| NEPA REVIEW SCREENING FORM<br>for Actions Included in CXs | Document ID #:<br>DOE/CX-00165 |
|---|---|

**I. Project Title:**
Activity Specific Categorical Exclusion for Joint Base Lewis-McChord Fourth Battalion Helicopter Training at the Hanford Site, Washington

**II. Describe the proposed action, including: location, time period over which proposed action will occur, project dimension (e.g., acres displaced/disturbed, excavation length/depth), area/location/number of buildings. Attach maps and drawings, as applicable. Describe existing environmental conditions and potential for environmental impacts from the proposed action. If the proposed action is not a project, describe the action or plan.**

1.0 BACKGROUND

Title 10, Part 1021 of the Code of Federal Regulations (10 CFR 1021), "National Environmental Policy Act Implementing Procedures," establishes procedures that the U.S. Department of Energy (DOE) uses to comply with section 102(2) of the National Environmental Policy Act (NEPA) of 1969 [42 U.S.C. 4332(2)] and the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA (40 CFR Parts 1500-1508).

10 CFR 1021.410, "Application of Categorical Exclusions," discusses classes of actions that normally do not require Environmental Assessments (EA) or Environmental Impact Statements (EIS). To conclude that a proposed action is categorically excluded, DOE must determine that the requirements of 10 CFR 1021.410 and the conditions that are "integral elements" as defined in 10 CFR 1021, Subpart D, Appendix B, are met.

Three primary sources of information were used to prepare this activity-specific categorical exclusion. They include the "Environmental Assessment - Northwest Aviation Operations 160th Special Operations Aviation Regiment Joint Base Lewis-McChord, Washington"; ORNL/TM-2000/289/ES-5048, "Ecological Risk Assessment Framework for Low-Altitude Overflights by Fixed-Wing and Rotary-Wing Military Aircraft"; and MSA-1704099, "Ecological and Cultural Clearance for Military Flight Operations at HAMMER and EVOC/PTA in the 600 Area, Hanford Site, Benton County, Washington (ECR-2017-639)."

2.0 PROPOSED ACTION

The 4th Battalion from the 160th Special Operations Air Regiment (SOAR) at Joint Base Lewis-McChord (JBLM) (referred to hereafter as "Army") proposes to use the Hanford Site Volpentest Hazardous Materials Management and Emergency Response Federal Training Center (HAMMER) and the Hanford Patrol Training Academy Emergency Vehicle Operations Course (EVOC) helicopter pad for landing training exercises and simulations (referred to hereafter as "helicopter training") on August 30, 2017, with August 31 or September 1 as contingencies. The helicopter training would include two MH-60 Blackhawk and one MH-47 Chinook helicopters (Figure 1). The helicopter training would be conducted between the hours of 9:00 PM and 12:00 AM with the first approach/landing/departure at approximately 9:00 PM and the second approach/landing/departure at approximately 11:00 PM. One military evaluator would be present at HAMMER during this time-frame to observe and evaluate flight activities. The evaluation would begin at JBLM and a portion of the evaluation would take place at HAMMER and EVOC. The event would include use of existing fire props at HAMMER to simulate "real life" situations.

The proposed helicopter flight paths would cross the Hanford Site only at HAMMER, and for a short distance to the east while transiting the Site. There would not be flights over other areas of the Hanford Site (P. J. Vandervert, MSA, personal communication on August 24, 2017; and A. T. Morris, DOE-RL, email on August 24, 2017). The flight path would be coordinated with the Army pilots. The three helicopters would approach HAMMER from the south, avoiding overflight of the Horn Rapids housing area. Once over HAMMER one helicopter would turn west and fly directly to the EVOC helicopter pad and land. The other two helicopters would land in the open asphalt area between the HAMMER

**II. Describe the proposed action, including: location, time period over which proposed action will occur, project dimension (e.g., acres displaced/disturbed, excavation length/depth), area/location/number of buildings. Attach maps and drawings, as applicable. Describe existing environmental conditions and potential for environmental impacts from the proposed action. If the proposed action is not a project, describe the action or plan.**

Training Tower and Burn Building (Figure 2).

It is anticipated that the helicopters would remain on the ground for less than five minutes. When they depart, all three helicopters would lift off gaining elevation quickly and fly east towards the Columbia River to an undisclosed location off the Hanford Site, where they would continue the evaluation. The same flight path would be followed for the second approach/landing/departure at HAMMER and EVOC. All helicopter training would be conducted on asphalt-paved areas at HAMMER and EVOC.

Any future military training exercises and simulations on the Hanford Site would be subject to additional NEPA screening, evaluation, and documentation; including additional cultural and ecological resource reviews, as deemed necessary by the DOE NEPA Compliance Officer. Also, military training exercises and simulations performed on the Hanford Site are conducted in accordance with a Permit and Memorandum of Understanding executed between the Army and the Department of Energy - Richland Operations Office (DOE-RL).

3.0 SITE DESCRIPTION

3.1 HAMMER

The 88-acre HAMMER campus features versatile facilities specializing in hands-on training, exercises, and new technology deployment (Figure 3). Special features include realistic training props.

3.2 EVOC

EVOC was developed to train law enforcement officers, emergency responders, and other driving specialists in techniques necessary to successfully complete their missions in a safe and efficient manner. The 1.3-mile asphalt roadway includes a quarter-mile straightaway, nine curves of varying radii and elevation changes, an intersection, a wet skid pad area, and a helicopter pad. An adjacent 160,000-square-foot asphalt Skills Pad provides a separate area for backing, auto-cross, and Skid Car training (Figure 4).

4.0 Mitigation of Adverse Effects

The Army would be responsible for mitigation of potentially adverse effects to the human environment resulting from the proposed helicopter training. The primary impacts would be from noise and vibration during the helicopter training and transiting to and from HAMMER and EVOC.

As part of the proposed action, the Army would implement appropriate Best Management Practices (BMPs) that minimize impacts to the various resource areas. These BMPs include, but may not be limited to, following appropriate safety procedures and avoiding low-altitude flight above noise sensitive areas.

Table 1 provides specific mitigation measures and BMPs to avoid significant adverse impacts to cultural and ecological resources, and to minimize significant health and safety risks to the human environment. These are discussed in more detail in Section 5.0. It should be noted that for all flight restrictions, the sudden onset of adverse weather conditions may require pilots to fly lower than specified or abort the helicopter training to ensure the safety of the pilots and the people on the ground. All areas of restrictions would be clearly identified in flight plans.

**II. Describe the proposed action, including: location, time period over which proposed action will occur, project dimension (e.g., acres displaced/disturbed, excavation length/depth), area/location/number of buildings. Attach maps and drawings, as applicable. Describe existing environmental conditions and potential for environmental impacts from the proposed action. If the proposed action is not a project, describe the action or plan.**

5.0 RESOURCE AREA DISCUSSION

5.1 Land Use

HAMMER and EVOC are substantially industrial in nature. Since selected helicopter landing sites at HAMMER and EVOC would be located away from populated areas and are consistent with intended land uses, potential incompatibilities with adjacent properties would not take place (Figure 5).

5.2 Air Space Use and Safety

5.2.1 Accidents

Military activities conducted in airspace controlled by or under the jurisdiction of the FAA would follow FAA procedures for air traffic control planning, coordination, and services provided during defense activities and special military operations. These procedures deal with issues such as coordination and scheduling; communication; and altitude, speed, and separation of aircraft. The procedures are in place to prevent air collisions and other accidents. The Army also follows the provisions in Department of the Army Pamphlet 385-90, "Army Aviation Accident Prevention Program."

5.2.2 Fuel/Oil Spills

Since refueling operations would be performed off the Hanford Site, and periodic maintenance and pre-flight equipment inspections would be conducted by the Army to ensure helicopter operability, the likelihood of fuel, oil, or hydraulic fluid spills on the Hanford Site is considered insignificant. The Army would be responsible for cleaning up all fuel, oil, or hydraulic fluid spills that occur on the Hanford Site as a result of the proposed action.

5.2.3 Bird Aircraft Strikes

Collisions between aircraft and birds represent an airspace safety hazard. The most serious strikes for helicopters are windshield strikes, which have resulted in pilots experiencing confusion, disorientation, loss of communications, and aircraft control problems. Bird strike risks tend to be highest near areas where birds congregate and during certain times of the year when bird migration is prevalent. Section 5.6 and Table 1 discusses ecological resources further.

5.3 Noise and Vibration

General day-night ambient noise level (DNL) estimates for various types of land use vary widely, from approximately 35 dBA in wilderness areas to a maximum of 85 to 90 dBA in the noisiest urban areas.

The Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978 (42 U.S. Code 4901-4918) requires federal agencies to conduct their programs in a manner that promotes an environment free of any noise that could jeopardize public health or welfare. Regulation and control of operational noise by the Army is covered in Army Regulation 200-1, "Environmental Protection and Enhancement." This regulation addresses the requirements of the Noise Control Act of 1972 and the Quiet Communities Act of 1978.

**II. Describe the proposed action, including: location, time period over which proposed action will occur, project dimension (e.g., acres displaced/disturbed, excavation length/depth), area/location/number of buildings. Attach maps and drawings, as applicable. Describe existing environmental conditions and potential for environmental impacts from the proposed action. If the proposed action is not a project, describe the action or plan.**

The Laser Interferometer Gravitational Wave Observatory (LIGO) is located approximately 3.0 miles northwest of HAMMER and EVOC. LIGO's mission is to directly observe gravitational waves of cosmic origin. This research is sensitive to noise and vibration. Helicopter flight routes should avoid airspace near the LIGO Facility.

The Pacific Northwest National Laboratory (PNNL) is located approximately 0.5 miles directly east of the HAMMER and EVOC. A portion of PNNL's research is conducted at the molecular level and is sensitive to noise and vibration. Helicopter flight routes should avoid airspace near the PNNL campus.

Noise generated by the military helicopters would vary depending on the type of training and the altitude. Associated impacts would vary depending on how close the activity was to noise sensitive receptors. MH-47 Chinook and MH-60 Blackhawk helicopters can generate noise levels close to 100 dBA when flying at low altitudes. Following FAA recommendations to fly over noise sensitive areas at a minimum altitude of 2,000 feet AGL would minimize potential noise and vibration effects on LIGO, PNNL, and other noise sensitive receptors (e.g., Horn Rapids housing area). The adequacy of this altitude with respect to potential impacts on the LIGO and PNNL facilities is unknown.

Given the low number of aircraft operations conducted, it is not possible to generate "A-weighted" DNL noise contours for the helicopter training at HAMMER and EVOC. Instead, the noise levels associated with the helicopter training are presented in Table 2 that lists maximum noise levels for the Army helicopters being used to conduct the proposed training activities (NOTE: the CH-47D is comparable to the MH-47 Chinook helicopter and the UH-60 is comparable to the MH-60 Blackhawk helicopter). Adherence to "friendly flying" protocols (see "Noise" in Table 1) would limit the likelihood that many people would be annoyed by aircraft noise, because pilots would avoid all populated areas, residences, and other signs of human presence to the extent possible.

5.4 Air Quality

The potential contribution of greenhouse gases to the atmosphere from the proposed action would be temporary and insignificant due to the small number of helicopters and short duration of the training.

The military helicopters would land at designated landing zones as depicted in Figure 2. The landing zone at the EVOC is adjacent to sparsely vegetated exposed soil areas. Takeoff and landing activities have the potential to cause some erosion of the soil through rotor wash, a phenomenon in which the wind produced by helicopter rotors dislodges and moves soil from the ground, kicking up fugitive dust. The greatest risk for this type of wind erosion would be during extended hovering in areas with fine soils, under dry conditions. The landing zone on the HAMMER campus is covered by asphalt with no exposed soil area. Therefore, helicopter effects on soil erosion, fugitive dust, and air quality would likely be temporary, restricted to localized areas, and would not be significant.

5.5 Cultural Resources

The proposed helicopter training would not result in ground disturbance; therefore, a cultural resources review is not required. MSA Cultural and Historic Resources has determined the proposed action is a type of undertaking that has no potential to affect historic properties; therefore, no further obligations exist under the National Historic Preservation Act (NHPA) Section 106. If there are any changes in the scope of the

**II. Describe the proposed action, including: location, time period over which proposed action will occur, project dimension (e.g., acres displaced/disturbed, excavation length/depth), area/location/number of buildings. Attach maps and drawings, as applicable. Describe existing environmental conditions and potential for environmental impacts from the proposed action. If the proposed action is not a project, describe the action or plan.**

proposed action that could result in disturbances outside the project description, then additional cultural resources review would be required.

5.6 Ecological Resources

5.6.1 Plant Resources

The proposed helicopter training at HAMMER would be conducted in a large asphalt-paved area. Some areas surrounding the site are either undisturbed or have been replanted with native vegetation.

EVOC is dominated by cheatgrass with other native and non-native species sparsely interspersed. No plant species protected under the Endangered Species Act, candidates for such protection, or species listed by the Washington State government as threatened or endangered have been observed in the vicinity of the EVOC.

Helicopter training would be of short duration and confined to previously disturbed and developed areas. There would be no ground disturbance other than that created by helicopter rotors. The impact of winds created by helicopter rotors on plant resources would be temporary and insignificant.

5.6.2 Avian and Other Wildlife Resources

HAMMER and EVOC are located proximal to several protective buffer zones for Ferruginous Hawk (green areas) and Bald Eagle (red areas) nest sites (Figure 6). Helicopter training is proposed during a time outside the active nesting and/or roosting period. However, during the active nesting and/or roosting periods helicopter flights would maintain a minimum 1,500 feet "no fly" slant distance around protective buffer zones to limit disturbance and avoid nest abandonment by these birds, which are protected under the Migratory Bird Treaty Act (Figure 7).

The Hanford Site is located along the Pacific Flyway and the Columbia River serves as a major flyway and resting area for migrating waterfowl. During spring and fall, a number of bird species, among them sand-hill cranes and Canadian geese, fly over the Hanford Site and Columbia River. In order to reduce the risk of bird strikes, especially during the March to May and late August through November time periods, it is recommended that radar be consulted prior to flight initiation and that one pilot be focused outside the aircraft for obstacle avoidance using "night vision" or other appropriate methods that provide illumination in low light environments.

Several artificial Burrowing Owl burrows have been installed within the EVOC boundary (Figure 8). The Burrowing Owls that reside in the EVOC area are accustomed to frequent noise disturbance from the recurring vehicle training operations. Burrowing Owls are also active primarily during the day and are insulated from ambient noise while in their burrows at night. The military helicopters produce a higher level of noise than vehicles used on the EVOC. Considering the timing and duration of the helicopter training, the potential impacts to Burrowing Owls are considered temporary and insignificant.

5.6.3 Large Mammals

Helicopter flights over the Hanford Site have been observed to induce a panic response in terrestrial mammals, especially elk and mule deer. Hanford elk and mule deer may be

**II. Describe the proposed action, including: location, time period over which proposed action will occur, project dimension (e.g., acres displaced/disturbed, excavation length/depth), area/location/number of buildings. Attach maps and drawings, as applicable. Describe existing environmental conditions and potential for environmental impacts from the proposed action. If the proposed action is not a project, describe the action or plan.**

sited along Hanford Site Route 4S as helicopters are leaving HAMMER and EVOC to rendezvous at an undisclosed location. If elk or deer are seen during the helicopter overflight at any location on the Hanford Site, then efforts to increase the slant distance to 1,500 feet or greater should be taken.

No plant or animal species protected under the Endangered Species Act, candidates for such protection, or species listed by the Washington State government as threatened or endangered were observed in the vicinity of the proposed action. No adverse impacts to plant resources, avian and other wildlife resources, or large mammals are anticipated provided the recommendations herein are followed. If there are any changes in the scope of the proposed action that could result in disturbances outside the project description, then additional cultural and ecological resources review would be required.

6.0 CONCLUSIONS

The Army's proposed helicopter training at HAMMER and EVOC would have no significant direct, indirect, or cumulative impacts on the quality of the human environment provided the Army adheres to appropriate mitigation measures and best management practices discussed in this NEPA Review Screening Form.

This is an Activity-Specific Categorical Exclusion based on the provisions of 10 CFR 1021, Subpart D, Appendix B, Categorical Exclusion B1.2, "Training Exercises and Simulations," and only applies to the Army's proposed action to conduct helicopter training at HAMMER and EVOC as described herein. Any changes to the proposed action discussed herein or future requests for helicopter training on the Hanford Site at DOE-controlled facilities would be evaluated on a case-by-case basis.

**III. Applicable Reviews (attach to NRSF):**

Biological Review Report #: MSA-1704099; ECR-2017-639

Cultural Review Report #: MSA-1704099; ECR-2017-639

Additional Attachments:

FIGURES

Figure 1 - MH-60 Blackhawk and MH-47 Chinook Helicopters

Figure 2 - Approximate Helicopter Flight Paths and Landing Areas at the Hanford Site HAMMER and EVOC

Figure 3 - 88-Acre HAMMER Training Center

Figure 4 - Emergency Vehicle Operations Course (EVOC)

Figure 5 - Hanford Comprehensive Land Use Plan Map and Designations

Figure 6. Natural Resource Protective Buffer Zones

Figure 7. Slant Distance for Behavioral Effects on Raptors (F-Fixed Wing, R-Rotary Wing, U-Unknown)

Figure 8. Burrowing Owl Locations at EVOC and Recommended Flight Path

TABLES

Table 1 - Best Management Practices and Mitigation Measures by Resource Area

Table 2. Maximum Noise Levels Generated by SOAR Helicopters Planned for Use in Training Exercises and Simulations at HAMMER and EVOC

ATTACHMENTS

Attachment 1 - U. S. Department of Transportation Federal Aviation Administration Advisory Circular 91-36D, "Visual Flight Rules (VFR) for Flight Near Noise Sensitive Areas"

Attachment 2 - MSA-1704099, "Ecological and Cultural Clearance for Military Flight Operations at HAMMER and EVOC/PTA in the 600 Area, Hanford Site, Benton County, Washington (ECR-2017-639)."

**IV: Existing Documentation:**

Are the impacts of the proposed action evaluated in a previous EA, EIS, or CERCLA document? ☐ Yes ☒ No

If "YES", use Site Form A-6006-948, *Actions Adequately Evaluated in NEPA or CERCLA Document*

**V. Categorical Exclusion:**

| | |
|---|---|
| Does the proposed action fall within a category of actions that is listed in Appendixes A or B to Subpart D of 10 CFR 1021? If extraordinary circumstances or integral elements would preclude the use of a CX, check "No". | ☒ Yes ☐ No |
| Are there extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal? | ☐ Yes ☒ No |
| Is the proposal connected to other actions with potentially significant impacts or result in cumulatively significant impacts (not precluded by 40 CFR 1506.1 or 10 CFR 1021.211)? | ☐ Yes ☒ No |

List CX to be applied and complete Categorical Exclusion Integral Elements (where an action might fit within multiple CXs, use the CX that best fits the proposed action):
10 CFR 1021, Subpart D, Appendix B, Categorical Exclusion B1.2, "Training Exercises and Simulations"

**Categorical Exclusion Integral Elements:**

| | |
|---|---|
| Would the proposed action threaten a violation of applicable statutory, regulatory, or permit requirements for environmental, safety, or health, including DOE and/or Executive Orders? | ☐ Yes ☒ No |
| Would the proposed action require siting, construction, or major expansion of waste storage, disposal, recovery, or treatment facilities? | ☐ Yes ☒ No |
| Would the proposed action disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that pre-exist in the environment such that there would be uncontrolled or unpermitted releases? | ☐ Yes ☒ No |
| Would the proposed action adversely affect environmentally sensitive resources? | ☐ Yes ☒ No |
| Would the proposed action involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species such that the action is not contained or confined in a manner designed, operated, and conducted in accordance with applicable requirements to prevent unauthorized release into the environment? | ☐ Yes ☒ No |

If "NO" to all Integral Elements questions above, complete Section VI, and provide NRSF to DOE NCO for review.
If "YES" to any of the Categorical Exclusion Integral Elements questions above, contact DOE NCO for additional NEPA Review.

| NEPA REVIEW SCREENING FORM<br>for Actions Included in CXs (Continued) | Document ID #:<br>DOE/CX-00165 |
|---|---|

**VI. Responsible Contractor Signatures:**

**Initiator:**

| Paul J. Vandervert | | 8/29/17 |
|---|---|---|
| Name *Print* | *Signature* | *Date* |

**Cognizant Environmental Compliance Officer:**

| Jerry W. Cammann | Jerry W Cammann | 8/29/17 |
|---|---|---|
| Name *Print* | *Signature* | *Date* |

**VII. DOE Approval/Determination**

DOE NEPA Compliance Officer: Diori L. Kreske, NEPA Compliance Officer (NCO)

Based on my review of information conveyed to me and in my possession (or attached) concerning the proposed action, as NEPA Compliance Officer (as authorized under DOE Order 451.1B), the proposed action fits within the specified class of action:

NCO Determination: ☒ CX *NCO Recommendation: ☐ EA ☐ EIS

| Diori Kreske | 8/29/17 |
|---|---|
| *Signature* | *Date* |

*NRSF A-6006-950 would be completed by responsible contractor

**Figure 1. MH-60 Blackhawk and MH-47 Chinook Helicopters**

**MH-60 BLACKHAWK HELICOPTER**

**MH-47 CHINOOK HELICOPTER**

**Figure 2. Approximate Flight Paths of the MH-60 Blackhawk and MH-47 Chinook Helicopters at the Hanford Site HAMMER and EVOC**

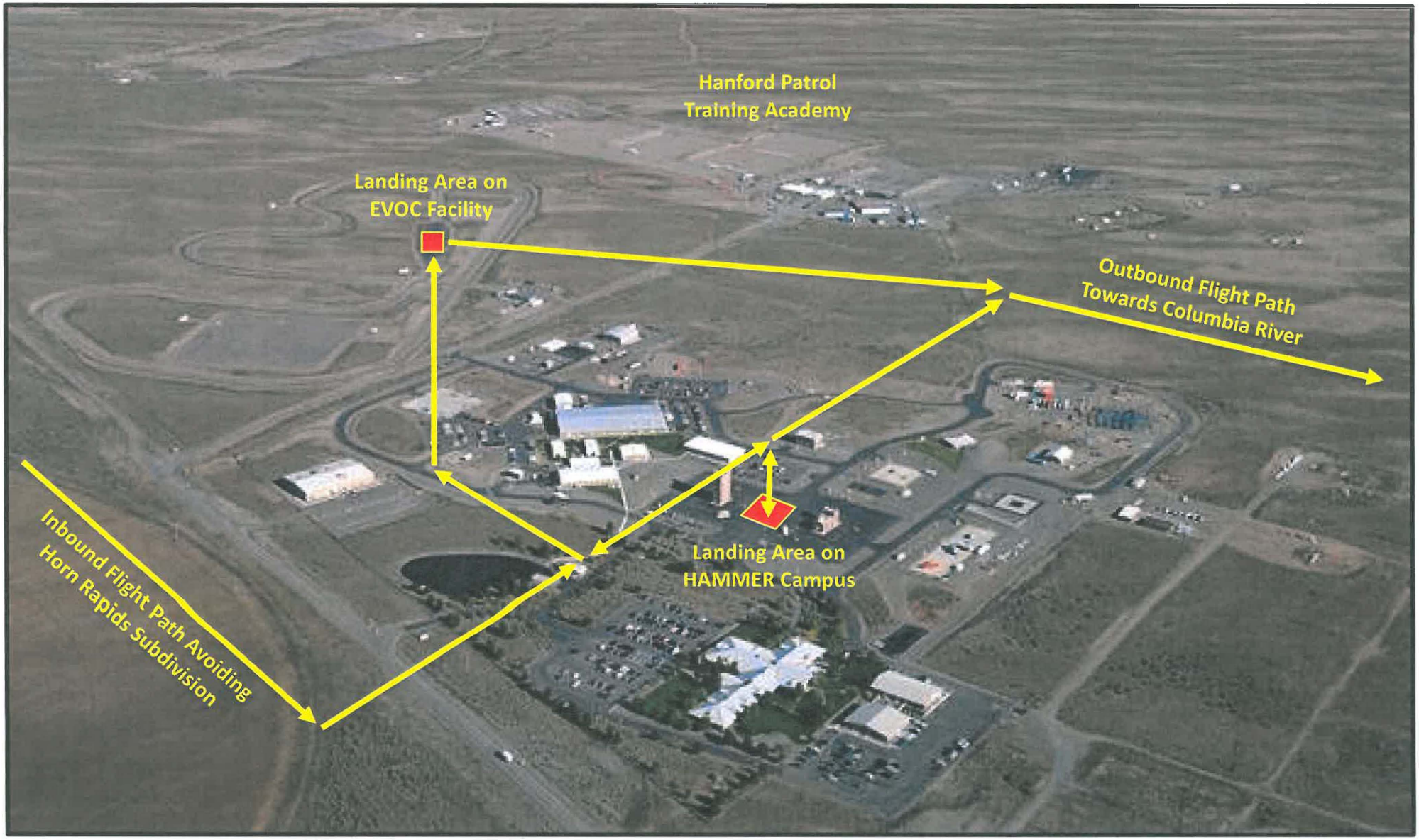


**Figure 3. 88-Acre HAMMER Training Center**

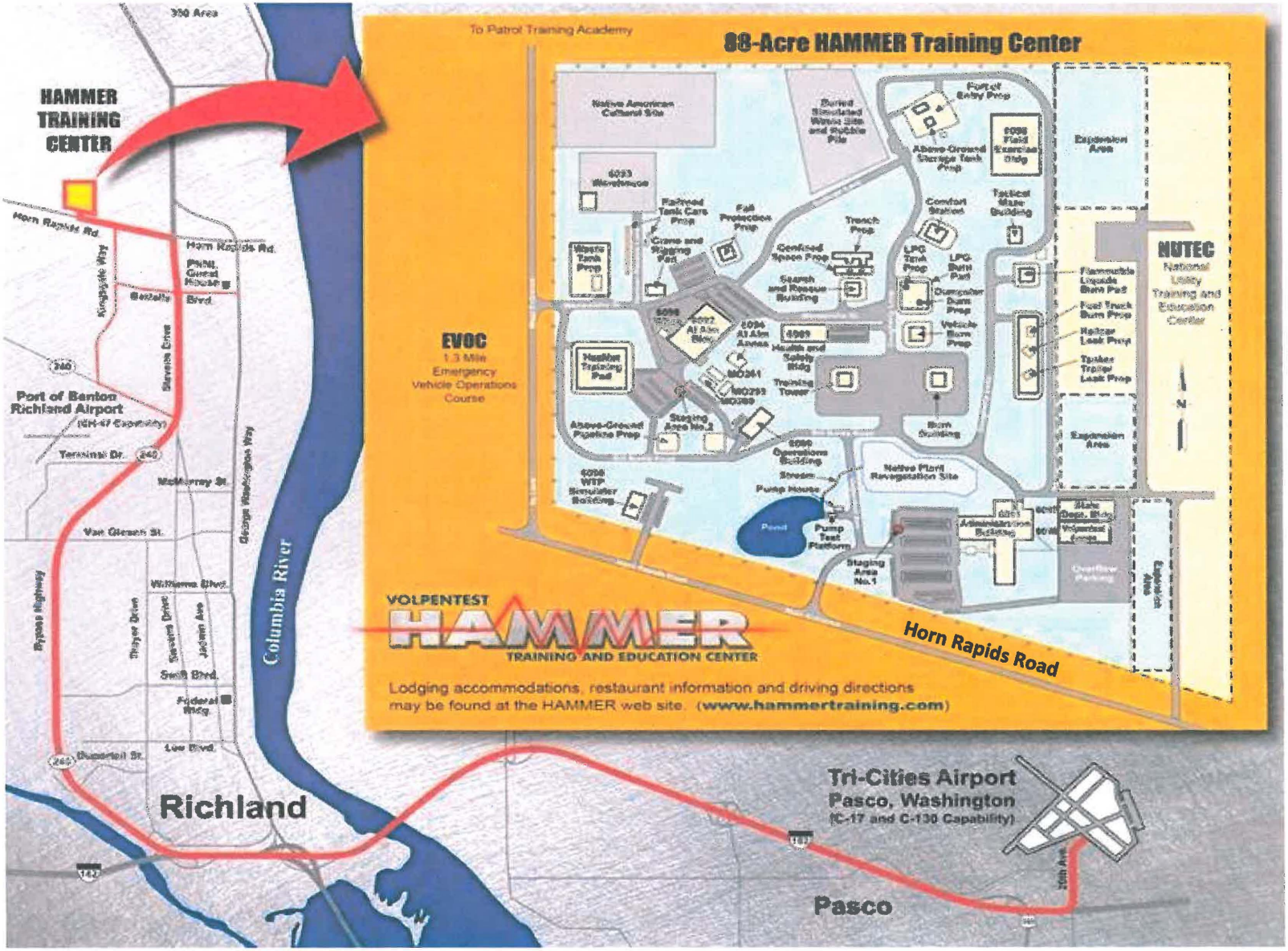
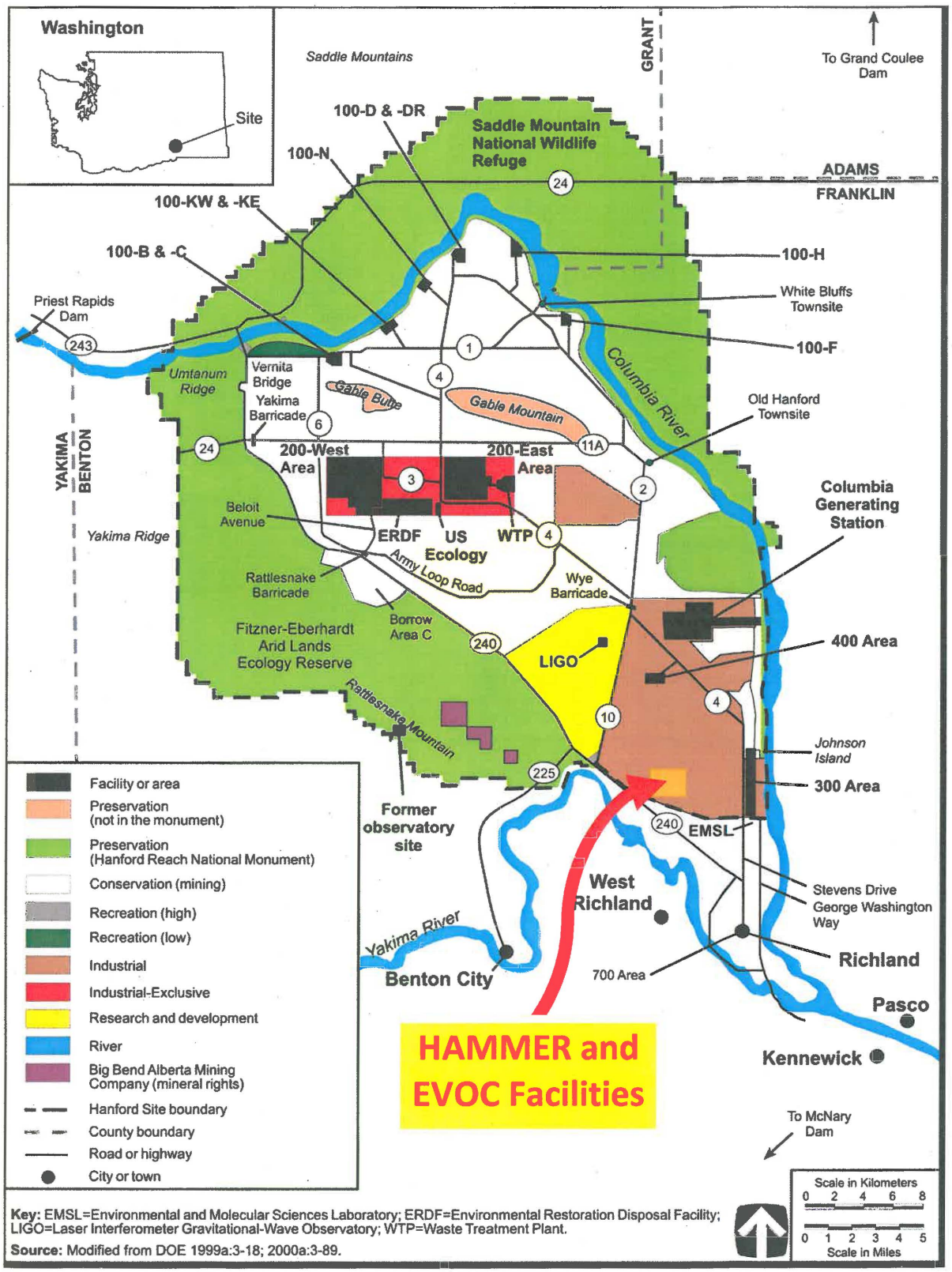


Figure 4. Emergency Vehicle Operations Course (EVOC)

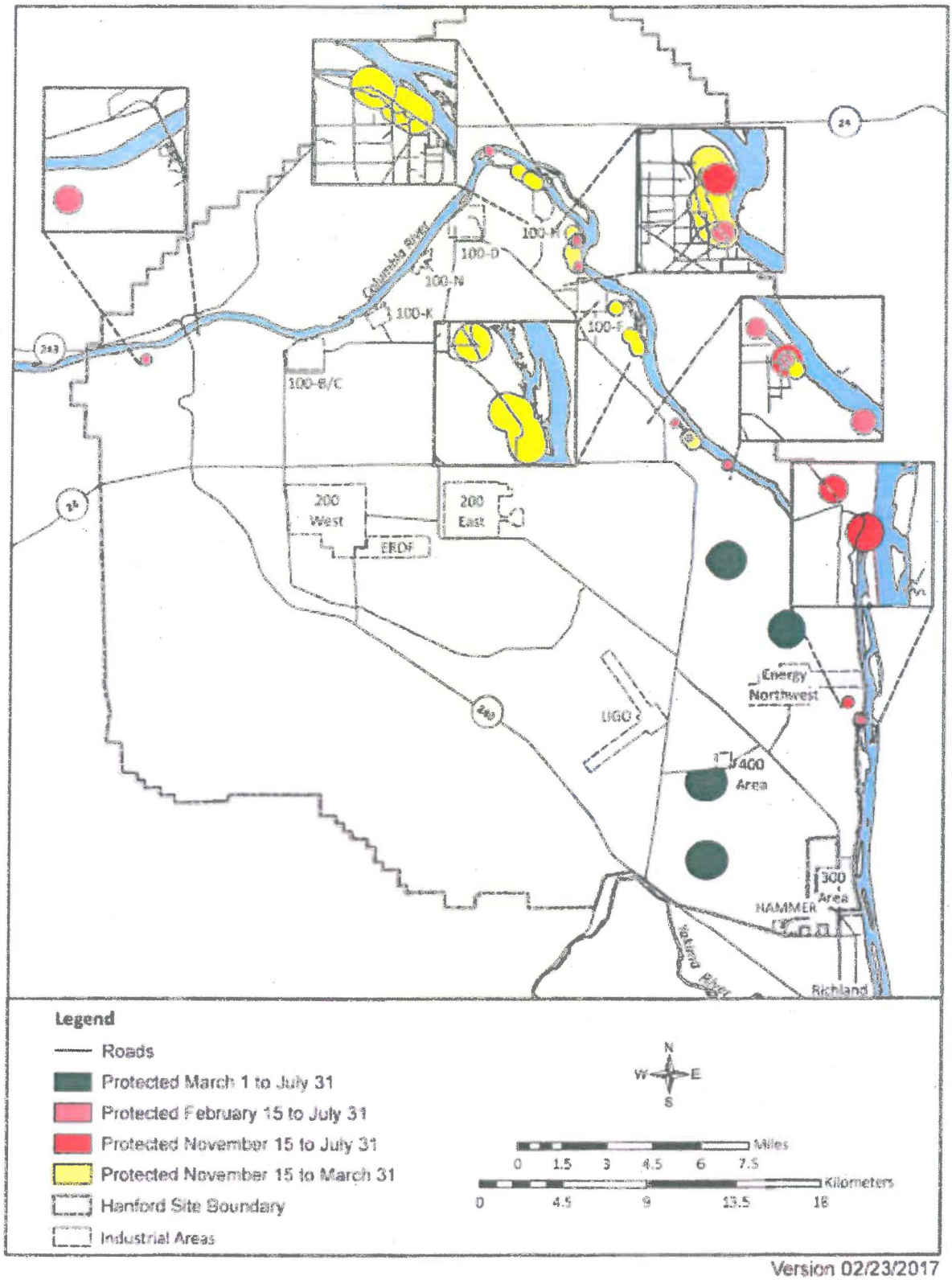
## Figure 5. Hanford Comprehensive Land Use Plan Map and Designations




**Key:** EMSL=Environmental and Molecular Sciences Laboratory; ERDF=Environmental Restoration Disposal Facility; LIGO=Laser Interferometer Gravitational-Wave Observatory; WTP=Waste Treatment Plant.

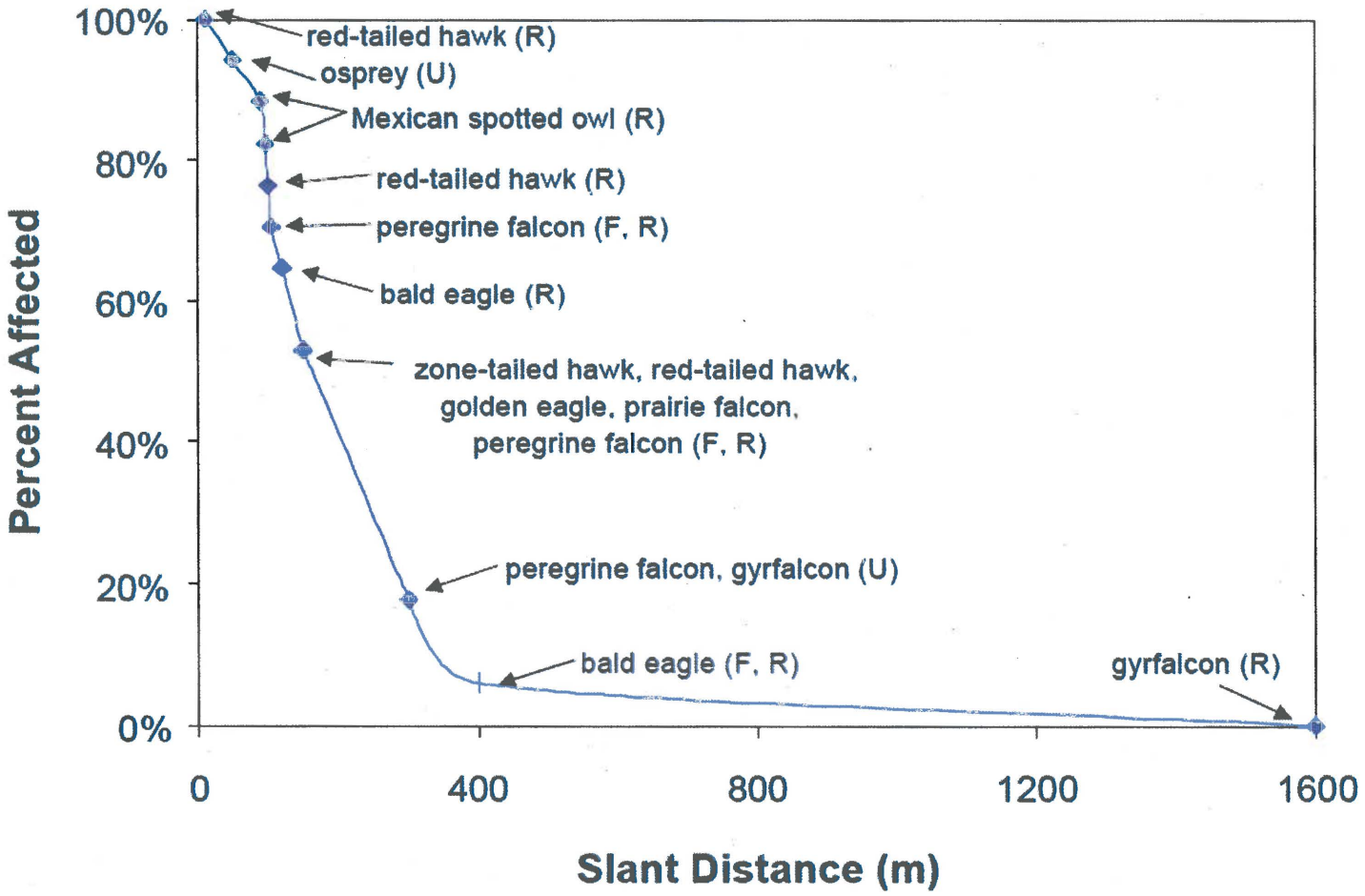
**Source:** Modified from DOE 1999a:3-18; 2000a:3-89.

**Figure 6. Natural Resource Protective Buffer Zones**



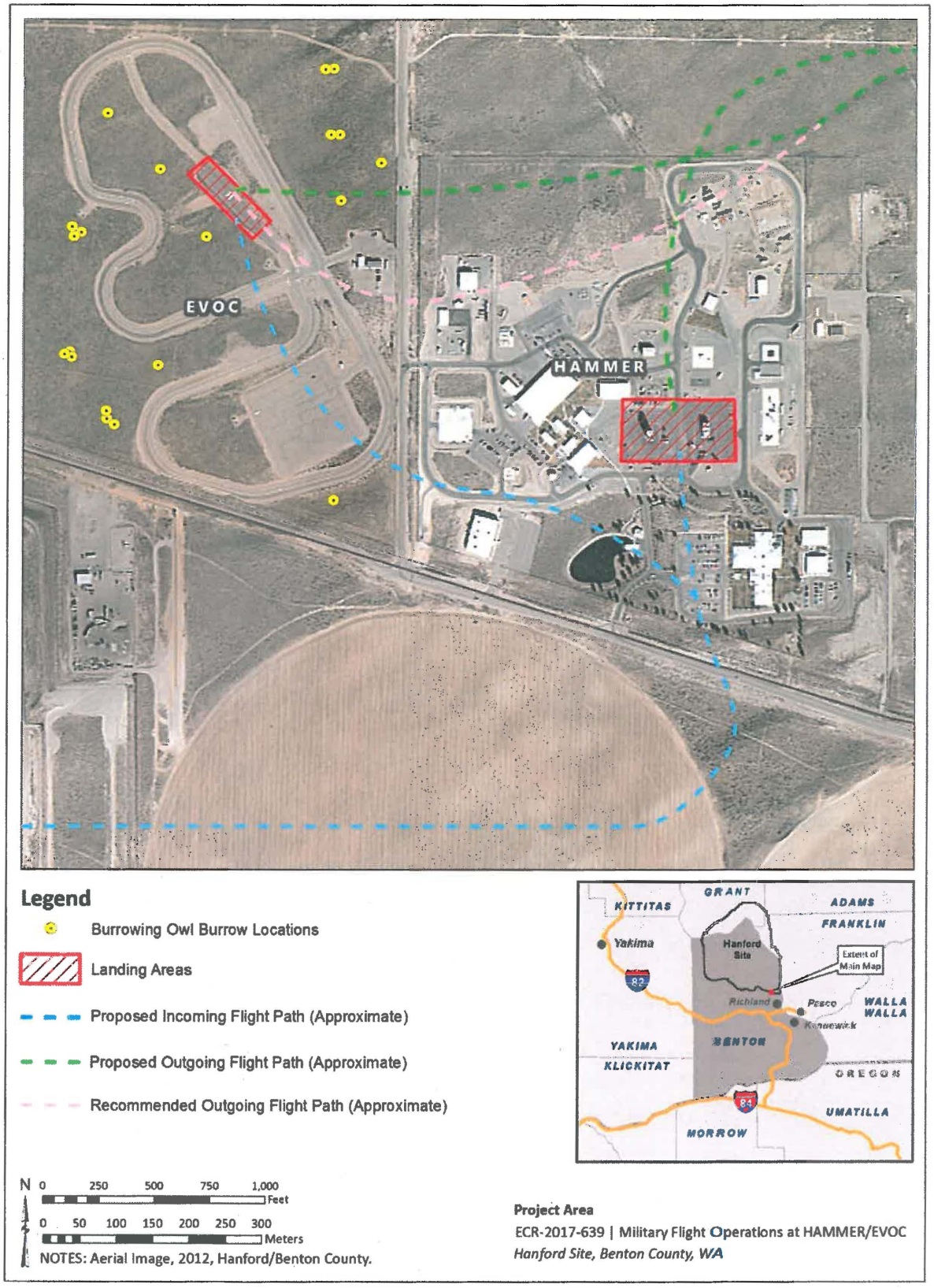

Version 02/23/2017

Figure 7. Slant Distance for Behavioral Effects on Raptors (F-Fixed Wing, R-Rotary Wing, U-Unknown)




SOURCE: ORNL/TM-2000/289/ES-5048, "Ecological Risk Assessment Framework for Low-Altitude Overflights by Fixed-Wing and Rotary-Wing Military Aircraft

## Figure 8. Burrowing Owl Locations at EVOC and Recommended Flight Path



## Table 1. Best Management Practices and Mitigation Measures by Resource Area (2 Pages)

| Resource Area | Best Management Practice | Additional Mitigation Measures |
|---|---|---|
| Land Use, Recreation, Visual Resources, Wilderness, Wild and Scenic Rivers, Aquatic Resources, and Fish | • Where feasible, follow guidance in FAA Advisory Circular 91-36D, which recommends that pilots maintain a minimum altitude of 2,000 feet Above Ground Level (AGL) when flying over noise sensitive areas, such as National Parks, National Wildlife Reserves, Waterfowl Production Areas, wilderness areas, and other areas where a quiet setting is a generally recognized feature or attribute of the land (e.g., residential areas). Sensitive locations include the Hanford Reach National Monument (Figure 5) and areas along the Columbia River. | • Pilots shall maintain a minimum altitude of 2,000 feet AGL when flying over the Columbia River and areas comprising the Hanford Reach National Monument. |
| Airspace Use | • Follow all safety procedures in applicable Army regulations to minimize the risks inherent in mission essential tasks.<br>• Follow FAA provisions to avoid airspace use conflicts.<br>• Coordinate all use of HAMMER and EVOC with DOE-RL.<br>• Ensure that pilots remain aware of areas outside the helicopters at all times when in flight to help avoid bird strikes. | • The Army shall adhere to airspace use requirements and restrictions contained in the Permit and Memorandum of Understanding Concerning use of HAMMER and EVOC for helicopter training.<br>• Use of proposed flight patterns should be coordinated with appropriate Air Route Traffic Control Centers to avoid airspace use conflicts. Proposed use of HAMMER and EVOC should be coordinated with the DOE-RL Aviation Safety Officer. |
| Noise | • Follow the "Fly Friendly Program," which includes, but may not be limited to the following:<br>- Avoid noise sensitive areas.<br>- Maximum distance and altitude separation from noise sensitive areas are the most effective means of noise abatement.<br>- Overfly roadways and non-residential areas whenever possible.<br>- For populated areas maintain an altitude of 2,000 feet AGL whenever possible.<br>- For takeoff, accelerate to gain altitude as quickly as possible without compromising safety.<br>- For descents, use a steep approach to keep noise as close to the landing zone as possible.<br>- Helicopters should avoid blade slap when flying over noise sensitive areas whenever possible. | • Research being conducted at the Laser Interferometer Gravitational Wave Observatory (LIGO), approximately 3.0 miles northwest of HAMMER and EVOC is sensitive to noise and vibration. Pilots shall avoid this area and maintain a minimum altitude of 2,000 feet AGL.<br>• Research being conducted on the Pacific Northwest National Laboratory Campus, approximately 0.5 miles directly east of the HAMMER and EVOC is sensitive to noise and vibration. Pilots shall avoid this area and maintain a minimum altitude of 2,000 feet AGL. |

| Resource Area | Best Management Practice | Additional Mitigation Measures |
|---|---|---|
| Cultural Resources | • A historic "homestead" site exists to the east of HAMMER, between the Cold Test Facility and Horn Rapids Landfill. The Army's proposed action would not adversely affect this site.<br><br>• All helicopter landing sites at HAMMER and EVOC are in previously disturbed and developed areas that are covered by asphalt paving. | • None necessary. |
| Vegetation | • No mitigation required in approved project area. | • None necessary. |
| Wildlife | • Ensure that pilots remain aware of areas outside the helicopters at all times when in flight to help avoid bird strikes.<br><br>• Where feasible, follow the guidance in Advisory Circular 91-36D, which recommends that pilots maintain a minimum altitude of 2,000 feet AGL when flying over areas such as National Wildlife Reserves and Waterfowl Production Areas, which typically have a high density of birds. | • EVOC has artificial burrows containing Burrowing Owls. Considering the timing and duration of the helicopter training, the potential impacts to Burrowing Owls are considered temporary and insignificant.<br><br>• Helicopter flights must maintain a 1,500 feet AGL "no fly" slant distance around protective buffer zones (where they exist) in order to limit disturbance and avoid nest abandonment by birds, which are protected under the Migratory Bird Treaty Act.<br><br>• In order to reduce the risk of bird strikes, especially during the March to May and late August through November time periods, it is recommended that radar be consulted prior to flight initiation and that pilots remain aware of areas outside the helicopter to avoid bird strikes, using "night vision" or other illumination methods in low light environments.<br><br>• Hanford elk and deer can become panicked by loud overhead noise and a panicked animal can cross roads into automobile traffic. If elk or deer are seen during the helicopter overflight at any location on the Hanford Site, then efforts to increase the slant distance to a minimum of 2,000 feet AGL should be taken.<br><br>• The Federal Aviation Administration (FAA) recommends that pilots maintain a minimum altitude of 2,000 feet AGL in National Wildlife Refuge areas (i.e., Hanford Reach National Monument Lands). Such areas should be clearly labeled on flight maps/plans to ensure the minimum altitude is maintained. |

**Table 2. Maximum Noise Levels Generated by SOAR Helicopters Planned for Use in Training Exercises and Simulations at HAMMER and EVOC**

| Altitude Above Ground Level (AGL), Feet | Maximum Noise Level by Helicopter Type, dBA | | | Decibel Effect |
|---|---|---|---|---|
| | C-103 | CH-47D (similar to MH-47 Chinook) | UH-60 (similar to MH-60 Blackhawk) | |
| 200 | 100 | 98 | 91 | 100 dBA – 8 times as loud as 70 dBA; serious damage possible in 8-hour exposure; typical sources include subway, shouted conversation, boom box, ATV, and motorcycle. |
| 500 | 92 | 89 | 83 | 90 dBA – 4 times as loud as 70 dBA; likely damage in 8-hour exposure; typical sources include heavy traffic, window air conditioner, noisy restaurant, and power lawn mower. |
| 1,000 | 85 | 83 | 76 | 80 dBA – twice as loud as 70 dBA; possible damage in 8-hour exposure; typical sources include vacuum cleaner and average radio. |
| 2,000 | 77 | 77 | 69 | 70 dBA – base of comparison, upper 70's annoyingly loud to some; typical sources include office noise and passenger car at 60 mph. |
| 5,000 | 66 | 67 | 58 | 60 dBA – 50% as loud as 70 dBA; typical sources include normal conversation and background music. |
| 10,000 | 57 | 59 | 48 | 50 dBA – 25% as loud as 70 dBA; typical sources include leaves rustling, soft music, whisper, and average home noise. |

*Sources:*

- *USACHPPM 2007; Temple University Department of Civil/Environmental Engineering (www.temple.edu/departments/CETP/environ10.html), and Federal Agency Review of Selected Airport Noise Analysis Issues, Federal Interagency Committee on Noise (August 1992).*
- *WebMD, "Harmful Noise Levels – Topic Overview, www.webmd.com/brain/tc/harmful-noise-levels-topic-overview.*

*NOTES:*

- *A-weighted decibels, abbreviated dBA, are an expression of the relative loudness of sounds in air as perceived by the human ear. In the A-weighted system, the decibel values of sounds at low frequencies are reduced, compared with unweighted decibels, in which no correction is made for audio frequency.*
- *Sounds above 85 dBA are harmful; wearing hearing protection recommended to prevent hearing loss.*

Attachment 1

U.S. Department

of Transportation

**Federal Aviation Administration**

# ADVISORY CIRCULAR

**Subject: VISUAL FLIGHT RULES (VFR) FLIGHT NEAR NOISE-SENSITIVE AREAS**

**Date: September 17, 2004** **AC No: 91-36D**

**Initiated by: ATO-R**

1. **PURPOSE.** This Advisory Circular (AC) encourages pilots making VFR flights near noise sensitive areas to fly at altitudes higher than the minimum permitted by regulation and on flight paths that will reduce aircraft noise in such areas.

2. **EFFECTIVE DATE.** This advisory circular is effective on September 17, 2004.

3. **CANCELLATION.** Advisory Circular 91-36C, Visual Flight Rules (VFR) Flight Near Noise Sensitive Areas, dated October 19, 1984, is cancelled.

4. **AUTHORITY.** The FAA has authority to formulate policy regarding use of the navigable airspace (Title 49 United States Code, Section 40103).

5. **EXPLANATION OF CHANGES.** This AC has been updated to include a definition of "noise sensitive" area and add references to Public Law 100-91; the FAA Noise Policy for Management of Airspace Over Federally Managed Lands, dated November 1996; and the National Parks Air Tour Management Act of 2000, with other minor wording changes.

6. **BACKGROUND.**

a. Excessive aircraft noise can result in annoyance, inconvenience, or interference with the uses and enjoyment of property, and can adversely affect wildlife. It is particularly undesirable in areas where it interferes with normal activities associated with the area's use, including residential, educational, health, and religious structures and sites, and parks, recreational

areas (including areas with wilderness characteristics), wildlife refuges, and cultural and historical sites where a quiet setting is a generally recognized feature or attribute. Moreover, the FAA recognizes that there are locations in National Parks and other federally managed areas that have unique noise-sensitive values. The Noise Policy for Management of Airspace Over Federally Managed Areas, issued November 8, 1996, states that it is the policy of the FAA in its management of the navigable airspace over these locations to exercise leadership in achieving an appropriate balance between efficiency, technological practicability, and environmental concerns, while maintaining the highest level of safety.

b. The Federal Aviation Administration (FAA) receives complaints concerning low flying aircraft over noise sensitive areas such as National Parks, National Wildlife Refuges, Waterfowl Production Areas and Wilderness Areas. Congress addressed aircraft flights over Grand Canyon National Park in Public Law 100-91 and commercial air tour operations over other units of the National Park System (and tribal lands within or abutting such units) in the National Parks Air Tour Management Act of 2000.

c. Increased emphasis on improving the quality of the environment requires a continuing effort to provide relief and protection from low flying aircraft noise.

d. Potential noise impacts to noise-sensitive areas from low altitude aircraft flights can also be addressed through application of the voluntary practices set forth in this AC. Adherence to these practices is a practical indication of pilot concern for the environment, which will build support for aviation and alleviate the need for any additional statutory or regulatory actions.

7. **DEFINITION.** For the purposes of this AC, an area is "noise-sensitive" if noise interferes with normal activities associated with the area's use. Examples of noise-sensitive areas include residential, educational, health, and religious structures and sites, and parks, recreational areas (including areas with wilderness characteristics), wildlife refuges, and cultural and historical sites where a quiet setting is a generally recognized feature or attribute.

## 8. VOLUNTARY PRACTICES.

a. Avoidance of noise-sensitive areas, if practical, is preferable to overflight at relatively low altitudes.

b. Pilots operating noise producing aircraft (fixed-wing, rotary-wing and hot air balloons) over noise-sensitive areas should make every effort to fly not less than 2,000 feet above ground level (AGL), weather permitting. For the purpose of this AC, the ground level of noise-sensitive areas is defined to include the highest terrain within 2,000 feet AGL laterally of the route of flight, or the uppermost rim of a canyon or valley. The intent of the 2,000 feet AGL recommendation is to reduce potential interference with wildlife and complaints of noise disturbances caused by low flying aircraft over noise-sensitive areas.

c. Departure from or arrival to an airport, climb after take-off, and descent for landing should be made so as to avoid prolonged flight at low altitudes near noise-sensitive areas.

d. This advisory does not apply where it would conflict with Federal Aviation Regulations, air traffic control clearances or instructions, or where an altitude of less than 2,000 feet AGL is considered necessary by a pilot to operate safely.

**9. COOPERATIVE ACTIONS.** Aircraft operators, aviation associations, airport managers, and others are asked to assist in voluntary compliance with this AC by publicizing it and distributing information regarding known noise-sensitive areas.

Signed

_____

Sabra W. Kaulia
Director of System Operations & Safety

Atttachment 2

Mission Support Alliance
Post Office Box 650
Richland, Washington 99352

August 29, 2017

MSA-1704099

Matt E. Mills
Mission Support Alliance
P. O. Box 650
Richland, WA 99352

Dear Mr. Mills:

ECOLOGICAL AND CULTURAL CLEARANCE FOR MILITARY FLIGHT OPERATIONS AT HAMMER AND EVOC/PTA IN THE 600 AREA, HANFORD SITE, BENTON COUNTY, WASHINGTON (ECR-2017-639)

Reference: MSA Service Catalog Request#KSR00000331106, M. E. Mills, MSA, dated August 24, 2017.

**PROJECT DESCRIPTION**

Helicopters operated by 4th Battalion from the160th Special Operations Air Regiment (SOAR), will conduct flight activity for an evaluation of a new pilot on Wednesday August 30, 2017. The evaluation will begin at Joint Base Lewis-McChord (JBLM) and a portion of the evaluation will take place on HAMMER and the Hanford Patrol Emergency Vehicle Operations Course (EVOC) helipad, between the hours of 9:00 pm and 12:00 am. One military evaluator will be present on the HAMMER campus during this timeframe to observe the flight activities.

Two MH-60 Blackhawk and one MH-47 Chinook helicopters will perform two approaches, landings, and departures. One at approximately 9:00 pm and the other at approximately 11:00 pm. The three aircraft will approach HAMMER from the south, avoiding overflight of the Horn Rapids housing area. Once over HAMMER one helicopter will turn west and fly directly to the EVOC helipad and land. The other two helicopters will land in the open asphalt area between the HAMMER Training Tower and Burn Building (see attached map). When the aircraft depart – anticipated time on the ground is less than five minutes – all three helicopters will lift off gaining elevation quickly and fly east to an undisclosed location off the Hanford site, where they will join up and continue the evaluation. The same flight path will be followed for the second approach/landing/departure at HAMMER and EVOC during the time period of 9:00 pm to 12:00 pm.

**Although this letter is an evaluation of a single event to take place on August 30, 2017, seasonal ecological restrictions and guidance are included in this letter for project personnel to consider in the event of a delay or re-scheduling of the activity. Any changes in scope, additional activities, or delay in execution beyond February 1, 2018 will require further evaluation resulting in significantly greater limitations due to the nesting of the Burrowing Owls.**

**ECOLOGICAL RESOURCES (ECR-2017-639)**

Mission Support Alliance (MSA) Environmental Compliance staff evaluated the proposed actions. The landing area within the HAMMER training facility is located on a bare paved lot between the Training Tower Structure (6092A) and the Burn Structure Prop (6092B). The landing area at the EVOC is a widened paved section inside the northern loop of the course. The EVOC is surrounded by a habitat dominated by gray rabbitbrush (*Ericameria nauseosa*), snow buckwheat (*Erigonum niveum*), cheatgrass (*Bromus tectorum*), and Sandberg's bluegrass (*Poa secunda*).

Several artificial Burrowing Owl (*Athene cunicularia*) burrows are located around the EVOC. The Burrowing Owl is classified as a Washington Department of Fish and Wildlife (WDFW) Candidate Species due to a population decline throughout Washington State. This decline is generally considered to be the result of loss of habitat and reduced numbers of ground squirrels (*Urocitellus spp.*), yellow-bellied marmots (*Marmota flaviventris*), and badgers (*Taxidea taxus*) which create burrows used by the owls. Burrowing Owls are protected under the *Migratory Bird Treaty Act*, which provides protection to eggs, nests, and birds. Most of the individuals that nest on the Hanford Site migrate south for the winter and return for the spring, however, a few individuals reside on the Site year round. During a recent survey (August 23, 2017) in the vicinity of the project area, MSA ecological compliance staff noted the presence of a Burrowing Owl perched near the entrance of an artificial burrow at the EVOC indicating that Burrowing Owls will most likely be present during the pilot evaluation activity. The Burrowing Owls that reside in the EVOC area are accustomed to frequent vehicle noise disturbance from the recurring vehicle training that occurs on the course. Burrowing Owls are also active primarily during the day, therefore, considering the season, timing and duration of the proposed action, the potential impacts to Burrowing Owls are considered minimal. However, **no off-road landings, foot traffic, or vehicle traffic is authorized. Project personnel, vehicles, and aircraft must remain on the paved or graveled surfaces within the EVOC. It is also recommended that the outgoing flight path from the EVOC area avoid flying directly over any burrows/perches. See the attached map for the recommended flight path.**

No plant or animal species protected under the Endangered Species Act, candidates for such protection, or species listed by the Washington State government as threatened or endangered were observed in the vicinity of the proposed project site.

Previous helicopter flights over the Hanford site have been observed to induce a panic response in terrestrial mammals, especially elk (*Cervus canadensis*) and mule deer (*Odocoileus hemionus*). During the winter months Hanford elk are often seen along WA highway 240, which increases the risk of a panicked animal entering traffic. For this reason, it is recommended that flights over this area are maintained at the highest practicable altitude. If elk or deer herds are seen during the helicopter overflight at any location on the Hanford site, efforts to increase the slant distance[1] to 400 m or greater should be taken.

Based on the Air Force Bird Avoidance Model (http://www.usahas.com/), the risk of nighttime bird strikes over the Hanford site is low to moderate with the exception of the northeastern corner of the site along the Hanford Reach, which is classified as a severe risk area (the former Saddle Mountain National Wildlife Refuge). The Hanford site is located along the Pacific Flyway and the Columbia River serves as a major resting area for migrating

waterfowl. During spring and fall, a number of bird species, among them Sand-hill Cranes (*Grus canadensis*) and Canada Geese (*Branta canadensis*), fly over the site. **In order to reduce the risk of bird strikes, especially during the March to May and the late August through November time periods, it is recommended that radar be consulted prior to flight initiation and that one pilot be focused outside the aircraft for obstacle avoidance.**

As shown on the Natural Resources Protective Buffer Zones Map, which can be found at http://www.hanford.gov/page.cfm/EcologicalMonitoring, the HAMMER/EVOC area is located in the general proximity of protective wildlife buffer zones, including ferruginous hawk and bald eagle nest sites. **During the active nesting and/or roosting periods indicated on the map, helicopter flights will need to maintain a 1000 m "no fly" slant distance[1] around these protective buffer zones in order to limit disturbance and avoid nest abandonment by these birds, which are protected under the Migratory Bird Treaty Act.**

There is always the potential for birds to nest within the project area on the ground, on buildings, or equipment. The nesting season in our area is typically from mid-March to mid-July. The active nests (containing eggs or young) of migratory birds are protected by the Migratory Bird Treaty Act (MBTA) of 1918. The MBTA makes it illegal for people to "take" migratory birds, their eggs, feathers, or nests. Take is defined in the MBTA to include by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing, or transporting any migratory bird, nest, egg, or part thereof. **Personnel working on this project must be instructed to watch for nesting birds.** If any nesting birds (if not a nest, a pair of birds of the same species or a single bird that will not leave the area when disturbed) are encountered or suspected, or bird defensive behaviors (flying at workers, refusal to leave area, strident vocalizations) are observed within the project area, contact the author of this section to evaluate the situation.

No adverse impacts are anticipated from the proposed project if these recommendations are followed. If there are any changes in the scope or timing of these activities that could result in disturbances outside of the description of this review please complete a Service Catalog Request /ServiceCatalog/ for an additional ecological review and reference the ecological review number above to determine if a follow-up Ecological Resources clearance should be conducted.

**This review is valid until February 1, 2018.**

Technical questions should be directed to K. J. Cranna at 376-6180.

---

[1] A common measure of exposure is the distance from the aircraft to the endpoint. This measure has two advantages: 1) distance is sometimes a better predictor of wildlife response than sound pressure and 2) distance incorporates both the acoustic and visual stressors associated with overflights. Distance is often expressed in terms of "slant distance". Slant distance is the hypotenuse of the right triangle that includes the altitude and lateral distance to the assessment endpoint (in this case the nest site). If the overflight is almost overhead, slant distance may be assumed to be equivalent to altitude. If the altitude is low (e.g., 300 m or below), the lateral distance is a close approximation of the slant distance.

**CULTURAL RESOURCES**

This project requires no ground disturbance and therefore does not require a cultural resources review. All Section 106 requirements for this undertaking have been met.

No impacts to cultural resources are anticipated from the project as planned. If there are changes in the scope of activities that could result in disturbances outside of the description of this project, contact K. M. Mendez at 376-1013 and submit a new Request for Cultural Resources Review through the MSA Service Catalog for a follow-up Cultural Resources Review and referencing the HCRC number listed above to determine if a follow-up Cultural Resources review should be conducted.

Although no impacts to cultural resources are anticipated, all workers must be directed to watch for cultural materials (e.g., bones, stone tools, mussel shell, cans, bottles) during all work activities. If any cultural materials are encountered, work in the vicinity of the discovery must stop until a Cultural Resources Specialist has been notified, the significance of the find assessed, appropriate Tribes notified, and if necessary, arrangements made for mitigation of the find. In the event of any discoveries, please contact K. M. Mendez at 376-1013.

This Cultural Resources Review was written by K. M. Mendez, who meets the Secretary of the Interior's Standards for Professional Archaeologists.
Technical questions should be directed to K. M. Mendez at 376-1013.

Sincerely,

April Johnson

April L. Johnson, Manager
Ecological Monitoring and Compliance

kjc:cdc

Attachment(s) 1

Cc: ^MSA Correspondence Distribution
^MSA Cultural Resources Program Admin Record
K. J. Cranna, MSA
A. P. Fergusson, MSA
A. L. Johnson, MSA
K. M. Mendez, MSA
P. J. Vandervert, MSA

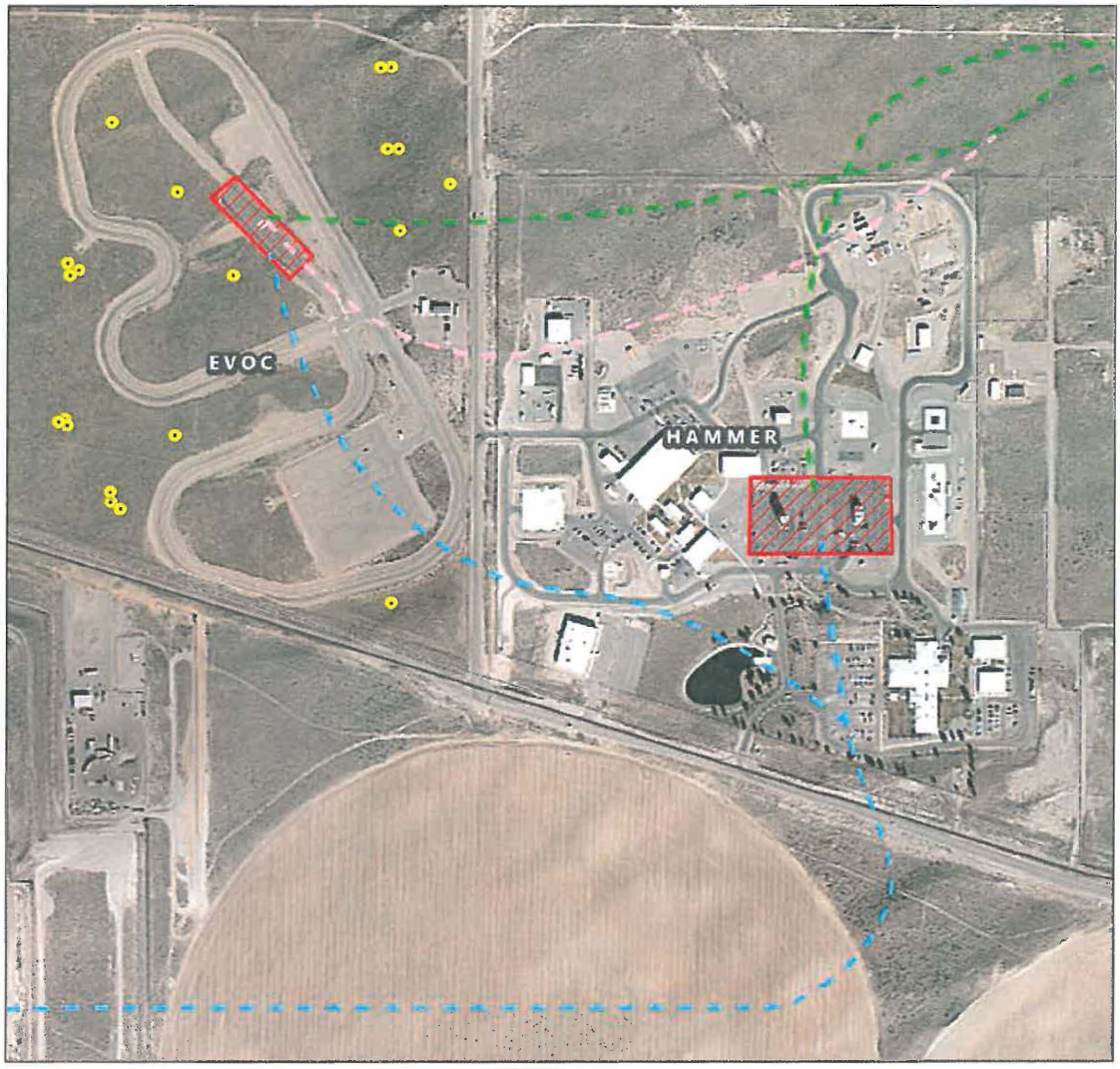
MSA-1704099

ATTACHMENT

**August 29, 2017**

PROJECT LOCATION FOR THE MILITARY FLIGHT OPERATIONS AT HAMMER AND EVOC/PTA IN THE 600 AREA, HANFORD SITE, BENTON COUNTY, WASHINGTON (ECR-2017-639)

Consisting of 2 pages,
Including this cover page




**Legend**

- Burrowing Owl Burrow Locations
- Landing Areas
- Proposed Incoming Flight Path (Approximate)
- Proposed Outgoing Flight Path (Approximate)
- Recommended Outgoing Flight Path (Approximate)


N 0 250 500 750 1,000 Feet

0 50 100 150 200 250 300 Meters

NOTES: Aerial Image, 2012, Hanford/Benton County.

**Project Area**

ECR-2017-639 | Military Flight Operations at HAMMER/EVOC

*Hanford Site, Benton County, WA*