

PRESCRIBED FIRE PLAN 2006

Unit: Petersburg 26 Prairie Bank Subunit(s) _____

Prepared By: Jason Garms Date: _____
Prairie Specialist (MN DNR)

Reviewed By: _____ Date: _____
Zone Fire Management Officer

Reviewed By: _____ Date: _____
Additional Reviewers (As Required)

Approved By: _____ Date: _____
State Prairie Biologist (MN DNR)

The approved Prescribed Fire Plan constitutes the authority to burn, pending approval of Section 7 Consultations, Environmental Assessments, or other required documents. No one has the authority to burn without an approved plan or in a manner not in compliance with the approved plan. Prescribed burning conditions established in the plan are firm limits. Actions taken in compliance with the approved Prescribed Fire Plan will be fully supported, but personnel will be held accountable for actions taken which are not in compliance with the approved plan.

Prescribed Fire Plans Approved in prior years must be re-certified in the year in which they are to be burned

Valid Until _____

Prescribed Fire Plan Implementation

To be completed prior to the burn. Attach additional copies of this page to the burn plan as necessary.

DELEGATION OF AUTHORITY

(To be completed only if the Burn Boss is NOT a U.S. Fish and Wildlife Service employee)

Effective this date, _____ is hereby delegated the authority to execute this approved prescribed burn plan subject to the stipulations listed below under "Burn Boss Concurrence".

Refuge Manager/Agency Administrator

Date

Burn Boss Concurrence

(To be completed in all cases)

As the burn boss who will conduct this prescribed burn, I certify that I have reviewed this Prescribed Fire Plan, that conditions described in this Plan are substantially still the same, and I believe the prescribed burn can meet the planned objectives when carried out according to this Plan

I also understand that:

- Any changes to this plan must be approved by the Agency Administrator or his/her acting in writing
- ALL questions on the Go/No Go Checklist must be honestly answered "Yes" before the burn proceeds
- The execution of this plan shall be halted if the prescribed burning conditions established in the plan are no longer present.
- I am responsible for all aspects of the burn until relieved by the Agency Administrator or his/her acting.

I accept the responsibility of conducting this burn.

Prescribed Fire Burn Boss

Date

AGENCY ADMINISTRATOR GO/NO-GO PRE-IGNITION APPROVAL CHECKLIST

PRESCRIBED FIRE NAME: Petersburg 26 Prairie Bank

Instructions: The Agency Administrator’s GO/NO-GO Pre-Ignition Approval is the intermediate planning review process (i.e. between the Prescribed Fire Complexity Rating System Guide and Go/No-Go Checklist) that should be completed before a prescribed fire can be implemented. The Agency Administrator’s Go/No-Go Pre-Ignition Approval evaluates whether compliance requirements, Prescribed Burn Plan elements, and internal and external notifications have been completed and expresses the Agency Administrator’s intent to implement the Prescribed Burn Plan. If ignition of the prescribed fire is not initiated prior to expiration date determined by the Agency Administrator, a new approval will be required.

YES	NO	KEY ELEMENT QUESTIONS
		Is the Prescribed Fire Plan up to date? <i>Hints: amendments, seasonality.</i>
		Have all compliance requirements been completed? <i>Hints: cultural, threatened and endangered species, smoke management, NEPA.</i>
		Is risk management in place and the residual risk acceptable? <i>Hints: Prescribed Fire Complexity Rating Guide completed with rational and mitigation measures identified and documented?</i>
		Will all elements of the Prescribed Fire Plan be met? <i>Hints: Preparation work, mitigation, weather, organization, prescription, contingency resources</i>
		Will all internal and external notifications and media releases be completed? <i>Hints: Preparedness level restrictions</i>
		Are key agency staff fully briefed and understand prescribed fire implementation?
		Other:

Recommended by: _____ Date: _____
Prescribed Fire Burn Boss

Approved by: _____ Date: _____
Agency Administrator

Approval expires (date): _____

PRESCRIBED FIRE GO/NO-GO CHECKLIST

PRESCRIBED FIRE NAME:

A. Has the burn unit experienced unusual drought conditions or contain above normal fuel loadings which were not considered in the prescription development? If <u>NO</u> proceed with checklist., if <u>YES</u> go to item B.	YES	NO
B. If <u>YES</u> have appropriate changes been made to the Ignition and Holding plan and the Mop Up and Patrol Plans? If <u>YES</u> proceed with checklist below, if <u>NO</u> STOP.		

YES	NO	QUESTIONS
		Are ALL fire prescription elements met?
		Are ALL smoke management specifications met?
		Has ALL required current and projected fire weather forecast been obtained and are they favorable?
		Are ALL planned operations personnel and equipment on-site, available, and operational?
		Has the availability of ALL contingency resources been checked, and are they available?
		Have ALL personnel been briefed on the project objectives, their assignment, safety hazards, escape routes, and safety zones?
		Have all the pre-burn considerations identified in the Prescribed Fire Plan been completed or addressed?
		Have ALL the required notifications been made?
		Are ALL permits and clearances obtained?
		In your opinion, can the burn be carried out according to the Prescribed Fire Plan and will it meet the planned objective?

If all the questions were answered "YES" proceed with a test fire. Document the current conditions, location, and results

 Burn Boss

 Date

PRESCRIBED FIRE PLAN

Name of Area: Petersburg 26 Prairie Bank Unit No. _____
Acres To Be Burned: 45 acres Perimeter Of Burn: 1.3 miles
Legal Description: Lat. 43 31 03 Long. 94 52 59 T 101-N R 34-W S 26
County: Jackson

Is a Section 7 Consultation being forwarded to Fish and Wildlife Enhancement for review ? No,
No impacts on listed or proposed species known at this time.

I. GENERAL DESCRIPTION OF BURN UNIT

Physical Features and Vegetation Cover Types (Species, height, density, etc.): Rolling terrain; native prairie grass and forb species (1-2.5 ft tall) and non-native introduced grass and forb species (1 ft tall).

Fuels/features/land ownership adjacent to the burn unit: The surrounding landscape is uniform.

To the North: Directly north is heavily grazed grassland with very little fuel. To the northeast is a lightly grazed pasture with enough fuel to carry a fire. Two building site exists north and northeast of the burn unit (within ½ mile). Beyond these pastures is County road 4 (moderate travel).

To the East: Directly east is a perennial stream followed by grass fuels (FM3). The area across the stream is un-grazed and un-hayed. A ½ mile to the east is County Road 29 (moderate travel).

To the South: Directly to the south is grass fuels (FM3) and a red cedar tree planting. Beyond the tree planting is a perennial stream, followed by more grass fuels (FM3). Southeast of the burn unit is an occupied building site.

To the West: Directly to the west is a very lightly traveled township road (590th Ave) and an occupied building site. Across this road is a largely tilled fields.

Primary Resource Objectives:

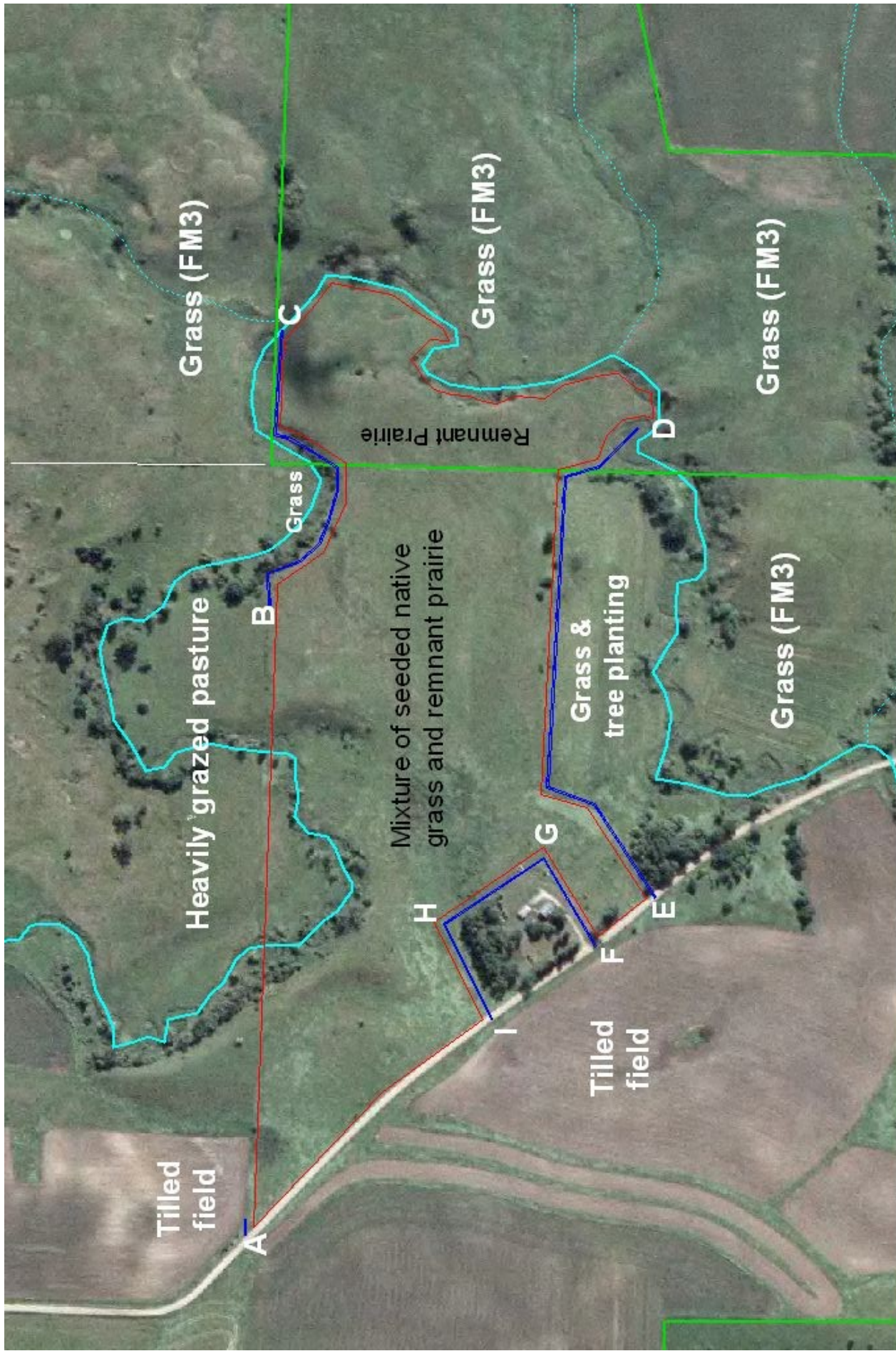
1. Improve or maintain high quality habitat for indigenous plant an animal species.
2. Reduce cool season exotics.
3. Decrease or eliminate tree and other woody vegetation from encroaching into prairie.

Specific Objectives of Burn:

1. Reinvigorate grassland by removing dense litter.
2. Kill or set back trees in grassland.
3. Reduce exotic grasses 10-20 percent.

Acceptable Range of Results (Area burned vs. unburned, scorch height, percent kill of a species, range of litter removed, etc.):

1. Remove 70 to 100% of dead plant material.
2. Burn 75 to 100% of proposed site.
3. Have a scorch height of 0 to 2.5 feet on saplings.



Petersburg 26 Prairie Bank

Jackson County
T101 R34
Section 26

- 06 Rxburn
- 06 Firebreak
- Prairie Bank Boundary
- DNR 24K Rivers and Streams
- - - Perennial Stream
- - - Intermittent Stream



II. PRE-BURN MONITORING

Vegetation Type	Acres	% of Burn Unit	FBPS Fuel Model
Tall Prairie Grasses	38	84%	3 (tall grass 2.5ft)
Short Prairie Grasses	7	16%	1 (short grass 1ft)
Total	45	100%	-

✓ Fuel Loading – Tons per Acre (Petersburg 26 PB: 7x .74; 38x3; = **119 Tons**)

Fuel Type	1 hr	10 hr	100 hr	Live	Total	1000 hr	Total including 1000 hr
1-Short grass (1 foot)	.74	0	0	0	.74	0	.74
3-Tall grass (2.5 feet)	3.0	0	0	0	3.0	0	3.0

III. PLANNING AND ACTIONS

Prescribed Fire Complexity Worksheet

Station: _____

Burn Unit Name: Petersburg 26 Prairie Bank

Element	Sub Element	Rating Value (L-M-H)	Rationale	
1. Potential for Escape	Risk	Preliminary	M	Potential for escape is possible due to adjacent continuous grass fuels to the north and east. Use roads and open water as natural firebreaks. Mowed firebreaks exist along critical control lines containing adjacent continuous fuels. There is no residual fire expected beyond the day of ignition.
		Final	M	No change.
	Potential Consequences	Preliminary	M	An escape could result in damage to natural resource values. The fire could burn onto private or public land. Damage to surrounding natural resources would be minimal.
		Final	L	The crew will use natural firebreaks whenever possible. Mow lines are in place to reduce chances of affecting adjacent land. There will be only minimal impact to the public or users.
	Technical Difficulty	Preliminary	L	The burn unit is easily accessible to the holding resources identified in the plan. A 15 ft mowed firebreak, tilled fields, and water protects from any escapes.
		Final	L	No change.
2. Number & Dependency of Activities	Risk	Preliminary	L	Activities are generally independent or only loosely dependent on other activities.
		Final	L	No change.
	Potential Consequences	Preliminary	L	Coordination problems do not threaten the completion of the project or the ability to meet project objectives.
		Final	L	No change.
	Technical Difficulty	Preliminary	L	Minimal difficulty on coordinating the required activities.

		Final	L	No change.
3. Off-Site Values	Risk	Preliminary	M	Burn unit is on a Prairie Bank easement. Most land adjacent to the burn unit is the same ownership as the easement. Tall grass vegetation exists outside of the burn unit perimeter. The nearby building sites will require some attention.
		Final	L	No change.
	Potential Consequences	Preliminary	M	The vegetation affected (wetland/upland grass habitat) has rapid recovery rate with minimal or no value loss. Negative impacts would occur if homes were impacted by an escaped fire.
		Final	L	All necessary precautions including additional prep work, equipment and personnel have been taken. Good team coordination required.
	Technical Difficulty	Preliminary	M	Protection of the off-site values (buildings) requires special management, equipment or skills.
		Final	L	All necessary precautions including additional prep work, equipment and personnel have been taken.
4. On-Site Values	Risk	Preliminary	L	The risks are considered to be minimal since mowed firebreaks, tilled fields, and water protect from escape. Within the burn unit there are no wooden power poles, buildings, or utility boxes needing protection.
		Final	L	No change.
	Potential Consequences	Preliminary	L	Implementation problems will not result in a reduction to on-site resource values.
		Final	L	No change.
	Technical Difficulty	Preliminary	L	Any building sites are easily protected. Mowed firebreaks and tilled fields currently exist around the building site.
		Final	L	No change.
5. Fire Behavior	Risk	Preliminary	M	Fire behavior outside of the primary unit boundary would be about the same as that experienced within the burn unit except for areas containing disked agricultural fields or open water. Fire behavior is predictable, and terrain is mostly flat to rolling. Fuels are characterized by using fuel model 3 and 8.
		Final	M	No change.
	Potential Consequences	Preliminary	M	Fire behavior outside of the primary unit boundary would be about the same as that experienced within the burn unit except for areas containing disked agricultural fields or open water. The habitat adjacent the control lines contain the same fuel type as within the burn unit. Spotting, if any, is expected to be short range.
		Final	L	Holding lines are secure, holding forces adequate and patrolling of critical control lines will be conducted. If the fire escapes onto other property no or minimal damage would result to the natural resource value.
	Technical Difficulty	Preliminary	L	Standard fire safety precautions are adequate to ensure personnel safety. Spot fires would not require any additional suppression resources.
		Final	L	No change.
6. Management Organization	Risk	Preliminary	L	A single person may fill several positions and a single level of supervision is all that is needed. Seven qualified people are needed to implement the prescribed fire.
		Final	L	No change.
	Potential Consequences	Preliminary	L	Problems related to supervision would be minimal due to the size of the burn (45 acres).

		Final	L	No change.
	Technical Difficulty	Preliminary	L	Qualified contractors are required to be familiar with local factors affecting project implementation.
		Final	L	No change.
7. Public & Political Interest	Risk	Preliminary	L	The prescribed fire is in an isolated area and small in size (45 acres). Little or no public or political controversy related to the project.
		Final	L	No change.
	Potential Consequences	Preliminary	L	Unexpected events would attract little public or media attention. Rural area. Low public use.
		Final	L	No change.
	Technical Difficulty	Preliminary	L	Qualified contractor required to inform landowners around the burn unit about the rxburn prior to ignition.
		Final	L	No change.
8. Fire Treatment Objectives	Risk	Preliminary	L	Objectives are to reduce fuel loading and to increase native prairie plant diversity. Stimulate native grass and forb species.
		Final	L	No change.
	Potential Consequences	Preliminary	L	A wide burn window exists to achieve the burn objectives. Failure to reach these objectives would have few adverse impacts on the natural resources.
		Final	L	No change.
	Technical Difficulty	Preliminary	L	The measures used to reach the objectives are easy to complete and there are few restrictions on technique.
		Final	L	No change.
9. Constraints	Risk	Preliminary	L	No constraints related to access or fire lines exist for this burn. The State of Minnesota (MNDNR) has secured agreements mitigating any private land issues.
		Final	L	No change.
	Potential Consequences	Preliminary	L	The project can be implemented whenever in prescription.
		Final	L	No change.
	Technical Difficulty	Preliminary	L	Constraints do not increase the difficulty of the project.
		Final	L	No change.
10. Safety	Risk	Preliminary	L	Potential hazards will be addressed in briefings (grass fuels outside unit, adjacent building site). Fatigue and exposure to safety risks are limited. Activities are high frequency/low risk.
		Final	L	No change.
	Potential Consequences	Preliminary	L	The potential for serious accidents or injuries to the firefighters and the public is minimal. Few hazards.
		Final	L	No change.
	Technical Difficulty	Preliminary	L	Safety concerns will be addressed in the briefing (grass fuels outside unit, adjacent building site).
		Final	L	No change.
11. Ignition Procedures Methods	Risk	Preliminary	L	The majority of the project area is visible to the burn boss.
		Final	L	No change.
	Potential	Preliminary	L	Firing methods do not pose a safety concern to personnel.

	Consequences	Final	L	No change.
	Technical Difficulty	Preliminary	L	Firing procedures are simple using one type of ignition device (drip torch). The ignition requires minimal supervision.
		Final	L	No change.
12. Interagency Coordination	Risk	Preliminary	M	Project involves other agencies/contractor, but concerns and interests are easily addressed.
		Final	M	No change.
	Potential Consequences	Preliminary	L	Project will be completed as planned.
		Final	L	No change.
	Technical Difficulty	Preliminary	M	Project may require simple agreement(s) between agencies and contractor. Qualified contractor will implement Rx burn adhering to USFWS burn policies and prescriptions.
Final		M	No change.	
13. Project Logistics	Risk	Preliminary	L	The project duration is expected to be <1 day. No special equipment is needed.
		Final	L	No change.
	Potential Consequences	Preliminary	L	Logistical problems will not affect the completion of the project or increase concerns of escape or safety.
		Final	L	No change.
	Technical Difficulty	Preliminary	L	No logistical support issues. Contractor will be responsible for procuring supplies and personnel meeting NWCG standards.
		Final	L	No change.
14. Smoke Management	Risk	Preliminary	M	There will be smoke concerns if burning with prescribed easterly wind directions and the adjacent building site and road. Will require addition crewmembers for road control with these winds. There is a family with asthmatic children SE of the unit (not in prescription).
		Final	L	No change.
	Potential Consequences	Preliminary	M	Impacts to isolated residences or remote roads are possible. Personnel may be exposed to smoke for short periods.
		Final	L	No change.
	Technical Difficulty	Preliminary	L	Wind direction and speed are limitations within the plan.
		Final	L	No change.

SUMMARY COMPLEXITY RATING

RISK OVERALL RATING: **Moderate**

POTENTIAL CONSEQUENCES OVERALL RATING: **Moderate**

TECHNICAL DIFFICULTY OVERALL RATING: **Moderate**

SUMMARY COMPLEXITY RATING: Moderate

RATIONALE: The Rx burn complexity rating is considered moderate due to the following reasons. The burn unit is located in a rural area away from communities. The community of Petersburg (12-15 occupied building sites) is located 1.5 miles to the northwest. The chance of an escaped fire is minimal due to the fact that mowed firebreaks and tilled crop fields surround the burn unit. A crew of seven personnel is needed to complete the burn safely with no need for special equipment. The only areas of concern are the grass fuel continuing to the east, northeast, and south; and the nearby building sites. These areas's are protected by a mowed firebreaks and tilled fields. Within the burn unit there are no structures (power poles, buildings, telephone boxes...) that need to be protected. This burn is considered to be of small

burn unit size (45 acres). Smoke may impact the county roads ½ mile to the east and north for a short period if unexpected climatic conditions occur. The township road to the west will impacted with easterly winds, requiring more crew members. If smoke problems exist, ignition will cease, smoke sensitive area such as building sites and roads will be monitored and the appropriate actions will be taken. Traffic may be slowed at a minimum or stopped until conditions improve. Smoke dispersion categories of Fair or better may be used to safely conduct this Rx burn for fuel model 3. Moderate ratings where given to 'interagency coordination' because of the partnership situation between the USFWS service (funding) and the Minnesota DNR (coordinator). Moderate ratings where also given to 'Fire Behavior' because of grass fuels surrounding the unit.

Prepared by: Jason Garms - Prairie Specialist (MNDNR) Date: 3/10/06

Approved by: _____ Date: _____
(Agency Administrator)

Site preparation (What, when, who & how. Should be done with Burn Boss): Landowner will mow a firebreak (15 ft. wide) along the north, west, and south sides of the burn unit. Checked all fuel conditions around perimeter of burn on 12/05/06 (JDG-MNDNR). ON THE DAY OF THE BURN THE BURN BOSS WILL CHECK FUEL CONDITIONS AROUND THE BURN PERIMETER AND ADEQUACY OF FIRE BREAKS AND CONTROL LINES BEFORE IGNITION.

See burn unit map for exact locations of mowed firebreaks!

Weather information required (who, what, when, where, how, and how much): The Burn Boss will be responsible for delegating a weather observer to hourly record current weather information. The remaining burn crewmembers will monitor weather and smoke conditions throughout the burn. Weather information will be taken with a belt weather kit hourly during the burn and will be recorded on the forecast form and attached to this plan. Hourly weather reports and unexpected weather or smoke conditions will be broadcast via radios to crewmembers. A **Spot Weather Forecast** will be obtained from the National Weather Service in Sioux Falls, SD (605) 330-4244 or toll free at 1-800-852-9470. The fire weather forecast includes smoke management information and is available by 0800 hours with an updated afternoon forecast available by 1600 hours. Data can be collected from the NOAA (National Oceanic and Atmospheric Administration), via the Internet at <http://www.crh.noaa.gov>. This information can be utilized for fire effects monitoring.

Safety considerations and protection of sensitive features (Adjacent lands, visitors, facilities, terrain, etc., and needed actions. Include buffer and safety zones. Be specific, indicate on a burn unit map. Map should be a USGS quadrangle if possible, so ridges, washes, water, trails, etc. can be identified.)

The main area needing protection is the occupied building site to the east containing a house with several buildings. This area is outside the burn unit and protected by a mowed firebreak. There are also building sites .5 miles to the N, NE, E, and S. A mowed firebreaks, tilled fields, and open water protect from an escape in these direction.

Smoke may be an issue on the county road (well traveled) to the east if proper wind direction and lifting do not occur. If smoke problems exist, ignition will cease, smoke sensitive area such as building sites and roads will be monitored and the appropriate actions will be taken. Traffic may be slowed at a minimum or stopped until conditions improve. Burning with easterly winds will also impact township road 590th Ave. This will require additions crewmembers to act as road controllers.

Inhalation of smoke is a problem and crews will be rotated as needed to reduce exposure. All personnel will wear the required PPE equipment (Nomex clothing, boots, fire shelter, gloves, hard hat and other protection as needed) at all times. All vehicles will drive with their headlights on to maintain high visibility.

Travel off of designated paths or trails inside the burn unit is not recommended with engines. Visibility will be reduced because of smoke and low lying wet areas and creek bottoms will greatly increase the possibilities of getting equipment and personnel trapped if a vehicle becomes stuck. If a vehicle and/or crew become stuck they shall notify the burn boss immediately. If a crewmember or engine becomes entrapped, burn out a safety zone and stay in the black.

All personnel will obey and practice the Standard Fire Orders at all times. Use LCES, identify escape routes and make them known. The soil firebreaks, gravel roads, burned areas, wetlands and cropland will serve as safety zones. Adjacent landowners within a square mile and local county dispatch will be notified on the day of the burn (dispatch phone # listed in section VII. BURN – DAY ACTIVITIES).

If foam or gel fire retardant is used during the prescribed burn, caution should be used in exposing these products to open water in riparian areas.

Special Safety Precautions Needing Attention (Aerial ignition, aircraft, ignition from boat, etc.): none

Media Contacts: General news release in area newspapers and on area radio stations.

Special Constraints and Considerations (Private land etc. discuss with Burn Boss): A majority of this burn unit is in private ownership, but under a management agreement with the Minnesota Department of Natural Resources The burn boss (contractor) will be responsible for contacting the Minnesota DNR the day before or day of ignition to make any arrangements that may be necessary (Jason Garms - Windom, MN: Office# 507-831-2926 ext223, cell# XXX-XXX-XXXX)

Communication and Coordination on the Burn (Who will have radios, frequencies to be used, who will coordinate various activities.): All burn crewmembers will have access to radios, either hand held or mobile. All crewmembers using hand held radios will carry a spare radio battery with them at all times during the burn. The burn boss will have radio contact with all crewmembers. At a minimum, one cell phone will be available for the burn boss. The burn boss will coordinate all activities during pre-burn, burn, and post-burn operations.

COMMUNICATIONS PLAN

FIRE COMMUNICATIONS CHANNELS AND FREQUENCIES					
Channel	Name	Rx Frequency	Code	Tx Frequency	Code
1	Tactical – Windom WMD	171.750		171.750	
2	MN State Emergency	155.475		155.475	
3	MNICS	170.475		170.475	
4	Fire Mutual Aid	154.295		154.295	
5	National Weather Service	162.450			

IV. IGNITION, BURNING AND CONTROL

	Planned or Proposed	Actual
Scheduled: Approx date(s)	April 1 – May 31	
Time of Day	900 – 1800 Hrs.	

Acceptable Prescription Range

FBPS Fuel Models 3	Low Fire Behavior	High Fire Behavior	Actual
Temperature	40	89	
* Relative Humidity	60	30	
Wind Speed (20' forecast)	2	20	
* Wind Speed (mid-flame)	2	12	
* Wind Direction	South ideal	NE, E, SE, S, SW, & W winds acceptable	
Cloud Cover (%)	100%	0%	
ENVIRONMENTAL CONDITIONS			
Soil Moisture	100%	10%	
1 hr. Fuel Moisture	13	6	
10 hr. FM	NA	NA	
100 hr. FM	NA	NA	
Woody Live Fuel Moisture	NA	NA	
Herb. Live Fuel Moisture	NA	NA	
Litter/Duff Moisture	NA	NA	
FIRE BEHAVIOR TAKEN FROM BEHAVE 4.4			
Type of Fire (Head,Backing,Flanking)	Backing	Head	
Rate of Spread	1 ch/hr	361 ch/hr	
Fireline Intensity	1 btu/ft/s	4919 btu/ft/s	
Flame Length	2.7"	22.5'	

* A maximum mid-flame wind speed of 15 mph will be allowable if 50% of the fuel bed is "green". This is under the assumption that smoke-sensitive areas will not be impacted any more than if using the normal prescribed mid-flame wind speed.

* Burning with RH as low as 25% may be conducted when there is significant green-up of fuels (~50% or more of the fuel bed). Minimum staffing required will also need to be evaluated and additional staffing may be needed. Holding concerns are present due to adjacent continuous grass fuels.

* Burning with any east or south winds, observed or predicted, will require 2 additional crewmembers for traffic control.

Determining Acceptable Prescription Parameters for Burning

The behave fire prediction model does not have the ability to factor in the effects of green-up in fuel models 1 and 3. The model is based on the assumption the fine dead fuels will be the principle carrier of the fire. Another assumption or limitation for behave is that the model assumes all fuels are uniform and continuous. The model does not adequately predict fire behavior predictions in grass fuel types with a high live to dead fuel ratio during spring or fall green-up. The predicted rate of spread and flame lengths using Behave will be more accurate when there is little to no green-up present. The fact that exotic and native cool season grasses will typically begin to green-up in the spring/fall will lessen the fire behavior substantially from the predicted fire behavior.

The experience of the burn boss will give them the judgment to use varying degrees of the parameters based on their relationship: e.g., the cooler the temperature and the higher the relative humidities, the upper wind limits will be used; higher temperatures with lower relative humidities, the lower wind limits will be used; the more green-up showing, the upper limits of all parameters could be used safely.

Headfires should not be used along the perimeter of the fire especially with fuel model 3 because the fire intensity would make it extremely difficult to manage the control lines. Headfires can be used in the interior of the fire with little or no concerns of holding after the perimeter has been sufficiently black-lined.

Adjacent land use also plays a major role in acceptable prescription parameters. If cropland is in a tilled state or if a pasture is heavily grazed then the area receiving treatment may be burned with higher fire behavior indices due to the ease of holding in these areas based upon lack of fuel. Areas with CRP, cured crop, or light pasturing will require significantly more holding forces and will be burned with lower prescription limitations.

Cumulative effects of weather and drought on fire behavior:

The Contractor will use, primarily, the Drought Monitor as issued by the University of Nebraska weekly to determine drought intensity. This is an attempt to standardize drought monitoring in the FWS MN Zone where stations do not have access to a RAWS. The Drought Monitor summary map identifies general drought areas, labeling droughts by intensity, with D1 being the least intense and D4 being the most intense. D0, drought watch areas, are drying out and possibly heading for drought, or are recovering from drought but not yet back to normal, suffering long-term impacts. Drought intensity categories are based on six key indicators and numerous supplementary indicators.

- Prolonged drought will cause drying of larger fuels and possibly litter, duff, and soil layers which do not normally burn. The FBPS fuel models do not account for these fuels burning so BEHAVE will not predict this. In some drought situations, higher flame lengths, increased fireline intensity, resistance to control efforts, prolonged smoldering of large logs and duff layers, difficult mop-up, and lingering smoke problems can be expected. Drought may have a profound effect on marsh-type and fuels since the organic soils may add to the intensity, mop-up problem, and smoke production if they are dry. If soils are not organic, cumulative drought will not cause them to contribute to additional fire intensity although the duff on top of the soils may. In severe cases vegetation such as grasses and forbs may not even green up or may cure out earlier than expected.

- Other drought monitoring indices can and will be used to determine ability to safely implement any burn and meet treatment objectives. Drought indexes will be followed utilizing a variety of methods in order to present the best overview of actual conditions. Systems monitored may include the Palmer Drought Index, Keetch/Byram Drought Index and or the State of Minnesota Fire Danger Index. All available factors will be considered to determine if conditions are present which will give the desired results and what effects those conditions may have on fire behavior. The zone fire management officer will be consulted if needed for assistance with drought indicator interpretations.

The Drought Monitor website is located at: <http://www.drought.unl.edu/dm/monitor.html>

Description of Drought Monitor categories:

D0-D4: The Drought Monitor summary map identifies general drought areas, labeling droughts by intensity, with D1 being the least intense and D4 being the most intense. D0, drought watch areas, are either drying out and possibly heading for drought, or are recovering from drought but not yet back to normal, suffering long-term impacts such as low reservoir levels.

A and H: Since "drought" means a moisture deficit bad enough to have social, environmental or economic effects, we generally include a description of what the primary physical effects are:

- A** = agricultural (crops, pastures, and grasslands)
- H** = water supplies (rivers, groundwater and reservoirs)

Drought Monitor Classification	Action
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D0 Abnormally Dry	Staffing, equipment, mop up standards, and patrol standards identified in the burn plan will be evaluated by the burn boss to ensure an adequate response to dry conditions is in place. Changes to the burn plan may be necessary, if so they will be amended at the local level by the Burn Boss and Contract Administrator (MN DNR).
D1 Moderate Drought	Staffing, equipment, mop up standards, smoke mgt., and patrol standards identified in the burn plan will be re-evaluated. Changes to the burn plan may be necessary. Changes to the Burn Plan will be amended by the Burn Boss, Contract Administrator (MN DNR), and the USFWS Zone FMO
D2 Severe Drought	Significant changes to the burn plan may be necessary. Burn Plan will be amended by the Burn Boss, Contract Administrator (MN DNR), and the USFWS Zone FMO
D3 Extreme Drought	Prescribed burns will not be implemented.
D4 Exceptional Drought	Prescribed burns will not be implemented.

Ignition Technique: (Explain and include on map of burn unit) All ignition operations will be done using drip torches or other hand-held ignition devices. A backing fire will be used to establish blacklines on the downwind side(s) along the firebreak. Ignition sequence will depend on wind direction, working into the wind whenever possible. The Burn Boss or the Ignition Specialist based on personnel and equipment availability, weather, and fuel conditions will decide the actual firing pattern the day of the burn. Regardless of conditions, backing fires will be employed on all baselines, especially sensitive locations, and areas with possible holding problems. A test fire is planned. Due to the size of the unit, internal ignition may be required. This will be performed either by crewmembers on foot or on ATV. **Final determination will be made by the burn boss on the day of the burn and will be based on current fuel conditions.** If ATV's are utilized for internal ignition, the following criteria must be met:

- The operator must be certified and well experienced on ATV's.
- The firefighter must be well experienced with the fuel models and fire behavior pertaining to the burn unit.
- The firefighter must have an understanding of safe and effective firing techniques applicable to internal ignition. (Minimum qualification level of FFT1 is strongly recommended)
- Crewmembers performing internal ignition must be closely supervised by the Burn Boss and/or the Ignition Specialist (if available).

Example ignition:

Wetlines will be placed at appropriate locations on the border of the burn unit and ignitions will take place along the wetline. A blackline of usually of 100-300 feet depending on fuel conditions and fuel types, will be in place on the downwind side before the headfire is ignited. The Burn Boss will be responsible for making sure blacklines are adequate prior to the ignition of the head fire. Wetlines may also be prepared with the use of foam or gel fire retardants.

A south wind is desired. Ignition will be made using hand-held drip torch(es). A test burn will be ignited prior to the main burn and will show expected fire behavior. Starting with a south wind, the test burn would begin in the NE corner at point C. With the corner at point C burned out and tied to water, one holding crew will remain at point C while another crew begins to light a backing fire from point C to B. A hose lay or ATV will be needed for holding on line C to B, hard to access with an engine. With line C to B held, crew will begin igniting line B to A, tying off to the gravel road. Line B to A has a creek bed crossing it in two places. In these areas a type 6 engine will not be able to drive. Holding will be minimal along line B to A with the heavily grazed pasture to the north. A hose lay or hand tools will be used to hold in these areas. With line C to A secure and widened to at least 100ft, an ignition and holding crew will begin lighting off the stream bank from C to D. Igniter will be careful not to light head fires while working around bends in the meandering stream. If small head fires are ignited downwind lines should be at least 100ft wide. Igniter and holding crew on line C to D will also watch for spotting across the stream. Once at point D a crew will hold at that point. Ignition and holding crew can begin ignition on line A to I, I to H, H to G, then G to F. All lines from I to F are assessable with an engine. At point F line will be tied off to the gravel road. Line G to F will have to be widened out before igniting line F to E. With line F to E ignited and all downwind lines widened to greater than 100ft, an igniter and holding crew can complete ignition by lighting line E to D. Most of line E to D is assessable with an engine. All crewmembers will remain alert and monitor for potential spotting and escapes. **The burn boss based on personnel and equipment availability, weather, and fuel conditions will decide the actual firing pattern the day of the burn.** Regardless of conditions, backing fires will be employed on all baselines, especially sensitive locations, and areas with possible holding problems. (see attached map)

Prescribed Fire Organization: (All personnel and their assignments must be listed. All personnel must be qualified for the positions they will fill.) A minimum crew of seven will be needed, two additional traffic controllers are needed with east of south winds. A fully qualified burn boss (RXB2) must be utilized on this burn and must be included in the crew. Other positions may be filled if deemed necessary to maintain adequate span of control or for training purposes. If available, more than the minimum number of crewmembers can be utilized.

Prescribed Fire Organization Chart

Minimum Personnel Required:	
RXB2	1
RXI2	1
FFT2	5
Traffic Control	2*

* Traffic control will be needed if burning with east or south winds. These positions will be counted in the minimum crew size with east or south winds (9 total needed).

Equipment Needs:		
# needed	Equipment Type	Source
2	Type 6 Engines (or one Type 6 and two Type 7 Engines)	Contractor
1	Portable pump unit	"
1	Tender truck (1000gal) or Drop Tank	"
6	Drip torches	"
7	Radios (for each person)	"
1	Weather kit	"
1	Chainsaw & safety gear	"
7	PPE gear (for each person)	"
1	First aid kit	"
1	Cellular phone	"

*ATV with 50-gallon capacity and pump with minimum of 5 gpm output is highly recommended. It will be especially useful to access areas of difficult terrain and in disturbance sensitive areas.

Other (If portions of the burn unit must be burnt under conditions slightly different than stated above, i.e., a different wind direction to keep smoke off of a highway detail here.) No foreseeable conditions exist at this time.

Prescription monitoring (Discuss monitoring procedure and frequency to determine if conditions for the burn are within prescription): Weather will be monitored and recorded throughout the burn (attached sheet). Temperature, relative humidity, wind direction and speed, fire behavior and fire intensity will be closely monitored and recorded to insure conditions remain within prescription parameters. Weather monitoring will be ongoing using a belt weather kit or equivalent. Weather information will be announced over the radio. If necessary, the burn boss may also call The National Weather Service and request a current spot weather forecast

V. SMOKE MANAGEMENT

Permits required (who, when): Permits required (who, when): A 'Minnesota Open Burning Permit' from MN DNR Area Forester must be obtained and attached to the burn plan by the qualified **contractor**. Area Forester has been supplied a copy of the burn plan, **contractor** will need to request burn permit (provide Forester with burn unit ID). **Contractor** will need to sign permit and "call in" to validate it. (Minnesota DNR Area Forester, Greg Johnson, P.O. Box 607 New Ulm, MN 56073, 507-359-6057).

Distance and Direction from Smoke Sensitive Area(s): Directly to the west a lightly traveled township road (590th Ave). east ½ mile is county road 29, which is a well traveled blacktop road. North a mile is County Rd 4 (black top). The city of

Jackson (population 3559) is 7 miles NW of the burn unit. Occupied building sites (6) exist within ½ mile of the burn unit, directly north, west and south of the burn unit.

Necessary Transport Wind Direction, Speed and Mixing Height (Explain how this information will be obtained and used): Northeasterly winds will allow smoke to be sent in the safest direction. The maximum wind speeds allowed for this burn would be 20 mph at the 20' level. A **Spot Weather Forecast** will be obtained from the National Weather Service in Sioux Falls SD (605) 330-4244 or toll free at 1-800-852-9470. The fire weather forecast includes smoke management and dispersion information that is available by 0800 hours with an updated afternoon forecast available by 1600 hours.

Amount of Fuel to be consumed:

Fuel Type	1 hr	10 hr	100 hr	Live	Total	Total including 1000 hr	Acreage	Fuel Load
3-Tall grass (2.5 feet)	3.01	0	0	0	3.01	3.01	38	114
1-Short grass (1 foot)	.74	0	0	0	.74	.74	7	5.18
Total Fuel Loading (ton/acre)=								119.18

Smoke Management and Dispersion: The following Dispersion Index multiplies mixing height (measured in feet) and transport wind speed (measured in knots) to produce an index that describes the ability of the atmosphere to disperse emissions. The dispersion information will be included as part of the daily fire weather forecast. It describes the mixing height, transport wind speed and **Dispersion Index for the afternoon (1300 hours)** of the day it is forecast. If intending to ignite burns in the morning, the burn boss will consult the local Weather Service office to determine the anticipated dispersion at the time of ignition. **Must have “Fair” or better Dispersion Category to be within prescription limits.**

The following tables illustrate the acceptable smoke dispersion categories (highlighted in red)

Table 4.2.2.A

DISPERSION INDEX	DISPERSION CATEGORY
<13,000	Poor
13,000 – 29,999	Fair
30,000 – 59,999	Good
60,000 or greater	Excellent

NOTE: In using the Dispersion Index, exercise caution with high transport wind and low mixing height or low transport wind and high mixing height which, although they combine to give an acceptable Category, can cause smoke dispersion problems as well as potential control problems!

Note that these are voluntary guidelines which may vary by the local unit’s definition of smoke sensitive receptor and the ability to mitigate potential smoke problems such as by instituting traffic controls when smoke could impact major roads or by burning under fuel moisture conditions which limit consumption of heavier fuels.

Table 4.2.2.B - DAILY BURN UNIT SIZES

Small	< 50 acres
Medium	50 – 150 acres
Large	150 – 500 acres
Landscape	500 + acres

*assumes no more than one unit within a 5 mile radius

Table 4.2.2.C - DISPERSION CATEGORY: POOR*:

PROXIMITY OF CLOSEST DOWNWIND SMOKE SENSITIVE AREAS	AVAILABLE FUEL LOADING DESCRIPTION
<0.25 mile	NO BURNS
>0.25 mile	Small burns of primarily grass fuels.
>0.25 mile	Single large pile or scattered small piled debris

*There should be no burning on Poor Category days.

Table 4.2.2.D – DISPERSION CATEGORY: FAIR

PROXIMITY OF CLOSEST DOWNWIND SMOKE SENSITIVE AREAS	AVAILABLE FUEL LOADING DESCRIPTION
<0.25 mile	Small – Med burns in grass or leaf litter
>0.25 mile	Large burns in grass or leaf litter
>.5 mile	Small – Med burns in timber, slash, or piled fuels
>0.75 mile	Landscape burns in grass or leaf litter
>0.75 miles	Large burns in timber, slash or piled fuels
>1.0 mile	Landscape burns in timber, slash, or piled fuels

Table 4.2.2.E – DISPERSION CATEGORY: GOOD

PROXIMITY OF CLOSEST DOWNWIND SMOKE SENSITIVE AREAS	AVAILABLE FUEL LOADING DESCRIPTION
<0.25 mile	Small - Large burns in grass or leaf litter
<0.25 mile	Small – Med burns in timber, slash, or piled fuels
>0.5 mile	Landscape burns in grass or leaf litter
>0.5 mile	Large burns in timber, slash, or piled fuels
>0.75 miles	Landscape burns in timber, slash or piled fuels

Table 4.2.2.F – DISPERSION CATEGORY: EXCELLENT

PROXIMITY OF CLOSEST DOWNWIND SMOKE SENSITIVE AREAS	AVAILABLE FUEL LOADING DESCRIPTION
<0.25 mile	Small - Large burns in grass or leaf litter
<0.25 mile	Small – Med burns in timber, slash, or piled fuels
>0.25 mile	Landscape burns in grass or leaf litter
>0.25 mile	Large burns in timber, slash, or piled fuels
>0.5 mile	Landscape burns in timber, slash, or piled fuels

Visibility Hazard(s) (Roads, airports, etc.): Burning with a persistent S, SW, W wind should require no temporary road closures. However, burning with easterly wind directions will require special attention to the township road. Heavy smoke may also occur along the fire perimeter directly impacting fire crewmembers.

Actions to Reduce Visibility Hazard(s):

- ✓ All burning parameters as specified in this plan will be followed. Planned wind and atmospheric conditions will allow smoke to rise and disperse. The burn will not be conducted with a wind direction, which will put smoke directly into occupied farmsteads that are within a 0.25 mile of the burn. Smoke dispersal conditions, which allow smoke to lift over farmsteads and roads, are acceptable. Smoke management contingency plans will be initiated immediately if needed.
- ✓ 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. Fire engines used in the vicinity of the fire lines where personnel are working will travel slowly and have their headlights on at all times. Communication 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.
- ✓ Visibility hazards will be discussed during the pre-burn briefing. If exposed to heavy smoke, fire line personnel will be rotated out of heavy smoke areas on a regular basis to allow their vision to clear and to limit exposure to carbon monoxide.

Residual Smoke Problems (Measures to reduce problem, i.e., rapid and complete mop-up, mop-up of certain fuels, specific fuel moistures, time of day, etc.): Mop-up will be an ongoing process as the burn progresses, with engine crews mopping up areas along the line as time permits. If warranted, a complete mop-up will be conducted. Burning will be initiated as early in the day as possible to allow total smoke dissipation prior to nighttime inversion development. All attempts will be made to complete burning by the middle of the day when fuels are driest to allow more complete

combustion.

Smoke Management Contingency Planning:

- ✓ The Burn Boss will follow the Region 3 Prescribed Fire Smoke Management Policy effective as of August 21, 2002. The Burn Boss will also follow the MN Smoke Management Plan. Smoke management mitigation may include one or all of the following: extensive mop-up, early shut-down of firing, smoke sign placement, traffic control, state police, county sheriff or department of transportation, notification and request for assistance, temporary closure of county roads and any other actions deemed appropriate by the burn boss. (policies stated above available from Jason Garms, MN DNR 175 County Rd 26, Windom, MN. or the U.S. Fish and Wildlife Service)
- ✓ Burn personnel will monitor smoke dispersal throughout the burn and will take necessary actions in the event that possible smoke management problems develop. Smoke signs will be brought to the site on the day of the burn and will be utilized on area roads. Smoke signs will be placed on all potentially impacted roads following DOT requirements. A crewmember will be assigned to monitor the road on each end of the area of concern and will be equipped with a radio and a vehicle with emergency lights for high visibility. Staff will wear high visibility vests when working on roads. If conditions warrant, traffic control will be initiated using appropriate "stop" and or "caution" signs, and the county sheriff or other law enforcement personnel will be called to assist with local traffic control, including temporary closure of area roads if deemed necessary by the burn boss.
- ✓ In the case of a contracted burn, the **contractor assumes all liability for smoke damages and claims.**

If changes in weather conditions or other factors occur that cause imminent smoke problems, the following plan will be 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. Mopup 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 county dispatch system and may include fire departments or other state and federal agencies in the area.
- 3) Smoke signs following DOT requirements should be placed, prior to the burn, on roads that may be impacted by smoke. Traffic control should be initiated by a burn crewmembers in communications with a traffic controllers and the burn boss. 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.

Necessary Warning Signs:

All signs for conventional and low-volume roads need to be a minimum of 36" x 36" in size with the exception of the stop/slow paddle hand held sign that the flag person holds. This sign needs to be 18" x 18" with "STOP" on one side and "SLOW" on the other side (please see specific requirements for Stop/Slow paddles for the state of Iowa below). Signs used on freeways and expressways must be 48" x 48" in size. These are minimum size requirements, the 48" x 48" signs can be used for any roadways, and it is recommended that these signs be used to cover any need. All signs should be reflective or high visibility to perform in both night and day conditions. Blaze orange reflective safety vests are required for the flagger. Please remember that at least two of each sign is needed in order to conduct burns. The signs that we needed for burning operations include the following:

- "Caution Smoke Ahead" or "Caution Smoke or Fog Ahead" (Text)
- "Flagger Ahead" or "Flagmen Ahead" (may be in text or the universal flagger sign)
- "Be Prepared to Stop" or "Prepare to Stop" (Text)
- "Stop/Slow" (Text two sided hand held paddle)

Sign Placement

Suggested advance warning sign placement:

	Distance from point of restriction to first sign	Distance from first sign to second sign	Distance from second sign to third sign
Urban (Low Speed)*	100 Feet	100 Feet	100 Feet
Urban (High Speed)*	350 Feet	350 Feet	350 Feet
Rural	500 Feet	500 Feet	500 Feet
Expressway/Freeway	1000 Feet	1500 Feet	2640 Feet

Speed category determined by highway agency

Personal Protective Equipment Needed

The high-visibility safety vest must meet the (MUTCD) standard as proposed in Section 6E.02 High-Visibility Clothing and the ANSI/ISEA 107-1999 standard. The Class 3 rating for high-visibility safety apparel is for workers exposed to traffic speeds above 50 mph, and where workers are exposed to a wide range of weather conditions. Class 3 apparel exceeds the 1000-foot distance visibility recommendation in the MUTCD.

Wear an ANSI approved yellow hardhat.

Manual of Uniform Traffic Control Devices can be found at the following website:

http://mutcd.fhwa.dot.gov/kno-millennium_12.28.01.htm

The Manual of Standard Highway Signs can be found at this web address:

http://mutcd.fhwa.dot.gov/ser-shs_millennium_eng.htm

VI. FUNDING

- **Funding:** Funds provided by the USFWS Partners-For-Wildlife Program and the MN Department of Natural Resources
- **Personnel:** Contractor hired by the MN Department of Natural Resources will implement the rxburn

VII. BURN-DAY ACTIVITIES

Required Public/Media Contacts on Burn Day:

- Jackson Co. Dispatch at (507) 847-4420
- Minnesota DNR Area Forester, Greg Johnson out of New Ulm at (507) 359-6057
- Minnesota DNR Prairie Specialist, Jason Garms out of Windom at (507) 831-2926 ext223
- One spot weather forecast, from the morning the burn is initiated, from the National Weather Service @ Sioux Falls SD (1-605-330-4244 or 1-800-852-9470, also at <http://www.crh.noaa.gov/fsd/firewx.htm>) will be faxed to the MN DNR at 1-507-831-2921 attn. Jason Garms
- Prairie Bank easement landowner, Paula Cxxx at (507) 847-XXXX (courtesy - not requirement) and landowner Kent Bxxx at (507) 847-XXXX
- Building sites within 1 mile of burn will be visited explaining prescribed burn objectives and addressing any concerns from landowners. If nobody is home, an informational note discussing prescribed burning will be left on door.

National Situation Management Report (<http://www.nifc.gov/news/sitreprt.html>)

Crew & Equipment Assignments (List all personnel, equipment needed, and assignments. The following is not an all inclusive list for what you may need. See also Prescribed Fire Organization in section IV. IGNITION, BURNING AND CONTROL)

- Burn Boss -
- Ignition Crew and Equipment -
- Line Crew and Equipment -

Personnel and equipment will be selected and job assignments made on burn day. An individual may serve more than one position. Additional personnel may be utilized if available.

Crew Briefing Points (Communications, hazards, equipment, water sources, escape fire actions, etc. To be done by Burn Boss. Refer to Safety Considerations in Planning Actions and points listed below):

The burn boss prior to the start of ignition will conduct a pre burn briefing. All personnel assigned to the burn will be briefed and will have maps of the unit. The following checklist will be covered, as will all aspects of the **Go-No-Go checklist** (attached). A post burn briefing will also be held after the burn has been completed and prior to burn team members departing the area. Crew briefing will include time for questions and resolution of any unresolved issues or concerns.

See attached briefing outline.

After spot weather forecast is received and public contacts made, on site standard weather readings will be conducted. If burn is within prescription and forecast indicates it will remain that way, **all pumps will be tested** before any ignition procedures.

Ignition sequence: (Attach ignition sequencing map)

- see section IV. Ignition -

Personnel Escape Plan: This will be discussed during the pre-burn briefing and shown on the unit map. Escape routes and safety zones will include burned areas, firebreaks, cultivated crop land, areas with sparse vegetation, mow lines and gravel roads. (see attached maps)

Special Safety Requirements: Weather changes, erratic fire behavior, and the potential of fire smoldering or creeping through the litter accumulations along the black lines/firebreaks will be stressed during the pre-burn briefing.

Holding and Control: Spotting across the eastern perimeter is possible, but minimal, a hose lay or mobile ATV will need to standby and monitor. A couple locations along the north perimeter are not accessible with an engine, will need hose lays or hand tools. Spotting and escapes are minimal in other directions with prescribed wind directions. Any spots that occur will be attacked immediately and aggressively, making sure of control before continuation. If fire escapes to adjacent lands, an indirect attack may be necessary. Coordination of the ignition crew with holding resources is required. Lines on the downwind side will be widened to at least 100 feet wide before any head-fire strips are ignited.

Critical Control Problems: The greatest critical control problem exists along the NE, E, and S perimeters with neighboring grass fuels potentially down wind of prescribed wind directions. A 15 ft. firebreak is currently in place making it much easier to hold. Another control issues may exist near the adjacent building site, but is minimized by a 15ft mowed firebreak and mowed lawns around buildings.

Water Refill Points: Equipment necessary for drafting or a portable pump unit will be on site for use as needed. There is a perennial stream along the east perimeter of the burn unit, which typically has good water depth. Either, or both, a tender truck with a minimum of a 1000-gallon capacity or portable pumping unit must be on site. **Contractor** should make any arrangements for water refill ahead of time.

Contingency Plan for Escaped Fire: Burn Day contacts will include the County Dispatch Office. The Burn Boss or his/her designee will advise; burn location, size, ignition time, and name of burn boss. The Burn Boss or designee will check on available contingency resources and the Minnesota Daily Situation Report. National preparedness level, MN State preparedness level, and conflicting Rx burns and wildfires will be considered prior to ignition and as part of the Go No Go Checklist.

✓ **If fire escapes the following actions will be taken:**

1. If fire burns outside the specified perimeter limits and cannot be quickly contained by on-site resources, the fire will then become a wildfire.

2. All prescribed firing operations will cease.
3. Available holding forces will perform initial attack.
4. The burn boss or highest wildfire qualified individual on site will assume the duties of Incident Commander until relieved.
5. Safety and protection of private citizens and property/structures will be the highest priorities.
6. If in the opinion of the burn boss, on-site resources cannot contain the fire; contingency resources will be requested from the **Jackson Co. Dispatch (507) 847-4420 or 911** via cell phone. Fire resources are available from the Jackson Fire Department, approximately 8 miles from the burn unit. Once on the scene, the department will be given radios or frequencies to use for communication (see communication plan). The mutual aid frequency will be used by the burn crew personnel and Jackson VFD, if applicable. If communication problems exist, the VFD will be given one of the crew's radios.

Info for dispatcher:

Jackson Co. Dispatch (507) 847-4420 or 911

T-101-N R-34-W

Sections 26

8 miles southeast of Jackson, MN (near Petersburg)

If a spot or escape cannot be caught with direct attack, the fire will be controlled by back firing from controllable points such as plowed fields, water, and recently grazed or hayed areas. If the fire escapes to the east it will be attacked by backfiring from the open streams and tilled fields, tying off to roads. Protecting the occupied building site to the southeast and northeast will be priority. An escape south will be fought by backfiring from the streams or tilled fields. An escape west is unlikely with many tilled fields and roads bordering the burn unit. Priority will be given to protecting the adjacent building site. An escape north will be fought by backfiring from the open streams, heavily grazed areas, and tilled fields. Any spot fire and 'slop-over' will be immediately extinguished and firing will cease, when appropriate, until all available personnel can put out the spot.

SEE CONTINGENCY MAP FOR EXACT LOCATIONS OF POTENTIAL CONTINGENCY LINES!

Secondary containment lines, in a worst-case scenario, would be the first roads out from the burn unit that will support vehicle traffic. NOTE: These are the first permanent fuel breaks, but harvested crop lands, hayed fields, and wetlands may provide a break in fuel type and loading closer to the fire perimeter. These should be evaluated by the Burn Boss prior to ignition of the burn.

Resources at risk: In the event the escaped fire has the potential to threaten private individuals, structures, livestock, or other non-government property, the county dispatch office will be notified with a request for law enforcement to contact homeowners and assist with possible evacuation, road closures, and to request structure protection with Volunteer Fire Department structural fire equipment. County dispatch will also be notified should assistance be needed with traffic control and road closings due to hazardous smoke conditions.

Resources at risk specific to this burn are as follows: There are 6 occupied building sites within a ½ mile of the burn containing houses and out buildings directly north, west, and south of the burn unit.

Mop Up and Patrol: Mop-up of the burn perimeter will commence with ignition of the burn, with holding crews extinguishing burning fuels immediately adjacent to the line that pose a threat to control. Checks for spot fires outside the firebreaks will continue throughout the duration of the burn. Mop-up will continue until all smokes are extinguished or until the possibility of escape or smoke management problems are eliminated. At least a 100-foot wide perimeter will be used for mop-up standards on all prescribed burns. Burning materials within this area will be extinguished with water and hand tools. If an unburned area is located near a control line, it will be burned out to prevent the possibility of spotting over the line. Mop-up may continue for several days after the burn to reduce and/or eliminate possible smoke management problems. The burn will be staffed daily after completion until all smokes are out to insure security.

Patrol will be an ongoing process during the prescribed burn. All personnel assigned to the holding crew will have their eyes to the "green" to catch any spot fires outside the control lines.

Medical Emergencies

In the event that a medical emergency beyond the capability of the people on site occurs, **911** or calling the County dispatch needs to be initiated, identifying the extent of injuries, location, access and contact person on site (see Medical Emergency Procedures page). This will be done with a cellular phone on site. First aid will be administered on site, and the

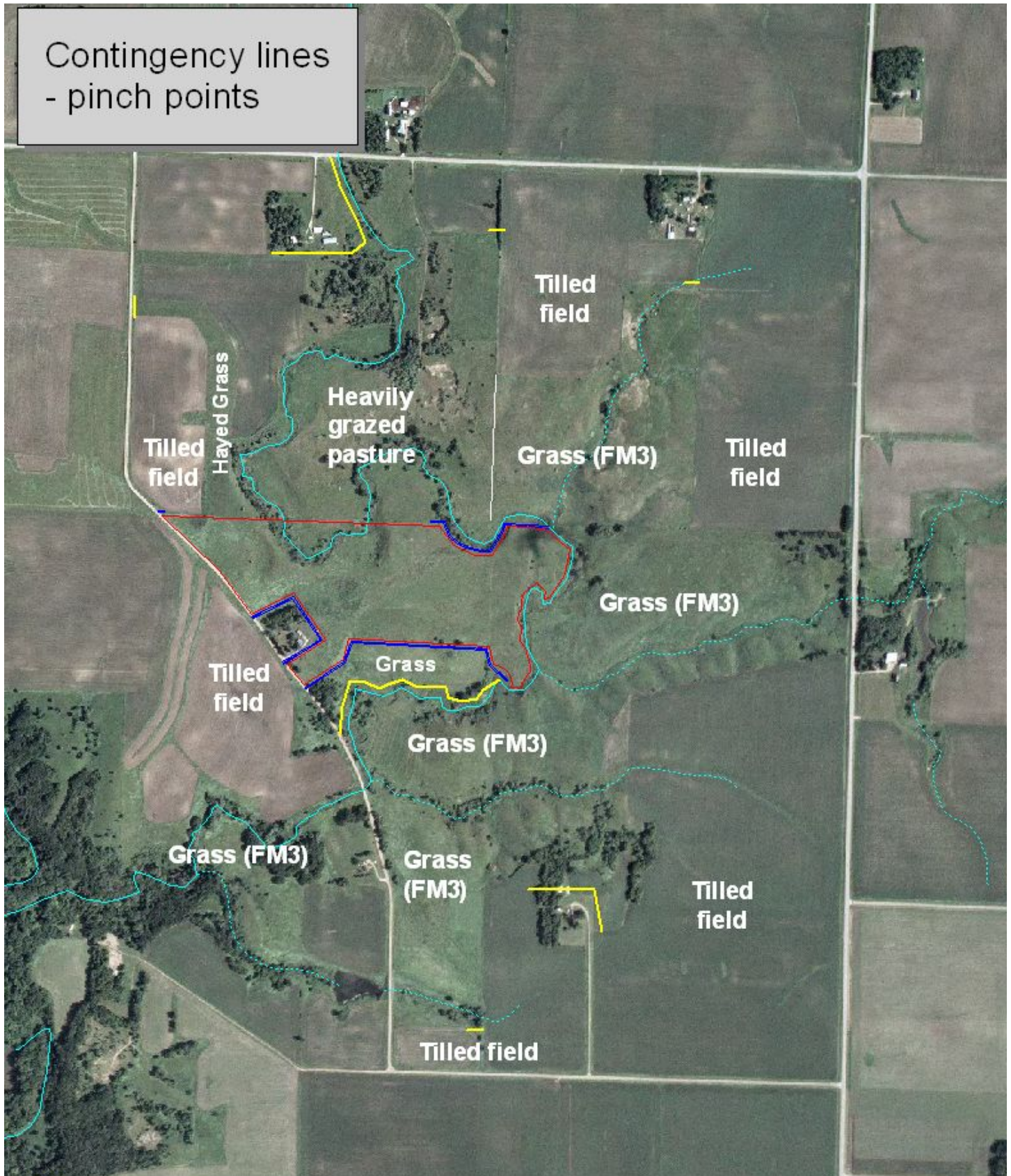
Burn Boss will determine if the burn operation can safely continue without jeopardizing the well being of the injured party or the safety of the remaining firefighters.

- Each individual firefighter should be carrying an individual first aid kit on their person, and each vehicle will have a complete kit with it.

Rehabilitation Needs: none anticipated if burned within prescription.

Special Problems: None

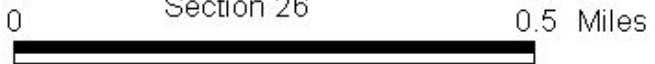
Contingency lines
- pinch points



- Contingency lines
- 06 Rxburn
- 06 Firebreak
- DNR 24K Rivers and Streams
- Perennial Stream
- Intermittent Stream

Petersburg 26 Prairie Bank

Jackson County
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Section 26



Medical Emergency Procedures

Brief Description: In case of injury needing immediate medical attention, the burn boss or designated fire crewmember will contact County Dispatch Office (911) for dispatching of nearest ambulance. The nature of injury will need to be conveyed from burn site through dispatchers to ambulance crew to insure proper response. If the nature of the injury requires medi-vac to trauma or burn center, request air ambulance through dispatchers. Allow ambulance crew to coordinate communications with air ambulance. **If medical emergencies exist, Jackson Medical Center (507) 847-2420 is 8 miles away.** To get to Jackson from the Petersburg 26 Prairie Bank, travel 2 mile west on County Rd 4, then 6 miles northwest on County Rd 23 to the city of Jackson. The hospital is located at 1430 North Highway.

Ambulances

Name	Address	Phone Number	Paramedics	
			Yes	No
Jackson County Dispatch	Jackson, MN	911 or 507-847-4420	X	

Air Ambulances

Name	Address	Phone Number		
Intensive Air / Trauma 1	Sioux Falls, SD	911		
Life Link	St.Paul, MN	911		
AAA Advanced Air Ambulance	Rochester, MN	911		
Mayo Medical Transport System	Rochester, MN	911		
Careflight	Sioux Falls, SD	911		

Hospitals

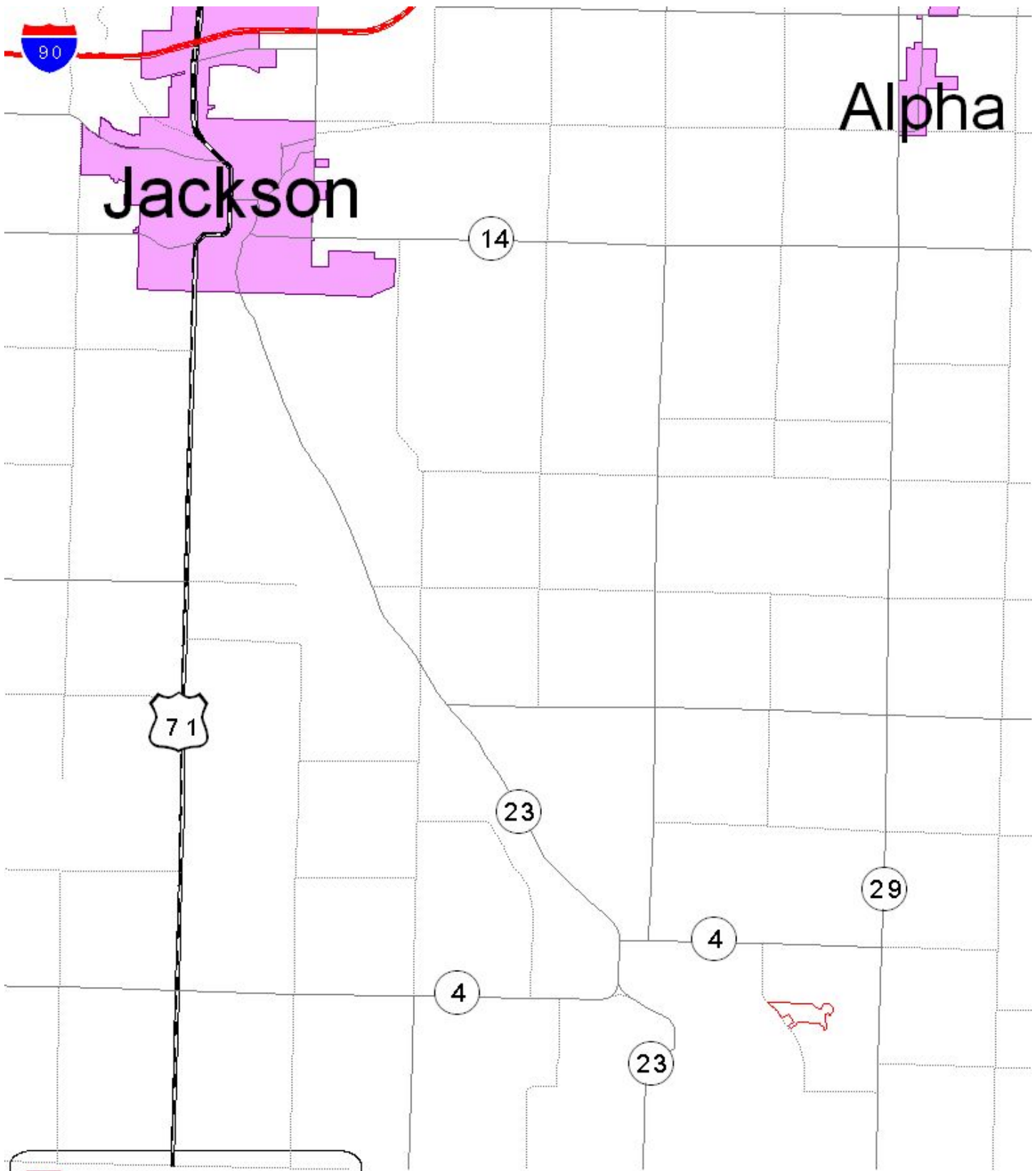
Name	Location	Phone Number	Travel Time (Ground)
Jackson Medical Center	Jackson, MN	507-847-2420	10 minutes Helipad Not Available

Nearest Burn Center

Name	Location	Phone Number	Travel Time (Air/Ground)
McKenna Hospital Burn Unit	PO Box 5045 Sioux Falls, SD	911	30 min. air / 90 min. ground
Hennepin County Burn Center	701 Park Avenue Minneapolis, MN	911	40 min. air / 120 min. ground
Regions Burn Center	640 Jackson St. St Paul, MN	911	40 min. air / 120 min. ground

Supplies to the Field

Item	Person Responsible
First Aid Kits / Burn Kit (All Type 6 Engines) Fire Blanket Cell Phone	Burn Boss



Alpha

Jackson

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







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23



-  06 Rxburn
-  MNDOT Township Roads
-  MNDOT County Roads
-  MNDOT Interstate and Trunk Highways
-  Interstate
-  Federal Trunk
-  State Trunk
-  Municipal Boundaries

Petersburg 26 Prairie Bank

Jackson County

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Section 26



VIII. CRITIQUE OF BURN

Prescribed Burn Field Report										
Location:	Petersburg 26 Prairie Bank easement					Burn I.D.:				
	Observed Weather (required)					Observed Fire Behavior (optional)			Acres Burned by Cover Type	
	Time	Wind Dir.	Wind Speed	Temp .	Rel. Hum.	Spread Rate	Flame Lengths	Scorch Hgt.	Cover Type	Acres Burned
Forecast										
Spot										
Start										
End										
Post-Burn Observations										
Remarks on control:										
Remarks on fire behavior:										
Remarks on ignition techniques: ___% backing fire ___% flanking fire ___% head fire										
Remarks on fire effects to vegetation (burn plan objectives met?):										
Remarks on smoke management:										
Suggestions (what would you do differently):										
Burn Boss Signature						Date of Burn				
Title										

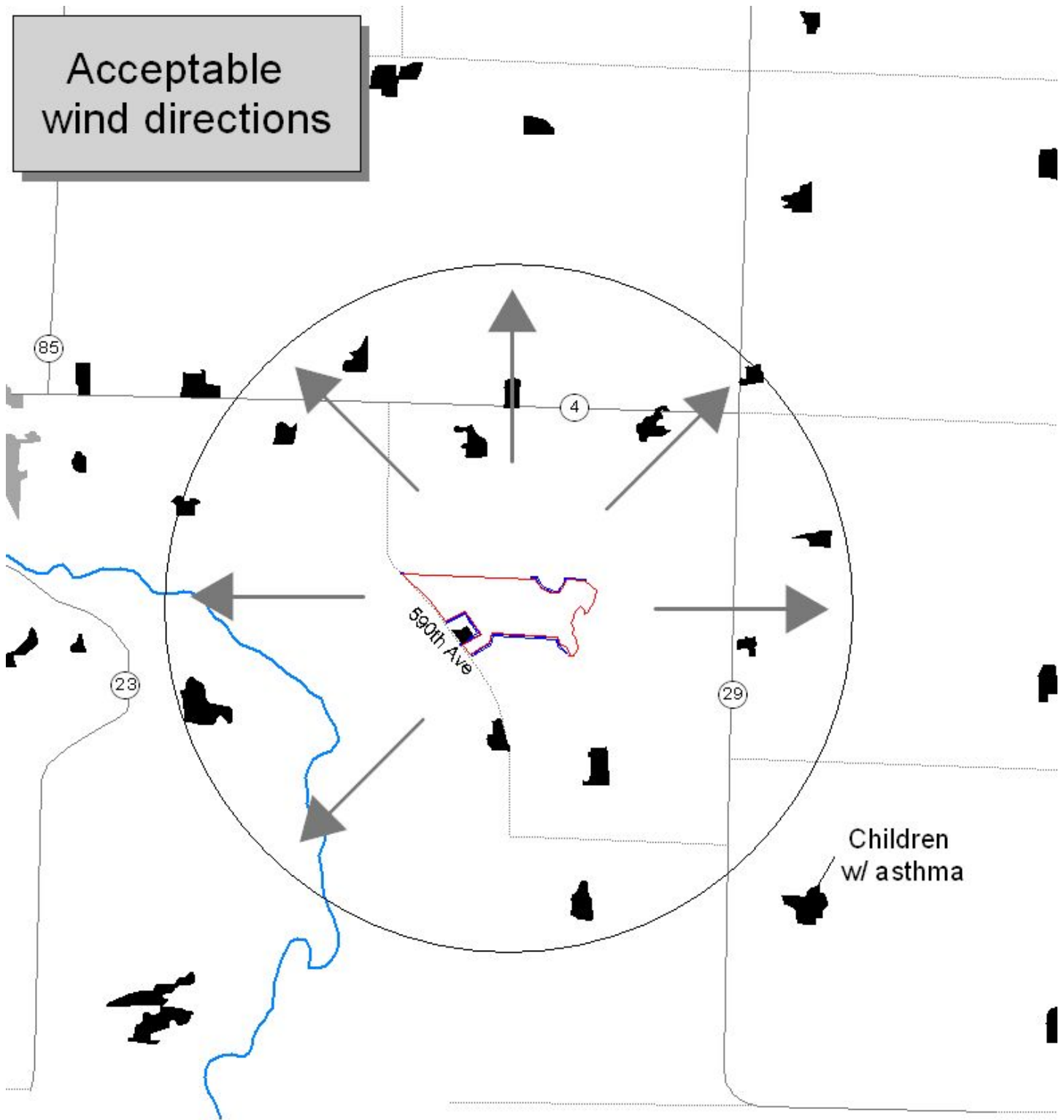
IX. POST-BURN MONITORING

The Minnesota DNR will conduct post burn monitoring and evaluations.

PRESCRIBED BURN BRIEFING OUTLINE:

- I. Handouts:
 - A. Map of Burn
 - B. Organization Chart
- II. Description of Burn Area
 - A. Objectives
 - B. Vegetation Type
 - C. Acreage
 - D. Slope
 - E. Roads/Access
 - F. Values at Risk
 - G. Water Sources
 - H. Natural/Manmade Barriers
- III. General and Spot Weather Forecast
 - A. Wind Direction and Speed
 - B. Relative Humidity
 - C. Temperature
 - D. Fuel Moisture
 - E. Atmospheric Stability
 - F. Predicted Changes
- IV. Burn Organization
 - A. Organizational Chart/Position Assignments
 - B. Equipment Assignments
 - C. Other Resources
 - D. Escaped Fire Situations
- V. Firing Sequence
 - A. Test Burn
 - B. Type and Sequence of Firing Patterns
 - C. Ignition Equipment (drip torch, flare pistol etc.)
- VI. Communications
 - A. Procedures
 - B. Frequencies/Channels
 1. Burn Crew
 2. Dispatch
 3. State Radio
 4. Aerial Ignition Personnel
 5. Other
- VII. Safety
 - A. Escape Routes
 - B. Safety Zones
 - C. Hazards (power lines, wildlife, topography,
 - D. Potential Problems
 - E. Smoke Management
 - F. Aviation
 - G. Personal Protective Equipment
 - H. Refueling Procedures
- VII. Comments and Questions

Acceptable
wind directions



- Major River
- Land Use/Land Cover
- Rural Residences
- Development Complex
- 06 Rxburn
- 06 Firebreak
- MNDOT Township Roads
- MNDOT County Roads

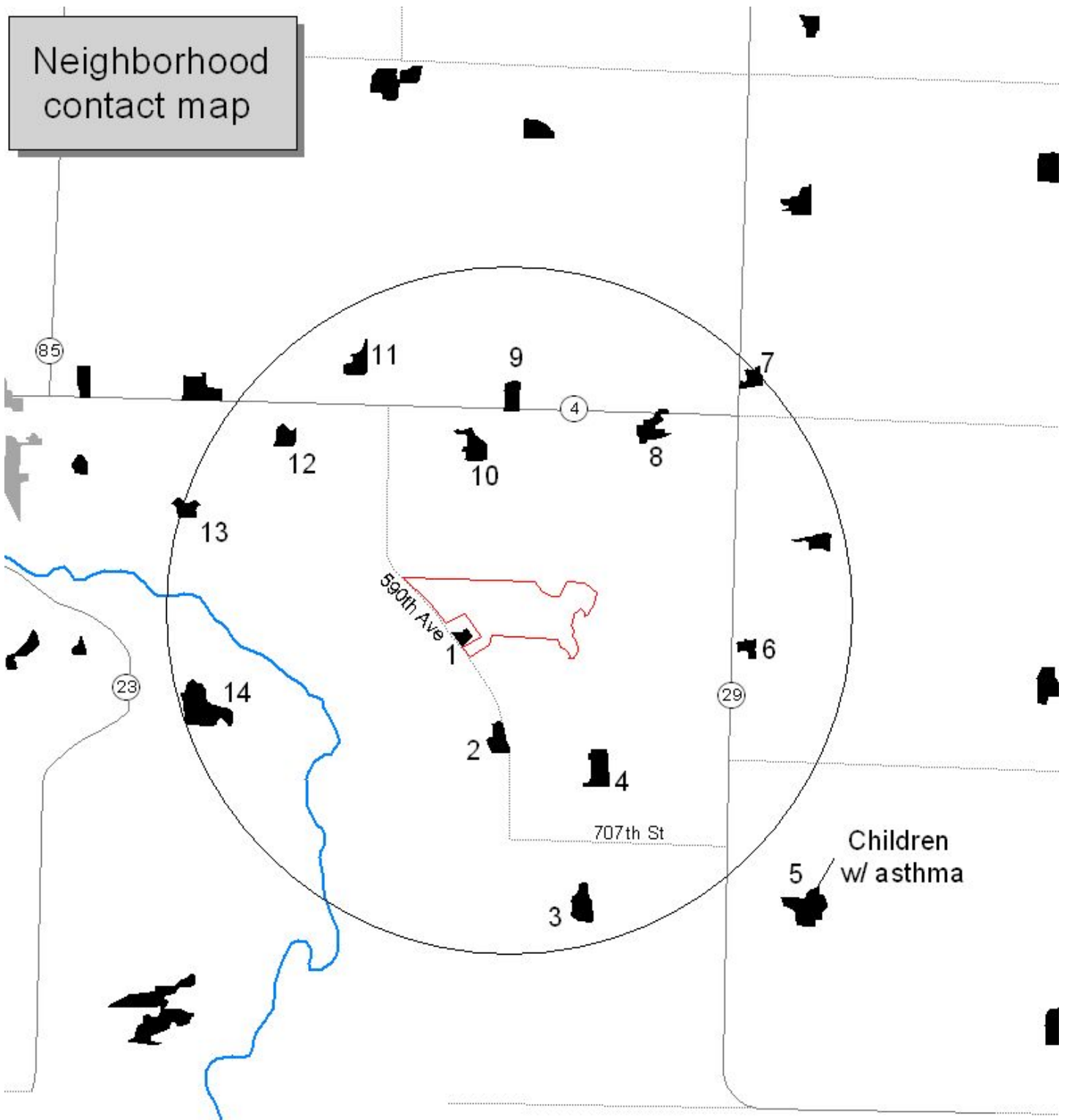
Petersburg 26 Prairie Bank

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0 1 Miles



Neighborhood
contact map



- Major River
- Land Use/Land Cover
 - Rural Residences
 - Development Complex
 - 06 Rxburn
- MNDOT Township Roads
- MNDOT County Roads

Petersburg 26 Prairie Bank

Jackson County
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Section 26

0 1 Miles



