APPLICATION TO

NORTH DAKOTA PUBLIC SERVICE COMMISSION

FOR

ROUTE PERMIT

FOR THE HESS HAWKEYE NATURAL GAS LIQUIDS PIPELINE PROJECT

(CASE NUMBER PU-15_____)

by

HESS NORTH DAKOTA PIPELINES LLC

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A. Project Description

A.1 Type

Hess North Dakota Pipelines LLC (Hess) has filed a Right-of-Way (ROW) Grant application with the Bureau of Land Management (BLM) to construct, operate, and maintain the Hawkeye Pipeline Project (includes crude oil, natural gas, and natural gas liquids [NGL] pipelines) in McKenzie and Williams counties, North Dakota. As part of this Project, Hess proposes to repurpose existing pipelines, construct several aboveground Project components, and operate a NGL pipeline (Project), as shown in **Appendix A** (**Figure A-1**). The projected in-service date for the Project is October 2015. The expected life of the Project is 30 years.

Hess is proposing to repurpose and operate approximately 19.2 miles of existing pipelines, which would operate as one pipeline connecting the Bakken production fields south of Lake Sakakawea to existing processing and truck facilities north of the lake. The Project would transport NGL from the Hawkeye Compressor Station near Charlson, North Dakota, to the Silurian Compressor Station near Tioga, North Dakota (**Appendix A**, **Figure A-1**). The sources of the NGL that would be transported by the Project are the middle Bakken and upper Three Forks formations (Bakken) of the Williston Basin. The base flow rate for the natural gas condensate is expected to be up to 13,000 barrels liquid per day (blpd); the pipeline is designed to carry up to 30,000 blpd. No surface disturbance activities would occur with the repurposing of the existing natural gas pipelines to NGL service. Surface disturbance associated with the aboveground Project components would occur within existing Hess facilities that have been previously disturbed and are devoid of vegetation. No permanent direct or indirect adverse effects are anticipated.

Between the existing Hawkeye Compressor Station and existing North Hofflund Valve Station, approximately 10.5 miles of an existing 8-inch-diameter natural gas pipeline would be converted to NGL service (**Appendix A**, **Figure A-1**). From the existing North Hofflund Valve Station to the existing Silurian Compressor Station, approximately 8.7 miles of an existing 10-inch-diameter natural gas pipeline would be converted to NGL service. Proposed aboveground project components (e.g., pipeline inspection gauge [pig] launchers, pig receivers, emergency shutdown [ESD] valves) (**Appendix A**, **Figures A-2** through **A-4**) associated with the proposed conversion of existing natural gas pipelines to NGL service would include:

Hawkeye Compressor Station:

- 1, 8-inch-diameter prefabricated pig launcher skid
- 1, 8-inch-diameter ESD valve

North Charlson Compressor Station:

- 1, 8-inch-diameter ESD valve

North of River Valve Station:

- 1, 8-inch-diameter ESD valve

North Hofflund Valve Station:

- 1, 8-inch-diameter prefabricated pig receiver skid
- 1, 10-inch-diameter prefabricated pig launcher skid

Silurian Compressor Station:

- 1, 10-inch-diameter prefabricated pig receiver skid
- 1, 10-inch-diameter ESD valve

The Project would be designed, constructed, and operated in accordance with the U.S. Department of Transportation (USDOT) regulations in 49 Code of Federal Regulations (CFR) 195, Transportation of Hazardous Liquids by Pipeline: Minimum Federal Safety Standards, and other applicable federal and state regulations. The federal regulations are administered by USDOT's Pipeline and Hazardous Materials Safety Administration (PHMSA).

A.2 Product

The Project would transport NGL from the Hawkeye Compressor Station near Charlson, North Dakota, to the Silurian Compressor Station near Tioga, North Dakota (**Appendix A**, **Figure A-1**).

A.3 Size and Design

The Project includes approximately 19.2 miles of repurposed pipeline connecting the Bakken production field south of Lake Sakakawea to infrastructure north of the lake. The Project would transport NGL from south of Lake Sakakawea in McKenzie County, North Dakota, the Silurian Compressor Station. Section A.1, Type of Facility, provides a general description of the pipeline and proposed aboveground Project components within existing facilities. In addition, **Appendix A** provides engineering drawings for the proposed aboveground Project components.

The NGL pipeline would be designed for an initial flow rate of 13,000 blpd. The maximum design flow rate of the NGL pipeline would be 30,000 blpd. The NGL pipeline would maintain a minimum burial depth of 5 feet underground and would be designed for a maximum operating pressure of 1,250 pounds-force per square inch gauge (psig) with a Maximum Operating Temperature of 65 degrees Fahrenheit. The NGL pipeline would utilize existing pipe that is 8-inch outside diameter (OD) x 0.250-inch wall thickness (WT) and 10-inch OD x 0.279-inch WT, API 5L–X52 for the majority of the Project route except at the Lake Sakakawea crossing, which has a 8-inch OD x 0.500-inch wall thickness, API 5L Gr. B.

A.3.1 Right-of-Way and Construction Procedures

The existing repurposed pipelines and proposed aboveground Project components (see Section A.1, Type of Facility) that would be constructed within existing facilities and would be tested, operated, and maintained in accordance with applicable requirements of the USDOT regulations in 49 CFR 195, Transportation of Hazardous Liquids by Pipeline: Minimum Federal Safety Standards; United States Department of Labor regulations; Occupational Safety and Health Administration (OSHA) requirements; and other applicable federal and state regulations, such as PHMSA regulations. These regulations are intended to ensure adequate protection for the public and to prevent pipeline accidents and failures. Among other design standards, 49 CFR 195 specify pipeline material selection; minimum design requirements; protection from internal, external, and atmospheric corrosion; and qualification procedures for welding and operations personnel.

Phases of construction according to pipeline segment or aboveground facilities would include the following:

- Hawkeye Compressor Station to the North Hofflund Valve Station – clean pig runs and complete hydrostatic testing of 8-inch-diameter pipeline;
- North Charlson Compressor Station – demolish existing facilities;
- North of River Valve Station – demolish existing facilities;
- North Hofflund Valve Station to Silurian Compressor Station – clean pig runs and complete hydrostatic testing of 10-inch-diameter pipeline; and

- Install new 8- and 10-inch-diameter ESD Valves and pig launchers or receivers at the Hawkeye Compressor Station, North Charlson Compressor Station, North of River Valve Station, North Hofflund Valve Station, and Silurian Compressor Station.

Hess has existing ROW agreements or other agreements in place covering the repurposed pipeline segments and the aboveground facilities, with agreements generally covering a permanent 50-foot-wide ROW. Construction equipment, construction personnel, and time required to complete these construction tasks is provided in Section A.4, Time Schedule (**Table A-1**).

A.3.2 Hydrostatic Testing

The entire length of the repurposed pipelines was hydrostatically tested in June 2013. The existing pipelines, including the pipelines section under Lake Sakakawea, passed the requisite tests required by federal pipeline regulations.

A.3.3 Operation and Maintenance

The Fiber Optic Control System would provide continuous operating data. Pressure, temperature, flow rate, pressure alarms, and status alarms would be transmitted to a central location and monitored 24 hours per day, 7 days per week. Hess would develop a Pipeline Integrity Management Plan, which, together with the Emergency Response Plan, outlines preventive maintenance, inspection, line patrol, leak detection systems, Supervisory Control and Data Acquisition, and other pipeline integrity management procedures to be implemented during operation.

Hess periodically would use the permanent ROW to perform inspections, maintain equipment, and make repairs during the life of the Project. Undesired vegetation that may interfere with the safe and reliable operations of the pipeline would be removed. Per federal regulations, the pipeline surveillance would occur at least 26 times per year, not to exceed a 3-week interval. This helps identify unauthorized activities along the ROW and facilitates leak detection.

A.4 Time Schedule

Table A-1 provides the time schedule for important permitting and construction phases of the Project. Construction of the aboveground Project components likely would begin in May through July 2015. Private contractors would likely construct the aboveground Project components and also would haul away construction wastes associated with the Project.

Construction generally would follow a sequential set of activities performed by several crews. **Table A-1** lists the construction activities.

Table A-1 Conventional Personnel, Equipment, and Time Requirements for Construction

Aboveground Facilities and Tasks	Number of Personnel	Equipment	Length of Time
Hawkeye Compressor Station to the North Hofflund Valve Station – clean pig runs and complete hydrostatic testing of 8-inch-diameter pipeline	10	Hydrostatic Test Kit (e.g., manifolds, temperature test headers, compressors, fracturing tank, test trailers, etc.), crane, drying unit, N2 generator, and volume of pigs	10 Days
North Charlson Compressor Station – demolish existing facilities	12	Crane, excavators, and welding rig	7 Days
North of River Valve Station – demolish existing facilities	12	Crane, excavators, and welding rig	7 Days
North Hofflund Valve Station to Silurian Compressor Station – clean pig runs and complete hydrostatic testing of 10-inch-diameter pipeline	10	Hydrostatic Test Kit (e.g., manifolds, temperature test headers, compressors, fracturing tank, test trailers, etc.), crane, drying unit, N2 generator, and volume of pigs	10 Days
Hawkeye Compressor Station to the North Hofflund Valve Station – clean pig runs and complete hydrostatic testing of 8-inch-diameter pipeline	10	Crane, excavators, welding units and trucks	20 Days

B. Studies

B.1 Environmental Reports/Application

An Environmental Assessment (EA) for the Project is being prepared under the direction of the BLM, serving as the lead federal agency in compliance with the National Environmental Policy Act of 1970 (NEPA) per the Mineral Leasing Act (MLA) of 1920, as amended. The USFS, USACE, U.S. Fish and Wildlife Service (USFWS), and State of North Dakota are serving as cooperating agencies on the Project. This document follows the guidelines promulgated by the Council of Environmental Quality (CEQ) for implementing the procedural provisions of NEPA (40 CFR 1500-1508), BLM's NEPA Handbook (H-1790-1), and the USACE regulation ER 200-2-2 (33 CFR 230). Additionally, 40 CFR 1506.3(a) allows the cooperating agencies (USFS, USACE, USFWS, and State of North Dakota) to adopt a NEPA document prepared by the lead federal agency (BLM). In order to issue an easement for a proposed activity, the cooperating agencies would independently evaluate and verify the information and analysis undertaken in the EA and would take full responsibility for the scope and content contained herein, even though, per the MLA, the BLM would issue the ROW Grant for all federal lands crossed. NEPA requires federal agencies to make a series of evaluations and decisions that anticipate adverse effects on environmental resources and that a reasonable range of project alternatives identify potential direct, indirect, and cumulative environmental impacts. Hess is the Project applicant (also referred to as Project sponsor or Project proponent) and would be responsible for construction, operation, maintenance, and decommissioning of the Project.

A Spill Risk Assessment addresses potential impacts to soils, wetlands, vegetation, special status species, and wildlife and fisheries that may occur as a result of a potential NGL release during operation (**Appendix B**). Impacts to natural and human resources associated with the NGL pipeline are not anticipated as construction activities would not occur with the repurposing of the existing natural gas pipelines, and the construction of the aboveground Project components would only occur within existing Hess facilities.

Specific regulations require BLM to coordinate and consult with federal, state, and local agencies, and Native American tribes about the potential of the Project and alternatives to affect sensitive resources. The coordination and consultation must occur in a timely manner and these activities are required before any final decisions are made. Issues related to agency and tribal consultation may include biological resources, cultural resources, properties of traditional religious and cultural importance to Native American tribes, socioeconomics, land use, and water management. Biological resource consultations are completed to address potential impacts to sensitive species or habitats, as required by Section 7 of the Endangered Species Act (ESA). Cultural resource and tribal consultations are completed to address potential impacts to important archaeological sites and sites of tribal concern, as required under Section 106 of the National Historic Preservation Act (NHPA).

A Natural Resources Report (**Appendix C**) includes information regarding wetlands and waterbodies, soils, federal listed species, USFS-sensitive species, noxious weeds, wooded areas, and raptor nests based on field surveys conducted within the 200-foot-wide corridor.

A Cultural Resources Class III inventory report was developed that summarizes the results of the pedestrian surveys conducted within a 200-foot-wide survey corridor. Based on direction provided by the North Dakota State Historical Society, this report has not been included in this application due to the sensitive nature of this information.

C. Need for Facility

C.1 Analysis of Need

C.1.1 Hess' Interest and Objectives

Hess proposes to repurpose existing natural gas pipelines to NGL service, construct aboveground Project components at existing Hess facilities, and operate and maintain the repurposed pipeline that would transport NGL from the middle Bakken and upper Three Forks formations (Bakken) of the Williston Basin, to existing export infrastructure north of Lake Sakakawea. Hess maintains the Project would help to address anticipated regional pipeline and outlet constraints north of Lake Sakakawea as development of the Bakken Formation increases and the pipeline is needed to relieve the large truck traffic congestion on the western North Dakota road system.

C.1.2 Purpose and Need for Proposed Action

The purpose of the Proposed Action is to repurpose the existing natural gas pipelines to NGL service in order to meet their interests and objectives for the Project. The need for the Proposed Action is to repurpose the existing natural gas pipelines to NGL service, construct aboveground Project components at existing Hess facilities, and operate and maintain the repurposed pipeline for the purpose of transporting NGL to regional markets.

C.2 Alternatives

C.2.1 Trucking Alternative

An alternative to transporting NGL via pipeline included the continued trucking of the liquids, which is environmentally undesirable. This alternative would include approximately 72 daily truck trips for the transportation of NGL. The NGL pipeline would allow Hess to capture current and future production in the Buffalo Wallow, Hawkeye, Antelope, and Blue Buttes areas. Without the Project, the level of flaring would continue to increase from 2015 and into the future. Therefore, the alternative to continue trucking an increased volume of NGL was eliminated from further analyses.

C.2.2 Route Alternative

Due to the relatively short length of the pipeline and the proposal to tie into the existing pipeline at the Lake Sakakawea crossing, major pipeline route alternatives that would connect the Hawkeye Compressor Station to the Silurian Compressor Station were not identified.

C.3 Deviation from Ten-Year Plan

The description of the Project corresponds with information provided in Hess' most recent Ten-Year Plan (**Appendix D**), which was submitted to the Public Service Commission (PSC) by Hess on June 24, 2014. There were no deviations between the planned project described in the Ten-Year Plan and the Project described in this application.

D. Location

D.1 Study Area

Factors provided in Section NDCC 49-22-09 that are to be considered in evaluating application and designation of sites, corridors, and routes are listed below. The PSC shall be guided by, but is not limited to, the following considerations, where applicable, to aid in the evaluation and designation of sites, corridors, and routes:

1. *Available research and investigations relating to the effects of the location, construction, and operation of the proposed facility on public health and welfare, natural resources, and the environment*.

   A Class I file search of recorded cultural resource sites along the Project route was completed using data from the Division of Archaeology and Historic Preservation, State Historical Society of North Dakota. The North Dakota Natural Heritage Inventory and USFWS also provided database information regarding threatened, endangered, and state sensitive plant species.

2. *The effects of new energy conversion and transmission technologies and systems designed to minimize adverse environmental effects.*

   Not applicable.

3. *The potential for beneficial uses of waste energy from a proposed energy conversion facility.*

   Not applicable.

4. *Adverse direct and indirect environmental effects which cannot be avoided should the proposed site or route be designated.*

   No surface disturbance activities would occur with the repurposing of the existing natural gas pipelines to NGL service. Surface disturbance associated with the aboveground Project components would occur within existing Hess facilities that have been previously disturbed and are devoid of vegetation. No permanent direct or indirect adverse effects are anticipated.

5. *Alternatives to the proposed site, corridor, or route which are developed during the hearing process and which minimize adverse effects.*

   There are no alternatives to the Project route since existing natural gas pipelines would be repurposed for the NGL pipeline.

6. *Irreversible and irretrievable commitments of natural resources should the proposed site, corridor, or route be designated.*

   Irreversible and irretrievable commitments of natural resources would not occur. Surface disturbance activities would not occur with the repurposing of the existing natural gas pipelines to NGL service and surface disturbance associated with the aboveground Project components would occur within existing Hess facilities that have been previously disturbed.

7. *The direct or indirect economic impacts of the proposed facility*.

   Economic impacts would be positive. Ad valorem taxes would be paid annually, which help the economy. North Dakota sales or use tax would be paid on all materials purchased. During construction, workers would increase the level of business activity in the area.

8. *Existing plans of the state, local government, and private entities for other developments at or in the vicinity of the proposed site, corridor, or route.*

   Portions of the proposed BakkenLink Dry Creek to Beaver Lodge Pipeline Project (crude oil pipeline project) would be constructed within the 200-foot-wide route corridor and would parallel some portions of the Project. Construction of this Project would likely start in the May 2015 and be completed in October 2015. Oil and gas wellfield development or construction of pipeline gathering systems may occur within the 200-foot-wide route corridor. However, no formal development plans have been identified at this time.

9. *The effect of the proposed site or route on existing scenic areas, historic sites and structures, and paleontological or archaeological sites.*

   No surface disturbance activities would occur with the repurposing of the existing natural gas pipelines to NGL service. Surface disturbance associated with the aboveground Project components would occur within existing Hess facilities that have been previously disturbed and are devoid of vegetation. No permanent direct or indirect adverse effects are anticipated to archaeological or paleontological resources that occur in the Project area.

10. *The effect of the proposed site or route on areas which are unique because of the biological wealth or because they are habitats for rare and endangered species*.

    No surface disturbance activities would occur with the repurposing of the existing natural gas pipelines to NGL service. Surface disturbance associated with the aboveground Project components would occur within existing Hess facilities that have been previously disturbed and are devoid of vegetation. No permanent direct or indirect adverse effects are anticipated to rare and endangered species and their habitat that occur in the Project area.

11. *Problems raised by federal agencies, other state agencies, and local entities.*

    Federal and state agencies were contacted during the data collection phase of the Project (**Appendix E**). These agencies have provided input and identified concerns that have been addressed in this document.

D.2 Proposed Route Location Criteria

Hess is proposing to repurpose an approximately 19-mile-long pipeline connecting Bakken production fields south of Lake Sakakawea to existing processing facilities north of the lake. The Project would transport NGL from the Hawkeye Compressor Station near Charlson, North Dakota to the Silurian Compressor Station near Tioga, North Dakota (**Appendix A**, **Figure A-1**). The criteria used in the evaluation of a Project route within the Project corridor are illustrated in **Appendix F**, **Figures F-1** through **F-6**.

D.3 Proposed Route Selection Criteria

The pipeline must originate at the Hawkeye Compressor Station and terminate at the Silurian Compressor Station. The criteria identified in Section D.4, North Dakota Public Service Commission Criteria, and illustrated in **Appendix F**, **Figures F-1** through **F-6** are difficult to list in order of importance in terms of relative value as they are closely interrelated. They were of equal value and importance in the route selection process. The selection criteria are discussed in the following section.

D.4 North Dakota Public Service Commission Criteria

The PSC requires a two-step process consisting of identifying and selecting corridors, and routes within corridors. PSC routing requirements are applicable to identifying appropriate corridors as well as specific routes. The Project route within the proposed corridor minimizes impacts to exclusion and avoidance areas.

The PSC classifies routing constraints as exclusion areas, avoidance areas, selection criteria, and policy criteria. The criteria are summarized in the following sections.

D.4.1 Exclusion Areas

Exclusion areas are defined as geographical areas that are to be completely avoided during pipeline routing. **Appendix F**, **Figures F-1 to F-2**, illustrate the exclusion areas that occur along the Project route.

1. *Designated or registered national: parks, memorial parks; historic sites and landmarks; natural landmarks; monuments; and wilderness areas.*

   None are located along the Project route.

2. *Designated or registered state: parks, historic sites; monuments; historical markers; archaeological sites; and nature preserves.*

   Based on the review of cultural resources information obtained from the State Historical Society of North Dakota, cultural resource sites occur along the Project route. However, these areas would not be affected since surface disturbance would only occur with the construction of aboveground Project components in existing Hess facilities. Professional archaeologists who meet the Secretary of Interior standards would monitor any ground-disturbing activities (e.g., maintenance, emergency response) that may be necessary in the future.

3. *County parks and recreational areas; municipal parks; and parks owned or administered by other governmental subdivisions.*

   None are located along the Project route.

4. *Areas that are critical to the life stages of threatened or endangered animal or plant species.*

   A total of 28 special status terrestrial and aquatic wildlife species were identified by the USFWS and USFS as potentially occurring along the Project route (**Appendix G**, **Table G-1**) (Hagen et al. 2005; USFS 2011; USFWS 2013). The potential for occurrence of special status wildlife species along the Project route was based on range, known distribution, and the presence of suitable habitat crossed by the Project route. These species, their habitat associations, and their potential occurrence within the Project route are summarized in **Appendix G**. Occurrence potential for each species was based on habitat requirements and known distribution. Based on these evaluations, 12 wildlife species (black footed ferret, gray wolf, Rocky Mountain bighorn sheep, bald eagle, greater prairie chicken, greater sage-grouse, Argos skipper, broad-winged skipper, dion skipper, mulberry wing, powesheik skipper, and northern redbelly dace) have been eliminated from detailed analysis. The remaining 14 species analyzed, including six federally listed, proposed, or candidate species (i.e., interior least tern, piping plover (critical habitat shown on **Appendix F**, **Figures F-1** and **F-2**), whooping crane, Sprague's pipit, pallid sturgeon, and Dakota skipper) have the potential to occur within the Project area, as described in **Appendix G**.

   None of these special status species, habitat, or designated critical habitat would be affected by the Project since surface disturbance would only occur with the construction of aboveground Project components in existing Hess facilities.

5. *Areas where animal or plant species that are unique or rare to the State would be irreversibly damaged.*

   Although special status wildlife and plant species and plant communities occur along the Project route, none of these species would be irreversibly damaged by construction activities. **Appendix F**,

Figures F-1 and **F-2** illustrate general locations of special status wildlife and plant species occurrences along the Project route.

6. *Areas within one thousand two hundred feet of the geographic center of an intercontinental ballistic missile (ICBM) launch or launch control facility.*

   ICBM launch or launch control facilities do not occur along or adjacent to the Project route.

7. *Areas within thirty feet on either side of a direct line between intercontinental ballistic missile (ICBM) launch or launch control facilities to avoid microwave interference.*

   The Project route is not located within 30 feet either side of a direct line between ICBM launch or launch control facilities.

D.4.2 Avoidance Areas

Avoidance areas are defined as geographical areas that are to be completely avoided during pipeline routing, unless the applicant shows that under the circumstances, there is no reasonable alternative. In determining whether an avoidance area should be designated for a facility, the applicant may consider, among other things, the proposed management of adverse impacts; the orderly siting of facilities; system reliability and integrity; the efficient use of resources; and alternative routes. Economic considerations alone shall not justify approval of these areas. **Appendix F**, **Figures F-3** and **F-4** illustrate the avoidance areas that occur within the Project route. Avoidance areas include:

1. *Designated or registered national: historic districts; wildlife areas; wild, scenic, or recreational rivers; wildlife refuges; and grasslands.*

   Portions of the Project route cross Lake Sakakawea (i.e., Missouri River), Little Missouri National Grassland (LMNG), and the historic Elm Tree Archaeological District. The Project route intersects the LMNG (managed by the USFS), which is located in the rugged terrain south of Lake Sakakawea. Half of site 32MZ2768 lies within the Elm Tree Archaeological District, which has been nominated for listing on the National Register of Historic Places (NRHP). The Elm Tree Archaeological District covers 152 acres and consists of 12 sites, 6 of which have undergone evaluative testing and were found eligible for inclusion on the NRHP. Rock features were found at all 12 sites; activity areas and datable features additionally were found at the 6 tested sites. The area encompassing the Elm Tree Archaeological District functioned as a natural travel corridor and the identified sites reflect short-term camps where stone tool production, stone tool maintenance, and bison processing were performed. A minimum of 50 feet separates the archaeological sites within the Elm Tree Archaeological District and the Project route. The Project route does not include national wildlife areas, wild and scenic rivers, or national wildlife refuges. The LMNG, Lake Sakakawea, and historic Elm Tree Archaeological District would not be affected by the Project since surface disturbance would only occur with the construction of aboveground Project components in existing Hess facilities. This area is currently proposed and is not currently listed on the NRHP.

2. *Designated or registered state: wild, scenic, or recreational rivers; game refuges; game management areas; management areas; forest; forest management lands; and grasslands.*

   One section of North Dakota State Trust land is located along the Project route approximately 0.1 mile north of Lake Sakakawea. This land is managed by the North Dakota State Lands Department. This land would not be affected by construction of the Project since surface disturbance would only occur with the construction of aboveground Project components in existing Hess facilities.

3. *Historic resources that are not specifically designated as exclusion or avoidance areas.*

   None are located along the Project route.

4. *Areas that are geologically unstable.*

   Several landslide areas occur along the Project route; however these areas would not be disturbed by construction activities.

5. *Areas within 500 feet of a residence, school, or place of business (also to include community centers, healthcare facilities, and daycare facilities).*

   There are two residences within 1,000 feet of the Project route, the nearest of which is approximately 332 feet from the Project route. The other residence is approximately 913 feet from the Project route.

6. *Reservoirs and municipal water supplies.*

   Lake Sakakawea, a reservoir of the Missouri River, occurs along the Project route. An existing pipeline at the proposed Lake Sakakawea crossing (approximately 2.4 miles long) would be used for the transmission of NGL. No municipal water source intake locations occur along the Project route.

7. *Water resources for organized rural water districts.*

   Water from Lake Sakakawea is used by a rural water association as a water source. This water source would not be affected since an existing pipeline would be repurposed and used for NGL transportation.

8. *Irrigated land.*

   Irrigated land is not present along the Project route.

9. *Areas of recreational significance that are not designated as exclusion areas.*

   None are present along the Project route.

D.4.3 Selection Criteria

In selecting its route, a corridor or route shall be designated only when it is demonstrated to the PSC by the applicant that any significant adverse effects that would result from the location, construction, and maintenance of the facility as they relate to the following, would be at an acceptable minimum, or that those effects would be managed and maintained at an acceptable minimum. Selection criteria along the Project route are illustrated in **Appendix F**, **Figures F-5** and **F-6**. Selection criteria include:

1. *Agricultural production.*

   Land traversed by the Project route is predominantly used for agricultural production. Agricultural production would not be affected by the Project since surface disturbance would only occur with the construction of aboveground Project components in existing Hess facilities.

2. *Family farms and ranches.*

   Family farms and ranches would be traversed by the Project route but they would not be affected since surface disturbance would only occur with the construction of aboveground Project components in existing Hess facilities.

3. *Land that the owner can demonstrate has soil, topography, drainage, and an available water supply that causes the land to be economically suitable for irrigation.*

   Irrigated lands do not occur along the Project route. Land suitable for future irrigation along the Project route has not been identified at this time.

4. *Surface drainage patterns and groundwater flow patterns.*

   Impacts to drainage patterns and groundwater flow patterns would not occur as there is no new surface disturbance associated with this Project.

5. *Sound-sensitive land uses.*

   Sound-sensitive land uses would not be affected by the Project since short-term construction-related noise would be localized to the aboveground Project component locations.

6. *The visual effect on the adjacent areas.*

   Visual impacts on adjacent areas would be minimal with the construction of aboveground Project components, which would be constructed in existing Hess facilities.

7. *Extractive and storage resources.*

   The Project route in McKenzie and Williams counties generally parallels the Nesson Anticline where numerous oil and gas fields have been developed and is the epicenter of the current Bakken Play in North Dakota. Lignite coal reserves occur in localized areas along the Project route. Oil and gas fields and lignite coal reserves would not be affected by Project construction since surface disturbance would only occur with the construction of aboveground Project components in existing Hess facilities.

8. *Wetlands, woodlands, and wooded areas.*

   Wetlands and wooded areas occur in localized areas along the Project route, but impacts to these areas would not occur since surface disturbance would only occur with the construction of aboveground Project components in existing Hess facilities.

9. *Radio and television reception, and other communication or electronic control facilities.*

   Several radio, television, and other communication facilities occur adjacent to the Project route. However, the operation of the Project would not affect either communication transmission or reception.

10. *Human health and safety.*

    Impacts to human health and safety are not anticipated with the construction and operation of the Project.

11. *Animal health and safety.*

    Impacts to animal health and safety are not anticipated with the construction and operation of the Project.

12. *Plant life.*

    Impacts to plant life would not occur since surface disturbance would only occur with the construction of aboveground Project components in existing Hess facilities.

D.4.4 Policy Criteria

The PSC may give preference to an applicant that would maximize benefits that result from the adoption of the following policies and practices, and in a proper case, may require the adoption of such policies and practices. The PSC also may give preference to an applicant that would maximize interstate benefits. Policy criteria include:

1. *Location and design.*

   The existing natural gas pipelines would be repurposed for NGL service, and aboveground Project components would be constructed in existing Hess facilities. Detailed information regarding the project components are provided in Section A.3, Size and Design.

2. *Training and utilization of available labor in North Dakota for the general and specialized skills required*.

   Aboveground Project component construction would require special skills and equipment. The construction contractor would be encouraged to use local labor, when possible.

3. *Economics of construction and operation*.

   Hess would repurpose the existing natural gas pipelines for NGL service and construct aboveground Project components in existing Hess facilities.

4. *Use of citizen coordinating committees*.

   Not applicable.

5. *A commitment of a portion of the transmitted product for use in North Dakota.*

   The NGL transported within the pipeline would be transported to other states.

6. *Labor relations*.

   Union and non-union construction contractors would bid on the Project. The construction contract would be awarded to the lowest qualified bidder. Pipeline construction would require special skills and equipment. The construction contractor would be encouraged to use local labor, when possible.

7. *The coordination of facilities*.

   Hess is proposing to repurpose existing natural gas pipelines to NGL service and construct aboveground Project components within existing Hess facilities, which would connect Bakken production fields south of Lake Sakakawea to existing processing facilities north of the lake. The Project would transport NGL from the Hawkeye Compressor Station near Charlson, North Dakota, to the Silurian Compressor Station near Tioga, North Dakota.

8. *Monitoring of impacts*.

   Monitoring activities would be localized to existing Hess facilities where aboveground Project components would be constructed.

9. *Utilization of existing and proposed ROWs and corridors*.

   The existing natural gas pipelines and their associated ROWs would be repurposed for NGL service.

10. *Other existing or proposed transmission facilities*.

    Not applicable.

D.4.5 Design and Construction Limitations

In order to serve the intended functions of transmitting NGL from south of Lake Sakakawea to north of Lake Sakakawea, the pipeline must originate at the Hawkeye Compressor Station and terminate at the Silurian Compressor Station. There are no construction limitations since existing natural gas pipelines would be utilized for NGL service, and aboveground Project components would be constructed at existing Hess facilities.

D.4.5.1 Economic Considerations

Hess is committed to constructing aboveground Project components within existing Hess facilities as economically as possible while strictly adhering to the PSC's criteria. The anticipated construction cost for installation of the aboveground Project components within the Project corridor is approximately $2.19 million; annual operation costs are estimated at approximately $126,500 per year for the aboveground Project components.

D.5 Environmental Protection Measures

Specific environmental protections measures for the Project have been provided in **Appendix H**.

D.6 List of Preparers and Qualifications

This application for a Route Permit was prepared by Stantec, Hess, and Metcalf Archaeological Consultants. The qualifications of the individuals who participated in the preparation and review of this application are provided in **Table D-1**.

Table D-1 Qualifications of Application Preparers

Company and Person	Responsibilities	Education and Experience
Stantec Consulting Ltd.		
Jon Alstad	Route Permit Application Manager	M.S. Range Science B.S. Animal Science A.A. Liberal Arts 26 Years Experience
Erin Bergquist	Vegetation, Noxious Weeds, Wetlands and Floodplains, Special Status Species (plants)	M.S. Ecology B.A. Environmental Studies and Economics 12 Years Experience
Matt Brekke	Biological Resources, Wildlife and Fisheries, Special Status Species (wildlife, fish)	B.S. Wildlife Biology 7 Years Experience
Chuck Herrmann	Soils	B.S Soil Science 16 Years Experience
Bernie Strom	Land Use, Recreation, Visual Resources, Noise, Socioeconomics, Environmental Justice, Transportation	MCRP (City and Regional Planning) B.S. Urban Planning 34 Years Experience

Table D-1 Qualifications of Application Preparers

Company and Person	Responsibilities	Education and Experience
Kim Munson	Cultural Resources, Native American Traditional Values	M.A. Anthropology B.A. Anthropology 29 Years Experience
Taylor Robinson	Application Coordinator, Public Safety, Hazardous Materials and Solid Waste	B.S. Ecology and Evolutionary Biology 2 Years Experience
Nicole Lynass	Application Coordinator	B.S. Natural Resources Management Minor, Business Administration 3 Years Experience
Debbie Thompson	Word Processor	A.A.S. Business Secretary, Two Years General Studies 28 Years Experience
Brian Taylor	GIS, Graphics	B.A. Geography, emphasis GIS 7 Years Experience
Hess Corporation – Tioga, North Dakota/Houston, Texas		
Murray Jackson	Project Manager	L.L.B. Law and Economics Pg Cert Oil and Gas Engineering 17 Years Experience
Roy Nelson	Construction Manager	B.S. Mechanical Engineering Marine Engineer Institute 40 years of international construction and engineering experience Onshore and Offshore Pipeline Construction experience including cross-country, facilities and street work

D.7 Maps

Detailed maps (i.e., figures) of the Project corridor have been provided in **Appendix A** and **Appendix F**.

D.8 Permits, Licenses, Approvals, and Consultation Requirements

The Project would require federal, state, and local authorizations for various aspects of construction, operation, maintenance, and abandonment. It is the Applicant's responsibility to fulfill all requirements of any applicable statutes, regulations, and policies. **Table D-2** lists permits, approvals, and reviews necessary for implementation of the Project. Correspondence with federal and state agencies regarding the Project is provided in **Appendix E**.

Table D-2 Federal, State, and Local Permits, Approvals, and Reviews Required for Construction and Operation of the Project

Agency	Nature of Action	Authority
Federal Permits, Approvals, and Reviews		
USDOT – PHMSA	Review and approve Integrity Management Plan for High Consequence Areas	49 CFR 195
	Review and approve Emergency Response Plan	49 CFR 194

Table D-2 Federal, State, and Local Permits, Approvals, and Reviews Required for Construction and Operation of the Project

Agency	Nature of Action	Authority
State of North Dakota		
North Dakota State Historical Society	Review and comment on activities potentially affecting cultural resources	Consultation under Section 106, NHPA
Department of Health, Division of Water Quality	Permit regulating hydrostatic test water discharge and construction dewatering and storm water to waters of the state	National Pollutant Discharge Elimination System (NPDES) Temporary Dewatering/ Hydrostatic Testing Permit (NDG07000), Storm Water Discharge Permit NDR10-0000
Department of Health, Division of Air Quality	Permit to construct	Clean Air Act (CAA)
Public Service Commission	Permit for construction of a pipeline within an approved corridor and along an approved route	Energy Conversion and Transmission Facility Siting Act Corridor Certificate and Route Permit

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Appendix A

Project Overview Map and Engineering Drawings

Silurian Compressor Station

North Hofflund Valve Station

North of River Valve Station

North Charlson Compressor Station

Hawkeye Compressor Station

Williams County

Mountrail County

McKenzie County

Lake Sakakawea

Legend

- Existing Facility
- Repurposed 8-inch-diameter NGL Pipeline
- Repurposed 10-inch-diameter NGL Pipeline
- Project Corridor

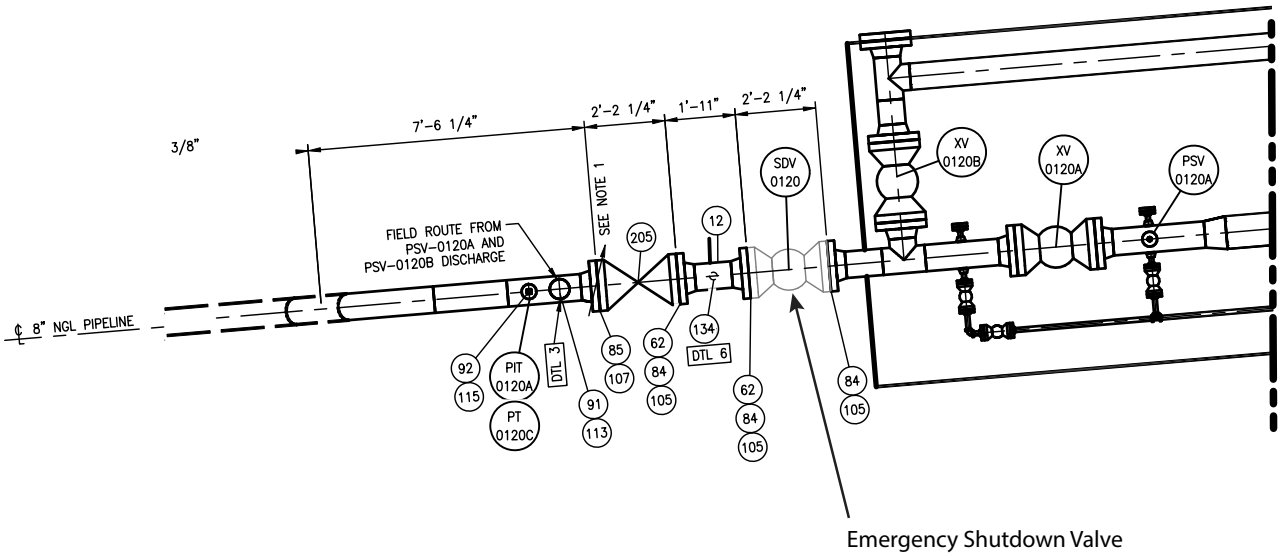
Source: Hess 2014.

Hawkeye Pipeline System Project

Figure A-1

NGL Pipeline Project Corridor and Route

0 0.5 1 2
Miles



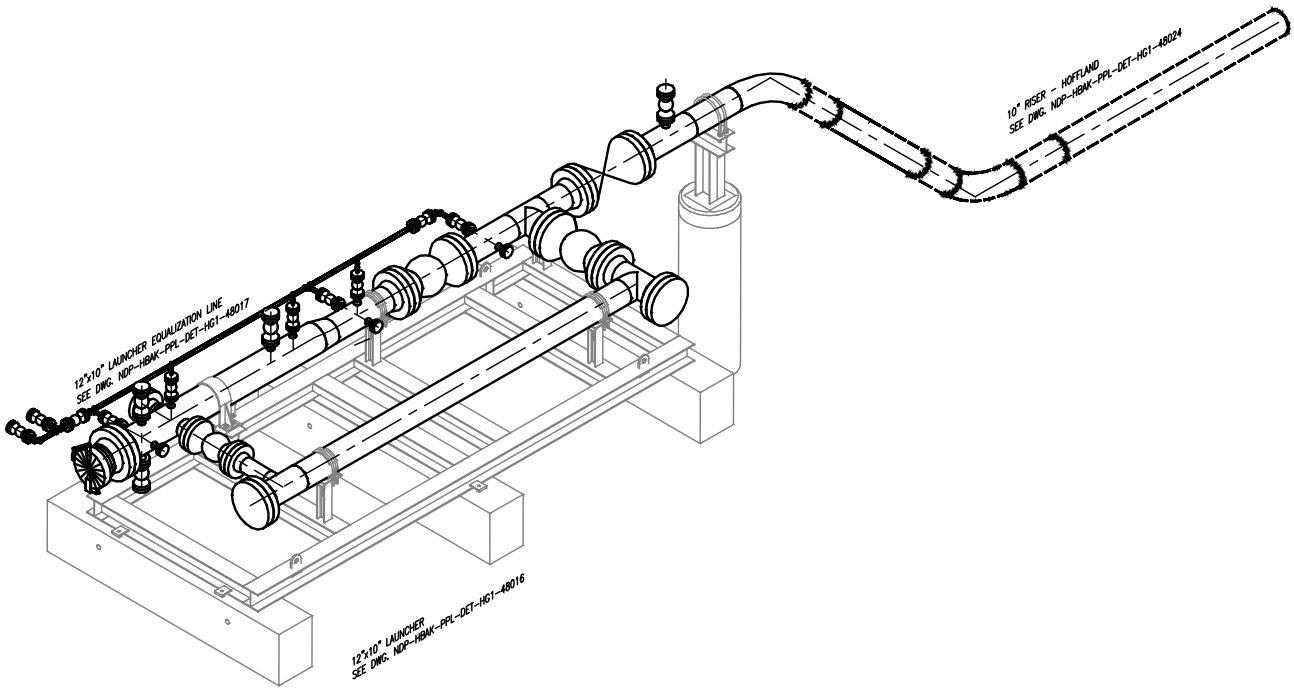
Not to Scale

Source: Hess 2014.

Hawkeye Pipeline System Project

Figure A-2

NGL Pipeline - Emergency Shutdown Valve



ISOMETRIC VIEW

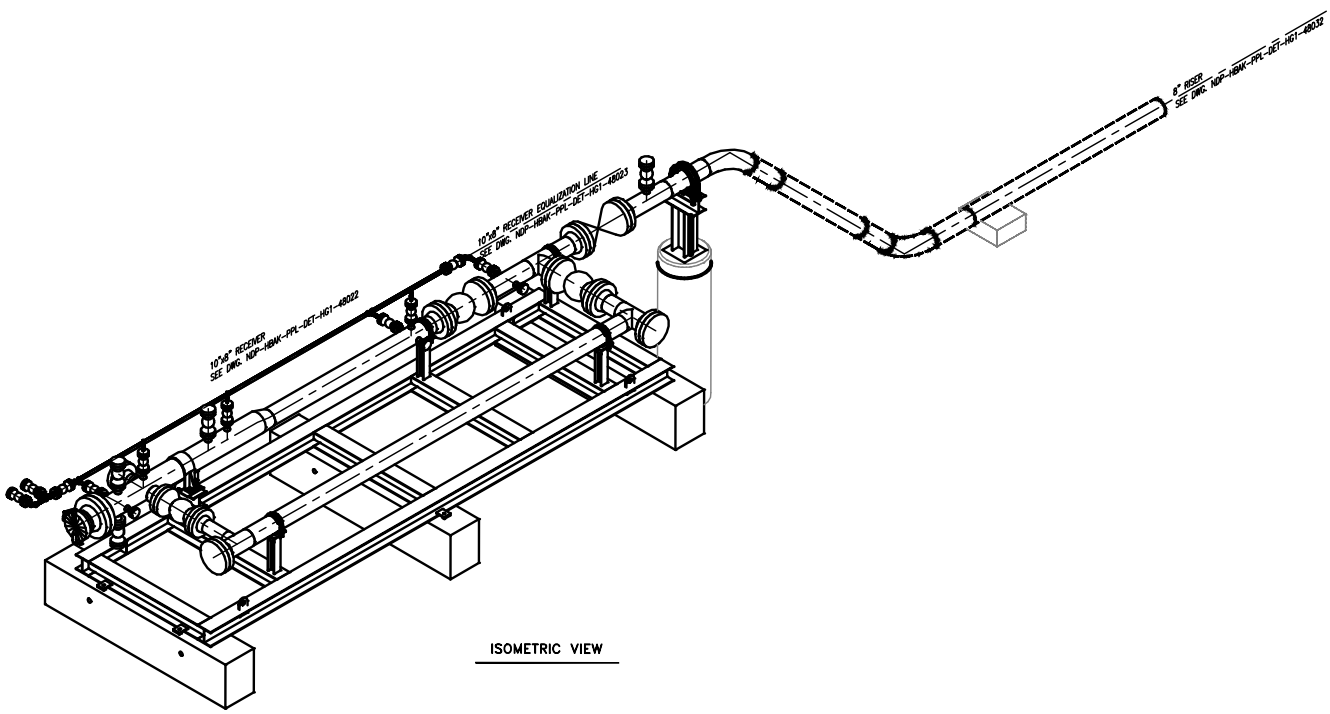
Not to Scale

Source: Hess 2014.

Hawkeye Pipeline System Project

Figure A-3

NGL Pipeline - Pig Launcher Skid



Not to Scale

Source: Hess 2014.

Hawkeye Pipeline System Project

Figure A-4

NGL Pipeline - Pig Receiver Skid

Appendix B

Spill Risk Assessment

Spill Risk Assessment (to be provided to the North Dakota PSC under separate cover)

Appendix C

Natural Resources Report

Natural Resources Report

Hess Hawkeye Pipeline System Project

Williams and McKenzie Counties, North Dakota

Prepared for:
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Prepared by:
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November 14, 2014

Sign-off Sheet

This document entitled *Natural Resources Report* was prepared by Stantec Consulting Services Inc. for the account of Hess Corporation. The material in it reflects Stantec's best judgment in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Stantec Consulting Services Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Prepared by _____
(signature)

Erin Bergquist

Reviewed by _____
(signature)

Kim Munson

Acronyms and Abbreviations

°F	degrees Fahrenheit
CWA	Clean Water Act
ESA	Endangered Species Act
FAC	facultative
FACU	facultative upland
FACW	facultative wetland
GPS	global positioning system
NDSCO	North Dakota State Climate Office
NGL	natural gas liquids
NRCS	Natural Resources Conservation Service
OBL	obligate
OHWM	ordinary high water mark
PEM	palustrine emergent
Project	Hawkeye Pipeline System Project
PSC	Public Service Commission
Stantec	Stantec Consulting Services Inc.
SWCA	SWCA Environmental Consultants
UPL	upland
U.S.	United States
USACE	United States Army Corps of Engineers
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
WUS	waters of the U.S.

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1.0 Introduction

Hess is proposing to construct an approximately 26-mile-long pipeline system connecting Bakken production fields south of Lake Sakakawea to existing processing facilities north of the lake. The Hawkeye Pipeline System Project (Project) would transport crude oil from the proposed Hawkeye Oil Facility near Keene, North Dakota, and natural gas and natural gas liquids (NGL) from the existing Hawkeye Compressor Station near Charlson, North Dakota, to the existing Ramberg Truck Facility (crude oil) and the existing Silurian Compressor Station (natural gas and NGL) near Tioga, North Dakota. A depiction of the proposed Project is provided in **Figure 1-1**. The components of the Project include:

- Construction of 22.9 miles of new 12-inch-diameter crude oil pipeline. The proposed pipeline would tie-in to approximately 2.4 miles of existing 8-inch-diameter pipeline at the Lake Sakakawea crossing.
- Construction of 18.3 miles of new 12-inch-diameter natural gas pipeline. The proposed pipeline would tie-in to approximately 2.4 miles of existing 8-inch-diameter pipeline at the Lake Sakakawea crossing. The proposed natural gas pipeline would be laid in the same trench with the proposed crude oil pipeline.
- Conversion of 16.8 miles of existing 8- and 10-inch-diameter natural gas pipeline to a NGL pipeline. The repurposed pipeline would tie-in to approximately 2.4 miles of existing 8-inch-diameter pipeline at the Lake Sakakawea crossing.
- Construction of 24-strand fiber optic lines. The fiber optic lines would be encased in an existing pipeline across Lake Sakakawea, but laid in the trench alongside the new crude oil and natural gas pipelines everywhere else. From the proposed Hawkeye Oil Facility to the Hawkeye Compressor Station, there would be one 24-strand fiber optic line; two 24-strand fiber optic lines from the Hawkeye Compressor Station to the Ramberg Truck Facility; and from the Ramberg Truck Facility to the Silurian Compressor Station, there would be one 24-strand fiber optic line.
- Construction of eight pig launchers (3 crude oil, 3 natural gas, and 2 NGL). All eight pig launchers would be constructed within existing Hess-owned facilities.
- Construction of eight pig receivers (3 crude oil, 3 natural gas, and 2 NGL). All eight pig receivers would be constructed within existing Hess-owned facilities.
- Construction of the Hawkeye Oil Facility, including permanent surface disturbance of approximately 79.7 acres.

Placement, setting, and any associated construction of mainline valves and emergency shutdown valves would be constructed within existing Hess-owned facilities.

As part of the state and federal permitting process, biological surveys were required for both the existing natural gas pipeline proposed for conversion to NGL, and the proposed crude oil and natural gas pipelines (proposed Project route). Biological surveys consisted of surveying for wetland and waterbodies, noxious weeds, woodlands and shrublands, and special status species and their habitat. Surveys were conducted by Stantec Consulting Services Inc. (Stantec) and SWCA Environmental Consultants (SWCA). Surveys were conducted by SWCA on the 2012 proposed route in October 2012 and May and July 2013. Surveys were conducted by Stantec on variations to the 2012 proposed route in October 2013; and July, August, and October 2014.

Silurian Compressor Station

Ramberg Truck Facility

North Hofflund Valve Station

North of River Valve Station

North Charlson Compressor Station

Hawkeye Compressor Station

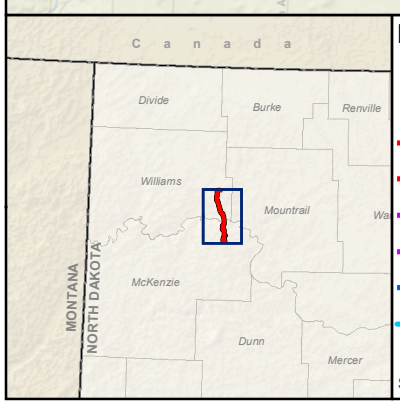
Hawkeye Oil Facility

Williams County

Mountrail County

McKenzie County

Lake Sakakawea



Legend

- Proposed Facility
- Existing Facility
- Repurposed 8-inch-diameter Crude Oil Pipeline
- Proposed 12-inch-diameter Crude Oil Pipeline
- Repurposed 8-inch-diameter Natural Gas Pipeline
- Proposed 12-inch-diameter Natural Gas Pipeline
- Repurposed 8-inch-diameter NGL Pipeline
- Repurposed 10-inch-diameter NGL Pipeline

Source: Hess 2014.

Hawkeye Pipeline System Project

Figure 1-1

Overview Map of Hess Hawkeye Pipeline System Project

0 0.5 1 2
Miles

Surveys specifically for USFS sensitive plant species were conducted in July 2013 by SWCA, and July and August 2014 by Stantec.

1.1 SITE DESCRIPTION

The Project area is located entirely within the Northwestern Great Plains ecoregion, encompassing the Missouri Plateau section of the Great Plains of west-central North Dakota. The northern portion of the proposed route is within the Northwestern Glaciated Plains ecoregion crossing the Missouri Coteau Slope. This area slopes up from the Missouri River with level to gently rolling topography.

The landscape consists of a semi-arid rolling plain of shale, siltstone, and sandstone, punctuated by agriculture and rolling plains topography with isolated sandstone buttes and badland formations. The dominant vegetation community in the area is grasslands, with woody draws located in the rolling topography closer to Lake Sakakawea. Grazing and cropland are the dominant land uses.

The elevation ranges from approximately 1,900 to 2,420 feet above sea level. The elevation ranges get lower in the central portion of the Project area, where the Project moves closer to and crosses Lake Sakakawea. The Project alignment crosses private land, as well as lands administered by the United States (U.S.) Army Corps of Engineers (USACE), U.S. Forest Service (USFS), and State of North Dakota. Average precipitation is about 13 inches a year, with temperatures ranging from an average of 37 degrees F (°F) to 41°F (Northern Prairie Wildlife Research Center 2013a,b).

1.2 REGULATIONS AND DEFINITIONS

1.2.1 Wetlands

The USACE regulates wetlands and special aquatic sites determined to be Waters of the U.S. (WUS) under Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. The USACE and the U.S. Environmental Protection Agency define wetlands as "…those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands typically include swamps, marshes, bogs, and other similar areas" (USACE 1987). This definition takes into consideration three distinct environmental parameters: hydrology, soil, and vegetation. Positive wetland indicators of all three parameters are normally present in wetlands. The CWA defines the term WUS as:

> *"a. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;*
>
> *b. All interstate waters including interstate wetlands;*
>
> *c. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:*

1. *Which are or could be used by interstate or foreign travelers for recreational or other purposes; or*
2. *From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or*
3. *Which are used or could be used for industrial purpose by industries in interstate commerce;*

d. *All impoundments of waters otherwise defined as WUS under the definition;*

e. *Tributaries of waters identified in paragraphs (a) through (d) above;*

f. *The territorial seas;*

g. *Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (g).*

   a. *Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA (other than cooling ponds as defined in 40 Code of Federal Regulations 123.11(m), which also meet the criteria of this definition) are not WUS.*

h. *WUS do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with the EPA"* (USACE 1977).

1.2.1.1 USACE Nationwide Permit 12

The USACE Nationwide Permit 12 authorizes the construction of utility lines and associated facilities in WUS, provided the activity does not result in the permanent loss of greater than 0.5 acre of WUS, including wetlands. Nationwide Permit 12 also authorizes the construction of access roads for utility lines, provided that the access road:

- Does not result in the permanent loss of greater than 0.5 acre of WUS;
- Is constructed to the minimum width necessary;
- Is constructed so that the length of the road minimizes any adverse effects to WUS; or
- Is as near as possible to pre-construction contours and elevations and is properly bridged or culverted when constructed above pre-construction contours.

If the access roads are used exclusively for construction purposes, they must be temporary and removed upon project completion.

Nationwide Permit 12 requires that the permittee submit a pre-construction notification prior to commencing construction if any of the following criteria are met.

- The activity involves mechanized land clearing in a forested wetland.
- A Section 10 permit is required to cross a navigable waterbody (Rivers and Harbors Act).
- The utility line exceeds 500 feet in length through any single crossing of a WUS.
- The utility line is placed within a jurisdictional area (i.e., WUS) and it runs parallel to a stream bed that is within that jurisdictional area.

- Discharges result in the permanent loss of greater than 0.1 acre of WUS.
- Permanent access roads are constructed abovegrade in WUS for a distance of more than 500 feet.
- Permanent access roads are constructed in WUS with impervious materials.

1.2.1.2 USACE Regional Conditions

The USACE has published several regional conditions for projects operating under nationwide permits in North Dakota. The regional conditions apply to wetlands classified as "fens," waters adjacent to natural springs, the Missouri River, historic properties, and fish spawning areas.

1.2.2 Noxious Weeds

Pursuant to the North Dakota Century Code § 4.1-47-02, a "noxious weed" is defined as "a plant propagated by either seed or vegetative parts and determined to be injurious to public health, crops, livestock, land, or other property as determined by the commissioner, county, or city weed board." The North Dakota Department of Agriculture currently lists 11 plant species as state-designated noxious weeds. In addition to the North Dakota state-designated species, management is required for five additional county-specific species for McKenzie, and Stark counties; and 26 USFS designated invasive species.

1.2.3 Woodlands and Shrublands

Woodland and shrubland specifications per the North Dakota Public Service Commission (PSC) are outlined in **Appendix A**.

1.2.4 Special Status Species

Special status species are those species for which state or federal agencies afford an additional level of protection by law, regulation, or policy. Included in this category are federally listed species that are protected under the Endangered Species Act (ESA) and species designated as sensitive by the USFS. In accordance with the ESA, as amended, the lead agency (the Bureau of Land Management), in coordination with the U.S. Fish and Wildlife Service (USFWS) and USFS, must ensure that any action they authorize, fund, or carry out would not adversely affect a federally listed threatened or endangered species.

2.0 Methods

The following sections describe the methods that were implemented by Stantec and SWCA biologists and botanists for the field surveys for wetlands and waterbodies, noxious weeds, tree and shrub counts, and special status species and habitat. For the proposed Project route (crude oil/natural gas pipelines), surveys were conducted within a 200-foot corridor that encompasses the centerline and construction and operation rights-of-way (ROWs). For the NGL (conversion) pipeline, surveys were conducted within a 200-foot corridor centered on the pipeline centerline. For both routes, the 200-foot corridor will be referred to as the survey corridor(s).

2.1 WETLANDS

Field staff conducted wetland determinations within the survey corridors based on the principles and guidelines outlined in the 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetlands Determination Manual: Great Plains Region Version 2.0 (USACE 2010). According to the 1987 Corps of Engineers Wetland Delineation Manual, an area is a wetland if three mandatory wetland indicators are present in a given area, with special exceptions. These criteria include the presence of hydrophytic vegetation, wetland hydrology, and hydric soils.

2.1.1 Hydrophytic Vegetation

Field staff recorded all plants within the vegetative community based on the respective stratum occupied by each species (tree, sapling/shrub, herbaceous, and woody vine). Vegetation was recorded by scientific name and percent cover for the tree stratum, the sapling/shrub stratum, the herbaceous stratum, and the woody vine stratum. Field staff noted each plant species' respective USFWS indicator status (i.e., upland [UPL], facultative upland [FACU], facultative [FAC], facultative wetland [FACW], and obligate [OBL]).

2.1.2 Hydric Soil

Soil test pits were excavated in both wetland and upland environments to evaluate wetland boundaries and examine for wetland indicators. Soil properties recorded include the hue, value, and chroma (i.e., color) of each soil sample; the depth and extent of that soil color within the entire soil profile; the concentration of any redoximorphic concentrations or depletions; and the texture of the soil at each depth where a color change was observed. Soil pits were excavated to a depth of 12 to 18 inches at each data point.

2.1.3 Hydrology

Wetlands were determined to exhibit wetland hydrology if at least one primary indicator, or at least two secondary indicators, of wetland hydrology were present, as defined by the Corps Manual (1987) and Great Plains Regional Supplement (USACE 2010). Hydrological indicators were determined by field observation as well as examining aerial photographs, and National Wetland Inventory maps (USFWS 2012). Primary indicators for wetland hydrology include inundation, soil saturation within 12 inches of the soil surface, water marks on vegetation, water-borne drift deposits, and oxidized rhizospheres (root channels). Secondary indicators for wetland hydrology include surface soil cracks, sparsely vegetated concave surface, drainage

patterns characteristic of a wetland, and a positive FAC Neutral test (comparative dominance of FACW and OBL vegetative species versus FACU and UPL vegetative species).

The boundary of all wetlands was geographically referenced using a Trimble GeoXT series handheld global positioning system (GPS) unit. Representative photos were taken of wetlands within the survey corridors. Information for each surveyed polygon was recorded on standard Great Plains Wetland Delineation forms, and included site id; county; and indicators of hydrophytic vegetation, hydric soil, and hydrology if applicable. Soil properties for the upland soil pits were recorded on a separate form.

2.2 WATERBODIES

Waterbodies (i.e., ponds, creeks, streams, rivers) were identified by the presence of an ordinary high water mark (OHWM). Common identifiable indicators of an OHWM include open water or evidence of a clear, natural line visible on the bank; shelving; changes in soil characteristics; the destruction of terrestrial vegetation; the presence of litter and debris; and watermarks on structures that are inundated during normal high water conditions. The OHWM typically represents the potential limits of the USACE jurisdiction.

The boundary of all waterbodies was geographically referenced using a Trimble GeoXT series handheld GPS unit. Representative photos were taken of waterbodies within the survey corridors. Information for each surveyed polygon was recorded on standard forms, and included site id, county, OHWM width, and periodicity.

2.3 NOXIOUS WEEDS

North Dakota state and county and USFS listed noxious weeds are listed in **Appendix B**. Field staff noted on hard copy maps populations of North Dakota state- or county-listed noxious weeds identified within the survey areas. On USFS managed lands, noxious weeds were delineated using a Trimble GeoXT series handheld GPS unit.

2.4 TREE, SAPLING, AND SHRUB COUNT

The total number of trees, saplings, and shrubs present within the survey corridor were surveyed in planted areas that include windbreaks and shelterbelts, and native growth areas that include woody draws and patches of woody vegetation. Tree and shrub sampling complied with the PSC tree and shrub specifications and followed the protocol outlined in the Tree and Shrub Sampling Plan (**Appendix A**). The boundary of all forested upland, shrubland, and shelterbelt habitat was geographically referenced using a Trimble GeoXT series handheld GPS unit. Representative photos were taken of native growth areas and planted areas. Information for each surveyed polygon was recorded on standard forms, and included site id, county, tree and shrub species present to genus, and the number of each species present in the polygon.

2.5 WILDLIFE

Information regarding the presence of threatened or endangered species, which may occur within the Project area, was obtained from the USFWS list of threatened and endangered species by North Dakota county (USFWS 2014) and the USFS list of sensitive species (USFS 2011). Surveys for raptor nests, habitat for federally listed species, and USFS sensitive plant species were conducted as described below.

2.5.1 Raptor Nests

To identify raptor nests that occur along the Project route, ground surveys were conducted within 0.5 mile of the Project route. Complete visual coverage of each side of the Project route was obtained by surveying all areas of potential raptor nesting habitat (e.g., ridges, bluffs, knolls, trees/shrubs) with binoculars. Raptor nest locations found along Project route and within the 0.5-mile survey buffer were documented by noting the species (if possible), Universal Transverse Mercator coordinates, nest substrate, and nest condition.

A variety of raptor species are known to nest in the region of the Project. These species include eagles, buteos, falcons, owls, harriers, osprey, and other birds of prey. Breeding and nest building/tending activities can begin as early as February for some raptor species (e.g., bald eagle, golden eagle), and the rearing of young and fledgling dependency can last into early August for some of the later nesting species (e.g., Swainson's hawk). However, generally the raptor breeding season in North Dakota is February 1 to July 15.

2.5.2 Threatened and Endangered Habitat

Habitat assessments for the following federally listed species were conducted during the field effort:

- Whooping crane – federally endangered
- Sprague's pipit – federal candidate
- Least tern – federally endangered; and
- Piping plover – federally threatened.

In addition to the federal T&E species listed above, surveys for black-tailed prairie dog (a USFS sensitive species) colonies were conducted within 0.25 mile of the proposed route. Black-tailed prairie dog colonies provide an important food source for the area's raptors and mammals (e.g., coyote, badger, fox) as well as provide nesting habitat for burrowing owls.

2.6 USFS SENSITIVE PLANT SPECIES

Field surveys, which consisted of meandering pedestrian surveys in a zig-zag pattern within the survey corridors, were conducted on USFS managed lands to identify USFS sensitive plant species. Habitat types were recorded on hard copy maps. For any observed sensitive species populations, the boundary of the populations was geographically referenced using a Trimble GeoXT series handheld GPS unit. For any observed populations, representative photos were taken and information for each surveyed polygon was recorded on standard forms, and included site id, county, sensitive species present, and associated dominant species. A list of dominant species observed on USFS lands was developed.

3.0 Results

Results of the field surveys are presented in the following sections by biological resource. Surveys were conducted on several routing options; however, only the results for the proposed Project route and the existing NGL (conversion) pipeline are presented here. For the proposed Project route, survey results are presented for both the survey corridor and the construction ROW. The construction is approximately 100 feet, but does vary over the proposed route (wider in areas with temporary work spaces, and narrower in areas of resource concerns). Due to the different survey teams and timing of surveys, all features have been relabeled with a common nomenclature for consistency. Wetland, waterbodies, woodlands and shrublands, and noxious weeds identified during field surveys are presented in Appendix C (**Figures C.1** through **C14**). Representative photographs are presented in **Appendix D.**

3.1 VEGETATION

Field surveys along the proposed Project route and existing NGL pipeline identified four general types of vegetative communities: grasslands, shrubland and upland woody vegetation, cropland, and wetlands. Wetlands are described in Section 3.2 Wetlands. There also is previous disturbance associated with oil and gas development throughout the two routes.

3.1.1 Grasslands

Grassland communities occurring throughout the survey corridors consisted of untilled areas dominated by herbaceous vegetation. Many of the grassland areas were being grazed by livestock. Areas previously disturbed by constructed oil and gas pipelines were in the process of being reclaimed. Species common to the Northwestern Great Plains Mixedgrass Prairie and confirmed during field surveys included smooth brome (*Bromus inermis*), needle and thread (*Hesperostipa comata*), prairie junegrass (*Koeleria macrantha*), crested wheatgrass (*Agropyron cristatum*), wavyleaf thistle (*Cirsium undulatum*), intermediate wheatgrass (*Elytrigia intermedia*), stiff goldenrod (*Solidago rigida*), big bluestem (*Andropogon gerardii*), threadleaf sedge (*Carex filifolia*), slender wheatgrass (*Elymus trachycaulus*), green sagewort (*Artemisia campestris*), cudweed sagewort (*Artemisia ludoviciana*), Canada goldenrod (*Solidago canadensis*), sideoats grama (*Bouteloua curtipendula*), blue grama (*Bouteloua gracilis*), purple coneflower (*Echinacea angustifolia*), prairie sagewort (*Artemisia frigida*), American licorice (*Glycyrrhiza lepidota*), curlycup gumweed (*Grindelia squarrosa*), sweetclover (*Melilotus* spp.), Kentucky bluegrass (*Poa pratensis*), prairie coneflower (*Ratibida columnifera*), common yarrow (*Achillea millefolium*), and little bluestem (*Schizachyrium scoparium*) (SWCA 2013).

3.1.2 Shrubland and Woody Vegetation

The field surveys observed woodland and shrubland communities occurring throughout the survey corridors, which consisted of woody draws and swales, as well as upland areas dominated by woody-stemmed vegetation. Common shrubs were chokecherry (*Prunus virginiana*), silver buffaloberry (*Shepherdia argentea*), and western snowberry (*Symphoricarpos occidentalis*). Shrub species found in low concentrations include silver sagebrush (*Artemisia cana*), soapweed yucca (*Yucca glauca*), and plains prickly pear cactus (*Opuntia polyacantha*). Common tree species included green ash (*Fraxinus pennsylvanica*), Siberian elm (*Ulmus pumila*), and boxelder (*Acer negundo*) (SWCA 2013).

3.1.3 Cropland

Field surveys indicate several types of tilled fields within the survey corridors. Cropland vegetation included canola (*Brassica napus*) and hard red spring wheat (*Triticum aestivum*).

3.2 WETLANDS

Surveys were conducted in 2012, 2013, and 2014. Precipitation in 2012 and 2013 was below normal, while precipitation in 2014 was above average (North Dakota State Climate Office [NDSCO] 2014, 2013, 2012). Summer 2014 was the ninth wettest summer statewide since 1895 (NDSCO 2014). Compared to average, 2012 and 2013 summers were warmer than average, while the temperature for summer 2014 was colder than average (NDSCO 2014, 2013, 2012).

A total of 33 palustrine emergent (PEM) wetlands were identified and delineated within the survey corridor for both the proposed pipeline route and existing NGL pipeline route (**Appendix E**). Of these, none occur within the proposed pipeline route construction ROW (**Table 3-1**). Dominant vegetation in the surveyed wetlands include prairie cordgrass (*Spartina pectinata)*, foxtail barley (*Hordeum jubatum*), Pennsylvania smartweed (*Polygonum pensylvanicum*), and western dock (*Rumex occidentalis*). Datasheets are included in **Appendix F**. Smooth brome is dominant in the adjacent uplands.

Table 3-1 Total Wetland Acres Along the Proposed Pipeline Route and the Existing NGL Pipeline

Pipeline Route	Wetland Classification	Total Acres	
		Survey Corridor	Temporary Construction ROW
Proposed Route	PEM	6.74	--
Existing NGL Pipeline	PEM	1.90	--

3.3 SOILS

Twenty-nine soil types are present in the proposed pipeline construction ROW based on U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) mapping (NRCS 2013). **Table 3-2** lists all soils units within the construction ROW. The following soil component descriptions represent the most prevalent soil series found within the construction ROW (NRCS 2013).

Table 3-2 Soils Present in the Construction ROW

Soil Type	Slope	Construction ROW (Acres)
Williams-Bowbells loams	3 to 6 percent slopes	52.1
Williams-Zahl-Zahill complex	6 to 9 percent slopes	47.1
Williams-Zahl loams	3 to 6 percent slopes	43.6
Williams-Bowbells loams	0 to 3 percent slopes	19.8
Tansem-Roseglen silt loams	0 to 2 percent slopes	14.2
Tally-Parshall fine sandy loams	2 to 6 percent slopes	14

Table 3-2 Soils Present in the Construction ROW

Soil Type	Slope	Construction ROW (Acres)
Belfield-Grail clay loams	0 to 2 percent slopes	12.2
Zahl-Max loams, dissected	15 to 45 percent slopes	7.9
Cabba-Badland complex	6 to 70 percent slopes	7.2
Tansem-Roseglen silt loams	2 to 6 percent slopes	7
Noonan-Niobell-Williams loams	3 to 6 percent slopes	6.3
Cherry silt loam	0 to 6 percent slopes	4.4
Zahl-Cabba-Arikara complex	9 to 70 percent slopes	4.1
Arnegard loam	0 to 2 percent slopes	4
Livona fine sandy loam	0 to 6 percent slopes	3.5
Korchea loam, occasionally flooded	0 to 2 percent slopes	3.3
Zahl-Max loams	15 to 25 percent slopes	3.2
Amor-Zahl-Werner loams	9 to 25 percent slopes	2.7
Zahl-Max-Arnegard loams	15 to 60 percent slopes	2.1
Farnuf loam	2 to 6 percent slopes	2
Zahl-Cabba-Maschetah complex	6 to 70 percent slopes	2
Tally-Parshall fine sandy loams	0 to 2 percent slopes	1.8
Lehr-Williams loams	0 to 6 percent slopes	0.9
Niobell-Williams loams	0 to 3 percent slopes	0.9
Zahl-Williams-Arikara loams	9 to 45 percent slopes	0.8
Straw-Fluvaquents channeled, complex, frequently flooded	0 to 2 percent slopes	0.8
Brandenburg-Searing-Dogtooth complex	6 to 15 percent slopes	0.7
Daglum-Belfield complex	0 to 6 percent slopes	0.7
Zahl-Beisigl-Tally complex	9 to 15 percent slopes	0.7
Arnegard loam	2 to 6 percent slopes	0.6
Tonka silt loam	0 to 1 percent slopes	0.2
Chama-Cabba-Sen silt loams	6 to 9 percent slopes	<0.1

3.3.1 Williams

The Williams series consists of very deep, slowly permeable, well-drained soils found on glacial till plains and moraines with slopes at approximately 0 to 35 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 14 inches and mean annual air temperature is approximately 42°F. This soil type is largely used for cultivation. Native vegetation species common to this soil type include western wheatgrass (*Pascopyrum smithii*), needle and thread, blue grama, and green needlegrass (*Nasella viridula*) (NRCS 2012).

3.3.2 Bowbells

The Bowbells series consists of very deep, well- and moderately well-drained soils found on glacial till plains and moraines. Permeability is moderate in the upper portions and moderately slow to slow in the substratum. Slopes range from approximately 0 to 9 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 14 inches and mean annual air temperature is approximately 42°F. This soil type is used for cultivation of small grains. Native vegetation species historically common to this soil type include western wheatgrass, green needlegrass, and big bluestem (NRCS 2012).

3.3.3 Zahl

The Zahl series consists of very deep, slowly permeable, well-drained soils found on glacial till plains, moraines, and valley side slopes at approximately 1 to 60 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 14 inches and mean annual air temperature is approximately 40°F. This soil type is largely used for rangeland foraging. Native vegetation species common to this soil type include western wheatgrass, little bluestem, and needle and thread (NRCS 2012).

3.4 WATERBODIES

Three waterbodies are crossed by the proposed pipeline route as identified during the field surveys (**Table 3-3**). For the existing NGL pipeline, the two waterbody crossings are Dry Fork Creek and Lake Sakakawea (**Table 3-4**).

Table 3-3 Waterbodies Crossings Along the Proposed Route

Feature ID	Waterbody Name	Classification	Survey Corridor (Acres)	Temporary Construction ROW (Acres)	Average Width OHWM (feet)
S-1	Dry Fork Creek	Intermittent	0.13	--	7
S-2	Unnamed	Ephermal	0.03	--	6
S-3	Sand Creek	Intermittent	0.18	--	12

Table 3-4 Waterbodies Crossings Along the Existing NGL Pipeline

Feature ID	Waterbody Name	Classification	Survey Corridor (Acres)	Average Width OHWM (feet)
S-1	Dry Fork Creek	Intermittent	0.11	7
S-4	Lake Sakakawea	Perennial	53.71	12,361

3.5 NOXIOUS WEEDS

State and county noxious weeds within the survey corridor for the proposed pipeline route included Canada thistle (*Cirsium arvense*), field bindweed (*Convolvulus arvensis*), houndstongue (*Cynoglossum officinale*), halogeton (*Halogeton glomeratus*), and leafy spurge (*Euphorbia esula*). Canada thistle was prevalent throughout the survey corridor on both routes. There were 39 noxious weed populations identified along the proposed route and existing NGL pipeline.

3.6 TREES, SAPLINGS, AND SHRUBS

A total of 71 areas of woody vegetation were identified and delineated within the survey corridor for the proposed pipeline route and existing NGL pipeline route (**Appendix E**). Of these, 26 (4.02 acres) occur within the proposed pipeline route construction ROW, resulting in a total stem count of 5,263 (**Table 3-5**). Based on a 2:1 mitigation ratio, disturbances to the woody vegetation within these areas would thus require the replanting of 10,526 saplings to offset the associated losses. Dominant species observed include green ash, silver buffaloberry, and chokecherry.

Table 3-5 Stem Count of Woodlands and Shrublands along the Proposed Route

Pipeline Route	Survey Corridor		Temporary Construction ROW	
	Total Stem Count	Acres	Total Stem Count	Acres
Proposed Route	43,089	20.35	5,263	4.02
Existing NGL Pipeline	1,337	2.6	--	--

3.7 WILDLIFE

Wildlife surveys were conducted on both the Project route and the existing NGL pipeline. The survey results for wildlife apply to both routes due to their close proximity.

3.7.1 Raptor Nests

For the raptor nest surveys, it is important to note that survey emphasis was placed on locating nests of eagles, buteos, falcons, accipters, and owls that nest in deciduous trees, on cliffs, or on rocky knolls or bluffs. These are the most common species that could be impacted by the Project during construction, particularly if construction were to occur during the breeding season (generally February 1 through July 15), depending on weather and prey conditions. For the field surveys conducted in August and October 2014, the time of year (i.e., outside of the breeding season) was not ideal for locating nesting raptors. However, large stick nests used by golden eagles, hawks, and great horned owls can be effectively located outside of the breeding season. Surveys conducted in May 2013, however, were during the breeding season. One raptor species (red-tailed hawk) was observed during the August 2014 surveys. However, no raptor nests were found within 0.5 mile of the Project route and existing NGL pipeline during any of the survey efforts.

If construction activities were to occur during the raptor breeding season, a follow-up raptor nest survey would need to be conducted no more than 2 weeks prior to construction in order to prevent disturbance to breeding raptor species. This would allow construction to avoid active nest sites and establish appropriate buffers and timing restrictions.

3.7.2 Federally Listed Species

Stantec did not observe any indication of the presence of threatened or endangered species. Suitable whooping crane foraging habitat (i.e., agricultural fields) and roosting habitat (i.e., wetlands) occur in the vicinity of the Project route and existing NGL pipeline. No suitable habitat for the least tern or piping plover was found along the Project route, excluding along the shores of Lake Sakakawa where suitable habitat does occur. Suitable Sprague's pipit habitat

(i.e., native grassland) was found within the survey corridor and within the immediate vicinity of the Project route and existing NGL pipeline.

Based on the presence of suitable foraging and roosting habitat (i.e., agricultural fields and wetlands) in the vicinity of the proposed Project route, whooping cranes may be impacted by the Project if present during construction. Due to the lack of surface disturbance associated with the conversion of the existing natural gas pipeline to NGL, no impacts to whooping crane are anticipated. To prevent potential impacts to migrating whooping cranes that may be found near the Project route, Stantec recommends ceasing all work within 1 mile of the Project if a whooping crane is sighted within 1 mile of the pipeline ROW or proposed facilities while under construction and the USFWS be contacted immediately. In coordination with the USFWS, work would resume after the bird(s) leave the area.

For the Sprague's pipit, if Project-related disturbance to grassland habitat were to occur during the migratory bird breeding season in North Dakota (February 1 to July 15), nest surveys would be recommended in order to prevent "take" of migratory birds protected under the Migratory Bird Treaty Act.

Due to the absence of black-tailed prairie dog colonies along the Project reroutes, no impacts to this species or black-tailed prairie dog obligate species (e.g., burrowing owl, swift fox) would occur.

3.8 USFS SENSITIVE PLANT SPECIES

No USFS sensitive plant species were observed along the proposed Project or the existing NGL pipeline. The proposed Project and the existing NGL pipeline cross grasslands and woody draws along the steep and rolling topography southwest of Lake Sakakawea. Dominant species are the same as described above in Section 3.1, Vegetation.

4.0 Conclusions

Field surveys documented 33 wetlands within the survey corridor for the proposed Project and the existing NGL line. Of these, no wetlands occur with the construction ROW for the proposed Project as Hess has committed to boring under all identified wetlands in the construction corridor.

The presence of two intermittent and one ephemeral stream channels also were identified within the construction ROW. The proposed Project connects into existing pipelines at the north and south sides of Lake Sakakawea. One intermittent and one perennial (Lake Sakakawea) were identified as occurring along the existing NGL line. Hess has committed to boring under all identified stream channels in the construction corridor.

Fifty-five areas of woodland vegetation were mapped, which collectively contain approximately 43,089 trees, saplings, and shrubs within the construction ROW. Of these, 5,263 trees, samplings, and shrubs are in areas within the construction ROW that are not being horizontally directionally drilled. Based on a 2:1 mitigation ratio, disturbances to the woody vegetation within these areas would thus require the replanting of 10,526 saplings to offset the associated losses. According to the recommendations of the North Dakota Forest Service, tree species selection for replacement should be accomplished through collaboration with a reputable area nursery. This will allow for species to be selected based on various factors including species hardiness and area soil type (SWCA 2013). According to the recommendations of the USFS North Dakota Office, non-native species are permitted and to an extent recommended for planting as they may be more resistant to known tree pathogens in the area (SWCA 2013).

No threatened or endangered species or USFS sensitive species were observed during field survey of the Project route.

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Appendix A Tree and Shrub Sampling Plan

Tree and Shrub Sampling Plan

Hess Hawkeye Pipeline Project

Williams and McKenzie Counties, North Dakota

Prepared for:
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October 24, 2014

Tree and Shrub Inventory and Sampling Plan

This document entitled *Tree and Shrub Sampling Plan* was prepared by Stantec Consulting Services Inc. for the account of Hess Corporation. The material in it reflects Stantec's best judgment in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Stantec Consulting Services Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Prepared by _____
(signature)

Erin Bergquist

Reviewed by _____
(signature)

Kim Munson

Stantec

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TREE AND SHRUB SAMPLING PLAN

1.0 Introduction

Hess Corporation (Hess) is proposing to construct an approximately 25-mile-long pipeline system connecting Bakken production fields south of Lake Sakakawea to existing processing facilities north of the lake. The proposed project would transport subsurface crude oil from Hawkeye Central near Keene, North Dakota, and natural gas and natural gas liquids (NGL) from Hawkeye Compressor Station near Charlson, North Dakota to the Ramberg Truck Facility (crude oil) and the Silurian Compressor Station (natural gas and NGL) near Tioga, North Dakota.

Hess will comply with the tree and shrub mitigation specifications outlined in **Appendix XXX**. This sampling plan describes the sampling methods used to inventory the tree and shrubs along the proposed project route.

2.0 Survey Area

The proposed project area is located entirely within the Northwestern Great Plains ecoregion encompassing the Missouri Plateau section of the Great Plains of west-central North Dakota. The landscape consists of a semi-arid rolling plain of shale, siltstone, and sandstone, punctuated by agriculture and rolling plains topography with isolated sandstone buttes and badland formations.

The elevation ranges from approximately 1,900 to 2,420 feet above sea level. The elevation ranges get lower in the central portion of the project areas where the pipeline moves closer to and crosses Lake Sakakawea.

3.0 Sampling Methods

Surveys were conducted within a 200-foot survey corridor that encompasses the centerline and construction and operation footprint of the proposed project. The total number of trees, saplings, and shrubs present within the survey corridor were surveyed in planted areas that include windbreaks and shelterbelts, and native growth areas that include woody draws and patches of woody vegetation.

The boundary of all forested upland, shrubland, and shelterbelt habitat was geographically referenced using a Trimble GeoXT series handheld global positioning system (GPS) unit. Representative photos were taken of native growth areas and planted areas. Information for each surveyed polygon was recorded on standard forms and included site id, county, tree and shrub species present to genus, and the number of each species present in the polygon.

In forested upland and shrubland habitat, the number of all woody stemmed vegetation regardless of diameter at breast height (DBH) was counted or visually estimated. In shelterbelt areas, all woody stemmed vegetation with a DBH of ≥1 inch was inventoried, regardless of height. Ecologists taxonomically identified all recorded individuals to the species level within each habitat type.

In high-density woodland areas, such as shelterbelts that are more than 100 feet wide, the Linear Spacing Estimates could be used in place of individual counting. Linear Spacing Estimates, require that the survey crew ecologist estimate the total number of individual trees or shrubs within each observed shelterbelt by calculating the total number of individuals, regardless of DBH, of each species within a set linear distance. This method assumes that spacing and species

pattern between individuals is equal along the entire length of the shelterbelt. When a satisfactory number of replications was averaged (usually up to 50 percent of the total shelterbelt length), ecologists determined the total shelterbelt length and estimated the total number of individuals potentially present based on the average number of individuals per linear foot. Once the number of individuals per foot was estimated for each shelterbelt, ecologists used a shapefile depicting the width of the proposed disturbance area (i.e., 100 feet) to determine the linear length of each shelterbelt segment potentially impacted by construction activities. This linear length was then used to estimate the number of individual trees or shrubs potentially impacted through construction activities.

In native growth areas and planted areas, shrubs that form colonies (such as buffalo currant, chokecherry, dogwood, plum, pussy willow, and sandbar willow) and that are cut flush with the ground surface and not cleared, so as to leave the naturally occurring seed bank and root stock intact are not included in the direct stem counted. Instead, these areas were delineated either from an aerial photo or from field surveys. These areas will be marked on construction drawings to not be cleared or have the ground disturbed. If ground disturbance occurs, Hess will conduct a direct stem count of the disturbance area or estimate the number of stems cleared using a Commission-approved sampling estimate method.

Appendix A – Tree and Shrub Mitigation Specifications

TREE AND SHRUB SAMPLING PLAN

Case No. PU-10-218

Tree and Shrub Mitigation Specifications

Inventory

1. Trees and shrubs anticipated to be cleared, including those that are considered invasive species or noxious weeds (*e.g.*, *Caragana arborescens*, *Elaeagnus angustifolia*, *Rhamnus cathartica*, *Tamarix chinensis*, *T. parviflora*, *T. ramosissima*, *Ulmus pumila*), shall be inventoried before cutting. The inventory shall record the location, number, and species of trees and shrubs.
2. In windbreaks, shelterbelts, and other planted areas, trees or shrubs anticipated to be cleared, regardless of size, shall be inventoried for replacement.
3. In native growth areas, trees anticipated to be cleared that are 1 inch diameter at breast height ("dbh") or greater shall be inventoried for replacement.
4. In native growth areas, shrubs anticipated to be cleared in the permanent right-of-way shall be inventoried for replacement.
5. In native growth areas outside the permanent right-of-way, shrubs shall be cut flush with the surface of the ground, taking care to leave the naturally occurring seed bank and root stock intact. If soil disturbance is necessary, the native topsoil shall be preserved and replaced after construction. Shrubs shall be allowed to regenerate naturally where native topsoil is preserved and replaced. Where native topsoil is not preserved and replaced, shrubs anticipated to be cleared shall be inventoried for replacement.
6. In native growth areas, trees and shrubs may be inventoried by actual count or by sampling method that will properly represent the woody vegetation population. A sampling plan developed by the company, filed with the North Dakota Public Service Commission (NDPSC), and approved prior to the start of construction shall define the sampling method to be used for trees, tall shrubs, and low shrubs. The data from the sample plots shall be extrapolated to the total acreage of the wooded area to be cleared to determine the species and quantity of trees and shrubs to be replaced.

Clearing for Construction

7. Trees and shrubs shall be selectively cleared, leaving mature trees and shrubs intact where practical.
8. The width of clear cuts through windbreaks, shelterbelts, and all other wooded areas shall be limited to 50 feet or less unless otherwise approved by the NDPSC.
9. If the area of trees or shrubs actually cleared differs from the area inventoried, the difference in number of trees and shrubs to be replaced shall be noted on the inventory.

Replacement

10. Prior to tree/shrub replacement, documentation identifying the number and variety of trees removed as well as the mitigation plan for the proposed number, variety, type, location and date of replacement plantings shall be filed with the NSPSC for approval.
11. Tree replacement shall be on a 2-to-1 basis with 2-year-old saplings. Shrub replacement shall be on a 2-to-1 basis with stem cuttings.
12. Trees and shrubs shall be replaced by the same species or similar species suitable for North Dakota growing conditions as recommended by the North Dakota Forest Service.

TREE AND SHRUB SAMPLING PLAN

13. Tree and shrub replacement shall not be conducted within a 20- to 30-foot-wide path over the pipeline to facilitate visual inspections of the right-of-way in accordance with U.S. Department of Transportation safety regulations.
14. Landowners shall be given the option of having replacement trees/shrubs planted off the right-of-way on the landowner's property or waiving that requirement in writing and allowing those replacement trees/shrubs to be planted at alternative locations.
15. At the conclusion of the project, documentation identifying the actual number, variety, type, location and date of the replacement plantings shall be filed with the NDPSC.
16. Tree/shrub replacements shall be inspected once a year for 3 years, on approximately the anniversary of the plantings, and on or shortly before October 1 of each year, a report shall be submitted to the NDPSC documenting the condition of replacement planting and any woodlands work completed. If after 3 years from the anniversary of the plantings, the survival rate is less than 75 percent, the NDPSC may order additional planting(s).

Appendix B North Dakota State and County Listed Noxious Weeds

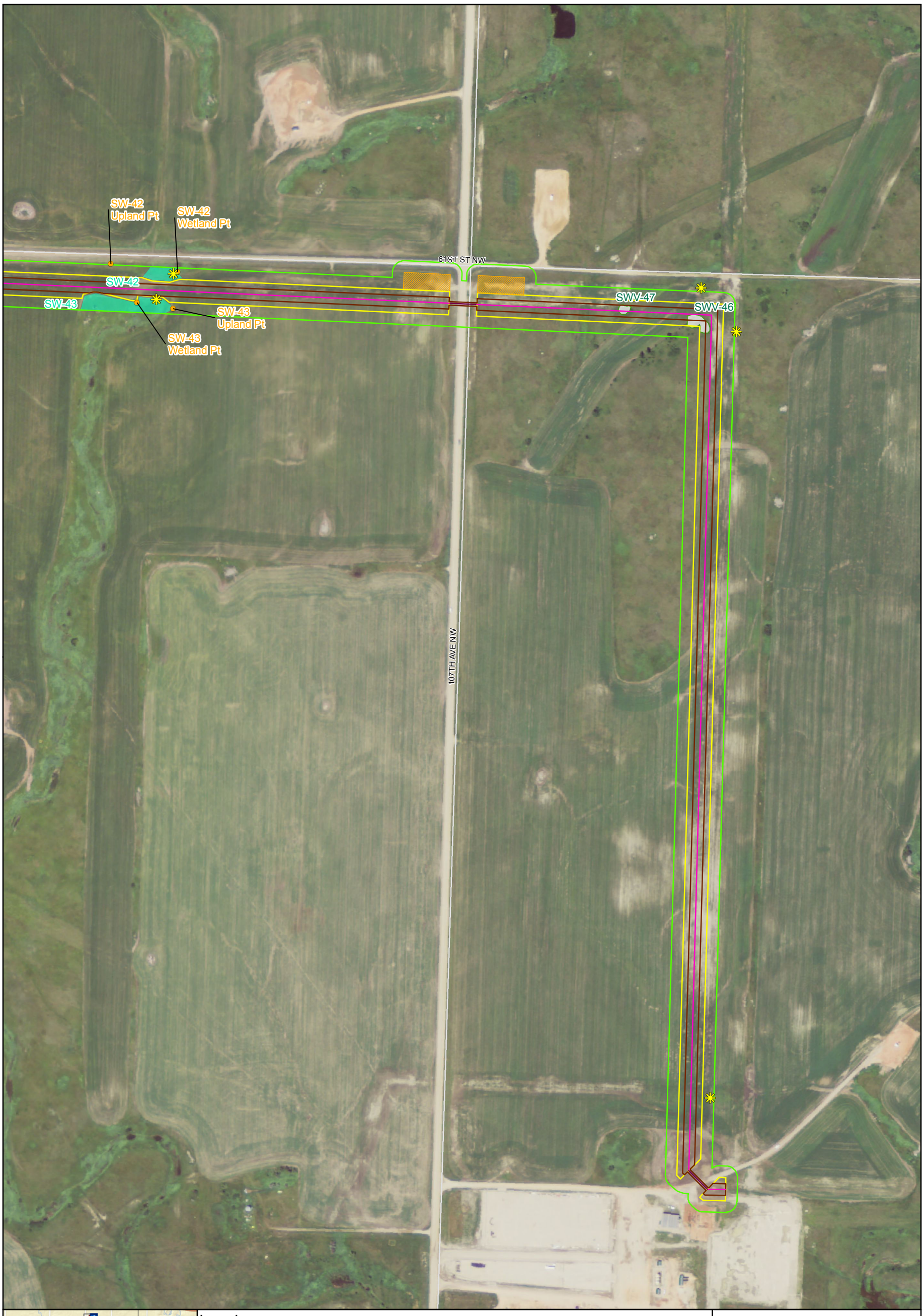
Table B-1 State, County, and USFS Listed Noxious Weeds

Common Name	Scientific Name	State of North Dakota Designated Species	County Designated Species[1] (MK – McKenzie)	USFS Designated Species
Russian knapweed	*Acroptilon repens*	X	--	X
Crested wheatgrass	*Agropyron cristatum*	--	--	X
Tall wheatgrass	*Thinopyrum ponticum*	--	--	X
Intermediate wheatgrass	*Agropyron intermedium*	--	--	X
Quackgrass	*Elymus repens*	--	--	X
Common burdock	*Arctium minus*	--	MK	X
Absinth wormwood	*Artemisia absinthium*	X	--	X
Smooth brome	*Bromus inermis*	--	--	X
Japanese brome	*Bromus arvensis*	--	--	X
Downy brome	*Bromus tectorum*	--	--	X
Spiny plumeless thistle	*Carduus acanthoides*	--	--	X
Musk thistle	*Carduus nutans*	X	--	X
Diffuse knapweed	*Centaurea diffusa*	X	--	X
Spotted knapweed	*Centaurea stoebe L. ssp. micranthos*	X	--	X
Yellow starthistle	*Centaurea solstitialis*	--	--	X
Canada thistle	*Cirsium arvense*	X	--	X
Field bindweed	*Convolvulus arvensis*	--	--	X
Houndstongue	*Cynoglossum officinale*	--	MK	X
Leafy spurge	*Euphorbia esula*	X	--	X
Baby's breath	*Gypsophila paniculata*	--	MK	X
Halogeton	*Halogeton glomeratus*	--	MK	X
Black henbane	*Hyoscyamus niger*	--	MK	X
Dalmation toadflax	*Linaria dalmatica ssp. dalmatica*	X	--	X
Yellow toadflax	*Linaria vulgaris*	X	--	X
Purple loosestrife	*Lythrum salicaria, L. virgatum*	X	--	X
Sweet clover	*Melilotus* spp.	--	--	X
Kentucky bluegrass	*Poa pratensis*	--	--	X
Canada bluegrass	*Poa compressa*	--	--	X
Sowthistle	*Sonchus* spp.	--	--	X
Saltcedar	*Tamarix spp.*	X	--	--

[1] McKenzie and Williams counties both regulate the 11 state-listed noxious weed species. Each county can require enforcement for additional weed species in their jurisdiction. Williams County has not identified any additional species for enforcement (North Dakota Department of Agriculture 2013).

Sources: North Dakota Department of Agriculture 2014, 2013; USFS 2014.

Appendix C Site and Feature Maps



Legend

PipeType
- HDD
- Bore
- Trench Installation
- NGL Line
- NGL 200-ft Survey Corridor
- Corridor 10/14/2014

Construction Footprint
- Additional TWS
- Compressor Facility
- Oil Facility
- Permanent Easement
- Temporary Easement

Surveyed Data
- Surveyed Noxious Weed
- Soil Pit
- Surveyed Stream
- Surveyed Wetland
- Surveyed Woodland

Source: Hess 2014.

Hawkeye Pipeline System Project

Figure C-1

Hess Hawkeye Natural Resource Survey Results

0 0.0275 0.055 0.11
Miles

Legend

PipeType
- HDD
- Bore
- Trench Installation
- NGL Line
- NGL 200-ft Survey Corridor
- Corridor 10/14/2014

Construction Footprint
- Additional TWS
- Compressor Facility
- Oil Facility
- Permanent Easement
- Temporary Easement

Surveyed Data
- Surveyed Noxious Weed
- Soil Pit
- Surveyed Stream
- Surveyed Wetland
- Surveyed Woodland

Source: Hess 2014.

Hawkeye Pipeline System Project

Figure C-2

Hess Hawkeye Natural Resource Survey Results

0 0.0275 0.055 0.11
Miles

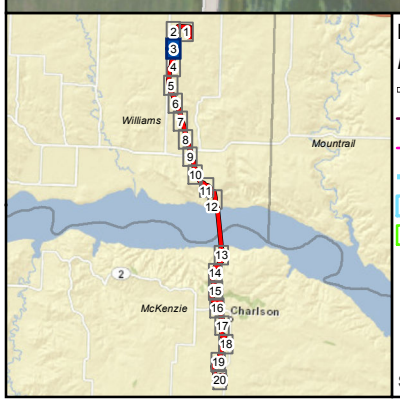
SW-25
Upland Pt

60TH ST NW

SW-25

SW-25
Wetland Pt

108TH AVE NW



Legend

PipeType
- HDD
- Bore
- Trench Installation
- NGL Line
- NGL 200-ft Survey Corridor
- Corridor 10/14/2014

Construction Footprint
- Additional TWS
- Compressor Facility
- Oil Facility
- Permanent Easement
- Temporary Easement

Surveyed Data
- Surveyed Noxious Weed
- Soil Pit
- Surveyed Stream
- Surveyed Wetland
- Surveyed Woodland

Source: Hess 2014.

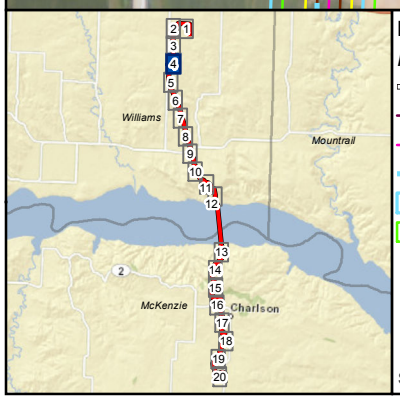
Hawkeye Pipeline System Project

Figure C-3

Hess Hawkeye Natural Resource Survey Results

0 0.0275 0.055 0.11
Miles

SW-26
59TH ST NW
SW-26 Upland Pt
SW-26 Wetland Pt
SWV-1
108TH AVE NW
58 1/2 ST NW



Legend

PipeType
- HDD
- Bore
- Trench Installation
- NGL Line
- NGL 200-ft Survey Corridor
- Corridor 10/14/2014

Construction Footprint
- Additional TWS
- Compressor Facility
- Oil Facility
- Permanent Easement
- Temporary Easement

Surveyed Data
- Surveyed Noxious Weed
- Soil Pit
- Surveyed Stream
- Surveyed Wetland
- Surveyed Woodland

Source: Hess 2014.

Hawkeye Pipeline System Project

Figure C-4

Hess Hawkeye Natural Resource Survey Results

0 0.0275 0.055 0.11
Miles

58TH ST NW

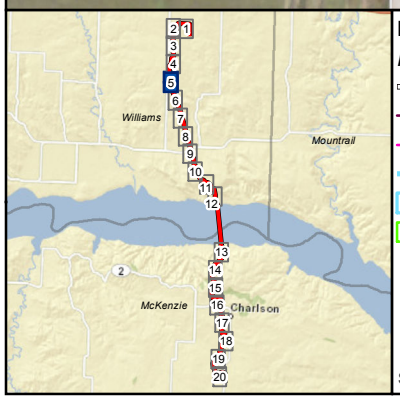
58 1/2 ST NW

108TH AVE N W

SW-27
Upland Pt

SW-27

SW-27
Wetland Pt



Legend

PipeType
- HDD
- Bore
- Trench Installation
- NGL Line
- NGL 200-ft Survey Corridor
- Corridor 10/14/2014

Construction Footprint
- Additional TWS
- Compressor Facility
- Oil Facility
- Permanent Easement
- Temporary Easement

Surveyed Data
- Surveyed Noxious Weed
- Soil Pit
- Surveyed Stream
- Surveyed Wetland
- Surveyed Woodland

Source: Hess 2014.

Hawkeye Pipeline System Project

Figure C-5

Hess Hawkeye Natural Resource Survey Results

0 0.0275 0.055 0.11
Miles

57TH ST NW

SWV-48

SWV-49

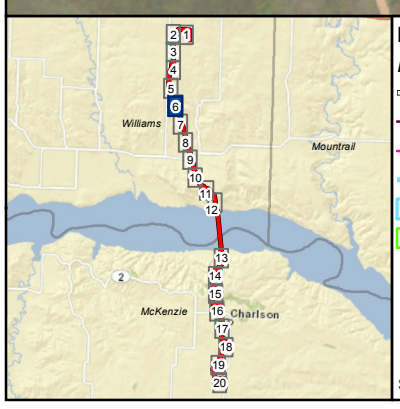
SWV-50

SWV-51

SWV-77

SWV-52

SWV-53



Legend

PipeType
- HDD
- Bore
- Trench Installation
- NGL Line
- NGL 200-ft Survey Corridor
- Corridor 10/14/2014

Construction Footprint
- Additional TWS
- Compressor Facility
- Oil Facility
- Permanent Easement
- Temporary Easement

Surveyed Data
- Surveyed Noxious Weed
- Soil Pit
- Surveyed Stream
- Surveyed Wetland
- Surveyed Woodland

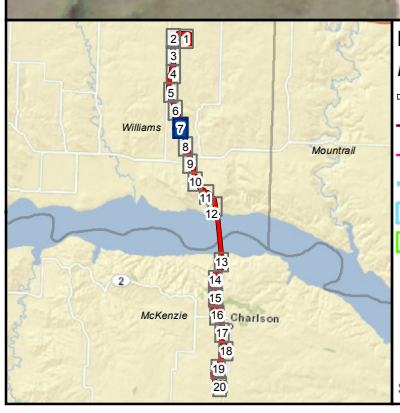
Source: Hess 2014.

Hawkeye Pipeline System Project

Figure C-6

Hess Hawkeye Natural Resource Survey Results

0 0.0275 0.055 0.11
Miles



Legend

PipeType
- HDD
- Bore
- Trench Installation
- NGL Line
- NGL 200-ft Survey Corridor
- Corridor 10/14/2014

Construction Footprint
- Additional TWS
- Compressor Facility
- Oil Facility
- Permanent Easement
- Temporary Easement

Surveyed Data
- Surveyed Noxious Weed
- Soil Pit
- Surveyed Stream
- Surveyed Wetland
- Surveyed Woodland

Source: Hess 2014.

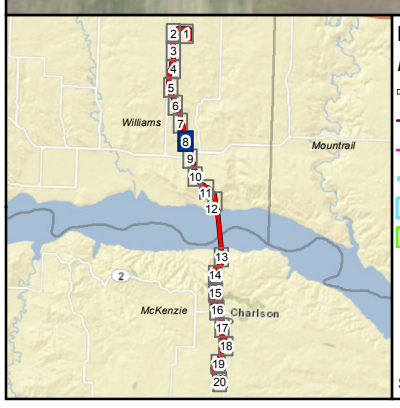
Hawkeye Pipeline System Project

Figure C-7

Hess Hawkeye Natural Resource Survey Results

0 0.0275 0.055 0.11
Miles

55TH ST NW
SWV-54
107TH AVE NW
SW-51
SW-51
Upland Pt
SW-51
Wetland Pt
54 1/2 ST NW
107TH AVE NW
SWV-56
SWV-55
SWV-57



Legend

PipeType
- HDD
- Bore
- Trench Installation
- NGL Line
- NGL 200-ft Survey Corridor
- Corridor 10/14/2014

Construction Footprint
- Additional TWS
- Compressor Facility
- Oil Facility
- Permanent Easement
- Temporary Easement

Surveyed Data
- Surveyed Noxious Weed
- Soil Pit
- Surveyed Stream
- Surveyed Wetland
- Surveyed Woodland

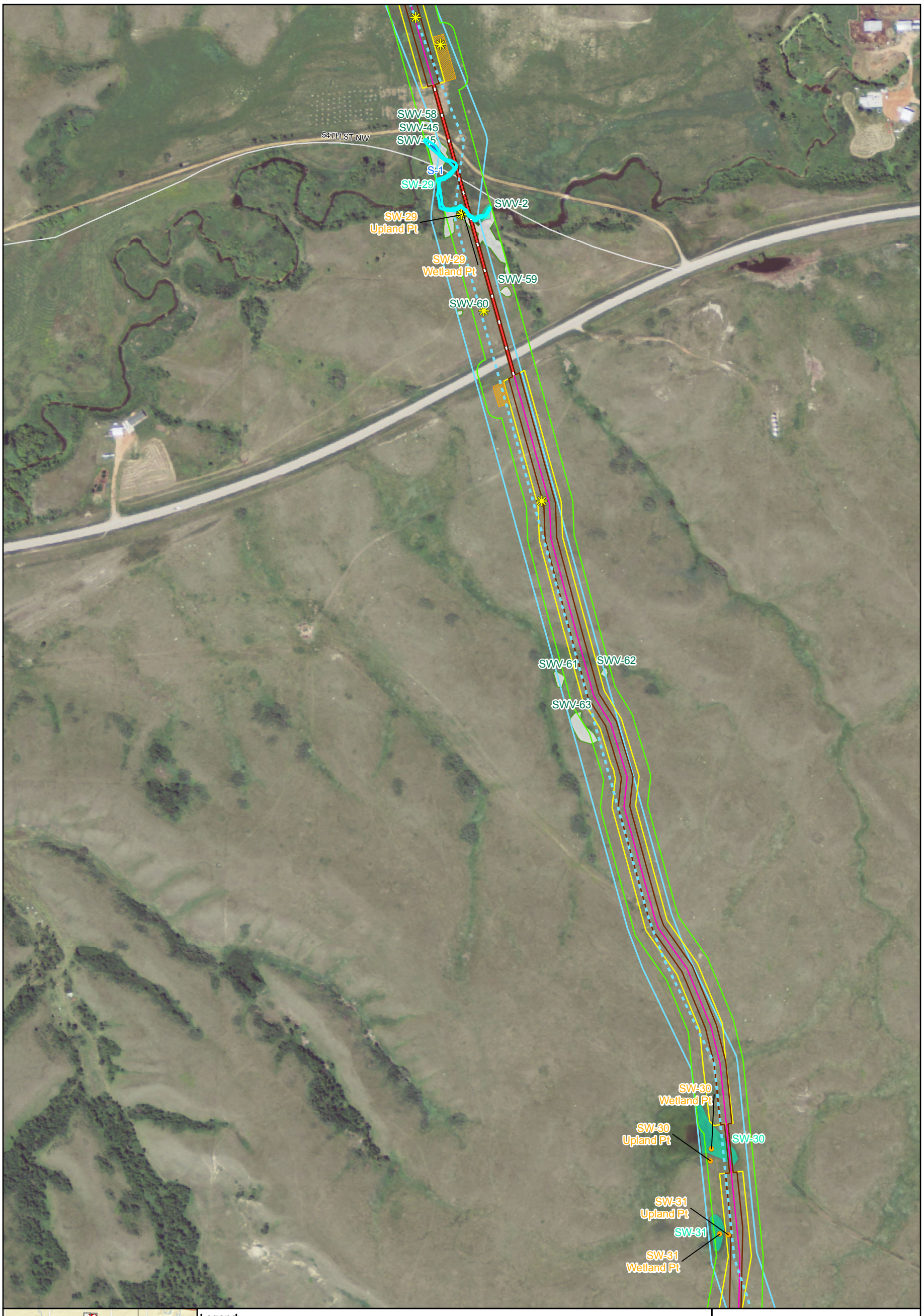
Source: Hess 2014.

Hawkeye Pipeline System Project

Figure C-8

Hess Hawkeye Natural Resource Survey Results

0 0.0275 0.055 0.11
Miles



Legend

PipeType
- HDD
- Bore
- Trench Installation
- NGL Line
- NGL 200-ft Survey Corridor
- Corridor 10/14/2014

Construction Footprint
- Additional TWS
- Compressor Facility
- Oil Facility
- Permanent Easement
- Temporary Easement

Surveyed Data
- Surveyed Noxious Weed
- Soil Pit
- Surveyed Stream
- Surveyed Wetland
- Surveyed Woodland

Source: Hess 2014.

Hawkeye Pipeline System Project

Figure C-9

Hess Hawkeye Natural Resource Survey Results

0 0.0275 0.055 0.11
Miles

SW-31

53RD ST NW

SW-32

SW-32
Upland Pt

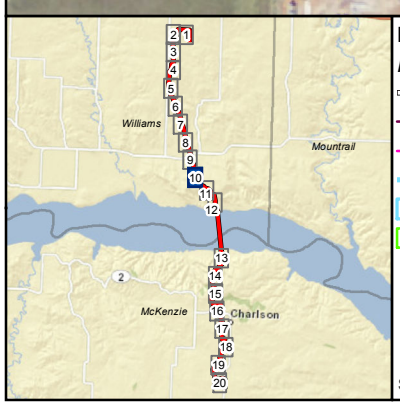
SWV-3

SW-32
Wetland Pt

106TH AVE NW

106 1/2 AVE NW

53 1/2 ST NW



Legend

PipeType
- HDD
- Bore
- Trench Installation
- NGL Line
- NGL 200-ft Survey Corridor
- Corridor 10/14/2014

Construction Footprint
- Additional TWS
- Compressor Facility
- Oil Facility
- Permanent Easement
- Temporary Easement

Surveyed Data
- Surveyed Noxious Weed
- Soil Pit
- Surveyed Stream
- Surveyed Wetland
- Surveyed Woodland

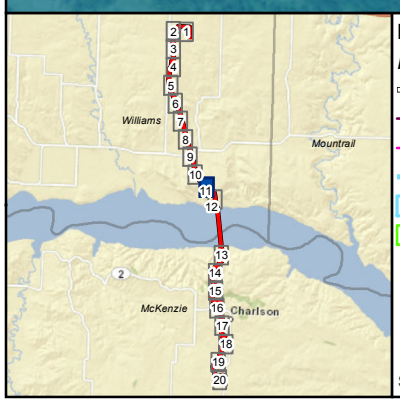
Source: Hess 2014.

Hawkeye Pipeline System Project

Figure C-10

Hess Hawkeye Natural Resource Survey Results

0 0.0275 0.055 0.11
Miles



Legend

PipeType
- HDD
- Bore
- Trench Installation
- NGL Line
- NGL 200-ft Survey Corridor
- Corridor 10/14/2014

Construction Footprint
- Additional TWS
- Compressor Facility
- Oil Facility
- Permanent Easement
- Temporary Easement

Surveyed Data
- Surveyed Noxious Weed
- Soil Pit
- Surveyed Stream
- Surveyed Wetland
- Surveyed Woodland
- State Land

Source: Hess 2014.

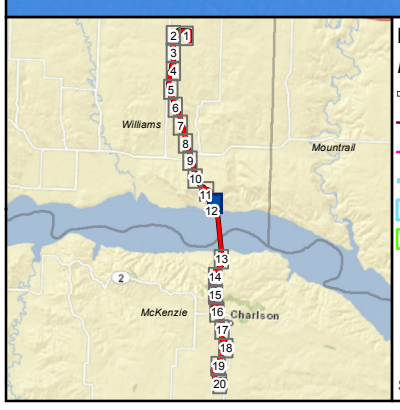
Hawkeye Pipeline System Project

Figure C-11

Hess Hawkeye Natural Resource Survey Results

0 0.0275 0.055 0.11
Miles

105TH AVE NW
51 1/2 ST NW
SWV-66
SWV-67
SWV-65
SWV-36
SWV-37
SWV-38
SWV-39
SWV-4
SWV-68
SWV-69
SWV-5
S-4



Legend

PipeType
- HDD
- Bore
- Trench Installation
- NGL Line
- NGL 200-ft Survey Corridor
- Corridor 10/14/2014

Construction Footprint
- Additional TWS
- Compressor Facility
- Oil Facility
- Permanent Easement
- Temporary Easement

Surveyed Data
- Surveyed Noxious Weed
- Soil Pit
- Surveyed Stream
- Surveyed Wetland
- Surveyed Woodland
- Army Corps of Engineers
- State Land

Source: Hess 2014.

Hawkeye Pipeline System Project

Figure C-12

Hess Hawkeye Natural Resource Survey Results

0 0.0275 0.055 0.11
Miles

S-4

S-4

SWV-70

48TH ST NW

SWV-71

SWV-6

SWV-22

SWV-72

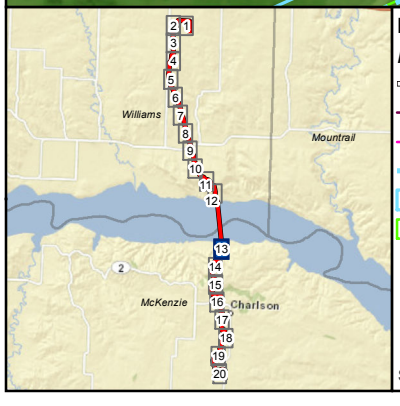
SWV-7

SWV-73

SWV-33

104TH AVE NW

SWV-74



Legend

PipeType
- HDD
- Bore
- Trench Installation
- NGL Line
- NGL 200-ft Survey Corridor
- Corridor 10/14/2014

Construction Footprint
- Additional TWS
- Compressor Facility
- Oil Facility
- Permanent Easement
- Temporary Easement

Surveyed Data
- Surveyed Noxious Weed
- Soil Pit
- Surveyed Stream
- Surveyed Wetland
- Surveyed Woodland
- U.S. Forest Service
- Army Corps of Engineers

Source: Hess 2014.

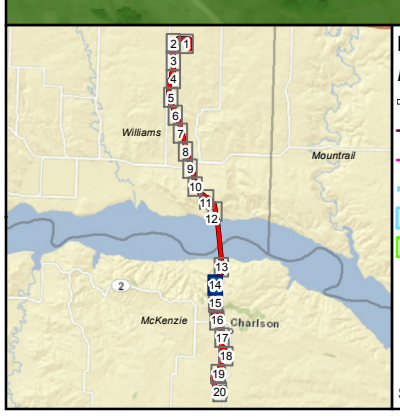
Hawkeye Pipeline System Project

Figure C-13

Hess Hawkeye Natural Resource Survey Results

0 0.0275 0.055 0.11
Miles

SWV-74
SWV-75
SWV-8
SWV-23
104TH AVE NW
SWV-9
SWV-10
SWV-11
S-2
SWV-76
SWV-12
SWV-12
SWV-14
46TH ST NW



Legend

PipeType
- HDD
- Bore
- Trench Installation
- NGL Line
- NGL 200-ft Survey Corridor
- Corridor 10/14/2014

Construction Footprint
- Additional TWS
- Compressor Facility
- Oil Facility
- Permanent Easement
- Temporary Easement

Surveyed Data
- Surveyed Noxious Weed
- Soil Pit
- Surveyed Stream
- Surveyed Wetland
- Surveyed Woodland
- U.S. Forest Service

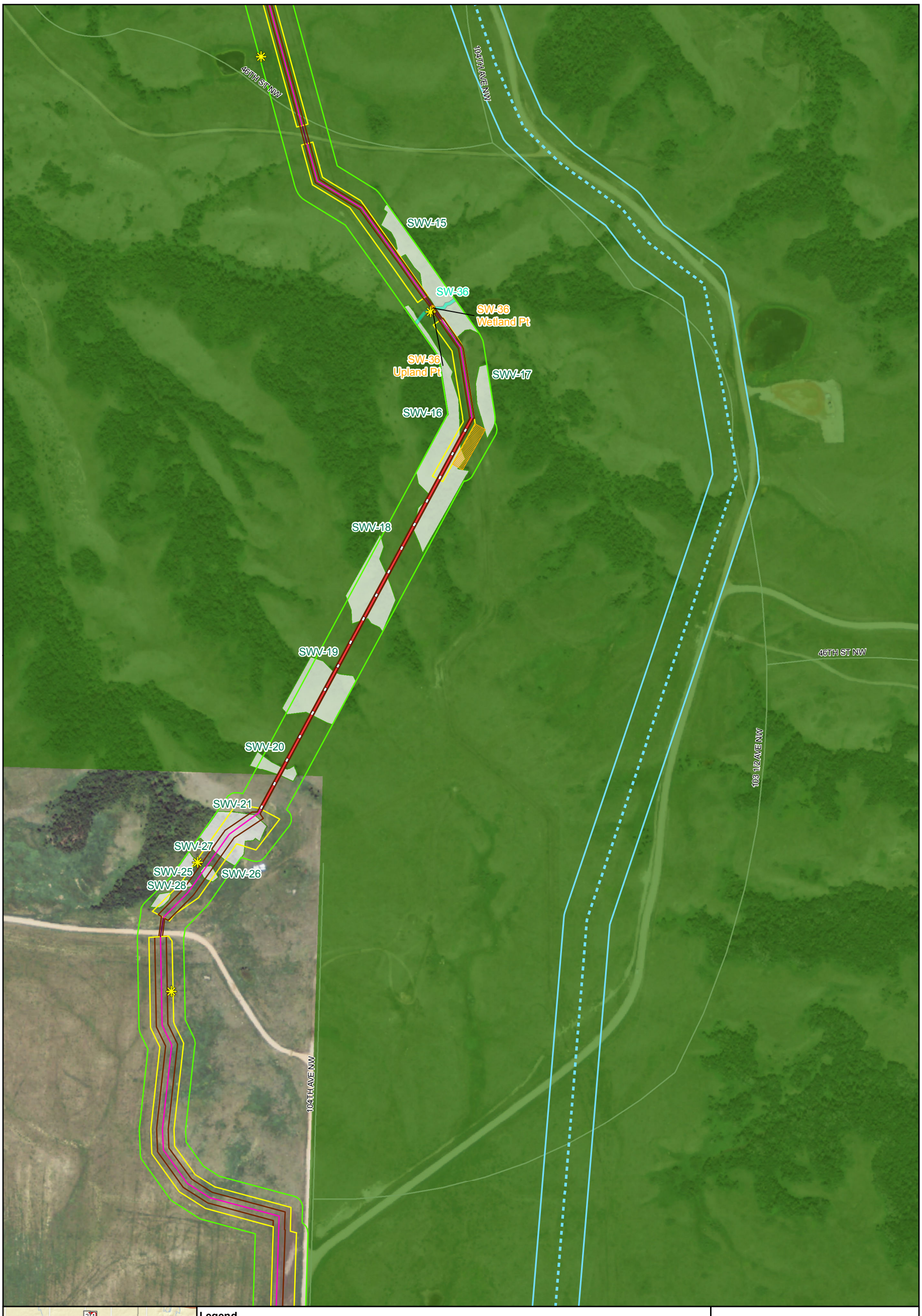
Source: Hess 2014.

Hawkeye Pipeline System Project

Figure C-14

Hess Hawkeye Natural Resource Survey Results

0 0.0275 0.055 0.11
Miles



Legend

PipeType
- HDD
- Bore
- Trench Installation
- NGL Line
- NGL 200-ft Survey Corridor
- Corridor 10/14/2014

Construction Footprint
- Additional TWS
- Compressor Facility
- Oil Facility
- Permanent Easement
- Temporary Easement

Surveyed Data
- Surveyed Noxious Weed
- Soil Pit
- Surveyed Stream
- Surveyed Wetland
- Surveyed Woodland
- U.S. Forest Service

Source: Hess 2014.

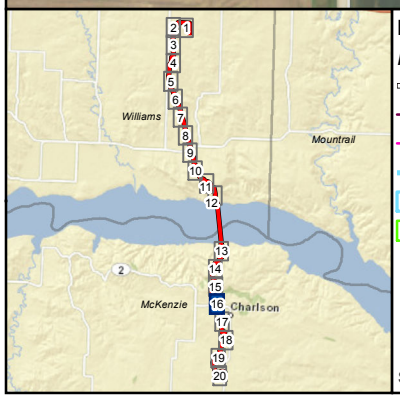
Hawkeye Pipeline System Project

Figure C-15

Hess Hawkeye Natural Resource Survey Results

0 0.0275 0.055 0.11
Miles

SW-37
Upland Pt
SW-37
SW-38
SW-38
Upland Pt
SW-37
Wetland Pt
SW-38
Wetland Pt
SWV-29
SWV-43
SWV-30
SWV-44
SWV-32
SWV-31
104TH AVE NW



Legend

Pipe Type
- HDD
- Bore
- Trench Installation
- NGL Line
- NGL 200-ft Survey Corridor
- Corridor 10/14/2014

Construction Footprint
- Additional TWS
- Compressor Facility
- Oil Facility
- Permanent Easement
- Temporary Easement

Surveyed Data
- Surveyed Noxious Weed
- Soil Pit
- Surveyed Stream
- Surveyed Wetland
- Surveyed Woodland
- U.S. Forest Service

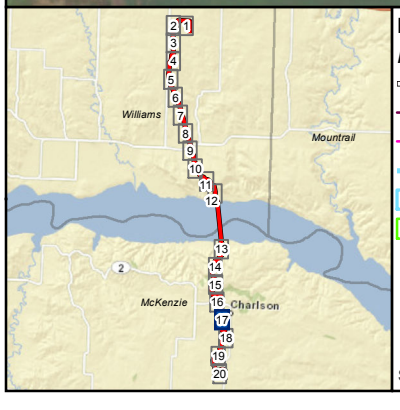
Source: Hess 2014.

Hawkeye Pipeline System Project

Figure C-16

Hess Hawkeye Natural Resource Survey Results

0 0.0275 0.055 0.11
Miles



Legend

PipeType
- HDD
- Bore
- Trench Installation
- NGL Line
- NGL 200-ft Survey Corridor
- Corridor 10/14/2014

Construction Footprint
- Additional TWS
- Compressor Facility
- Oil Facility
- Permanent Easement
- Temporary Easement

Surveyed Data
- Surveyed Noxious Weed
- Soil Pit
- Surveyed Stream
- Surveyed Wetland
- Surveyed Woodland

Source: Hess 2014.

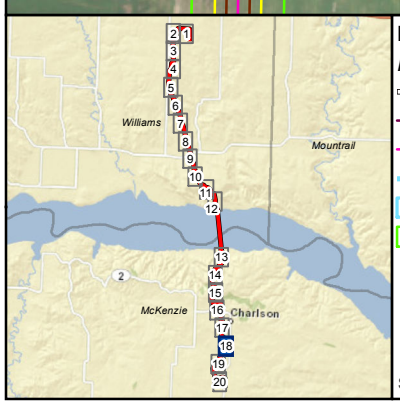
Hawkeye Pipeline System Project

Figure C-17

Hess Hawkeye Natural Resource Survey Results

0 0.0275 0.055 0.11
Miles

SW-39
Upland Pt
SW-39
SW-39
Wetland Pt
SW-75
SW-75
Wetland Pt
SW-17
DP53U
DP52W
SW-76
SW-75/SW-76
Upland Pt
SW-76
Wetland Pt
SW-15
DP46W
DP47U
43RD ST NW
DP57U
DP56W
DP59U
SW-19
DP58W



Legend

PipeType
- HDD
- Bore
- Trench Installation
- NGL Line
- NGL 200-ft Survey Corridor
- Corridor 10/14/2014

Construction Footprint
- Additional TWS
- Compressor Facility
- Oil Facility
- Permanent Easement
- Temporary Easement

Surveyed Data
- Surveyed Noxious Weed
- Soil Pit
- Surveyed Stream
- Surveyed Wetland
- Surveyed Woodland

Source: Hess 2014.

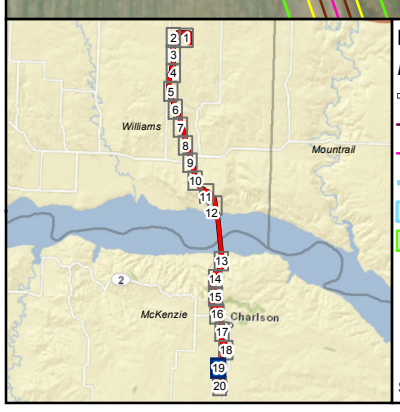
Hawkeye Pipeline System Project

Figure C-18

Hess Hawkeye Natural Resource Survey Results

0 0.0275 0.055 0.11
Miles

DP66W
SW-20
42ND ST NW
DP67U
SW-40
SW-21
SW-41
DP70W
DP62W
DP71U
DP72W
DP63U
DP73U



Legend

PipeType
- HDD
- Bore
- Trench Installation
- NGL Line
- NGL 200-ft Survey Corridor
- Corridor 10/14/2014

Construction Footprint
- Additional TWS
- Compressor Facility
- Oil Facility
- Permanent Easement
- Temporary Easement

Surveyed Data
- Surveyed Noxious Weed
- Soil Pit
- Surveyed Stream
- Surveyed Wetland
- Surveyed Woodland

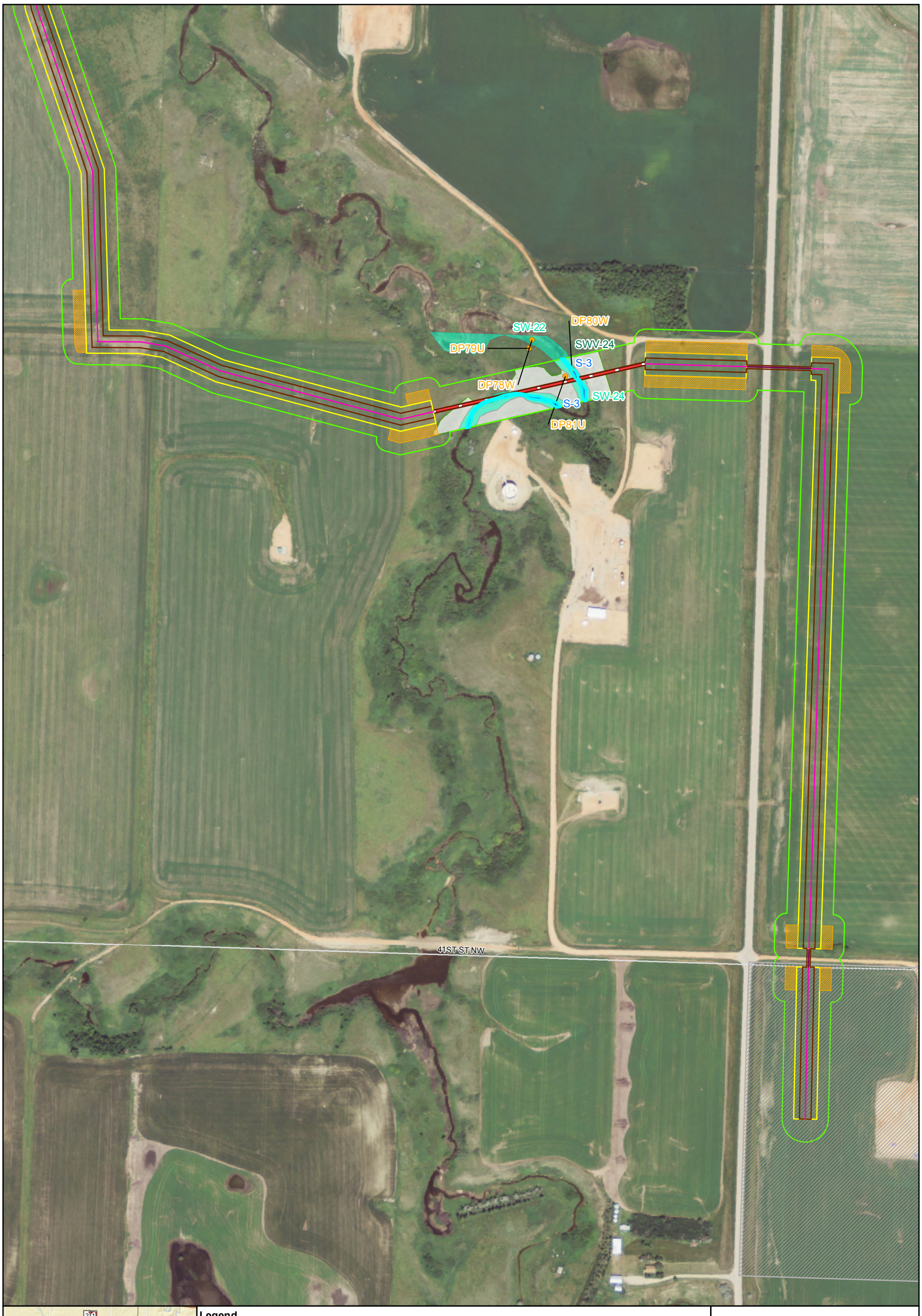
Source: Hess 2014.

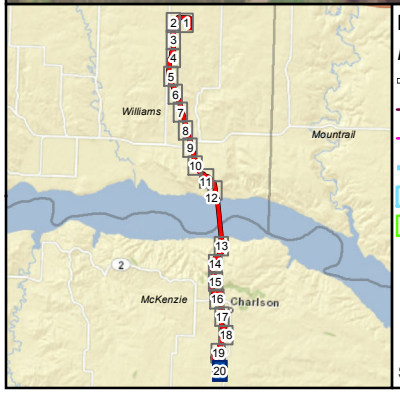
Hawkeye Pipeline System Project

Figure C-19

Hess Hawkeye Natural Resource Survey Results

0 0.0275 0.055 0.11
Miles





Legend

PipeType
- HDD
- Bore
- Trench Installation
- NGL Line
- NGL 200-ft Survey Corridor
- Corridor 10/14/2014

Construction Footprint
- Additional TWS
- Compressor Facility
- Oil Facility
- Permanent Easement
- Temporary Easement

Surveyed Data
- Surveyed Noxious Weed
- Soil Pit
- Surveyed Stream
- Surveyed Wetland
- Surveyed Woodland

Source: Hess 2014.

Hawkeye Pipeline System Project

Figure C-20

Hess Hawkeye Natural Resource Survey Results

0 0.0275 0.055 0.11
Miles

Appendix D Site Photographs

Stantec

PHOTOGRAPHIC LOG

Client: Hess Corporation	**Project:** Hawkeye Pipeline System Project	**Project No.** 212205020

Photo No. 1	**Date:** 10/15/14

Direction Photo Taken: Southwest

Description: Disturbed wetland in swale in agricultural field

Client: Hess Corporation	**Project:** Hawkeye Pipeline System Project	**Project No.** 212205020

Photo No. 10	**Date:** 08/05/14

Direction Photo Taken: South

Description: Wetland along roadside

Client:	Project:	Project No.
Hess Corporation	Hawkeye Pipeline System Project	212205020

Photo No.	Date:
2	08/5/14

Direction Photo Taken:
Southeast

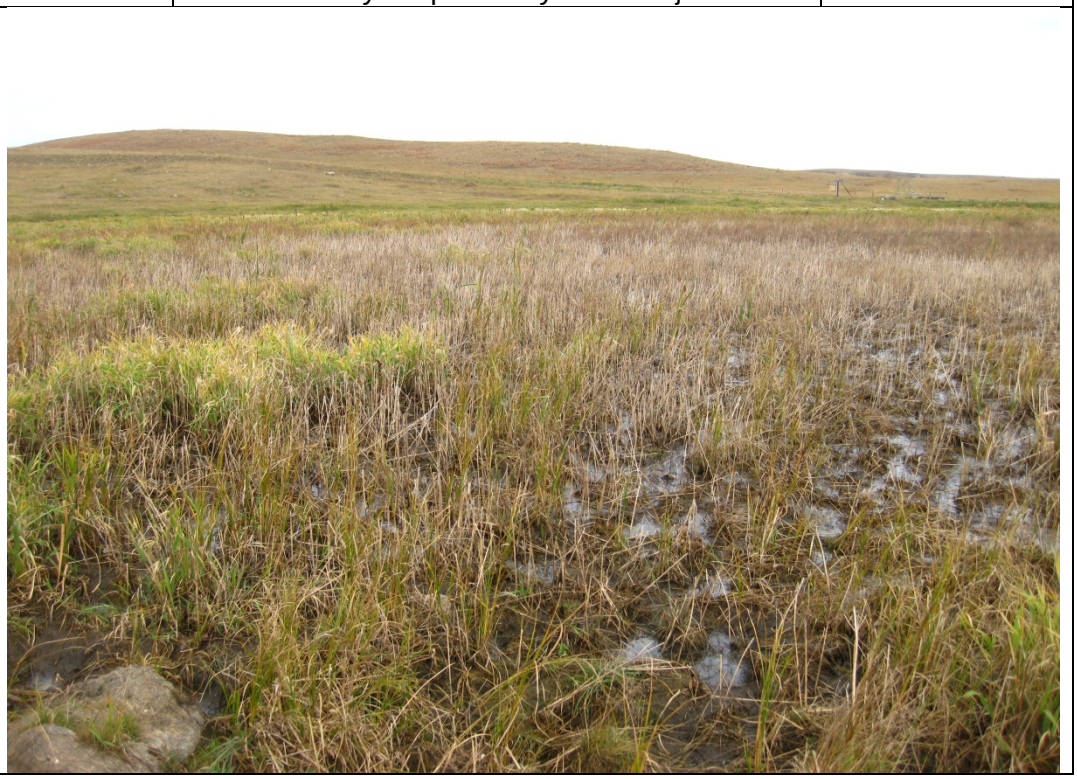
Description:
Isolated wetland/pond

Client:	Project:	Project No.
Hess Corporation	Hawkeye Pipeline System Project	212205020

Photo No.	Date:
3	10/15/14

Direction Photo Taken:
Northeast

Description:
Isolated wetland



Client:	Project:	Project No.
Hess Corporation	Hawkeye Pipeline System Project	212205020

Photo No.	Date:
4	10/15/14

Direction Photo Taken:
Southeast

Description:
Dry Fork Creek and fringing wetland

Client:	Project:	Project No.
Hess Corporation	Hawkeye Pipeline System Project	212205020

Photo No.	Date:
5	10/11/12

Direction Photo Taken:
South

Description:
Herbaceous wetland in swale

Client:	Project:	Project No.
Hess Corporation	Hawkeye Pipeline System Project	212205020

Photo No.	Date:
6	10/14/13

Direction Photo Taken:
West

Description:
Windrow

Client:	Project:	Project No.
Hess Corporation	Hawkeye Pipeline System Project	212205020

Photo No.	Date:
7	10/16/13

Direction Photo Taken:
West

Description:
Isolated wetland in agricultural field

Client:	Project:	Project No.
Hess Corporation	Hawkeye Pipeline System Project	212205020

Photo No.	Date:
8	10/15/13

Direction Photo Taken:
Northeast

Description:
Windrow

Client:	Project:	Project No.
Hess Corporation	Hawkeye Pipeline System Project	212205020

Photo No.	Date:
9	10/11/12

Direction Photo Taken:
North

Description:
Noxious weeds within survey area (Field bindweed (*Convovulus arvense*))

Client:	Project:	Project No.
Hess Corporation	Hawkeye Pipeline System Project	212205020

Photo No.	Date:
10	10/16/14

Direction Photo Taken:
South

Description:
Native wooded draw

Appendix E Survey Results Tables

Table E-1 Field Delineated Wetlands Identified within the Survey Corridor for the Proposed Project

Feature ID	NWI Classification	Survey Corridor (Acres)	Temporary Construction Footprint (acres)	Crossing Length[1] (mi)
SW-11	PEM	0.09	--	0.01
SW-12	PEM	0.03	--	--
SW-14	PEM	0.05	--	--
SW-15	PEM	0.05	--	<0.01
SW-17	PEM	0.06	--	<0.01
SW-19	PEM	0.18	--	0.01
SW-20	PEM	0.00	--	--
SW-21	PEM	0.42	--	0.02
SW-22	PEM	0.15	--	0.01
SW-24	PEM	0.81	--	0.05
SW-25	PEM	0.04	--	--
SW-27	PEM	0.19	--	--
SW-28	PEM	0.08	--	--
SW-29	PEM	0.17	--	0.01
SW-30	PEM	0.36	--	0.02
SW-31	PEM	0.12	--	--
SW-32	PEM	0.15	--	0.01
SW-33	PEM	0.09	--	0.01
SW-34	PEM	0.02	--	<0.01
SW-35	PEM	0.14	--	0.01
SW-36	PEM	0.07	--	<0.01
SW-37	PEM	0.14	--	<0.01
SW-38	PEM	0.07	--	<0.01
SW-39	PEM	1.26	--	0.06
SW-40	PEM	0.42	--	0.02
SW-41	PEM	0.64	--	<0.01
SW-42	PEM	0.18	--	--
SW-43	PEM	0.55	--	--
SW-51	PEM	0.15	--	--
SW-65	PEM	0.06	--	--

[1] Crossing lengths were measured along the centerline of the current route.

Table E-2 Field Delineated Wetlands Identified within the Survey Corridor for the Existing NGL Pipeline

Feature ID	NWI Classification	Survey Corridor (Acres)	Crossing Length[1] (mi)
SW-11	PEM	0.01	--
SW-25	PEM	0.07	--
SW-26	PEM	0.03	--
SW-27	PEM	0.09	--
SW-28	PEM	0.03	--
SW-29	PEM	0.12	<0.01
SW-30	PEM	0.46	0.02
SW-31	PEM	0.17	--
SW-32	PEM	0.15	0.01
SW-51	PEM	0.32	--
SW-65	PEM	0.13	--
SW-75	PEM	0.11	<0.01
SW-76	PEM	0.21	0.01

[1] Crossing lengths were measured along the centerline of the existing NGL pipeline.

Table E-3 Woodlands and Shrublands Identified Along the Proposed Project

Feature ID	Type	Species Name	Scientific Name	Construction ROW (acres)	Number of Individuals		Estimated Mitigation (2:1 Ratio)
					Survey Corridor (200 feet)	Construction ROW	
SWV-1	Planted shelterbelt	Siberian elm	*Ulmus pulmila*	--	100	--	--
SWV-2	Native woodland	Silver buffaloberry	*Shepherdia argentea*	--	80	--	--
		Green Ash	*Fraxinus pennsylvanica*		11	--	--
		Chokecherry	*Prunus virginiana*		108	--	--
		Boxelder	*Acer negundo*		1	--	--
SWV-3	Native woodland	Fireberry hawthorn	*Crataegus chrysocarpa*	0.05	48	14	28
		Silver buffaloberry	*Shepherdia argentea*		27	8	16
		Green Ash	*Fraxinus pennslyvanica*		2	--	--
		Common juniper	*Juniperus communis*		16	4	8
SWV-4	Native woodland	American elm	*Ulmus americana*	0.09	200	101	202
		Green Ash	*Fraxinus pennslyvanica*		80	44	88
SWV-5	Native woodland	Silver buffaloberry	*Shepherdia argentea*	0.28	80	40	80
		Chokecherry	*Prunus virginiana*		300	160	320
		Green Ash	*Fraxinus pennslyvanica*		300	150	300
		Rocky Mountain juniper	*Juniperus scopulorum*		4	1	2
		Skunkbush sumac	*Rhus trilobata*		29	19	38
SWV-6	Native shrubland	Silver buffaloberry	*Shepherdia argentea*	0.1	32	22	44
		Skunkbush sumac	*Rhus trilobata*		13	25	50
		Chokecherry	*Prunus virginiana*		28	12	24
		Common juniper	*Juniperus communis*		--	5	10
		Silver buffaloberry	*Shepherdia argentea*		38	7	14
SWV-7	Native woodland	Chokecherry	*Prunus virginiana*	--	66	--	--
		American elm	*Ulmus americana*		1	--	--
		Green Ash	*Fraxinus pennslyvanica*		11	--	--
		Rocky Mountain juniper	*Juniperus scopulorum*		3	--	--
		Common juniper	*Juniperus communis*		20	--	--
		Creeping juniper	*Juniperus horizontalis*		17	--	--

Table E-3 Woodlands and Shrublands Identified Along the Proposed Project

Feature ID	Type	Species Name	Scientific Name	Construction ROW (acres)	Number of Individuals		Estimated Mitigation (2:1 Ratio)
					Survey Corridor (200 feet)	Construction ROW	
SWV-7	Native woodland	Skunkbush sumac	*Rhus trilobata*		58	--	--
(Continued)	(Continued)	Silver buffaloberry	*Shepherdia argentea*		70	--	--
SWV-8	Native woodland	Chokecherry	*Prunus virginiana*	0.06	30	30	60
		Green Ash	*Fraxinus pennslyvanica*		7	6	12
		Silver buffaloberry	*Shepherdia argentea*		10	65	130
SWV-9	Native woodland	Chokecherry	*Prunus virginiana*	0.25	200	27	54
		American elm	*Ulmus americana*		5	3	6
		Green Ash	*Fraxinus pennslyvanica*		70	31	62
		Common juniper	*Juniperus communis*		0	5	10
		Skunkbush sumac	*Rhus trilobata*		20	--	--
		Silver buffaloberry	*Shepherdia argentea*		30	--	--
SWV-10	Native shrubland	Silver buffaloberry	*Shepherdia argentea*	--	52	--	--
SWV-11	Native woodland	Chokecherry	*Prunus virginiana*	--	3,170	--	--
		Green Ash	*Fraxinus pennslyvanica*		3,047	--	--
		Common juniper	*Juniperus communis*		40	--	--
		Quaking aspen	*Populus tremuloides*		3,045	--	--
		Red osier dogwood	*Cornus stolonifera*		27	--	--
		Silver buffaloberry	*Shepherdia argentea*		24	--	--
SWV-12	Native woodland	Chokecherry	*Prunus virginiana*	--	200	--	--
		Green Ash	*Fraxinus pennslyvanica*		25	--	--
		Silver buffaloberry	*Shepherdia argentea*		37	--	--
SWV-14	Native woodland	Chokecherry	*Prunus virginiana*	--	40	--	--
		Green Ash	*Fraxinus pennslyvanica*		8	--	--
		Fireberry hawthorn	*Crataegus chrysocarpa*		36	--	--
		Silver buffaloberry	*Shepherdia argentea*		70	--	--

Table E-3 Woodlands and Shrublands Identified Along the Proposed Project

Feature ID	Type	Species Name	Scientific Name	Construction ROW (acres)	Number of Individuals		Estimated Mitigation (2:1 Ratio)
					Survey Corridor (200 feet)	Construction ROW	
SWV-15	Native woodland	Chokecherry	*Prunus virginiana*	0.03	3,000	0	--
		American elm	*Ulmus americana*		400	200	400
		Green Ash	*Fraxinus pennslyvanica*		500	0	--
		Common juniper	*Juniperus communis*		5	0	--
		Skunkbush sumac	*Rhus trilobata*		36	0	--
		Red osier dogwood	*Cornus stolonifera*		50	0	--
		Saskatoon serviceberry	*Amelanchier alnifolia*		100	0	--
		Nannyberry	*Viburnum lentago*		100	0	--
		Silver buffaloberry	*Shepherdia argentea*		57	113	226
SWV-16	Native woodland	Boxelder	*Acer Negundo*	0.27	35	15	30
		Chokecherry	*Prunus virginiana*		3,000	300	600
		American elm	*Ulmus americana*		300	12	24
		Green Ash	*Fraxinus pennslyvanica*		3,000	129	258
		Saskatoon serviceberry	*Amelanchier alnifolia*		0	150	300
		Silver buffaloberry	*Shepherdia argentea*		3,000	0	--
SWV-17	Native woodland	Boxelder	*Acer Negundo*	<0.01	10	0	--
		Chokecherry	*Prunus virginiana*		3,000	0	--
		American elm	*Ulmus americana*		300	0	--
		Green Ash	*Fraxinus pennslyvanica*		3,000	0	--
		Silver buffaloberry	*Shepherdia argentea*		47	65	130
SWV-18	Native woodland	Boxelder	*Acer Negundo*	--	4	--	--
		Chokecherry	*Prunus virginiana*		3,080	--	--
		Green Ash	*Fraxinus pennslyvanica*		230	--	--
		Silver buffaloberry	*Shepherdia argentea*		300	--	--

Table E-3 Woodlands and Shrublands Identified Along the Proposed Project

Feature ID	Type	Species Name	Scientific Name	Construction ROW (acres)	Number of Individuals		Estimated Mitigation (2:1 Ratio)
					Survey Corridor (200 feet)	Construction ROW	
SWV-19	Native woodland	Chokecherry	*Prunus virginiana*	--	3,300	--	--
		Green Ash	*Fraxinus pennslyvanica*		385	--	--
		Common juniper	*Juniperus communis*		30	--	--
		Creeping juniper	*Juniperus horizontalis*		30	--	--
		Chokecherry	*Prunus virginiana*		135	--	--
SWV-20	Native woodland	American elm	*Ulmus americana*	--	1	--	--
		Green Ash	*Fraxinus pennslyvanica*		45	--	--
		Rocky Mountain juniper	*Juniperus scopulorum*		3	--	--
		Common juniper	*Juniperus communis*		51	--	--
		Saskatoon serviceberry	*Amelanchier alnifolia*		10	--	--
		Silver buffaloberry	*Shepherdia argentea*		205	--	--
SWV-21	Native woodland	Chokecherry	*Prunus virginiana*	0.65	300	3000	6000
		Green Ash	*Fraxinus pennslyvanica*		85	28	56
		Common juniper	*Juniperus communis*		15	--	--
		Saskatoon serviceberry	*Amelanchier alnifolia*		10	10	20
		Silver buffaloberry	*Shepherdia argentea*		85	120	240
SWV-22	Native woodland	Chokecherry	*Prunus virginiana*	--	17		--
		Green Ash	*Fraxinus pennslyvanica*		8		--
		Chokecherry	*Prunus virginiana*		11		--
SWV-23	Native woodland	Green Ash	*Fraxinus pennslyvanica*	--	7		--
		Silver buffaloberry	*Shepherdia argentea*		60		--
SWV-24	Native shrubland	Chokecherry	*Prunus virginiana*	0.01	500	25	50
		Fireberry hawthorn	*Crataegus chrysocarpa*		500	--	--
		Common buckthorn	*Rhamnus cathartica*		15	--	--
		Currant	*Ribes spp.*		200	--	--
		Silver buffaloberry	*Shepherdia argentea*		--	10	20

Table E-3 Woodlands and Shrublands Identified Along the Proposed Project

Feature ID	Type	Species Name	Scientific Name	Construction ROW (acres)	Number of Individuals		Estimated Mitigation (2:1 Ratio)
					Survey Corridor (200 feet)	Construction ROW	
SWV-25	Native woodland	Chokecherry	*Prunus virginiana*	0.03	0	10	20
		Green Ash	*Fraxinus pennslyvanica*		0	10	20
		Rocky Mountain juniper	*Juniperus scopulorum*		0	1	2
		Silver buffaloberry	*Shepherdia argentea*		20	--	--
SWV-26	Native woodland	Chokecherry	*Prunus virginiana*	0.07	0	10	20
		Green Ash	*Fraxinus pennslyvanica*		10	8	16
		Silver buffaloberry	*Shepherdia argentea*		120	27	54
SWV-27	Native woodland	Chokecherry	*Prunus virginiana*	<0.01	300	3	6
		Green Ash	*Fraxinus pennslyvanica*		85	17	34
		Silver buffaloberry	*Shepherdia argentea*		16	--	--
SWV-28	Native woodland	Chokecherry	*Prunus virginiana*	0.02	1	--	--
		Green Ash	*Fraxinus pennslyvanica*		10	--	--
		Green Ash	*Fraxinus pennslyvanica*		94	9	18
SWV-29	Planted shelterbelt	Russian olive	*Elaegnus angustifolia*	0.24	132	--	--
		Siberian elm	*Ulmus pulmila*		51	--	--
		Siberian elm	*Ulmus pulmila*		25	25	50
SWV-30	Planted shelterbelt	Siberian elm	*Ulmus pulmila*	0.14	20	25	50
SWV-31	Planted shelterbelt	Siberian elm	*Ulmus pulmila*	0.11	3	1	2
SWV-32	Planted shelterbelt	Chokecherry	*Prunus virginiana*	0.10	20	20	40
SWV-33	Native woodland	American elm	*Ulmus americana*	0.03	0	2	4
		Green Ash	*Fraxinus pennslyvanica*		0	15	30
		Rocky Mountain juniper	*Juniperus scopulorum*		0	1	2
		Rocky Mountain juniper	*Juniperus scopulorum*		63	27	54
SWV-36	Native woodland	Green Ash	*Fraxinus pennslyvanica*	1.05	40	18	36
		American elm	*Ulmus americana*		5	1	2
		Silver buffaloberry	*Shepherdia argentea*		22	16	32
		Rocky Mountain juniper	*Juniperus scopulorum*		8	5	10

Table E-3 Woodlands and Shrublands Identified Along the Proposed Project

Feature ID	Type	Species Name	Scientific Name	Construction ROW (acres)	Number of Individuals		Estimated Mitigation (2:1 Ratio)
					Survey Corridor (200 feet)	Construction ROW	
SWV-37	Native woodland	Green Ash	*Fraxinus pennslyvanica*	0.24	5	3	6
		Silver buffaloberry	*Shepherdia argentea*		17	11	22
		Rocky Mountain juniper	*Juniperus scopulorum*		8	1	2
SWV-38	Native woodland	Rocky Mountain juniper	*Juniperus scopulorum*	0.03	6	4	8
SWV-39	Native woodland	Silver buffaloberry	*Shepherdia argentea*	0.02	5	2	4
		Boxelder	*Acer negundo*		5	--	--
SWV-45	Native woodland	Boxelder	*Acer negundo*	--	5	--	--
		Chokecherry	*Prunus virginiana*		5	--	--
SWV-46	Native shrubland	Chokecherry	*Prunus virginiana*	0.11	0	25	50
SWV-47	Native shrubland	Chokecherry	*Prunus virginiana*	0.04	50	10	20
SWV-48	Native shrubland	Chokecherry	*Prunus virginiana*	--	60	--	--
SWV-49	Native shrubland	Common juniper	*Juniperus communis*	--	1	--	--
		Chokecherry	*Prunus virginiana*		19	--	--
SWV-50	Native shrubland	Chokecherry	*Prunus virginiana*	--	65	--	--
SWV-51	Native shrubland	Silver buffaloberry	*Shepherdia argentea*	--	100	--	--
		Chokecherry	*Prunus virginiana*		30	--	--
SWV-53	Native woodland	Chokecherry	*Prunus virginiana*	--	10	--	--
		Green Ash	*Fraxinus pennslyvanica*		2	--	--
		Silver buffaloberry	*Shepherdia argentea*		5	--	--
SWV-54	Native shrubland	Silver buffaloberry	*Shepherdia argentea*	--	6	--	--
SWV-55	Native shrubland	Chokecherry	*Prunus virginiana*	--	10	--	--
SWV-56	Native shrubland	Silver buffaloberry	*Shepherdia argentea*	--	5	--	--
SWV-57	Native shrubland	Silver buffaloberry	*Shepherdia argentea*	--	5	--	--
SWV-58	Native woodland	Boxelder	*Acer negundo*	--	5	--	--
SWV-59	Native shrubland	Silver buffaloberry	*Shepherdia argentea*	--	15	--	--
SWV-61	Native shrubland	Silver buffaloberry	*Shepherdia argentea*	--	22	--	--
SWV-62	Native shrubland	Silver buffaloberry	*Shepherdia argentea*	--	20	--	--

Table E-3 Woodlands and Shrublands Identified Along the Proposed Project

Feature ID	Type	Species Name	Scientific Name	Construction ROW (acres)	Number of Individuals		Estimated Mitigation (2:1 Ratio)
					Survey Corridor (200 feet)	Construction ROW	
SWV-63	Native shrubland	Chokecherry	*Prunus virginiana*	--	20	--	--
SWV-77	Native shrubland	Silver buffaloberry	*Shepherdia argentea*	--	20	--	--
		Chokecherry	*Prunus virginiana*		20	--	--
TOTAL				4.02	43,089	5,263	10,526

Table E-4 Woodlands and Shrublands Identified within the Survey Corridor for the Existing NGL Pipeline

Feature ID	Type	Species Name	Scientific Name	Survey Corridor (acres)	Number of Individuals Survey Corridor (200 feet)
SWV-1	Planted shelterbelt	Siberian elm	*Ulmus pulmila*	0.1	41
SWV-2	Native woodland	Silver buffaloberry	*Shepherdia argentea*	0.2	80
		Green Ash	*Fraxinus pennsylvanica*		11
		Chokecherry	*Prunus virginiana*		108
		Boxelder	*Acer negundo*		1
SWV-3	Native woodland	Fireberry hawthorn	*Crataegus chrysocarpa*	0.2	62
		Silver buffaloberry	*Shepherdia argentea*		35
		Green Ash	*Fraxinus pennslyvanica*		2
		Common juniper	*Juniperus communis*		20
SWV-7	Native woodland	Chokecherry	*Prunus virginiana*	<0.01	2
		Common juniper	*Juniperus communis*		1
		Skunkbush sumac	*Skunkbush sumac*		1
		Silver buffaloberry	*Shepherdia argentea*		2
SWV-29	Planted shelterbelt	Russian olive	*Elaegnus angustifolia*	0.3	10
SWV-33	Native woodland	American elm	*Ulmus americana*	<0.01	2
		Green Ash	*Fraxinus pennslyvanica*		15
		Rocky Mountain juniper	*Juniperus scopulorum*		1
		Rocky Mountain juniper	*Juniperus scopulorum*		90
SWV-43	Planted shelterbelt	Siberian elm	*Ulmus pulmila*	0.2	19
SWV-44	Planted shelterbelt	Siberian elm	*Ulmus pulmila*	0.1	9
SWV-45	Native woodland	Boxelder	*Acer negundo*	0.1	5
		Chokecherry	*Prunus virginiana*		5
SWV-48	Native shrubland	Chokecherry	*Prunus virginiana*	<0.1	60
SWV-50	Native shrubland	Chokecherry	*Prunus virginiana*	0.1	65
SWV-51	Native shrubland	Chokecherry	*Prunus virginiana*	0.1	30
		Silver buffaloberry	*Shepherdia argentea*		100

Table E-4 Woodlands and Shrublands Identified within the Survey Corridor for the Existing NGL Pipeline

Feature ID	Type	Species Name	Scientific Name	Survey Corridor (acres)	Number of Individuals Survey Corridor (200 feet)
SWV-52	Native shrubland	Chokecherry	*Prunus virginiana*	0.1	10
		Fireberry hawthorn	*Crataegus chrysocarpa*		25
SWV-53	Native woodland	Chokecherry	*Prunus virginiana*	<0.1	8
		Silver buffaloberry	*Shepherdia argentea*		10
		Green Ash	*Fraxinus pennslyvanica*		2
SWV-54	Native shrubland	Silver buffaloberry	*Shepherdia argentea*	<0.1	5
SWV-55	Native shrubland	Silver buffaloberry	*Shepherdia argentea*	0.1	6
SWV-57	Native shrubland	Silver buffaloberry	*Shepherdia argentea*	<0.1	5
SWV-58	Native woodland	Boxelder	*Acer negundo*	<0.1	5
SWV-59	Native shrubland	Silver buffaloberry	*Shepherdia argentea*	<0.1	15
SWV-60	Native shrubland	Common juniper	*Juniperus communis*	<0.1	4
SWV-61	Native shrubland	Silver buffaloberry	*Shepherdia argentea*	<0.1	5
SWV-62	Native shrubland	Silver buffaloberry	*Shepherdia argentea*	<0.1	22
SWV-63	Native shrubland	Silver buffaloberry	*Shepherdia argentea*	0.2	20
SWV-64	Native shrubland	Silver buffaloberry	*Shepherdia argentea*	<0.1	20
		Chokecherry	*Prunus virginiana*		20
SWV-65	Native woodland	Chokecherry	*Prunus virginiana*	<0.1	6
		Rocky Mountain juniper	*Juniperus scopulorum*		5
		Siberian elm	*Ulmus pulmila*		2
SWV-66	Native woodland	Silver buffaloberry	*Shepherdia argentea*	0.1	5
		Green Ash	*Fraxinus pennslyvanica*		1
		Rocky Mountain juniper	*Juniperus scopulorum*		1
		Siberian elm	*Ulmus pulmila*		9
SWV-67	Native woodland	Silver buffaloberry	*Shepherdia argentea*	<0.1	4
		Chokecherry	*Prunus virginiana*		18
		Siberian elm	*Ulmus pulmila*		25
SWV-68	Native woodland	Green Ash	*Fraxinus pennslyvanica*	<0.1	3

Table E-4 Woodlands and Shrublands Identified within the Survey Corridor for the Existing NGL Pipeline

Feature ID	Type	Species Name	Scientific Name	Survey Corridor (acres)	Number of Individuals Survey Corridor (200 feet)
SWV-69	Native woodland	Silver buffaloberry	*Shepherdia argentea*	<0.1	5
		Green Ash	*Fraxinus pennslyvanica*		5
		Rocky Mountain juniper	*Juniperus scopulorum*		1
SWV-70	Native shrubland	Silver buffaloberry	*Shepherdia argentea*	0.1	27
		Chokecherry	*Prunus virginiana*		16
SWV-71	Native woodland	Silver buffaloberry	*Shepherdia argentea*	0.1	38
		Green Ash	*Fraxinus pennslyvanica*		10
SWV-72	Native woodland	Silver buffaloberry	*Shepherdia argentea*	<0.1	1
		Green Ash	*Fraxinus pennslyvanica*		6
SWV-73	Native woodland	Silver buffaloberry	*Shepherdia argentea*	0.1	5
		Boxelder	*Acer negundo*		5
		Chokecherry	*Prunus virginiana*		25
		Green Ash	*Fraxinus pennslyvanica*		18
SWV-74	Native woodland	Silver buffaloberry	*Shepherdia argentea*	<0.1	5
SWV-75	Native woodland	Green Ash	*Fraxinus pennslyvanica*	<0.1	7
		Common juniper	*Juniperus communis*		2
SWV-76	Native woodland	Silver buffaloberry	*Shepherdia argentea*	0.1	34
		Green Ash	*Fraxinus pennslyvanica*		49
SWV-77	Native shrubland	Chokecherry	*Prunus virginiana*	0.1	20
		Silver buffaloberry	*Shepherdia argentea*		20
TOTAL				**2.6**	**1,337**

Appendix F Data Sheets

Report ID: SW-11

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: Williams | Sampling Date: October 11, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP34W
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S9 T154N R95W
Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): Concave | Slope (%): 0-2%
Subregion (LRR): LRR-F | Lat: 48.16864 | Long: -102.90548 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes **X** No
Hydric Soil Present? Yes **X** No
Wetland Hydrology Present? Yes **X** No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Scirpus validus*	45	yes	OBL
2. *Hordeum jubatum*	25	yes	FACW
3. *Juncus balticus*	15	no	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 30

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **2** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**60**	x 1 =	**60**
FACW species	**25**	x 2 =	**50**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**85** (A)		**110** (B)

Prevalence Index = B/A = **1.29**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Explain)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

Report ID: SW-11

Sampling Point: **NR_DP34W**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y 4/2	85	7.5YR 5/8	15	C	M	Clay	
6-10	2.5Y 4/3	90	7.5YR 5/8	10	C	M	Clay Loam	
10-20	10YR 2.5/2	95	7.5YR 4/6	5	C	M	Silty Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- **X** Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? Yes **X** No ___

Remarks:

A positive indication of hydric soil was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- **X** Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- **X** Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- **X** Geomorphic Position (D2)
- **X** FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No **X** Depth (inches): **NA**

Water Table Present? Yes ___ No **X** Depth (inches): **NA**

Saturation Present? (includes capillary fringe) Yes ___ No **X** Depth (inches): **NA**

Wetland Hydrology Present? Yes **X** No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

Report ID: SW-11
Upland Pit

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: Williams | Sampling Date: October 11, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP35U
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S9 T154N R95W
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 0-8%
Subregion (LRR): LRR-F | Lat: 48.16867 | Long: -102.90550 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No **X**
Hydric Soil Present? Yes No **X**
Wetland Hydrology Present? Yes No **X**

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:

This point was determined not to be within a wetland due to the lack of all three wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Bromus inermis*	40	yes	UPL
2. *Agropyron cristatum*	35	yes	UPL
3. *Grindelia squarrosa*	10	no	UPL
4. *Artemisia campestris*	10	no	UPL
5. *Poa pratensis*	5	no	FACU
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **0** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**5**	x 4 =	**20**
UPL species	**95**	x 5 =	**475**
Column Totals:	**100** (A)		**495** (B)

Prevalence Index = B/A = **4.95**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Explain)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

Report ID: SW-11 Upland Pit

Sampling Point: **NR_DP35U**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100	NONE NONE	N/A	N/A	N/A	Silty Clay Loam	
3-7	10YR 2/2	100	NONE NONE	N/A	N/A	N/A	Silt Loam	
7-20	10YR 3/2	100	NONE NONE	N/A	N/A	N/A	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No **X** Depth (inches): **NA**

Water Table Present? Yes ___ No **X** Depth (inches): **NA**

Saturation Present? (includes capillary fringe) Yes ___ No **X** Depth (inches): **NA**

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

Report ID: SW-12

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: Williams | Sampling Date: October 11, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP36W
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S9 T154N R95W
Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): Concave | Slope (%): 0-8%
Subregion (LRR): LRR-F | Lat: 48.16867 | Long: -102.90509 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes **X** No
Hydric Soil Present? Yes **X** No
Wetland Hydrology Present? Yes **X** No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Spartina pectinata*	95	yes	FACW
2. *Elymus repens*	15	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	110 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 30

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **1** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**95**	x 2 =	**190**
FAC species	**15**	x 3 =	**45**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**110** (A)		**235** (B)

Prevalence Index = B/A = **2.14**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Explain)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

Report ID: SW-12

Sampling Point: **NR_DP36W**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y 4/2	95	7.5YR 5/8	5	C	PL	Silty Clay Loam	
6-20	10YR 2/1	100	NONE NONE	N/A	N/A	N/A	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? Yes X No ___

Remarks:

A positive indication of hydric soil was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): **NA**

Water Table Present? Yes ___ No X Depth (inches): **NA**

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): **NA**

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

Report ID: SW-12
Upland Pit

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: Williams | Sampling Date: October 11, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP37U
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S9 T154N R95W
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 0-8%
Subregion (LRR): LRR-F | Lat: 48.16869 | Long: -102.90501 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No **X**
Hydric Soil Present? Yes No **X**
Wetland Hydrology Present? Yes No **X**

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:

This point was determined not to be within a wetland due to the lack of all three wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Poa pratensis*	70	yes	FACU
2. *Symphoricarpos occidentalis*	15	no	UPL
3. *Agropyron cristatum*	10	no	UPL
4. *Melilotus officinalis*	10	no	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **0** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**80**	x 4 =	**320**
UPL species	**25**	x 5 =	**125**
Column Totals:	**105** (A)		**445** (B)

Prevalence Index = B/A = **4.24**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Explain)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

Report ID: SW-12 Upland Pit

Sampling Point: **NR_DP37U**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/1	100	NONE NONE	N/A	N/A	N/A	Silt Loam	
12-20	10YR 3/1	100	NONE NONE	N/A	N/A	N/A	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No **X** Depth (inches): **NA**

Water Table Present? Yes ___ No **X** Depth (inches): **NA**

Saturation Present? (includes capillary fringe) Yes ___ No **X** Depth (inches): **NA**

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

Report ID: SW-14

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 11, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP44W
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S27 T153N R95W
Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): Concave | Slope (%): 0-2%
Subregion (LRR): LRR-F | Lat: 48.04155 | Long: -102.87598 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams, dissected | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes **X** No
Hydric Soil Present? Yes **X** No
Wetland Hydrology Present? Yes **X** No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Spartina pectinata*	95	yes	FACW
2. *Sanchos arvensis*	5	no	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC–): **1** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**100**	x 2 =	**200**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**100** (A)		**200** (B)

Prevalence Index = B/A = **2.00**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Explain)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

Report ID: SW-14

Sampling Point: **NR_DP44W**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	95	7.5YR 5/4	5	C	M	Silt Loam	
6-20	10YR 2/1	100	NONE NONE	N/A	N/A	N/A	Silty Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? Yes X No ___

Remarks:

A positive indication of hydric soil was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): **0-2"**

Water Table Present? Yes X No ___ Depth (inches): **6-20"**

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): **0-20"**

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

Report ID: SW-14
Upland Pit

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 11, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP45U
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S27 T153N R95W
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 0-20%
Subregion (LRR): LRR-F | Lat: 48.04159 | Long: -102.87604 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams, dissected | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No **X**	
Hydric Soil Present?	Yes	No **X**	**Is the Sampled Area within a Wetland?** Yes No **X**
Wetland Hydrology Present?	Yes	No **X**	

Remarks:

This point was determined not to be within a wetland due to the lack of all three wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Bromus inermis*	100	yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **0** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**100**	x 5 =	**500**
Column Totals:	**100** (A)		**500** (B)

Prevalence Index = B/A = **5.00**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Explain)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? Yes No **X**

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

Report ID: SW-14 Upland Pit

Sampling Point: **NR_DP45U**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-20	10YR 3/2	100	NONE NONE	N/A	N/A	N/A	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? Yes ____ No **X**

Remarks:

No positive indication of hydric soils was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ____ No **X** Depth (inches): **NA**

Water Table Present? Yes ____ No **X** Depth (inches): **NA**

Saturation Present? (includes capillary fringe) Yes ____ No **X** Depth (inches): **NA**

Wetland Hydrology Present? Yes ____ No **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

Report ID: SW-15

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 11, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP46W
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S27 T153N R95W
Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): Concave | Slope (%): 0-2%
Subregion (LRR): LRR-F | Lat: 48.04196 | Long: -102.87533 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams, dissected | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes **X** No
Hydric Soil Present? Yes **X** No
Wetland Hydrology Present? Yes **X** No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Spartina pectinata*	100	yes	FACW
2. *Rumex occidentalis*	10	no	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	110 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **1** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**10**	x 1 =	**10**
FACW species	**100**	x 2 =	**200**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**110** (A)		**210** (B)

Prevalence Index = B/A = **1.91**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Explain)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

Report ID: SW-15

Sampling Point: **NR_DP46W**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/2	90	7.5YR 5/8	10	C	M	Silty Clay Loam	
6-20	10YR 2/1	95	7.5YR 4/6	5	C	PL	Silty Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? Yes X No ___

Remarks:

A positive indication of hydric soil was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): **0-4"**

Water Table Present? Yes X No ___ Depth (inches): **4-20"**

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): **0-20"**

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

Report ID: SW-15
Upland Pit

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 11, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP47U
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S27 T153N R95W
Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none): None | Slope (%): 0%
Subregion (LRR): LRR-F | Lat: 48.04196 | Long: -102.87529 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams, dissected | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No **X**
Hydric Soil Present? Yes No **X**
Wetland Hydrology Present? Yes No **X**

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:

This point was determined not to be within a wetland due to the lack of all three wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Bromus inermis*	80	yes	UPL
2. *Elymus repens*	15	no	FAC
3. *Symphoricarpos occidentalis*	15	no	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	110 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **0** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**15**	x 3 =	**45**
FACU species	**0**	x 4 =	**0**
UPL species	**95**	x 5 =	**475**
Column Totals:	**110** (A)		**520** (B)

Prevalence Index = B/A = **4.73**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Explain)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

Report ID: SW-15 Upland Pit

Sampling Point: **NR_DP47U**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100	NONE NONE	N/A	N/A	N/A	Silty Clay Loam	
4-20	10YR 2/1	100	NONE NONE	N/A	N/A	N/A	Silty Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes _____ No **X** Depth (inches): **NA**

Water Table Present? Yes _____ No **X** Depth (inches): **NA**

Saturation Present? (includes capillary fringe) Yes _____ No **X** Depth (inches): **NA**

Wetland Hydrology Present? **Yes** _____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

Report ID: SW-15

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 11, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP48W
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S27 T153N R95W
Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): Concave | Slope (%): 0-2%
Subregion (LRR): LRR-F | Lat: 48.04170 | Long: -102.87164 | Datum: NAD83
Soil Map Unit Name: Williams-Bowbells loams | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes **X** No
Hydric Soil Present? Yes **X** No
Wetland Hydrology Present? Yes **X** No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Typha latifolia*	50	yes	OBL
2. *Hordeum jubatum*	40	yes	FACW
3. *Rumex occidentalis*	10	no	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **2** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**60**	x 1 =	**60**
FACW species	**40**	x 2 =	**80**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**100** (A)		**140** (B)

Prevalence Index = B/A = **1.40**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Explain)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

Report ID: SW-15

Sampling Point: **NR_DP48W**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	2.5Y 4/2	95	5YR 3/4	5	C	M	Clay Loam	
3-12	2.5Y 3/2	95	7.5YR 4/6	5	C	M	Silty Clay Loam	
12-20	2.5Y 3/2	95	5YR 4/6	5	C	M	Silty Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- **X** Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? Yes **X** No ___

Remarks:

A positive indication of hydric soil was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- **X** Geomorphic Position (D2)
- **X** FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No **X** Depth (inches): **NA**

Water Table Present? Yes ___ No **X** Depth (inches): **NA**

Saturation Present? (includes capillary fringe) Yes ___ No **X** Depth (inches): **NA**

Wetland Hydrology Present? Yes **X** No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least two secondary indicators).

Report ID: SW-15
Upland Pit

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 11, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP49U
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S27 T153N R95W
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 0-8%
Subregion (LRR): LRR-F | Lat: 48.04170 | Long: -102.87171 | Datum: NAD83
Soil Map Unit Name: Williams-Bowbells loams | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No	**X**
Hydric Soil Present?	Yes **X**	No	
Wetland Hydrology Present?	Yes	No	**X**

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:

This point was determined not to be within a wetland due to the lack of hydrophytic vegetation and wetland hydrology.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Bromus inermis*	85	yes	UPL
2. *Poa pratensis*	15	no	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **0** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**100**	x 5 =	**500**
Column Totals:	**100** (A)		**500** (B)

Prevalence Index = B/A = **5.00**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Explain)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

Report ID: SW-15
Upland Pit

Sampling Point: **NR_DP49U**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	95	7.5YR 4/6	5	C	M	Silt Loam	
4-20	10YR 2/2	95	5YR 4/6	5	C	M	Silty Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- **X** Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? Yes **X** No ___

Remarks:

A positive indication of hydric soil was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No **X** Depth (inches): **NA**

Water Table Present? Yes ___ No **X** Depth (inches): **NA**

Saturation Present? (includes capillary fringe) Yes ___ No **X** Depth (inches): **NA**

Wetland Hydrology Present? Yes ___ No **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

Report ID: SW-15
Upland Pit

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 12, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP51U
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S34 T153N R95W
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 0-25%
Subregion (LRR): LRR-F | Lat: 48.03784 | Long: -102.87672 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams, dissected, | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No **X**
Hydric Soil Present?	Yes	No **X**
Wetland Hydrology Present?	Yes	No **X**

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:

This point was determined not to be within a wetland due to the lack of all three wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Bromus inermis*	95	yes	UPL
2. *Spartina pectinata*	10	no	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **0** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**10**	x 2 =	**20**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**95**	x 5 =	**475**
Column Totals:	**105** (A)		**495** (B)

Prevalence Index = B/A = **4.71**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Explain)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

Report ID: SW-15 Upland Pit

Sampling Point: **NR_DP51U**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/2	100	NONE NONE	N/A	N/A	N/A	Silt Loam	
6-20	10YR 3/2	90	7.5YR 3/8	10	C	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No **X** Depth (inches): **NA**

Water Table Present? Yes ___ No **X** Depth (inches): **NA**

Saturation Present? (includes capillary fringe) Yes ___ No **X** Depth (inches): **NA**

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

Report ID: SW-17

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 12, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP52W
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S34 T153N R95W
Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): Concave | Slope (%): 0-2%
Subregion (LRR): LRR-F | Lat: 48.03552 | Long: -102.88158 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams, dissected | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes **X** No
Hydric Soil Present? Yes **X** No
Wetland Hydrology Present? Yes **X** No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Elymus repens*	70	yes	FAC
2. *Spartina pectinata*	25	yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **2** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**25**	x 2 =	**50**
FAC species	**70**	x 3 =	**210**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**95** (A)		**260** (B)

Prevalence Index = B/A = **2.74**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Explain)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

Report ID: SW-17

Sampling Point: **NR_DP52W**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	75	7.5YR 3/4	25	C	PL	Silty Clay Loam	
3-7	10YR 3/2	95	7.5YR 5/8	5	C	M	Silty Clay Loam	
7-20	10YR 2/1	90	7.5YR 5/8	10	C	M	Silty Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? Yes X No ___

Remarks:

A positive indication of hydric soil was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): **NA**

Water Table Present? Yes X No ___ Depth (inches): **10+"**

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): **0-20"**

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

Report ID: SW-17
Upland Pit

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 12, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP53U
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S34 T153N R95W
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 0-20%
Subregion (LRR): LRR-F | Lat: 48.03555 | Long: -102.88162 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams, dissected | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No **X**
Hydric Soil Present?	Yes	No **X**
Wetland Hydrology Present?	Yes	No **X**

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:

This point was determined not to be within a wetland due to the lack of all three wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Bromus inermis*	80	yes	UPL
2. *Andropogon gerardii*	20	no	UPL
3. *Spartina pectinata*	5	no	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **0** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**5**	x 2 =	**10**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**100**	x 5 =	**500**
Column Totals:	**105** (A)		**510** (B)

Prevalence Index = B/A = **4.86**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Explain)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

Report ID: SW-17 Upland Pit

Sampling Point: **NR_DP53U**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 4/1	100	NONE NONE	N/A	N/A	N/A	Silt Loam	
14-20	10YR 4/2	100	NONE NONE	N/A	N/A	N/A	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No **X** Depth (inches): **NA**

Water Table Present? Yes ___ No **X** Depth (inches): **NA**

Saturation Present? (includes capillary fringe) Yes ___ No **X** Depth (inches): **NA**

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

Report ID: SW-19

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 12, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP56W
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S34 T153N R95W
Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): None | Slope (%): 0%
Subregion (LRR): LRR-F | Lat: 48.02450 | Long: -102.88192 | Datum: NAD83
Soil Map Unit Name: Williams-Bowbells loams | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes **X** No
Hydric Soil Present? Yes **X** No
Wetland Hydrology Present? Yes **X** No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Polygonum amphibium*	60	yes	OBL
2. *Beckmannia syzigachne*	30	yes	FACW
3. *Rumex occidentalis*	5	no	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC–): **2** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**65**	x 1 =	**65**
FACW species	**30**	x 2 =	**60**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**95** (A)		**125** (B)

Prevalence Index = B/A = **1.32**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Explain)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

Report ID: SW-19

Sampling Point: **NR_DP56W**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/1	3	7.5YR 4/6	3	C	PL	Silty Clay Loam	
10-20	10YR 3/1	100	NONE NONE	N/A	N/A	N/A	Silty Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- X Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? Yes X No ___

Remarks:

A positive indication of hydric soil was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No **X** Depth (inches): **NA**

Water Table Present? Yes ___ No **X** Depth (inches): **NA**

Saturation Present? (includes capillary fringe) Yes ___ No **X** Depth (inches): **NA**

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

Report ID: SW-19
Upland Pit

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 12, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP57U
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S34 T153N R95W
Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none): None | Slope (%): 0%
Subregion (LRR): LRR-F | Lat: 48.02454 | Long: -102.88185 | Datum: NAD83
Soil Map Unit Name: Williams-Bowbells loams | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No **X**	
Hydric Soil Present?	Yes	No **X**	**Is the Sampled Area within a Wetland?** Yes No **X**
Wetland Hydrology Present?	Yes	No **X**	

Remarks:

This point was determined not to be within a wetland due to the lack of all three wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Triticum aestivum*	100	yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **0** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**100**	x 5 =	**500**
Column Totals:	**100** (A)		**500** (B)

Prevalence Index = B/A = **5.00**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Explain)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? Yes No **X**

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

Report ID: SW-19 Upland Pit

Sampling Point: **NR_DP57U**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/2	100	NONE NONE	N/A	N/A	N/A	Silty Clay Loam	
10-20	10YR 3/2	100	NONE NONE	N/A	N/A	N/A	Silty Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? Yes _____ No **X**

Remarks:

No positive indication of hydric soils was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes _____ No **X** Depth (inches): **NA**

Water Table Present? Yes _____ No **X** Depth (inches): **NA**

Saturation Present? (includes capillary fringe) Yes _____ No **X** Depth (inches): **NA**

Wetland Hydrology Present? Yes _____ No **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

Report ID: SW-19

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 12, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP58W
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S6 T152N R95W
Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): Concave | Slope (%): 0-2%
Subregion (LRR): LRR-F | Lat: 48.02331 | Long: -102.88690 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams, dissected | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes **X** No
Hydric Soil Present? Yes **X** No
Wetland Hydrology Present? Yes **X** No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Elymus repens*	95	yes	FAC
2. *Hordeum jubatum*	10	no	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **1** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**10**	x 2 =	**20**
FAC species	**95**	x 3 =	**285**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**105** (A)		**305** (B)

Prevalence Index = B/A = **2.90**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Explain)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

Report ID: SW-19

Sampling Point: **NR_DP58W**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/2	90	5YR 4/6	10	C	PL	Clay Loam	
6-10	10YR 2/2	98	5YR 4/6	2	C	M	Silty Clay Loam	
10-20	10YR 3/1	95	5YR 4/6	5	C	M	Silty Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- X Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? Yes X No ___

Remarks:

A positive indication of hydric soil was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): **NA**

Water Table Present? Yes ___ No X Depth (inches): **NA**

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): **NA**

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

Report ID: SW-19
Upland Pit

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 12, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP59U
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S6 T152N R95W
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 0-10%
Subregion (LRR): LRR-F | Lat: 48.02326 | Long: -102.88700 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams, dissected | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No **X**
Hydric Soil Present?	Yes	No **X**
Wetland Hydrology Present?	Yes	No **X**

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:

This point was determined not to be within a wetland due to the lack of all three wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 100

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **0** (A)

Total Number of Dominant Species Across All Strata: **0** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**0** (A)		**0** (B)

Prevalence Index = B/A = **N/A**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Explain)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

Report ID: SW-19 Upland Pit

Sampling Point: **NR_DP59U**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/1	100	NONE NONE	N/A	N/A	N/A	Silty Clay Loam	
4-20	10YR 4/2	100	NONE NONE	N/A	N/A	N/A	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No **X** Depth (inches): **NA**

Water Table Present? Yes ___ No **X** Depth (inches): **NA**

Saturation Present? (includes capillary fringe) Yes ___ No **X** Depth (inches): **NA**

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

Report ID: SW-20/SW-40 WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 12, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP62W
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S6 T152N R95W
Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): Concave | Slope (%): 0-2%
Subregion (LRR): LRR-F | Lat: 48.02249 | Long: -102.88911 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams, dissected | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** **Yes X** **No**
Wetland Hydrology Present?	Yes **X**	No	

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Spartina pectinata*	65	yes	FACW
2. *Hordeum jubatum*	10	no	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 25

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC–): **1** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**75**	x 2 =	**150**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**75** (A)		**150** (B)

Prevalence Index = B/A = **2.00**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Explain)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

Report ID: SW-20/SW-40

Sampling Point: **NR_DP62W**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	50	7.5YR 5/8	5	C	M	Silty Clay Loam	
0-10	NONE 4/1	45	NONE NONE	N/A	N/A	N/A	Clay Loam	
10-20	10YR 4/1	90	7.5YR 3/8	10	C	M	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? Yes X No ___

Remarks:

A positive indication of hydric soil was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): **0-5"**

Water Table Present? Yes X No ___ Depth (inches): **0-20"**

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): **0-20"**

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

Report ID: SW-20/ SW-40 Upland Pit

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 12, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP63U
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S6 T152N R95W
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): 0-5%
Subregion (LRR): LRR-F | Lat: 48.02245 | Long: -102.88887 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams, dissected | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No	**X**
Hydric Soil Present?	Yes **X**	No	
Wetland Hydrology Present?	Yes	No	**X**

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:

This point was determined not to be within a wetland due to the lack of hydrophytic vegetation and wetland hydrology.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Agropyron cristatum*	70	yes	UPL
2. *Symphoricarpos occidentalis*	25	yes	UPL
3. *Bromus inermis*	20	no	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	115 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **0** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**115**	x 5 =	**575**
Column Totals:	**115** (A)		**575** (B)

Prevalence Index = B/A = **5.00**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Explain)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

Report ID: SW-20/SW-40 Upland Pit

Sampling Point: **NR_DP63U**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	2.5Y 2.5/2	100	NONE NONE	N/A	N/A	N/A	Silt Loam	
3-20	10YR 5/2	95	7.5YR 4/6	5	C	M	Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? Yes X No ___

Remarks:

A positive indication of hydric soil was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): NA

Water Table Present? Yes ___ No X Depth (inches): NA

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): NA

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

Report ID: SW-20/SW-40 WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 12, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP64W
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S6 T152N R95W
Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): Concave | Slope (%): 0-2%
Subregion (LRR): LRR-F | Lat: 48.02101 | Long: -102.88893 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams, dissected | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes **X** No
Hydric Soil Present? Yes **X** No
Wetland Hydrology Present? Yes **X** No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Spartina pectinata*	90	yes	FACW
2. *Elymus repens*	5	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **1** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**90**	x 2 =	**180**
FAC species	**5**	x 3 =	**15**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**95** (A)		**195** (B)

Prevalence Index = B/A = **2.05**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Explain)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

Report ID: SW-20/SW-40

Sampling Point: **NR_DP64W**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/2	95	7.5YR 4/6	5	C	M	Silty Clay Loam	
6-12	10YR 2/1	100	NONE NONE	N/A	N/A	N/A	Silty Clay Loam	
12-20	2.5Y 2.5/1	95	7.5YR 4/6	N/A	C	M	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- **X** Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? Yes **X** No ___

Remarks:

A positive indication of hydric soil was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- **X** Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- **X** Saturation Visible on Aerial Imagery (C9)
- **X** Geomorphic Position (D2)
- **X** FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No **X** Depth (inches): **NA**

Water Table Present? Yes ___ No **X** Depth (inches): **NA**

Saturation Present? (includes capillary fringe) Yes ___ No **X** Depth (inches): **NA**

Wetland Hydrology Present? Yes **X** No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

Report ID: SW-20/ SW-40 Upland Pit

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 12, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP65U
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S6 T152N R95W
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 0-2%
Subregion (LRR): LRR-F | Lat: 48.02107 | Long: -102.88885 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams, dissected | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No **X**
Hydric Soil Present?	Yes	No **X**
Wetland Hydrology Present?	Yes	No **X**

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:

This point was determined not to be within a wetland due to the lack of all three wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Bromus inermis*	65	yes	UPL
2. *Symphoricarpos occidentalis*	30	yes	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **0** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**95**	x 5 =	**475**
Column Totals:	**95** (A)		**475** (B)

Prevalence Index = B/A = **5.00**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Explain)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

Report ID: SW-20/SW-40 Upland Pit

Sampling Point: **NR_DP65U**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	100	NONE NONE	N/A	N/A	N/A	Silt Loam	
8-20	10YR 3/1	100	NONE NONE	N/A	N/A	N/A	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? Yes _____ No **X**

Remarks:

No positive indication of hydric soils was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes _____ No **X** Depth (inches): **NA**

Water Table Present? Yes _____ No **X** Depth (inches): **NA**

Saturation Present? (includes capillary fringe) Yes _____ No **X** Depth (inches): **NA**

Wetland Hydrology Present? Yes _____ No **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

Report ID: SW-20/SW-40 WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 12, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP66W
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S6 T152N R95W
Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): Concave | Slope (%): 0-2%
Subregion (LRR): LRR-F | Lat: 48.01822 | Long: -102.88888 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams, dissected | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes **X** No
Hydric Soil Present? Yes **X** No
Wetland Hydrology Present? Yes **X** No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Spartina pectinata*	70	yes	FACW
2. *Hordeum jubatum*	20	yes	FACW
3. *Rumex occidentalis*	5	no	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC–): **2** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**5**	x 1 =	**5**
FACW species	**90**	x 2 =	**180**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**95** (A)		**185** (B)

Prevalence Index = B/A = **1.95**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Explain)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

Report ID: SW-20/SW-40

Sampling Point: **NR_DP66W**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	5Y 4/2	40	10YR 3/4	20	C	M	Clay Loam	
0-6	NONE 2/1	40	NONE NONE	N/A	N/A	N/A	Clay Loam	
6-20	5Y 4/2	75	NONE NONE	N/A	N/A	N/A	Clay Loam	
6-20	NONE 2/1	25	NONE NONE	N/A	N/A	N/A	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? Yes X No ___

Remarks:

A positive indication of hydric soil was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches):	**15"**
Water Table Present?	Yes X	No ___	Depth (inches):	**0-20"**
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches):	**0-20"**

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

Report ID: SW-20/ SW-40 Upland Pit

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 12, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP67U
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S6 T152N R95W
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 0-3%
Subregion (LRR): LRR-F | Lat: 48.01819 | Long: -102.88893 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams, dissected | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No **X**	
Hydric Soil Present?	Yes	No **X**	**Is the Sampled Area within a Wetland?** Yes No **X**
Wetland Hydrology Present?	Yes	No **X**	

Remarks:

This point was determined not to be within a wetland due to the lack of all three wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Bromus inermis*	75	yes	UPL
2. *Symphoricarpos occidentalis*	15	no	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **0** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**90**	x 5 =	**450**
Column Totals:	**90** (A)		**450** (B)

Prevalence Index = B/A = **5.00**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Explain)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? Yes No **X**

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

Report ID: SW-20/SW-40 Upland Pit

Sampling Point: **NR_DP67U**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-20	2.5Y 4/3	100	NONE NONE	N/A	N/A	N/A	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? Yes _____ No **X**

Remarks:

No positive indication of hydric soils was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes _____ No **X** Depth (inches): **NA**

Water Table Present? Yes _____ No **X** Depth (inches): **NA**

Saturation Present? (includes capillary fringe) Yes _____ No **X** Depth (inches): **NA**

Wetland Hydrology Present? Yes _____ No **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

Report ID: SW-21/SW-41 WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 12, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP70W
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S6 T152N R95W
Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): Concave | Slope (%): 0-5%
Subregion (LRR): LRR-F | Lat: 48.01346 | Long: -102.88011 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams, dissected | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes **X** No
Hydric Soil Present? Yes **X** No
Wetland Hydrology Present? Yes **X** No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Typha latifolia*	95	yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC–): **1** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**95**	x 1 =	**95**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**95** (A)		**95** (B)

Prevalence Index = B/A = **1.00**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Explain)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

Report ID: SW-21/SW-41

Sampling Point: **NR_DP70W**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-6	NONE	NONE	100	NONE	NONE	N/A	N/A	N/A	Organic Soil Layer	Muck
6-20	2.5Y	2.5/1	100	NONE	NONE	N/A	N/A	N/A	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- X Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? Yes X No ___

Remarks:

A positive indication of hydric soil was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- X Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): **0-5"**

Water Table Present? Yes X No ___ Depth (inches): **0-20"**

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): **0-20"**

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

Report ID: SW-21/ SW-41 Upland Pit

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 12, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP73U
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S8 T152N R95W
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 0-5%
Subregion (LRR): LRR-F | Lat: 47.99945 | Long: -102.87561 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams, dissected | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No **X**	
Hydric Soil Present?	Yes	No **X**	**Is the Sampled Area within a Wetland?** Yes No **X**
Wetland Hydrology Present?	Yes	No **X**	

Remarks:

This point was determined not to be within a wetland due to the lack of all three wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Bromus inermis*	80	yes	UPL
2. *Melilotus officinalis*	15	no	FACU
3. *Agropyron cristatum*	10	no	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **0** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**15**	x 4 =	**60**
UPL species	**90**	x 5 =	**450**
Column Totals:	**105** (A)		**510** (B)

Prevalence Index = B/A = **4.86**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Explain)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? Yes No **X**

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

Report ID: SW-21/SW-41 Upland Pit

Sampling Point: **NR_DP73U**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100	NONE NONE	N/A	N/A	N/A	Silty Clay Loam	
8-20	10YR 3/2	75	7.5YR 4/6	5	C	PL	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No **X** Depth (inches): **NA**

Water Table Present? Yes ___ No **X** Depth (inches): **NA**

Saturation Present? (includes capillary fringe) Yes ___ No **X** Depth (inches): **NA**

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

Report ID: SW-21/SW-41 WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 12, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP72W
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S8 T152N R95W
Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): Concave | Slope (%): 0-3%
Subregion (LRR): LRR-F | Lat: 47.99938 | Long: -102.87554 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams, dissected | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes **X** No
Hydric Soil Present? Yes **X** No
Wetland Hydrology Present? Yes **X** No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Typha latifolia*	95	yes	OBL
2. *Elymus repens*	10	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **1** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**95**	x 1 =	**95**
FACW species	**0**	x 2 =	**0**
FAC species	**10**	x 3 =	**30**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**105** (A)		**125** (B)

Prevalence Index = B/A = **1.19**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Explain)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

Report ID: SW-21/SW-41

Sampling Point: **NR_DP72W**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-1	NONE 2/1	100	NONE NONE	N/A	N/A	N/A	Organic Soil Layer	Muck
1-20	10YR 2/1	100	NONE NONE	N/A	N/A	N/A	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- X 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? Yes X No ___

Remarks:

A positive indication of hydric soil was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): **NA**

Water Table Present? Yes X No ___ Depth (inches): **15-20"**

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): **0-20"**

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

Report ID: SW-21/ SW-41 Upland Pit

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 12, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP73U
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S8 T152N R95W
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 0-5%
Subregion (LRR): LRR-F | Lat: 47.99945 | Long: -102.87561 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams, dissected | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No **X**
Hydric Soil Present?	Yes	No **X**
Wetland Hydrology Present?	Yes	No **X**

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:

This point was determined not to be within a wetland due to the lack of all three wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Bromus inermis*	80	yes	UPL
2. *Melilotus officinalis*	15	no	FACU
3. *Agropyron cristatum*	10	no	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **0** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**15**	x 4 =	**60**
UPL species	**90**	x 5 =	**450**
Column Totals:	**105** (A)		**510** (B)

Prevalence Index = B/A = **4.86**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Explain)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

Report ID: SW-21/SW-41
Upland Pit

Sampling Point: **NR_DP73U**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100	NONE NONE	N/A	N/A	N/A	Silty Clay Loam	
8-20	10YR 3/2	75	7.5YR 4/6	5	C	PL	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes _____ No **X** Depth (inches): **NA**

Water Table Present? Yes _____ No **X** Depth (inches): **NA**

Saturation Present? (includes capillary fringe) Yes _____ No **X** Depth (inches): **NA**

Wetland Hydrology Present? **Yes** _____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

Report ID: SW-22/SW-24 Upland Pit

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 12, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP75U
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S8 T152N R95W
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 0-8%
Subregion (LRR): LRR-F | Lat: 47.99881 | Long: -102.87473 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams, dissected | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No **X**	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** Yes No **X**
Wetland Hydrology Present?	Yes	No **X**	

Remarks:

This point was determined not to be within a wetland due to the lack of hydrophytic vegetation and wetland hydrology.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Bromus inermis*	90	yes	UPL
2. *Solidago rigida*	15	no	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **0** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**105**	x 5 =	**525**
Column Totals:	**105** (A)		**525** (B)

Prevalence Index = B/A = **5.00**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Explain)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? Yes No **X**

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

Report ID: SW-22/SW-24 Upland Pit

Sampling Point: **NR_DP75U**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	100	NONE NONE	N/A	N/A	N/A	Silt Loam	
4-20	10YR 5/2	95	7.5YR 5/8	5	C	PL	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? Yes X No ___

Remarks:

A positive indication of hydric soil was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No **X** Depth (inches): **NA**

Water Table Present? Yes ___ No **X** Depth (inches): **NA**

Saturation Present? (includes capillary fringe) Yes ___ No **X** Depth (inches): **NA**

Wetland Hydrology Present? Yes ___ No **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

Report ID: SW-22/SW-24 **WETLAND DETERMINATION DATA FORM - Great Plains Region**

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 12, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP74W
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S8 T152N R95W
Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): Concave | Slope (%): 0-5%
Subregion (LRR): LRR-F | Lat: 47.99887 | Long: -102.87467 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams, dissected | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes **X** No
Hydric Soil Present? Yes **X** No
Wetland Hydrology Present? Yes **X** No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Spartina pectinata*	50	yes	FACW
2. *Typha latifolia*	50	yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC–): **2** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**50**	x 1 =	**50**
FACW species	**50**	x 2 =	**100**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**100** (A)		**150** (B)

Prevalence Index = B/A = **1.50**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Explain)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

Report ID: SW-22/SW-24

Sampling Point: **NR_DP74W**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	NONE 2/1	100	NONE NONE	N/A	N/A	N/A	Organic Soil Layer	Muck
4-12	2.5Y 2.5/1	100	NONE NONE	N/A	N/A	N/A	Silt Loam	
12-20	2.5Y 3/1	100	NONE NONE	N/A	N/A	N/A	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- X 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? Yes X No ___

Remarks:

A positive indication of hydric soil was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): **0-4"**

Water Table Present? Yes X No ___ Depth (inches): **1-20"**

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): **0-20"**

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

Report ID: SW-22/SW-24 Upland Pit

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 12, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP73U
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S8 T152N R95W
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 0-5%
Subregion (LRR): LRR-F | Lat: 47.99945 | Long: -102.87561 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams, dissected | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No **X**
Hydric Soil Present?	Yes	No **X**
Wetland Hydrology Present?	Yes	No **X**

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:

This point was determined not to be within a wetland due to the lack of all three wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Bromus inermis*	80	yes	UPL
2. *Melilotus officinalis*	15	no	FACU
3. *Agropyron cristatum*	10	no	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **0** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**15**	x 4 =	**60**
UPL species	**90**	x 5 =	**450**
Column Totals:	**105** (A)		**510** (B)

Prevalence Index = B/A = **4.86**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Explain)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

Report ID: SW-22/SW-24 Upland Pit

Sampling Point: **NR_DP73U**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100	NONE NONE	N/A	N/A	N/A	Silty Clay Loam	
8-20	10YR 3/2	75	7.5YR 4/6	5	C	PL	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No **X** Depth (inches): **NA**

Water Table Present? Yes ___ No **X** Depth (inches): **NA**

Saturation Present? (includes capillary fringe) Yes ___ No **X** Depth (inches): **NA**

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

Report ID: SW-22/SW-24 WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Hess Hawkeye | County: McKenzie | Sampling Date: October 12, 2012
Applicant/Owner: Hess | State: ND | Sampling Point: NR_DP72W
Investigator(s): M. Fettes and G. Schonert | Section, Township, Range: S8 T152N R95W
Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): Concave | Slope (%): 0-3%
Subregion (LRR): LRR-F | Lat: 47.99938 | Long: -102.87554 | Datum: NAD83
Soil Map Unit Name: Zahl-Williams loams, dissected | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **NO**, Soil **NO**, or Hydrology **NO** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes **X** No
Hydric Soil Present? Yes **X** No
Wetland Hydrology Present? Yes **X** No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

A dry year

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*	NA	NA	NA
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Typha latifolia*	95	yes	OBL
2. *Elymus repens*	10	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*	NA	NA	NA
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): **1** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**95**	x 1 =	**95**
FACW species	**0**	x 2 =	**0**
FAC species	**10**	x 3 =	**30**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**105** (A)		**125** (B)

Prevalence Index = B/A = **1.19**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Explain)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Provide supporting data in Remarks.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

Report ID: SW-22/SW-24

Sampling Point: **NR_DP72W**

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-1	NONE 2/1	100	NONE NONE	N/A	N/A	N/A	Organic Soil Layer	Muck
1-20	10YR 2/1	100	NONE NONE	N/A	N/A	N/A	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- X 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): None

Hydric Soil Present? Yes X No ___

Remarks:

A positive indication of hydric soil was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): **NA**

Water Table Present? Yes X No ___ Depth (inches): **15-20"**

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): **0-20"**

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: Williams Sampling Date: 08-05-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-25Up

Investigator(s): CH, JS Section, Township, Range: 155N 95W 6

Landform (hillslope, terrace, etc.): Edge of cropfield Local relief (concave, convex, none): None Slope (%): 3-5

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Williams-Bowbells loams, 0 to 3 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation Yes, Soil Yes, or Hydrology Yes significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___ No X	**Is the Sampled Area within a Wetland?** **Yes** ___ **No** X
Hydric Soil Present?	Yes ___ No X	
Wetland Hydrology Present?	Yes ___ No X	

Remarks:

Data plot is located in a roadside ditch that has been excavated and is mowed periodically.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: ___)			
1. Bromus inermis	95	X	UPL
2. Cirsium arvense	5		FACU
3. Bromus inermis	5		UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species 1	x 4 =	4
UPL species 2	x 5 =	10
Column Totals: 3 (A)		14 (B)

Prevalence Index = B/A = >3

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks:

SOIL

Sampling Point: SW-25Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR3/1	100					L	
6-15	10YR5/3	100					L	
15-20	2.5YR5/2	85	10YR5/6	15			SICL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

Disturbed from road ditch grading and excavating.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): >20

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >20

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: Williams Sampling Date: 08-05-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-25Wet

Investigator(s): CH, JS Section, Township, Range: 155N 95W 6

Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): Concave Slope (%): 3-5

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Williams-Bowbells loams, 0 to 3 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation Yes, Soil Yes, or Hydrology Yes significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

Data plot is located in a road ditch.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Polygonum pensylvanicum	100	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	1 (A)		2 (B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: SW-25Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR3/1	100					L	
4-20	10YR3/1	95	10YR4/6	5			L	
20-26	2.5YR5/1	80	10YR5/6	20			SICL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

Disturbed from road grating

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): >26

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): >26

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: Williams Sampling Date: 08-05-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-26Up

Investigator(s): CH, JS Section, Township, Range: 155N 95W 7

Landform (hillslope, terrace, etc.): Agriculture field Local relief (concave, convex, none): none Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Williams-Bowbells loams, 3 to 6 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation Yes, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks:

Data plot is located in a wheat field

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Triticum sp.	100	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No X

Remarks:

SOIL

Sampling Point: SW-26Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR3/2	100					L	
12-16	10YR5/3	100					SICL	
16-20	10YR5/3	90	10YR5/6	5			L	
16-20			10YR5/1	5			L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): >20

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >20

Wetland Hydrology Present? Yes _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: Williams Sampling Date: 08-05-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-26Wet

Investigator(s): CH, JS Section, Township, Range: 155N 95W 7

Landform (hillslope, terrace, etc.): Agriculture field Local relief (concave, convex, none): None Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Williams-Bowbells loams, 3 to 6 percent slopes NWI classification: PEMA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Typha angustifolia	5		OBL
2. Hordeum jubatum	100	X	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	105 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	1	x 1 =	1
FACW species	1	x 2 =	2
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	2 (A)		3 (B)

Prevalence Index = B/A = 1.5

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

SOIL

Sampling Point: SW-26Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR2/1	100					SICL	
18-24	2.5YR5/1	90	10YR5/6	10			SICL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): >24

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >24

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: Williams Sampling Date: 08-05-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-27Up

Investigator(s): CH, JS Section, Township, Range: 155N 95W 18

Landform (hillslope, terrace, etc.): Agricultural field Local relief (concave, convex, none): none Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Williams-Bowbells loams, 3 to 6 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation Yes, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks:

Data plot is located in a wheat field.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Triticum sp.	100	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	= Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No X

Remarks:

SOIL

Sampling Point: SW-27Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR3/1	100					SICL	
6-20	10YR5/3	100					SICL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

Wheat field

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): >20

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >20

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: Williams Sampling Date: 08-05-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-27Wet

Investigator(s): CH, JS Section, Township, Range: 155N 95W 18

Landform (hillslope, terrace, etc.): Agricultural field Local relief (concave, convex, none): concave Slope (%): 3-5

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Williams-Bowbells loams, 3 to 6 percent slopes NWI classification: PEMAd

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation Yes, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation Yes, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No X	**Is the Sampled Area within a Wetland?** Yes X No
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

Farmed wetland, wheat has drowned out due to spring wetness. Foxtail established after area dried out.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Setaria pumila	2		FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	2 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 98

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): (A)

Total Number of Dominant Species Across All Strata: (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No X

Remarks:

Drowned wheat, yellow foxtail discounted as an upland species as it appeared to establish after the area dried out.

SOIL

Sampling Point: SW-27Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR2/1	95	10YR4/6	5			CL	
6-20	10YR2/1	100					CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Drowned crops

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: Williams Sampling Date: 08-05-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-28UP

Investigator(s): CH, JS Section, Township, Range: 155N 95W 30

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Livona fine sandy loam, 0 to 6 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. Symphorocarpus albus	85	Y	UPL
2. Rosa woodsii	10		FACU
3.			
4.			
5.			
	95 = Total Cover		
Herb Stratum (Plot size:)			
1. Poa pratensis	40	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	40 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No X

Remarks:

SOIL

Sampling Point: SW-28UP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-10	10YR3/1	100					SICL	
10-20	10YR5/3	100					SICL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): >20

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >20

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: Williams Sampling Date: 08-05-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-28Wet

Investigator(s): CH, JS Section, Township, Range: 155N 95W 30

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Livona fine sandy loam, 0 to 6 percent slopes NWI classification: PEMCh

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Rumex occidentalis	5	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	5 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 95

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: SW-28Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR2/1	100					L	
3-12	2.5YR4/1	100					SICL	
12-16	2.5YR4/1	90	2.5YR4/4	10			SICL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes x No ___ Depth (inches): 2

Water Table Present? Yes x No ___ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes x No ___ Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: Williams Sampling Date: 08-05-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-29Up

Investigator(s): CH, JS Section, Township, Range: 154N 95W 005

Landform (hillslope, terrace, etc.): Oxbow Local relief (concave, convex, none): None Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Straw-Fluvaquents, channeled complex, 0 to 2 percent slopes, frequently flooded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** **Yes** **No X**
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. Symphoricarpos albus	30	Y	UPL
2.			
3.			
4.			
5.			
	30 = Total Cover		
Herb Stratum (Plot size:)			
1. Euphorbia esula	10		NI
2. Cirsium arevense	10		FACU
3. Bromus inermis	70	Y	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	90 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks:

SOIL

Sampling Point: SW-29Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-7	10YR3/2	100					SL	
7-20	10YR5/4	100					SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): >20

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >20

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: Williams Sampling Date: 08-05-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-29Wet

Investigator(s): CH, JS Section, Township, Range: 154N 95W 005

Landform (hillslope, terrace, etc.): intermittent stream Local relief (concave, convex, none): Concave Slope (%): 20-30

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Straw-Fluvaquents, channeled complex, 0 to 2 percent slopes, frequently flooded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

Fringing wetland along stream (Dry Fork Creek)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Phalaris arundinacea	20	Y	FACW
2. Schoenoplectus americanus	20	Y	OBL
3. Carex lacustris	30	Y	OBL
4. Symphyotrichum novae-angliae	10		FACW
5. Carex hystericina	20	Y	OBL
6. Sagittaria cuneata	5		OBL
7. Juncus effusus	10		OBL
8.			
9.			
10.			
	115 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

SOIL

Sampling Point: SW-29Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR2/1	80	10YR5/6	20			SL	
2-15	2.5YR4/1	80	10YR4/6	20			SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 16

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 10

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: Williams Sampling Date: 08-05-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-30Up

Investigator(s): CH, JS Section, Township, Range: 154N 95W 005

Landform (hillslope, terrace, etc.): Low area Local relief (concave, convex, none): Concave Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Williams-Zahl-Zahill complex, 6 to 9 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** **Yes** **No X**
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Melilotus officinalis	20	Y	FACU
2. Bromus inermis	40	Y	UPL
3. Sonchus asper	5		FACU
4. Medicago sativa	15		UPL
5.			
6.			
7.			
8.			
9.			
10.			
	80 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks:

SOIL

Sampling Point: SW-30Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR3/2	100					L	
4-20	2.5YR5/3	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): >20

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >20

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: Williams Sampling Date: 08-05-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-30Wet

Investigator(s): CH, JS Section, Township, Range: 154N 95W 005

Landform (hillslope, terrace, etc.): Low area Local relief (concave, convex, none): Concave Slope (%): 3-5

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Williams-Zahl-Zahill complex, 6 to 9 percent slopes NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Poa pratensis	20		FACU
2. Rumex occidentalis	5		OBL
3. Beckmannia syzigachne	15		OBL
4. Ambrosia artemisiifolia	20		FACU
5. Equesetum arvense	70	Y	FAC
6.			
7.			
8.			
9.			
10.			
	130 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:
OBL species	2	x 1 = 2
FACW species		x 2 =
FAC species	1	x 3 = 3
FACU species	2	x 4 = 8
UPL species		x 5 =
Column Totals:	5 (A)	13 (B)

Prevalence Index = B/A = <3

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: SW-30Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR2/1	100					CL	
4-14	2.5YR5/1	80	10YR5/6	20			SICL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): >14

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >14

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: Williams Sampling Date: 08-05-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-31Up

Investigator(s): CH, JS Section, Township, Range: 154N 95W 005

Landform (hillslope, terrace, etc.): low area Local relief (concave, convex, none): Concave Slope (%): 3-5

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Williams-Zahl-Zahill complex, 6 to 9 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** **Yes** **No X**
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Melilotus officinalis	30	Y	FACU
2. Cirsium vulgare	20	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	50 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 50

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks:

SOIL

Sampling Point: SW-31Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR3/2	100					L	
4-20	2.5YR5/3	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): >20

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >20

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: Williams Sampling Date: 08-05-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-31Wet

Investigator(s): CH, JS Section, Township, Range: 154N 95W 005

Landform (hillslope, terrace, etc.): low area Local relief (concave, convex, none): Concave Slope (%): 3-5

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Williams-Zahl-Zahill complex, 6 to 9 percent slopes NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Rumex occidentalis	70	Y	OBL
2. Equisetum arvense	10		FAC
3. Carex sp.	60	Y	
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	145 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	70	x 1 =	70
FACW species		x 2 =	
FAC species	10	x 3 =	30
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	80 (A)		100 (B)

Prevalence Index = B/A = 1.25

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

SOIL

Sampling Point: SW-31Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR2/1	100					CL	
4-14	2.5YR5/1	80	10YR5/6				SICL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): >14

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >14

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: Williams Sampling Date: 08-05-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-32Up

Investigator(s): CH, JS Section, Township, Range: 154N 95W 008

Landform (hillslope, terrace, etc.): Steep channel Local relief (concave, convex, none): Concave Slope (%): 80

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Zahl-Williams loams, 9 to 15 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** **Yes** **No X**
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Euphorbia esula	10	Y	UPL
2. Poa pratensis	30	Y	FACU
3. Bouteloua curtipendula	10	Y	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	50 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 50

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks:

SOIL

Sampling Point: SW-32Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR3/2	100					L	
4-20	2.5YR5/3	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): >20

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >20

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: Williams Sampling Date: 08-05-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-32Wet

Investigator(s): CH, JS Section, Township, Range: 154N 95W 008

Landform (hillslope, terrace, etc.): Steep channel Local relief (concave, convex, none): Concave Slope (%): 80

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Zahl-Williams loams, 9 to 15 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Eleocharis palustris	60	Y	OBL
2. Juncus effusus	1		OBL
3. Hordeum jubatum	5		FACW
4. Ranunculus cymbalaria	30	Y	OBL
5. Carex sp.	10		
6.			
7.			
8.			
9.			
10.			
	106 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

Photo #102-2408 viewing southeast

SOIL

Sampling Point: SW-32Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR4/1	80	10YR5/6	20			SICL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 12

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 6

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: Williams Sampling Date: 08-06-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-33Up

Investigator(s): CH, JS Section, Township, Range: 154N 95W 009

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): convex Slope (%): 30

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Zahl-Williams loams, 9 to 15 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X
Hydric Soil Present?	Yes	No X
Wetland Hydrology Present?	Yes	No X

Is the Sampled Area within a Wetland? Yes No X

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. Rosa sp.	10		
2.			
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size:)			
1. Cirsium vulgare	20		UPL
2. Andropogon gerardii	90	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	110 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No X

Remarks:

SOIL

Sampling Point: SW-33Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR3/2	100					L	
4-20	10YR4/3	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): >20

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >20

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: Williams Sampling Date: 08-06-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-33Wet

Investigator(s): CH, JS Section, Township, Range: 154N 95W 009

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Zahl-Williams loams, 9 to 15 percent slopes NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Rumex occidentalis	10		OBL
2. Carex sp.	90	Y	
3. Symphyotrichum novae-angliae	30	Y	FACW
4. Andropogon gerardii	5		FACU
5. Glyceria striata	10		OBL
6.			
7.			
8.			
9.			
10.			
	145 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:
OBL species	20	x 1 = 20
FACW species	30	x 2 = 60
FAC species		x 3 =
FACU species	5	x 4 = 20
UPL species		x 5 =
Column Totals:	55 (A)	100 (B)

Prevalence Index = B/A = 1.8

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

SOIL

Sampling Point: SW-33Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR2/1	100					L	
6-12	10YR5/1	80	10YR4/6	20			L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): >12

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >12

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: Williams Sampling Date: 08-06-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-34Wet

Investigator(s): CH, JS Section, Township, Range: 154N 95W 009

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 3-5

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Zahl-Williams loams, 9 to 15 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. Symphoricarpus albus	15	Y	UPL
2.			
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size:)			
1. Typha angustifolia	30	Y	OBL
2. Cirsium arvense	30	Y	FACU
3. Hordeum jubatum	10		FAC
4. Bidens vulgata	30	Y	FAC
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species		x 2 =	
FAC species	40	x 3 =	120
FACU species	30	x 4 =	120
UPL species	15	x 5 =	75
Column Totals:	115 (A)		345 (B)

Prevalence Index = B/A = 3

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: SW-34Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR5/1	85	10YR5/6	15			SICL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 1

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Roadside ditch @ culvert, no upland data recorded.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: Williams Sampling Date: 08-06-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-35Up

Investigator(s): CH, JS Section, Township, Range: 154N 95W 016

Landform (hillslope, terrace, etc.): Agriculture field Local relief (concave, convex, none): None Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Zahl-Williams loams, 9 to 15 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks:

Area trampled by cattle

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	20	Y	FAC
2.			
3.			
4.			
	20	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1. Prunus virginiana	10		FACU
2. Symphoricarpos albus	30	Y	UPL
3. Rosa sp.	15		
4.			
5.			
	55	= Total Cover	
Herb Stratum (Plot size:)			
1. Bromus inermis	60	Y	UPL
2. Cersium arvense	25	Y	FACU
3. Thalictrum dasycarpum	15		FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	2	x 3 =	6
FACU species	2	x 4 =	8
UPL species	2	x 5 =	10
Column Totals:	6 (A)		24 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No X

Remarks:

SOIL

Sampling Point: SW-35Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3	10YR3/2	100					L	
3-20	10YR5/4	100					SICL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): >20

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >20

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: Williams Sampling Date: 08-06-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-35Wet

Investigator(s): CH, JS Section, Township, Range: 154N 95W 016

Landform (hillslope, terrace, etc.): Roadside ditch Local relief (concave, convex, none): concave Slope (%): 3-5

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Zahl-Williams loams, 9 to 15 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Ulmus americanus	25	Y	FAC
2.			
3.			
4.			
	25 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Cornus sericea	15	Y	FACW
2.			
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Hordeum jubatum	15		FACW
2. Scirpus atrovirens	15		OBL
3. Carex vulpinoidea	25	Y	FACW
4. Poa pratensis	40	Y	FACU
5. Cirsium arvense	10		FACU
6. Plantago major	10		FAC
7.			
8.			
9.			
10.			
	115 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	1	x 1 =	1
FACW species	3	x 2 =	6
FAC species	2	x 3 =	6
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	8 (A)		21 (B)

Prevalence Index = B/A = 2.625

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** _____

Remarks:

SOIL

Sampling Point: SW-35Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR5/1	80	10YR4/6	20			SICL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: Williams Sampling Date: 08-06-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-36Up

Investigator(s): CH, JS Section, Township, Range: 153N 95W 010

Landform (hillslope, terrace, etc.): Steep draw Local relief (concave, convex, none): Concave Slope (%): 95

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Zahl-Cabba-Arikara complex, 9 to 70 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. Symphoricarpus albus	30	Y	UPL
2.			
3.			
4.			
5.			
	30 = Total Cover		
Herb Stratum (Plot size:)			
1. Hordeum jubatum	20	Y	FACW
2. Poa pratensis	50	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	70 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species 1	x 2 = 2
FAC species	x 3 =
FACU species 1	x 4 = 4
UPL species 1	x 5 = 5
Column Totals: 3 (A)	11 (B)

Prevalence Index = B/A = 3.67

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No X

Remarks:

SOIL

Sampling Point: SW-36Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-25	10YR2/1	100					CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): >25

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >25

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: Williams Sampling Date: 08-06-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-36Wet

Investigator(s): CH, JS Section, Township, Range: 153N 95W 010

Landform (hillslope, terrace, etc.): Steep draw Local relief (concave, convex, none): Concave Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Zahl-Cabba-Arikara complex, 9 to 70 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Rumex occidentalis	10		FAC
2. Hordeum jubatum	30	Y	FACW
3. Carex sp.	80	Y	
4. Glyceria striata	20		OBL
5.			
6.			
7.			
8.			
9.			
10.			
	140 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	30	x 2 =	60
FAC species	10	x 3 =	30
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	60 (A)		110 (B)

Prevalence Index = B/A = 1.8

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

SOIL

Sampling Point: SW-36Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-8	10YR2/1	100					SiCL	
8-25	10YR4/1	100					CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes X No ____ Depth (inches): 1

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: McKenzie Sampling Date: 08-06-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-37Up

Investigator(s): CH, JS Section, Township, Range: 153N 95W 016

Landform (hillslope, terrace, etc.): Agriculture field Local relief (concave, convex, none): None Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Niobell-Williams loams, 0 to 3 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** **Yes** **No X**
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Triticum sp.	80	Y	UPL
2. Amaranthus retroflexus	30	Y	FACU
3. Chenopodium album	20		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	130 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks:

SOIL

Sampling Point: SW-37Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-8	10YR3/2	100					L	
8-16	10YR5/3	100					L	
16-20	10YR4/1	90	10YR4/6	10			L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): >20

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >20

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: McKenzie Sampling Date: 08-06-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-37Wet

Investigator(s): CH, JS Section, Township, Range: 153N 95W 016

Landform (hillslope, terrace, etc.): Roadside ditch Local relief (concave, convex, none): concave Slope (%): 3-5

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Niobell-Williams loams, 0 to 3 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Bromus inermis	25	Y	UPL
2. Polygonum pennsylvanicum	40	Y	FACW
3. Setaria pumila	10		FACU
4. Echinochloa crus-galli	20		FAC
5. Hordeum jubatum	10		FACW
6. Symphyotrichum novae-angliae	10		FACW
7.			
8.			
9.			
10.			
	115 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	60	x 2 =	120
FAC species	20	x 3 =	60
FACU species	10	x 4 =	40
UPL species	25	x 5 =	125
Column Totals:	115 (A)		345 (B)

Prevalence Index = B/A = 3

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

SOIL

Sampling Point: SW-37Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR2/1	100					L	
6-16	10YR5/1	95	10YR4/6	5			L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): >16

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >16

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: McKenzie Sampling Date: 08-06-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-38Up

Investigator(s): CH, JS Section, Township, Range: 153N 95W 015

Landform (hillslope, terrace, etc.): Agriculture field Local relief (concave, convex, none): None Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Niobell-Williams loams, 0 to 3 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X
Hydric Soil Present?	Yes	No X
Wetland Hydrology Present?	Yes	No X

Is the Sampled Area within a Wetland? Yes No X

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Phleum pratense	50	Y	FACU
2. Bromus inermis	40	Y	UPL
3. Symphyotrichum novae-angliae	10		FACW
4. Ambrosia artemisiifolia	10		FACU
5. Medicago sativa	5		UPL
6.			
7.			
8.			
9.			
10.			
	115 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No X

Remarks:

SOIL

Sampling Point: SW-38Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR3/1	100					SICL	
6-16	10YR4/2	100					SICL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): >16

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >16

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: McKenzie Sampling Date: 08-06-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-38Wet

Investigator(s): CH, JS Section, Township, Range: 153N 95W 015

Landform (hillslope, terrace, etc.): Roadside ditch Local relief (concave, convex, none): Concave Slope (%): 3-5

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Niobell-Williams loams, 0 to 3 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Typha angustifolia	30	Y	OBL
2. Polygonum pennsylvanicum	40	Y	FACW
3. Symphyotrichum novae-angliae	15		FACW
4. Pascopyrum smithii	60	Y	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	145 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: SW-38Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR3/1	100					L	
6-16	10YR5/1	100					SICL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): >16

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >16

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: McKenzie Sampling Date: 08-07-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-39Up

Investigator(s): CH, JS Section, Township, Range: 153N 95W 027

Landform (hillslope, terrace, etc.): Agriculture field Local relief (concave, convex, none): none Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Williams-Zahl loams, 3 to 6 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Triticum sp.	70	Y	UPL
2. Sonchus asper	5		FAC
3. Bassia scoparia	5		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** _____ **No** X

Remarks:

SOIL

Sampling Point: SW-39Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR3/2	100					SICL	
6-20	10YR4/4	100					SICL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): >20

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >20

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: McKenzie Sampling Date: 08-07-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: SW-39Wet

Investigator(s): CH, JS Section, Township, Range: 153N 95W 027

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Williams-Zahl loams, 3 to 6 percent slopes NWI classification: PEMFd

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Typha angustifolia	5		OBL
2. Chenopodium album	10		FACU
3. Hordeum jubatum	50	Y	FACW
4. Schoenoplectus americanus	10		OBL
5.			
6.			
7.			
8.			
9.			
10.			
	75 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 25

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

SOIL

Sampling Point: SW-39Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5YR2/1	95	10YR4/6	5			SICL	
6-16	10YR4/2	70	10YR4/4	30			SICL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): >16

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): >16

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hess Hawkeye Pipeline City/County: Williams Sampling Date: 10/15/14

Applicant/Owner: Hess State: ND Sampling Point: SW-42

Investigator(s): EB/TR Section, Township, Range: T156N 95 W 31

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Straw-Fluvaquents, channeled complex, 0 to 2 percetn slopes, frequently flooded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

Disturbed historic channel/swale due to road construction and cropfield.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Elymus repens	55	Y	FACU
2. Rumex occidentalis	30	Y	OBL
3. Hordeum jubatum	10	Y	FACW
4. Polygonum spp.	2		FACW
5. Plantago major	2		FAC
6.			
7.			
8.			
9.			
10.			
	99 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	12	x 2 =	24
FAC species	2	x 3 =	6
FACU species	55	x 4 =	
UPL species		x 5 =	
Column Totals:	99 (A)		280 (B)

Prevalence Index = B/A = 2.8

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

Roadside ditch, along tilled field. Road and tilling have altered drainage patterns and vegetation communities.

SOIL

Sampling Point: SW-42

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0+	10yr 3/2	95		5	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- X Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hess Hawkeye Pipeline City/County: Williams Sampling Date: 10/15/14

Applicant/Owner: Hess State: ND Sampling Point: SW-42 Up pt

Investigator(s): EB/TR Section, Township, Range: T156N 95 W 31

Landform (hillslope, terrace, etc.): Agriculture field Local relief (concave, convex, none): Concave Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Straw-Fluvaquents, channeled complex, 0 to 2 percetn slopes, frequently flooded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Cirsium arvense	20	Y	FACU
2. Elymus repens	20	Y	FACU
3. Poa spp.	10		UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		
% Bare Ground in Herb Stratum _____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** _____ **No** X

Remarks:

SOIL

Sampling Point: SW-42Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0+	7.5yr3/2	100					Sandy clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hess Hawkeye Pipeline City/County: Williams Sampling Date: 10/15/14

Applicant/Owner: Hess State: ND Sampling Point: SW-43

Investigator(s): EB/TR Section, Township, Range: T156N 95 W 31

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Straw-Fluvaquents, channeled complex, 0 to 2 percetn slopes, frequently flooded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

Disturbed historic channel/swale due to road construction and cropfield.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Elymus repens	60	Y	FACU
2. Rumex occientalis	10		OBL
3. Polygonum spp.	10		FACW
4. Cirsium arvense	10		FACU
5.			
6.			
7.			
8.			
9.			
10.			
	90 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): (A)

Total Number of Dominant Species Across All Strata: (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	10	x 2 =	20
FAC species		x 3 =	
FACU species	70	x 4 =	280
UPL species		x 5 =	
Column Totals:	90 (A)		310 (B)

Prevalence Index = B/A = 3.4

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes No X**

Remarks:

Wetland in tilled field. Tilling and rock removal activities have altered drainage patterns and vegetation communities.

SOIL

Sampling Point: SW-43

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0+	10yr2/2	100					Silty Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hess Hawkeye Pipeline City/County: Williams Sampling Date: 10/15/14

Applicant/Owner: Hess State: ND Sampling Point: SW-43 Up pt

Investigator(s): EB/TR Section, Township, Range: T156N 95 W 31

Landform (hillslope, terrace, etc.): Agriculture field Local relief (concave, convex, none): Concave Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Lehr-Wiliams loams, 0 to 6 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Disturbed historic channel/swale due to road construction and cropfield.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Triticum	60	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 40

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** _____ **No** X

Remarks:

SOIL

Sampling Point: SW-43Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3	10YR3/1	100					Clay	
3+	10YR5/3	100					Sandy clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hess Hawkeye Pipeline City/County: Williams Sampling Date: 10/15/14

Applicant/Owner: Hess State: ND Sampling Point: SW-51

Investigator(s): EB/TR Section, Township, Range: T155N 95 W 32

Landform (hillslope, terrace, etc.): Pond Local relief (concave, convex, none): Concave Slope (%): 3-5

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Zahl-Williams loams, 9 to 15 percent slopes/Tonka silt loam, 0 to 1 percent slopes NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation X, Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

Depression. Vegetation is grazed on edges on wetlands.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Phalaris arundinacea	50	Y	FACW
2. Spartina pectinata	30	Y	FACW
3. Rumex occidentalis	1		OBL
4. Hordeum jubatum	5		FACW
5. Typha angustifolia	5		OBL
6.			
7.			
8.			
9.			
10.			
	91 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

SOIL

Sampling Point: SW-51

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0+	7.5yr3/1	98		2	C	M	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 0

Water Table Present? Yes X No ____ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hess Hawkeye Pipeline City/County: Williams Sampling Date: 10/15/14

Applicant/Owner: Hess State: ND Sampling Point: SW-51 Up pt

Investigator(s): EB/TR Section, Township, Range: T155N 95 W 32

Landform (hillslope, terrace, etc.): Agriculture field Local relief (concave, convex, none): Convex Slope (%): 10-15

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Williams-Zahl-Zahill complex, 6 to 9 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Poa pratensis	50	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		
% Bare Ground in Herb Stratum _____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** _____ **No** X

Remarks:

SOIL

Sampling Point: SW-51Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0+	2.5yr3/2	100					sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hess Hawkeye Pipeline City/County: Williams Sampling Date: 10/15/14

Applicant/Owner: Hess State: ND Sampling Point: _____

Investigator(s): EB/TR Section, Township, Range: T154N 95 W 16

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Williams-Zahl loams, 3 to 6 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Typha angustifolia	10		OBL
2. Hordeum jubatum	10		FACW
3. Spartina pectinata	50	Y	FACW
4. Scirpus spp.	10		OBL
5.			
6.			
7.			
8.			
9.			
10.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 60

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** _____

Remarks:

Heavily disturbed by livestock.

SOIL

Sampling Point: SW-65

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-1	10yr4/4	100					Clay	
1+	Gley 1 2.5N	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- X Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 6

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Heavily disturbed by livestock.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hess Hawkeye Pipeline City/County: Williams Sampling Date: 10/15/14

Applicant/Owner: Hess State: ND Sampling Point: SW-65Up

Investigator(s): EB/TR Section, Township, Range: T154N 95 W 16

Landform (hillslope, terrace, etc.): Grassland Local relief (concave, convex, none): None Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Williams-Zahl loams, 3 to 6 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Heavily grazed grassland.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. poa spp.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 60

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** _____ **No** X

Remarks:

SOIL

Sampling Point: SW-65Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
12+	7.5yr2.5/1	100					Silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hess Hawkeye Pipeline City/County: Williams Sampling Date: 10/16/14

Applicant/Owner: Hess State: ND Sampling Point: SW-75

Investigator(s): EB/TR Section, Township, Range: T153N 95 W 26

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Williams-Bowbells loams, 3 to 8 percent slope NWI classification: PEMA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Depression area on terrace in agricultural field.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Typha angustifolia	50	Y	OBL
2. Scirpus spp.	40	Y	OBL
3. Malva spp.	10		
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 50

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** _____

Remarks:

SOIL

Sampling Point: SW-75

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0+	10yrs2/1	95	5yr4/4	5	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hess Hawkeye Pipeline City/County: Williams Sampling Date: 10/16/14

Applicant/Owner: Hess State: ND Sampling Point: SW-75Up

Investigator(s): EB/TR Section, Township, Range: T153N 95 W 26

Landform (hillslope, terrace, etc.): Agriculture field Local relief (concave, convex, none): None Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Williams-Bowbells loams, 3 to 8 percent slope NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** **Yes** **No X**
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks:

Agricultural field

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Triticum spp.	50	Y	UPLx
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	= Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 50

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): (A)

Total Number of Dominant Species Across All Strata: (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks:

SOIL

Sampling Point: SW-75Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
12+	10yr4/2	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hess Hawkeye Pipeline City/County: Williams Sampling Date: 10/16/14

Applicant/Owner: Hess State: ND Sampling Point: SW-76

Investigator(s): EB/TR Section, Township, Range: T153N 95 W 26

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Belfield-Grail clay loams, 0 to 2 percent slopes/Zahl-Max loams, dissected, 15 to 45 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

Historic channel/swale in tilled agricultural field.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Elymus repens	50		FACU
2. Rumex spp.	5		FAC
3. Cirsium arvense	5		FACU
4. bromus inermis	30		UPL
5. Horduem jubautm	20		FACW
6.			
7.			
8.			
9.			
10.			
	= Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): (A)

Total Number of Dominant Species Across All Strata: (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50
FACW species	20	x 2 =	40
FAC species	5	x 3 =	15
FACU species	55	x 4 =	220
UPL species	30	x 5 =	150
Column Totals:	160 (A)		475 (B)

Prevalence Index = B/A = 2.9

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

Swale/historic channel in agricultural field.

SOIL

Sampling Point: SW-76

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	5yr 2/1	95	5 yr 4/4	5	C	M	Clay Loam	
8+	5 yr 2/1	95	7.5 yr 6/2	5	C	M	Silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hess Hawkeye Pipeline City/County: Williams Sampling Date: 10/16/14

Applicant/Owner: Hess State: ND Sampling Point: SW-76Up

Investigator(s): EB/TR Section, Township, Range: T153N 95 W 26

Landform (hillslope, terrace, etc.): Agriculture field Local relief (concave, convex, none): None Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Williams-Bowbells loams, 3 to 8 percent slope NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Agricultural field

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Triticum spp.	50	Y	UPLx
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 50

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** _____ **No** X

Remarks:

SOIL

Sampling Point: SW-75Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
12+	10yr4/2	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: McKenzie Sampling Date: 08-07-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: UP-1

Investigator(s): CH, JS Section, Township, Range: 152N 95W 008

Landform (hillslope, terrace, etc.): Agriculture Field Local relief (concave, convex, none): None Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation Yes, Soil Yes, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

In a field of safflower crop.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Carthamus tinctorius	10		NI
2. Convolvulus arvensis	10		NI
3. Setaria pumila	20	Y	FACU
4. Ambrosia artimisiifolia	10		FACU
5. Cersium arvense	5		FACU
6. Sonchus asper	5		FAC
7.			
8.			
9.			
10.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 40

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** _____ **No** X

Remarks:

Crop partially drowned out

SOIL

Sampling Point: UP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR3/1	100					SICL	
8-22	10YR3/3	100					SICL	
22-26	10YR4/2	90	10YR4/6	10			SICL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): >26

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >26

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Hawkeye Pipeline City/County: McKenzie Sampling Date: 08-07-2014

Applicant/Owner: Hess Corporation State: ND Sampling Point: UP-2

Investigator(s): CH, JS Section, Township, Range: 152N 95W 008

Landform (hillslope, terrace, etc.): Agriculture field Local relief (concave, convex, none): Concave Slope (%): 1-3

Subregion (LRR): Northern Great Plains Spring Wheat Region Lat: Long: Datum:

Soil Map Unit Name: Williams-Bowbells loams, 0 to 3 percent slopes NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation Yes, Soil Yes, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes No X

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___ No X	**Is the Sampled Area within a Wetland?** Yes ___ No X
Hydric Soil Present?	Yes ___ No X	
Wetland Hydrology Present?	Yes ___ No X	

Remarks:

In a field of safflower crop.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: ___)			
1. Carthamus tinctorius	60		NI
2. Cirsium arvense	5	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	65 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum 35

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks:

Crop stunted

SOIL

Sampling Point: UP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR3/1	100					SICL	
8-22	10YR3/3	100					SICL	
22-26	10YR4/2	90	10YR4/6	10			SICL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): >26

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >26

Wetland Hydrology Present? Yes _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix D

Hess' Ten-Year Plan

HESS CORPORATION
Tioga Office Complex
10384 68th St NW
Tioga, North Dakota 58852
701-664-6200

June 24, 2014

PUBLIC SERVICE COMMISSION – State Capitol
Director of Administration
600 East Boulevard, Dept 408
Bismarck, ND 58505-0480

RE: HESS CORPORATION – 2014 Ten-Year Plan

Dear Director of Administration:

On behalf of HESS CORPORATION ("HESS"), we hereby submit HESS's Ten-Year Plan pursuant to North Dakota Century Code § 49-22-04 and North Dakota Administrative Code Chapter 69-06-02.

SECTION A: Existing Energy Conversion Facilities.

HESS has completed the Tioga Gas Plant expansion. This project was approved by the North Dakota Public Service Commission in Case No. PU-10-120.

SECTION B: Energy Conversion Facilities Under Construction.

HESS has no energy conversion facilities currently under construction.

SECTION C: Proposed Energy Conversion Facilities on Which Construction is Intended Within the Ensuing Five Years.

HESS has no proposed energy conversion facilities during the next five-year time period.

SECTION D: Proposed Energy Conversion Facilities During the Next Ten-Year Time Period.

HESS has no other proposed energy conversion facilities during the next ten-year time period.

SECTION E: Existing Transmission Facilities (Electric).

HESS has no existing electrical transmission facilities.

SECTION F: Existing Transmission Facilities (Pipeline).

1. Location: HESS currently has in operation a pipeline beginning at its gas plant located at Tioga, North Dakota, extending southerly under Lake Sakakawea and then extending in a southwesterly direction to an interconnect point with the Northern Border pipeline south of Watford City, North Dakota. This pipeline was constructed pursuant to Public Service Commission Certificate of Site Compatibility for Transmission Facility Corridor #62 issued on March 11, 1992, and Public Service Commission Permit for the Construction of a Transmission Facility #72 issued on July 21, 1992. Upon completion of the pipeline HESS provided the Commission with a copy of the design specifications for the construction of the pipeline showing the location of the pipeline as built as required in the Findings of Fact, Conclusions of Law and Order dated July 21, 1992, as issued by the Commission in Case No. PU-476-92-138. Attached hereto is a system map showing the location of the actual pipeline route.

   a) Type and Capacity: The design specifications for the facility are as follows:

i) Product Type - natural gas
ii) Length of Facility in Miles - approximately 61
iii) Pipe Size - 10.75 inches O.D.
iv) Maximum Design Operating Pressure - 1440 pounds per square inch gage (psig)
v) Maximum Design Flow Rate - 65 million standard cubic feet per day (mmscfd)
vi) Compressor or pumping station specifications, including type, horse power, output pressure, and capacity –

(1) Tioga Compressor Station
(a) Type: 3 centrifugal
(b) Suction Pressure: 700 psig
(c) Discharge Pressure: 1300 psig
(d) Station Horsepower: 6750 hp
(e) Maximum Capacity: 99 mmcfd

(2) Cherry Creek Compressor Station
(a) Type: (2) reciprocating
(b) Suction Pressure: 875 psig
(c) Discharge Pressure: 1420 psig
(d) Station Horsepower: 1600 hp
(e) Maximum Capacity: 65 mmcfd

b) Minimum Cover Over Pipe - 48 inches, except in a situation where rock makes 48 inches impractical.

c) In-service date for the pipeline was December, 1992.

d) There is no projected retirement date during the next ten-year period for the pipeline facility.

2. HESS completed installation of three NGL Product sales pipelines approximately 3.6 miles from the Hess Tioga Gas Plant to the newly constructed Hess Tioga Rail Terminal west of the city of Tioga at an estimated cost of $33 million. The intent is to sell propane, butane, and natural gasoline liquid products by rail cars at the Tioga Rail Terminal now that the Tioga Gas Plant expansion is complete. This project was approved by the North Dakota Public Service Commission in Case #PU-11-104.

3. Hess has converted three existing pipeline segments, once used as gathering pipelines, into a crude oil transmission pipeline connecting the Ramburg Truck Facility ("RTF") to the Tioga Rail Terminal ("TRT"). The pipeline totals 10.2 miles in length and consists of 14" nominal diameter steel pipe. This project was approved by the North Dakota Public Service Commission in Case No. PU-12-683.

SECTION G: Proposed Transmission Facilities on Which Construction is Intended Within the Ensuing Five Years (Electric).

HESS has no proposed electric transmission facilities on which construction is intended within the ensuing five years.

SECTION H: Proposed Transmission Facilities on Which Construction is Intended Within the Ensuing Five Years (Pipeline).

1. Hess Corporation (Hess) is proposing to construct an approximately 25-mile-long pipeline system connecting Bakken production fields south of Lake Sakakawea to existing processing facilities north of the Lake. New pipeline construction will tie into the existing pipeline infrastructure to cross Lake Sakakawea. The new and repurposed pipeline system will transport crude oil as well as two 24-strand fiber optic cables from south of Lake Sakakawea in McKenzie County, North Dakota, to the Ramberg Truck Facility (crude oil).
i) The proposed Hawkeye Pipeline System Project crosses lands managed by the U.S. Forest Service (USFS) and the U.S. Army Corps of Engineers (USACE), State of North Dakota, as well

as private lands. Pursuant to the Mineral Leasing Act of 1920, as amended (43 CFR Subpart 2884.21J1), when an applicant applies for a ROW that crosses lands administered by two or more Federal agencies, the BLM will process the application and issue all grants, temporary use permits, amendments, and assignments. As such, the BLM is the designated lead federal agency for issuing the ROW grant and preparation of the NEPA document, the Environmental Assessment (EA).

ii) Hess is currently preparing an EA with an anticipated Decision Record in late 2013. Additionally, a Biological Assessment/Biological Evaluation for compliance with Endangered Species Act (Section 7) and a preliminary Spill Risk Analysis suitable for NEPA is being prepared. BLM is managing tribal consultation in compliance with Section 106 of the National Historic Preservation Act of 1966.

iii) Hess will submit an application for a corridor certificate and route permit or a request for jurisdictional determination to the North Dakota Public Service Commission in the near future.

SECTION I: Proposed Transmission Facilities During the Next Ten-Year Time Period (Electric and Pipeline).

HESS has no proposed electric or pipeline transmission facilities proposed during the next ten-year time period other than what is mentioned in Section H.

SECTION J: Regional Coordination.

One of the purposes of the pipeline is to deliver gas into the existing pipeline facility of the Northern Border Pipeline Company for transportation of such gas to HESS's customers. However, HESS's pipeline is not part of a single regional plan.

SECTION K: Environmental Information.

The gas pipeline has been constructed in strict accordance with the requirements of the U.S. Department of Transportation Pipeline Safety Regulations found at CFR Title 49, Part 192, "Transportation of Natural and Other Gases by Pipeline: Minimum Federal Safety Standards," and ASME B31.8, "Gas Transmission and Distribution Piping Systems." The pipeline was hydrostatically tested in accordance with CFR Title 49, Part 192, Sub-part J to establish the maximum allowable operating pressure of 1440 psig.

HESS CORPORATION has also installed a fiber optic communications system which allows for 24-hour monitoring of the pipeline and compressor operations. The pipeline is also designed to accommodate the use of instrumented internal inspection devices that can be propelled through the pipeline by the flowing gas stream and can effectively detect and record the type and location of corrosion or other defects in the pipe wall. In conjunction HESS has in place a regular pipeline cathodic protection program.

Wooded areas and shelter belts that were removed have been replanted with approximately 300 new trees. This is two new trees for every one removed during construction.

HESS has made an agreement with the U.S. Fish and Wildlife Service for provisions relative to the rehabilitation of wooded draw habitat on U.S. Forest Service land as mitigation for habitat disturbed during the pipeline construction.

HESS's obligation to reclaim and maintain the right-of-way shall continue throughout the life of the pipeline facility.

SECTION L: Projected Demand for Service.

The projected future supplies of oil and gas entering these pipelines will be produced from (a) several fields located in Divide, Williams, Mountrail, McKenzie and Burke Counties, (b) the Winnipeg and Deadwood formations from certain wells to be located in the McKenzie and Williams Counties, and (c) the expansion of the plant and pipeline facilities in conjunction with the growth of the Bakken development taking place in North Dakota.

Respectfully submitted the day and year set forth above.

HESS CORPORATION
Tioga Office Complex
10384 68th St NW
Tioga, North Dakota 58852

By Dale Weathersby
Dale Weathersby

Enc.
cc: - County Auditors of McKenzie and Williams Counties
- State Agencies and Officers designated in § 69-06-01-05, ND Adm Code "Notice of Filing"
- Brent Lohnes, Director Operations - Minot, ND

HESS CORPORATION
Tioga Office Complex
10384 68th St NW
Tioga, North Dakota 58852
701-664-6200

June 24, 2014

PUBLIC SERVICE COMMISSION – State Capitol
Director of Administration
600 East Boulevard, Dept 408
Bismarck, ND 58505-0480

RE: HESS CORPORATION – 2014 Ten-Year Plan

Dear Director of Administration:

Enclosed for filing please find the original and required copies of HESS CORPORATION's 2014 Ten-Year Plan.

Very truly yours,

Dale Weathersby
Regulatory Advisor, Bakken

Enclosure

Appendix E

Agency Correspondence

1) U.S. Army Corps of Engineers
    a. Jurisdictional Determination Letter
    b. Response Letter: none
2) U.S. Forest Service
    a. USFS Request Letter
    b. Response Letter: none
    c. Botany and Wildlife Survey Requirements Letter
3) U.S. Fish and Wildlife Service
    a. USFWS Request letter
    b. Response Letter
4) North Dakota Game and Fish Department
    a. NDGFD Request Letter (2)
    b. Response Letter: none
5) North Dakota Natural Heritage Inventory, North Dakota Parks and Recreation Department
    a. NDNHI Request Letter
    b. Response Letter
6) Farm Service Agency (FSA), Williams County (USDA)
    a. Correspondence via website (entered November 17, 2014)
    b. Response: none
7) North Dakota Department of Trust Lands
    a. Email correspondence with Mr. Mike Brand (Surface Management Division)
    b. Email correspondence with Mr. Jerry Saude (Department of Trust Lands)

Stantec Consulting Services Inc.
2950 East Harmony Road, Suite 290
Fort Collins CO 80528
Tel: (970) 482-5922
Fax: (970) 482-6368

May 12, 2014

Mr. Jason Renschler
U.S. Army Corps of Engineers
North Dakota Regulatory Office
1513 South 12th Street
Bismarck, ND 58504

Reference: Additional Maps to Support JD Request for Aquatic Features along the Hess Haykeye Pipeline Route, Williams and McKenzie Counties

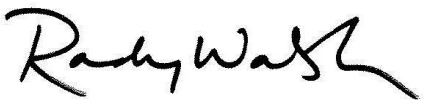
Jason:

Enclosed, please find two revised 1:24k topographic maps depicting all (26) field- delineated aquatic features identified along the length of the Project to aid in your jurisdictional determination. These new maps depict the field-delineated features in colors which correspond to the data collection firm, and are labeled with the wetland codes assigned on the individual field data sheets. I am hopeful that these new maps will allow you to more easily match the features displayed on the maps with their appropriate data forms.

If there is any additional information required for your analysis, we will be happy to quickly provide it.

Regards,

STANTEC CONSULTING SERVICES INC.



J. Randall (Randy) Walsh, M. Sc.
Senior Ecologist
Phone: (970) 449-8626
randy.walsh@stantec.com

Attachment: 1:24,0000 topographic maps (2)

c. Lowell Hassler, BLM
Murray Jackson, Hess Corporation

No response received from letter to USACE dated May 12, 2014.

Stantec Consulting Services Inc.
2950 East Harmony Road Suite 290
Fort Collins, Colorado 80528
Tel: (970) 482-5922
Fax: (970) 482-6368

May 24, 2013

Kim Grotte
McKenzie Ranger District
U.S. Forest Service
1901 S. Main Street
Watford City, North Dakota 58854

Reference: Hawkeye Pipeline Project

Dear Mr. Grotte,

Stantec Consulting Services Inc. (Stantec), on behalf of the Bureau of Land Management (BLM), would like to request input on Hess Corporation's (Hess) proposed Hawkeye Pipeline Project (Project). Hess has filed a ROW application proposing to construct, operate, maintain, and decommission the proposed Project on federal lands in McKenzie and Williams Counties, North Dakota, as shown in **Figure 1**. The proposed project would include the construction of an approximately 25.5-mile-long pipeline system consisting of the following four segments:

- **Segment A** (10.6 miles): Hawkeye to North Charlson (South Side of the Lake) consisting of the conversion of an existing 8" HP Gas line to NGL service and installation of new 10" HP Oil and 12" HP Gas lines as well as two (2) 24 strand fiber optic lines.
- **Segment B** (2.5 miles) North Charlson (South Side of the Lake) to North Side of the Lake including tie-ins into three (3) existing 8" lines under Lake Sakakawea for HP Gas, HP Oil and NGL's as well as installation of two (2) 24 strand fiber optic lines.
- **Segment C** (2.4 miles) North Side of the Lake to Hofflund including conversion of an existing 8" HP Gas line to NGL service and construction of new 10" HP Oil and 12" HP Gas lines as well as two (2) 24 strand fiber optic lines.
- **Segment D** (10.1 miles) Hofflund to Ramberg (HP Oil) and Silurian (HP Gas and NGL's) including conversion of an existing 10" HP Gas line to NGL service and construction of new 10" HP Oil and 12" HP Gas lines as well as two (2) 24 strand fiber optic lines.

The proposed Hawkeye pipeline system would transport oil, gas and NGL from the existing Hawkeye Central Station through a transfer point at the existing North Charlson Compressor Station located south of Lake Sakakawea (Segment A). The system would use existing pipelines to transport oil, gas and NGL beneath Lake Sakakawea to the North River Crossing Compressor Station located north of Lake Sakakawea (Segment B). From the North River Compressor Station the pipelines would trend north before terminating at either the existing Hess Ramberg Truck Facility or the Silurian Compressor station, located approximately 8 and 7 miles respectively, south of Tioga, Williams County, North Dakota (Segments C & D). All connection points would occur within existing Hess facilities.

In total, approximately 4.1 miles of the proposed alignment occurs on federal lands. The remaining alignment is proposed on private land and State of North Dakota-owned lands. The proposed pipeline would be buried and follow existing pipeline and utility easements to the extent practicable.

Reference: Hawkeye Pipeline Project

Species Information Request

Stantec has enclosed an overview map of the entire proposed route through west-central North Dakota. The Project is located in **McKenzie** and **Williams** counties, North Dakota.

Stantec will be evaluating Project-related and cumulative effects to both aquatic and terrestrial biological resources. Because of the mobility of wildlife species, resource issues will be examined beyond the proposed Project boundary. Stantec is requesting information on pertinent resource data from federal and state agencies in order to address potential impacts to aquatic and terrestrial species. We would like to provide an opportunity for the U.S. Forest Service (USFS) biologists and botanists to identify prominent terrestrial and aquatic resource issues or concerns that may occur within or adjacent to the Project area, focusing on species that either are sensitive (i.e, USFS sensitive species), have high economic value (e.g., big game, waterfowl), or are considered important by federal and state agencies (e.g., raptors, rare plants, migratory birds). Please forward this request to the applicable specialists (e.g., fisheries and/or wildlife biologists, botanists etc.) so they may provide information and input. Resource information provided by the USFS will be incorporated into the NEPA analysis for the proposed Project.

Stantec is also requesting sensitive resources information from the North Dakota Natural Heritage Inventory, North Dakota Game and Fish Department, and U.S. Fish and Wildlife Service. If you have any questions regarding this request, please call me at (970) 449-8627. Thank you in advance for your prompt response to this request.

Regards,

Matthew A Brekke

Matt Brekke
Senior Wildlife Biologist
Tel: 970-449-8627
Fax: 970-482-6368
matt.brekke@stantec.com

Attachment: Figure 1. Pipeline Segment Map

cc. Lowell Hassler (BLM)
Peggy Roberts (Stantec)
Scott Patti (Stantec)

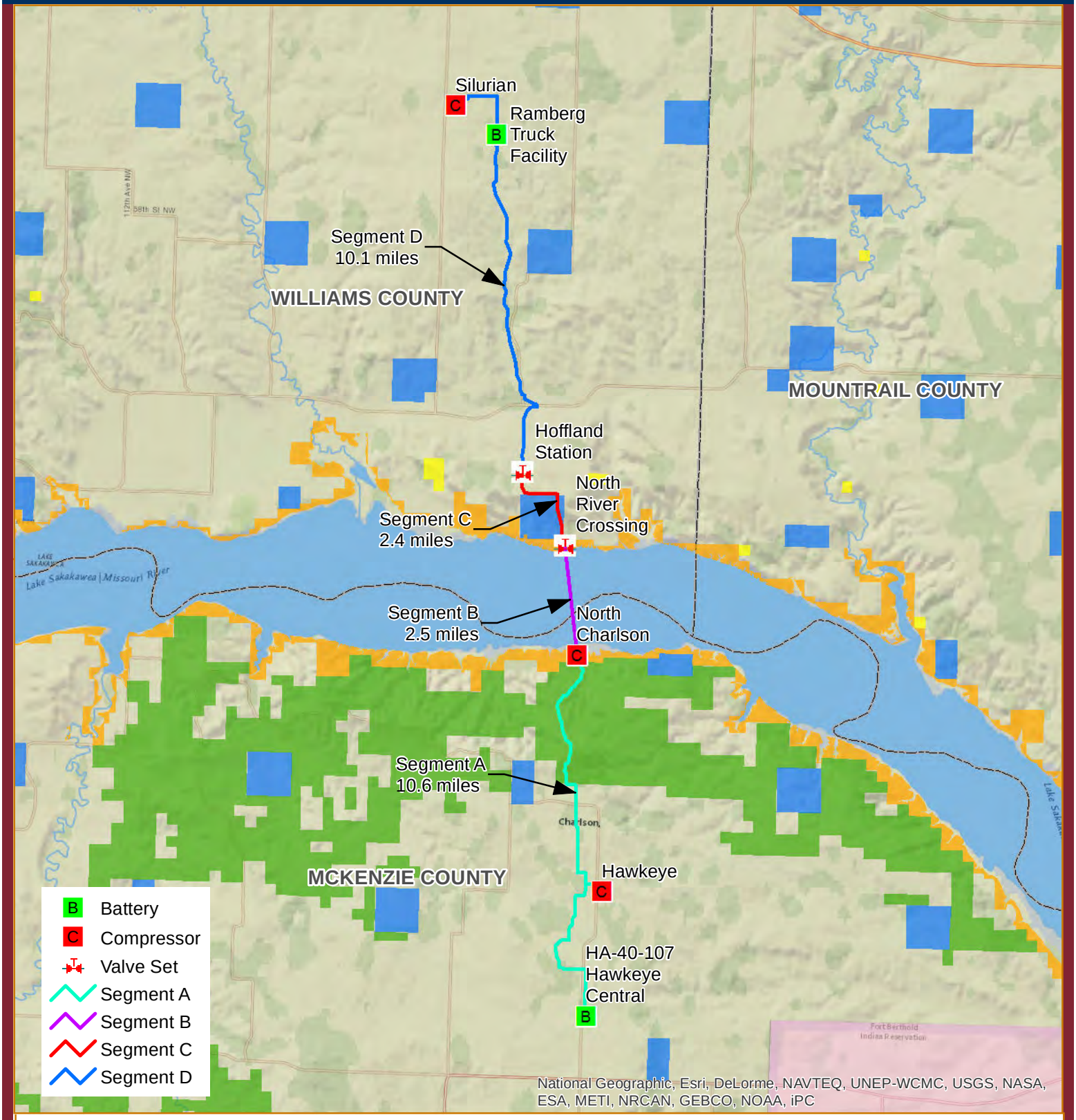
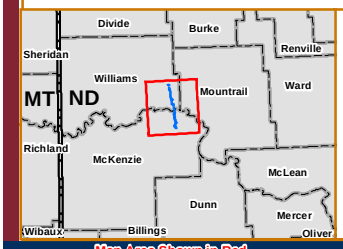


Figure 1. Pipeline Segment Map



Map Area Shown in Red

Location
Williams & McKenzie Co., ND

Project Information
Project Number: 212205020
Last Modified: May 23, 2013

0 1.5 3
Miles

Legend
- Army Corps of Engineers Lands
- State Lands
- Bureau of Land Management Lands
- US Forest Service Lands
- Tribal Lands

Data Sources include: Hess, Stantec, USGS, USFWS, and ESRI.

	Initials	Date
Prepared by	BLC	05/23/2013
Peer Review by	-	-
Final Review by		

stantec.com

One Team. Infinite Solutions.

No response received from letter to USFS dated May 24, 2013.

USDA United States Department of Agriculture
Forest Service
Dakota Prairie Grasslands
1200 Missouri Ave
Bismarck, ND 58504

File Code: 2600
Date: March 19, 2014

Stantec
Attn: Scott J. Patti
2950 East Harmony Rd, Suite 290
Fort Collins, CO 80528

Dear Mr. Patti:

This letter is being sent to inform environmental consultants on requirements for botanical and wildlife surveys and respective Biological Evaluations (BE) for **new project proposals** on the USDA Forest Service Medora and McKenzie Ranger Districts of the Little Missouri National Grassland during 2014. Wildlife and botanical consulting on the Sheyenne and Grand River Ranger Districts would follow similar requirements to those outlined in this letter and enclosures; however, please contact appropriate District personnel regarding specific requirements for working on those Districts.

There have been a few changes to our requirements for surveys and reports from past years (including minor changes to the sensitive plant form, updates to the invasive plant list, etc.), so please read this letter and the enclosures carefully. **Surveys and reports that do not comply with these requirements may be rejected or returned for edits.**

The U. S. Fish and Wildlife Service should be contacted for the most current list of federally endangered, threatened, and proposed species and critical habitat locations. The 2011 Regional Forester's Sensitive Species list for plants, and the Federally Listed and Sensitive Animal Species of the Little Missouri NG for wildlife, are the most current sensitive species lists and all 2014 surveys and BE's should address these species. The lists are enclosed. Please note that the only sensitive fish species that occurs on the Dakota Prairie Grasslands is the northern red-bellied dace (*Phoxinus eos*).

Also enclosed are the botany requirements for field surveys, report protocols, qualifications for botanical consultants, and botany survey forms. These botany documents, along with updated GIS shapefiles of known sensitive plant locations, will be also be sent electronically to known botanical consultants. If you do not receive an email with the electronic information by early May, please contact one of the District botanists.

The 2014 sensitive plant survey season for the Little Missouri National Grassland will commence on May 15 and extend through September 15, weather and growth conditions permitting. Plant surveys should be conducted at the appropriate period(s) to identify sensitive and watch plant species with potential to occur in the survey area, and to accurately describe the

vegetation community. If Forest Service Botanists determine that the season needs to be changed, consultants will be notified.

Biological evaluations are needed for new projects or additions and are **not needed for existing developments and infrastructure.** Sensitive plant surveys may also be exempted for proposed projects that have been covered by previous surveys within the last 3-5 years, projects proposed in areas with a low potential for the occurrence of any sensitive plant species, or projects that would result in a low degree of disturbance or potential to appreciably affect current conditions. Any waivers of plant surveys must be approved in writing by the appropriate Forest Service Botanist.

Botany surveyors are required to report new sensitive plant locations and potential impacts to sensitive plant populations from a proposed project to the Forest Service District Botanist within seven days of the site survey. In an effort to expedite project planning and mitigation efforts, additional surveys should be conducted in alternate project locations or portions thereof to avoid adverse effects to sensitive plant populations or high quality sensitive plant habitat. Consultants should coordinate with company representatives and Forest Service personnel for acceptable alternate project locations. See Points D and E under Survey Protocol in the attached botany enclosures.

For additional questions involving the Medora Ranger District, contact Joe Washington (Botanist) or Arden Warm (Wildlife Biologist), at 701-227-7800. For questions about the McKenzie Ranger District, contact Libby Knotts (Botanist) or Gary Foli (Wildlife Biologist), at 701-842-2393. For questions regarding the Grand River or Sheyenne Ranger Districts, contact Sean Dunlap (Acting Grasslands Biologist), at (701) 989-7305.

Sincerely,

DENNIS NIETZKE
Grasslands Supervisor

Enclosures – Federally Listed and Sensitive Animal Species of the Little Missouri Grassland
2014 USDA Forest Service Little Missouri National Grassland Botany Survey and Biological Evaluation Protocols (Contractor Qualifications, Survey Protocols, BE/Report Protocols, Sensitive Plant List, Plant Watch List, Sensitive/Watch Plant Population Survey Form, Invasive Species List, Site and Setting Form, and Plant Survey Form)

cc: Joe Washington, Arden Warm, Libby Knotts, Gary Foli, Sean Dunlap

Federally Listed and Sensitive Animal Species of the Little Missouri Grassland, DPG

Last modified, 3/13/2014

Scientific Name	Common Name	Taxa	Federal Status[1]	State Status		Notes
				ND	SD	
Ammodramus bairdii	Baird's Sparrow	Bird	RFS	S1	S2B SZN	Listed in SD CWCS and level 1 species in ND CWCS
Anthus spragueii	Sprague's Pipit	Bird	Candidate	S3	S2B SZN	Listed in SD CWCS and level 1 species in ND CWCS
Athene cunicularia	Burrowing Owl	Bird	RFS	SU	S3 S4B SZN	Listed in SD CWCS and level 2 species in ND CWCS
Atrytone arogos iowa	Arogos Skipper	Insect	RFS	SU	S2	
Canis lupus	Gray Wolf	Mammal	Endangered			Remains Fed. Listed in ND and SD
Centrocercus urophasianus	Greater Sage-grouse	Bird	RFS	SU	S2	Listed in SD CWCS and level 2 species in ND CWCS
Cynomys ludovicianus	Black-tailed Prairie Dog	Mammal	RFS	SU	S4	ND CWCS
Euphyes dion	Dion Skipper	Insect	RFS	S1		
Haliaeetus leucocephalus	Bald Eagle	Bird	RFS	S1	S1B S2N	Listed in SD CWCS and level 1 species in ND CWCS
Hesperia dacotae	Dakota Skipper	Insect	Proposed Threatened	S2	S2	
Hesperia ottoe	Ottoe Skipper	Insect	RFS	SU	S2	SD CWCS
Lanius ludovicianus	Loggerhead Shrike	Bird	RFS	SU	S3	ND CWCS level 2 species
Myotis septentrionalis	Northern Long-eared Bat	Mammal	Proposed Endangered	SU	S3	
Numenius americanus	Long-billed Curlew	Bird	RFS	S2	S3B SZN	SD CWCS
Oarisma poweshiek	Poweshiek Skipperling	Insect	Proposed Endangered	SU	S2	SD CWCS. Only found on the Sheyenne Grassland.
Ovis canadensis	Bighorn Sheep	Mammal	RFS	S2		
Phoxinus eos	Northern Redbelly Dace	Fish	RFS	S2	S2	
Phyciodes batesii	Tawny Crescent	Insect	RFS	S3	S2	
Poanes massasoit	Mulberry Wing	Insect	RFS	S2	S1	
Poanes viator	Broad-winged Skipper	Insect	RFS	S2	S2	
Speyeria idalia	Regal Fritillary	Insect	RFS	S2	S3	SD CWCS

1 RFS is Regional Forester's Sensitive

Tympanuchus cupido	Greater Prairie Chicken	Bird	RFS	S2	S4	Listed in SD CWCS and level 2 species in ND CWCS

1 RFS is Regional Forester's Sensitive

2014 USDA Forest Service Little Missouri National Grassland (LMNG) Botany Survey and Biological Evaluation (BE) Protocols

1. Contractor Qualifications

a. A degree in Botany or Plant Ecology, or thoroughly demonstrated botanical experience and knowledge to accurately inventory and document plant species and vegetation conditions.

b. Demonstrated skill in plant identification, use of plant taxonomic keys, and rare plant surveys. Knowledge of flora and plant habitat of the northern Great Plains.

c. Ability to analyze the effects of a proposed project on botanical resources through knowledge of ecological theory and plant community dynamics in response to disturbance.

d. Ability to prepare technical reports and apply Forest Service procedures and directives in the preparation of BEs.

e. Ability to apply Standards and Guidelines identified in the Dakota Prairie Grasslands Land and Resource Management Plan (2001) to proposed projects.

2. Survey Protocol

Sensitive plant surveys must be conducted in a manner that provides a high probability of locating any sensitive or watch plant species that may be present. The survey botanist must obtain an accurate map of the site and proposed areas of disturbance from the permit applicant, and the field site must be accurately marked or flagged prior to the survey. All habitat likely to be disturbed by the proposed project must be systematically surveyed.

The following guidelines must be followed when conducting plant surveys.

a. Plant surveys must be conducted when sensitive species are most identifiable, such as during periods of flowering or phenological stages that facilitate their discovery. Compromises inevitably occur because there are fourteen sensitive plant species with different periods of growth and flowering. However, survey periods of May 15 through September 15 span a period of active growth or identifiable litter for most sensitive plant species on the LMNG. These dates encompass the acceptable survey season unless otherwise specified by the Forest Service. Sensitive plant surveys must be delayed or discontinued during adverse weather conditions such as delayed spring growth, drought, or plant-killing frost, and reasonable effort must be given to revisiting sites at a more appropriate time when these situations occur. If in doubt, the Forest Service botanist should be contacted.

If potential occurrences of a sensitive species are noted but cannot be ascertained due to the growth stage, it may be necessary for the contractor to revisit the site during another time of year or following year to identify the species. Exceptions may occur if the proposed development was relocated to avoid the suspected population, but the Forest Service must be notified of the suspected occurrence and any avoidance actions.

b. Watch species have the potential to occur on the LMNG but there are no currently documented and substantiated occurrences; if so, they would be moved to the sensitive list. Survey botanists must be familiar with characteristics of the twenty-four watch species listed for the LMNG and document any occurrences in the same manner as sensitive plant species. A determination of effects for watch plant species is not required within a BE unless one of the species is discovered.

c. Developments such as roadways, pipelines, and utility lines must be surveyed a minimum distance of 125 ft on each side of the centerline of disturbance. However, survey widths can be decreased to 50 ft on either side of electric lines, fiber optic cables, or other utilities that are plowed into place with low degrees of disturbance, **if** the entire route is accurately and clearly flagged. If the route is not field marked the survey corridor remains at 250 ft. A minimum of ten acres must be surveyed around well sites where one bore hole is anticipated, but the survey area should be increased for sites where multiple bore holes and larger well pads are expected. **The total area of survey is referenced as the *project area*.**

d. If a sensitive or watch plant species is discovered within an area that would be adversely affected by the project, the surveyor must contact the Forest Service within seven days. If the occurrence is not reported within seven days it could result in delaying concurrence of the survey and BE until the next year's survey season.

   If a sensitive/watch plant discovery is made within an area that would be directly disturbed by the project, there is a high potential that it will be redesigned to alleviate adverse effects to the species. In such cases, it may be appropriate for the contract botanist to survey potential alternate routes or site locations. However, it is the contractor's responsibility to coordinate project location adjustments with Forest Service personnel and company representatives requesting the survey to ensure that alternate project locations will be acceptable.

e. The contractor must complete a *Sensitive/Watch Plant Population Survey Form* whenever a sensitive or watch plant species is discovered. Copies of the completed form must be submitted to the Forest Service Botanist within seven days. Copies should also be submitted to the North Dakota Natural Heritage Program. Include a topographic map or aerial photograph that delineates the plant population. ArcMap GIS shape files in NAD83 datum of all sensitive or watch species locations should be emailed to the appropriate Forest Service Botanist. Photographs and any additional notes on the occurrence should be included.

   It is not necessary to GPS each sensitive plant in a small area and record the lat/long for each. Field GPS units are not adequate to consistently relocate or differentiate a specific plant from an adjacent plant located 10 or even 30 ft away. If we decide to monitor any of the populations, it would be by delineating the extent of the population polygon and counting all individuals. It is therefore more useful to GPS a polygon around the population after its extent has been identified with flags etc., and report the number of individuals within the polygon.

   However, new polygons or individual plants appreciably distant from other plants or subpopulations should be GPS'd. The decision to GPS additional sites should consider whether it makes sense to extend the polygon to those sites without including large areas without any plants. Is there excessive distance, crossing of prominent landforms, or changes in aspect, slope, or topographic position between subpopulations that would limit the potential

for cross-pollination or dispersal of seed between the sites? If so, than a new polygon or point should be established.

To facilitate annual updating of the Forest Service sensitive plant GIS shapefiles, please ensure that each sensitive plant population described on a sensitive plant form can be easily matched to its location on associated maps and shapefiles. Use the "Population ID" field on the sensitive plant form to provide a unique ID for each population in the survey (for example, TOHO A, TOHO B, etc), and use the same ID on maps and shapefiles.

f. The following are a few other plant species that we want to track for potential inclusion on the sensitive list. Please treat any discovered occurrences of these species as a sensitive species with completion of the Sensitive Plant Survey Form, etc.

Oxytropis spp. - We have not been able to positively verify or differentiate white to cream-colored *Oxytropis* between *campestris and sericea.* Moderately intense collections including seed pods sent to the University of Wyoming Herbarium have remained inconclusive. We will continue to track occurrences of all *Oxytropis* other than *lambertii* with the potential of *sericea* and/or *campestris* being added to the sensitive list in the future.

Orobanche spp. – Confusion was created in 2012 regarding *O. ludoviciana* versus *O. multifora* and which species belongs on the watch list. We are primarily interested in the potential occurrence of *O. multiflora*, which the NRCS plants database recently updated as *O. ludoviciana* ssp. *multiflora*. This nomenclature will be followed.

One siting of *O. ludoviciana* ssp. *multiflora* was reported during 2011 but has not been verified. The FS will continue to check this site. We are also interested in tracking any occurrences of *O. uniflora and O. fasciculata*. *O. ludoviciana* remains of interest but is not currently considered for potential listing.

Penstemon grandiflorus - The species is reportedly widespread in the central and eastern portions of the state but only two widely spaced locations have been recently reported on the LMNG and there are no previous reports.

Mentzelia dispersa - This species has only been found on scoria outcrops with minimal total plant cover while looking for *M. pumila*. It may eventually be added to the sensitive list.

g. Any collections of sensitive or watch plant species must be approved in a Forest Service permit. 36CFR261.9(d) prohibits "removing any plant that is classified as a threatened, endangered, sensitive, rare, or unique species", with a fine in ND of $100. Details of collection will be outlined in the permit that can be obtained at a local Forest Service office. However, it is important to evaluate the effect of collecting on potentially rare or small plant populations. If in doubt, collect the smallest quantities possible and/or only portions of individual plants. If there is a question about the possible identification of a sensitive species, the surveyor should contact the local Forest Service Botanist.

The collection of any plant species for personal use (not for resale) and not covered under 36CFR261.9(d) also requires a Forest Service permit,. A Forest Products Free Use Permit to

collect plant specimens for personal use or species identification can be obtained at no charge from a local Forest Service office.

h. A *Site and Setting Field Form* and *Plant Survey Form* must be completed for every proposed project for which a field survey is conducted. Latitude and longitude in degrees, minutes, and seconds, in **NAD83 datum**, must be recorded for each site.

Contractors must submit shapefiles of all survey areas either for each survey, or compile a single comprehensive shapefile of all areas surveyed during the field season. These shapefiles need to be submitted by the end of the year. Similarly, shapefiles for sensitive plant populations discovered during the year must also be submitted. Shapefiles must be in NAD83 datum. Sensitive plant locations may be submitted as points or polygons depending on the size of plant populations. Botany survey areas should be polygons. Data should be submitted by e-mail to the appropriate District Botanist and the Forest Service Botany Data Manager, Kelly Privratsky.

Prominent plant communities across the survey site must be verbally (written description) or graphically identified with respect to their location of occurrence within the area of the proposed action. Habitat locations with the potential to support sensitive plant populations must be verbally or graphically identified.

The occurrence of any invasive plant communities within the project area must also be accurately identified. A native-dominated plant community with consistent occurrences of invasive species inclusions should be described as such, while the extent and location of invasive-dominated communities should be accurately described and delineated on site maps. This type of information is used to determine final project layout and mitigation requirements, such as site relocations or invasive species treatments. Accurate descriptions of dominant plant community locations are therefore critical, as inaccurate descriptions can lead to unnecessary or poor mitigation planning.

Invasive species are defined as non-native species that have the capacity to displace or dominate native plant communities. On the LMNG, invasive species include those on the North Dakota noxious weed list such as leafy spurge and Canada thistle, as well as palatable species such as sweet clover, crested wheatgrass, Kentucky and Canada bluegrass, and smooth brome. See the attached list of invasive plant species that must be identified if occurring on a project site.

i. An assessment must be conducted for cumulative effects to vegetation resources that include sensitive/watch plant species as well as native plant communities. It is suggested that a 0.5 mile radius extending from all areas of likely disturbance associated with the project be used as the ***analysis area*** for cumulative effects. However, other areas or distances could be used if they logically represent past, present, and reasonably foreseeable future effects surrounding the project area.

An intensive ground survey of the analysis area is not expected, but the amount and type of active and reclaimed roads, well sites, utility lines, and other developments must be estimated within the analysis area. These estimates are derived from a combination of field observations during survey work, aerial photographs, topographic maps, and GIS layers provided by the

Forest Service that depict existing well sites, pipelines, water tanks and other developments, and vegetation characteristics such as broken land likely planted to crested wheatgrass. It is important to discuss the extent and type of plant communities observed on and around these sites, particularly with increasing proximity to the survey site.

j. All activities on National Forest System lands are required to conform to the Federal Code of Regulations and applicable laws. It is the responsibility of surveyors to be aware of any special orders for the Dakota Prairie Grasslands or individual Ranger Districts in effect. Contact the local Ranger District for information on special orders or to obtain any required permits.

Off-road permits and collection permits must be retained at all times while on National Forest System lands.

3. Biological Evaluation / Report Protocol

The following information must be included in the BE and/or any forms specified for completion.

a. The BE must have a date and contain the name, address, and contact information of the company submitting the report. The project name should be identified on the cover page and the beginning of the BE/report. If the BE/report is acting on the behalf of another company for a lease or permit application with the Forest Service, the applicants name and contact information must be included.

b. The proposed action must be identified, i.e. construction of a well pad and 1.1 miles of access road, or upgrading of an existing two-track road to serve as the access road, etc. This includes the manner of action, i.e. a trackhoe will be used to dig a 3 ft wide trench, a utility line will be plowed into place, or dozers will blade 5 acres to remove the A soil horizon and level the site. A description of the action is required for adequate effects analysis. Without this description it may be assumed there is no knowledge of the proposed action and the effects analysis is incomplete.

c. State **exactly** where the staked road, pipeline, or other development is in relation to previously disturbed corridors and affected plant composition. What is the vegetation within the previously disturbed area, and is the proposed development within or outside of this area? If outside, how far outside? If the route is not staked then it cannot be confidently stated that the project will be placed within the previously disturbed corridor. However, if there appears to be sufficient space to place the project within the disturbed corridor, that can be stated as a suggested mitigation measure.

A legal description by Section, Quarter Section, Township, and Range, of the proposed project location must be included. Include legible topographic/aerial photographs of the project area that depict current developments.

d. The date of the field survey and name of the botanist(s) must be identified, along with the type of survey methodology utilized. The Site and Setting Survey Form must be included in the BE/report or attached as an appendix.

e. The current list of LMNG Sensitive and Watch plant species and a brief description of the preferred habitat for each sensitive species must be included in the BE/report or appendix.

However, do not include watch plant species in the effects analysis and determination unless they are found during the survey.

f. A site-specific narrative description of the existing plant communities found within the survey area must be included. The description must be logical and cohesive, such that the reader is provided with an accurate picture of vegetation composition and conditions within and around the project area. Dominant and co-dominant species by life form within distinct community types must be identified. The potential climax vegetation as identified through habitat types or ecological sites should be discussed. Aspects, topographic positions, and dominant soil textures should be included in these descriptions.

Site photographs are important but don't overdo it. A broad view of the well pad with at least some corners or center stake highlighted in some way may be as useful as several photos in each cardinal direction. Consider including photographs with the text of site descriptions for greatest usefulness and interpretation, rather than placing all the photographs at the end of the document. Landscape level photographs of sensitive population sites are equally or more important than plant close-ups. Flagged plant locations are helpful in the photographs.

g. A complete floristic list of all plant species identified during the field survey must be provided. A field checklist is acceptable. Nomenclature should follow that of the USDA Natural Resource Conservation Service PLANTS Database, available online at http://plants.usda.gov. In addition to including the species list in the report, we request that contractors also provide an end of year comprehensive spreadsheet of all species recorded by survey site. This information is helpful to the Forest Service in tracking general species occurrences over time and space.

h. A completed copy of the *Sensitive/Watch Plant Population Survey Form* is required in the report if any new populations are discovered. Unoccupied but apparently suitable habitat for sensitive plant species must be identified in Biological Evaluations (BEs) with respect to its location within the project area.

i. The occurrence and extent of invasive species within the project area must be discussed. It is particularly important to identify areas where project disturbances are likely to intersect with invasive plant communities. Maps showing the extent of high invasive species occurrences across the project area are critical. See 2h above. The analysis should discuss the project's potential impacts on invasive species' occurrence and distribution, and should relate this to potential impacts to sensitive plants and habitats, as well as the maintenance of native plant communities.

j. Determination of Effects: Effects to sensitive plant species fall into the following categories. Contractors must utilize these categorical statements rather than paraphrase. A summary table of determinations for each species must be included in the BE/report.

1. No Impact:

A determination of "No Impact" for sensitive species occurs when a project or activity will have no environmental effects on habitat, individuals, a population or a species. If any effects are listed for a sensitive species, then a "No Impact" conclusion is not appropriate.

2. May Impact Individuals Or Habitat, But Will Not Likely Contribute To A Trend Towards Federal Listing Or Cause a Loss of Viability To the Population or Species:

   Impacts to individuals or habitat of sensitive species should be given careful consideration. The loss of populations or metapopulations is often the basis for eventual species extinction. Rationale should be provided regarding **why** the effects would not contribute to federal listing or cause a loss of viability to the population or species.

3. Will Impact Individuals Or Habitat With A Consequence That The Action Will Contribute To A Trend Towards Federal Listing Or Cause a Loss of Viability To the Population or Species:

   Loss of individuals or habitat can be considered significant when the potential effect may contribute to a trend toward federal listing. The loss of individuals is significant when there are few populations and/or few individuals within populations. For these situations, any effects to the species may lead to a loss of viability and contribute towards federal listing.

   Projects or activities that adversely affect many individuals of a species with limited population numbers, or even a few individuals with a limited number of small populations should probably receive this conclusion.

4. Beneficial Impact: Projects or activities that are designed or happen to benefit sensitive species should receive this conclusion.

The BE must provide a logical context for the determination of effects, considering ecological principles of habitat fragmentation, population dynamics, number of known species populations, and apparent species viability. The absence of sensitive plant species in the project area does not necessarily equate to no impact. If suitable but unoccupied habitat exists for a particular sensitive plant species that is likely to be disturbed by the project, the determination will usually fall under Category 2 due to decreased habitat for dispersal. However, rationale for Category 2 should also include reasons why the project would not contribute to federal listing. For example, there may be documented populations in other areas of the LMNG that would not be affected, habitat within the project area is marginal, suitable habitat that would not be disturbed is extensive immediately adjacent to the project area, etc.

Be careful of exaggerating the number of species with Determination #2 - may impact individuals or habitat etc. This should not be used as a shotgun approach to cover all the bases. It should be increasingly obvious that the text books, floras, and other references do not provide a very accurate description of habitat for several of the listed species. Your own judgment and experience of past population sites, as well as shapefiles of currently

documented sites and surrounding habitat is likely to be more accurate assessment of potential habitat compared to existing sources for most species.

Determinations must consider direct and indirect effects of the proposed project as well as cumulative effects of the proposed project when considered with other effects. Effects on native plant communities and habitats must also be addressed in the BE, as these ultimately effect sensitive plant habitat. Examples of these effects include direct disturbance, habitat fragmentation, invasive plant expansion, decreased plant diversity, and loss of unique habitat difficult to reclaim to pre-disturbance conditions.

k. A cumulative effects analysis is used to determine the extent to which the proposed project's direct/indirect effects contribute to other effects on the species in question. If there are no direct or indirect effects to the species or habitat, then there would be no contribution to cumulative effects and an analysis is not necessary. However, an analysis of the cumulative effects must be addressed with respect to past, present, and reasonably foreseeable future effects whenever there are any direct/indirect effects to sensitive plant species or native plant resources. A one-half mile radius around the project site should be used as an analysis area unless a more logical and defendable area can be identified.

Once the analysis area is defined, confine effects discussions within this area. There is no need to discuss the number of wells within an oil field unless that is your analysis area. If an oil field is the chosen analysis area, then be prepared to discuss the acreage of pipelines, water tanks, and all other influential factors within the field. Increasing agricultural production, industrialization, and urban development across North Dakota are outside the influence of a typical analysis area on the LMNG - are these activities really increasing within the analysis area? Past homesteading, agriculture (broken land), intermingled private land, livestock grazing, and recent and future expansion of oil and gas development continue to influence the LMNG, but many of the other activities that have been discussed in past reports are not applicable to a reasonably sized analysis area surrounding projects that are being analyzed.

Recorded field observations from the *Site and Setting Form* will include the presence and vegetative characteristics of lands influenced by the above uses, and should include the extent, location, and general amount of invasive species occurrences. GIS layers will be helpful in quantifying the land area that has been influenced by these activities, as well as the potential contribution of the proposed project and its effects. Contractors may not have complete knowledge of conditions across the entire analysis area, but they should carry the analysis as far as possible from field observations and data sets to which they have access. At a minimum, recorded observations should include vegetation composition on at least a portion of existing or reclaimed developments adjacent to the project site and within the analysis area.

Linear disturbances such as roads and pipelines have a width, and therefore an acreage that can be estimated. In many cases the zone of past disturbance can be measured from air photos.
There may be no known sensitive plant populations within the defined analysis area, but habitat conditions for several sensitive species are likely to have been effected by past disturbances to which the proposed development would contribute. Observations and reporting of plant communities on areas of past disturbance are therefore critical. Besides

stating the number of acres that these developments comprise, discuss the effects in terms of current plant composition.

There have been about 25 instances of direct disturbances to existing sensitive plant populations across the LMNG in recent years of increased development. Adverse effects primarily involved populations of *Escobaria missouriensis* and *Townsendia* spp., and two populations of *Eriogonum visheri*. In the vast majority of cases, these disturbances affected only a portion of a given population and mitigation involving site relocations was implemented to decrease the level of adverse effect. The level of adverse effects were not sufficient to threaten the continued viability of any of the four species on the LMNG due to the relatively high number of population occurrences and/or high number of individuals within a population.

In regards to the maintenance of native plant communities, there is ample evidence of previous roads, well sites, and other developments contributing to the establishment and spread of invasive species. If there is a high potential for the project to result in an increase of invasive species, then it would contribute to the cumulative effects across the landscape in the analysis area. It is therefore incorrect to conclude that the individual project would not result in cumulative effects due to its small size of a few acres, or that when viewed on its own the project would have negligible impacts on the landscape. The point of cumulative effects is the comprehensive effect on the landscape, not the significance of each project analyzed separately.

Miles of woody draw drainages or wetland acres are not applicable to cumulative effects. These are more of a description of existing plant communities or habitat types. Why not also list the acreage of all other habitat types? Exceptions might include the acreage of man-made dugouts, or broken land etc., but the effect on native plant communities should be identified or described.

l. Design Criteria: The report should include suggested design criteria, or mitigation, to alleviate adverse effects and avoid unnecessary disturbances to sensitive plant species and native plant communities. Examples include recommendations for avoiding impacts to certain plant communities or species, or incorporating the control of invasive species within the scope of project development and design. Be as specific as possible with design criteria. Identifying adverse effects in the analysis but concluding that no mitigation measures are necessary is illogical. If herbicide treatments or infested soil containment are warranted, specify where they should be conducted. Rational for invasive species treatments decreases when areas surrounding the project area are increasingly dominated by invasive species. For instance, it would not be very effective to pre-treat a well site for crested wheatgrass if the surrounding area is overwhelmingly dominated by the same species with a certainty of re-invading the site.

   Mention if the original project location has already been adjusted or relocated to avoid or mitigate for adverse effects based on initial field surveys.

m. Bibliography of literature or references cited. Include only those cited in the text of the report.

SITE AND SETTING FORM

Site and Setting Form for Inventory Information

SITE/PROJECT NAME:
DATE (MMDDYYYY)

LAST Name	FIRST Name	
Ownership		
Region 01	National Forest/Grassland 18	District
State North Dakota	County Name	

Location Information

Township / Range / Section		
Q SEC	QQ SEC	QQQ SEC

Geodetic Datum NAD83 is required (Generally at center of survey area, Use start and end points for long linear surveyed area)

Lat dms:	Degrees _____ N	Minutes __ __	Seconds __ __.__ __
Long dms:	Degrees _____ W	Minutes __ __	Seconds __ __.__ __
Lat dms:	Degrees _____ N	Minutes __ __	Seconds __ __.__ __
Long dms:	Degrees _____ W	Minutes __ __	Seconds __ __.__ __

Existing Vegetation Information

Please enter major dominance types found on the project area.

Dominant Life Form ®
Dominance Type
Dominance Type
Dominance Type
Dominance Type

Potential Vegetation Information

Habitat Type Name
Habitat Type Name
Habitat Type Name
Habitat Type Name
Habitat Type Name
Habitat Type Name

Description of past & current land use practices including reclaimed or active oil wells, roads, utility corridors, misc. developments, and apparent livestock grazing patterns. Include observations of species composition in regards to native versus non-native (invasive).

Estimate current acreage or mileage of active and reclaimed access roads, utility corridors, or other developments within ½ mile radius of project area. Document source of data as observed or compiled from GIS software and/or aerial photographs.

ACTIVE

RECLAIMED

Other Comments

Plant Survey Form

Area Surveyed (acres)	Survey Type

Invasive Plants and Noxious Weeds

Species:	Extent (area):
Description & Location:	
Species:	Extent:
Description & Location:	
Species:	Extent:
Description & Location:	
Species:	Extent:
Description & Location:	
Species:	Extent:
Description & Location:	
Species:	Extent:
Description & Location:	

Plant Species List (use additional format if needed)

Plant Name	Comments

Habitat Type Code and Habitat Type Name

LMNG Habitat Type Names
Agropyron smithii-Stipa viridula
Agropyron smithii-Stipa viridula-Bouteloua gracilis
Agropyron smithii-Stipa comata
Andropogon scoparius-Carex filifolia
Andropogon gerardii
Calamovilfa longifolia-Carex
Distichlis spicata
Puccinellia nuttalliana-Distichlis spicata
Stipa comata-Carex filifolia
Artemisia arbuscula-Bouteloua gracilis
Artemisia cana-Agropyron smithii
Artemisia tridentata wyomingensis-Agropyron smithii
Artemisia tridentata wyomingensis-Agropyron spicatum
Atriplex confertifolia-Artemisia tridentate wyomingensis
Juniperus horizontalis-Andropogon scoparius
Potentilla fruticosa-Andropogon scoparius
Rhus aromatica-Agropyron spicatum
Rhus aromatica-Muhlenbergia cuspidate
Sarcobatus vermiculatus-Agropyron smithii
Sarcobatus vermiculatus-Agropyron spicatum
Shepherdia argentea
Symphoricarpos occidentalis
Quercus macrocarpa/Corylus sp.
Quercus macrocarpa/Prunus virginiana
Populus tremuloides/Prunus virginiana
Fraxinus pennsylvanica/Prunus virginiana
Fraxinus pennsylvanica/Ulmus americana/Prunus virginiana
Fraxinus pennsylvanica/Symphoricarpos occidentalis
Juniperus scopulorum/Oryzopsis micrantha
Juniperus scopulorum/Agropyron spicatum
Pinus flexilis/Agropyron spicatum
Pinus ponderosa/Prunus virginiana
Pinus ponderosa/Juniperus communis
Pinus ponderosa/Agropyron spicatum
Pinus ponderosa/Carex heliophilia

Survey Type Enter the type of survey that was conducted. Enter one or more of the following. You may enter up to three survey types.

Code	Description
Aquatic	Aquatic surveys are confined to surveys within water bodies such as streams, lakes, ponds and irrigated canals. Vegetation can be classified as emergent, floating, hydrophytic, or submergent. For surveys that include the transition zone to uplands and areas of seasonal or periodic flooding also record riparian surveys.
Cursory	The cursory survey is appropriately used to confirm the presence of objects of interest identified in previous surveys and the prefield analysis step. By its nature, the cursory visit is rapid, but does not provide in-depth environmental information. The entire area is traversed at least once. For example, stand condition as seen in aerial photography can be verified by a cursory visit to a location. Also, a cursory visit can be used to determine if a population that had been previously cataloged at a site remains present or intact
Features	The surveyed focused on area in and adjacent to developed features such as road, trails, campgrounds, parking lots and boat launches.
Field Check	Field Check is where the area is given a quick "once over" but do not walk completely through the project area. The entire area is not examined.
General	The area is given a closer look by walking through the area and perimeter or by walking more than once through the area. Most of the area is examined
Focused (Intuitive Controlled)	The intuitive controlled survey is the most commonly used and most efficient method of surveying. During pre-field analysis, potential suitable habitat is identified for each species of interest and the survey effort is focused in those areas. This method requires adequate knowledge of suitable habitat in order to accurately select the areas of focused search. When conducting intuitive controlled surveys, an area somewhat larger than the identified suitable habitat should be searched to validate current suitable habitat definitions.
Random	Random surveys employ an undirected traverse through a project area. They are employed either when there is inadequate natural history information about a species to discern its suitable habitat and the surveyor is simply searching for occurrences, or when a target species is very abundant within a search area and the surveyor is attempting to make estimates of population parameters such as intra-patch variations in density or the occurrence of predation or herbivory. However, a stratified random survey may be more efficacious in these cases.
Riparian	These are surveys that follow the shoreline of water bodies such as lakes, streams and rivers. Riparian areas are defined as those areas that form the transition between permanently saturated wetlands and upland areas. For plants or areas that are obligatory in standing or moving water use aquatic survey.
Stratified Random	The stratified random survey is most often used within known population areas of target species or when an area of unknown suitability to be surveyed is relatively large. Stratified random surveys employ a series of randomly selected plots of equal size within a project area that are each thoroughly searched for target species. When conducting a stratified random survey, it is important to search an adequate number of sites that are of sufficient size to represent an adequate sample.
Systematic	The systematic survey is typically used in limited areas where the likelihood of occurrence of a target species is evenly distributed throughout the survey area. Systematic surveys are often employed either within focused search areas (e.g., stratified random and intuitive controlled methods), or when a proposed project is likely to produce significant habitat alterations for species that are especially sensitive to the proposed activities.

INVASIVE / NOXIOUS PLANT SPECIES
TO BE REPORTED WHEN OCCURRING ON A
PROJECT SURVEY SITE ON THE LITTLE MISSOURI NATIONAL GRASSLAND
(Report species from any site where they are found, regardless of where they are listed as noxious.)

Scientific Name	Common Name	State/County where Noxious or other Status
FORBS		
Acroptilon repens	Russian Knapweed	ND State
Arctium minus	Common Burdock	Billings, Golden Valley, McKenzie
Artemisia absinthium	Absinth Wormwood	ND State
Astragalus cicer	Cicer milkvetch	Non-native invasive
Cardaria draba	Hoary Cress	Billings, Golden Valley
Carduus acanthoides	Plumeless Thistle	Non-native invasive
Carduus nutans	Nodding Plumeless Thistle or Musk Thistle	ND State
Centaurea diffusa	Diffuse Knapweed	ND State
Centaurea stoebe ssp. *micranthos*	Spotted Knapweed	ND State
Centaurea solstitialis	Yellow Star-thistle	Non-native invasive
Cirsium arvense	Canada Thistle	ND State
Convolvulus arvensis	Field Bindweed	Billings County
Cynoglossum officinale	Houndstongue	Billings, Golden Valley, McKenzie, Slope
Euphorbia esula	Leafy Spurge	ND State
Halogeton glomeratus	Halogeton	McKenzie
Gypsophila paniculata	Baby's Breath	McKenzie
Hyoscyamus niger	Black Henbane	Billings, Golden Valley, McKenzie, Slope
Linaria genistifolia	Dalmatian Toadflax	ND State
Linaria vulgaris	Yellow Toadflax	ND State
Lythrum salicaria	Purple Loosestrife	ND State
Melilotus officinalis.	Yellow or White Sweetclover	Non-native invasive
Sonchus spp.	Sowthistle	Non-native invasive
Tamarix spp.	Saltcedar	ND State
Verbascum thapsus	Common Mullein	Golden Valley
GRASSES		
Agropyron cristatum	Crested Wheatgrass	Non-native invasive
Bromus arvensis	Field Brome (Japanese)	Non-native invasive
Bromus inermis	Smooth Brome	Non-native invasive
Bromus tectorum	Downy Brome / Cheatgrass	Non-native invasive
Elymus repens	Quackgrass	Non-native invasive
Poa pratensis	Kentucky bluegrass	Non-native invasive
Poa compressa	Canada bluegrass	Non-native invasive
Thinopyrum intermedium	Intermediate Wheatgrass	Non-native invasive
Thinopyrum ponticum	Tall Wheatgrass	Non-native invasive

SENSITIVE/WATCH PLANT POPULATION SURVEY FORM

SPECIES:_____ POPULATION ID:_____
(Scientific Name) (Ex: TOHO A, TOHO B, etc; to differentiate populations at site)

DATE OF SURVEY: _____ OBSERVER(S): _____
(Name, title, company

LOCATION (**ATTACH COPY OF TOPOGRAPHIC MAP WITH POPULATION LOCATIONS. COLLECT GPS DATA USING **NAD83** DATUM AND SUBMIT A SHAPEFILE.):

TOWNSHIP: _____ RANGE: _____ SEC.(S): _____ 1/4 SEC.: _____

LATITUDE:_____ LONGITUDE:_____
(degrees, minutes, seconds, with NAD83 Datum)

OR UTM at Zone 13 Northing _____ Easting _____

GPS MODEL_____

NATIONAL FOREST: _____LMNG_____ RANGER DISTRICT: _____

LAND OWNERSHIP/MANAGEMENT (IF NOT FS):_____

PROJECT/SITE NAME (usually well name or adjacent landmark):_____

HABITAT:

ASPECT (S, SE, NNW, etc.): _____ % SLOPE: _____

LIGHT EXPOSURE (full sun, partial shade, full shade.): _____

SLOPE POSITION (backslope, footslope,shoulder, summit, toeslope.): _____

TYPICAL SOIL MOISTURE CONDITIONS (dry, moist, wet. Do not reflect current precipitation conditions.)
_____

SOIL TEXTURE (see attatchment): _____

VEGETATION STRUCTURE WITHIN POPULATION AREA:

TOTAL TREE COVER (%) _____TOTAL SHRUB COVER (%)_____
TOTAL FORB COVER (%) _____TOTAL GRAMINOID COVER (%) _____
TOTAL MOSS/LICHEN COVER (%) _____TOTAL BARE GROUND (%) _____

ASSOCIATED PLANT COMMUNITY (dominant species):_____
_____
_____
_____

INVASIVE SPECIES IN VICINITY:_____
_____

HABITAT TYPE (if known): _____

POPULATION SIZE:

ESTIMATED # OF INDIVIDUALS (or exact count, if feasible; if plants are spreading vegetatively, indicate number of aerial stems):

_____

OF SUBPOPULATIONS (if applicable): _____

SIZE OF POPULATION AREA (acres): _____

BIOLOGY:

PHENOLOGY (% flower, fruit, dispersed fruit, vegetative): _____

ANY SYMBIOTIC OR PARASITIC RELATIONSHIPS?: _____

EVIDENCE OF DISEASE, PREDATION OR INJURY?: _____

EVIDENCE OF SEED DISPERSAL AND ESTABLISHMENT: _____

_____

_____

DOCUMENTATION:

PHOTOGRAPH TAKEN? (if so, indicate photographer and repository): _____

_____

SPECIMEN TAKEN? (if so, list collector, collection #, and repository): _____

_____

IDENTIFICATION (list name of person making determination, and/or name of flora or book used):_____

_____

_____

EVIDENCE OF DISTURBANCE: _____

_____

_____

MEASURES FOR PROTECTION:_____

_____

_____

_____

_____

OTHER COMMENTS/SKETCHES/ETC:

Codes for Sensitive/Watch Plant Population Survey Form

Light Exposure Code	Name	Description
SUN	Full Sun	Full Sun characterizes the predominant light exposure condition across the EO.
PSH	Partial Shade	Partial Shade characterizes the predominant light exposure condition across the EO.
FSH	Full Shade	Full Shade characterizes the predominant light exposure condition across the EO.

Slope Position Code	Name	Description
BS	Backslope	The steepest portion of the slope where material is generally in transit.
FS	Footslope	The lower portion of the slope where material is generally re-deposited.
SH	Shoulder	The upper slope where material generally moves through creep processes.
SU	Summit	The uppermost slope.
TS	Toeslope	The lowermost slope position where material moves generally through alluvial processes.

Soil Moisture Code	Name	Meaning
D	Dry	No moisture observed, at the wilting point (>15 bars of tension, realizing that various perennials, shrubs, trees and other native vegetation have wilting points up to 66 bars of tension).
M	Moist	Moisture state is between the wilting point and field capacity.
W	Wet	The moisture state is at field capacity or wetter.

Soil Texture Code	Name	Description
C	clay	A term used in the U.S. and by the International Society of Soil Science for a rock or mineral particle in the soil, having a diameter less than 0.002 mm (2 microns)
CL	clay loam	A soil containing 27-40% clay, 20-45% sand, and the remainder silt.
L	loam	A rich, permeable soil composed of a friable mixture of relatively equal and moderate proportions of clay, silt, and sand particles, and usually containing organic matter
S	sand	A term used in the U.S. for a rock or mineral particle in the soil, having a diameter in the range of 0.05-2 mm.
SI	silt	A rock or mineral particle in the soil, having a diameter in the range of 0.002-0.05 mm.
SIL	silt loam	A soil containing 50-88% silt, 0-27% clay, and 0-50% sand; e.g. one with at least 50% silt and 12-27% clay, or one with 50-88% silt and less than 12% clay.
SL	sandy loam	A soil containing 43-85% sand, 0-50% silt, and 0-20% clay, or containing at least 52% sand and no more than 20% clay and having the percentage of silt plus twice the percentage of clay exceeding 30, or containing 43-52% sand, less than 50% silt, and less than 7% clay.
GR	gravel	Rock fragments between 2 and 75 mm in diameter.

Sensitive Plant Species of the Little Missouri National Grassland

From February 25, 2011 USDA Forest Service Northern Region Sensitive Plant Species list

NRCS Code	Scientific Name	Common Name	Conserv. Ranking	Documented Habitat on the LMNG
CHSU2	*Chenopodium subglabrum*	smooth goosefoot	G2G4/S1	Sandbars, terraces, and dune complexes along rivers and creeks. Exposed sandy substrates in uplands, blowouts, outcrops, colluvium, etc.
COPA3	*Collinsia parviflora*	blue lips	G5/S2	Woody understories, including green ash/elm draws, Rocky Mountain juniper, mesic shrub communities, and occasional xeric shrub communities.
CRTO4	*Cryptantha torreyana*	Torrey's cryptantha	G5/S1	Two population sites discovered during 2013 were located along scoria ridgelines, Also reported from dry plains, rock outcrops, escarpments, pine slopes.
ERCE2	*Eriogonum cernuum*	nodding buckwheat	G5/S1	Exposed sand substrates with low plant cover in grasslands, hillsides, sandstone outcrops.
ERVI14	*Eriogonum visheri*	Dakota buckwheat	G3/S2S3	Relatively exposed clay/silt substrates with low plant cover such as outwash zones around eroding buttes, saddles, steep convex slopes, erosional breaks on prairie slopes. Occasional populations among dense saltgrass communities.
ESMI3	*Escobaria missouriensis*	Missouri foxtail cactus	G5/SNR	Prairie slopes and plains, stony to loamy to clayey short-grass to mixed-grass prairies. Also reported in woodlands of ponderosa pine or Quercus spp.
LEMO4	*Leucocrinum montanum*	sand lily	G5/S2	Generally shortgrass communities with fine textured substrates but also found in crested wheatgrass communities. Reported from open coniferous woodlands and hillsides, sagebrush scrub, and sandy flats, but common name seems to be a misnomer.
MEPU3	*Mentzelia pumila*	dwarf mentzelia	G4/S1	Scoria exposures and colluvium with low plant cover. Also reported on slopes and sandy plains; occasionally on hard clays and rocky soils.
PHAL3	*Phlox alyssifolia*	alyssum-leaved phlox	G5/S1S2	Sandy or gravelly soil on and around Bullion Butte. Also reported on clay banks and limestone ridges of open prairie.
PIFL2	*Pinus flexillis*	limber pine	G5/S1	Semi-arid exposed rocky ridges and foothills in the Limber Pines RNA, likely of native-American origin.
POAC5	*Populus x acuminata*	lanceleaf cottonwood	HYB/S2	Mesic woody draws, often with springs/seeps, occasional near springs on open hillsides. Floodplains and stream banks.
SPAI	*Sporobolus airoides*	alkali sacaton	G5/S2	Secondary succession on clay outwash where tolerant of saline conditions, also on dry to moist sandy or gravelly soil.
TOHO	*Townsendia hookeri*	Hooker's Townsendia	G5/S1	Low to moderate plant cover on dry plains, hillsides, gravelly benches and weathered scoria, but often clay matrix subsoil.
TOEX2	*Townsendia exscapa*	Easter daisy	G5/SNR	Dry plains and hillsides, often with loamy or increased soil development and increased plant cover relative to T. hookeri.

Watch Plant Species of the Little Missouri National Grassland

NRCS Code	Scientific Name	Common Name	Conservation Ranking
AGEX	*Agrostis exarata*	spike bentgrass	G5/S1
ASAU4	*Astragalus australis* (*Astragalus aboriginum)*	Indian milkvetch	G5/S2S3
ASDR3	*Astragalus drummondii*	Drummond's milkvetch	G5/S1
ASVE5	*Astragalus vexilliflexus*	bentflower milkvetch	G4/S3
EPPY4	*Epilobium pygmaeum* (*Boisduvalia glabella)*]	smooth spike-primrose	G5/S1S2
BRCA5	*Bromus carinatus*	mountain brome	G5/S1
CASI12	*Carex siccata* (*Carex feonea)*	dry spike sedge	G5/SNR
CASCS8	*Carex scirpoidea* (*Carex scirpiformi)*	bulrush sedge	G5/S1S2
CLCOT	*Clematis columbiana var. tenuiloba* (*Clematis tenuiloba)*	rock clematis	G5?T4?/S1
ERDI4	*Erigeron divergens*	spreading fleabane	G5/S1
ERRA2	*Erigeron radicatus*	taproot fleabane	G3G4/S1
FRPU2	*Fritillaria pudica*	yellow fritillary	G5/SH
MYAPM	*Myosurus apetalus* var. *montanus*	bristly mousetail	G5T3T5/S1
OELA	*Oenothera laciniata*	cutleaf evening primrose	G5/SA?
ORLUM	*Orobanche. ludoviciana,* ssp. *multiflora*	manyflowered broomrape	G5/S1
OXSE	*Oxytropis sericea*	white locoweed	G5/S1
PHPA29	*Phemeranthus parviflorus* (*Talinum parviflorum*)	prairie fameflower	G5/S2
PODI	*Potamogeton diversifolius*	pondweed	G5/S2S3
PODI2	*Potentilla diversifolia*	varileaf potentilla	G5/S1
POJA2	*Populus x jackii*	Balm-of-Gilead	GNA/SNR
SITR3	*Sibbaldiopsis tridentata* (*Potentilla tridentata)*	shrubby fivefingers	G5/S1
RACA4	*Ranunculus cardiophyllus*	heartleaf buttercup	G4 S1
ROCA	*Rorippa calycina*	persistent sepal yellowcress	G3/SH
SMEC	*Smilax ecirrhata*	upright carrionflower	G?/S1S2

Stantec Consulting Services Inc.
2950 East Harmony Road Suite 290
Fort Collins, Colorado 80528
Tel: (970) 482-5922
Fax: (970) 482-6368

May 24, 2013

Carol Aron
North Dakota Ecological Services
U.S. Fish and Wildlife Service
3425 Miriam Avenue
Bismarck, North Dakota 58501

Reference: Hawkeye Pipeline Project

Dear Ms. Aron,

Stantec Consulting Services Inc. (Stantec), on behalf of the Bureau of Land Management (BLM), would like to request input on Hess Corporation's (Hess) proposed Hawkeye Pipeline Project (Project). Hess has filed a ROW application proposing to construct, operate, maintain, and decommission the proposed Project on federal lands in McKenzie and Williams Counties, North Dakota, as shown in **Figure 1**. The proposed project would include the construction of an approximately 25.5-mile-long pipeline system consisting of the following four segments:

- **Segment A** (10.6 miles): Hawkeye to North Charlson (South Side of the Lake) consisting of the conversion of an existing 8" HP Gas line to NGL service and installation of new 10" HP Oil and 12" HP Gas lines as well as two (2) 24 strand fiber optic lines.
- **Segment B** (2.5 miles) North Charlson (South Side of the Lake) to North Side of the Lake including tie-ins into three (3) existing 8" lines under Lake Sakakawea for HP Gas, HP Oil and NGL's as well as installation of two (2) 24 strand fiber optic lines.
- **Segment C** (2.4 miles) North Side of the Lake to Hofflund including conversion of an existing 8" HP Gas line to NGL service and construction of new 10" HP Oil and 12" HP Gas lines as well as two (2) 24 strand fiber optic lines.
- **Segment D** (10.1 miles) Hofflund to Ramberg (HP Oil) and Silurian (HP Gas and NGL's) including conversion of an existing 10" HP Gas line to NGL service and construction of new 10" HP Oil and 12" HP Gas lines as well as two (2) 24 strand fiber optic lines.

The proposed Hawkeye pipeline system would transport oil, gas and NGL from the existing Hawkeye Central Station through a transfer point at the existing North Charlson Compressor Station located south of Lake Sakakawea (Segment A). The system would use existing pipelines to transport oil, gas and NGL beneath Lake Sakakawea to the North River Crossing Compressor Station located north of Lake Sakakawea (Segment B). From the North River Compressor Station the pipelines would trend north before terminating at either the existing Hess Ramberg Truck Facility or the Silurian Compressor station, located approximately 8 and 7 miles respectively, south of Tioga, Williams County, North Dakota (Segments C & D). All connection points would occur within existing Hess facilities.

In total, approximately 4.1 miles of the proposed alignment occurs on federal lands. The remaining alignment is proposed on private land and State of North Dakota-owned lands. The proposed pipeline would be buried and follow existing pipeline and utility easements to the extent practicable.

Reference: Hawkeye Pipeline Project

Species Information Request

Stantec has enclosed an overview map of the entire proposed route through west-central North Dakota. The Project is located in **McKenzie** and **Williams** counties, North Dakota.

Stantec would like to request a list of federally listed, federally proposed, and federal candidate species potentially associated with the Project. In addition, Stantec would also like to give the United States Fish and Wildlife Service an opportunity to provide comments on the Project.

Stantec is also requesting sensitive resources information from the North Dakota Game and Fish Department, North Dakota Natural Heritage Inventory, and U.S. Forest Service. If you have any questions regarding this request, please call me at (970) 449-8627. Thank you in advance for your prompt response to this request.

Regards,

Matthew A Brekke

Matt Brekke
Senior Wildlife Biologist
Tel: 970-449-8627
Fax: 970-482-6368
matt.brekke@stantec.com

Attachment: Figure 1. Pipeline Segment Map

cc. Lowell Hassler (BLM)
Peggy Roberts (Stantec)
Scott Patti (Stantec)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
3425 Miriam Avenue
Bismarck, North Dakota 58501

JUN 18 2013

Matt Brekke
Senior Wildlife Biologist
Stantec Consulting Services, Inc.
2950 East Harmony Road, Suite 290
Fort Collins, Colorado 80528

Re: Hawkeye Pipeline Project, Hess Corporation
In reply please reference TAILS #2012-CPA-0614

Dear Mr. Brekke:

This is in response to your request for comments received May 24, 2013, regarding a proposed approximate 25.5 mile-long pipeline system to transport oil, gas, and Natural Gas Liquids (NGL) in McKenzie and Williams County, ND. Hess Corporation (Hess) proposes to build the pipeline in four segments. The system would start at the existing Hawkeye Central Station through a transfer point at the existing North Charlson Compressor Station located south of Lake Sakakawea (Segment A). The system would use existing pipelines to transport oil, gas, and NGL beneath Lake Sakakawea to the North River Crossing Compressor Station located north of Lake Sakakawea (Segment B). From the North River Crossing Compressor Station, the pipeline would trend north before terminating at either the existing Hess Ramberg Truck Facility, or the Silurian Compressor station, located approximately 8 and 7 miles, respectively, south of Tioga, Williams County, ND (Segments C and D). The letter states that 4.1 miles of the proposed pipeline are on federal land. Your analysis should include the potential impacts on the entire proposed project, not just that portion which crosses federal land.

The U.S. Fish and Wildlife Service (Service) offers the following comments under the authority of and in accordance with the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703 *et seq.*), Executive Order 13186 "Responsibilities of Federal Agencies to Protect Migratory Birds", the Endangered Species Act (ESA) (16 U.S.C. 1531 *et seq.*), the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57), Executive Order 11990 "Protection of Wetlands", the Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668-668d, 54 Stat. 250), and the National Environmental Policy Act (NEPA) (Pub. L. 91-190, 42 U.S.C. 4321-4347, January 1, 1970, as amended).

Below are recommendations to assist in complying with each of these authorities. Your plans should integrate these recommendations to the extent practicable to insure compliance. Recommendations addressing the trust resources under Service authorities are tailored to address

protective measures for a variety of species. As such, recommended timing restrictions are not identical and the federal action agency or project proponent should evaluate the trust resources that may be affected by the proposed project and use the appropriate protective timing restriction accordingly.

Threatened, Endangered and Candidate Species

To obtain information on Service trust resources including federally threatened, endangered and candidate species and designated critical habitat that may occur in the identified areas, or may be affected by the proposed activities, we recommend you access the North Dakota Ecological Service Field Office website at (http://www.fws.gov/northdakotafieldoffice/). You may also access the Service Information, Planning, and Conservation System (IPaC) website at (http://ecos.fws.gov/ipac/).

If a federal agency authorizes, funds, or carries out a proposed action, the responsible federal agency, or its designated representative, is required to evaluate whether the action "may affect" listed species. If the federal agency determines the action "may affect, is likely to adversely affect" listed species, then the federal agency shall request formal section 7 consultation with this office, or work with this office to remove the likely adverse effects before proceeding. If the evaluation shows a "no effect" determination on listed species, further consultation is not necessary.

If a non-federal entity receives federal funding for an activity, or if any federal permit or license is required, the federal agency may designate, in writing, the fund recipient or permit applicant as its representative for purposes of informal section 7 consultation. The funding, permitting, or licensing federal agency is responsible to ensure that its actions comply with the ESA, including obtaining concurrence from the Service for any action that may affect a threatened or endangered species, or result in the destruction or adverse modification of designated critical habitat. The BLM designated Stantec Consulting Services Inc. (Stantec) to represent the BLM in a letter dated May 9, 2013, for informal Section 7 consultation under the ESA. Therefore, the Service is responding to you as the designated non-Federal representative.

Sprague's pipit (*Anthus spagueii*) was added to the candidate species list in 2010. According to the Service's data, we expect there to be suitable habitat for the Sprague's pipit along the proposed route. Candidate species such as the Sprague's pipit are not protected under the ESA. However, Sprague's pipit as a migratory bird is still protected under the MBTA.

Sprague's pipits require large patches of grassland habitat for breeding, with preferred grass height between 4 and 12 inches. The species prefers to breed in well-drained, open grasslands and avoids grasslands with excessive shrubs. They can be found in lightly to heavily grazed areas. They avoid intrusive human features on the landscape, so the impact of a development can be much larger than the actual footprint of the feature. If Sprague's pipit habitat is present within your proposed project area, the Service requests that you and the Federal action agency

document any steps taken to avoid and minimize disturbance of this habitat, and that you share this information with our office.

Suitable habitat for the Dakota skipper (*Hesperia dacotae*) may also occur along the proposed project route. The Dakota skipper is a small to medium-sized hesperiine butterfly associated with high quality prairie ranging from wet-mesic tallgrass prairie to dry-mesic mixed grass prairie. The first type of habitat is relatively flat and moist native bluestem prairie. Three species of wildflowers are usually present: wood lily (*Lilium philadelphicum*), harebell (*Campanula rotundifolia*), and smooth camas (*Zygadenus elegans*). The second habitat type is upland (dry) prairie that is often on ridges and hillsides. Bluestem grasses and needlegrasses dominate these habitats. On this habitat type, three wildflowers are typically present in high quality sites that are suitable for Dakota skipper: pale purple (*Echinacea pallida*) and upright (*E. angustifolia*) coneflowers and blanketflower (*Gaillardia sp.*). Because of the difficulty of surveying for Dakota skippers and a short survey window, we recommend that the project avoid any impacts to potential Dakota skipper habitat.

For candidate species such as the Sprague's pipit and the Dakota skipper, Federal agencies and non-federal applicants have the option of requesting a conference with the Service to ensure that their actions minimize and mitigate effects to candidate species.

Least terns (*Sternula antillarum*) and piping plovers (*Charadrius melodus*) nest along the shoreline and on sandbars on Lake Sakakawea. Those areas that meet the definition have been designated as piping plover critical habitat. Pallid sturgeon (*Scaphirhynchus albus*) may be anywhere within the reservoir.

While a spill anywhere along the pipeline may have impacts on threatened or endangered species as well as other trust resources, a spill that reaches Lake Sakakawea has the potential for significant impacts on threatened and endangered species as well as on other trust resources such as migratory birds and the interjurisdictional fishery of Lake Sakakawea. We recommend that the NEPA document and associated Section 7 ESA consultation include the following; a thorough evaluation of the proposed project's probability of a leak, either in Lake Sakakawea or elsewhere along the route; information about safety features included to minimize the likelihood of a leak; and a thorough spill response plan under all weather and water (ice, open water) conditions. The probability and consequences of a leak should inform your NEPA and Section 7 analysis.

Fish and Wildlife Service Property

The Service administers Waterfowl Production Areas owned in fee title as well as wetland and grassland easements throughout North Dakota. A review of Service realty records indicates that the Service does not have property interests in the planning area. However, the Service has an ongoing easement acquisition program and we recommend that for Williams and McKenzie Counties, you contact David Gillund, Project Leader, Crosby Wetland Management District,

10100 Hwy 42 NW, Crosby, ND 58730, (701-965-6488, david_gillund@fws.gov) for more specific information relative to Service easements and up-to-date realty records.

Migratory Birds

The MBTA prohibits the taking, killing, possession, and transportation, (among other actions) of migratory birds, their eggs, parts, and nests, except when specifically permitted by regulations. While the MBTA has no provision for allowing incidental take, the Service realizes that some birds may be killed during project construction and operation even if all known reasonable and effective measures to protect birds are used. The Service Office of Law Enforcement carries out its mission to protect migratory birds through investigations and enforcement, as well as by fostering relationships with individuals, companies, and agencies that have taken effective steps to avoid take of migratory birds, and by encouraging others to implement measures to avoid take of migratory birds. It is not possible to absolve individuals, companies, or agencies from liability even if they implement bird mortality avoidance or other similar protective measures. However, the Office of Law Enforcement focuses its resources on investigating and prosecuting individuals, companies, and agencies that take migratory birds without identifying and implementing all reasonable, prudent, and effective measures to avoid that take. Individuals, companies, or agencies are encouraged to work closely with Service biologists to identify available protective measures when developing project plans and/or avian protection plans, and to implement those measures prior to/during construction or similar activities.

To the extent practicable, schedule construction for late summer or fall/early winter so as not to disrupt migratory birds during the breeding season, February 1 to July 15 (note that the least tern and piping plover breeding season extends through August 31). If work is proposed to take place during the breeding season, there may be take of migratory birds, their eggs, or active nests. Another alternative would be to have a qualified biologist conduct bird/nest surveys within five days prior to the initiation of construction. If active nests are identified, Hess should cease or suspend construction, maintain a sufficient buffer around active nests to avoid disturbing breeding activities and contact the Service immediately. The Service recommends that Hess implement all practicable measures to avoid all take, such as suspending construction where necessary, and/or maintaining adequate buffers to protect the birds until the young have fledged. The Service further recommends that if Hess chooses to conduct field surveys for nesting birds with the intent of avoiding take, that they maintain any documentation of the presence of migratory birds, eggs, and active nests, along with information regarding the qualifications of the biologist(s) performing the survey(s), and any avoidance measures implemented at the project site. Should surveys or other available information indicate a potential for take of migratory birds, their eggs, or active nests, the Service requests that Hess contact this office for further coordination on the extent of the impact and the long-term implications of the intended use of the project on migratory bird populations.

Our GIS analysis of the proposed project shows that it crosses a number of wetlands and native prairie. These habitat types provide important ecological services, including nesting and

foraging habitat for migratory birds. Wetlands take at least two to three years for the vegetation to return, and at least this long for full functionality to be recovered. Native prairie can take a decade or more to recover, and even then, the replanted area is not as diverse as the original habitat. Additionally, non-natives which become established when the project area is disturbed may spread into the adjacent prairie.

To help ameliorate these impacts, the Service suggests that Hess develop a conservation plan for migratory birds to compensate for the impacts associated with the construction, operation, and maintenance of the proposed project. We recommend that the conservation plan include the following: an analysis of the type and acreage of each habitat impacted; a discussion of how impacts on native habitat (wetlands, native prairie, woody draws) will be avoided or minimized to the extent practicable; a plan to reclaim the native habitat that cannot be avoided; a monitoring plan to ensure that reclamation is successful and that non-natives do not take over; and a compensation plan for the impacts on native habitat that cannot be avoided. As part of the conservation plan, we recommend that Hess may consider purchasing perpetual grassland and wetland easements or perform additional habitat mitigation to ensure that the overall amount and quality of native habitat does not decline as a result of this project. In addition to benefitting migratory birds, the actions in the conservation plan may also benefit any candidate species that may be affected. Prairie conversion was a major factor in the decision to add the Sprague's pipit, Dakota skipper and Poweshiek Skipperling to the list of candidate species, so efforts to compensate for native prairie habitat loss could also be included as part of the conference on candidate species, if applicable.

Bald and Golden Eagles

Bald and Golden Eagles are federally-protected under both the BGEPA and the MBTA. The BGEPA prohibits anyone without a permit issued by the Secretary of the Interior from taking bald eagles (*Haliaeetus leucocephalus*) or golden eagles (*Aquila chrysaetos*), including their parts, nests, or eggs. The BGEPA provides criminal and civil penalties for persons who take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald or golden eagle, alive or dead, or any part, nest, or egg thereof. The BGEPA defines take as pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb. "Disturb" means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available: 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior. In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagles return, such alterations agitate or bother an eagle to a degree that injures an eagle or substantially interferes with normal breeding, feeding, or sheltering habits and causes, or is likely to cause, a loss of productivity or nest abandonment.

The Service's overall management objective for golden eagle and bald eagle populations is to ensure no declines in breeding populations of either species. Numerous relatively minor disruptions to eagle behaviors from multiple activities, even if spatially or temporally distributed, may lead to disturbance that would not have resulted from fewer or more carefully sited activities. The accumulation of multiple land development projects or siting of multiple infrastructures that may be hazardous to eagles can cumulatively reduce the availability of alternative sites suitable for breeding, feeding, or sheltering, resulting in a greater than additive risk of take to eagles.

If your proposed activity is anticipated to result in take of bald or golden eagles, you must first apply for, and receive a permit to take prior to the taking. The determination of the likelihood of take will entail identifying the impacts of your proposed activity.

Recommendations Specific to Bald Eagles

The size and shape of effective buffers vary depending on the topography and other ecological characteristics surrounding the nest site. In open areas where there are little or no forested or topographical buffers, such as in North Dakota, distance alone must often serve as the buffer. To avoid/minimize impacts to nesting bald eagles from construction activities, the Service recommends: (1) keeping a minimum ½-mile buffer between the activity and any bald eagle nest if no landscape buffer exists; (2) keeping a minimum 660-foot buffer and maintaining a landscape buffer or natural areas between the activity and around nest trees; and (3) avoiding activities during the bald eagle breeding season (February 1 – July 15). The buffer areas serve to minimize visual and auditory impacts associated with human activities near nest sites. Ideally, buffers would be large enough to protect existing nest sites and provide for alternative or replacement nest sites. The Service's May 2007, National Bald Eagle Management Guidelines contains detailed information on protecting bald eagles from disturbance due to human activity. The guidelines can be accessed on the Service's website at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Management/BaldEagle/NationalBaldEagleManagementGuidelines.pdf.

Recommendations Specific to Golden Eagles

Information available to the Service regarding all existing and recent breeding territory data indicates that golden eagles may be present in your proposed activity area. Therefore, we recommend that you make every effort to avoid impacts to golden eagles. If activities are planned within a golden eagle territory, an assessment of the potential for take of a golden eagle will need to be made in conjunction with this office. This entails identifying your proposed activities that may occur in a golden eagle breeding territory, and sharing that information with this office.

The Service recommends that surveys be conducted prior to any on-the-ground activities to determine the extent of any golden eagle breeding territories in the area that may be affected by the proposed activity. The Service recommends that aerial nest surveys (preferably by helicopter) be conducted within a one-mile wide evaluation corridor or buffer to identify any,

occupied and unoccupied eagle nest sites in proximity to the proposed project area, including any proposed new access roads. Aerial surveys should be conducted between March 1 and May 15, before leaf-out, so that nests are visible, and so their status (active or inactive) can be determined. A nesting territory or inventoried habitat should be designated as unoccupied by golden eagles ONLY after at least two complete aerial surveys in a single breeding season. Aerial surveys should include the following:

1. Due to the ability to hover and facilitate observations of the ground, helicopters are preferred over fixed wing aircraft, although small aircraft may also be used. The Service requests that Hess report any eagle nests found, as well as nests of any other raptors found during the survey. Whenever possible, two observers should be used to conduct the surveys.
2. Observations of any eagle nest sites should be recorded using GPS. The date, location, nest condition, activity status, and habitat should be recorded for each sighting.
3. We request that you share the qualifications of the biologist(s) conducting the survey, method of survey, and results of the survey with the Service.

Alternatively, Hess could conduct ground surveys to identify golden eagle nests within a one-mile wide evaluation corridor or buffer between March 1 and May 15. However, be aware that ground surveys are much less reliable than aerial surveys, even during leaf-off conditions, and typically may miss ¾ of eagle nests present. At least two ground observation periods lasting at least four hours or more per linear mile are necessary to designate an inventoried habitat or territory as unoccupied as long as all potential nest sites and alternate nests are visible and monitored. If a golden eagle nest is observed, Hess should contact the Service for further consultation.

Please note that maintenance of a minimum ½-mile buffer around active nests may not be adequate to ensure avoidance of take of golden eagles. If Hess or the federal action agency, if applicable, in conjunction with the Service, determines that any level of take is anticipated, including take due to disturbance, you should work with this office to modify your activity to avoid the take, or apply for a take permit and include the following information:

1. Collect and synthesize relevant project and biological data.
2. Document project avoidance and minimization measures.
3. Quantify the anticipated take.
4. Submit an application and furnish all required information (Contact the Migratory Bird Office for more information at 303-236-4407)

High Value Habitat Avoidance

Our review of the National Wetland Inventory (NWI) maps and photographs indicates the proposed planning area includes a number of wetland basins. You may access the NWI data directly through their website (wetlands.fws.gov). The Service recommends that all wetlands

and water bodies along the proposed project route, regardless of land ownership, be avoided through re-routing or by directionally drilling under the feature. Construction activities should be conducted in a manner that will avoid/minimize impacts to the existing habitat in the project area. The following recommendations are intended to reduce construction related impacts.

- Make no stream channel alterations or changes in drainage patterns.
- Locate construction to avoid placement of fill in wetlands.
- Replace unavoidable loss of wetland habitat with functionally equivalent wetland
- Install and maintain appropriate erosion control measures to reduce sediment transport to adjacent wetlands and stream channels.
- In replanting native prairie or other grassland habitat, the Service recommends planting a diverse mixture of native cool and warm season grasses and forbs. Recent research has suggested that a more diverse mix, including numerous forb species, is not only ecologically beneficial but is also more weed resistant, allowing for less intensive management and chemical use. In essence, the more species included in a mixture, the higher the probability of providing competition to resist invasion by non-native plants. The seed source should be as local as possible, preferably collected from the nearby native prairie. If seeds and/or plants are obtained commercially, we recommend obtaining seed stock from nurseries within 250 miles of the project area to ensure the particular cultivars are well adapted to the local climate. The Natural Resources Conservation Service (NRCS) compiles a list of vendors in North Dakota that supply conservation seed and plants at http://plant-materials.nrcs.usda.gov/pubs/ndpmcmt8152.pdf. Additional information on native grasses and forbs may be found at the NRCS Bismarck Plant Materials Center website at http://www.plant-materials.nrcs.usda.gov/ndpmc/.

Thank you for the opportunity to comment on this project. If additional information is required, please contact Carol Aron of my staff at (701) 250-4481 or at the letterhead address.

Sincerely,

Jeffrey K. Towner

Jeffrey K. Towner
Field Supervisor
North Dakota Field Office

cc: Lostwood Wetland Management District, Kenmare, ND, Attn: D. Gillund
U.S. Army Corps of Engineers, Riverdale, ND, Attn: R. Newman
U.S. Forest Service, Bismarck, ND, Attn: D. Neitzke
Bureau of Land Management, Lewistown, MT, Attn: L. Hassler
Migratory Bird Office, Denver, CO, Attn: K. Kritz

Stantec Consulting Services Inc.
2950 East Harmony Road Suite 290
Fort Collins, Colorado 80528
Tel: (970) 482-5922
Fax: (970) 482-6368

May 24, 2013

Bruce Kreft
North Dakota Game and Fish Department
406 Dakota Avenue
Riverdale, North Dakota 58565

Reference: Hawkeye Pipeline Project

Dear Mr. Kreft,

Stantec Consulting Services Inc. (Stantec), on behalf of the Bureau of Land Management (BLM), would like to request input on Hess Corporation's (Hess) proposed Hawkeye Pipeline Project (Project). Hess has filed a ROW application proposing to construct, operate, maintain, and decommission the proposed Project on federal lands in McKenzie and Williams Counties, North Dakota, as shown in **Figure 1**. The proposed project would include the construction of an approximately 25.5-mile-long pipeline system consisting of the following four segments:

- **Segment A** (10.6 miles): Hawkeye to North Charlson (South Side of the Lake) consisting of the conversion of an existing 8" HP Gas line to NGL service and installation of new 10" HP Oil and 12" HP Gas lines as well as two (2) 24 strand fiber optic lines.
- **Segment B** (2.5 miles) North Charlson (South Side of the Lake) to North Side of the Lake including tie-ins into three (3) existing 8" lines under Lake Sakakawea for HP Gas, HP Oil and NGL's as well as installation of two (2) 24 strand fiber optic lines.
- **Segment C** (2.4 miles) North Side of the Lake to Hofflund including conversion of an existing 8" HP Gas line to NGL service and construction of new 10" HP Oil and 12" HP Gas lines as well as two (2) 24 strand fiber optic lines.
- **Segment D** (10.1 miles) Hofflund to Ramberg (HP Oil) and Silurian (HP Gas and NGL's) including conversion of an existing 10" HP Gas line to NGL service and construction of new 10" HP Oil and 12" HP Gas lines as well as two (2) 24 strand fiber optic lines.

The proposed Hawkeye pipeline system would transport oil, gas and NGL from the existing Hawkeye Central Station through a transfer point at the existing North Charlson Compressor Station located south of Lake Sakakawea (Segment A). The system would use existing pipelines to transport oil, gas and NGL beneath Lake Sakakawea to the North River Crossing Compressor Station located north of Lake Sakakawea (Segment B). From the North River Compressor Station the pipelines would trend north before terminating at either the existing Hess Ramberg Truck Facility or the Silurian Compressor station, located approximately 8 and 7 miles respectively, south of Tioga, Williams County, North Dakota (Segments C & D). All connection points would occur within existing Hess facilities.

In total, approximately 4.1 miles of the proposed alignment occurs on federal lands. The remaining alignment is proposed on private land and State of North Dakota-owned lands. The proposed pipeline would be buried and follow existing pipeline and utility easements to the extent practicable.

Reference: Hawkeye Pipeline Project

Species Information Request

Stantec has enclosed an overview map of the entire proposed route through west-central North Dakota. The Project is located in **McKenzie** and **Williams** counties, North Dakota..

Stantec will be evaluating Project-related and cumulative effects to both aquatic and terrestrial resources. Because of the mobility of wildlife species, resource issues will be examined beyond the proposed Project boundary. Stantec is requesting information on pertinent resource data from federal and state agencies in order to address potential impacts to aquatic and terrestrial species. We would like to provide an opportunity for the North Dakota Game and Fish Department (NDGFD) biologists to identify prominent terrestrial and aquatic resource issues or concerns that may occur within or adjacent to the Project area, focusing on species that either are sensitive, have high economic value (e.g., big game, waterfowl), or are considered important by the state (e.g., raptors, bats). Please forward this request to the applicable specialists (e.g., fisheries and/or wildlife biologists, habitat biologists, etc.) so they may provide information and input. Resource information provided by the NDGFD will be incorporated into the NEPA analysis for the proposed Project.

Stantec is also requesting sensitive resources information from the North Dakota Natural Heritage Inventory, U.S. Fish and Wildlife Service, and U.S. Forest Service. If you have any questions regarding this request, please call me at (970) 449-8627. Thank you in advance for your prompt response to this request.

Regards,

Matt Brekke
Senior Wildlife Biologist
Tel: 970-449-8627
Fax: 970-482-6368
matt.brekke@stantec.com

Attachment: Figure 1. Pipeline Segment Map

cc: Dave Fryda (NDGFD)
Lowell Hassler (BLM)
Peggy Roberts (Stantec)
Scott Patti (Stantec)

Stantec Consulting Services Inc.
2950 East Harmony Road Suite 290
Fort Collins, Colorado 80528
Tel: (970) 482-5922
Fax: (970) 482-6368

May 24, 2013

Dave Fryda
North Dakota Game and Fish Department
406 Dakota Avenue
Riverdale, North Dakota 58565

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In total, approximately 4.1 miles of the proposed alignment occurs on federal lands. The remaining alignment is proposed on private land and State of North Dakota-owned lands. The proposed pipeline would be buried and follow existing pipeline and utility easements to the extent practicable.

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Stantec is also requesting sensitive resources information from the North Dakota Natural Heritage Inventory, U.S. Fish and Wildlife Service, and U.S. Forest Service. If you have any questions regarding this request, please call me at (970) 449-8627. Thank you in advance for your prompt response to this request.

Regards,

Matthew Brekke

Matt Brekke
Senior Wildlife Biologist
Tel: 970-449-8627
Fax: 970-482-6368
matt.brekke@stantec.com

Attachment: Figure 1. Pipeline Segment Map

cc: Bruce Kreft (NDGFD)
Lowell Hassler (BLM)
Peggy Roberts (Stantec)
Scott Patti (Stantec)

No response received from letters to NDGFD dated May 24, 2013.

Stantec Consulting Services Inc.
2950 East Harmony Road Suite 290
Fort Collins, Colorado 80528
Tel: (970) 482-5922
Fax: (970) 482-6368

May 24, 2013

Christine Dirk
North Dakota Natural Heritage Inventory
North Dakota Parks and Recreation Department
1835 Bismarck Expressway
Bismarck, North Dakota 58504

Reference: Hawkeye Pipeline Project

Dear Ms. Dirk,

Stantec Consulting Services Inc. (Stantec), on behalf of the Bureau of Land Management (BLM), would like to request input on Hess Corporation's (Hess) proposed Hawkeye Pipeline Project (Project). Hess has filed a ROW application proposing to construct, operate, maintain, and decommission the proposed Project on federal lands in McKenzie and Williams Counties, North Dakota, as shown in **Figure 1**. The proposed project would include the construction of an approximately 25.5-mile-long pipeline system consisting of the following four segments:

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In total, approximately 4.1 miles of the proposed alignment occurs on federal lands. The remaining alignment is proposed on private land and State of North Dakota-owned lands. The proposed pipeline would be buried and follow existing pipeline and utility easements to the extent practicable.

Reference: Hawkeye Pipeline Project

Species Information Request

Stantec has enclosed an overview map of the entire proposed route through west-central North Dakota. The Project is located in **McKenzie** and **Williams** counties, North Dakota.

In order to address potential impacts to sensitive ecological resources as a result of implementing the proposed Project, Stantec would like to request sensitive wildlife species occurrence data within 5 miles of the Project route and sensitive plant species occurrence data within 3 miles of the Project route. In addition, Stantec would also like to give the North Dakota Natural Heritage Inventory an opportunity to provide comments on the Project.

Stantec is also requesting sensitive resources information from the North Dakota Game and Fish Department, U.S. Fish and Wildlife Service, and U.S. Forest Service. If you have any questions regarding this request, please call me at (970) 449-8627. Thank you in advance for your prompt response to this request.

Regards,

Matthew Brekke

Matt Brekke
Senior Wildlife Biologist
Tel: 970-449-8627
Fax: 970-482-6368
matt.brekke@stantec.com

Attachment: Figure 1. Pipeline Segment Map

cc. Lowell Hassler (BLM)
Peggy Roberts (Stantec)
Scott Patti (Stantec)

Jack Dalrymple, Governor
Mark A. Zimmerman, Director

1600 East Century Avenue, Suite 3
Bismarck, ND 58503-0649
Phone 701-328-5357
Fax 701-328-5363
E-mail parkrec@nd.gov
www.parkrec.nd.gov

June 5, 2013

Matt Brekke
Stantec
2950 East Harmony Road, Suite 290
Fort Collins, CO 80528

Re: Hess Hawkeye Pipeline Project

Dear Mr. Brekke:

Thank you for your interest in the Department's Natural Heritage Inventory biological conservation database. The Department did not conduct an environmental review for this particular project site but only conducted a search in our database which includes data only for species of concern and significant ecological communities. Other lands and projects that are owned or managed by the ND Parks & Recreation Department were not included in this search such as: state parks, state nature preserves, Recreational Trails Program projects, and Scenic Byways and Backways.

The North Dakota Natural Heritage Inventory (NDNHI) biological conservation database has been reviewed to determine if any current or historical plant or animal species of concern or other significant ecological communities are known to occur within five miles of the project area. Based on this review, several occurrences have been identified within or adjacent to the project area. Please see the attached shapefiles and documents for more information. We defer further comments regarding animal species to the North Dakota Game and Fish Department and the United States Fish and Wildlife Service. For a description of the significant ecological communities please see this NatureServe link http://www.natureserve.org/library/northdakotasubset.pdf. For more information regarding any species or community please visit this link to the NatureServe web site http://www.natureserve.org/index.jsp.

Because this information is not based on a comprehensive inventory, there may be species of concern or otherwise significant ecological communities in the area that are not represented in the database. The lack of data for any project area cannot be construed to mean that no significant features are present. The absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks natural heritage resources.

Attached to this email message you will find the following documents:

- Shapefiles with heritage species and communities - points and polygons
  - The reason we have two shapefiles, a point and a polygon, is because several years ago we implemented a new software program called Biotics. Our data had always been point, but the new software allows polygons. We are in the process of changing our points to polygons but currently have a mix of the two shape types.
- *EORep_DS_fieldnames.xls* – a document to help explain field names in the heritage shapefiles
- *Methodology_guide_2012.doc* – a document with the NDNHI methodology and a guide to the species of concern lists
- *Animal SOC list 2012.xls* and *Plant SOC list 2012.xls* – NDNHI Species of Concern lists
- Shapefile with Land and Water Conservation Fund data within one mile of project area

Thank you for the opportunity to provide data for the project site. Please contact me if additional information is needed.

Sincerely,

Kathy Duttenhefner

Coordinator/Biologist
Natural Resource Program
Natural Areas Registry/Natural Heritage Inventory
701-328-5370 (office)
701-220-3377 (cell)
kgduttenhefner@nd.gov
R13-28

FSA FARM SERVICE AGENCY

AskFSA *Your Online Knowledge Base*

Submit a question to our support team.

Email Address *

taylor.robinson@stantec.

Subject *

CRP/GRP lands

Question *

I am currently writing a Public Service Commission Application for a proposed pipeline in Williams and McKenzie counties. I need to verify whether or not the pipeline crosses any CRP or GRP land. If you can aid in this effort it would be very helpful. If not, I would greatly appreciate being put into contact with someone who can.

Attach Documents

Browse...

Product

Select a product

Category

Conservation Programs

State Name

North Dakota

County Office Name

Williams and McKenzie

Continue...

No response received from FSA regarding website correspondence dated November 17, 2014.

Robinson, Taylor

From: Brand, Mike D. <mbrand@nd.gov>
Sent: Tuesday, November 18, 2014 9:02 AM
To: Robinson, Taylor
Cc: Haupt, Michael L.
Subject: RE: trust land

Taylor,

Mike Haupt will be working on this pipeline. Please be aware that the ND Department of Trust Lands will need to be consulted concerning the route on trust lands at the earliest possible time. Final approval of the route on Trust Lands is with the Department of Trust lands. By consulting us early on the proposed route, we can come to an agreement before the Public Service Commission approves the routing. If you wait too long you would have to go back to the Public Service Commission for an amendment to the route if our approved route does not match the PSC's approved route.

You can submit an online application for a route across trust land at http://www.land.nd.gov/surface/Right-of-Way.aspx I suggest that the application be submitted as soon as possible. If an application is not submitted, your surveyors will not have authorization to go onto the property.

If you have any questions, please call. We look forward to your application. An application is not a commitment but it simply makes sure that your project is in the queue and that good communication is maintained.

Sincerely,
Michael D. Brand, Ph.D., Director
Surface Management Division
ND Department of Trust Lands
701-328-1918

Note: You can track the real time status of your right-of-way application 24/7 at http://www.land.nd.gov/surface/right-of-way.aspx ***by entering either the ROW number or by entering at least the first three letters of the company name. By checking this site you can find the name, telephone number and email address of the person working on the application as well as its current status in real time.***

From: Robinson, Taylor [mailto:Taylor.Robinson@stantec.com]
Sent: Monday, November 17, 2014 4:14 PM
To: Brand, Mike D.
Subject: RE: trust land

Thank you very much. I appreciate your prompt response. I will be sending a more detailed map to Mr. Saude shortly.

Sinclerely,

Taylor Robinson
Environmental Scientist
Stantec
2950 East Harmony Road Suite 290 Fort Collins CO 80528-3429
Phone: (970) 449-8636 ext 636
Cell: (970) 214 6407
Taylor.Robinson@stantec.com

From: Brand, Mike D. [mailto:mbrand@nd.gov]
Sent: Monday, November 17, 2014 2:54 PM
To: Robinson, Taylor
Cc: Saude, Jerry M.
Subject: RE: trust land

Jerry Saude from our office will provide that information for you.

Sincerely,
Michael D. Brand, Ph.D., Director
Surface Management Division
ND Department of Trust Lands
701-328-1918

From: Robinson, Taylor [mailto:Taylor.Robinson@stantec.com]
Sent: Monday, November 17, 2014 3:52 PM
To: Brand, Mike D.
Subject: trust land

Hello Mr. Brand,

I am currently writing a Public Service Commission Application for a proposed pipeline in Williams and McKenzie counties. I need to verify whether or not the pipeline crosses any Trust land. If you can aid in this effort it would be very helpful. If not, I would greatly appreciate being put into contact with someone who can.

The pipeline overview map is attached. I can provide any additional GIS layers you may require.

Thank you.

Taylor Robinson
Environmental Scientist
Stantec
2950 East Harmony Road Suite 290 Fort Collins CO 80528-3429
Phone: (970) 449-8636 ext 636
Cell: (970) 214 6407
Taylor.Robinson@stantec.com

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Please consider the environment before printing this email.

Robinson, Taylor

From: Saude, Jerry M. <jsaude@nd.gov>
Sent: Tuesday, November 18, 2014 7:24 AM
To: Robinson, Taylor
Subject: RE: PSC Pipeline application questions concerning School Trust Lands
Attachments: 2014 MCK WIL Pipeline1.xlsx

I have only found one section of school trust land that this route will impact. Please note the attached spreadsheet of the route I identified, based on the map you supplied to me.

I would encourage you to review the existing Rights-of-Ways that are active on this section 16. You can access our inventory by search the section on this location.

You can also apply online by following the instructions on our ROW and Surface Damage Agreement page.

Please reply to this email address or call us at your convenience.

Jerry M Saude
Trust Land Specialist
ND Department of Trust Lands
Investing for Education- *Since 1889*
www.land.nd.gov 701.328.1919

From: Robinson, Taylor [mailto:Taylor.Robinson@stantec.com]
Sent: Monday, November 17, 2014 4:32 PM
To: Saude, Jerry M.
Subject: RE: PSC Pipeline application questions concerning School Trust Lands

Thank you very much. I really appreciate it.

Taylor Robinson
Environmental Scientist
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From: Saude, Jerry M. [mailto:jsaude@nd.gov]
Sent: Monday, November 17, 2014 3:30 PM
To: Robinson, Taylor
Subject: RE: PSC Pipeline application questions concerning School Trust Lands

This will be fine. I'll start on it in the morning and send a spreadsheet of trust land tracts that are proposed to be crossed by these projects.

From: Robinson, Taylor [mailto:Taylor.Robinson@stantec.com]
Sent: Monday, November 17, 2014 4:26 PM
To: Saude, Jerry M.
Subject: RE: PSC Pipeline application questions concerning School Trust Lands

Hello Mr. Saude,

Attached is a more detailed map of the pipeline route. It includes township/range etc. Let me know if this does not include enough data. Thank you very much for your assistance.

Sincerely,

Taylor Robinson
Environmental Scientist
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Celebrating 60 years of community, creativity, and client relationships.

Please consider the environment before printing this email.

From: Saude, Jerry M. [mailto:jsaude@nd.gov]
Sent: Monday, November 17, 2014 3:01 PM
To: Robinson, Taylor
Subject: PSC Pipeline application questions concerning School Trust Lands

Mike Brand asked me to assist you in your routing questions. I looked at the map, but I will need a map that shows Township, Range and Sections in order to determine if your proposed route crosses our surface.

If you have a ground survey or a more detailed map, I can work from that also. As you may know, most of our land will be in sections 16 and/or 36 in these counties.

Jerry M Saude

Trust Land Specialist
ND Department of Trust Lands
Investing for Education- *Since 1889*
www.land.nd.gov 701.328.1919

Appendix F

Exclusion, Avoidance, and Selection Criteria Figures

Silurian Compressor Station
North Hofflund Valve Station
North of River Valve Station
Little Beaver Bay Boat Ramp
Carex athrostachya
See Figure F-2
156N 96W
156N 95W
155N 96W
155N 95W
154N 96W
154N 95W
36
31
6
1

C a n a d a
MONTANA
NORTH DAKOTA
Divide
Burke
Renville
Williams
Mountrail
McKenzie
Dunn
Mercer

Legend

- Desktop Analysis Area
- 200-foot-wide Corridor
- Repurposed 8-inch-diameter NGL Pipeline
- Repurposed 10-inch-diameter NGL Pipeline
- Existing Facility
- Match Line
- Piping Plover Critical Habitat
- Sensitive Plant or Plant Community Occurrence
- NDGFD Boat Ramp

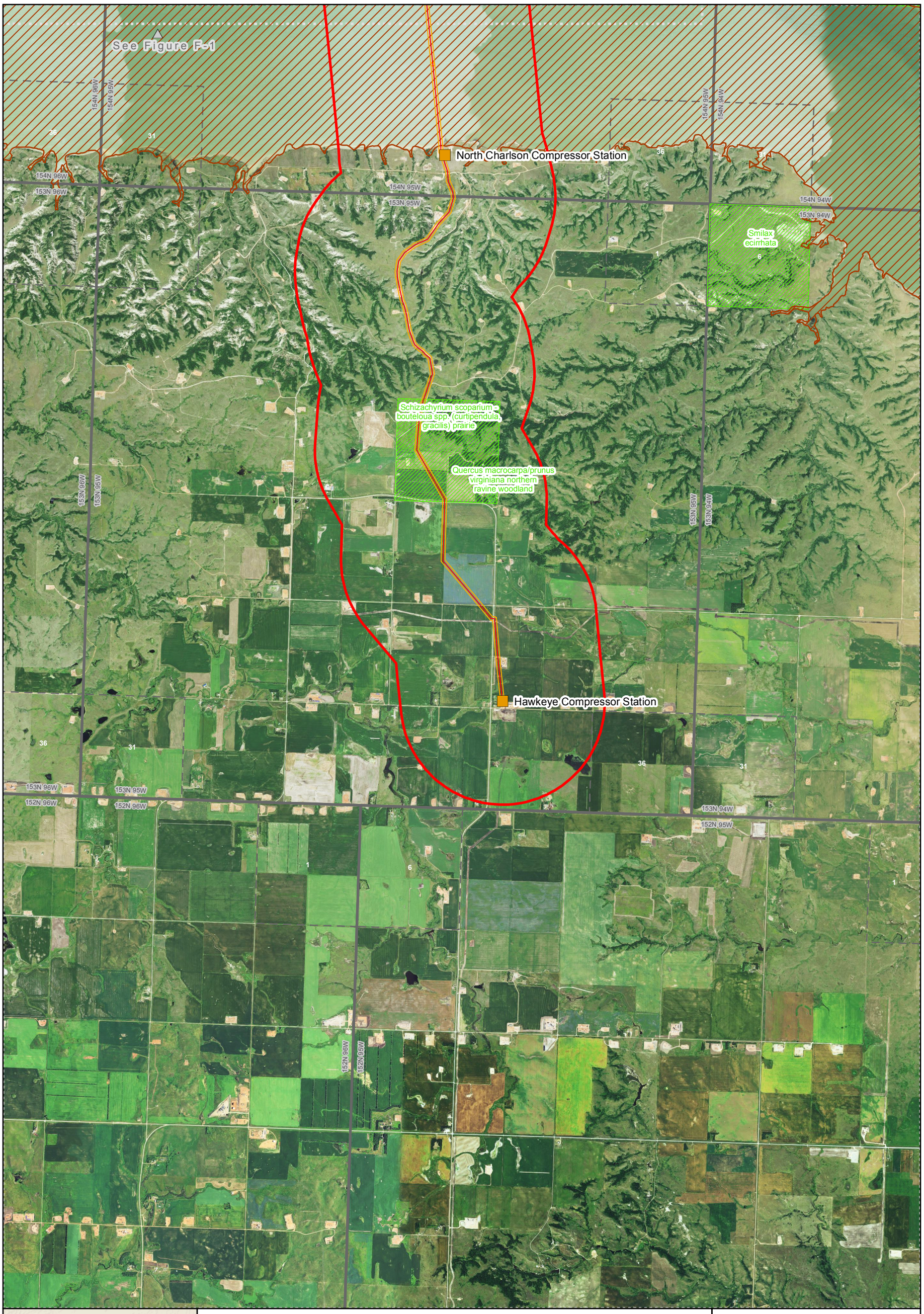
Sources: Hess 2014; NDNHI 2014; LWCF 2009; USFWS 2011.

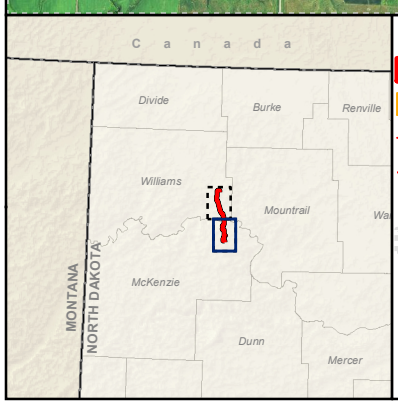
Hawkeye Pipeline System Project

Figure F-1

NGL Pipeline Route Exclusion Areas

0 0.25 0.5 1
Miles





Legend

- Desktop Analysis Area
- 200-foot-wide Corridor
- Repurposed 8-inch-diameter NGL Pipeline
- Repurposed 10-inch-diameter NGL Pipeline
- Existing Facility
- Match Line
- Piping Plover Critical Habitat
- Sensitive Plant or Plant Community Occurrence

Sources: Hess 2014; NDNHI 2014; LWCF 2009; USFWS 2011.

Hawkeye Pipeline System Project

Figure F-2

NGL Pipeline Route Exclusion Areas

0 0.25 0.5 1
Miles

Silurian Compressor Station

North Hofflund Valve Station

North of River Valve Station

Hofflund Wildlife Management Area

Little Bear Island (historical)

Williams County

McKenzie County

156N 96W

155N 96W

154N 96W

156N 95W

155N 95W

154N 95W

36

31

1

6

See Figure F-4

C a n a d a

MONTANA

NORTH DAKOTA

Divide

Burke

Renville

Williams

Mountrail

McKenzie

Dunn

Mercer

Legend

- Desktop Analysis Area
- 200-foot-wide Corridor
- Repurposed 8-inch-diameter NGL Pipeline
- Repurposed 10-inch-diameter NGL Pipeline
- Existing Facility
- Match Line
- Cemetery
- Church
- Schoolhouse
- Vacant Schoolhouse
- Residence
- Historical Site
- Landslide Area
- School Trust Land
- Rural Water Association
- Wildlife Management Area

Sources: Hess 2014; NDDOT 2008; NDDTL 2014; NDGF 2011; NDSWC 2008; USGS 2008.

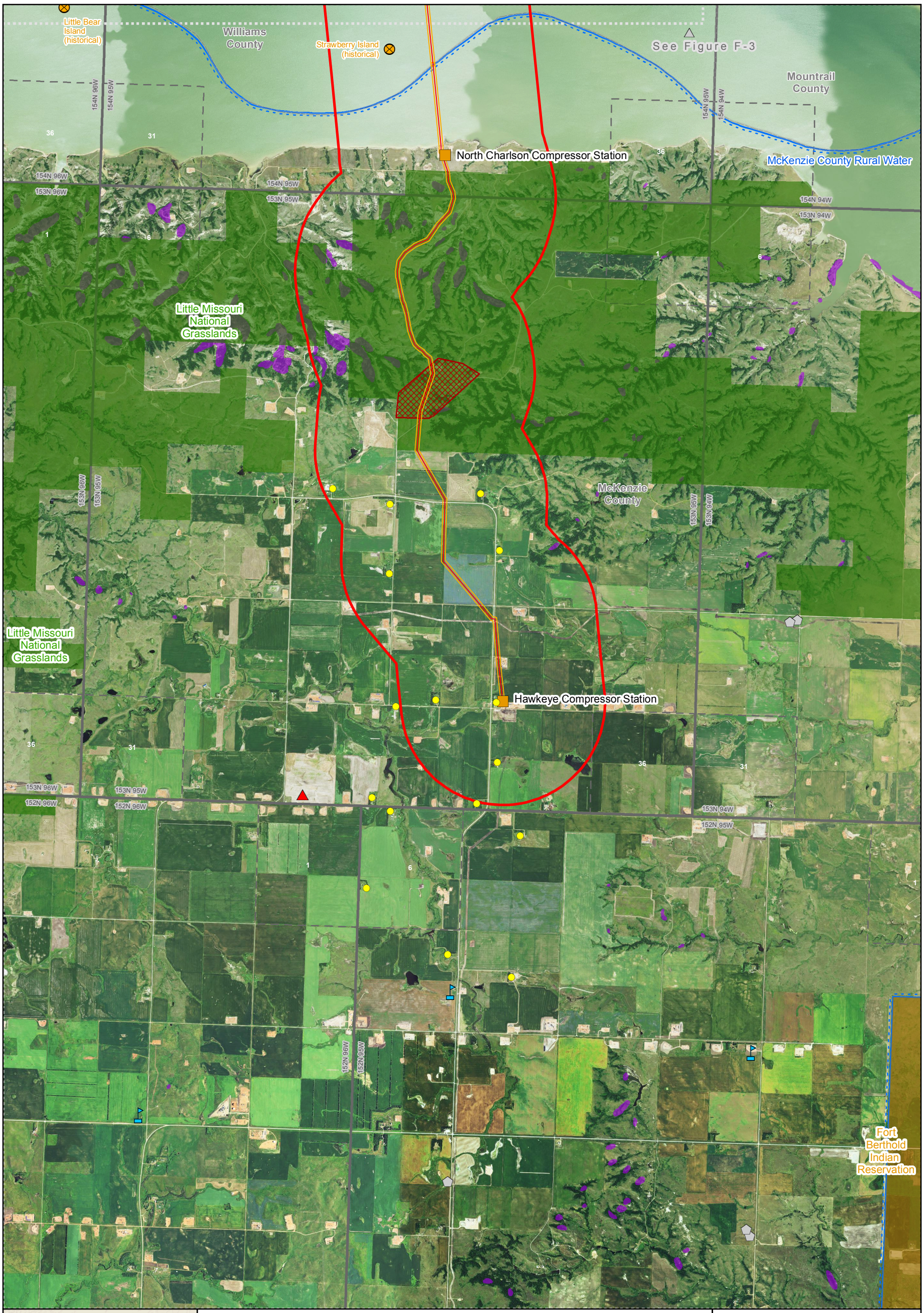
Hawkeye Pipeline System Project

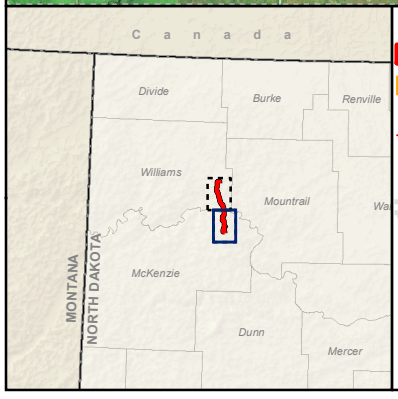
Figure F-3

NGL Pipeline Route Avoidance Areas

0 0.325 0.65 1.3

Miles





Legend

- Desktop Analysis Area
- 200-foot-wide Corridor
- Repurposed 8-inch-diameter NGL Pipeline
- Existing Facility
- Match Line
- Cemetery
- Church
- Schoolhouse
- Vacant Schoolhouse
- Residence
- Historical Site
- Landslide Area
- Rural Water Association
- Elm Tree Historic Archaeological District
- U.S. Forest Service Land
- Tribal Land

Sources: Hess 2014; NDDOT 2008; NDDTL 2014; NDGF 2011; NDSWC 2008; USGS 2008.

Hawkeye Pipeline System Project

Figure F-4

NGL Pipeline Route Avoidance Areas

0 0.325 0.65 1.3
Miles

Silurian Compressor Station
North Hofflund Valve Station
North of River Valve Station
156N 96W
156N 95W
155N 96W
155N 95W
154N 96W
154N 95W
Williams County
McKenzie County
Dry Fork Creek Aquifer
Hofflund Aquifer
Missouri River - Lake Sakakawea Aquifer
See Figure F-6

C a n a d a
MONTANA
NORTH DAKOTA
Divide
Burke
Renville
Williams
Mountrail
McKenzie
Dunn
Mercer

Legend

- Desktop Analysis Area
- 200-foot-wide Corridor
- Repurposed 8-inch-diameter NGL Pipeline
- Repurposed 10-inch-diameter NGL Pipeline
- Existing Facility
- Match Line

Mineral Deposits/Development

- Mineable Lignite

Surficial Aquifers

- Dry Fork Creek
- Hofflund
- Missouri River - Lake Sakakawea

Farmland Class

- Prime Farmland
- Farmland of Statewide Importance

Other Features

- Antenna
- Oil/Gas Well Pad
- Microwave
- Wetland (Field Surveyed)
- Woodland (Field Surveyed)
- Stream
- Wetland
- Woodland

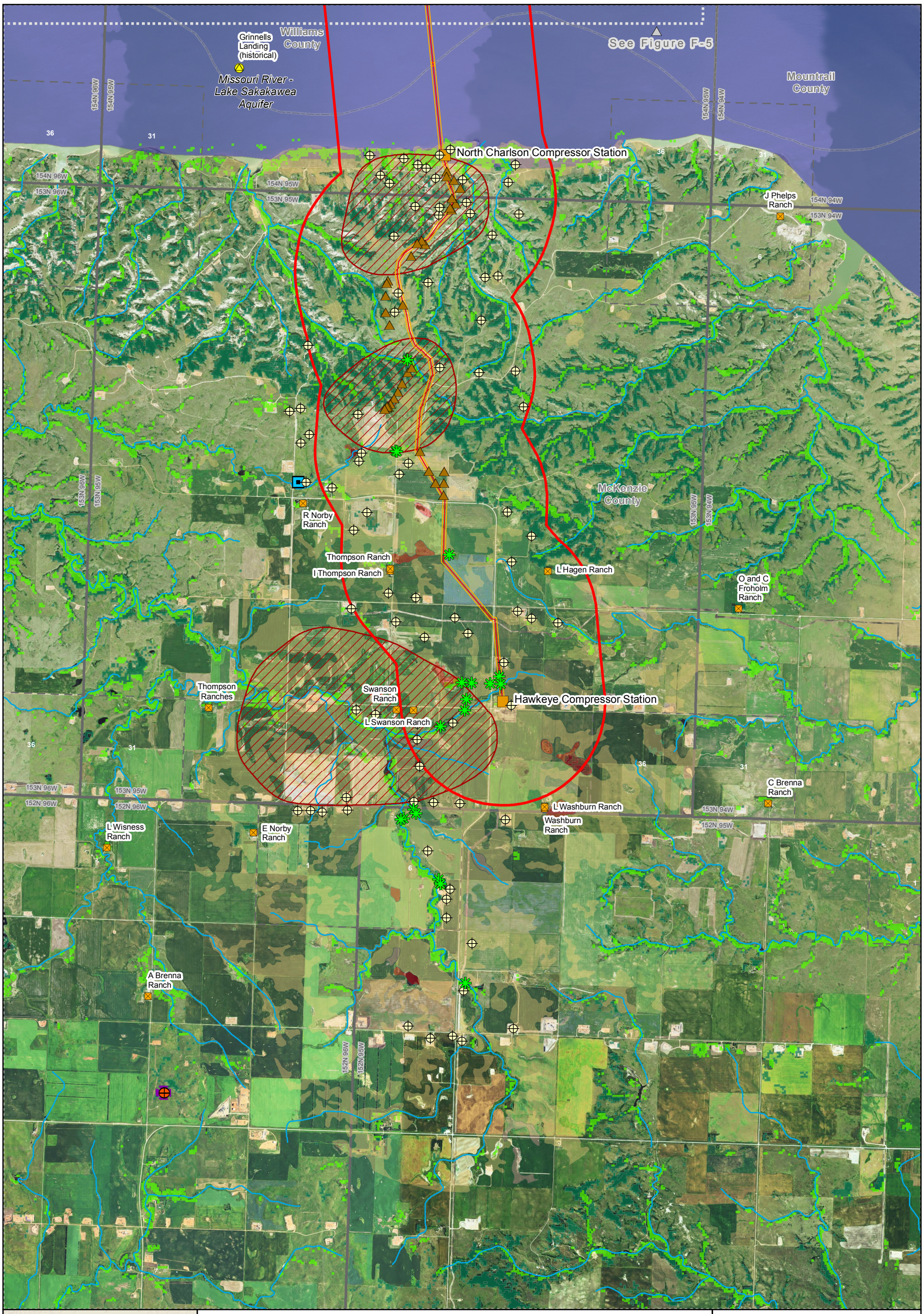
Sources: Hess 2014; NDGS 1980; SSURGO 2003; USGS 2008, 2010 .

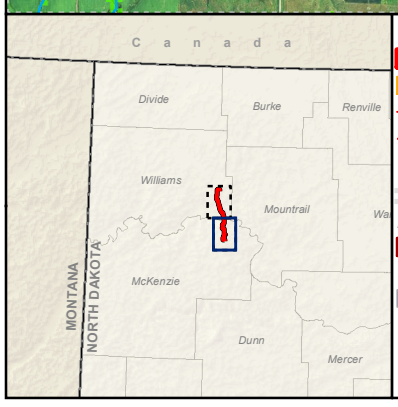
Hawkeye Pipeline System Project

Figure F-5

NGL Pipeline Route Selection Criteria

0 0.325 0.65 1.3
Miles





Legend

- Desktop Analysis Area
- 200-foot-wide Corridor
- Repurposed 8-inch-diameter NGL Pipeline
- Repurposed 10-inch-diameter NGL Pipeline
- Existing Facility
- Match Line

Mineral Deposits/Development

- Mineable Lignite

Surficial Aquifers

- Missouri River - Lake Sakakawea

Farmland Class

- Prime Farmland
- Farmland of Statewide Importance
- Prime Farmland if Drained

Other Features

- Antenna
- Oil/Gas Well Pad
- Microwave
- Mobile Radio
- Ranch
- Historical Site
- Wetland (Field Surveyed)
- Woodland (Field Surveyed)
- Stream
- Wetland
- Woodland

Sources: Hess 2014; NDGS 1980; SSURGO 2003; USGS 2008, 2010 .

Hawkeye Pipeline System Project

Figure F-6

NGL Pipeline Route Selection Criteria

0 0.325 0.65 1.3
Miles

Appendix G

Special Status Species

Table G-1 Special Status Species Potentially Occurring along the Project Route

Species	Scientific Name	Status[1]	Habitat Association	Primary Habitat	Potential for Occurrence Within Project Area	Eliminated from Detailed Analysis	Counties	Source
MAMMALS								
Northern long-eared bat	*Myotis septentrionalis*	FP	Habitat generally includes many trees, where northern long-eared bats roost during the day, either singly or colonially. Northern long-ear bats are opportunistic roosters, readily roosting in live trees of multiple species, snags, and isolated instances of using manmade structures as roosts. Trees and snags generally are considered good roosts if they have suitable cavities or retain bark, under which the bats often roost.	Shrublands, woodlands, and riparian areas.	Yes. Suitable habitat is present within the Project area.	No.	McKenzie and Williams.	Stantec 2014; USFWS 2014a.
Black-footed ferret	*Mustela nigripes*	FE	This species is an obligate of prairie dog colonies, which provide both shelter (i.e., burrows) and a prey base to support ferret populations.	Black-tailed prairie dog colonies.	No.	Yes. Suitable habitat does not exist in the Project area.	None.	Hagen 2005; SWCA Environmental Consultants 2013a,b; Stantec 2014.
Gray wolf	*Canis lupis*	FE	This species occurs in a wide range of habitats with large ungulates present. Gray wolves utilize mixed hardwood- coniferous forests in wilderness and sparsely settled areas, to forest and prairie landscapes dominated by agricultural and pasture lands.	Wide variety of habitats with sufficient prey base.	No.	Yes. The gray wolf is an occasional visitor in North Dakota, but no breeding records have been documented in the state.	McKenzie and Williams.	Hagen 2005.
Black-tailed prairie dog	*Cynomys ludovicianus*	USFS	The species inhabits prairie communities with short vegetation and flat topography. Black-tailed prairie dogs are often found in areas grazed by livestock and other disturbed areas with exposed soil.	Short and mixed grasslands, usually well- grazed lands.	Yes. No colonies have been documented near the Project area; however, suitable habitat exists within the Project area.	No.	McKenzie.	Hagen 2005; SWCA Environmental Consultants 2013a,b; Stantec 2014.
Rocky Mountain bighorn sheep	*Ovis canadensis*	USFS	Bighorn sheep inhabit steep, precipitous, rocky terrain and feed on grasses and forbs. Bighorn sheep require considerable acres of rough terrain and limited disturbance for lambing habitat.	Steep, rocky terrain; badlands.	No.	Yes. The known range of this species in North Dakota does not overlap with the Project area.	McKenzie.	Armstrong et al. 2011; Leier 2009; NDGFD 2013.
BIRDS								
Interior least tern	*Sterna antillarum athalassos*	FE	This species inhabits sparsely vegetated sandbars or shoreline salt flats of lakes along the Missouri River System. The Missouri River, Lake Sakakawea, and Lake Oahe are the only areas in North Dakota known to support interior least tern populations. Interior least terns are present in	Sparsely vegetated sandbars or shorelines.	Yes. Potential habitat exists at Lake Sakakawea.	No.	McKenzie and Williams.	Hagen 2005; USFWS 2013.

Table G-1 Special Status Species Potentially Occurring along the Project Route

Species	Scientific Name	Status[1]	Habitat Association	Primary Habitat	Potential for Occurrence Within Project Area	Eliminated from Detailed Analysis	Counties	Source
			North Dakota from mid-May to mid-August. The peak breeding season occurs from early June to mid-July.					
Whooping crane	*Grus americana*	FE	This species primarily utilizes wetlands and cropland ponds for roosting and feeding during migration. Spring and fall migration through the Project area generally occurs from April to mid-May and from mid-September to October, respectively. The Project route would intersect a known whooping crane migration route that includes 75-percent of all reported whooping crane sightings in North Dakota.	Wetlands bordered by agricultural fields.	Yes. The Project area is at the western edge of the species' migratory route through North Dakota.	No.	McKenzie and Williams.	Hagen 2005; SWCA Environmental Consultants 2013a.USFWS 20014b.
Piping plover	*Charadrius melodus*	FT	This species nests on exposed, sparsely vegetated shores and islands of shallow, alkali lakes and impoundments. Nests are placed in sand or gravel, generally near a clump of grass, rock, or small log. The peak breeding season occurs from late May to mid-July.	Sand or gravel beaches, alkaline wetlands.	Yes. Designated critical habitat exists along the Missouri River in McKenzie and Williams counties. Potential habitat exists at Lake Sakakawea.	No.	McKenzie and Williams.	Hagen 2005; USFWS 2002; USFWS 2014.
Rufa red knot	*Calidris canutus* ssp. *rufa*	FT	This shorebird breeds in the central Canadian Arctic, with primary breeding grounds in Nunavut Territory. The rufa red knot winters along the Atlantic coasts of Argentina and Chile, the north coast of Brazil, and further north into Mexico and the southeast U.S. During migration (July-August and March-June), the rufa red knot primarily follows the Atlantic coastline to and from breeding and wintering grounds. However, geolocator results from red knots wintering in Texas showed that some birds migrate using a central flyway across the midwestern U.S. and may have a northern Great Plains stopover.	Sand or gravel beaches, alkaline wetlands.	Yes. Potential stop-over habitat occurs at Lake Sakakawea and wetlands crossed by the Project.	No.	McKenzie and Williams.	NDNHI 1998; USFWS 2014b.
Sprague's pipit	*Anthus spragueii*	FC	This species requires large expanses of native grasslands of intermediate height and sparse to intermediate vegetation density, low forb density, and little bare ground but low litter depth. The abundance of this species is positively correlated with the percent of clubmoss cover and dominant native grass species. Sprague's pipit is present in North Dakota from mid-April to mid-October. Peak	Large expanses of native grasslands.	Yes. Potential habitat occurs within the Project area.	No.	McKenzie and Williams.	Hagen 2005; Stantec 2014.

Table G-1 Special Status Species Potentially Occurring along the Project Route

Species	Scientific Name	Status[1]	Habitat Association	Primary Habitat	Potential for Occurrence Within Project Area	Eliminated from Detailed Analysis	Counties	Source
			breeding season occurs from early May to mid-August.					
Baird's sparrow	*Ammodramus bairdii*	USFS	This species inhabits extensive tracts of native prairie, but will utilize idle, agricultural grasslands and lightly to moderately grazed pastures. Baird's sparrow is present in North Dakota from May to August. The peak breeding season occurs from early June to late July.	Grasslands and pastures.	Yes. Potential habitat occurs within the Project area.	No.	McKenzie and Williams.	Hagen 2005; SWCA Environmental Consultants 2013a.
Bald eagle	*Haliaeetus leucocephalus*	USFS	This species typically occurs near large waterbodies, which supports suitable roosting, nesting, and foraging habitat. Winter habitat typically includes areas of open water, adequate food sources, and sufficient diurnal and nocturnal roosts. Nest sites are usually located in mature trees close to open water. Bald eagles are present in North Dakota year-round. Peak breeding season occurs from early March to July.	Large rivers and waterbodies with mature stands of trees.	No.	Yes. Suitable nesting habitat does not occur within the Project area. The nearest nest is approximately 7 miles west of the Project area near Lake Sakakawea. Occurrence would be limited to migrating or foraging individuals.	McKenzie and Williams.	Hagen 2005; USFS 2014.
Burrowing owl	*Athene cunicularia*	USFS	This species inhabits open grasslands with short vegetation and bare ground. Burrowing owls rely exclusively on burrowing mammals (primarily prairie dogs) to create burrows for nest sites. The species is present in North Dakota from April to September. Peak breeding season occurs from early May to mid-August.	Short-grass/bare ground.	Yes. While preferred habitat (i.e., black-tailed prairie dog colonies) does not occur within the Project area, burrowing owls can also inhabit other mammalian burrows.	No.	McKenzie and Williams.	Hagen 2005; Stantec 2014.
Greater prairie chicken	*Tympanuchus cupido*	USFS	This species inhabits grassland and agricultural lands. Leks are located in areas of bare ground or short vegetation. Peak breeding season occurs from late April to early July.	Grasslands, short-grass/bare ground.	No.	Yes. The Project area is outside the known range for this species.	None.	Hagen 2005; USFS 2011.
Greater sage-grouse	*Centrocercus urophasianus*	USFS	This species primarily inhabits big sagebrush communities. Riparian, upland meadows and agricultural land are also utilized, especially for brood-rearing habitat. Leks are located in areas of bare ground or short vegetation. Peak breeding and nesting season occurs from mid- March to mid-July.	Big sagebrush, short-grass/bare ground, meadows, and agricultural land.	No.	Yes. The Project area is outside the known range for this species.	None.	Connelly et al. 2000; Hagen 2005; USFS 2011.
Loggerhead shrike	*Lanius ludovicianus*	USFS	This species inhabits open country with thickets of small trees, shrubs, and shelterbelts. The loggerhead shrike is present in North Dakota from	Open country with intermittent woody vegetation.	Yes. Potential habitat occurs within the Project Area.	No.	McKenzie and Williams.	Hagen 2005; SWCA Environmental

Table G-1 Special Status Species Potentially Occurring along the Project Route

Species	Scientific Name	Status[1]	Habitat Association	Primary Habitat	Potential for Occurrence Within Project Area	Eliminated from Detailed Analysis	Counties	Source
			mid-March to October. Peak breeding season occurs from early May to mid-July.					Consultants 2013a.
Long-billed curlew	*Numenius americanus*	USFS	This species inhabits expansive short-grass prairie with topography that is open, flat to gently rolling, or sloping. Proximity to water is an important habitat component. Nests are usually located near cowpies or other conspicuous objects for concealment and are often on hummocks for improved visibility. Peak breeding season occurs from early May to early July.	Grasslands.	Yes. Potential habitat occurs within the Project area.	No.	McKenzie.	Hagen 2005; SWCA Environmental Consultants 2013a.
INVERTEBRATES								
Dakota skipper	*Hesperia dacotae*	FT	This species inhabits wet tall-grass or mixed-grass native prairies, often with mountain death camas. The larvae feed on grasses, especially little bluestem. Dakota skippers produce one brood in mid-June to early July.	Native prairie containing a high diversity of wildflowers and grasses.	Yes. Potential habitat occurs within the Project area. Proposed critical habitat is located 3.1 miles west and 1.9 miles east of the Project area on USFS-administered lands south of Lake Sakakawea.	No.	McKenzie.	Royer 2004; Stantec 2014.
Argos skipper	*Atrytone arogos iowa*	USFS	This species inhabits mesic, undisturbed tall- to mixed-grass native bluestem prairies. Caterpillars hibernate and pupate the following spring. Adult flight is one brood from June to July.	Native prairie.	No.	Yes. The Project area is outside the known range for this species.	None.	Butterflies and Moths of North America 2014; Royer 2004.
Broad-winged skipper	*Poanes viator*	USFS	This species inhabits oxbow marshes with hairy sedge and swamp milkweed. Adult flight is one brood from late June to early August.	Oxbow marshes.	No.	Yes. The Project area is outside the known range for this species.	None.	Butterflies and Moths of North America 2014; Royer 2004.
Dion skipper	*Euphyes dion*	USFS	This species inhabits marshes with sedge, swamp milkweed, and cattails. Adult flight is one brood in July.	Marshes.	No.	Yes. The Project area is outside the known range for this species.	None.	Royer 2004; SWCA Environmental Consultants 2013a.
Mulberry wing	*Poanes massasoit*	USFS	This species inhabits woody hummock meadows with sedge and dogwood. Adult flight is one brood in July.	Sedge meadows.	No.	Yes. The Project area is outside the known range for this species.	None.	Royer 2004; SWCA Environmental Consultants 2013a.
Ottoe skipper	*Hesperia ottoe*	USFS	This species inhabits ungrazed or lightly grazed native prairie hilltops, often found on purple	Native prairie.	Yes. Potential habitat occurs within the Project	No.	McKenzie and Williams.	Royer 2004; SWCA

Table G-1 Special Status Species Potentially Occurring along the Project Route

Species	Scientific Name	Status[1]	Habitat Association	Primary Habitat	Potential for Occurrence Within Project Area	Eliminated from Detailed Analysis	Counties	Source
			coneflower blooms. The larvae feed on bluestem, grama, stipa, and bluegrass. The Ottoe skipper produces one brood in mid-June to early July.		area.			Environmental Consultants 2013a.
Powesheik skipperling	*Oarisma powesheik*	USFS	This species inhabits native tall-grass meadows.	Tallgrass meadows.	No.	Yes. The Project area is outside the known range for this species.	None.	Royer 2004.
Regal fritillary butterfly	*Speyeria idalia*	USFS	This species inhabits native prairie, feeding on milkweed, thistle, and blazing star. The larvae feed on birdfoot violet. The regal fritillary overwinters shortly after enclosure. Adult flight occurs in late June (males) through August (mostly females).	Native prairie.	Yes. Potential habitat occurs within the Project area.	No.	McKenzie and Williams.	Royer 2004; SWCA Environmental Consultants 2013a.
Tawny crescent	*Phyciodes batesii*	USFS	This species inhabits woodland roadsides, usually near bluestem prairie, feeding on dogbane and leafy spurge. The larvae feed on aster. The tawny crescent produces one brood, which usually emerges during the first week in June.	Woodland.	Yes. Potential habitat occurs within the Project area. This species has been documented near the Project area at milepost 20.4.	No.	McKenzie.	Royer 2004; USFS 2013.
FISH								
Pallid sturgeon	*Scaphirhynchus albus*	FE	This species is generally found in large, slow moving turbid rivers. Chutes between sandbars are commonly utilized. Spawning occurs from June through August.	Large, turbid rivers with sand substrate.	Yes. Potential habitat exists in Lake Sakakawea and the Missouri River upstream of Lake Sakakawea.	No.	McKenzie and Williams.	Hagen 2005; Ashton and Dowd 2008.
Northern Redbelly Dace	*Phoxinus eos*	USFS	This species inhabits cold, clear, spring- fed streams.	Cold, clear headwater streams.	No.	Yes. The Project area is outside the known range for this species.	McKenzie.	Hagen 2005.
PLANTS								
Smooth goosefoot	*Chenopodium pallescens*	USFS	The species inhabits sandbars, terraces, and dune complexes along rivers and creeks. Exposed sandy substrates in uplands, blowouts, outcrops, colluvium, etc. Elevation range 656 to 3,609 feet amsl. Flowering period: June to September.	Sand dunes.	No.	Yes. Potential habitat for this species is not present within the Project area.	N/A – No known populations within the Project- affected counties.	eFloras 2008; Mohlenbrock 2002; USFS 2011b.
Blue lips	*Collinsia parviflora*	USFS	This species inhabits woody understories, including green ash/elm draws, Rocky Mountain juniper, mesic shrub communities, and occasional xeric shrub communities. Elevation range unknown. Flowering period: March to June.	Woodlands and shrublands.	Yes. Potential habitat occurs within the Project area.	No.	N/A – No known populations within the Project- affected counties.	Elle and Carney 2003; NatureServe 2014; USFS 2011b
Torry's cryptantha	*Cryptantha torreyana*	USFS	This species inhabits open areas at low to mid-elevation ranges within dry plains and pine slopes. Within the Little Missouri National Grassland, the	Varies.	No.	Yes. Potential habitat for this species is not present within the Project	N/A – No known populations within the	Jepson 1993 NatureServe 2014; USFS 2011b.

Table G-1 Special Status Species Potentially Occurring along the Project Route

Species	Scientific Name	Status[1]	Habitat Association	Primary Habitat	Potential for Occurrence Within Project Area	Eliminated from Detailed Analysis	Counties	Source
			species has been reported from scoria ridgelines, dry plains, rocky outcrops, escarpments, and pine slopes. Elevation range 1,148 to 6,562 feet amsl. Flowering period May to July.			area.	Project- affected counties.	
Nodding wild buckwheat	*Eriogonum cernuum*	USFS	This species inhabits exposed sand substrates with low plant cover in grasslands, hillsides, and sandstone outcrops. Elevation range 1,970 to 10,170 feet amsl. Flowering period: late June to September.	Sandy substrates	No.	Yes. Potential habitat for this species is not present within the Project area.	N/A – No known populations within the Project- affected counties.	Jepson 1993; Niehaus, 1998; USFS 2011b.
Dakota buckwheat	*Eriogonum visheri*	USFS	This species inhabits relatively exposed clay/silt substrate with low plant cover such as outwash zones around eroding buttes, saddles, steep convex slopes, and erosional breaks on prairie slopes. Occasional populations among dense saltgrass communities. 1,886 to 2,707 feet amsl. Flowering period: June to late September.	Barren, Prairie.	Yes. Potential habitat occurs within the Project area.	No.	McKenzie.	eFloras, 2014; Ladyman 2006; Montana Field Guide 2014; NatureServe 2014; USFS 2011b.
Missouri pincushion cactus	*Escobaria missouriensis*	USFS	This species inhabits prairie slopes and plains and stony to loamy to clayey short-grass to mixed-grass prairies. Also reported in woodlands of ponderosa pine or *Quercus* spp. Elevation range unknown. Flowering period April to June.	Prairie, Woodlands.	Yes. Potential habitat occurs within the Project area.	No.	McKenzie.	eFloras 2014; NRCS 2014; USFS 2011b.
Sand lily	*Leucocrinum montanum*	USFS	This species inhabits shortgrass communities with fine textured substrates but also found in crested wheatgrass communities. Reported from open coniferous woodlands and hillsides, sagebrush scrub, and sandy flats. Elevation range 2,620 to 7,875 feet amsl. Flowering period March to June.	Varies.	Yes. Potential habitat occurs within the Project area.	No.	McKenzie.	eFloras 2014; NatureServe 2014; USFS 2011b.
Golden stickleaf	*Mentzelia pumila*	USFS	This species inhabits scoria exposures and colluvium with low plant cover. Also reported on slopes and sandy plains; occasionally on hard clays and rocky soils. Elevation range unknown. Flowering period: June to early July.	Varies.	Yes. Potential habitat occurs within the Project area.	No.	N/A – No known populations within the Project- affected counties.	Nature Serve 2014; Montana Field Guide 2014; USFS 2011b.
Alyssum-leaved phlox	*Phlox alyssifolia*	USFS	This species inhabits sandy or gravelly soil on and around Bullion Butte. Also reported on clay banks and limestone ridges of open prairie. Elevation range unknown. Flowering period May.	Prairie, sandy and gravelly substrates.	Yes. Potential habitat occurs within the Project area.	No.	Williams.	NPWRC 2013; NatureServe 2010; USFS 2011b.
Limber pine	*Pinus flexilis*	USFS	This species inhabits semi-arid exposed rocky ridges and foothills in the Limber Pines RNA, likely of native-American origin. Elevation range 4,000 to	Rocky ridges, Foothills.	No.	Yes. Potential habitat for this species is not present within the Project	N/A – No known populations within the	Johnson 2001; NRCS 2014; USFS 2011b.

Table G-1 Special Status Species Potentially Occurring along the Project Route

Species	Scientific Name	Status[1]	Habitat Association	Primary Habitat	Potential for Occurrence Within Project Area	Eliminated from Detailed Analysis	Counties	Source
			12,500 feet amsl. Fruiting period: August-September.			area.	Project- affected counties.	
Lance-leaf cottonwood	*Populus acuminata*	USFS	This species inhabits mesic woody draws, often with springs/seeps, and is found occasionally near springs on open hillsides, floodplains, and stream banks. Elevation range 4,921 to 7,874 feet. Flowering period: April-May.	Riparian.	No.	Yes. Potential habitat for this species is not present within the Project area.	N/A – No known populations within the Project- affected counties.	NatureServe 2014; eFloras, 2014; NRCS 2014; USFS 2011b.
Alkali sacaton	*Sporobolus airoides*	USFS	This species inhabits secondary succession on clay outwash where tolerant of saline conditions, also on dry to moist sandy or gravelly soil. Elevation range 2,500 to 8,000 feet. Flowering period: June to October.	Desert, Prairie.	No.	Yes. Potential habitat for this species is not present within the Project area.	N/A – No known populations within the Project- affected counties.	Johnson, 2000; Brakie 2007; NatureServe 2014; USFS 2011b.
Stemless townsend daisy	*Townsendia exscapa*	USFS	This species inhabits dry plains and hillsides, often with loamy or increased soil development and increased plant cover relative to T. *hookeri*. Elevation range: up to 10,000 feet amsl. Flowering period: April to May.	Plains.	Yes. Potential habitat occurs within the Project area.	No.	McKenzie.	NPWRC 2013; NatureServe 2014; NRCS 2014; USFS 2011b.
Hooker's townsendia	*Townsendia hookeri*	USFS	This species inhabits areas with low to moderate plant cover on dry plains, hillsides, gravelly benches and weathered scoria, but often clay matrix subsoil 2,296 to 5,905 feet amsl. Flowering period: March to June.	Plains.	Yes. Potential habitat occurs within the Project area.	No.	McKenzie.	eFloras 2014; NatureServe 2014; USFS 2011b.

[1] FE = Federally Endangered.

FT = Federally Threatened.

FC = Federal Candidate.

FP = Federally Proposed

USFS = USFS Region 1 Sensitive Species.

Note: There are no greater sage-grouse leks along the Project route (SWCA Environmental Consultants 2013a).

Appendix H

Environmental Protection Measures

Environmental Protection Measures

Hess has committed to specific environmental protection measures as part of the Project to minimize potential impacts during operation. **Table H-1** summarizes these protection measures by resource.

Table H-1 Summary of Environmental Protection Measures for the Project

Resource	Environmental Protection Measures
Soils	Soil erosion will be minimized by implementing procedures described in the Storm Water Pollution Prevention Plan (SWPPP), and Construction, Mitigation, and Reclamation Plan (CMRP).
Water Resources and Wetlands	The SWPPP and BMPs will be implemented to minimize storm water transport of sediment from disturbed areas to streams and wetlands. All project-related storm water discharges will be in compliance with a NPDES permit.
	Hydraulic, fuel, and lubricating systems on operating equipment will be kept in good repair to avoid leakage of petroleum products into watercourses.
Wildlife and Fisheries	No firearms, dogs, or pets will be brought onto the aboveground facility areas by anyone involved with the Project and that no harassment or depredation of any wildlife species or livestock takes place.
	Any open posts (1.5-inch-diameter or greater), which may be utilized in pipeline operation (such as markers, signs, stacks, etc.), would be permanently covered or filled with sand or gravel. This is necessary to prevent wildlife mortalities by entrapment.
Public Safety and Environmental Protection	The Project will be located a minimum distance of 500 feet from residences to minimize hazards to human health and safety. Also, isolation valves will be installed along the pipeline in accordance with federal regulations to isolate the pipeline during a potential leak to minimize the release. At Lake Sakakawea, isolation valves will: 1) be remotely operated to reduce potential spill volume; 2) have pressure sensors that are capable of detecting leaks with slow release rates; and 3) have pressure detectors equipped with acoustic detection capabilities, capable of identifying the location of a release within 6 feet of its actual location, thereby reducing environmental disturbance.
	A Spill Risk Assessment has been completed to identify high consequence areas (HCAs) and potential impacts as a result of an accidental release of NGL during pipeline operation.
	Equipment will be maintained on-site to contain, capture, and clean up any accidental release of harmful chemicals, pollutants or other materials into the environment. Spills will be cleaned up immediately. Spills on water that cause a sheen on the water require notification to the U.S. Environmental Protection Agency (USEPA) and will be removed by the appropriate containment and cleanup technologies. Spills will be cleaned up using an absorbent material, vacuum trucks, and other equipment, and the contaminated material either drummed in marked 55-gallon drums or hauled to an authorized disposal area.
	The use of hazardous materials will be carefully controlled. Such materials will be clearly labeled and used only by authorized personnel trained in the transportation, handling, use and storage of the specific hazardous materials. Storage sites for fuels and hazardous materials will be located a minimum distance of 500 yards from wetlands and waterbodies and shall be selected to ensure that risk of contamination of waterbodies or other sensitive environments resulting from an accidental spill at the site is reduced, and that leakage will be readily detected and contained.
	Storage sites of fuels or chemicals designed to hold in excess of 300 barrels will be surrounded by an impermeable berm, which will be of sufficient capacity to contain 150 percent of the volume of liquid stored. All hazardous chemicals, regardless of volume (including pesticides) will be stored on or in a secondary containment vessel capable of

Table H-1 Summary of Environmental Protection Measures for the Project

Resource	Environmental Protection Measures
	containing 150 percent of the volume of liquid stored.
Public Safety and Environmental Protection (continued)	Hess will be responsible (or have contracts with companies with equipment and capabilities) for maintaining a sufficient supply of spill containment and clean-up equipment, including suitable commercial absorbent material on the work site with the responsibility to adequately respond to a loss of containment event.