

Soil Report for University Heights Woodland Property

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Limitations of this Report:

The information and recommendations contained within this report are applicable only to the 11.84 acre parcel located in the City of University Heights, Iowa (Johnson County parcel ID 1009351009) located, more or less, in the West ½, of the Southwest ¼, of the Southwest ¼, of Section 9, in Tier 79 North, Range 6 West, Johnson County, Iowa. The recommendations are based on data contained within the United States Department of Agriculture's Natural Resources Conservation Service official Soil Survey for Johnson County, Iowa. This data contains broad characterizations based on landscape features and is not site specific. As a result, there may be instances where localized conditions within the woodland do not match the features described in this report. In such cases, consultation with someone experienced in trail construction is recommended.

Soil Characteristics:

The entire site is composed of Fayette soils, with possible inclusions of Rozetta, Lindley, Keswick, and Nordness as minor components. All these soils were formed under forest vegetation either on prehistoric loess (wind-blown deposits) or prehistoric glacially deposited sediment. These soils are characterized by steep slopes and a well-drained hydrology. The depth of the soil to limestone bedrock may be shallow in some areas. See the **Soil Map—Johnson County Iowa (University Heights Woodland)** at the end of this report for additional information.

Suitability for Paths and Trails:

The included Paths and Trails soil suitability report (see the **Paths and Trails—Johnson County Iowa** at the end of this report) indicates that 99% of the soils in the area are Very Limited when it comes to being suitable for trail construction. As a result, trails should be confined to ridgetops and level to moderately level interfluvies (hilltop areas between drainage valleys) as much as possible. Due to the erosive nature and Very Limited rating for most of the soils in the area, construction of trails on steep slopes should be avoided whenever possible.

If trails on steep slopes are necessary, use of constructed stairs is recommended. This would limit the amount of slope that would be utilized as a trail and reduce the velocity of water moving downslope which would slow soil erosion. Trails and steps should not be constructed within natural drainageways. These areas are natural conduits for rainfall and disturbance from trail construction and trail use in these areas will only exacerbate soil erosion.

Additional information on trail layout and construction can be found online in the U.S. Forest Service Trail Construction and Maintenance Handbook (<https://www.fs.fed.us/t-d/pubs/htmlpubs/htm07232806/index.htm>) or the National Park Service Handbook for Trail Design and Construction and Maintenance (<https://www.nps.gov/noco/learn/management/ncttrailconstructionmanual1.htm>).

Figure 1 on the following page indicates which areas, based on soil characteristics, would be most suitable for trail installation. The colored areas are overlaid over an aerial photograph from 2017 and are based on topography (slope steepness) and potential for erosion. Green areas are those that would be best suited for trails, yellow areas are acceptable, though some potential for erosion is possible, and red areas should be avoided if possible due to the high probability of erosion. Red areas indicate those areas where stairs should be constructed if traversing up and down the slope is necessary. Also, please note that natural drainageways also appear in green due to the

presence of shallow slopes, however, these areas should be avoided (as mentioned earlier). The white line on the map indicates the boundary of the city limits of University Heights.

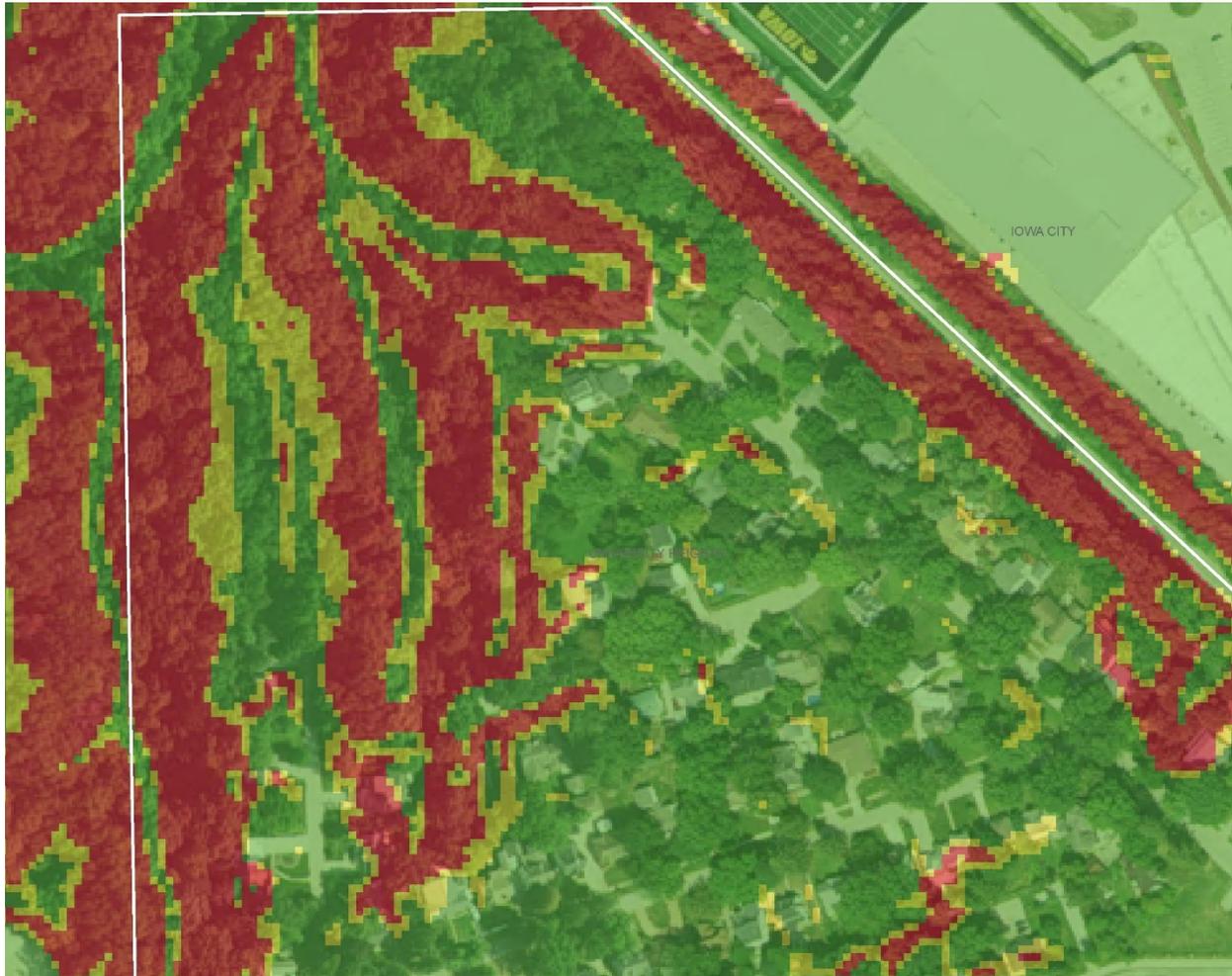


Figure 1. Recommended Areas for Trail Locations at University Heights Woodland.

Suitability for Step Construction:

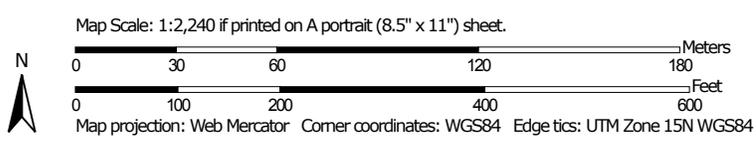
Two additional soil reports (**Corrosion of Concrete—Johnson County Iowa** and **Corrosion of Steel—Johnson County Iowa** at the end of this report) were also included as a guide for step construction. All the soils on site are rated as Low for steel corrosion and Moderate for concrete, therefore, the use of steel and/or concrete to anchor steps should pose little to no issues if steps are installed correctly.

Additional information on trail layout and construction can be found online in the U.S. Forest Service Trail Construction and Maintenance Handbook (<https://www.fs.fed.us/t-d/pubs/htmlpubs/htm07232806/index.htm>) or the National Park Service Handbook for Trail Design and Construction and Maintenance (<https://www.nps.gov/noco/learn/management/ncttrailconstructionmanual1.htm>).

Soil Map—Johnson County, Iowa
(University Heights Woodland)



Soil Map may not be valid at this scale.



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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Survey Area Data: Version 19, Sep 7, 2018

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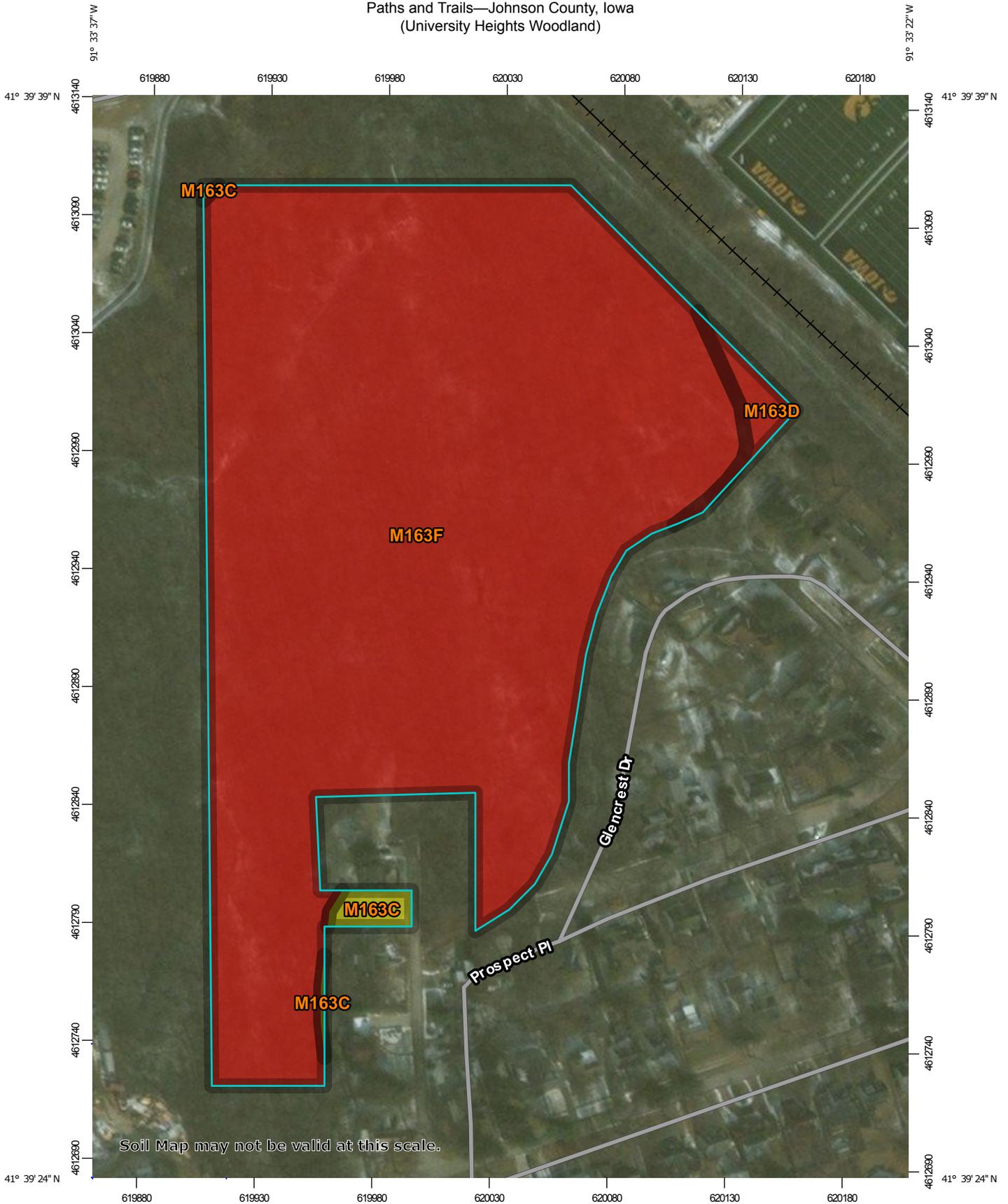
Date(s) aerial images were photographed: Apr 12, 2011—Feb 9, 2017

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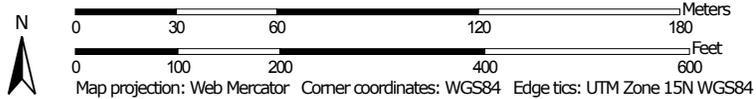
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
M163C	Fayette silt loam, till plain, 5 to 9 percent slopes	0.1	1.0%
M163D	Fayette silt loam, till plain, 9 to 14 percent slopes	0.2	1.4%
M163F	Fayette silt loam, till plain, 18 to 25 percent slopes	13.9	97.6%
Totals for Area of Interest		14.2	100.0%

Paths and Trails—Johnson County, Iowa
(University Heights Woodland)



Map Scale: 1:2,240 if printed on A portrait (8.5" x 11") sheet.



MAP LEGEND

Area of Interest (AOI)

-  Area of Interest (AOI)

Background

-  Aerial Photography

Soils

Soil Rating Polygons

-  Very limited
-  Somewhat limited
-  Not limited
-  Not rated or not available

Soil Rating Lines

-  Very limited
-  Somewhat limited
-  Not limited
-  Not rated or not available

Soil Rating Points

-  Very limited
-  Somewhat limited
-  Not limited
-  Not rated or not available

Water Features

-  Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

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Paths and Trails

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons	Acres in AOI	Percent of AOI
M163C	Fayette silt loam, till plain, 5 to 9 percent slopes	Somewhat limited	Fayette (90%)	Dusty	0.1	1.0%
			Fayette, eroded (5%)	Dusty		
			Rozetta (5%)	Dusty		
M163D	Fayette silt loam, till plain, 9 to 14 percent slopes	Very limited	Fayette (90%)	Water erosion	0.2	1.4%
				Dusty		
			Lindley (5%)	Water erosion		
				Dusty		
			Keswick (5%)	Depth to saturated zone		
Dusty						
M163F	Fayette silt loam, till plain, 18 to 25 percent slopes	Very limited	Fayette (85%)	Water erosion	13.9	97.6%
				Slope		
				Dusty		
			Lindley (10%)	Water erosion		
				Slope		
				Dusty		
			Nordness (5%)	Water erosion		
				Slope		
				Dusty		
Totals for Area of Interest					14.2	100.0%

Rating	Acres in AOI	Percent of AOI
Very limited	14.1	99.0%
Somewhat limited	0.1	1.0%
Totals for Area of Interest	14.2	100.0%

Description

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling.

The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

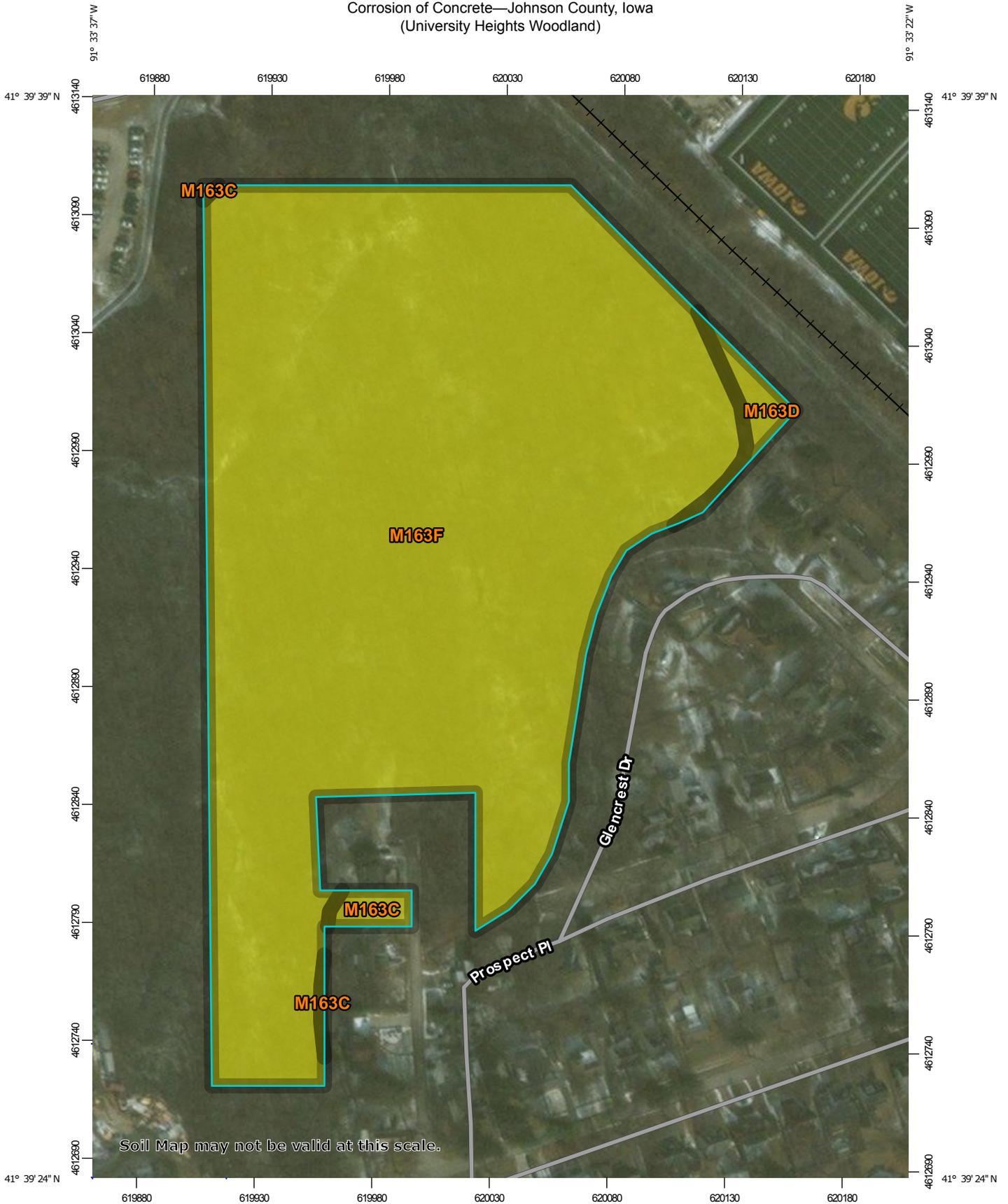
Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

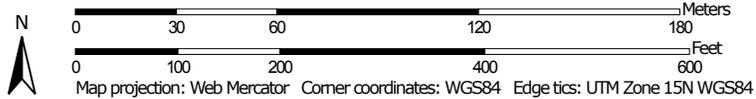
Tie-break Rule: Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

Corrosion of Concrete—Johnson County, Iowa
(University Heights Woodland)



Map Scale: 1:2,240 if printed on A portrait (8.5" x 11") sheet.



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Background

 Aerial Photography

Soils

Soil Rating Polygons

-  High
-  Moderate
-  Low
-  Not rated or not available

Soil Rating Lines

-  High
-  Moderate
-  Low
-  Not rated or not available

Soil Rating Points

-  High
-  Moderate
-  Low
-  Not rated or not available

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

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Corrosion of Concrete

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
M163C	Fayette silt loam, till plain, 5 to 9 percent slopes	Moderate	0.1	1.0%
M163D	Fayette silt loam, till plain, 9 to 14 percent slopes	Moderate	0.2	1.4%
M163F	Fayette silt loam, till plain, 18 to 25 percent slopes	Moderate	13.9	97.6%
Totals for Area of Interest			14.2	100.0%

Description

"Risk of corrosion" pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens concrete. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the concrete in installations that are entirely within one kind of soil or within one soil layer.

The risk of corrosion is expressed as "low," "moderate," or "high."

Rating Options

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

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For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

Component Percent Cutoff: None Specified

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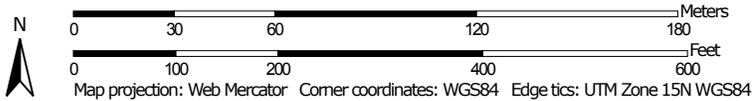
Tie-break Rule: Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

Corrosion of Steel—Johnson County, Iowa
(University Heights Woodland)



Map Scale: 1:2,240 if printed on A portrait (8.5" x 11") sheet.



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Background

 Aerial Photography

Soils

Soil Rating Polygons

-  High
-  Moderate
-  Low
-  Not rated or not available

Soil Rating Lines

-  High
-  Moderate
-  Low
-  Not rated or not available

Soil Rating Points

-  High
-  Moderate
-  Low
-  Not rated or not available

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

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Corrosion of Steel

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
M163C	Fayette silt loam, till plain, 5 to 9 percent slopes	Low	0.1	1.0%
M163D	Fayette silt loam, till plain, 9 to 14 percent slopes	Low	0.2	1.4%
M163F	Fayette silt loam, till plain, 18 to 25 percent slopes	Low	13.9	97.6%
Totals for Area of Interest			14.2	100.0%

Description

"Risk of corrosion" pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel in installations that are entirely within one kind of soil or within one soil layer.

The risk of corrosion is expressed as "low," "moderate," or "high."

Rating Options

Aggregation Method: Dominant Condition

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A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

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Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

Prescribed Burning

Iowa Job Sheet
Conservation Practice 338
August 2009



United States Department of Agriculture
Natural Resources Conservation Service
www.ia.nrcs.usda.gov

Definition

Prescribed burning is fire applied to a predetermined area within a prescribed set of conditions, dates and with appropriate safety precautions to achieve specific purposes.

Prescribed burning can be applied to forest land, grassland, pasture land, wildlife land, hayland and other land uses as appropriate.

Purpose

Prescribed burns serve many purposes. They include:

- controlling undesirable vegetation
- preparing sites for harvesting, planting or seeding
- controlling plant disease
- reducing wildfire hazards
- improving wildlife habitat
- improving plant production quantity and/or quality
- removing debris
- enhancing seed production
- facilitating the distribution of grazing and browsing animals
- restoring and maintaining ecological sites
- managing native plant diversity/composition

General specifications

This fact sheet discusses considerations and background information when planning a prescribed burn. It describes burn terminology, how to prepare for a burn, the appropriate season to burn and where to go to for assistance in completing a prescribed burn. To help you better prepare, a four-page Prescribed Burn Plan form is also included.

Pre-Burn Considerations

Prescribed burning is not meant to be an annual management practice. Burn only to meet a specific management objective. Generally, it is not necessary to burn more than once every 3-7+ years (i.e. dry sites – longer interval than mesic sites). One exception is woody vegetation. It may



NRCS Photo

be necessary to burn two or more consecutive years to control undesirable sprouting woody vegetation. Other considerations:

- Burning should be managed with regard for **wildlife needs**, such as nesting, feeding and cover. Large plots of land should usually not be burned at one time.
- **Existing barriers**, such as lakes, streams, wetlands, roads and constructed firebreaks are used in the burn.
- **Cultural resources**, and **threatened or endangered plants and animals**.
- **Smoke** impacts during and after the burn.
- **Weather conditions** are generally more favorable for burning following the passage of a weather front. Good burning conditions are frequently present 1-3 days following a rain.

Prescribed Burning

Burn Terminology

Backfire: A fire set to spread against the wind to burn more slowly and remove more vegetation and litter. Backfires are often used to create a black line for additional safety when a head fire is used on the same burn area.

Fire Boss: A person who supervises all phases of the application of a prescribed burn.

Firebreak*: A space clear of flammable materials to stop fire from moving out of the burn area. It also serves as a line from which to work and facilitate the movement of personnel and equipment.

Flankfire: A fire burning across the prevailing wind direction.

Headfire: A fire set to spread with the wind. Headfires are the fastest and hardest to control. They are used to manage taller shrubs and trees, leaving the most litter unburned.

Mop Up: The process of checking the entire perimeter of the burn area to ensure all fires or smoldering materials are out. This could include cow chips, logs, dead trees and small areas still burning.

Ring Fire: A common technique that starts with a back fire, then a flank fire is lit after a safe black line is established. This is followed by the headfire, creating a fire around the entire perimeter of the burn area.

Strip Headfire: A technique that requires setting a line or series of lines upward from a firebreak so no single line can develop enough heat or convection to escape or cross the firebreak.

High Volatile Fuels: Fuels with large amounts of compounds, such as fats, waxes or oils, that are highly flammable and can produce firebrands or wind-borne flaming debris. One example is the Eastern Red Cedar. High volatile fuels can be burned with proper precautions.

Low Volatile Fuels: Fuels with small amounts of highly flammable compounds, including most grasses and hardwood trees. These fuels can burn safely within a wider range of environmental conditions than high volatile fuels.

*Types of Firebreaks

Natural firebreaks are the most secure of all firebreaks, followed by permanent roads, bare soils and mowed firebreaks. All firebreaks should be checked by the burn boss prior to each burn. Firebreaks must be at least 15 feet in width or 4 times the fuel height, whichever is most.

- **Natural Firebreaks** - primarily lakes, rivers and larger streams; usually interconnected with other types of firebreaks.
- **Permanent Roads** - roads create a fuel free width of 15 to 20 feet. Permanent road firebreaks require no special burn day treatments, and allow rapid, safe ignition with routine ignition and holding forces.
- **Bare Soil Firebreaks** - firebreaks are tilled to bury almost all vegetation within a week of the burn date. Bare soil firebreaks should be reseeded quickly with legume species and some grasses to prevent excessive erosion risk. Bare soil firebreaks are not recommended on steep, erosive slopes or on prairie remnants or sites established to native prairie vegetation.
- **Mow-wetlined Firebreaks** - prepared by mowing as close to the ground as possible with rotary or sickle mowers beginning one year in advance to encourage enough green growth and reduce litter buildup to stop the fire.

Recommendations for Prescribed Burning

Purpose: To improve quality of wildlife habitat

<i>Vegetative Type</i>	<i>Season to Burn</i>	<i>Frequency of Burn</i>
Warm Season Native Grasses	April 1-May 15 (when natives have 1/2 to 3 inches new growth, less than 1 inch preferred)	3-5 years for Mesic* sites >5 years for Xeric** sites
Forbs	September 1-February 1	3-5 years
Cool Season Grass	March 1-April 15 (when cool season grasses have 2 inches or less new growth)	3-5 years
Native Prairie Remnants (depends on management objectives and community needs)	Depends on composition and objective	Depends on composition and objective

Note: Burn only 1/3 to 1/4 of site per year to provide more diversity, structure and duff.

* Mesic is characterized by a moderately moist hydrology.

** Xeric is characterized by a dry to very dry hydrology.

Purpose: To improve forage quality for grazing, haying and biomass production

<i>Vegetative Type</i>	<i>Season to Burn</i>	<i>Frequency of Burn</i>
Warm Season Native Grasses	April 1-May 15 (when natives have 1/2 to 3 inches new growth, less than 1 inch preferred)	3-5 years
Cool Season Grass	April 1-May 15 (<2 inches of new growth; less than 1 inch preferred)	2-4 years
Mixed Warm and Cool Season Grasses	Use above date to promote growth of declining group	2-5 years

Purpose: To control undesirable vegetation

<i>Vegetative Type</i>	<i>Season to Burn</i>	<i>Frequency of Burn</i>
Cedar Trees	September 1-May 20	3-5 years (effective <5 feet tall)
Deciduous Trees and Shrubs Buck Bush Osage Orange Autumn Olive, Dogwood Sumac, Locust Others ...	April 1-May 15 (when buds start to swell)	2 consecutive years, then every 3-5 years as needed (combine with mechanical/chemical controls)
Introduced Grasses	April 20-May 20 (when introduced grasses have 5-10 inches new growth)	3-5 years (may combine with mechanical controls)
Reduce Noxious Weeds (Perennials)	Before Flowering	As Needed
Other Undesirable Plants	Varied-for specific species; seek expert advice	Varied-for specific species; seek expert advice

Prescribed Burning

Pre-Burn Timetable

12 Months Prior to Burn

- Develop Prescribed Burn Plan
- Mow firebreaks bi-monthly during growing season before burn
- Remove dead trees and brush piles that are within 20 feet of firebreaks
- Scout for any safety concerns to burn crew, such as poison ivy or old fence wire

3 Months Prior to Burn

- Notify adjacent landowners/neighbors of intent to conduct a prescribed burn. Ask if residents have medical conditions that would worsen if there is smoke
- Arrange for crew and equipment needed

1 Month Prior to Burn

- Obtain necessary permits
- Clear vegetation around access points for vehicle entry to burn area

1-2 Days Prior to Burn

- Check weather forecast for day of burn
- Notify adjacent landowners/neighbors of intent to conduct prescribed burn
- Drive around site to check firebreaks and access points
- Test to insure that all burn equipment is functioning properly

Day of Burn

- Check weather forecast
- Review pre-burn checklist prior to ignition
- Ensure remnant livestock, equipment, pets are removed if needed
- Notify fire department/sheriff, etc.
- Be sure burn crew understands the implementation plan

Prescribed Burn Plan

Burn plans should be planned and implemented by trained personnel. Information about burn plans is available at your local NRCS office. For assistance, you may also contact:

- your local fire department
- Pheasants Forever
- The Nature Conservancy
- Technical Service Provider (TSP)



NRCS Photo

To stimulate growth of grass species, the best time to burn is just as the desired species starts to break dormancy in the spring. A good rule of thumb is to burn when the desired species—warm or cool season grass—has one inch of new growth.

To stimulate forb components of prairie plantings, fall burns should be used. This would normally be from September to late winter.

- Department of Natural Resources (DNR)
- local county conservation board

The remainder of this brochure is a sample burn plan to be used as background information. The sample plan will allow you to be better prepared for a burn, and it will answer many in-depth questions you may still have about a prescribed burn.

Helpful Websites

More information about Prescribed Burn Plans is available on the following websites:

- www.netexpress.net/~okeefe/
(Iowa Burn Weather Forecast)
- www.fire.org/
- www.oznet.ksu.edu/library/crpsl2/
- prcd.org/inl/prescribed_fire.htm
- www.tncfire.org
- www.iowadnr.com
- www.ecity.net/iacb/

PRESCRIBED BURN PLAN

DATE: _____ SITE/TRACT: _____

LANDOWNER/OPERATOR: _____

ADDRESS: _____

ACRES TO BURN: _____

TOWNSHIP: _____ SECTION: _____ Burn Class: 1 2 3 4 5 6

PLANNED DATE FOR BURN: _____ EXPIRATION DATE: _____

Notification of units of government*:

Local Fire Dept.(Name) _____ (phone) _____

Sheriff/County Dispatch _____ (phone) _____

Notification of Neighbors (a month in advance plus the day before the burn)

Name: _____ Phone: _____

Name: _____ Phone: _____

Name: _____ Phone: _____

Name: _____ Phone: _____

A. DESCRIPTION OF BURN AREA*: Program/Land use: _____

A1) Woody Plant Species (list species, size, and plants/acres):

A2) Herbaceous Plant Species (list species, height and condition):

A3) Fuel Load:
 Fine fuel (grass/forbs) _____ Tons/Acre _____ %Volatile Fuels _____
 Predominant fuel ht. _____ Feet _____

A4) Soil Types:	Slope %	Aspect:	%Area
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

B. OBJECTIVE AND TIMING OF BURN*: (Rank if more than one)

- _____ Reduce deciduous trees/shrubs (April 1–May 15)
- _____ Increase warm season grasses April 1–May 15)
- _____ Reduce cedar trees (Sept. 1–May 20)
- _____ Reduce cool season grass (April 20–May 20)
- _____ Reduce noxious perennial weeds (before flowering)
- _____ Improve wildlife habitat (Only burn 1/3 of site)
- _____ Distribute grazing (When warm season grasses are 1" – 3")
- _____ Increase forbs/diversity (Sept 1–February 1)
- _____ Remove Litter



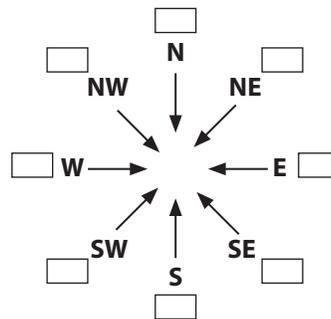
Give details below if needed:

Prescribed Burning

C. SPECIFIED CONDITIONS FOR DAY OF BURN* (NOTE – All factors have to be within prescription!)

(Burn forecast is available at: <http://www.netexpress.net/~okeefe/>)

Preferred:	Acceptable Conditions:
_____ F	1. Air Temperature 40 – 70 degrees F.
_____ %	2. Relative Humidity 30% - 60%.
_____ mph	3. Soil Damp to Touch as Time of Burn.
_____	4. Wind Speed 5 – 15mph
_____	5. Preferred Wind Direction steady from:
_____	6. (Acceptable Wind Direction-must enter in box; may also indicate on diagram at right with an X)



D. PREPARATION OF AREA FOR BURNING* (see attached burn plan map):

- Firebreaks must be at least 15 feet in width or 4 times the fuel height, whichever is greater.
- Plowed, disked and burned firebreaks, being essentially devoid of fuel, provide least danger of fire escape.
- Frequently mowed breaks (at least bi-monthly entire growing season before burn) provide good access and facilitate control
- Mowed and cool-season grass firebreaks have fuel available that can provide an avenue for fire escape. Smoke from green growth reduces visibility, inhibiting control line monitoring.
- Regardless of firebreak used, thatch/litter accumulation of any kind can allow fire to creep out of burn unit, rake clean to reduce risk.
- Heavy fuels loads: High Mowed fire intensity reduction lines (12" stubble), will be installed if fine fuel exceeds 1.5 ton/acre. Fuel reduction line width will be at least 10 feet @ 1.5 T/A and 20 feet @ >3T/A.

1. Firebreak Construction: (type of fire line, width in feet. Also indicate on burn plan map.)

2. Existing firebreaks: (streams, roads, tilled field, etc. Show on burn plan map)

3. Items to address: (protection of power line poles, signs, cable/phone junction boxes, dead tree removal, etc.)

4. Potential Hazardous Area within Burn Area: (power lines, snags, structure, obstacles to vehicle access, plastic drain tile, underground utilities, etc.)

E. ADJACENT AREAS: (Outside of Burn Area)

1. Special Precaution Areas (also drawn on attached burn plan map):

*leaf litter, dry grass, roads, structures, smoke dispersions, etc.

Precautions needed: (include backup or secondary firebreaks if necessary)

2. Smoke Management Plan

* Include smoke sensitive areas, i.e. avoid sending smoke into residential areas, neighbors, airports, hospitals, busy roadways, power lines, etc.

* Note wind directions, which would be unacceptable for burning for each specific hazard

F. TOOLS/EQUIPMENT NEEDED* : (include type and number of rakes, swatters, drip torches, backpack pump, other)

- | | |
|---|--|
| <p>F1. Equipment Checklist</p> <ul style="list-style-type: none"> ___ 1. Pumper Truck ___ 2. Drip torch(s) ___ 3. Fire weather kit ___ 4. Tractor/Maintainer ___ 5. Two-way Radios ___ 6. Gas (40%)/Diesel (60%) ___ 7. Chain Saw ___ 8. Flappers ___ 9. Drinking Water ___ 10. Livestock sprayers ___ 11. Sprayer Fuel ___ 12. Rake(s) ___ 13. Flagmen ___ 14. Flags for flagmen ___ 15. NOAA radio ___ 16. Matches or lighter ___ 17. Backpack Sprayers ___ 18. All cotton clothing/NOMEX ___ 19. Shovel(s), pliers ___ 20. Cellular phone | <p>F2. Preburn protection needs</p> <ul style="list-style-type: none"> ___ 1. Remnant Livestock ___ 2. Feeders ___ 3. Pens and Barns ___ 4. Utility Poles ___ 5. Oil/gas/pipelines ___ 6. Fences ___ 7. Hunting Facilities ___ 8. Headquarters ___ 9. Desirable wooded areas ___ 10. Windmills ___ 11. Water Storage Facilities ___ 12. Special habitat areas ___ 13. Haystacks ___ 14. Equipment ___ 15. Liability insurance ___ 16. Critically eroding areas ___ 17. Livestock working fact ___ 18. Vehicles ___ 19. Inspection of fireguards ___ 20. _____ |
|---|--|

Additional equipment or considerations:

G. PERSONNEL REQUIRED FOR BURN*:

(Include number of people and their role. It's recommended that burning be done by certified personnel.)

Position	Name
Fire Boss	
Igniter	
Igniter	
Pumper/Sprayer	
Pumper/Sprayer	
Pumper/Sprayer	
Suppression Crew	
Suppression Crew	
Suppression Crew	
Weather/Communications	

Prescribed Burning

H. SPECIAL CONSIDERATIONS:

Precautions to prevent fire escape:

I. SUPPRESSION PLAN IF FIRE ESCAPES: (NOTE any contingency plans, i.e. secondary firebreaks: creeks, roads, disked breaks, authorities to contact. Provide burn map to fire dept. noting field access, hazards, etc.)

J. PATROL AND MOP-UP PLAN:

- Patrol entire perimeter of burned area, put out all flames and smoke within 20 feet of burn line
- Pay special attention to smoldering leaf/litter, dung pats, coarse woody debris, corn cobs or other coarse fuels.

K. IGNITION PLAN*: (see attached burn plan map)

- 1) Ignition Time (avoid variable winds, usually occur late morning): _____
- 2) Method of Firing/Firing Sequence (describe below):(backing fire, flank fire, head fire, strip head, etc. also indicate on map)

PRESCRIBED BURN PLAN MAP

(Attach aerial photos, topographic map or line-drawing if scale is appropriate)

Suggested legends for indicating pertinent information on aerial photo or topo map.

Approximate Scale: Inches per _____
 Or: Inches per _____

Legend
 mile: _____
 feet: _____

B-B-B-B-B-B	Burned Firebreak	IP	Ignition point
P-D-P-D-P-D-P	Tilled/Mowed Firebreak	W	Water Source
CS-CS-CS-CS	Cool Season Grass Firebreak	A,B,etc.	Fire Crews
HM-HM-HM	High Mowed fuel intensity reduction line	1,2,etc	Firing Sequence
		(A1)>>>	Firing Direction
		WIND--->	Wind Direction

Other legend information

Plan Prepared by (name and organization):

Date: _____

Signature*: _____

Date: _____

Plan addresses all items required in the Conservation Practice Standard (338 Prescribed Burning):

NRCS Signature: _____

Date: _____

IF BURN PLAN EXPIRED BEFORE IMPLEMENTATION, PLAN HAS BEEN REVIEWED AND RECERTIFIED BY (PREPARER):

Signature: _____

Date: _____

Landowner acknowledgement and acceptance of burn plan preparation and liability*

I, _____ have requested the preparation of this prescribed burn plan; my signature establishes my acceptance of full liability resulting from the implementation of this plan.

Prescribed Burning

PRESCRIBED BURN CHECKLIST

(To be reviewed and filled out DAY OF BURN)

NOTE: Parties igniting a prescribed burn may be liable for damages resulting from the fire and control cost, should fire escape the designated area.

A. Pre-burn Checklist* (Day of Burn)

- | | |
|--|----------------|
| 1. Weather forecast favorable: http://www.netexpress.net/~okeefe/ | YES ___ NO ___ |
| 2. Necessary firebreaks constructed | YES ___ NO ___ |
| 3. Potential hazards accounted for | YES ___ NO ___ |
| 4. Special precaution areas noted | YES ___ NO ___ |
| 5. Backup/secondary firebreak locations noted | YES ___ NO ___ |
| 6. Safety equipment adequate | YES ___ NO ___ |
| 7. Tools/equipment on-site | YES ___ NO ___ |
| 8. Personnel needed available | YES ___ NO ___ |
| 9. Special considerations reviewed with crew | YES ___ NO ___ |

IF ANY OF THE ABOVE ARE ANSWERED "NO", DO NOT BURN

10. Actual weather at burn:

Acceptable Conditions:

1. Air Temperature 40-70 degrees F.

2. Relative Humidity 30%-60%

3. Soil Damp to Touch at Time of Burn

4. Wind Speed 5-15 mph

5. Acceptable Wind Direction steady from: _____ YES ___ NO ___

6. Preferred Wind Direction steady from: _____ YES ___ NO ___

7. Actual wind Direction: _____

Preferred:

F _____

%RH _____

mph _____

Actual:

Time Recorded:

11. Fronts or changes expected? YES ___ NO ___

12. Notification of units of government made:

Local Fire Dept.(name) _____

phone: _____

Sheriff/County Dispatch _____

phone: _____

13. Notification of Neighbors

Name: _____ Phone: _____

Name: _____ Phone: _____

Name: _____ Phone: _____

Name: _____ Phone: _____

14. Necessary permits obtained (if any): YES ___ NO ___

Additional Comments: _____

Checklist completed by: _____

DATE: _____

B. Post-burn Evaluation * (Day of Burn):

- 1. Burning method used
- 2. Start of burn Beginning Time: _____ a.m. (____) p.m. (____)
 Mop Up Completed Ending Time: _____ a.m. (____) p.m. (____)
- 3. Observed change in weather conditions during the burn:

4. Fire behavior: (check one)

- a. Spotting none(____) few(____) many(____)
- b. Difficult to control yes (____) no (____)
- c. Convection column yes (____) no (____)
- d. Fire whirls yes (____) no (____)

5. Objective of burn met: yes (____) no (____)

6. Post-burn management plan (additional treatments needed):

7. Future burn needed Yes (____) No (____)

8. Other comments:

Evaluation Completed by:

Signature: _____ Date: _____

***Items Required To Meet Conservation Practice Standard 338 Prescribed Burning**

