Fredrick WPA

Prescribed Burn Plan

US Fish & Wildlife Service Region 6

North Dakota Fire Zone

Arrowwood Complex

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Element 1: Signature Page

PRESCRIBED FIRE PLAN

ADMINISTRATIVE UNIT NAME(S): Chase Lake WMD / NDG&F – Wells County

PRESCRIBED FIRE NAME:

Prescribed Fire Unit (Ignition Unit): Fredrick WPA / Lonetree WMA

PREPARED BY:

Name (print): Terry Gwilliams Qualification/Currency: RXB2

Signature: TERRY GWILLIAMS Digitally signed by TERRY GWILLIAMS Date: 2021.03.18 13:21:59 -05'00' Date:

TECHNICAL REVIEW BY: *See Appendix B: Technical Reviewer Checklist*

Name (print): Jeff Dion Qualification/Currency: RXB2

Signature: Date: 3/7/17

COMPLEXITY RATING: Moderate

MINIMUM BURN BOSS QUALIFICATION: RXB2

APPROVED BY:

Name – US FWS Agency Administrator (print): Dan Severson

Signature – Agency Administrator: Dan Severson Date: 3/28/2017

Element 1: Signature Page

PRESCRIBED FIRE PLAN

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Name (print): Terry Gwilliams Qualification/Currency: RXB2

Signature:_____ Date:_____

TECHNICAL REVIEW BY: *See Appendix B: Technical Reviewer Checklist*

Name (print):_____ Qualification/Currency:_____

Signature:_____ Date:_____

COMPLEXITY RATING: Moderate

MINIMUM BURN BOSS QUALIFICATION: RXB2

APPROVED BY:

Name – US FWS Agency Administrator (print):_____

Signature – Agency Administrator:_____ Date:_____

Administrative Unit (Project Area): Chase lake WMD / NDG&F – Wells County

Ignition Units: Fredrick WPA / Lone tree WMA

Element 2A: Agency Administrator Ignition Authorization

See IAP

Element 2B: Prescribed Fire Go/No-Go Checklist

See IAP

Element 3: Complexity Analysis Summary

See Appendix: C Complexity Analysis for complete Complexity Analysis.

ELEMENT	RISK	POTENTIAL CONSEQUENCE	TECHNICAL DIFFICULTY
1. Potential for escape	Moderate	Low	Low
2. The number and dependence of activities	Low	Moderate	Low
3. Off-site Values	Low	Low	Low
4 On-Site Values	Low	Low	Low
5. Fire Behavior	Moderate	Moderate	Low
6. Management organization	Low	Low	Low
7. Public and political interest	Low	Low	Low
8. Fire Treatment objectives	Low	Low	Low
9. Constraints	Moderate	Low	Moderate
10. Safety	Low	Low	Low
11. Ignition procedures/methods	Low	Moderate	Low
12. Interagency coordination	Low	Low	Low
13. Project logistics	Low	Low	Low
14 Smoke management	Low	Low	Low

COMPLEXITY RATING SUMMARY	OVERALL RATING
RISK	Moderate
CONSEQUENCES	Moderate
TECHNICAL DIFFICULTY	Moderate
SUMMARY COMPLEXITY DETERMINATION	Moderate

RATIONALE:

The project requires a moderate rating due to the fact that all three final ratings were viewed as being moderate. There is a moderate risk of escape which in all cases would affect private land.

Administrative Unit (Project Area): Chase lake WMD / NDG&F – Wells County

Ignition Units: Fredrick WPA / Lone tree WMA

Element 4: Description of Prescribed Fire Area

A. Physical Description:

The WPA is located in the southwestern corner of Wells County; The Lone Tree wildlife management area borders the north boundary of the WPA. Roughly 70 acres of the WMA will be included in the burn unit. This will make the WPA burn holding easier and safer. There is an agreement with the North Dakota game and fish department for burning on conjoining lands in place.

See LAP (ICS 204)

B. Vegetation/Fuels Description:

1. On-site fuels data:
   The unit consists of tame and native grasses with areas of Canada Thistle. The majority of the unit would be classified as (FM1) but there are stands of Big Blue Stem (FM3) and areas around the wetlands that are (FM3) are also strongly represented.

2. Adjacent fuels data:
   Adjacent fuels are similar within the WPA and primarily private crop and CRP around the WPA.

3. Percent of vegetative type and fuels model(s):

Vegetation Type	Fuel Model	Acres	%
Native/Tame Mix	1	201	90
Tame	1	0	0
Crop	1	0	0
Wetland	3	30	10
Road	N/A		
Total Acres		231	100

C. Description of Unique Features, Natural Resources, Values:

There are no T&E or cultural resource concerns on this unit. Values at risk include boundary fences.

Any threatened or endangered species potentially affected by the prescribed burn will be addressed by a Section 7 consultation. Section 7 will be completed by Chase Lake WMD staff. Cultural Resource Compliance will be submitted by fire staff and be on file.

D. Maps - Attachments in Appendix A

1. Vicinity (Required)
2. Project/Ignition Unit(s) (Required)
3. Contingency (R6 FWS): ☒ Included ☐ Not Included
4. Ignition Sequence (R6 FWS): ☒ Included ☐ Not Included
5. Smoke Trajectory (R6 FWS): ☒ Included ☐ Not Included
6. Topo: ☐ Included ☒ Not Included

Administrative Unit (Project Area): Chase lake WMD / NDG&F – Wells County

Ignition Units: Fredrick WPA / Lone tree WMA

Element 5: Objectives

A. Resource objectives:

See LAP(ICS 202)

B. Prescribed fire objectives:

See LAP(ICS 202)

Element 6: Funding

A. Cost:

Fish and wildlife service agency administrator and FMO will coordinate any/all costs associated to the burn prior to ignition, including - not limited to, travel, OT, fuel and mechanical repairs.

B. Funding source:

Fish and wildlife service agency administrator and FMO will coordinate any/all funding sources associated with completion of the plan prior to ignition.

Element 7: Prescription

A. Prescription Narrative:

1. Describe how fire behavior will meet objectives:
   Prescribed fire is used as a management tool to mimic natural wildfires that developed the prairie as it is today. Fire will remove the litter and allow native warm season grasses & forbs to grow in areas heavily dominated by exotic invaders. FM's 1 & 3 are light and flashy fuels primarily wind driven. Fire behavior parameters are listed below. Values will vary with lower end found on the backing and flanking fires and high end on the head fires. Similar fire behavior will be found outside of the unit.

B. Prescription Parameters:

1. Environmental or fire behavior (or both)
   See LAP
2. Fire Modeling or empirical documentation (or both)
   See Appendix E: Fire Behavior Modeling Documentation or Empirical Documentation for Behave Plus Runs and NRCS Potential for Damage by Fire Map.

Fire behavior outside the unit would be similar to that inside the unit with the exception of cured crops. The BTU's that cured crops put out will be too much that direct attack will not work.

Element 8: Scheduling

A. Implementation Schedule:

1. Ignition Time Frames or Season(s) (or both)
   Implementation schedule is determined by the agency administrator and is not limited to any day of the year provided that the prescription parameters are met and the Agency Administrator Ignition Authorization has been signed approving such actions. Ignition may be implemented any time of the day provided all attempts are made to extinguish smoke before night time conditions fall out of prescription.

B. Projected Duration:

Project will take one operational period to complete during normal working hours. This does not include site prep which will be completed prior to ignition date. Mop-up and/or patrol activities may occur on the following day.

C. Constraints:

Burning may only be conducted during preparedness level 4 or 5 with approval from the National office provided approval included feedback from the Geographic Area MAC group (see Interagency Standards for Fire and Aviation Operations, NFES 2724, Chapter 18). Controlled burning may not be conducted during Red Flag Warning Days or when the Rangeland Fire Danger Index is in the Extreme category.

Element 9: Pre-burn Considerations and Weather

A. Considerations:

1. On-site
   a. A mowed fire break (10' min. - raked in high fuel loading areas) will be established along areas of the burn unit that do not have natural barriers. Sprinkler lines or wet-lines may be substituted for mowed fire breaks where practical or where terrain does not lend itself to mowing (too steep, rocky areas, etc…). Pre-established black lines at least 10 feet wide may also be substituted for mowed fire breaks. Black lines may be established around values at risk including, but not limited to, power pole locations and wood sign locations. *See Appendix A. Maps for locations of mowed fire breaks and further details of physical site preparations.*
   b. Section 7 consultations were completed for the Chase Lake WMD as part of CCP process for North Dakota Wetland Management Districts CCP (2008). The CCP states that management actions within the CCP should not adversely affect Threatened and Endangered Species or their habitats. These Section 7 Intra-Service consultations are an appendix to the CCP and are on file at the Refuge. The agency administrators are responsible for determining the need for additional consultation on an annual basis: 1) whether any new ESA listings or designations of critical habitat have occurred for species in the vicinity; 2) whether any new T&E surveys have revealed species locations in or near proposed projects; and 3) whether the projects conducted the previous year had the intended effects on T&E species and habitat. Prescribed burning in areas where threatened and endangered species exist will not be conducted if the prescribed fire will be detrimental to the species or any adverse impacts cannot be mitigated. *See Appendix G: Clearances and Permits.*
   c. Cultural resources are scattered throughout the Complex as the area was heavily used by Native Americans, but is a relatively un-researched archeological area. Cultural resource records are maintained at Audubon Complex. Archeological clearance for prescribed burning will be obtained from the regional archeologist. All restrictions and recommendations will be adhered to. *See Appendix G: Clearances and Permits.*
2. Off-site

   None.

B. Method and Frequency for Obtaining Weather and Smoke Management Forecast(s):

See LAP

C. Notifications/Permits:

All necessary permits will be obtained by the FMO or designee prior to the start of a project.

See Appendix A. Maps for Notification Map and contacts.

Element 10: Briefing

A. Briefing Checklist; including, but not limited to: (additional items may be added)

See LAP

Element 11: Organization and Equipment

A. Positions:

Burn boss will determine if additional positions are required based on current weather, fire danger, fuel conditions and experience of crew. *See LAP (ICS 204).*

B. Equipment:

5 UTV's with 100 gal tanks. *See LAP (ICS 204).*

1 Type 6 engine

C. Supplies:

Drip torches, torch fuel, hand tools & portable pump - equipment is readily available on engines.

Element 12: Communication

Burn Boss will identify radio frequencies and communication procedures *See LAP.*

Element 13: Public and Personnel Safety, Medical

A. Safety Hazards:

See IAP (ICS 202), Appendix D: Job Hazard Analysis for additional safety hazards and mitigation.

B. Mitigation: Measures Taken to Reduce the Hazards:

All crew members will wear proper PPE and adhere to the Ten Standard Fire Orders at all times. All crew members will be briefed on LCES, potential Watch Out Situations, hazards and mitigation measures prior to ignition. Caution signs will be placed on the road to warn public. *See Appendix D: Job Hazard Analysis for mitigation of safety hazards.*

C. Emergency Medical Procedures:

On scene personnel will follow the IAP (ICS 206) Medical Plan. Further guidance on emergency procedures can be found in the Incident Response Pocket Guide (NFES 1077) and Chapter 1 on the Fireline Handbook (NFES 0065).

D. Emergency Evacuation Methods:

See IAP (ICS 206) Medical Plan.

E. Emergency Facilities:

See IAP (ICS 206) Medical Plan.

Element 14: Test Fire

A. Planned Location:

A test fire will be ignited in a representative fuel type, in an area that can be easily controlled prior to the start of ignition operations. This area will generally be on the downwind side of the unit and adjacent to an established control line or natural barrier. Analysis of the initial ignitions may provide adequate test fire results.

B. Test Fire Documentation:

1. Weather conditions on site - Current weather conditions will be documented in Element 20: On-Site WX & Fire Behavior Obs. Table.
2. Test fire results - Burn Boss will verify that the prescribed fire behavior characteristics will meet management objectives and smoke dispersion is favorable before ignition may continue as planned. If test fire results are unfavorable, the test fire will be extinguished and the prescribed fire will not continue until conditions are favorable. Test fire results will be documented in Element 20: Unit Log Table.

Element 15: Ignition Plan

A. Firing Methods:

1. Techniques – Strip and Spot fires to ignite backing, flanking, and head fires utilizing hand-held firing devices by personnel on foot or ATV mounted firing devices.
2. **Sequences -** Exact ignition sequences to be used will be determined and approved by the Burn Boss prior to ignition of the unit. Local factors may influence on-site weather conditions, therefore the ignition sequence will not be determined until all resources arrive on site at which time the planned ignition sequence will be provided during the operational briefing.
3. Patterns – Working towards the upwind side, a backing fire along the downwind side, followed by flanking fires with interior chevron or strip fires would be typical patterns for a unit of this size to manage fire behavior and smoke. A solid strip head fire would be used on the upwind side to complete the burn.

B. Devices:

Drip torches, ATV drip torch, fusees and flare pistols. ATV ignitions will be performed in accordance with National and Regional Fish and Wildlife Service guidelines with a properly qualified operator.

C. Minimum Ignition Staffing:

Ignition staffing typically requires 1-3 personnel coordinated by the Burn Boss or assigned personnel on their side of the unit. Interior ignitions will be coordinated through the Burn Boss.

Element 16: Holding Plan

A. General Procedures for Holding:

The burn boss may elect to have a portable pump set up at a convenient location for engines to fill. Locations of re-fill sites will vary depending upon the season of the burn and water levels in nearby wetlands. *See Appendix A. Maps for locations of potential refill sites.*

Wet-lines will be established immediately prior to any ignition along established control lines, unless a natural or manmade control line provides a barrier to fire spread such as a gravel road, disked fire break or harvested crop field that has been worked. At least one holding resource such as an engine, UTV, or firefighter will follow up each ignition to monitor for creeping or spotting of fire outside of control lines. Additional resources, typically an UTV, will continually patrol all lines of the unit extinguishing all smokes within 10 ft. of the line or until otherwise

directed by the burn boss.

After ignition is completed, crews will immediately begin mop-up actions. Burn boss will establish mop-up standards based on adjacent fuels and expected weather conditions. At a minimum, control lines adjacent to readily available fuels will be cold–trailed and extinguished a minimum of 50 ft. in from the edge. The burn boss will decide whether or not a unit needs subsequent monitoring based on current and expected weather. This unit will be completed within one operational period. Fuel types and burning conditions outlined within this plan will generally not support fire activity overnight.

B. Critical Holding Points and Actions:

Critical holding areas will typically be the mowed fire break lines, especially downwind lines. A type 6 engine or ATV/UTV will be assigned to these lines for constant patrol until line is secure to ensure there is no possibility of fire creeping outside the unit. Timing and speed of ignition will depend on ability of holding resources and good communications between the two. *See IAP (ICS 204) for detailed Critical Holding Points and Actions.*

C. Minimum Organization or Capabilities Needed:

Ignition crew may be used as needed for holding as they complete their ignition operation. *See IAP (ICS 204).*

Element 17: Contingency Plan

A. Management Action Points or Limits:

1. Project objectives are not being met:
   This situation is typically the result of inadequate burning conditions. If it appears that project objectives are not being met the Burn Boss will immediately evaluate current environmental and fire behavior conditions and determine if they are within prescription.
2. Prescription Parameters:
   One or more environmental or fire behavior prescription parameters are exceeded due to unexpected changes in weather or other factors.
3. Smoke Impacts:
   Changes in weather, burning conditions or other factors occur that cause imminent smoke problems such as poor visibility on public roadways, significant impacts to the general public, residences or communities, or smoke that may have significant negative impacts to firefighters on the line.
4. Minimum Implementation Organization:
   Implementation organization falls below minimum requirements due to injury, illness or any other factor.
5. Unit Boundary:
   The fire exceeds the unit boundaries as defined on unit maps within this plan.
6. Contingency Resources:
   Contingency resources as identified in this plan are not available prior to the start of ignition operations, or identified contingency resources become unavailable after ignition operations have commenced.

B. Actions Needed:

1. Project Objectives are not being met:
   If current conditions are within prescription parameters the Burn Boss will evaluate expected environmental conditions for later in the operational period. If environmental conditions are expected to improve the Burn Boss may elect to temporarily suspend further ignition operations and hold resources until conditions improve or cancel any further ignition operations for the operational period and begin with control and mop-up of the unit. If environmental conditions are not expected to improve ignition operations will be cancelled and control and mop-up of the unit will begin immediately.
2. Prescription Parameters:

All resources will work at keeping active fire contained within the unit boundaries. The Burn Boss will continue to direct resources as long as active fire remains within the unit. If environmental and/or fire behavior conditions are expected to fall back within acceptable parameters the Burn Boss may elect to continue with ignition operations later in the operational period when prescription parameters can be met. If environmental and/or fire behavior conditions are not expected to fall back within acceptable parameters resources will work at control and mop-up of unit and no further ignition operations will commence unless deemed necessary for control of the unit by the Burn Boss.

3. Smoke Impacts:

If changes in weather conditions or other factors occur that cause imminent smoke problems, the following plan will be initiated:

a. All attempts will be made to reduce smoke emissions from the burn as quickly as possible. This may include immediate shut down of the burn and suppression of any portion of the unit still on fire. Mop-up will also be initiated in an attempt to reduce smoke production to the furthest possible extent.
b. If additional resources are required to extinguish the burn and eliminate further smoke production, they will be requested through State Radio and may include local fire departments, personnel from other refuges or other state and federal agencies in the area.
c. Smoke signs will be placed on impacted roads, traffic control will be initiated and the county sheriff or other law enforcement personnel may be called in through State Radio to assist with local traffic control, including temporary closure of area roads if deemed necessary. Locations and assignments of any traffic control personnel will be determined by the Burn Boss and law enforcement personnel immediately prior to assignment. Weather variables may exist during any potential smoke problem that would prevent one from predicting the best location for traffic control measures prior to the event itself.
d. If it appears that smoke from the burn will impact local communities or other smoke sensitive locations all efforts will be made to identify the potential problem areas and inform the public so that local actions to reduce impacts such as closing up buildings and moving smoke sensitive individuals away from the impacted areas can occur.
e. The burn boss will remain on scene until smoke problems are resolved or until relieved by an individual appointed by the line officer.

4. Minimum Implementation Organization:

The Burn Boss will temporarily halt ignition operations and evaluate the potential for successful completion of the burn with the current organization. At a minimum, the Burn Boss will consider current and expected fire behavior and weather, condition of downwind control lines, adjacent fuels, experience level of current organization, and capability of on-site equipment. If the Burn Boss feels that the burn can continue safely and successfully he/she may elect to continue with operations. If a determination is made that problems may arise with continuation then operations on the unit will shift to control and mop-up. At no time may ignition operations continue if organization or equipment levels fall below 80% of the minimum requirements.

5. Unit boundaries:

Minor escapes if readily controlled by on-site resources will be extinguished and ignition activities may resume. If a significant escape occurs and has significant spread potential, holding forces will take immediate suppression actions while ignition crews will hold up and perform holding duties on the current prescribed fire. The controlled burn may be extinguished and all resources moved to suppression responsibilities at the discretion of the Burn Boss. If fire burns onto adjacent private lands and the Burn Boss determines the fire will not be contained with on-site resources the Burn Boss will contact State Radio and request contingency resources. At this time the Burn Boss, or highest qualified individual on scene, will assume the duties of incident commander.

6. Contingency Resources:

If contingency resources as identified in this plan are not available ignition operations may not commence. If identified contingency resources become unavailable after commencement of ignition operations the Burn Boss may choose to secure the unit until alternate contingency resources can be identified and their availability confirmed or may choose to finish ignition operations if that is the prudent decision to be made.

C. Minimum Contingency Resources and Maximum Response Time(s):

Two wildland capable engines (equivalent to a Type 7 or larger) with a staff of two will be the minimum required available contingency resource. If the incident commander determines that structures are threatened as a result of the escaped fire, a minimum order of one structure engine with crew per threatened structure will be ordered. It can generally be assumed that if a local fire department is not currently involved in any suppression efforts that at least two engines with a minimum of two personnel can be ordered and on scene within 30 min.

Element 18: Wildfire Declaration

A. Wildfire Declared By:

The Burn Boss is responsible for determining if an escape has become a wildfire. An escaped fire will be declared a wildfire if:

1. If a slop over, spot fire, or multiple spot fires occur and it is immediately obvious that the fire will not be able to be controlled with on-site resources.
2. If lives are threatened, private property, resources, or other structures are threatened, regardless of pre-determined time frames for control determination.
3. If a slop-over or multiple slop-overs occur on private lands outside the burn unit greater than 1 acre in size.
4. If a slop over/spot fire or multiple slop overs/spot fires occur in areas outside the burn unit on U.S. Fish and Wildlife Service Lands and are not able to be contained within 30 minutes with an appropriate management response from on-site resources.

B. IC Assignment:

The Incident Commander will be determined during the operational briefing. The Incident Commander will be at least ICT4 qualified. The Burn Boss will assume the duties of Incident Commander unless an alternate or trainee is identified during the operational briefing. IC will announce wildfire declaration over radio and instruct all resources to convert over to State Fire channel for communications.

C. Notifications:

Upon declaration of a wildfire the Burn Boss, or someone designated by the Burn Boss, will notify State Radio and request additional resources as needed. The Burn Boss or designated individual will also contact the North Dakota Dispatch Center and the Audubon Complex Project Leader.

D. Extended Attack Actions and Opportunities to Aid in Fire Suppression (Optional):

Extended attack is very unlikely in this project area due to the nature of the fuels involved (1 hour time lag). If extended attack is necessary all resource orders will be placed through the North Dakota Dispatch Center. If containment operations are expected to extend into the next operational (burning) period a fully qualified Type 3 Incident Commander (ICT3) will be requested.

Element 19: Smoke Management and Air Quality

A. Compliance:

All burning will be done in compliance within guidelines established by the North Dakota Department of Health. No burning will be done on days when smoke dispersal is forecasted to be poor for the entire day.

B. Permits to be Obtained:

A permit to conduct open burning is required from the North Dakota State Department of Health, Environmental Health Section. The appropriate permit will be requested from the state, and required conditions adhered to. The

request will be made prior to the prescribed fire season. *See Appendix G. Clearances and Permits.*

C. Smoke-Sensitive Receptors:

See See LAP (ICS 204) and Appendix A. Maps for location of smoke sensitive areas/receptors. See Appendix F. Smoke Management Plan.

D. Potential Impacted Areas:

Adjacent roads may have short term visibility issues. Fire crew or additional traffic control personnel will control any traffic until visibility clears up. Burn boss will coordinate ignition and utilize favorable combination of prescription parameters to minimize any impact to residence.

E. Mitigation Strategies and Techniques to Reduce Smoke Impacts:

Burns will be conducted within acceptable prescription parameters including wind speed and direction, dispersion and atmospheric stability. Burning will not be conducted when an inversion is in place and is not predicted to break by early afternoon. Burns will be conducted as quickly as possible, while adhering to unit objectives and safety guidelines. This burning technique typically produces a convective column that will move smoke off the ground and into the atmosphere where it is dispersed by transport winds further limiting smoke concerns in the area. Fire crew personnel will be rotated out of heavy impact areas as needed. Mop-up will be conducted by Holding and Ignition personnel immediately after ignition operations are concluded. Mop-up will continue until all smokes are extinguished or until the possibility of escape or smoke management problems are eliminated.

Element 20: Monitoring

A. Fuels Information Required and Procedures:

One hour fuels are the sole carriers of fire throughout the project area. One hour fuel moistures may be calculated to predict conditions based on weather observations and forecasts with the use of tables such as those found in Appendix B of the NWCG Fireline Handbook. *See Element 7: Prescription, B. Prescription Parameters.*

B. Weather Monitoring (Forecasted and Observed) Required and Procedures:

Environmental prescription parameters including temperature, relative humidity, and winds will be monitored prior to initiating any burn. Weather conditions will continue to be monitored throughout the burn as often as deemed necessary by the Burn Boss. Weather observations will typically be taken on site with a standard belt weather kit or a kestrel. The day's observations can be compared to those taken by the remote automated weather stations in the area. Unit Log (ICS 214) with On-Site WX & Fire Behavior Observations is located in the IAP.

C. Fire Behavior Monitoring Required and Procedures:

Fire behavior will be monitored visually by the Burn Boss or other designee. Observations will typically focus on flame lengths. Unit Log (ICS 214) with On-Site WX & Fire Behavior Observations is located in the IAP.

D. Monitoring Required to Ensure that Prescribed Fire Plan Objectives are Met:

First order fire effects will be monitored and documented in the On-Site WX & Fire Behavior Obs. to determine results of the burn. This monitoring will predominately involve ocular observations to determine if fuels are being consumed in a manner that meets objectives in section 5 of this plan. Long term monitoring will not be possible on all units but representative plots may be established on random units to determine long term fire effects. Long term monitoring will be the responsibility of the refuge biologist. Unit Log (ICS 214) with On-Site WX & Fire Behavior Observations is located in the IAP.

E. Smoke Dispersal Monitoring Required and Procedures:

Smoke dispersal will be monitored by the Bun Boss or other person designated to do so. Smoke dispersal will be evaluated to determine its impacts on nearby roadways, residences and general public. Unit Log (ICS 214) with On-Site WX & Fire Behavior Observations is located in the IAP.

Element 21: Post-burn Activities

A. Post-Burn Activities that must be Completed:

Mop-up will be conducted by Holding and Ignition personnel immediately after ignition operations are concluded. Mop-up will continue until all smokes are extinguished or until the possibility of escape or smoke management problems are eliminated. A minimum 100 foot wide perimeter will be used for mop-up standards with further evaluation by the Burn Boss upon completion. Burning materials within this area will be extinguished with water and hand tools. Traffic control operations will conclude as soon as mop-up is completed and all smoke concerns to roadways have been eliminated. Caution Smoke signs may be left overnight if Burn Boss deems necessary.

No rehabilitation to the burn unit should be necessary. Soft soils may become significantly rutted due to equipment travel. Fence posts and wire may also need repairs. Any equipment rehabilitation needs will be addressed during the AAR and completed on scene if possible.

An After Action Review (AAR) should be conducted after every operational period. This may not be possible until the next day. Guidelines for an effective AAR can be found in the Incident Response Pocket Guide.

The Burn Boss will be responsible for immediately notifying local dispatch of fire status and briefing agency administrator as soon as practical. Burn boss will monitor and declare the fire out 24 hours after last smoke is sited. Burn boss may select a crew member to monitor and declare fire out if burn boss is absent.

Prescribed Fire Plan Appendices

Appendix A: Maps:

- Vicinity,
- Project,
- Contingency,
- Ignition Sequence,
- Smoke Trajectory,
- Notifications Map

Appendix B: Technical Reviewer Checklist

Appendix C: Complexity Analysis

Appendix D: Agency-Specific Job Hazard Analysis or Risk Assessment

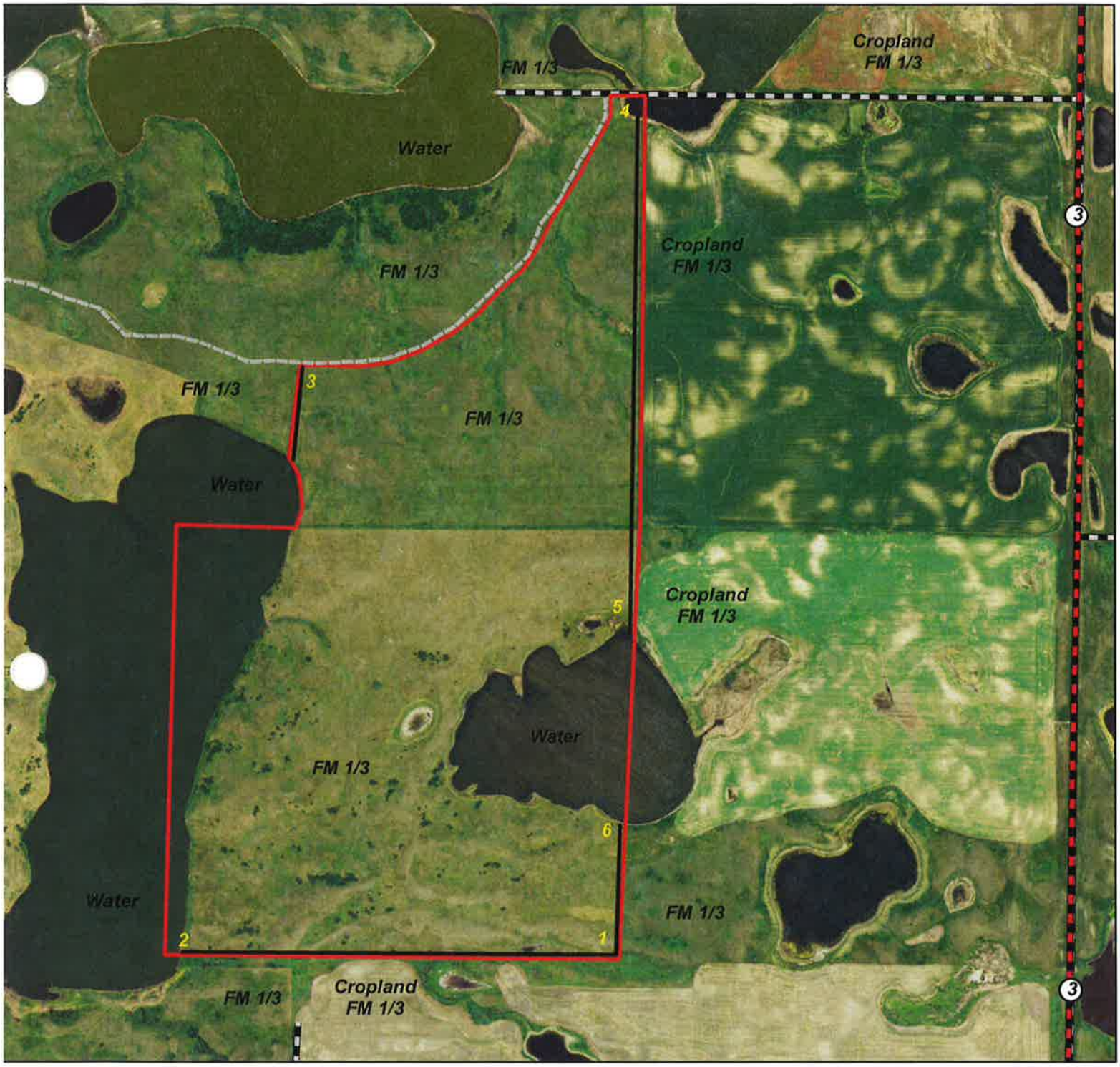
Appendix E: Fire Behavior Modeling Documentation or Empirical Documentation

Appendix F: Smoke Management Plan and Smoke Modeling Documentation (Optional)

Appendix G: Clearances and Permits

Appendix H: IAP, Communication & Medical Plans

Fredrick WPA & Lonetree WMA
Ignition & Project Map



0 0.05 0.1 0.2 0.3 0.4 Miles

Legend

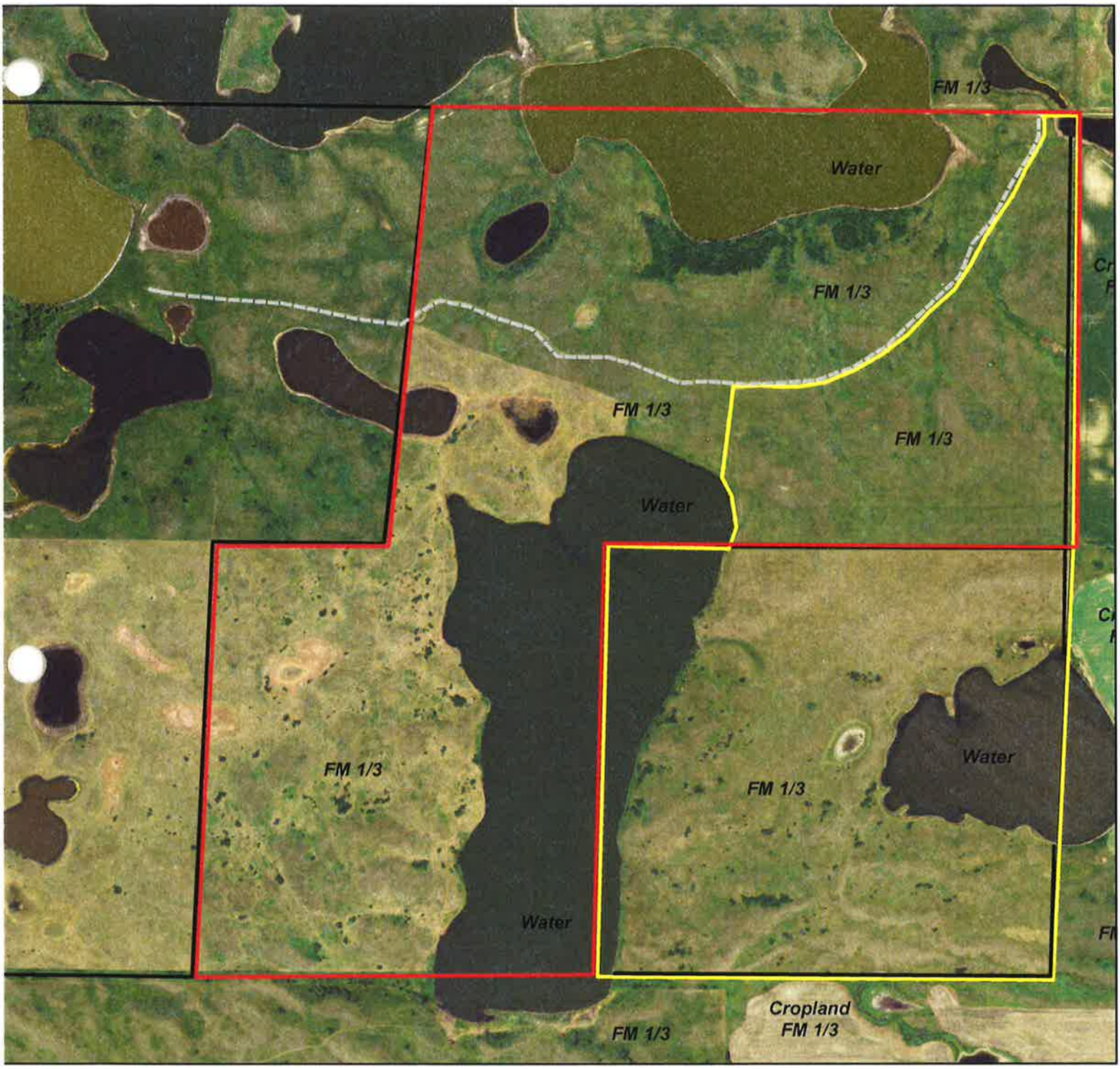
- Burn Unit
- Mow Line
- Highway 3
- Gravel
- Two track

Ignition sequence with a north wind direction.
1-2, 1-6, 6-5 (Around wetland)
5-4, 2-3, 3-4 (Along the trail)

Prepared by: Terry Gwilliams 01/17/2017
T146N R73W Sec. 33

N

Fredrick WPA & Lonetree WMA
Project Map



Legend

- Burn Unit
- Lone tree WMA
- WPA Boundaries
- Two track

0 0.05 0.1 0.2 0.3 0.4 Miles

N

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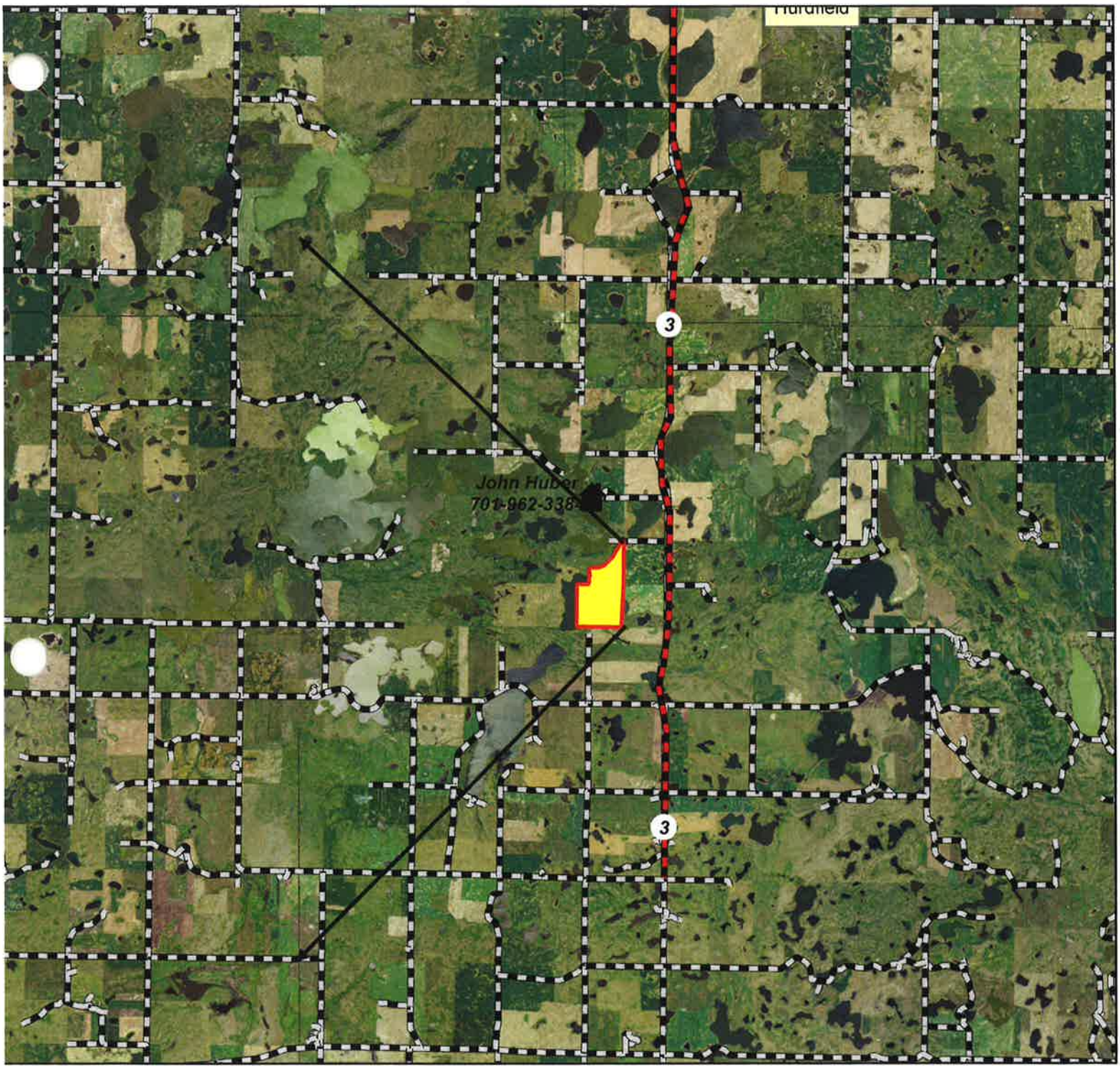
T146N R73W Sec. 33

Fredrick WPA & Lone Tree WMA
Smoke Trajectory Map



Legend

- Burn Unit
- Smoke Trajectory
- Major Roads
- Gravel Roads

0 0.75 1.5 3 4.5 6 Miles

Smoke trajectory shown with with a east wind direction.

N

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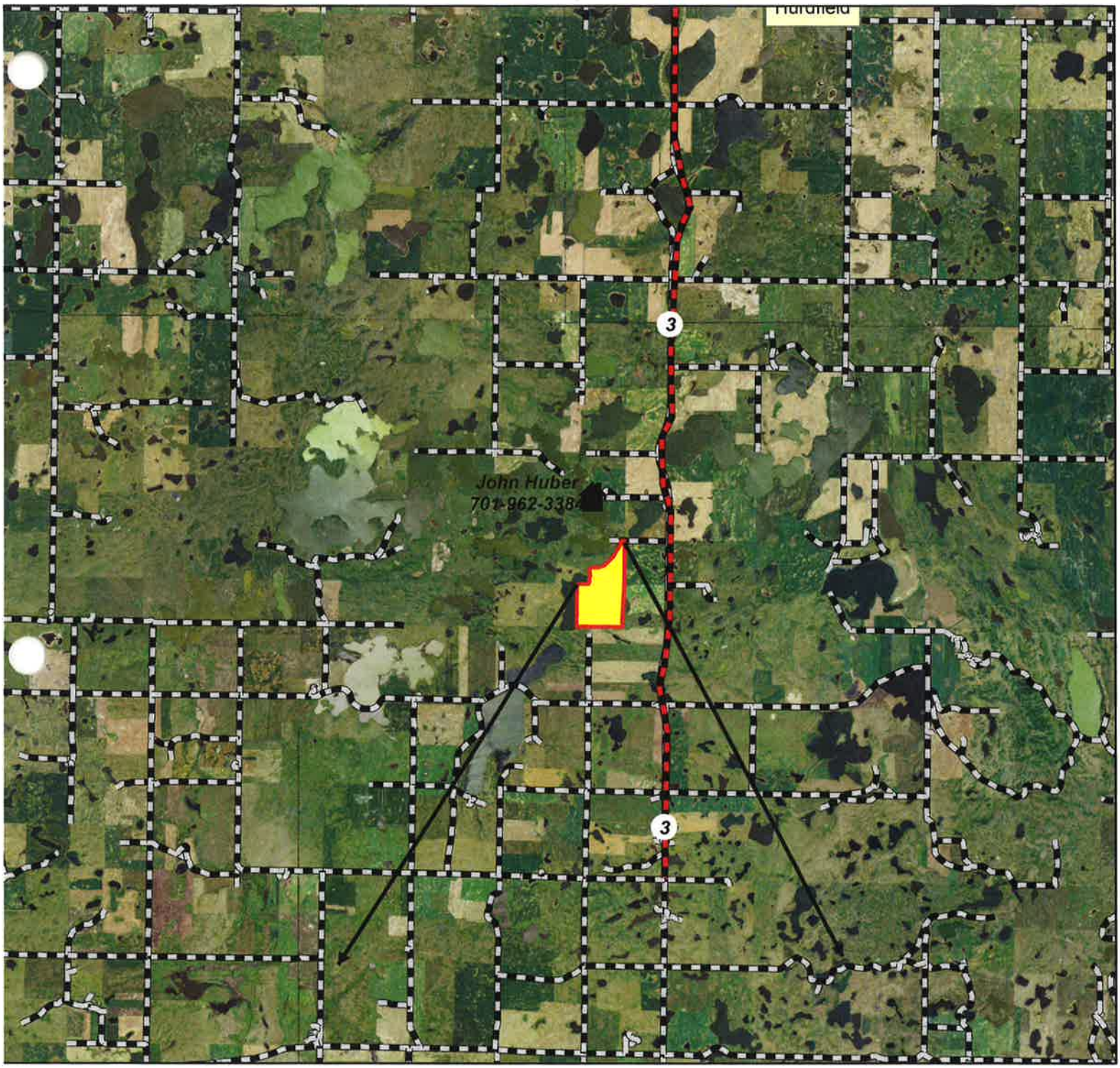
T146N R73W Sec. 33

Fredrick WPA & Lone Tree WMA
Smoke Trajectory Map



Legend

- Burn Unit
- Smoke Trajectory
- Major Roads
- Gravel Roads

0 0.75 1.5 3 4.5 6 Miles

Smoke trajectory shown with with a north wind direction.

N

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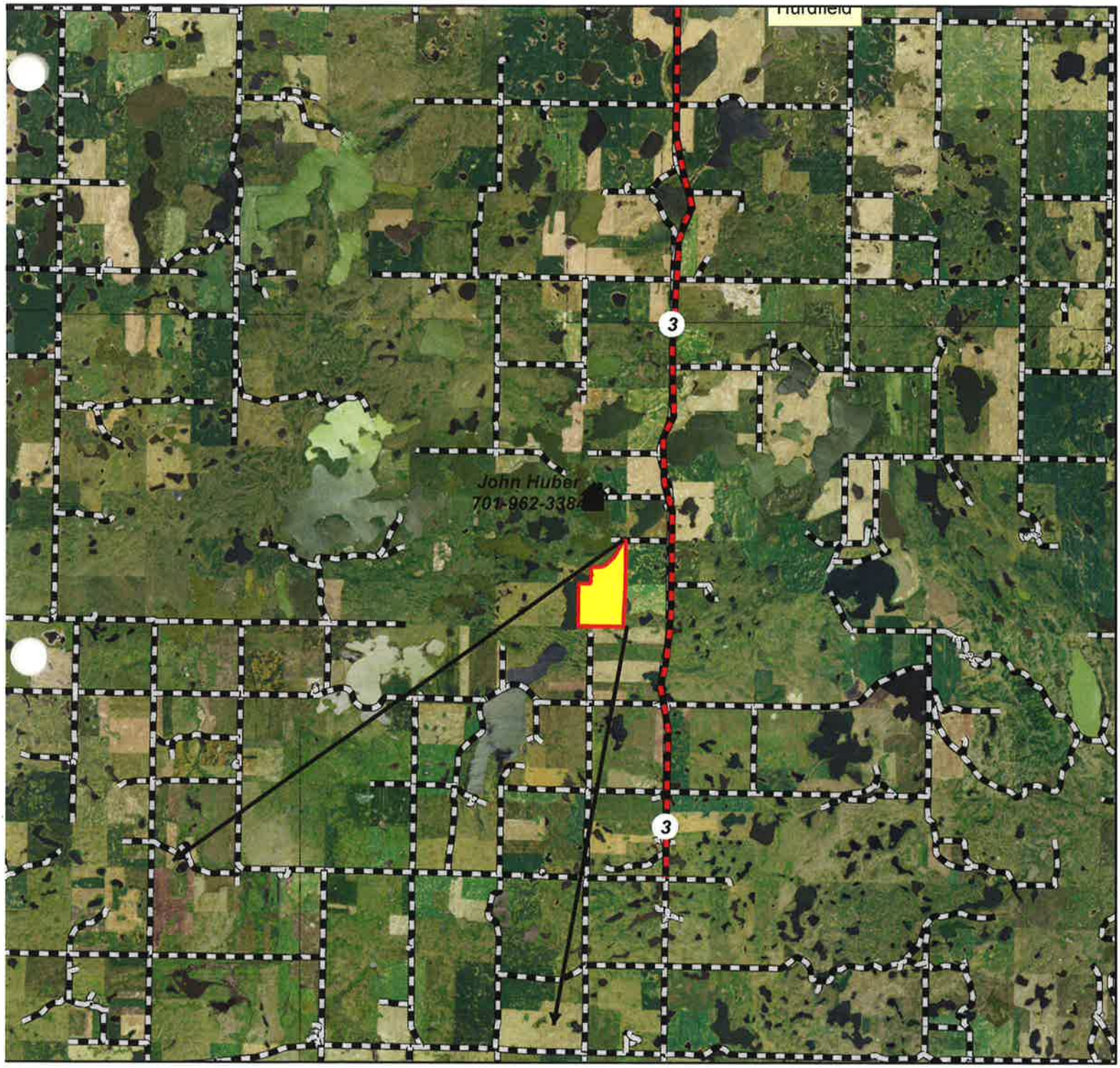
T146N R73W Sec. 33

Fredrick WPA & Lone Tree WMA
Smoke Trajectory Map



Legend

- Burn Unit
- Smoke Trajectory
- Major Roads
- Gravel Roads

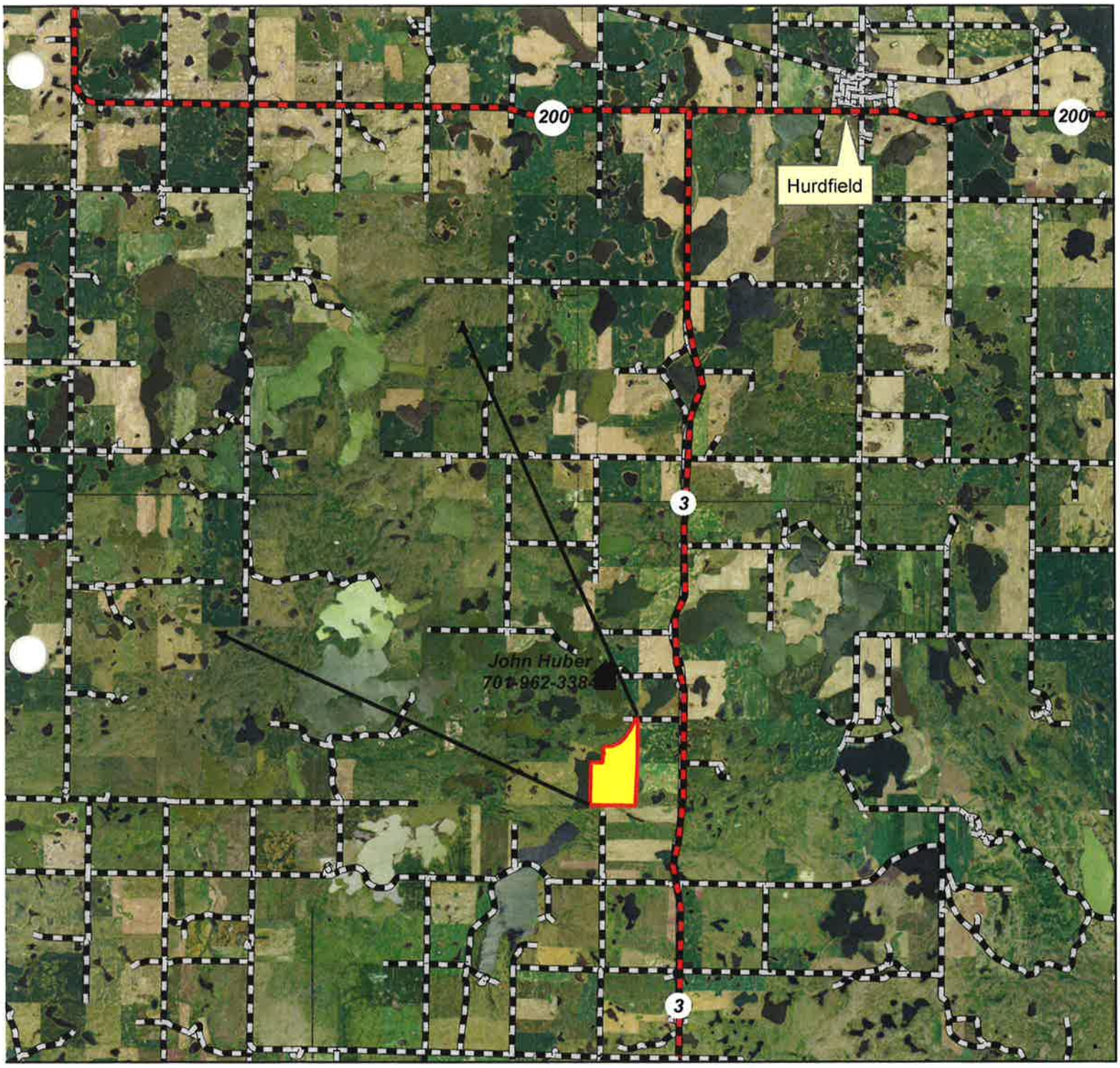
0 0.75 1.5 3 4.5 6 Miles

Smoke trajectory shown with with a northeast wind direction.

N

Prepared by: Terry Gwilliams 01/17/2017
T146N R73W Sec. 33

Fredrick WPA & Lone Tree WMA
Vicinity & Contingency Map



Legend

- Burn Unit
- Smoke Trajectory
- Major Roads
- Gravel Roads

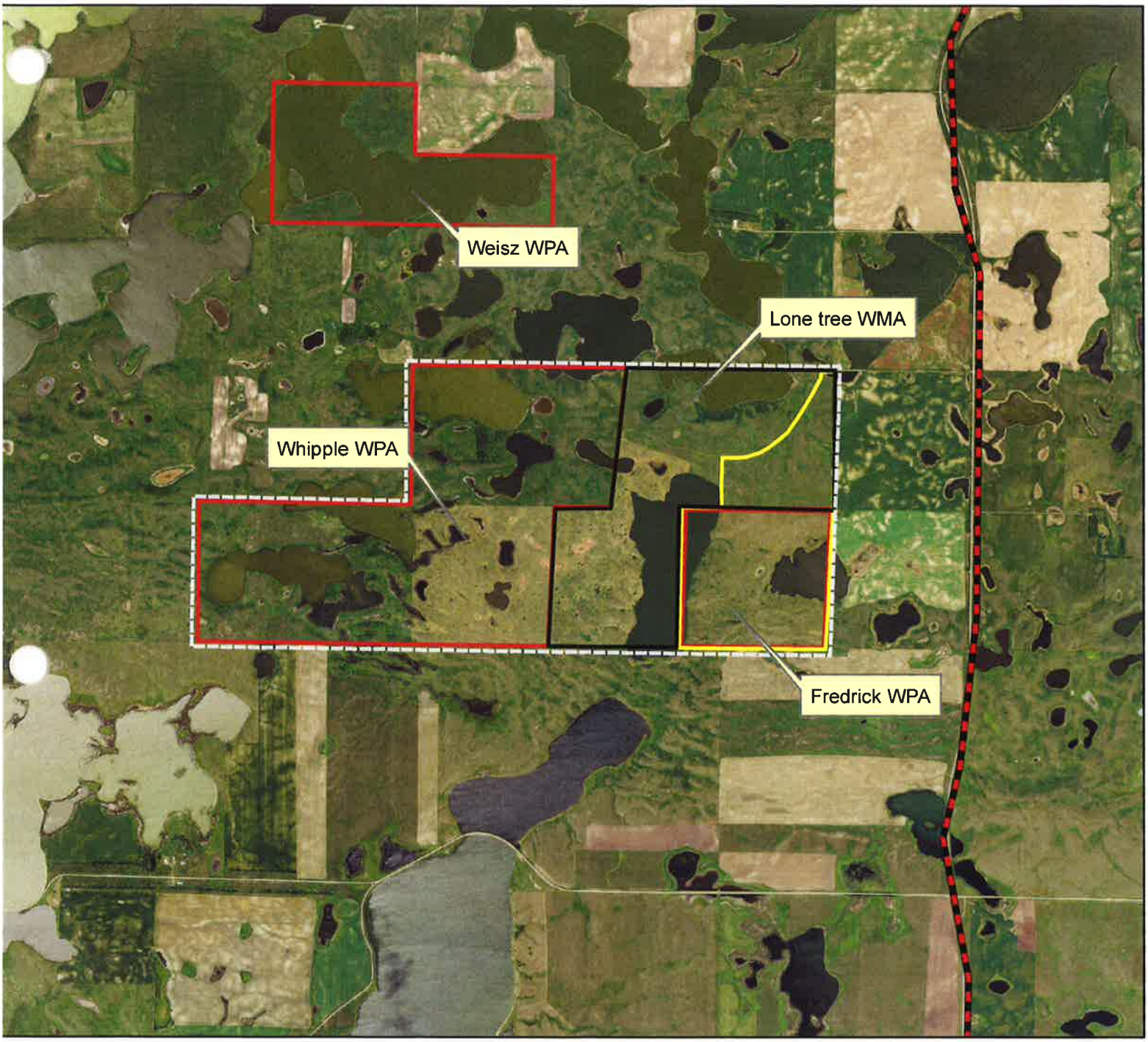
0 0.75 1.5 3 4.5 6 Miles

Smoke trajectory shown with with a southeast wind direction.

N

Prepared by: Terry Gwilliams 01/17/2017
T146N R73W Sec. 33

Fredrick WPA & Lone Tree WMA
Contingency Map



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T146N R73W Sec. 33

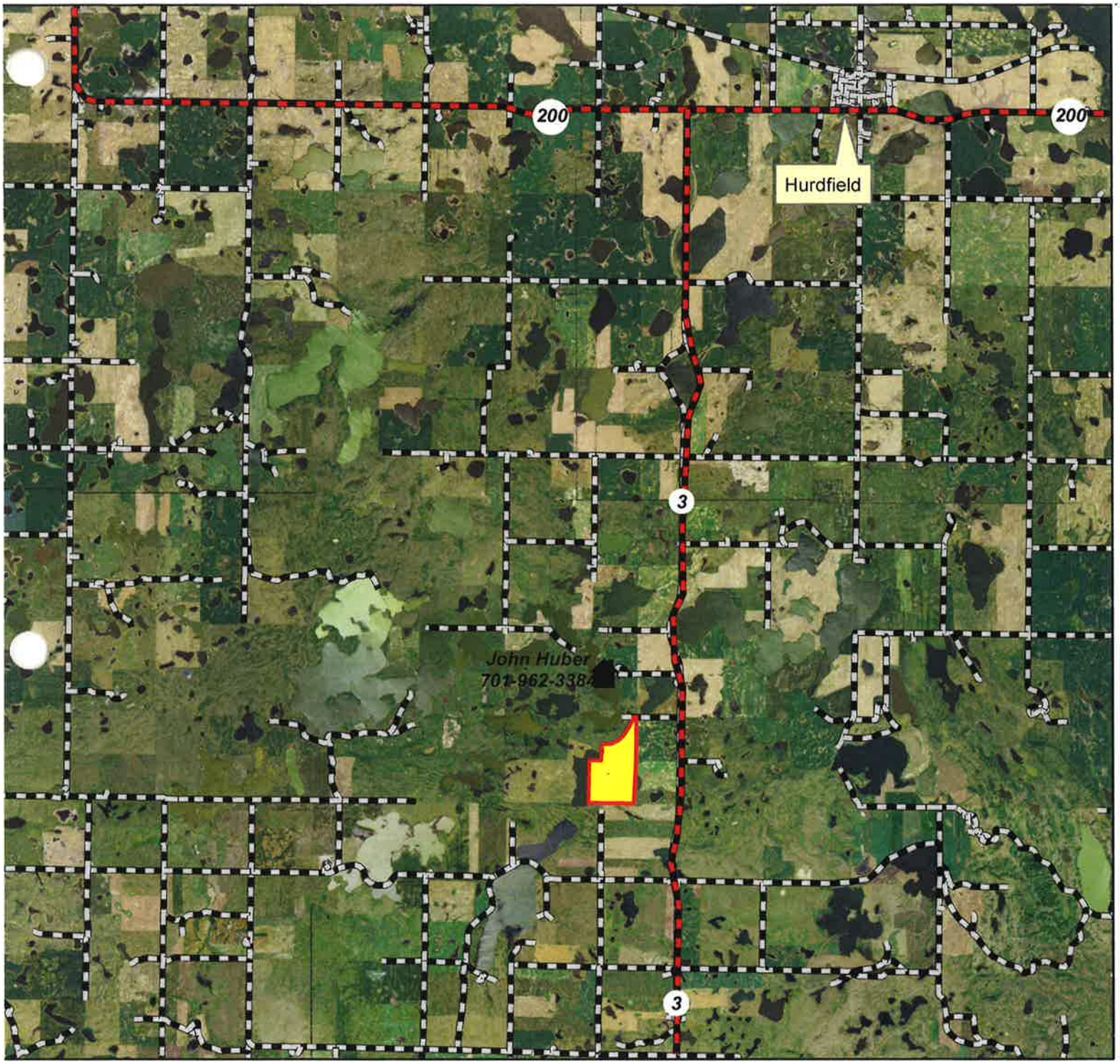
Miles
0 0.225 0.45 0.9 1.35 1.8

Legend

- ***Burn Unit***
- ***Lone tree WMA***
- ***Contingency Lines***
- ***WPA Boundaries***
- ***Major Roads***
- ***Gravel Roads***

N

Fredrick WPA & Lone Tree WMA
Vicinity & Contingency Map



Legend

- Burn Unit
- Contingency Lines
- Major Roads
- Gravel Roads

0 0.75 1.5 3 4.5 6 Miles

The burn unit is located 2 miles west and 7 miles south of Hurdsfield.

N

Prepared by: Terry Gwilliams 01/17/2017
T146N R73W Sec. 33

APPENDIX B. TECHNICAL REVIEWER CHECKLIST - USFWS R6

Administrative Unit	Burn Unit	Burn Subunit(s)	Burn Dates From	Burn Dates To	Review Date	Valid Through	Reviewed By
Chase Lake WMD	Fredrick WPA		1-Apr	30-Nov	3/7/2017	12/31/2022	Jeff Dion

	Prescribed Fire Elements		S / U	Comments
1	**Signature Page**		S	
2	**GO/NO-GO Checklists**		S	
3	**Complexity Analysis Summary**		S	
4	**Description of the Prescribed Fire Area**			
	Must Include:			
	A.	Physical Description:	S	
		* Location	S	
		* Size	S	
		* Topography	S	
		* Project Boundary	S	
	B.	Vegetation / Fuels Description:	S	
		* Describe the structural and composition of the vegetation type(s) and fuel characteristics	S	
		* Describe the percent of the unit composed of each vegetative type and the corresponding fuel model(s).	S	
		* Identify conditions (fuels, slope, aspect) in or adjacent to boundaries that may be a potential threat for escaped fire	S	
		* Identify any abiotic conditions like airshed, climate, soils, etc. as appropriate.	S	
	C.	Description of Unique Features and Resources:	S	
	TC 3-10-17	* Plan adequately addresses T&E species concerns both within burn unit and adjacent	U	need to address T&E species or N/A if none are present it is listed in element 9 also list it here
		* Plan adequately addresses Archeological, Cultural, or Historical issues both within burn unit and adjacent	U	need to state the you have arch. Clearance it is listed in element 9 also list it here.
	D.	Maps (all maps to include: Title; Name of Preparer(s); Date; North Arrow; Scale; & Legend) (Appendix A)		
	TC 3-10-17	* Vicinity Map	S	
		* Project Map	U	No project map/unit map
		* Contingency Planning Map (FWS R6 Required)	U	No contigency map
		* Ignition Sequence Map (FWS R6 Required)	S	
		* Smoke Trajectory Map (FWS R6 Required)	S	
		** Optional Maps		

5	**Goals & Objectives**		S	
6	**Funding**		S	
7	**Prescription**			
	Must Include:			
	A.	Acceptable ranges of fire behavior and environmental conditions	S	
	B.	Fire Behavior Discussion	S	
	C.	Predicted Fire Behavior Outside Project Boundary	S	
	D.	Modeled	S	
8	**Scheduling**		S	
9	**Pre-Burn Considerations**			
	Must Include:			
	A.	Site Preparation	S	
	B.	Spot Weather Forecast	S	
	C.	Required Permits	S	
	D.	Pre-Burn Contact List	S	
10	**Briefing**		S	
11	**Organization & Equipment**			
	Must Include:			
	A.	Positions, Minimum Qualifications, Equipment, Supplies	S	
	B.	Organization Chart(s) Included	S	
12	**Communication**		S	
13	**Public / Personnel Safety & Medical Procedures**			
	Must Include:			
	A.	PPE	S	
	B.	Safety Hazards / Mitigation	S	
	C.	Emergency Medical Plan Included	S	
	D.	Job Hazard Analysis (JHA) Attached (Appendix D)	S	
14	**Test Fire**		S	
15	**Ignititon Plan**			
	Must Include:			

	A.	Ignition Plan(s) Description	S	
	B.	Ignition Sequencing Map(s) Attached (FWS R6 required)	S	

16	**Holding Plan**			
	Must Include:			
	A.	Critical Control Holding Points Identified	S	
	B.	Resources	S	
	C.	Water Resupply	S	
	D.	Mop-up Standards in Quantifiable tems (FWS R6 required)	S	
	E.	Quantifiable Patrol Standards Identified (FWS R6 required)	S	
17	**Contingency Plan**			
	Must Include:			
	A.	Trigger Points Established	S	
	B.	Identification of additional resources & response time(s)	S	
	C.	Verify / Document Availability	S	
	D.	Procedures to be followed. (FWS R6 Required)	S	
18	**Wildfire Conversion**			
	Must Include:			
	A.	Who has authority to declare a wildfire	S	
	B.	Actions to be taken	S	
	C.	Communications	S	
19	**Smoke Management & Air Quality**			
	Must Include:			
	A.	Permit Requirements	S	
	B.	Sensitive Receptors Identified	S	
		* Smoke Trajectory Map (FWS R6 Required)	S	
	C.	Modeling Outputs Included (if required)	S	
	D.	Traffic Control Addressed (FWS R6 Required)	S	
20	**Monitoring**			
	Must Include:			
	A.	Minimum specify weather, fire behavior & fuels info	S	
	B.	Identifies monitoring procedures inc. who and when	S	
21	**Post-burn Activities**			
	Must Include:			
	A.	Rehabilitation Standards are Established	S	
	B.	Criteria to declare burn out and by whom	S	
	Appendices			
	A.	**Maps:**	S	

B.	Technical Reviewer Checklist	S	
C.	Complexity Analysis	S	
D.	Job Hazard Analysis	S	
E.	Fire Behavior Modeling Documentation	S	
F.	NEPA Checklist & Environmental Action Statement	S	

S = Satisfactory

U = Unsatisfactory

Recommended For Approval		Not Recommended For Approval	
Jeff Dion	RXB2	Y	3/7/2017
Technical Reviewer	Qualifications & Currency (Y/N)		Date

Approval is recommended subject to the completion of all requirements listed in the comments section, and / or on the Prescribed Fire Plan.

Complexity Rating Worksheet

Project Name: Fredrick WPA Project Number: _____

Complexity Elements:

1. Potential for Escape

Risk	Rationale
Preliminary Rating: Low Moderate High	The fire has some potential to cross burn unit perimeter or allowable area boundaries. Potential for multiple spot fires that can propagate at moderate rates of spread but can be held by skilled and prompt holding actions.
Final Rating: Low Moderate High	Same.
Potential Consequences	Rationale
Preliminary Rating: Low Moderate High	No structures are expected to be involved. Any damage can be quickly repaired.
Final Rating: Low Moderate High	Same.
Technical Difficulty	Rationale
Preliminary Rating: Low Moderate High	Holding operations would normally be supervised at the single resource boss level. The burn unit and allowable area is easily accessible to the holding resources identified in the plan.
Final Rating: Low Moderate High	Same.

2. The Number and Dependency of Activities

Risk	Rationale
Preliminary Rating: Low Moderate High	Activities are generally independent or only loosely dependent on other activities.
Final Rating: Low Moderate High	Same.
Potential Consequences	Rationale
Preliminary Rating: Low Moderate High	Coordination problems could result in an increased risk of escape, threaten the completion of the burn, failure to meet some burn objectives, or create a safety issue. Some delay in implementation would be expected.
Final Rating: Low Moderate High	Same.
Technical Difficulty	Rationale
Preliminary Rating: Low Moderate High	Minimal difficulty in coordinating the required activities. Coordination problems or communication failures or issues will not affect the completion of the project.
Final Rating: Low Moderate High	Same.

3. Off-Site Values

Risk	Rationale
Preliminary Rating: Low Moderate High	There are few values at risk or the values identified are generally considered low or minimal or the project is expected to take place during periods of low visitor use. Minimal risk to improvements, private or other agency lands.
Final Rating: Low Moderate High	Same.
Potential Consequences	Rationale
Preliminary Rating: Low Moderate High	The vegetation potentially affected generally has rapid recovery rates. No restrictions on visitor use are expected during project implementation.
Final Rating: Low Moderate High	Same.
Technical Difficulty	Rationale
Preliminary Rating: Low Moderate High	Protection of the off-site values requires no special management, equipment or skills.
Final Rating: Low Moderate High	Same.

4. On-Site Values

Risk	Rationale
Preliminary Rating: Low Moderate High	Few or no special internal features are present that require special attention in planning or implementation. There are few on-site values at risk or the values identified are generally considered low or minimal.
Final Rating: Low Moderate High	Same.
Potential Consequences	Rationale
Preliminary Rating: Low Moderate High	Implementation problems will not damage special features or adversely affect on-site resource values.
Final Rating: Low Moderate High	Same.
Technical Difficulty	Rationale
Preliminary Rating: Low Moderate High	No special skills or operating procedures are required
Final Rating: Low Moderate High	Same.

5. Fire Behavior

Risk	Rationale
Preliminary Rating: Low Moderate High	Fuels vary moderately within the unit, both in loading and arrangement. Medium loadings with some high concentrations are present. More than one fuel model may be present on significant portions of the unit.
Final Rating: Low Moderate High	Same.
Potential Consequences	Rationale
Preliminary Rating: Low Moderate High	Fire behavior outside of the unit boundary would be about the same as that experienced within the unit.
Final Rating: Low Moderate High	Same.
Technical Difficulty	Rationale
Preliminary Rating: Low Moderate High	Standard fire safety precautions are adequate to ensure personnel safety. The number or size of spot fires and slopovers would not require additional suppression resources
Final Rating: Low Moderate High	Same.

6. Management Organization

Risk	Rationale
Preliminary Rating: Low Moderate High	A small number of qualified people are required to implement the prescribed fire. A single person may fill several positions. A single level of supervision is all that is needed.
Final Rating: Low Moderate High	Same.
Potential Consequences	Rationale
Preliminary Rating: Low Moderate High	Problems related to supervision or communications are expected to be minimal.
Final Rating: Low Moderate High	Same.
Technical Difficulty	Rationale
Preliminary Rating: Low Moderate High	All team members are available within the local area and are familiar with local factors affecting project implementation. Several qualified personnel are available.
Final Rating: Low Moderate High	Same.

7. Public and Political Interest

Risk	Rationale
Preliminary Rating: Low Moderate High	There has been little or no public or political controversy related to the project and no news media interest.
Final Rating: Low Moderate High	Same.
Potential Consequences	Rationale
Preliminary Rating: Low Moderate High	Unexpected or adverse events would attract little public, political, or media attention
Final Rating: Low Moderate High	Same.
Technical Difficulty	Rationale
Preliminary Rating: Low Moderate High	Requires no special fire information function. Routine media releases needed.
Final Rating: Low Moderate High	Same.

8. Fire Treatment Objectives

Risk	Rationale
Preliminary Rating: Low Moderate High	Objectives are limited to easily achieved fuel reduction or ecosystem maintenance. The necessary fire behavior is easily created, managed, and monitored.
Final Rating: Low Moderate High	Same.
Potential Consequences	Rationale
Preliminary Rating: Low Moderate High	Other opportunities to meet objectives will be available. Other management activities are not dependent on the completion of the project.
Final Rating: Low Moderate High	Same.
Technical Difficulty	Rationale
Preliminary Rating: Low Moderate High	Measures to achieve the objectives are easy to complete and there are few or no restriction on techniques. Limited pre-burn monitoring is needed to determine if the unit is in prescriptions.
Final Rating: Low Moderate High	Same.

9. Constraints

Risk	Rationale
Preliminary Rating: Low Moderate High	Some constraints exist on access on parts of the burn unit and use of heavy equipment.
Final Rating: Low Moderate High	Same.
Potential Consequences	Rationale
Preliminary Rating: Low Moderate High	Project can be implemented whenever it is in prescription. Tactics and burn activities are not limited.
Final Rating: Low Moderate High	Same.
Technical Difficulty	Rationale
Preliminary Rating: Low Moderate High	Constraints moderately increase the difficulty of completing the burn. The length of time to complete the project and the size of the crew needed may increase.
Final Rating: Low Moderate High	Same.

10. Safety

Risk	Rationale
Preliminary Rating: Low Moderate High	Safety issues are easily identifiable and mitigated. Potential hazards are typical and easily addressed in briefing.
Final Rating: Low Moderate High	Same.
Potential Consequences	Rationale
Preliminary Rating: Low Moderate High	Minimal potential for serious accidents/injuries to firefighters or the public.
Final Rating: Low Moderate High	Same.
Technical Difficulty	Rationale
Preliminary Rating: Low Moderate High	Safety concerns can be easily mitigated through LCES. A standard safety briefing as part of the project briefing should be sufficient to cover the safety concerns.
Final Rating: Low Moderate High	Same.

11. Ignition Procedures/Methods

Risk	Rationale
Preliminary Rating: Low Moderate High	Firing sequence and timing is not critical to meet project objectives. The entire project area is readily visible to the ignition specialist/ burn boss.
Final Rating: Low Moderate High	Same.
Potential Consequences	Rationale
Preliminary Rating: Low Moderate High	Firing methods and procedures must be coordinated to provide for adequate safety, meet project objectives, and reduce the risk of an unexpected or adverse event. Opportunities for remedial actions or corrections are available in the event of problems.
Final Rating: Low Moderate High	Same.
Technical Difficulty	Rationale
Preliminary Rating: Low Moderate High	There is no need for special firing equipment, techniques, or patterns. Firing procedures are simple and ignition team is small. Use of only one type of ignition devise is planned
Final Rating: Low Moderate High	Same.

12. Interagency Constraints

Risk	Rationale
Preliminary Rating: Low Moderate High	The project does not involve another land management agency or jurisdiction. No concerns or issues associated with interagency partners have been identified.
Final Rating: Low Moderate High	Same.
Potential Consequences	Rationale
Preliminary Rating: Low Moderate High	Project can be completed as planned.
Final Rating: Low Moderate High	Same.
Technical Difficulty	Rationale
Preliminary Rating: Low Moderate High	No interagency issues.
Final Rating: Low Moderate High	Same.

13. Project Logistics

Risk	Rationale
Preliminary Rating: Low Moderate High	The project requires minimal logistical support with no specific logistic function assigned. Supplies needed to conduct the burn are readily available.
Final Rating: Low Moderate High	Same.
Potential Consequences	Rationale
Preliminary Rating: Low Moderate High	Problems related to logistics will not increase the risk of escape, affect the completion of the burn or create a safety concern.
Final Rating: Low Moderate High	Same.
Technical Difficulty	Rationale
Preliminary Rating: Low Moderate High	No special logistical support issues. Supplies and personnel are readily available and easy to obtain.
Final Rating: Low Moderate High	Same.

14. Smoke Management

Risk	Rationale
Preliminary Rating: Low Moderate High	Smoke concerns are moderate and some concerns require special mitigation.
Final Rating: Low Moderate High	Same.
Potential Consequences	Rationale
Preliminary Rating: Low Moderate High	No impacts or minor impacts to isolated residences, remote roads or other facilities are expected. Firefighter exposure to smoke is expected to be minimal and not cause health and safety concern.
Final Rating: Low Moderate High	Same.
Technical Difficulty	Rationale
Preliminary Rating: Low Moderate High	No special operational procedures are required. Limitations on wind direction are present in the plan.
Final Rating: Low Moderate High	Same.

COMPLEXITY RATING SUMMARY

RISK OVERALL RATING Moderate

POTENTIAL CONSEQUENCES OVERALL RATING Moderate

TECHNICAL DIFFICULTY OVERALL RATING Moderate

SUMMARY COMPLEXITY RATING Moderate

RATIONALE:

The project requires a moderate rating due to the fact that all three final ratings were viewed as being moderate. There is a moderate risk of escape which in all cases would affect private land.

Prepared by: Terry Gwilliams Date:

Approved by: Dan Severson Date: 3/28/2017
(Agency Administrator)

JOB HAZARD ANALYSIS

ACTIVITY: Prescribed Fire

(Certification of Hazard Assessment – 29 CFR 1910.133)

U.S. FISH AND WILDLIFE SERVICE

STATION: Valley City Wetland Management District

DATE: 01/18/2017

PREPARED BY: Terry Gwilliams

CERTIFIED BY: Jeff Dion

PERSONAL PROTECTIVE EQUIPMENT REQUIRED:

X Eyes/Face	Eye Protection
X Foot	Leather Boots
X Hand	Leather Gloves
X Head	Hard Hat
X Leg	Nomex Pants
X Body	Nomex Shirt
X Ear	Ear Protection
X Other	Fire Shelter

QUALIFICATIONS, EXPERIENCE, OR TRAINING REQUIRED:

Experience with water pump and roll operations with a Type 6 Engine.
Experience firing with a hand held drip torch.

BASIC JOB STEPS	HAZARDS	SAFE JOB PROCEDURE
Break work down to basic elements (such as remove, lift, carry, stop, start, apply, return, squeeze, weld, saw, walk, hold, grind, place, etc.). Describe what is done, not how it is done.	For each job step, state what accident could occur and/or what hazard is present. To determine this, ask yourself: Can the person fall; overexert; be exposed to burns, fumes, rays, gas, etc.; hit against; be struck by; in contact with; be caught in, on, or between?	State how each element of work should be performed to prevent the accident or avoid the hazard. What should the person do or not do? Be specific. What precautions should be taken? Ask yourself: What can I do to eliminate, modify, guard, identify, or protect against the potential hazard or accident, including such things as how the worker stands, holds, uses, carries, dresses, etc.?
*Travel to, from and on Project.	Motor vehicle accidents Slippery road surfaces,soft shoulders,unimproved and narrow roadways. Dusty road conditions Weather Darkness,smoke.	Driving Defensively. Use seat belts. Identify road conditions during briefings. Post Road Guards. Mark hazards. Use Headlights. Perform pre-use inspections on equipment. Scout roads and identify turnouts before ignition of project. Maintain communications. Provide road system map for project. Use Backers and chock vehicle tires. Have vehicles facing out. Driving engines off refuge trails should be avoided as areas may be wet causing vehicles to get stuck.
*Briefing	Lack of communications	Provide project briefing before burning will clarify firing order, organization responsibilities, communications, hazards, weather, and expected fire behavior.

BASIC JOB STEPS	HAZARDS	SAFE JOB PROCEDURE
*Qualifications For assigned Position	Lack of Experience Injuries	Workers recruited for burn assignments shall meet age,health, and physical requirements established for regular firefighting duties. Also meet Prescribed Burn qualifications.
*Protective Clothing and equipment	Injuries,burns and death	Wear Hard hat with chin strap, safety glasses, Nomex Fire resistant pants and shirts NFPA 1977 compliant. Keep sleeves rolled down. Wear leather, lace type, boots with skid resistant soles, and tops at least 8 inches high. Carry drinking water and fire shelter. Wear OSHA approved firefighting gloves. wear hearing protection when working around equipment where noise level exceeds 90 dba. Wear additional protective equipment as dictated by local conditions and exposure to special equipment.
*Lighters	Injuries and death falls,snags,bees, snakes,smoke, burns, rolling material.	Always have an escape route . Maintain LCES. Follow the Standard Fire Orders and Watch Out Situations. Maintain communications with other Lighters and RX Fire Ignition specialist. Hand held radios shall be provided to all lighters. Do not fill drip torches near ignition sources. Do not spill burn mix on clothing.
*Fuel Mixing	Burns, spills, fuel saturated clothing and boots.	No smoking within 25 feet of mixing and filling area. Do not fill or mix in pick up beds with bed liners. Avoid the use of cellular telephones in and around fill or mixing area. Avoid fuel contact with bare hands, clothing and boots. Provide pour spouts. Use only approved fuel containers.
*ATV Operations	Injuries and death Rolling, Side hills, Holes, hidden equipment in grass	Avoid operating machine on side hills. Travel at speeds suitable to environmental conditions. Always read and follow operating procedures in the manual. Make predetermined routes prior to the beginning of the burn. Flag any hazards within the unit. Inspect mac[illegible] prior to [illegible]

Holding/Mop Up/Patrol Crews	Smoke,burns,Falls, back injuries, bees, posion oak,snags, rolling material,eye injuries. Heat Stress. Dehydration CO Poisoning	Wear PPE's listed above. LCES, Follow Standard Fire Orders and Watch out Situations. Receive briefing from Holding and Mop Up Boss. Identify hazards in work area. Flag hazards for others. Use warning lights and provide traffic control on roadways during smoky and nights operations. Maintaining a high level of aerobic fitness is one of the best ways to protect yourself against heat stress. Drink lots of fluids before,during and after work. Periodically rotate crews from work sites with high smoke levels to areas of less smoke or smoke free areas. Protective clothing and equipment shall be the same as required for firefighting. Crews shall follow all guidelines in the NWCG 2005 Red Book. Maintain communications with the Dispatch.
Emergency Evacuation Procedures (EEP)	Serious illness Injuries	Notify Dispatch, request medical response from the responsible medical first responders. Provide type of injury,location,access, number of patients. Identify EMT's and available medical equipment on project during briefing

RATE OF SPREAD, CH/H (V4.4)

1_HR MOIS (%)	MIDFLAME WIND, MI/H 4.0	6.0	8.0	10.0	12.0	14.0
5.0	64.	143.	255.	297.*	297.*	297.*
6.0	61.	135.	242.	270.*	270.*	270.*
7.0	57.	127.	228.	242.*	242.*	242.*
8.0	52.	117.	199.*	199.*	199.*	199.*
9.0	45.	101.	136.*	136.*	136.*	136.*
10.0	35.	65.*	65.*	65.*	65.*	65.*
11.0	13.*	13.*	13.*	13.*	13.*	13.*

* MEANS YOU HIT THE WIND LIMIT.
FUEL MODEL 1 HEAD FIRE

FIRELINE INTENSITY, BTU/FT/S (V4.4)

1_HR MOIS (%)	MIDFLAME WIND, MI/H 4.0	6.0	8.0	10.0	12.0	14.0
5.0	109.	242.	433.	504.*	504.*	504.*
6.0	101.	224.	402.	449.*	449.*	449.*
7.0	93.	206.	369.	392.*	392.*	392.*
8.0	81.	179.	305.*	305.*	305.*	305.*
9.0	62.	138.	186.*	186.*	186.*	186.*
10.0	37.	70.*	70.*	70.*	70.*	70.*
11.0	9.*	9.*	9.*	9.*	9.*	9.*

* MEANS YOU HIT THE WIND LIMIT.
FUEL MODEL 1 HEAD FIRE

FLAME LENGTH, FT (V4.4)

1_HR MOIS (%)	MIDFLAME WIND, MI/H 4.0	6.0	8.0	10.0	12.0	14.0
5.0	3.9	5.6	7.3	7.9*	7.9*	7.9*
6.0	3.8	5.4	7.1	7.5*	7.5*	7.5*
7.0	3.6	5.2	6.8	7.0*	7.0*	7.0*
8.0	3.4	4.9	6.3*	6.3*	6.3*	6.3*
9.0	3.0	4.3	5.0*	5.0*	5.0*	5.0*
10.0	2.4	3.2*	3.2*	3.2*	3.2*	3.2*
11.0	1.2*	1.2*	1.2*	1.2*	1.2*	1.2*

* MEANS YOU HIT THE WIND LIMIT.
FUEL MODEL 1 HEAD FIRE

RATE OF SPREAD, CH/H (V4.4)

1_HR MOIS (%)	MIDFLAME WIND, MI/H 4.0	6.0	8.0	10.0	12.0	14.0
5.0	5.	6.	8.	8.	8.	8.
6.0	4.	6.	7.	7.	7.	7.
7.0	4.	6.	7.	7.	7.	7.
8.0	4.	5.	6.	6.	6.	6.
9.0	3.	4.	5.	5.	5.	5.
10.0	2.	3.	3.	3.	3.	3.
11.0	1.	1.	1.	1.	1.	1.

FUEL MODEL 1 BACKING FIRE

FIRELINE INTENSITY, BTU/FT/S (V4.4)

1_HR MOIS (%)	MIDFLAME WIND, MI/H 4.0	6.0	8.0	10.0	12.0	14.0
5.0	8.	11.	13.	13.	13.	13.
6.0	7.	10.	12.	12.	12.	12.
7.0	7.	9.	11.	11.	11.	11.
8.0	6.	8.	9.	9.	9.	9.
9.0	4.	6.	7.	7.	7.	7.
10.0	3.	3.	3.	3.	3.	3.
11.0	1.	1.	1.	1.	1.	1.

FUEL MODEL 1 BACKING FIRE

FLAME LENGTH, FT (V4.4)

1_HR MOIS (%)	MIDFLAME WIND, MI/H 4.0	6.0	8.0	10.0	12.0	14.0
5.0	1.2	1.3	1.5	1.5	1.5	1.5
6.0	1.1	1.3	1.4	1.4	1.4	1.4
7.0	1.1	1.2	1.3	1.4	1.4	1.4
8.0	1.0	1.2	1.3	1.3	1.3	1.3
9.0	.9	1.0	1.1	1.1	1.1	1.1
10.0	.7	.8	.8	.8	.8	.8
11.0	.4	.4	.4	.4	.4	.4

FUEL MODEL 1 BACKING FIRE

RATE OF SPREAD, CH/H (V4.4)

1_HR MOIS (%)	MIDFLAME WIND, MI/H 4.0	6.0	8.0	10.0	12.0	14.0
5.0	9.	12.	15.	15.	15.	15.
6.0	8.	11.	14.	14.	14.	14.
7.0	8.	11.	13.	13.	13.	13.
8.0	7.	10.	12.	12.	12.	12.
9.0	6.	8.	9.	9.	9.	9.
10.0	5.	6.	6.	6.	6.	6.
11.0	2.	2.	2.	2.	2.	2.

FUEL MODEL 1 FLANK FIRE

FIRELINE INTENSITY, BTU/FT/S (V4.4)

1_HR MOIS (%)	MIDFLAME WIND, MI/H 4.0	6.0	8.0	10.0	12.0	14.0
5.0	15.	20.	25.	26.	26.	26.
6.0	14.	19.	23.	24.	24.	24.
7.0	12.	17.	21.	22.	22.	22.
8.0	11.	15.	18.	18.	18.	18.
9.0	8.	11.	13.	13.	13.	13.
10.0	5.	7.	7.	7.	7.	7.
11.0	1.	1.	1.	1.	1.	1.

FUEL MODEL 1 FLANK FIRE

FLAME LENGTH, FT (V4.4)

1_HR MOIS (%)	MIDFLAME WIND, MI/H 4.0	6.0	8.0	10.0	12.0	14.0
5.0	1.5	1.8	2.0	2.0	2.0	2.0
6.0	1.5	1.7	1.9	1.9	1.9	1.9
7.0	1.4	1.7	1.8	1.8	1.8	1.8
8.0	1.3	1.6	1.7	1.7	1.7	1.7
9.0	1.2	1.4	1.5	1.5	1.5	1.5
10.0	.9	1.1	1.1	1.1	1.1	1.1
11.0	.5	.5	.5	.5	.5	.5

FUEL MODEL 1 FLANK FIRE

FUEL MODEL 3 HEAD FIRE

RATE OF SPREAD, CH/H (V4.4)

1_HR MOIS (%)	MIDFLAME WIND, MI/H 4.0	6.0	8.0	10.0	12.0	14.0
5.0	97.	162.	234.	312.	395.	482.
6.0	89.	148.	214.	286.	361.	441.
7.0	82.	137.	198.	264.	335.	409.
8.0	77.	129.	186.	248.	313.	383.
9.0	73.	122.	176.	234.	296.	362.
10.0	70.	116.	167.	223.	282.	345.
11.0	67.	111.	161.	214.	271.	331.

FIRELINE INTENSITY, BTU/FT/S (V4.4)

1_HR MOIS (%)	MIDFLAME WIND, MI/H 4.0	6.0	8.0	10.0	12.0	14.0
5.0	1398.	2329.	3363.	4481.	5672.	6926.
6.0	1212.	2019.	2916.	3886.	4919.	6006.
7.0	1076.	1792.	2588.	3449.	4365.	5330.
8.0	975.	1625.	2346.	3126.	3957.	4832.
9.0	901.	1500.	2167.	2887.	3655.	4463.
10.0	844.	1407.	2031.	2707.	3426.	4184.
11.0	800.	1333.	1925.	2565.	3247.	3965.

FLAME LENGTH, FT (V4.4)

1_HR MOIS (%)	MIDFLAME WIND, MI/H 4.0	6.0	8.0	10.0	12.0	14.0
5.0	12.6	15.9	18.9	21.5	24.0	26.3
6.0	11.8	14.9	17.7	20.2	22.5	24.6
7.0	11.2	14.1	16.7	19.1	21.3	23.3
8.0	10.7	13.5	16.0	18.2	20.3	22.3
9.0	10.3	13.0	15.4	17.6	19.6	21.5
10.0	10.0	12.6	15.0	17.1	19.0	20.9
11.0	9.7	12.3	14.6	16.6	18.6	20.3

RATE OF SPREAD, CH/H (V4.4)

1_HR MOIS (%)	MIDFLAME WIND, MI/H 4.0	6.0	8.0	10.0	12.0	14.0
5.0	7.	7.	7.	7.	6.	6.
6.0	6.	6.	6.	6.	6.	6.
7.0	6.	6.	6.	6.	5.	5.
8.0	6.	6.	5.	5.	5.	5.
9.0	5.	5.	5.	5.	5.	5.
10.0	5.	5.	5.	5.	5.	4.
11.0	5.	5.	5.	5.	4.	4.

FIRELINE INTENSITY, BTU/FT/S (V4.4)

1_HR MOIS (%)	MIDFLAME WIND, MI/H 4.0	6.0	8.0	10.0	12.0	14.0
5.0	100.	101.	99.	95.	92.	88.
6.0	87.	88.	86.	83.	79.	76.
7.0	77.	78.	76.	73.	70.	67.
8.0	70.	71.	69.	67.	64.	61.
9.0	65.	65.	64.	61.	59.	56.
10.0	61.	61.	60.	58.	55.	53.
11.0	57.	58.	57.	55.	52.	50.

FLAME LENGTH, FT (V4.4)

1_HR MOIS (%)	MIDFLAME WIND, MI/H 4.0	6.0	8.0	10.0	12.0	14.0
5.0	3.7	3.8	3.7	3.7	3.6	3.5
6.0	3.5	3.5	3.5	3.4	3.4	3.3
7.0	3.3	3.3	3.3	3.2	3.2	3.1
8.0	3.2	3.2	3.2	3.1	3.0	3.0
9.0	3.1	3.1	3.0	3.0	2.9	2.9
10.0	3.0	3.0	3.0	2.9	2.8	2.8
11.0	2.9	2.9	2.9	2.8	2.8	2.7

RATE OF SPREAD, CH/H (V4.4)

1_HR MOIS (%)	MIDFLAME WIND, MI/H 4.0	6.0	8.0	10.0	12.0	14.0
5.0	13.	14.	13.	13.	13.	12.
6.0	12.	12.	12.	12.	11.	11.
7.0	11.	11.	11.	11.	11.	10.
8.0	10.	11.	11.	10.	10.	10.
9.0	10.	10.	10.	10.	9.	9.
10.0	9.	10.	10.	9.	9.	9.
11.0	9.	9.	9.	9.	9.	8.

FIRELINE INTENSITY, BTU/FT/S (V4.4)

1_HR MOIS (%)	MIDFLAME WIND, MI/H 4.0	6.0	8.0	10.0	12.0	14.0
5.0	187.	194.	192.	187.	180.	173.
6.0	162.	169.	167.	162.	156.	150.
7.0	144.	150.	148.	144.	139.	133.
8.0	131.	136.	134.	130.	126.	121.
9.0	121.	125.	124.	120.	116.	112.
10.0	113.	117.	116.	113.	109.	105.
11.0						

(ALL SMOKE SIGNS WILL BE DOT APPROVED IN ACCORDANCE WITH THE MUTCD SECTION 6I)

Smoke Management Contingency Plan:

If changes in weather conditions or other factors occur that cause imminent smoke problems, the following plan will initiated.

1) All attempts will be made to reduce smoke emissions from the burn as quickly as possible. This may include immediate shut down of the burn and suppression of any area of the unit still on fire. Mop-up will also be initiated in order to eliminate as much smoke production as possible.
2) If additional resources are needed to extinguish the burn and eliminate further smoke production, they will be called in through the refuge dispatch system and may include fire departments, personnel from other refuges or other state and federal agencies.
3) Smoke signs will be placed on impacted roads, traffic control will be initiated and the county sheriff or other law enforcement personnel may be called to assist with local traffic control, including temporary closure of area roads if deemed necessary.
4) If it appears that smoke from the burn will impact local communities or other smoke sensitive locations, all efforts will be made to identify the potential problem areas and inform the public so that local actions to reduce impacts such as closing up buildings and moving sensitive individuals away from the impacted area can occur.
5) The burn boss will remain on site until the smoke problems are resolved or until relieved by an individual appointed by the line officer.

Mop-up will begin as needed when firing is completed. If warranted, mop-up will continue after the burn until all smokes are extinguished. The amount of mop-up needed will be determined by the burn boss depending upon weather and other factors. Engines used in the vicinity of the fire lines where personnel are working will travel slowly and have their headlights on at all times. Communications between engine operators and fire line personnel will be maintained for the duration of the burn, and all line personnel will be made aware of equipment movements.

U.S. Department of the Interior
U.S. FISH AND WILDLIFE SERVICE

ENVIRONMENTAL ACTION STATEMENT

Within the spirit and intent of the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA; 40 CFR 1500-1508), and other statutes, rulings, orders, and policies to ensure environmental factors are weighted equally when compared to other factors in the decision making process, I have established the following administrative record and have determined that the proposed action of Perscribed burning on the Fredrick WPA in Wells Co.

- X is a categorical exclusion as provided by 516 DM 8.5 and/or [43 CFR 46.210] (see attached documentation).
- ___ is found not to have significant environmental effects as determined by the attached Finding of No Significant Impact and Environmental Assessment.
- ___ is found to have special environmental conditions as described in the attached environmental assessment. The attached Finding of No Significant Impact will not be final nor any actions taken pending a 30-day period for public review [40 CFR 1501.4(e)(2)].
- ___ is found to have significant effects and, therefore, a notice of intent will be published in the Federal Register to prepare an environmental impact statement before the project is considered further.
- ___ is denied because of environmental damage, Service policy, or mandate.
- ___ is an emergency situation. Only those actions necessary to control the immediate impacts of the emergency will be taken [40 CFR 46.150] (see attached documentation). Other related actions remain subject to NEPA review.

Other Supporting Document(s) (list):

Dan Severson

Agency Administrator

4/12/2017

Date

U.S. Department of the Interior
U.S. FISH AND WILDLIFE SERVICE
Wildland Fire Management

ENVIRONMENTAL ACTION STATEMENT
For Documenting Project NEPA Compliance and/or Categorical Exclusion (CE) Use

Within the spirit and intent of the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA; 40 CFR 1500-1508), and other statutes, rulings, orders, and policies to ensure environmental factors are weighted equally when compared to other factors in the decision making process, I have established the following administrative record and have determined that the proposed action is Categorically Excluded (CE) from EA or EIS documentation requirements consistent with [40 CFR 1508.4]; [43 CFR 46.150]; [43 CFR 46.210]; [43 CFR 46.215]; 516 DM 2.3A; 516 DM 2.8; and 516 DM 8.5.

Treatment Information				
Treatment Name: Fredrick WPA		Treatment Location: Wells Co.		
NFPORS Project # (if applicable)	Planned Start Date:	Planned Completion Date:	Estimated Duration:	Estimated Costs $
Project Coordinator:	Phone No:			
	E-Mail:			

Categorical Exclusion(s) (CE) for this treatment: *(check all that apply)*

516 DM 8.5	X	Note: 516 DM 8.5 are Service specific CEs;
43 CFR 46.210	_____	Note: 43 CFR 46.210 are DOI specific CEs and includes Hazardous Fuel Reduction and Burned Area Rehab;
43 CFR 46.150	_____	Note: 43 CFR 46.150 addresses Emergency Responses (such as Emergency Stabilization).

1. Proposed Action and Alternatives:

a.) Briefley describe the proposed action and any alternatives explored.

b.) Describe and/or list pertinent facts, such as land description, statutory citations (i.e. applicable laws that require you to do this action), to tie this action to the ground.

c.) Briefly discuss why the proposed action was selected and/or why other alternatives were not selected.

2. Management Plan Conformance

a.) State that the proposed action is consistent with land and/or resource management plans and cite the area of the plan(s) that this will address.

b). Describe how the proposed action was designed in conformance with FWS standards and specific desired conditions.

c). Insert findings for other applicable laws or new ruling approved since the signing of the land management plan. Document no impact to current management plans.

3. Compliance with the National Environmental Policy Act

This is for all Programmatic NEPA and CEs, including the Service's CEs and DOI Hazardous Fuels Reduction (HFR) or Burned Area Rehabilitation (BAR), and Emergency Stablization (ES) CE use:

a). Quote the specific NEPA documents (EA, EIS, or other NEPA utilized), and/or Categorical Exclusion(s) that are being used for the action.

b). Explain why the action fits the NEPA documents and/or CE(s) selected.

c). State that the action does not present any Extraordinary Circumstances (see checklist below).

d). If extraordinary circumstances do (or appear to) exist relative to the action, discuss circumstances and explain why the action is still categorically excluded.

If 43 CFR 46.210 (k) [Hazardous Fuels Reduction] or 43 CFR 46.210 (l) [Burned Area Rehabilitation] used: *State that the Proposed Action is categorically excluded from futher documentation under NEPA in accordance with 43 CFR 46.210 (k) or (l), or both.*

If 43 CFR 46.150 used for Emergency Stabilization (ES):

a). State that the Proposed Action is an emergency action not having significant environmental impacts in accordance with 43 CFR 46.150 and 516 DM 2.8. and insert any reasons.

b). Insert any pertinent situations that were brought up during the design of the activities to explain why there is no potential for significant impacts.

c). State that the emergency stabilization action is appropriate in this situation because there are no significant impacts and that the action is funded as an emergency stabilization project under the [Incident Name].

4. Permits/Approvals

Discuss any permits/approvals needed before the proposed action can be implemented.

5. Public Involvement/Interagency Coordination:

a.) List the public, other agencies, and/or States or Tribes that have been involved with the proposed action.

b.) Describe the extent of their participation.

6. Supporting Documents

Collect supporting documents for the determination. Include relevant office file material and put together a document list to include the key references.

Extraordinary Circumstances (43 CFR 46.215)

Any action that is normally categorically excluded must be evaluated to determine whether it meets any of the extraordinary circumstances in section 46.215; if it does, further analysis and environmental documents must be prepared for the action. [43 CFR 46.205 (c)(1)].

Below are the Extraordinary Circumstances from [43 CFR 46.215].

Check Yes or No for each item.

Yes ___	No X	1.	The proposed action will have significant adverse affects on public health.
Yes ___	No X	2.	The proposed action will have significant impacts on such natural resources and unique geographic characteristics as historic or cultural resources; park, recreation or refuge lands; wilderness areas; wild or scenic rivers; national natural landmarks; sole or principal drinking water aquifers; prime farmlands; wetlands (EO 11990); floodplains (EO 11988); national monuments; migratory birds; and other ecologically significant or critical areas.
Yes ___	No X	3.	The proposed action will have highly controversial environmental effects or involve unresolved conflicts concerning alternative uses of available resources [NEPA section 102(2)(E)].
Yes ___	No X	4.	The proposed action will have highly uncertain and potentially significant environmental effects or involve unique or unknown environmental risks.
Yes ___	No X	5.	The proposed action will establish a precedent for future action or represent a decision in principle about future actions with potentially significant environmental effects.
Yes ___	No X	6.	The proposed action will have a direct relationship to other actions with individually insignificant but cumulatively significant environmental effects.
Yes ___	No X	7.	The proposed action will have significant impacts on properties listed, or eligible for listing, on the National Register of Historic Places as determined by the bureau.
Yes ___	No X	8.	The proposed action will have significant impacts on species listed, or proposed to be listed, on the List of Endangered or Threatened Species or have significant impacts on designated Critical Habitat for these species.
Yes ___	No X	9.	The proposed action will violate a Federal law, or a State, local, or tribal law or requirement imposed for the protection of the environment.
Yes ___	No X	10.	The proposed action will have a disproportionately high and adverse effect on low income or minority populations (EO 12898).
Yes ___	No X	11.	The proposed action will limit access to and ceremonial use of Indian sacred sites on Federal lands by Indian religious practitioners or significantly adversely affect the physical integrity of such sacred sites (EO 13007).
Yes ___	No X	12.	The proposed action will contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area or actions that may promote the introduction, growth, or expansion of the range of such species (Federal Noxious Weed Control Act and EO 13112).