such as hangars and terminals.
- **Environmental Factors:** Airport development must consider potential impacts in and around the airport environs through the National Environmental Policy Act (NEPA). Additionally, development should also reduce the risk of potential wildlife hazards such as deer and birds that may cause hazards to flight operations.

Design Codes

Runway designs are based on specific FAA runway design standards. These standards, found in FAA AC 150/5300-13B, provide basic guidelines for a safe and efficient airport system, and are based on the most demanding or "design" aircraft expected to use the runway. Runway lengths are related to the design aircraft but are determined in accordance with procedures detailed in the current version of FAA AC 150/5325-4, *Runway Length Requirements for Airport Design*. All other critical dimensions related to the design aircraft are found in FAA AC 150/5300-13B, including dimensions for runway widths, safety areas and separations from other infrastructure.

There are several ways in which the codes from **Figure B-1** are used. These include codes that recognize existing conditions, codes that identify planned capabilities, codes that are for specific runways and codes for the airport. These codes are as follows.

Airport Reference Code (ARC)

The Airport Reference Code (ARC) is an airport designation that represents the AAC and ADG of the aircraft that the entire airfield is intended to accommodate on a regular basis. The ARC is used for planning and design only and does not limit the aircraft that may be able to operate safely on the airport.

Runway Design Code (RDC)

RDC is a code signifying the design standards to which the overall runway is to be planned and built, typically based on the AAC, ADG and approach visibility minimums for a runway. RDC provides the information needed to determine the design standards that apply.

Approach Reference Code (APRC)

The APRC is composed of the AAC, the ADG, and the visibility minimums. See **Figure B-3**. APRC signifies the current operational capabilities of a runway and associated parallel taxiway for landing operations. The visibility minimums are linked to critical standards that determine which aircraft can operate on taxiways adjacent to a runway under meteorological conditions with no special operational procedures necessary.

Figure B-3 – Approach Reference Code

Table L-1. Approach Reference Code (APRC)

Visibility Minimums	Runway to Taxiway Separation (ft)										
	≥ 150	≥ 200	≥ 225	≥ 240	≥ 250	≥ 300	≥ 350	≥ 400	≥ 450	≥500	≥550
Not lower than 3/4 mile (1.2 km) [4000 RVR]	B/I(S)/ 4000	B/I(S)/ 4000	B/I/ 4000	B/II/ 4000	B/II/ 4000	B/III/ 4000 D/II/ 4000	B/III/ 4000 D/II/ 4000	D/IV/ 4000 D/V/ 4000 [1]	D/IV/ 4000 D/V/ 4000 [2]	D/V/ 4000 [3] D/VI/ 4000	D/IV/ 4000
Lower than 3/4 mile (1.2 km) but not lower than 1/2 mile (0.8 km) [2400 RVR]	N/A	B/I(S)/ 2400	B/I(S)/ 2400	B/I(S)/ 2400	B/I/ 2400	B/II/ 2400	B/III/ 2400	D/IV/ 2400 D/V/ 2400 [1]	D/IV/ 2400 D/V/ 2400 [2]	D/V/ 2400 [3] D/VI/ 2400	D/IV/ 2400
Lower than 1/2 mile (0.8 km) but not lower than 1/4 mile (0.4 km) [1600 RVR]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	D/IV/ 1600	D/IV/ 1600	D/V/ 1600	D/VI/ 1600
Lower than 1/4 mile (0.4 km) [1200 RVR]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	D/IV/ 1200	D/IV/ 1200	D/V/ 1200	D/VI/ 1200

Note 1: Airport elevation at or below 1,345 ft (410 m).
Note 2: Airport elevation between 1,345 ft (410 m) and 6,560 ft (2,000 m).
Note 3: Airport elevation above 6,560 ft (2,000 m).

General Notes:

- (S) denotes small aircraft
- Entries for Approach Category D also apply to Approach Category E. However, there are no Approach Category E aircraft currently in the civil fleet.
- For ADG-VI aircraft with tail heights of less than 66 feet (20.1 m), ADG-V separation standards apply.
- 1 ft = 0.305 m

Source: FAA AC 150/5300-13B, Airport Design

Departure Reference Code (DPRC)

DPRC signifies the runway's operational capabilities for takeoff operations. See **Figure B-4**. The DPRC code is the like the APRC code, but is comprised of two components, AAC and ADG. It represents those aircraft that can takeoff from a runway while any aircraft are present on adjacent taxiways, under meteorological condition with no special procedures necessary.

Figure B-4 – Departure Reference Code

Table L-2. Departure Reference Code (DPRC)

Runway to Taxiway Separation (ft)					
≥ 150	≥ 225	≥ 240	≥ 300	≥ 400	≥ 500
B/I(S)	B/I	B/II	B/III D/II	D/IV D/V	D/VI [1]

Note 1: Refer to Figure L-1. ADG-VI airplanes may depart with aircraft on the parallel taxiway where the runway to taxiway separation is as little as 400-feet (122 m) under these two scenarios:

a. No ADG-VI aircraft is occupying the parallel taxiway beyond 1,500 feet (457 m) of the point of the start of takeoff roll.

b. No aircraft, regardless of size, is occupying the parallel taxiway beyond 1,500 feet (457 m) of the point of the start of takeoff roll when there is snow, ice, or slush contamination on the runway.

General Notes:

- (S) denotes small aircraft
- Entries for Approach Category D also apply to Approach Category E. However, there are no Approach Category E aircraft currently in the civil fleet.
- 1 ft = 0.305 m

Source: FAA AC 150/5300-13B, Airport Design

Small Category

One additional unique coding is the use of the term 'small'. Small aircraft are those that have a maximum certificated takeoff weight of 12,500 pounds or less. Aircraft in categories A and B may be further designated as 'small' which has different standards than larger aircraft. The 'small' term is used with the ARC or RDC but not with APRC or DPRC. The term small is not used for C, D, or E aircraft. As an example, the term will be used as 'B-II (Small)' with a small aircraft as compared to 'B-II' only when referring to larger aircraft.

Code Context

It is critical to understand the context in which the specific code is being used. For example, depending where the code is being used, a C-II-2400 code would have the following meanings:

- **Critical Design Aircraft:** A C-II aircraft is what the runway was either built for what the runway is being designed for. Referencing **Figure B-1**, a C-II aircraft is an aircraft with an approach speed between 121 and 140 knots, and a wingspan between 49 and 78 feet or a tail height between 20 and 29 feet.
- **Runway Design Code (RDC):** The planned runway will be designed to meet the FAA runway design standards for a C-II aircraft with a visibility minimum as low as ½ mile.

- **Approach Reference Code (APRC)**: The runway currently meets the FAA runway design standards for a C-II aircraft with a visibility minimum as low as ½ mile and with a C-II aircraft on the adjacent parallel taxiway.
- **Departure Reference Code (DPRC):** The runway currently meets the FAA runway design standards for a C-II aircraft departing the runway with a C-II aircraft on the adjacent parallel taxiway.
- **Airport Reference Code (ARC):** The ARC can be used to discuss the operational capability of an existing airport, i.e., if the highest RDC of existing runways at an airport is C-II, the airport would have an ARC of C-II. The ARC can also be used to discuss the planned capability of an airport, i.e., an airport will be designated as an ARC C-II airport when the highest RDC of the planned runways is C-II.

Runway Design Standards

Basic runway design standards vary based on the RDC and RRC as established by the design aircraft. Some of the safety standards include:

- **Runway Width:** The physical width of the runway pavement.
- **Runway Safety Area (RSA):** A defined graded surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft in the event of an undershoot, overshoot or excursion from the runway. The RSA must be free of objects, except those required to be in the RSA to serve their function. The RSA should also be capable to supporting airport equipment and the occasional passage of aircraft.
- **Runway Object Free Area (ROFA):** An area centered on the ground on a runway provided to enhance the safety of aircraft operations by remaining clear of objects, except for objects that need to be in the OFA for air navigation or aircraft ground maneuvering purposes.
- **Runway Obstacle Free Zone (ROFZ):** The OFZ is the three-dimensional volume of airspace along the runway and extended runway centerline that is required to be clear of taxiing or parked aircraft as well as other obstacles that do not need to be within the OFZ to function. The purpose of the OFZ is for protection of aircraft landing or taking off from the runway and for missed approaches.
- **Runway Protection Zone (RPZ):** The RPZ is a trapezoidal area located 200 feet beyond the runway end and centered on the extended runway centerline. The RPZ is primarily a land use control that is meant to enhance the protection of people and property near the airport through airport control. Such control includes clearing of RPZ areas of incompatible objects and activities. If a special application of declared distances is used, separate approach and departure RPZs are required.
- **Runway Line of Sight**: Along individual runways, a point 5 feet above the runway must be mutually visible with any other point 5 feet above the runway centerline. For intersecting runways, Runway Visibility Zone (RVZ) standards require a clear visible 5-foot high line-of-sight to enhance safety amongst airport users when runways intersect.

Other basic runway design standards include:

- Runway surface gradient
- Runway shoulder width to prevent soil erosion or debris ingestion for jet engines,
- Blast pad to prevent soil erosion from jet blast
- Required separation distances to markings, objects, and other infrastructure for safety
- Parallel runway separation distances

There are also critical areas associated with navigational aids as well as airspace clearance requirements for runways.

Runway Protection Zones

The Runway Protection Zone (RPZ) is a trapezoidal land use area at ground level prior to the landing threshold or beyond the departure runway end. The RPZ's function is to enhance the protection of people and property on the ground. The RPZ size varies based on the runway's RDC. The RPZ is further broken down into two types and two areas:

- **Approach RPZ:** Approach RPZ starts 200 feet from the runway threshold.
- **Departure RPZ:** Departure RPZ extends 200 feet from the runway end or claimed Takeoff Runway Available (TORA).
- **Central Portion:** Land within the RPZ centered on runway centerline with a width matching the width of the ROFA.
- **Controlled Activity Area:** Land with the RPZ on the sides of the central portion.

FAA permissible land uses without further evaluation include farming that meets airport design standards, irrigation channels that do not attract wildlife, controlled airport service roads, underground facilities and unstaffed NAVAIDs that are required to be within the RPZ. Airport owners should, at a minimum, maintain the RPZ clear of all facilities supporting incompatible activities. It is desirable to clear all above-ground objects from the RPZ. **Figure B-5** graphically depicts the characteristics of an RPZ.

Figure B-5 – FAA Runway Protection Zone

Figure 3-26. Runway Protection Zone (RPZ), Runway Object Free Area (ROFA), and Runway Safety Area (RSA)

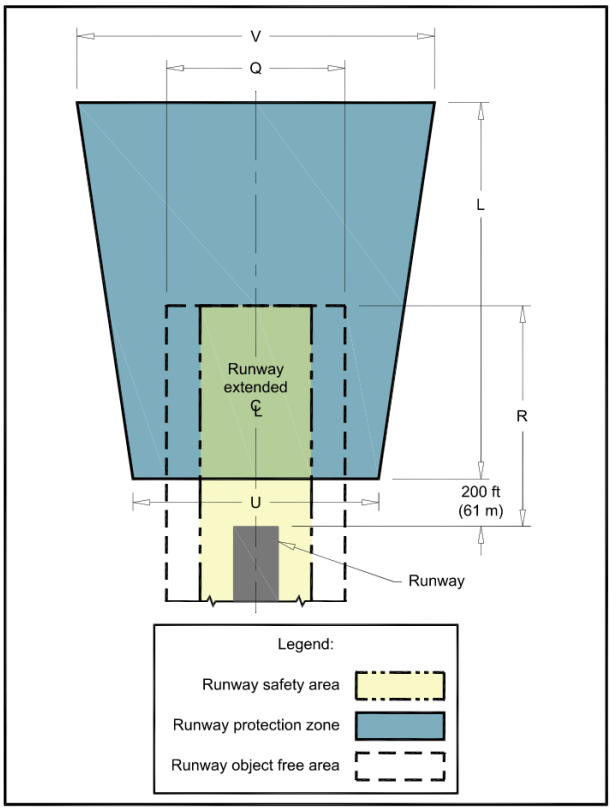
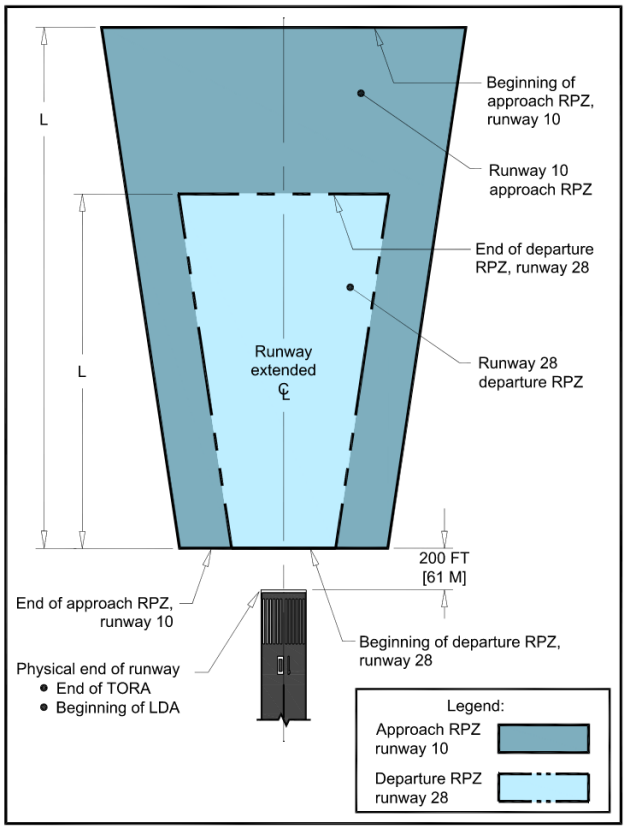


Figure 3-27. Runway with all Declared Distances Equal to the Runway Length



Source: FAA AC 150/5300-13B Figures 3-26 and 3-27

Figure B-6 – Runway Protection Zone Sizes

Runway Protection Zone Dimensions					
AAC	**ADG**	**Visibility Minimums**	**Length (L)**	**Inner Width (U)**	**Outer Width (V)**
A/B*	I, II	Visual, Not Lower than 1 mile	1,000	250	450
A/B	I, II, III, IV	Visual, Not Lower than 1 mile	1,000	500	700
A/B	I, II, III, IV	Not Lower than ¾ mile	1,700	1,000	1,510
C/D/E	I, II, III, IV, V, VI	Visual, Not Lower than 1 mile, Not Lower than ¾ mile	1,700	1,000	1,510
A/B, C/D/E	I, II, III, IV, V, VI	Lower than ¾ mile	2,500	1,000	1,750

*Source: FAA AC 150/5300-13B Appendix G; * Small (up to 12,500 lbs MTOW)*

Protection of the RPZ is achieved through airport control over RPZs including fee title ownership or clear zone easement. The increased emphasis has resulted in additional requirements to monitor and analyze RPZs for conformance to established policies and standards.

In September 2012, FAA issued an interim policy on activities within an RPZ providing airports with guidance on land use compatibility standards. The standards from the interim guidance are summarized below:

- **New or Modified Land Uses:** FAA coordination is required for new or modified land uses within the RPZ because of an airfield project, change in RPZ dimensions or local development proposal.
- **Land Uses Requiring FAA Coordination:** Building and structures, recreational land uses, transportation facilities (i.e. roads, parking, rail), fuel storage, hazardous material storage, wastewater treatment, above-ground utility infrastructure
- **Alternatives Analysis:** A full range of alternatives must be evaluated prior to FAA coordination that avoid introducing the land use into the RPZ, minimize the impact of the land use in the RPZ and mitigate risk to people and property on the ground.
- **Existing Land Uses in the RPZ:** No change in policy, airports should work with FAA to remove or mitigate the risk of any existing incompatible land uses in the RPZ. Incompatible land uses in the RPZ from previous FAA guidance include but are not limited to residences, places of public assembly (i.e. uses with high concentration of persons), fuel storage facilities and wildlife attractants.

FAA has acknowledged the ongoing update to the land use compatibility advisory circular where an RPZ land use consideration section will be added.

FAA Runway Approach/Departure Surfaces

FAA identifies sloping approach surfaces that must be cleared at an absolute minimum for safety for landing and departing aircraft. These approach surfaces are outlined in paragraph 3.6 of FAA AC 150/5300-13B and portrayed in Tables 3-2, 3-3 and 3-4 of the AC. The approach surface tables and respective figures are shown in **Figure B-7, B-8** and **B-9** as follows. All objects must clear the surface for the applicable runway operational design standard to meet minimum aviation safety standards for a given runway landing threshold location. Approach airspace penetrations typically require the removal of the object, operational restrictions, or the runway landing threshold to be shifted or displaced down the runway.

The departure surface applies to runways where instrument departures are allowable. The departure surface is outlined in paragraph 3.6 of FAA AC 150/5300-13B and portrayed in Table 3-5 of the AC. The departure surface table and respective figure is shown in **Figure B-10**. The surface begins at the end of the takeoff distance available and extends upward and outward at a 40:1 slope. No new penetrations are allowed unless an FAA study has been completed and a determination of no hazard has been issued. Penetrations to the departure surface may require the obstacle to be published or require mitigation including increasing the minimum aircraft climb rate or runway length operational restrictions.

Mitigation options generally include obstruction removal, lighting/marking, declared distances and/or adjustment of the visual guidance slope indicator angle. Other long-term options include reconfiguring the runway or modifying design standards. New development should be clear of airspace surfaces.

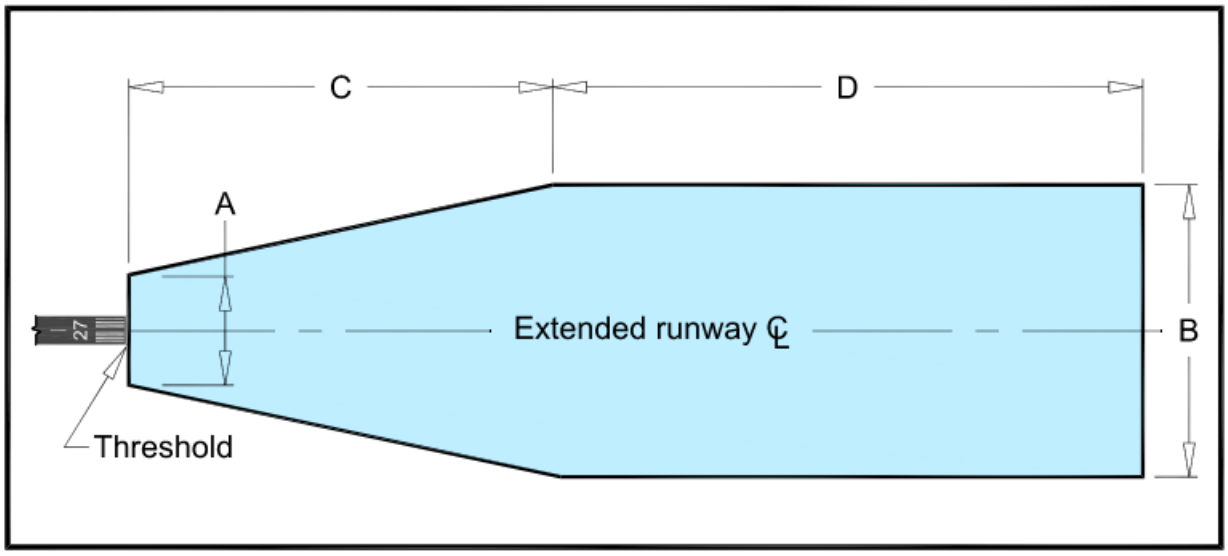
Figure B-7 – FAA Visual Approach Table 3-2

Table 3-2. Visual Approach Surfaces

Surface	Runway Type	A ft (m)	B ft (m)	C ft (m)	D ft (m)	Slope
Surface 1	Approach end of runways serving small airplanes with approach speeds less than 50 knots.	120 (37)	300 (91)	500 (152)	2,500 (762)	15:1
Surface 2	Approach end of runways serving small airplanes with approach speeds of 50 knots or more.	250 (76)	700 (213)	2,250 (686)	2,750 (838)	20:1
Surface 3	Approach end of runway serving large airplanes (>12,500 lbs (5,669 kg))	400 (122)	1,000 (305)	1,500 (457)	8,500 (2,591)	20:1

Note: Approach surface begins at the runway threshold.

Figure 3-5. Visual Approach Surfaces



Note 1: Refer to Table 3-2 for dimensional values.
Note 2: Surface slopes upward and away from starting point.

Source: FAA AC 150/5300-13B Table 3-2

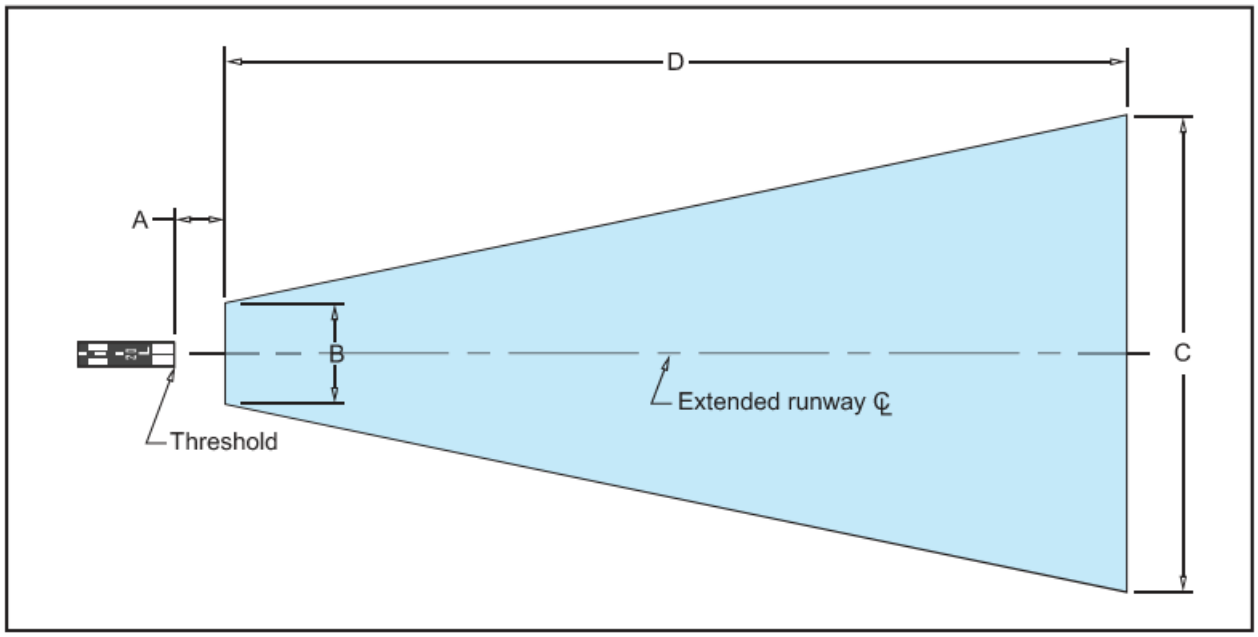
Figure B-8 – FAA NPI Approach Table 3-3

Table 3-3. Non-Precision and IFR Circling Approach Surfaces

Surface	Runway Type	Visibility minimums	A ft (m)	B ft (m)	C ft (m)	D ft (m)	Slope
Surface 4	Approach end of runways that supports IFR circling procedures and procedures only providing lateral guidance (VOR, NDB, LNAV, LP, and LOC).	≥ ¾ statute mile (1.2 km)	200 (61)	400 (122)	3,400 (1,036)	10,000 (3,048)	20:1
		< ¾ statute mile (1.2 km)	200 (61)	400 (122)	3,400 (1,036)	10,000 (3,048)	34:1

Note 1: Dimension A is relative to the runway threshold.
Note 2: Refer to the U.S Terminal Procedures Publication (TPP) to determine if circling minimums are available.
Note 3: Marking and lighting of obstacle penetrations to this surface or the use of a Visual Guidance Lighting System (VGLS) may mitigate displacement of the threshold. Contact the Flight Procedures Team if existing obstacles penetrate this surface.
Note 4: 10,000 feet (3,048 m) represents a nominal value for planning purposes. The length is dependent on the Visual Descent Point (VDP) location.

Figure 3-6. Non-Precision and IFR Circling Approach Surfaces



Note: Refer to Table 3-3 for dimensional values.

Source: FAA AC 150/5300-13B Table 3-3

Figure B-9 – FAA APV and PA Approach Table 3-4

Table 3-4. APV and PA Instrument Runway Approach Surfaces

Surface	Runway Type	Visibility minimums	A ft (m)	B ft (m)	C ft (m)	D [4] ft (m)	Slope
Surface 5	Approach end of runways providing ILS, MMLS, PAR, and landing distance available (LDA) with glidepath, LPV, LNAV/VNAV, RNP, or GLS.	≥ ¾ statute mile (1.2 km)	200 (61)	400 (122)	3,400 (1,036)	10,000 (3,048)	20:1
		< ¾ statute mile (1.2 km)	200 (61)	400 (122)	3,400 (1,036)	10,000 (3,048)	34:1
Surface 6	Approach end of runways providing ILS, MMLS, PAR, and LDA with glidepath, LPV, LNAV/VNAV, RNP, or GLS.	All	0	Runway Width + 200 (61)	1,520 (463)	10,200 (3,109)	30:1

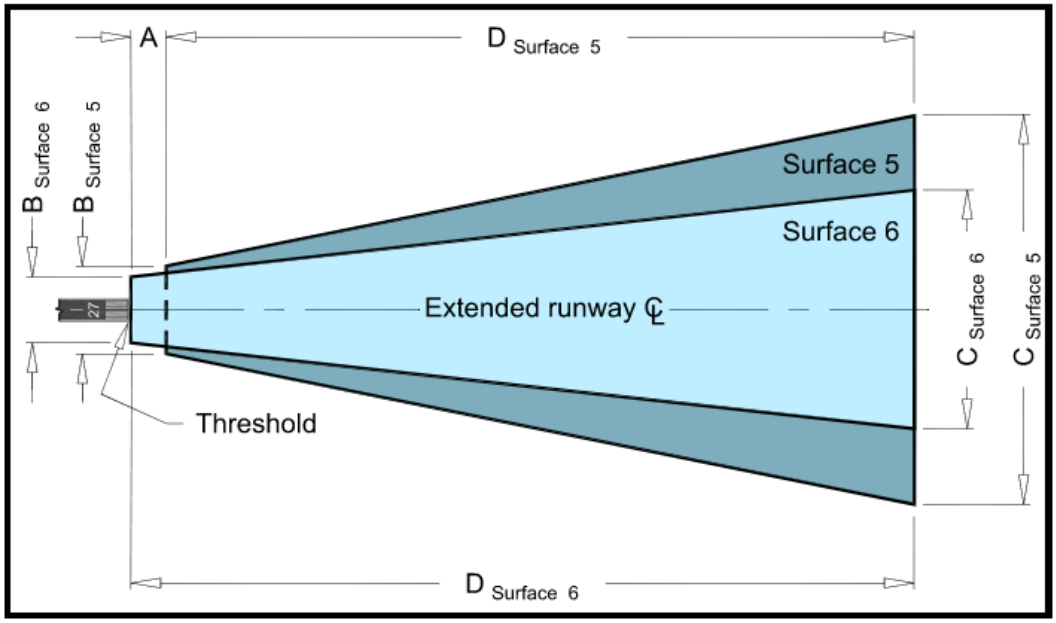
Note 1: Dimension A is relative to the runway threshold.

Note 2: Surface 5 represents the TERPS visual portion of the final approach segment. Surface 6 represents the TERPS Vertical Guidance Surface (VGS). Both surfaces apply for APV and PA procedures. Contact the Flight Procedures Team if existing obstacles penetrate this surface.

Note 3: The FAA assesses TERPS final approach segment criteria (e.g., W, X, Y surfaces) for all runway ends authorized for ILS, mobile microwave landing system (MMLS), precision approach radar (PAR), and LDA with glide slope, LPV, and GLS procedures. Refer to FAA Order 8260.3 for additional information on TERPS surfaces.

Note 4: Represents a nominal value for planning purposes. The actual length depends on the precision final approach fix.

Figure 3-7. Approach Procedure with Vertical Guidance (APV) and Precision Approach (PA) Instrument Runway Approach Surfaces



Note: Refer to Table 3-4 for dimensional values.

Source: FAA AC 150/5300-13B Table 3-4

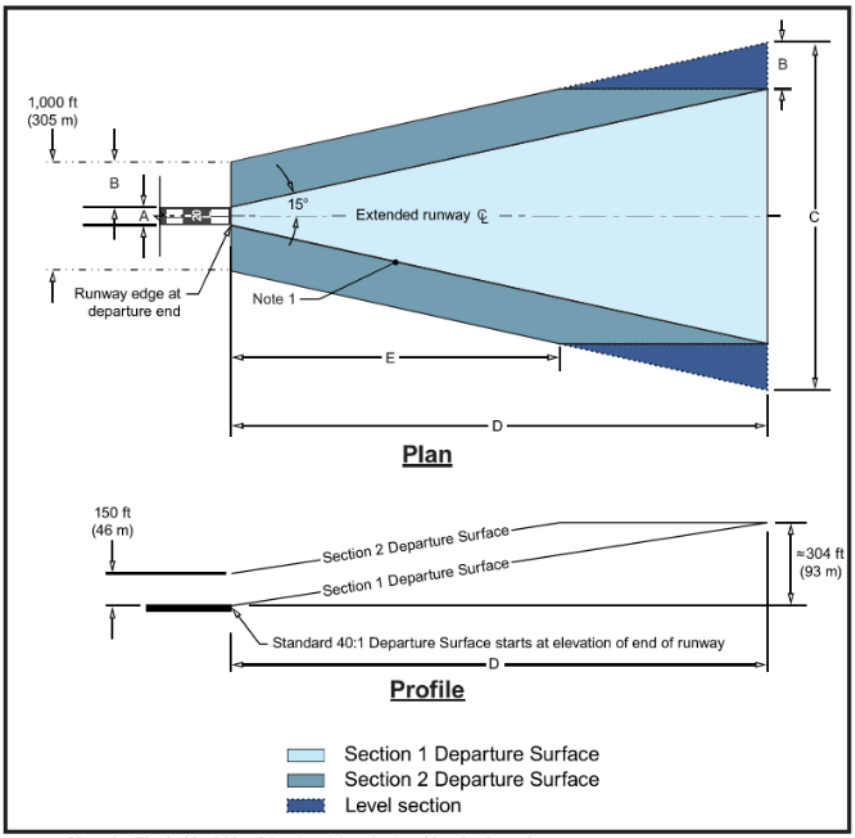
Figure B-10 – FAA Departure Table 3-5

Table 3-5. Instrument Departure Surface

Surface	Runway Type	A ft (m)	B ft (m)	C ft (m)	D [4] ft (m)	E ft (m)	Section 2 Angle θ [2]	Section 2 Transverse Slope m [2]
Surface 7	Runways providing instrument departure operations	60 (18.3)	470 (143)	7,512 (2,290)	12,152 (3,704)	6,152 (1,875)	17:7	3.13:1
		75 (22.9)	462.5 (141)				18.0	3.08:1
		100 (30.5)	450 (137)				18.4	3.00:1
		150 (46)	425 (130)				19.4	2.83:1
		200 (61)	400 (122)				20.6	2.67:1

Note 1: Section 1 of the departure surface starts at the DER elevation for the width of the runway and rises along the extended runway centerline at 40:1. Section 2 starts at an equal elevation to the adjoining Section 1. Section 2 continues until reaching 304 ft (93 m) and then levels off until reaching the line where Section 1 and Section 2 reach 304 ft (93 m) above DER elevation, then that part of Section 2 that leveled off continues at a 40:1 slope.
Note 2: See Figure 3-11 for a graphical depiction of these values.
Note 3: The start of the surface is relative to the departure end of the runway. For runways with published declared distances, the TODA indicates the beginning of the departure surface. See Figure 3-10.
Note 4: 12,152 feet (3,704 m) represents a 2 nm nominal value for planning purposes.
Note 5: For other runway width values, interpolation is required to determine the value of "B", the Section 2 angle, and the Section transverse slope.

Figure 3-9. Instrument Departure Surface



Note 1: The half-width of Section 1 is calculated by the formula:
Section $1_{\text{Half Width}}$ = (1/2 RWY Width) + (Tan 15° × X), where X = distance from the departure end of the runway.

Source: FAA AC 150/5300-13B Table 3-5

Instrument Procedures

Instrument approach procedures to a runway end are used by landing aircraft to navigate to the airport during instrument conditions when the cloud ceiling is less than 1,000 feet and/or visibility is less than 3 miles. Establishing approaches with the lowest possible weather minimums allow the airport to maximize its operational utility. Each approach type requires differing infrastructure and navigational aids. Types of approach procedures include non-precision approach (NPA), approach with vertical guidance (APV) and precision approach (PA). FAA airport design standards must be met as shown in **Figure B-11** and **Figure B-12**. Coordination with FAA Flight Procedures Office is recommended to review the feasibility of implementing any new approach procedure.

Figure B-11 – FAA Airport Design Standards for Instrument Approach Procedures

Table K-1. Criteria to Support Instrument Flight Procedure Development

Standards [1]	Visibility Minimums [1]			
	< 3/4 statute mile (1.2 km)	3/4 (1.2 km) to < 1 statute mile (1.6 km)	≥ 1 statute mile (1.6 km) straight-in	Circling [2] ≥ 1 statute mile (1.6 km)
HAT [3]	≤ 250 ft	≥ 250 ft	≥ 250 ft	≥ 350 ft
POFZ (PA and APV only)	Required	Not Required	Not Required	Not Required
IT-OFZ	Required	Not Required	Not Required	Not Required
ALP [4]	Required	Required	Required	Required
Minimum Runway Length	4,200 ft	3,200 ft [5]	3,200 ft [5]	3,200 ft [5]
Paved Surface	Required	Recommended [6]	Recommended [6]	Recommended [6]
Runway Markings (See AC 150/5340-1)	Precision	Non-precision	Non-precision	Visual
Holding Position Signs and Markings (See AC 150/5340-1, AC 150/5340-18)	Required	Required	Required	Required [6]
Runway Edge Lights [7]	HIRL or MIRL	HIRL or MIRL	MIRL or LIRL	MIRL or LIRL (Required only for night minimums)
Parallel Taxiway [8]	Required	Required	Recommended	Recommended
Approach Lights [9]	Required	Recommended [10]	Recommended [10]	Not Required
VGSI [11]	Recommended	Recommended	Recommended	Recommended
Applicable Runway Design Standards, (Reference online Runway Design Standards Matrix Tool or Appendix G)	Lower than 3/4 mile (1.2 km) visibility minimums	Not lower than 3/4 mile (1.2 km) visibility minimums	Not lower than 1 mile (1.6 km) visibility minimums	Not lower than 1 mile (1.6 km) visibility minimums
Approach or Departure Surface to be Met (Reference paragraph 3.6.1)	See Table 3-3 or Table 3-4	See Table 3-3 or Table 3-4	See Table 3-3 or Table 3-4	Table 3-3
Optimum Survey Type [12]	VGS	VGS	NVGS	NVGS [13]

Note: 1 ft = 0.305 m

Source: FAA AC 150/5300-13B, Airport Design, Table K-1

Figure B-12 – FAA Airport Design Standards for Instrument Approach Procedures Notes

Numbered Notes for Table K-1:

Note 1: Visibility minimums and described standards are subject to the application of FAA Order 8260.3 (TERPS) and associated orders. For each level of visibility, meet or exceed the optimum conditions within the column.

Note 2: For runways authorized for circling, meet requirements for threshold siting (reference paragraph 3.5) and OFZ (reference paragraph 3.11).

Note 3: HAA for circling. The HAT/HAA indicated is for planning purposes; actual obtainable HAT/HAA is determined by TERPS and may be higher due to obstacles or other requirements.

Note 4: An ALP is only required for obligated airports in the NPIAS; it is recommended for all others.

Note 5: Runways less than 3,200 ft (975 m) are protected by 14 CFR Part 77 to a lesser extent. However, runways as short as 2,400 ft (732 m) could support an instrument approach provided the lowest HAT is based on clearing any 200-ft (61 m) obstacle within the final approach segment.

Note 6: Unpaved runways require case-by-case evaluation by the IFP Validation Team (IVT).

Note 7: Runway edge lighting is required for night approach minimums. High intensity lights and an RVR touchdown zone sensor are required for RVR-based minimums.

Note 8: A full-length parallel taxiway leading to and from the thresholds is advisable to achieve the lowest possible minimums, and minimizes the time aircraft are on the runway. Refer to the minimum visibility requirements on airport conditions in FAA Order 8260.3. Construction of a parallel taxiway, while advisable, is not a requirement for publication of an IFP with visibility minima ≥ 1 statute mile (1.6 km).

Note 9: Not applicable to Performance Based Navigation procedures. The following standards are applicable to conventional, ground-based procedures. A full approach light system (ALSF-1, ALSF-2, Simplified Short Approach Light System with Runway Alignment (SSALR), or MALSR) is required for visibility < 3/4 statute mile (1.2 km). Intermediate (MALSF, MALS, SSALF, SSALS, Short Approach Lighting System (SALS)/SALSF) or Basic (ODALs) systems will result in higher visibility minimums. An ALSF-1 or ALSF-2 is required for CAT II/III ILS. HAT < 250 ft (76 m) without MALSR, SSALR, or ALSF is permitted with visibility not less than 3/4 statute mile.

Note 10: ODALS, MALS, SSALS, and SALS are acceptable. Approach lights are recommended where a visibility minima improvement of at least 1/4 statute mile (0.4 km) can be achieved.

Note 11: To preclude a non-standard IFP, it is critical the instrument approach vertical descent angle (VDA) or glidepath angle (GPA) is coincident with the VGSI angle.

Note 12: See AC 150/5300-18 for VGS and non-Vertically Guided Survey (NVGS) requirements. When an AC 150/5300-18 VGS is not available, the equivalent legacy vertically guided (VG) surveys are area navigation approach precision vertical landing (ANAPV)/ localizer performance with vertical guidance (LPV)/PC, and PIR.

Note 13: Absence of a survey does not preclude authorization to establish circling to a runway but may result in the procedure being restricted to daytime only operations.

Taxiway Design Standards

Taxiways provide for the safe and efficient movement of aircraft between the runway and other operational areas of the airport. The taxiway system should provide critical links to airside infrastructure, increase capacity and reduce the risk of an incursion with traffic on the runway.

System Design

FAA has placed a renewed emphasis on taxiway design in their updated airport design standards. Fundamental elements help develop and efficient system to meet demands, reduce pilot confusion and enhance safety. Considerations include:

- Design taxiways to meet FAA design standards for existing and future users considering expandability of airport facilities.

- Design taxiway intersections so the cockpit is over the centerline with a sufficient taxiway edge safety margin.
- Simplify taxiway intersections to reduce pilot confusion using the three-node concept, where a pilot has no more than three choices at an intersection.
- Eliminate "hot spots" identified by the FAA Runway Safety Action Team where enhanced pilot awareness is encouraged.
- Minimize the number of runway crossings and avoid direct access from the apron to the runway.
- Eliminate aligned taxiways whose centerline coincides with a runway centerline.
- Other considerations include avoiding wide expanses of pavement and avoiding "high energy intersections" near the middle third of a runway.

Design Standards

Taxiways are subject to FAA design requirements such as pavement width, edge safety margins, shoulder width, and safety and object free area dimensions. The design standards vary based on individual aircraft geometric and landing gear characteristics. The Taxiway Design Group (TDG) and Airplane Design Group (ADG) identified for the design aircraft using a taxiway. The FAA standards in relation to taxiways (as defined in FAA AC 150/5300-13B) are described below. See **Figure B-13** for Taxiway Design Standards.

- **Taxiway Width**: The physical width of the taxiway pavement.
- **Taxiway Edge Safety Margin**: The minimum acceptable distance between the outside of the airplane wheels and the pavement edge.
- **Taxiway Shoulder Width**: Taxiway shoulders provide stabilized or paved surfaces to reduce the possibility of blast erosion and engine ingestion problems associated with jet engines which overhang the edge of the taxiway pavement.
- **Taxiway/Taxilane Safety Area (TSA)**: The TSA is located on the taxiway centerline and shall be cleared and graded, properly drained, and capable, under dry conditions, of supporting snow removal equipment, ARFF equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.
- **Taxiway Edge Safety Margin (TESM):** The minimum acceptable distance between the outside of the airplane wheels and the pavement edge.
- **Taxiway/Taxilane Object Free Area (TOFA):** The TOFA is centered on the taxiway centerline and prohibits service vehicle roads, parked airplanes, and above ground objects, except for objects that need to be in the TOFA for air navigation or aircraft ground maneuvering purposes.
- **Taxiway Separation Standards:** Separation standards between the taxiways and other airport facilities are established to ensure operational safety of the airport and are as follows:
    - Taxiway centerline to parallel taxiway/taxilane centerline
    - Taxiway centerline to fixed or moveable object

Other design standards include taxiway shoulder width to prevent jet blast soil erosion or debris ingestion for jet engines and required separation distances to other taxiways/taxilanes.

Figure B-13 – Taxiway Design Standards Table 4-1 and 4-2

Table 4-1. Design Standards Based on Airplane Design Group (ADG)

Item	ADG					
	I	II	III	IV	V	VI
Taxiway and Taxilane Protection						
TSA (maximum ADG wingspan)	49 ft (14.9 m)	79 ft (24.1 m)	118 ft (36 m)	171 ft (52 m)	214 ft (65 m)	262 ft (80 m)
TOFA [2]	89 ft (27.1 m)	124 ft (38 m)	171 ft (52 m)	243 ft (74 m)	285 ft (87 m)	335 ft (102 m)
TLOFA [2]	79 ft (24.1 m)	110 ft (34 m)	158 ft (48 m)	224 ft (68 m)	270 ft (82 m)	322 ft (98 m)
Taxiway and Taxilane Separation						
Taxiway centerline to parallel taxiway centerline [1]	70 ft (21.3 m)	102 ft (31 m)	144 ft (44 m)	207 ft (63 m)	249 ft (76 m)	298 ft (91 m)
Taxiway centerline to fixed or movable object [2]	44.5 ft (13.6 m)	62 ft (18.9 m)	85.5 ft (26.1 m)	121.5 ft (37 m)	142.5 ft (43 m)	167.5 ft (51 m)
Taxilane centerline to parallel taxilane centerline [1]	64 ft (19.5 m)	94 ft (29 m)	138 ft (42 m)	198 ft (60 m)	242 ft (74 m)	292 ft (89 m)
Taxilane centerline to fixed or movable object [2]	39.5 ft (12.2 m)	55 ft (16.8 m)	79 ft (24.1 m)	112 ft (34 m)	135 ft (41 m)	161 ft (49 m)
Wingtip Clearance						
Taxiway wingtip clearance	20 ft (6.1 m)	23 ft (7 m)	27 ft (8.2 m)	36 ft (11 m)	36 ft (11 m)	36 ft (11 m)
Taxilane wingtip clearance	15 ft (4.6 m)	16 ft (4.9 m)	20 ft (6.1 m)	27 ft (8.2 m)	28 ft (8.5 m)	30 ft (9.1 m)

Note 1: See Figure 4-5.
Note 2: See Figure 4-6.
Note 3: See paragraphs 4.5.3.1 and 4.5.4.1 for TSA and TOFA standards at fillets.

Table 4-2. Design Standards Based on Taxiway Design Group (TDG)

Item	TDG							
	1A	1B	2A	2B	3	4	5	6
Taxiway/Taxilane Width [1]	25 ft (7.6 m)	25 ft (7.6 m)	35 ft (10.7 m)	35 ft (10.7 m)	50 ft (15.2 m)	50 ft (15.2 m)	75 ft (22.9 m)	75 ft (22.9 m)
Taxiway Edge Safety Margin [1]	5 ft (1.5 m)	5 ft (1.5 m)	7.5 ft (2.3 m)	7.5 ft (2.3 m)	10 ft (3 m)	10 ft (3 m)	14 ft (4.3 m)	14 ft (4.3 m)
Taxiway Shoulder Width [2]	10 ft (3 m)	10 ft (3 m)	15 ft (4.6 m)	15 ft (4.6 m)	20 ft (6.1 m)	20 ft (6.1 m)	30 ft (9.1 m)	30 ft (9.1 m)
Taxiway/Taxilane Centerline to Parallel Taxiway/Taxilane Centerline w/180 Degree Turn	See Table 4-6 and Table 4-7.							

Note 1: See Figure 4-4.
Note 2: When the most demanding aircraft has four engines and is ADG-VI, the standard taxiway shoulder width is 40 feet (12.2 m).

Source: FAA AC 150/5300-13B

Airspace Protection

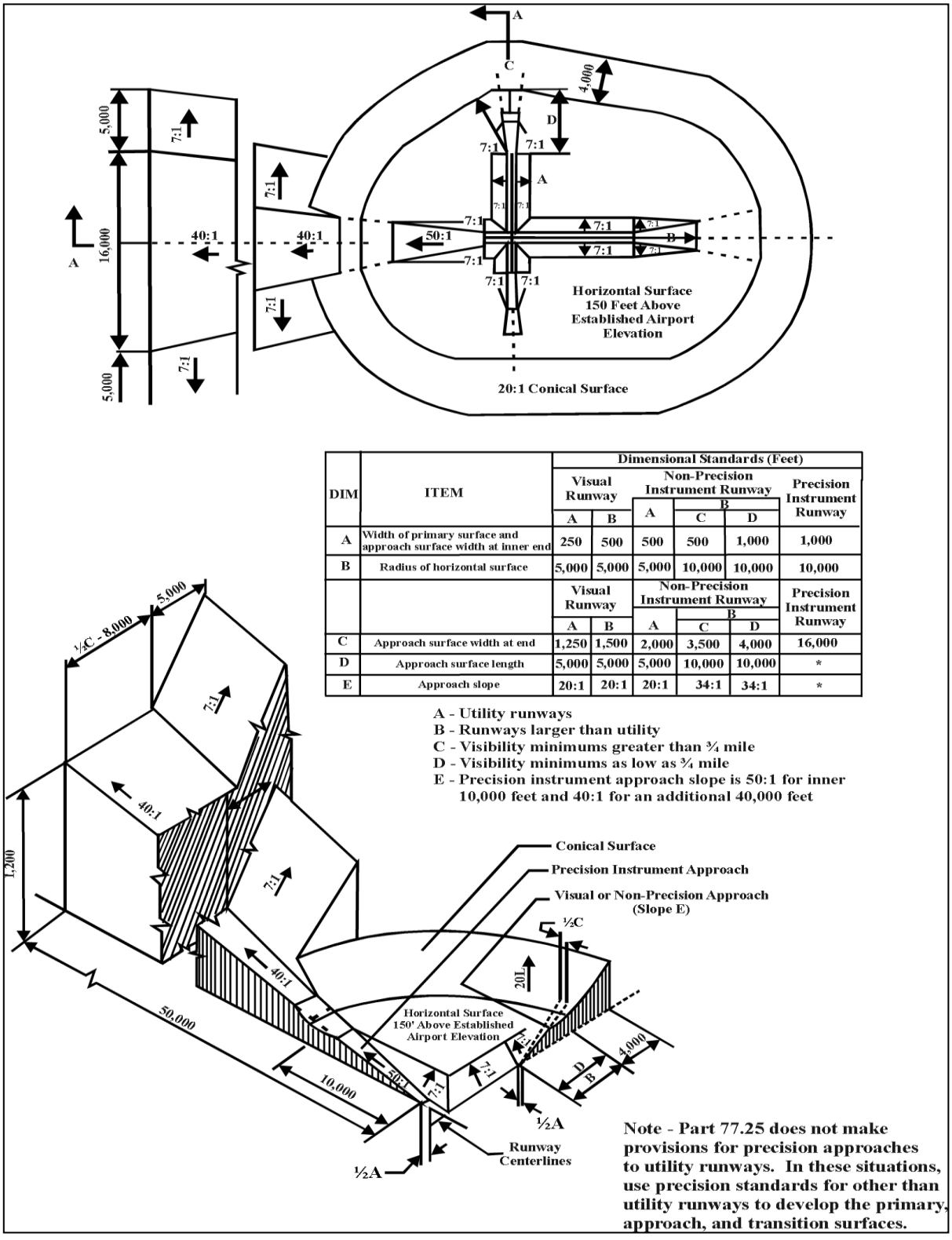
Airspace is an important resource around airports that is essential for safe flight operations. There are established standards to identify airspace obstructions around airports. FAA grant assurances (obligations) require the airport sponsor to take appropriate action to assure that airspace is adequately cleared to protect instrument and visual flight operations by removing, lowering, relocating, marking or lighting, or otherwise mitigating existing airport hazards and preventing the establishment or creating of future airport hazards. Examples of obstructions include trees, buildings, poles, towers, terrain, mobile objects, and aircraft tails. Sufficiently clear airspace near the approach and departure runway ends are vitally important for safe airport operations. An FAA aeronautical study should be completed to determine the operational impacts and necessary mitigation of obstructions (i.e. lowering, lighting, marking, publish operational restrictions).

Part 77 Civil Airport Imaginary Surfaces

Title 14 CFR (Code of Federal Regulations) Part 77 *Safe, Efficient Use, and Preservation of the Navigable Airspace* is used to determine whether man-made or natural objects penetrate these "imaginary" three-dimensional airspace surfaces and become obstructions. Federal Aviation Regulation (FAR) Part 77 surfaces are the protective surfaces most often used to provide height restriction zoning protection around an airport. Sufficiently clear airspace is necessary for the safe and efficient use of aircraft arriving and departing an airport. The most demanding approach to a runway defines the Part 77 airspace standards for that runway. These airspace surfaces include the primary, approach, transitional, horizontal, and conical surfaces each with different standards. The slope of an airspace surface is defined as the horizontal distance traveled for each one vertical foot (i.e. 50:1). Part 77 standards are shown in **Figure B-14**.

Of note are the primary surfaces which should be kept clear of non-essential objects above the runway centerline elevation. The approach surface extends upward and outward from the runway. A slope is defined as the horizontal distance traveled for each one vertical foot.

Figure B-14 – FAR Part 77



DIM	ITEM	Dimensional Standards (Feet)					
		Visual Runway		Non-Precision Instrument Runway			Precision Instrument Runway
		A	B	A	B C	B D	
A	Width of primary surface and approach surface width at inner end	250	500	500	500	1,000	1,000
B	Radius of horizontal surface	5,000	5,000	5,000	10,000	10,000	10,000
		Visual Runway		Non-Precision Instrument Runway			Precision Instrument Runway
		A	B	A	B C	B D	
C	Approach surface width at end	1,250	1,500	2,000	3,500	4,000	16,000
D	Approach surface length	5,000	5,000	5,000	10,000	10,000	*
E	Approach slope	20:1	20:1	20:1	34:1	34:1	*

A - Utility runways
B - Runways larger than utility
C - Visibility minimums greater than ¾ mile
D - Visibility minimums as low as ¾ mile
E - Precision instrument approach slope is 50:1 for inner 10,000 feet and 40:1 for an additional 40,000 feet

Note - Part 77.25 does not make provisions for precision approaches to utility runways. In these situations, use precision standards for other than utility runways to develop the primary, approach, and transition surfaces.

Source: FAA

APPENDIX C: MEETINGS & PUBLIC INVOLVEMENT

Introduction

The Terry Airport (8U6) understands the importance of public involvement in the Planning process. During the scoping meeting, the Airport and KLJ designed a transparent process that allows opportunities for stakeholders to be actively engaged. The Airport also believes that members of the public should have an opportunity to comment on decisions about actions that could affect their lives. This involvement took place in the form of public open houses, website information sessions, and stakeholder outreach efforts. The Airport appreciates that public participation improves the decision-making process by recognizing and communicating the needs and interests of all participants. As a result of the public participation process, we feel that the plan offers a valuable path for developing the Terry Airport.

Table C-1 – Public Outreach Activities

Date of Outreach	Type of Public Process	Attendance	Information Conveyed	Page in Appendix
Continuous	Public Website for Information and Comments Terry.airportplan.net		Chapters and Presentation Materials	
11/16/2022	Planning Kickoff & Alternatives	28	Roles, existing conditions, environmental issues, alternatives considered	C-2
11/16/2022	Materials to Landowners (Unruh & Hoagland)	3	Draft Overview Chapter and Draft Alternatives Chapter	
08/22/2023	Alternatives Selection	6	Review findings from Environmental and Select Preferred Alternative	C-9

Source: KLJ

Planning Kickoff-Alternatives Meeting – November 2022

Introductions

- Project Team
  - Senior Aviation Planner – Kent Penney
  - Airport Engineer – Craig Canfield
- Stakeholders
  - Stakeholders
- Agencies
  - FAA
  - MTDOT Aeronautics

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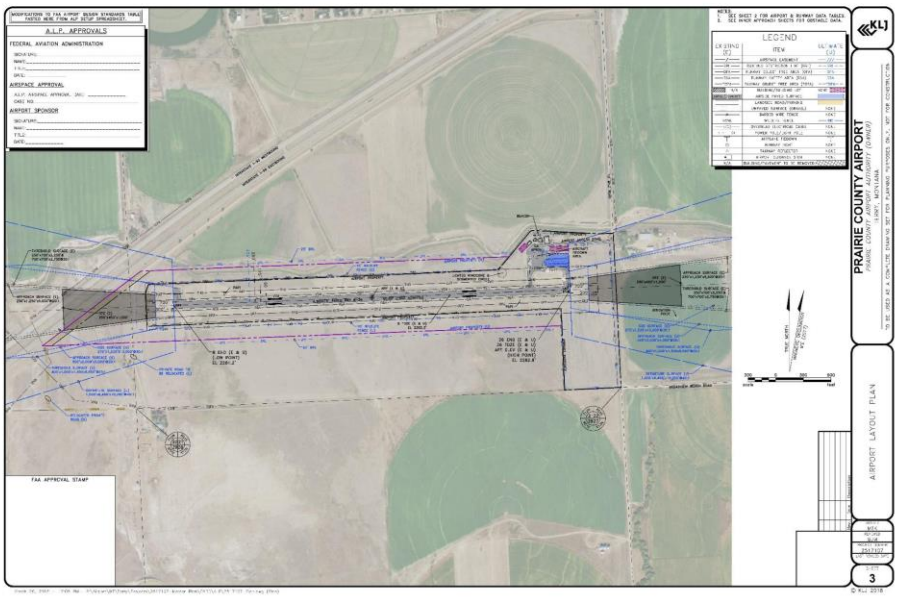
2018 Airport Layout Plan (ALP)



- Runway Design Code
  - B-II-Visual Existing
  - B-II-5000 Future
- Wildlife Fence
- Move Road

- *FAA identified Supplemental Planning Needed*

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Roles & Responsibilities

KLJ Planning Team	• Manage Study, Complete Technical Work, Provide Analysis and Recommendations
Planning Advisory Committee	• Identify Wants & Needs • Ask Questions & Review Analysis • Provide Feedback & Recommendations
FAA / Montana DOT Aeronautics Division	• Provide Technical Guidance, Approve Aviation Forecasts, Review Airport Plan, Approve ALP

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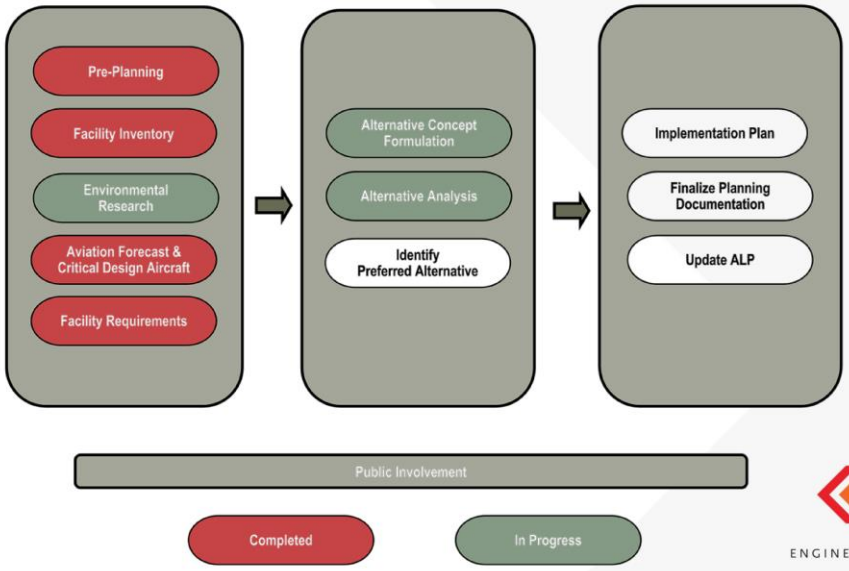
Planning Timeline



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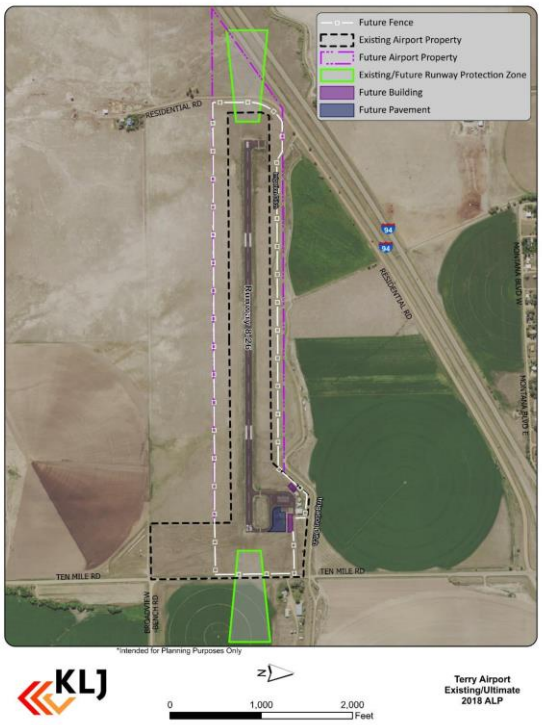
Airfield

- 4,300’ x 75’ Runway
- Approaches
  - Existing Visual
  - Future Non-Precision 1-Mile
- Need for Wildlife Fence
- Irrigation Ditch Affected
- Residential Road Affected



Approach Surfaces

Feature	Existing	Future
Approach Type / Minimums	Visual / NA	Non-Precision Instrument / 1-mile
14 CFR Part 77 Approach Surface	250’ x 1,250’ x 5,000’ 20:1 Slope	500’ x 2,000’ x 5,000’ 20:1 Slope
Par. 3.6 Approach Surface	Type 2 250’ x 700’ x 2,250’ (+2,750’) 20:1 Slope	Type 5 400’ x 3,400’ x 10,000’ 20:1 Slope
Par. 3.6 Approach Surface Starting Position	At Threshold	200’ from Threshold

Also, Safety Surfaces widened for Instrument Approach from 250’ to 500’ which affects the runway centerline separation for the wildlife fence parallel to the runway. *Increase from 195’ to 320’ from the runway centerline*

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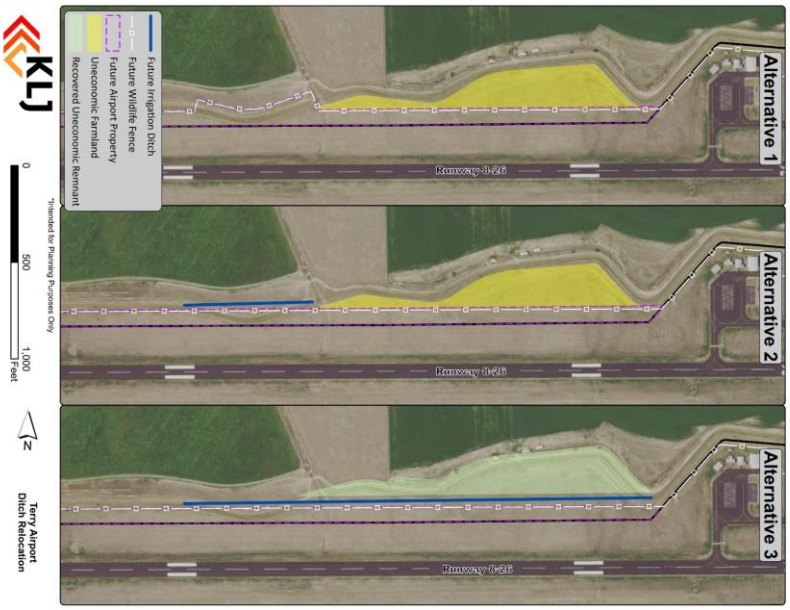
Irrigation Ditch



- No Change
- Alt 1 (ditch crossings)
- Alt 2 (680’ realignment)
- Alt 3 (2,400’ realignment)

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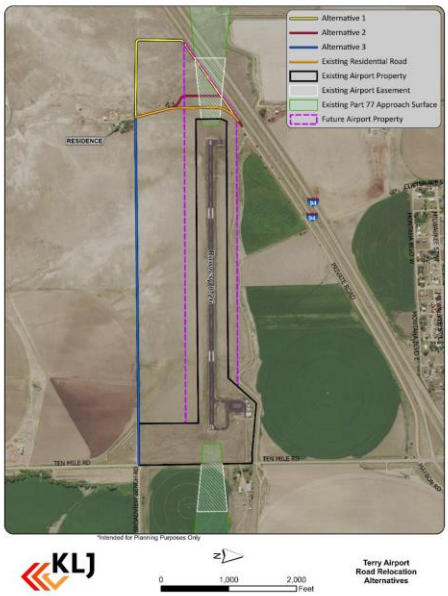
Residential Road



Alternative	No Change	1	2	3
Part 77 (20:1) 500’ x 2,000’ x 5,000’				
Wildlife Fence	10’ to 5’	1’ to (47’)	1’ to (10’)	(13’ to 50’)
Road	1’ to (5’)	(1’ to 49’)	(1’ to 12’)	-
Paragraph 3.6 (20:1) 400’ x 3,400’ x 10,000’				
Wildlife Fence	5’	(2’ to 44’)	(2’ to 10’)	(16’ to 52’)
Road	(1’ to 5’)	(4’ to 47’)	(4’ to 12’)	-

Red – Above Surface; (Green) – Below Surface

- Road Realignment
  - No Change – NA
  - Alt 1 – 2018 ALP 3,100’
  - Alt 2 – Minimal 1,300’
  - Alt 3 – Section Line 5,100’

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Next Steps

- Complete Environmental Elements
  - Cultural Resources
  - Wetland Delineation
- Complete Refined Alternatives

Next Meeting: Determine Preferred Alternative

Website: terry.airportplan.net

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Questions/Comments

Kent Penney, Senior Aviation Planner
kent.penney@kljeng.com
605.939.9535 m
605.872.5005 o

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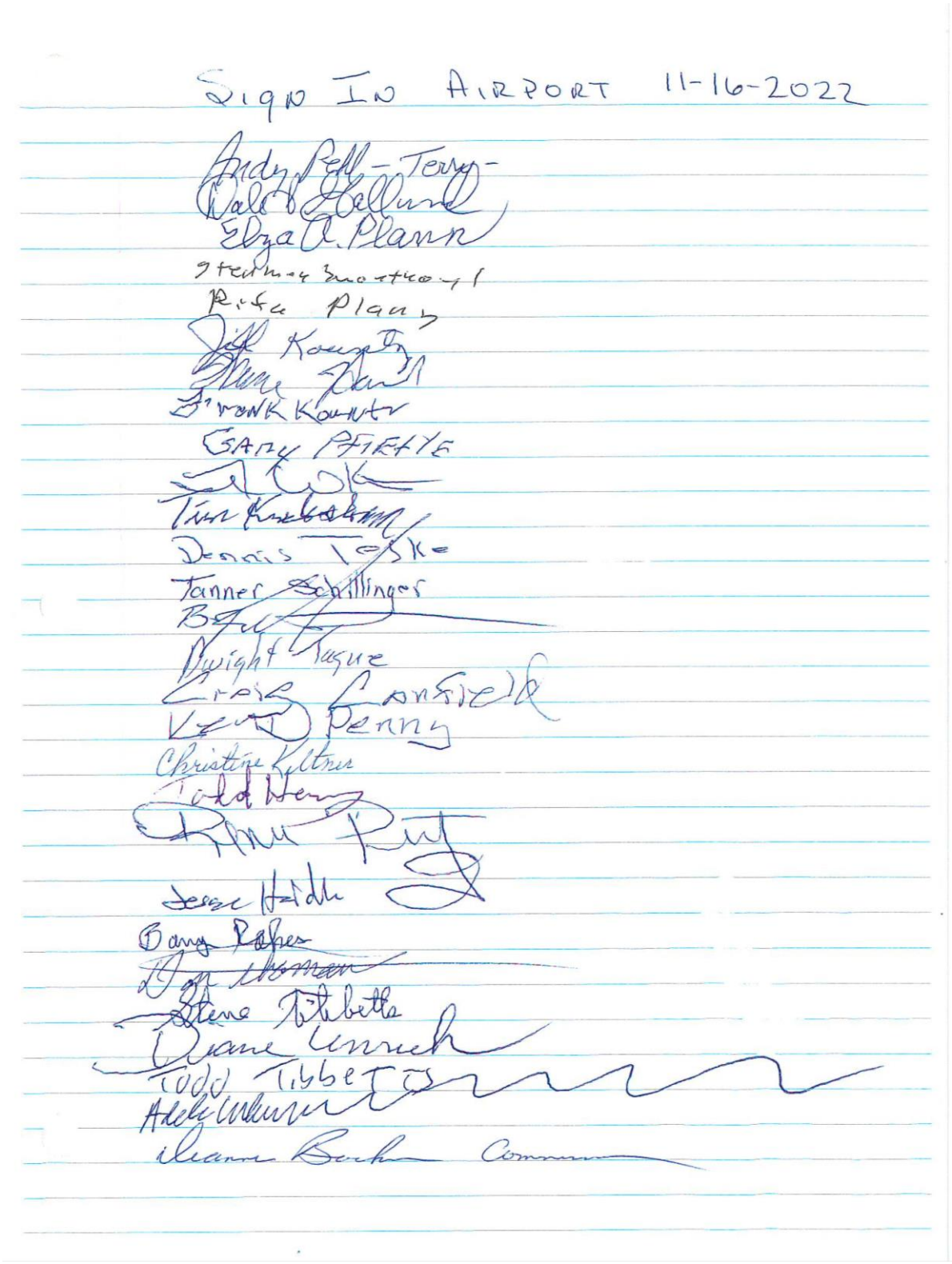

Sign In Airport 11-16-2022

Andy Bell – Terry –
Dale Hallum
Elyza A. Plann
Steering Committee
Rifa Plann
Jeff Kough
Steve Dent
Frank Kanter
Gary Fiehe
Jeff Cox
Tim Kuhlmann
Dennis Teske
Tanner Schillinger
Bill
Dwight Tague
Craig Canfield
Kent Penny
Christine Kiltner
Todd Henry
Ron Pitt
Jesse Haidle
Barry Baker
Don Thomas
Steve Tibbetts
Duane Unruh
Todd Tibbetts
Adele Uhlmann
Deanna Burkhardt Commun

Terry Airport
Supplemental Airport Planning – Alternative Selection
August 22, 2023
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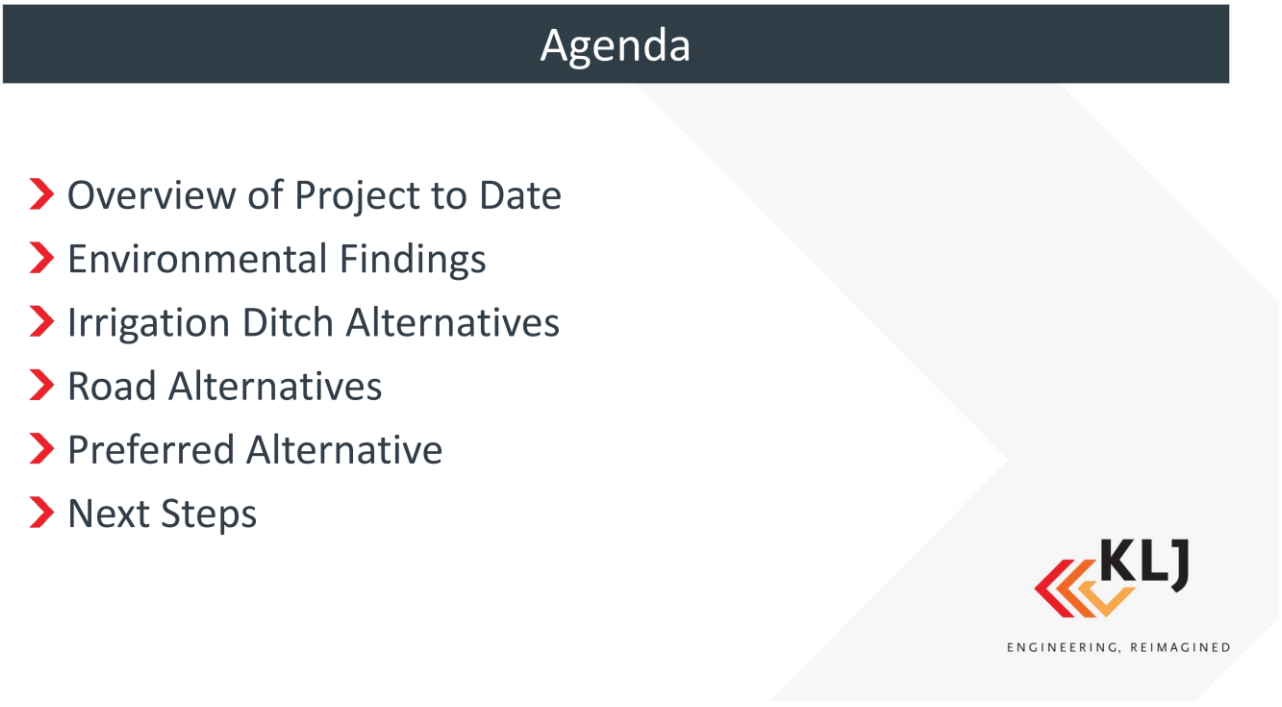
Agenda
Overview of Project to Date
Environmental Findings
Irrigation Ditch Alternatives
Road Alternatives
Preferred Alternative
Next Steps
KLJ
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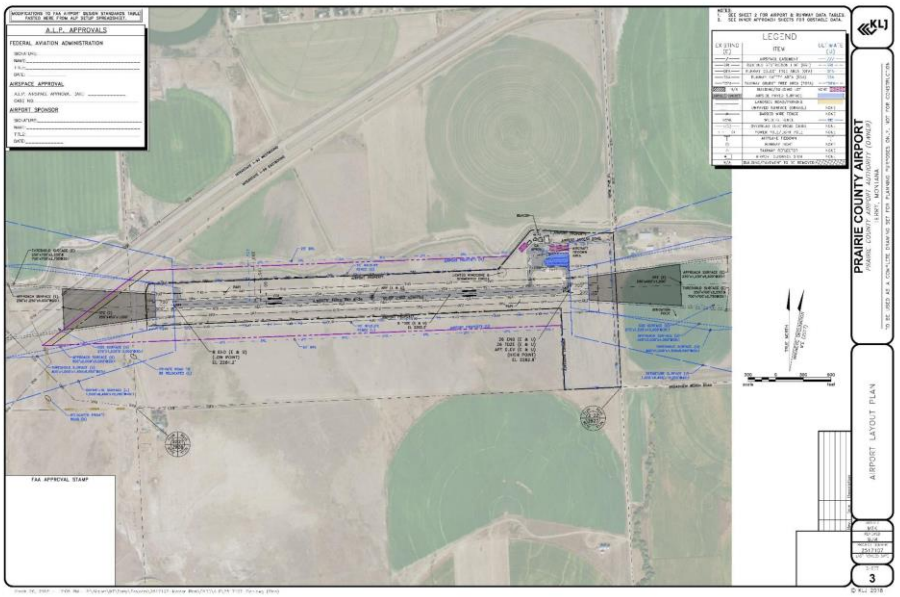
2018 Airport Layout Plan (ALP)



- Runway Design Code
  - B-II-Visual Existing
  - B-II-5000 Future
- Wildlife Fence
- Move Road
- *FAA identified Supplemental Planning Needed*

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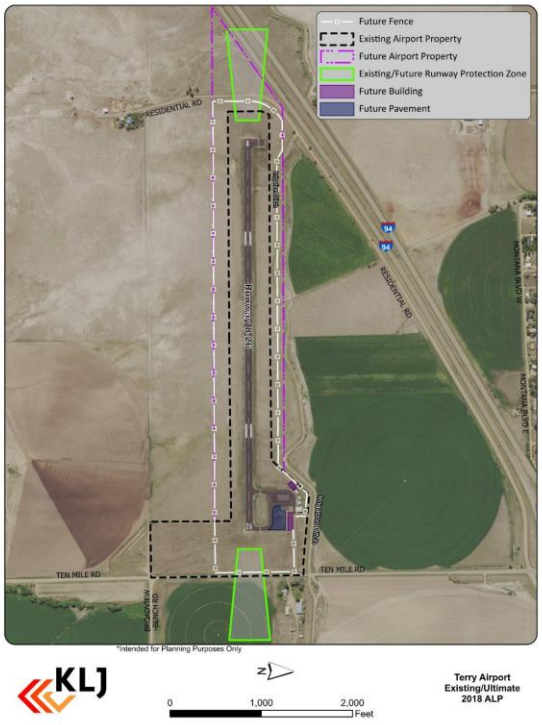
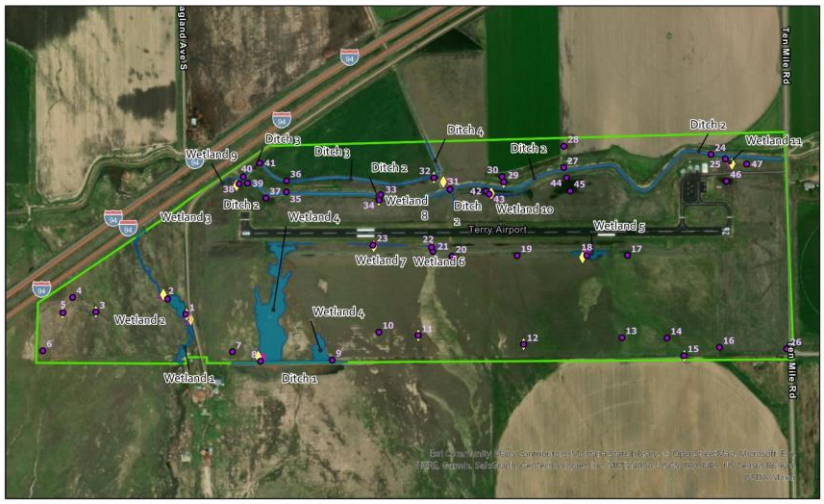
Airfield

- 4,300’ x 75’ Runway
- Approaches
  - Existing Visual
  - Future Non-Precision 1-Mile
- Need for Wildlife Fence
- Irrigation Ditch Affected
- Residential Road Affected



Environmental Findings - Wetlands



Aquatic Resource Delineation
Terry Airport
Prairie County, Montana
May 18, 2023

- Minimal Impact to Construction

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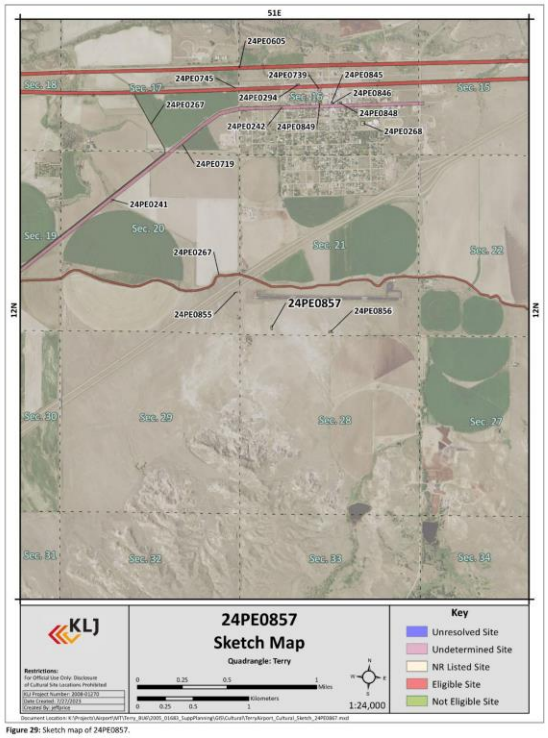

Figure 29: Sketch map of 24PE0857.

Environmental Findings - Cultural

- Three Ineligible Sites
- One Eligible Site (Irrigation Ditch)
- Coordinate with Irrigation District, Bureau of Reclamation, Montana SHPO, and FAA
- Plan for Categorical Exclusion but could require an Environmental Assessment

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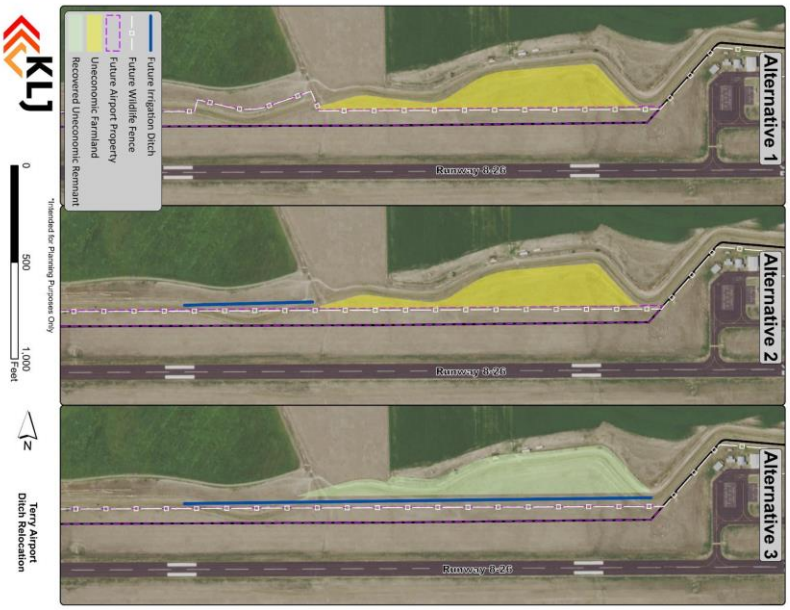
Irrigation Ditch



- No Change
- Alt 1 (ditch crossings)
- Alt 2 (680’ realignment)
- Alt 3 (2,400’ realignment)

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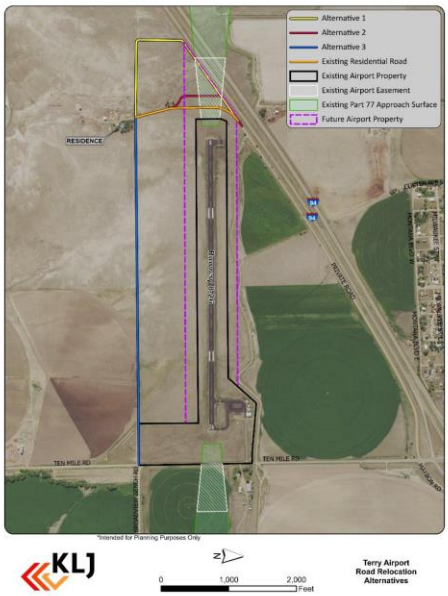
Residential Road



Alternative	No Change	1	2	3
Part 77 (20:1) 500’ x 2,000’ x 5,000’				
Wildlife Fence	10’ to 5’	1’ to (47’)	1’ to (10’)	(13’ to 50’)
Road	1’ to (5’)	(1’ to 49’)	(1’ to 12’)	-
Paragraph 3.6 (20:1) 400’ x 3,400’ x 10,000’				
Wildlife Fence	5’	(2’ to 44’)	(2’ to 10’)	(16’ to 52’)
Road	(1’ to 5’)	(4’ to 47’)	(4’ to 12’)	-

Red – Above Surface; (Green) – Below Surface

- Road Realignment
  - No Change – NA
  - Alt 1 – 2018 ALP 3,100’
  - Alt 2 – Minimal 1,300’
  - Alt 3 – Section Line 5,100’

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Buffalo Rapids Irrigation District

- Alternatives were provided to the District
- District Consulted Bureau of Reclamation
- District Approved Alternative 2
- Recommended Alternative
  - Alternative 2 with acquisition of all property between airport and ditch
  - Airport option to ask for Alternative 3

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Road Realignment

- Recommend Alternative 2
  - Minimal amount of road work
  - Most consistent with resident's current access

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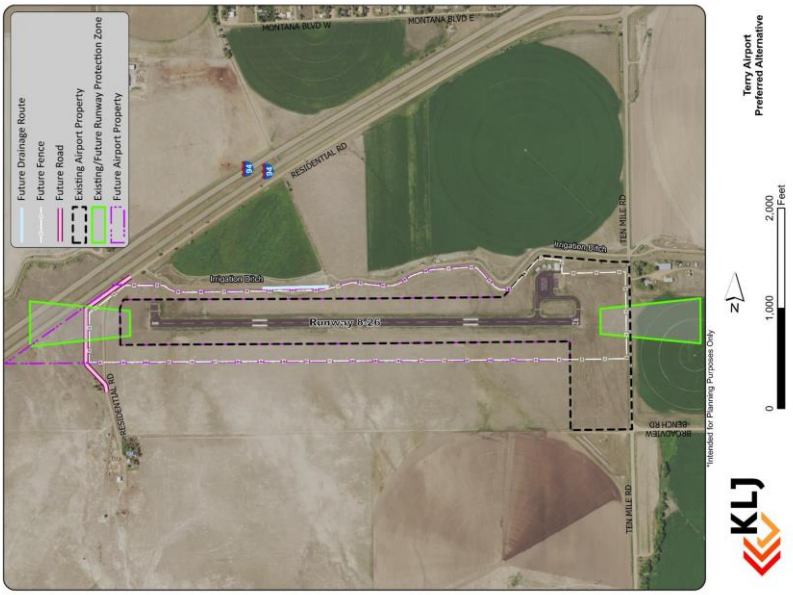
Recommended Layout



Next Steps

- Update ALP and Complete the Narrative Report
- Environmental Steps
- Land Acquisition
- Design and Construct Fencing

Website: terry.airportplan.net

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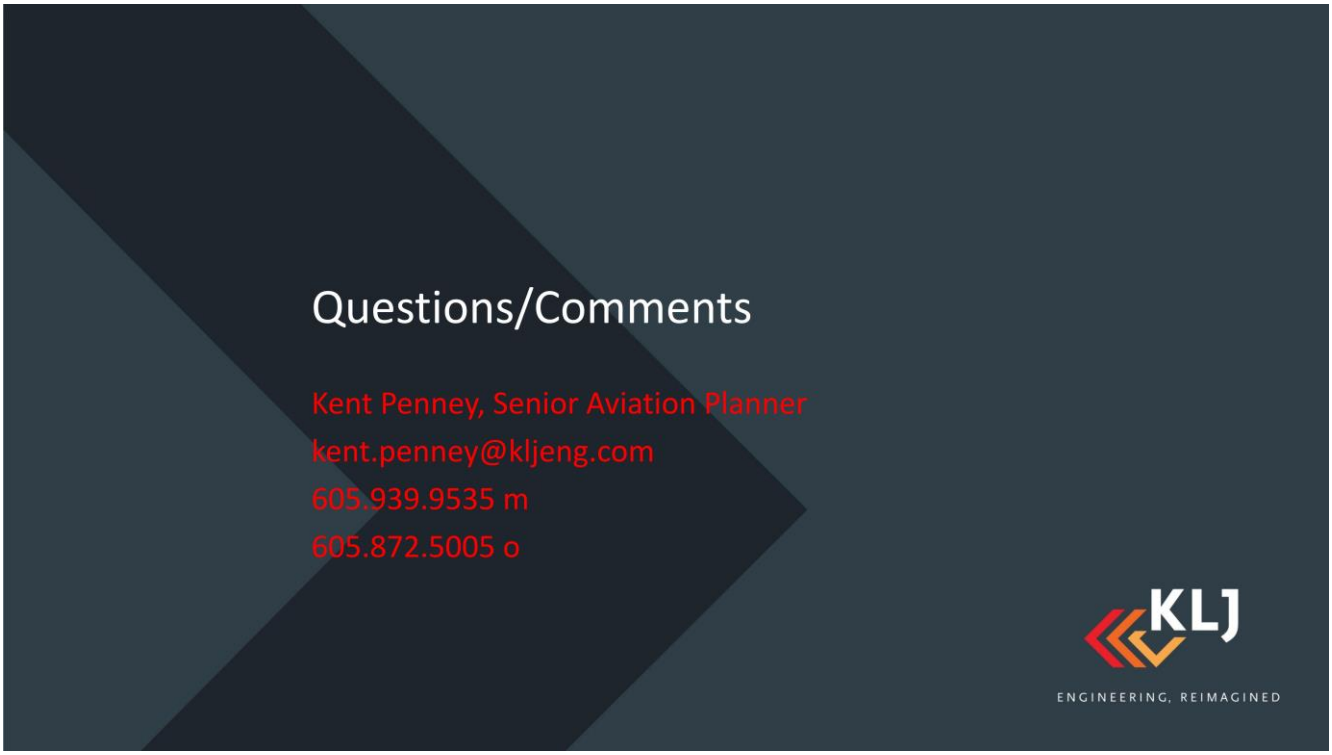
Alternatives Selection – August 2023 continued



Terry Airport – Alternative Selection Meeting – Aug 22nd, 2023

ATTENDANCE LIST

Engineering Reimagined

YEAR 2022 | KLJENG.COM

KLJ

Name (please print)	Organization/Business	Phone	Email (optional)
Tanner Schillinger	Terry Airport Authority	406-951-3680	
Dwight Tague	" " "	406 951-6165	
Dale Galland	" " "	406-951-7231	
Jesse Heidl	" " "	406-853-0867	
Craig Canfield	KLJ		
Kent Penney	KLJ		

CULTURAL RESOURCES

TERRY AIRPORT SUPPLEMENTAL PLANNING: A CLASS III CULTURAL RESOURCE INVENTORY IN PRAIRIE COUNTY, MONTANA

Prepared For:
Prairie County Airport Authority,
Terry, Montana

Principal Investigator:
Bill Norman

Prepared By:
Bill Norman
KLJ
2611 Gabel Road
Billings, Montana 59102

REPORT OF INVESTIGATION: 3225

JULY 2023

KLJ

TERRY AIRPORT SUPPLIMENTAL PLANNING:
A CLASS III CULTURAL RESOURCE INVENTORY IN PRAIRIE COUNTY, MONTANA

Prepared For:
Prairie County Airport Authority
Terry, Montana

Principal Investigator:
Bill Norman

Prepared By:
Bill Norman

KLJ
2611 Gable Road
Billings, MT 59102

KLJ Report of Investigation: 3225

July 2023

ABSTRACT

The Prairie County Airport Authority contracted KLJ to conduct a Class III cultural resource inventory as part of a planning study for several anticipated projects still in development, including wildlife fencing and road relocation. The projects are proposed to be designed within a 258.4 acre area surrounding the existing airport. The work is being conducted under a Federal Aviation Administration (FAA) Airport Improvement Program Grant to the Prairie County Airport Authority.

KLJ requested a file search of the Montana SHPO files for a one-mile radius around the study area on April 5, 2023. The review indicated that there are nine previously recorded cultural resources within a one-mile radius of the project area. One of these resources, 24PE0267, a historic irrigation system, is in the study area and was revisited during Class III inventory. All previously recorded resources are historical era sites and include bridges, irrigation systems, schools, roads, and commercial developments. One resource, a historic school (24PE0268), is listed on the National Register. Two other resources (24PE0845 and 24PE0846), both commercial developments, are recommended Eligible for National Register listing. The six remaining resources are Unevaluated or recommended Not Eligible for the NRHP. Literature review also indicated that there were four cultural resource inventories conducted within the search radius between 1998 and 2020. They were conducted for oil and gas and irrigation projects. None of the previous cultural resource inventories overlap the proposed project area.

KLJ archaeologist Bill Norman and KLJ paleontologist Mitchel Lukens completed the Class III inventory of the study area on April 18-23, 2023. Three new cultural resources and four new isolated finds were encountered. One site (24PE0855) is a historical era foundation. One site (24PE0856) is a historical material scatter, and the last site (24PE0857) is a prehistoric lithic material scatter. KLJ conducted subsurface testing at 24PE0856 and 24PE0857, and no subsurface material was encountered. All of the isolated finds are prehistoric era isolates. All of the new sites, and all of the isolates, are recommended Not Eligible for listing on the National register of Historic Places. The revisited resource, 24PE0267, is previously recommended Eligible for the National Register of Historic Places. KLJ recommends avoidance of the site by 50 meters.

Provided all construction activity takes place within the inventoried area, and 24PE0267 is avoided by design, KLJ recommends a finding of **No Historic Properties Affected** for any proposed development for the study area inventoried, mapped, photographed, and described herein.

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INTRODUCTION

The Prairie County Airport Authority contracted KLJ to conduct a Class III cultural resource inventory as part of a planning study for several anticipated projects still in development, including wildlife fencing and road relocation. The project is proposed to be designed within a 258.4 acre area surrounding the existing airport. The work is being conducted under a Federal Aviation Administration (FAA) Airport Improvement Program Grant to the Prairie County Airport Authority.

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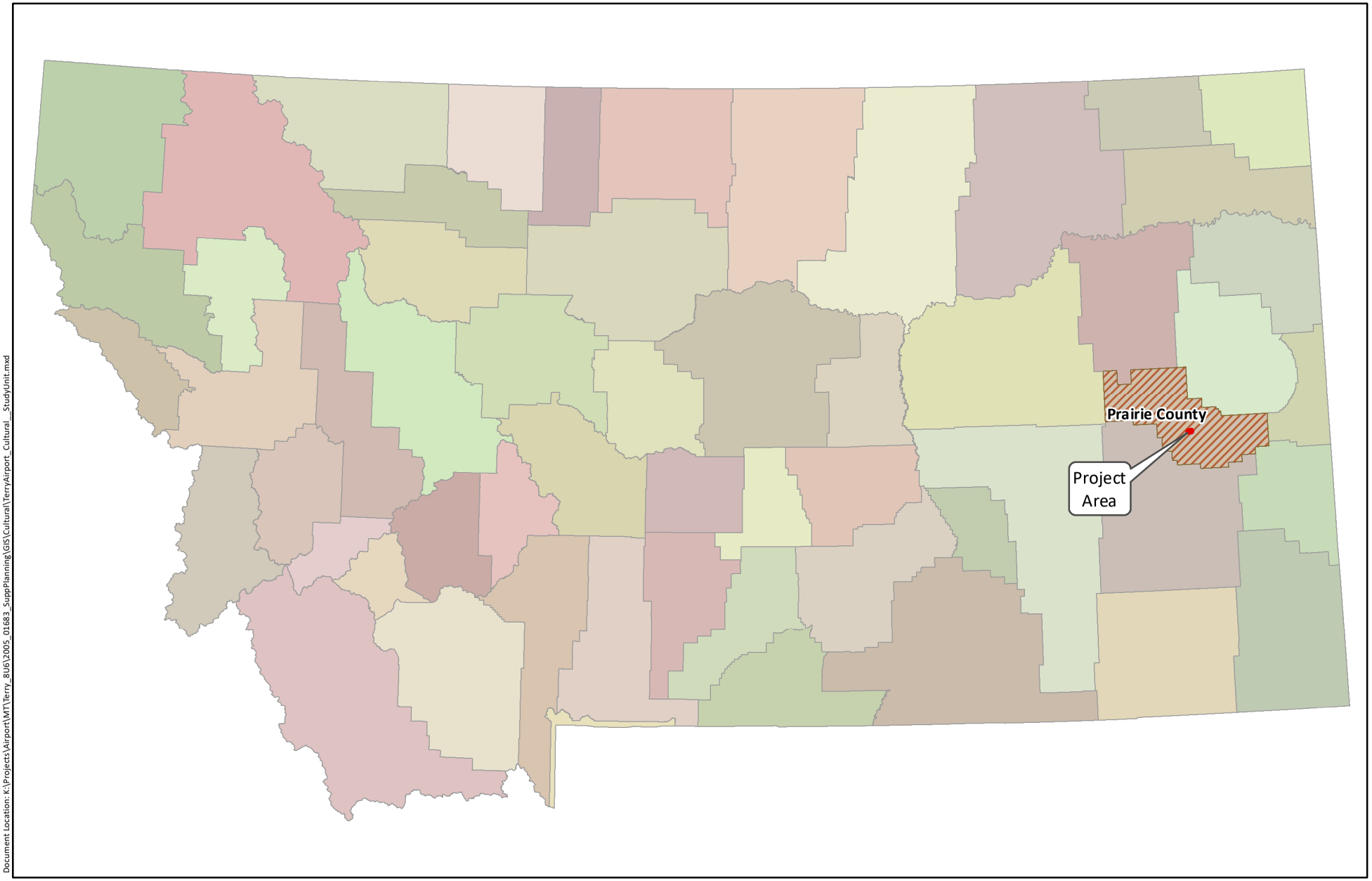
The following sections of this report provide more information about the environmental and cultural background of the project, evaluation standards, field methods and conditions, Class I and III inventory results, and recommendations for NRHP eligibility and management of the newly-recorded site. All site forms, maps, field notes, and photographs are on file at the main KLJ office in Bismarck, North Dakota.

Table 1: Legal location of the Class III inventory area in Prairie County

Township	Range	Section
12 N	51 W	20
12 N	51 W	21

Figure 1: County and Study Unit Map



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KLJ

Terry Airport
Prairie County, Montana

0 25 50 100 Miles

Project Area

N W E S

Map Scale: 1:3,700,000

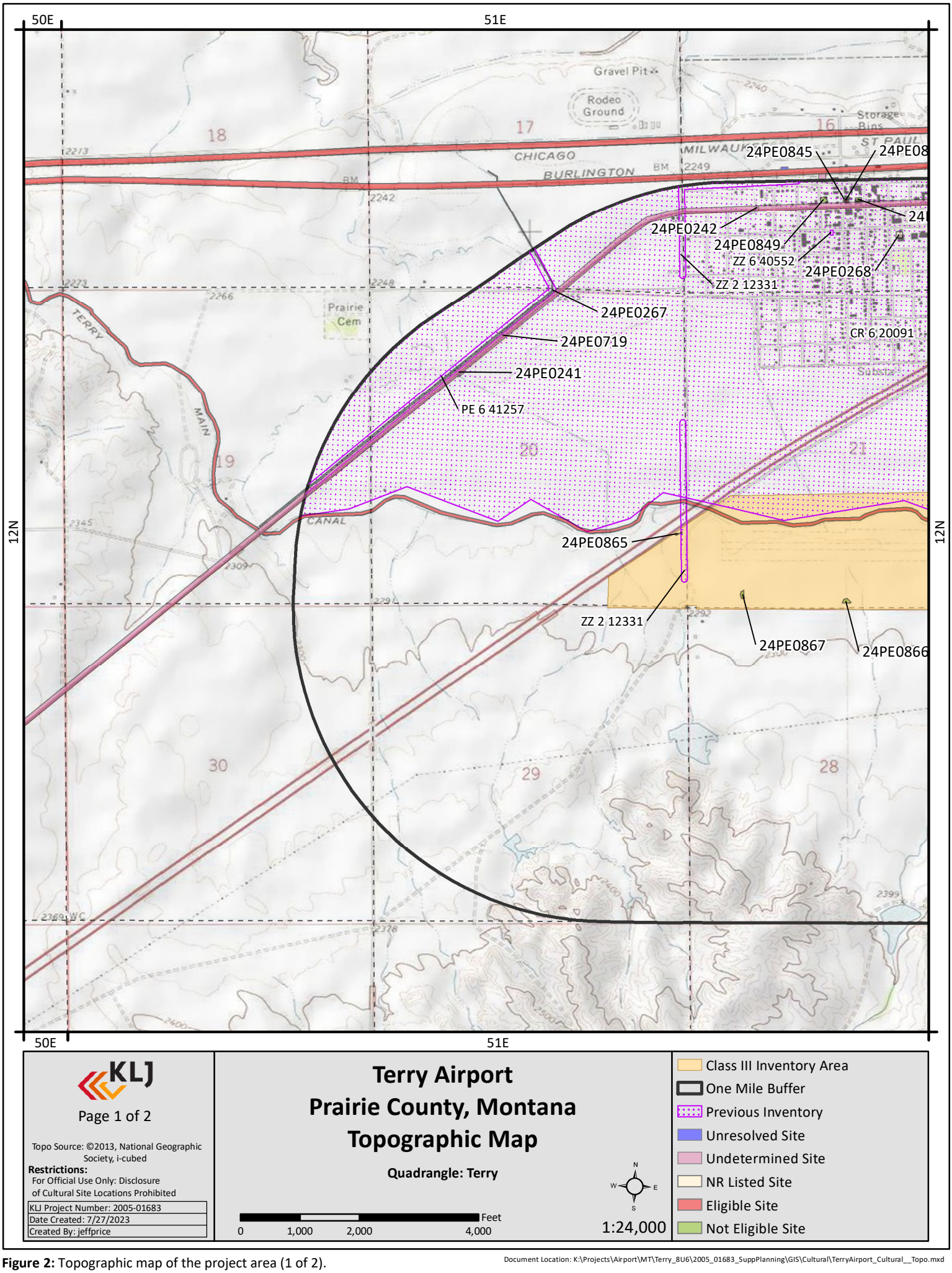

Figure 2: Topographic map of the project area (1 of 2).

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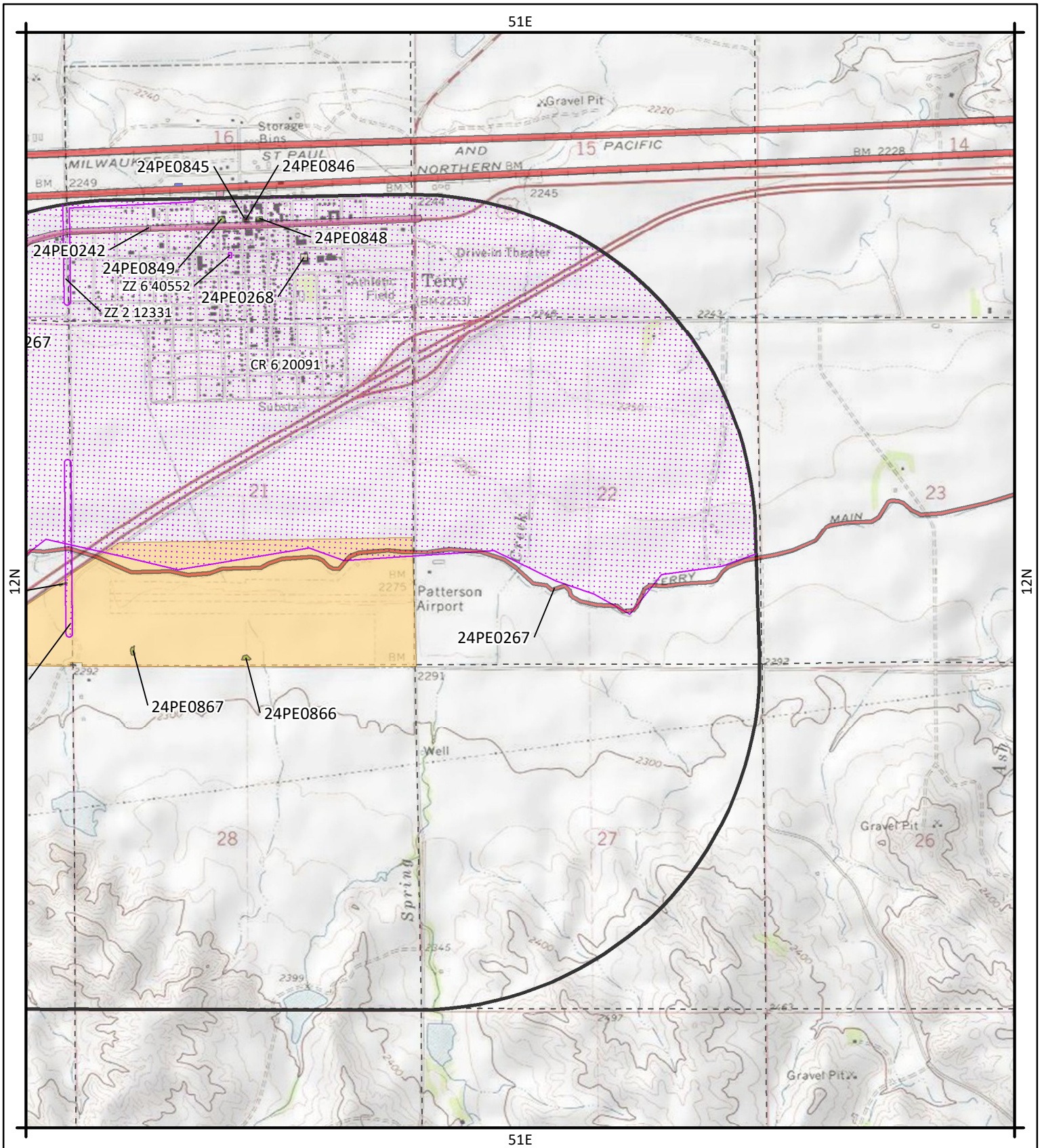

KLJ

Page 2 of 2

Topo Source: ©2013, National Geographic Society, i-cubed

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For Official Use Only: Disclosure of Cultural Site Locations Prohibited

KLJ Project Number: 2005-01683
Date Created: 7/27/2023
Created By: jeffprice

Terry Airport
Prairie County, Montana
Topographic Map

Quadrangle: Terry

0 1,000 2,000 4,000 Feet

1:24,000

- Class III Inventory Area
- One Mile Buffer
- Previous Inventory
- Unresolved Site
- Undetermined Site
- NR Listed Site
- Eligible Site
- Not Eligible Site

Figure 3: Topographic map of the project area (2 of 2).

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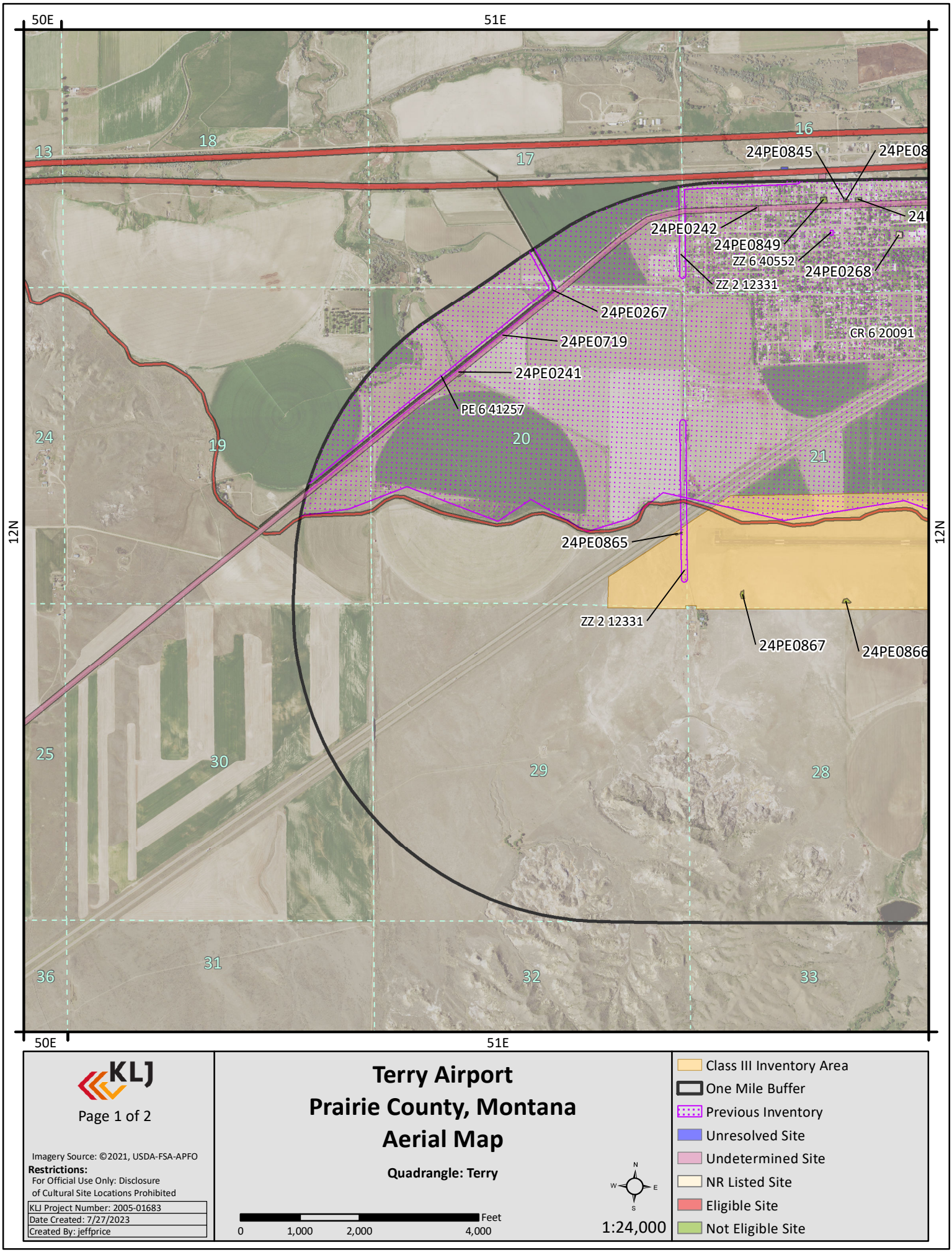

KLJ

Page 1 of 2

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Date Created: 7/27/2023
Created By: jeffprice

Terry Airport
Prairie County, Montana
Aerial Map

Quadrangle: Terry

0 1,000 2,000 4,000 Feet

1:24,000

- Class III Inventory Area
- One Mile Buffer
- Previous Inventory
- Unresolved Site
- Undetermined Site
- NR Listed Site
- Eligible Site
- Not Eligible Site

Figure 4: Aerial Map of the project area (1 of 2).

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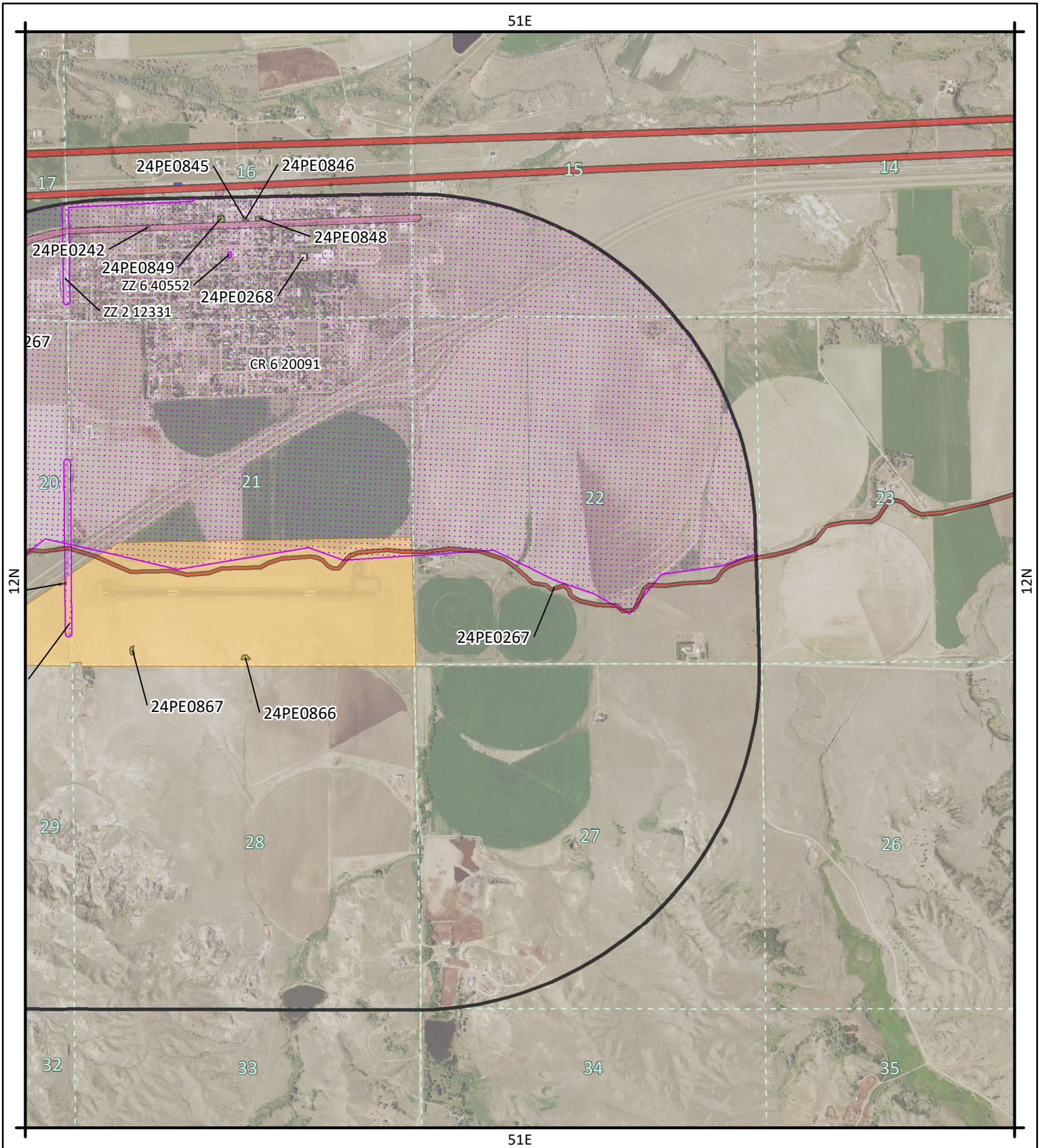

KLJ

Page 2 of 2

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KLJ Project Number: 2005-01683
Date Created: 7/27/2023
Created By: jeffprice

Terry Airport
Prairie County, Montana
Aerial Map

Quadrangle: Terry

0 1,000 2,000 4,000 Feet

1:24,000

- Class III Inventory Area
- One Mile Buffer
- Previous Inventory
- Unresolved Site
- Undetermined Site
- NR Listed Site
- Eligible Site
- Not Eligible Site

Figure 5: Aerial Map of the project area (1 of 2).

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ENVIRONMENTAL AND CULTURAL CONTEXT

Montana can generally be divided into three regions—eastern, central, and western—based on differences in geography, ecology, and culture history. The project area is in eastern Montana, which as defined here encompasses 48,795 mi^2 of mostly prairie grassland that extends west from the North and South Dakota state line for several hundred miles into the interior of the state. The following sections discuss aspects of the physical environment and culture history in eastern Montana and the surrounding region.

Effective Environment

Physiography

As defined here, eastern Montana is located in the Missouri Plateau section of the Great Plains physiographic province (Fenneman 1917), and includes (from east to west) Sheridan, Roosevelt, Richland, Wilbaux, Fallon, Carter, Powder River, Custer, Prairie, Dawson, McCone, Daniels, Valley, Phillips, Garfield, Rosebud, and Treasure counties. Along with the westernmost of these county lines, the region is bounded by the Dakotas to the east, Wyoming to south, and Canada (Saskatchewan) to the north.

This part of Montana is split between two major ecoregions, with a dividing line that meanders east-west between the 47th and 48th parallels and marks the southernmost limit of Quaternary glaciation in the area (see below; Woods *et al.* 2002). South of the line, the unglaciated landscapes of the Northwestern Great Plains primarily comprise rolling grassland prairies throughout the center of the region, with undulating hills and low ridges to the east, and broken uplands, steep coulees, steppe grassland and woodland, and occasional saltpans to the west. River breaks terrain characterized by heavily dissected terraces, broad floodplains, and wooded draws also occurs around major rivers and larger tributary streams. Areas north of the dividing line are in the Northwestern Glaciated Plains ecoregion and consist mainly of gently-rolling prairie in the west and heavily tilled and treeless glacial plains with sporadic benches and buttes in the east. Areas of hummocky, "knob and kettle" morainal terrain with abundant pothole lakes and seasonal wetlands are present along the northern border of the state, as well. Elevations range from approximately 1900 feet in the lowest valleys to more than 5600 ft atop the tallest buttes and bluffs (Woods *et al.* 2002).

Northeastern Montana is drained by the Missouri, Milk, and Poplar rivers and their tributaries, including Big Muddy, Frenchman, Brazil, and Beaver creeks. To the south, drainage patterns are dominated by the Yellowstone River and a network of feeder streams, the largest of which are the Powder, Little Powder, and Tongue rivers and O'Fallon, Mizpah, and Rosebud creeks. This area is also home to the massive Lake Fort Peck, created when the Missouri River was dammed in the 1930s, as well as Lake Bowdoin, Medicine Lake, Nelson Reservoir, and numerous other lakes, ponds, and seasonal wetlands of various size and depth (MacDonald 2012).

Climate

The climate in eastern Montana is continental and semi-arid, with long, cold winters and warm, dry summers (Howard 1960; Bailey 1995). Average January temperatures for weather stations at Broadus, Glendive, Jordan, Malta, and Medicine Lake range from a high of 27 °F to a low of 3 °F, with corresponding averages of 87 °F and 56 °F in July. Total precipitation is quite low, averaging around 13 inches yearly, most of which falls between April and September. Snowfall totals range more widely, from 15 inches at Jordan to 38 inches at Broadus, with an annual mean of 24 inches for the entire region. Most of the snow falls in a five-month period between November and March (Western Regional Climate Center 2021).

Flora and Fauna

Temperate mixed-grass prairie and sagebrush steppe are the predominant natural ecosystems in eastern Montana (Gap Analysis Project 2020). Vegetation consists of hearty, drought-resistant grasses and shrubs, such as blue grama (*Bouteloua gracilis*), western wheatgrass (*Pascopyrum smithii*), prairie junegrass (*Koeleria macrantha*), Indian ricegrass (*Achnatherum hymenoides*), needleleaf sedge (*Carex duriuscula*), sagebrush (*Artemisia* spp.), rabbitbrush (*Chrysothamnus* sp.), bitterbrush (*Purshia tridentata*), and saltbush (*Atriplex* spp.). Woodlands comprising stands of pine (*Pinus ponderosa*), fir (*Pseudotsuga menziesii*), juniper (*Juniperus* spp.), ash (*Fraxinus* pennsylvanica), aspen (*Populus tremuloides*), birch (*Betula papyrifera*), boxelder (*Acer negundo*), and elm (*Ulmus* spp.) trees are also present along ravines, rocky slopes and ridge tops, floodplains, and stream courses. Common grassland forbs and woodland understory plants include prairie turnip (*Psoralea esculenta*), currant (*Ribes spp.*), buffaloberry (*Shepherdia argentea*), chokecherry (*Prunus virginiana*), prickly pear (*Opuntia polycantha*), bitterroot (*Lewisia redivia*), camas root (*Camassia esculenta*), balsamroot (*Balsamorhiza sagittata*), sandwort (*Arenaria* spp.), phlox (*Phlox* spp.), milkvetch (*Astragalus* spp.), beardtongue (*Penstemon eriantherus*), and goldenrod (*Solidago missouriensis*) (Lavin and Siebert 2011; Montana Field Guide 2021).

The habitats of eastern Montana contain elk (*Cervus canadensis*), pronghorn (*Antilocapra americana*), deer (*Odocoileus* spp.), and historically supported large herds of bison (*Bison bison*) (Koch 1941; Mackie 1970). The region is and/or was also home to grizzly bear (*Ursus arctos*), mountain lion (*Puma concolor*), bobcat (*Lynx rufus*), wolf (*Canis lupus*), coyote (*C. latrans*), fox (*Vulpes vulpes*), badger (*Taxidea taxus*), beaver (*Castor canadensis*), marmot (*Marmota flaviventris*), rabbit (*Lepus townsendii, Sylvilagus nuttallii*), and numerous rodents. Various birds (*e.g.,* raptors, passerines, waterfowl, grouse), reptiles (*e.g.,* turtles, snakes, lizards), and fish (*e.g.,* trout, catfish, sucker) occupy the prairies, woodlands, and waterways in this part of the state, as well (Montana Field Guide 2021).

The diverse floral and faunal resources of this region were utilized extensively by Native Americans living in the area for thousands of years. Prairie turnip, in particular, was a dietary staple, while buffaloberry, chokecherry, currant, prickly pear, balsamroot, bitterroot, camas root and numerous

other plants also served as important food and medicinal items. Woody vegetation such as sagebrush, rabbitbrush, and ash, aspen, birch, boxelder, elm, and juniper trees were used for construction, domestic, and ceremonial purposes, as well (Peterson and Deaver 2002; Miller *et al.* 2008). Similarly, deer, pronghorn, bison, beaver, rabbit, and other abundant game animals provided meat and marrow, and their remains were fashioned into tools, clothing, and ritual items (Davis *et al.* 2000).

Geology

For much of the Cretaceous period (145-65 million years ago [ma]), large parts of Montana were covered by an interior seaway in which sandstone, siltstone, limestone, bentonite, shale, and other sedimentary rocks were deposited (McGookey *et al.* 1972; Mauk *et al.* 2016). During the late Cretaceous and subsequent Tertiary (*i.e.,* Paleogene and Neogene) period (65-2 ma): the inland sea retreated; tectonic activity folded and faulted existing units and uplifted the Rockies and isolated central mountain ranges; significant episodes of volcanism further transformed the landscape; and layers of silt, clay, sandstone, mudstone, shale, lignite, and ash accumulated in the plains, midlands, and intermountain basins (Alden 1932; McMannis 1955; Chadwick 1981). Continental and alpine ice sheets advanced and retreated across the northeastern plains and mountains of Montana multiple times in the Quaternary (2 ma-present), carving up older land surfaces, altering drainage patterns, and leaving behind thick a thick till of silt, sand, pebbles, cobbles, and boulders in many places (Howard 1960; Wayne *et al.* 1991; Locke and Smith 2004). Lacustrine sediments were also deposited in proglacial lakes (*e.g.,* Glendive, Musselshell, Winifred, Great Falls, Missoula) that formed in front of ice dams and inundated major river valleys throughout the state (Hill 2000; Davis *et al.* 2006). The last glaciers receded around 14,000 years ago and erosion, alluviation, colluviation, and eolian deposition have been the primary geomorphic processes since (Howard 1960).

The surface geology of eastern Montana is characterized by glacial till deposits of varying thickness in areas above the 47th parallel, with increasing bedrock exposures moving south through the unglaciated plains (Aaberg *et al.* 2006). Shale, siltstone, sandstone, and limestone from the early Tertiary Fort Union Formation is the primary bedrock underlying most of the area (Howard 1960; Stoeser *et al.* 2007). Late Cretaceous Bearpaw shale is widespread across the northwestern corner of the region, as well, and is often interspersed with sandstone, siltstone, and shale of similar age from the Judith River, Eagle, and Claggett formations. A large pocket of upper Cretaceous Pierre shale is also present in the southeastern corner, while outcrops of sandstone, mudstone, and shale, from the fossil-rich Hell Creek Formation are scattered throughout, often occurring in the junction between the younger Fort Union and older Bearpaw and Pierre formations. Likewise, significant deposits of gravel, sand, silt, clay, and marl comprising the Flaxville, Rimroad, and Cartwright gravels top benches, buttes, and other remnants of late Tertiary and Quaternary erosion surfaces north of the Missouri River and on the Missouri-Yellowstone divide. Additionally, Quaternary alluvium (gravel, sand, silt, tufa) is exposed on terraces above the Missouri, Yellowstone, and Milk rivers and their tributaries (Alden 1932; Howard 1960; Stoeser *et al.* 2007).

The geological formations in this region also include primary and secondary sources for a variety of lithic raw materials (Aaberg *et al.* 2006). Outcrops of high-quality tool stone are particularly common within the Fort Union Formation, and include porcellanite, orthoquartzite, silicified wood, and Tongue River Silicified Sediment, which is known from numerous sites in the northern Plains and occurs most commonly as secondary deposits in southeastern Montana (Keyser and Fagan 1987; Aaberg *et al.* 2006; Miller 2010). Similarly, the Flaxville, Rimroad, and Cartwright gravels contain abundant pebbles and cobbles of chert, quartzite, agate, silicified wood, and other materials that were utilized extensively by Native American tool makers in the past. Additional lithic resources for grinding and cooking implements (*e.g.,* basalt, andesite, sandstone), ceremonial mineral pigments (*e.g.,* hematite, limonite), pottery and temper (*e.g.,* clay, sand, gravel), and other purposes can be found in various contexts throughout eastern Montana, as well (Aaberg *et al.* 2006; Miller 1996, 2010).

Culture History

The following sections summarize the trends that characterize each of the major culture-historical periods in eastern Montana and the surrounding region over the last approximately 12,000 years, since the earliest inhabitants first entered the northwestern Great Plains and northern Rocky Mountains.

Paleoindian Period (12,000 - 8000 B.P.)

The Paleoindian period spans the Pleistocene-Holocene transition and includes the earliest inhabitants of Montana. This period can be usefully subdivided into two broad stages—early and late—both of which are associated with highly mobile hunter-gatherer groups. Both stages also subsume several techno-complexes that are distinguished based in part on differences in the form and function of large, lanceolate chipped stone projectile (*i.e.,* spear and/or dart) points (Kornfeld *et al.* 2010).

The early Paleoindian stage includes the Clovis, Goshen, and Folsom complexes. The Clovis complex was geographically widespread and persisted for roughly 300 years in the late Pleistocene (Miller *et al.* 2014; Waters *et al.* 2020). Clovis groups consisted of small bands who regularly hunted mammoth, mastodon, and other megafauna, but also exploited smaller prey and plant foods (Waguespack and Surovell 2003). Goshen was a transitional complex that differs from Clovis primarily in the presence of unique non-fluted points and a shifted emphasis to hunting bison, likely in response to environmental turnover and megafaunal extinctions associated with resurgent glacial conditions during the Younger Dryas stadial (Frison 1998). Subsequent Folsom groups were also small, mobile, and regularly hunted bison. However, the occurrence of more base camps indicates somewhat lower residential mobility among Folsom people, and their diets comprised a wider variety of faunal and floral resources relative to preceding periods (Kornfeld *et al.* 2010).

The late Paleoindian stage includes the Agate Basin, Hell Gap, Cody, and Foothill/Mountain complexes in Montana. Compared to earlier times, late Paleoindian lifeways are characterized by larger and more complex social groups, increased communal hunting, expanded use of high-elevation landscapes, and

continued broadening of the resource base (Reed and Metcalf 1999). Two geographically distinct adaptations have been recognized during this time. Groups on the Great Plains maintained subsistence economies focused primarily on hunting bison, while those in the mountains and foothills to the west pursued a broad-spectrum strategy that included smaller game and more plant foods (Frison 1992).

The most prominent early Paleoindian components in Montana are Anzick (24PA506), a Clovis cache and infant burial in the Crazy Mountains, and Mill Iron (24CT30), a Goshen complex bison hunting camp near Boxelder Creek in the eastern plains (Frison 1996; Becerra-Valdivia *et al.* 2018). Significant Folsom components have also been identified at Indian Creek (24BW626) and MacHaffie (24JF4) in the foothills of the Elkhorn Mountains, and King (24PH2886) in the Gallatin River Valley (Davis 1993; MacDonald 2012). Late Paleoindian components are relatively rare, but Cody and Foothill/Mountain artifacts are documented at several sites in the western uplands, including Barton Gulch (24MA171), Black Bear Coulee (24PW308), Indian Creek, MacHaffie, and Mammoth Meadow (24BE559). Likewise, at least three Hell Gap points were recovered during excavations at KXGN-TV (24DW79), a camp site on O'Fallon Creek in the southeast corner of the state (MacDonald 2012; Davis 2019).

Archaic Period (8000-1500 B.P.)

Greater technological diversity decreased residential mobility, and increased focus on seasonal use of localized and predictable resources are characteristic features of the early Holocene Archaic period (Kornfeld and Larson 2008). This period also saw the first definitive use of the atlatl and the advent of side- and corner-notched dart points, as well as proliferation of architectural structures (*e.g.,* pit houses), storage features, and various "site furniture" (*i.e.,* large ground stone and other implements that are difficult to transport) in the northwestern Plains and Rocky Mountains. The earliest, often rather crudely-made, ceramics appear at sites in Montana around 2000 years during the Archaic, as well (Aaberg *et al.* 2006; MacDonald 2012). The Archaic is divided into Early, Middle, and Late stages that include the following complexes in Montana: Bitterroot/Mummy Cave (Early); Oxbow and McKean (Middle); and Yonkee, Pelican Lake, and Besant (Late).

The Early Archaic coincides with the extremely arid Altithermal climatic episode and saw a marked decline in human populations on the Great Plains, possibly because deterioration of lower-elevation grassland habitats led groups to seek refuge in the mountains, foothills, and other upland areas (Benedict 1992). In response to changes in the resource base caused by ecological upheaval, including the extinction of multiple large mammal prey species, early Archaic people began hunting smaller prey and gathering more wild plants and seeds (Kornfeld *et al.* 2010). Many groups also abandoned fully nomadic lifeways and began practicing seasonal settlement systems that involved extended stays at residential base camps located near dependable sources of food, water, and other raw materials for at least part of the year (MacDonald 2012).

As climatic conditions improved and landscapes stabilized in the Middle Archaic, many groups fully adopted central-place foraging strategies entailing logistical forays in predictable habitats around long-

term base camps in the winter, with more frequent moves between short-term hunting/foraging camps across the landscape in summer (Gilmore *et al.* 1999). Elk, deer, and bighorn sheep were hunted, and various plants and seeds were processed and prepared using ground stone tools, hearths, and rock-lined ovens. Seasonal droughts returned in the Late Archaic, but summers remained relatively wet throughout this stage. Groups occupied uplands, valleys, and river terraces, and subsistence strategies emphasized hunting bison and other ungulates; however, small game, fish, and an increasing variety of wild plants, seeds, and nuts were regularly on the menu, as well (Kornfeld and Larson 2008; Kornfeld *et al.* 2010).

An extensive Bitterroot component at Myers-Hindman (24PA504) in the upper Yellowstone valley has provided significant insight into Early Archaic lifeways in Montana. Early Archaic components occur elsewhere in the high country (*e.g.,* Black Bear Coulee, Indian Creek) and central mid-elevation areas (*e.g.,* Buckeye [24CB1266], Pretty Creek [24CB4]), as well, but are not well-known on the eastern grasslands (MacDonald 2012). Middle Archaic McKean and Oxbow components are more common in east-central Montana and include a residential camp and pit house at Spiro (24CB1332), field camps at Airport Rings (24YE357), Pictograph Cave (24LY1), Rigler Bluffs (24PA401), and Sun River (24CA74), and a bison jump at Kobold (24BH406). The eastern prairies are also home to several bison jumps and kill/butchery locales (*e.g.,* Antonsen [24GA660]), Carter Ferry [24CH1003], Keaster [24PH401], Wahkpa Chu'gn [24HL101]) with Late Archaic Besant and Pelican Lake material culture, while the mountains to the west contain camps (*e.g.,* Yellowstone Bank Cache [24YE357], Mini Moon [24DW85]), quarries (*e.g.,* Schmitt [24BW559]), and rock art sites (*e.g.,* Kila Pictographs [24FH1006-1009]) from this period (MacDonald 2012; Davis 2019).

Late Prehistoric Period (1500-300 B.P.)

The Late Prehistoric period is characterized by increased population size and density, more intense utilization of upland landscapes, and the predominance of communal hunting across the Great Plains and Rocky Mountains (Peterson and Deaver 2002; MacDonald 2012). Importantly, the Late Prehistoric also witnessed the introduction of bow and arrow technology and associated appearance of smaller, lighter side- and corner-notched arrow points. A marked uptick in the variety and quality of ceramic vessels occurs at this time, as well, although this trend is most pronounced in areas east and south of Montana, particularly along the middle reaches of the Missouri River in the Dakotas (Kornfeld *et al.* 2010; MacDonald 2012; Davis 2019). Avonlea and Old Women's are the most widely recognized Late Prehistoric complexes in Montana (Aaberg *et al.* 2006).

The Avonlea complex marks widespread adoption of the bow and arrow at the beginning of the Late Prehistoric and coincides with a period of essentially modern climatic conditions in the northern Plains and Rockies (Kornfeld *et al.* 2010; Tate and Gilmore 1999). In Montana, groups often occupied sites on buttes, ridge-tops, and river terraces, where they lived in rock-walled or timber structures, and produced finely-crafted, triangular, side-notched arrow points and thin-walled, globular, net- or cord-

impressed ceramics (Fredlund 1981; Aaberg *et al.* 2006). Bison remained a staple resource, and were often taken *en masse* using pounds and traps, but the subsistence base also included abundant smaller game (*e.g.,* pronghorn, deer, jackrabbit, squirrel, grouse, trout) and diverse wild plants (*e.g.,* camas root, bitterroot, prairie turnip, prickly pear, buckwheat) (Reeves 1990; Davis *et al.* 2000). Foods were regularly prepared using large grinding slabs, rock-lined ovens, and other processing and cooking features (Fredlund 1981).

Lithic and ceramic technology were largely similar during the subsequent Old Women's complex (Hudecek-Cuffe 1993). However, following widespread aridification around 1000 years ago many groups shifted away from uplands-focused seasonal settlement systems to more mobile lifestyles that emphasized large-scale procurement of bison and, albeit less intensively, pronghorn, out on the prairie grasslands (Tate and Gilmore 1999). Accordingly, the Old Women's complex in Montana is distinguished by a preponderance of large bison kills—mostly jumps—and processing camps, game drives, and stone circle sites, many of which likely represent remnant tipi rings and indicate populations that were regularly on the move for at least part of the year (Davis 1983; MacDonald 2012).

Boarding School (24GL302), First Peoples (24CA1012), Tongue River (24RB2135), and Vestal (24FR760) are among the Late Prehistoric bison kill/butchery sites east of the Rockies in Montana, while at least one more bison jump (Madison [24GA314]) and a pronghorn drive (Six Point [24YE170]) are located at higher elevations in the mountains. Camps with Avonlea, Old Women's, or other diagnostic artifacts—including Lost Terrace (24CH68), 24LN792, 24LN804, and 24DL470—are also found across the state, and a cache of obsidian artifacts from this period was recently discovered at Clark Creek (24LC523) near Helena (Davis *et al.* 2000; MacDonald 2012; Rennie and Davis 2016). Late Prehistoric earthlodge settlements at Hagen (24DW1) and Nollmyer (24RL155) on the lower Yellowstone River document extension of the Village cultures that flourished in the Dakotas into eastern Montana at this time, as well (MacDonald 2012; Davis 2019). Additionally, many of the shield-barring warriors, geometric motifs, and other images at Bear Gulch (24FR2) and Atherton Canyon (24FR3), extensive rock art sites at the base of the Big Snowy Mountains in central Montana, date to the Late Prehistoric period (Keyser 2012).

Protohistoric Period (300-100 B.P.)

Increased reliance on horses—for travel, hunting, and as beasts of burden—is an important feature of the Protohistoric period, although this trend was probably most transformative in the southern and central Plains, where fully equestrian lifestyles flourished (Hamalainen 2003). This period also saw demographic expansion and a continuation of more nomadic lifeways centered around hunting bison, often on horseback, and foraging for wild plants in many places (Newton 2016). Interestingly, however, in some cases groups became more sedentary, as the horse not only expanded the range of hunters, but also made it easier to transport kills back to far-flung camps, thereby doing away with the need for the entire tribe to follow the herds on every trip (Peterson and Deaver 2002). Regardless, larger and more mobile populations overall resulted in more frequent intergroup encounters and increasingly fluid

group boundaries, with culturally distinct bands often coming together for various reasons (*e.g.,* trade, hunting, warfare) and durations throughout the year.

Another important aspect of the Protohistoric period is regular contact between Native Americans and non-Native settlers, and the ensuing spread of guns, metal tools, glass beads, and other trade items that reshaped long-standing tribal lifeways and material culture in important ways (Hamalainen 2003; Clark and Corbett 2007). These interactions also led to increasing tensions, and eventually outright conflict, with settlers that culminated in numerous military conflicts between Plains tribes and the U.S. Army in Montana during the late 1800s. Despite tenacious efforts to maintain traditional ways of life, this period ultimately ends with the forced removal of Native Americans from their ancestral homelands in the late 1800s. The Assiniboines (or Nakodas), Bannocks, Blackfeet, Cheyennes, Chippewas, Crees, Crows, Gros Ventres, Kootenais, Pend d'Oreilles, Salish, Sioux (Dakotas, Lakotas, Yanktons, Yanktonais), and Shoshones are among the tribes that called Montana home prior to their confinement on the Blackfeet, Crow, Flathead, Fort Belknap, Fort Peck, Northern Cheyenne, Rocky Boy, and other reservations (Kehoe 2006).

Prominent Protohistoric sites in Montana include Rosebud Creek (24BH2461) in the south-central plains, where Sioux and Cheyenne warriors battled U.S. Army troops, Crows, and Shoshones on June 17, 1876, and nearby Little Bighorn (24BH2175), where a force of Sioux, Cheyennes, and Arapahos decimated the U.S. 7th Cavalry eight days later. Approximately 100 miles west at the foot of the Beartooth Mountains lies the old Absaroka Indian Agency (24ST89), built in the 1870s to help encourage settlement on agricultural plots and surrender of valuable tribal lands in an early step toward confinement of the Crow people on reservations (MacDonald 2012; Davis 2019). The conical wooden structure at Wickiup Cave (24BE601) in the Tendoy Mountains was also occupied by a small band of Mountain Shoshones in the Protohistoric, and many of the Ceremonial Tradition warriors, robes, and other images depicted at Bear Gulch and Atherton Canyon were created during this time, as well (Keyser 2012; Keyser and Kaiser 2014).

In eastern Montana specifically, the Protohistoric period also saw establishment of the Northern Cheyenne and Fort Peck reservations amid escalating hostilities among Native groups—including Assiniboines, Blackfeet, Gros Ventres, Crows, Dakotas, Lakotas, Yanktons, and Yanktonais—and between tribes and non-Native settlers (Miller *et al.* 2008; Montana Office of Public Instruction [MOPI] 2009). The Northern Cheyenne Reservation spans the border between eastern and central Montana (as defined above) and was created in 1884 for a group of Northern Cheyennes who were exiled to Oklahoma in the late 1870s, but eventually escaped and traveled back to their homelands around the Yellowstone River (MOPI 2009). Fort Peck, which is located in between the Poplar River and Porcupine Creek in northeastern Montana, was established in 1888 when territory previously set aside for and shared by the Assiniboines, Gros Ventres, and Blackfeet was divided into three separate reservations. The tribes that were settled at Fort Peck include Assiniboines (Canoe Paddlers, Red Bottoms) who had been in northern Montana since at least the early 1800s, as well as Lakotas (Hunkpapas), Dakotas

(Sissetons, Wahpetons), and Yanktonais (Cut Heads) that migrated into the region to hunt bison later in the 1860s and 1870s (Miller *et al.* 2008; MOPI 2009; MacDonald 2012).

Following their initial confinement, the Northern Cheyenne and Fort Peck tribes were further disenfranchised through federal policies aimed at forced assimilation and additional break-up of tribal lands—and transfer of them to non-Native settlers—during the late 19th and early 20th century. Public attitudes and policies slowly began to shift in the 1920s and 1930s, during which all Natives were granted U.S. citizenship and many tribes, including the Northern Cheyenne and Fort Peck Assiniboine and Sioux, officially organized and drafted their own constitutions (MOPI 2009). Likewise, the Indian Reorganization Act of 1934 aimed to restore lost land and some tribal autonomy, although it was poorly implemented and ultimately failed to substantially improve conditions for most Native Americans at the time. However, a new "era of self-determination" was underway by mid-century, as tribes fought for sovereignty and legal reforms, attempted to reclaim lost land, and expanded educational and economic opportunities on reservations (Miller *et al.* 2008; MOPI 2009). Today, the Northern Cheyenne Tribe has more than 11,000 members, runs multiple schools, a college, and numerous community programs, and owns the majority of land within the reservation boundaries, either communally or as individual parcels (Northern Cheyenne Tribe 2021). Similarly, the Fort Peck Assiniboine and Sioux Tribe is nearly 11,000 members strong, administers schools and a community college, provides various community and social services, and directs environmental and cultural resource management on reservation land, about half of which is tribally owned (Fort Peck Assiniboine and Sioux Tribes 2021).

Non-Native Settlement Period (200-50 B.P.)

Although French traders may have entered the area as early as 1743, the period of non-Native settlement in Montana really begins with the Lewis and Clark Expedition, which explored areas around the Missouri, Yellowstone, Marias, Blackfoot, and Bitterroot rivers in 1805 and 1806 (Malone and Roeder 1976). This period continues well into the twentieth century and is defined in part by four industries that were largely financed by Euroamerican capital and attracted immigrants of American, European (e.g., Irish, English, Scottish, German, Polish, Czech, Italian, and Finnish), Asian (e.g., Chinese), and various other descent: the fur trade, agriculture, mining, and transportation. However, as discussed above, this period also involved extensive interaction between indigenous tribes and non-Native settlers, including trade, conflict, negotiation of treaties (most of which were later broken and/or amended to the benefit of settlers), and eventual forced removal of Native groups to reservations. Thus, while the focus here is on incoming settlers, it is important to remember that Native Americans remained a central part of the cultural landscape in Montana throughout this period.

The fur trade, driven largely by European demand for beaver pelt hats, was one of the earliest pursuits to draw non-Native migrants into the territory that is now Montana. Following earlier exploration by French trappers in 1805, an American expedition constructed the first trading post, Fort Remon (or "Lisa's Fort"), at the mouth of the Bighorn River in 1807, and by 1810 English- and French-Canadian

traders had established important posts along rivers and lakes in the mountains to the northwest. During its ensuing heyday from about 1820-1845, the fur trade flourished in Montana and hundreds of trappers from the Hudson's Bay, American Fur, and other trading companies made their way into the region to exploit the abundant beaver and other game. This activity also resulted in establishment of additional trading posts—including Fort Union, Fort Cass, Fort McKenzie, and Fort Piegan—where Native and non-Native trappers exchanged furs, meat, guns, metal tools, and other trappings of the trade until its ultimate collapse in the 1860s (Malone and Roeder 1976; Wishart 1992).

Mining boomed early in the 1860s, when discoveries of gold at Grasshopper Creek, Alder Gulch, Last Chance Gulch, and Confederate Gulch, as well as silver at Argenta, brought an influx of prospectors into the mountains of western Montana (Malone and Roeder 1976; Spence 1978). Early mining activity centered around ephemeral prospecting camps or boom towns, such as Bannack, Elkhorn, Independence, and Marysville, but more substantial settlements including Helena and Butte, both founded in 1864, first sprang up around gold and silver strikes, as well. In the 1880s and 1890s, focus shifted to the massive veins of copper under the Boulder and Anaconda mountains, which quickly outpaced gold and silver in terms of productivity and profit (Reed and Dilles 2020). Copper mining expanded rapidly thereafter and the "Copper Kings" who controlled it, particularly those from the expansive Anaconda Company, came to dominate many aspects of the economy and political life in Montana during the early twentieth century. However, the industry waned dramatically by the mid-1970s, leaving a trail of environmental and economic destruction in its wake in towns like Butte and Anaconda, around which the copper boom was concentrated (Malone and Roeder 1976; Leech 2018).

The first settler farmers in Montana were Jesuit priests who grew wheat, potatoes, and other crops on irrigated plots around missions in the Bitterroot Valley in the 1840s, and the small family farms that sprang up elsewhere in the mountains over the next decade. During the 1860s and 1870s, selective irrigation and careful planting allowed development of a lively, but still limited, farm industry in the surprisingly fertile valleys of southwestern Montana to meet the growing demand for grains, vegetables, and other agricultural products in mining camps and boom towns. Agrarian activity remained largely concentrated in the mountains until the turn of century, when federal reclamation projects were undertaken to dam major rivers, develop large-scale irrigation systems, and promote farming on the semi-arid plains to the east. However, while these projects were economically important for the state, their success in watering the parched prairies was limited and attention soon shifted to dry farming, which emphasized moisture conservation, did not require irrigation, and was enthusiastically endorsed by many trade groups, government agencies, and railroad companies in the early 1900s (Malone and Roeder 1976; Spence 1978).

Along with technological advances (*e.g.,* steel plows, discs, steam-powered threshers) and amendments to the Homestead Act that doubled the acreage available and eased ownership requirements for claims, the advent and tireless promotion of dry farming fueled a land rush in the northwestern Plains, with more than 190,000 homestead claims filed between 1900-1920 in east-central Montana alone (Libecap

and Hanson 2000). Although other vegetables and grains were grown on a smaller scale, wheat was the primary cash crop and several years of above-average rainfall led to huge harvests that peaked in 1915 and 1916. Grain prices soared during World War I, further bolstering the prospects of many farmers, but an extended period of severe drought beginning in 1917 and plummeting post-war wheat prices devastated many farms and brought an end to the homestead boom in the early 1920s. Following a brief economic resurgence later that decade, drought returned in the 1930s and Montana was plunged with the rest of the country into the Great Depression. Yet despite these setbacks, many farmers managed to successfully cultivate a living from the often unforgiving landscape, and farming remains an important economic activity in Montana today (Malone and Roeder 1976; Spence 1978; Libecap 2002).

Livestock ranching, the other major agricultural activity in Montana, commenced in the 1850s with former fur traders, prospectors, and other early settlers who grazed cattle in the southwestern mountain valleys for sale in local markets (*e.g.,* military outposts, mining and railroad camps) and along the Oregon Trail to the south in Idaho and Wyoming (Fletcher 1961; Spence 1978). By the 1870s, now-thriving cattle and sheep herds had exhausted available pasture in the mountains and expanded eastward onto the plains, where they were soon joined by an influx of longhorns driven north from Texas into the Yellowstone and Missouri river valleys. Throughout the 1880s, hundreds of thousands of cattle and sheep roamed largely unattended over vast expanses of undeveloped land in Montana, but numerous factors—including stricter federal oversight, competition with homesteaders, rampant overgrazing, unstable global markets, and severe weather—combined to spell the end of this type of open-range ranching by the early 1900s. Smaller closed ranches, where animals were provided feed, shelter, and not allowed to wander as freely, overtook open-range operations in the 1890s and have remained the predominant mode of ranching in the state ever since (Malone and Roeder 1976; Wyckoff and Hansen 1991).

Development of transportation networks, particularly steamboats and railroads, to move people and goods into, out of, and around Montana was instrumental for early industry and settlement. Travel in Montana was by foot, beast of burden, or human-powered boat until 1832, when the steamer *Yellow Stone* introduced mechanized transport with its first voyage along the upper reaches of the Missouri River (Gordon 2011). Early on, steamboats serviced the fur trade, bringing in supplies (*e.g.,* flour, sugar, coffee, whiskey, tools) to trading posts on major rivers and hauling out beaver pelts, bison robes, and other goods for sale in eastern markets. In the 1860s, the gold rush provided a new boost as thousands of prospectors and tons of provisions and equipment flooded into western Montana via steamship. However, completion of the Union Pacific (UP) transcontinental rail line to the south, declining fur and mining industries, and conflict with Native tribes who resented the intrusion on their homelands and destruction of important river bottom forests to fuel steamers, led to a sharp decline in traffic by the end of the decade. Steamboat travel endured on the rivers of Montana for a while longer, albeit much reduced from its mid-1860s peak, but had largely disappeared by the turn of the century (Spence 1978; Gordon 2011).

The first rail line in Montana was a branch of the UP-controlled Utah & Northern that crossed the southwestern border in 1880 and reached the prized mining center of Butte in 1881. The main line of the Northern Pacific (NP) entered eastern Montana later in 1880, making its way west along the Yellowstone River and into the mountains, where it was completed near Missoula in 1883. For several years, the UP and NP enjoyed largely uncontested control over the movement of people and goods in Montana, maintaining high rail rates through cooperative agreements and cargo pooling arrangements. However, this situation was upended in 1887 when James J. Hill extended the main line of what would become the Great Northern Railway (GN) through northern Montana, with spurs running south into the mountains, and quickly became the primary shipper for the powerful Anaconda Company. A years-long power struggle ensued, which ultimately resulted in Hill and the GN taking control of or partnering with most major rivals and thereby coming to dominate the railroad business in Montana by the early 1900s. Railroads—particularly the "Hill lines"— were a primary driving force of early industry and settlement in Montana and, although the principal period of track construction ended in 1909, remain an important part of transportation networks in the state today (Malone and Roeder 1976; White 1988).

RESEARCH GOALS/EVALUATION OF RESEARCH

Following the mandated policies implementing the National Historic Preservation Act (Public Law 89-665), as amended, a cultural resource inventory was undertaken to identify and document any historic properties within and around the project APE. An additional goal of the inventory is to allow the Prairie County Airport Authority and the FAA to plan the proposed undertaking to avoid any historic properties and, if not possible, to test, evaluate, and/or mitigate impacts to properties within the project area prior to construction. As such, the intent of the cultural resource work for the proposed project was to:

1. Identify any prehistoric, historic, or traditional cultural resources that may exist in or near the proposed project area and which may be affected by project-related activities;

2. Make recommendations concerning the significance and National Register of Historic Places (NRHP) eligibility of any identified cultural resources;

3. Make appropriate recommendations regarding the treatment of all identified cultural resources;

4. Provide a report detailing findings to the project sponsor and the responsible federal and/or state agencies.

As noted above, one of the project goals was to evaluate identified cultural resources for eligibility for inclusion in the NRHP. For a property to be determined eligible for listing in the NRHP, it must generally be at least 50 years old, retain its original character, and meet at least one of the following Criteria:

A) Be associated with important events that have contributed significantly to the broad pattern of human history;

B) Be associated with the lives of persons significant in our past;

C) Embody the distinctive characteristics of a type, period, or method of construction, represent the work of a master, possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction; and/or

D) Have yielded, or be likely to yield, information important in history or prehistory.

Cultural resources that do not meet one or more of the Criteria above are recommended as not eligible for inclusion in the NRHP. Alternatively, resources may also be unevaluated for inclusion, meaning that no formal assessment has been made and/or that further work is required to fully evaluate NRHP eligibility.

LITERATURE REVIEW

KLJ requested a file search of the Montana SHPO files for a one-mile radius around the study area on April 5, 2023. The review indicated that there are nine previously recorded cultural resources within a one-mile radius of the project area. There are nine previously recorded resources within the one-mile search area. All previously recorded resources are historical era sites and include bridges, irrigation systems, schools, roads, and commercial developments. One resource, 24PE0267, is a historic irrigation system that is in the study area and is recommended Eligible for the NRHP. One resource, a historic school (24PE0268) is listed on the National Register. Two other resources (24PE0845 and 24PE0846), both commercial developments are recommended Eligible for National Register listing. The remaining resources are Unevaluated or recommended Not Eligible for the NRHP.

Literature review also indicated that there were four cultural resource inventories conducted within the search radius between 1998 and 2020. They were conducted for oil and gas and irrigation projects. None of the previous cultural resource inventories overlap the proposed project area.

The details of the literature review are presented in **Appendix B**.

FIELD METHODS/CONDITIONS

The inventory was conducted on April 23 and 28, 2023 by KLJ archaeologist Bill Norman and KLJ paleontologist Mitchel Lukens. The inventory covered 258 acres. The majority of the inventory area was on cultivated ground, or previously cultivated ground, with excellent visibility.

The inventory was conducted in accordance with the 2022 *Montana SHPO Consultation Guide* and the *Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation* (48 FR 44716-44742). The area was inventoried using parallel pedestrian transects spaced no more than 15 meters apart.

The inventoried area is on a flat upland plain. The majority of the project area is in level agricultural fields, the road right of way, and in the footprint of the existing airport. The weather at the time of the survey was seasonably warm and cool, with gentle winds. The ground surface visibility averaged 30-90%, with near 100% visibility in prairie dog colony clearings which covered approximately 40 % of the inventory area. Due to the excellent ground visibility and presence of cultivation in the inventory area, combined with no surface materials, no exploratory subsurface testing was conducted, and limited subsurface testing was conducted in and near discovered sites.

RESULTS

Three new sites, (24PE0855, 24PE0856, and 24PE0857), and four isolated finds (KLJ-TRY-IFML01, KLJ-TRY-IFML03, KLJ-TRY-IFML04, and KLJ-TRY-IFBN01) were recorded in the inventory area. One previously recorded site (24PE0267) was revisited and updated in the study area.

New Sites

24PE0855

Site 24PE0855 consists of two features and an associated historical material deposit contained within one of the features, a possible homestead. The site is set on a small triangle of land between the I-94 right-of-way and the current access road which runs roughly parallel to the interstate and turns south near the site location. North of the site, the town of Terry is visible across the interstate, and the Terry Airport is visible to the east.

Feature 1 is a southwest to northeast oriented, oval shaped depression approximately 30 feet southwest to northeast and 20 feet north to south. The depression is four feet deep. There is a portion of a poured in place concrete foundation in the southeast corner of the depression, which is the only evidence of a foundation on the surface. The depression is filled with mid-twentieth century artifacts including barrel hoops, tires, a tube car radio, formed concrete chunks, barbed wire, and a metal bed frame.

Feature 2 is approximately 65 feet northeast of Feature 1 and consists of a semi-rectangular depression. The depression is oriented southwest to northeast and is approximately 8 feet square. There are three flat foundation stones of locally available sandstone on the east side of the feature, which are the only evidence of a foundation at the feature. The depression is approximately 1.5 feet in depth. The only historical material associated with the feature consists of a tangle of barbed wire in the center of the depression.

Although homesteading in early twentieth century eastern Montana is a historically significant event, this site lacks integrity to convey the historical significance of that event. No structures remain at the site. The site is not a unique example of its type, and others represent early homesteading in eastern Montana with more integrity. The site is recommended Not Eligible under Criterion A.

This site was originally patented by C.B. Whitcomb in 1913. C.B. Whitcomb isn't a nationally historically significant figure, and a search of local histories doesn't indicate local significance. This site is not associated with any historically significant figures and lacks integrity to convey historical significance of any historically significant figure. This property is recommended Not Eligible for listing on the NRHP under Criterion B.

There is no built environment remaining at the site. The site is not a historically significant design or the work of a master. This site is recommended Not Eligible under Criterion C.

Although homesteading in early 20th century Eastern Montana is a historically significant event, this site lacks integrity for data potential. Surface artifacts are sparse and the artifacts in Feature 1 are from a later period. Further, soils are generally deflated onsite and don't indicate significant deposition. The site is recommended Not Eligible under Criterion D.

Site 24PE0855 is recommended Not Eligible for the NRHP. This site was encountered during a planning study for improvements at the Terry Airport. Although specific plans for construction are being developed, , KLJ recommends a finding of No Historic Properties Affected for any future plans, and no avoidance is recommended.

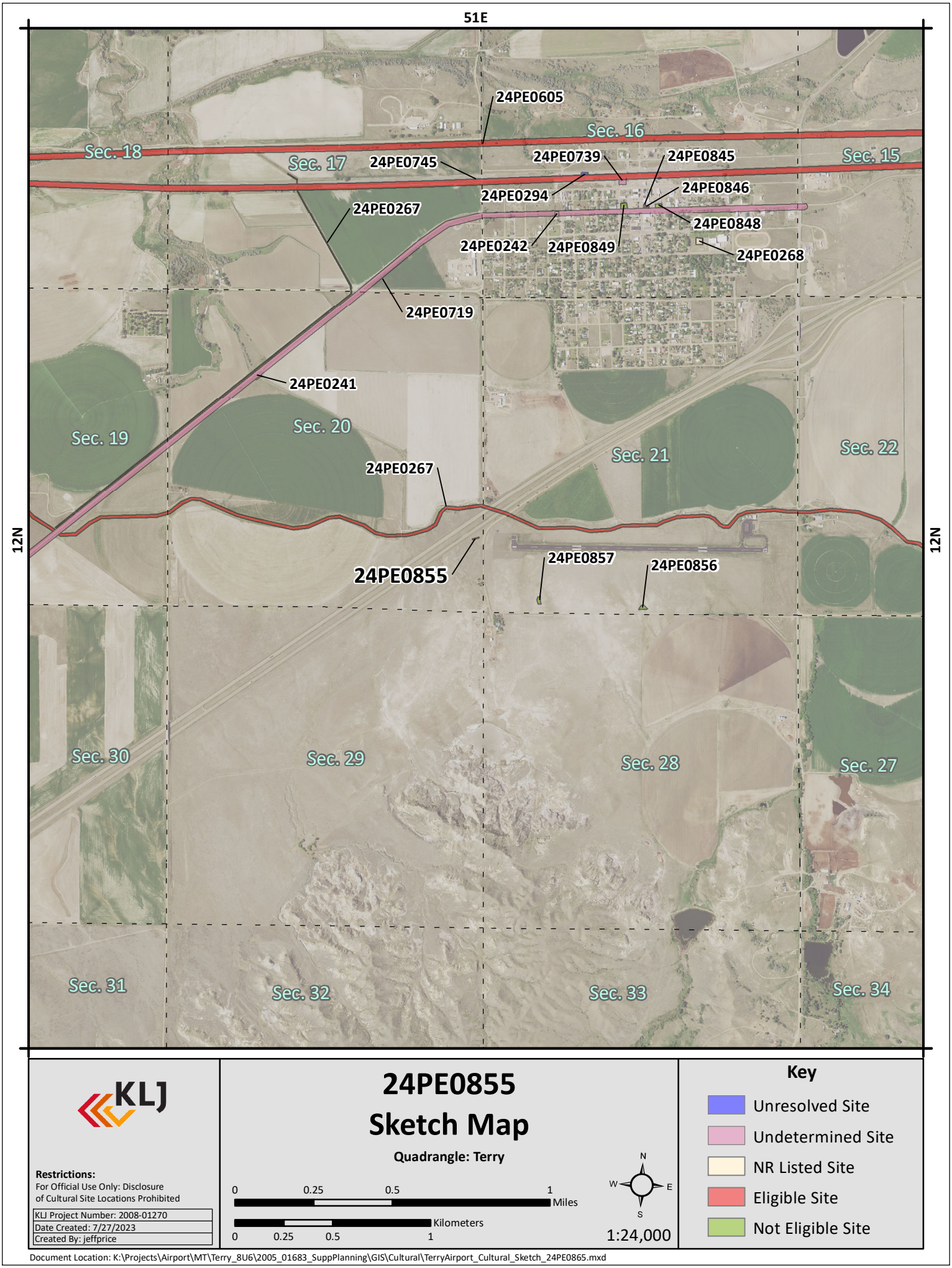
Figure 6: Feature 1, view to the north.

Figure 7: Feature 2, view to southwest.

Figure 8: Feature 1, view to the northwest.

Figure 9: Tube amplified car radio, plan view.

Figure 10: Site overview, view to the northwest.



KLJ

Restrictions:
For Official Use Only: Disclosure of Cultural Site Locations Prohibited

KLJ Project Number: 2008-01270
Date Created: 7/27/2023
Created By: jeffprice

24PE0855
Sketch Map

Quadrangle: Terry

0 0.25 0.5 1 Miles

0 0.25 0.5 1 Kilometers

N W E S

1:24,000

Key

- Unresolved Site
- Undetermined Site
- NR Listed Site
- Eligible Site
- Not Eligible Site

Document Location: K:\Projects\Airport\MT\Terry_8U6\2005_01683_SuppPlanning\GIS\Cultural\TerryAirport_Cultural_Sketch_24PE0865.mxd

Figure 13: Sketch map of 24PE0855

24PE0856

Site 24PE0856 consists of a medium defuse scatter of historical material including glass fragments and ceramic fragments totaling 45 artifacts. The site is mainly seen in a prairie dog clearing. Visual inspection of the burrows, with sifting, showed no materials in the excavated material. There are a total of 14 amethyst glass fragments, 5 aqua glass fragments,25 colorless glass fragments, and 1 amber glass fragment. Ceramic fragments include two fragments of undecorated whiteware.

Two subsurface tests were conducted. Both showed evidence of ground disturbance and both were negative for cultural material.

Table 2: Soils in STP 1.

Horizon	Munsell Color	Depth (cm)	Notes
A/B	10YR4/4	26	Mottled and mixed with materials from the C layer. No clear distinction
C	7.5YR2/2	33	First contact with compact undisturbed sub soils.

Table 3: Soils in STP 2.

Horizon	Munsell Color	Depth (cm)	Notes
A/B	10YR4/4	24	Mottled and mixed with materials from the C layer. No clear distinction
C	7.5YR2/2	34	First contact with compact undisturbed sub soils.

Although homesteading in early twentieth century Eastern Montana is a historically significant event, this site lacks integrity to convey the historical significance of that event. The site is not a unique example of its type, and others represent this historical movement with more integrity. The site is recommended Not Eligible under Criterion A.

This site was originally patented by the Northern Pacific Railroad in 1896. Although the building of the railroad in the American West is a historically significant event associated with several historically significant figures, there is no railroad infrastructure onsite. While historical figures might have been involved with acquiring the land, the presence of the land itself is not enough to convey the historical

significance of those figures. This property is recommended Not Eligible for listing on the NRHP under Criterion B.

There is no built environment at the site. The site is not a historically significant design or the work of a master. This site is recommended Not Eligible under Criterion C.

The site is likely a secondary deposit location. Surface artifacts are sparse and shovel testing doesn't indicate the presence of subsurface deposits. Furthermore, this site has been plowed in the past and the distribution of artifacts as seen now is likely tied to that disturbance. The site is recommended Not Eligible under Criterion D.

Site 24PE0856 is recommended Not Eligible for the NRHP and lacks integrity. The site was encountered during a planning study for improvements at the Terry Airport. While specific plans for construction are being developed, KLJ recommends a finding of No Historic Properties Affected for any future plans, and no avoidance is recommended.

Figure 12: Amethyst glass fragment, plan view.

Figure 13: Aqua glass bottle fragment, plan view.

Figure 14: Colorless bottle finish, plan view.

Figure 15: Colorless glass fragment.

Figure 16: Undecorated porcelain and whiteware fragments, plan view.

Figure 17: Undecorated whiteware fragment, plan view.

Figure 18: Site overview, view to the east.

Figure 19: Site overview, view to the south.

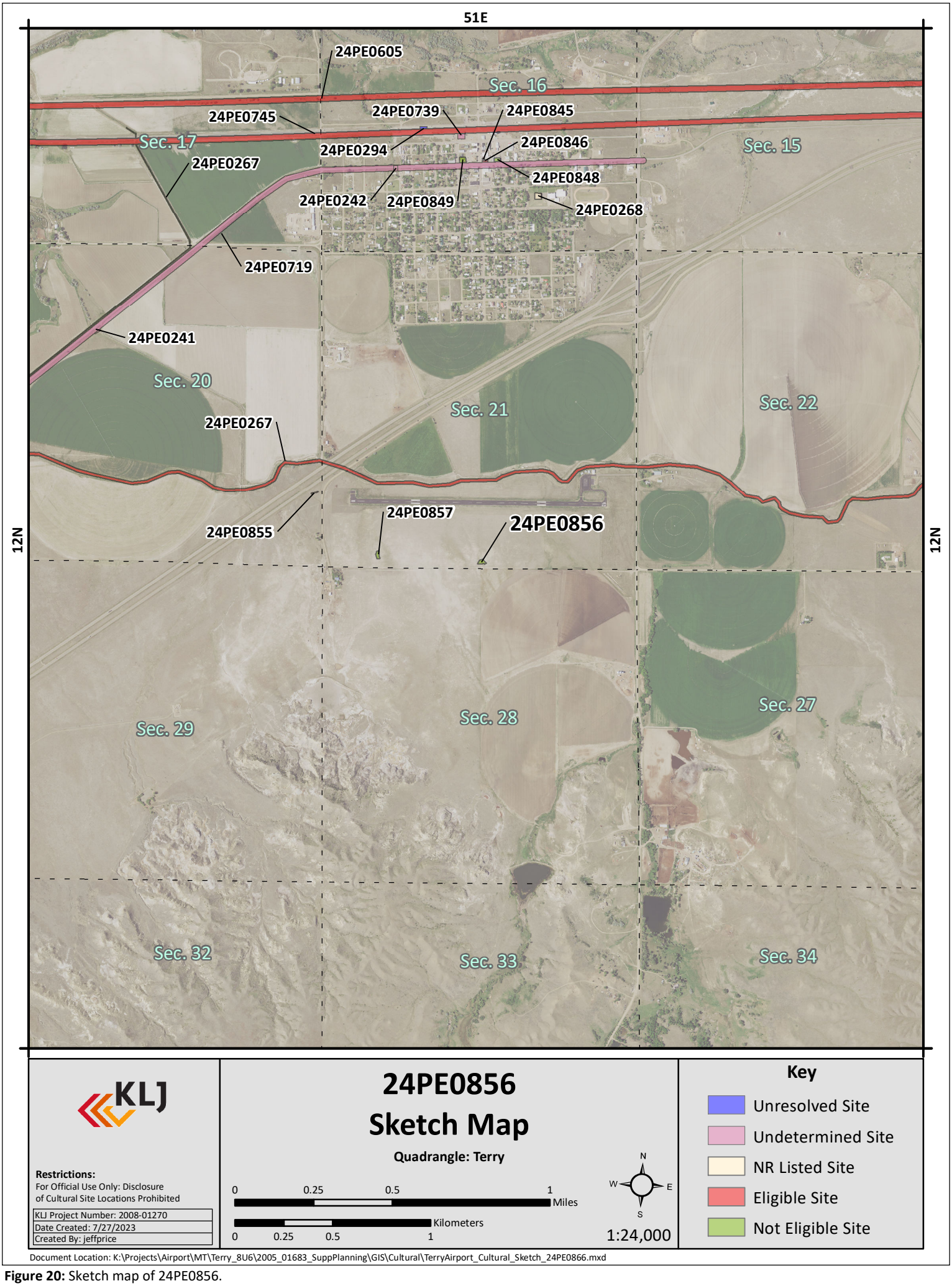


Figure 20: Sketch map of 24PE0856.

24PE0857

Site 24PE0857 consists of a diffuse lithic scatter in a historically plowed field. The field is fallow pasture at the time of recording and the site is mainly visible in a prairie dog clearing. There are 18 total artifacts visible on the surface, 14 of which are fire altered medium grained quartzite. The remaining artifacts include a yellowish brown chert shatter fragment, a fine grained quartzite core, a fine grained quartzite utilized flake, and a purple tertiary porcellanite flake.

Two subsurface tests were conducted at the site. Both were negative for cultural materials and showed a disturbed soil horizon.

Table 4: Soils in STP 1.

Horizon	Munsell Color	Depth (cm)	Notes
A/B	10YR4/4	43	Mottled and mixed with materials from the C layer. No clear distinction
C	7.5YR2/2	53	First contact with compact undisturbed sub soils.

Table 5: Soils in STP 2.

Horizon	Munsell Color	Depth (cm)	Notes
A/B	10YR4/4	30	Mottled and mixed with materials from the C layer. No clear distinction
C	7.5YR2/2	39	First contact with compact undisturbed sub soils.

There are no diagnostic artifacts onsite. The materials observed are common in prehistory and not indicative of any particular time period. As the site is not indicative of any particular time period, it is recommended Not Eligible for listing on the NRHP under Criterion A.

This site type is not usually associated with any specific historically significant figure. As the site is not associated with a particular historically significant figure, it is recommended Not Eligible for listing on the NRHP under Criterion B.

There is no built environment at the site. The site is not an example of unique design or the work of a master. The site is recommended Not Eligible for listing on the NRHP under Criterion C.

There are no diagnostic artifacts onsite and the materials present are common in prehistoric contexts. The site is on a formerly plowed agricultural field. KLJ conducted two shovel tests at the site. Both showed disturbed soils to the culturally sterile layer, and overall deflated soils. As the site is in a disturbed context and cannot be tied to a particular historically significant period, the site is recommended Not Eligible for listing on the NRHP under Criterion D.

Site 24PE0857 is recommended Not Eligible for listing on the NRHP and retains no integrity. This site was encountered during a planning study for improvements at the Terry Airport. While specific plans for construction are being developed, KLJ recommends a finding of No Historic Properties Affected for any future plans, and no avoidance is recommended.

Figure 21: Medium grained quartzite cobble with flake scars, plan view.

Figure 22: Utilized porcellanite flake, plan view.

Figure 23: Bifacially worked purple quartzite flake, plan view

Figure 24: Quartzite FCR fragment, plan view.

Figure 25: STP 1 overview, plan view.

Figure 26: STP 2 overview, plan view.

Figure 27: Site overview, view to the east.

Figure 28: Site overview, view to the north.

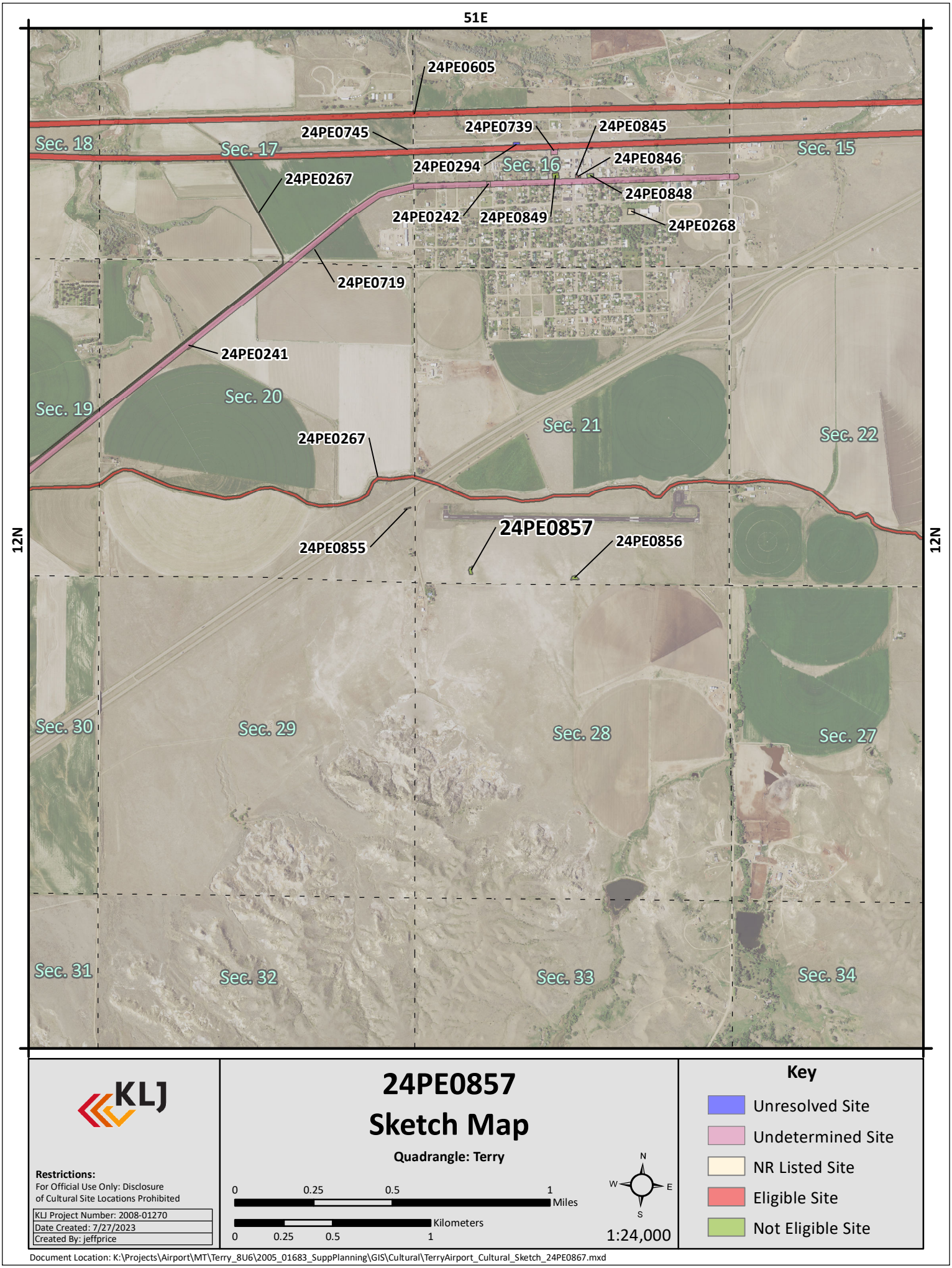


Figure 29: Sketch map of 24PE0857.

Isolated Finds

KLJ-TRY-IFBN01

KLJ-TRY-IFBN01 consists of one Knife River Flint flake with a utilized edge and a single course-grained quartzite fire altered rock cobble. The Knife River Flint flake is approximately 7 centimeters in length, 3 centimeters wide and 1.5 centimeters thick. It has a utilized edge on the distal side that consists of several small flake scars. The fire altered rock fragment is a possible flake of course grained quartzite that is approximately 7 centimeters long, 3.5 centimeters wide, and 1 centimeter thick. It is a rust colored red and white showing heat alteration.

The isolated find is in a fallow agricultural field south of the town of Terry, Montana. Ground surface visibility near the find is nearly 100% within 50 meters of the find as it is in a prairie dog clearing and colony. The quartzite cobble is consistent with cobbles found in the nearby Yellowstone River, approximately 2 miles to the north.

This site is recommended Not Eligible for listing on the National Register of Historic Places and no integrity applies. This site was encountered during a planning study for improvements at the Terry Airport. While specific plans for construction are being developed, KLJ recommends a finding of No Historic Properties Affected for any future plans, and no avoidance is recommended.

Figure 30: Fire altered quartzite fragment, plan view.

Figure 31: Knife River Flint fragment, plan view.

Figure 32: Isolated find overview, view to the north.

Figure 33: Isolated find overview, view to the northwest.

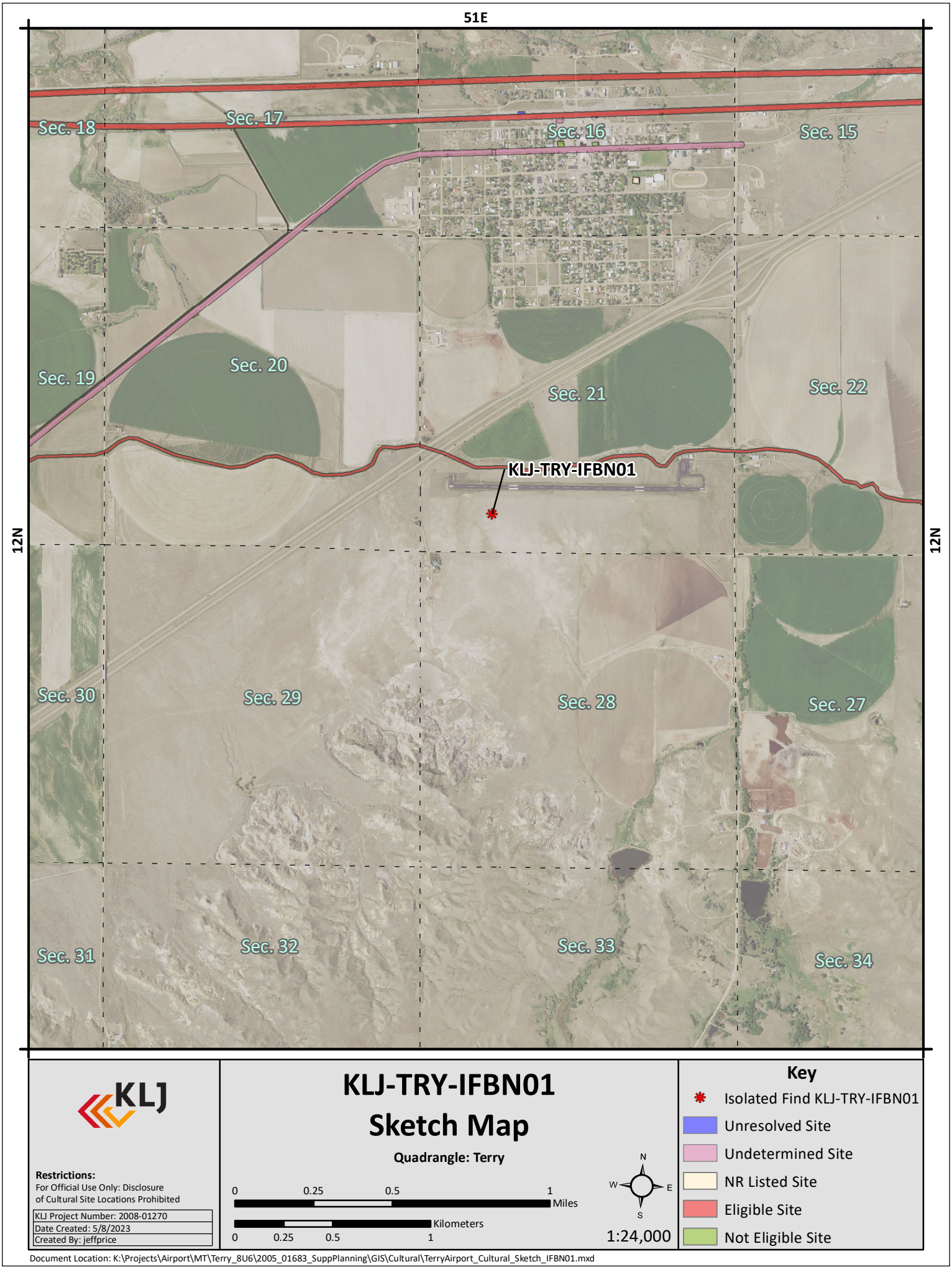


Figure 34: Sketch map of KLJ-TRY-IFBN01

KLJ-TRY-IFML01

KLJ-TRY-IFML01 consists of a single coarse-grained quartzite cobble. The cobble is pink and white in color and shows signs of fire alteration. A single flake scar runs along the outside. As the field where the isolated find was located was plowed historically, it is possible that the flake scar is a result of coming in contact with plow equipment. The cobble is approximately 10 centimeters wide, by 11 centimeters long, and 4 centimeters thick.

The isolated find is in a fallow agricultural field south of the town of Terry, Montana. Ground surface visibility near the find is nearly 100% within 50 meters of the find as it is in a prairie dog clearing and colony. The type of rock is consistent with cobbles from the nearby Yellowstone River Soils in the immediate area contain only 5-10 percent gravels, and few large cobbles.

This site is recommended Not Eligible for listing on the National Register of Historic Places and no integrity applies. This site was encountered during a planning study for improvements at the Terry Airport. While specific plans for construction are being developed, KLJ recommends a finding of No Historic Properties Affected for any future plans, and no avoidance is recommended.

Figure 35: Fire altered quartzite cobble, plan view.

Figure 36: Fire altered quartzite cobble, plan view.

Figure 37: Isolated find overview, view to the north.

Figure 38: Isolated find overview, view to the west.

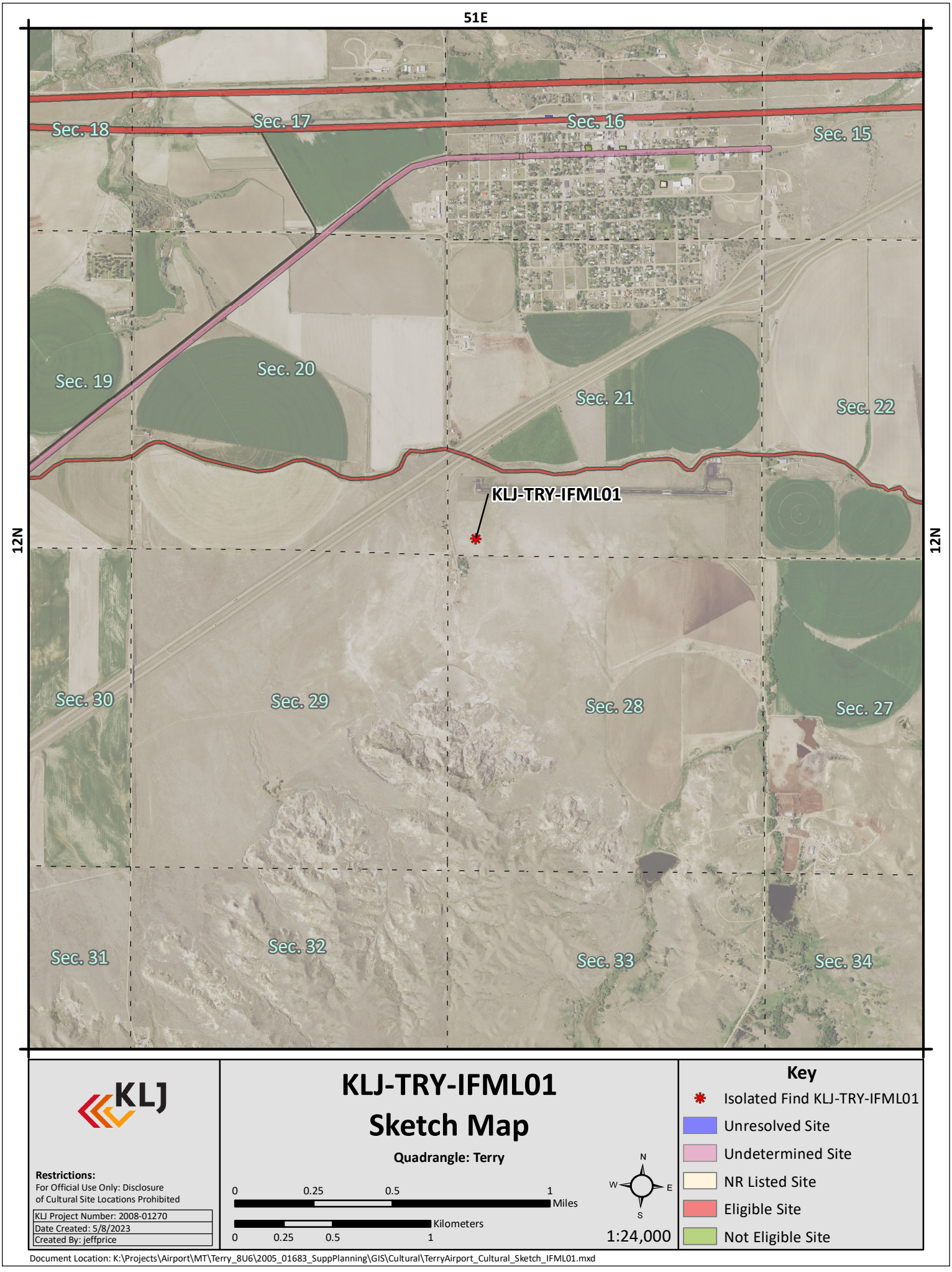


Figure 39: Sketch KLJ-TRY-IFML01.

KLJ-TRY-IFML03

KLJ-TRY-IFML03 consists of a single course grained quartzite flake. The flake is a purple to grey color and has a small amount of use wear on the lateral margin. It is approximately 3 centimeters long, 2 centimeters wide, and .5 cm thick. This is a secondary flake with some cortex present on the dorsal side.

The isolated find is in a fallow agricultural field south of the town of Terry, Montana. Ground surface visibility near the find is nearly 100% within 50 meters of the find as it is in a prairie dog clearing and colony. The quartzite cobble is consistent with cobbles found in the nearby Yellowstone River, approximately 2 miles to the north.

This site is recommended Not Eligible for listing on the National Register of Historic Places and no integrity applies. This site was encountered during a planning study for improvements at the Terry Airport. While specific plans for construction are being developed, KLJ recommends a finding of No Historic Properties Affected for any future plans, and no avoidance is recommended.

Figure 40: Quartzite flake, plan view.

Figure 41: Quartzite flake, plan view.

Figure 42: Isolated find overview, view to the east.

Figure 43: Isolated find overview, view to the south.

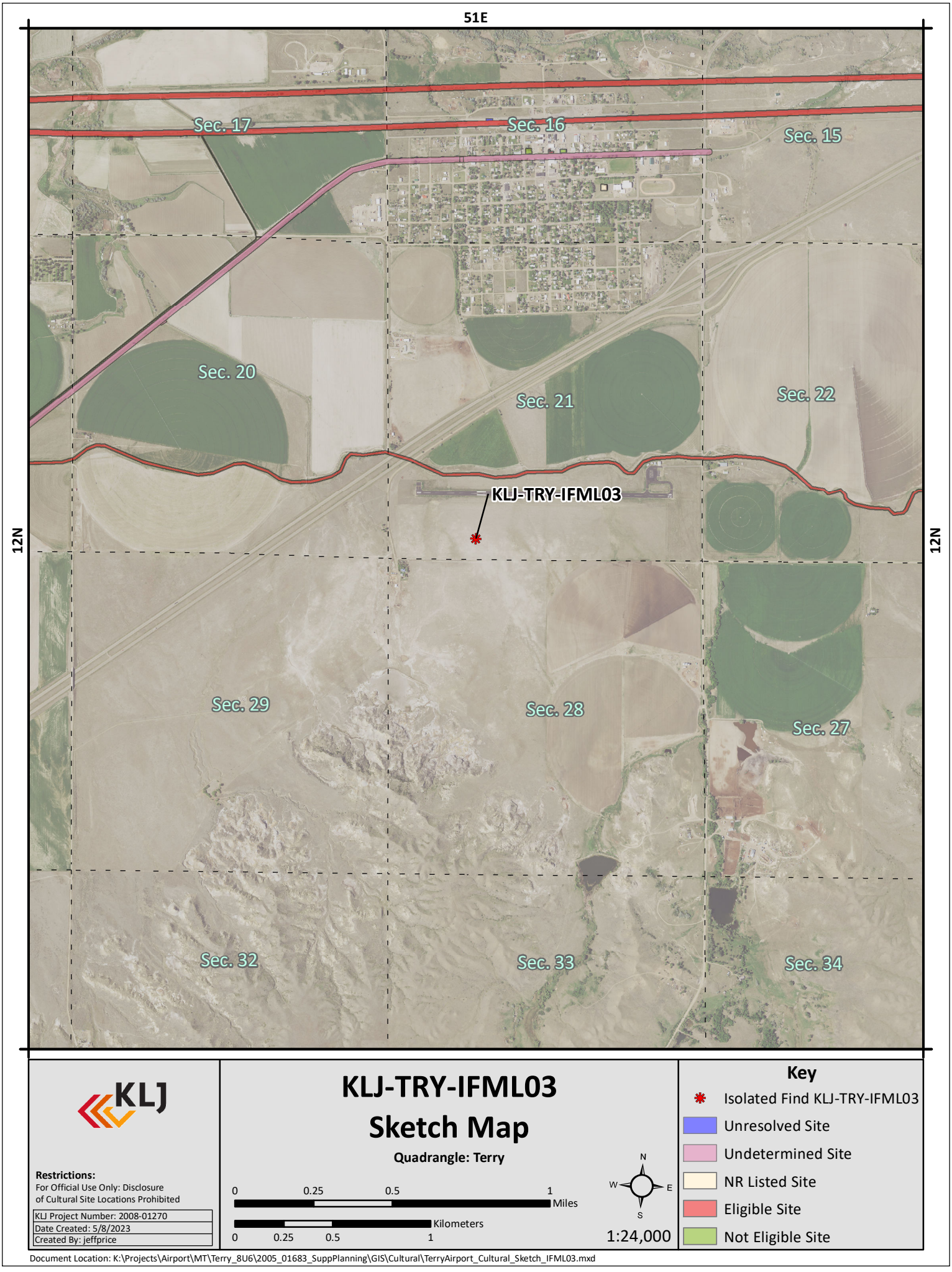


Figure 44: Sketch map of KLJ-TRY-IFML03.

KLJ-TRY-IFML04

KLJ-TRY-IFML04 consists of a single coarse-grained quartzite cobble with three distinct flake scars. The light red cobble is approximately 7 centimeters long, 5 centimeters wide, and three centimeters thick. Flake scars are present on both the dorsal and ventral side of the cobble at the distal end.

The isolated find is in a fallow agricultural field south of the town of Terry, Montana. Ground surface visibility near the find is nearly 100% within 50 meters of the find as it is in a prairie dog clearing and colony. The quartzite cobble is consistent with cobbles found in the nearby Yellowstone River, approximately 2 miles to the north.

This site is recommended Not Eligible for listing on the National Register of Historic Places and no integrity applies. This site was encountered during a planning study for improvements at the Terry Airport. While specific plans for construction are being developed, KLJ recommends a finding of No Historic Properties Affected for any future plans, and no avoidance is recommended.

Figure 45: Quartzite cobble with flake scars, plan view.

Figure 46: Quartzite cobble with flake scars, plan view.

Figure 47: Isolated find overview, view to the south.

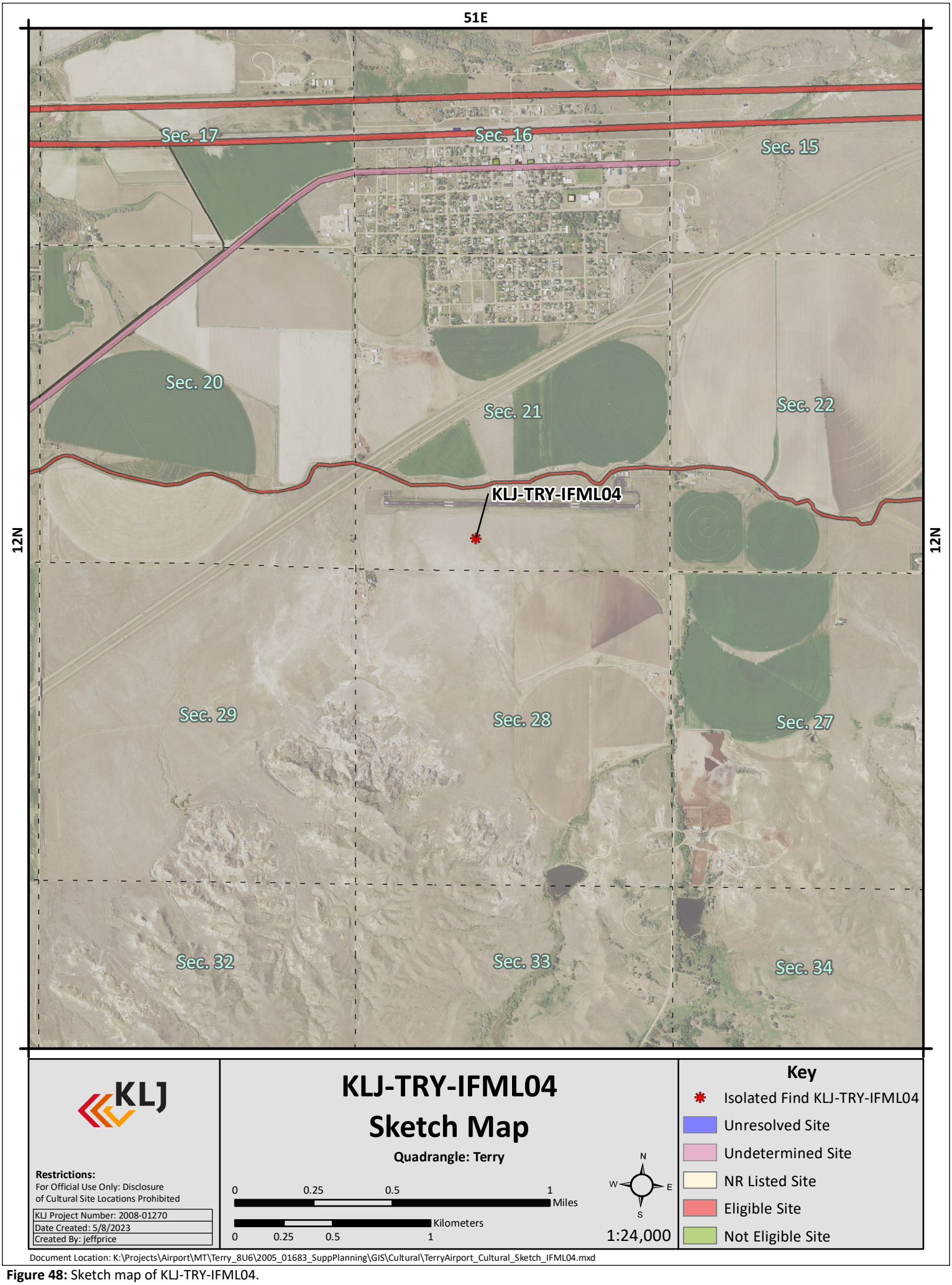


Figure 48: Sketch map of KLJ-TRY-IFML04.

Site Updates

24PE0267

Site 24PE0267 is the Buffalo Rapids Irrigation District, portions of which have been updated and revisited several times. The portion that is in the current project area is still in use and functioning in its original capacity. Regular maintenance in kind is visible, including the use of fire to control vegetation near the banks of the canal and dredging to accommodate flow. Several irrigation control structures were observed in the project area including wooden and concrete control gates.

The portion of the site in the current inventory area is a portion of the Terry Main Canal. Portions of the main canal near the project area, and in the same section, were updated in 2020 (Dersam and Lee), but not the specific section that is in the project area. The condition of the site is consistent with the observations of Dersam and Lee (2020), with a mixture of original and replaced infrastructure as maintenance continues on the still operating irrigation system.

The condition and integrity of the canal is consistent with the portion in the same section recorded in 2020 (Dersam and Lee) in the same legal section. Ongoing maintenance and use of the has lead to diminishing integrity of workmanship and materials, but overall the site retains integrity of setting, feeling, setting, location, association, and design.

This site was previously recommended Eligible for the National Register of Historic Places. KLJ agrees with this recommendation. The site was visited during a planning study for improvements to the Terry Airport. While improvement plans are still being developed, KLJ recommends avoidance of the site by 50 meters in further plans. If any future plans avoid the site by 50 meters, KLJ recommends a finding of No Historic Properties Affected for those plans.

Figure 49: Canal at the north west boundary of the study area, view to the southeast.

Figure 50: Site overview, view to the east.

Figure 51: Sluice control near northwest corner of the study area view to the northwest.

Figure 52: Sluice control, view to the northeast.

Figure 53: Canal overview from the east boundary of the study area, view to the west.

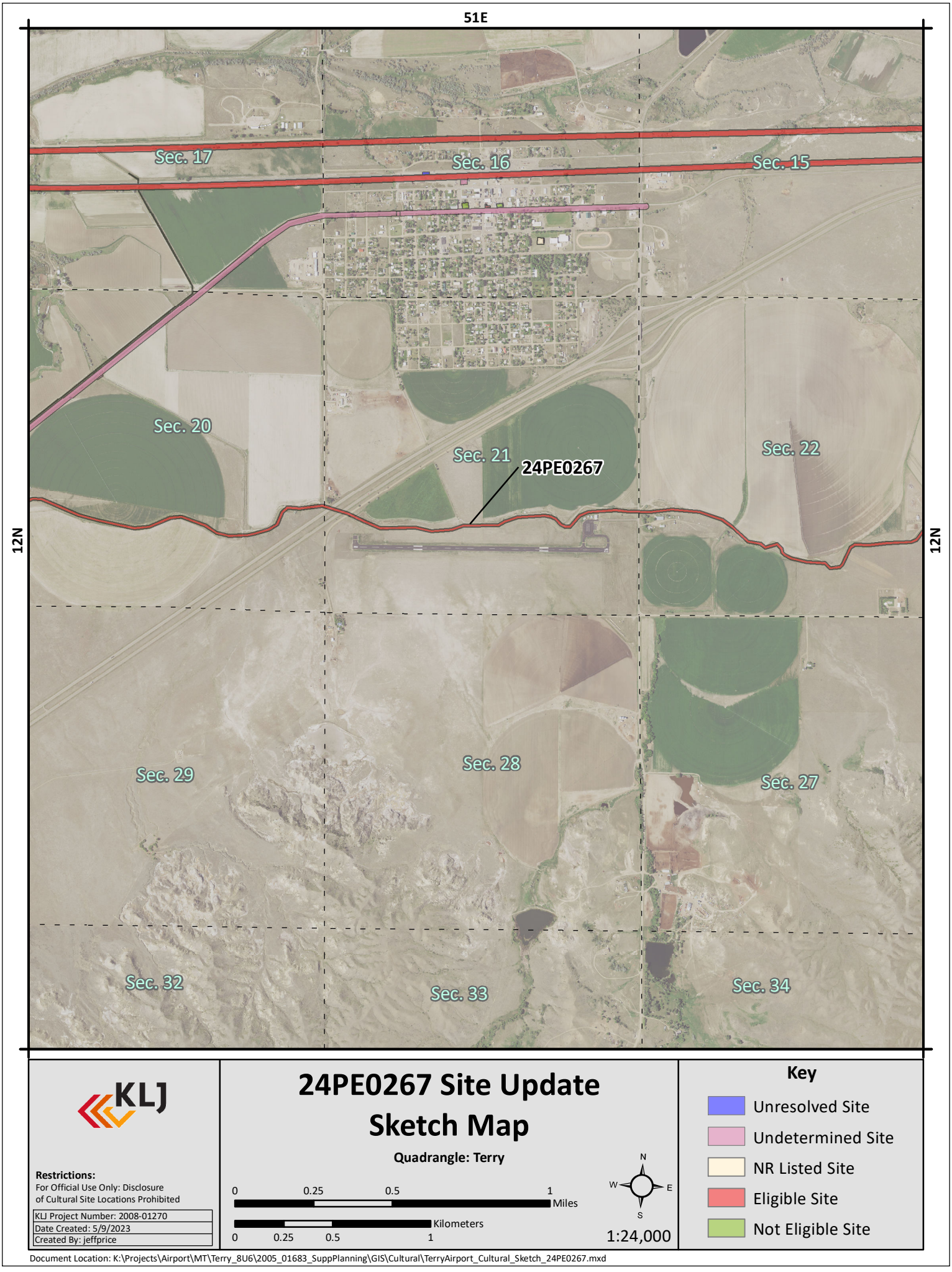


Figure 54: Sketch map of 24PE0267.

SUMMARY AND MANAGEMENT RECOMMENDATIONS

The Prairie County Airport Authority contracted KLJ to conduct a Class III cultural resource inventory as part of a planning study for several anticipated projects still in development, including wildlife fencing and road relocation. The projects are proposed to be designed within a 258.4 acre area surrounding the existing airport. The work is being conducted under a Federal Aviation Administration (FAA) Airport Improvement Program Grant to the Prairie County Airport Authority.

KLJ requested a file search of the Montana SHPO files for a one-mile radius around the study area on April 5, 2023. The review indicated that there are nine previously recorded cultural resources within a one-mile radius of the project area. One of these resources, 24PE0267, a historic irrigation system, is in the study area and was revisited during Class III inventory. All previously recorded resources are historical era sites and include bridges, irrigation systems, schools, roads, and commercial developments. One resource, a historic school (24PE0268), is listed on the National Register. Two other resources (24PE0845 and 24PE0846), both commercial developments, are recommended Eligible for National Register listing. The six remaining resources are Unevaluated or recommended Not Eligible for the NRHP. Literature review also indicated that there were four cultural resource inventories conducted within the search radius between 1998 and 2020. They were conducted for oil and gas and irrigation projects. None of the previous cultural resource inventories overlap the proposed project area.

KLJ archaeologist Bill Norman and KLJ paleontologist Mitchel Lukens completed the Class III inventory of the study area on April 18-23, 2023. Three new cultural resources and four new isolated finds were encountered. One site (24PE0855) is a historical era foundation. One site (24PE0856) is a historical material scatter, and the last site (24PE0857) is a prehistoric lithic material scatter. KLJ conducted subsurface testing at 24PE0856 and 24PE0857, and no subsurface material was encountered. All of the isolated finds are prehistoric era isolates. All of the new sites, and all of the isolates, are recommended Not Eligible for listing on the National register of Historic Places. The revisited resource, 24PE0267, is previously recommended Eligible for the National Register of Historic Places. KLJ recommends avoidance of the site by 50 meters.

Provided all construction activity takes place within the inventoried area, and 24PE0267 is avoided by design, KLJ recommends a finding of **No Historic Properties Affected** for any proposed development for the study area inventoried, mapped, photographed, and described herein.

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APPENDIX A: PROJECT AREA PHOTOGRAPHS

Figure 55: Overview of the project area north of the runway, view to the east.

Figure 56: Overview of the project area near the west boundary, view to the north.

Figure 57: Overview of the project area from the south central border, view to the north.

Figure 58: Overview of the project area near the western border, view to the north.

Figure 59: Overview of the PA from the northeast corner, view to the west.

Figure 60: Overview of the PA from the northwest corner, view to the east.

APPENDIX B: LITERATURE AND FILE SEARCH RESULTS

Table 6: Previously Recorded Cultural Resources within a 1-Mile Radius of the Project Area

SITS	Site type	Description	Eligibility	TWN	RNG	SEC
24PE0241	Historical	Historic Vehicular/Foot Bridge	Unevaluated	12N	51E	20
24PE0242	Historical	Historic Vehicular/Foot Bridge	Unevaluated	12N	51E	16
24PE0267	Historical	Historic Irrigation System	Eligible	12N	51E	15
24PE0268	Historical	Historic School	NR Listed	12N	51E	16
24PE0719	Historical	Historic Road	Unevaluated	12N	51E	16
24PE0845	Historical	Historic Commercial Development	Eligible	12N	51E	16
24PE0846	Historical	Historic Commercial Development	Eligible	12N	51E	16
24PE0848	Historical	Historic Commercial Development	Not Eligible	12N	51E	16
24PE0849	Historical	Historic Commercial Development	Not Eligible	12N	51E	16

Table 7: Manuscript List

MS	Title	Author(s)	Date
CR 6 20091	Buffalo Rapids Irrigation Project: A Cultural Resource Inventory and Evaluation	Malmstrom	1998
PE 6 41257	A Cultural Resource Inventory for The BRIP 2 Lateral 1.6 Pipeline Conversion Project in Prairie County, Montana.	Lee	2020
ZZ 2 12331	Southeast Montana Cultural Resource Inventory of Bureau of Land Management and Bureau of Reclamation Lands for Us West Communication's Fiber Optic Line	Bergstrom	1991
ZZ 6 40552	Class III Cultural Resources Survey Report -- Mt Addendum 12: Additional Fieldwork Results.	Quality Services, Inc.	2020

APPENDIX C: SITE FORMS

INTRODUCTION

NEW FORMS AND INSTRUCTIONS

As of July 2022, this CS-R (Cultural Site Record) form replaces Montana SHPO's CRIS (Cultural Resource Information System) form for recording cultural resources in Montana. Visit https://mhs.mt.gov/shpo/forms to download the most recent versions of SHPO forms and instructions. If you are uncertain about which form to use, please contact Montana SHPO Cultural Records staff at (406) 444-4724, kyler.mozell@mt.gov

REMINDERS

The Principal Investigator is responsible for ensuring that the information in this form is complete and accurate as per the Montana SHPO's data standards. Please consult the **Montana SHPO Consultation Guide, 2023** for standards for recording cultural and architectural resources in Montana.

1. IDENTIFICATION

SITE NAME/FIELD DESIGNATION	SMITHSONIAN NUMBER (issued by SHPO)^	RECORD TYPE
KLJ-TRY-SBN01	24PE0855	☒ NEW ☐ UPDATE

PROJECT NAME	PROJECT NUMBER
Terry Airport	2005_01683

FIRST RECORDED BY	DATE	PHONE (000) 000-0000	EMAIL	ADDRESS
Bill Norman	04/22/23	4063965387	Bill.norman@kljeng.com	2611 Gabel Road Billings, MT 59102

UPDATED BY	DATE	PHONE (000) 000-0000	EMAIL	ADDRESS

2. LOCATION

COUNTY	LOT/BLOCK	STREET ADDRESS	CITY / TOWN (NEAREST)
Prairie			Terry

NARRATIVE / NOTES ON ACCESS (OPTIONAL)

UTM COORDINATES OR LAT-LONG FOR THE CENTER OF THE SITE, TO THE 6TH DECIMAL	DATUM (E.g., NAD27, WGS84, etc.)
475259 E, 5180503 N	

TOWNSHIP	N/S	RANGE	E/W	SECTION	QUARTER		TOWNSHIP	N/S	RANGE	E/W	SECTION	QUARTER
12	N	51	E	20	SE							

(tab from last cell to add rows to the TRS table)

3. OWNERS

CURRENT ADMINISTRATIVE/SURFACE OWNERSHIP	CURRENT USE	
Private	Pasture	☐ Public ☒ Private

ORIGINAL ADMINISTRATIVE/SURFACE OWNERSHIP	ORIGINAL/HISTORIC USE	
Private	Homestead	☒ Public ☐ Private

4. CULTURAL SITE AND ENVIRONMENT DESCRIPTION

SITE TYPE*	SITE TIME PERIOD*	SITE DIMENSIONS (LENGTH X WIDTH)	SURFACE VISIBILITY (%)
Historic Homestead/Farmstead	1910-1920	125 ft SW-NE, 30 ft. NW, SE	50

NARRATIVE DESCRIPTION OF SITE (OVERVIEW OF SITE, FEATURES, ARTIFACTS, AND CONDITION)

This site consists of two features and an associated historical material deposit contained by one of the features. The site is set on a small triangle of land between the I-94 right-of-way and the current access road which runs roughly parallel to the interstate and turns south near the site location. To the north of the site, the town of Terry is visible across the interstate, and the Terry Airport is visible to the east.

Feature 1 is a southwest to northeast oriented, oval shaped depression approximately 30 feet southwest to northeast and 20 feet north to south and four feet deep. There is a portion of a poured in place concrete foundation in the southeast corner of the depression, which is the only evidence of a foundation on the surface. The depression is filled with Mid-Twentieth Century artifacts including barrel hoops, tires, a tube car radio, formed concrete chunks, barbed wire, and a metal bed frame.

Feature 2 is approximately 65 feet northeast of Feature 1 and consists of a semi-rectangular depression. The depression is oriented southwest to northeast and is approximately 8 feet square. There are three flat foundation stones of locally available sandstone on the east side of the feature, which are the only evidence of a foundation at the feature. The depression is approximately 1.5 feet in depth. The only historical material associated with the structure consists of a tangle of barbed wire in the center of the depression.

FEATURE DESCRIPTIONS (DETAILS ABOUT EACH FEATURE CROSS-REFERENCED WITH LABELED PHOTOS, MAPS, AND FIGURES)

Feature 1 is a southwest to northeast oriented, oval shaped depression approximately 30 feet southwest to northeast and 20 feet north to south and 4 feet in depth. There is a portion of a poured in place concrete foundation in the southeast corner of the depression, which is the only evidence of a foundation on the surface. The depression is filled with Mid-Twentieth Century artifacts including barrel hoops, tires, a tube car radio, formed concrete chunks, barbed wire, and a metal bed frame.

Feature 2 is approximately 65 feet northeast of Feature 1 and consists of a semi-rectangular depression. The depression is oriented southwest to northeast and is approximately 8 feet square. There are three flat foundation stones of locally available sandstone on the east side of the feature, which are the only evidence of a foundation at the feature. The depression is approximately 1.5 feet in depth. The only historical material associated with the structure consists of a tangle of barbed wire in the center of the depression.

ARTIFACTS (DESCRIBE AND PROVIDE QUANTITY FOR EACH TYPE OF ARTIFACT; AGGREGATE DATA CAN BE PRESENTED IN TABLES OR LISTS)

Mid-Twentieth Century artifacts including barrel hoops, tires, a tube car radio, formed concrete chunks, barbed wire, and a metal bed frame

DIAGNOSTIC ARTIFACTS*

Tube amplified car radio.

SUBSURFACE TESTING (TYPE OF TESTS AND FINDINGS)

No subsurface testing conducted. Ground surface visibility 30-50% onsite and no artifacts observed other than the deposits in the depressions.

SITE FUNCTION / INTERPRETATION (PROVIDE EVIDENCE OR INDICATE AS "BEST GUESS")

ELEVATION (FEET)	VIEW AND ASPECT	NEAREST WATER SOURCE

SEDIMENTS | **DEPOSITION** (SURFACE, BURIED, REDEPOSITED, ETC.)

GEOGRAPHIC SETTING

LOCAL VEGETATION

5. NR EVALUATION AND ASSESSMENT

HAS A FORMAL ELIGIBILITY DETERMINATION BEEN PREVIOUSLY ISSUED FOR THIS SITE/PROPERTY?

☒ No formal determination ☐ Yes, determined NOT eligible ☐ Yes, determined eligible ☐ Yes, NR listed ☐ Unknown

PROVIDE YOUR ASSESSMENT OF THE SITE'S/PROPERTY'S ELIGIBILITY FOR THE NATIONAL REGISTER

☐ Meets criteria as an individual property
☐ Meets criteria as a contributing element to a historic district
☒ Does not meet criteria
☐ Does not meet criteria, and is a non-contributing element to a historic district

Historic District Name:

APPLICABLE NR CRITERIA+		ARGUMENT FOR OR AGAINST EACH NR CRITERION
A – Events	☐ YES ☒ NO	Although homesteading in early twentieth century Eastern Montana is a historically significant event, this site lacks integrity to convey the historical significance of that event. The built environment has been removed and dismantled at the site. The site is not a unique example of its type, and others represent this historical movement with more integrity. The site is recommended Not Eligible under Criterion A.
B – Persons	☐ YES ☒ NO	This site was originally patented by C.B. Whitcomb in 1913. C.B. Whitcomb isn't a nationally historically significant figure, and a search of local histories doesn't indicate local significance. This site is not associated with any historically significant figures and lacks integrity to convey historical significance of any historically significant figure. This property is recommended Not Eligible for listing on the NRHP under Criterion B.
C – Characteristics	☐ YES ☒ NO	There is no built environment at the site. The site is not a historically significant design or the work of a master. This site is recommended Not Eligible under Criterion C.
D – Information	☐ YES ☒ NO	Although homesteading in early 20th century Eastern Montana is a historically significant event, this site lacks integrity for data potential. Surface artifacts are sparse and the artifacts in Feature 1 are from a later period. Further, soils are generally deflated onsite and don't indicate significant deposition. The site is recommended Not Eligible under Criterion D.

INTEGRITY (location, design, setting, materials, workmanship, feeling, association)

This site is recommended Not Eligible for listing on the NRHP and no integrity applies.

POSSIBLE IMPACTS TO THE SITE

This site was encountered during a planning study for improvements at the Terry Airport. While specific plans for construction are being developed, this site is recommended Not Eligible for the NRHP. As this site is recommended Not Eligible for the NRHP, KLJ recommends a finding of No Historic Properties Affected for any future plans, and no avoidance is recommended.

6. INFORMATION SOURCES

LIST CITATIONS FOR INFORMATION SOURCES USED TO COMPLETE THIS FORM

IMPORTANT: DO NOT insert images for photos, maps, and other figures to this document. Supporting photographs, maps, and other figures referenced in Table 7 need to be formatted, saved, and submitted according to SHPO's *Guidelines and Samples for CSR/AER Form Attachments*. For more detailed mapping and photography standards, please review *Montana SHPO Consultation Guide, 2023*.

7. LIST OF PHOTOS AND MAPS

FIGURE NUMBER	DESCRIPTION / CAPTION	PHOTOGRAPHER	PHOTO DATE
1	Feature 1, view to the north.	Bill Norman	04/22/23
2	Feature 2, view to southwest.	Bill Norman	04/22/23
3	Feature 1, view to the northwest.	Bill Norman	04/22/23
4	Tube amplified car radio, plan view.	Bill Norman	04/22/23
6	Site overview, view to the northwest.	Bill Norman	04/22/23

(tab from last cell to add rows to the photos and maps table)

^ See **Checklist 2: Submitting Site Records and Requesting Smithsonian Numbers** (Appendix D.2) and **Documenting Sites** (section 2.3) of the Montana SHPO Consultation Guide, 2023.
Online: https://mhs.mt.gov/Shpo/Archaeology/ConsultingWith

* See **Site/Property Types, Time Periods, and Diagnostic Types for Cultural and Architectural-Engineering Records**.
Online: https://mhs.mt.gov/Shpo/docs/CSR_AER_Codes.pdf

+ See **How to Apply National Register Criteria for Evaluation**. National Park Service, National Register Bulletin. 1997.
Online: https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf

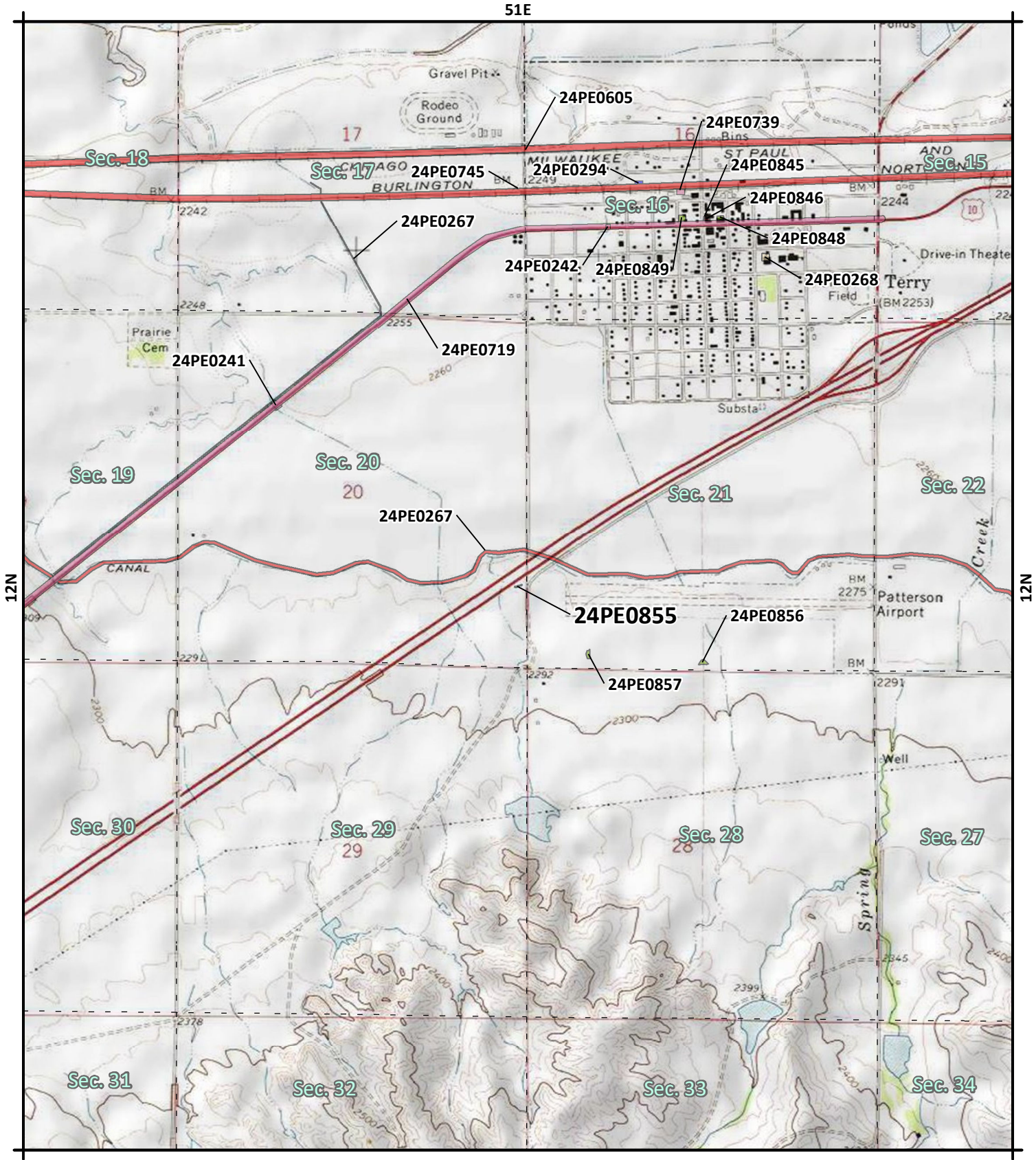
Figure 1: Feature 1, view to the north.

Figure 2: Feature 2, view to southwest.

Figure 3: Feature 1, view to the northwest.

Figure 4: Tube amplified car radio, plan view.

Figure 5: Site overview, view to the northwest.



KLJ

24PE0855
Topographic Sketch Map

Quadrangle: Terry

0 0.25 0.5 1 Miles

0 0.25 0.5 1 Kilometers

N W E S

1:24,000

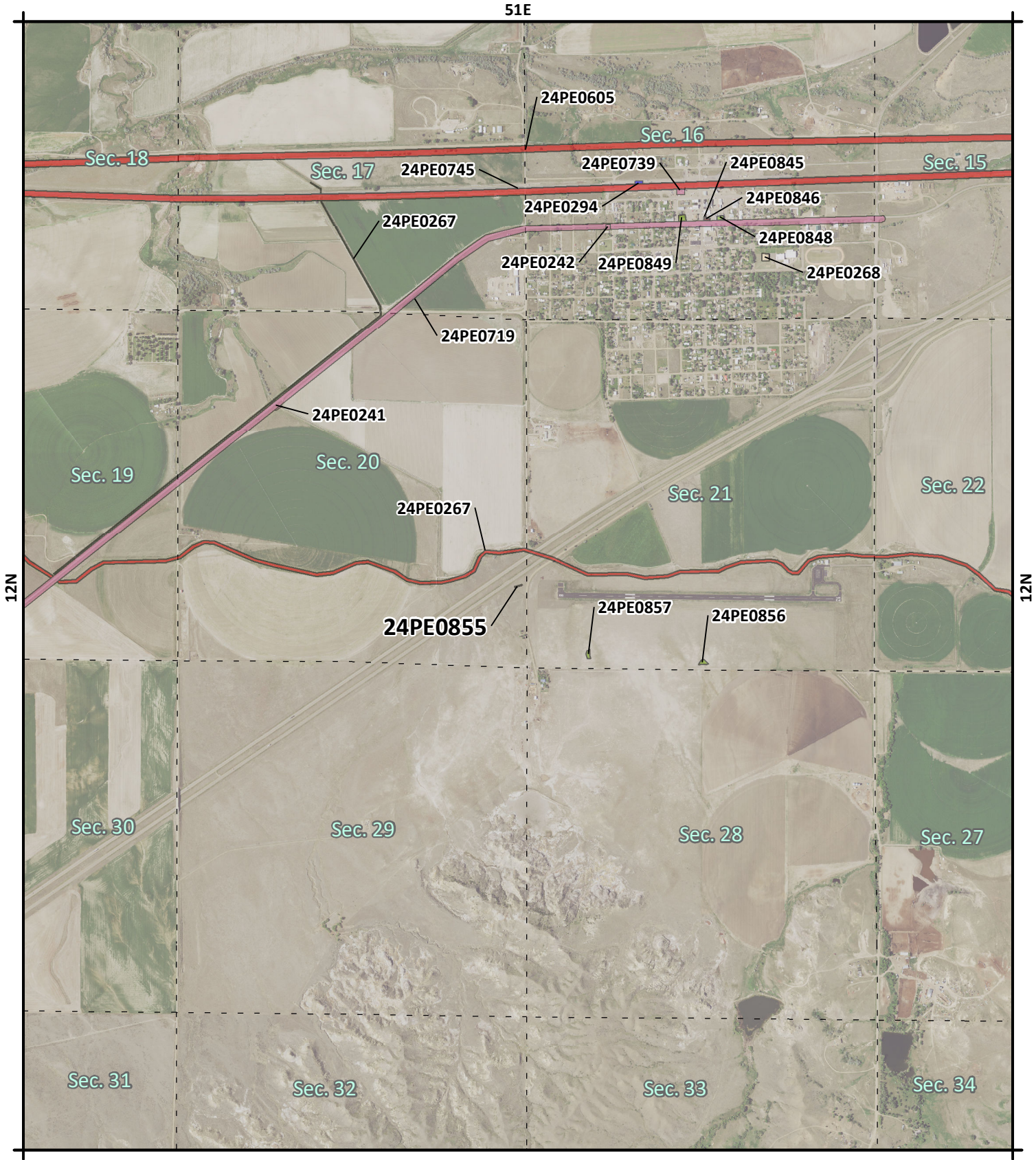
Key

- Unresolved Site
- Undetermined Site
- NR Listed Site
- Eligible Site
- Not Eligible Site

Restrictions:
For Official Use Only: Disclosure of Cultural Site Locations Prohibited

KLJ Project Number: 2008-01270
Date Created: 7/28/2023
Created By: aaronjorgensen

Document Location: K:\Projects\Airport\MT\Terry_8U6\2005_01683_SuppPlanning\GIS\Cultural\TerryAirport_Cultural_Sketch_24PE0865_topo.mxd



24PE0855
Sketch Map

Quadrangle: Terry

0 0.25 0.5 1 Miles

0 0.25 0.5 1 Kilometers

N W E S

1:24,000

Key

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KLJ Project Number: 2008-01270
Date Created: 7/28/2023
Created By: aaronjorgensen

Document Location: K:\Projects\Airport\MT\Terry_8U6\2005_01683_SuppPlanning\GIS\Cultural\TerryAirport_Cultural_Sketch_24PE0865.mxd

INTRODUCTION

NEW FORMS AND INSTRUCTIONS

As of July 2022, this CS-R (Cultural Site Record) form replaces Montana SHPO's CRIS (Cultural Resource Information System) form for recording cultural resources in Montana. Visit https://mhs.mt.gov/shpo/forms to download the most recent versions of SHPO forms and instructions. If you are uncertain about which form to use, please contact Montana SHPO Cultural Records staff at (406) 444-4724, kyler.mozell@mt.gov

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1. IDENTIFICATION

SITE NAME/FIELD DESIGNATION	SMITHSONIAN NUMBER (issued by SHPO)^	RECORD TYPE
KLJ-TRY-SML01	24PE0856	☒ NEW ☐ UPDATE

PROJECT NAME	PROJECT NUMBER
Terry Airport	2005-01683

FIRST RECORDED BY	DATE	PHONE (000) 000-0000	EMAIL	ADDRESS
Bill Norman and Mitchel Lukens	04/18/2023	406-396-5387	Bill.norman@kljeng.com	2611 Gabel Road, Billings, MT 59102

UPDATED BY	DATE	PHONE (000) 000-0000	EMAIL	ADDRESS

2. LOCATION

COUNTY	LOT/BLOCK	STREET ADDRESS	CITY / TOWN (NEAREST)
Prairie			

NARRATIVE / NOTES ON ACCESS (OPTIONAL)

UTM COORDINATES OR LAT-LONG FOR THE CENTER OF THE SITE, TO THE 6TH DECIMAL	DATUM (E.g., NAD27, WGS84, etc.)
13 T 476107 E 5180150 N	

TOWNSHIP	N/S	RANGE	E/W	SECTION	QUARTER		TOWNSHIP	N/S	RANGE	E/W	SECTION	QUARTER
12	N	51	E	21	SW							
12	N	51	E	21	SE							

(tab from last cell to add rows to the TRS table)

3. OWNERS

CURRENT ADMINISTRATIVE/SURFACE OWNERSHIP	CURRENT USE	
Private	Terry Airport	☐ Public ☒ Private

ORIGINAL ADMINISTRATIVE/SURFACE OWNERSHIP	ORIGINAL/HISTORIC USE	
Private	Pasture	☐ Public ☒ Private

4. CULTURAL SITE AND ENVIRONMENT DESCRIPTION

SITE TYPE*	SITE TIME PERIOD*	SITE DIMENSIONS (LENGTH X WIDTH)	SURFACE VISIBILITY (%)
Historic Material Scatter		25 yards North to South, 45 yards east to west	90%

NARRATIVE DESCRIPTION OF SITE (OVERVIEW OF SITE, FEATURES, ARTIFACTS, AND CONDITION)

This site consists of a medium defuse scatter of historical material including glass fragments and ceramic fragments; totaling 45 artifacts. The site is mainly seen in a prairie dog clearing. Visual inspection of the burrows, with sifting, showed no materials in the excavated material. There are a total of 14 amethyst glass fragments, 5 aqua glass fragments,25 colorless glass fragments, and 1 amber glass fragment. Ceramic fragments include two fragments of undecorated whiteware.

FEATURE DESCRIPTIONS (DETAILS ABOUT EACH FEATURE CROSS-REFERENCED WITH LABELED PHOTOS, MAPS, AND FIGURES)

There are no features present

ARTIFACTS (DESCRIBE AND PROVIDE QUANTITY FOR EACH TYPE OF ARTIFACT; AGGREGATE DATA CAN BE PRESENTED IN TABLES OR LISTS)

There are a total of 14 amethyst glass fragments, 5 aqua glass fragments,25 colorless glass fragments, and 1 amber glass fragment. Ceramic fragments include two fragments of undecorated whiteware.

DIAGNOSTIC ARTIFACTS*

Amethyst glass fragments

SUBSURFACE TESTING (TYPE OF TESTS AND FINDINGS)

Two subsurface tests were conducted. Both showed evidence of ground disturbance and both were negative for cultural material.

Table 1: Soils in STP 1.

Horizon	Munsell Color	Depth (cm)	Notes
A/B	10YR4/4	26	Mottled and mixed with materials from the C layer. No clear distinction
C	7.5YR2/2	33	First contact with compact undisturbed sub soils.

Table 2: Soils in STP 2.

Horizon	Munsell Color	Depth (cm)	Notes
A/B	10YR4/4	24	Mottled and mixed with materials from the C layer. No clear distinction
C	7.5YR2/2	34	First contact with compact undisturbed sub soils.

SITE FUNCTION / INTERPRETATION (PROVIDE EVIDENCE OR INDICATE AS "BEST GUESS")

Secondary deposition historical material scatter.

ELEVATION (FEET) **VIEW AND ASPECT** **NEAREST WATER SOURCE**

2290	Site is open in all directions	Stream/River/Creek

SEDIMENTS	DEPOSITION (SURFACE, BURIED, REDEPOSITED, ETC.)
	Surface

GEOGRAPHIC SETTING

This site is in a broad, open, river valley with the Yellowstone River approximately 2.1 miles to the north.

LOCAL VEGETATION

Grasses and sedges. Fallow agricultural land

5. NR EVALUATION AND ASSESSMENT

HAS A FORMAL ELIGIBILITY DETERMINATION BEEN PREVIOUSLY ISSUED FOR THIS SITE/PROPERTY?

☒ No formal determination ☐ Yes, determined NOT eligible ☐ Yes, determined eligible ☐ Yes, NR listed ☐ Unknown

PROVIDE YOUR ASSESSMENT OF THE SITE'S/PROPERTY'S ELIGIBILITY FOR THE NATIONAL REGISTER

☐ Meets criteria as an individual property ☐ Meets criteria as a contributing element to a historic district

☒ Does not meet criteria ☐ Does not meet criteria, and is a non-contributing element to a historic district

Historic District Name:

APPLICABLE NR CRITERIA+		ARGUMENT FOR OR AGAINST EACH NR CRITERION
A – Events	☐ YES ☒ NO	Although homesteading in early twentieth century Eastern Montana is a historically significant event, this site lacks integrity to convey the historical significance of that event. The site is not a unique example of its type, and others represent this historical movement with more integrity. The site is recommended Not Eligible under Criterion A.
B – Persons	☐ YES ☒ NO	This site was originally patented by the Northern Pacific Railroad in 1896. Although the building of the railroad in the American West is a historically significant event associated with several historically significant figures, there is no railroad infrastructure onsite. While historical figures might have been involved with acquiring the land, the presence of the land itself is not enough to convey the historical significance of those figures. This property is recommended Not Eligible for listing on the NRHP under Criterion B.
C – Characteristics	☐ YES ☒ NO	There is no built environment at the site. The site is not a historically significant design or the work of a master. This site is recommended Not Eligible under Criterion C
D – Information	☐ YES ☒ NO	Although homesteading in early 20th century Eastern Montana is a historically significant event, this site lacks integrity for data potential. This is likely a secondary deposit location. Surface artifacts are sparse and shovel testing doesn't indicate the presence of subsurface deposits. Furthermore, this site has been plowed in the past and the distribution of artifacts as seen now is likely tied to that disturbance. The site is recommended Not Eligible under Criterion D.

INTEGRITY (location, design, setting, materials, workmanship, feeling, association)

This site is recommended Not Eligible and no integrity applies.

POSSIBLE IMPACTS TO THE SITE

This site was encountered during a planning study for improvements at the Terry Airport. While specific plans for construction are being developed, this site is recommended Not Eligible for the NRHP. As this site is recommended Not Eligible for the NRHP, KLJ recommends a finding of No Historic Properties Affected for any future plans, and no avoidance is recommended.

6. INFORMATION SOURCES

LIST CITATIONS FOR INFORMATION SOURCES USED TO COMPLETE THIS FORM

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7. LIST OF PHOTOS AND MAPS

FIGURE NUMBER	DESCRIPTION / CAPTION	PHOTOGRAPHER	PHOTO DATE
1	Amethyst glass fragment, plan view.	Bill Norman	04/22/2023
2	Aqua glass fragment, plan view.	Bill Norman	04/22/2023
3	Colorless glass bottle finish, plan view.	Bill Norman	04/22/2023
4	Colorless glass fragments, plan view.	Bill Norman	04/22/2023
5	Undecorated whiteware and porcelain fragments, plan view.	Bill Norman	04/22/2023
6	Whiteware fragment, plan view.	Bill Norman	04/22/2023
7	Site overview, view to the east.	Bill Norman	04/22/2023
8	Site overview, view to the south.	Bill Norman	04/22/2023

(tab from last cell to add rows to the photos and maps table)

^ See **Checklist 2: Submitting Site Records and Requesting Smithsonian Numbers** (Appendix D.2) and **Documenting Sites** (section 2.3) of the Montana SHPO Consultation Guide, 2023.
Online: https://mhs.mt.gov/Shpo/Archaeology/ConsultingWith

* See **Site/Property Types, Time Periods, and Diagnostic Types for Cultural and Architectural-Engineering Records**.
Online: https://mhs.mt.gov/Shpo/docs/CSR_AER_Codes.pdf

+ See **How to Apply National Register Criteria for Evaluation**. National Park Service, National Register Bulletin. 1997.
Online: https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf

Figure 1: Amethyst glass fragment, plan view.

Figure 2: Aqua glass fragment, plan view.

Figure 3: Colorless glass bottle finish, plan view.

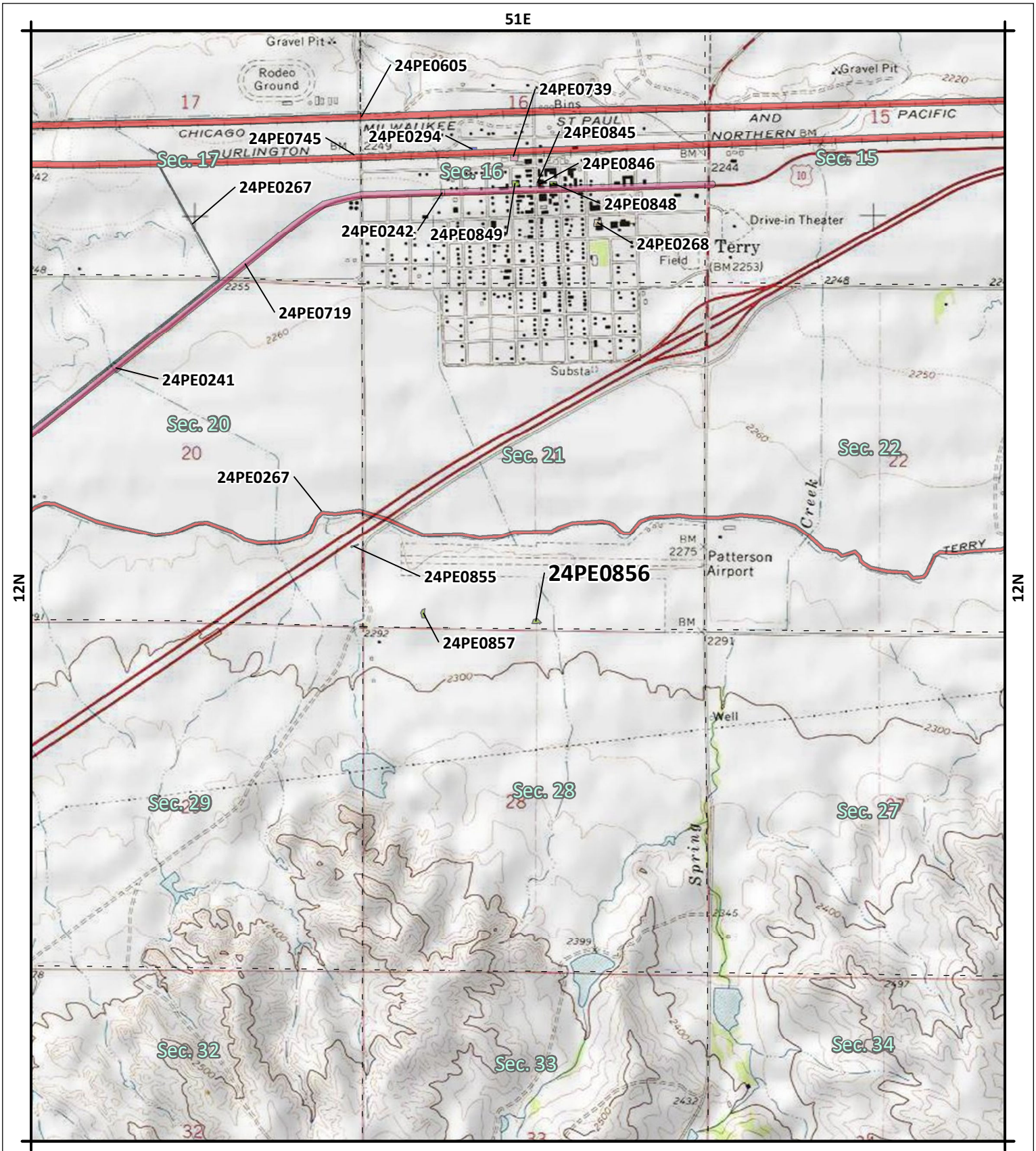
Figure 4: Colorless glass fragments, plan view.

Figure 5: Undecorated whiteware and porcelain fragments, plan view.

Figure 6: Whiteware fragment, plan view.

Figure 7: Site overview, view to the east.

Figure 8: Site overview, view to the south.



24PE0856
Topographic Sketch Map

Quadrangle: Terry

0 0.25 0.5 1 Miles

0 0.25 0.5 1 Kilometers

N W E S

1:24,000

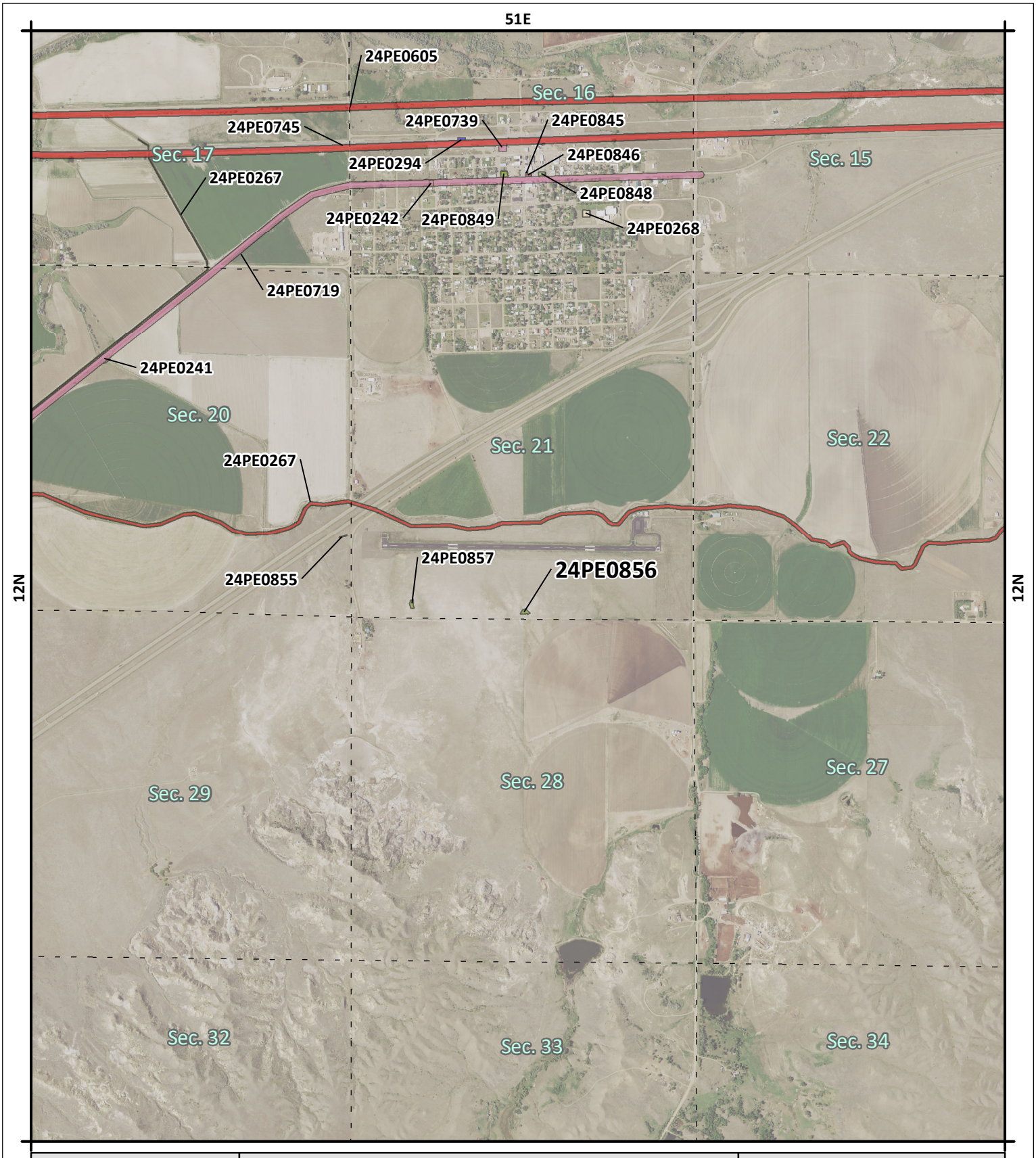
Key

- Unresolved Site
- Undetermined Site
- NR Listed Site
- Eligible Site
- Not Eligible Site

Restrictions:
For Official Use Only: Disclosure of Cultural Site Locations Prohibited

KLJ Project Number:	2008-01270
Date Created:	7/28/2023
Created By:	aaronjorgensen

Document Location: K:\Projects\Airport\MT\Terry_8U6\2005_01683_SuppPlanning\GIS\Cultural\TerryAirport_Cultural_Sketch_24PE0866_topo.mxd



24PE0856
Sketch Map

Quadrangle: Terry

0 0.25 0.5 1 Miles

0 0.25 0.5 1 Kilometers

N W E S

1:24,000

Key

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- Not Eligible Site

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KLJ Project Number: 2008-01270
Date Created: 7/28/2023
Created By: aaronjorgensen

Document Location: K:\Projects\Airport\MT\Terry_8U6\2005_01683_SuppPlanning\GIS\Cultural\TerryAirport_Cultural_Sketch_24PE0866.mxd

INTRODUCTION

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REMINDERS

The Principal Investigator is responsible for ensuring that the information in this form is complete and accurate as per the Montana SHPO's data standards. Please consult the **Montana SHPO Consultation Guide, 2023** for standards for recording cultural and architectural resources in Montana.

1. IDENTIFICATION

SITE NAME/FIELD DESIGNATION	SMITHSONIAN NUMBER (issued by SHPO)^	RECORD TYPE
KLJ-TRY-SML02	24PE0857	☒ NEW ☐ UPDATE

PROJECT NAME	PROJECT NUMBER
Terry Airport	2005_01683

FIRST RECORDED BY	DATE	PHONE (000) 000-0000	EMAIL	ADDRESS

UPDATED BY	DATE	PHONE (000) 000-0000	EMAIL	ADDRESS

2. LOCATION

COUNTY	LOT/BLOCK	STREET ADDRESS	CITY / TOWN (NEAREST)
Prairie			Terry, MT

NARRATIVE / NOTES ON ACCESS (OPTIONAL)

UTM COORDINATES OR LAT-LONG FOR THE CENTER OF THE SITE, TO THE 6TH DECIMAL	DATUM (E.g., NAD27, WGS84, etc.)
13 T 475577 E 5180184 N	NAD 83

TOWNSHIP	N/S	RANGE	E/W	SECTION	QUARTER		TOWNSHIP	N/S	RANGE	E/W	SECTION	QUARTER
12	N	51	E	21	SW							

(tab from last cell to add rows to the TRS table)

3. OWNERSHIP

CURRENT ADMINISTRATIVE/SURFACE OWNERSHIP	CURRENT USE	
Private	Fallow Agricultural Field	☒ Public ☐ Private

ORIGINAL ADMINISTRATIVE/SURFACE OWNERSHIP	ORIGINAL/HISTORIC USE	
Private	Undeveloped Land	☐ Public ☒ Private

4. CULTURAL SITE AND ENVIRONMENT DESCRIPTION

SITE TYPE*	SITE TIME PERIOD*	SITE DIMENSIONS (LENGTH X WIDTH)	SURFACE VISIBILITY (%)
Lithic Material Scatter	Prehistoric Unknown	40 Meters North to South, 18 Meters East to West	70-100 %

NARRATIVE DESCRIPTION OF SITE (OVERVIEW OF SITE, FEATURES, ARTIFACTS, AND CONDITION)

This site consists of a diffuse lithic scatter in a historically plowed field. The field is fallow pasture at the time of recording and the site is mainly visible in a prairie dog clearing. There are 18 total artifacts visible on the surface, 14 of which are fire altered medium grained quartzite. The remaining artifacts include a yellowish brown chert shatter fragment, a fine grained quartzite core, a fine grained quartzite utilized flake, and a purple tertiary porcellanite flake.

FEATURE DESCRIPTIONS (DETAILS ABOUT EACH FEATURE CROSS-REFERENCED WITH LABELED PHOTOS, MAPS, AND FIGURES)

There are no features present at the site.

ARTIFACTS (DESCRIBE AND PROVIDE QUANTITY FOR EACH TYPE OF ARTIFACT; AGGREGATE DATA CAN BE PRESENTED IN TABLES OR LISTS)

There are 18 total artifacts visible on the surface, 14 of which are fire altered medium grained quartzite. The remaining artifacts include a yellowish brown chert shatter fragment, a fine grained quartzite core, a fine grained quartzite utilized flake, and a purple tertiary porcellanite flake.

DIAGNOSTIC ARTIFACTS*

No diagnostic artifacts present

SUBSURFACE TESTING (TYPE OF TESTS AND FINDINGS)

Two subsurface tests were conducted at the site. Both were negative for cultural materials and showed a disturbed soil horizon.

Table 1: Soils in STP 1.

Horizon	Munsell Color	Depth (cm)	Notes
A/B	10YR4/4	43	Mottled and mixed with materials from the C layer. No clear distinction
C	7.5YR2/2	53	First contact with compact undisturbed sub soils.

Table 2: Soils in STP 2.

Horizon	Munsell Color	Depth (cm)	Notes
A/B	10YR4/4	30	Mottled and mixed with materials from the C layer. No clear distinction
C	7.5YR2/2	39	First contact with compact undisturbed sub soils.

SITE FUNCTION / INTERPRETATION (PROVIDE EVIDENCE OR INDICATE AS "BEST GUESS")

Lithic Material Scatter

ELEVATION (FEET)	VIEW AND ASPECT	NEAREST WATER SOURCE
2285	Site is open in all directions	Stream/River/Creek

SEDIMENTS | **DEPOSITION** (SURFACE, BURIED, REDEPOSITED, ETC.)

Surface

GEOGRAPHIC SETTING

LOCAL VEGETATION

Fallow pasture land

5. NR EVALUATION AND ASSESSMENT

HAS A FORMAL ELIGIBILITY DETERMINATION BEEN PREVIOUSLY ISSUED FOR THIS SITE/PROPERTY?

☒ No formal determination ☐ Yes, determined NOT eligible ☐ Yes, determined eligible ☐ Yes, NR listed ☐ Unknown

PROVIDE YOUR ASSESSMENT OF THE SITE'S/PROPERTY'S ELIGIBILITY FOR THE NATIONAL REGISTER

☐ Meets criteria as an individual property ☐ Meets criteria as a contributing element to a historic district

☒ Does not meet criteria ☐ Does not meet criteria, and is a non-contributing element to a historic district

Historic District Name:

APPLICABLE NR CRITERIA+		ARGUMENT FOR OR AGAINST EACH NR CRITERION
A – Events	☐ YES ☒ NO	There are no diagnostic artifacts onsite. The materials observed are common in prehistory and not indicative of any particular time period. As the site is not indicative of any particular time period, it is recommended Not Eligible for listing on the NRHP.
B – Persons	☐ YES ☒ NO	This site type is not usually associated with any specific historically significant figure. As the site is not associated with a particular historically significant figure, it is recommended Not Eligible for listing on the NRHP.
C – Characteristics	☐ YES ☒ NO	There is no built environment at the site. The site is not an example of unique design or the work of a master. The site is recommended Not Eligible for listing on the NRHP under Criterion C.
D – Information	☐ YES ☒ NO	There are no diagnostic artifacts onsite and the materials present are common in prehistoric contexts. The site is on a formerly plowed agricultural field. KLJ conducted two shovel tests at the site. Both of these showed disturbed soils to the culturally sterile layer, and overall deflated soils. As the site is in a disturbed context, and cannot be tied to a particular historically significant period, the site is recommended Not Eligible for listing on the national register of historic places.

INTEGRITY (location, design, setting, materials, workmanship, feeling, association)

This site is recommended Not Eligible for listing on the National Register of Historic Places and no integrity applies.

POSSIBLE IMPACTS TO THE SITE

This site was encountered during a planning study for improvements at the Terry Airport. While specific plans for construction are being developed, this site is recommended Not Eligible for the NRHP. As this site is recommended Not Eligible for the NRHP, KLJ recommends a finding of No Historic Properties Affected for any future plans, and no avoidance is recommended.

6. INFORMATION SOURCES

LIST CITATIONS FOR INFORMATION SOURCES USED TO COMPLETE THIS FORM

IMPORTANT: DO NOT insert images for photos, maps, and other figures to this document. Supporting photographs, maps, and other figures referenced in Table 7 need to be formatted, saved, and submitted according to SHPO's *Guidelines and Samples for CSR/AER Form Attachments*. For more detailed mapping and photography standards, please review *Montana SHPO Consultation Guide, 2023*.

7. LIST OF PHOTOS AND MAPS

FIGURE NUMBER	DESCRIPTION / CAPTION	PHOTOGRAPHER	PHOTO DATE
1	Medium grained quartzite cobble with flake scars, plan view.	Bill Norman	04/22/23
2	Utilized porcellanite flake, plan view.	Bill Norman	04/22/23
3	Bifacially worked purple quartzite flake, plan view	Bill Norman	04/22/23
4	Quartzite FCR fragment, plan view.	Bill Norman	04/22/23
5	STP 1 overview, plan view.	Bill Norman	04/22/23
6	STP 2 overview, plan view	Bill Norman	04/22/23
7	Site overview, view to the east.	Bill Norman	04/22/23
8	Site overview, view to the north.	Bill Norman	04/22/23

(tab from last cell to add rows to the photos and maps table)

^ See **Checklist 2: Submitting Site Records and Requesting Smithsonian Numbers** (Appendix D.2) and **Documenting Sites** (section 2.3) of the Montana SHPO Consultation Guide, 2023.
Online: https://mhs.mt.gov/Shpo/Archaeology/ConsultingWith

* See **Site/Property Types, Time Periods, and Diagnostic Types for Cultural and Architectural-Engineering Records**.
Online: https://mhs.mt.gov/Shpo/docs/CSR_AER_Codes.pdf

+ See **How to Apply National Register Criteria for Evaluation**. National Park Service, National Register Bulletin. 1997.
Online: https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf

Figure 1: Medium grained quartzite cobble with flake scars, plan view.

Figure 2: Utilized porcellanite flake, plan view.

Figure 3: Bifacially worked purple quartzite flake, plan view

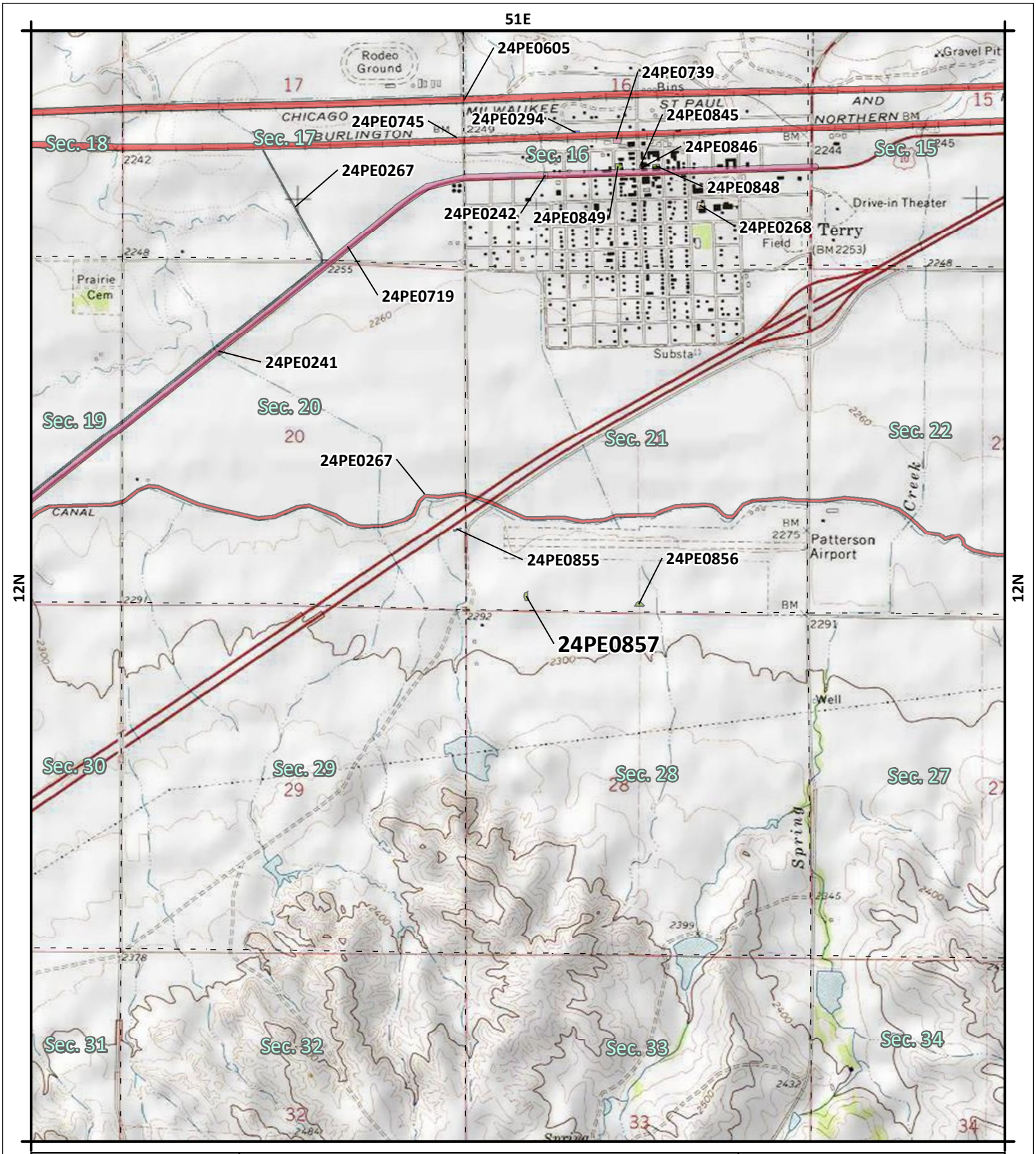
Figure 4: Quartzite FCR fragment, plan view.

Figure 5: STP 1 overview, plan view.

Figure 6: STP 2 overview, plan view

Figure 7: Site overview, view to the east.

Figure 8: Site overview, view to the north.



24PE0857
Topographic Sketch Map

Quadrangle: Terry

0 0.25 0.5 1 Miles

0 0.25 0.5 1 Kilometers

N W E S

1:24,000

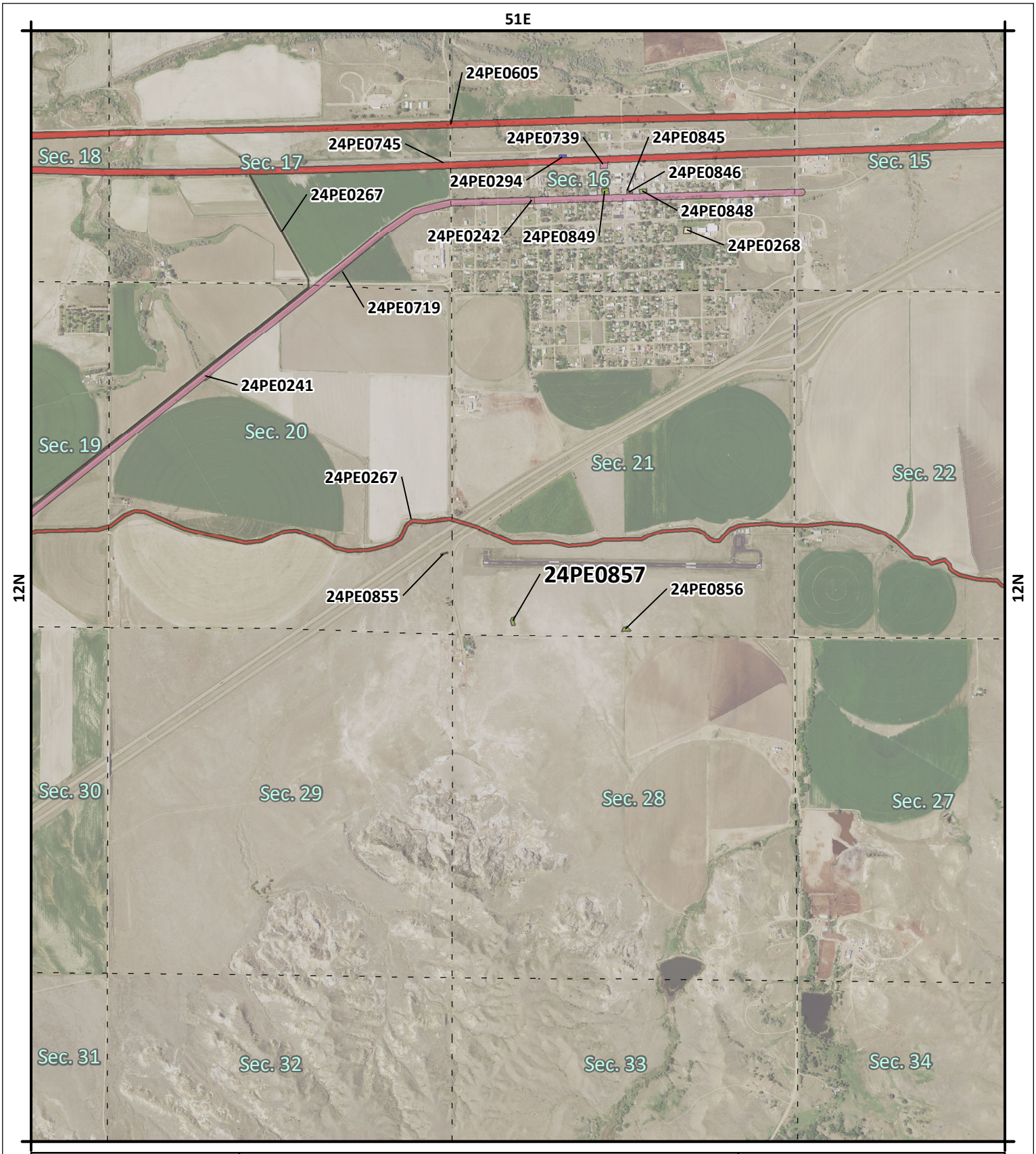
Key

- Unresolved Site
- Undetermined Site
- NR Listed Site
- Eligible Site
- Not Eligible Site

Restrictions:
For Official Use Only: Disclosure of Cultural Site Locations Prohibited

KLJ Project Number:	2008-01270
Date Created:	7/28/2023
Created By:	aaronjorgensen

Document Location: K:\Projects\Airport\MT\Terry_8U6\2005_01683_SuppPlanning\GIS\Cultural\TerryAirport_Cultural_Sketch_24PE0867_topo.mxd



24PE0857
Sketch Map

Quadrangle: Terry

0 0.25 0.5 1 Miles

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KLJ Project Number: 2008-01270
Date Created: 7/28/2023
Created By: aaronjorgensen

Document Location: K:\Projects\Airport\MT\Terry_8U6\2005_01683_SuppPlanning\GIS\Cultural\TerryAirport_Cultural_Sketch_24PE0867.mxd

MONTANA HISTORICAL SOCIETY
State Historic Preservation Office

CU-R FORM

SITE RECORD UPDATE FOR CS-R AND AE-R

1/2023

NEW FORMS AND INSTRUCTIONS

As of July 2022, this **CSR (Cultural Site Record) Update form** replaces Montana SHPO's CRIS (Cultural Resource Information System) Site Update Form for recording cultural resources in Montana. Visit https://mhs.mt.gov/shpo/forms to download the most recent versions of SHPO forms and instructions. If you are uncertain about which form to use, please contact Montana SHPO Cultural Records staff at (406) 444-4724, kyler.mozell@mt.gov

REMINDERS

The Principal Investigator is responsible for ensuring that the information in this form is complete and accurate as per the Montana SHPO's data standards. Please consult the **Montana SHPO Consultation Guide, 2023** for standards for recording cultural and architectural resources in Montana.

SITE UPDATE GUIDANCE

Offering elaboration on Consulting with the Montana SHPO Guidelines and Procedures:

"19. complete and typed Montana CRIS forms (see Appendix 4) or equivalent must be included for all sites located by the survey. Updated site forms should be included for previously recorded sites in the APE as well as those relocated to determine that they were outside the APE. For architectural properties, the Montana Historical and Architectural Inventory form is recommended. Paleontological localities should be recorded on the appropriate paleontological form. "(Step Two: Identify Historic Properties, D: Reporting Survey Results)

The SHPO office expects every recorded site, regardless of eligibility status, within the project's area of potential effect to be discussed in the report and updated. In some circumstances, the site update requirement may be waived. Any such circumstances must be discussed with SHPO staff prior to the cultural inventory. These discussions must have written documentation showing SHPO staff approval and be summarized in the final inventory report.

If the original site form or prior site update is older than 10 years, a new Cultural Site Record (CS-R) or Architecture and Engineering Record (AE-R) Form should be completed. When this applies, inventory reports should include a completed CS-R or AE-R form with all sections completed and GIS shapefiles showing the site boundary.

If the original site form or prior site update was completed within the last 10 years, then only the changes to the site need to be documented in the update. It is NOT necessary to complete the entire CS-R or AE-R for all site updates. However, if the original site form left sections of the CS-R form blank, they should be completed as part of the update process. Contextual information consistent with the original form does not need to be redocumented. This would most likely include the site's elevation, available water sources, environmental setting, and historical context. The update should focus on a description of the site/features, any changes observed since the last site recording, new research or information, current photos, and current maps. An example modified site update form can be found on our website. We suggest using this **CS-R Update Form** for situations where the original site form or prior site update was completed within the last 10 years.

1. Identification

SITE NAME/FIELD DESIGNATION	SMITHSONIAN NUMBER (issued by SHPO)^	RECORD TYPE
Buffalo Rapids Irrigation Project	24PE0267	**XX** UPDATE

UPDATED BY	DATE	PHONE (000) 000-0000	EMAIL	ADDRESS
Bill Norman	07-24-2023	406-396-5387	Bill.norman@kljeng.com	2611 Gabel Road Billings, MT 59102

2. Location

COUNTY	LOT/BLOCK	STREET ADDRESS	CITY / TOWN (NEAREST)
Prairie			Terry, MT

TOWNSHIP	N/S	RANGE	E/W	SECTION	QUARTER		TOWNSHIP	N/S	RANGE	E/W	SECTION	QUARTER
12	N	51	E	21	SE							
12	N	51	E	21	SW							
12	N	51	E	20	SE							

(tab from last cell to add rows to the TRS table)

3. Ownership

CURRENT ADMINISTRATIVE/SURFACE OWNERSHIP	CURRENT USE	
Mixed Private and County	Airport	☒ Public ☒ Private

4. Site Description / Conditions

SITE/PROPERTY TYPE* (SEE RECOMMENDED SITE TYPE LIST; TYPE ALL THAT APPLY)

Historic Irrigation

DESCRIPTION OF SITE/PROPERTY (OVERVIEW OF SITE, FEATURES, ARTIFACTS, AND CONDITION)

This site is the Buffalo Rapids Irrigation District, portions of which have been updated and revisited several times. The portion that is in the current project area is still in use and functioning in its historical capacity. Regular maintenance in kind is visible, including the use of fire to control vegetation near the banks of the canal and dredging to accommodate flow. Several irrigation control structures were observed in the project area including wooden and concrete control gates.

CHANGES SINCE LAST RECORDING

The portion of the site in the current inventory area is a portion of the Terry Main Canal. Portions of the main canal near the project area, and in the same section, were updated in 2020 (Dersam and Lee), but not the specific section that is in the project area. The condition of the site is consistent with the observations of Dersam and Lee (2020), with a mixture of original and replaced infrastructure as maintenance continues on the still operating irrigation system.

CURRENT CONDITION / INTEGRITY

The condition and integrity of the canal is consistent with the portion in the same section recorded in 2020 (Dersam and Lee) in the same legal section. Ongoing maintenance and use of the has lead to diminishing integrity of workmanship and materials, but overall the site retains integrity of setting, feeling, setting, location, association, and design.

5. National Register Evaluation and Assessment

HAS A FORMAL ELIGIBILITY DETERMINATION BEEN PREVIOUSLY ISSUED FOR THIS SITE/PROPERTY?

☒ No formal determination ☐ Yes, determined NOT eligible ☐ Yes, determined eligible ☐ Yes, listed ☐ Unknown

ELIGIBILITY PROCEDURES / JUSTIFICATION[+]

This site is previously recommended Eligible for the National Register of Historic Places. KLJ agrees with this recommendation. The site was visited during a planning study for improvements to the Terry Airport. While improvement plans are still being developed, KLJ recommends avoidance of the site in further plans.

6. Sources

LIST CITATIONS FOR INFORMATION SOURCES USED TO COMPLETE THIS FORM

Dersam, S. and J. Lee
2020 Site form for 24PE0267. Manuscript on file with the Montana State Historic Preservation Office, Helena, MT.

7. List of Updated Photographs and Maps Attached to this Form

FIGURE NUMBER	DESCRIPTION / CAPTION	PHOTOGRAPHER	PHOTO DATE
1	Canal at the north west boundary of the study area, view to the southeast.	Bill Norman	04-23-2023
2	Site overview, view to the east.	Bill Norman	04-23-2023
3	Sluice control near northwest corner of the study area view to the northwest.	Bill Norman	04-23-2023
4	Sluice control, view to the northeast.	Bill Norman	04-23-2023
5	Canal overview from the east boundary of the study area, view to the west.	Bill Norman	04-23-2023

(tab from last cell to add rows to the photos and maps table)

IMPORTANT: DO NOT insert images into this document. Supporting photographs, maps, and other figures referenced in Table 7 need to be formatted, saved, and submitted according to SHPO's *Guidelines and Samples for CSR/AER Form Attachments*. For more detailed mapping and photography standards, please review *Montana SHPO Consultation Guide, 2023*.

^ See **Checklist 2: Submitting Site Records and Requesting Smithsonian Numbers** (Appendix D.2) and **Documenting Sites** (section 2.3) of the Montana SHPO Consultation Guide, 2023.
Online: https://mhs.mt.gov/Shpo/Archaeology/ConsultingWith

* See **Site/Property Types, Time Periods, and Diagnostic Types for Cultural and Architectural-Engineering Records**.
Online: https://mhs.mt.gov/Shpo/docs/CSR_AER_Codes.pdf

+ See **How to Apply National Register Criteria for Evaluation**. National Park Service, National Register Bulletin. 1997.
Online: https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf

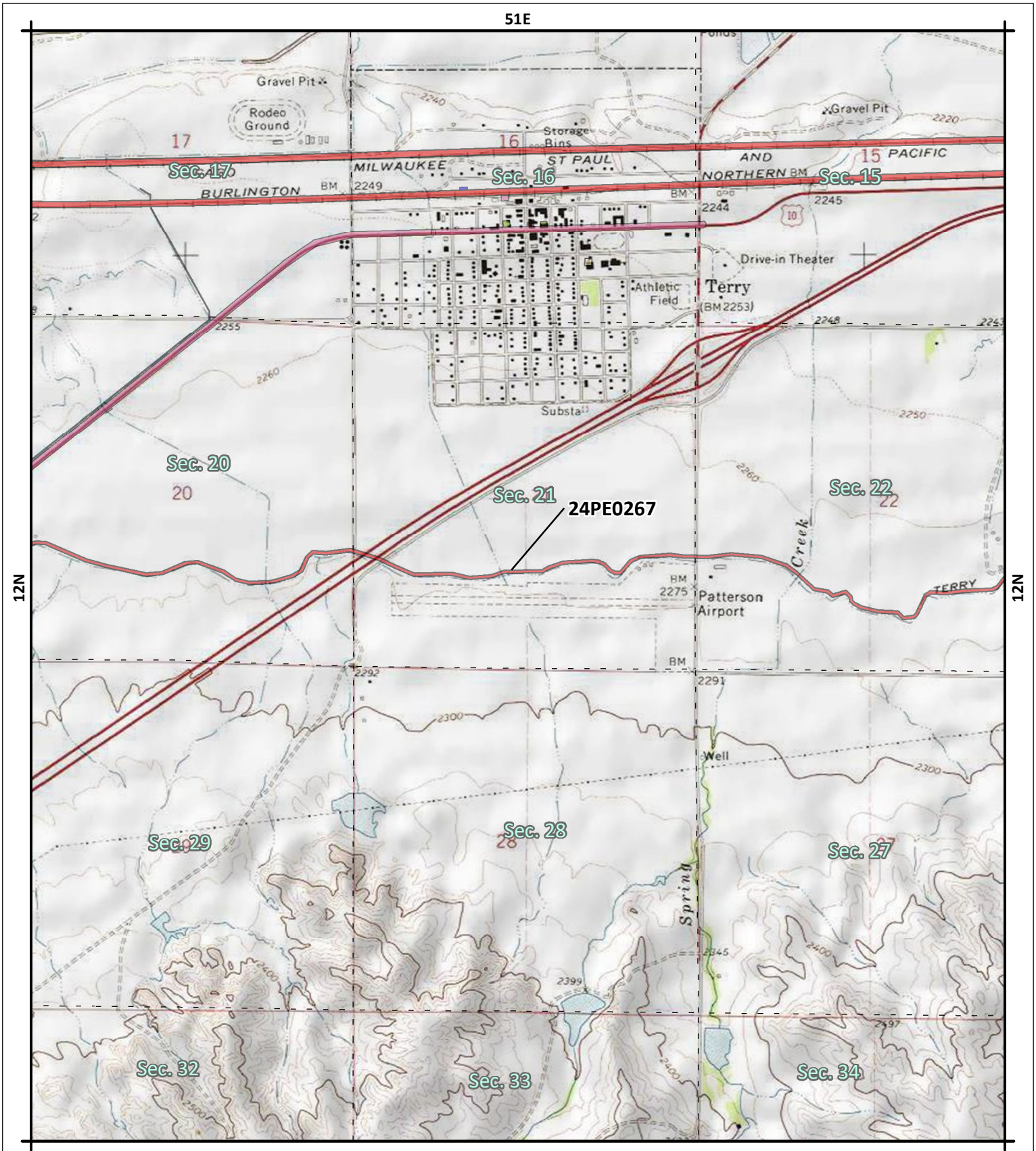
Figure 1: Canal at the north west boundary of the study area, view to the southeast.

Figure 2: Site overview, view to the east.

Figure 3: Sluice control near northwest corner of the study area view to the northwest.

Figure 4: Sluice control, view to the northeast.

Figure 5: Canal overview from the east boundary of the study area, view to the west.



24PE0267 Site Update Topographic Sketch Map

Quadrangle: Terry

KLJ

Restrictions:
For Official Use Only: Disclosure of Cultural Site Locations Prohibited

KLJ Project Number: 2008-01270
Date Created: 5/9/2023
Created By: jeffprice

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0 0.25 0.5 1 Kilometers

N W E S

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Key

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- Undetermined Site
- NR Listed Site
- Eligible Site
- Not Eligible Site

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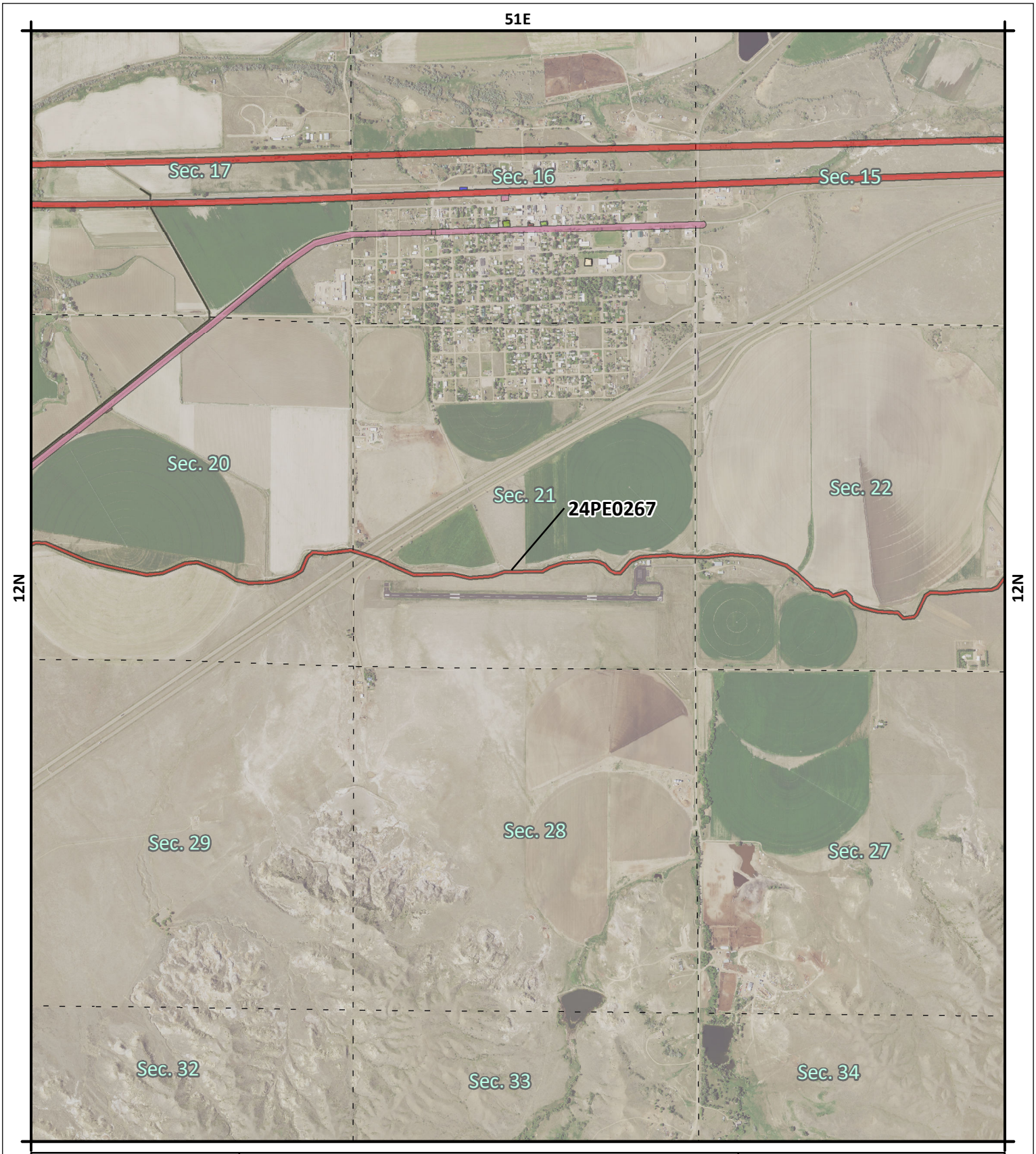

24PE0267 Site Update Sketch Map

Quadrangle: Terry

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KLJ Project Number: 2008-01270
Date Created: 5/9/2023
Created By: jeffprice

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Key

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RECOMMENDED ISOLATED FIND FORM

Montana IF Form

1) Field Number: KLJ-TRY-IFBN01

2) Curation Number: No artifacts collected.

3) Legal Location: T 12N/R 51E/Section 21, SW

4) County: Prairie

USGS Map Reference: Terry, MT

5) Owner: Private

6) Collected: No

Repository: No artifacts collected

7) Name of Recorder: Bill Norman
Company/Agency:

Date: 04/22/2023

8) Attach Sketch Map

Attach Photo

9) Artifact/ Feature Description: This isolated find consists of one Knife River Flint flake with a utilized edge, and a single course-grained quartzite fire altered rock cobble. The Knife River Flint flake is approximately 7 centimeters in length, 3 centimeters wide and 1.5 centimeters thick. It has a utilized edge on the distal side that consists of several small flake scars. The fire altered rock fragment is a possible flake of course grained quartzite that is approximately 7 centimeters long, 3.5 centimeters wide, and 1 centimeter thick. It is a rust colored red and white showing heat alteration.

10) Environmental Location (Topography/Vegetation/Soils and Deposition/Slope/Water Sources: The isolated find is in a fallow agricultural field south of the town of Terry, Montana. Ground surface visibility near the find is nearly 100% within 50 meters of the find as it is in a prairie dog clearing and colony. The quartzite cobble is consistent with cobbles found in the nearby Yellowstone River, approximately 2 miles to the north.

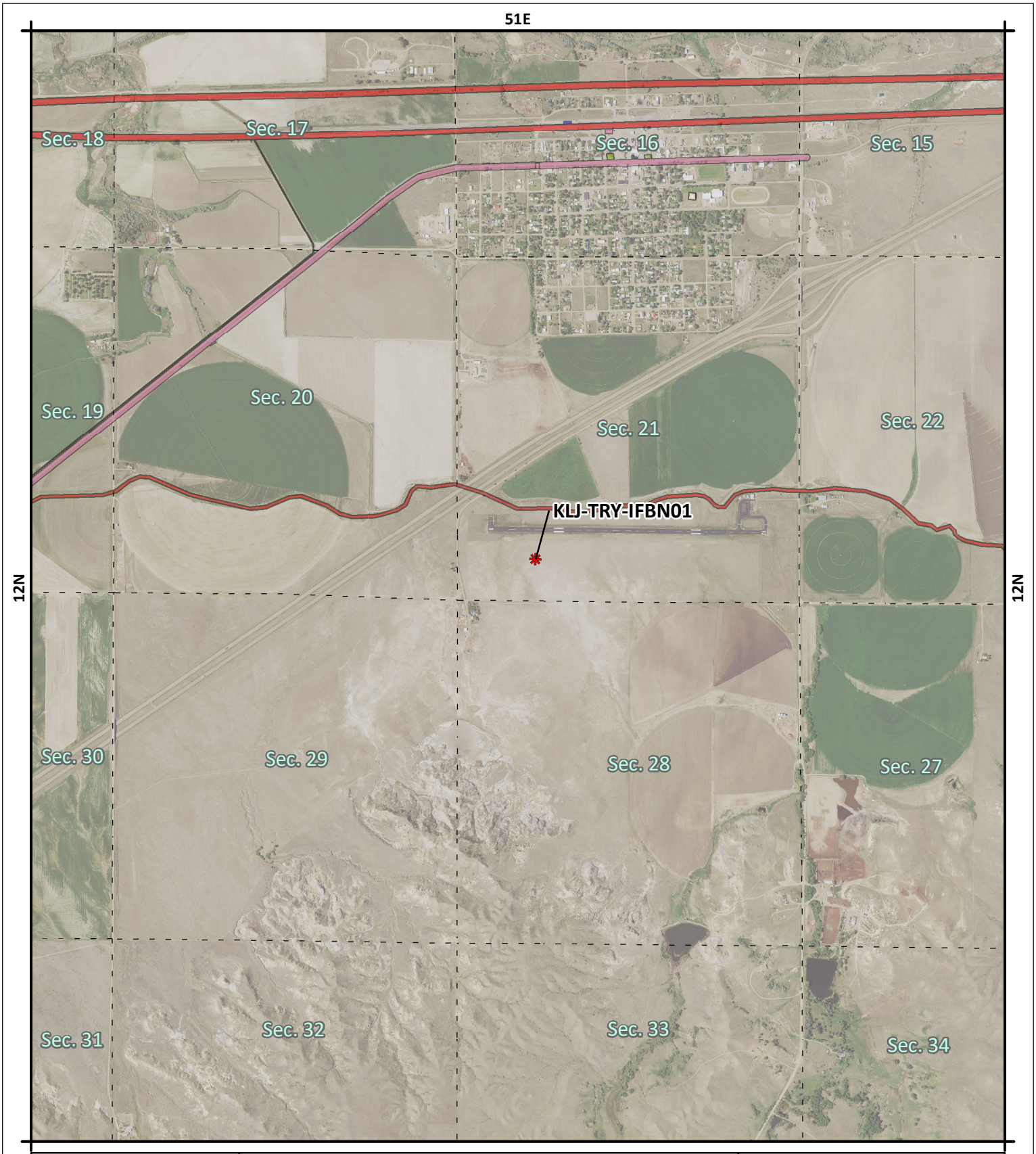
11) Attach Copy of USGS Location Map

Figure 1: Fire altered quartzite fragment, plan view.

Figure 2: Knife River Flint fragment, plan view.

Figure 3: Isolated find overview, view to the north.

Figure 4: Isolated find overview, view to the northwest.



KLJ-TRY-IFBN01
Sketch Map

Quadrangle: Terry

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0 0.25 0.5 1 Kilometers

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Key

- Isolated Find KLJ-TRY-IFBN01
- Unresolved Site
- Undetermined Site
- NR Listed Site
- Eligible Site
- Not Eligible Site

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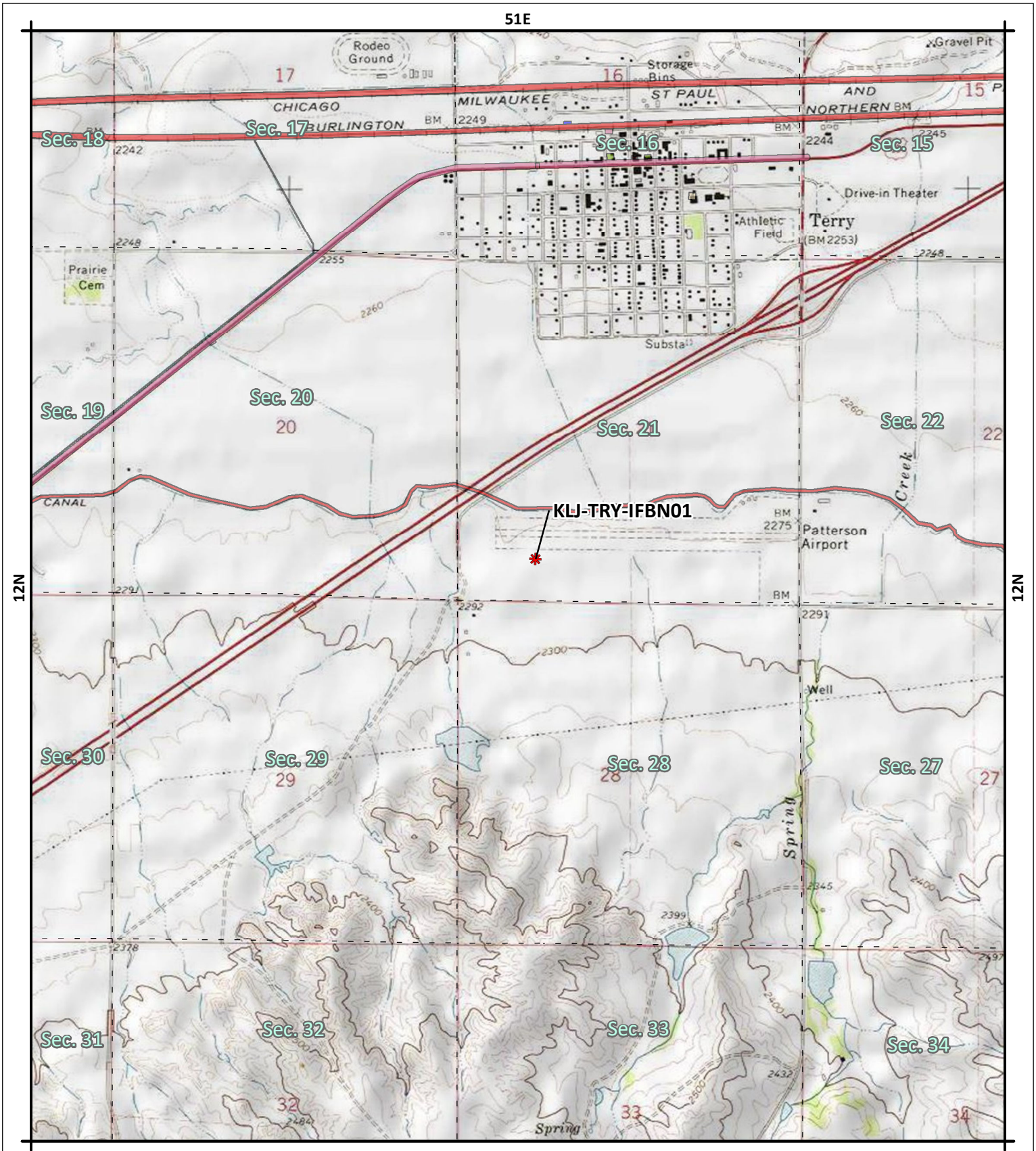
KLJ Project Number: 2008-01270
Date Created: 5/8/2023
Created By: jeffprice

Document Location: K:\Projects\Airport\MT\Terry_8U6\2005_01683_SuppPlanning\GIS\Cultural\TerryAirport_Cultural_Sketch_IFBN01.mxd



KLJ-TRY-IFBN01
Topographic Sketch Map

Quadrangle: Terry

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0 0.25 0.5 1 Kilometers

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Key

- Isolated Find KLJ-TRY-IFBN01
- Unresolved Site
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KLJ Project Number: 2008-01270
Date Created: 5/8/2023
Created By: jeffprice

Document Location: K:\Projects\Airport\MT\Terry_8U6\2005_01683_SuppPlanning\GIS\Cultural\TerryAirport_Cultural_Sketch_IFBN01_topo.mxd

RECOMMENDED ISOLATED FIND FORM

Montana IF Form

1) Field Number: KLJ-TRY-IFML01

2) Curation Number: No artifacts collected.

3) Legal Location: T 12N/R 51E/Section 21, SW

4) County: Prairie

USGS Map Reference: Terry, MT

5) Owner: Private

6) Collected: No

Repository: No artifacts collected

7) Name of Recorder: Bill Norman
Company/Agency:

Date: 04/22/2023

8) Attach Sketch Map

Attach Photo

9) Artifact/ Feature Description: This isolated find consists of a single coarse-grained quartzite cobble. The cobble is pink and white in color and shows signs of fire alteration. A single flake scar runs along the outside. As the field that the isolated find was located in was plowed historically, it is possible that the flake scar is a result of coming in contact with plow equipment. The cobble is approximately 10 centimeters wide, by 11 centimeters long, and 4 centimeters thick.

10) Environmental Location (Topography/Vegetation/Soils and Deposition/Slope/Water Sources: The isolated find is in a fallow agricultural field south of the town of Terry, Montana. Ground surface visibility near the find is nearly 100% within 50 meters of the find as it is in a prairie dog clearing and colony. The type of rock is consistent with cobbles from the nearby Yellowstone River and soils in the immediate area contain only 5-10 percent gravels, and few large cobbles.

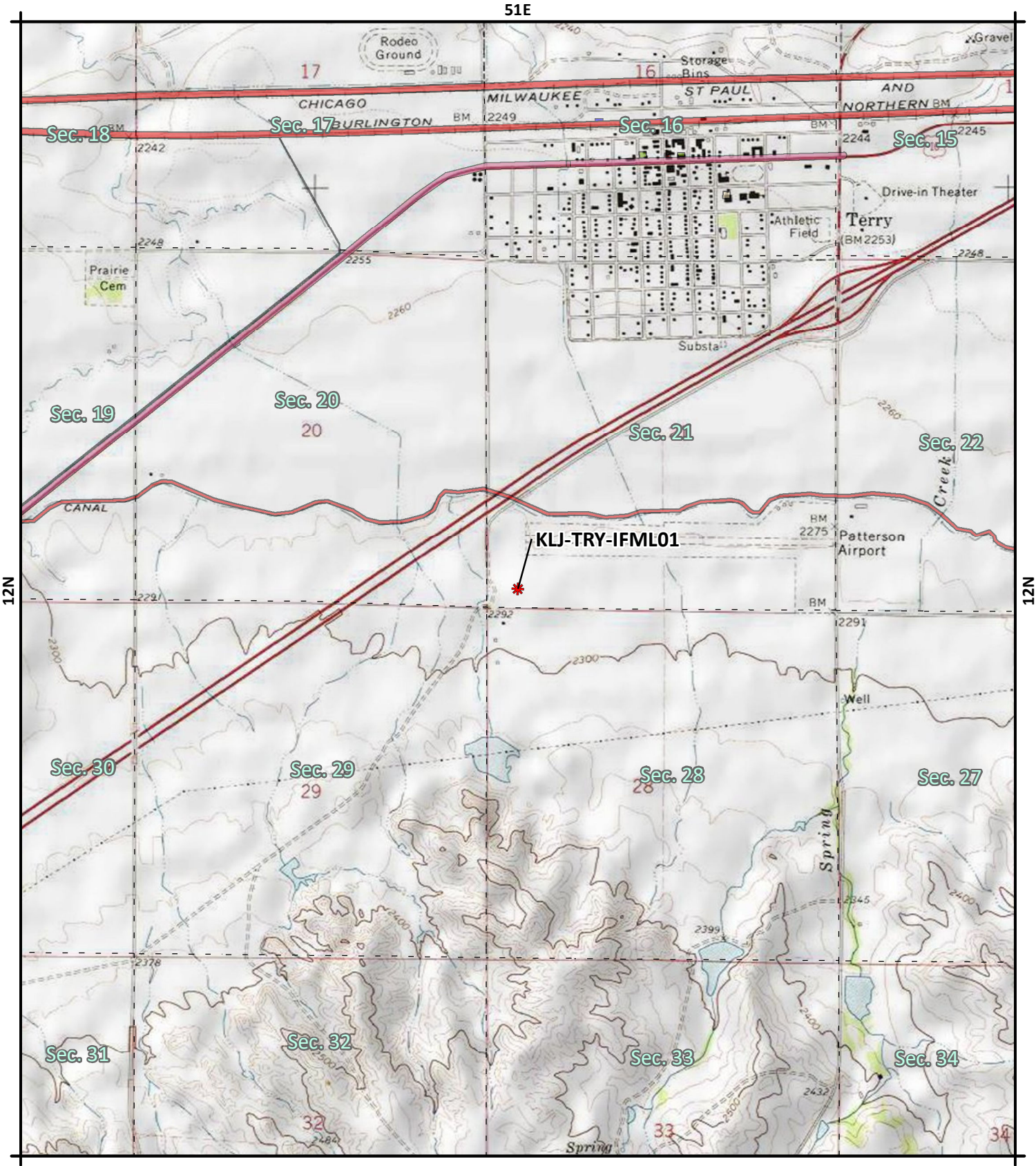
11) Attach Copy of USGS Location Map

Figure 1: Fire altered quartzite cobble, plan view.

Figure 2: Fire altered quartzite cobble, plan view.

Figure 3: Isolated find overview, view to the north.

Figure 4: Isolated find overview, view to the west.



KLJ

KLJ-TRY-IFML01
Topographic Sketch Map

Quadrangle: Terry

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0 0.25 0.5 1 Kilometers

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Key

- Isolated Find KLJ-TRY-IFML01
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KLJ Project Number: 2008-01270
Date Created: 5/8/2023
Created By: jeffprice

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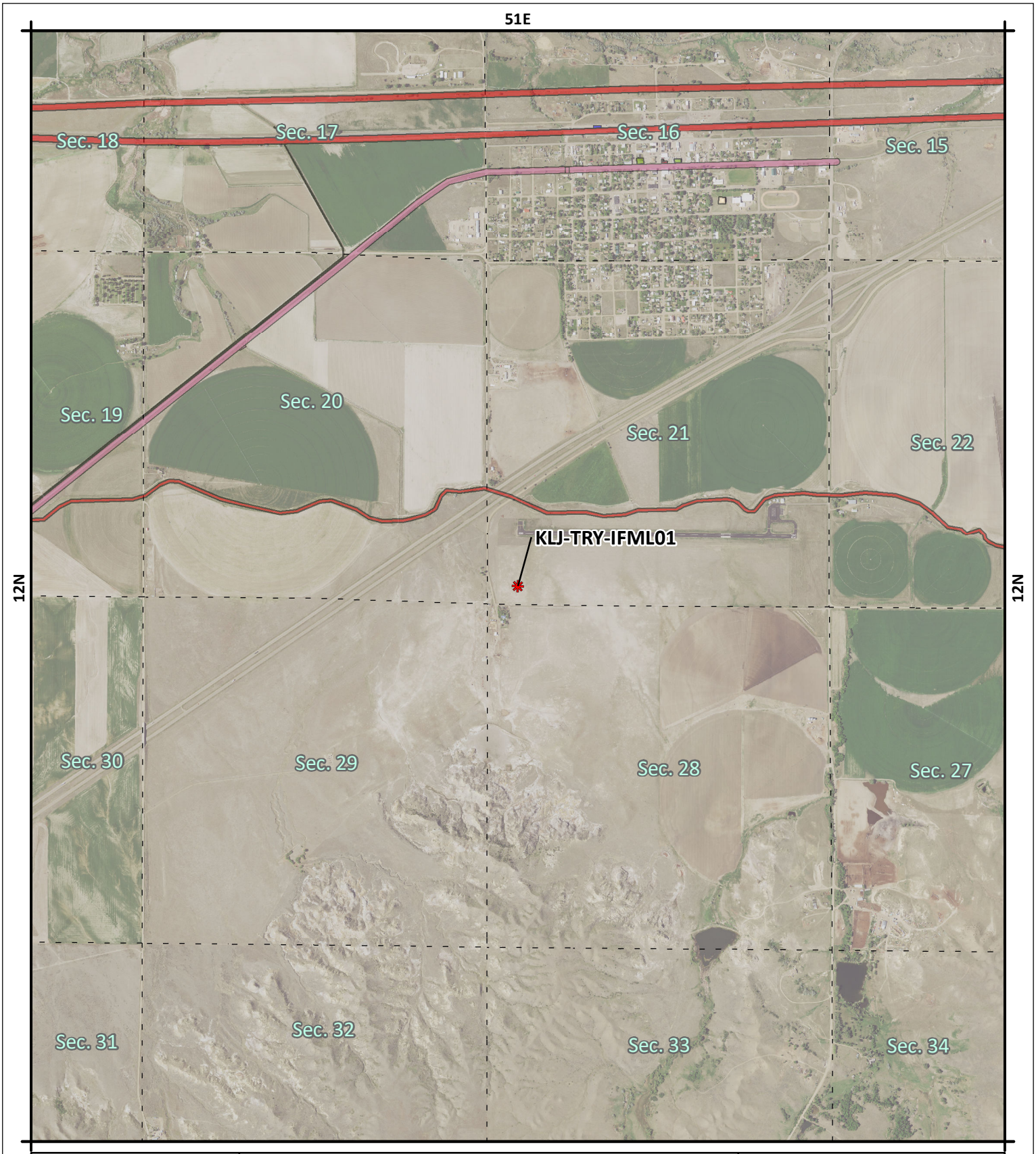

KLJ-TRY-IFML01
Sketch Map

Quadrangle: Terry

0 0.25 0.5 1 Miles

0 0.25 0.5 1 Kilometers

N W E S

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Key

- Isolated Find KLJ-TRY-IFML01
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- NR Listed Site
- Eligible Site
- Not Eligible Site

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KLJ Project Number: 2008-01270
Date Created: 5/8/2023
Created By: jeffprice

Document Location: K:\Projects\Airport\MT\Terry_8U6\2005_01683_SuppPlanning\GIS\Cultural\TerryAirport_Cultural_Sketch_IFML01.mxd

RECOMMENDED ISOLATED FIND FORM

Montana IF Form

1) Field Number: KLJ-TRY-IFML03

2) Curation Number: No artifacts collected.

3) Legal Location: T 12N/R 51E/Section 21, SW

4) County: Prairie

USGS Map Reference: Terry, MT

5) Owner: Private

6) Collected: No

Repository: No artifacts collected

7) Name of Recorder: Bill Norman
Company/Agency: KLJ Engineering Inc

Date: 04/22/2023

8) Attach Sketch Map

Attach Photo

9) Artifact/ Feature Description: This isolated find consists of a single course grained quartzite flake. The flake is a purple to grey color and has a small amount of use wear on the lateral margin. It is approximately 3 centimeters long, 2 centimeters wide, and .5 cm thick. This is a secondary flake that has some cortex on the dorsal side.

10) Environmental Location (Topography/Vegetation/Soils and Deposition/Slope/Water Sources:

The isolated find is in a fallow agricultural field south of the town of Terry, Montana. Ground surface visibility near the find is nearly 100% within 50 meters of the find as it is in a prairie dog clearing and colony. The quartzite cobble is consistent with cobbles found in the nearby Yellowstone River, approximately 2 miles to the north.

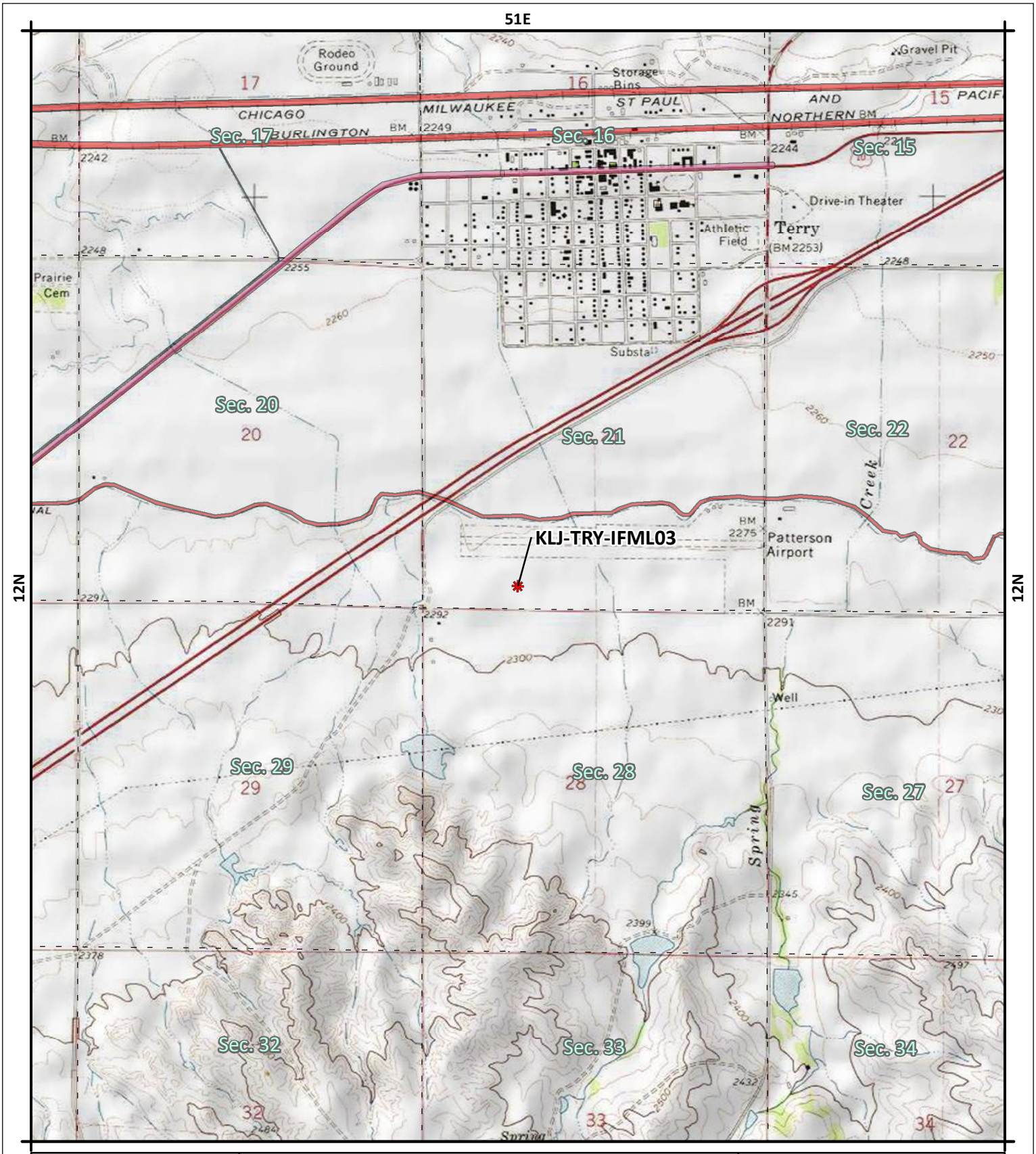
11) Attach Copy of USGS Location Map

Figure 1: Quartzite flake, plan view.

Figure 2: Quartzite flake, plan view.

Figure 3: Isolated find overview, view to the east.

Figure 4: Isolated find overview, view to the south.



KLJ-TRY-IFML03
Topographic Sketch Map

Quadrangle: Terry

0 0.25 0.5 1 Miles

0 0.25 0.5 1 Kilometers

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Key

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Created By:	jeffprice

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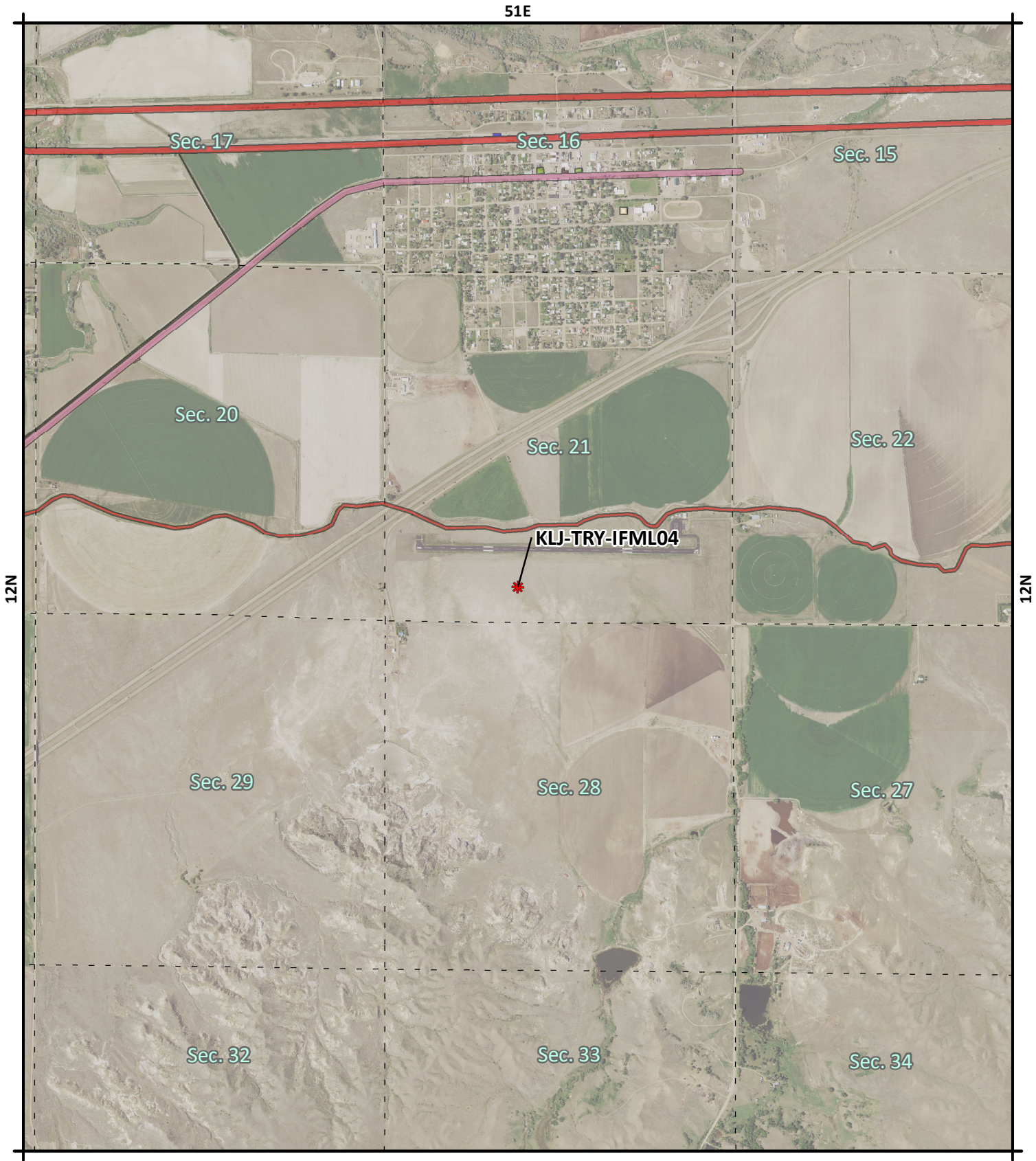

KLJ-TRY-IFML04
Sketch Map

Quadrangle: Terry

0 0.25 0.5 1 Miles

0 0.25 0.5 1 Kilometers

N W E S

1:24,000

Key

- Isolated Find KLJ-TRY-IFML04
- Unresolved Site
- Undetermined Site
- NR Listed Site
- Eligible Site
- Not Eligible Site

Restrictions:
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KLJ Project Number: 2008-01270
Date Created: 5/8/2023
Created By: jeffprice

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RECOMMENDED ISOLATED FIND FORM

Montana IF Form

1) Field Number: KLJ-TRY-IFML04

2) Curation Number: No artifacts collected.

3) Legal Location: T 12N/R 51E/Section 21, SW

4) County: Prairie

USGS Map Reference: Terry, MT

5) Owner: Private

6) Collected: No

Repository: No artifacts collected

7) Name of Recorder: Bill Norman
Company/Agency: KLJ Engineering Inc

Date: 04/22/2023

8) Attach Sketch Map

Attach Photo

9) Artifact/ Feature Description: This isolated find consists of a single coarse-grained quartzite cobble with three distinct flake scars. The light red cobble is approximately 7 centimeters long, 5 centimeters wide, and three centimeters thick. Flake scars are present on both the dorsal and ventral side of the cobble at the distal end.

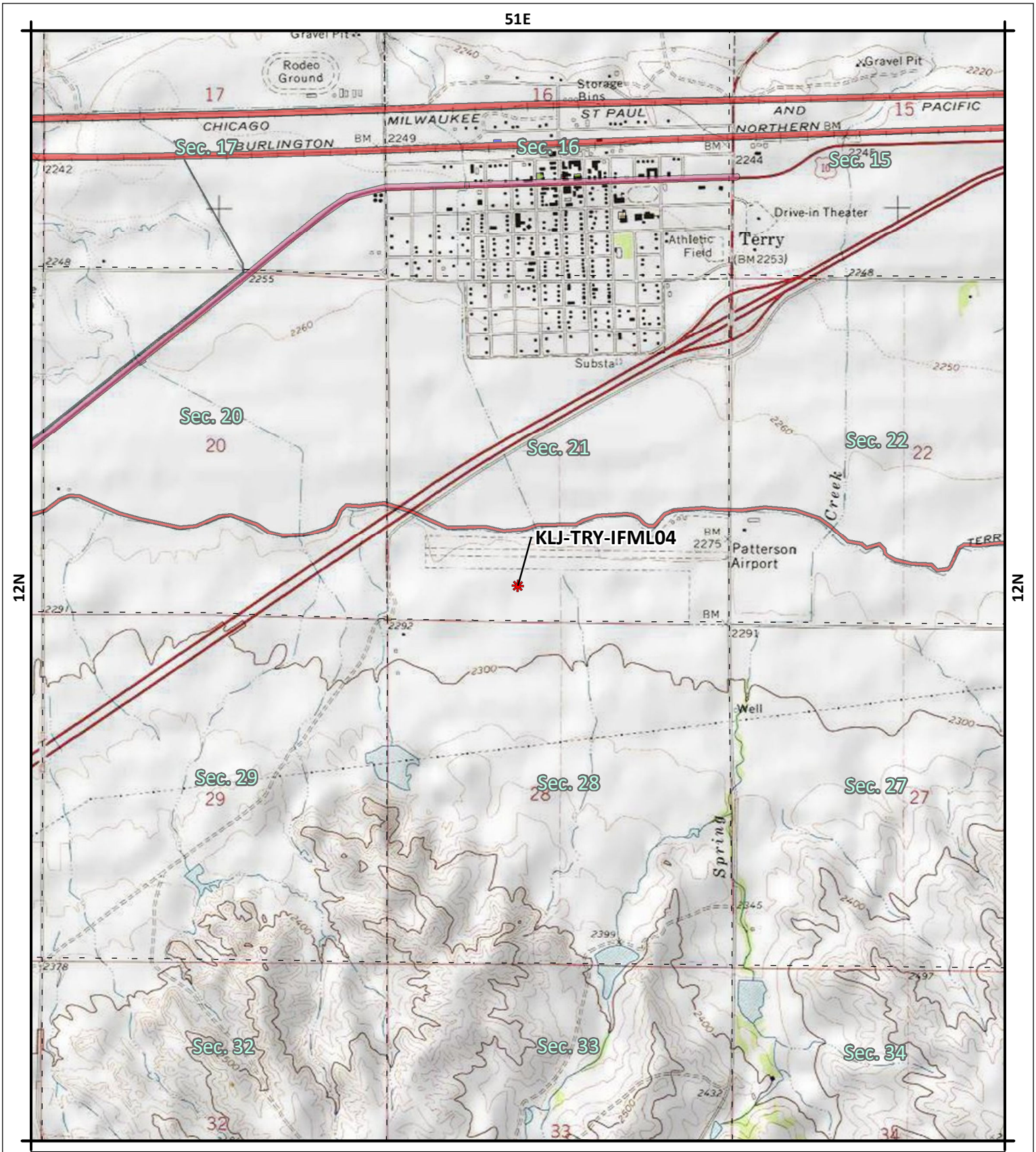
10) Environmental Location (Topography/Vegetation/Soils and Deposition/Slope/Water Sources: The isolated find is in a fallow agricultural field south of the town of Terry, Montana. Ground surface visibility near the find is nearly 100% within 50 meters of the find as it is in a prairie dog clearing and colony. The quartzite cobble is consistent with cobbles found in the nearby Yellowstone River, approximately 2 miles to the north.

11) Attach Copy of USGS Location Map

Figure 1: Quartzite cobble with flake scars, plan view.

Figure 2: Quartzite cobble with flake scars, plan view.

Figure 3: Isolated find overview, view to the south.



KLJ-TRY-IFML04
Topographic Sketch Map

Quadrangle: Terry

0 0.25 0.5 1 Miles

0 0.25 0.5 1 Kilometers

N W E S

1:24,000

Key

- Isolated Find KLJ-TRY-IFML04
- Unresolved Site
- Undetermined Site
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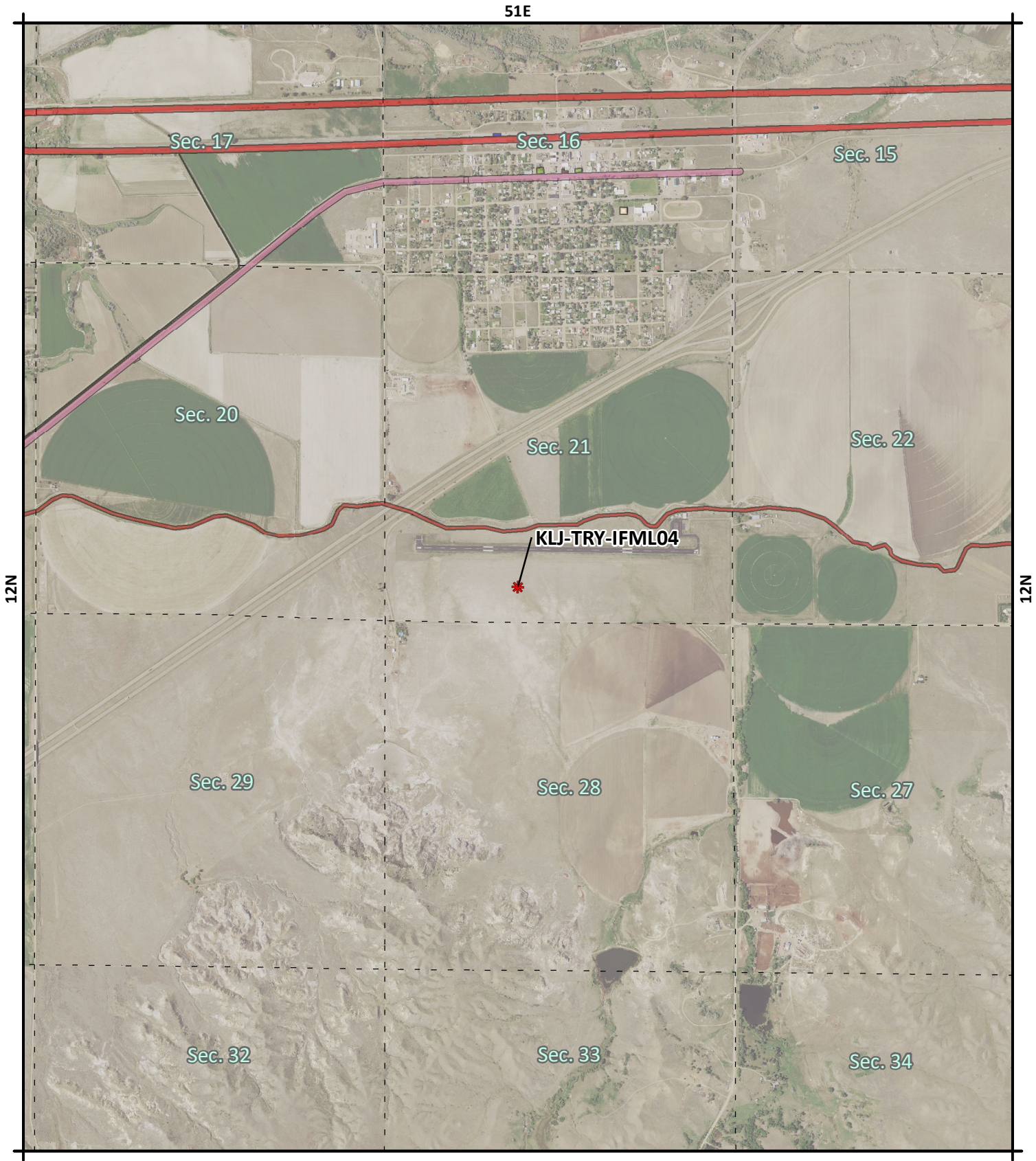

KLJ-TRY-IFML04
Sketch Map

Quadrangle: Terry

0 0.25 0.5 1 Miles

0 0.25 0.5 1 Kilometers

N W E S

1:24,000

Key

- Isolated Find KLJ-TRY-IFML04
- Unresolved Site
- Undetermined Site
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Document Location: K:\Projects\Airport\MT\Terry_8U6\2005_01683_SuppPlanning\GIS\Cultural\TerryAirport_Cultural_Sketch_IFML04.mxd

AQUATIC RESOURCES DELINEATION

Terry Airport

Terry, Montana

Prepared for:

Prairie County Airport Authority

Prepared by:

Anna Gamez
KLJ

July 2023

KLJ

ENGINEERING, REIMAGINED

EXECUTIVE SUMMARY

The aquatic resource delineation conducted by KLJ was in accordance with the 1987 United States Army Corps of Engineers (USACE) Wetland Delineation Manual and the USACE March 2010 Regional Supplement: Great Plains Region (Version 2.0). The routine approach with onsite inspection was utilized, including the standard multi-parameter approach (vegetation, hydrology, and soils) for wetland identification. An area is considered a wetland if hydrophytic vegetation, wetland hydrology, and hydric soils are present. Sample locations were determined using United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps along with sites which visually supported a hydrophytic plant community, as well as characteristics of wetland hydrology and hydric soils.

Eleven wetlands totaling approximately 5.90 acres were delineated within the 550-acre study area. In addition, four ditches were identified withing the study area.

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ACRONYMS AND ABBREVIATIONS

GPS	Global Positioning System
HUC	Hydrologic Unit Code
MT	Montana
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
USACE	US Army Corps of Engineers
USDA	US Department of Agriculture
USGS	US Geological Survey
USFWS	US Fish and Wildlife Service
WSS	Web Soil Survey

I. Introduction

KLJ was contracted by the Prairie County Airport Authority to conduct a field aquatic resource delineation for proposed improvements at the Terry Airport in Terry, Montana. The field wetland delineation was completed on May 18, 2023 by Tom Naas of KLJ. The aquatic resource delineation encompassed an approximate 550-acre study area.

II. Location

The study area is located in Section 21, Township 12 North, Range 51 East, in Prairie County, Montana (MT). The project is located at the Terry Airport, approximately 1 mile south of Terry, MT. The study area for the project is situated in a rural area dominated by agriculture. Please refer to ***Figure 1, Project Location Map.***

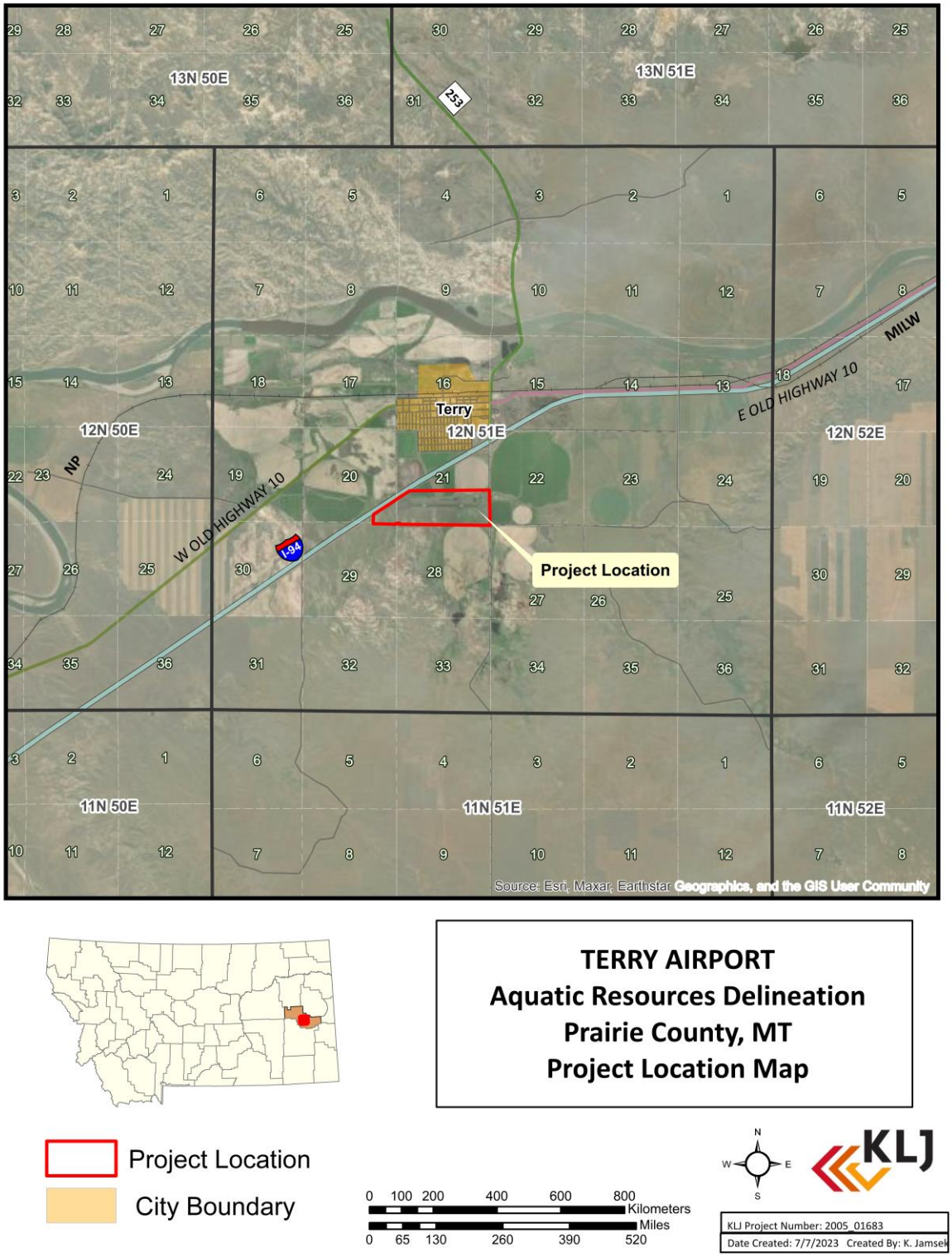

Figure 1, Project Location Map

III. Definitions and Methods

The aquatic resource delineation conducted by KLJ was in accordance with the 1987 USACE Wetland Delineation Manual and the USACE March 2010 Regional Supplement: Great Plains Region (Version 2.0). The routine approach with onsite inspection was utilized, including the standard multi-parameter approach (vegetation, hydrology, and soils) for wetland identification. An area is considered to be a wetland if hydrophytic vegetation, wetland hydrology, and hydric soils are all present. Sample locations were determined using USFWS NWI maps along with sites which visually supported a hydrophytic plant community, as well as characteristics of wetland hydrology and hydric soils. Definitions and methodologies for determining each of these three parameters are summarized below:

A. Hydrophytic Vegetation

Definition: The prevalence (greater than 50 percent) of dominant plant species that are adapted to life in saturated soil conditions.

Method: To determine if vegetation was hydrophytic, the scientific name and indicator status of dominant plant species at each wetland were recorded on USACE data forms. Dominance refers to the spatial extent of a species that is directly observed in the field. Dominance is calculated by identifying the most abundant species that individually or collectively account for more than 50 percent of the total coverage of vegetation in the stratum as well as any other species that, by itself, accounts for at least 20 percent of the total. Where 50 percent or more of all dominant species were hydrophytic, the hydrophytic vegetation parameter was met. Absolute percent cover[1] of dominant species within each stratum is listed on data forms.

B. Wetland Hydrology

Definition: Fourteen or more consecutive days of flooding, ponding, or water table within 12 inches of the surface during the growing season at a minimum frequency of 5 out of 10 years (50 percent).

Method: Wetland hydrology was determined by observing the presence of primary and/or secondary indicators listed on the USACE data form. If one primary indicator or two secondary indicators were present, the wetland hydrology parameter was met.

C. Hydric Soils

Definition: Soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper 12 inches.

[1] Absolute percent cover within each stratum is not required to add up to 100 percent on the data forms.

Method: Soils were colored and characterized using Munsell Soil Color Charts. If one or more of the hydric soil indicators on the USACE data sheet were identified according to the USACE Wetland Delineation Manual and the USACE March 2010 Regional Supplement: Great Plains Region (Version 2.0), the soil was considered to be hydric.

A study area totaling approximately 550 acres was surveyed. Wetland boundaries were determined based on the USACE wetland delineation process through completing paired sample points as needed and investigating vegetation, hydrology, and/or soil parameters. The wetland and other waters (e.g. rivers, streams, ditches) were surveyed using global positioning system (GPS) data collection. Portions of delineated feature may have extended beyond the limits of the study area; however, features were only delineated within the study area.

Base field maps were developed using aerial photography in combination with information from the USFWS NWI maps, Natural Resources Conservation Service (NRCS) soil survey data from Prairie County and United States Geological Survey (USGS) topographic quadrangle maps.

KLJ also analyzed the delineated wetlands using the Montana Department of Transportation (MDT) Wetland Functional Assessment. This assessment provides a standard method to group wetlands into specific categories (Categories I – IV) and assign functional points. According to the assessment method guidance, Category I is the highest overall ranking a wetland can receive, followed by Category II, Category III, and Category IV. Functional points represent values which can be assessed by acre to determine the total functional units at a given site. Please refer to ***Table 2, Delineated Wetlands*** for a summary of the functional assessment findings. For additional details on the functional assessment for each wetland, please see **Appendix D Wetland Functional Assessment Reports**.

Below is a summary of wetland categories designated by the assessment method:

-***Category I*** wetlands are of exceptionally high quality and are generally rare to uncommon in the state or are important from a regulatory standpoint. Category I wetlands can: provide primary habitat for federally listed or proposed threatened or endangered species; represent a high-quality example of a rare wetland type; provide irreplaceable ecological functions (e.g., are not replaceable within a human lifetime, if at all); exhibit exceptionally high flood attenuation capability; or are assigned high ratings for most of the assessed functions and values.

-***Category II*** wetlands are more common than Category I wetlands and are those that provide habitat for sensitive plants or animals, function at very high levels for wildlife/fish habitat, are unique in a given region, or are assigned high ratings for many of the assessed functions and values.

-***Category III*** wetlands are more common and generally less diverse than Category I and II wetlands. They can provide many functions and values, although they may not be assigned high ratings for as many parameters as are Category I and II wetlands.

-***Category IV*** wetlands are generally small, isolated, and lack vegetative diversity. These sites provide little in the way of wildlife habitat and are often directly or indirectly disturbed.

IV. Existing Conditions

A. Landscape Setting

The study area is located in the ecoregion identified by the EPA as the River Breaks of the Northwestern Great Plains of Montana. The ecoregion consists of unglaciated, semiarid, and rolling plain that is underlain by shale, siltstone, and sandstone. The dominant land uses within the area consists of cropland and rangeland. Portions of the region are subject to erratic precipitation and few opportunities for irrigation.

B. Hydrology

The project is located in USGS Hydrologic Unit Code (HUC) 10100004 (Yellowstone River), which encompasses approximately 63,447 square miles. Surface water within the study area generally flows north and east toward Spring Creek and Yellowstone River.

Antecedent precipitation conditions were evaluated for the study area using the Rainfall Documentation Worksheet associated with the supplemental data for remote sensing (NRCS, 1997). NRCS WETS Climate Tables were utilized to determine the environmental conditions within the study area at the time of the field delineation. The closest station with climate normal data from the NRCS WETS Tables is Terry, MT. Information from this station was utilized in determining antecedent precipitation conditions within the study area for the prior three months. During the field delineation, the region was experiencing normal conditions. Please see ***Table 1, Antecedent Precipitation. Appendix E***, shows the antecedent precipitation vs. normal range on NOAA's daily global historical climatology network.

Table 1, Antecedent Precipitation

YEAR	MONTH	30% CHANCE PRECIP LESS THAN (INCHES)	30% CHANCE PRECIP MORE THAN (INCHES)	2023 RAINFALL (INCHES)	CONDITION (DRY, WET, NORMAL)	CONDITION VALUE [2]	MONTH WEIGHT VALUE	PRODUCT OF PREVIOUS TWO COLUMNS
2023	Feb	0.12	0.33	0.89	Wet	3	1	**3**
2023	March	0.18	0.52	0.64	Wet	3	2	**6**
2023	April	0.59	1.44	0.88	Normal	2	3	**6**
							Total [3]	**15**

C. Plant Community and Soils

Plant communities in the study area, not necessarily included in sample point communities, are generally mixed native and tame grasses, as well as agricultural crops. Upland plant communities

[2] Condition values range from 1 (dry), 2 (normal), and 3 (wet).
[3] Total value ranges are drier than normal (6-9), normal (10-14), and wetter than normal (15-18).

located along the aquatic resources were dominated by tame and native grass species such as crested wheatgrass (*Agropyron cristatum*), western wheatgrass (*Pascopyrum smithii*), and downy brome (*Bromus tectorum*). Plant communities within wetland sample points were dominated by foxtail barley (*Hordeum jubatum*), curly dock (*Rumex crispus*), common spikerush (*Eleocharis palustris*), clasping pepperweed (*Lepidium perfoliatum*), and reed canary grass (*Phalaris arundinacea*).

Per the US Department of Agriculture (USDA) Web Soil Survey (WSS), the dominant soil types throughout the study area are non-hydric Ethridge silt clay loams with 0 to 2 percent slopes, non-hydric Gerdrum-Creed complex with 0 to 2 percent slopes, Marias silty clay with 0 to 2 percent slope, and Marvan silty clay, warm with 0 to 2 percent slope. The soils are well drained, with depth to water table more than 200 inches. Please refer to ***Appendix A, Aquatic Resource Wetland Maps.***

D. Aquatic Resources

Eleven wetlands were delineated within the study area. Approximately 5.90 acres of wetlands were delineated along with approximately 2.93 other waters (ditches). Please refer to ***Table 2, Delineated Wetlands*** for a summary of the delineated features. For a visual overview, please refer to ***Appendix A, Aquatic Resource Wetland Maps,*** and ***Appendix B, Site Photos.*** For detailed wetland and upland characteristics at each sample point, please refer to ***Appendix C, Aquatic Resource Delineation Datasheets*.**

Table 2, Delineated Aquatic Resources

AQUATIC RESOURCE NUMBER	SAMPLE POINT NUMBER	LOCATION (PUBLIC LAND SURVEY SYSTEM)	LATITUDE/ LONGITUDE (DECIMAL DEGREES)	AQUATIC RESOURCE TYPE	WETLAND FEATURE	COWARDIN CLASSIFICATION	RESOURCE AREA (ACRES)	RESOURCE SIZE (LINEAR FEET)	FUNCTIONAL ASSESSMENT (CATEGORY/ POINTS PER ACRE)	PAIRED SAMPLE POINT
1	W1	Sec 21, T12N, R51E	46.775178/ -105.323525	Wetland	Artificial	PEMAx	0.30	N/A	Category IV 2.8	1,2
2	W2	Sec 21, T12N, R51E	46.775297/ -105.323633	Wetland	Artificial	PEMAx	0.42	N/A	Category IV 2.8	3,4
3	W3	Sec 21, T12N, R51E	46.775756/ -105.324448	Wetland	Natural	PEMA	0.22	N/A	Category IV 2.8	5,6
4	W4	Sec 21, T12N, R51E	47.774276/ -105.321002	Wetland	Natural	PEMAb	4.41	N/A	Category IV 2.8	11, 12
5	W5	Sec 21, T12N, R51E	47.776613/ -105.309645	Wetland	Natural	PEMA	0.23	N/A	Category IV 2.8	19, 20
6	W6	Sec 21, T12N, R51E	47.776867/ -105.557299	Wetland	Artificial	PEMAx	0.05	N/A	Category IV 2.8	21, 22

AQUATIC RESOURCE NUMBER	SAMPLE POINT NUMBER	LOCATION (PUBLIC LAND SURVEY SYSTEM)	LATITUDE/ LONGITUDE (DECIMAL DEGREES)	AQUATIC RESOURCE TYPE	WETLAND FEATURE	COWARDIN CLASSIFICATION	RESOURCE AREA (ACRES)	RESOURCE SIZE (LINEAR FEET)	FUNCTIONAL ASSESSMENT (CATEGORY/ POINTS PER ACRE)	PAIRED SAMPLE POINT
7	W7	Sec 21, T12N, R51E	47.776915/ -105.3177037	Wetland	Artificial	PEMAx	0.10	N/A	Category IV 2.8	23,24
8	W8	Sec 21, T12N, R51E	47.778388/ -105.314532	Wetland	Artificial	PEMAx	0.06	N/A	Category IV 2.8	27, 28
9	W9	Sec 21, T12N, R51E	47.778998/ -105.322051	Wetland	Artificial	PEMAx	0.05	N/A	Category IV 2.8	33, 34
10	W10	Sec 21, T12N, R51E	47.778062/ -105.312940	Wetland	Artificial	PEMAx	0.04	N/A	Category IV 2.8	35, 36
11	W11	Sec 21, T12N, R51E	46.778461/ -105.304529	Wetland	Artificial	PEMAx	0.01	N/A	Category IV 2.8	37, 38
Ditch 1	N/A	Sec 28, T12N, R51E	46.7741177/ -105.3199962	Ditch	Natural	R4SBC	0.37	1,015	N/A	N/A
Ditch 2	N/A	Sec 21, T12N, R51E	46.7780820/ -105.3175416	Ditch	Artificial	R4SBCx	1.87	5,090	N/A	N/A
Ditch 3	N/A	Sec 21, T12N, R51E	46.7784805/ -105.3179172	Ditch	Artificial	R4SBCx	0.62	1,827	N/A	N/A
Ditch 4	N/A	Sec 21, T12N, R51E	46.7789882/ -105.3149004	Ditch	Artificial	R4SBCx	0.07	283	N/A	N/A
						Total	**8.83**	**8,215**		

Wetlands

Wetland 1 is an artificial wetland associated with a ditch connected to a natural drainage. The wetland is classified as R4SBC with dominant vegetation of spikerush (*Eleocharis palustris*), cockleburs (*Xanthium strumarium*), and foxtail barley (*Hordeum jubatum*). The soil profile at the wetland consisted of silty loams and silty clay-loams and met the definition of depleted matrix (F3) and redox dark surface (F6). Hydrology indicators consisted of saturation visible on aerial imagery (C9), and geomorphic position (D2), and FAC-Neutral Test (D5). No surface or subsurface water was observed at the sample location.

Wetland 2 is an artificial wetland associated with a ditch connected to a natural drainage. The wetland is classified as PEM1Ah with dominant vegetation of spikerush (*Eleocharis palustris*), cockleburs (*Xanthium strumarium*), and foxtail barley (*Hordeum jubatum*). The soil profile at the wetland consisted of silt loams and met the definition of depleted matrix (F3) and redox dark surface (F6). Hydrology indicators consisted of saturation visible on aerial imagery (C9), FAC-Neutral Test (D5),

and geomorphic position (D2). No surface or subsurface water was observed at the sample location.

Wetland 3 is located within a drainage swell. The wetlands are classified as R4SBC with dominant vegetation of clasping pepperweed (*Lepidium perfoliatum*). The soil profile at the wetland consisted of silt loams and silty-clay loams and met the definition of depleted matrix (F3). Hydrology indicators consisted of saturation visible on aerial imagery (C9), and geomorphic position (D2). No surface or subsurface water was observed at the sample locations.

Wetland 4 is a natural basin wetland situated in a crop field. The wetland is classified as PEMB with dominant vegetation of reed canary grass (*Phalaris arundinacea*) and foxtail barley (*Hordeum jubatum*). The soil profiles at the wetland consisted of silt clays and met the definition of depleted matrix (F3). Hydrology indicators consisted of saturation visible on aerial imagery (C9), geomorphic position (D2), and FAC-Neutral Test (D5). No surface or subsurface water was observed at the sample location. Wetland 4 consists of two lobes that are connected by Ditch 1.

Wetland 5 is a natural basin wetland situated alongside the runway. The wetland is classified as PEMA with dominant vegetation of common foxtail barley (*Hordeum jubatum*). The soil profiles at the wetland consisted of clay loams and silty clay loams and met the definition of depleted matrix (F3) and Redox Dark Surface (F6). Hydrology indicators consisted of aturation visible on aerial imagery (C9), geomorphic position (D2), and FAC-Neutral Test (D5). No surface or subsurface water was observed at the sample location.

Wetland 6 is a created ditch wetland. The wetland is classified as PEMAx with dominant vegetation of common curly dock (*Rumex crispus*) and foxtail barley (*Hordeum jubatum*). The soil profiles at the wetland consisted of clay loams and silty clay loams and met the definition of depleted matrix (F3) and Redox Dark Surface (F6). Hydrology indicators consisted of surface soil cracks (B6), saturation visible on aerial imagery (C9), geomorphic position (D2), and FAC-Neutral Test (D5). No surface or subsurface water was observed at the sample location.

Wetland 7 is a created ditch wetland. The wetland is classified as PEMAx with dominant vegetation of common curly dock (*Rumex crispus*), reed canary grass (*Phalaris arundinacea*), and foxtail barley (*Hordeum jubatum*). The soil profiles at the wetland consisted of clay loams and silty clay loams and met the definition of depleted matrix (F3) and Redox Dark Surface (F6). Hydrology indicators consisted of saturation visible on aerial imagery (C9), geomorphic position (D2), and FAC-Neutral Test (D5). No surface or subsurface water was observed at the sample location.

Wetland 8 is a created ditch wetland. The wetland is classified as PEMAx with dominant vegetation of common curly dock (*Rumex crispus*) and foxtail barley (*Hordeum jubatum*). The soil profiles at the wetland consisted of clay loams and silty clay loams and met the definition of depleted matrix (F3) and Redox Dark Surface (F6). Hydrology indicators consisted of surface soil cracks (B6), saturation

visible on aerial imagery (C9), geomorphic position (D2), and FAC-Neutral Test (D5). No surface or subsurface water was observed at the sample location.

Wetland 9 is a created ditch wetland. The wetland is classified as PEMAx with dominant vegetation of common curly dock (*Rumex crispus*), and foxtail barley (*Hordeum jubatum*). The soil profiles at the wetland consisted of clay and clay loams and met the definition of depleted matrix (F3) and Redox Dark Surface (F6). Hydrology indicators consisted of saturation visible on aerial imagery (C9), geomorphic position (D2), and FAC-Neutral Test (D5). No surface or subsurface water was observed at the sample location.

Wetland 10 is a created ditch wetland. The wetland is classified as PEMAx with dominant vegetation of common curly dock (*Rumex crispus*) and foxtail barley (*Hordeum jubatum*). The soil profiles at the wetland consisted of clay loams and silty clay loams and met the definition of depleted matrix (F3) and Redox Dark Surface (F6). Hydrology indicators consisted of surface soil cracks (B6), saturation visible on aerial imagery (C9), geomorphic position (D2), and FAC-Neutral Test (D5). No surface or subsurface water was observed at the sample location.

Wetland 11 is a natural basin. The wetland is classified as PEMAx with dominant vegetation of common cattails (*Typha*) and foxtail barley (*Hordeum jubatum*). The soil profiles at the wetland consisted of clay loams and clay and met the definition of depleted matrix (F3) and Redox Dark Surface (F6). Hydrology indicators consisted of saturation visible on aerial imagery (C9), geomorphic position (D2), and FAC-Neutral Test (D5). No surface or subsurface water was observed at the sample location.

Ditches

Ditch 1 is a constructed ditch that may be utilized for irrigation along the south side of the site. Water was observed within the ditch at the time of the field visit.

Ditch 2 is a constructed ditch that appears to have been created for irrigation purposes. Ditch 2 was dry at the time of the field visit, however based on the NHD flowlines it appears that water within Ditch 2 would likely flow to the east toward Spring Creek.

Ditch 3 is a constructed ditch that appears to have been created for irrigation purpose. A portion of Ditch 3 was recently excavated at the time of the field visit. It appears that Ditch 3 only receives water when the irrigation ditch is turned on.

Ditch 4 is a constructed ditch that appears to be created for irrigation purposes.

Upland Areas

In addition to the areas mentioned above, several other areas were investigated due to maps NWI wetlands or NHD flowlines. These areas were determined due be non-wetland due to a lack of wetland vegetation or hydric soils. Please see the attached data sheets labeled 8, 10, 14, 16, 18, 26, 30, and 32.

V. Conclusion

Eleven wetlands were delineated within the study area. The aquatic resource features spanned a total of approximately 8.83 acres. Wetlands were more easily visible due to the wetter than normal year. Final determination of jurisdictional aquatic resources is ultimately the decision of USACE. All necessary permits shall be acquired if any delineated wetlands are determined to be jurisdictional by USACE and would be affected by the proposed project.

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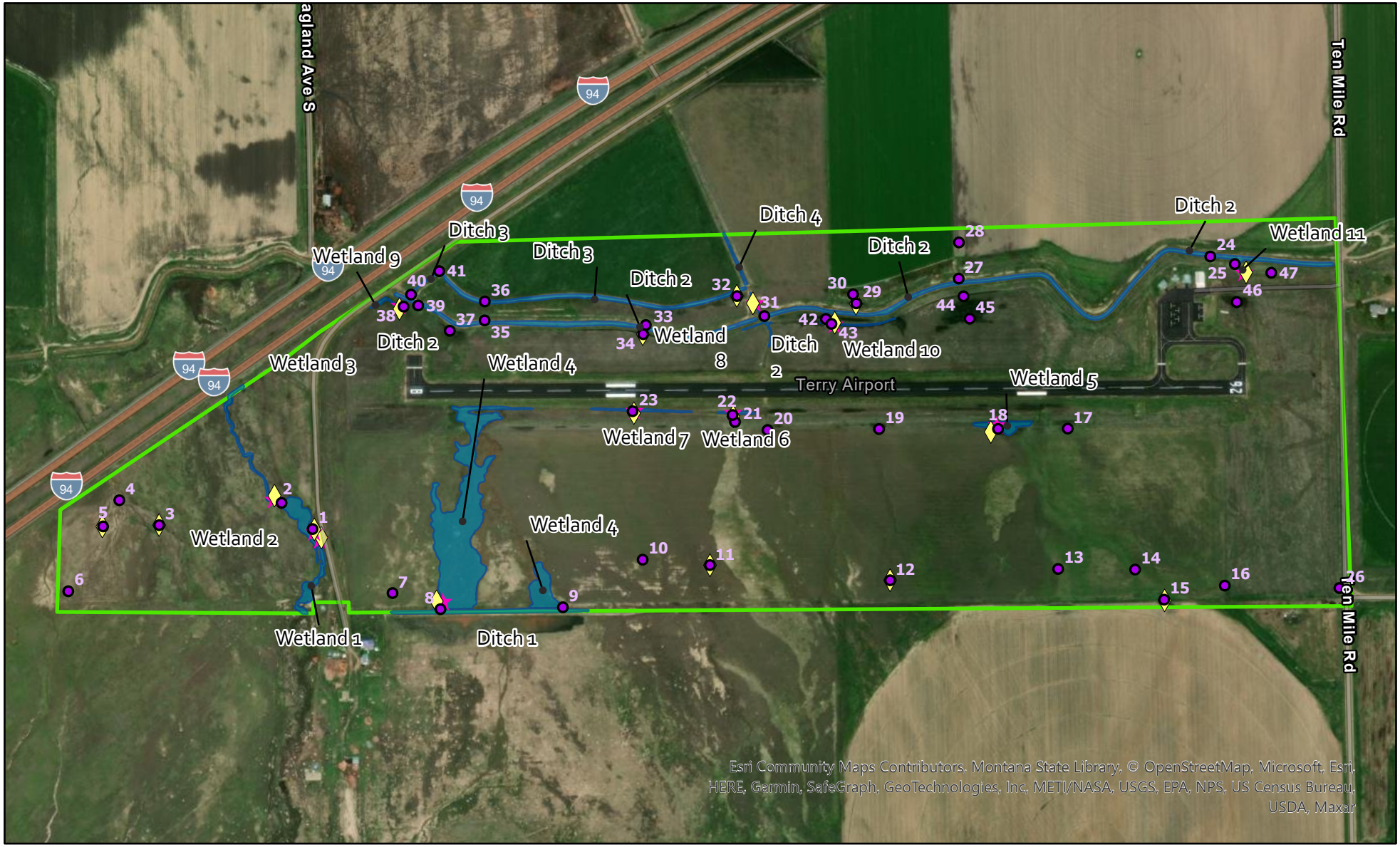
US Geologic Survey. 2018. USGS Hydrologic Unit Maps. https://water.usgs.gov/GIS/huc.html.

VII. Delineators' Credentials

TOM NAAS	
Education:	› University of North Dakota – BS Fisheries and Wildlife Biology
Certifications:	› Minnesota Wetland Delineator Certification Program: Delineator In-Training Certification
Training:	› Minnesota Wetland Delineator Certification Program: 5-Day Basic Wetland Delineation Course – University of Minnesota; Wetland Mitigation in Minnesota (June 2014)
Professional Memberships:	› National Association of Environmental Professionals › The Wildlife Society – North Dakota Chapter

APPENDIX A: Aquatic Resource Delineation Maps



KLJ

N
W E
S

700 0 700
US Feet

Project Area
Photo Point
Aquatic Resources

Test Hole Type
Upland Test Hole
Wetland Test Hole

Aquatic Resource Delineation
Terry Airport
Prairie County, Montana
May 18, 2023

APPENDIX B: On-Site Photographs

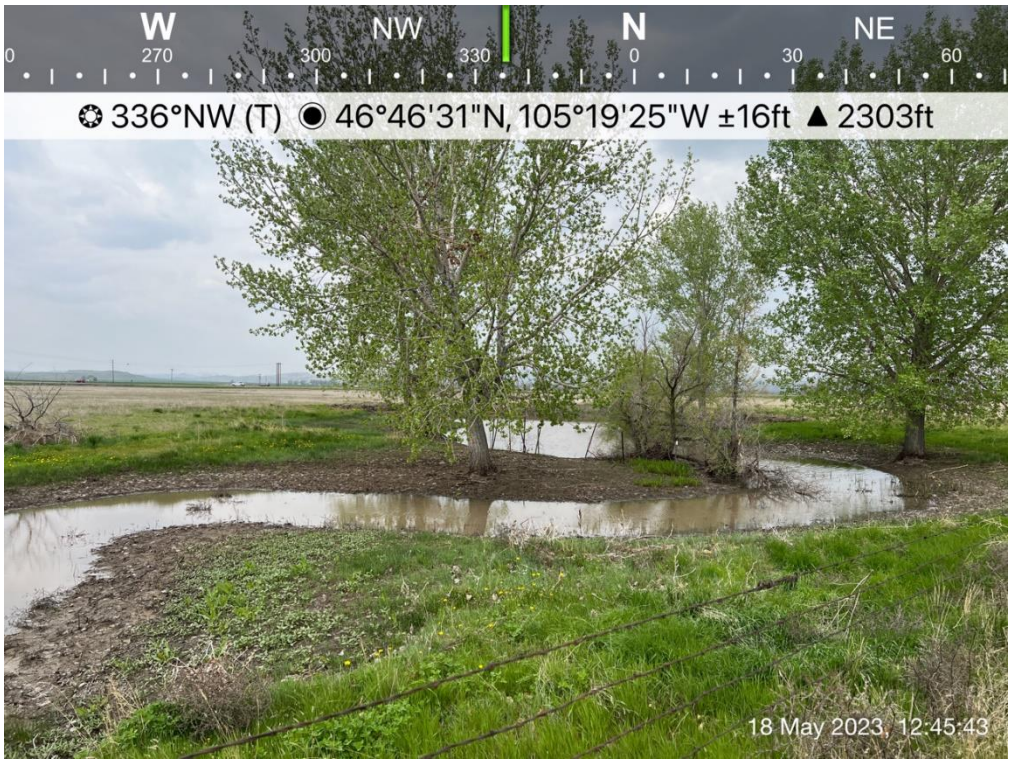


Photo Point 1: View of Wetland 2

Direction: Northwest

Photo Point 1: View of study area at Wetland 1

Direction: South

Photo Point 2: View of Wetland 2

Direction: Southeast

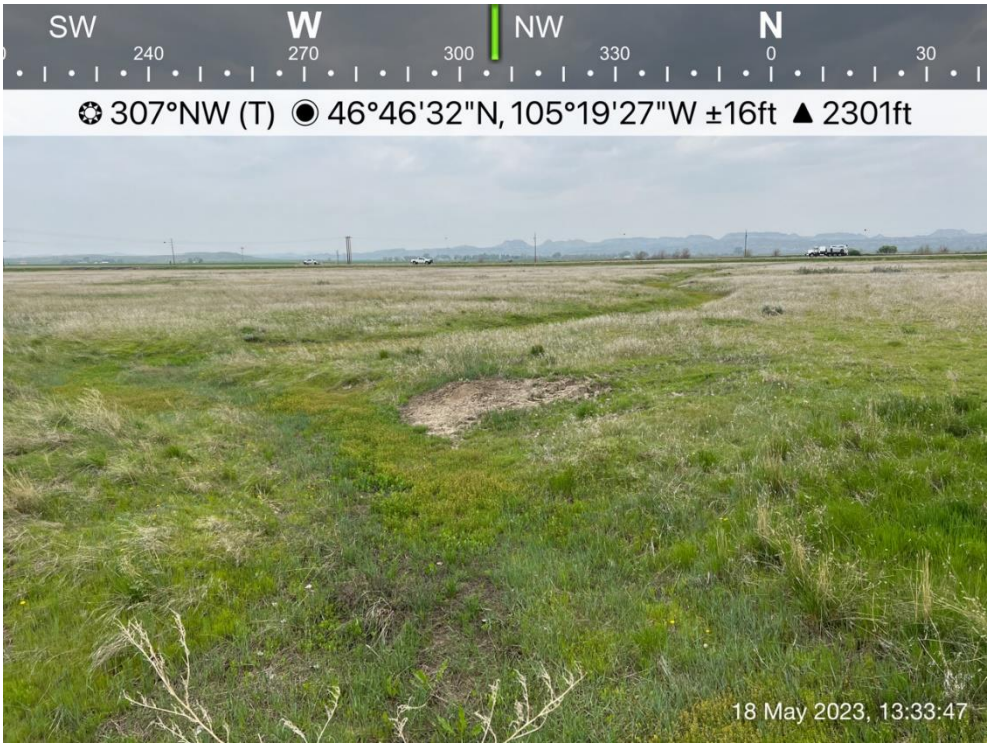


Photo Point 2: View of study area at Wetland 3

Direction: Northwest

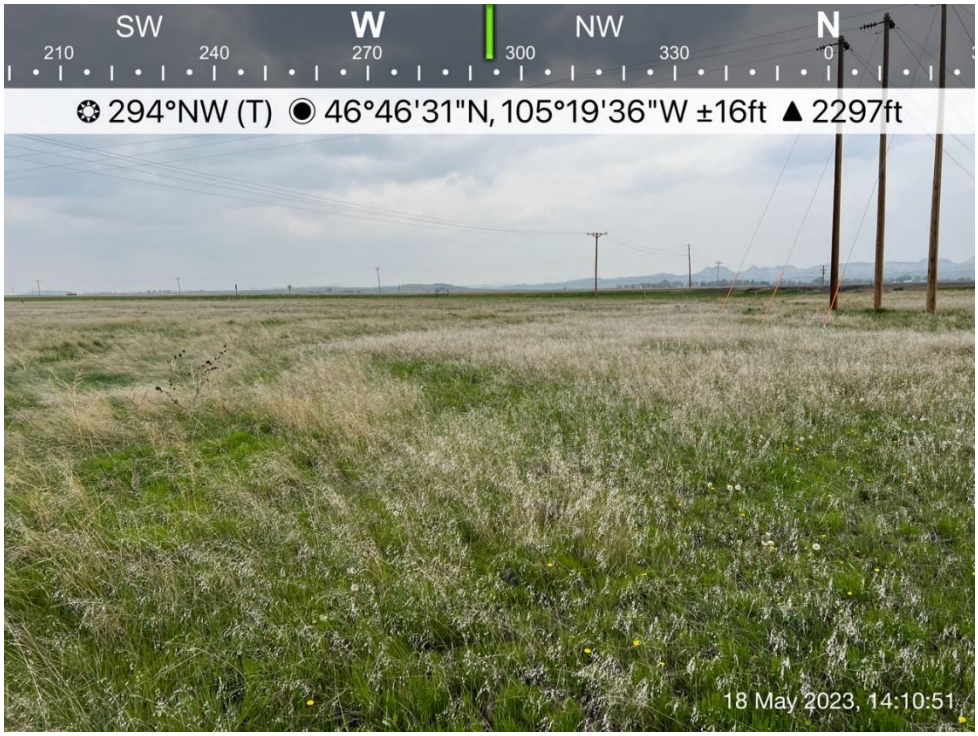


Photo Point 3: View of the study area at UP8.

Direction: West Northwest

Photo Point 3: View of the study area at UP8.

Direction: Southeast

Photo Point 4: View of the study area at UP10.

Direction: South

Photo Point 4: View of the study area at UP10.

Direction: North

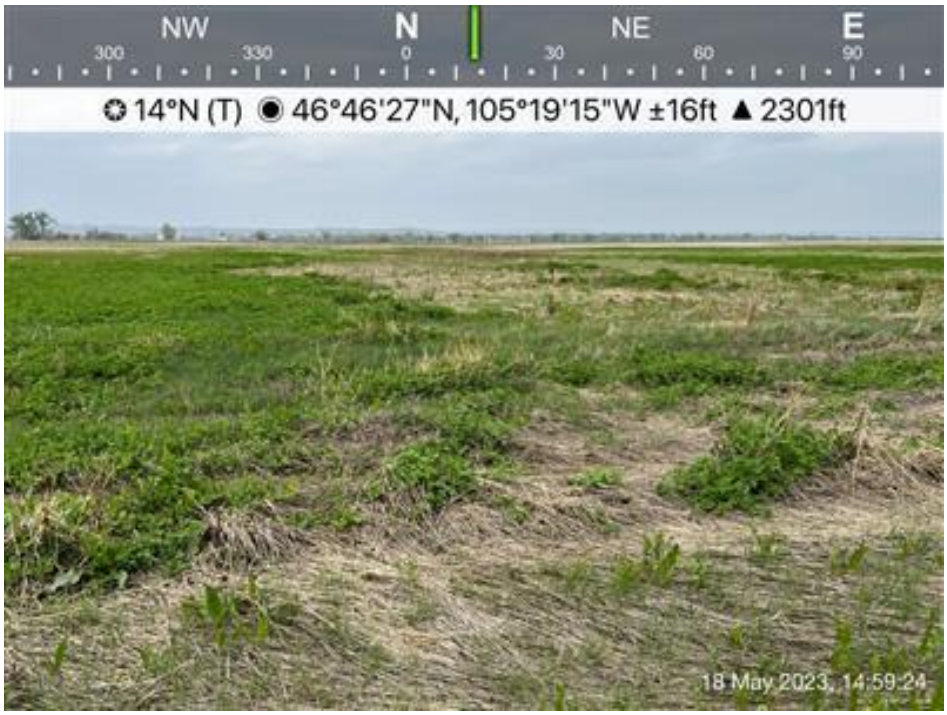


Photo Point 8: View of study area at Wetland 4

Direction: North

Photo Point 8: View of study area at Wetland 4

Direction: East

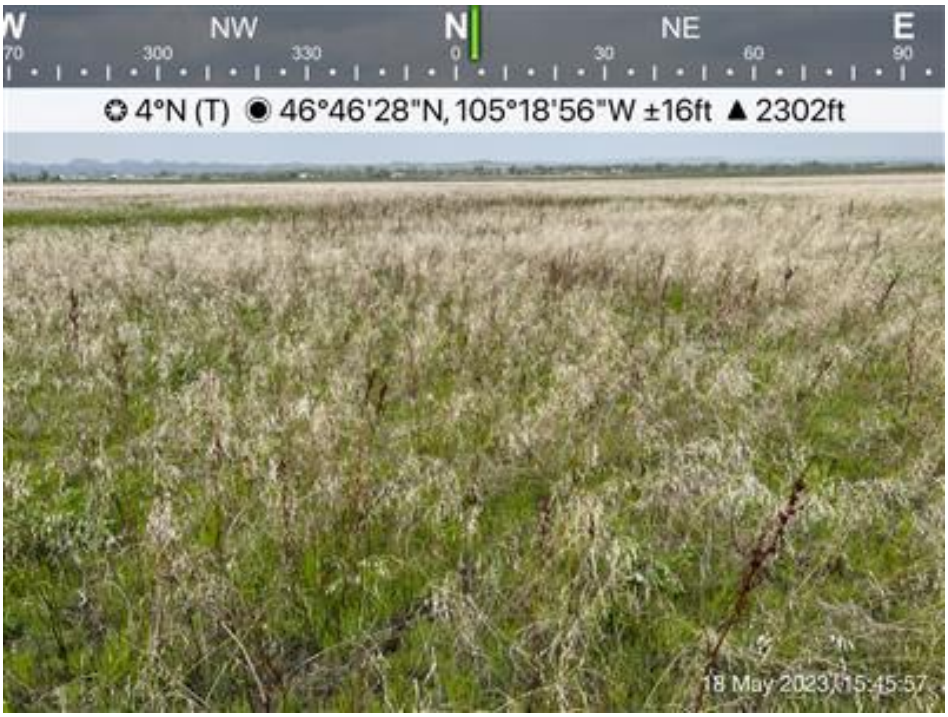


Photo Point 11: View at UP14.

Direction: North

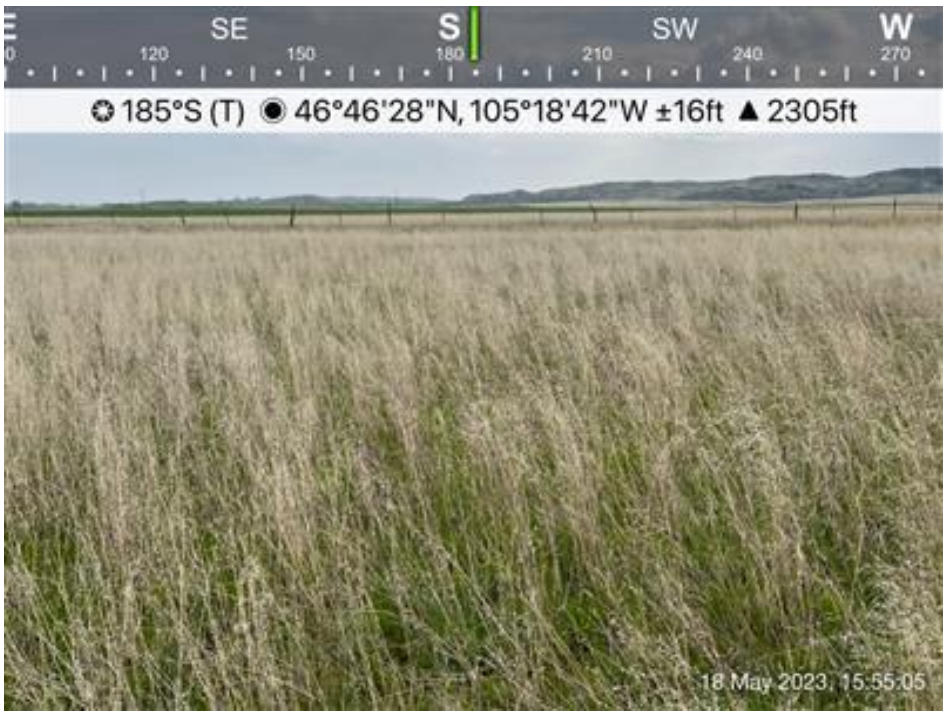


Photo Point 12: View of study area at UP16.

Direction: South

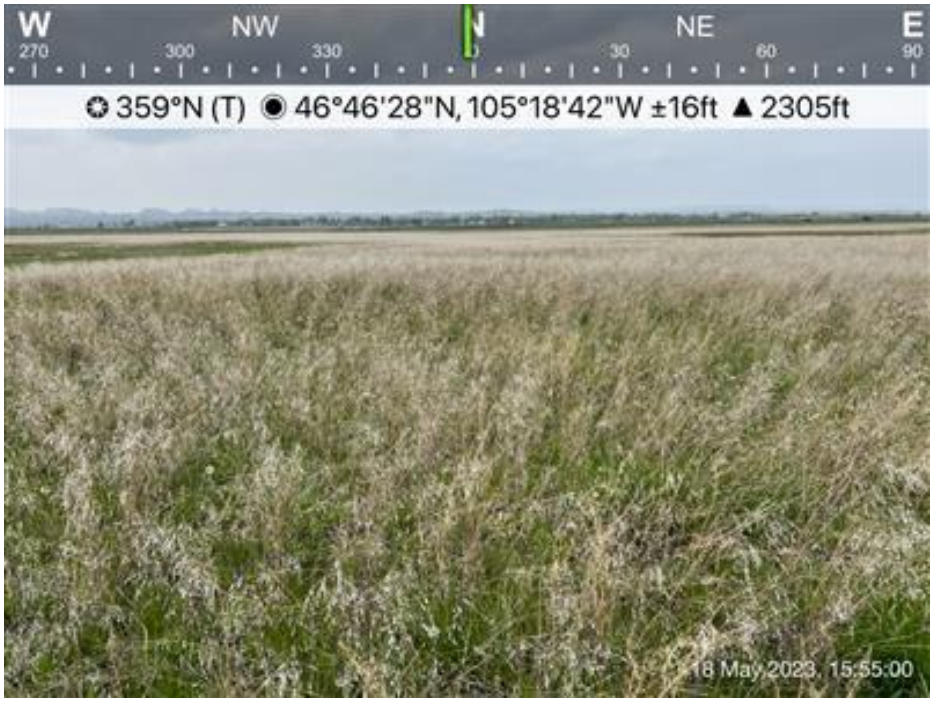


Photo Point 12: View of study area at UP16.

Direction: North

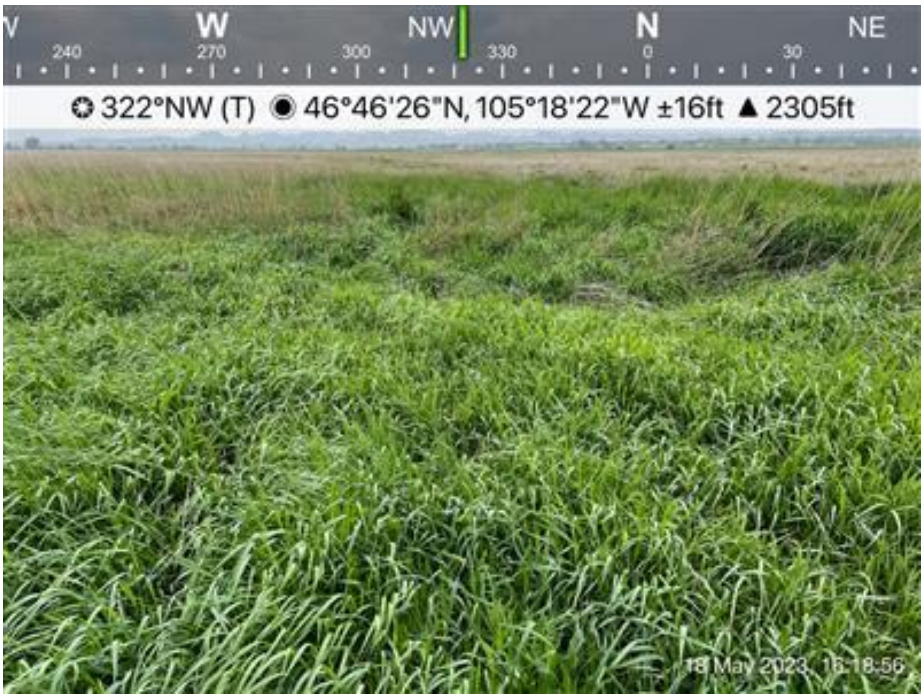


Photo Point 15: View of the study area at UP18.

Direction: Northwest

Photo Point 18: View of study area at Wetland 5

Direction: East

Photo Point 23: View of study area at Wetland 7.

Direction: East

Photo Point 22: View of study area at Wetland 6

Direction: East northeast

Photo Point 29: View of study area at UP26.

Direction: East northeast

Photo Point 31: View of study area at Wetland 8

Direction: South southeast

Photo Point 31: View of study area at Ditch 2

Direction: East northeast

Photo Point 31: View of study area at Wetland 8

Direction: Northwest

Photo Point 31: View of study area at Wetland 8

Direction: Southwest

Photo Point 32: View of study area at UP30.

Direction: West

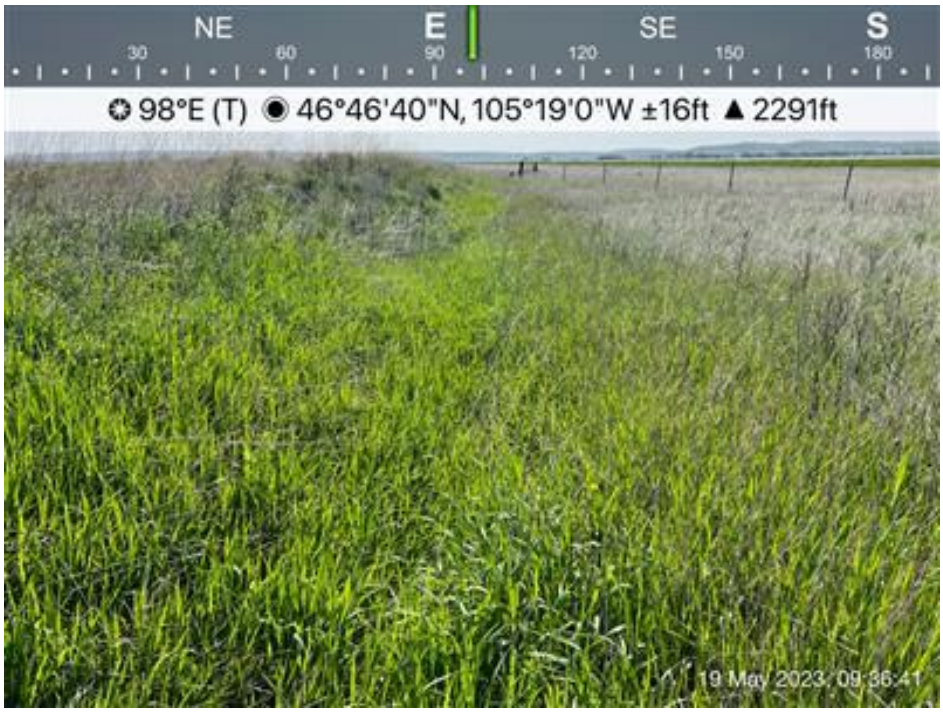


Photo Point 34: View of study area at UP32.

Direction: East

Photo Point 34: View of study area at UP32.

Direction: West

Photo Point 38: View of the study area at Wetland 9

Direction: West

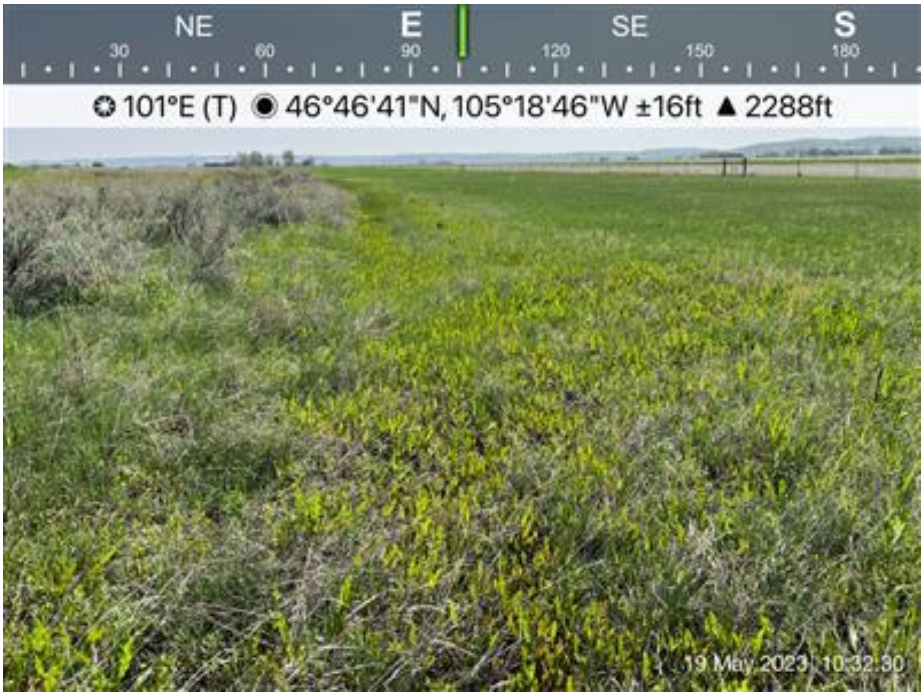


Photo Point 43: View of study area at Wetland 10

Direction: East

Photo Point 6: View of the study area.

Diretion: East

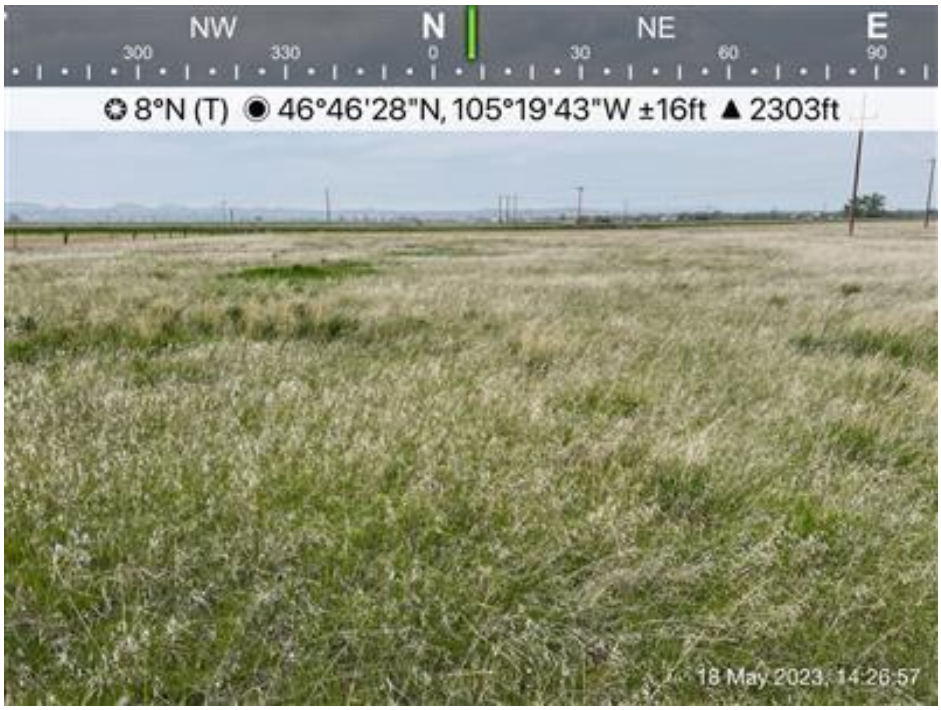


Photo Point 6: View of the study area.

Direction: North

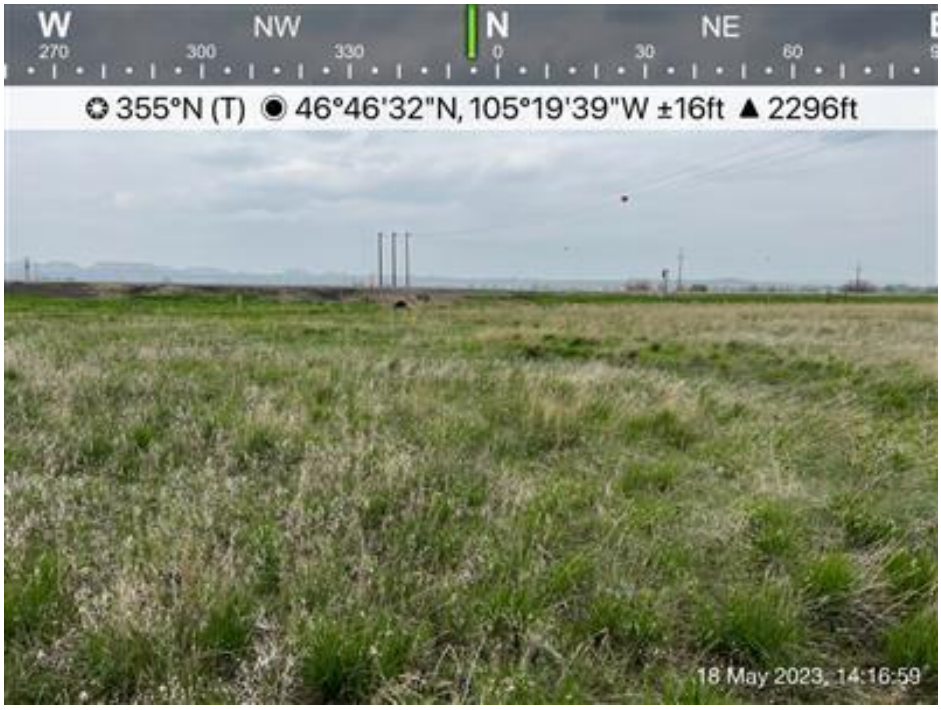


Photo Point 5: View of the study area.

Direction: North

Photo Point 4: View of the study area.

Direction: South

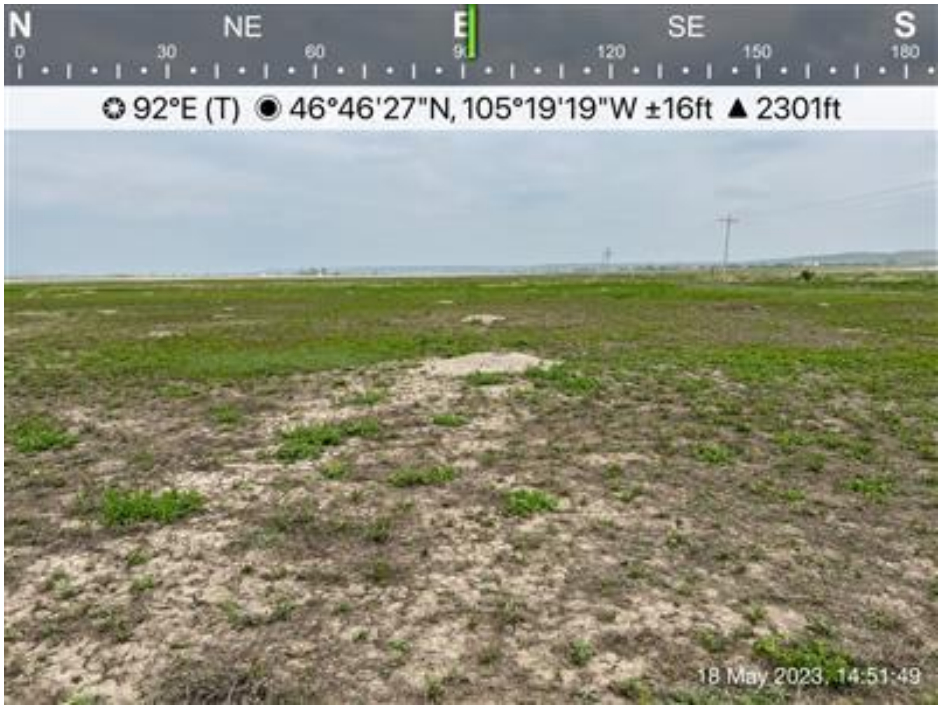


Photo Point 7: View of the study area.

Direction: East

Photo Point 7: View of the study area.

Direction: South

Photo Point 7: View of the study area.

Direction: West

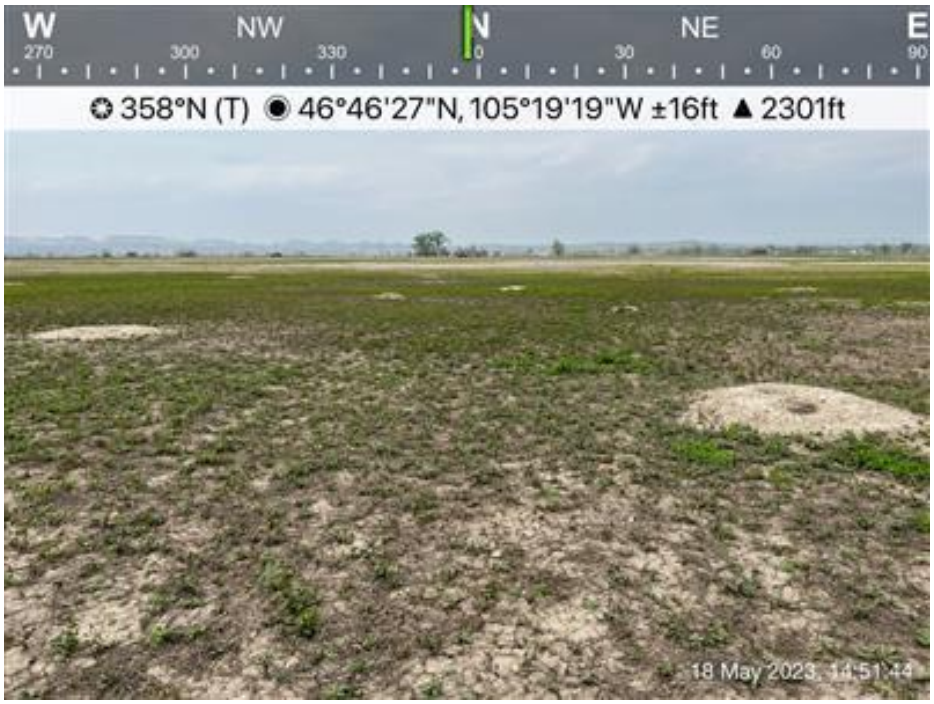


Photo Point 7: View of the study area.

Direction: North

Photo Point 10: View of study area.

Direction: South

Photo Point 10: View of study area.

Direction: East

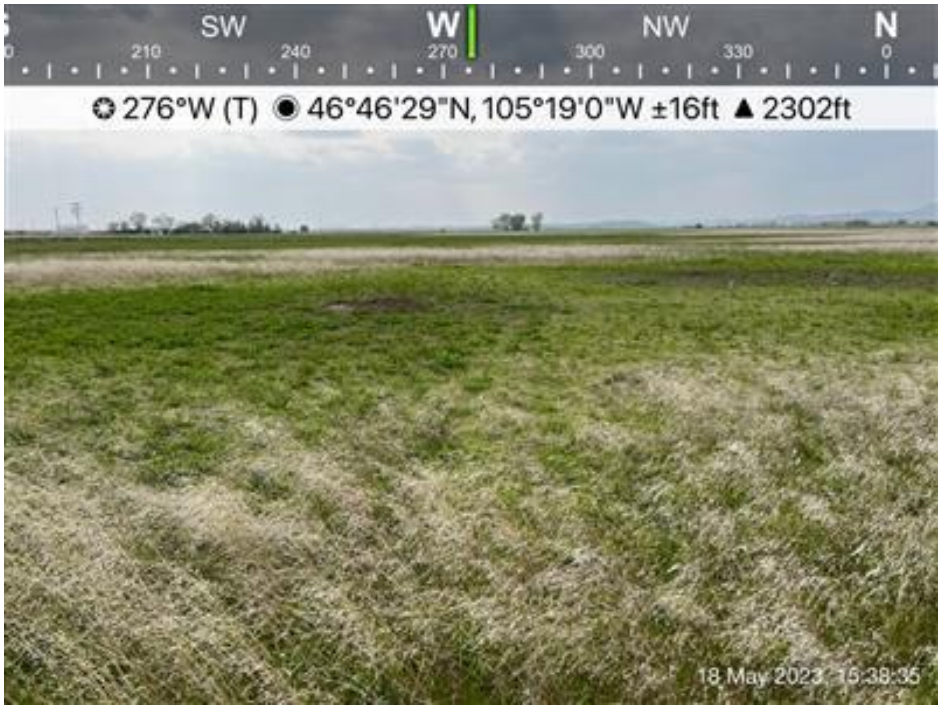


Photo Point 10: View of study area.

Direction: West

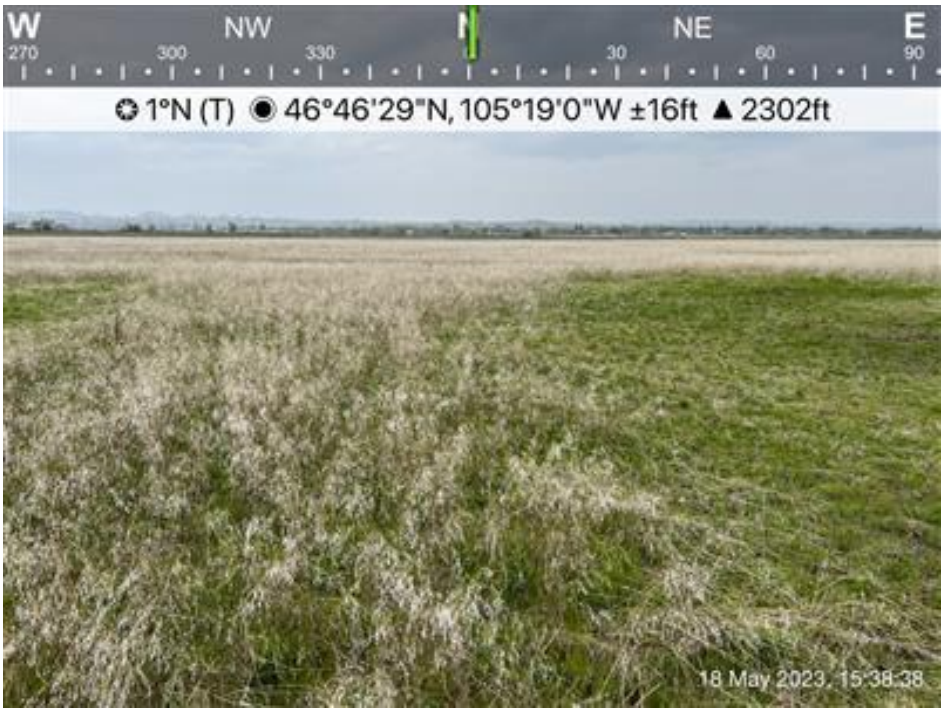


Photo Point 10: View of study area.

Direction: North

Photo Point 9: View of Ditch 1.

Direction: West

Photo Point 21: View of study area.

Direction: West northwest

Photo Point 21: View of study area.

Direction: East

Photo Point 20: View of study area.

Direction: South southeast

Photo Point 20: View of study area.

Direction: North

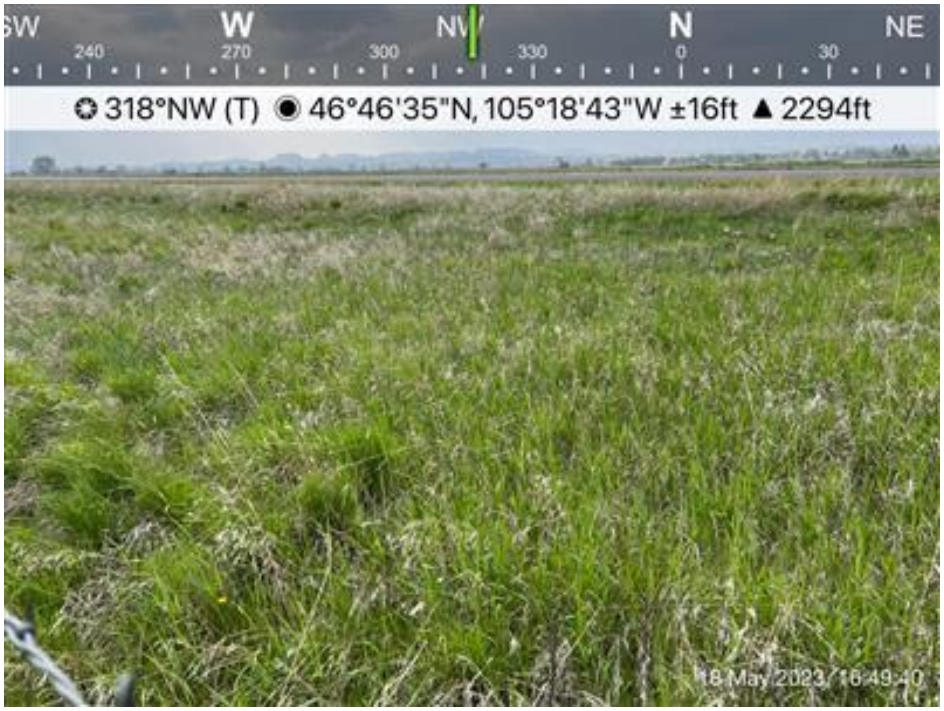


Photo Point 19: View of the study area.

Direction: Northwest

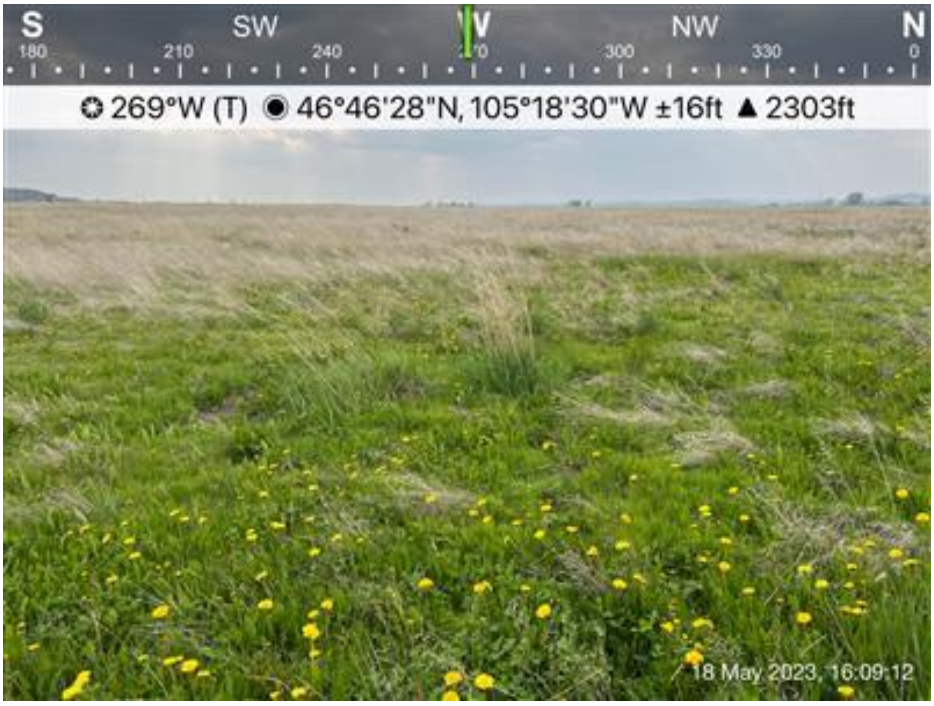


Photo Point 13: View of the study area.

Direction: West

Photo Point 13: View of study area.

Direction: South

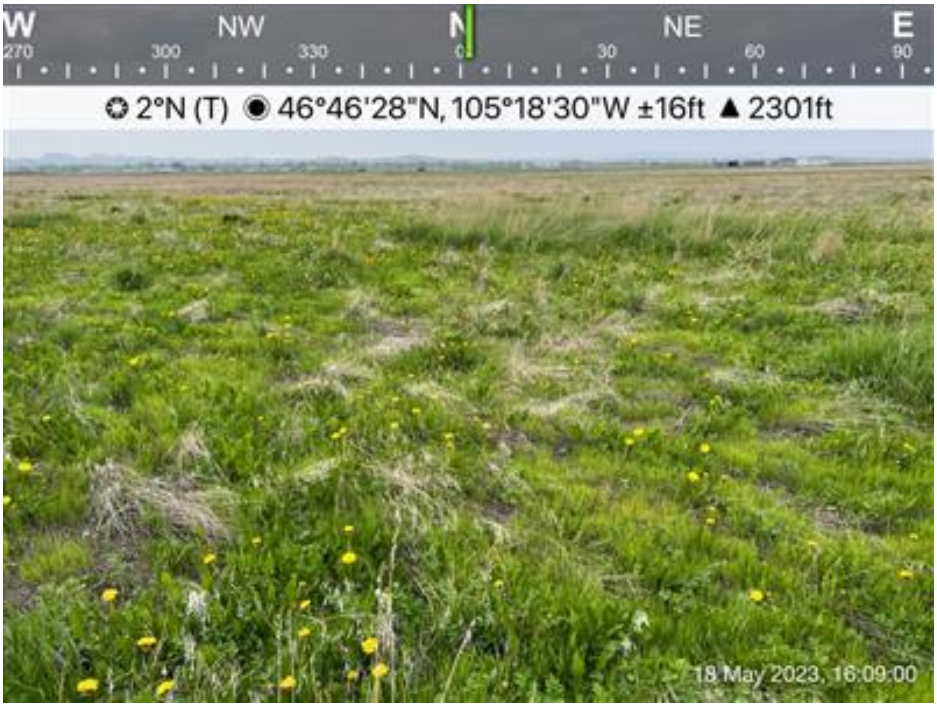


Photo Point 13: View of study area.

Direction: North

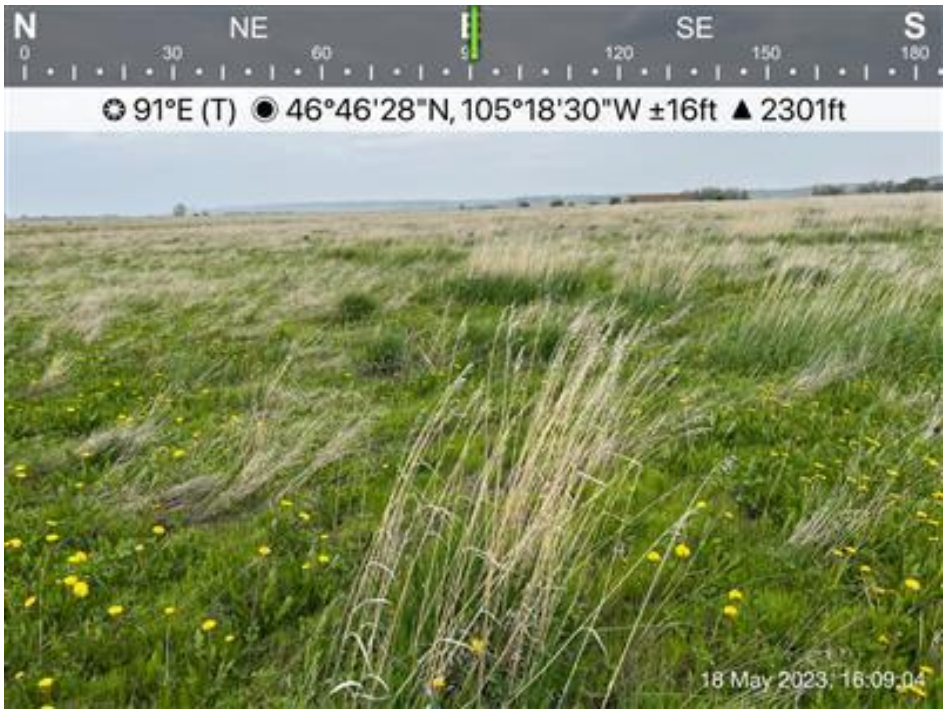


Photo Point 13: View of study area.

Direction: East

Photo Point 17: View of study area.

Direction: West

Photo Point 17: View of study area.

Direction: East

Photo Point 17: View of study area.

Direction: South

Photo Point 14: View of study area.

Direction: South southeast

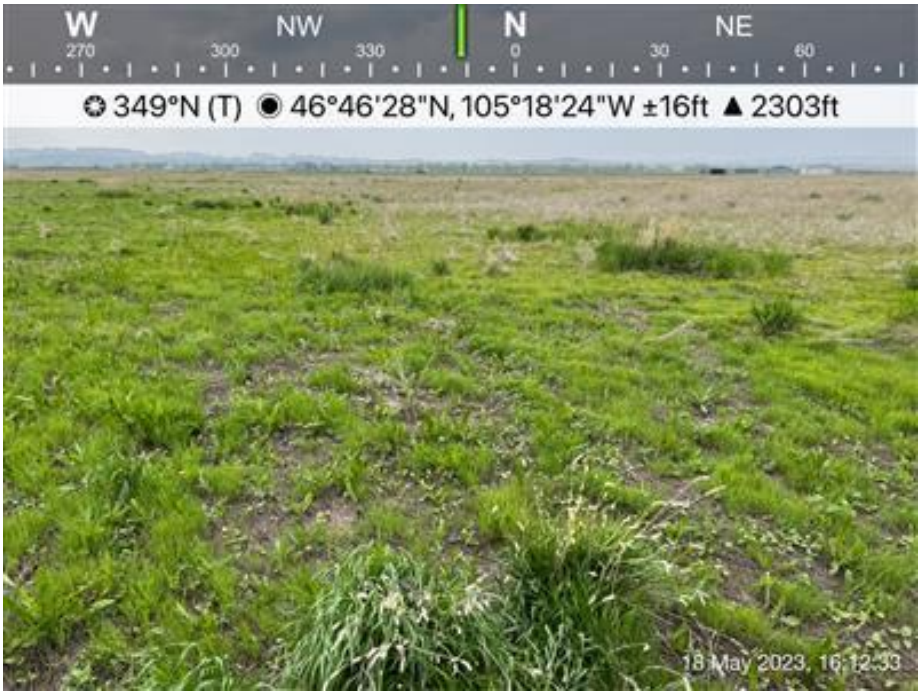


Photo Point 14: View of study area.

Direction: North

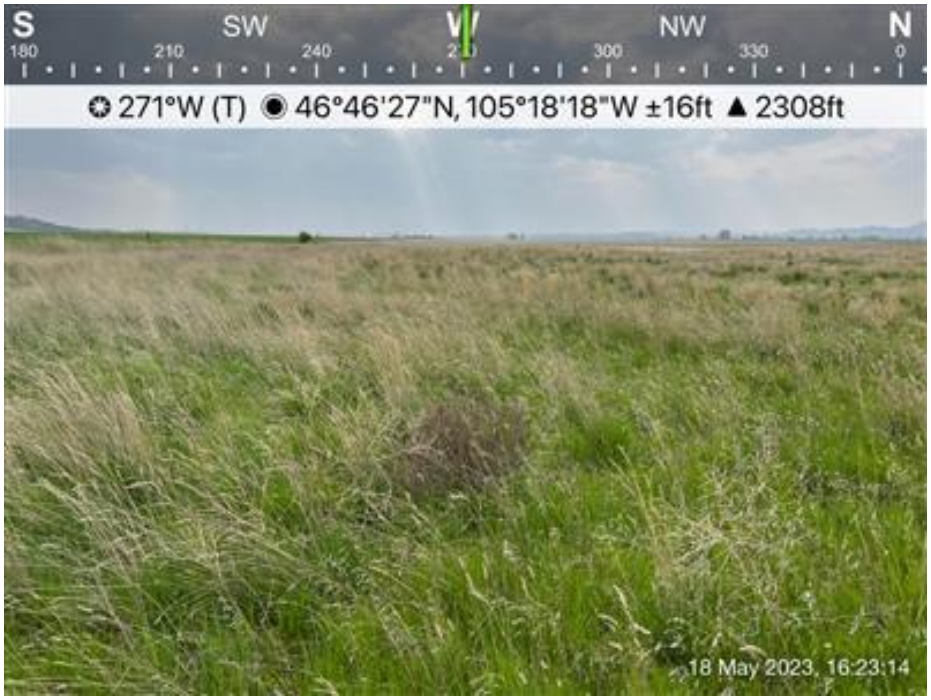


Photo Point 16: View of study area.

Direction: West

Photo Point 16: View of the study area.

Direction: East

Photo Point 16: View of the study area.

Direction: North

Photo Point 16: View of the study area.

Direction: South

Photo Point 26: View of the study area.

Direction: West

Photo Point 26: View of the study area.

Direction: North northwest

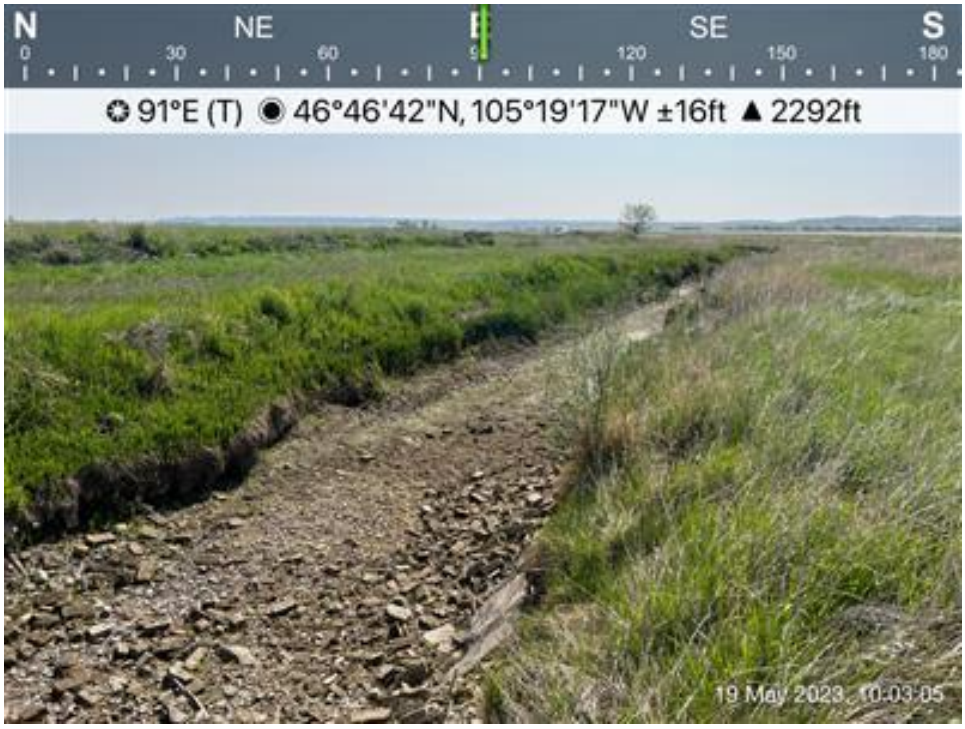


Photo Point 39: View of the study area at Ditch 2

Direction: East

Photo Point 39: View of the study area at Ditch 2

Direction: West northwest

Photo Point 37: View of the study area.

Direction: West northwest

Photo Point 40: View of the study area at Ditch 2

Direction: South

Photo Point 40: View of the study area at Ditch 3

Direction: Northeast

Photo Point 41: View of study area at Ditch 3

Direction: Southwest

Photo Point 41: View of study area at Ditch 3

Direction: Southeast

Photo Point 35: View of study area at Ditch 2

Direction: West southwest

Photo Point 35: View of study area Ditch 2.

Direction: East

Photo Point 36: View of the study area at Ditch 3.

Direction: East

Photo Point 36: View of study area Ditch 3.

Direction: West northwest

Photo Point 33: View of study area Ditch 2.

Direction: East southeast

Photo Point 33: View of study area.

Direction: West

Photo Point 30: View of study area.

Direction: West

Photo Point 30: View of study area.

Direction: East northeast

Photo Point 42: View of study area.

Direction: East

Photo Point 42: View of study area.

Direction: West

Photo Point 28: View of the study area.

Direction: East

Photo Point 28: View of the study area.

Direction: South

Photo Point 28: View of the study area.

Direction: West

Photo Point 28: View of the study area.

Direction: North

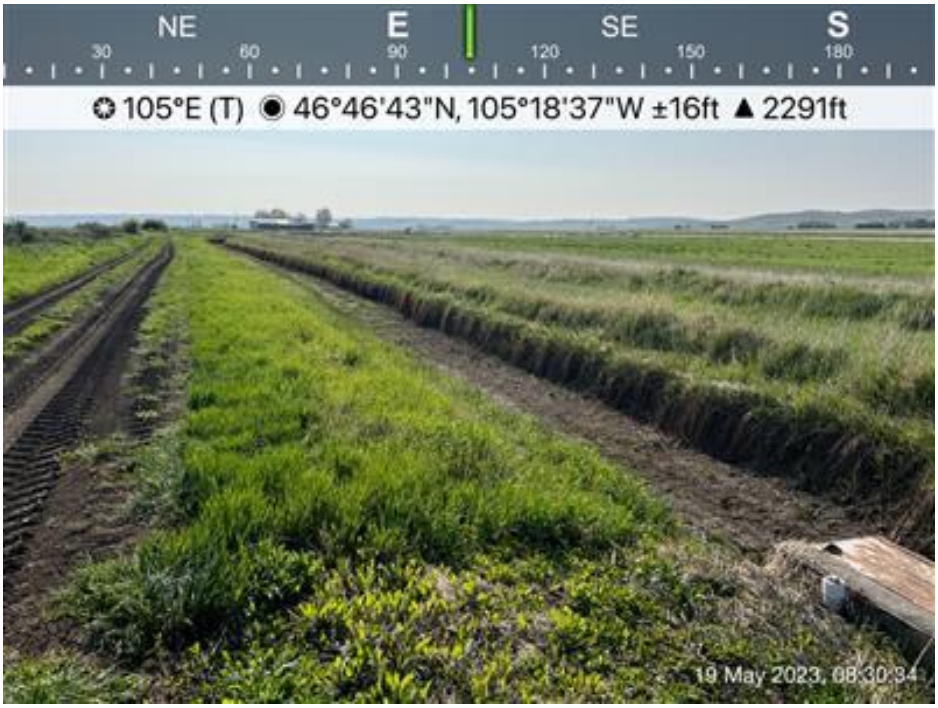


Photo Point 27: View of study area.

Direction: East

Photo Point 27: View of study area.

Direction: West southwest

Photo Point 44: View of study area.

Direction: West

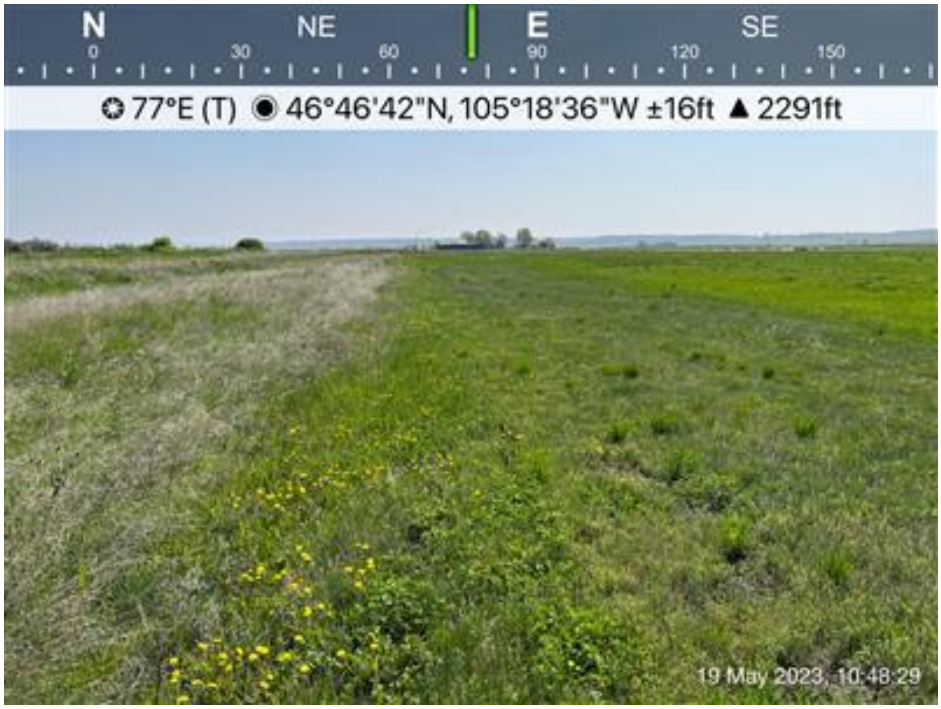


Photo Point 44: View of study area.

Direction: East

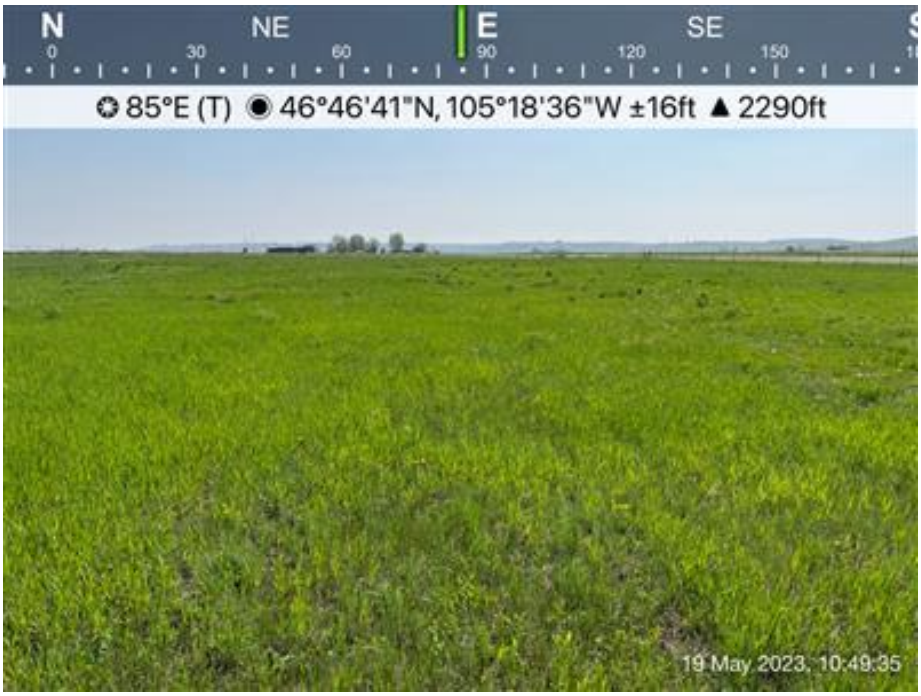


Photo Point 45: View of study area.

Direction: East

Photo Point 45: View of study area.

Direction: North northwest

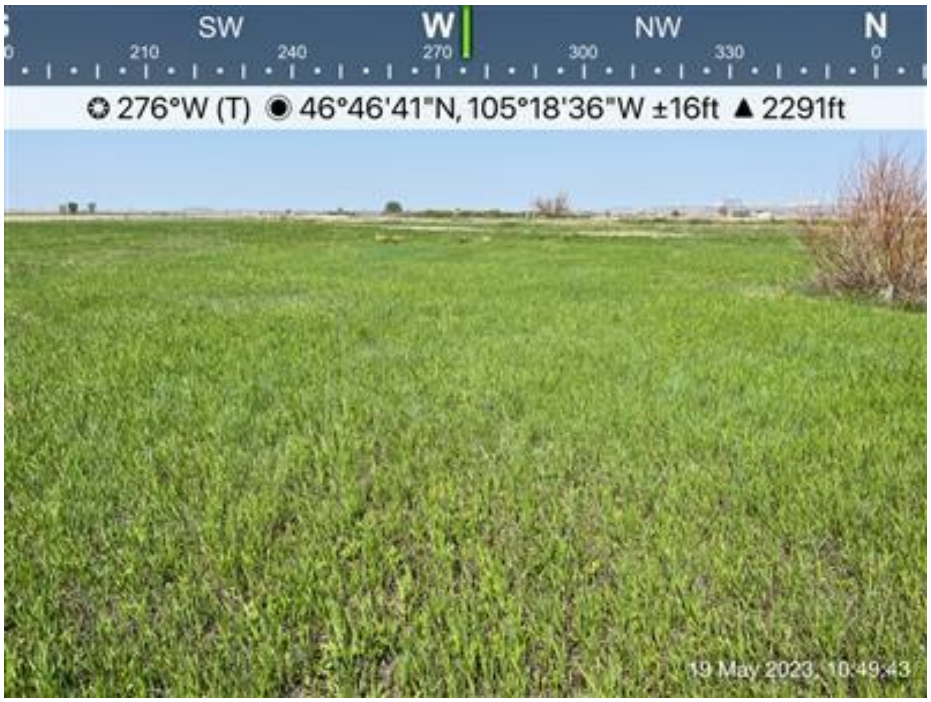


Photo Point 45: View of study area.

Direction: West

Photo Point 45: View of study area.

Direction: South

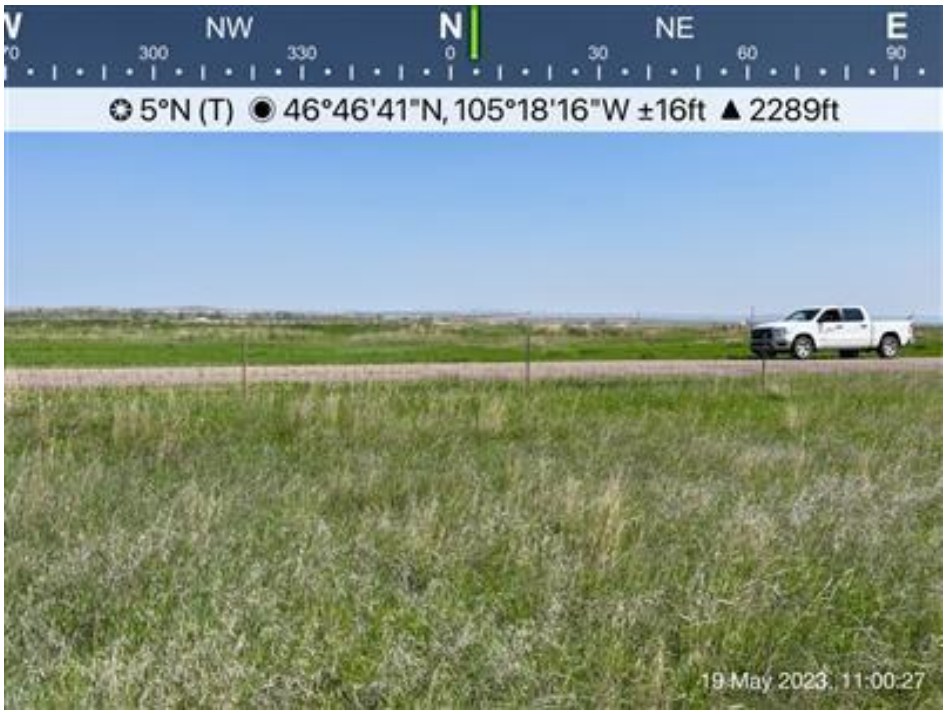


Photo Point 46: View of study area.

Direction: North

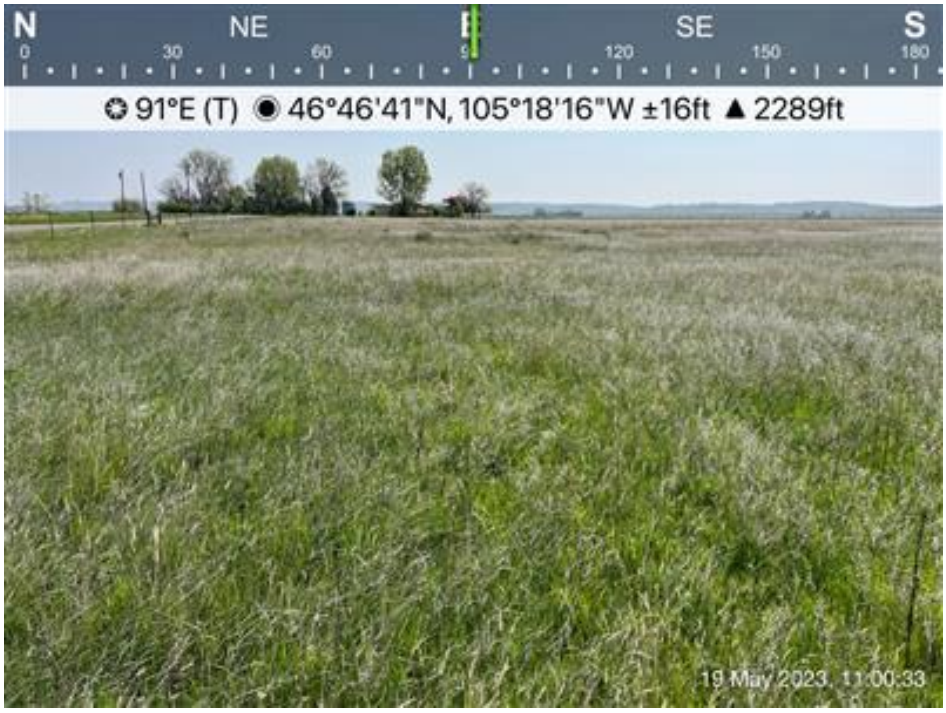


Photo Point 46: View of study area.

Direction: East

Photo Point 46: View of study area.

Direction: South

Photo Point 46: View of study area.

Direction: West

Photo Point 47: View of study area.

Direction: West northwest

Photo Point 47: View of study area.

Direction: East

Photo Point 25: View of study area at Wetland 11

Direction: East northeast

Photo Point 24: View of study area at Ditch 2

Direction: East

Photo Point 24: View of study area at Ditch 2

Direction: West

APPENDIX C: Aquatic Resource Delineation Datasheets

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-18-2023
Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 1
Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E
Landform (hillside, terrace, etc.): Ditch | Local relief (concave, convex, none): Concave | Slope (%): 0-2
Subregion (LRR): LRR F | Lat: 46.775178 | Long: -105.323525 | Datum: NAD83
Soil Map Unit Name: | NWI classification: PEMEX
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x	No	**Is the Sampled Area within a Wetland?** **Yes** x **No**
Hydric Soil Present?	Yes x	No	
Wetland Hydrology Present?	Yes x	No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Eleocharis palustris*	25	Yes	OBL
2. *Xanthium strumarium*	20	Yes	FAC
3. *Hordeum jubatum*	20	Yes	FACW
4. *Elymus smithii*	10	No	FACU
5. *Chenopodium album*	5	No	FACU
6.			
7.			
8.			
9.			
10.			
	80	=Total Cover	
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 10

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: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	20	x 2 =	40
FAC species	20	x 3 =	60
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	80 (A)		185 (B)
Prevalence Index = B/A =			2.31

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 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.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	2.5y 3/1	98	7.5yr 3/4	2	c	PL	Loamy/Clayey	Prominent redox concentrations
3-16	2.5y 4/1	95	7.5yr 3/4	5	c	PL/M	Loamy/Clayey	Prominent redox concentrations

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- x Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** X **No** ___

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- x Saturation Visible on Aerial Imagery (C9)
- x Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No x Depth (inches): ___

Water Table Present? Yes ___ No x Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No x Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-18-2023

Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 2

Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): Ditch | Local relief (concave, convex, none): Concave | Slope (%): 0-2

Subregion (LRR): LRR F | Lat: 46.775209 | Long: -105.323480 | Datum: NAD83

Soil Map Unit Name: | NWI classification: PEMEX

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** x
Hydric Soil Present?	Yes ____	No x	
Wetland Hydrology Present?	Yes ____	No x	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Agropyron cristatum*	65	Yes	UPL
2. *Bromus tectorum*	30	Yes	UPL
3. *Lysimachia*	5	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	95	x 5 =	475
Column Totals:	100 (A)		485 (B)
Prevalence Index = B/A =			4.85

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.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: 2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	2.5y 3/2	100					Loamy/Clayey	
4-12	2.5y 3/3	100					Loamy/Clayey	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** x

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-18-2023

Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 3

Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): Ditch | Local relief (concave, convex, none): Concave | Slope (%): 0-2

Subregion (LRR): LRR F | Lat: 46.775297 | Long: -105.323633 | Datum: NAD83

Soil Map Unit Name: | NWI classification: PEMEX

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x	No ____	**Is the Sampled Area within a Wetland?** **Yes** x **No** ____
Hydric Soil Present?	Yes x	No ____	
Wetland Hydrology Present?	Yes x	No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Eleocharis palustris*	25	Yes	OBL
2. *Xanthium strumarium*	20	Yes	FAC
3. *Hordeum jubatum*	20	Yes	FACW
4. *Elymus smithii*	10	No	FACU
5. *Chenopodium album*	5	No	FACU
6.			
7.			
8.			
9.			
10.			
	80	=Total Cover	
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 10

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: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	20	x 2 =	40
FAC species	20	x 3 =	60
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	80 (A)		185 (B)

Prevalence Index = B/A = 2.31

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 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.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: 3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	2.5y 3/1	98	7.5yr 3/4	2	c	PL	Loamy/Clayey	Prominent redox concentrations
3-16	2.5y 4/1	95	7.5yr 3/4	5	c	PL/M	Loamy/Clayey	Prominent redox concentrations

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- x Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** X **No** ___

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- x Saturation Visible on Aerial Imagery (C9)
- x Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-18-2023

Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 4

Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 3

Subregion (LRR): LRR F | Lat: 46.775328 | Long: -105.323627 | Datum: NAD83

Soil Map Unit Name: | NWI classification: PEMEX

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** x
Hydric Soil Present?	Yes ____	No x	
Wetland Hydrology Present?	Yes ____	No x	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Agropyron cristatum*	65	Yes	UPL
2. *Bromus tectorum*	30	Yes	UPL
3. *Lysimachia*	5	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	95	x 5 =	475
Column Totals:	100 (A)		485 (B)
Prevalence Index = B/A =			4.85

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.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: 4

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	2.5y 3/2	100					Loamy/Clayey	
4-12	2.5y 3/3	100					Loamy/Clayey	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** x

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-18-2023

Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 5

Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): Slope | Local relief (concave, convex, none): Concave | Slope (%): 0-2

Subregion (LRR): LRR F | Lat: 46.775756 | Long: -105.324448 | Datum: NAD83

Soil Map Unit Name: | NWI classification: PEMA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x No ____
Hydric Soil Present? Yes x No ____
Wetland Hydrology Present? Yes x No ____

Is the Sampled Area within a Wetland? **Yes** x **No** ____

Remarks:
Drainage swale

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Lepidium perfoliatum L.*	65	Yes	FAC
2. *Rumex crispus L.*	10	No	FAC
3. *Pascopyrum smithii*	15	No	FACU
4. *Bromus tectorum*	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	95 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	75	x 3 =	225
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	95 (A)		305 (B)
Prevalence Index = B/A =			3.21

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
X 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.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: 5

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	2.5y 3/1	98	7.5yr 3/4	2	c	PL	Loamy/Clayey	Prominent redox concentrations
7-16	2.5y 4/2	95	7.5yr 3/4	5	c	M	Loamy/Clayey	Prominent redox concentrations

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- x Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** X **No** ___

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- x Saturation Visible on Aerial Imagery (C9)
- x Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** x **No** ___

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-18-2023

Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 6

Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): Ditch slope | Local relief (concave, convex, none): Concave | Slope (%): 0-2

Subregion (LRR): LRR F | Lat: 46.775807 | Long: -105.324428 | Datum: NAD83

Soil Map Unit Name: | NWI classification: PEMEX

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x
Hydric Soil Present? Yes ____ No x
Wetland Hydrology Present? Yes ____ No x

Is the Sampled Area within a Wetland? **Yes** ____ **No** x

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Agropyron cristatum*	65	Yes	UPL
2. *Bromus tectorum*	30	Yes	UPL
3. *Lysimachia*	5	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	95	x 5 =	475
Column Totals:	100 (A)		485 (B)
Prevalence Index = B/A =			4.85

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.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: 6

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	2.5y 3/2	100					Loamy/Clayey	
4-12	2.5y 3/3	100					Loamy/Clayey	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** x

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-18-2023
Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 11
Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E
Landform (hillside, terrace, etc.): Slope | Local relief (concave, convex, none): concave | Slope (%): 2
Subregion (LRR): LRR F | Lat: 46.774276 | Long: -105.321002 | Datum: NAD83
Soil Map Unit Name: | NWI classification: PEMb
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x No
Hydric Soil Present? Yes x No
Wetland Hydrology Present? Yes x No

Is the Sampled Area within a Wetland? **Yes** x **No**

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	50	Yes	FACW
2. *Hordeum jubatum*	25	Yes	FACW
3. *Rumex crispus*	15	No	FAC
4. *Elymus smithii*	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	95 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	75	x 2 =	150
FAC species	15	x 3 =	45
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	95 (A)		215 (B)

Prevalence Index = B/A = 2.26

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 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.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 11

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
0-16	2.5y 4/1	98	10yr 4/6	2	c	PL	Loamy/Clayey	Silty clay like

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** x **No** ___

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- x Saturation Visible on Aerial Imagery (C9)
- x Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** x **No** ___

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport City/County: Prairie Sampling Date: 5-18-2023

Applicant/Owner: Prairie County Airport Authority State: MT Sampling Point: 12

Investigator(s): Tom Naas; KLJ Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 2

Subregion (LRR): LRR F Lat: 46.774283 Long: -105.321150 Datum: NAD83

Soil Map Unit Name: NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Elymus smithii*	40	Yes	FACU
2. *Triflium aureum*	30	Yes	FACU
3. *Taraxacum officinale*	10	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	80 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	80	x 4 =	320
UPL species	0	x 5 =	0
Column Totals:	80 (A)		320 (B)

Prevalence Index = B/A = 4.00

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.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: 12

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
0-10	2.5y 3/2	100						
10-14	2.5yr 3/3	100						

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** x

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** x

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-18-2023

Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 19

Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): Slope | Local relief (concave, convex, none): concave | Slope (%): 2

Subregion (LRR): LRR F | Lat: 46.776613 | Long: -105.309645 | Datum: NAD83

Soil Map Unit Name: | NWI classification: PEMA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x No
Hydric Soil Present? Yes x No
Wetland Hydrology Present? Yes x No

Is the Sampled Area within a Wetland? **Yes** X **No**

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Hordeum jubatum*	50	Yes	FACW
2. *Rumex crispus*	10	No	FACU
3. *Beckmannie syzigchne*	10	No	OBL
4. *Pacopyrum smithii*	10	No	FACU
5. *Chenopodium album*	10	No	FACU
6.			
7.			
8.			
9.			
10.			
	90 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	50	x 2 =	100
FAC species	0	x 3 =	0
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	90 (A)		230 (B)

Prevalence Index = B/A = 2.56

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 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.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 19

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	2.5yr 3/1	97	7.5yr 3/4	3	C	M	Loamy/Clayey	
9-16	2.5yr 4/2	97	7.5yr 3/4	3	C	M	Loamy/Clayey	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** X **No** ___

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- x Saturation Visible on Aerial Imagery (C9)
- x Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-18-2023

Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 20

Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): terrace | Local relief (concave, convex, none): convex | Slope (%): 2

Subregion (LRR): LRR F | Lat: 46.776503 | Long: -105.309774 | Datum: NAD83

Soil Map Unit Name: | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x
Hydric Soil Present? Yes No x
Wetland Hydrology Present? Yes No x

Is the Sampled Area within a Wetland? **Yes** **No** X

Remarks:
upland swale

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Broms inermis*	50	Yes	UPL
2. *Agropyron cristatum*	10	No	FACU
3. *Bromus tectorum*	10	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	70 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	20	x 4 =	80
UPL species	50	x 5 =	250
Column Totals:	70 (A)		330 (B)

Prevalence Index = B/A = 4.71

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.

Hydrophytic Vegetation Present? **Yes** **No** X

Remarks:

SOIL

Sampling Point: 20

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	2.5yr 3/1	97	7.5yr 3/4	3	C	M	Loamy/Clayey	
9-16	2.5yr 4/2	97	7.5yr 3/4	3	C	M	Loamy/Clayey	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** x

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-18-2023

Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 21

Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): Ditch | Local relief (concave, convex, none): Cancave | Slope (%): 2

Subregion (LRR): LRR F | Lat: 46.776867 | Long: -105.315031 | Datum: NAD83

Soil Map Unit Name: | NWI classification: PEMX

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x No
Hydric Soil Present? Yes x No
Wetland Hydrology Present? Yes x No

Is the Sampled Area within a Wetland? **Yes** X **No**

Remarks:
Created ditch wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Rumex crispus*	60	Yes	FACW
2. *Hordeum jubatum*	20	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	80 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 80	x 2 = 160
FAC species 0	x 3 = 0
FACU species 0	x 4 = 0
UPL species 0	x 5 = 0
Column Totals: 80 (A)	160 (B)
Prevalence Index = B/A =	2.00

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 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.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 21

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	2.5yr 3/1	97	10yr 4/6	3	C	PL/M	Loamy/Clayey	more silty clay loam
3-16	2.5yr 4/2	95	10yr 4/6	3	C	M	Loamy/Clayey	more silty loam

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- x Depleted Matrix (F3)
- x Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** X **No** x

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- x Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- x Saturation Visible on Aerial Imagery (C9)
- x Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-18-2023

Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 22

Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): Ditchslope | Local relief (concave, convex, none): concave | Slope (%): 5

Subregion (LRR): LRR F | Lat: 46.776801 | Long: -105.315031 | Datum: NAD83

Soil Map Unit Name: | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x	**Is the Sampled Area within a Wetland?** **Yes** **No** x
Hydric Soil Present?	Yes	No x	
Wetland Hydrology Present?	Yes	No x	

Remarks:
Created ditch wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Bromus inermis*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

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.

Hydrophytic Vegetation Present? **Yes** **No x**

Remarks:

SOIL

Sampling Point: 22

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
0-6	2.5yr 3/2	100					Loamy/Clayey	
6-12	2.5yr 3/3	100					Loamy/Clayey	more silty clay loam

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** x

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** x

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-18-2023
Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 23
Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E
Landform (hillside, terrace, etc.): ditch | Local relief (concave, convex, none): concave | Slope (%): 2
Subregion (LRR): LRR F | Lat: 46.776915 | Long: -105.317037 | Datum: NAD83
Soil Map Unit Name: | NWI classification: pemax
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x No
Hydric Soil Present? Yes x No
Wetland Hydrology Present? Yes x No

Is the Sampled Area within a Wetland? **Yes x** **No**

Remarks:
Created ditch wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Rumex crispus*	30	Yes	FAC
2. *hordeum jubatum*	20	Yes	FACW
3. *Elymus smithii*	10	No	FACU
4. *Phalaris arundinacea*	30	Yes	FACW
5.			
6.			
7.			
8.			
9.			
10.			
	90 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 10

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: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	50	x 2 =	100
FAC species	30	x 3 =	90
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	90 (A)		230 (B)

Prevalence Index = B/A = 2.56

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 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.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 23

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
0-3	2.5yr 3/1	97	10yr 4/6	3	C	PL/M	Loamy/Clayey	
3-16	2.5yr 4/2	95	10yr 4/6	5	C	M	Loamy/Clayey	more silty clay loam

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- x Depleted Matrix (F3)
- x Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** x **No** ___

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- x Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- x Saturation Visible on Aerial Imagery (C9)
- x Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-18-2023

Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 24

Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): Ditchslope | Local relief (concave, convex, none): concave | Slope (%): 5

Subregion (LRR): LRR F | Lat: 46.776876 | Long: -105.317048 | Datum: NAD83

Soil Map Unit Name: | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x	**Is the Sampled Area within a Wetland?** **Yes** **No** x
Hydric Soil Present?	Yes	No x	
Wetland Hydrology Present?	Yes	No x	

Remarks:
Created ditch wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Bromus inermis*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

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.

Hydrophytic Vegetation Present? **Yes** **No x**

Remarks:

SOIL

Sampling Point: 24

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
0-6	2.5yr 3/2	100					Loamy/Clayey	
6-12	2.5yr 3/3	100					Loamy/Clayey	more silty clay loam

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** x

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** x

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-19-2023

Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 27

Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): Ditch | Local relief (concave, convex, none): Cancave | Slope (%): 2

Subregion (LRR): LRR F | Lat: 46.778388 | Long: -105.314532 | Datum: NAD83

Soil Map Unit Name: | NWI classification: PEMAX

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x No ____
Hydric Soil Present? Yes x No ____
Wetland Hydrology Present? Yes x No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

Remarks:
Created ditch wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Rumex crispus*	60	Yes	FACW
2. *Hordeum jubatum*	20	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	80 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	80	x 2 =	160
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	80 (A)		160 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 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.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: 27

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
0-3	2.5yr 3/1	97	10yr 4/6	3	C	PL/M	Loamy/Clayey	more silty clay loam
3-16	2.5yr 4/2	95	10yr 4/6	3	C	M	Loamy/Clayey	more silty loam

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- x Depleted Matrix (F3)
- x Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** X **No** ___

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- x Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- x Saturation Visible on Aerial Imagery (C9)
- x Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-19-2023

Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 28

Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): Ditchslope | Local relief (concave, convex, none): concave | Slope (%): 5

Subregion (LRR): LRR F | Lat: 46.778388 | Long: -105.314586 | Datum: NAD83

Soil Map Unit Name: | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x
Hydric Soil Present? Yes ____ No x
Wetland Hydrology Present? Yes ____ No x

Is the Sampled Area within a Wetland? **Yes** ____ **No** x

Remarks:
Created ditch wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Bromus inermis*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

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.

Hydrophytic Vegetation Present? **Yes** ____ **No x**

Remarks:

SOIL

Sampling Point: 28

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
0-6	2.5yr 3/2	100					Loamy/Clayey	
6-12	2.5yr 3/3	100					Loamy/Clayey	more silty clay loam

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** x

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** x

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-19-2023
Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 33
Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E
Landform (hillside, terrace, etc.): ditch | Local relief (concave, convex, none): concave | Slope (%): 2
Subregion (LRR): LRR F | Lat: 46.778998 | Long: -105.322051 | Datum: NAD83
Soil Map Unit Name: | NWI classification: pemax
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x No
Hydric Soil Present? Yes x No
Wetland Hydrology Present? Yes x No

Is the Sampled Area within a Wetland? **Yes** x **No**

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Rumex crispus*	25	Yes	FAC
2. *Hordeum jubatum*	20	Yes	FACW
3. *Xanthium strumarium*	20	Yes	FAC
4. *Elymus smithii*	20	Yes	FACU
5. *Eleocharis palustris*	5	No	OBL
6.			
7.			
8.			
9.			
10.			
	90 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	20	x 2 =	40
FAC species	45	x 3 =	135
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	90 (A)		260 (B)

Prevalence Index = B/A = 2.89

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 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.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 33

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	2.5yr 3/1	97	7.5yr 3/4	2	C	PL	Loamy/Clayey	
7-16	2.5yr 4/2	97	7.5yr 3/4	2	C	M	Loamy/Clayey	more clay like

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- x Depleted Matrix (F3)
- x Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** x **No** ___

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- x Saturation Visible on Aerial Imagery (C9)
- x Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport City/County: Prairie Sampling Date: 5-19-2023

Applicant/Owner: Prairie County Airport Authority State: MT Sampling Point: 34

Investigator(s): Tom Naas; KLJ Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR): LRR F Lat: 46.778985 Long: -105.322079 Datum: NAD83

Soil Map Unit Name: NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x
Hydric Soil Present? Yes ____ No x
Wetland Hydrology Present? Yes ____ No x

Is the Sampled Area within a Wetland? **Yes** ____ **No** x

Remarks:
Upland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Agropyron cristatum*	80	Yes	UPL
2. *Bromus inermis*	15	No	UPL
3. *Artemisia cana*	5	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	95	x 5 =	475
Column Totals:	100 (A)		490 (B)

Prevalence Index = B/A = 4.90

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.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: 34

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
0-5	2.5yr 3/2	100					Loamy/Clayey	
5-12	2.5yr 3/3	100					Loamy/Clayey	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** x

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** x

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-19-2023

Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 35

Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): Ditch | Local relief (concave, convex, none): Cancave | Slope (%): 2

Subregion (LRR): LRR F | Lat: 46.778062 | Long: -105.312940 | Datum: NAD83

Soil Map Unit Name: | NWI classification: PEMAX

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x No
Hydric Soil Present? Yes x No
Wetland Hydrology Present? Yes x No

Is the Sampled Area within a Wetland? **Yes** X **No**

Remarks:
Created ditch wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Rumex crispus*	60	Yes	FACW
2. *Hordeum jubatum*	20	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	80 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 80	x 2 = 160
FAC species 0	x 3 = 0
FACU species 0	x 4 = 0
UPL species 0	x 5 = 0
Column Totals: 80 (A)	160 (B)
Prevalence Index = B/A =	2.00

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 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.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 35

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
0-3	2.5yr 3/1	97	10yr 4/6	3	C	PL/M	Loamy/Clayey	more silty clay loam
3-16	2.5yr 4/2	95	10yr 4/6	3	C	M	Loamy/Clayey	more silty loam

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- x Depleted Matrix (F3)
- x Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** X **No** ___

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- x Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- x Saturation Visible on Aerial Imagery (C9)
- x Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-19-2023

Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 36

Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): Ditchslope | Local relief (concave, convex, none): concave | Slope (%): 5

Subregion (LRR): LRR F | Lat: 46.778098 | Long: -105.312918 | Datum: NAD83

Soil Map Unit Name: | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x	**Is the Sampled Area within a Wetland?** **Yes** **No** x
Hydric Soil Present?	Yes	No x	
Wetland Hydrology Present?	Yes	No x	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Bromus inermis*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)
Prevalence Index = B/A =			5.00

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.

Hydrophytic Vegetation Present? **Yes** **No x**

Remarks:

SOIL

Sampling Point: 36

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
0-6	2.5yr 3/2	100					Loamy/Clayey	
6-12	2.5yr 3/3	100					Loamy/Clayey	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** x

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** x

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-19-2023

Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 37

Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): Ditch | Local relief (concave, convex, none): concave | Slope (%): 2

Subregion (LRR): LRR F | Lat: 46.778461 | Long: -105.304529 | Datum: NAD83

Soil Map Unit Name: | NWI classification: pemax

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x No
Hydric Soil Present? Yes x No
Wetland Hydrology Present? Yes x No

Is the Sampled Area within a Wetland? **Yes** x **No**

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Typha angustifolia*	30	Yes	OBL
2. *Hordeum jubatum*	20	Yes	FACW
3. *Carex sp.*	10	No	OBL
4. *Rumex crispus*	10	No	FAC
5. *Elymus smithii*	10	No	FACU
6. *Taraxacum officinale*	10	No	FACU
7.			
8.			
9.			
10.			
	90 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	20	x 2 =	40
FAC species	10	x 3 =	30
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	90 (A)		190 (B)

Prevalence Index = B/A = 2.11

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 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.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 37

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
0-4	2.5yr 3/1	98	10yr 4/6	2	C	PL	Loamy/Clayey	
4-16	2.5yr 4/1	98	10yr 4/6	2	C	PL/M	Loamy/Clayey	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- x Depleted Matrix (F3)
- x Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** x **No** ___

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- x Saturation Visible on Aerial Imagery (C9)
- x Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-19-2023

Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 38

Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): Terrace | Local relief (concave, convex, none): concave | Slope (%): 3

Subregion (LRR): LRR F | Lat: 46.778462 | Long: -105.304492 | Datum: NAD83

Soil Map Unit Name: | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x
Hydric Soil Present? Yes ____ No x
Wetland Hydrology Present? Yes ____ No x

Is the Sampled Area within a Wetland? **Yes** ____ **No** x

Remarks:
Upland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Bromus inermis*	60	Yes	UPL
2. *Poa pratensis*	40	Yes	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

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.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: 38

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
0-6	2.5yr 3/2	100					Loamy/Clayey	
6-12	2.5yr 4/3	100					Loamy/Clayey	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** x

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** x

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-18-2023

Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 8

Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): Swale | Local relief (concave, convex, none): Concave | Slope (%): 2

Subregion (LRR): LRR F | Lat: 46.775423 | Long: -105.326792 | Datum: NAD83

Soil Map Unit Name: | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x
Hydric Soil Present? Yes ____ No x
Wetland Hydrology Present? Yes ____ No x

Is the Sampled Area within a Wetland? **Yes** ____ **No** x

Remarks:
Drainage swale

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Agropyron cristatum*	35	Yes	FAC
2. *Bromus tectorum*	35	Yes	FAC
3. *Taraxacum officinale*	15	No	FACU
4. *Lepidium perfoliatum L.*	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	90 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	70	x 3 =	210
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	90 (A)		290 (B)
Prevalence Index = B/A =			3.22

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
X 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.

Hydrophytic Vegetation Present? **Yes** ____ **No x**

Remarks:

SOIL

Sampling Point: 8

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	2.5y 3/2	100					Loamy/Clayey	
10-14	2.5y 3/3	100					Loamy/Clayey	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** x

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** x

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-18-2023

Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 10

Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): Swale | Local relief (concave, convex, none): Concave | Slope (%): 2

Subregion (LRR): LRR F | Lat: 46.776106 | Long: -105.328276 | Datum: NAD83

Soil Map Unit Name: | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x	**Is the Sampled Area within a Wetland?** **Yes** **No** x
Hydric Soil Present?	Yes	No x	
Wetland Hydrology Present?	Yes	No x	

Remarks:
Drainage swale

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Agropyron cristatum*	35	Yes	FAC
2. *Bromus tectorum*	35	Yes	FAC
3. *Taraxacum officinale*	15	No	FACU
4. *Allium textile*	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	90	=Total Cover	
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	70	x 3 =	210
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	90 (A)		290 (B)
Prevalence Index = B/A =			3.22

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- X 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.

Hydrophytic Vegetation Present? **Yes** **No x**

Remarks:

SOIL

Sampling Point: 10

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	2.5y 3/2	100					Loamy/Clayey	
10-14	2.5y 3/3	100					Loamy/Clayey	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** x

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** x

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-18-2023

Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 14

Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): Terrace | Local relief (concave, convex, none): convex | Slope (%): 1

Subregion (LRR): LRR F | Lat: 46.774717 | Long: -105.315553 | Datum: NAD83

Soil Map Unit Name: | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x 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 X	**Is the Sampled Area within a Wetland?** **Yes** **No X**
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks:
upland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Bromus tectorum*	60	Yes	UPL
2. *Elymus smithii*	20	Yes	FACU
3. *Rumex crispus*	10	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	90 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	20	x 4 =	80
UPL species	60	x 5 =	300
Column Totals:	90 (A)		410 (B)

Prevalence Index = B/A = 4.56

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.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks:

SOIL

Sampling Point: 14

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5y 3/2	100					Loamy/Clayey	
6-12	2.5yr 3/3	100					Loamy/Clayey	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** x

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** x

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-18-2023

Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 16

Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): Swale | Local relief (concave, convex, none): concave | Slope (%): 2

Subregion (LRR): LRR F | Lat: 46.774459 | Long: -105.311879 | Datum: NAD83

Soil Map Unit Name: | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 X
Hydric Soil Present? Yes ____ No X
Wetland Hydrology Present? Yes ____ No X

Is the Sampled Area within a Wetland? **Yes** ____ **No** X

Remarks:
upland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Bromus tectorum*	60	Yes	UPL
2. *Agropyron cristatum*	20	Yes	UPL
3. *Taraxacum officinale*	10	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	90 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	10	x 4 =	40
UPL species	80	x 5 =	400
Column Totals:	90 (A)		440 (B)

Prevalence Index = B/A = 4.89

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.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: 16

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5yr 3/2	100					Loamy/Clayey	more silty clay like
6-12	2.5yr 3/3	100					Loamy/Clayey	more silty clay like

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** X

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches): ___

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-18-2023

Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 18

Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): Swale | Local relief (concave, convex, none): concave | Slope (%): 2

Subregion (LRR): LRR F | Lat: 46.774106 | Long: -105.306284 | Datum: NAD83

Soil Map Unit Name: | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x 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 X
Hydric Soil Present?	Yes	No X
Wetland Hydrology Present?	Yes	No X

Is the Sampled Area within a Wetland? **Yes** **No** X

Remarks:
upland swale

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Bromus inermis*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)
Prevalence Index = B/A =			5.00

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.

Hydrophytic Vegetation Present? **Yes** **No** X

Remarks:

SOIL

Sampling Point: 18

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5yr 3/2	100					Loamy/Clayey	more silty clay like
6-12	2.5yr 3/3	100					Loamy/Clayey	more silty clay like

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** X

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches): ___

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-19-2023

Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 26

Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): swale | Local relief (concave, convex, none): concave | Slope (%): 2

Subregion (LRR): LRR F | Lat: 46.778357 | Long: -105.312480 | Datum: NAD83

Soil Map Unit Name: | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x
Hydric Soil Present? Yes ____ No x
Wetland Hydrology Present? Yes ____ No x

Is the Sampled Area within a Wetland? **Yes** ____ **No** x

Remarks:
Created ditch wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Emymus smithii*	55	Yes	FACU
2. *Bromus inermis*	15	No	FACU
3. *Rumex crispus*	5	No	FAC
4. *Taraxacum officinale*	5	No	FACU
5. *Poa pratensis*	10	No	FACU
6.			
7.			
8.			
9.			
10.			
	90 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	85	x 4 =	340
UPL species	0	x 5 =	0
Column Totals:	90 (A)		355 (B)

Prevalence Index = B/A = 3.94

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.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: 26

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
0-4	2.5yr 3/2	100					Loamy/Clayey	
4-16	2.5yr 4/2	100					Loamy/Clayey	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** x

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- x Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** x

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-19-2023

Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 30

Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): swale | Local relief (concave, convex, none): concave | Slope (%): 2

Subregion (LRR): LRR F | Lat: 46.778492 | Long: -105.314905 | Datum: NAD83

Soil Map Unit Name: | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x	**Is the Sampled Area within a Wetland?** Yes ____ No x
Hydric Soil Present?	Yes ____	No x	
Wetland Hydrology Present?	Yes ____	No x	

Remarks:
Created ditch wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Emymus smithii*	55	Yes	FACU
2. *Bromus inermis*	15	No	FACU
3. *Rumex crispus*	5	No	FAC
4. *Taraxacum officinale*	5	No	FACU
5. *Poa pratensis*	10	No	FACU
6.			
7.			
8.			
9.			
10.			
	90 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	85	x 4 =	340
UPL species	0	x 5 =	0
Column Totals:	90 (A)		355 (B)
Prevalence Index = B/A =			3.94

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.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: 30

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
0-4	2.5yr 3/2	100					Loamy/Clayey	
4-16	2.5yr 4/2	100					Loamy/Clayey	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** x

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- x Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** x

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Terry Airport | City/County: Prairie | Sampling Date: 5-19-2023

Applicant/Owner: Prairie County Airport Authority | State: MT | Sampling Point: 32

Investigator(s): Tom Naas; KLJ | Section, Township, Range: S21, T12N, R51E

Landform (hillside, terrace, etc.): ditch swale | Local relief (concave, convex, none): concave | Slope (%): 2

Subregion (LRR): LRR F | Lat: 46.777979 | Long: -105.316840 | Datum: NAD83

Soil Map Unit Name: | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x	**Is the Sampled Area within a Wetland?** **Yes** **No** x
Hydric Soil Present?	Yes	No x	
Wetland Hydrology Present?	Yes	No x	

Remarks:
Upland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Bromus inermis*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

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.

Hydrophytic Vegetation Present? **Yes** **No** X

Remarks:

SOIL

Sampling Point: 32

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	2.5yr 3/3	100					Loamy/Clayey	more clay like
9-16	2.5yr 4/2	100					Loamy/Clayey	more clay like

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ 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** x

Remarks:

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)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ 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)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** x

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

Remarks:

APPENDIX D: Wetland Functional Assessment Reports

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: Terry Airport

2. MDT Project #: **Control #:**

3. Evaluation Date: 05/18/2023 **4. Evaluator(s):** Tom Naas

5. Wetlands/Site #(s): Wetland 1, 3, 5, 11, 19, 21, 23, 27, 33, 35, 37

6. Wetland Location(s): i. Legal: T12N,R51E,21

Latitude/Longitude:

46.775297, -105.323633 : Wetland 3
46.775756, -105.324448 : Wetland 5
46.774276, -105.321002 : Wetland 11
46.776613, -105.309645 : Wetland 19
46.776867, -105.315031 : Wetland 21
46.776915, -105.317037 : Wetland 23
46.778388, -105.314532 : Wetland 27
46.778998, -105.322051 : Wetland 33
46.778062, -105.31294 : Wetland 35
46.778461, -105.304529 : Wetland 37
46.775178, -105.323525 : Wetland 1

ii. Approx. Stationing or Mileposts:

iii. Watershed: 15

Watershed Name, County: Lower Yellowstone, Prairie

7. a. Evaluating Agency: KLJ

b. Purpose of Evaluation:

1. ___ Wetlands potentially affected by MDT project
2. X Mitigation wetlands; pre-construction
3. ___ Mitigation wetlands; post-construction
4. ___ Other:

8. Wetland size: 8.180 acres (measured)

9. Assessment area (AA): 551.640 acres (estimated)

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
D	EM	D	TE	2.00
R	EM	E	SI	2.00
R	UB	E	SI	2.00

Abbreviations: *(see manual for definitions)*

HGM Classes: Riverine (**R**), Depressional (**D**), Slope (**S**), Mineral Soil Flats (**MSF**), Organic Soil Flats (**OSF**), Lacustrine Fringe (**LF**);

Cowardin Classes: Rock Bottom (**RB**), Unconsolidated bottom (**UB**), Aquatic Bed (**AB**), Unconsolidated Shore (**US**), Moss-lichen Wetland (**ML**), Emergent Wetland (**EM**), Scrub-Shrub Wetland (**SS**), Forested Wetland (**FO**)

Modifiers: Excavated (**E**), Impounded (**I**), Diked (**D**), Partly Drained (**PD**), Farmed (**F**), Artificial (**A**)

Water Regimes: Permanent / Perennial (**PP**), Seasonal / Intermittent (**SI**), Temporary / Ephemeral (**TE**)

11. Estimated relative abundance: (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)

COMMON

12. General condition of AA:

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) list)

Conditions within AA	*Predominant conditions adjacent to (within 500 feet of) AA*		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is >=15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is <= 30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is > 30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is <= 15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is <=	moderate disturbance	**moderate disturbance**	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is > 30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.): Most of the AA is untouched land. There is a man-made irrigation ditch that runs east-west throughout the AA. Adjacent land use is predominately for agricultural purposes. There is a highway Northwest of the AA as well as a house to the southern end of the AA.

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: Perennial pepperweed

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: Adjacent land use is predominately for agricultural purposes. There is a highway Northwest of the AA as well as a house to the southern end of the AA.

13. Structural Diversity: (based on number of "Cowardin" ***vegetated*** classes present [do not include unvegetated classes], see #10 above)

Existing # of "Cowardin" Vegetated Classes in AA	**Initial Rating**	**Is current management preventing (passive) existence of additional vegetated classes?**		**Modified Rating**
>= 3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	**M**	NA	NA	NA
1 class, but not a monoculture	M	<-- NO	YES -->	L
1 class, monoculture (1 species comprises >= 90% of total cover)	L	NA	NA	NA

Comments: There are two classes present within the AA.

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):

Primary or critical habitat (list species)	**Secondary habitat (list species)**	**Incidental habitat (list species)**
		Monarch Butterfly(S)

ii. Rating (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	*doc/primary*	*sus/primary*	*doc/secondary*	*sus/secondary*	*doc/incidental*	*sus/incidental*	*None*
Functional Points and Rating	1H	.9H	.8M	.7M	.3L	**.1L**	0L

Sources for documented use (e.g. observations, records, etc): IPaC and MTNHP

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above)

i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions): No usable habitat

Primary or critical habitat (list species)	**Secondary habitat (list species)**	**Incidental habitat (list species)**

ii. Rating (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	*doc/primary*	*sus/primary*	*doc/secondary*	*sus/secondary*	*doc/incidental*	*sus/incidental*	*None*
***S1 Species:** Functional Points and Rating*	1H	.8H	.7M	.6M	.2L	.1L	0L
***S2 and S3 Species:** Functional Points and Rating*	.9H	.7M	.6M	.5M	.2L	.1L	**0L**

Sources for documented use (e.g. observations, records, etc): Come back to this once MTNHP sends info

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA (circle substantial, moderate, or low based on supporting evidence):

Substantial (based on any of the following [check]):
- ___ observations of abundant wildlife #s or high species diversity (during any period)
- ___ abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ___ presence of extremely limiting habitat features not available in the surrounding area
- ___ interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):
- ___ few or no wildlife observations during peak use periods
- X little to no wildlife sign
- ___ sparse adjacent upland food sources
- ___ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):
- ___ observations of scattered wildlife groups or individuals or relatively few species during peak periods
- ___ common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ___ adequate adjacent upland food sources
- ___ interviews with local biologists with knowledge of the AA

ii. Wildlife habitat features (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent vegetated classes must be within 20% of each other interms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								Low			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in >=10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	**H**	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating)

Evidence of wildlife use (i)	*Wildlife habitat features rating (ii)*			
	Exceptional	High	Moderate	Moderate
Substantial	1E	.9H	.8H	.7M
Moderate	.9H	.7M	.5M	.3L
Minimal	.6M	**.4M**	.2L	.1L

Comments: Come back to this

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then mark **X NA** and proceed to 14E.)

Type of Fishery: Cold Water **(CW)** ___ Warm Water **(WW)** ___ **Use the CW or WW guidelines in the user manual to complete the matrix**

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.2L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? ___ *If yes, reduce score in i above by 0.1.*

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ___ *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia.***

iii. Final Score and Rating: NA **Comments:** N/A

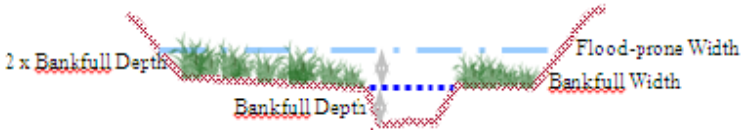
14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark **X NA** and proceed to 14F.)

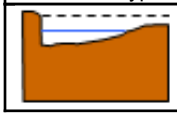
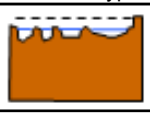
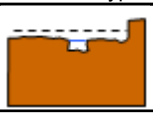
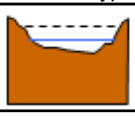
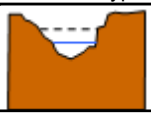
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width) Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.

/	=	
Flood-prone width	*Bankfull width*	*Entrenchment ratio (ER)*



Slightly Entrenched ER = >2.2			**Moderately Entrenched ER = 1.41 – 2.2**	**Entrenched ER = 1.0 – 1.4**		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type
						

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? ___ **Comments:** N/A

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, mark ___ **NA** and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			1.1 to 5 acre feet			<=1 acre foot		
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond **>= 5 out of 10 years**	1H	.9H	.8H	.8H	.6M	.5M	.4M	**.3L**	.2L
Wetlands in AA flood or pond **< 5 out of 10 years**	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments: Flooding can cause ponding in areas of the AA.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, mark **X** **NA** and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H=high, M=moderate, or L=low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	>= 70%		< 70%		>= 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments: N/A

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, mark **X** **NA** and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

*% Cover of **wetland** streambank or shoreline by species with stability ratings of >=6 (see **Appendix F**).*	*Duration of surface water adjacent to rooted vegetation*		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
>= 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
35%	.3L	.2L	.1L

Comments: N/A

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	**M**	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component < 1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1H	.7M	.8H	.5M	.6M	.4M	.9H	.6M	.7M	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7M	.4M	.5M	.3L	.8H	.5M	**.6M**	.3L	.4M	.2L	.7M	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with >= 30% plant cover, = 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average >= 50 foot-wide vegetated upland buffer around >= 75% of the AA circumference? **X** *If yes, add 0.1 to the score in ii above.*

iv. Final Score and Rating: **0.70M** **Comments:** Come back to this

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

___	The AA is a slope wetland
___	Springs or seeps are known or observed
___	Vegetation growing during dormant season/drought
X	Wetland occurs at the toe of a natural slope
___	AA permanently flooded during drought periods
___	Wetland contains an outlet, but no inlet
___	Shallow water table and the site is saturated to the surface
___	Other:

ii. Recharge Indicators

___	Permeable substrate present without underlying impeding layer
X	Wetland contains inlet but no outlet
___	Stream is a known 'losing' stream; discharge volume decreases
___	Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

	Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM*			
Criteria	P/P	S/I	T	None
Groundwater Discharge or Recharge	**1H**	.7M	.4M	.1L
Insufficient Data/Information	N/A			

Comments: One wetland was identified as being possibly groundwater driven.

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	**.3L**	.2L
High disturbance at AA (#12i)	.8H	.7M	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments: COme back to this

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (circle) ___ (if 'Yes' continue with the evaluation; if 'No' then mark **X** **NA** and proceed to the overall summary and rating page)

ii. Check categories that apply to the AA: ___Educational/scientific study; ___Consumptive rec.; ___Non-consumptive rec.; ___Other :

iii. Rating:

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments: N/A

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Wetland 1, 3, 5, 11, 19, 21, 23, 27, 33, 35, 37

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Wetland Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0.10	1	55.16	*
B. MT Natural Heritage Program Species Habitat	L	0.00	1	0.00	*
C. General Wildlife Habitat	M	0.40	1	220.66	*
D. General Fish Habitat	NA				
E. Flood Attenuation	NA				
F. Short and Long Term Surface Water Storage	L	0.30	1	165.49	
G. Sediment/Nutrient/Toxicant Removal	NA				
H. Sediment/Shoreline Stabilization	NA				
I. Production Export/Food Chain Support	M	0.70	1	386.15	
J. Groundwater Discharge/Recharge	H	1.00	1	551.64	*
K. Uniqueness	L	0.30	1	165.49	
L. Recreation/Education Potential (bonus points)	NA				
Totals:		2.80	7.00	1,544.59	
Percent of Possible Score			40%		

Category I Wetland: (must satisfy one of the following criteria; otherwise go to Category II)
____ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
____ Score of 1 functional point for Uniqueness; **or**
____ Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; **or**
____ Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; otherwise go to Category IV)
____ Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
____ Score of .9 or 1 functional point for General Wildlife Habitat; **or**
____ Score of .9 or 1 functional point for General Fish Habitat; **or**
____ "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
____ Score of .9 functional point for Uniqueness; **or**
____ Percent of possible score > 65% (round to nearest whole #).

Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)

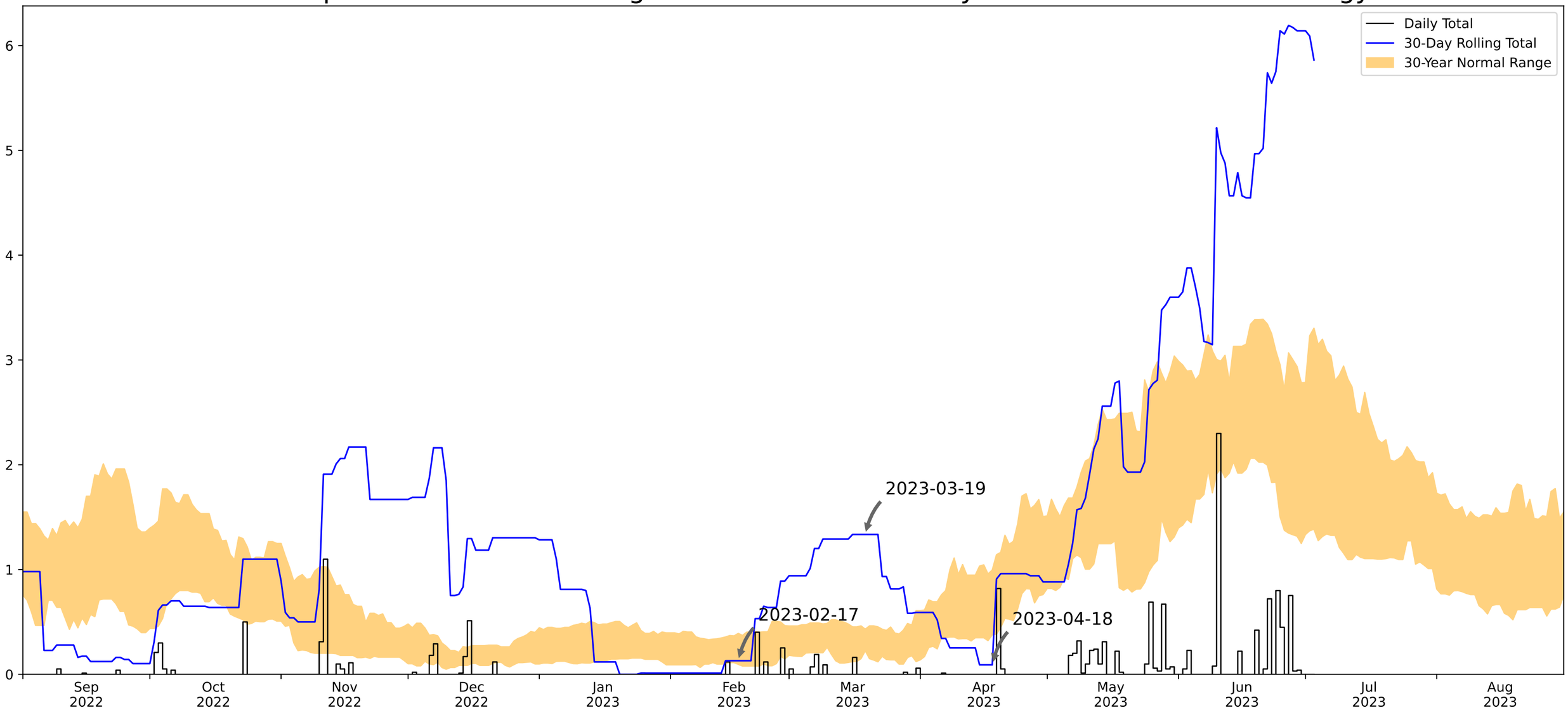
Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)
X "Low" rating for Uniqueness; **and**
____ Vegetated wetland component 1 acre (do not include upland vegetated buffer); **and**
____ Percent of possible score 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: III

Summary Comments: The wetlands identified were located predominately alongside created ditches.

APPENDIX E: Antecedent Precipitation GraphsAntecedent Precipitation Graph

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	46.776384, -105.314885
Observation Date	2023-04-18
Elevation (ft)	2285.881
Drought Index (PDSI)	Normal
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
2023-04-18	0.377953	0.995276	0.090551	Dry	1	3	3
2023-03-19	0.224803	0.430709	1.334646	Wet	3	2	6
2023-02-17	0.095276	0.390551	0.129921	Normal	2	1	2
Result							Normal Conditions - 11

US Army Corps of Engineers

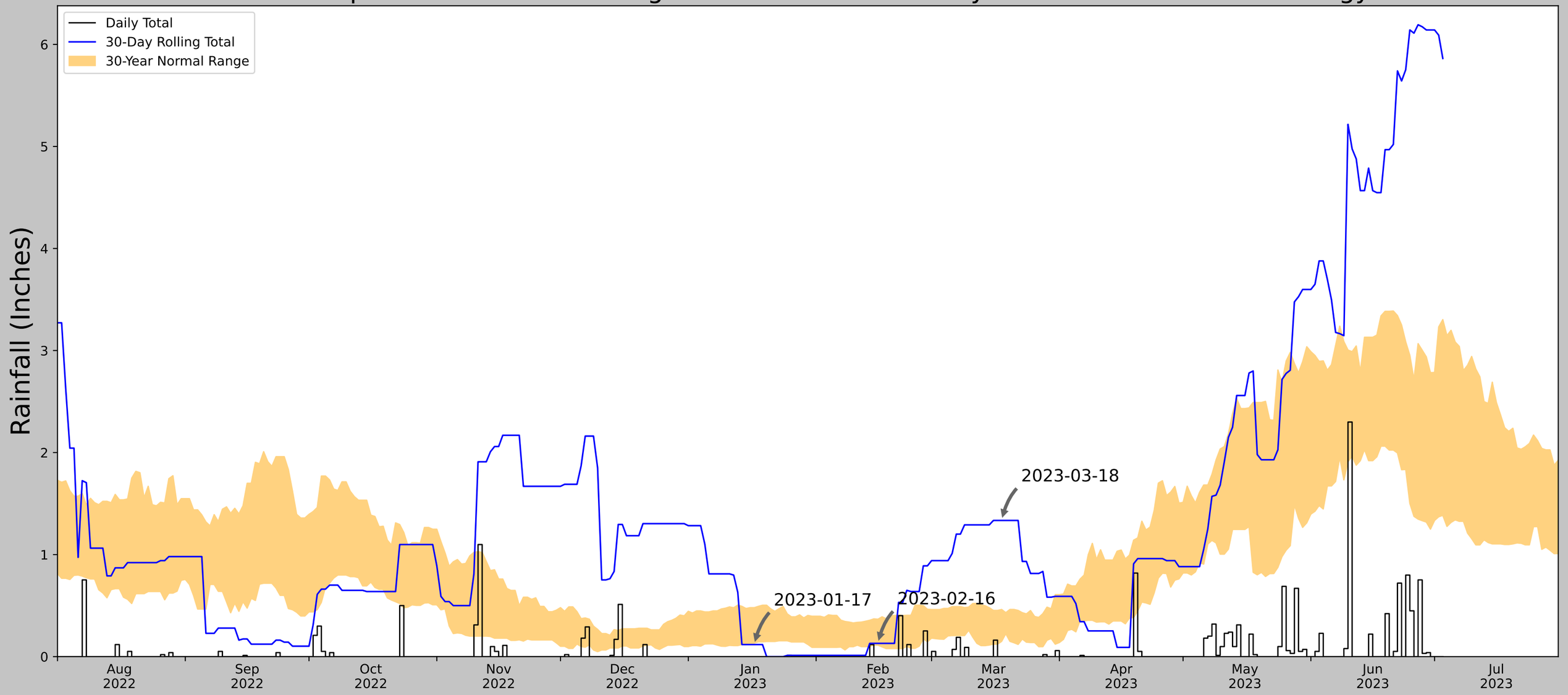
ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
TERRY	46.7939, -105.3022	2250.0	1.351	35.881	0.656	10731	87
MILDRED 7 NNW	46.7697, -105.0342	2549.869	12.79	299.869	9.591	575	3
HOYT 2 WSW	46.9192, -104.8967	2126.969	21.024	123.031	12.047	45	0
KINSEY 2.3 W	46.5704, -105.7049	2366.142	24.553	116.142	13.9	2	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	46.776384, -105.314885
Observation Date	2023-03-18
Elevation (ft)	2285.881
Drought Index (PDSI)	Incipient wetness
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
2023-03-18	0.149606	0.462205	1.334646	Wet	3	3	9
2023-02-16	0.111811	0.366535	0.129921	Normal	2	2	4
2023-01-17	0.132677	0.479921	0.11811	Dry	1	1	1
Result							Normal Conditions - 14

US Army Corps of Engineers

ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
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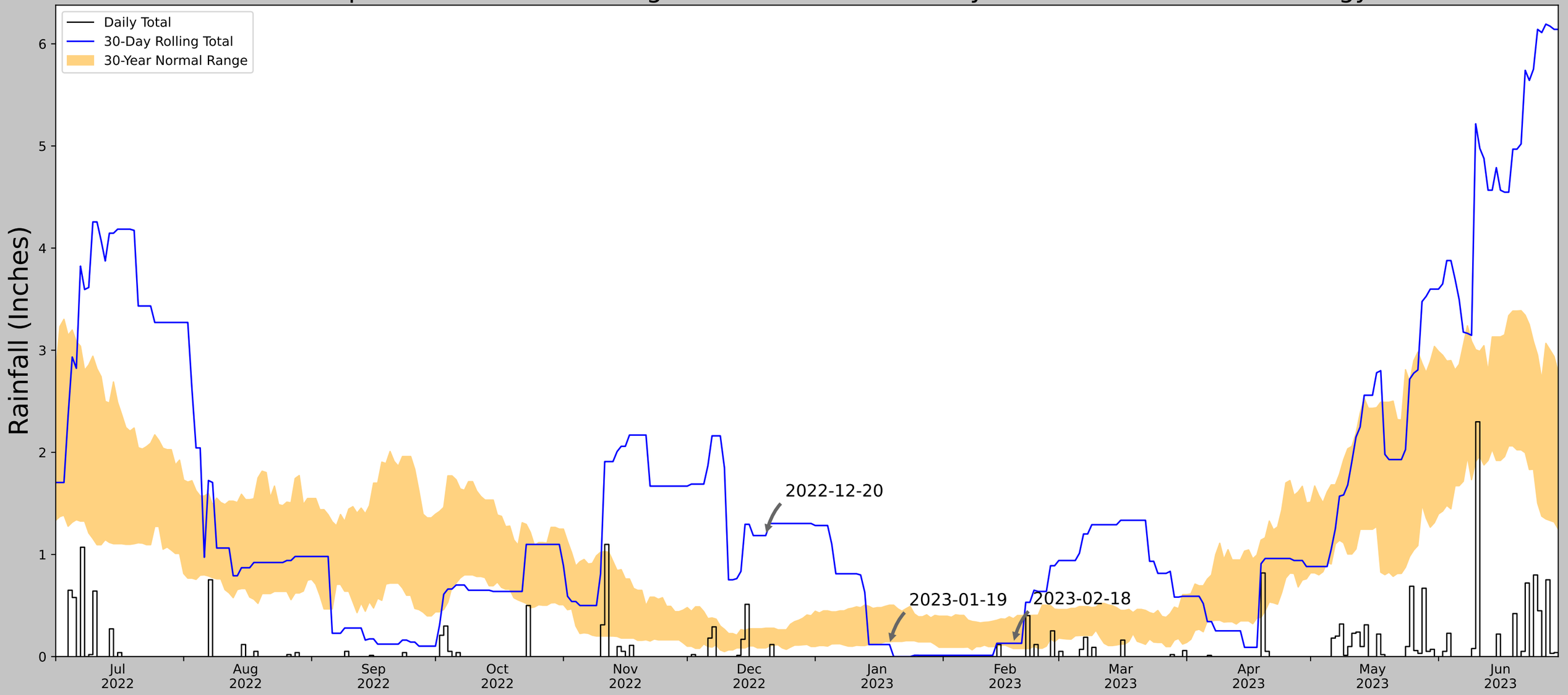
HOYT 2 WSW	46.9192, -104.8967	2126.969	21.024	123.031	12.047	45	0
KINSEY 2.3 W	46.5704, -105.7049	2366.142	24.553	116.142	13.9	2	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	46.776384, -105.314885
Observation Date	2023-02-18
Elevation (ft)	2285.881
Drought Index (PDSI)	Incipient wetness
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
2023-02-18	0.07874	0.37126	0.129921	Normal	2	3	6
2023-01-19	0.144882	0.503937	0.11811	Dry	1	2	2
2022-12-20	0.084646	0.278346	1.185039	Wet	3	1	3
Result							Normal Conditions - 11

US Army Corps of Engineers

ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
TERRY	46.7939, -105.3022	2250.0	1.351	35.881	0.656	10731	87
MILDRED 7 NNW	46.7697, -105.0342	2549.869	12.79	299.869	9.591	575	3
HOYT 2 WSW	46.9192, -104.8967	2126.969	21.024	123.031	12.047	45	0
KINSEY 2.3 W	46.5704, -105.7049	2366.142	24.553	116.142	13.9	2	0