Standard Operating Procedure

(RP.3.1A)

October 2023

Research and Testing Area Policy and Standard Operating Procedure

SUMMARY

1. Situation. The Director of RELLIS Campus is responsible for information, instructions, and procedures governing the use of Research and Testing Areas (RTA) and Airspace (in accordance with FAA regulations and TAMUS Regulation 02.03.01 RELLIS Campus) operated and controlled by RELLIS Campus Administration.

2. Mission. These procedures establish responsibilities and provide instructions for all organizations operating within the confines of RELLIS.

3. Execution

    a. Intent

        i.   All organizations will implement this procedure, or any supplementary germane instructions directly related to RELLIS RTAs not necessarily contained or enclosed herein.

        ii. Personnel operating within RELLIS RTAs will operate in a safe manner, preserving life, equipment, and natural resources. RELLIS will be managed in a way that maximizes safe, effective training and testing/experimentation opportunities for all who use the RTAs (resident or visiting organizations).

        iii. All personnel will use Operational Risk Management (ORM) during all planning and execution stages of operations.

    b. Concept of Operations. The Associate Director for Operations, in concert with the RELLIS Director, will establish and provide operating procedures to be distributed and organizations utilizing RELLIS RTAs shall review and adhere to procedures. All utilizing RELLIS Campus will bring to the attention of the RELLIS Operations Center (ROC) and using organizational chain of command through established procedures the existence of, or potential for, any unsafe operation or working condition.

    c. Coordinating Instructions

        i.   Guidelines. These procedures govern the use of the RELLIS RTAs. It specifies responsibilities, gives descriptions of available areas for testing, experimentation, and training, provides instructions on how to reserve areas, and defines safety regulations for all operations, including ground and air operations, pertaining to RELLIS.

        ii. Resources. The procedures are based on operational and training experiences as well as safety considerations. They have been developed in a manner allowing organizations to use resources on RELLIS efficiently and achieve testing and research goals while ensuring an acceptable level of safety precautions are met. Safety considerations are paramount.

iii. Safety. Safety is the responsibility of every individual at all times and is a key factor in success in all activities. Concerns for safety should never be limited to the Research or Testing event itself and should always include associated activities like movement to and from training/test site or post event cleanup.

iv. Accidents and Incident Reporting. RELLIS Operations Center will be kept informed of any accident or incident that constitutes a serious or significant event which may require notification to the Chancellor, Texas A&M University System *(e.g.*, *incident requiring ambulatory services, significant damage to Campus property, or threat to people or property).*

v. Recommendations. Organizations utilizing RELLIS RTAs are encouraged to submit recommendations concerning improvements or changes to the RELLIS Operations Center (Associate Director for Operations).

4. Application. These Procedures apply to all organizations and activities granted authorized use of the RTAs and Airspace.

5. Changes and Corrections. Send all changes and/or corrections to the POCs below in the event the information herein is incorrect, becomes obsolete, and/or needs updated.

6. Points of Contact. For questions or concerns regarding operations at RELLIS or information within this SOP, contact the RELLIS Operations Center (operations@rellis.tamus.edu).

   a. Director of Operations: 979-317-1047

   b. Assistant Director, Operations: 979-317-1056

   c. Assistant Director, Environmental Health and Safety: 979-317-1008

Kelly Templin
Director, RELLIS Campus

ABBREVIATIONS and ACRONYMS

A&E – Ammunition and Explosives

ASO – Aviation Safety Officer

ATC – Air Traffic Control

BVLOS – Beyond Visual Line of Sight

CASEVAC – Casualty Evacuation

CIO – Chief Information Officer

CLL – Easterwood Airfield

COA – Certificate of Authorization

CONOPS – Concept of Operations

FPV- First Person View

FTS – Flight Termination System

GCS – Ground Control Station

IAW – In Accordance With

LAANC – Low Altitude Authorization and
Notification Capability

LRZ – Launch and Recovery Zone

MEDEVAC – Medical Evacuation

NAS – National Airspace System

NOTAM – Notices to Airmen

OIC – Officer in Charge

ORM – Operational Risk Management

PI – Principal Investigator

PG – Proving Grounds

PIC – Pilot in Charge

POV – Privately-Owned Vehicles

PSA – Project Safety Analysis

RM – Risk Management

ROC – RELLIS Operations Center

RPIC – Remote Pilot in Charge

RRS – RELLIS Reservation System

RSO – Range Safety Officer

RTA – Research and Testing Area

SAC – Supervisory Authority Committee

SC – Safety Coordinator

SDZ – Surface Danger Zone

SO – Safety Officer

SOP – Standard Order Operation

TAMUS – Texas A&M University System

TC – Test Conductor

UAS – Unmanned Aircraft Systems

UHF – Ultra High Frequency

FW – Fixed Wing

VHF – Very High Frequency

VO – Visual Observer

VRF – Visual Flight Rules

VTOL – Vertical Takeoff and Landing

WDZ – Weapons Danger Zone

CONTENTS OF THE STANDARD OPERATING PROCEDURES FOR RELLIS RESEARCH AND TESTING AREAS

Record of Change

Change Number	Date of Change	Description of Change	Change Made by:

CHAPTER 1 – General and Safety

The procedures prescribe the general requirements, limitations, and safety precautions to be taken while conducting activities within the RELLIS experimentation, testing and training complex. The experimentation, testing and training range complex (RTAs) consists of the land space designated as ranges, aviation and ground experimentation and testing areas.

1. Purpose and Scope

    a. Purpose. The primary purpose of this document is to establish procedures which will guide and support the execution of safe experimentation, testing and training on RELLIS.

    b. Scope. Organizations operating on RELLIS will utilize, maintain, and have access to their organizational standard operating procedures and documented safety procedures while conducting activities within the RTAs. The RELLIS SOP is a document providing instruction and basic guidelines for the safe execution of activities on RELLIS.

2. RELLIS Research and Testing Area (RTA) Overview

    a. All experimentation, testing and training areas will be referred to as RTA in this document to include named ranges and experimentation/test areas such as IPG, BAM and firing ranges.

    b. The RELLIS Reservation System will be utilized to schedule use of all RTAs on RELLIS. Further information can be found in Chapter 3 Scheduling of this document.

3. Responsibilities

    a. The RELLIS Associate Director for Operations

        i. Plans, coordinates, and supervises the development, modernization, maintenance, and operation of the RELLIS RTAs.

        ii. Establishes and updates policy, guidance, oversight, assignments, and scheduling procedures for the use of all RELLIS RTAs.

        iii. Publishes and updates appropriate directives, messages, and correspondence concerning all RTAs, airspace, and their required support.

        iv. Conducts continuous reviews of RELLIS complex and established Texas A&M University System (TAMUS) policies to facilitate safe operational environment.

        v. Programs for operational support for RTA modernization, maintenance, and repairs in coordination with RELLIS tenant organizations, and other agencies as required.

        vi. Serves as the central point for scheduling, operations control, and range safety. Facilitates coordination for all activities conducted within the RTA and adjudicates any scheduling and prioritization issues.

b. Chief, RELLIS Operations Center (ROCC)

    i. Provides scheduling, safety, and command and control services in support of organizations utilizing the RELLIS Complex. The Operations Center is located on RELLIS in Building 8081, 1484 Avenue A, Bryan, Texas 77807.

    ii. The ROCC maintains and manages scheduling of all activities within the RTAs through the use of the online RELLIS Reservation System.

    iii. The ROCC is responsible for implementation of the RELLIS RTA safety program.

    iv. Maintains and updates files of current, historical, active, and inactive usage data of the RTA complex.

    v. Provide Individual in Charge/Safety Officer Information Safety Briefs to include:

        1. Installation training complex facilities.

        2. Installation procedures for signing for opening/closing ranges, training areas and training facilities.

        3. Communications requirements for operations center.

        4. Medical Evacuation/Casualty Evacuation procedures.

        5. Reporting criteria and procedures for environmental issues and other serious incidents.

c. Officer in Charge (OIC)/Principal Investigator (PI)/Test Conductor (TC) **(These are roles/responsibilities not intended to be specific billets or job positions)**

    i. Every activity conducted within the RTAs will have someone in charge during the execution of the activity. The person in charge or succession of personnel in charge must be assigned in writing and submitted to the RELLIS Operations Center via attachment to organizations reservation in the Scheduling System. The person in charge will ensure: A safety brief is given to all personnel participating in activities associated within the RTA; all safety equipment and personnel, if required, are on hand prior to start of scheduled activity; maintain capability to request emergency support at all times and at any time where there is a loss in the ability to request emergency support will cease all activities until the means to communicate is re-established.

    ii. Establish all control measures (signs, barriers or road guards if required) for the Surface Danger Zone (SDZ)/Weapons Danger Zone (WDZ)/target area (Impact Area)/Test Area are in place, enforced, and supervised to prohibit entry by unauthorized personnel/vehicles.

    iii. Develop Risk Management (RM) procedures for all phases of activities in accordance with this SOP and their organization's equivalent. A typewritten RM worksheet/matrix signed by using organization leadership/authorized persons

will be submitted with a reservation request to RELLIS Operations via the scheduling system and will be kept on hand by the OIC/PI/TC. If it is a third party submitting an RM, the host organization must also sign off on the RM to account for any additional risk not known by the submitting party.

    iv.   The OIC/PI/TC will be onsite during the execution of the entirety of the activity (There should always be someone in charge at the testing/training area).

    v.   Responsible for accountability of personnel and equipment for their activity while operating in the RTA.

    vi.   Responsible for meeting all reporting requirements as determined in ANNEX D to include occupying the scheduled RTA, commencement and ending of activity, and departure from the RTA. The OIC/PI/TC will ensure the cleanup and repair (if required) of the RTA prior to checking out of the RTA with RELLIS Operations Center.

d.   Safety Officer (SO)/Safety Coordinator (SC)

    i.   Every organization will identify someone responsible for safety during all activities within the RTAs (ex. Lead instructors, test director or OIC). The SO/SC is responsible for the enforcement of applicable safety regulations contained in this SOP, Texas A&M University System directives, and other applicable field, technical, and ordnance publications.

    ii.   Will ensure compliance with organizational safety standards and remain vigilant during the execution of activities observing for unsafe situations to prevent injury or destruction/damage of property.

    iii.   The SO/SC must be assigned in writing and submitted to the RELLIS Operations Center via attachment to organizations reservation in the Scheduling System.

    iv.   Ensure that the Test Area remains clear of unauthorized personnel, vehicles, and any aircraft prior to and during execution of activities. As applicable, ensure road guards and air observers are properly positioned, equipped, and briefed in their duties and assignments. When applicable, secure all barriers, ensure all signs and gates are checked and secured as required. If road guards are being used, SO/SC will ensure proper communications are established and maintained between the road guards and air observers during the event.

    v.   Ensure personnel within designated RTA wear proper personal protective gear as required (ear plugs, eye protection, etc. as identified by the using organization).

    vi.   Maintain communications with RELLIS Operations Center and ability to dial 911 at all times. **When communications are lost to emergency services, cease all activities until communications are reestablished**.

    vii.   Ensure all safety equipment identified by the using organization in their submitted risk assessment is onsite to include a designated safety/emergency vehicle and/or medical personnel as required for the activity.

viii. Will complete the RELLIS Proving Grounds Information and Safety Brief via TrainTraq and will incorporate any risk factors into their risk assessment/matrix and daily safety briefs to personnel conducting activities.

4. Safety

a. Safety is the responsibility of every individual, at all times, and is a key factor in the successful completion of any activity. Concerns for safety should never be limited to the event itself, but should always include associated activities as well, including any movement to and from the event, maintenance/cleanup activities, etc.

b. Any individual who observes an unsafe condition shall report the location and condition immediately to their supervisor and to RELLIS Operations Center. Any event affected by the unsafe condition shall be halted until the unsafe condition has been corrected.

c. Effects of live fire or any experimentation/testing must be contained within designated impact areas or scheduled test areas. Associated surface danger zones (SDZ)/weapon danger zones (WDZ) will be submitted for all nonpermanent firing ranges or demo ranges.

d. Safety policies and procedures of using organizations or instructions contained in references from operating manuals (e.g., Field, technical or operators Manuals) will be followed during execution of activities on RELLIS.

e. For organizations who don't have safety policies for planning, an example of the Texas A&M Engineering Experiment Station's Project Safety Analysis guide for developing a project specific safety plan can be provided upon request.

5. Risk Management

a. ORM is a decision-making process that enhances operations and through risk reduction. RM and risk assessment are formal, essential tools for planning successfully. It is a method for identifying hazards, assessing risks, and implementing controls to reduce the risks associated with any and all operations or training events. Successful implementation of the ORM process will increase operational effectiveness while minimizing unnecessary loss of assets, both personnel, and material.

b. Basic Principles of ORM

i. Accept risk when the benefits outweigh the cost.

ii. Accept no unnecessary risk.

iii. Anticipate and manage risk by planning.

iv. Make risk decisions at the appropriate command level.

c. An operational risk matrix/worksheet will be utilized for every activity within the RTA and be submitted/attached to the RTA reservation request. The matrix must be approved by the requesting organization prior to execution of the activity. See APPENDIX D for an example.

d. Daily, prior to the execution of any test, demonstration or event, a pre-operations huddle with all involved individuals shall occur reviewing the risk assessment form providing each person an opportunity to speak, providing a venue to voice concerns or suggestions. This function is to elevate the awareness of hazards that may seem mundane but if not thought of or addressed could cause catastrophic consequences. A record of each huddle shall be maintained as part of the test, event or operations file documents and are subject to RELLIS EHSD spot checks.

e. For recurring activities (e.g., crash tests), a new risk assessment is not required unless there is a change to the activity or personnel responsible for conducting the activity and risk assessment changes. A review of the recurring activity risk assessments must be done every six months from submission and a new risk assessment submitted annually.

6. Required Training

a. Prior to utilizing any RTA or facility, the OIC/PI/TC or SO/SC must have completed the RELLIS Proving Grounds Information and Safety Brief via TrainTraq. Proof of completion will be checked periodically by RELLIS Safety.

b. Using organizations will certify all required individuals have completed the RELLIS Proving Grounds Information and Safety Brief via TrainTraq.

c. Annual refresher training is required.

7. RELLIS Proving Grounds Security Plan

a. The Security Plan was developed and implemented to identify potential vulnerabilities which may pose a threat to operations on the Proving Grounds.

b. See APPENDIX H for the complete Security Plan.

8. Access to RTAs

a. Access to RTAs is limited to only those with a need to be in the RTA for work related to research, testing or training. This is to ensure the safety and security of campus operations.

b. For access to the RTAs, individuals will contact RELLIS Administration to receive the link for requesting access. Upon sponsor/supervisor's approval, the information will be used for a due diligent review through the TAMUS/TAMU SSO office.

c. Unescorted access will be denied to anyone one the current list of "Countries of Particular Concern" as defined by the State Department.

d. Individuals requesting unescorted access with an existing security clearance verified in JPAS will be fast tracked.

e. Organizations will maintain access rosters for all personnel that work inside the fence line or require access to RTAs. A copy of the access rosters will be provided to RELLIS

Operations and Chief Information Officer (CIO) for use in managing access at the gates and updated annually on September 1st.

f.   Anyone without access will need to be escorted by their sponsor. To gain visitor access, a visitor request form will be submitted and signed by the sponsor, who is assuming responsibility for the individual or individuals. A sponsor is anyone who has access to the RTAs and has been given authority by their organizations to assume responsibility for visitors. RELLIS Administration will issue visitor badges based on organizations recommendation of escorted or unescorted access.

g.   All security gates will be kept closed and locked. The combination and codes for access will be treated as sensitive information and tight control should be used by authorized users- do not share combinations.

h.   All persons within an RTA or behind the runway area fence line must be on an approved access roster for each test or activity being conducted.

   i.   The roster of approved personnel for an event where an RTA is being reserved should be included in the reservation and submitted to the sponsoring organization no later than 24 hours prior to the execution of the activity.

   ii.   The organization conducting the activity will be responsible for all associated with the event.

   iii.   Visitors shall ensure personnel are accounted for at all times. Accountability should be completed prior to and immediately after entering the RTAs.

   iv.   For Construction firms requiring access for their employees, coordinate with RELLIS Administration for entrance procedures for each project.

i.   Vehicle access.

   i.   Transit lanes. See APPENDIX C.

      1.   All vehicles shall use Rellis Parkway and/or approved transit lanes when transiting the RELLIS Proving Grounds, obeying the speed limit and adhering to all signage.

      2.   Occasionally, transit lanes will be barricaded for safety purposes during certain activities. Vehicles must find an alternate route and not bypass any barriers.

   ii.   No vehicle will be operated beyond a gate without a responsible individual with gate access or an individual with an approved RELLIS visitor badge. It is the responsibility of the using organization to ensure all individuals at their event or workspace are authorized to be there.

   iii.   Vehicles should be kept to a minimum. Project/Program Leads should limit the number of vehicles on the Proving Grounds. Carpooling and/or shuttling should be used to the maximum extent possible.

iv. Personally owned vehicles authorized to be in the RTAs will have an Authorized Vehicle Placard displayed on their dashboard while operating in the RTAs. Vehicle Placards will be issued to visitors who meet access requirements. System Members located on RELLIS have delegated authority to manage internal vehicle placards.

v. Per paragraph 5.a., event and access rosters will be maintained and submitted to RELLIS prior to an event/activity. Vehicle information should be managed by the sponsoring organization.

9. Recreational Vehicles. Privately-owned recreational vehicles, such as three and four-wheeled, all-terrain vehicles, dirt or trail bikes, mountain bikes, dune buggies, go-carts, and any regular four-wheeled vehicles are not authorized within any RELLIS RTA without approval of the RELLIS Operations Center. All authorized POV's will have displayed in their windshield a vehicle authorization placard issued by RELLIS Administration or sponsor TAMUS organization.

10. Accidents and Incident Reporting

a. Accidents and mishaps can and will occur on the campus, ranges, and/or RTA (i.e., vehicle accident, fall, trip, laceration or near miss/hit). The primary focus will be taking care of any injuries and caring for our students, faculty, and workers. ALL incidents, accidents and Near Misses/Hits will be reported to the RELLIS Administration. It is recognized that there are two lines of communication for notification for the majority of the operations, tests or events on the RELLIS- first is the using organizations chain of command and with co-reporting to the RELLIS Administration via RELLIS Operations Center or RELLIS EHS. **For all emergency support services dial 911 (police, fire, ambulance).**

b. For incident/accident reporting, the primary reporting method is through the web base application ORIGAMI: https://www.tamus.edu/safety/health-safety/. All TAMUS organizations will use the TAMUS incident reporting system (Origami). For incidents/accidents involving non-TAMUS organizations the sponsor TAMUS organization will report the incident using the non TAMUS employee function within Origami. TAMUS organizations should contact their safety officer for additional guidance on the use of Origami. If the incident or accident causes injury or property damage utilize the Submit an Incident tab of O if the event resulted in a Near Miss/Hit use the Submit a Safety Concern tab.

c. The below are the information requirements for initial incident reporting:

i. Date and Time of Event

ii. Date and time of Employer / TAMUS notification

iii. Location of Event (to include street address if available).

iv. Event Description.

     v.   Number and description of injured personnel (both TAMU/TAMUS employees and non-employees).

     vi.   Number and description of damaged vehicles (all vehicles).

     vii.   Description of damaged property

     viii.   Was 911 called and was an official Report Filed?

d. Follow on reporting:

     i.   Name of who is reporting.

     ii.   Names of Injured (if releasable)

     iii.   Physician diagnosis (type of injury)

     iv.   Current disposition- released or admitted.

     v.   Way ahead/next step if required.

11. Medical Evacuations

a. All injuries that occur within RTAs or training facilities requiring immediate medical attention and evacuation shall be reported directly to the organization's chain of command and RELLIS Administration by the organization. **There are no medical capabilities on RELLIS, and the closest medical facility is St Joseph Health Regional Hospital 2801 Franciscan Drive, Bryan, Tx 77802. For emergency response dial 911.**

b. When reporting a serious injury, it is critical to have the incident details, victim injuries, and assets necessary to best address victim injuries are clearly articulated to the 911 operator. The using organization is responsible for initial mishap/incident site control to prevent site contamination for mishap/incident investigations. These procedures apply to all on RELLIS that get injured in or on RTAs and training facilities.

c. The responsibility for determining the necessity for a medical evacuation rest with using organization. Examples requiring urgent medical evacuation include:

     i.   Chest pain that does not go away when sitting for a few minutes.

     ii.   Intense and uncontrollable pain.

     iii.   Head injury with loss of consciousness.

     iv.   Deep lacerations with uncontrollable bleeding.

     v.   Chemicals splashed in the eyes.

     vi.   Severe asthma attacks with shortness of breath that prevents talking.

     vii.   Possible poisoning or overdose.

viii.   Sudden weakness on one side of the body.

ix.   Serious fractures, broken bones; or

x.   Poisonous Snake bite(s).

d.   For incidents requiring emergency response, organizations should have someone meet the emergency vehicles at the gate on Airfield Road. If unable, RELLIS Administration personnel can facilitate escorting emergency vehicles to the site.

12. Destructive Weather Warnings and Conditions

a.   The RELLIS Emergency Operations Plan is the primary source of information that addresses emergencies that may occur on campus.

b.   Storms are a potential and continuous threat on and around RELLIS. Adequate and timely warning, coupled with prompt and effective actions by all, will reduce loss of life and damage to property due to destructive weather conditions.

c.   The RELLIS Administration will provide notices but the responsibility for tracking and responding appropriately to impending severe weather lies with the PI or senior controlling individual on site. A notification to cease all activities and seek shelter will be given as conditions dictate, per paragraph 15 below.

d.   OIC/PI/TC and SO/SC are required to have a destructive weather plan when operating during forecasted weather periods.

e.   RELLIS has a lightening prediction system that will provide an alert when conditions exist for lightening occurrences. When the alert system is activated all campus members conducting outdoor activities should begin to take appropriate actions. The current proximity for seeking shelter is 8 miles for lighting, this distance shall be used as a guide for sheltering decisions for other types of severe (weather hail, tornado etc).

f.   It is recommended that OIC/PI/TC and SO/SC monitors the National Weather Service and use up to date weather applications to make informed decisions.

13. Fire Danger

a.   Current fire danger ratings can be found at: https://tfsweb.tamu.edu/DailyFireDanger/.

b.   OIC/PI/TC and SO/SC should take any and all precautions necessary to reduce the risk of starting inadvertent fires. For example: Vehicle undercarriages and exhausts can get hot enough to catch fire to nearby ground cover/grass. Do not leave the engine running while parked during high fire rating periods.

c.   All activities involving motor vehicles or explosive devices shall have a fire extinguisher on hand during execution of scheduled activities within the RTAs.

14. Heat Conditions. Given RELLIS' geographical location and summer climate conditions, OIC/PI/TC and SO/SC should take any and all precautions necessary to reduce the risk of heat related illnesses to their team while on the PG.

15. Campus Closure. All users should be familiar with, and refer to, RELLIS Campus Closure Standard (RS.1.5) for events that may affect activity on the campus.

CHAPTER 2 – RTA OPERATIONS

1. General

   a. Experimentation, testing, firing ranges and training areas are established by the Director, RELLIS Campus. When organizations are the primary users of a particular area, they do not inherit title to those areas, and possess no authority to modify the nomenclature, purpose, or design of any range. Recommendations to improve areas and facilities should be submitted to the RELLIS Operations Center (ROC).

   b. ROC personnel are authorized access to all areas and facilities for the purpose of inspection and investigation at all times. These personnel will not disrupt organizational activities unless it is necessary to perform their duties. Organizations will not interfere with these personnel in the performance of their duties. For any closed testing or other activities with restricted access, ROC personnel will notify the sponsor organization if they need access to the area.

      i. Safety is paramount, and organizational safety guidelines associated with scheduled activities will be utilized at all times.

      ii. All RTAs are "Off-Limits" to all personnel and organizations except when scheduled in the RELLIS Scheduling System or when authorized by the RELLIS Operations Center. EXAMPLE: Site visits to gather information for test planning, organizations will coordinate with the ROC prior to their visit. Having gate access to the RTAs does not mean you are authorized within the RTAs without prior coordination with the ROC.

      iii. Deviations from prescribed use of RTAs are not authorized without approval from the RELLIS Operations Center. Deviations will be submitted via the RELLIS Scheduling System at the time of reservation request.

2. Establishment of RTAs

   a. Only the Director, RELLIS Campus, can establish RTAs. No other individual or organization will establish new RTAs or alter existing RTAs or facilities except with prior approval of the Director, RELLIS Campus. This does not preclude organizations trying to improve the success of their experimentation or testing as well as enhancing ranges after being granted permission from RELLIS Operations Center, assuming all safety precautions are observed. All organizational enhancements-emplaced must be removed upon the completion of activity.

   b. Recommendations to improve RTAs are invited and shall be provided by formal letter to the Director, RELLIS Campus.

      i. Modification of RTAs

         1. Requests for minor modifications to areas and facilities, such as fencing, minor erosion control efforts, road improvements, vegetation management, and small construction/repair projects shall be submitted to the ROC. This includes any construction of test sites within the RTAs.

2. Project submission must include complete justification based on a requirement/standard, (Equipment or Performance Manuals, Recognized Programs of Instruction, etc.) duration and frequency of use projections. A submission will address the following:

    a. Identified Requirements

    b. Current situation

    c. Impacts, if known

    d. Consideration of alternatives

    e. Analysis of deficiency

    f. New RTAs or major alterations may require an environmental impact study.

3. Research and Testing Areas

    a. Characteristics of the RTAs and facilities

        i. Runways (See APPENDIX B)

            1. Description: Concrete runways. Supports rotary and fixed wing aircraft including manned aircraft. Also supports wheeled and tracked vehicles.

            2. Dimensions:

                a. Runways 35C & 35L – 7,000' x 150'

                b. Runways 35R, 31, and 22 – 5,000' x 300'

            3. Runways are sectioned off and can be reserved in smaller areas.

    b. RTAs between and around runways are characterized by wooded and grassy pasture areas. They are able to support wheeled and tracked vehicle platforms. They can also support the use of smoke, pyrotechnics, and simunitions based on specific scenario requirements and pending safety and environmental approvals by RELLIS Operations. Limited land modifications (digging, trail cutting, mounding up dirt) can also be accommodated with prior coordination with RELLIS Operations.

    c. BAM/Det Tube Facilities

        i. Access to these facilities, located between runways 35L and 35C (south of runway 31), must be preapproved by authorized RELLIS and/or TEES personnel.

        ii. Vehicle access shall utilize Rellis Parkway and the designated transit area on runway 31, across runway 35L, and into the vehicle entrance.

       1. Personnel transiting to these facilities need to be aware that there may be active tests/projects occurring on the adjacent runways.

       2. Users conducting tests/projects on runways 35L and 31, that encroach upon the BAM/Det Tube transit area, shall ensure a "road guard" monitors and controls traffic transiting to and from the BAM/Det Tube facilities.

d. RTA 4.

    i. The former "Knife River" property is incorporated in the RELLIS Reservation System and is referred to as RTA 4. RTA 4 is currently being used for ground manned and unmanned vehicle use and unmanned aviation system (UAS) flying.

    ii. The TEEX Demolition Pit will be exclusively used by TEEX ILEPSE, unless otherwise coordinated and approved by TEEX ILEPSE leadership.

    iii. Future Potential Usage. The varying terrain provides excellent challenges for continued use by vehicle researchers. The absence of permanent structures that would present over flight issues provides a great venue for unmanned aviation systems. Most of the pits on the property have standing water in them due to proximity to the Brazos River and the associated water table. The water filled pits provide the opportunity for several different types of research: soil erosion, water management, and amphibious vehicles (manned and unmanned). Additionally, the open pits, with or without water, provide a venue for emergency rescue training. Below is a listing of other potential uses:

       1. Motorcycle/ATV training

       2. Construction material testing

       3. Solar/photovoltaic research

       4. Marksmanship training/testing

       5. Heavy equipment operator training

       6. Munition/Explosive testing

    iv. There are a few unimproved roads supporting and minimal infrastructure within RTA 4.

4. Modifications and Maintenance of RTAs

a. The modification of RTAs will be accomplished by RELLIS. No other organization or individual is authorized to perform maintenance on any RTA or facility unless the work is first approved by the Director, RELLIS Campus.

    i. Section 6.6 of RELLIS' Master Plan provides details on the Planning & Design Review Board process for any modifications.

      ii.   Coordination for temporary alterations shall be initiated with RELLIS Operations, who will adjudicate the request.

    b.   Organizations (OIC/PI/TC or SO/SC) will report all RTA maintenance issues and other problems to RELLIS Operations Center and by submitting a written comment/report at the conclusion of activities. Other requests for repairs of existing RTA facilities can be submitted by email memorandum to RELLIS Administration.

    c.   Organizations are responsible for all damage incurred to RTAs or facilities associated with their activities. If damage to or poor police of an RTA is observed upon arrival, the OIC/PI/TC or SO/SC must notify ROC immediately. Failure to report damage/poor police problems will be considered as having assumed responsibilities for all damages/poor police problems by the using organization.

    d.   RELLIS Operations personnel will not disrupt organizational activities in the performance of these duties unless coordinated with the OIC/PI/TC or SO/SC; using organizations will not interfere with those personnel as they conduct normal inspections/safety surveys. RELLIS Operations personnel will conduct random inspections of RTAs and training facilities, and all structures to verify safety of operations and police of RTA. For areas with closed testing, notification will be provided to the sponsor organization prior to any ROC personnel visits.

5.   Notification of Activities. Notification of commencement of activity must be done prior to start of activity utilizing the RELLIS Reservation System or phone call to the ROC if the system is down.

6.   Restrictions

    a.   Unauthorized persons are not allowed within any RTA. Personnel not specifically scheduled to be on RTAs and facilities are not authorized.

    b.   The use of chemical devices will be used strictly in a manner associated with the event- i.e., supporting TEEX ILEPSE training. Notify the ROC at the time of use.

    c.   Digging is not authorized on any RTA except in areas authorized or with approval from ROC. All holes must be filled in after the activity/event.

7.   Communications

    a.   Organizations must maintain communication with the ROC during all testing/training being conducted on this Complex. Cell phones are the primary means of communication with ROC and secondary will be radio via handheld device (radio or cellular push to talk).

    b.   All organizations operating on RELLIS using the radio-frequency spectrum in any way must submit a frequency request to the RELLIS Operations Center for the RELLIS CIO's approval and coordination. Additionally, the frequencies being used during an event or activity must be included in the reservation request.

8.   Safety Equipment. All prescribed safety equipment (as determined) by using organization must be on hand at the time of the activity. The OIC/PI/TC or SO/SC must ensure all safety/mitigation measures, as identified in their operational risk analysis submitted at the time of reservation, are

in place. OIC/PI/TC or SO/SC must have a copy of the reviewed, signed, and approved ORM Worksheet onsite for that scheduled RTA.

9. Barricades and Road Guards. Using organizations are responsible for closing the approaches to the test site created for their activity. In many cases, barricades, gates, and appropriate warning signs are adequate. It is the OIC/PI/TC or SO/SC responsibility to ensure that all barriers, signage and if needed, road guards are in the correct position to prevent anyone from inadvertently entering a test area. If isolation of a test site is required, it will be spelled out in the reservation request and with a barrier plan. Contact the ROC for routing instructions to transit the RELLIS RTA complex. At the end of an activity, it is the organization's responsibility to remove barriers and signage.

10. Vehicles. The Vehicle speed limit in the RTA on paved surfaces is 30 mph unless it is part of a training activity or test. Non TAMUS marked vehicles will have an RTA vehicle placard on the dash of the vehicle when operating in the RTAs. In keeping with the access policy, organizations are responsible for identifying who is authorized to have a vehicle in the RTAs. Report all unauthorized vehicles to the ROC. Resident organizations are authorized to use their existing vehicle placards and will forward their list of authorized vehicles for access to the RTAs.

11. Cleanliness of RTAs

    a. Cleanliness of RTAs is the responsibility of the using organization. All solid waste brought to the RTAs – including cardboard, wrapping materials, food waste, etc. - shall be removed and disposed of in approved containers or established landfills. Trash will not be buried. The practice of stockpiling refuse for removal later is not permitted without specific authorization from RELLIS Operations. An inspection by RELLIS Operations personnel may be required prior to departure.

    b. Users may request RELLIS or their sponsor agency a walk-through of the area to be used prior to start of activities. If an RTA is not clean upon occupation of the using organization, notify the RELLIS Operations of the situation so the new user will not be held responsible for the RTA. When an area is found by RELLIS Operations personnel to be in a poor state of cleanliness, the last known using organization will be notified to correct the issue.

    c. Do not deposit trash in dumpsters not belonging to your organization, i.e., contractors/construction companies.

    d. Disposal of materials (wood, scrap metal, and plastic items) will be using organizations responsibility. Utilities Energy Service (UES) can be contacted for support at https://utilities.tamu.edu.

12. Visitors and Public Affairs

    a. All tours of the RTAs and training facilities must be coordinated through RELLIS Operations.

        i. Every effort should be made to notify RELLIS Operations, if an organization desires media coverage of an activity, coordination must be made with RELLIS Administration at least 72 hours in advance for both internal and/or external media coverage.

      ii.   Every effort should be made to notify RELLIS Operations, if any special events involving visiting dignitaries or individuals of notoriety, at least 72 hours in advance of the visit.

      iii.   Tour reservations should be made in the RRS to keep all personnel using the RTAs apprised of possible outside interest.

b. Test/Training accidents can be high visibility and attract public interest. The public has a right to know about accidents and incidents. However, procedures must be followed to ensure the rights and privacy of personnel involved are not denied, an investigation is not hampered by release of speculative or unrelated remarks, and the information presented to the public is as factual as possible.

      i.   In the event of a mishap (accident/incident), personnel must refrain from making comments, answering questions, or engaging in speculation with any members of the media. If approached by a member of the media, personnel involved must refer the questions to RELLIS' Assistant Director of Marketing & Communications. If there is no PAO representative present, personnel should refer the individual to the RELLIS Administration offices.

      ii.   Separation of news media representatives and personnel involved in the accident or incident shall be accomplished through traffic control points or by sealing off the mishap site to prevent unauthorized release of information. Media-owned equipment is not allowed to be focused directly on subjects without their prior approval. It is important to additionally be aware that audio can be recorded clearly from a distance without the subject, in particular, being aware.

c. RELLIS reserves the right to review and approve any and all audio, photographs, or videos acquired anywhere on RELLIS before they are distributed for public consumption.

CHAPTER 3 – SCHEDULING

1. General

   a. RELLIS Operations Center (ROC) is located in Building 8081 at 1484 Avenue A, Bryan, Tx 77807, and serves as the sole scheduling agency for the RELLIS Campus.

      i. Normal hours of operation for the ROC are 8:00 am to 5:00 pm Monday through Friday. For after hours, or special arrangements can be made with the Chief of the ROC.

      ii. The RELLIS Reservation System is the approved TAMUS RTA scheduling and management tool. To schedule an area for testing or training the ROC must receive a reservation request in the RELLIS Reservation System.

      iii. Access to the RELLIS Reservation System can be established by submitting a 'User' request via https://reservations.rellis.tamus.edu. For assistance contact the ROC via email–operations@rellis.tamus.edu. Expect one to two business days for account processing and approval.

      iv. If there is a technical reason for not being able to access the RELLIS Reservation System, a RTA reservation request with the following information (organization, area for reservation, date/time and brief concept of operation) may be submitted to the ROC using the following methods; as an e-mail attachment, or hand delivered to the ROC.

      v. The latest a reservation request can be submitted is 1200 the day prior to the event for recurring users. For a new activity or user, the latest a reservation request can be submitted is 48 hours prior to the event/activity. Same day scheduling is by exception only and must be coordinated through the ROC.

   b. Modification or Cancelation. Once an RTA has been scheduled, it is the responsibility of the organization scheduled to use the RTA/facility to conduct its activity during the allotted time period. Organizations will monitor the request status within the RRS and acknowledge any communications from the ROC as RTA status may change. To modify a reservation time, each organization must modify their reservation in the RRS and notify the ROC of their changes. Cancellation of scheduled events should be executed through the reservation system by the requesting organization.

2. RELLIS Reservation System (RRS)

   a. The RRS is a web-based system that allows users of the Proving Grounds to schedule and reserve specific areas, dates, and times.

   b. A User Manual and instructional videos on how to properly utilize and manage the RRS can be found under the "REFERENCES" tab.

   c. Accounts can be requested at: https://reservations.rellis.tamus.edu/Accounts/Request. Accounts will be disabled after 6 months of non-use.

3. Scheduling

    a. Named areas/facilities (i.e., known distance firing ranges or construction equipment training area) must be scheduled in the RELLIS Reservation System. For assistance in scheduling contact the ROC.

    b. RTAs and facilities may be used by more than one organization, on the same day if scheduled and deconflicted by using organizations. Co-using is encouraged for maximum utilization of RTAs and facilities. Organizations desiring co-use of an RTA/facility will conduct internal coordination and are required to submit a plan and risk matrix detailing the operations/activities of using organizations. All using organizations must submit a reservation request in the system with annotated coordination for ROC final approval. All reservation requests must be submitted 3 days for new users or 24 hours for recurring users prior to the event; if the request is not received prior to the deadline, co-use will automatically be denied.

    c. A reservation request for ground and aviation testing/training will include:

        i. A narrative and schematic/diagram describing the activity.

        ii. Risk Matrix (see APPENDIX D)

        iii. A barrier or road guard plan, as required, to prevent access to the area.

        iv. A surface danger diagram for any live fire, munitions testing, or demolition not on an established range.

        v. For airspace requests users must submit a drone application form online at https://www.tamus.edu/business/risk-management/uas/uas-application/.

    d. Co-use coordination is the responsibility of the organization making the latter reservation. Any prior coordination related to the activity should be described in the narrative if it is critical to the execution of the activity.

    e. Proving Ground property is a finite resource and should be used as such. Scheduling airspace and real property, then not using it, impedes other using agencies and is not in line with RELLIS' mission.

4. Scheduling Precedence. Scheduling precedence is based on the priority level of each organization and the subsequent reservation request submission date. Priority organizations are those who have areas where they are the predominate user. These areas include:

    a. BCDC

        i. MCC

        ii. OTA

        iii. BAM

    b.   TEEX

        i.   Firing Ranges

        ii.   Demolition Pit

        iii. Construction equipment and Lineman areas

    c.   TTI

        i.   Apron

        ii.   Neology

5. Check In/Out Procedures

    a.   Designated individuals have the capability to check in, check out, and update the status of each project/test.

    b.   Status updates can be made within each reservation on the RRS.

    c.   RRS Quick Tip 10 details the "Daily Activation Process."

    d.   Users may contact RELLIS Operations from ROC starting at 1200 the day prior to the scheduled event.

    e.   Improper Check in/Check out procedures may result in incurring the full cost of the reserved area (see Real Property Rate Card).

6. RELLIS Managed Service Centers and Billing Procedures

    a.   Specified areas of the RELLIS Campus are maintained by funds from approved Service Centers managed by RELLIS Administration. When utilizing these maintained areas, users may be subject to allowable fees collected for the maintenance of the specified area.

    b.   RELLIS Procedure RP.2.1, defines how Service Centers managed by RELLIS Administration will bill for utilization of specified areas on RELLIS Campus. This procedure does not apply to Service Centers managed by other agencies on the RELLIS Campus.

    c.   All communication related to billing and invoicing should be directed to RELLIS Finance at Finance@rellis.tamus.edu.

    d.   All cancellations within 24 hours of the start of a reservation must be communicated to RELLIS Operations in writing via email at Operations@rellis.tamus.edu in order to receive any allowable credit for billing purposes.

7. After Action.

    a.   As part of the RELLIS commitment to quality service, using organizations are requested to submit an after-action report to RELLIS Operations concerning the quality, police, and

maintenance condition of the RTA. This will assist ROC in identifying maintenance problems or any enhancements as early as possible so they can be resolved.

b. RELLIS organizations that sponsor tests/projects on the PG should request feedback and provide the information to RELLIS Operations in a timely manner.

c. RELLIS Operations may contact individual users that are not associated with RELLIS Campus organizations to receive feedback.

CHAPTER 4 – UNMANNED AIRCRAFT SYSTEMS (UAS)

1. General

   a. Purpose. To provide the means to synchronize and coordinate all UAS operations occurring on RELLIS, to enable safe integration of multiple airspace users operating in the airspace above and surrounding RELLIS, and to ensure all UAS operators have the proper credentials, authorizations, and approvals to conduct planned flight operations on the campus. Any UAS operation using RELLIS for launching, landing, and/or UAS support operations for recreational purposes, training, research, development, testing, or evaluation of UAS aircraft, sensors, or system components require prior approval under this SOP, and must coordinate the scheduled mission dates and times in the RRS. Agencies who require regular, recurring operations may seek initial approval of their UAS concept of operations (CONOPS) under this SOP, then refer to their approval number when scheduling all future operations in the RRS. This SOP is a tool to ensure airspace safety and compliance, not to encumber users from accomplishing their mission goals and objectives.

   b. Authorities. The overall responsibility and authority for UAS operations on RELLIS is the RELLIS UAS Supervisory Authority Committee (SAC). The RELLIS Administration, as the SAC, is charged to strictly enforce the guidance in this SOP. The SAC is the approval authority for any exceptions to this guidance.

   c. Applicability. This document addresses procedures unique to UAS operations at RELLIS and does not replace or override the procedures described in any applicable FAA regulations, technical orders, technical manuals, publications and/or approved FAA Certificate of Authorization or Waiver (COA). In cases where this SOP differs from FAA UAS regulations, technical orders, technical manuals, publications and any approved FAA COA(s), the user will ensure RELLIS' approval acknowledges the deviation when seeking approval.

   d. All UAS operations shall be conducted IAW all applicable FAA regulations, TAMUS policies, and procedures set forth in this SOP. The burden of knowledge and responsibility of conducting UAS operations IAW lies with those conducting the operation. RELLIS complies with all standard provisions of the FAA National Airspace System and must comply with all rules and regulations applicable to UAS operations within the NAS. RELLIS airspace does not fall under the provisions of any special use airspace categories.

2. References.

   a. UAS operators shall be familiar with the following references and any other statutes that may apply to their specific operation.

      i. 24.01.07 Texas A&M University System Unmanned Aircraft Systems (UAS) Policy

      ii. 14 CFR § Part 107

      iii. 14 CFR § Part 91

iv.   https://www.faa.gov/uas/resources/policy_library

b.   This list IS NOT an all-encompassing list of applicable references. Reference iv is the FAA's Policy Document Library where additional policies can be found.

c.   <u>Policies and procedures are updated regularly. PI/OIC/PIC shall ensure the most recent version of these policies is adhered to.</u>

3.   Approval Process

    a.   Prior to any UAS operations at RELLIS, operators must submit an application via the TAMUS Risk Assessment Office link (https://www.tamus.edu/risk/risk-management/unmanned-aircraft-system-operations-uas/), and subsequently receive written approval from the Associate Director of Operations, after review by the RELLIS SAC.

    b.   Required documentation includes the following:

        i.   Certificate of Insurance

        ii.   COA, if applicable

        iii.   Remote Pilot in Charge Certificate

        iv.   Picture of the UAS with FAA Registration, Asset Numbers, and Remote ID information

        v.   Maintenance Records and Incident Logs

        vi.   Waivers

        vii.   Project Narrative or CONOPS

        viii.   If TAMU entity, provide Department and Lead Point of Contact information

        ix.   Flight Safety Plan, to include:

            1.   Provisions to avoid overflight of Pedestrians and Vehicles

            2.   Loss Link Contingency Plan

            3.   Communications Plan

        x.   If a 3rd Party contractor, a copy of contract agreement with TAMUS entity

        xi.   Any other supporting documents

    c.   After receiving approval, reservations must be submitted in the RRS, per Chapter 3.

4. Airspace

   a. The airspace associated with the RELLIS property boundary (See APPENDIX E) is not restrictive in nature and serves to inform where any users intending to use RELLIS property for any ground-based operations such as UAS launching, landing, Ground Control Station (GCS) operations, or any other UAS support requirements must comply with this SOP and the RRS. Users may request assistance from the SAC in submitting a Notice to Airmen (NOTAM) to advise other air traffic of UAS operations planned to occur on/over RELLIS.

   b. RELLIS does not "own" the airspace above the campus and cannot restrict or limit any flight operations or aircraft from directly overflying the campus. As a result, all UAS operations occurring at RELLIS must also maintain awareness of the surrounding airspace to yield right-of-way to any manned aircraft as required by 14 CFR §107.37.

   c. All aircrew personnel shall familiarize themselves with local aeronautical charts and nearby aviation operations.

   d. Any UAS flight operations intending to fly into the Class D airspace extension associated with Easterwood Airfield (CLL), immediately to the southeast of RELLIS campus, must contact Easterwood Tower and comply with the provisions of 14 CFR §107.41 and §107.43, and/or operate under FAA Low Altitude Authorization and Notification Capability (LAANC) rules associated with CLL.

5. UAS Flight Operations

   a. All UAS operations shall be conducted IAW all applicable FAA regulations, TAMUS policies, and procedures set forth in this SOP.

   b. Overview. Agencies or users requesting to operate UASs on RELLIS will submit their UAS flight operations plans, including their CONOPS and any FAA Certificate(s) of Authorization, copies of all intended pilot certifications and licenses, aircraft specifications, and any prior approvals from the TAMUS UAS approving authority, to the SAC. The SAC will ensure the planned operation meets all TAMUS UAS policy requirements (see reference 2.a.i.), all FAA requirements, approved FAA COA(s), and the provisions of this SOP. Organizations may request blanket approvals to preclude recurring approval for identical flight mission CONOPS but must schedule each flight operation in the RELLIS Reservation System to deconflict or co-use the requested airspace for the planned flight operation dates and times. When conducting a UAS operation under a blanket approval number, the agency shall cite the initial approval number when scheduling the planned flight operation in the RRS.

   c. Use of Checklists. Personnel operating on the range must have an applicable checklist for the make and model of UAS being operated, and/or for the specific duty/duties being performed. Checklists may be hardcopy or digital but must be present and accessible throughout all operations. The checklist should be provided to the SAC when seeking approval for flight operations. (See APPENDIX G for pre/post flight checklist examples).

   d. Communications. Throughout flight operations, all aircrew members must maintain open instant communication throughout the launch sequence, flight activity, and landing. A

push-to-talk handheld radio is an example of an open-communications device, but a cell phone requiring the user to dial a phone number is not, unless the line remains open throughout the duration of the UAS operation from pre-launch to landing. Two-way radio contact is continuously maintained with ground observers, VOs, and air traffic control (ATC) as required during missions.

e. Launch and recovery operations for UAS are conducted IAW approval received from the SAC and the UAS Operator's specifications.

i. The type and design of the UAS will dictate the requirements for a launch and recovery zone (LRZ), which must be scheduled for UAS operations where a LRZ on RELLIS is required. For example, a Vertical Takeoff and Landing (VTOL) aircraft may only require a single grid to access the reserved airspace, whereas a pneumatic launched/belly land fixed wing aircraft may require multiple grids to accommodate the unique takeoff and landing characteristics of the aircraft. For non-VTOL aircraft, the operator must submit an LRZ diagram supported by an LRZ Safety Zone diagram to ensure adequate safety and clearance of the area during takeoff and landing.

ii. PIC will ensure the designated launch and recovery area is clear of personnel, obstacles, and hazards to flight.

f. Aircraft Navigation. UAS operators may perform aircraft navigation autonomously by programming the aircraft autopilot, or through direct control by the PIC and remote flight controller.

g. Approved altitudes:

i. Part 107 - Surface up to and including 400' AGL.

ii. COA/Waiver – Surface up to and including the provisions of the waiver. For all operations above 400'AGL, the operator must advise Easterwood Tower of the operation in order to allow the tower to alert other airspace users flying in the vicinity of RELLIS.

6. Application of FAA Rules for UAS

i. The current FAA regulatory environment categorizes UAS into two sizes:

1. Small - Weighing less than 55 pounds.

2. Large - Weighing 55 pounds and above.

ii. Applicants must declare whether they intend to operate under standard rules as a civil aircraft, or if they have additional authorizations as entitled through the allowances of a COA, 44807 Exemption, or public aircraft operation. When seeking authorization to fly a UAS on RELLIS, operators shall provide any existing authorization document(s) to the SAC for consideration in the approval process. Depending on user requirements and aircraft specifications, agencies conducting UAS flight activity on RELLIS will generally operate under one of the set of rules outlined below.

1. <u>14 CFR §107 "Small UAS Rule".</u> UAS operated under "Part 107" are governed by a broad spectrum of commercial and government uses for drones weighing less than 55 pounds. Highlights of the rule are included in ANNEX B, with detailed information found on the FAA website.

2. <u>Part 107 Certificate of Authorization and/or Waiver.</u> Part 107 waivers, or a COA, is an official document issued by the FAA which allows specific drone operations not allowed under Part 107. These waivers allow drone pilots to deviate from certain rules under part 107 by demonstrating they can still fly safely using alternative methods. An overview of Part 107 waivers and how to apply for a waiver can be found on the FAA website.

3. <u>Civil versus Public UAS Operations.</u> 49 USC §40102 defines civil and public aircraft operations. As a state government entity, Texas A&M University has the ability to operate unmanned aircraft as public aircraft as defined in 49 USC §40102(41)(C) by petitioning the FAA for a public COA. Under the provisions of a public COA, the operating agency can self-certify the airworthiness of aircraft owned by the agency to allow for operations exceeding the limitations of Part 107, depending on the specific provisions of the public COA granted by the FAA. University agencies desiring to petition the FAA for a public COA or attempting to enter into a 90-day lease agreement with a civil entity to enable public operations of an aircraft under the provisions of a public COA can request so via RELLIS Operations.

4. <u>UAS Operations for Aircraft Weighing 55 Pounds or Greater.</u> To fly an unmanned aircraft that weighs 55 pounds or more, and where the application of a public COA is not available or desired, operators may apply for an exemption under the Special Authority for Certain Unmanned Systems (49 U.S.C. §44807). Additional information on this program can be found on the FAA's website.

7. Air Crew

   a. Each UAS operation should have the following Air Crew members identified; responsibilities may be combined as necessary, without compromising safety:

      i. Operator/Mission Commander. The overall authority for planning, coordinating, and executing a UAS flight operation. The mission commander must ensure all FAA requirements, aircraft and mission parameters, and requirements of the SOP are satisfied. The mission commander has final authority for the initiation of flight operations and must ensure all aircraft operate safely in the NAS at all times.

      ii. Pilot/RPIC. The FAA certified pilot of a UAS. Controls the aircraft flight controller or programs the aircraft autopilot and monitors aircraft performance during autonomous flight operations.

      iii.   GCS Operator. A crewmember who operates and manages the ground-based hardware, software, antennae, and other components required to control a UAS and its payloads.

      iv.   Range/Aviation Safety Officer. The RSO/ASO ensures safe operation and compliance of a UAS by ensuring adherence to all regulatory, standards, and procedural guidance. The RSO/ASO also supervises all VO/SC personnel to ensure safe integration of a in the NAS.

      v.   Launch/Recovery/Maintenance Crew. Ground support personnel who perform assembly, inspection, maintenance, services, and quality control checks of all aircraft and ground support equipment required to conduct UAS flight operations.

      vi.   Sensor/Payload Operator. A crewmember who operates and monitors aircraft payloads and sensors to enable the UAS to accomplish its intended mission.

      vii.   Visual Observer (VO)/Safety Coordinator (SC). A crewmember that assists the UAS pilot in the duties associated with collision avoidance. This includes, but is not limited to, avoidance of other traffic, airborne objects, clouds, obstructions, and terrain. The VO must fulfill all requirements outlined in FAA regulations and authorizations and must maintain dedicated open communications with the PIC during any UAS operations.

b.   UAS Payloads. All aircraft payloads must be documented including a description of what the payload is with a brief capabilities' breakdown. If the sensor changes the aircraft configuration, the operator must provide an amended airworthiness application and a description of the modifications.

      i.   Cameras.

          1.   Any filming/video recording shall be coordinated with RELLIS Operations.

          2.   RELLIS reserves the right to deny the use of capturing images, still or motion, based on sensitive activities being conducted on the campus.

          3.   RELLIS reserves the right to review and/or approve all images being published to the public.

      ii.   Sensors. RELLIS reserves the right to deny the use of any sensors that may be disruptive to other activities being conducted on campus. Sensors capable of collecting images are subject to the restrictions listed in the previous paragraph.

      iii.   Other. Any other payload must be declared in the CONOPS and approved by RELLIS Operations prior to use.

8.   Weather Limitations

a.   All UAS operations on RELLIS will comply with 14 CFR §107.51 plus the following requirements to ensure a safe operating environment for all flight operations.

i. All aircraft on RELLIS will operate under visual flight rules (VFR) and must receive a weather briefing that specifies a minimum of 3 statute miles visibility with a minimum of 1,000-foot ceilings. For flight operations authorized to fly greater than 400' AGL, the aircraft must remain 500' below the briefed ceiling at all times.

ii. Reported winds must not exceed the known wind limitations of the aircraft. The aircraft operator's manual must specify wind limitations. If not specified, the maximum wind limits will be restricted to 15 knots from any direction, with wind gusts up to 20 knots.

iii. Aircraft will not be flown in known or forecasted thunderstorms, or with lightning forecast within 10 miles of RELLIS.

b. All UAS operators are required to provide all weather limitations of the aircraft being used for the approved mission.

9. Air Traffic Control (ATC) Procedures.

a. Operators must adhere to any communication requirements outlined in approved FAA COAs or Waivers.

b. For flight operations exceeding 400 feet AGL, the PIC must contact Easterwood ATC at 979-846-3998, prior to and immediately following UAS operations.

10. UAS Lighting and Visibility Requirements. UAS will have FAA approved lighting and/or high visibility markings to enable simultaneous multi-aircraft operations and deconfliction. Large UAS must have FA approved lighting, no exceptions. Small UAS that cannot accommodate lighting due to size, weight, or power concerns must have high visibility markings, such as bright reflective tape, and will not be authorized to conduct night operations.

11. Communication Procedures

a. PIC/GCS external communications.

i. External communications allow RELLIS operations to communicate with all range users, to synchronize simultaneous efforts, communicate advisories and severe weather updates, and to coordinate simultaneous use of airspace for UAS operations.

ii. The minimum communications equipment required by a UAS operator is one VHF handheld radio and one cellular phone. It is the responsibility of the UAS operator to ensure all forms of communication have adequate battery power and signal strength to facilitate reliable communications.

iii. Agencies who do not have a VHF radio may check-out a handheld radio from RELLIS operations.

b. PIC/GCS internal communications.

    i. Internal communications allow all UAS crewmembers and support personnel to communicate internal activities, flight activities, and airspace deconfliction measures.

    ii. The minimum communications required for internal communications are reliable cellular phone communications. During flight operations in which BVLOS operations occur, communications with all VOs must be open and continuous while the aircraft is airborne. Flight crews may use cellular phones to fill this requirement, but the lines must be open to enable instant alerting of any potential aircraft incursions during the conduct of the flight. <u>Requiring a VO to dial the PIC/GCS, wait for answer, then alert the pilot of an incursion does not meet the intent of open and continuous communications for Detect and Avoidance purposes.</u>

12. Emergencies.

a. Emergency procedures are accomplished IAW FAA regulations, approved COAs, and the UAS operator's manual. If the emergency condition(s) preclude returning to the launch/recovery location, land as soon as possible to the nearest safe location. If the aircraft is equipped with a parachute landing system, the flight crew should attempt to deploy the parachute as closely to the reserved LRZ area as possible. In all cases, the flight crew should attempt to move to the location of where the anticipated emergency landing will occur and alert any non-participants of the landing as soon as practical.

b. For all missions, UAS operators must provide a lost link plan where the aircraft maneuvers to a predetermined location within the RELLIS Class G airspace area and hovers or orbits while the aircrew attempts to regain aircraft control by re-establishing the control link.

    i. The preferred lost link loiter location for Fixed Wing aircraft is runway 35L.

    ii. The preferred lost link loiter location for VTOL aircraft, the preferred lost link protocol requires the aircraft to hover over the scheduled LRZ grid area(s).

    iii. In the event aircraft control cannot be restored, the aircraft should conduct a ditching procedure in RTA4 for FW aircraft, or to the planned LRZ as scheduled in the RRS for VTOL aircraft.

    iv. All operators should ensure their aircraft have a safe-to-ditch procedure and equipment installed on their aircraft, such as a Flight Termination System (FTS) or a Ballistic Recovery System, such as a parachute landing device.

c. Lost Visual Contact.

    i. If a VO loses visual contact of the aircraft, the PIC must be notified immediately.

    ii. If the aircraft is visually reacquired, the mission may continue. If not, the PIC must immediately initiate the return to base procedures, requiring the aircraft to return to the pre-planned LRZ.

d. In the case of a "fly-away" condition, the PIC and/or GCS operator will immediately notify Easterwood Tower with the following information:

    i. UAS type and description of the aircraft.

    ii. Nature of emergency and last known location.

    iii. Last known heading, altitude, airspeed, and endurance remaining expressed in hours and minutes of usable fuel or battery power remaining to burn-out, e.g., 7 hours and 10 minutes to burn-out).

    iv. If the aircraft contains an FTS, the aircrew should attempt to locate the aircraft by any means, including use of the CLL radar, then execute the flight termination procedure once the aircraft is over an uninhabited, low consequence area.

13. Local Area Restrictions and Requirements

a. All UAS must meet the requirements per this SOP and approved FAA COA.

b. While operating at RELLIS, all flights outside of the cantonment area boundary will be conducted IAW the approved FAA regulations, applicable waivers, and this SOP.

c. Night operations must have the required aircraft lighting requirements IAW FAA regulations.

14. Scheduling

a. PIC or designated representative will:

    i. Coordinate flight operations times with the SAC IAW the RRS and Chapter 3.

    ii. Ensure the requested reservation is approved and appropriately annotated in the RRS prior to initiating flight operations.

    iii. Ensure they have reserved necessary ground space required to launch and recover the UAS, as well as the airspace required to conduct the desired UAS operational activity.

b. Any UAS directly supporting air-ground operations must be included in the overall reservation as required by the RRS. Reservation of a ground area does not automatically include the associated airspace unless properly selected and annotated in the reservation.

c. Multiple Use Airspace Considerations.

    i. To ensure safety of co-use of RELLIS airspace, the maximum number of simultaneous air operations is three, not including any isolated air-ground co-use operations where the UAS supporting the ground operation remains below 99' AGL.

ii. Simultaneous FW or horizontal flight UAS operations will occur using a "stack" technique, in which the SAC can authorize up to three one-hundred-foot layers of airspace to provide separation between simultaneous aircraft operations: 100-199' AGL, 200-299' AGL, and 300-399' AGL or above, if allowed by the operator's COA. This situation is primarily aimed at accommodating multiple FW aircraft that cannot maneuver within the confines of the RRS grid system. When multiple rotary wing VTOL aircraft are operating simultaneously, they will normally deconflict by reserving separate blocks of airspace through the RRS. When both FW and rotary aircraft are operating simultaneously, the rotary aircraft will normally operate at lower altitudes, while the FW aircraft will operate within a higher layer of airspace. In all cases of simultaneous aircraft operations, the SAC will carefully manage each situation and may require each flying agency to conduct a meeting to ensure proper deconfliction and integration of all operations.

iii. Any UAS supporting air-ground operations must remain below 99' AGL commensurate with the reserved land area unless the user specifically reserves a higher layer of dedicated airspace.

iv. Anytime simultaneous air operations are occurring, each flying agency must fulfill all prescribed communications requirements listed above.

v.   Users reserving higher layers of airspace must ensure their aircraft does not "fly through" the flight path of a lower layer user. The SAC reserves the right to change reserved land areas to accommodate airspace deconfliction and to prevent potential fly-through or over events and may also emplace lateral as well as horizontal boundaries to deconflict multiple air operations.

vi. RELLIS Operations will adjudicate, in conjunction with all parties involved, any airspace conflicts.

CHAPTER 5 – WEAPONS, AMMUNITIONS, AND EXPLOSIVES

1. General

    a. Any research, experimentation, new weapons, ammunition/ordnance being tested and foreign weapons, training devices, will be clearly explained in the reservation request with included risk matrix. The organization must provide ROC with safety documentation from the manufacturer or using organization prior to conducting any live-fire or the use of that device/equipment. The size of explosive charge to be detonated will be reviewed on a case-by-case basis to ensure the test or experiment does not exceed the capability on RELLIS.

    b. Any research/experimentation of weapons or ammunition/ordnance and training devices being tested will be clearly explained in the CONOPS included in the reservation request. The organization must provide ROC with safety documentation (Risk Matrix, Safety Plan, and SDZ) from the manufacturer and/or using organization prior to conducting any live-fire or use of device/equipment. The size of explosive charge to be detonated will be reviewed on a case-by-case basis to ensure the test or experiment does not exceed the capability of the area being used on RELLIS.

2. Danger Zones.

    a. Users, in conjunction with their sponsor agency and RELLIS EHS, will be responsible for creating accurate surface danger zone(s) (SDZ) and/or weapon danger zone(s) (WDZ).

    b. Firing of all direct or indirect fire weapons, explosives/demolitions, lasers devices, and all other training devices must conform in all respects to appropriate SDZ and WDZ for each specific weapon system/ammunition.

3. Pyrotechnic Requests.

    a. The use of pyrotechnics or open flames on RELLIS is regulated and requires an operator licensed to operate in the state of Texas.

    b. An application must be submitted for review and approval. Application can be found at: https://ehs.tamu.edu/programs/fire-and-life-safety.html.

        i. Once received, a site inspection will be conducted as well as request for a product demonstration of any pyrotechnics or flame effects prior to the actual production.

        ii. If approved a permit for the use of the pyrotechnics or flame effects will be issued noting the location, approved date(s) and time(s), and any special restrictions for the approval.

        iii. EHS will provide copies of permits to the local fire and police departments via a secured information website.

    c. The use of consumer fireworks by the public on RELLIS is prohibited. An exception request for university approved/sponsored events may be considered by EHS.

4. Transportation, Handling, and Storage of Weapons, Ammunition, and Explosives

   a. General. The Publication of Federal Explosives Laws and Regulations (ATF P 5400.7) governs policies and procedures associated with the use, storage, and accountability of ammunition and explosives.

   b. Qualified Drivers. Drivers of any vehicle transporting ammunition or explosives aboard RELLIS will be approved and designated by each using organization.

   c. Vehicles. Tenant organizational vehicles should be used whenever possible to load, store, or transport ammunition, pyrotechnics, or explosives of any kind for testing or training. All transportation of munitions and explosives by commercial vendors will have validated documentation authorizing the transport, and using organization should ensure vendor is bonded.

5. Ammunition

   a. Ammunition and explosives (A&E), including pyrotechnics, will be positioned to minimize potential for ignition from external sources, explosion, rapid burning or sympathetic detonation and will be located, staged, and stored in accordance with the requirements of the current edition of Publication of Federal Explosives Laws and Regulations (ATF P 5400.7) for compatibility and safe separation distance. A&E shall be staged to best minimize the effects of weather. Ignition sources such as matches, lighters, or other spark producing items will not be located near ammunition, pyrotechnics or explosives. Fire extinguishers and/or firefighting equipment will be maintained near the A&E. A&E must also be protected from the hazards of Electromagnetic Radiation Emission Control to ordnance such as squibs, blasting caps, igniters, and similar explosive devices that are particularly susceptible to initiation when exposed to radio frequency fields.

   b. Research & Training evolutions requiring ammunition and/or explosives to be staged must be staged in areas that are temporary in nature. Ammunition staged on an RTA must be positioned in a manner ensuring the required explosives safety quantity distance for the net explosive weight of A&E present does not exceed the RTA boundary. A&E must be safeguarded at all times while on the RTA particularly while it is awaiting use for a particular event. All temporary storage plans outside existing range use will be briefed to RELLIS Administration for Approval.

6. Explosives

   a. The routine use of high explosive demolitions will be confined to demolition ranges (RTAs) and specially prepared pits. Use of demolitions to simulate supporting fires or IEDs, when authorized, is limited to the use of 2-pound explosives or less. All organizations must have a plan in place to fill in and level out all holes and remove all Demolition /Explosive debris from the RTA such as steel/concrete/wood and properly dispose of it.

   b. OIC/PI/TC or SO/SC will ensure active measures to keep personnel at safe distances to protect hearing and prevent injury from fragmentation or inadvertent/premature detonation. All non-participating or observing personnel will either be outside of the SDZ

of the demolition pit during firing of live explosives or in a protected area from the effects of the explosion.

c. OIC/PI/TC or SO/SC will ensure all personnel are wearing personal protective equipment to include hearing and eye protection.

d. All demolition operations must cease when:

 i. A Severe Thunderstorm Warning has been issued for the area.

 ii. An aircraft flies near or over the area of operations.

7. Lasers and Directed Energy.

a. All laser and directed energy use on RELLIS shall be IAW local, state and federal policies and procedures.

b. The use of lasers/directed energy will be coordinated with RELLIS to ensure adequate target area background and safety zones have been appropriately addressed.

c. Location for laser use will be determined on a case-by-case basis.

d. Visible laser beams exceeding 50 nanowatts per square centimeter, or any laser beam that exceeds the maximum permissible exposure in navigable airspace shall adhere to all FAA requirements.

CHAPTER 6 – ENVIRONMENTAL

1. General. Environmental laws are applicable on RELLIS to the same extent as the general public. Responsibility for compliance with environmental laws extends to organizations operating on the campus. Federal and State agencies may impose significant penalties or restrict operations due to environmental violations. Compliance with environmental regulations ensures the viability of RELLIS as a preferred destination for research, testing, experimentation, and training.

2. Purpose. The protection and enhancement of our natural environment is a valuable tool in sustaining the mission of RELLIS. The intent of this chapter is to inform users of RELLIS RTAs about their responsibility to protect the natural environment. Compliance with Federal Regulations, State Laws, and TAMUS policies ensures a healthy, natural ecosystem and supports RELLIS' mission.

3. Compliance

   a. In an effort to preserve the environment, it is required that all users comply with all State and Federal environmental statutes, regulations, executive orders, and mandates, as well as consistently execute all relevant plans.

   b. Any violation of environmental laws can incur civil and criminal fines and/or incarceration.

4. Planning Considerations

   a. When planning use of RTAs, it is essential to consider environmental restrictions to ensure successfully achieving research, testing, and/or training objectives while complying with environmental laws and regulations.

   b. The following activities are prohibited activities on all ranges and training areas:

      i. Burying, dumping, abandoning, or disposing of munitions, solid waste, trash, rubbish or garbage.

      ii. Unlawfully discharging of oil, fuel, and other hazardous substances from vehicles, equipment or storage tanks.

      iii. Killing, injuring, or harassing wildlife. Killing poisonous snakes and other wildlife in self-defense is not prohibited.

      iv. Removing or intentionally destroying vegetation or cutting and removing trees and limbs is prohibited without approval from the Director, RELLIS Campus.

   c. Prohibited Areas

      i. Installation restoration clean-up sites (contaminated sites)

      ii. Restoration and erosion control work areas. These areas will be marked with appropriate warning signs and fences.

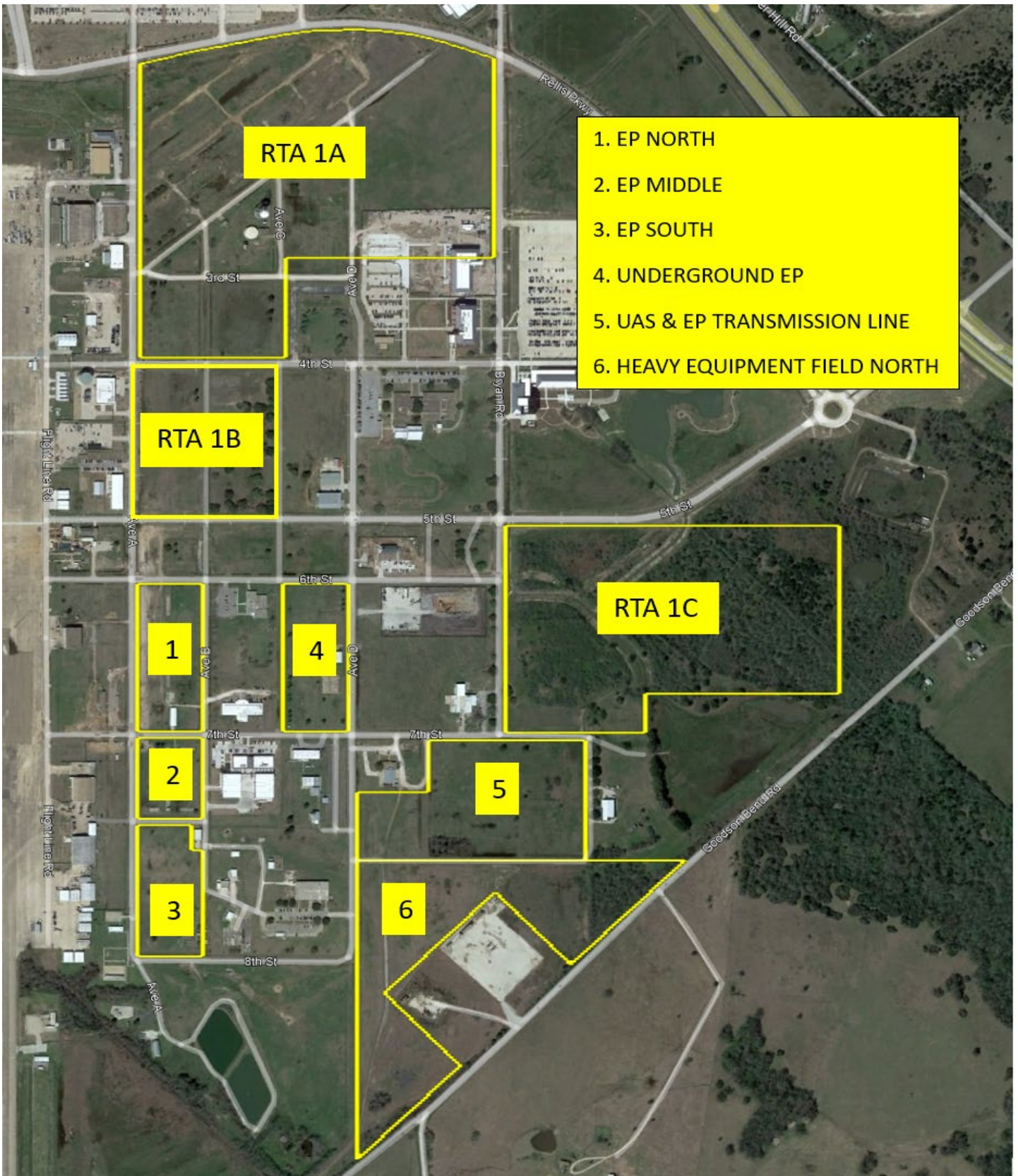   iii. Areas marked off with orange markers, signs, or fences.

5. Hazardous Materials, Refueling, Spills, and Spill Response

    a. Federal and State storm water regulations require facilities to implement an operation and maintenance program that includes an employee training component and has the ultimate goal of preventing or reducing pollutant runoff from operations. Preventing spills of materials and waste is a significant component of complying with these regulations. However, even with the best prevention efforts, spills may still occur. When they do, it is up to organizations personnel to respond quickly and effectively to clean-up the spilled material or notify someone who can. All organizations shall develop site specific individual Spill Response and Prevention Plans. These plans are to address any spills from minor below the reporting thresholds for each designated chemical used i.e. 25 gallons is the reportable quantity of petroleum released on the ground and any quantity that creates a sheen on water Spills: Reportable Quantities - Texas Commission on Environmental Quality - www.tceq.texas.gov. The plan should be kept in a central location that is easily accessible for employees.

    b. Hazardous materials must be stored in approved, closed, and properly labelled, leak-proof containers. All hazardous material storage containers, to include fuel bladders, tanker trucks, refueling capable vehicles, fuel pods, and 55-gallon drums, must be stored within properly sized and impermeable secondary containment.

    c. Spill Response. Units are responsible for initial response and clean-up. To effectively respond, units shall maintain spill kits appropriately sized and configured for their training activity (5-gal Bucket of sand/litter, garbage bags, shovel, brooms, etc.). All hazardous material spills within an RTA must be immediately reported to the ROC. The ROC will notify TAMUS response for spills 25 gallons or greater of hydrocarbon fluids. For lesser spills, users will clean up and can drop their garbage bags of contaminants at the RELLIS Administration building for disposal.
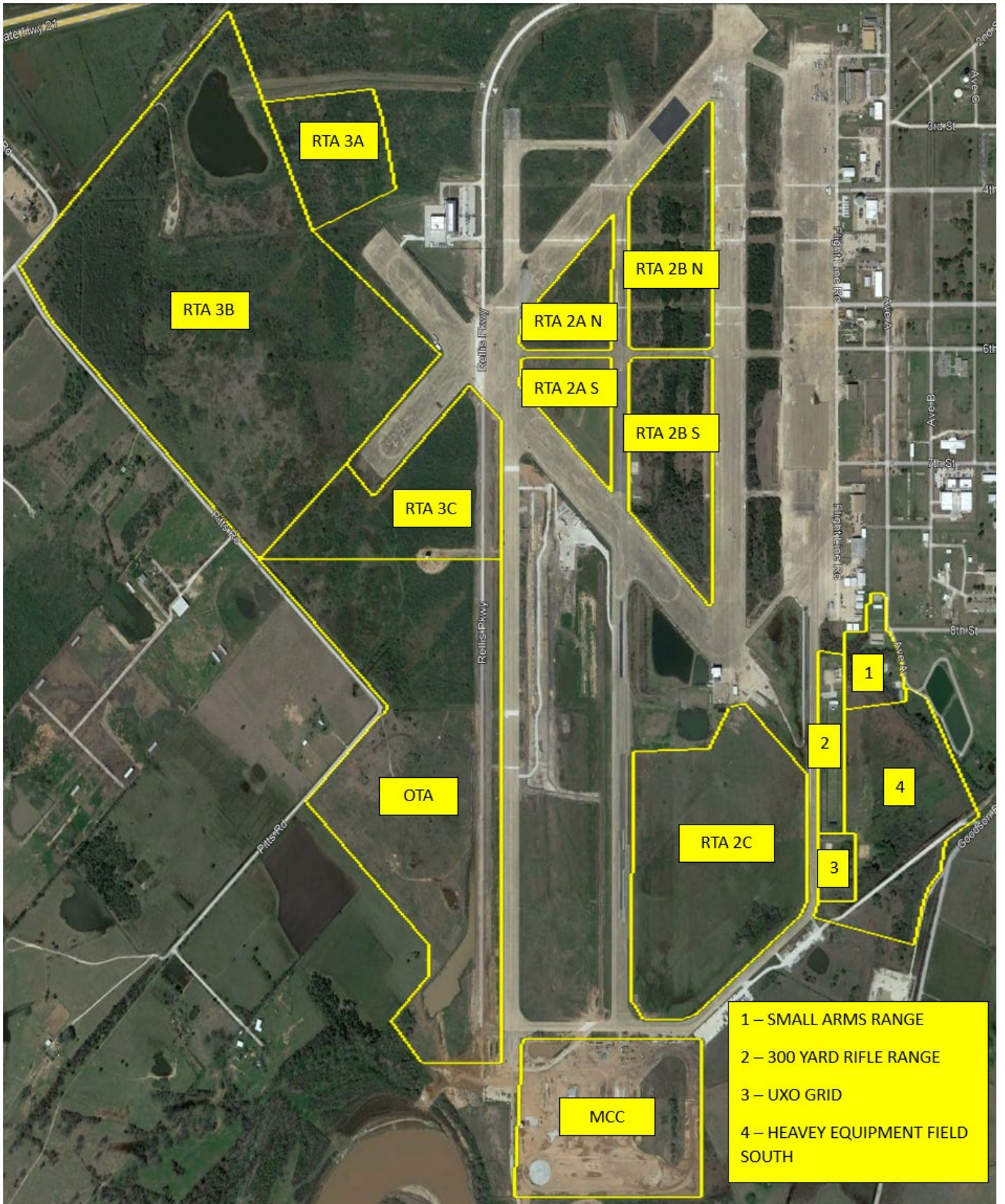
6. RELLIS Environmental Health and Safety

    a. RELLIS EHS personnel shall be notified of any environmental concerns, regardless of severity.

        i. Assistant Director, Environmental Health and Safety: 979-317-1008

        ii. Environmental Health and Safety Coordinator: 979-317-1063

    b. Concurrently, using agencies/organizations EHS representatives shall be notified accordingly.

1. EP NORTH

2. EP MIDDLE

3. EP SOUTH

4. UNDERGROUND EP

5. UAS & EP TRANSMISSION LINE

6. HEAVY EQUIPMENT FIELD NORTH

RTA 3A

RTA 3B

RTA 2B N

RTA 2A N

RTA 2A S

RTA 2B S

RTA 3C

OTA

RTA 2C

1

2

4

3

MCC

1 – SMALL ARMS RANGE

2 – 300 YARD RIFLE RANGE

3 – UXO GRID

4 – HEAVEY EQUIPMENT FIELD SOUTH

TEEX DEMO PIT

ESF

RTA 4

Goodson Bend Rd

Nemec Ln

Nemec Ln

Boyd Ln

Boyd Ln

Boyd Ln

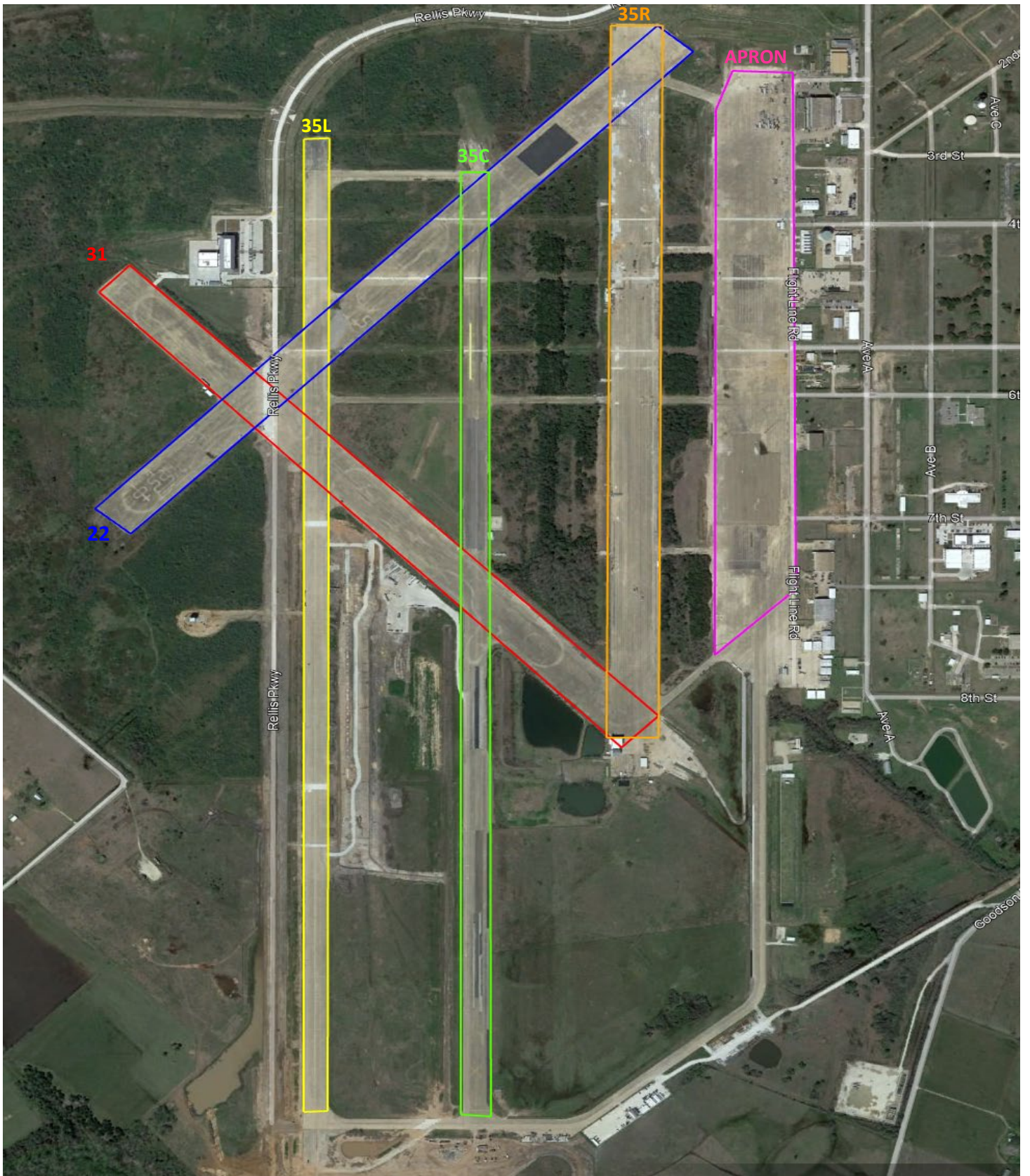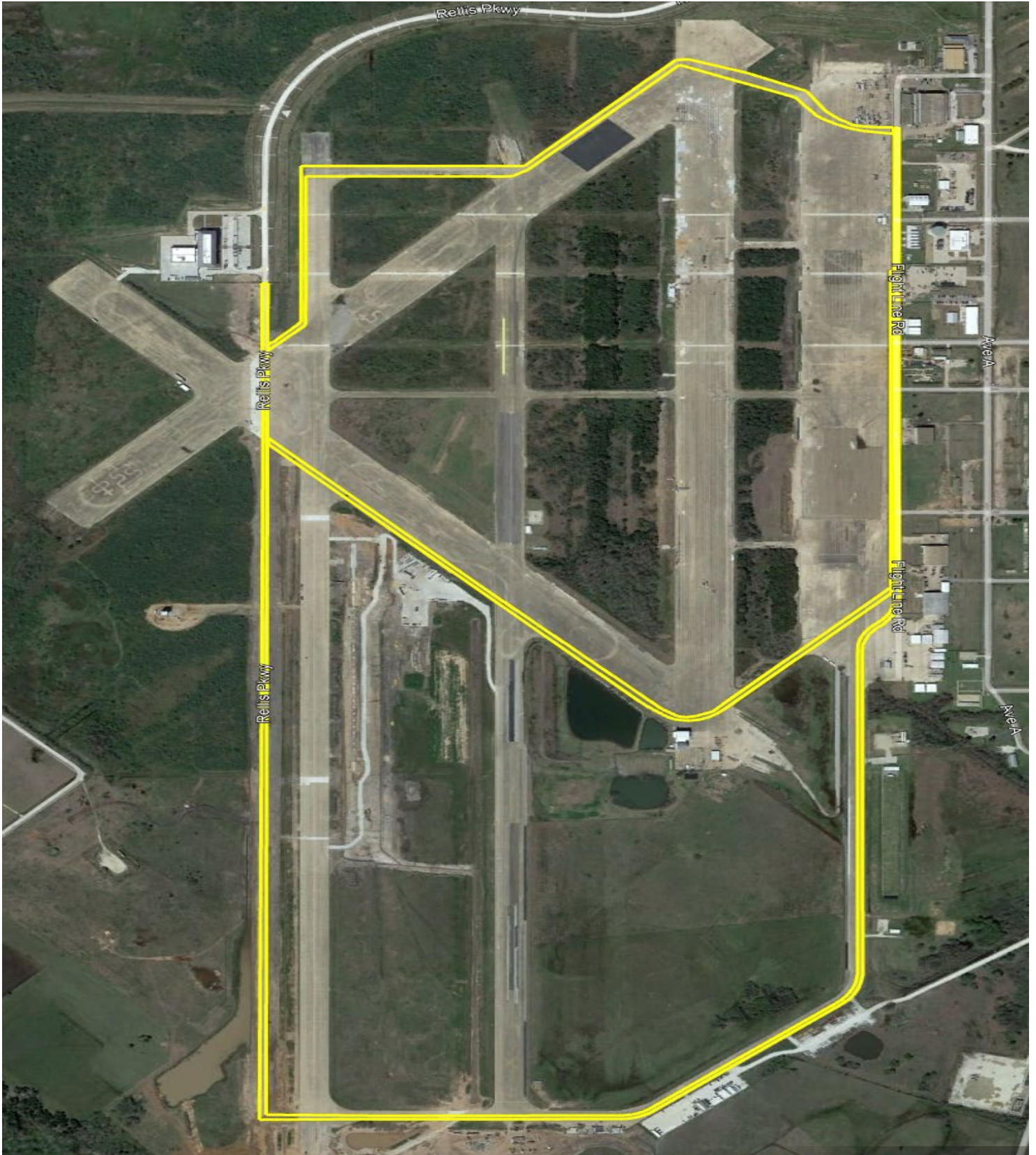Goodson Bend Rd
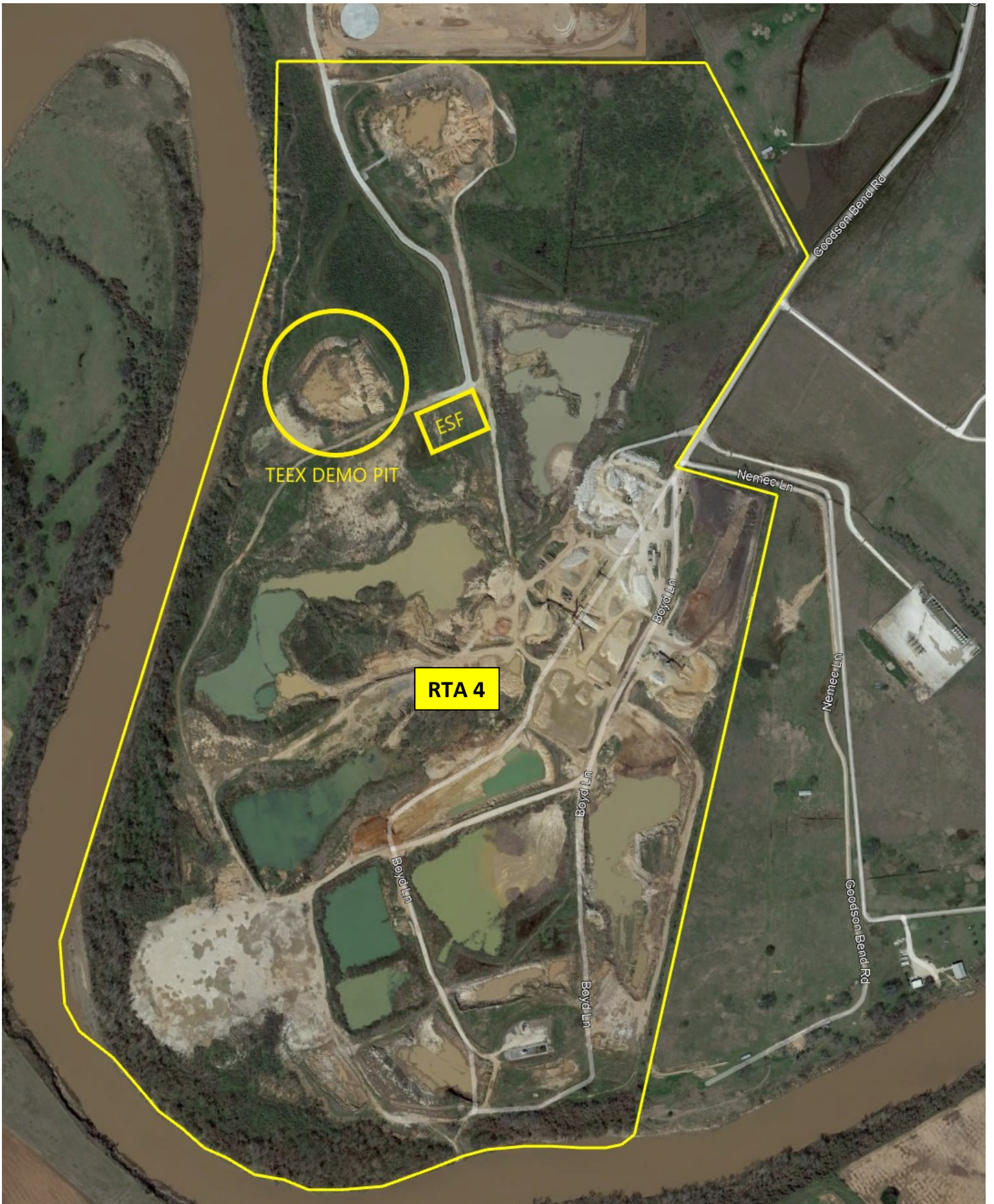
APPENDIX B: RUNWAYS AND APRON

APPENDIX C: APPROVED TRANSIT LANES

APPENDIX D: ORM WORKSHEET EXAMPLE

Complete a flow chart identifying the major steps involved in the activity. List the Major Hazards in Column 1.

Step 1. Identify hazards. Identify conditions with the potential to cause damage, injury, or mission degradation. List the hazards and cause in Columns 1 and 2.

Step 2. Assess hazards. For each hazard identified, determine the associated degree of risk in terms of probability and severity.
      Use the matrix below to assign each hazard identified in Step 1 with a Hazard Severity Category, and a Mishap Probability Rating.
      Use these to determine a Risk Assessment Code and list it in column 3.

Hazard Severity Category Matrix: Mishap Probability Sub-category Matrix

I   Death, loss, or grave damage.   A. Likely to occur immediately.
II Severe injury damage or inefficiencies.   B. Probably will occur in time.
III Minor injuries, damage, or inefficiencies.   C. May Occur in time.
IV Minimal Threat to personnel and property.   D. Unlikely to occur.

Hazard Severity	Mishap Probability Rating				Risk Assessment Code
	A	B	C	D	1 = Critical
I	1	1	2	3	2 = Serious
II	1	2	3	4	3 = Moderate
III	2	3	4	5	4 = Minor
IV	3	4	5	5	5 = Negligible

Step 3. Risk Decisions. First, develop and implement a set of risk control options to minimize risk consistent with mission accomplishment. Then, decide if the benefit of the mission outweighs the new risk levels. If risks outweigh benefits, seek further risk reduction. List Risk controls in column 4. The Residual RAC (column 5) is your assessment of the risk with your controls in place. Communications with higher authority may need to occur based on your organization's policies.

Step 4. Implement controls -- When risks are reduced to acceptable levels, implement the appropriate control measures. List the controls in column 6. Be specific and detailed.   These are the limits you are setting for yourself to ensure your safety when participating in this activity.

Step 5. Supervise -- Conduct follow-up evaluations of the control measures to ensure the desired effect. Adjust, as necessary. As your skill, confidence, and the parameters of this activity change, re-evaluation of the risk is critical. List your plan for self-supervision in the last column.

Name:						
High Risk Activity: UAS OPERATIONS					Date Worksheet Prepared:	
Step 1. Identify Hazards		Step 2. Assess Hazards	Step 3. Make Risk Decisions		Step 4. Implement Controls	Step 5. Supervise
Hazards	Causes	Initial RAC	Develop Controls	Residual RAC	How to Implement	Self-Supervision Actions
LOSS OF DATA LINK	FAILURE OF CONTROL SYSTEM	IV/C=5	PREPROGRAMMED FLIGHT PATH TO RETURN TO LAND. REDUNDANT BACK-UP RECOVERY SYSTEMS.	IV/C=5		N/A
COLLISION WITH GROUND BASED OBJECT	UNFAMILIAR WITH SURROUNDINGS; COMPLACENCY	III/C=4		III/C=4		N/A
COLLISION WITH AIRBORN VEHICLE	Lack of awareness; not following proper procedures.	I/C=2	OPERATE IN A REMOTE AREA; POSITION VISUAL SPOTTERS AROUND THE FLIGHT AREA; ADVISE LOCAL ATC OF OPERATIONS; SUBMIT NOTAM.	I/D=3		N/A
INEXPERIENCED PILOT/OPERATOR	LACK OF EDUCATION OR KNOWLEDGE OF AVIATION REGULATIONS	III/B=3	COMPLETE REQUIRED FAA PART 107 CERTIFICATIONS; COMPLETE CONTINUING EDUCATION COURSES.	IV/C=5		
			Accept Risks: Yes No Comms with higher auth: Yes No			

The three highest risks of this activity are:

1. COLLISION WITH AIRBORN VEHICLE
2. COLLISION WITH GROUND BASED OBJECT
3. LOSS OF DATA LINK

APPENDIX E: RELLIS BOUNDARY FOR AIRSPACE MANAGEMENT

APPENDIX F: EASTERWOOD CLASS DELTA AIRSPACE

APPENDIX G: EXAMPLE OF UAS CHECKLIST

UAS Information	
Drone Name:	
Serial #:	
FAA Registration #:	
RPIC Name:	
VO Name:	
Mission Description:	

Pre-flight Checklist		
	Proper authorization received and notices made	
	METAR and NOTAMS reviewed	
	Airspace reviewed	
	Safety Equipment Checklist completed	
	Remote Control fully charged	
	Mobile Device fully charged	
	Intelligent Flight Battery fully charged	
	Propellers properly installed and secure	
	Visually inspect all components for damage	
	Intelligent Flight Battery installed and properly secured	
	Gimbal cover removed	
	Gimbal and camera functioning properly	
	Motors unobstructed and functioning normally	
	Camera lens and Vision System sensors clean	
	Accessories properly and securely mounted	
	Software application successfully connected to aircraft	
	Safety equipment donned and briefing conducted	

Safety Equipment Checklist	
Safety vest (1 per person)	
Hard hat (1 person)	
Eye Protection or Safety Glasses	
Fire Extinguisher	
Shovel	
5-Gallon Bucket	
Trash Bags	
Post-flight Checklist	
All devices powered down	
Visual inspection complete *(note differences from pre-flight)*	
Propellers, battery, accessories removed and stowed	
Gimbal cover installed	
All components properly stowed in case	
Area policed for litter	
Safety Equipment stored	
Mission Notes	

RELLIS Campus Proving Grounds Security Plan

ABBREVIATIONS and ACRONYMS

BCDC – Bush Combat Development Complex

BLINN – Blinn College, Reveille Truck Driving School

CI – Critical Information as determined by the customer or Government

CRL – Conservation Research Laboratory, Center for Maritime Archaeology Conservation

CUI – Controlled Unclassified Information

DCSA – Defense Counterintelligence and Security Agency

DoD – U.S. Department of Defense

DoDM – Department of Defense Manual

FIE – Foreign Intelligence Entities

IPG – Innovation Proving Ground

OPSEC – Operations Security

RIC – Research Integration Center

RSO – Research Security Office

SME – Subject Matter Expert(s)

TAMU – Texas A&M University

TAMUS – Texas A&M University System

TDEM – Texas Division of Emergency Management

TEES – Texas A&M University Engineering Experiment Station

TEEX – Texas Engineering Experimentation Station

TEEX ILEPSE – Texas Engineering Extension Service, Institute for Law Enforcement & Protective Services

TEEX ITSI – Texas Engineering Extension Service, Infrastructure Training & Safety Training

TTI – Texas Transportation Institute

1. Purpose. These principles are to safeguard all aspects of the execution of operations on the RELLIS Proving Grounds.

2. Applicability and Scope. This security plan is implemented to identify potential vulnerabilities which may pose a threat to operations on the RELLIS Campus Proving Grounds. The plan will generally document the following: items, activities, and information to be protected; potential threats to compromise activities and associated information; vulnerabilities that enable potential threats; and appropriate mitigation and management tools to be implemented. The security plan will be subject to periodic updates as operations on the Proving Grounds continue to grow/expand especially those involving sensitive research/activities. This plan is intended to be the base plan for the Campus that all TAMUS Member plans on the RELLIS Campus will nest.

3. Program/Project Background. This plan is applicable to all operations supporting sensitive and/or controlled US Government or non-government proprietary research conducted with private entities or public institutions. A sponsor/customer will inform research partners or RELLIS Campus Administration on the nature of their research and if it's proprietary or sensitive in nature.

4. Threat Analysis. The following paragraphs provide a synopsis of potential threats to compromise research and testing activities. The primary threats to the RELLIS Campus are unauthorized entry, observation (ground and air) of sensitive activities, and cyber.

The Proving Grounds has a perimeter fence that on the Main Campus border is wrought iron or chain link. The West and South perimeter fence is a two and three strand barbed wire fence. All vehicle entry points are controlled by poll gates and three controlled access points. Access through the pole gates is via RELLIS Administration. The controlled access points are sliding gates with a proximity/swipe card capability, photo surveillance, and spike strips at the exit points. There are areas of significant vegetation along Northern and Southern portions of the proving grounds. Additionally, the Southern border is along the Brazos River that has heavy vegetation and steep terrain along the border of RELLIS Campus. The West side of the Proving Grounds has areas to wide observation to the center runway. The Northern and Eastern portions of the proving grounds have vegetation between runways obscuring cross corridor view. Annex A depicts the RELLIS Campus Proving Grounds and areas of vulnerability to ground observation.

RELLIS Proving Ground operations are likely to be targeted by Foreign Intelligence Entities (FIE) or others conducting industrial espionage for numerous strategic competitors and adversaries across the globe. These countries or non-government sponsored organizations maintain capable collection means employing sophisticated techniques for targeting sensitive research. FIEs and non-government entities are known to use several disciplines for intelligence collection when gathering information. These include, but are not limited to:
- Human intelligence
- Signals intelligence
- Measurement and Signature Intelligence
- Open-Source Intelligence
- Geospatial Intelligence
- Foreign Talent Recruitment Platforms
- Non-Traditional Collectors: Foreign Researchers, Visiting Scholars, Foreign Students, Foreign SMEs

RELLIS Campus Proving Grounds is at risk from multiple sources (government and non-government sponsored) who would attempt to misappropriate US government-controlled information or information proprietary to the TAMU System or its customers. Every user of the RELLIS Proving Grounds is responsible for protecting the proprietary or

trade secrets of their industry or government clients. Additionally, all TAMUS Members should be aware of the Insider Risk; either witting or unwitting.

5. Critical Information (CI). According to DoDM 5205.02-M, CI is information about DoD activities, intentions, capabilities, or limitations that an adversary seeks to gain a military, political, diplomatic, economic, or technological advantage. CI is normally unclassified information that, when collected in aggregate, negates, or weakens a U.S. military advantage. CI answers the questions that an adversary may ask when determining how to counter, clone, or defeat a U.S. technological advantage. Further, industry sponsored research also incurs the RELLIS Campus Proving Grounds obligation of protecting sensitive or proprietary information owned by these entities.

RELLIS Proving Ground operations supporting government or non-government funded research could produce a technological advantage known to be of interest to one or more FIE or entities looking to further their commercial advantage or national technical advancement through industrial espionage. The goal of these protocols is to protect sensitive information or CI against disclosure to government or non-government threats that may have an interest in reproducing the research results obtained from testing on the RELLIS Proving Grounds.

All projects are encouraged to have a Non-Disclosure Agreement with the Customer and TAMUS researcher/organization.

For the purposes of this document, CI will encompass all information identified by government or non-government clients, or otherwise restricted TAMUS System Members. Table 5-1 below identifies examples of Critical Information.

Table 5-1: Critical Information

CI #	Critical Information
1	Documents or materials provided by the US Government which is marked as CUI or Export Controlled or otherwise identified by the US Government as Critical Information
2	Documents or Material provided by industry partners marked as sensitive or proprietary.
3	Engineering/Project Blueprints/Operating Instructions/Specifications
4	Government and Non-government Contracts and Customers
5	Special equipment capabilities and limitations
6	Planned Experiments / Results
7	Operating Instructions
8	Vendors
9	New Technology Applications
10	Critical Shipping / Procurement Items

6. Indicators. Indicators are sources of information that, if exploited by an adversary or competitor, could reveal critical information. An indicator can be identified by asking the question, "If I were an adversary or competitor, where would I go to obtain critical information?"

Indicators are detectable actions that can be heard, observed, or imaged. Obtained by an unauthorized party, they could result in knowledge or actions harmful to friendly intentions. They include such things as personnel or material actions and movements that can be observed, public release conversations or documents, and habitual procedures when conducting a given type of operation or test. All detectable indicators that convey or infer critical information must be identified and protected if determined vulnerable. See Table 6-1 for indicators associated with RELLIS Proving Grounds.

Table 6-1: Indicators related to RELLIS Proving Ground Operations

Work schedules
TAMUS Member annual/monthly/progress reports
Meeting notes
News/Press Releases/ Social Media Sites
Operating Manuals & Safety Reports
Sales/Vendor Documents/Shipping Requests
Research Agreements or Facility Use Agreements with TAMUS Members, Government or Industry clients
Job Vacancy Announcements
Public Briefings
Travel Requests

7. Analysis of Vulnerabilities and Application of Countermeasures. Identifying vulnerabilities involves a systematic analysis of RELLIS Proving Ground operations and Proving Ground user compliance with Standard Operating Procedures. This involves taking on the perspective of those who might target information from RELLIS Proving Ground activities. Actions that can be observed or other data that can be interpreted or pieced together to derive critical information must be identified. These potential vulnerabilities must be matched with specific threats.

A countermeasure is anything that effectively negates an adversary's ability to exploit vulnerabilities. The most effective countermeasures are simple, straightforward, procedural adjustments that effectively eliminate or minimize the generation of indicators. Following a cost-benefit analysis, mitigations are implemented in priority order to protect and minimize vulnerabilities having the most impact on research and testing. Vulnerabilities and Mitigation measures have been identified for the RELLIS Proving Grounds as listed below in Table 7-1.

Table 7-1: Vulnerabilities and Mitigation

Vulnerability	a. Mitigation
Visitors - Visitors to the RELLIS Proving Grounds may observe, hear, write, photograph, and/or film down sensitive information.	All visitors are required to process through the RELLIS Campus Administration or through their TAMUS Member sponsor who will inform RELLIS either by email or through the reservation system. All escort for visitors shall be advised of proper escort procedures, limitations on disclosure, and other applicable controls involved in the visit. All personnel using the RELLIS Proving Ground shall be reminded through OPSEC briefings of the potential for inadvertent release of information by visual and aural means when visitors are present. Activities of visitors and non-assigned personnel on the Proving Grounds shall be observed to determine whether their presence is required by business needs and no suspicious activities are detected that may pose a threat to the security of information.

Lack of Training and Awareness - Without proper OPSEC and training, employees are not aware of the extent of an adversary's dependence on obtaining sensitive or classified information of a defense project and their capabilities to decipher critical intelligence from seemingly trivial information	All individuals with access to the RELLIS Proving Grounds (including employees, consultants, contract labor personnel and subcontractors) will be required to undergo operational security training, counterintelligence training and education to eliminate vulnerabilities discovered through ongoing OPSEC analysis. All users will undergo briefings and kept informed when sensitive activities may impact scheduled research/testing and the measures designed for the protection and continued implementation of OPSEC and counterintelligence principles. The briefings will include OPSEC and counterintelligence significance on day-to-day tasks that may communicate sensitive information to unauthorized persons.
Electronic Devices - Electronic devices may contain SIGINT, ELINT, and IMINT collection abilities that allow for adversaries to exploit the results of activities on the RELLIS Proving Ground	All users need to be aware of risks associated with personal electronic devices such as cellphones, smart watches, and fitness trackers. Mitigation measures should be taken when conducting research/testing that is deemed sensitive in nature.
Photography - An adversary may gather imagery of the facility through overt or clandestine means to exploit sensitive technology.	The use of photography or video recording is strictly prohibited unless approved by the Principal Investigator of the activity being filmed. All media will be reviewed by RELLIS Administration and Sponsoring Agency to ensure there is nothing in the background of photos or video that would inadvertently release sensitive information.
Communications Between Project Members	Emails between Personnel using the Proving Grounds that contain CI should be encrypted using a medium assurance method. Furthermore, documents can be password protected through Word where the password is sent via a separate e-mail. Emails that contain CUI will only be transmitted via an approved CUI compliant platform or method, i.e. DoD Safe or other CUI Compliant method. All Proving Ground users should receive information awareness training regarding the use of digital communications, such as texting, to limited non-critical communication. The training should include discussions that adversaries may be able to piece together seemingly non-critical information to discern actionable intelligence. Emphasis will be placed on instilling awareness among RELLIS Proving Ground users concerning discussion of sensitive unclassified or proprietary matters within public locations.
Visual Display of CI	Displays of information containing CI will be positioned so that they are not viewable from outside the work center. This includes sight lines that are visible at a distance where binoculars or similar devices could make the information viewable.
Open-Source Profile- Significant quantities of unclassified, highly technical documents (both formal as well as in-house distribution and coordination items) offer a lucrative target to an adversary. Requests for documents relating to activities on the Proving Grounds should be anticipated since many Intelligence	All RELLIS Proving Ground Users should be aware of open-source intelligence risks to their clients/sponsors and to the TAMUS. Awareness training should be incorporated to discussions on what information is publicly available, what information requires limited distribution, and as required how information can be distributed across

Services work through clearinghouses and employ cover organizations in their increasing attempts to collect technology.	the TAMUS Members and to outside audiences with mitigated security risks. All users should refer to TAMUS OPSEC Protocols for guidance regarding publications, and conference participation Emphasis will be placed on instilling awareness among users concerning the proper disposal methodology of all sensitive material, including crosscut shredding and burn bags.
ID/Access Cards – RELLIS Proving Grounds and many Campus facilities requires the swiping of IDs for access. If a TAMUS or Industry user leaves an ID or RELLIS issued access card unattended or unintentionally loses it, an adversary may obtain to gain prohibited access to the Proving Grounds.	All users will be reminded to always carry the ID or access card with them and maintain the badge near their person. Government-issued CACs, badges, and identification shall be removed and/or concealed from plain sight when the off station and shall not be left in vehicles or unprotected. Users must immediately report lost ID or RELLIS access cards to their immediate supervisor.
MASINT - MASINT is an intelligence discipline that gathers quantitative and qualitative analysis of intrinsic characteristics derived from specific technical sensors. Its purpose is to measure distinctive features (metric, angle, spatial, plasma, nuclear, IR, electromagnetic, etc.) associated with the source.	To mitigate risks of adversarial MASINT collection, users should focus on preventing technical collection through HUMINT or SIGINT. This can be done by storing electronic devices properly and ensuring all personnel are aware of collection tactics.
Data Storage (Local and Cloud) - RELLIS will have a storage capability for data, the data storage points, and fiber optic cables are ways adversaries can access sensitive or classified data.	RELLIS Administration IT will be the main security point for all networks on RELLIS Campus. Signature-based detection tools will assist in flagging any activities of concerns. Any storage of CUI or sensitive or proprietary data will be protected at rest or in transit with the appropriate level of encryption.
Digital Hygiene – As personnel use computers/laptops throughout operations, an adversary may gain access to RELLIS Campus networks. Furthermore, adversaries can gain access to sensitive documents, communications, or links that have serious risks to the institution.	All computing devices will be subject to endpoint management member IT and require user IDs and passwords. RELLIS Campus member IT will ensure devices possess robust anti-malware software and are safeguarded against outside entities. RELLIS IT will provide NAAS services as defined by RELLIS policy. Network security monitoring will be provided by TAMUS SOC.

8. Management Controls. The following controls as depicted in Table 8-1 below, will be administered by all TAMUS Members or Industry partners through their TAMUS sponsors to provide a security awareness foundation for all users of the RELLIS Proving Grounds that will benefit the overall protection of all information classified or otherwise deemed sensitive/proprietary. These controls are not targeted at specific indicators and/or vulnerabilities as in Table 7-1, but rather at the entire security effort.

Table 8-1: Management Controls

Control #	Management Control
1	A current version of this security plan will remain with RELLIS Campus Operations and referenced on the RELLIS Reservation System
2	A listing of Table 7.1, Vulnerabilities and Countermeasures should be posted in a conspicuous location within the user spaces and frequently reviewed.
3	As per the RELLIS Campus Administration Protocols, users will receive initial and recurring OPSEC/counterintelligence training as developed by TAMUS RSO. Initial training will be conducted within 1 week of the original signature of this Plan and for all new users, and recurring training will be conducted at least once per calendar year as a refresher. This training requirement will be satisfied via the DCSA administered website, Center for Development of Security Excellence (CDSE). The course "OSPEC Awareness for Military Members, DoD Employees, and Contractors GS130.16" and "CI Awareness and Security Brief CI112.16". They can be located at the following URL: https://www.cdse.edu/Training/eLearning/GS130 https://www.cdse.edu/Training/eLearning/CI112/ *Note: Training will be made available via TrainTraq
4	All technical documents generated during RELLIS Proving Ground operations contain proprietary data, export-controlled data, or CUI data, shall be marked appropriately; see Attachment A.
5	All users of the Proving Grounds will determine appropriate barrier and area access plans for their scheduled activities to protect information through observations and for safety. Those plans are required documents for submission to the RELLIS Reservation System.
6	Visitors to the RELLIS Proving Grounds will be escorted by a TAMUS Member as a sponsor. The sponsor will maintain a record of names, dates, times, and nationalities of visitors into the area. The RELLIS Reservation System will be used to schedule and be a repository for the visitor information as it is required as part of the submission.
7	This Plan may be updated any time there is a substantive change to research/testing programs or any area affecting a step in the OPSEC Process. If TAMUS Members identifies a need or an improvement to be made to the OPSEC Plan they will notify RELLIS Campus Operations.
8	Any suspicious activity should be reported to the RELLIS Administration, TAMUS RSO, and Defense Counterintelligence Security Agency (DCSA) field office servicing the institution as soon as practicable.
9	Personnel using the RELLIS Proving Grounds shall take the following TrainTraq training: course number 2113511, "Controlled Unclassified Information Management Overview."