PERMITS T.O.C.

11/25/2013

TAB	PERMIT NAME	ISSUING PARTY
A	Air Pollution Control Permit to Construct	NDDH
B	Stormwater Pollution Prevention Plan (SWPPP)	NDDH
C	SWPPP Signed NOI	DPR / MDU
D	Spill Prevention Control and Countermeasure (SPCC)	Barr Engineering
E	Authorization to Construct a Bridge Across Heart River	Army Corps of Eng.
F	404 Permit Submittal - New Vehicular Bridge and Stormwater Outlet	Stark County
G	Letter of Consent to Install an Access Road/Vehicular Bridge	Bureau of Reclamation
H	NWP 39	Army Corps of Eng.
I	Sovereign Land Permit	State of North Dakota
J	Floodplain Development Permit	Stark County
K	Preliminary Jurisdictional Determination Form	Army Corps of Eng.
L	Class I and Class III Cultural Resource Inventory	Barr Eng/SWCA Environ.
M	Road Crossing Permit	Stark County
N	Stormwater Pollution Prevention Plan (SWPP)	NDDH



NORTH DAKOTA
DEPARTMENT *of* HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov

October 28, 2013

Mr. David Podratz
Plant Manager
Dakota Prairie Refining, LLC
P.O. Box 5601
Bismarck, ND 58506-5601

Re: Air Pollution Control
Permit to Construct

Dear Mr. Podratz:

Pursuant to the Air Pollution Control Rules of the State of North Dakota, the Department of Health has completed final review of your application to obtain a Permit to Construct for modifications to the Dakota Prairie Refining facility located near Dickinson, North Dakota.

Based on the results of the documents reviewed, this Department hereby issues the enclosed North Dakota Air Pollution Control Permit to Construct No. PTC12090, Amendment No. 1. A public comment period was held regarding this project from September 25, 2013 to October 25, 2013 and no comments were received by the Department.

Please advise the Department within 15 days after completing the project to allow for an inspection by the Department.

Note that the above-referenced permit addresses only air quality requirements applicable to your facility. Other divisions (Water Quality, Waste Management and Municipal Facilities) within the Environmental Health Section may have additional requirements. Contact information for the various divisions is listed at the bottom of this letter.

If you have any questions regarding air quality, please contact me at (701)328-5188.

Sincerely,

Craig D. Thorstenson
Environmental Engineer
Division of Air Quality

CDT:saj
Enc:
xc/enc: Stark County Commission
Sandra Silva, U.S. Fish and Wildlife Service
Carol McCoy, National Park Service
Mike Owens, EPA (email)
Southwestern District Health Unit (email)

NORTH DAKOTA
DEPARTMENT of HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov

AIR POLLUTION CONTROL
PERMIT TO CONSTRUCT

Pursuant to Chapter 23-25 of the North Dakota Century Code, and the Air Pollution Control Rules of the State of North Dakota (Article 33-15 of the North Dakota Administrative Code), and in reliance on statements and representations heretofore made by the owner designated below, a Permit to Construct is hereby issued authorizing such owner to construct and initially operate the source unit(s) at the location designated below. This Permit to Construct is subject to all applicable rules and orders now or hereafter in effect of the North Dakota Department of Health and to any conditions specified below:

I. **General Information**:

A. **Permit to Construct Number**: PTC12090, Amendment No. 1

B. **Source**:

1. Name: Dakota Prairie Refinery

2. Location: Sec. 15, T139N, R97W
116th Avenue SW
Approximately 4 miles Southwest of Dickinson
Stark County, North Dakota

3. Source Type: Diesel Refinery with a rated annual capacity of approximately 20,000 barrels of crude oil per day.

4. Equipment at the Facility:

Emission Unit Description	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
Crude charge heater rated at a maximum of 94.0 MMBtu/hr and fired on refinery fuel gas*	H-101	1	Ultra-Low NOx Burner Design
Distillate hydrotreater charge heater rated at a maximum of 17.6 MMBtu/hr and fired on refinery fuel gas*	H-801	2	Ultra-Low NOx Burner Design
Distillate hydrotreater reboiler rated at a maximum of 27.5 MMBtu/hr and fired on refinery fuel gas*	H-802	3	Ultra-Low NOx Burner Design

Emission Unit Description	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
Hydrogen plant heater rated at a maximum of 22.0 MMBtu/hr and fired on refinery fuel gas*	R-1901	4	Ultra-Low NOx Burner Design
Hot oil heater rated at a maximum of 15.0 MMBtu/hr and fired on refinery fuel gas*	H-1010	5	Ultra-Low NOx Burner Design
Steam boiler #1 rated at a maximum of 22.0 MMBtu/hr and fired on refinery fuel gas*	PK-2403A	6	Ultra-Low NOx Burner Design
Steam boiler #2 rated at a maximum of 22.0 MMBtu/hr and fired on refinery fuel gas*	PK-2403B	7	Ultra-Low NOx Burner Design
Steam boiler #3 rated at a maximum of 22.0 MMBtu/hr and fired on refinery fuel gas*	PK-2403C	8	Ultra-Low NOx Burner Design
Truck loadout	P-9800	9	Submerged Loading
Refinery flare	PK-2402	11	None
Cooling tower	CT-2409	12	Drift Eliminators Inherent to Design
Diesel fuel-fired emergency fire pump engine rated at a maximum of 150 hp	P-2415	13	**
Natural gas-fired emergency generator set rated at a maximum of 350 hp	P-2409	14	**
Sulfur recovery unit	P-1300	15	Incinerator
Hydrogen production plant process CO_2 emissions	P-1900	4	None
Hydrogen production plant steam de-aerator vent	V-1906	16	None
LPG loading	FUG-1	FUG-1	None
Wastewater treatment plant	FUG-2	FUG-2	***
Process equipment leaks in VOC and Natural Gas service	FUG-3	FUG-3	Leak Detection and Repair
Crude oil storage tank #1 with a nominal 75,000 bbl capacity	TK-1001	17	Internal Floating Roof and Submerged Fill Pipe
Crude oil storage tank #2 with a nominal 75,000 bbl capacity	TK-1002	18	Internal Floating Roof and Submerged Fill Pipe
Crude oil storage tank #3 with a nominal 75,000 bbl capacity	TK-1003	19	Internal Floating Roof and Submerged Fill Pipe
Naphtha storage tank #1 with a nominal 25,000 bbl capacity	TK-1021	20	Internal Floating Roof and Submerged Fill Pipe
Naphtha storage tank #2 with a nominal 25,000 bbl capacity	TK-1022	21	Internal Floating Roof and Submerged Fill Pipe
Naphtha storage tank #3 with a nominal 25,000 bbl capacity	TK-1023	22	Internal Floating Roof and Submerged Fill Pipe

Emission Unit Description	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
Excess distillate storage tank with a nominal 15,000 bbl capacity	TK-1040	26	Submerged Fill Pipe
Diesel storage tank #1 with a nominal 40,000 bbl capacity	TK-1041	27	Submerged Fill Pipe
Diesel storage tank #2 with a nominal 40,000 bbl capacity	TK-1042	28	Submerged Fill Pipe
Diesel storage tank #3 with a nominal 40,000 bbl capacity	TK-1043	29	Submerged Fill Pipe
Fuel oil storage tank #1 with a nominal 30,000 bbl capacity	TK-1081	30	Submerged Fill Pipe
Fuel oil storage tank #2 with a nominal 30,000 bbl capacity	TK-1082	31	Submerged Fill Pipe
Fuel oil storage tank #3 with a nominal 30,000 bbl capacity	TK-1083	32	Submerged Fill Pipe
Fuel oil storage tank #4 with a nominal 30,000 bbl capacity	TK-1084	33	Submerged Fill Pipe
Slop oil storage tank #4 with a nominal 25,000 bbl capacity	TK-1101	34	Submerged Fill Pipe

* The primary fuel will be refinery fuel gas with natural gas combusted as a supplemental fuel.

** The engines shall be certified to emissions standards as outlined under 40 CFR 60, Subparts IIII and JJJJ. The engines shall be manufactured with the appropriate control equipment to meet these emissions standards.

*** Wastewater treatment plant must comply with the design requirements of 40 CFR 60 Subpart QQQ.

C. **Owner/Operator (Permit Applicant)**:

1. Name: Dakota Prairie Refining, LLC
2. Address: PO Box 5601
   Bismarck, ND 58506
3. Application Date: October 18, 2012 (original)
   August 22, 2013 (amendment)

II. **Conditions**: This Permit to Construct allows the construction and initial operation of the above-mentioned new or modified equipment at the source. The source may be operated under this Permit to Construct until a Permit to Operate is issued unless this permit is suspended or revoked. The source is subject to all applicable rules, regulations, and orders now or hereafter in effect of the North Dakota Department of Health and to the conditions specified below.

A. **Emission Limits**: Emission limits from the operation of the source unit(s) identified in Item I.B of this Permit to Construct (hereafter referred to as "permit") are as follows. Source units not listed are subject to the applicable emission limits specified in the North Dakota Air Pollution Control Rules.

Emission Unit	EU	EP	Pollutant/ Parameter	Emission Limit or Design / Work Practice	NDAC Applicable Requirement
Crude charge heater	H-101	1	SO_2 or H_2S	See Condition II.A.1	33-15-12-02 and 40 CFR 60, Subpart Ja
			NO_X	See Condition II.A.2	33-15-12-02 and 40 CFR 60, Subpart Ja
			Opacity	20% (40%*)	33-15-03-02
			Greenhouse Gases (as CO_2e)	53,779 tons/yr on a 12-month rolling sum basis	33-15-15-01.2 (BACT)
Distillate hydrotreater charge heater	H-801	2	SO_2 or H_2S	See Condition II.A.1	33-15-12-02 and 40 CFR 60, Subpart Ja
			Opacity	20% (40%*)	33-15-03-02
			Greenhouse Gases (as CO_2e)	10,069 tons/yr on a 12-month rolling sum basis	33-15-15-01.2 (BACT)
Distillate hydrotreater reboiler	H-802	3	SO_2 or H_2S	See Condition II.A.1	33-15-12-02 and 40 CFR 60, Subpart Ja
			Opacity	20% (40%*)	33-15-03-02
			Greenhouse Gases (as CO_2e)	15,733 tons/yr on a 12-month rolling sum basis	33-15-15-01.2 (BACT)
Hydrogen plant heater	R-1901	4	SO_2 or H_2S	See Condition II.A.1	33-15-12-02 and 40 CFR 60, Subpart Ja
			Opacity	20% (40%*)	33-15-03-02
			Greenhouse Gases (as CO_2e)	12,587 tons/yr on a 12-month rolling sum basis	33-15-15-01.2 (BACT)

Emission Unit	EU	EP	Pollutant/ Parameter	Emission Limit or Design / Work Practice	NDAC Applicable Requirement
Hot oil heater	H-1010	5	SO_2 or H_2S	See Condition II.A.1	33-15-12-02 and 40 CFR 60, Subpart Ja
			Opacity	20% (40%*)	33-15-03-02
			Greenhouse Gases (as CO_2e)	8,582 tons/yr on a 12-month rolling sum basis	33-15-15-01.2 (BACT)
Steam boiler #1	PK-2403A	6	SO_2 or H_2S	See Condition II.A.1	33-15-12-02 and 40 CFR 60, Subpart Ja
			Opacity	20% (40%*)	33-15-03-02
			Greenhouse Gases (as CO_2e)	12,587 tons/yr on a 12-month rolling sum basis	33-15-15-01.2 (BACT)
Steam boiler #2	PK-2403B	7	SO_2 or H_2S	See Condition II.A.1	33-15-12-02 and 40 CFR 60, Subpart Ja
			Opacity	20% (40%*)	33-15-03-02
			Greenhouse Gases (as CO_2e)	12,587 tons/yr on a 12-month rolling sum basis	33-15-15-01.2 (BACT)
Steam boiler #3	PK-2403C	8	SO_2 or H_2S	See Condition II.A.1	33-15-12-02 and 40 CFR 60, Subpart Ja
			Opacity	20% (40%*)	33-15-03-02
			Greenhouse Gases (as CO_2e)	12,587 tons/yr on a 12-month rolling sum basis	33-15-15-01.2 (BACT)
Truck loadout	P-9800	9	VOC	Best Management Practices and Submerged Loading (See Conditions II.A.3 and II.B)	33-15-07-01

Emission Unit	EU	EP	Pollutant/ Parameter	Emission Limit or Design / Work Practice	NDAC Applicable Requirement
Refinery flare	PK-2402	11	H_2S in flared gas	162 ppm on a 3-hr rolling average basis (See Condition II.A.4.b)	33-15-12-02 and 40 CFR 60, Subpart Ja
			VOC	Best Management Practices (See Conditions II.A.3 and II.A.4.a)	33-15-15-01.2 33-15-07-01
			Opacity	No visible emissions (See Condition II.A.5)	33-15-03-03.1
Cooling tower	CT-2409	12	PM/PM_{10}/ PM2.5	Best Management Practices / Mist Eliminators (See Conditions II.A.3 and II.A.6)	33-15-14
Diesel fuel-fired emergency fire pump engine rated at a maximum of 150 hp	P-2415	13	Opacity	20% (40%*)**	33-15-03-02
Natural gas-fired emergency generator set rated at a maximum of 350 hp	P-2409	14	Opacity	20% (40%*)**	33-15-03-02
Sulfur Recovery Unit	P-1300	15	SO_2	2,500 ppm (dry basis corrected to 0% excess air) (See Condition II.A.7)	33-15-12-02 and 40 CFR 60, Subpart Ja
			Opacity	20% (40%*)	33-15-03-02
			Greenhouse Gases (as CO_2e)	1,137 tons/yr on a 12-month rolling sum basis	33-15-15-01.2 (BACT)
Hydrogen production plant process CO_2 emissions	P-1900	4	Greenhouse Gases (as CO_2e)	21,094 tons/yr on a 12-month rolling sum basis	33-15-15-01.2 (BACT)
			Opacity	20% (40%*)	33-15-03-02
Hydrogen production plant steam de-aerator vent	V-1906	16	Opacity	20% (40%*)	33-15-03-02

Emission Unit	EU	EP	Pollutant/ Parameter	Emission Limit or Design / Work Practice	NDAC Applicable Requirement
LPG loading	FUG-1	FUG-1	VOC	Best Management Practices (See Conditions II.A.3)	33-15-17-01
Wastewater treatment plant	FUG-2	FUG-2	VOC	Best Management Practices (See Conditions II.A.3 and II.C)	33-15-12-02 and 40 CFR 60, Subpart QQQ
Process equipment leaks	FUG-3	FUG-3	VOC	Leak Detection and Repair Program (See Condition II.D.)	33-15-12-02 and 40 CFR 60, Subpart GGGa 33-15-15-01.2 (BACT)
Crude oil storage tank #1 with a 75,000 bbl capacity	TK-1001	17	VOC	Internal Floating Roof (See Conditions II.E. and II.F.)	33-15-12-02 and 40 CFR 60, Subpart Kb
Crude oil storage tank #2 with a 75,000 bbl capacity	TK-1002	18	VOC	Internal Floating Roof (See Conditions II.E. and II.F.)	33-15-12-02 and 40 CFR 60, Subpart Kb
Crude oil storage tank #3 with a 75,000 bbl capacity	TK-1003	19	VOC	Internal Floating Roof (See Conditions II.E. and II.F.)	33-15-12-02 and 40 CFR 60, Subpart Kb
Naphtha storage tank #1 with a 25,000 bbl capacity	TK-1021	20	VOC	Internal Floating Roof (See Conditions II.E. and II.F.)	33-15-12-02 and 40 CFR 60, Subpart Kb
Naphtha storage tank #2 with a 25,000 bbl capacity	TK-1022	21	VOC	Internal Floating Roof (See Conditions II.E. and II.F.)	33-15-12-02 and 40 CFR 60, Subpart Kb
Naphtha storage tank #3 with a 25,000 bbl capacity	TK-1023	22	VOC	Internal Floating Roof (See Conditions II.E. and II.F.)	33-15-12-02 and 40 CFR 60, Subpart Kb
Excess distillate storage tank with a 15,000 bbl capacity	TK-1040	26	VOC	Submerged Fill Pipe (See Condition II.F.)	33-15-07-01
Diesel storage tank #1 with a 40,000 bbl capacity	TK-1041	27	VOC	Submerged Fill Pipe (See Condition II.F.)	33-15-07-01
Diesel storage tank #2 with a 40,000 bbl capacity	TK-1042	28	VOC	Submerged Fill Pipe (See Condition II.F.)	33-15-07-01
Diesel storage tank #3 with a 40,000 bbl capacity	TK-1043	29	VOC	Submerged Fill Pipe (See Condition II.F.)	33-15-07-01
Fuel oil storage tank #1 with a 30,000 bbl capacity	TK-1081	30	VOC	Submerged Fill Pipe (See Condition II.F.)	33-15-07-01

Emission Unit	EU	EP	Pollutant/ Parameter	Emission Limit or Design / Work Practice	NDAC Applicable Requirement
Fuel oil storage tank #2 with a 30,000 bbl capacity	TK-1082	31	VOC	Submerged Fill Pipe (See Condition II.F.)	33-15-07-01
Fuel oil storage tank #3 with a 30,000 bbl capacity	TK-1083	32	VOC	Submerged Fill Pipe (See Condition II.F.)	33-15-07-01
Fuel oil storage tank #4 with a 30,000 bbl capacity	TK-1084	33	VOC	Submerged Fill Pipe (See Condition II.F.)	33-15-07-01
Slop oil storage tank #4 with a 25,000 bbl capacity	TK-1101	34	VOC	Submerged Fill Pipe (See Condition II.F.)	33-15-07-01
Crude charge heater, distillate hydrotreater charge heater, distillate hydrotreater reboiler, hydrogen plant heater, hot oil heater, steam boiler #1, steam boiler #2, steam boiler #3, refinery flare, diesel fuel-fired emergency engine, natural gas-fired emergency engine, sulfur recovery unit	H-101, H-801, H-802, R-1901, H-1010, PK-2403A, PK-2403B, PK-2403C, PK-2402, P-2415, P-2409, P-1300	1, 2, 3, 4, 5, 6, 7, 8, 11, 13, 14, 15	NO_X	38.0 tons/year (12-month rolling sum)***	33-15-15-01.2

Emission Unit	EU	EP	Pollutant/ Parameter	Emission Limit or Design / Work Practice	NDAC Applicable Requirement
Crude charge heater, distillate hydrotreater charge heater, distillate hydrotreater reboiler, hydrogen plant heater, hot oil heater, steam boiler #1, steam boiler #2, steam boiler #3, truck loadout, refinery flare, cooling tower, diesel fuel-fired emergency engine, natural gas-fired emergency engine, hydrogen production plant steam de-aerator vent, lpg loading, wastewater treatment plant, process equipment leaks, crude oil storage tank #1, crude oil storage tank #2, crude oil storage tank #3, naphtha storage tank #1, naphtha storage tank #2, naphtha storage tank #3, excess distillate storage tank, diesel storage tank #1, diesel storage tank #2, diesel storage tank #3, fuel oil storage tank #1, fuel oil storage tank #2, fuel oil storage tank #3, fuel oil storage tank #4, slop oil storage tank,	H-101, H-801, H-802, R-1901, H-1010, PK-2403A, PK-2403B, PK-2403C, P-9800, P-2402, CT-2409, P-2415, P-2409, V-1906 FUG-1, FUG-2 FUG-3, TK-1001, TK-1002, TK-1003, TK-1021, TK-1022, TK-1023, TK-1040, TK-1041, TK-1042, TK-1043, TK-1081, TK-1082, TK-1083, TK-1084, TK-1101,	1, 2, 3 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 16, FUG-1, FUG-2, FUG-3, 17, 18, 19, 20, 21, 22, 26, 27, 28, 29, 30, 31, 32, 33, 34	VOC	38.0 tons/year (12-month rolling sum)***	33-15-15-01.2

Emission Unit	EU	EP	Pollutant/ Parameter	Emission Limit or Design / Work Practice	NDAC Applicable Requirement
Crude charge heater, distillate hydrotreater charge heater, distillate hydrotreater reboiler, hydrogen plant heater, hot oil heater, steam boiler #1, steam boiler #2, steam boiler #3, refinery flare, diesel fuel-fired emergency engine, natural gas-fired emergency engine, sulfur recovery unit	H-101, H-801, H-802, R-1901, H-1010, PK-2403A, PK-2403B, PK-2403C, P-2402 P-2415, P-2409, P-1300	1, 2, 3, 4, 5, 6, 7, 8, 11, 13, 14, 15	SO_2	38.0 tons/year (12-month rolling sum)***	33-15-15-01.2

* Allowed for one six minute period per hour.

** The engines are also subject to the applicable emission limits established by 40 CFR 60, Subpart IIII; 40 CFR 60, Subpart JJJJ and 40 CFR 63, Subpart ZZZZ.

*** The emission limit applies to combined emissions from all listed emission units.

Note: For the purposes of this permit, a "ton" is a short ton (2,000 pounds).

1. **Fuel Gas Combustion**: For each fuel gas combustion device excluding flares, the permittee shall either:

   a. Not discharge or cause the discharge of any gases into the atmosphere that contain SO_2 in excess of 20 ppmv (dry basis, corrected to 0 percent excess air) determined on a 3-hour rolling average basis and SO_2 in excess of 8 ppmv (dry basis, corrected to 0 percent excess air), determined on a 365-day successive calendar day rolling average basis; or

   b. Not burn in any fuel gas combustion device any fuel gas that contains H_2S in excess of 162 ppmv determined hourly on a 3-hour rolling average basis and H_2S in excess of 60 ppmv determined daily on a 365 successive calendar day rolling average basis.

   The permittee shall comply with all applicable limits established by 40 CFR 60.102a(g)(1).

2. **Process Heater NOx**: For EU H-101, the permittee shall either:

a. Not discharge to the atmosphere any emissions of NO_X in excess of 40 ppmv (dry basis, corrected to 0 percent excess air) determined daily on a 30-day rolling average basis

b. Not discharge to the atmosphere any emissions of NO_X in excess of 0.040 pounds per million British thermal units (lb/MMBtu) higher heating value basis determined daily on a 30-day rolling average basis.

The permittee shall comply with all applicable limits established by 40 CFR 60.102a(g)(2).

3. **Best Management Practices**: At all times, including periods of startup, shutdown, and malfunction, the permittee shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions.

4. **Flare Operation**: For the refinery flare, EU PK-2402

a. The flare shall be designed and operated in accordance with the requirements of NDAC 33-15-12-02, Subpart A, 60.18 (40 CFR 60.18). The flare shall be operated with a flame present at all times when emissions may be vented to the flare.

b. The flare shall not burn any fuel gas that contains H_2S in excess of 162 ppmv determined hourly on a 3-hour rolling average basis. The combustion in a flare of process upset gases or fuel gas that is released to the flare as a result of relief valve leakage or other emergency malfunctions is exempt from this limit.

c. The permittee shall develop and implement a written flare management plan by no later than the date that the flare becomes an affected facility subject to this subpart, except for the selected minimization alternatives in 40 CFR 60.103a(a)(2) and/or the procedures in 40 CFR 60.103a(a)(5) though (a)(7) that cannot reasonably be implemented by that date, which the owner or operator must implement in accordance with the schedule in the flare management plan. The plan must include the information described in 40 CFR 60.103a(a)(1) through (a)(7).

5. **Flare Visible Emissions**: Flares shall be operated with no visible emissions except for periods not to exceed a total of five minutes during any two consecutive hours.

Reference Method 22 of 40 CFR 60, Appendix A shall be used to determine compliance with this visible emissions provision.

6. **Cooling Tower Mist Eliminators**: The cooling towers shall be equipped with and operated with mist eliminators that are guaranteed to limit drift to 0.005% or less of the circulating flow.

7. **Sulfur Recovery Unit Operation**: For the Sulfur Recovery Unit, EU P-1300 shall not discharge or cause the discharge of any gases into the atmosphere in excess of 2,500 ppm by volume of SO_2 (dry basis) at zero percent excess air.

8. **Root Cause Analysis and Corrective Action Analysis**: Each fuel gas combustion device, flare, and sulfur recovery plant shall conduct a root cause analysis and corrective action analysis for each of the conditions specified in 40 CFR 60.103a(c)(1) through (c)(3). The root cause analysis and corrective action analysis must be completed by the schedule provided in 40 CFR 60.103a(d) and shall implement the corrective actions in accordance with 40 CFR 60.103a(e).

B. **Loading Operations**: EU P-9800 shall be operated with a submerged filling arm or other vapor emission control system.

C. **Wastewater Treatment Plant**: EU FUG-2 shall comply with the applicable requirements of 40 CFR 60, Subpart QQQ.

D. **Equipment Leaks**: Fugitive components in VOC service shall comply with the applicable requirements of 40 CFR 60, Subpart GGGa.

E. **NSPS Storage Tanks**: Tanks TK-1001, TK-1002, TK-1003, TK-1021, TK-1022 and TK-1023 shall be designed, operated, maintained, tested, and monitored in accordance with 40 CFR 60, Subpart Kb.

F. **Storage Tanks**: Tanks TK-1001, TK-1002, TK-1003, TK-1021, TK-1022, TK-1023, TK-1040, TK-1041, TK-1042, TK-1043, TK-1081, TK-1082, TK-1083, TK-1084, and TK-1101 shall be equipped with and filled through a submerged fill pipe.

G. **Emissions Testing**:

1. Initial Testing: Within 60 days after achieving the maximum production rate at the plant, but not later than 180 days after startup, the permittee shall conduct emissions tests for the contaminants listed below:

Emissions Testing

Process	EP	Contaminant
Crude charge heater	1	SO_2 or H_2S* NO_x CO
Distillate hydrotreater charge heater	2	SO_2 or H_2S*
Distillate hydrotreater reboiler	3	SO_2 or H_2S*
Hydrogen plant heater	4	SO_2 or H_2S*
Hot oil heater	5	SO_2 or H_2S*
Steam boiler #1	6	SO_2 or H_2S*
Steam boiler #2	7	SO_2 or H_2S*
Standby boiler #3	8	SO_2 or H_2S*
Refinery flare	11	H_2S
Sulfur Recovery Unit	15	SO_2

* Testing must either be conducted to measure the SO_2 emission rate or the H_2S concentration of the fuel gas. The permittee shall comply with all applicable requirements of 40 CFR 60.104a.

2. Notification: The permittee shall notify the Department using the form in the Emission Testing Guideline, or its equivalent, at least 30 calendar days in advance of any tests of emissions of air contaminants required by the Department. If the permittee is unable to conduct the performance test on the scheduled date, the permittee shall notify the Department at least five days prior to the scheduled test date and coordinate a new test date with the Department.

3. Sampling Ports/Access: Sampling ports shall be provided downstream of all emission control devices and in a flue, conduit, duct, stack or chimney arranged to conduct emissions to the ambient air.

   The ports shall be located to allow for reliable sampling and shall be adequate for test methods applicable to the facility. Safe sampling platforms and safe access to the platforms shall be provided. Plans and specifications showing the size and location of the ports, platform, and utilities shall be submitted to the Department for review and approval.

4. Other Testing:

   a. The Department may require the permittee to have tests conducted to determine the emission of air contaminants from any source, whenever the Department has reason to believe that an emission of a contaminant not addressed by the permit applicant is occurring, or the emission of a contaminant in excess of that allowed by this permit is occurring. The Department may specify testing methods to be used in accordance with good professional practice. The Department may observe the testing. All tests shall be conducted by reputable, qualified personnel.

The Department shall be given a copy of the test results in writing and signed by the person responsible for the tests.

All tests shall be made and the results calculated in accordance with test procedures approved by the Department. All tests shall be made under the direction of persons qualified by training or experience in the field of air pollution control as approved by the Department.

b. The Department may conduct tests of emissions of air contaminants from any source. Upon request of the Department, the permittee shall provide the necessary holes in stacks of ducts and such other safe and proper sampling and testing facilities, exclusive of instruments and sensing devices, as may be necessary for proper determination of the emission of air contaminants.

H. **Emissions Monitoring:**

1. Fuel Gas Combustion Devices / Flare: For each fuel gas combustion device subject to an SO_2 or H_2S limit, the permittee shall comply with either Condition a or b below.

   a. The permittee shall install, operate, calibrate and maintain an instrument for continuously monitoring and recording the concentration (dry basis, 0 percent excess air) of sulfur dioxide emissions into the atmosphere. The monitor must include an oxygen monitor for correcting the data for excess air. Monitoring of sulfur dioxide emissions must also meet all applicable requirements of 40 CFR 60 Subpart Ja, including the applicable requirements of 40 CFR 60.107a(a)(1).

   b. The permittee shall install, operate, calibrate and maintain an instrument for continuously monitoring and recording the concentration by volume (dry basis) of hydrogen sulfide in the fuel gases before being burned in any fuel gas combustion device. Monitoring of hydrogen sulfide emissions must also meet all applicable requirements of 40 CFR 60 Subpart Ja, including the applicable requirements of 40 CFR 60.107a(a)(2).

2. Flare:

   a. The presence of a flame shall be monitored using a thermocouple or any other equivalent device approved by the Department.

   b. The permittee shall install, operate, calibrate a continuous parameter monitoring system to measure and record the flow rate of gas discharged to the flare. Flare gas flow monitoring must also meet all applicable requirements of 40 CFR 60 Subpart Ja, including the applicable requirements of 40 CFR 60.107a(f).

c. The permittee shall comply with the sulfur monitoring requirements in 40 CFR 60.107a(e) for assessing the root cause analysis threshold for the flare.

3. Sulfur Recovery Unit: The permittee shall install, operate, calibrate and maintain an instrument for continuously monitoring and recording the concentration of SO_2 and O_2 emissions into the atmosphere. Monitoring of SO_2 and O_2 emissions must also meet all applicable requirements of 40 CFR 60 Subpart Ja, including the applicable requirements of 40 CFR 60.106a(a)(1).

4. Crude Charge Heater: The permittee shall install, operate, calibrate and maintain an instrument for continuously monitoring and recording the concentration by volume (dry basis, 0 percent excess air) of NO_X emissions into the atmosphere. The monitor must include an O_2 monitor for correcting the data for excess air. Monitoring of NO_X emissions must also meet all applicable requirements of 40 CFR 60 Subpart Ja, including the applicable requirements of 40 CFR 60.107a(c).

I. **Process Restrictions**:

1. Crude Oil Processing: This permit is based on a daily crude oil processing rate of 20,000 barrels per day. The permittee shall not exceed a processing rate of 20,000 barrels of crude oil per day on a 365-day rolling average basis without prior approval from the Department. The permittee shall record the amount of crude oil processed on a daily and a 365-day rolling average basis.

2. Combustion Devices: All combustion devices at the facility shall be fired on either refinery fuel gas or pipeline quality natural gas. Natural gas combusted shall contain no more than 2 grains of sulfur per 100 standard cubic feet.

J. **Greenhouse Gas Emissions Calculations**: By the 15th day of each month, the owner/operator shall calculate and record the greenhouse gas (GHG) emissions (as CO_2e) from the following emission units: EU H-101, EU H-801, EU H-802, EU R-1901, EU PK-2403A, EU PK-2403B, EU PK-2403C, EU H-1010 EU P-1900, and EU P-1300 for the previous month and for the previous 12 months (12-month rolling total). Emissions shall be calculated in a method as shown below.

$GHG_{HEATERS/BOILERS}$	=	Calculated individual GHG emissions (in tons) from EU H-101, EU H-801, EU H-802, EU R-1901, EU PK-2403A, EU PK-2403B, EU PK-2403C, and EU H-1010
$GHG_{HEATERS/BOILERS}$	=	$CO_{2\text{-}H/B} + CH_{4\text{-}H/B} + N_2O_{H/B}$
$CO_{2\text{-}H/B}$	=	CO_2 emissions (in tons) from EU H-101, EU H-801, EU H-802, EU R-1901, EU PK-2403A, EU PK-2403B, EU PK-2403C, and EU H-1010

$CO_{2\text{-}H/B}$	=	(44/12) x (volume refinery fuel gas combusted in each unit, scf/12 month rolling sum) x (Average annual carbon content of fuel[1], kg C / kg of fuel) x ((Average Annual molecular weight of fuel[2], kg/kg-mol) / (Molar conversion factor, 849.5 scf / kg mol)) x 0.001 x 1.102
$CH_{4\text{-}H/B}$	=	CH_4 emissions (in tons, as CO_2e) from EU H-101, EU H-801, EU H-802, EU R-1901, EU PK-2403A, EU PK-2403B, EU PK-2403C, and EU H-1010
$CH_{4\text{-}H/B}$	=	[(1E-3) x (Total volume of refinery fuel gas combusted in each unit, scf) x (1.388E-3 MMBtu / scf) x (3E-3 kg of CH_4 / MMBtu) x 1.102] x 21
$N_2O_{H/B}$	=	N_2O emissions (in tons, as CO_2e) from EU H-101, EU H-801, EU H-802, EU R-1901, EU PK-2403A, EU PK-2403B, EU PK-2403C, and EU H-1010
$N_2O_{H/B}$	=	[(1E-3) x (Total volume of refinery fuel gas combusted in each unit, scf) x (1.388E-3 MMBtu / scf) x (6E-4 kg of N_2O / MMBtu) x 1.102] x 310
$GHG_{HYDROGEN}$	=	Total GHG emissions (in tons, CO_2e) from EU P-1900
$GHG_{HYDROGEN}$	=	12 month total of $GHG_{HYDROGEN-MONTH}$
$GHG_{HYDROGEN-MONTH}$	=	[(44/12) x (Monthly total volume of gaseous feedstock, scf) x (Monthly average carbon content of feedstock[3], kg C / kg feedstock) x ((Monthly average molecular weight of feedstock[4], kg/kg-mol) / (Molar conversion factor, 849.5 scf / kg mol)) x 0.001 x 1.102] x 21
GHG_{SRU}	=	Total GHG emissions (in tons, CO_2e) from EU P-1300
GHG_{SRU}	=	12 month total of $GHG_{SRU\text{-}Claus} + GHG_{SRU\text{-}NG}$

[1] 12-month rolling average of monthly arithmetic average carbon content values, determined according to the provisions of 40 CFR 98.

[2] 12-month rolling average of monthly arithmetic average molecular weight values, determined according to the provisions of 40 CFR 98.

[3] Determined according to the provisions of 40 CFR 98.

[4] Determined according to the provisions of 40 CFR 98.

$GHG_{SRU-Claus}$	=	[(Monthly total volume of sour gas feed, scf) x ((44 kg CO_2 / kgmol CO_2)/(849.5 scf / kg mol)) x (0.20 kg mol C / kg mol sour gas) x 0.001 x 1.102]
GHG_{SRU-NG}	=	$CO_{2-SRU-NG}$ + $CH_{4-SRU-NG}$+N_2O_{SRU-NG}
$CO_{2-SRU-NG}$	=	CO_2 emissions (in tons, as CO_2e) from EU P-1300
$CO_{2-SRU-NG}$	=	[(Monthly total volume of natural gas to SRU burner and incinerator pilot, scf) x (annual average higher heating value, MMBtu / scf) x (53.02 kg CO_2 / MMBtu) x 0.001 x 1.102]
$CH_{4-SRU-NG}$	=	CH_4 emissions (in tons, as CO_2e) from EU P-1300
$CH_{4-SRU-NG}$	=	[(Monthly total volume of natural gas to SRU burner and incinerator pilot, scf) x (1.1028 E-03 MMBtu / scf) x (1 E.03 kg CH_4 / MMBtu) x 0.001 x 1.102] x 21
N_2O_{SRU-NG}	=	N_2O emissions (in tons, as CO_2e) from EU P-1300
N_2O_{SRU-NG}	=	[(Monthly total volume of natural gas to SRU burner and incinerator pilot, scf) x (1.1028 E-03 MMBtu / scf) x (1 E.04 kg N_2O / MMBtu) x 0.001 x 1.102] x 310

Greenhouse gas emissions from the emission units listed are restricted to the limits provided in Section II.A. If calculated greenhouse gas emissions from emission units EU H-101, EU H-801, EU H-802, EU R-1901, EU PK-2403A, EU PK-2403B, EU PK-2403C, EU H-1010, EU P-1900 or EU P-1300 exceed their individual limits in any 12-month period, the permittee shall notify the Department in writing within 15 days of the date the calculation was made.

K. **NO_X Emissions Calculations**: By the 15th day of each month, the owner/operator shall calculate and record the total NO_X emissions from the following emission units: EU H-101, EU H-801, EU H-802, EU R-1901, EU PK-2403A, EU PK-2403B, EU PK-2403C, EU H-1010, EU P-2415, EU P-2409, EU PK-2402 and EU P-1300 for the previous month and for the previous 12 months (12-month rolling total). Emissions shall be calculated in a method as shown below.

Total NO_X	=	$NO_{X-HEATERS/BOILERS}$ (EU H-101, EU H-801, EU H-802, EU R-1901, EU PK-2403A, EU PK-2403B, EU PK-2403C, EU H-1010)+ $NO_{X-ENGINES}$ (EU P-2415, EU P-2409) + $NO_{X-FLARING}$ (EU PK-2402) + NO_{X-SRU} (EU P-1300)

Where:

$NO_{X\text{-HEATERS/BOILERS}}$	=	Total NO_X emissions (in tons) from EU H-101, EU H-801, EU H-802, EU R-1901, EU PK-2403A, EU PK-2403B EU PK-2403C, and EU H-1010
$NO_{X\text{-HEATERS/BOILERS}}$	=	(Total heat content of refinery gas combusted in H-101, H-801, EU H-802, EU R-1901, EU PK-2403A, EU PK-2403B EU PK-2403C, and EU H-1010, million Btu) x (NO_X burners specification[5] of lb / million Btu heat input) / 2000
$NO_{X\text{-ENGINES}}$	=	Total NO_X emissions (in tons) from EU P-2415 and EU P-2409
$NO_{X\text{-ENGINES}}$	=	[((hours of operation of EU P-2415) x (0.99 lb of NO_X / hour of operation)) + ((hours of operation of EU P-2409) x (2.20 lb of NO_X / hour of operation))] / 2000
$NO_{X\text{-FLARING}}$	=	Total NO_X emissions (in tons) from EU PK-2402
$NO_{X\text{-FLARING}}$	=	(total heat content of flared gas, million Btu) x (0.07 lb NO_X / million Btu gas flared) / 2000
$NO_{X\text{-SRU}}$	=	Total NO_X emissions (in tons) from EU P-1300
$NO_{X\text{-SRU}}$	=	[(hours of operation of EU P-1300) x (NO_X incinerator specification[5], ppmv) x (manufacturer specification of vent rate, scf/hr) x (1E-06) x (2.6E-03 lb mol / scf) x (46.0055 lb NO_X / lb mol NO_X)] / 2000

Total combined NO_X emissions from the emission units listed are restricted to 38.0 tons per year. If total calculated combined NO_X emissions from emission units EU H-101, EU H-801, EU H-802, EU R-1901, EU PK-2403A, EU PK-2403B, EU PK-2403C, EU H-1010, P-1900, P-2415, P-2409 PK-2402, and P-1300 exceed 38.0 tons per year in any 12-month period, the permittee shall notify the Department in writing within 15 days of the date the calculation was made.

L. **VOC Emissions Calculations**: By the 15th day of each month, the owner/operator shall calculate and record the total VOC emissions from the following emission units: EUs H-101, H-801, H-802, R-1901, PK-2403A, PK-2403B, PK-2403C, H-1010, P-2415, P-2409, FUG-3, TK-1001, TK-1002, TK-1003, TK-1021, TK-1022, TK-1023, TK-1040, TK-1041, TK-1042, TK-1043, TK-1081, TK-1082, TK-1083, TK-1084, TK-1101, P-9800, FUG-1, CT-2409, PK-2402,

[5] When calculating emissions, the burner/incinerator specification shall be utilized unless a Department-approved performance test has been conducted to determine NOx emissions from the emission unit. After completion of a Department-approved performance test and verification of the results by the Department, the results of the Department-approved performance test shall be used to calculate emissions.

FUG-2 and V-1906 for the previous month and for the previous 12 months (12-month rolling total). Emissions shall be calculated in a method as shown below.

Total VOC	=	$VOC_{HEATERS/BOILERS} + VOC_{ENGINES} + VOC_{LEAKS} + VOC_{TANKS} + VOC_{TRUCK} + VOC_{LPG} + VOC_{CT} + VOC_{FLARING} + VOC_{WWTP} + VOC_{H2}$
Where:		
$VOC_{HEATERS/BOILERS}$	=	Total VOC emissions (in tons) from EU H-101, EU H-801, EU H-802, EU R-1901, EU PK-2403A, EU PK-2403B EU PK-2403C, and EU H-1010
$VOC_{HEATERS/BOILERS}$	=	(Total heat content of refinery gas combusted in EU H-101, EU H-801, EU H-802, EU R-1901, EU PK-2403A, EU PK-2403B EU PK-2403C, and EU H-1010, million Btu) x (0.0054 lb VOC / million Btu heat input) / 2000
$VOC_{ENGINES}$	=	Total VOC emissions (in tons) from EU P-2415 and EU P-2409
$VOC_{ENGINES}$	=	[((hours of operation of EU P-2415) x (0.38 lb of VOC / hour of operation)) + ((hours of operation of EU P-2409) x (1.10 lb of VOC / hour of operation))] / 2000
VOC_{LEAKS}	=	Total VOC emissions (in tons) from EU FUG-3
VOC_{LEAKS}	=	$VOC_{LEAKERS} + VOC_{NON-LEAKERS} + VOC_{DEFAULT-ZERO}$
$VOC_{LEAKERS}$	=	$VOC_{LEAKERS-VALVES} + VOC_{LEAKERS-OTHER} + VOC_{LEAKERS-CONNECTORS} + VOC_{LEAKERS-PUMPS}$
$VOC_{LEAKERS-VALVES}$	=	Total VOC emissions (in tons) from all leaking valves
$VOC_{LEAKERS-VALVES}$	=	For each valve found leaking – [(0.00000229 x (leaking rate, ppm)$^{0.746}$) x 2.205 x (time elapsed between most recent non-leaking inspection and repair of valve, hr)] / 2000
$VOC_{LEAKERS-OTHER}$	=	Total VOC emissions (in tons) from all leaking other components (Relief Devices, Compressors, Others)
$VOC_{LEAKERS-OTHER}$	=	For each other component found leaking (Relief Devices, Compressors, Others) – [(0.0000136 x (leaking rate,

ppm)$^{0.589}$) x 2.205 x (time elapsed between most recent non-leaking inspection and repair of component, hr)] / 2000

$VOC_{LEAKERS-CONNECTORS}$ = Total VOC emissions (in tons) from all leaking connectors

$VOC_{LEAKERS-CONNECTORS}$ = For each other connector found leaking – [(0.00000461 x (leaking rate, ppm)$^{0.703}$) x 2.205 x (time elapsed between most recent non-leaking inspection and repair of connector, hr)] / 2000

$VOC_{LEAKERS-PUMPS}$ = Total VOC emissions (in tons) from all leaking pump seals

$VOC_{LEAKERS-PUMPS}$ = For each other pump seal found leaking – [(0.0000503 x leaking rate, ppm)$^{0.61}$) x 2.205 x (time elapsed between most recent non-leaking inspection and repair of pump seal, hr)] / 2000

$VOC_{NON-LEAKERS}$ = $VOC_{NON-LEAKERS-VALVES}$ + $VOC_{NON-LEAKERS-RELIEF}$ + $VOC_{NON-LEAKERS-COMPRESSORS}$ + $VOC_{NON-LEAKERS-CONNECTORS}$ + $VOC_{NON-LEAKERS-PUMPS}$ + VOC_{DRAINS}

$VOC_{NON-LEAKERS-VALVES}$ = Total VOC emissions (in tons) from valves found to be leaking below leak threshold of 500 ppm.

$VOC_{NON-LEAKERS-VALVES}$ = [(total count of valves found to be leaking below screening threshold) x 2.36E-04 x 2.205 x 8760] / 2000

$VOC_{NON-LEAKERS-RELIEF}$ = Total VOC emissions (in tons) from relief devices found to be leaking below leak threshold of 500 ppm.

$VOC_{NON-LEAKERS-RELIEF}$ = [(total count of relief devices found to be leaking below screening threshold) x 5.29E-04 x 2.205 x 8760] / 2000

$VOC_{NON-LEAKERS-COMPRESSORS}$ = Total VOC emissions (in tons) from compressors found to be leaking below leak threshold of 500 ppm.

$VOC_{NON-LEAKERS-COMPRESSORS}$ = [(total count of compressors found to be leaking below screening threshold) x 5.29E-04 x 2.205 x 8760] / 2000

$VOC_{NON-LEAKERS-CONNECTORS}$ = Total VOC emissions (in tons) from connectors found to be leaking below leak threshold of 500 ppm.

$VOC_{NON-LEAKERS-CONNECTORS}$ = [(total count of connectors found to be leaking below screening threshold) x 3.64E-04 x 2.205 x 8760] / 2000

$VOC_{NON\text{-}LEAKERS\text{-}PUMPS}$ = Total VOC emissions (in tons) from pump seals found to be leaking below leak threshold of 2000 ppm.

$VOC_{NON\text{-}LEAKERS\text{-}PUMPS}$ = [(total count of pumps found to be leaking below screening threshold) x 5.19E-03 x 2.205 x 8760] / 2000

VOC_{DRAINS} = Total VOC emissions (in tons) from process drain cups.

VOC_{DRAINS} = [(total count of process drain cups) x 5.29E-04 x 2.205 x 8760] / 2000

$VOC_{DEFAULT\text{-}ZERO}$ = $VOC_{DEFAULT\text{-}ZERO\text{-}VALVES}$ + $VOC_{DEFAULT\text{-}ZERO\text{-}OTHER}$ + $VOC_{DEFAULT\text{-}ZERO\text{-}CONNECTORS}$ + $VOC_{DEFAULT\text{-}ZERO\text{-}PUMPS}$

$VOC_{DEFAULT\text{-}ZEROO\text{-}VALVES}$ = Total VOC emissions (in tons) from valves found with no emissions above background.

$VOC_{DEFAULT\text{-}ZERO\text{-}VALVES}$ = [(total count of valves found with no emissions above background) x 4.8E-06 x 2.205 x 8760] / 2000

$VOC_{DEFAULT\text{-}ZERO\text{-}RELIEF}$ = Total VOC emissions (in tons) from relief devices found with no emissions above background.

$VOC_{DEFAULT\text{-}ZERO\text{-}RELIEF}$ = [(total count of relief devices found with no emissions above background) x 4.0E-06 x 2.205 x 8760] / 2000

$VOC_{DEFAULT\text{-}ZERO\text{-}COMPRESSORS}$ = Total VOC emissions (in tons) from compressors found with no emissions above background.

$VOC_{DEFAULT\text{-}ZERO\text{-}COMPRESSORS}$ = [(total count of compressors found with no emissions above background) x 4.0E-06 x 2.205 x 8760] / 2000

$VOC_{DEFAULF\text{-}ZERO\text{-}CONNECTORS}$ = Total VOC emissions (in tons) from connectors found with no emissions above background.

$VOC_{DEFAULF\text{-}ZERO\text{-}CONNECTORS}$ = [(total count of connectors found with no emissions above background) x 7.5E-06 x 2.205 x 8760] / 2000

$VOC_{DEFAULT\text{-}ZERO\text{-}PUMPS}$ = Total VOC emissions (in tons) from pump seals found with no emissions above background.

$VOC_{NON\text{-}LEAKERS\text{-}PUMPS}$ = [(total count of pumps found to with no emissions over background) x 2.4E-05 x 2.205 x 8760] / 2000

VOC_{TANKS}	=	Total VOC emissions (in tons) from TK-1001, TK-1002, TK-1003, TK-1021, TK-1022, TK-1023, TK-1040, TK-1041, TK-1042, TK-1043, TK-1081, TK-1082, TK-1083, TK-1084, TK-1101
VOC_{TANKS}	=	Calculated utilizing EPA's methodology from Chapter 7 of AP-42: Liquid Storage Tanks
VOC_{TRUCK}	=	Total VOC emissions (in tons) from EU P-9800
VOC_{TRUCK}	=	[((total diesel fuel loaded at truck rack, 1000 gallons) x (0.008 lb VOC / 1000 gallons)) + ((total kerosene loaded at truck rack, 1000 gallons) x (0.010 lb VOC / 1000 gallons))] / 2000
VOC_{LPG}	=	Total VOC emissions (in tons) from EU FUG-1
VOC_{LPG}	=	[(total LPG loads) x (0.434 lb VOC / load)] / 2000
VOC_{CT}	=	Total VOC emissions (in tons) from EU CT-2409
VOC_{CT}	=	[(hours of operation) x (0.03 lb/hr)] / 2000
$VOC_{FLARING}$	=	Total VOC emissions (in tons) from EU P-2402
$VOC_{FLARING}$	=	(total heat content of flared gas, million Btu) x (0.14 lb VOC / million Btu gas flared) / 2000
VOC_{WWTP}	=	Total VOC emissions (in tons) from EU FUG-2
VOC_{WWTP}	=	(total wwtp flow, 1000 gallons) x (0.2 lb VOC / 1000 gallons of wastewater)
VOC_{H2}	=	Total VOC emissions (in tons) from EU V-1906
VOC_{H2}	=	(total H_2 produced, million scf) x (2.5 lb VOC / million scf of H_2) / 2000

Combined VOC emissions from the emission units listed are restricted to 38.0 tons per year. If total calculated combined VOC emissions from emission units H-101, H-801, H-802, R-1901, PK-2403A, PK-2403B, PK-2403C, H-1010, P-2415, P-2409, FUG-3, TK-1001, TK-1002, TK-1003, TK-1021, TK-1022, TK-1023, TK-1040, TK-1041, TK-1042, TK-1043, TK-1081, TK-1082, TK-1083, TK-1084, TK-1101, P-9800, FUG-1, CT-2409, PK-2402, FUG-2 and V-1906

exceed 38.0 tons per year in any 12-month period, the permittee shall notify the Department in writing within 15 days of the date the calculation was made.

M. **SO_2 Emissions Calculations**: By the 15th day of each month, the owner/operator shall calculate and record the total SO_2 emissions from the following emission units: EUs H-101, H-801, H-802, R-1901, PK-2403A, PK-2403B, PK-2403C, H-1010, P-2415, P-2409, PK-2402, and P-1300 for the previous month and for the previous 12 months (12-month rolling total). Emissions shall be calculated in a method as shown below.

Total SO_2	=	$SO_{2\text{-H/B}}$ (EU H-101, EU H-801, EU H-802, EU R-1901, EU PK-2403A, EU PK-2403B, EU PK-2403C, EU H-1010)+ $SO_{2\text{-ENGINES}}$ (EU P-2415, EU P-2409) + $SO_{2\text{-SRU}}$ (EU P-1300) + $SO_{2\text{-FLARING}}$ (EU P-2402)
Where:		
$SO_{2\text{-H/B}}$	=	Total SO_2 emissions (in tons) from EU H-101, EU H-801, EU H-802, EU R-1901, EU PK-2403A, EU PK-2403B EU PK-2403C, and EU H-1010
$SO_{2\text{-H/B}}$	=	12 month rolling sum of $SO_{2\text{-H/B-Hourly}}$
$SO_{2\text{-H/B-Hourly}}$	=	(Total hourly refinery gas combusted in H-101, H-801, EU H-802, EU R-1901, EU PK-2403A, EU PK-2403B EU PK-2403C, and EU H-1010, scf) x (hourly fuel gas H_2S concentration, ppmv) x (1E-06) x (2.6E-03 lb mol/scf) x (64.06, lb SO_2 / lb mol SO_2) / 2000
$SO_{2\text{-ENGINES}}$	=	Total SO_2 emissions (in tons) from EU P-2415, EU P-2409
$SO_{2\text{-ENGINES}}$	=	[((hours of operation of EU P-2415) x (0.31 lb of SO_2 / hour of operation)) + ((hours of operation of EU P-2409) x (0.002 lb of SO_2 / hour of operation))] / 2000
$SO_{2\text{-SRU}}$	=	Total SO_2 emissions (in tons) from EU P-1300
$SO_{2\text{-SRU}}$	=	Total SO_2 emissions calculated via use of SO_2 CEMS

$SO_{2\text{-FLARING}}$	=	Total SO_2 emissions (in tons) from EU P-2402
$SO_{2\text{-FLARING}}$	=	Total SO_2 emissions calculated via use of sulfur monitoring[6]

Combined SO_2 emissions from the emission units listed are restricted to 38.0 tons per year. If total calculated combined SO_2 emissions from emission units EUs H-101, H-801, H-802, R-1901, PK-2403A, PK-2403B, PK-2403C, H-1010, P-2415, P-2409, PK-2402, and P-1300 exceed 38.0 tons per year in any 12-month period, the permittee shall notify the Department in writing within 15 days of the date the calculation was made.

N. **Recordkeeping**: All records shall be available for inspection by Department personnel and shall be submitted to the Department upon request. The following records shall be maintained:

1. All stack test results including field data, laboratory analysis data, and quality assurance data.

2. Records of the amount of crude oil processed on a daily and a 30-day rolling average basis.

3. All continuous emissions monitoring data required by this permit.

4. All nitrogen oxides, sulfur dioxide, hydrogen sulfide, and reduced sulfur compound emission rate and/or concentration data obtained by the continuous monitors.

5. Temperature data, or other data for an alternative monitoring method approved by the Department, to monitor the presence of a flame at the flare.

6. Inspection records for the tanks at the facility.

7. All recordkeeping required by applicable federal standards established under 40 CFR 60 - Standards of Performance for New Stationary Sources.

8. All leak detection and repair records as required by 40 CFR 60, Subpart GGGa.

The owner/operator shall maintain any compliance monitoring records required by this permit or applicable requirements. The owner/operator shall retain records of all required monitoring data and support information for a period of at least five years from the date of the monitoring sample, measurement, report or application. Support information may include all calibration and maintenance records and all original strip-chart recordings/computer printouts for continuous monitoring instrumentation, and copies of all reports required by the permit.

[6] Derived via use of sulfur monitoring required by NSPS Subpart Ja.

O. **Stack Heights**: Emissions shall be vented through stacks that meet the following height requirements. Stack heights may be no less than those listed in the table below without prior approval from the Department.

Emission Point	Minimum Stack Height (feet)
1	143
2	80
3	90
4	63
5	80
6	50
7	50
8	50
11	150
15	80

P. **Cooling Tower**: Per 40 CFR 63 Subpart Q, the permittee shall not use chromium based water treatment chemicals in the cooling towers.

Q. **40 CFR 60, Subpart QQQ**: The permittee shall comply with all applicable requirements of 40 CFR 60, Subpart QQQ - Standards of Performance for VOC Emissions from Petroleum Refinery Wastewater Streams.

R. **40 CFR 60, Subpart GGGa**: The permittee shall comply with all applicable requirements of 40 CFR 60, Subpart GGGa - Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for Which Construction, Reconstruction, or Modification Commences after November 7, 2006.

S. **40 CFR 60, Subpart Ja**: The permittee shall comply with all applicable requirements of 40 CFR 60, Subpart Ja - Standards of Performance for Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007.

T. **40 CFR 60, Subpart Kb**: The permittee shall comply with all applicable requirements of 40 CFR 60, Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984.

U. **40 CFR 60, Subpart Dc**: The permittee shall comply with all applicable requirements of 40 CFR 60, Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units.

V. **40 CFR 60, Subpart IIII**: The permittee shall comply with all applicable requirements of 40 CFR 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

W. **40 CFR 60, Subpart JJJJ**: The permittee shall comply with all applicable requirements of 40 CFR 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

X. **40 CFR 60, Subpart NNN**: The permittee shall comply with all applicable requirements of 40 CFR 60, Subpart NNN – Standards of Performance for Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations

Y. **40 CFR 63, Subpart ZZZZ**: The permittee shall comply with all applicable area source requirements of 40 CFR 63, Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines.

Z. **Construction**: Construction of the above described facility shall be in accordance with information provided in the permit application as well as any plans, specifications and supporting data submitted to the Department. The Department shall be notified ten days in advance of any significant deviations from the specifications furnished. The issuance of this Permit to Construct may be suspended or revoked if the Department determines that a significant deviation from the plans and specifications furnished has been or is to be made.

Any violation of a condition issued as part of this permit to construct as well as any construction which proceeds in variance with any information submitted in the application, is regarded as a violation of construction authority and is subject to enforcement action.

AA. **Startup Notice**: A notification of the actual date of initial startup shall be submitted to the Department within 15 days after the date of initial startup.

BB. **Permit Invalidation**: This permit shall become invalid if construction is not commenced within eighteen months after issuance of such permit, if construction is discontinued for a period of eighteen months or more; or if construction is not completed within a reasonable time.

CC. **Fugitive Emissions**: All reasonable precautions shall be taken by the owner/operator to prevent and/or minimize fugitive emissions from the construction and operation of the source identified under Item I.B.

DD. **Annual Emission Inventory/Annual Production Reports**: The owner/operator shall submit an annual emission inventory report or an annual production report, upon request, on forms supplied or approved by the Department.

EE. **Source Operations**: Operations at the installation shall be in accordance with statements, representations, procedures and supporting data contained in the initial application, and any supplemental information or application(s) submitted thereafter. Any operations not listed in this permit are subject to all applicable North Dakota Air Pollution Control Rules.

FF. **Alterations, Modifications or Changes**: Any alteration, repairing, expansion, or change in the method of operation of the source which results in the emission of an additional type or greater amount of air contaminants or which results in an increase in the ambient concentration of any air contaminant, must be reviewed and approved by the Department prior to the start of such alteration, repairing, expansion or change in the method of operation.

GG. **Nuisance or Danger**: This permit shall in no way authorize the maintenance of a nuisance or a danger to public health or safety.

HH. **Malfunction Notification**: The owner/operator shall notify the Department of any malfunction which can be expected to last longer than twenty-four hours and can cause the emission of air contaminants in violation of applicable rules and regulations.

II. **Operation of Air Pollution Control Equipment**: The owner/operator shall maintain and operate all air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions.

JJ. **Change of Ownership**: This permit may not be transferred and is to be returned to the Department upon the destruction or change of ownership of the source unit(s), or upon expiration, suspension or revocation of this permit.

KK. **Right of Entry**: Any duly authorized officer, employee or agent of the North Dakota Department of Health may enter and inspect any property, premise or place at which the source listed in Item I.B of this permit is located at any time for the purpose of ascertaining the state of compliance with the North Dakota Air Pollution Control Rules. The Department may conduct tests and take samples of air contaminants, fuel, processing material, and other materials which affect or may affect emissions of air contaminants from any source. The Department shall have the right to access and copy any records required by the Department's rules and to inspect monitoring equipment located on the premises.

LL. **Other Regulations**: The owner/operator of the source unit(s) described in Item I.B of this permit shall comply with all State and Federal environmental laws and rules. In addition, the owner/operator shall comply with all local burning, fire, zoning, and other applicable ordinances, codes, rules and regulations.

MM. **Permit Issuance**: This permit is issued in reliance upon the accuracy and completeness of the information set forth in the application. Notwithstanding the tentative nature of this information, the conditions of this permit herein become, upon the effective date of this permit, enforceable by the Department pursuant to any remedies it now has, or may in the future have, under the North Dakota Air Pollution Control Law, NDCC Chapter 23-25. Each and every condition of this permit is a material part thereof, and is not severable.

NN. **Odor Restrictions**: The owner/operator shall not discharge into the ambient air any objectionable odorous air contaminant which is in excess of the limits established in NDAC 33-15-16.

The owner/operator shall not discharge into the ambient air hydrogen sulfide (H_2S) in concentrations that would be objectionable on land owned or leased by the complainant or in areas normally accessed by the general public. For the purpose of complaint resolution, two samples with concentrations greater than 0.05 parts per million (50 parts per billion) sampled at least 15 minutes apart within a two-hour period and measured in accordance with Section 33-15-16-04 constitute a violation.

OO. **Sampling and Testing**: The Department may require the owner/operator to conduct tests to determine the emission rate of air contaminants from the source. The Department may observe the testing and may specify testing methods to be used. A signed copy of the test results shall be furnished to the Department within 60 days of the test date. The basis for this condition is NDAC 33-15-01-12 which is hereby incorporated into this permit by reference. To facilitate preparing for and conducting such tests, and to facilitate reporting the test results to the Department, the owner/operator shall follow the procedures and formats in the Department's Emission Testing Guideline.

FOR THE NORTH DAKOTA
DEPARTMENT OF HEALTH

Date 10/28/13

By Terry O'Clair

Terry L. O'Clair, P.E.
Director
Division of Air Quality

Stormwater Pollution Prevention Plan (SWPPP)

Dakota Prairie Refining, LLC

To comply with the
General Stormwater Permit for Construction Activity (NDR10-0000 NPDES)
Permit Issued October 12, 2009

Prepared for
Dakota Prairie Refining, LLC

By
Barr Engineering Co.

March 11, 2013

Table of Contents

1.0 Site Description 2

1.1 Project Location 2

1.2 Project Description 2

1.3 Estimated Area of Impact 2

1.4 Timetable 3

1.5 Soil Description 3

1.6 Drainage Path 3

1.7 Site Map Requirements 4

2.0 Operational Controls 5

2.1 SWPPP Contact 5

2.2 Chain of Responsibility 5

2.3 Good Housekeeping 5

2.3.1 Litter, Chemicals, Debris and Parts Storage 5

2.3.2 Sediment Tracked Off-site 6

2.3.3 Dust Control Measures 6

2.4 Preventative Maintenance 6

2.4.1 Stormwater Management Devices 7

2.4.2 Equipment Used On-site 7

2.5 Spill Prevention and Response Procedures 7

2.6 Employee Training 8

2.7 Concrete Wash Water, Grindings and Slurry 9

2.8 Dewatering and Basin Draining Operations 9

3.0 Erosion and Sediment Controls 10

4.0 Stormwater Management 13

5.0 Maintenance 14

5.1 Maintenance Considerations 15

6.0 Inspections 15

6.1 More Frequent Inspections 16

6.2 Rain Gauge Location 16

6.3 Inspectors 16
6.4 Inspection Requirements 17
7.0 Records Location and Retention 17
8.0 Plan Review and Revisions 17
9.0 Final Stabilization 18

Tables

Table 1 Material Handling and Spill Prevention
Table 2 Preliminary BMP Quantities

Figures

Figure 1 Project Location
Figure 2 Facility Layout Map

Appendices

Appendix A Certification
Appendix B Revision and Update Documentation
Appendix C Responsible Personnel List
Appendix D Soil Survey Results From USDA Natural Resources Conservation Services
Appendix E Construction Schedule
Appendix F Construction Storm Water General Permit NDR10-0000
Appendix G Grading and Storm Water Plans with BMPs
Appendix H North Dakota DOT Erosion and Sediment Control Handbook

Foreword:

All construction projects covered by the North Dakota Pollutant Elimination System General Permit associated with stormwater discharges from construction activity, NDR10-000, shall prepare and implement a stormwater pollution prevention (SWPPP) as part of the permit requirements. The SWPPP and revisions are subject to review by the North Dakota Department of Health. The objectives of the plan are to identify potential sources of stormwater pollution from construction activity and to ensure practices are implemented to minimize the contribution of pollutants to stormwater runoff. Stormwater management measures developed under other regulatory programs (e.g. Spill Prevention, Control and Countermeasure requirements) can be included in the SWPPP or incorporated by reference.

The SWPPP may identify more than one permittee and may specify the responsibilities of each permittee by task, area and / or timing. Permittees may coordinate and prepare more than on SWPPP to accomplish this. However, in the event there is a requirement under the SWPPP for which responsibility is ambiguous or is not included in the SWPPP, each permittee shall be responsible for implementation of that requirement. Each permittee is also responsible for ensuring that its activities do not render another permittee's controls ineffective.

The SWPPP is an enforceable document; the purpose of the plan is not for regulators to review, but for owners and operators to implement.

The SWPPP shall include the following information:

1. Site description
2. Operational controls
3. Erosion and sediment controls
4. Stormwater management
5. Maintenance
6. Inspections
7. Records and retention
8. Plan review and revisions
9. Final stabilization
10. Construction stormwater general permit, NDR10-0000
11. Copy of the notice of intent
12. Coverage letter from the North Dakota Department of Health
13. Guidelines, specifications or manuals for selected best management practices.

1.0 Site Description

The plan includes a description of the construction site and potential pollutant sources.

1.1 Project Location

Complete one of the following:

Street Address: 3815 116th Ave SW City: Dickinson

Subdivision (if known): _____

Township: 139N Range: 97W

Section: _____ - N ¼ N ¼ SW ¼; Or ABCD _____

Latitude: 46° 51' 21" Longitude: 102° 54' 37"

General Location: Facility is located south west of Dickinson SD.
Active copy of this plan will be located in the construction trailer onsite.

1.2 Project Description

Describe the overall project and type of construction activity.

The proposed refinery located near Dickinson, North Dakota is comprised of multiple process units designed to convert crude oil gathered from the Bakken formation into refined transportation fuels and other petroleum fuels, products, and intermediates.

The main construction activities will take place on the west side of the property, west of the Heart River and will include some cut, fill and permanent spoil management areas. This is where the main portion of the refinery, tank farm and storm water pond will be constructed.

The area to the east of the Heart River will be used for temporary equipment staging and soil borrow areas. This area will have a permanent office building and natural gas pipeline station.

A truck unloading facility will be constructed in the northeast corner of the property, north of the rail line.

Finally, a secondary access road will be constructed from the western edge of the property, south to the County Road 38.

1.3 Estimated Area of Impact

Estimated total area of the project and total area expected to be disturbed be excavation, grading, grubbing, or other activities. Include the estimated total area of off-site support activities that will be covered by the construction general permit. This includes concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas and borrow areas not already covered by another stormwater permit.

Total Area of Project: 125 Acres
Total Area Expected to be Disturbed: 175 Acres

1.4 Timetable

Provide a proposed timetable of soil disturbing activities for major portions of the site (for example: excavation, grading, grubbing, building, temporary stabilization, final stabilization). A construction schedule may be used if available.

Dakota Prairie Refining, LLC anticipates construction of the new refinery to begin in the second quarter of 2013 and commercial operation of the facility to begin as early as the fourth quarter of 2014. Preliminary construction schedule is located in Appendix E. This is a major construction project involving long lead times and substantial financial commitments, so the construction time frame may change. The time table in this SWPPP will be updated to reflect schedule changes when the changes impact BMP selection or would facilitate implementation of this plan.

A more detailed preliminary construction schedule is attached in Appendix E.

Phase	Timetable
Construction Phase	Second Quarter 2013
Final Stabilization Phase	2014 Notice of Termination

1.5 Soil Description

Describe the soil within the disturbed area(s). Soil survey information may be found at websoilsurvey.nrcs.usda.gov/app/.

The soil in the construction area is comprised of the following types: Savage-Daglum silt loams 0 to 2 percent slopes; Vebar-Flasher complex, 6 to 9 percent slopes; Arnegard loam, saline, 0 to 2 percent slopes; Shambo loam, 0 to 2 percent slopes; Straw loam, 0 to 2 percent slopes; Stady loam 0 to 2 percent slopes; Manning-Schaller-Wabek complex, 6 to 25 percent slopes ad Manning fine sandy loam, 2 to 6 percent slopes.

The soil map is attached in Appendix D.

1.6 Drainage Path

Provide the drainage path runoff takes as it leaves the site. Include the municipal, county or state-operated storm sewer or drainage ditch, as well as the first named waterbody or wetland (if known) to which the site drains. Also include whether or not the waterbody is listed in the most recent North Dakota Integrated Section 305 (b) Water Quality Assessment Report and Section 303(d) List of Water Needing Total Maximum Daily Loads or if a total maximum daily load (TMDL) has been developed for the waterbody. The Integrated Report and a list of waterbodies with a TMDL may be found at: www.ndhealth.gov/WQ/SW/Z2_TMDL/default.htm.

- *If the waterbody is listed in the Integrated Report in the Section 303(d) List as impaired due to sedimentation/siltation, then distance to the waterbody must be included.*
- *If a TMDL allocation has been developed for the waterbody or overall watershed, then a list of the particular pollutants must be included and the SWPPP must be developed to satisfy Part I.B.5 of NDR10-0000. The pollutants of concern are referenced in the titles of the TMDL document.*

The Heart River winds through the property from north to south essentially dividing the property into two parts (east and west). The river exits the property in the southeast corner and flows east to Patterson Lake and the City of Dickinson. Storm water from the existing site flows overland to the Heart River.

The construction and post construction grading of the main facility will direct storm water to a large permanent storm water pond. This pond will be part of the initial construction activity and will be used to control runoff from construction activities in the main refinery area. This pond will have an outlet that discharges to the Heart River. Construction runoff from the east side of the property will be directed thru a series of smaller temporary sediment ponds.

1.7 Site Map Requirements

The grading plan for the construction project is found in Attachment G. Figure 1 contains a site location map and Figure 2 contains a facility layout map. The following items called have been included in the grading plans:

1) Drainage Patterns, including flow direction, dividing lines, existing grade and final grade.
2) Construction site boundaries.
3) Areas of soil disturbance.
4) Location of major structural controls identified in this plan.
5) Location of major nonstructural controls identified in this plan.
6) Location of areas that will be stabilized.
7) Surface waters, including an aerial extent of wetland acreage.
8) Locations where stormwater is discharged to surface waters.
9) Locations where stormwater enters municipal storm sewers systems.
10) Off-site concrete / asphalt batch plants
11) Equipment staging areas
12) Borrow sites
13) Excess soil disposal sites

2.0 Operational Controls

The Plan must describe the best management practices (BMPs) used in day-to-day operations on the project site that reduce the contribution of pollutants in stormwater runoff.

The operational controls outlined in this section will be implemented at this construction site.

2.1 SWPPP Contact

The SWPPP contact must be an individual who is knowledgeable and experienced in the application of erosion and sediment control BMPs who will oversee the implementation of the SWPPP and the installation, inspection and maintenance of the erosion and sediment control BMPs before and during construction. The contact may be identified by name or title.

SWPPP contact:	Jeff Rust
Phone:	701-355-2132 (office) 701-471-1227 (mobile)
Title:	Project Director

2.2 Chain of Responsibility

A chain of responsibility must be developed be the owner with all operators on site to ensure the SWPPP will be implemented and remains in effect until the project is complete, final stabilization has been achieved and a notice of termination (NOT) has been submitted to the department.

Dakota Prairie Refining, LLC (DPR) is the owner of the project. DPR has hired Westcon, Inc. to oversee construction of the facility. Westcon Inc. will be tasked and responsible for the implementation, enforcement of this plan including maintenance of BMPS and updating the SWPP plan as needed, until final stabilization has been achieved and NOT submitted.

2.3 Good Housekeeping

This section describes the housekeeping practices that will be used to maintain a clean and orderly project. Appropriate containers will be used to collect debris and waste material. Litter and debris will be picked up regularly to reduce the chance of being carried away by wind or water. Waste materials will be disposed of properly off site at an approved landfill.

Liquid or soluble material (i.e., oil, fuel, paint and hazardous substances) will be stored properly to prevent spills, leaks or discharges off-site. Storage areas will be secured to prevent vandalism. Storage and disposal of hazardous waste will be in compliance with applicable regulations.

2.3.1 Litter, Chemicals, Debris and Parts Storage

Describe how litter, chemicals, debris and parts will be properly handled to minimize exposure to stormwater and not be carried off-site by wind or water.

Solid waste generated during the construction activities will be separated and either staged in covered roll-off boxes or directly hauled off-site via covered dump trailers. Litter and debris roll-offs will be removed at least weekly.

Paints, solvents, fuels and other chemicals will be stored in temporaray buildings, sheds or other structures and will not be stored outside. Chemical storage building will not be located within 200 feet of wetlands or surface waters. Unused or waste chemicals will be will be collected, characterized and disposed of properly. Chemical storage structures will be locked up when construction activities have finished each day.

2.3.2 Sediment Tracked Off-site

Describe how off-site accumulations of tracked sediment caused by vehicles and equipment leaving the project site will be reduced and cleaned up.

Construction site ingress and egress is approximately 2640 feet in length exiting County Road 38 to the south and will be constructed and graded according to acceptable practices accommodating heavy equipment and construction traffic. Sediment tracking on to paved surfaces is not anticipated to be an issue due to the distance to paved roads. Construction site egress locations will be inspected for evidence of sediment tracking off-site and will be removed from paved surfaces as quickly as possible. If necessary, arrangements will be for street sweeping and/or sediment scraping if construction site BMPs are not adequate to prevent sediment from being tracked onto paved surfaces from the site. Vehicle washing will be performed on site when appropriate. Wash stations designed to collect wash water and sediment from vehicles will be constructed. Any tracking of sediment off site onto paved roads will be cleaned within 24 hours.

2.3.3 Dust Control Measures

Describe how dust generation will be reduced and how off-site accumulations will be cleaned up.

A speed limit of 15 mph will be observed on the access roads. When conditions dictate, a water truck will spray the access roads with water to prevent dust generation. Due to the location of the project it is not anticipated that accumulation of dust off site will occur that would require removal. However, if dusty conditions result in buildup of sediment (dust) off site, the contractor will be notified and the deposits will be collected and returned to the construction site. This may require street sweeping, shovel /broom or a bobcat or other equipment for larger deposits.

2.4 Preventative Maintenance

The preventative maintenance practices listed in this section, including routine inspections and maintenance, will be implemented on this project to ensure the proper operation of BMPs and management of storm water. The appropriate maintenance and erosion controls described in Appendix 1 B of the General Permit "Maintenance for Erosion and Sediment Controls" will be implemented at this construction site. These controls are summarized below.

2.4.1 Stormwater Management Devices

All of the BMP control measure called out in the grading plan and this plan will be inspected weekly to ensure that they are working properly and have not been compromised. Any repairs or maintenance to the BMPs will be made within 24 hours of discovery.

- Several smaller storm water sediment basins will be constructed to manage runoff from lay down areas and construction areas. These sediment ponds will cleaned out if the sediment in the pond reaches half the capacity of the pond. Cleaning of the ponds will be completed within 72 hours of discovery or as soon as conditions allow.
- Drainage ditches and conveyance swales will be designed to minimize the velocity of runoff within the conveyance. This may be accomplished with vegetation, check dams, silt fence or other appropriate devices or combination of measures. Surface waters and conveyances will be inspected for buildup of sediment, erosion and to ensure operation of measures installed to reduce flow velocity are operating appropriately. Conveyances will be maintained as needed. Sediment buildups will be removed and the conveyance stabilized within 7 days of discovery unless there is a physical, legal or regulatory constraint.
- Silt fence will be removed and replaced when sediment reaches 1/3 of the height of the fence. This work will be done within 24 hours of discovery or as soon as conditions allow.
- Bio rolls and similar BMPs will be inspected to make sure they are properly installed and overlapped.
- Straw mat will be inspected to make sure it is installed according to manufactures specification; mulch will be inspected to ensure adequate coverage to prevent erosion.
- Access roads will be inspected for evidence of sediment tracking. Accumulations of tracked and deposited sediment will be removed from all off site paved surfaces within 24 hours. If necessary, additional BMPs will be installed to prevent tracking of sediment off site.
- Concrete wash out stations will be provided and maintained to ensure discharges of wash water are not discharged to waters of the state.

2.4.2 Equipment Used On-site

All equipment will be inspected for leaks at the beginning of their use each day or time they are used. If a leak is detected, the equipment will be repaired prior to use and the affected area will be cleaned up.

2.5 Spill Prevention and Response Procedures

The facility will prepare a spill prevention control and countermeasure plan for oils stored on site. This plan will also include response procedures for any spills or incidents onsite. Table 1 attached to this plan includes a list of chemicals stored on site, their location and measures to prevent spill. Bulk

storage of petroleum products and other chemicals will be stored within temporary storage facilities with adequate leak and spill protection to prevent spilled material from entering waters of the state or storm sewer systems or from draining onto adjacent property.

The facility will report all spills that threaten or are in a position to threaten waters of the state, such as surface or ground water; cause immediate danger to human health or safety; cause harm or threaten to harm wildlife or aquatic life; or are releases of oil or hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act [40 CFR 110.10 and 40 CFR 117.21] or Section 102 of CERCLA [40 CFR 302.4].

Spill Reporting

Report any spill that may seriously endanger health or the environment **as soon as possible**, but no later than 24 hours from the time you became aware of the spill. The report will be made to EPA Region 8, Emergency Response Branch, at **800-424-8802** and the state of North Dakota, Division of Homeland Security at **800-472-2121**.

Some releases may require immediate response by trained emergency personnel. This may be coordinated through the Department of Health, Department of Emergency Services, and any other state or local emergency response agencies that may be needed. **If there is any question as to proper response, call the Department of Health at 701-328-5210 or the North Dakota hazardous materials emergency assistance and spill reporting number (800-472-2121) and provide all relevant information about the incident.**

North Dakota Department of Health Contact	Phone Numbers:
Division of Water Quality	701-328-5210
Division of Waste Management	701-328-5166
Division of Air Quality	701-328-5188
Division of Municipal Facilities	701-328-5211

North Dakota Hazardous Materials Emergency Assistance and Spill Reporting	800-472-2121 (24-hour hotline)

Nonemergency releases may be reported by filing out the online Environmental Incident Report Form at www.ndhealth.gov/WQ/GW/spills.htm.

2.6 Employee Training

Describe how personnel are informed about their responsibility in implementing the practices and controls in the plan. Employee training can include spill response procedures, good housekeeping practices, and erosion and sediment control practices. Training must be provided at least annually, as new employees are hired, or as necessary to ensure compliance with the plan and the general permit, NDR10-0000.

All construction and site personnel will receive initial and annually thereafter general awareness training that includes their responsibility to implement BMPs, including spill response, good housekeeping, erosion controls, sediment controls and the importance of compliance with the SWPPP.

In addition, construction and site personnel responsible for the implementation of this plan, updating this plan and the installation and maintenance of BMPs, will receive additional function specific training on the requirements of this plan and the general storm water construction permit. Training will address selection, maintenance and installation of pollution controls, spill response, good housekeeping and materials management. Contractors and inspectors will be informed of the project requirements prior to the start of construction activities and updated periodically throughout the construction activities. Employee training will be provided as new employees are hired or as necessary to ensure compliance with this plan and the general permit. Training records will be maintained on site.

2.7 Concrete Wash Water, Grindings and Slurry

Concrete wash out stations will be provided and maintained to ensure concrete wash water is not discharged to any water of the state or any storm sewer system or allowed to drain onto adjacent properties. Concrete wash out and disposal will be limited to defined areas designated for cement washout. The area will be sufficient to contain the wash water and residual cement.

If the concrete washout areas are moved during construction activities the BMP site map in this plan will be up-to-date.

Describe what practices will be used to prevent concrete wash water, grindings and slurry from entering waters of the state and storm sewer systems, or draining onto adjacent property.

Vehicles bringing pre-mixed concrete and cement on site will be inspected prior to their departure. A washout area comprised silt fence and straw bales to keep waste materials in one area. At the end of the project the concrete washout area will be cleaned up and all waste will be disposed of offsite. The area will be marked with signage reading "Concrete Washout Area". If appropriate, concrete cleaning wash stations will be constructed out of poly liner and straw bales. Wash out areas will not be located near the Heart River or areas that drain directly to the river.

2.8 Dewatering and Basin Draining Operations

These operations will not adversely affect receiving waters or downstream landowners. The operation will be inspected daily and a record will be maintained with this plan. The following conditions apply to dewatering activities covered by the construction general permit:

- Dewatering is limited to stormwater and groundwater that may collect on site, and the following allowable non-stormwater sources: fire-fighting, fire-hydrant flushing, potable water line flushing, infrequent building and equipment wash down without detergents, uncontaminated foundation drains, springs, lawn watering and air conditioning condensate. These are only allowable if the measures to be used in minimizing their impacts to water quality are described.

- A temporary dewatering permit, NDG07-0000, is required for other sources such as hydrostatic testing, contaminated groundwater or surface water. Information about the temporary dewatering permit may be found at: www.ndhealth.gov/WQ/Dewatering/DewateringHome.htm. Discharging waste water from processing operations or sanitary facilities is not authorized by the construction permit, NDR10-0000.
- The operation will not lead to sediment deposits within storm sewers, ditches and surface waters. The operation will not cause or potentially cause a visible plume in a surface water.

Describe how dewatering operations will be operated to minimize the release of sediment and amount of erosion caused by the discharge.

Dewatering of excavations will be directed to the main sediment pond.

If construction area needs to be dewatered and cannot be pumped to a sediment pond, the water will be inspected to be sure that it complies with the construction storm water permit requirements before it is discharged. When water is discharged from the construction area, the facility will use a pump and diffusion techniques to prevent the establishment of erosion channels. Hay bales, filter bags, silt fence or erosion control logs will be employed down gradient of the discharge to prevent erosion as needed. If dewatering other parts of the site is necessary, the water will be pumped to the main sediment pond.

3.0 Erosion and Sediment Controls

The erosion and sediment control plan has been include with the construction grading plan in Appendix G. The plan identifies the appropriate control measures (BMPs) as well as when they will be implemented during each major phase of the project (e.g., clearing, grading, and building phases). In addition, the ND Department of Transportation Erosion and Sediment Control Handbook has been attached in Appendix H as a reference for installation of BMPs as well as other BMPs that may be implemented as needed during the construction project.

The erosion and sediment control plan includes:

a. The facility will install and maintain a rain gauge at the construction site.
b. Primary sediment basins and additional smaller up stream sediment ponds and / or sediment traps, silt fences, fiber logs, vegetative buffer strips, berms, etc. All down slope boundaries of the disturbance area and side-slope boundaries will have controls to prevent erosion and sediment.
c. Temporary erosion protection (such as cover crop planting or mulching) or permanent cover will be provided where activities have been completely or temporarily ceased. For areas with a continuous positive slope within 200 lineal feet of a surface water, erosion protection will be accomplished within 21 days. These areas include graded slopes, pond embankments, ditches, berms and soil stockpiles. Note: a general rule of thumb is that seed germination will occur when the soil temperature is above 50°F. Soil temperature information may be found at ndawn.ndsu.nodak.edu.

d. All control measures will be properly selected, installed and maintained in accordance with the manufacturer's specifications and good engineering practices. A copy of the manufacturer's installation directions for BMP measures that are used during the project will be attached to this plan. If periodic inspections or other information indicates a control has been used inappropriately, or incorrectly, it will be replaced or modified for the situation. Deviation from the manufacturer's specifications and erosion and sediment control guidelines is allowed if justification for the deviation is provided and the rationale is documented in this plan.

e. If sediment escapes from the site, off-site accumulations of sediment will be removed in a manner and at a frequency sufficient to minimize off-site impacts. This plan will be modified to prevent further sediment deposition off-site.

f. Stormwater controls have been designed to and are expected to withstand and function properly up to a two-year, 24-hour precipitation event. Visible erosion and / or off-site sediment deposits should be minimal. A two-year, 24-hour rain event in North Dakota ranges from 1.0 inches in the west to 2.3 inches in the east.

g. This project does not discharge to a waterbody that has a TMDL allocation for sediment, suspended solids or turbidity. If the status of the Heart River changes during construction this plan will be updated to be consistent with the requirements of the TMDL. If the TMDL requires certain practices be used to meet the waste load allocation (WLA), then the practices will be included in this plan.

The erosion and sediment control plan conforms to the guidelines outlined in Appendix 1 of NDR10-0000 for designing, implementing and maintaining effective erosion and sediment controls. The following questions break down the requirements of Appendix 1. See the storm water / grading plan in Appendix G.

☒ Yes ☐ No	1. Where practical temporary or permanent sediment basins must be provided when 10 or more acres or disturbed area drains to a common location. The basins must be provided prior to runoff leaving the site or entering surface waters. The use of sediment basins is encouraged, but not required, in areas with steep slopes or highly erodible soils even if less than 10 acres drains to one area. Is the use of sediment basins practical for the project? If no, skip to question #10. Things to consider include public safety, soil type, slope and available area.
☒ Yes ☐ No	2. Where appropriate, are temporary sediment basins installed in areas with steep slopes or highly erodible soils?
☒ Yes ☐ No	3. Are all basins sized or designed to meet one of the following guidelines? a. Basins must be sized to provide 1.600 cubic feet of storage for every acre of disturbed area draining to the basin; or b. Basins must be designed to provide storage for a two-year, 24-hour storm event plus more than 1,800 cubic feet of storage from each disturbed acre that drains to the basin.
☒ Yes ☐ No	4. Are basin outlets designed to avoid short-circuiting? Short-circuiting usually occurs when the outlet is near the inlet. This causes water to exit the basin immediately upon entering and little treatment is achieved.
☒ Yes ☐ No	5. Are basin outlets designed to avoid the discharge of floating debris?
☒ Yes ☐ No	6. Are the basins designed to allow complete drawdown for maintenance activities? Examples of drawdown devices include perforated riser pipes, pumps, skimmers or

	other means.
☒ Yes ☐ No	7. Is the drawdown designed to release the storage volume in a 24-hour or longer period?
☒ Yes ☐ No	8. Does the basin have a stabilized emergency overflow to prevent failure of pond integrity?
☒ Yes ☐ No	9. Does the basin outlet have an energy dissipater?
☒ Yes ☐ No	10. If temporary sediment basins are nor practical in areas where 10 or more acres of disturbed area drains to a common location, then a combination of erosion and / or sediment controls with equivalent storage must be used for all down-slope construction boundaries and side-slope boundaries as appropriate. Examples of additional controls include smaller sediment basins, sediment traps, silt fences, vegetative buffer strips, etc. Have erosion and sediment controls been provided that have the same sediment-control capabilities as the sediment basins they replaced? b. Note: This question is not applicable at this site. All storm water will be directed thru either permanent or temporary sedimentation ponds.
☒ Yes ☐ No	1. Has temporary erosion protection been provided for exposed soil areas where activities have been completed or will temporarily cease?
☒ Yes ☐ No	2. Has permanent cover been provided for exposed soil areas where activities have been completed or will temporarily cease?
☒ Yes ☐ No	3. For areas with a continuous positive slope within 200 lineal feet of a surface water, does the plan address how temporary erosion protection or permanent cover will be applied within 21 days of completing or ceasing earthmoving activities in these areas (pond embankments, ditches, berms, soil stockpiles)? Temporary stockpiles without significant silt, clay or organic components, such as clean aggregate stockpiles, demolition concrete stockpiles, and sand stockpiles are exempt.
☒ Yes ☐ No ☒ Yes ☐ No	4. Do temporary soil stockpiles have effective sediment controls? Does the plan address how temporary soil stockpiles well not be placed in surface waters, stormwater conveyance systems, curb and gutter systems, conduits or ditches?
☒Yes ☐ No ☒Yes ☐ No ☒ Yes ☐ No	5. Are there any temporary or permanent drainage ditches that drain water from the construction site or divert water around the site? Does the plan address how the normal wetted perimeter of these ditches will be stabilized within 200 lineal feet of the property edge or point of discharge to a surface water? Does the plan address how the normal wetted perimeter will be stabilized within 24 hours of connecting to a surface water?
☒ Yes ☐ No	6. Does the plan address how pipe outlets will be provided with temporary or permanent energy dissipation within 24 hours of connecting to a surface water?
☒ Yes ☐ No	7. Where applicable, are splash pads and / or downspout extensions provided for roof drains to prevent erosion?
☒ Yes ☐ No	8. For slopes with a grade of 3:1 or steeper, is the slope length broken up every 75 feet?
☒ Yes ☐ No	9. Do temporary or permanent drainage ditches and sediment basins that are part of a treatment system have appropriate sediment controls?
☒ Yes ☐ No	10. Are all storm drain inlets within the project limits and in the immediate vicinity of the site protected? This includes inlets affected by sediment tracked from the site.

	Note: Inlet protection is a last line of defense. Additional sediment and erosion control practices must be used on-site. Inlet protection must conform to local ordinances or regulations. Maintenance and cleaning of inlet protection must be performed in a timely manner. Inlet protection may be removed for a particular inlet if a specific concern, such as street flooding / freezing or snow removal, has been identified and documented in the SWPPP. In these situations, additional erosion and sediment control practices must be used in place of the lost inlet protection.
☒ Yes ☐ No	11. Do inlet protection devices provide adequate drainage to prevent excessive flooding?
☒ Yes ☐ No	12. Do vegetative buffers have a minimum width of 25 feet for every 125 feet of disturbed area that drains to the buffer? For each additional 5 feet of disturbance, and additional 1 foot of buffer must be added. The buffer should have a slope of 5 percent or less, and the area draining to the buffer should have a slope of 6 percent or less. Note: In some instances, a minimum width of 25 feet may not be necessary based on past experience with buffers. In those cases, a short explanation about what your experience has shown should be included in this plan.
☒ Yes ☐ No	13. Are concentrated flows being minimized throughout the vegetative buffer?
☒ Yes ☐ No	14. Do vegetative buffers consist of dense, grassy vegetation? Dense, grassy vegetation is 3 to 12 inches tall with uniform coverage over 90 percent of the buffer. NO more than 10 percent of the buffer may consist of woody vegetation.

4.0 Stormwater Management

Permanent practices used to control pollutants in stormwater discharges once construction is complete are located in the storm water grading plans located in Appendix G. Grassy areas will be preserved where possible. However, due to the nature of this facility it is important to collect and manage the storm water runoff the falls within the foot print of the refinery. The facility has been designed so that the storm water that has the greatest potential to be impacted is directed to an oil water sewer and treatment system. All other areas of the main refinery facility will be directed to the permanent storm water pond which has been designed to comply with the general industrial storm water permit. In addition appropriate grassy swales/conveyances, diversion berms and sediment ponds will be utilized as permanent BMP structure once the construction phase is complete.

On-site stormwater management features / BMPs will be the responsibility of permittee and will be maintained until a notice of termination has been submitted. The site map shows temporary and permanent:

a. Stormwater ponds; flow reduction practices that use open vegetated swales and natural depressions; infiltration of on-site runoff; and sequential systems that combine several practices.
b. Velocity / energy dissipation devices placed at discharge locations (e.g., riprap) and appropriate erosion protection for outfall channels and ditches (e.g., hard armor or soft armor practices).

5.0 Maintenance

All erosion and sediment control (ESC) measures and other protective measures identified in this plan will be maintained in effective operating condition. Appropriate maintenance or cleanout intervals for erosion and sediment controls have been identified in Section 2.4 of this plan. Maintenance will be arranged and accomplished as soon as practicable when site inspections identify BMPs that are not operating effectively.

ESC Measure	Maintenance Frequency	Cleanout Frequency
Silt Fence	Silt Fence will be inspected at least once every 14 days and within 24 hours after storm events greater than 0.50 inches of rain (in a 24 hour period)	Silt fence will be removed and replaced when sediment reaches 1/3 of the height of the fence. This work will be done within 24 hours of discovery or as soon as conditions allow.
Rain Gauge	The facility will inspect rain gauge daily and maintain as needed.	NA
Bio Rolls, bio matt, fiber matt	Matt and bio rolls will be inspected at least once every 14 days and within 24 hours after storm events greater than 0.50 inches of rain (in a 24 hour period)	Inspect to make sure install per manufacturers specifications. Repair as needed within 24 hours our as conditions allow.
Sediment Ponds	Sediment ponds will be inspected at least once every 14 days and within 24 hours after storm events greater than 0.50 inches of rain (in a 24 hour period)	Sediment ponds will cleaned out if the sediment in the pond reaches half the capacity of the pond. Cleaning of the ponds will be completed within 72 hours of discovery or as soon as conditions allow.
Conveyance Controls	Conveyance Controls will be inspected at least once every 14 days and within 24 hours after storm events greater than 0.50 inches of rain (in a 24 hour period)	Accumulation of sediment at check dams and other flow restricting BMPs will be cleaned within 7 days or conditions allow. Damaged BMPs will be repaired within 24 hours.
ECS measures will be added to this list as appropriate.		

5.1 Maintenance Considerations

1. All erosion prevention and sediment control practices will be inspected to ensure integrity and effectiveness. All nonfunctional practices will be repaired, replaced or supplemented with functional practices.
2. The following maintenance requirements will be implemented at this site:
    a. All control devices that function similarly to silt fence or fiber rolls will be repaired, replaced or supplemented with effective controls when they become nonfunctional or the sediment reaches one-third the height of the device. These repairs will be made within 24 hours of discovery or as soon as field conditions allow access.
    b. Sediment that has collected within temporary or permanent sedimentation basins will be removed when one-half of the sediment storage volume has been reached. Drainage and removal will be completed within 72 hours of discovery or as soon as field conditions allow access.
3. All sediment deltas and deposits will be removed from surface waters, drainage ways, catch basins and other drainage systems. All areas where sediment removal resulted in exposed soil will be restabilized. The removal and stabilization will take place immediately, but no more than seven (7) days after the discovery unless precluded by legal, regulatory or physical access constraints. All reasonable efforts will be used to obtain access. Once access is obtained, removal and stabilization will take place immediately, but no more than seven (7) days later. The permittee is responsible for contacting all of the appropriate authorities and receiving the applicable permits prior to conducting any work.
4. Accumulation of tracked and deposited sediment will be removed from off-site paved surfaces within 24 hours or sooner if required. Sediment tracking will be minimized by the appropriate management practice, like a dedicated site exit with an aggregate surface or designated off-site parking area. The permittee is responsible for street sweeping and / or scraping if the practices are not adequate to prevent sediment from being tracked from the site.
5. Off-site accumulations of sediment will be removed in the manner and frequency sufficient to minimize off-site impacts; for example, fugitive sediment in the street could be washed into the storm sewer by the next rain event and / or pose a safety hazard to users of public streets.
6. If a vegetative buffer is silt covered, contains rills, or is otherwise rendered ineffective, other control measures will be implemented. Any eroded areas have to be repaired and stabilized.

6.0 Inspections

Site inspections will be conducted to monitor the condition of stormwater discharge outlets and the effectiveness of erosion and sediment controls and other best management practices. Personnel conducting inspections will be familiar with the permit conditions and the proper installation and operation of erosion and sediment control measures. At a minimum, inspections will be performed and recorded once every 14 calendar days and within 24 hours of a 0.50-inch or more rain event. A rain gauge may be used if the nearest National Weather Service precipitation gauge station is not within 5 miles of the project. Inspection frequency may be reduced based on site conditions. Refer to part III.A of the construction general permit for more information.

All erosion and sediment control measures identified in the plan (See Appendix G) will be inspected to ensure they are operating correctly and are in serviceable condition.

Surface waters, drainage ditches and conveyance systems will be inspected for sediment deposits.

Exit points from the construction site (onto paved surfaces) will be inspected for sediment being tracked by vehicles or equipment.

Vegetative buffers will be inspected for the proper distribution of flows, sediment accumulation and signs of rill formation.

Erosion and sediment controls found in need of maintenance between inspections need to be repaired or supplemented with appropriate measures as soon as possible.

Discharge outlets from material storage areas, vehicle maintenance areas and permanent stormwater control measures will be inspected. Look for evidence of, or the potential for, pollutants entering a drainage system. The plan will be revised if any deficiencies are noted.

6.1 More Frequent Inspections

Some erosion and sediment control measures may require more frequent inspections based on location of as a result of a recurring maintenance issue. The measure, location and inspection frequency should be outlined below:

ESC Measure	Location	Inspection Frequency
Silt Fence, matt and other BMPs	Bridge construction area, banks and slopes on the Heart River	Daily until final cover or rip rap is established in this area then inspection frequency will be once every 14 days.
Silt Fence, matt, and other BMPs	West bank and slope up from the Heart River when soil is disturbed or establishing final vegetative cover.	Daily until final cover is established in this area then inspection frequency will be once every 14 days.

6.2 Rain Gauge Location

The rain gauge being used for this project will be located next to the parking area near the construction office /trailer.

6.3 Inspectors

In some instances, more than one inspector may be responsible for reviewing different areas of the site, or there may be different inspectors involved with different phases.

Inspector(s)	Area of Inspection	Construction Phase of Inspection	Start Date	End Date
Jeff Rust	Entire Site	All	3/11/13	12/25/14
Reed Slates	Entire Site	All	3/11/13	12/25/14
Kevin Seely	Entire Site	Earthwork Activities	3/11/13	TBD

6.4 Inspection Requirements

All inspections and maintenance activity will be recorded in writing. Records of each inspection and maintenance activity shall include:

1. The date and time of the inspection.
2. The name of the person(s) conducting the inspection.
3. The findings of the inspection, including recommendations for corrective actions.
4. Any corrective actions taken (including dates, times and party completing the maintenance activity).
5. The date and amount of all rainfall events greater than 0.05 inches in 24 hours.
6. Documentation that the SWPPP was amended when substantial changes were made to erosion and sediment controls or other best management practices.

7.0 Records Location and Retention

The following documents will be kept in a field office, trailer, shed or vehicle that is on-site during normal working hours:

1. A completed and signed copy of the notice of intent.
2. The permit coverage letter from the North Dakota Department of Health.
3. The stormwater pollution prevention plan.
4. Site inspection records.
5. A copy of the North Dakota Pollutant Discharge Elimination System General Permit associated with stormwater discharges from construction activity, NDR10-0000.

If a reasonable on-site location is not available, then the documents may be retained at a readily available alternative location, preferably with the SWPPP contact. If the site is inactive, then the documents may be stored at a local office.

All records and information will be kept for at least three years or longer if requested by the North Dakota Department of Health or United Sates Environmental Protection Agency.

8.0 Plan Review and Revisions

The plan will be signed in accordance with Part IV.E of NDR10-0000. See Appendix A.

The plan will be made available, upon request, to the North Dakota Department of Health, United Sates Environmental Protection Agency, or operator of the local municipal separate storm sewer system.

The plan will be amended whenever there is a change in design, construction, operation or maintenance that could have a significant effect on the potential for the discharge of pollutants to the waters of the state. It also will be amended if it is found to be ineffective in controlling pollutants present in stormwater.

The revision documentation is located in Appendix B.

9.0 Final Stabilization

Final stabilization means that:

1. All soil disturbing activities at the site have been completed and a uniform perennial vegetative cover with a density of 70 percent of the native cover for unpaved areas and areas not covered by permanent structures, or equivalent permanent stabilization measures (such as the use of riprap, gabions or geotextiles) has been achieved.
2. For areas with an average annual rainfall of less than 20 inches only, all soil disturbing activities at the site have been completed and temporary erosion control measures (e.g, degradable rolled erosion control product) are selected, designed and installed, along with an appropriate seed base to provide erosion control for at least three years and achieve 70 percent vegetative coverage within three years without active maintenance.
3. For soil disturbing activities on land used for agricultural purposes, final stabilization may be accomplished by returning the disturbed land to its pre-disturbance agricultural use. Areas disturbed that were not previously used for agricultural activities, such as buffer strips immediately adjacent to waters of the state, and areas that are not being returned to their pre-disturbance agricultural use will meet the final stabilization criteria in (1) or (2) above.
4. All seed mix selected for permanent or temporary stabilization will be designated weed free and will be appropriate for the geographic area.

Final stabilization has been achieved when one of the criteria above has been met and:

1. All drainage ditches constructed to drain water from the site following construction have been stabilized to preclude erosion.
2. All temporary, synthetic and structural erosion and sediment controls have been removed.
3. Sediment has been removed from all stormwater conveyances and basins used for permanent water quality management.

Tables

Table 1

Material Handling and Spill Prevention Measures

Material / Chemical	Quantity	Handling Procedures	Storage Requirements	Spill Containment Procedures	Spill Clean-up Procedures
Update this table as needed when new chemicals will be stored on site.					
Diesel fuel	1 each 10,000-gallon tank 2 each 1,000 gallon tanks	All transfers of diesel fuel will be attended to at all times by the operator of the equipment being filled. Transfers shall only occur in designated areas where spill kits are present.	Tanks will have secondary containment and be located at least 200 feet from any wetland or surface waters.	Stop flow of diesel fuel from tank, if possible. Use the sorbent socks, pads and or boom in the spill kits to contain the spilled material and prevent the flow to other areas. Collect all used sorbents and contaminated soils a place into an approved container (e.g. 55-gallon drum) and label the container as "Oily sorbent materials".	If a spill occurs, the ground containing the spill and any disposable materials used to contain the spill will be placed into 55-gallon drums or a designated roll-off, then be characterized by the contractor and disposed by a licensed waste contractor. If the spill may seriously endanger health of the environment, call the North Dakota Department of Homeland Security at 800.472.2121 to report the spill.
Unleaded gasoline	1 each 1,000-gallon tank	All transfers of diesel fuel will be attended to at all times by the operator of the equipment being filled. Transfers shall only occur in designated areas where spill kits are present.	Tanks will have secondary containment and be located at least 200 feet from any wetland or surface waters.	Stop flow of diesel fuel from tank, if possible. Use the sorbent socks, pads and or boom in the spill kits to contain the spilled material and prevent the flow to other areas. Collect all used sorbents and contaminated soils a place into anapproved container (e.g. 55-gallon drum) and label the container as "Oily sorbent materials".	If a spill occurs, the ground containing the spill and any disposable materials used to contain the spill will be placed into 55-gallon drums or a designated roll-off, then be characterized by the contractor and disposed by a licensed waste contractor. If the spill may serioulsly endanger health or the environment, call the North Dakota Department of Homeland Security at 800.472.2121 to report the spill.

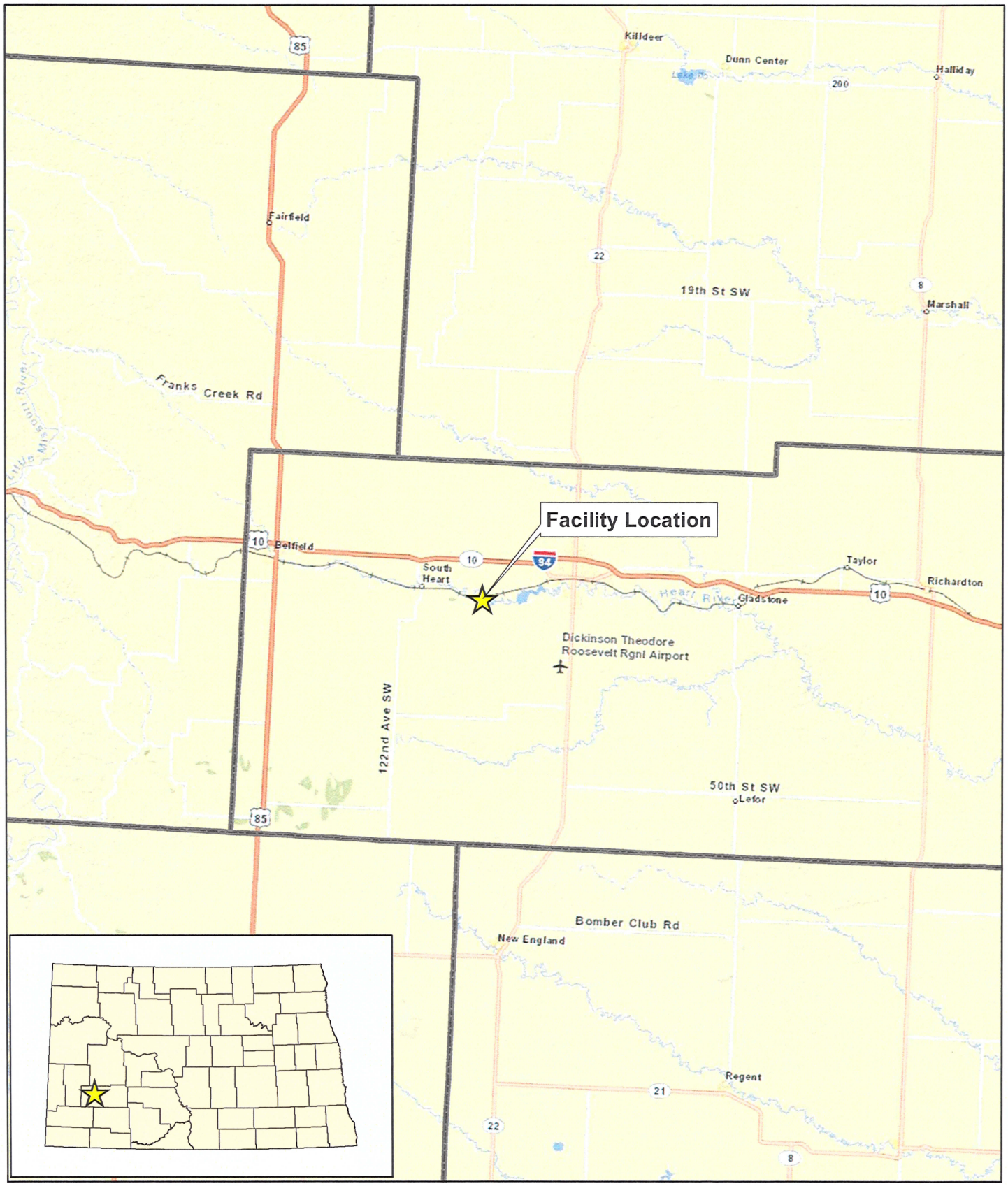
Paints, Aerosols, and other chemicals	Varies	All materials will be stored in the materials van unless required for use.	All chemicals stored outside vehicles will be stored 200 feet from wetlands or surface waters.	Use sorbent materials from the spill kits to contain the spilled material. Collect all used sorbents and soils, place into an approved container and label with contents.	If a spill occurs, the ground containing the spill and any disposable materials used to contain the spill will be placed into 55-gallon drums or a designated roll-off, then be characterized by the contractor and disposed by a licensed waste contractor. If the spill may serioulsly endanger health or the environment, call the North Dakota Department of Homeland Security at 800.472.2121 to report the spill.

Table 2

Preliminary BMP Quantities

BMP Category	Unit Size	Number of Units	Estimated Total Required	Contractor who Installed BMP	Date BMP Installed
Silt Fence	250 ft	73	18,250 ft	Knife River	3/18/13
Hay Bale Checks	10 ft	13	130 ft	Knife River	3/18/13
Erosion Control Blankets, ND DOT Type 4	1 ea	8x113 ft	500 blankets (4,450 sq. yds.)	Knife River – note: Total estimated sq. yds.	TBD
Rip Rap	Cu. Yds.		400 cu. yds.	TBD	TBD
Hdyro-Mulch	1 Ton/Acre	45	45 Tons	Knife River	TBD
Permanent Seed Mix, ND DOT Type III	29 Lbs/Acre	45	1,305 Lbs	Knife River	TBD
Temporary Seed Mix, ND DOT Type IV	30-50 Lbs/Acre	45	2,250 Lbs (As needed)	TBD	TBD
Concrete Wash Out Stations	1 ea	1 ea	1 to 10 depending upon activities at site	Westcon, Inc.	TBD
Perimeter Berms			8,900 ft	TBD - total quantity for project.	TBD

Figures



Barr Footer: ArcGIS 10.0, 2012-10-01 14:29 File: I:\Projects\34\45\1001\Maps\Reports\Pe... pplication_20121001\Figure A-1 - Facility Location.mxd User: amm

Facitlity Location

County Boundary

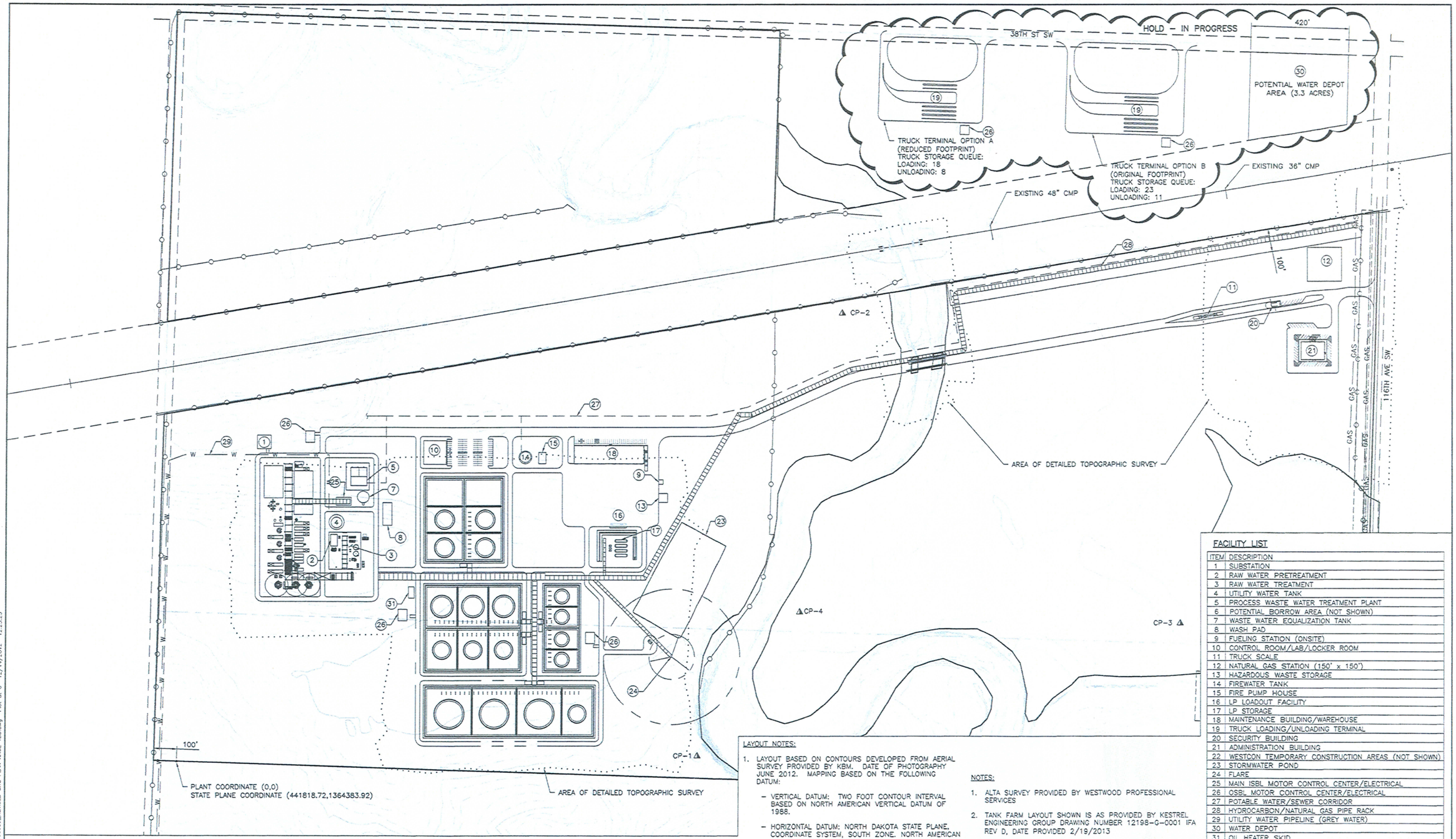
N

0 4 8 16

Miles

Figure 1

FACILITY LOCATION
Dakota Prairie Refining, LLC
Stark County, ND



1 PLAN: DAKOTA PRAIRIE REFINERY OVERALL SITE PLAN

0 200 400
SCALE IN FEET

LAYOUT NOTES:

1. LAYOUT BASED ON CONTOURS DEVELOPED FROM AERIAL SURVEY PROVIDED BY KBM. DATE OF PHOTOGRAPHY JUNE 2012. MAPPING BASED ON THE FOLLOWING DATUM:
   - VERTICAL DATUM: TWO FOOT CONTOUR INTERVAL BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988.
   - HORIZONTAL DATUM: NORTH DAKOTA STATE PLANE, COORDINATE SYSTEM, SOUTH ZONE. NORTH AMERICAN DATUM 83/96
2. DETAILED TOPOGRAPHIC SURVEY PERFORMED BY WESTWOOD PROFESSIONAL SERVICES (PROVIDED ON 2/07/2013)

NOTES:

1. ALTA SURVEY PROVIDED BY WESTWOOD PROFESSIONAL SERVICES
2. TANK FARM LAYOUT SHOWN IS AS PROVIDED BY KESTREL ENGINEERING GROUP DRAWING NUMBER 12198-G-0001 IFA REV D, DATE PROVIDED 2/19/2013
3. ISBL FACILITY SHOWN IS AS PROVIDED BY VENTECH ENGINEERS DRAWING PA-001 REV A3, DATE PROVIDED 2/18/2013

FACILITY LIST

ITEM	DESCRIPTION
1	SUBSTATION
2	RAW WATER PRETREATMENT
3	RAW WATER TREATMENT
4	UTILITY WATER TANK
5	PROCESS WASTE WATER TREATMENT PLANT
6	POTENTIAL BORROW AREA (NOT SHOWN)
7	WASTE WATER EQUALIZATION TANK
8	WASH PAD
9	FUELING STATION (ONSITE)
10	CONTROL ROOM/LAB/LOCKER ROOM
11	TRUCK SCALE
12	NATURAL GAS STATION (150' x 150')
13	HAZARDOUS WASTE STORAGE
14	FIREWATER TANK
15	FIRE PUMP HOUSE
16	LP LOADOUT FACILITY
17	LP STORAGE
18	MAINTENANCE BUILDING/WAREHOUSE
19	TRUCK LOADING/UNLOADING TERMINAL
20	SECURITY BUILDING
21	ADMINISTRATION BUILDING
22	WESTCON TEMPORARY CONSTRUCTION AREAS (NOT SHOWN)
23	STORMWATER POND
24	FLARE
25	MAIN ISBL MOTOR CONTROL CENTER/ELECTRICAL
26	OSBL MOTOR CONTROL CENTER/ELECTRICAL
27	POTABLE WATER/SEWER CORRIDOR
28	HYDROCARBON/NATURAL GAS PIPE RACK
29	UTILITY WATER PIPELINE (GREY WATER)
30	WATER DEPOT
31	OIL HEATER SKID

ISSUED FOR CONSTRUCTION 2/22/2013

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
0	GSJ	MJZ	GSJ	2/22/13	ISSUED FOR CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER
GREGORY S. JOHNSON
PE-8340
DATE 2/22/13
NORTH DAKOTA

BARR
Corporate Headquarters: Minneapolis, Minnesota
Ph: 1-800-632-2277
Project Office: BARR ENGINEERING CO. 3128 14TH AVENUE EAST HIBBING, MN 55746
Ph: 1-800-225-1966
Fax: (218) 262-3460
www.barr.com

Scale	AS SHOWN
Date	12/13/2012
Drawn	GSJ
Checked	MJZ
Designed	GSJ
Approved	GSJ

DAKOTA PRAIRIE REFINING, LLC
BISMARCK, NORTH DAKOTA

20,000 BPSD DAKOTA PRAIRIE REFINERY
DICKINSON, NORTH DAKOTA

OVERALL SITE PLAN

BARR PROJECT No. 34/45-1006
CLIENT PROJECT No.
DWG. No. 01-D-02-0020
REV. No. 0

CADD USER: Greg Johnson FILE: K:\DESIGN\3445100601\3445100600_01-D-02-0020.DWG PLOT SCALE: 1:1 PLOT DATE: 2/22/2013 3:30 PM
Xrefs in Drawing - M:\Design\3445100603\3445100600_Proposed Planimetric - REV 1.dwg M:\Design\3445100601\3445100600_Existing Planimetric.dwg M:\Design\3445100601\W6I_Imagery.dwg
GSJ M:\Design\3445100601\3445100600_REVISED SITE PLAN NAME TBD.dwg Plot at 0 12/14/2012 12:25:23

Appendices

Appendix A

Certification

CERTIFICATION

Certification Instructions:

The stormwater pollution prevention plan (SWPPP) will be signed by a responsible corporate officer, a general partner, a principal executive officer or ranking elected official.

The SWPPP may be signed by a duly authorized representative of the individual described above if:

- The authorization is made in writing by the person described above and submitted to the North Dakota Department of Health; and
- The authorization specifies either an individual or a position having the responsibility for the overall operation of the regulated facility, such as the plant manager, the superintendent, a position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters.

If the authorization is no longer accurate for any reason, a new authorization satisfying the above requirements will be submitted to the Department of Health prior to or together with any reports, information or applications signed by the authorized representative.

Certification

"I certify under penalty of law that I have personally examined and am familiar with the information submitted herein. Based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Name: Barry Haugen Title: Vice President

Signature: Barry Haugen Date: 3/11/2013

Appendix B

Revision and Update Documentation

SWPPP Revision Documentation

Item Revised	Revision Made	Date	Signature

Appendix C

Responsible Personnel List

The individual(s) described below is (are) responsible for the following portion(s) of the Stormwater Pollution Prevention Plan:

Name: Mr. Jeff Rust Company: Westcon, Inc.
Title: Project Director
SWPPP Responsibility: Implantation of the SWPPP and compliance with the general permit.

Name: Reed Slates Company: Westcon, Inc.
Title: Superintendent
SWPPP Responsibility: Implementation of the SWPPP and compliance with the general permit

Name: Kevin Seely Company: Knife River
Title: Project Manager / Estimator
SWPPP Responsibility: Implementation of the SWPPP and compliance with the general permit

Name: _____ Company: _____
Title: _____
SWPPP Responsibility: _____

Name: _____ Company: _____
Title: _____
SWPPP Responsibility: _____

Name: _____ Company: _____
Title: _____
SWPPP Responsibility: _____

Name: _____ Company: _____
Title: _____
SWPPP Responsibility: _____

Name: _____ Company: _____
Title: _____
SWPPP Responsibility: _____

Name: _____ Company: _____
Title: _____
SWPPP Responsibility: _____

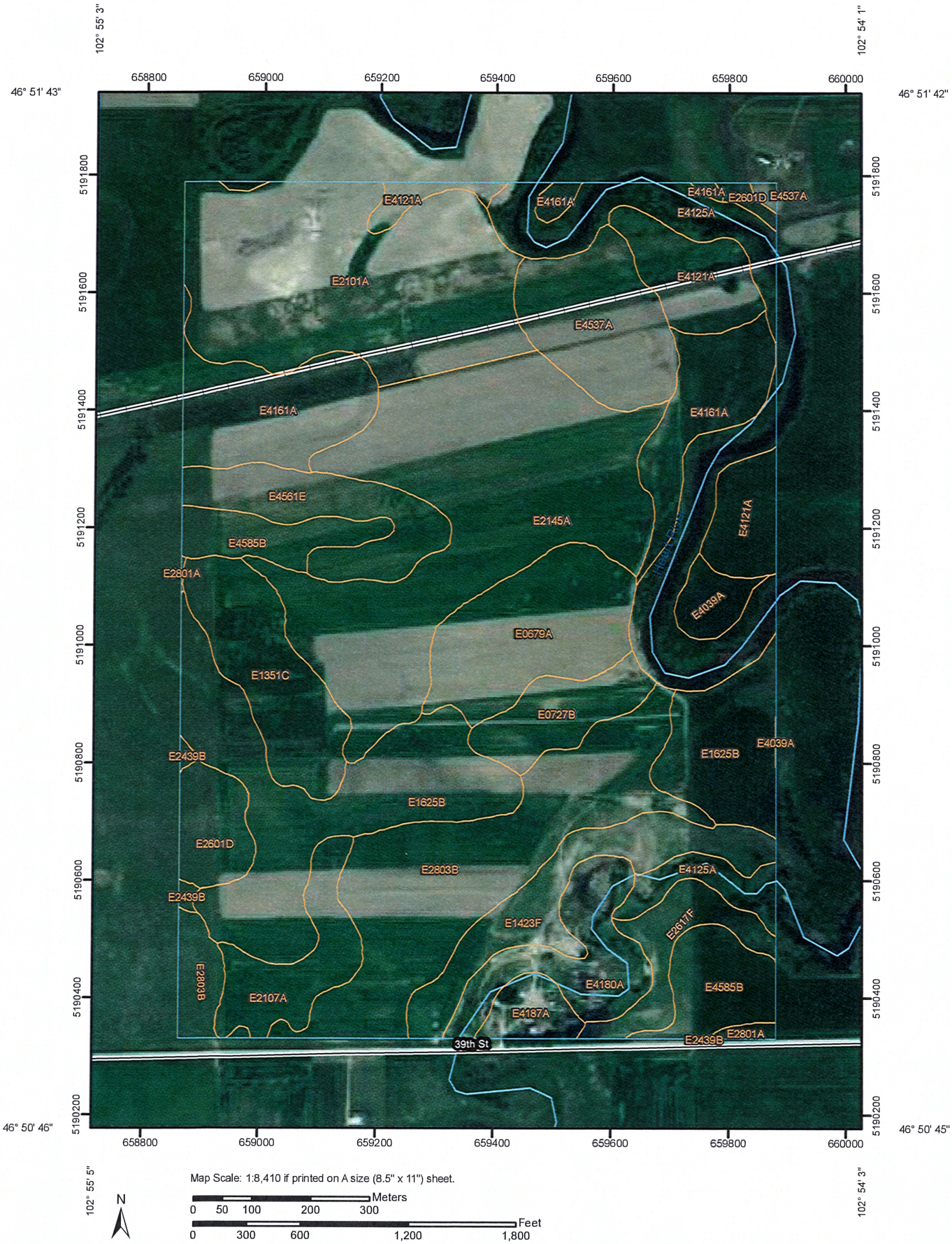
Name: _____ Company: _____
Title: _____
SWPPP Responsibility: _____

Name: _____ Company: _____
Title: _____
SWPPP Responsibility: _____

Appendix D

Soil Survey Results
From USDA Natural Resources Conservation Services

Soil Map—Stark County, North Dakota
(WBI Energy Petroleum Refinery)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Streams and Canals

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

MAP INFORMATION

Map Scale: 1:8,420 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000.

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 13N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Stark County, North Dakota
Survey Area Data: Version 12, Apr 1, 2008

Date(s) aerial images were photographed: 6/15/2005

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Stark County, North Dakota (ND089)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
E0679A	Savage-Daglum silt loams, 0 to 2 percent slopes	17.2	4.7%
E0727B	Moreau-Janesburg complex, 3 to 6 percent slopes	7.4	2.0%
E1351C	Vebar-Flasher complex, 6 to 9 percent slopes	14.1	3.8%
E1423F	Flasher-Vebar-Parshall complex, 9 to 35 percent slopes	13.0	3.6%
E1625B	Vebar-Parshall fine sandy loams, 3 to 6 percent slopes	39.5	10.8%
E2101A	Arnegard loam, saline, 0 to 2 percent slopes	41.1	11.2%
E2107A	Arnegard loam, 0 to 2 percent slopes	9.1	2.5%
E2145A	Shambo loam, 0 to 2 percent slopes	51.1	13.9%
E2439B	Sen-Janesburg silt loams, 3 to 6 percent slopes	0.6	0.2%
E2601D	Amor-Cabba loams, 9 to 15 percent slopes	6.5	1.8%
E2617F	Cabba-Amor loams, 15 to 50 percent slopes	6.6	1.8%
E2801A	Amor-Arnegard loams, 0 to 3 percent slopes	0.7	0.2%
E2803B	Amor-Shambo loams, 3 to 6 percent slopes	35.5	9.7%
E4039A	Mckeen loam, 0 to 1 percent slopes	3.1	0.8%
E4121A	Havrelon silt loam, 0 to 2 percent slopes	15.4	4.2%
E4125A	Havrelon silt loam, channeled, wooded, 0 to 2 percent slopes	27.5	7.5%
E4161A	Straw loam, 0 to 2 percent slopes	24.9	6.8%
E4180A	Straw-Daglum complex, channeled, 0 to 2 percent slopes	10.7	2.9%
E4187A	Trembles fine sandy loam, 0 to 2 percent slopes	3.6	1.0%
E4537A	Stady loam, 0 to 2 percent slopes	14.7	4.0%
E4561E	Manning-Schaller-Wabek complex, 6 to 25 percent slopes	11.6	3.2%
E4585B	Manning fine sandy loam, 2 to 6 percent slopes	13.0	3.5%
Totals for Area of Interest		**366.9**	**100.0%**

Appendix E

Preliminary Construction Schedule

Overview of Construction Time Line

Activity	Timing	Notes
Mobilization of equipment Install storm water BMPs and begin construction of sediment basins	2nd Quarter 2013	
Grading, Cut and Fill operations	3rd Quarter 2013	Concrete wash out stations will be installed at the end of this phase.
Foundations / Unit Construction	3rd Quarter 2013 – 3rd Quarter 2014	Areas where grading and construction activities are inactive or complete will be stabilized via seeding, mulch or other permanent surface
Stabilization	3rd Quarter 2014 – 1st Quarter 2015	

Appendix F

Construction Stormwater General Permit
NDR10-0000

Permit No: NDR10-0000
Effective Date: October 12, 2009
Expiration Date: September 30, 2014

AUTHORIZATION TO DISCHARGE UNDER THE

NORTH DAKOTA POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with Chapter 33-16-01 of the North Dakota Department of Health rules as promulgated under Chapter 61-28 (North Dakota Water Pollution Control Act) of the North Dakota Century Code,

Facilities both qualifying for and satisfying the requirements identified in Part I of the permit

are authorized to discharge stormwater associated with **construction activity**

to waters of the state

in accordance with conditions set forth in this permit.

This permit and the authorization to discharge shall expire at midnight,

September 30, 2014.

Signed this 12TH day of October, 2009.

Dennis R. Fewless, Director
Division of Water Quality

BP 2009.02.05

Table of Contents

I. PERMIT COVERAGE AND LIMITATIONS 3
A. Discharges Covered 3
B. Discharges Not Covered 3
C. Obtaining Coverage and Authorization Effective Date 4
D. Application (Notice of Intent) Process 4
E. Notice of Termination (NOT) 5
F. Transfer of Ownership or Control 6
G. Municipal Separate Storm Sewer System (MS4) Permittees 6
II. STORMWATER DISCHARGE REQUIREMENTS 7
A. Prohibition of Non-Stormwater Discharges 7
B. Releases in Excess of Reportable Quantities 7
C. Stormwater Pollution Prevention Plans 7
D. Local Requirements 11
E. Final Stabilization 11
III. SELF MONITORING AND REPORTING 11
A. Inspection and Maintenance Requirements 11
B. Records Location 12
IV. STANDARD CONDITIONS 13
A. COMPLIANCE RESPONSIBILITIES 13
B. GENERAL REQUIREMENTS 16
Appendix 1 – Erosion and Sediment Control Guidelines 21

I. PERMIT COVERAGE AND LIMITATIONS

A. Discharges Covered

1. This permit applies to all areas within the jurisdiction of the state of North Dakota.

2. This permit applies to stormwater discharges associated with construction activity and small construction activity as defined in Title 40 of the Code of Federal Regulations (CFR), Parts 122.26(b)(14)(x) and (b)(15), respectively. The reference to construction activity in this permit includes both large construction activity and small construction activity as described below.

   a. Large construction activity includes clearing, grading and excavation, that disturbs land of equal to or greater than five (5) acres and includes the disturbance of less than five (5) acres of total land area that is a part of a larger common plan of development or sale if the larger common plan will ultimately disturb five (5) acres or more.

   b. Small construction activity includes clearing, grading and excavation, that disturbs land of equal to or greater than one (1) acre, and includes the disturbance of less than one (1) acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater that one and less than five (5) acres.

3. Stormwater discharges from support activities (e.g., concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, borrow areas) may be covered by this permit as part of a related construction site.

4. Certain non-stormwater discharges from facilities covered by this permit and meeting the requirements specified in Part II.A.

B. Discharges Not Covered

1. Stormwater discharges associated with industrial activity from any source other than construction activities described in Part I.A.

2. Post-construction discharges from industrial activity that originate from the site after construction activities have been completed at the site. Industrial and post-construction stormwater discharges may need to be covered by a separate stormwater permit.

3. The placement of fill into waters of the state requiring local, state, or federal authorizations (such as U.S. Army Corps of Engineers Section 404 permits).

4. This permit does not substitute for obligations under the National Environmental Policy Act (NEPA), Endangered Species Act (ESA), or National Historic Preservation Act (NHPA), it is your responsibility to ensure the project and resulting discharges comply with the respective requirements.

5. Discharges to waters for which there is a total maximum daily load (TMDL) allocation for sediment, suspended solids or turbidity are not covered unless you develop a Stormwater Pollution Prevention (SWPP) plan that is consistent with the assumptions, allocations and requirements in the approved TMDL. Information about TMDL allocations may be found at the following website: www.ndhealth.gov/WQ/SW/Z2_TMDL/default.htm.

6. Stormwater discharges that the Department determines will cause, or have the reasonable potential to cause or contribute to violations of water quality standards.

C. Obtaining Coverage and Authorization Effective Date

1. To obtain authorization under this general permit for stormwater discharges you must submit a complete application and develop a Stormwater Pollution Prevention (SWPP) plan in accordance with Part II.C of this permit. A plan must be in place as a condition of the permit and a copy of the plan must be retained by the permittee. A copy of the plan must be submitted with the application for certain facilities as described in Part I.D.

2. Permit coverage will become effective 7 days after you submit a complete application unless otherwise notified by the Department (based on the department receipt date).

3. Upon the effective date of permit coverage you as the permit applicant are authorized to discharge stormwater from eligible activities under the terms and conditions of this permit.

D. Application (Notice of Intent) Process

1. You may use a Notice of Intent (NOI) form for Construction Activity (or a photocopy thereof) to complete your application. The NOI form (or a replacement application form) is available at the following website: www.ndhealth.gov/WQ/Storm/Construction/ConstructionHome.htm.

2. Application Content and Conditions.

   a. The owner or the owner jointly with the operator (usually the general contractor) shall submit a completed application for this permit. The owner is responsible for compliance with all terms and conditions of this permit. The operator has day to day supervision of construction activities and is jointly responsible with the owner for compliance with the permit conditions as they pertain to the construction activities delegated to the operator.

   b. The application (Notice of Intent) shall contain, at a minimum, the following information:

      (1) Owner name, mailing address and phone number;
      (2) Project contact name and phone number;
      (3) Project/site name;
      (4) Project/site location (street address; section, township, range; or latitude and longitude), county;
      (5) A brief description of the construction activity;
      (6) The anticipated start date and the anticipated completion date for the project (if known);
      (7) The estimated total area of the site and the total area of disturbance in acres;
      (8) Name of receiving water(s) or the name of the municipal storm sewer system and receiving water(s);
      (9) The signature of the applicant(s), owner (and operator if co-applicants) signed in accordance with Part IV.A.6 of this permit.

   c. A Stormwater Pollution Prevention (SWPP) plan (Part II.C) for the project must be prepared and available for review by the Department at the time of application. A partially complete plan is acceptable when it clearly identifies the item(s) to be completed, the person(s) responsible for completing the item(s) and the deadline for completing the item(s). The SWPP plan must be completed prior to the start of construction (or the applicable construction phase).

d. You must include a copy of the SWPP plan if the project involves 50 or more acres; or the project will have a discharge point located within 2000 feet of, and flow to, a water body listed as impaired under section 303(d) of the Federal Clean Water Act due to sediment, suspended solids or turbidity. The Department's 303(d) list may be found at the following website in the most recent Integrated Report: www.ndhealth.gov/WQ/SW/Z2_TMDL/Integrated_Reports/B_Integrated_Reports.htm.

3. For residential construction activity occurring within a common plan of development (such as a subdivision) subject to the permit requirements, coverage may be obtained by the following:

   a. The owner of the lot(s) shall submit one application for all of the owner's construction activity within the common plan, or

   b. The operator, such as a homebuilder who may represent one or more lot owners, shall submit one application for all of the operator's construction activity within the common plan.

   In addition, a SWPP plan must be developed and implemented for the permittee's activities within a common plan of development. Additional phases of the common plan may be included under the initial application and permit coverage, provided the SWPP plan is amended to include the additional area or phases.

4. For oil and gas exploration, production, processing, and treatment operations or transmission facilities, coverage under this permit is not required for small construction activity. For oil and gas related large construction activity, permit applications may be submitted for individual project sites or for an area of operations such as well field area.

   To obtain permit coverage for an area of operations, the application must include a map outlining the area or a list of counties encompassing the area. Also include a copy of the SWPP plan or similar BMP document developed for construction related activities within the coverage area. The information for individual project sites and future sites within the coverage area including those meeting the criteria in Part I.D.2.d does not need to be submitted.

5. Completed applications and any reports required by this permit shall be submitted to:

   North Dakota Department of Health
   Division of Water Quality
   918 East Divide Avenue
   Bismarck, ND 58501-1947

6. Local Authority. This permit does not preempt or supersede the authority of local agencies to prohibit, restrict, or control discharges of stormwater to storm sewer systems or other water courses within their jurisdiction.

E. Notice of Termination (NOT)

1. Permittees wishing to terminate coverage under this permit must submit a Notice of Termination (NOT) or other written request identifying the facility, reason why the permit is no longer needed and signed in accordance with Part IV.A.6 of this permit. Compliance with the conditions of this permit is required until a NOT is submitted to and accepted by the Department.

2. Permittees may only submit a NOT after one of the following conditions have been met.

   a. Final stabilization (see Part II.E and definitions) has been achieved on all portions of the site for which the permittee is responsible.

   b. Another operator/permittee has assumed control, in accordance with the transfer provisions (Part I.F), over all areas of the site that have not achieved final stabilization.

   c. For residential construction only, a NOT is not required for each lot that is sold or has achieved final stabilization. Instead the permittee may modify their SWPP plan to indicate that permit coverage is no longer required for that lot. The SWPP plan should indicate the reason coverage is no longer needed and the date it was achieved. In order to terminate coverage, all lots under the control of the owner or operator must:

      (1) Be sold to homeowners for private residential use with temporary erosion protection and down gradient perimeter controls installed. In addition, the permittee must distribute a "homeowner fact sheet" to the homeowner to inform the homeowner of the need for, and benefits of, final stabilization; or

      (2) Achieve final stabilization (See Part II.E and definitions) on all portions of the site for which the permittee is responsible.

F. Transfer of Ownership or Control

1. When the owner or operator of a construction project changes, the new owner or operator must submit a written request for permit transfer/modification within 14 days of assuming control of the site or commencing work on-site, or of the legal transfer, sale or closing on the property; except as provided in Part I.F.2 below. Late submittals will not be rejected; however, the Department reserves the right to take enforcement for any unpermitted discharges or permit noncompliance. For stormwater discharges from construction activities where the owner or operator changes, the new owner or operator can implement the original SWPP plan created for the project or develop and implement their own SWPP plan. Permittee(s) shall ensure either directly or through coordination with other operators that their SWPP plan meets all terms and conditions of this permit and that their activities do not interfere with another party's erosion and sediment control practices.

2. A permit transfer/modification request is not required for the legal transfer, sale or closing on a property between permittees covered by this permit. Examples include the sale of a property parcel from a developer to a builder, or the transfer of an easement from a developer to a local government authority. If the new party is not covered by this permit at the time of transfer or sale, then the new owner/operator must submit a completed application/NOI within 14 days of assuming control of the site.

G. Municipal Separate Storm Sewer System (MS4) Permittees

The submittal of an application (NOI) is not required for small construction activity owned or operated by an entity with general permit coverage for Municipal Separate Storm Sewer System (MS4) discharges. The small construction activity owned or operated by the permitted MS4 is subject to the conditions outlined in this permit except for the Application Process (Part I.D).

II. STORMWATER DISCHARGE REQUIREMENTS

A. Prohibition of Non-Stormwater Discharges

The discharge of wastewater from processing operations or sanitary facilities is not authorized by this permit. The following non-stormwater discharges may be authorized if the non-stormwater sources are identified in the SWPP plan with a description of the pollution prevention measures to be implemented: fire-fighting, fire hydrant flushing, potable water line flushing, infrequent building and equipment wash down without detergents, uncontaminated foundation drains, springs, lawn watering and air conditioning condensate.

B. Releases in Excess of Reportable Quantities

This permit does not relieve the permittee of the reporting requirements of 40 CFR 110, 40 CFR 117, and 40 CFR 302. Any release of a hazardous substance, including a release in a stormwater discharge, must be reported to the agencies identified in Part IV.A.7. The discharge of hazardous substances in stormwater discharges shall be minimized in accordance with the applicable SWPP plan for the facility. Should a reportable quantity release occur, the SWPP plan shall be revised to prevent the recurrence of such a release.

C. Stormwater Pollution Prevention Plans

All permittees shall implement a Stormwater Pollution Prevention (SWPP) plan for any construction project requiring this permit until final stabilization is achieved. The SWPP plan and revisions are subject to review by the Department. The objectives of the plan are to identify potential sources of sediment or other pollution from construction activity and to ensure practices are used to reduce the contribution of pollutants from construction site runoff. Stormwater management documents developed under other regulatory programs can be included in the SWPP plan or incorporated by reference, or used in whole as a SWPP plan if it meets the requirements of this part.

The SWPP plan may identify more than one permittee and may specify the responsibilities of each permittee by task, area, and/or timing. Permittees may coordinate and prepare more than one SWPP plan to accomplish this. However, in the event there is a requirement under the SWPP plan for which responsibility is ambiguous or is not included in the SWPP plan, each permittee shall be responsible for implementation of that requirement. Each permittee is also responsible for assuring that its activities do not render another permittee's controls ineffective.

The SWPP plan must incorporate the guidelines provided in Appendix 1, to the extent practicable, and shall include the following information.

1. **Site Description**. Each plan shall provide a description of the construction site and potential pollutant sources as indicated below:

    a. A description of the overall project and the type of construction activity;

    b. Estimates of the total area of the site and the total area that is expected to be disturbed by excavation, grading, grubbing, or other activities during the life of the project;

    c. A proposed timetable of activities that disturb soils for major portions of the site;

    d. A description of the soil within the disturbed area(s);

    e. The name of the surface water(s) and municipal storm sewer system at or near the disturbed area that may receive discharges from the project site; and

f. A site map indicating:
   1) Drainage patterns including flow direction, dividing lines, and the existing and final grades
   2) Construction site boundaries and areas of soil disturbance;
   3) Location of major structural and nonstructural controls identified in the plan;
   4) Location of areas where stabilization practices are expected to occur;
   5) Surface waters, including an aerial extent of wetland acreage;
   6) Locations where stormwater is discharged to surface waters;
   7) Where included as part of the project, the site maps for off-site concrete/asphalt batch plants, equipment staging areas, borrow sites or excavated fill material disposal sites.

g. Projects that have a discharge point within 2000 feet of, and flow to, a water body listed as impaired under section 303(d) of the Federal Clean Water Act due to sediment, suspended solids or turbidity, must identify the water body and impairment in the plan. The Department's 303(d) list may be found at the following website under Integrated Reports: www.ndhealth.gov/WQ/SW/Z2_TMDL/Integrated_Reports/B_Integrated_Reports.htm.

2. **Operational Controls**. The plan shall describe the Best Management Practices (BMPs) used in day to day operations on the project site that reduce the contribution of pollutants in stormwater runoff.

   a. The plan must identify a person knowledgeable and experienced in the application of erosion and sediment control BMPs who will oversee the implementation of the SWPP plan, and the installation, inspection and maintenance of the erosion and sediment control BMPs before and during construction. The owner shall develop a chain of responsibility with all operators on the site to ensure that the SWPP plan will be implemented and stay in effect until the construction project is complete, the entire site has undergone final stabilization, and a NOT has been submitted to the Department.

   b. Good housekeeping practices to maintain a clean and orderly site. Litter, debris, chemicals and parts must be handled properly to minimize the exposure to stormwater. This includes measures to reduce and remove sediment tracked off-site by vehicles or equipment, and the generation of dust.

   c. Preventative maintenance practices must be provided to ensure the proper operation, inspection and maintenance of stormwater control devices (e.g., oil-water separators, catch basins, and silt fences) and equipment used or stored on site.

   d. Spill prevention and response procedures must be developed where potential spills can occur. Where appropriate, specific handling procedures, storage requirements, spill containment and cleanup procedures must be identified. Bulk storage structures for petroleum products and other chemicals shall have adequate leak and spill protection to prevent any spilled materials from entering waters of the state, storm sewer systems or draining onto adjacent properties.

   e. Employee training informs personnel of their responsibility in implementing the practices and controls included in the plan such as spill response, good housekeeping, and sediment control practices. Employee training must be provided at least annually, as new employees are hired or as necessary to ensure compliance with the plan and the general permit.

   f. Concrete wash water, grindings and slurry, shall not be discharged to waters of the state, storm sewer systems or allowed to drain onto adjacent properties.

   g. Dewatering or basin draining (e.g., pumped discharges, trench/ditch cuts for drainage) related to the permitted activity must be managed with the appropriate BMPs, such that the discharge

does not adversely affect the receiving water or downstream landowners. The following conditions and considerations apply to the dewatering activities:

1) The dewatering is limited to stormwater and groundwater that may collect on site and those sources identified in Part II.A. A separate permit must be obtained to discharge water from other sources such as hydrostatic testing or contaminated groundwater or surface water.

2) The permittee(s) must operate the discharge to minimize the release of sediment and provide adequate BMPs where necessary to minimize erosion due to the discharge. Discharges must not lead to the deposition of sediment within stormwater conveyance systems or surface waters. Discharges must not cause or potentially cause a visible plume within a surface water body.

3) In addition to the inspection requirements in Part III, the dewatering activities should be inspected daily. The inspection must include the dewatering site, areas where the BMPs are being implemented and the discharge location. A record should be maintained to document the inspections of the dewatering operation and actions taken to correct any problems that may be identified.

4) Local authorities may require specific BMPs for discharges affecting their storm sewer system.

3. **Erosion and Sediment Controls**. An erosion and sediment control plan shall be developed to identify the appropriate control measures and when they will be implemented during the project for each major phase of site activity (e.g., clearing, grading and building phases). The erosion and sediment control plan must conform to the guidelines provided in Appendix 1. The description and implementation of controls shall address the following minimum components:

   a. Sediment basins, or an appropriate combination of equivalent sediment controls such as smaller sediment basins, and/or sediment traps, silt fences fiber logs, vegetative buffer strips, berms, etc., are required for all down slope boundaries of the disturbance area and for those side slope boundaries as may be appropriate for site conditions.

   b. Temporary erosion protection (such as cover crop planting or mulching) or permanent cover must be provided as outlined in Appendix 1 for the exposed soil areas where activities have been completed or temporarily ceased. These areas include graded slopes, pond embankments, ditches, berms and soil stockpiles.

   c. All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections or other information indicates a control has been used inappropriately, or incorrectly, the permittee must replace or modify the control for site situations. The permittee may deviate from the manufacturer's specifications and erosion and sediment control guidelines in Appendix 1 if they provide justification for the deviation and document the rationale for the deviation in the SWPP plan.

   d. If sediment escapes from the site, off-site accumulations of sediment must be removed in a manner and at a frequency sufficient to minimize off-site impacts. The plan must be modified to prevent further sediment deposition off-site.

   e. The stormwater controls are expected to withstand and function properly during precipitation events of up to the 2 year, 24 hour storm event. Visible erosion and/or off-site sediment deposition from such storm events should be minimal. The 2 year, 24 hour rainfall event in North Dakota ranges from about 1.9 inches in the west to 2.3 inches in the east.

f. For projects that discharge to waters that have a TMDL allocation for sediment, suspended solids or turbidity, the plan must be consistent with the assumptions, allocations and requirements of the approved TMDL. If a TMDL specifies certain BMPs or controls to meet a wasteload allocation (WLA) applicable to the project's discharges, then the BMPs or controls must be incorporated into the plan. Information about TMDL allocations may be found at the following website: www.ndhealth.gov/WQ/SW/Z2_TMDL/default.htm.

4. **Stormwater Management**. The plan must identify permanent practices incorporated into the project to control pollutants in stormwater discharges occurring after construction operations have been completed.

   a. Identify stormwater ponds; flow reduction by use of open vegetated swales and natural depressions; infiltration of runoff on-site; and sequential systems which combine several practices.

   b. Identify velocity / energy dissipation devices placed at discharge locations and appropriate erosion protection for outfall channels and ditches.

   c. Maintenance for on-site stormwater management features is the responsibility of the permittee until the NOT is submitted or the feature is accepted by the party responsible for long term maintenance.

   d. The design, installation and use of stormwater management features must comply with applicable local, state or federal requirements.

5. **Maintenance**. All erosion and sediment control measures and other protective measures identified in the plan must be maintained in effective operating condition. The plan must indicate, as appropriate, the maintenance or clean out interval for sediment controls. If site inspections, required in Part III of this permit, identify BMPs that are not operating effectively, maintenance shall be arranged and accomplished as soon as practicable.

6. **Inspections**. The plan must provide for site inspections as outlined in Part III. The permittee shall ensure that personnel conducting site inspections are familiar with permit conditions and the proper installation and operation of control measures. The erosion and sediment control measures identified in the plan shall be observed to ensure that they are operating correctly and in serviceable condition. Inspections shall also include discharge outlets from areas used for storage of materials, permanent stormwater control measures and vehicle maintenance areas. These areas shall be inspected for evidence of, or the potential for, pollutants entering a drainage system. If necessary, the plan shall be revised based on the observations and deficiencies noted during the inspection.

7. **Plan Review and Revisions**.

   a. The plan shall be signed in accordance with the signatory requirements, Part IV.A.6, and retained on-site for the duration of activity as outlined in Part III.B.

   b. The permittee shall make plans available upon request to the Department, EPA, or, in the case of discharges to a municipal storm sewer system, to the operator of the municipal system.

   c. The permittee shall amend the SWPP plan whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to waters of the state. The plan shall also be amended if the plan is found to be ineffective in controlling pollutants present in stormwater.

D. Local Requirements

All stormwater discharges must comply with the requirements, policies, or guidelines of municipalities and other local agencies as applicable to the construction site. Any discharges to a storm sewer, ditch or other water course under the jurisdiction of a municipality must comply with any specific conditions or BMPs required by the municipality.

E. Final Stabilization

The permittee(s) must ensure final stabilization of the site. The permittee(s) should submit a NOT within 30 days after final stabilization has been achieved, or another owner/operator (permittee) has assumed control according to Part I.F for all areas of the site that have not undergone final stabilization. Final stabilization can be achieved in one of the following ways.

1. All soil disturbing activities at the site have been completed and all soils must be stabilized by a uniform perennial vegetative cover with a density of 70 percent over the entire pervious surface area, or other equivalent means necessary to prevent soil failure under erosive conditions and;

    a. All drainage ditches, constructed to drain water from the site after construction is complete, must be stabilized to preclude erosion;

    b. All temporary synthetic, and structural erosion prevention and sediment control BMPs (such as silt fence) must be removed as part of the site final stabilization; and

    c. The permittee(s) must clean out all sediment from conveyances and from temporary sedimentation basins that will be used as permanent water quality management basins. Sediment must be stabilized to prevent it from being washed back into the basin, conveyances or drainage ways discharging off-site; or to surface waters. The cleanout of permanent basins must be sufficient to return the basin to design capacity.

2. For residential construction only, final stabilization has been achieved when temporary erosion protection and down gradient perimeter control for individual lots has been completed and the residence has been transferred to the homeowner. Additionally, the permittee must distribute a "homeowner fact sheet" to the homeowner to inform the homeowner of the need for, and benefits of, final stabilization. The permittee also must demonstrate that the homeowner received the fact sheet.

III. SELF MONITORING AND REPORTING

A. Inspection and Maintenance Requirements

1. Inspections shall be performed by or under the direction of the permittee at least once every 14 calendar days and within 24 hours after any storm event of greater than 0.50 inches of rain per 24-hour period during active construction. The permittee shall use a rain gauge near the site or utilize the nearest National Weather Service precipitation gauge station. Any gauge used shall be located within 5 miles of the stormwater discharge.

2. All inspections and maintenance conducted during construction must be recorded in writing and these records must be retained in accordance with Part III.B. Records of each inspection and maintenance activity shall include:

a. Date and time of inspections;

b. Name of person(s) conducting inspections;

c. Findings of inspections, including recommendations for corrective actions;

d. Corrective actions taken (including dates, times, and party completing maintenance activities);

e. Date and amount of all rainfall events greater than 1/2 inch (0.50 inches) in 24 hours; and

f. Documentation that the SWPP plan has been amended when substantial changes are made to the erosion and sediment controls or other BMPs in response to inspections.

3. Completed areas that have been stabilized but do not meet the 70% perennial vegetative cover criteria for final stabilization may be inspected once per month. Inspections may be suspended for parts of the construction site that meet final stabilization. Inspections also may be suspended where earthwork has been suspended due to frozen ground conditions. The required inspections and maintenance must resume as soon as runoff occurs or the ground begins to thaw at the site.

4. There may be times when a site inspection may not be practical at the specified time. Adverse climatic conditions, such as flooding, high winds, tornadoes, electrical storms, etc., may prohibit inspections. Should this occur, the permittee must record a description of why the inspection(s) could not be performed at the designated time.

5. The permittee may submit an alternative inspection plan for long, narrow, linear construction projects such as pipeline or utility line inspection, and similar projects in remote areas where vehicle traffic is restricted or could compromise native vegetation or stabilization measures. A copy of the SWPP plan and proposed inspections plan shall be submitted to the Department 30 days prior to implementing an alternative inspection plan. Any alternative plan must provide for the timely recognition and repair of erosion and sediment damage.

6. Some erosion and sediment control measures may require more frequent inspection based on location (e.g., sensitive areas or waters of the state) or as a result of recurring maintenance issues. Erosion or sediment control measures found in need of maintenance between inspections must be repaired or supplemented with appropriate measures as soon as practicable.

B. Records Location

A copy of the completed and signed Notice of Intent, coverage letter from the Department, SWPP plan, site inspection records, and this general permit shall be kept at the site of the construction activity in a field office, trailer, or shed, or in a vehicle that is on-site during normal working hours. If the site does not have a reasonable on-site location, then the documents must be retained at a readily available alternative location; preferable with the individual responsible for overseeing the implementation of the SWPP plan. If the site is inactive, then the documents may be stored at a local office.

IV. STANDARD CONDITIONS

A. COMPLIANCE RESPONSIBILITIES

1. **Duty to Comply**
   The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

2. **Operation and Maintenance**
   The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit. If necessary to achieve compliance with the conditions of this permit, this shall include the operation and maintenance of backup or auxiliary systems.

3. **Planned Changes**
   The Department shall be given advance notice of any planned changes at the permitted facility or of an activity which may result in permit noncompliance. Any anticipated facility expansions, production increase, or process modifications which might result in new, different, or increased discharges of pollutants shall be reported to the Department as soon as possible. Changes which may result in a facility being designated a "new source" as determined in 40 CFR 122.29(b) shall also be reported.

4. **Duty to Provide Information**
   The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Department, upon request, copies of records required to be kept by this permit. When a permittee becomes aware that it failed to submit any relevant facts or submitted incorrect information in a permit application or any report, it shall promptly submit such facts or information.

5. **Records Retention**
   All records and information (including calibration and maintenance) required by this permit shall be kept for at least three years or longer if requested by the Department or EPA.

6. **Signatory Requirements**
   All applications, reports or information submitted to the Department shall be signed and certified.

   a. All permit applications shall be signed by a responsible corporate officer, a general partner, or a principal executive officer or ranking elected official.

   b. All reports required by the permit and other information requested by the Department shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

      (1) The authorization is made in writing by a person described above and submitted to the Department; and

      (2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters.

If an authorization under "Compliance Responsibilities-Signatory Requirements" section is no longer accurate for any reason, a new authorization satisfying the above requirements must be submitted to the Department prior to or together with any reports, information, or applications to be signed by an authorized representative.

Any person signing a document under this section shall make the following certification:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted herein. Based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment."

7. Noncompliance Notification

The permittee shall report any noncompliance which may seriously endanger health or the environment as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of the circumstances. The report shall be made to the EPA, Region VIII, Emergency Response Branch at 1.800.424.8802 and the State of North Dakota, Division of Homeland Security at 1.800.472.2121. The following occurrences of noncompliance shall be reported by telephone to the Department at 701.328.5210 by the first workday (8:00 a.m.-5:00 p.m. Central time) following the day the permittee became aware of the circumstances:

a. Any lagoon cell overflow or any unanticipated bypass which exceeds any effluent limitation in the permit (see "Compliance Responsibilities-Bypass of Treatment Facilities" section);

b. Any upset which exceeds any effluent limitation in the permit (see "Compliance Responsibilities-Upset Conditions" section); or

c. Violation of any daily maximum effluent or instantaneous discharge limitation for any of the pollutants listed in the permit.

A written submission shall also be provided within five days of the time that the permittee became aware of the circumstances. The written submission shall contain:

a. A description of the noncompliance and its cause;

b. The period of noncompliance, including exact dates and times;

c. The estimated time noncompliance is expected to continue if it has not been corrected; and

d. Steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

Reports shall be submitted to the address in the "Reporting and Recordkeeping Requirements-Reporting" section. The Department may waive the written report on a case by case basis if the oral report has been received within 24 hours by the Department at 701.328.5210 as identified above.

All other instances of noncompliance shall be reported no later than at the time of the next Discharge Monitoring Report submittal. The report shall include the four items listed in this subsection.

8. Bypass of Treatment Facilities

Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to any of the following provisions in this section.

Bypass exceeding limitations-notification requirements.

a. Anticipated Bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten (10) days before the date of bypass.

b. Unanticipated Bypass. The permittee shall submit notice of an unanticipated bypass as required in the "Compliance Responsibilities-Noncompliance Notification" section.

Prohibition of Bypass. Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless:

a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

c. The permittee submitted notices as required in the "Bypass of Treatment Facilities-Anticipated Bypass" section.

The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three (3) conditions listed above.

9. Upset Conditions

An upset constitutes an affirmative defense to an action brought for noncompliance with technology-based permit effluent limitations if the requirements of the following paragraph are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

a. An upset occurred and the permittee can identify its cause(s);

b. The permitted facility was, at the time being, properly operated;

c. The permittee submitted notice of the upset as required under "Compliance Responsibilities-Noncompliance Notification" section; and

d. The permittee complied with any remedial measures required under "Compliance Responsibilities-Duty to Mitigate" section.

In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

10. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. The permittee, at the Department's request, shall provide accelerated or additional monitoring as necessary to determine the nature and impact of any discharge.

11. Removed Materials
Collected screenings, grit, solids, sludges, or other pollutants removed in the course of treatment shall be buried or disposed of in such a manner to prevent any pollutant from entering any waters of the state or creating a health hazard. Sludge/digester supernatant and filter backwash shall not be directly blended with or enter either the final plant discharge and/or waters of the state. The permit issuing authority shall be contacted prior to the disposal of any sewage sludges. At that time, concentration limitations and/or self-monitoring requirements may be established.

12. Duty to Reapply
Any request to have this permit renewed should be made 15 days prior to its expiration date.

B. GENERAL REQUIREMENTS

1. Right of Entry
The permittee shall allow Department and EPA representatives, at reasonable times and upon the presentation of credentials if requested, to enter the permittee's premises to inspect the wastewater treatment facilities and monitoring equipment, to sample any discharges, and to have access to and copy any records required to be kept by this permit.

2. Availability of Reports
Except for data determined to be confidential under 40 CFR Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department and EPA. As required by the Act, permit applications, permits, and effluent data shall not be considered confidential.

3. Transfers
This permit is not transferable except upon the filing of a Statement of Acceptance by the new party and subsequent Department approval. The current permit holder should inform the new controller, operator, or owner of the existence of this permit and also notify the Department of the possible change.

4. New Limitations or Prohibitions
The permittee shall comply with any effluent standards or prohibitions established under Section 306(a), Section 307(a), or Section 405 of the Act for any pollutant (toxic or conventional) present in the discharge or removed substances within the time identified in the regulations even if the permit has not yet been modified to incorporate the requirements.

5. Permit Actions
This permit may be modified, revoked and reissued, or terminated for cause. This includes the establishment of limitations or prohibitions based on changes to Water Quality Standards, the development and approval of waste load allocation plans, the development or revision to water quality management plans, changes in sewage sludge practices, or the establishment of prohibitions or more stringent limitations for toxic or conventional pollutants and/or sewage sludges. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

6. Need to Halt or Reduce
It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

7. State Laws
Nothing in this permit shall be construed to preclude the institution of legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation preserved under Section 510 of the Act.

8. **Oil and Hazardous Substance Liability**
   Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act.

9. **Property Rights**
   The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

10. **Severability**
    The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

11. **General Permits**
    Coverage under this permit may be modified, revoked and reissued, or terminated for cause. The Department may require any operator covered by this permit to apply for and obtain an individual or alternative general permit if:

    a. The discharge is not in compliance with the conditions of the general permit

    b. Conditions or standards have changed so that the discharge no longer qualifies for a general permit

    c. Information becomes available which indicates that the permitee's discharge has a reasonable potential to contribute to an exceedance of a water quality standard

    When an individual NDPDES permit is issued to an operator otherwise subject to this permit or the operator is approved for coverage under an alternative NDPDES general permit, the applicability of this permit to the operator is automatically inactivated upon the effective date of the individual permit or coverage under the alternative general permit.

V. DEFINITIONS

"303d List" or "Section 303d List" means a list of North Dakota's water quality-limited waters needing total maximum daily loads or TMDLs developed to comply with section 303d of the Clean Water Act. A copy of the latest integrated report is available on the state's web site at: www.ndhealth.gov/WQ/SW/Z2_TMDL/Integrated_Reports/B_Integrated_Reports.htm.

"Act" means the Clean Water Act.

"BMP" or "Best Management Practices" means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the state. BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

"Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

"Common Plan of Development or Sale" means a contiguous area where multiple separate and distinct land disturbing activities may be taking place at different times, on different schedules, but under one proposed plan. One plan is broadly defined to include design, permit application, advertisement or physical demarcation indicating that land-disturbing activities may occur.

"Construction Activity" means construction activity as defined in 40 CFR part 122.26(b)(14)(x) and small construction activity as defined in 40 CFR part 122.26(b)(15). This includes a disturbance to the land that results in a change in topography, existing soil cover (both vegetative and non-vegetative), or the existing soil topography that may result in accelerated stormwater runoff, leading to soil erosion and movement of sediment into surface waters or drainage systems. Examples of construction activity may include clearing, grading, filling and excavating. Construction activity includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb on (1) acre or more. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility.

"Department" means the North Dakota Department of Health, Division of Water Quality.

"Energy Dissipation" means methods employed at pipe outlets to prevent erosion. Examples include, but are not limited to: concrete aprons, riprap, splash pads, and gabions that are designed to prevent erosion.

"Final Stabilization" means that:

1. All soil disturbing activities at the site have been completed and a uniform perennial vegetative cover with a density of 70 percent of the native cover for unpaved areas and areas not covered by permanent structures, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) has been achieved.

2. For areas with an average annual rainfall of less than 20 inches only, all soil disturbing activities at the site have been completed and temporary erosion control measures (e.g., degradable rolled erosion control product) are selected, designed, and installed along with an appropriate seed base to provide erosion control for at least three years and achieve 70 percent vegetative coverage within three years without active maintenance.

3. For soil disturbing activities on land used for agricultural purposes, final stabilization may be accomplished by returning the disturbed land to its pre-disturbance agricultural use. Areas disturbed that were not previously used for agricultural activities, such as buffer strips immediately adjacent to waters of the state, and areas which are not being returned to their pre-disturbance agricultural use must meet the final stabilization criteria in (1) or (2) above.

"Large Construction Activity" means land disturbance of equal to or greater than 5 acres. Large construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale, if the larger common plan will ultimately disturb equal to or greater that five acres.

"Normal Wetted Perimeter" means the area of a conveyance, such as a ditch, channel, or pipe that is in contact with water during flow events that are expected to occur once every year.

"Non-Stormwater Discharges" means discharges other than stormwater. The term includes both process and non-process sources. Process wastewater sources that require a separate NDPDES permit include, but are not limited to industrial processes, domestic facilities and cooling water. Non-stormwater sources that may be addressed in this permit include, but are not limited to: fire-fighting, fire hydrant flushing, potable water line flushing, infrequent building and equipment wash down without detergents, uncontaminated foundation drains, springs, lawn watering and air conditioning condensate.

"Operator" means the person (usually the general contractor) designated by the owner who has day to day operational control and/or the ability to modify project plans and specifications related to the SWPP plan. The person must be knowledgeable in those areas of the permit for which the operator is responsible and must perform those responsibilities in a workmanlike manner.

"Owner" means the person or party possessing the title of the land on which the construction activities will occur; or if the construction activity is for a lease holder, the party or individual identified as the lease holder; or the contracting government agency responsible for the construction activity.

"Permanent Cover" means final stabilization. Examples include grass, gravel, asphalt, and concrete.

"Severe Property Damage" means substantial physical damage to property, damage to treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

"Significant Materials" includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101(14) of CERCLA; any chemical the facility is required to report pursuant to Section 313 of Title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with stormwater discharges.

"Significant Spills" includes, but is not limited to: releases of oil or hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (see 40 CFR 110.10 and CFR 117.21) or Section 102 of CERCLA (see 40 CFR 302.4).

"Small Construction Activity" means land disturbance of equal to or greater than one acre and less than five acres. Small construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale, if the larger common plan will ultimately disturb equal to or greater than one and less than five acres

"Stabilized" means the exposed ground surface has been covered by appropriate materials such as mulch, staked sod, riprap, wood fiber blanket, or other material that prevents erosion from occurring. Grass seeding alone is not stabilization.

"Stormwater" means stormwater runoff, snow melt runoff, and surface runoff and drainage.

"Stormwater Associated with Industrial Activity" means stormwater runoff, snow melt runoff, or surface runoff and drainage from industrial activities as defined in 40 CFR 122.26(b)(14).

"Stormwater Associated with Small Construction Activity" means the discharge of stormwater from:

(i) Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than once acre and less than five acres. Small construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than one and less than five acres. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility.

(ii) Any other construction activity designated by EPA or the Department, based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to waters of the state.

"Temporary Erosion Protection" means methods employed to prevent erosion. Examples of temporary cover include; straw, wood fiber blanket, wood chips, and erosion netting.

"Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

"Waters of the State" means any and all surface waters that are contained in or flow in or through the state of North Dakota as defined in NDCC 61-28-02. This definition includes all water courses, even if they are usually dry.

"You" means the owner, operator or permittee as appropriate.

Appendix 1 – Erosion and Sediment Control Guidelines

Guidelines for designing, implementing and maintaining erosion and sediment controls.

A. Erosion and Sediment Control Practices

1. Temporary (or permanent) sediment basins, or equivalent control, must be provided where ten (10) or more acres of disturbed area drain to a common location prior to the runoff leaving the site or entering surface waters. The permittee is encouraged, but not required, to install temporary sediment basins where appropriate in areas with steep slopes or highly erodible soils even if less than ten (10) acres drains to one area. The basins must provide at least the following:

   The basins shall be sized to provide 3,600 cubic feet of storage below the outlet pipe per acre drained to the basin. Alterative designs may be used which provide storage below the outlet for a calculated volume of runoff from a 2 year, 24 hour storm and provides not less than 1800 cubic feet of storage below the outlet pipe from each acre drained to the basin.

   Basin outlets must be designed to avoid short-circuiting and the discharge of floating debris. The basin must be designed with the ability to allow complete basin drawdown (e.g., perforated riser pipe wrapped with filter fabric and covered with crushed gravel, pumps or other means) for maintenance activities. The drawdown should be designed to release the storage volume in a 24 hour or longer period. The basin must have a stabilized emergency overflow to prevent failure of pond integrity. Energy dissipation must be provided for the basin outlet.

2. Where the temporary sediment basin is not practical due to site limitations or nature of disturbance (such as developing a roadway, pipeline, or diversion) a combination of measures must be used to provide equivalent sediment control for all down slope boundaries of the construction area and for side slope boundaries as deemed appropriate by individual site conditions. Equivalent sediment controls include such things as smaller sediment basins and/or sediment traps, silt fences, and vegetative buffer strips. In determining whether installing a sediment basin is attainable, the permittee must consider public safety and may consider factors such as site soils, slope and available area on site.

3. Provide temporary erosion protection or permanent cover for the exposed soil areas where activities have been completed or temporarily ceased. For those areas with a continuous positive slope within 200 lineal feet of a surface water, temporary erosion protection or permanent cover must be applied within 21 days of completing or ceasing earth moving activities. These areas include pond embankments, ditches, berms and soil stockpiles. Temporary stockpiles without significant silt, clay or organic components (e.g., clean aggregate stockpiles, demolition concrete stockpiles, sand stockpiles) are exempt from this requirement.

4. Temporary soil stockpiles must have effective sediment controls, and cannot be placed in surface waters, including stormwater conveyances such as curb and gutter systems, or conduits and ditches.

5. The normal wetted perimeter of any temporary or permanent drainage ditch that drains water from a construction site, or diverts water around a site, must be stabilized at least 200 lineal feet from the property edge, or from the point of discharge to any surface water. Stabilization should be completed within 24 hours of connecting to a surface water.

6. Pipe outlets must be provided with temporary or permanent energy dissipation within 24 hours of connection to a surface water. Splash pads and/or downspout extensions must be provided for roof drains to prevent erosion from roof runoff.

7. In order to maintain sheet flow and minimize rills and/or gullies, there should be no unbroken slope length of greater than 75 feet for slopes with a grade of 3:1 or steeper.

8. Temporary or permanent drainage ditches and sediment basins that are designed as part of a treatment system (e.g., ditches with rock check dams) require sediment control practices only as appropriate for site conditions.

9. All storm drain inlets in the immediate vicinity of the construction site must be protected by the appropriate BMPs during construction until all sources with the potential for discharging to the inlet have been stabilized. This includes storm drain inlets which may be affected by sediment tracked onto paved surfaces by vehicles or equipment.

   Inlet protection devices are a last line of control – sediment and erosion control practices must be used on site. Inlet protection devices must conform to local ordinances or regulations. In general inlet protection devices need to provide for drainage adequate to prevent excessive roadway flooding. Inlet protection may be removed for a particular inlet if a specific concern (i.e., street flooding/freezing, snow removal) has been identified and documented in the SWPP plan. In this situation, additional erosion and sediment control practices must be used to supplement for the loss of the inlet protection device to prevent sediment from entering a storm sewer system.

   Maintenance and cleaning of inlet protection devices, including on-site sediment and erosion controls, must be performed in a timely manner.

10. Vegetated buffers must have a minimum width of 25 feet for every 125 feet of disturbed area which drains to the buffer. For each additional 5 feet of disturbance, an additional 1 foot of width must be added. The width of the buffer shall have a slope of 5% or less and the area draining to the buffer shall have a slope of 6% or less. Concentrated flows should be minimized throughout the buffer.

    Buffers shall consist of dense grassy vegetation, 3 to 12 inches tall with uniform coverage over 90% of the buffer. Woody vegetation shall not be counted for the 90% coverage. No more than 10 % of the overall buffer may be comprised of woody vegetation.

B. Maintenance Considerations for Erosion and Sediment Controls

1. All erosion prevention and sediment control BMPs must be inspected to ensure integrity and effectiveness. All nonfunctional BMPs must be repaired, replaced, or supplemented with functional BMPs. The Permittee(s) must investigate and comply with the following inspection and maintenance requirements:

   All control devices similar to silt fence or fiber rolls must be repaired, replaced, or supplemented when they become nonfunctional or the sediment reaches 1/3 of the height of the device. These repairs must be made within 24 hours of discovery, or as soon as field conditions allow access.

   Temporary and permanent sedimentation basins must be drained and the sediment removed when the depth of sediment collected in the basin reaches 1/2 the storage volume. Drainage and removal must be completed within 72 hours of discovery, or as soon as field conditions allow access.

2. Surface waters, including drainage ditches and conveyance systems, must be inspected for evidence of sediment being deposited by erosion. The permittee(s) must remove all deltas and sediment deposited in surface waters, including drainage ways, catch basins, and other drainage systems, and restabilize the areas where sediment removal results in exposed soil. The removal and stabilization must take place immediately, but no more than, seven (7) days after the discovery unless precluded by legal, regulatory, or physical access constraints. The permittee shall use all reasonable efforts to obtain access. If precluded, removal and stabilization shall take place immediately, but no more than, seven (7) calendar days after obtaining access. The permittee is responsible for contacting all local, regional, state and federal authorities and receiving any applicable permits, prior to conducting any work.

3. Construction site egress locations must be inspected for evidence of sediment being tracked off-site by vehicles or equipment onto paved surfaces. Accumulations of tracked and deposited sediment must be removed from all off-site paved surfaces within 24 hours or, if applicable, within a shorter time specified by local authorities or the Department.

   Vehicle tracking of sediment from the site must be minimized by BMPs. This may include having a designated egress with aggregate surfacing from the site, or by designating off-site parking. The permittee(s) is responsible for (or making the arrangements for) street sweeping and/or scraping if BMPs are not adequate to prevent sediment from being tracked onto the street from the site.

4. If sediment escapes the construction site, off-site accumulations of sediment must be removed in a manner and at a frequency sufficient to minimize off-site impacts (e.g., fugitive sediment in streets could be washed into storm sewers by the next rain and/or pose a safety hazard to users of public streets).

5. Vegetative buffers must be inspected for proper distribution of flows, sediment accumulation and signs of rill formation. If a buffer becomes silt covered, contains rills, or is otherwise rendered ineffective, other control measures shall be implemented. Eroded areas shall be repaired and stabilized.

C. Housekeeping and Standard Operating Procedures

1. Properly handle construction debris and waste materials.

   Provide appropriate container(s) on site (or centrally located at several sites) for storing debris and other wastes until disposal. Litter and debris shall be picked-up regularly to reduce the chance for materials to be carried off the site by wind or water. Collected material shall be taken to the appropriate facility for disposal or recycling.

   Liquid or soluble materials including oil, fuel, paint and any other hazardous substances must be properly stored, to prevent spills, leaks or other discharges. Restricted access to storage areas must be provided to prevent vandalism. Storage and disposal of hazardous waste must be in compliance with applicable regulations.

2. Concrete wash water shall not be discharged to any waters of the state, storm sewer systems or allowed to drain onto adjacent properties. Wash water disposal must be limited to a defined area of the site or to an area designated for cement washout. The area(s) must be sufficient to contain the wash water and residual cement.

Appendix G

Grading / Storm Water Plans

EXISTING 48" CMP CULVERT

TOPSOIL BERM CONSTRUCT TO DIVERT FLOW FROM OFFSITE AROUND CONSTRUCTION

FLOW DIVERSION

1 / 8000-CV-0054

CONSTRUCTION LAYDOWN – GRAVEL SURFACE (BY OTHERS)

BMP'S FOR BRIDGE CONSTRUCTION SHALL BE DESIGNED AND IMPLEMENTED BY THE CONTRACTOR PRIOR TO STARTING BRIDGE CONSTRUCTION.

HEART RIVER

SILT FENCE AROUND CULVERT ENDS

TEMP. STORMWATER BASIN #4
7,400 C.F.
SEE DETAIL 4,
SHEET 8000-CV-0054

BASIN OUTLET LOCATION

EROSION CONTROL BLANKET, TYPE 4

EROSION CONTROL BLANKET, TYPE 4

EROSION CONTROL BLANKET, TYPE 4

CONSTRUCTION OFFICES – GRAVEL SURFACE (BY OTHERS)

CONSTRUCTION PARKING – GRAVEL SURFACE (BY OTHERS)

TEMP. STORMWATER BASIN #3
15,500 C.F.
SEE DETAIL 4,
SHEET 8000-CV-0054

BASIN OUTLET LOCATION

APPROXIMATE WORK LIMITS

TOPSOIL BERM CONSTRUCT TO ROUTE STORMWATER TO BASIN

BERM CONSTRUCT TO ROUTE STORMWATER TO BASIN

EAST BORROW SOURCE – NORTH
SEE 8000-CV-0013

TEMP. STORMWATER BASIN #1
4,000 C.F.
SEE DETAIL 4, SHEET 8000-CV-0054

BERM CONSTRUCT TO ROUTE STORMWATER TO BASIN

APPROXIMATE WORK LIMITS

STABILIZED CONSTRUCTION ENTRANCE

GRADE SWALE TO DRAIN

BERM CONSTRUCT TO ROUTE STORMWATER TO BASIN

EAST BORROW SOURCE – SOUTH
SEE 8000-CV-0016

BASIN OUTLET LOCATION

TEMP. STORMWATER BASIN #2
6,700 C.F.
SEE DETAIL 4,
SHEET 8000-CV-0054

BERM CONSTRUCT TO ROUTE STORMWATER TO BASIN

GRADE SWALE TO DRAIN

APPROXIMATE WORK LIMITS

FLOWAGE EASEMENT

FLOWAGE EASEMENT

HEART RIVER

NOTES:

1. TOPSOIL STRIPPING AND OTHER SOIL MATERIALS FROM BORROW AREAS SHALL BE REPLACED BACK INTO BORROW AREAS AND RESTORED. STORAGE OF THESE MATERIALS IN LOCATIONS OTHER THAN THE DESIGNATED BORROW AREAS WILL REQUIRE ADDITIONAL EROSION CONTROL IN ACCORDANCE WITH THE SWPPP.

LEGEND

EXISTING MAJOR 5' CONTOUR	2438
EXISTING MINOR 1' CONTOUR	
PROPOSED MAJOR 5' CONTOUR	2442
PROPOSED MINOR 1' CONTOUR	
EXISTING GASLINE	GAS
EXISTING OVERHEAD POWER	OE
EXISTING UNDERGROUND POWER	UE
EXISTING UNDERGROUND TELEPHONE	UT
EXISTING UNDERGROUND FIBER OPTIC	FO
EXISTING UTILITY EASEMENT	
EXISTING FENCELINE	
EXISTING COUNTY ROW	ROW
PROJECT PROPERTY LINE	
INSTALL SILT FENCE	SF
INSTALL BERM	
INSTALL HAY BALE CHECK	
FLOW ARROW – EXISTING	
FLOW ARROW CONST./POST CONST.	

1 PLAN: TEMPORARY EROSION CONTROL PLAN

0 60 120
SCALE IN FEET

PRELIMINARY DRAFT
NOT FOR CONSTRUCTION

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
A	PRT	LCH	GSJ	3/8/2013	ISSUE FOR REVIEW

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

Project Office:
BARR ENGINEERING CO.
3128 14TH AVENUE EAST
HIBBING, MN 55746
Ph: 1-800-225-1966
Fax: (218) 262-3460
www.barr.com

Scale	AS SHOWN
Date	2/26/2013
Drawn	PRT
Checked	
Designed	
Approved	

DAKOTA PRAIRIE REFINING, LLC
BISMARCK, NORTH DAKOTA

20,000 BPSD DAKOTA PRAIRIE REFINERY
DICKINSON, NORTH DAKOTA

EAST SIDE EROSION CONTROL PLAN
ROUGH GRADING PLAN

BARR PROJECT No. 34/45-1006
CLIENT PROJECT No.
DWG. No. 8000-CV-0050
REV. No. A

CADD USER: Paul Tokarczyk FILE: K:\DESIGN\34451006.01\34451006800_8000-CV-0050.DWG PLOT SCALE: 1:2 PLOT DATE: 3/8/2013 5:36 PM
Xrefs in Drawing - M:\Design\34451006.00\34451006600_Proposed Planimetric - REV 1.dwg M:\Design\34451006.00\34451006600_Existing Planimetric.dwg M:\Design\34451006.00\34451006600_REVISED SITE PLAN NAME TBD.dwg Plot at 0 12/14/2012 12:25:23
GSJ M:\Design\34451006.00\34451006600_Imagery.dwg



LEGEND

EXISTING MAJOR 5' CONTOUR	2438
EXISTING MINOR 1' CONTOUR	
PROPOSED MAJOR 5' CONTOUR	2442
PROPOSED MINOR 1' CONTOUR	
EXISTING GASLINE	GAS
EXISTING OVERHEAD POWER	OE
EXISTING UNDERGROUND POWER	UE
EXISTING UNDERGROUND TELEPHONE	UT
EXISTING UNDERGROUND FIBER OPTIC	FO
EXISTING UTILITY EASEMENT	
EXISTING FENCELINE	
EXISTING COUNTY ROW	ROW
PROJECT PROPERTY LINE	
INSTALL SILT FENCE	SF
INSTALL BERM	
INSTALL HAY BALE CHECK	
FLOW ARROW - EXISTING	
FLOW ARROW CONST./POST CONST.	

NOTE: LOADOUT FACILITY CONFIGURATION IS CONCEPTUAL DESIGN. EROSION CONTROL WILL BE UPDATED AT A FUTURE DATE DURING FACILITY DESIGN.

1 PLAN: TEMPORARY EROSION CONTROL PLAN

0 100 200
SCALE IN FEET

PRELIMINARY DRAFT
NOT FOR CONSTRUCTION

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
A	PRT	LCH	GSJ	3/11/2013	ISSUE FOR REVIEW

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

Project Office:
BARR ENGINEERING CO.
3128 14TH AVENUE EAST
HIBBING, MN 55746
Ph: 1-800-225-1966
Fax: (218) 262-3460
www.barr.com

Scale	AS SHOWN
Date	3/11/2013
Drawn	PRT
Checked	
Designed	
Approved	

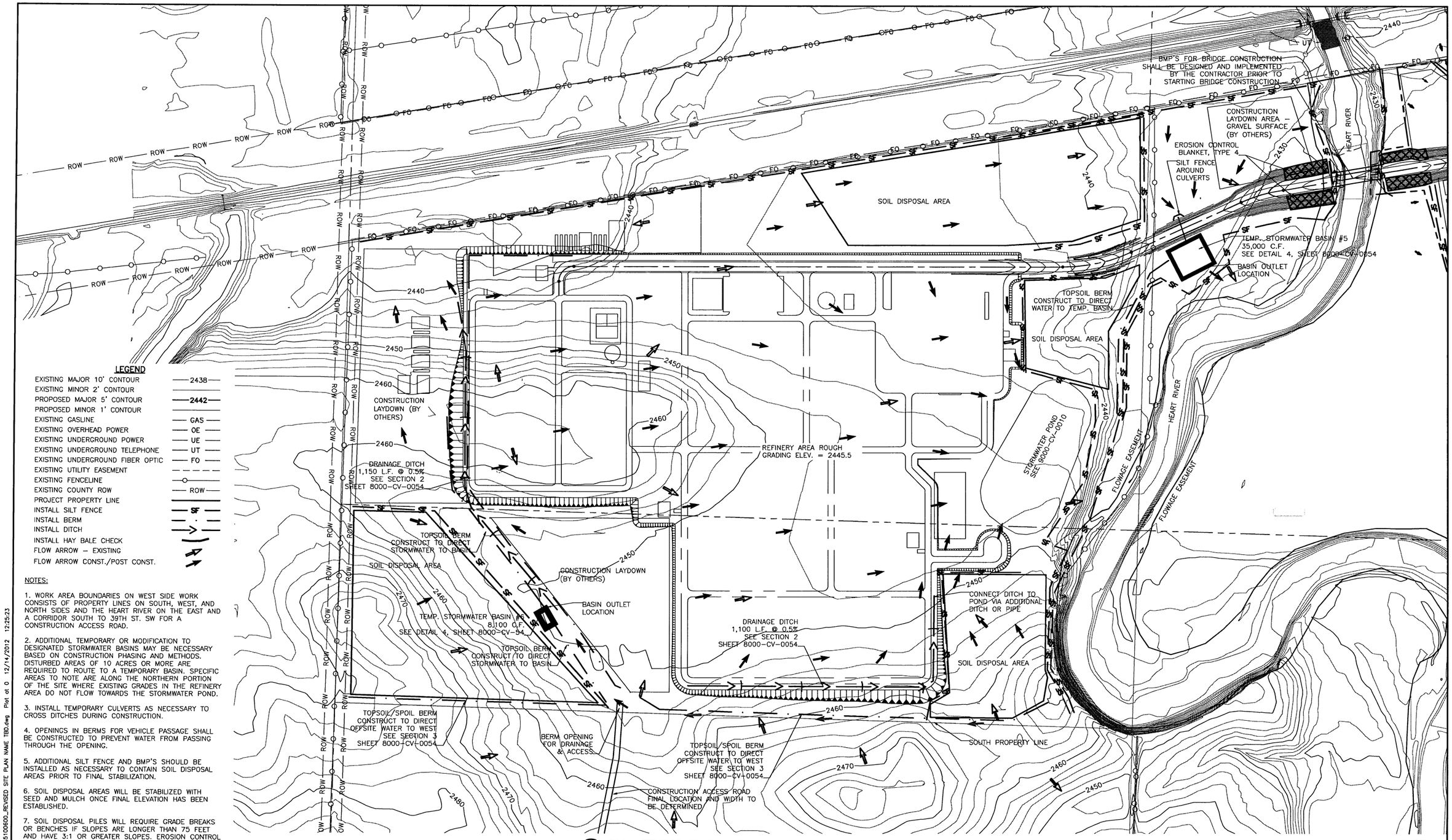
DAKOTA PRAIRIE REFINING, LLC
BISMARCK, NORTH DAKOTA

20,000 BPSD DAKOTA PRAIRIE REFINERY
DICKINSON, NORTH DAKOTA

LOADOUT FACILITY EROSION CONTROL PLAN
ROUGH GRADING PLAN

BARR PROJECT No. 34/45-1006
CLIENT PROJECT No.
DWG. No. 8000-CV-0051
REV. No. A

CADD USER: Paul Tokarczyk FILE: K:\DESIGN\34451006.01\34451006_8000-CV-0051.DWG PLOT SCALE: 1:2 PLOT DATE: 3/11/2013 11:22 AM
Xrefs in Drawing - M:\Design\34451006.00\34451006_Proposed Planimetric - REV 1.dwg M:\Design\34451006.00\34451006_Existing Planimetric.dwg M:\Design\34451006.00\WBL_Imagery.dwg
GSJ M:\Design\34451006.00\34451006_REVISED SITE PLAN NAME TBD.dwg Plot at 0 12/14/2012 12:25:23



LEGEND

EXISTING MAJOR 10' CONTOUR	2438
EXISTING MINOR 2' CONTOUR	
PROPOSED MAJOR 5' CONTOUR	2442
PROPOSED MINOR 1' CONTOUR	
EXISTING GASLINE	GAS
EXISTING OVERHEAD POWER	OE
EXISTING UNDERGROUND POWER	UE
EXISTING UNDERGROUND TELEPHONE	UT
EXISTING UNDERGROUND FIBER OPTIC	FO
EXISTING UTILITY EASEMENT	
EXISTING FENCELINE	
EXISTING COUNTY ROW	ROW
PROJECT PROPERTY LINE	
INSTALL SILT FENCE	SF
INSTALL BERM	
INSTALL DITCH	
INSTALL HAY BALE CHECK	
FLOW ARROW – EXISTING	
FLOW ARROW CONST./POST CONST.	

NOTES:

1. WORK AREA BOUNDARIES ON WEST SIDE WORK CONSISTS OF PROPERTY LINES ON SOUTH, WEST, AND NORTH SIDES AND THE HEART RIVER ON THE EAST AND A CORRIDOR SOUTH TO 39TH ST. SW FOR A CONSTRUCTION ACCESS ROAD.

2. ADDITIONAL TEMPORARY OR MODIFICATION TO DESIGNATED STORMWATER BASINS MAY BE NECESSARY BASED ON CONSTRUCTION PHASING AND METHODS. DISTURBED AREAS OF 10 ACRES OR MORE ARE REQUIRED TO ROUTE TO A TEMPORARY BASIN. SPECIFIC AREAS TO NOTE ARE ALONG THE NORTHERN PORTION OF THE SITE WHERE EXISTING GRADES IN THE REFINERY AREA DO NOT FLOW TOWARDS THE STORMWATER POND.

3. INSTALL TEMPORARY CULVERTS AS NECESSARY TO CROSS DITCHES DURING CONSTRUCTION.

4. OPENINGS IN BERMS FOR VEHICLE PASSAGE SHALL BE CONSTRUCTED TO PREVENT WATER FROM PASSING THROUGH THE OPENING.

5. ADDITIONAL SILT FENCE AND BMP'S SHOULD BE INSTALLED AS NECESSARY TO CONTAIN SOIL DISPOSAL AREAS PRIOR TO FINAL STABILIZATION.

6. SOIL DISPOSAL AREAS WILL BE STABILIZED WITH SEED AND MULCH ONCE FINAL ELEVATION HAS BEEN ESTABLISHED.

7. SOIL DISPOSAL PILES WILL REQUIRE GRADE BREAKS OR BENCHES IF SLOPES ARE LONGER THAN 75 FEET AND HAVE 3:1 OR GREATER SLOPES. EROSION CONTROL BLANKET MAY BE NEEDED TO STABILIZE SLOPES IF GREATER THAN 3:1.

1 PLAN: TEMPORARY EROSION CONTROL PLAN

0 150 300

SCALE IN FEET

PRELIMINARY DRAFT
NOT FOR CONSTRUCTION

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
A	PRT	LCH	GSJ	3/8/2013	ISSUE FOR REVIEW

BARR
Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277

Project Office:
BARR ENGINEERING CO.
3128 14TH AVENUE EAST
HIBBING, MN 55746
Ph: 1-800-225-1966
Fax: (218) 262-3460
www.barr.com

Scale	AS SHOWN
Date	2/26/2013
Drawn	PRT
Checked	
Designed	
Approved	

DAKOTA PRAIRIE REFINING, LLC
BISMARCK, NORTH DAKOTA

20,000 BPSD DAKOTA PRAIRIE REFINERY
DICKINSON, NORTH DAKOTA

WEST SIDE – NORTH EROSION CONTROL ROUGH GRADING PLAN

BARR PROJECT No. 34/45-1006
CLIENT PROJECT No.
DWG. No. 8000-CV-0052
REV. No. A

CADD USER: Paul Tokarczyk FILE: K:\DESIGN\34451006.01\34451006OO_8000-CV-0052.DWG PLOT SCALE: 1:2 PLOT DATE: 3/8/2013 5:56 PM
Xrefs in Drawing - M:\Design\34451006.00\3445100600_Proposed Planimetric - REV 1.dwg M:\Design\34451006.00\3445100600_Existing Planimetric.dwg M:\Design\34451006.00\3445100600_REVISED SITE PLAN NAME TBD.dwg Plot at 0 12/14/2012 12:25:23
GSJ



LEGEND

EXISTING MAJOR 10' CONTOUR	2438
EXISTING MINOR 2' CONTOUR	
PROPOSED MAJOR 5' CONTOUR	2442
PROPOSED MINOR 1' CONTOUR	
EXISTING GASLINE	GAS
EXISTING OVERHEAD POWER	OE
EXISTING UNDERGROUND POWER	UE
EXISTING UNDERGROUND TELEPHONE	UT
EXISTING UNDERGROUND FIBER OPTIC	FO
EXISTING UTILITY EASEMENT	
EXISTING FENCELINE	
EXISTING COUNTY ROW	ROW
PROJECT PROPERTY LINE	
INSTALL SILT FENCE	SF
INSTALL BERM	
INSTALL DITCH	
INSTALL HAY BALE CHECK	
FLOW ARROW – EXISTING	
FLOW ARROW CONST./POST CONST.	

NOTES:

1. WORK AREA BOUNDARIES ON WEST SIDE WORK CONSISTS OF PROPERTY LINES ON SOUTH, WEST, AND NORTH SIDES AND THE HEART RIVER ON THE EAST AND A CORRIDOR SOUTH TO 39TH ST. SW FOR A CONSTRUCTION ACCESS ROAD.

2. ADDITIONAL TEMPORARY OR MODIFICATION TO DESIGNATED STORMWATER BASINS MAY BE NECESSARY BASED ON CONSTRUCTION PHASING AND METHODS. DISTURBED AREAS OF 10 ACRES OR MORE ARE REQUIRED TO ROUTE TO A TEMPORARY BASIN. SPECIFIC AREAS TO NOTE ARE ALONG THE NORTHERN PORTION OF THE SITE WHERE EXISTING GRADES IN THE REFINERY AREA DO NOT FLOW TOWARDS THE STORMWATER POND.

3. INSTALL TEMPORARY CULVERTS AS NECESSARY TO CROSS DITCHES DURING CONSTRUCTION.

4. OPENINGS IN BERMS FOR VEHICLE PASSAGE SHALL BE CONSTRUCTED TO PREVENT WATER FROM PASSING THROUGH THE OPENING.

5. ADDITIONAL SILT FENCE AND BMP'S SHOULD BE INSTALLED AS NECESSARY TO CONTAIN SOIL DISPOSAL AREAS PRIOR TO FINAL STABILIZATION.

6. SOIL DISPOSAL AREAS WILL BE STABILIZED WITH SEED AND MULCH ONCE FINAL ELEVATION HAS BEEN ESTABLISHED.

7. SOIL DISPOSAL PILES WILL REQUIRE GRADE BREAKS OR BENCHES IF SLOPES ARE LONGER THAN 75 FEET AND HAVE 3:1 OR GREATER SLOPES. EROSION CONTROL BLANKET MAY BE NEEDED TO STABILIZE SLOPES IF GREATER THAN 3:1.

1 – PLAN: TEMPORARY EROSION CONTROL PLAN

0 150 300
SCALE IN FEET

PRELIMINARY DRAFT
NOT FOR CONSTRUCTION

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
A	PRT	LCH	GSJ	3/8/2013	ISSUE FOR REVIEW

BARR
Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277
Project Office: BARR ENGINEERING CO. 3128 14TH AVENUE EAST HIBBING, MN 55746 Ph: 1-800-225-1966 Fax: (218) 262-3460 www.barr.com

Scale	AS SHOWN
Date	2/26/2013
Drawn	PRT
Checked	
Designed	
Approved	

DAKOTA PRAIRIE REFINING, LLC
BISMARCK, NORTH DAKOTA

20,000 BPSD DAKOTA PRAIRIE REFINERY
DICKINSON, NORTH DAKOTA

WEST SIDE – SOUTH EROSION CONTROL ROUGH GRADING PLAN

BARR PROJECT No. 34/45-1006
CLIENT PROJECT No.
DWG. No. 8000-CV-0053
REV. No. A

CADD USER: Paul Tokarczyk FILE: K:\DESIGN\34451006.01\34451006D_8000-CV-0053.DWG PLOT SCALE: 1:2 PLOT DATE: 3/8/2013 6:02 PM
Xrefs in Drawing - W:\Design\34451006.00\34451006800_Proposed Planimetric - REV 1.dwg W:\Design\34451006.00\34451006D_Existing Planimetric.dwg W:\Design\34451006.00\W
GSJ W:\Design\34451006.00\34451006D_REVISED SITE PLAN NAME TBD.dwg Plot at 0 12/14/2012 12:25:23

GENERAL SWPPP NOTES:

1. THE CONTRACTOR SHALL TAKE MEASURES NECESSARY TO ENSURE THAT ALL RUNOFF AND DISCHARGE FROM THIS PROJECT AREA COMPLIES WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, REGULATIONS, AND PERMITS THROUGHOUT THE DURATION OF THE PROJECT. REFER TO NORTH DAKOTA PERMIT NDR10-0000 FOR NPDES REQUIREMENTS.

2. CONTRACTOR SHALL IMPLEMENT SWPPP BEFORE BEGINNING CONSTRUCTION ACTIVITIES, INCLUDING CLEARING AND GRUBBING ACTIVITIES.

3. INSTALL BMP'S AS SHOWN, AS A MINIMUM. ADDITIONAL BMP'S TO BE INSTALLED AS REQUIRED TO COMPLY WITH REGULATIONS AND REQUIREMENTS OF THE SWPPP. NOTIFY OWNER OF CHANGES TO THE EROSION CONTROL PLAN.

4. INSTALL INLET PROTECTION AS SHOWN DURING CONSTRUCTION ON EXISTING OR NEW INLETS, INCLUDING CULVERTS.

5. EROSION CONTROLS SHALL BE INSPECTED ONCE EVERY 14 DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS.

6. PROVIDE TEMPORARY EROSION PROTECTION OR PERMANENT COVER FOR THE EXPOSED SOIL AREAS WHERE ACTIVITIES HAVE BEEN COMPLETED OR TEMPORARILY CEASED. FOR THOSE AREAS WITH A CONTINUOUS POSITIVE SLOPE WITHIN 200 LINEAL FEET OF A SURFACE WATER, TEMPORARY EROSION PROTECTION OR PERMANENT COVER MUST BE APPLIED WITHIN 21 DAYS OF COMPLETING OR CEASING EARTH MOVING ACTIVITIES. THESE AREAS INCLUD POND EMBANKMENTS, DITCHES, BERMS AND SOIL STOCKPILES. TEMPORARY STOCKPILES WITHOUT SIGNIFICANT SILT, CLAY OR ORGANIC COMPONENTS (E.G., CLEAN AGGREAGE STOCKPILES, DEMOLITION CONCRETE STOCKPILES, AND SAND STOCKPILES) ARE EXEMPT FROM THIS REQUIREMENT.

7. TEMPORARY SOIL STOCKPILES MUST HAVE EFFECTIVE SEDIMENT CONTROLS, AND CANNOT BE PLACED IN SURFACE WATERS, INCLUDING STORMWATER CONVEYANCES SUCH AS DITCHES.

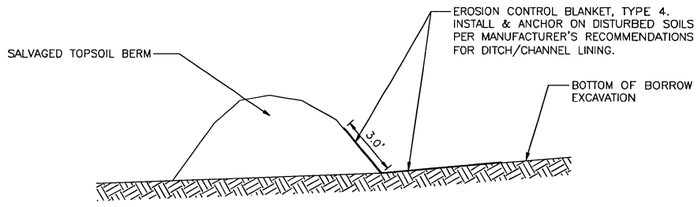
8, THE NORMAL WETTED PERIMETER OF ANY TEMPORARY OR PERMANENT DRAINAGE DITCH THAT DRAINS WATER FROM A CONSTRUCTION SITE, OR DIVERTS WATER AROUND A SITE, MUST BE STABILIZED AT LEAST 200 LINEAL FEET FROM THE PROPERTY EDGE, OR FROM THE POINT OF DISCHARGE TO ANY SURFACE WATER. STABILIZATION SHOULD BE COMPLETED WITHIN 24 HOURS OF CONNECTING TO A SURFACE WATER.

9. CONTRACTOR SHALL ACHIEVE FINAL STABILIZATION OF THE SITE BEFORE REMOVING ALL TEMPORARY SYNTHETIC AND STRUCTURAL EROSION PREVENTION AND SEDIMENT CONTROLS.

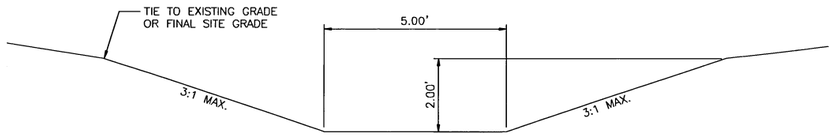
10. SEED, MULCH, AND FERTILIZING SHALL BE PERFORMED IN ACCORDANCE WITH THE SCHEDULES IN ND/DOT STANDARD CONSTRUCTION SPECIFICATIONS FOR THE FOLLOWING:
- TEMPORARY TURF ESTABLISHMENT: CLASS IV (TEMPORARY CROP COVER) SEED MIX WITH MULCH
- PERMANENT TURF ESTABLISHMENT (FOR USE ALONG ROADWAY SLOPES AND OUTSIDE OF PARKING & REFINERY AREAS): CLASS III (HYRO-MULCH)

11. EROSION CONTROL BLANKET SHALL BE INSTALLED AND ANCHORED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND ND/DOT STANDARD DRAWING D-708-5 AT LOCATIONS SHOWN ON THE PLAN, ON TEMP. STORMWATER BASIN OUTLETS, ON DISTURBED SOILS AT CULVERT INLETS & OUTLETS, AND ANY OTHER DRAINAGE ROUTES OR SLOPES THAT REQUIRE STABILIZATION DURING CONSTRUCTION. IF EROSION CONTROL BLANKET IS NOT EFFECTIVE FOR FLOWS AT CULVERT ENDS AND POND OUTLETS, RIPRAP SHALL BE INSTALLED.

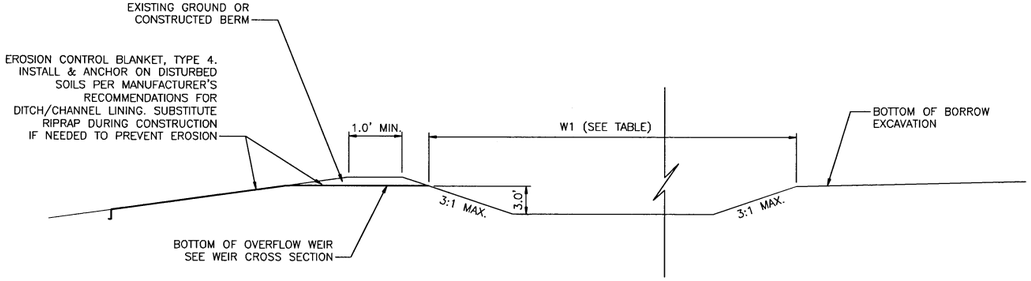
12. CONCRETE WASHOUT SHALL BE CONTROLLED AND SELF CONTAINED TO PREVENT INFILTRATION INTO THE SOILS OR RUNOFF INTO ANY DRAINAGE ROUTES AND PROPERLY DISPOSED OF AT THE COMPLETION OF CONSTRUCTION.



1 SECTION: DIVERSION DITCH SECTION
8000-CV-0050 NO SCALE

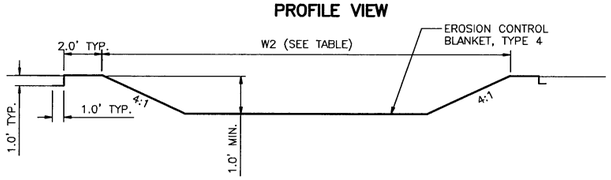


2 SECTION: DRAINAGE DITCH SECTION
8000-CV-0052 NO SCALE



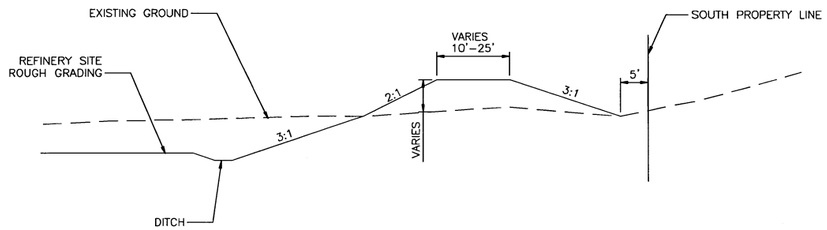
PROFILE VIEW

BASIN	VOLUME	APPROX. LENGTH	W1	2YR, 24HR PEAK FLOW	W2
1	4,000 C.F.	50.0'	42.0'	1.4 CFS	4.0'
2	6,700 C.F.	90.0'	45.0'	2.4 CFS	4.0'
3	15,500 C.F.	105.0'	40.0'	9.9 CFS	16.0'
4	7,400 C.F.	60.0'	60.0'	2.6 CFS	4.0'
5	35,000 C.F.	120.0'	110.0'	2.5 CFS	4.0'
6* (5.0' DEPTH)	8,100 C.F.	70.0'	50.0'	2.4 CFS	4.0'



WEIR CROSS SECTION

1 DETAIL: CONST. SEDIMENT BASIN
NO SCALE



3 SECTION: SOUTH PERIMETER DIVERSION BERM
8000-CV-0052 NO SCALE

PRELIMINARY DRAFT
NOT FOR CONSTRUCTION

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
A	PRT	LCH	GSJ	3/8/2013	ISSUE FOR REVIEW

BARR
Corporate Headquarters: Minneapolis, Minnesota
Ph: 1-800-632-2277
Project Office: BARR ENGINEERING CO. 3128 14TH AVENUE EAST HIBBING, MN 55746
Ph: 1-800-225-1966 Fax: (218) 262-3460 www.barr.com

Scale	AS SHOWN
Date	2/26/2013
Drawn	PRT
Checked	
Designed	
Approved	

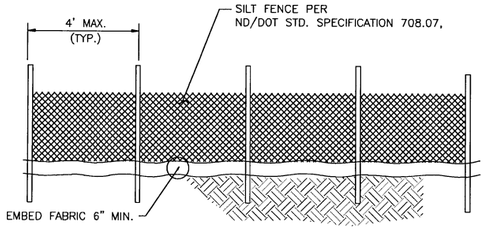
DAKOTA PRAIRIE REFINING, LLC
BISMARCK, NORTH DAKOTA

20,000 BPSD DAKOTA PRAIRIE REFINERY
DICKINSON, NORTH DAKOTA

EROSION CONTROL CONSTRUCTION DETAILS

BARR PROJECT No. 34/45-1006
CLIENT PROJECT No.
DWG. No. 8000-CV-0054
REV. No. A

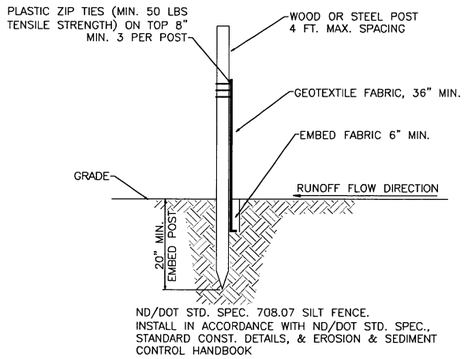
CADD USER: Paul Tokarczyk FILE: K:\DESIGN\3445100601\3445100600_8000-CV-0054.DWG PLOT SCALE: 1:2 PLOT DATE: 3/8/2013 8:00 PM
Xrefs in Drawing - M:\Design\3445100600\3445100600_Proposed Planimetric - REV 1.dwg M:\Design\3445100600\3445100600_Existing Planimetric.dwg M:\Design\3445100600\3445100600_Imagery.dwg
GSJ M:\Design\3445100600\3445100600_REVISED SITE PLAN NAME TBD.dwg Plot at 0 12/14/2012 12:25:23



NOTE:
1. WHEN SEDIMENT BUILD UP REACHES 1.5 FEET, THE SILT FENCE SHOULD BE REMOVED OR A SECOND SILT FENCE BUILT UPSTREAM OF THE EXISTING ONE AT A SUITABLE DISTANCE.

2. CONTRACTOR SHALL REMOVE ALL SILT FENCE AND SEDIMENT FOLLOWING CONSTRUCTION AND SOIL STABILIZATION.

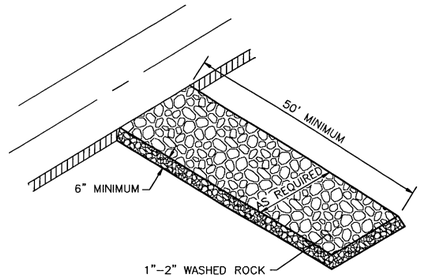
DOWNSTREAM VIEW



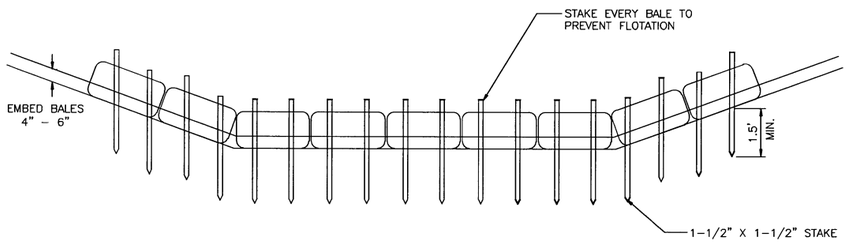
ND/DOT STD. SPEC. 708.07 SILT FENCE.
INSTALL IN ACCORDANCE WITH ND/DOT STD. SPEC., STANDARD CONST. DETAILS, & EROSION & SEDIMENT CONTROL HANDBOOK

SECTION VIEW

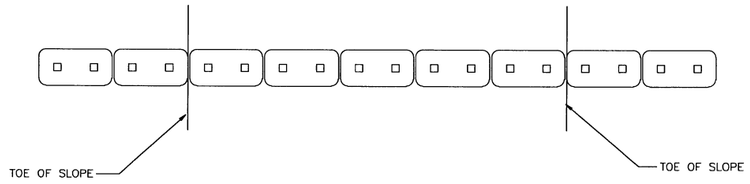
1 — **DETAIL: SILT FENCE**
NOT TO SCALE



3 — **DETAIL: ROCK CONSTRUCTION ENTRANCE**
NOT TO SCALE



SECTION VIEW



PLAN VIEW

2 — **DETAIL: BALED DITCH CHECK**
NOT TO SCALE

PRELIMINARY DRAFT
NOT FOR CONSTRUCTION

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
A	PRT	LCH	GSJ	3/8/2013	ISSUE FOR REVIEW

BARR
Corporate Headquarters: Minneapolis, Minnesota Ph: 1–800–632–2277
Project Office: BARR ENGINEERING CO. 3128 14TH AVENUE EAST HIBBING, MN 55746
Ph: 1–800–225–1966 Fax: (218) 262–3460 www.barr.com

Scale	AS SHOWN
Date	2/26/2013
Drawn	PRT
Checked	
Designed	
Approved	

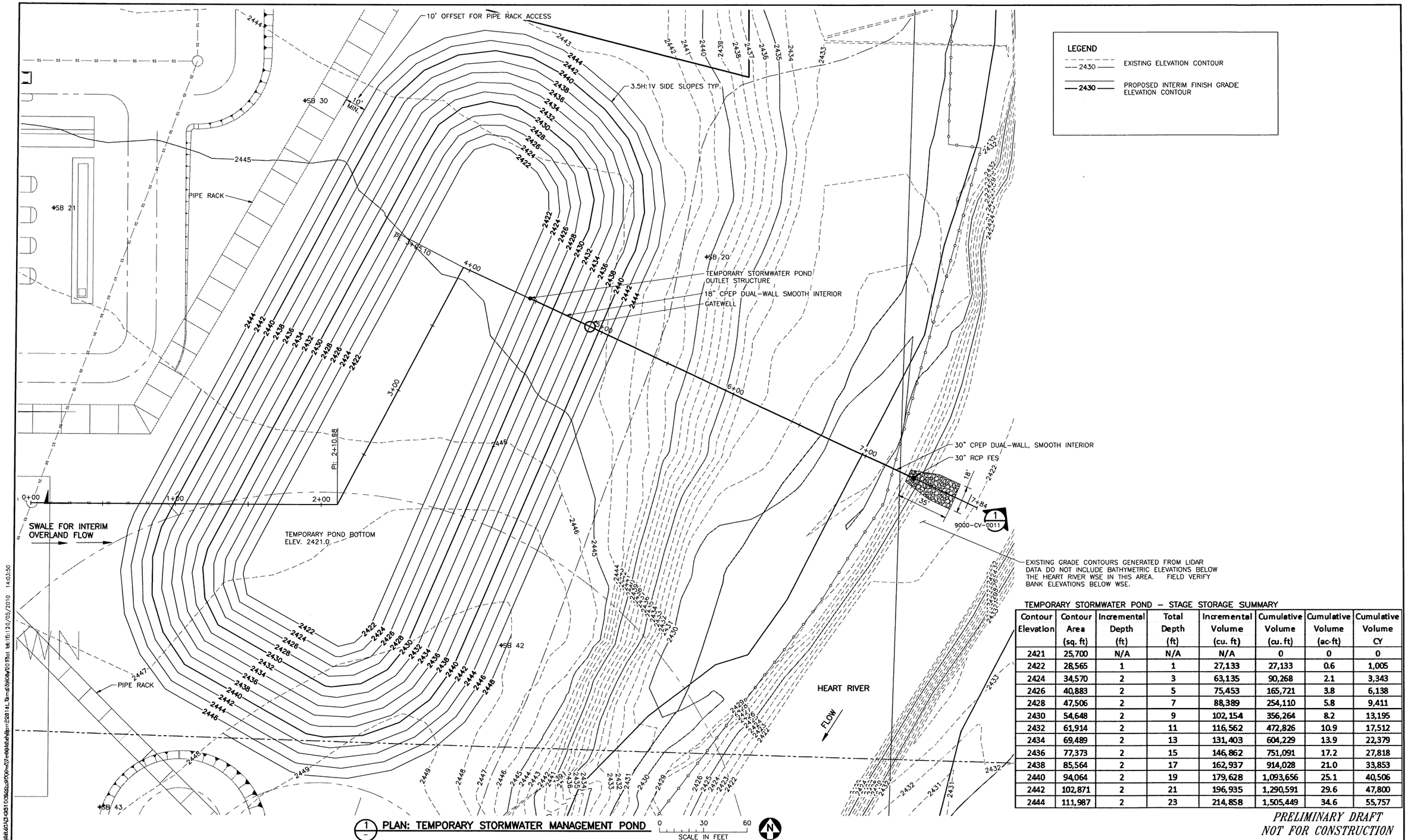
DAKOTA PRAIRIE REFINING, LLC
BISMARCK, NORTH DAKOTA

20,000 BPSD DAKOTA PRAIRIE REFINERY
DICKINSON, NORTH DAKOTA

EROSION CONTROL
STANDARD DETAILS

BARR PROJECT No.	34/45–1006
CLIENT PROJECT No.	
DWG. No.	8000–CV–0055
REV. No.	A

CADD USER: Paul Tokarczyk FILE: K:\DESIGN\34451006.01\34451006\8000-CV-0055.DWG PLOT SCALE: 1:2 PLOT DATE: 3/8/2013 6:00 PM
Xrefs in Drawing – M:\Design\34451006.00\34451006_Proposed Planimetric – REV 1.dwg M:\Design\34451006.00\34451006_Existing Planimetric.dwg M:\Design\34451006.00\34451006_REVISED SITE PLAN NAME TBD.dwg Plot at 0 12/14/2012 12:25:23
GSJ M:\Design\34451006.00\34451006_REVISED SITE PLAN NAME TBD.dwg Plot at 0 12/14/2012 12:25:23



LEGEND

- 2430 — EXISTING ELEVATION CONTOUR
- **2430** — PROPOSED INTERIM FINISH GRADE ELEVATION CONTOUR

TEMPORARY STORMWATER POND – STAGE STORAGE SUMMARY

Contour Elevation	Contour Area (sq. ft)	Incremental Depth (ft)	Total Depth (ft)	Incremental Volume (cu. ft)	Cumulative Volume (cu. ft)	Cumulative Volume (ac-ft)	Cumulative Volume CY
2421	25,700	N/A	N/A	N/A	0	0	0
2422	28,565	1	1	27,133	27,133	0.6	1,005
2424	34,570	2	3	63,135	90,268	2.1	3,343
2426	40,883	2	5	75,453	165,721	3.8	6,138
2428	47,506	2	7	88,389	254,110	5.8	9,411
2430	54,648	2	9	102,154	356,264	8.2	13,195
2432	61,914	2	11	116,562	472,826	10.9	17,512
2434	69,489	2	13	131,403	604,229	13.9	22,379
2436	77,373	2	15	146,862	751,091	17.2	27,818
2438	85,564	2	17	162,937	914,028	21.0	33,853
2440	94,064	2	19	179,628	1,093,656	25.1	40,506
2442	102,871	2	21	196,935	1,290,591	29.6	47,800
2444	111,987	2	23	214,858	1,505,449	34.6	55,757

PRELIMINARY DRAFT
NOT FOR CONSTRUCTION

1 PLAN: TEMPORARY STORMWATER MANAGEMENT POND

0 30 60
SCALE IN FEET

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
A	MRM	AMP		3/8/2013	ISSUE FOR REVIEW

BARR
Corporate Headquarters: Minneapolis, Minnesota
Ph: 1-800-632-2277
Project Office: BARR ENGINEERING CO. 3128 14TH AVENUE EAST HIBBING, MN 55746
Ph: 1-800-225-1966 Fax: (218) 262-3460
www.barr.com

Scale	AS SHOWN
Date	3/8/2013
Drawn	MRM
Checked	MAK/AMP
Designed	MRM/MAK
Approved	

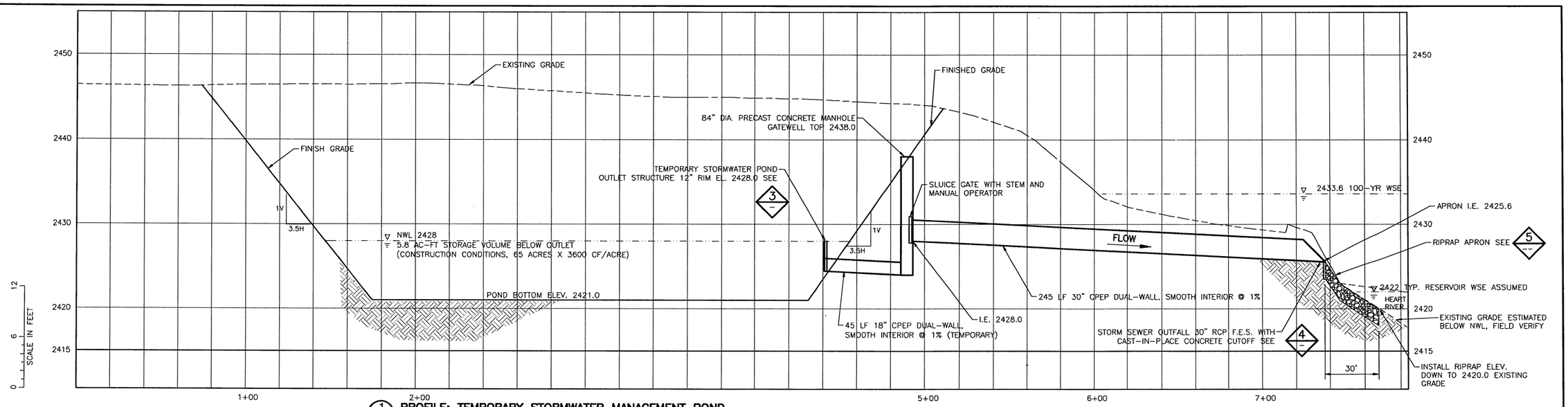
DAKOTA PRAIRIE REFINING, LLC
BISMARCK, NORTH DAKOTA

20,000 BPSD DAKOTA PRAIRIE REFINERY
DICKINSON, NORTH DAKOTA

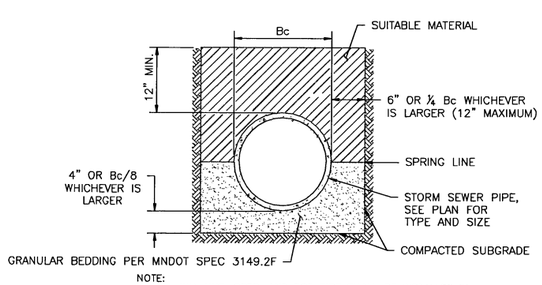
STORMWATER MANAGEMENT
TEMPORARY STORMWATER POND PLAN

BARR PROJECT No. 34/45-1006
CLIENT PROJECT No.
DWG. No. 9000-CV-0010
REV. No. A

CADD USER: Matthew R. Metzger FILE: K:\DESIGN\34451006.01\34451006_9000-CV-0010.DWG PLOT SCALE: 1:2.35567 PLOT DATE: 03/20/2015 2:45 PM
Bmh M:\Data\DWG\34451006\01\CAD\34451006_9000-CV-0010.dwg 20151 Tab1 16:15:10/05/2010 14:03:50

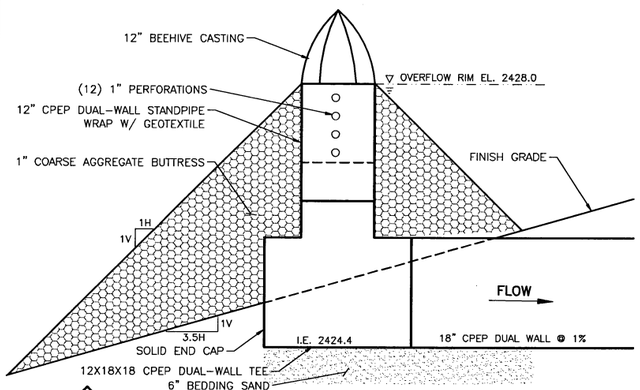


1 PROFILE: TEMPORARY STORMWATER MANAGEMENT POND

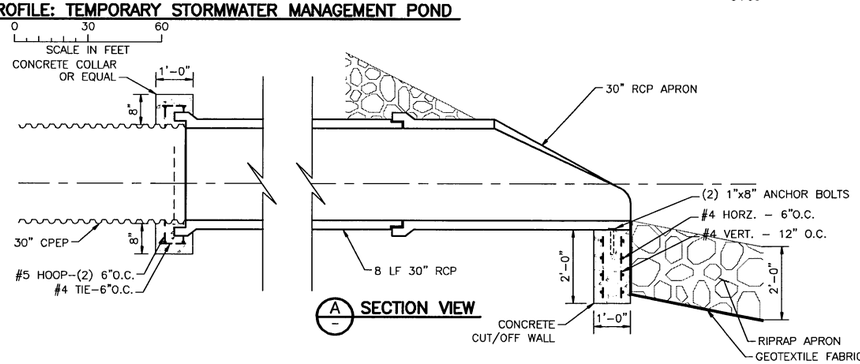


NOTE:
1. ALL DIP, PVC, CPEP, AND RCP PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THIS DETAIL UNLESS OTHERWISE NOTED.
2. THIS DETAIL DOES NOT APPLY TO PERFORATED CPEP.
3. ALL PIPE JOINTS SHALL BE WATERTIGHT WITH GASKETS.

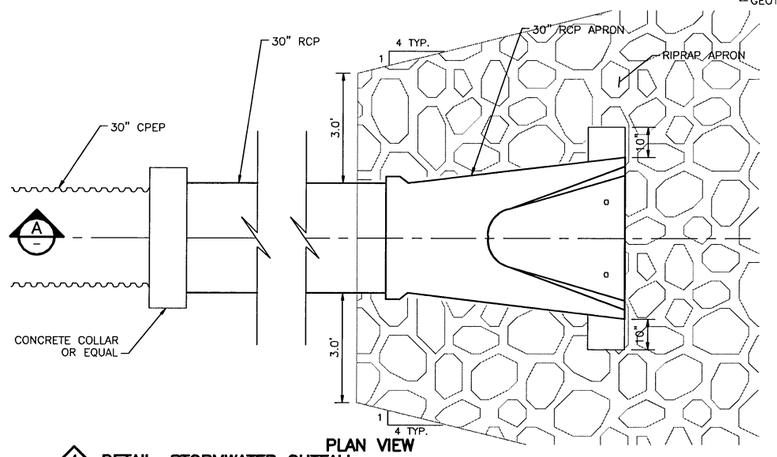
2 DETAIL: STORM SEWER PIPE BEDDING
NOT TO SCALE



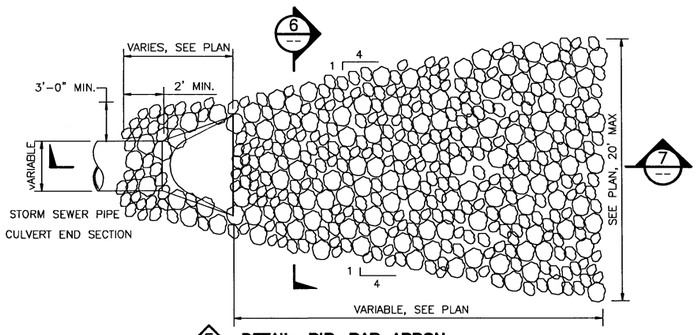
3 DETAIL: TEMPORARY STORMWATER POND OUTLET STRUCTURE



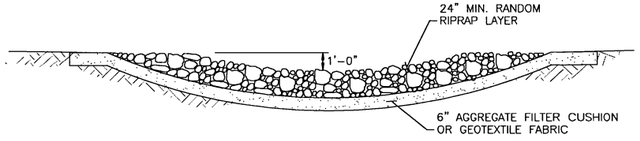
A SECTION VIEW



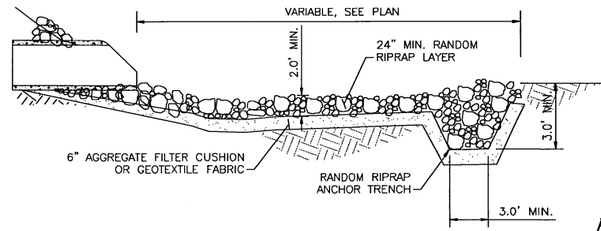
4 DETAIL: STORMWATER OUTFALL
0 1 2 3 4
SCALE IN FEET



5 DETAIL: RIP-RAP APRON
NOT TO SCALE



6 SECTION: RIP-RAP AND FILTER
NOT TO SCALE



7 SECTION: PIPE AND RIP-RAP APRON W/ ANCHOR TRENCH
NOT TO SCALE

NOTES:
1. 6" GRANULAR FILTER AGGREGATE CUSHION SHALL MEET THE REQUIREMENTS OF NDDOT STANDARD SPEC. SECTION 816 FOR CLASS B AS SET FORTH IN NDDOT STANDARD SPEC. 708.04.

2. CONTRACTOR MAY SUBSTITUTE A GEOTEXTILE FABRIC, NDDOT STD. SPEC. 858 TYPE RR, FOR THE GRANULAR FILTER BLANKET UNLESS OTHERWISE SPECIFIED IN THE PLANS. THE FABRIC SHALL BE INSTALLED IN ACCORDANCE WITH NDDOT STD. SPEC. 709. FABRIC SHALL COVER THE AREA OF THE RIP-RAP AND EXTEND UNDER THE PIPE 3' MIN.

3. RIPRAP SHALL CONFORM TO NDDOT STANDARD SPEC. 708.04, WITH THE GRADATION AMENDED AS FOLLOWS. RIPRAP SHALL MEET THE FOLLOWING USACE GRADATION PER EM-1110-2-1601:

STONE SIZE	MIN.	MAX
D100 (INCHES)	--	24.0
W100 (POUNDS)	276	691
W50 (POUNDS)	138	205
W15 (POUNDS)	43	102
D30 (INCHES)	12.0	--

PRELIMINARY DRAFT
NOT FOR CONSTRUCTION

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
A	MRM	AMP		3/8/2013	ISSUE FOR REVIEW

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

Project Office:
BARR ENGINEERING CO.
3128 14TH AVENUE EAST
HIBBING, MN 55746
Ph: 1-800-225-1966
Fax: (218) 262-3460
www.barr.com

Scale	AS SHOWN
Date	3/8/2013
Drawn	MRM
Checked	AMP/MAK
Designed	MRM/MAK
Approved	

DAKOTA PRAIRIE REFINING, LLC
BISMARCK, NORTH DAKOTA

20,000 BPSD DAKOTA PRAIRIE REFINERY
DICKINSON, NORTH DAKOTA

STORMWATER MANAGEMENT
TEMPORARY STORMWATER SECTIONS DETAILS

BARR PROJECT No. 34/45-1006
CLIENT PROJECT No.
DWG. No. 9000-CV-0011
REV. No. A

CADD USER: Greg Johnson FILE: K:\DESIGN\34451006.01\34451006D_9000-CV-0011.DWG PLOT SCALE: 1:2.5000 PLOT DATE: 03/18/2013 8:40 PM
Date: 3/18/2013 Time: 14:11:43 K:\Data\34451006.01\34451006D_9000-CV-0011.dwg Layout: 1 User: gjohnson

Appendix H

ND Department of Transportation
Sediment and Erosion Control Handbook

North Dakota Department of Transportation (NDDOT)



Erosion and Sediment Control Handbook

June 2004

North Dakota Department of Transportation (NDDOT)

Erosion and Sediment Control Handbook

Approved by:

\s\ 6/15/04

Grant Levi, P.E., Deputy Director for Engineering **Date**

\s\ 6/14/04

Francis Ziegler, P.E., Director - Office of Project Development **Date**

\s\ 6/14/04

Gary Berreth, P.E., Director - Office of Operations **Date**

TABLE OF CONTENTS

Preface 1

Introduction 2

Erosion and Sediment Control Measures 4
- Bale Checks 5
- Silt Fence Checks 10
- Floating Silt Curtains 14
- Rock Ditch Checks 19
- Geotextile Triangular Dike 22
- Inlet Protection 25
- Sediment Trap 31
- Surface Roughening 34
- Mulching 35
- Soil Retention Blanket 38
- Temporary Slope Drain 42
- Riprap 45
- Seeding & Sodding 48
- Sandbags 52
- Other Measures 54

Inspection and Maintenance 55

NPDES Permits 57

Responsibilities within the NDDOT 65

Contacts 66

References 67

PREFACE

The purpose of this handbook is to provide designers, contractors, and inspectors the information to properly install, maintain, and implement a Storm Water Pollution Prevention (SWPP) Plan. The NDDOT is committed to controlling soil erosion and its resulting sedimentation during the design, construction, and maintenance of its highways.

No training is required to receive this handbook but personnel assigned to erosion and sediment control should have a thorough knowledge of the applicable specifications pertaining to this function. This handbook is not intended to incorporate all the available methodologies of temporary erosion and sediment controls. Each project will present its own unique situations that will require the designer, inspector, contractor, etc., to use their best judgment when choosing the proper control methods. The information contained in this handbook does not replace, supersede, or modify any specification, plan, or special provision of the NDDOT. If there are, any questions regarding the material in this handbook, contact the Design Division at the NDDOT.

Introduction

The purpose of the Erosion and Sediment Control Handbook is to identify Erosion Control Measures (ECM's), to be utilized by engineers, contractors, and inspectors when designing or implementing erosion and sediment control measures. Due to the complexity of highway construction in both rural and urban areas the NDDOT is attempting to raise the awareness of sediment and erosion control, by educating employees, contractors, and the public to better protect our waterways, lakes, and wetlands through proper erosion and sediment control measures.

The need for addressing erosion and sediment control is to comply with the Clean Water Act (CWA) and National Pollution Discharge Elimination System (NPDES). The Clean Water Act and the NPDES regulations specifically address point and non-point source discharges into the nation's waterways. In 1987, Congress established the Non-point Source Management Program under section 319 of the CWA. This program was initiated to help states address non-point source, or runoff pollution by identifying waters affected by such pollution and adopting and implementing management programs to control such pollution. These programs recommend where and how to use ECM's to prevent runoff from becoming polluted, and where runoff is already polluted, to reduce the amount that reaches surface waters.

Point source pollution is defined as pollution that can be attributed to a single source. Runoff from industrial or sewage treatment plants is an example of this type of pollution. Construction sites where five or more acres are disturbed are considered point sources of pollution and require a NPDES storm water permit under Section 402 of the CWA. In addition, the following types of storm water discharges are regulated under the NPDES permit program:

- Municipal Separate Storm Sewer System (MS4), Phase I, addressed discharges from municipal separate sewer systems serving populations of 100,000 or more.
- Phase I also addressed discharges associated with industrial activities, including construction sites of 5 acres or more.

- Any discharges identified by EPA or a state as needing an NPDES permit because they contribute to a water quality violation.
- MS4, Phase II, of the NPDES storm water regulations, came into effect in 2003. These regulations placed new requirements on approximately 5,000 small and medium-sized cities and towns nationwide and as many as 200,000 construction sites per year 1 to 5 acres. North Dakota cities that are affected include Bismarck, Dickinson, Fargo, Grand Forks, Jamestown, Mandan, Minot, West Fargo, and Williston. The number of communities with MS4 designation is expected to increase. Contact the North Dakota Department of Health (NDDOH) for updates on MS4 designations.

Non-point source pollution is pollution that comes from many sources and is harder to identify than point source pollution. It primarily comes from rainfall or snowmelt runoff across or through the ground. The runoff collects pollutants and transfers them to receiving waterways, lakes, and wetlands. Some of these pollutants include fertilizers used in urban and rural settings, improperly managed construction sites (1 to 5 acres), oil, grease, and other petroleum products. Cities install storm sewer systems that quickly channel this runoff from roads and other impervious surfaces. When it leaves the system and empties into a stream, large volumes of quickly flowing runoff erodes streambanks, damage streamside vegetation, and widen stream channels. In turn, this will result in lower water depths during non-storm periods, higher than normal water levels during wet weather periods, increased sediment loads, and higher water temperatures. Native fish and other aquatic life cannot survive in urban streams severely impacted by urban runoff.

The ECM's in this handbook were developed to control the velocity and volume of sediment load runoff throughout a construction site. These measures minimize the amount of erosion that occurs, while managing unavoidable sediment runoff. When properly utilized, ECM's can effectively reduce the amount of sedimentation and additional pollution entering into a water way or wetland. Additional information on erosion and sediment control measures and policies can be found in the NDDOT Design Manuel and through the North Dakota Department of Health (NDDOH).

EROSION AND SEDIMENT CONTROL MEASURES

Erosion and sediment control measures and practices are actions taken on an interim basis pre, during, and post construction to minimize the disturbance, transportation, and unwanted deposition of sediment. While many of these measures can be applied to the same application, one may work better than another. Additionally, more effective erosion control may be accomplished when two ECM's are utilized together.

Control Measure	**Typical Applications**
Bale Checks	Ditch Checks Slope Checks Inlet Protection
Silt Fence	Ditch Checks Slope Checks Inlet Protection
Rock Ditch Checks	Ditch Checks
Geotextile Triangular Dike	Ditch Checks Slope Checks
Inlet Protection	Inlet Protection
Sediment Trap	Intercept sediment-laden concentrated flow before leaving site
Surface Roughening	Slope Checks
Mulching	Temporary soil cover
Soil Retention Blanket	Slope Stabilization Erosion control used in conjunction with another measure. Do not place additional ECM's on top of blanket unless specified.
Slope Drain	Slope Protection
Riprap	Inlet Protection Outlet Protection Slope Protection
Seeding and Sodding	Exposed Soil Protection

BALE CHECKS

The purpose of bale checks is to intercept runoff. The sediment-laden runoff will pond behind the bales, slowing the runoff velocity and allowing most of the suspended sediment to settle out. Water is intended to flow over the bales, not around the sides. Bales should be used in conjunction with proper erosion control devices to optimize performance. Bale checks should have sediment removed when the collected sediment level is one-half the height of the fence.



Bale Checks

Materials

- Bale checks may be constructed of wheat straw, oat straw, prairie hay, or bromegrass hay that is free of weeds declared noxious by the North Dakota State Board of Agriculture.
- The stakes used to anchor the bales should have the following minimum dimensions: 1.5 inches x 1.5 inches (2inches x 2 inches nominal) by 6 feet long (wood) or 5 feet (steel).
- Twine should be used to bind bales. The use of wire binding is prohibited because it does not biodegrade readily.

Placement

Ditch Checks

- Bales should be placed on their side to avoid the twine contacting the ground. Bales last longer when the twine does not contact the ground.
- Bale ditch checks should be placed perpendicular to the flow line.
- Bale ditch checks should extend far enough so that the ground level at the ends of the check is higher than the top of the lowest center bale. This prevents water from flowing around the check.



Improper installation of Bale Check

- Checks should not be placed in ditches where high volume or velocity flows are expected. Rock checks or an appropriate alternative should be used.
- Bales should be placed in ditches with slopes of five percent or less. For slopes steeper than five percent, rock checks or an appropriate alternative should be used.
- **Do not place a bale ditch check directly in front of a culvert outlet. It will not stand up to the concentrated flow.**

Bale Ditch Check Spacing	
Ditch Grade (Percent)	Check Spacing (Feet)
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
>5.0	Do not use Bales

Slope Checks

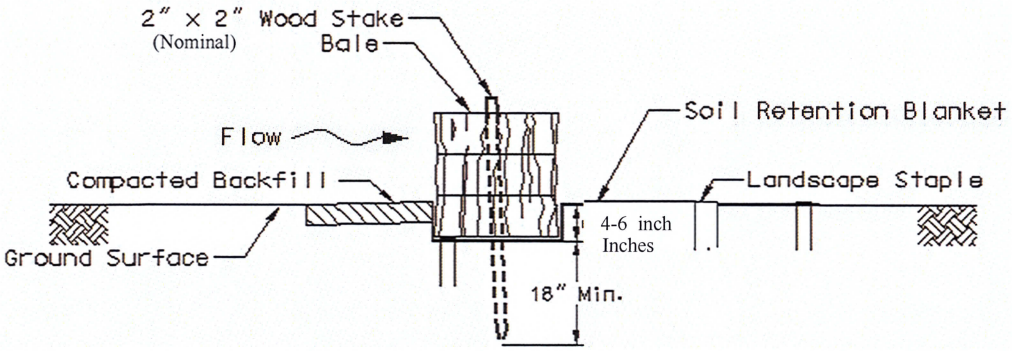
- Bale slope checks should be placed six feet from the toe of slopes to protect a ditch, stream, river, pond or sediment leaving the right of way (ROW).
- Checks should be placed along the contour.

Installation

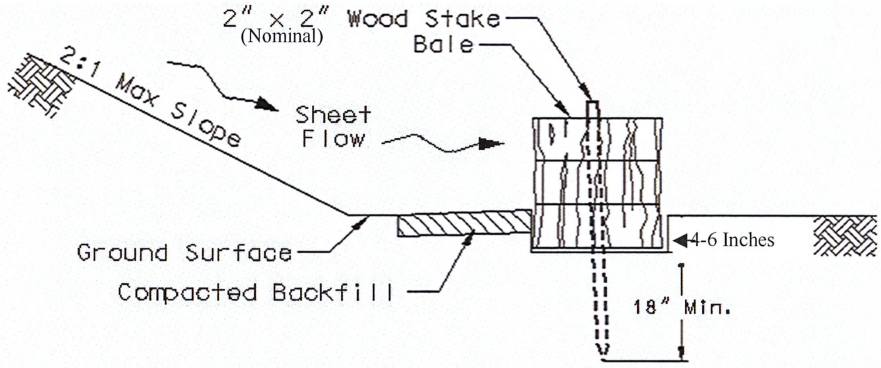
- Perpendicular to the flow line, excavate a trench that is four to six inches deep and a bales width wide. Place the soil on the upstream side of the trench to save for later use.
- Place the bales in the trench, making sure that they are butted tightly. Two stakes should be driven through each bale, at a slightly upstream angle, along the centerline of the ditch check, approximately 6 to 8 inches in from the bale ends. Stakes should be driven at least 18 inches into the ground.

Note: The following step pertains to Bale Ditch Checks.

- On the downstream side of the trench, roll out a length of erosion-control blanket (scour apron) equal to the length of the trench. Place the upstream edge of the erosion-control blanket along the bottom upstream edge of the trench. The erosion-control blanket should be anchored in the trench with one row of 8-inch landscape staples placed on 18-inch centers. The remainder of the erosion-control blanket (the portion that is not lying in the trench) will serve as the downstream scour apron. This section of the blanket should be anchored to the ground with 8-inch landscape staples placed around the perimeter of the blanket on 18-inch centers. The remainder of the blanket should be anchored using two evenly spaced rows of 8-inch landscape staples on 18-inch centers placed perpendicular to the flow line of the ditch.
- Stuff loose bale material in voids between abutting bales.
- Once all the bales have been installed and anchored, place the excavated soil against the upstream side of the check and compact it. The compacted soil should be no more than 3 to 4 inches deep and extend upstream no more that 24 inches.



Detail of Bale Ditch Check Installation



Detail of Bale Slope Check Installation

Maintenance

Problem	Required Maintenance
Bale Displacement	Replace or rearrange Reinforce with rock, bales, basins, or combinations
Undercutting of Bales	Replace, rearrange and/or regrade
Runoff escaping around bales	Lengthen the bale check
Gaps between bales	Replace or rearrange Stuff loose bale material in voids
Decomposing bales	Replace as necessary
Sediment level at one half the bale height	Clean out

Removal

Bale checks should be removed or wasted appropriately after all sediment-producing areas have been stabilized. The site will be considered stabilized when 70% of preconstruction coverage has been established. All sediment accumulation at the barrier trap should be removed and all excavation should be backfilled and properly compacted. Smooth the site to blend with the terrain. The disturbed areas must be seeded following removal.

SILT FENCE CHECKS

Specification 708.07

Silt fence checks operate by intercepting, ponding, and filtering sediment-laden runoff. Ponding the water reduces the velocity of the incoming flow and allows most of the suspended sediment to settle. As the ponded water percolates through the silt fence fabric, much of the remaining suspended sediment is filtered out. Silt fence checks work well in ditches with low flows and moderate slopes. Silt Fences should have sediment removed when the collected sediment level is one-half the height of the fence.



Silt Fence

Materials

- Filter fabric should have a minimum height of 36 inches.
- Wood posts should be treated and be a minimum of 6 feet long with minimum dimensions of 2 inches diameter for round posts or 1 ½ inches by 1 ½ inches (2inches x 2 inches nominal) for rectangular posts
- Steel posts should be a minimum of 5 feet long, weigh a minimum of 1.3 lbs/ft, have a welded plate near the bottom, and have projections to aid in fastening the wire or fabric.
- When backing of the silt fence is required, a steel wire fence fabric should be used. The woven wire should be at least 32 inches high, have a maximum opening size of 6 inches by 6 inches, and be a minimum of 14-gauge grade 60.

- Prefabricated silt fences will not be allowed

Placement

- The silt fence should extend far enough so that the ground level at the ends of the fence is higher than the top of the low point of the fence. This prevents water from flowing around the check.
- For slope protection, the silt fence should follow the contours of the site as closely as possible.
- Checks should not be placed in ditches where high flows are expected. Rock checks or sediment basins should be used instead.
- Silt fence should be placed in ditches with slopes of five percent or less. For slopes steeper than five percent, rock checks or an appropriate alternative should be used.
- **Do not place a silt fence directly in front of a culvert outlet. It will not stand up to the concentrated flow.**

Silt Fence Ditch Check Spacing	
Ditch Grade (Percent)	Check Spacing (Feet)
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
>5.0	Do not use silt fence

Installation

Trenched in Silt Fence

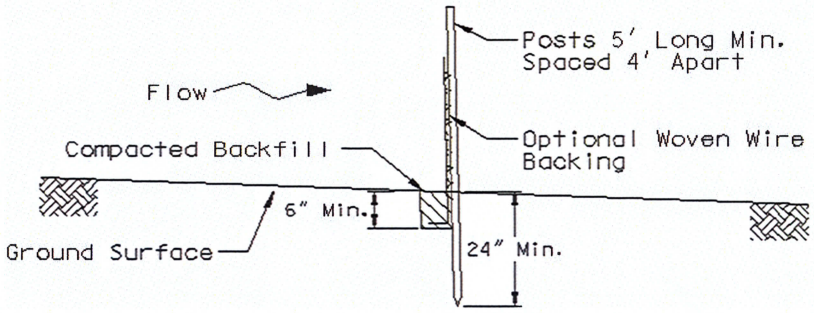
- Excavate a trench that is at least 6 inches deep. Place the soil on the upstream side of the trench for later use.

  NOTE: Other common and less labor-intensive installation methods are slicing or chisel plowing to install the silt fence. These methods will allow the silt fence to last longer and is less likely to blow out underneath.
- Roll out a continuous length of silt fence on the downstream side of the trench.

  NOTE: Splicing should only be done at support posts with a minimum of 18

inches of overlap and in such a manner to prevent silt from passing between the two ends.

- The fence fabric should be buried in a "J" configuration to a minimum depth of 6 inches.
- If woven wire support is used it should be buried a minimum of 2 inches deep.
- Posts should be spaced 4 feet apart and driven or placed a minimum of 24 inches in the ground.
- Geotextiles should be attached to posts by staples, wire, nails, or in accordance with the manufacturer's recommendations.

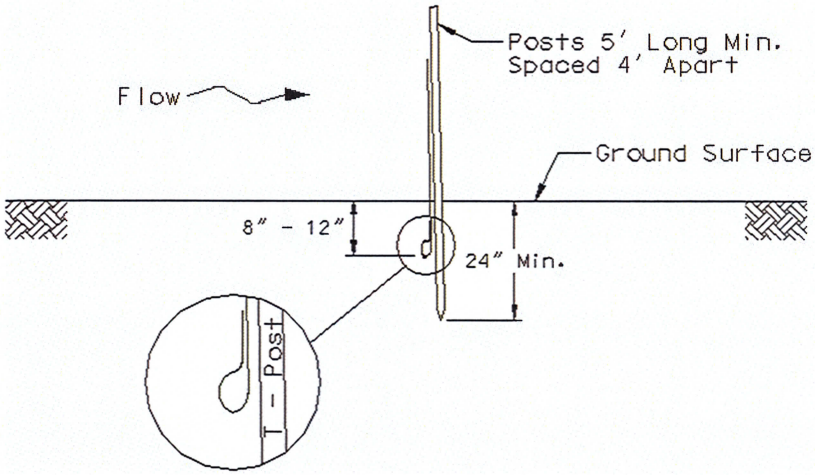


Detail of Silt Fence Installation (Steel Post)

Sliced in Silt Fence

- Sliced in silt fence should be installed with an approximate 6 inch cuff and into the soil a minimum of 8 inches.
- The post spacing, fastening requirements, and optional woven wire backing are the same as the trenched in silt fence.





Detail of Machine Sliced Silt Fence (Steel Post)

Maintenance

Problem	Corrective Maintenance
Undercutting of fence	Replace, rearrange and/or regrade
Fence collapsing	Replace or rearrange, Add bales, more stakes, wire or rock
Torn Fabric	Replace, Add bales, more stakes wire or rock
Silt fence sagging excessively	Decrease spacing between posts, Reinforce
Runoff escaping around fence	Lengthen the fence
Sediment level at one half the silt fence height	Clean out

Removal

After all sediment-producing areas have been permanently stabilized, all sediment accumulation at the silt fence should be removed, and all excavation should be backfilled and properly compacted. Smooth the site to blend with the terrain. The disturbed area must be seeded following removal of ECM's.

FLOATING SILT CURTAIN

A floating silt curtain is a silt barrier for use within a lake, pond, stream or other water. The floating silt curtain consists of a geotextile curtain weighted at the bottom and attached to a flotation device, or carrier, at the top. This structure is used to isolate an active construction area within a waterbody to prevent silt-laden water from migrating out of the construction zone.

Materials

Floating silt curtains should be constructed with the following materials and properties:

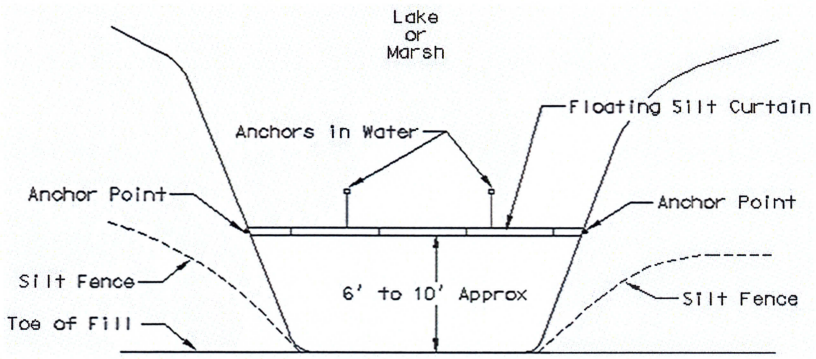
Materials and Properties	Still Water	Moving Water or Work Area
Curtain Fabric	Impermeable vinyl-nylon laminate	Impermeable vinyl-coated nylon
Mass/sq. yd.	18 oz.	22 oz.
Grab Tensile Strength	300 lbs	500 lbs
Depth of Curtain	2 – 10 feet	
Flotation	6" dia. Marine quality expanded polystyrene	8" dia. Marine quality expanded polystyrene
Net Buoyancy per foot	13 lbs	20 lbs
Top Load Carrying Components	Fabric only	Fabric + 5/16" galvanized steel cable 9800 lb min break strength
Ballast (min.)	1/4" galvanized chain	5/16" galvanized chain
Connections Between Sections	Laced grommets	Aluminum collar reinforced quick disconnects

Placement

Floating silt curtains are to be used as a last resort and should be used in conjunction with other protection measures.

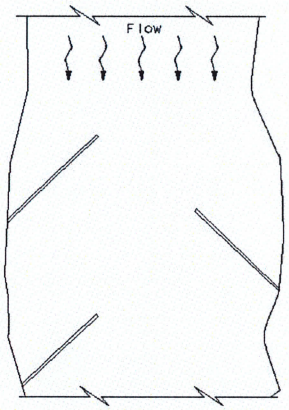
Still Water

The curtain needs to be anchored along its length with enough weight to hold it in place. Both ends need to be secured on land.



Still Water Floating Curtain Plan View

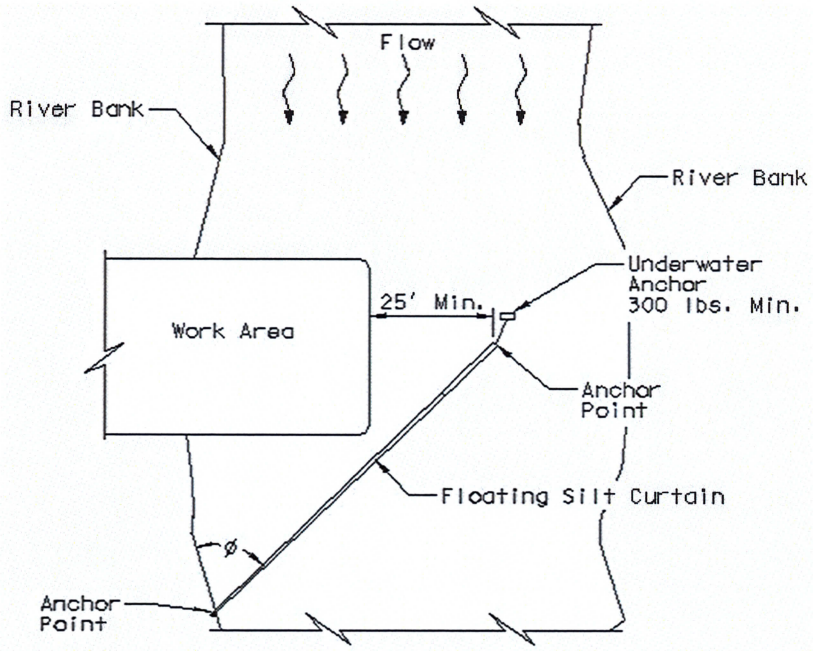
- If a silt curtain is necessary in flowing water to capture up-stream disturbance, place curtains diagonally alternating from banks.
- Do not extend the silt curtain out more than 1/3 of the stream width.
- Do not place the silt curtain across a flowing channel in its entirety. The channel bottom will suffer from major scouring



Floating Silt Curtain Diagonal Layout

Moving Water

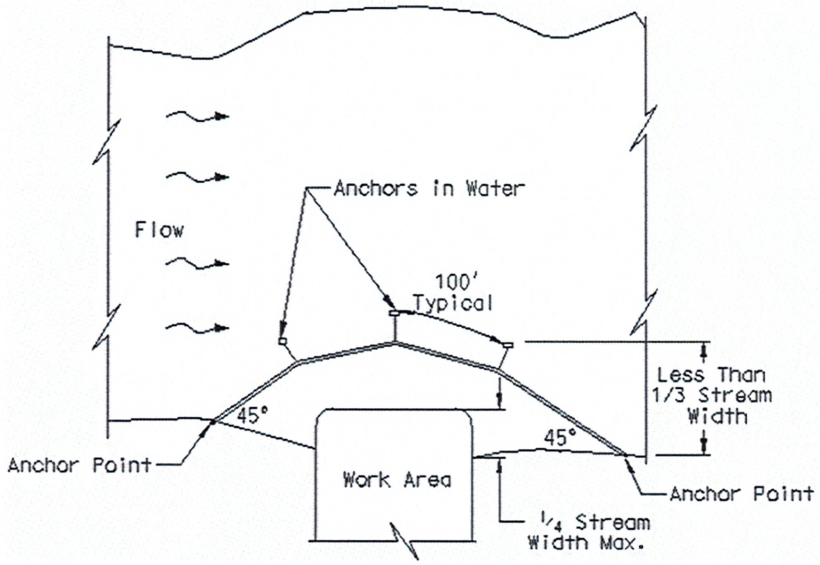
A buoy accompanies each anchor. The curtain should be anchored with a minimum 300 lbs out in the waterway, and placed a minimum 25 feet from the work area. This configuration should be used when the work area encroaches more than 1/4 but less than 1/3 of the stream width and the maximum water velocity is 5 ft/sec.



Moving Water Floating Curtain Plan View

Work Area

When the work area extends less than 1/4 of the stream width and has a velocity of 5 ft/sec or less, the area is enclosed with a silt curtain. The curtain should extend outward from shore at a 45 degree angle and should not extend more than 1/3 of the stream width. Anchor with a minimum 40 lbs at a maximum 100 ft interval.



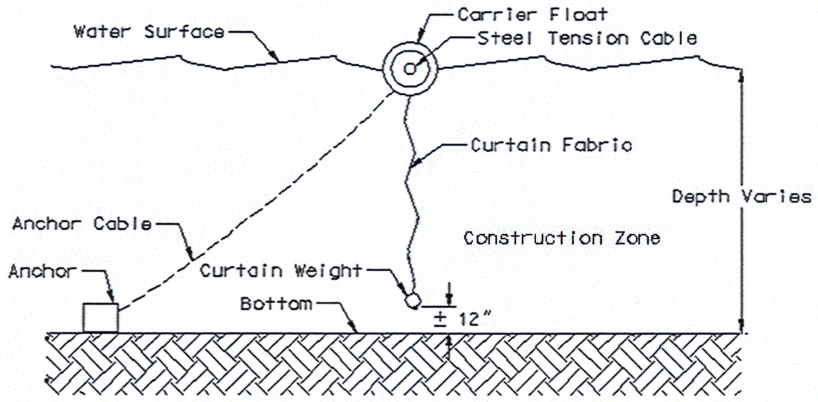
Work Area Plan View

Installation

- In still water lakes or ponds it is usually sufficient to merely set the curtain end stakes or anchor points (using anchor buoys if bottom anchors are employed), then tow the curtain in the furled condition out and attach it to these stakes or anchor points. Following this, any additional stakes or anchors required to maintain the desired location of the curtain may be set and these anchor points made fast to the curtain. The furling lines should be released to let the curtain skirt drop.
- In rivers or in other moving water it is important to set all the curtain anchor points. Care must be taken to ensure that anchor points are of sufficient holding power to retain the curtain under the existing current conditions, prior to putting the furled curtain into the water. Anchor buoys should be employed on all anchors to prevent the current from submerging the flotation at the anchor points. When the anchors are secure, the furled curtain should be secured to the upstream anchor point and then sequentially attached to each next downstream anchor point until the entire curtain is in position. At this point, and before unfurling, the "lay" of the curtain should be assessed and any necessary adjustments made to the

anchors. Finally, when the location is ascertained to be as desired, the furling lines should be released to allow the skirt to drop.

- Always attach anchor lines to the flotation device, not to the bottom of the curtain.



Floating Silt Curtain Detail

Removal

Silt curtain should be cleaned out before removal. Removal can take place after work areas are removed and/or final grading on above slopes is completed. Silt fence or similar sediment control device should be installed at the toe of the slope before the silt curtain is removed and remain in place until the vegetation is established. Silt fence is not necessary if the slope is covered with riprap.

ROCK DITCH CHECKS

Rock ditch checks operate by intercepting and ponding sediment-laden runoff. Ponding the water dissipates the energy of incoming flow and allows large portions of the suspended sediment to settle out. Water exits the ditch check by flowing over its crest. Rock ditch checks are ideal for ditches that eventually will have a riprap lining. Upon completion of the project, rock ditch checks can be spread out to form a riprap lined channel. Rock ditch checks should have sediment removed when the collected sediment level is one-half the rock height.



Rock Ditch Check

Materials

- Rock gradations and size should be specified in the plans or by the engineer.
- See the Soil Retention Blanket section for soil retention blanket information.

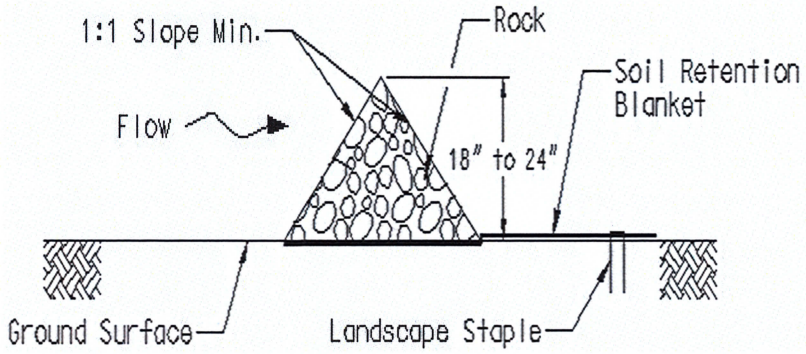
Placement

- Rock ditch checks should be perpendicular to the flow line of the ditch.
- Rock ditches must be designed so that water can flow over them, not around them. The ditch check should extend far enough so that the ground level at the ends of the check is higher than the lowest point on the crest of the check.
- Rock ditch checks are best located in ditches that eventually will be lined with riprap, so that the rock will not have to be removed upon completion of construction.

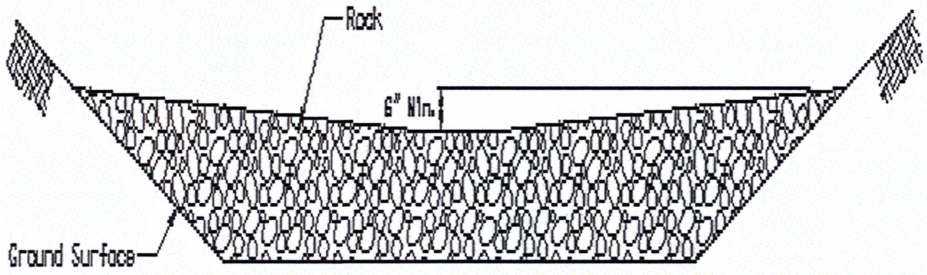
Rock Ditch Check Spacing	
Ditch Grade (Percent)	Check Spacing (Feet)
4.0	75
5.0	60
6.0	50
7.0	45
8.0	35
9.0	33
10.0	30

Installation

- The ditch check should be 18 to 24 inches high and have side slopes no steeper than 1:1. The rock ditch check must be constructed so that water can flow over the top, not around the ends.
- 8-inch landscape staples should be used as necessary to anchor the erosion control blanket.



Detail of Rock Check Installation



Profile of Rock Check



Rock Ditch Check

Maintenance

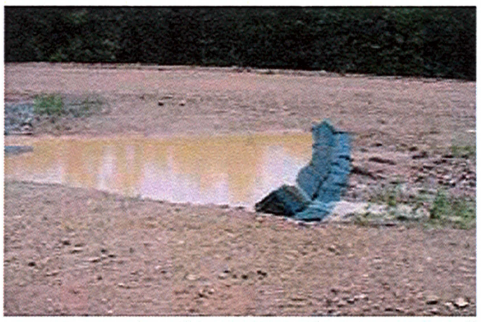
Problem	Corrective Maintenance
Scour beneath rock	Add rock or fabric Add ditch checks to slow water above the rock
Dislodged rock	Add rock or fabric Regrade
Sediment level at one half the rock height	Clean out

Removal

Rock ditch checks should be removed or placed where specified in the plans when the site has been stabilized. All sediment accumulated at the barrier should be removed and all excavation should be backfilled and properly compacted. The site should be graded to blend with the terrain. The disturbed area must be seeded following removal of ECM's.

GEOTEXTILE TRIANGULAR DIKE

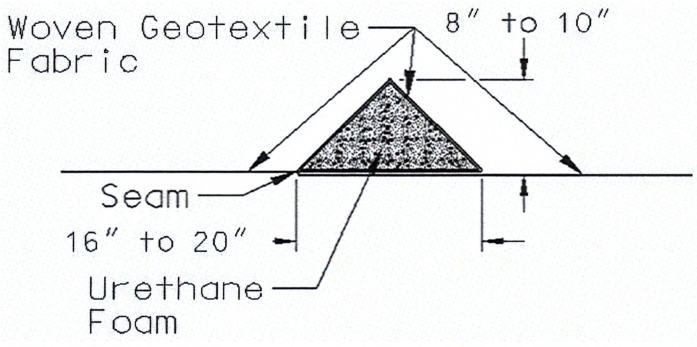
Geotextile Triangular Dikes (GTD) should be used as a continuous line barrier at the toe of slopes to contain sediment or as a ditch barrier placed perpendicular to the flow of water in a defined drainage ditch to minimize erosion and contain sediment. Geotextile Triangular Dikes should have sediment removed when the collected sediment level is one-half the dike height.



Geotextile Triangular Dike

Materials

- Woven geotextile fabric
- Triangular shaped inner material should be composed of urethane foam
- The metal landscape staples used should be at least 6 to 8 inches long



Geotextile Triangular Dike Profile

Placement

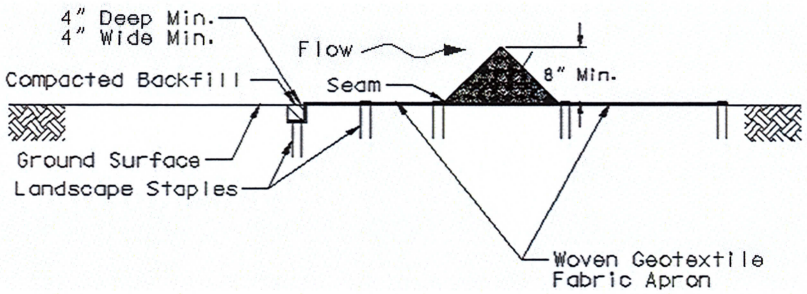
- The dike should extend far enough so that the bottoms of the ends are higher than the top of the lowest center. This prevents water from flowing around the dike.
- Dikes should not be placed in ditches where high flows are expected. Rock checks or an appropriate alternative should be used instead.
- Dikes should be placed in ditches with a slope of 4 percent or less. For slopes steeper than 4 percent, rock checks or an appropriate alternative should be used.

Geotextile Triangular Dike Spacing	
Ditch Grade (Percent)	Check Spacing (Feet)
1.0	200
2.0	100
3.0	65
4.0	50
>4.0	Do not use GTD

Installation

- Excavate a trench along the entire length of the dike that is at least 4 inches deep by 4 inches wide perpendicular to the flow line. Place the soil on the upstream side of the trench for later use.
- Each dike has two aprons: one upstream and one downstream. The upstream apron is the shorter of the two.
- Conform the flexible dike to the geometry of the ditch so that no space exists between the dike and the ditch bottom. Place the first 6 inches of the upstream apron into the trench and anchor it with one row of 6 inch to 8-inch landscape staples at 18-inch centers.
- Place 6 inch to 8-inch landscape staples on 18-inch centers between the trench and seam, along the seam on the upstream side, where the downstream apron meets the dike, and on the edge of the downstream apron.
- Each dike has an open sleeve at either end. Connect adjoining dikes with these sleeves and then repeat the anchoring procedure.
- Once all the dikes have been joined and anchored, fill in the upstream trench with soil and compact it.

- Do not place dikes directly in front of a culvert outlet because they will not stand up to the concentrated flow.



Geotextile Triangular Dike Detail

Maintenance

Problem	Corrective Maintenance
Runoff escaping around the dike	Lengthen the dike
Water flowing under the dike	Reanchor, add more as needed
Sediment level at one half the dike height	Clean out

Removal

The Geotextile Triangular Dikes should be removed when the site has been stabilized. All sediment accumulated behind the barrier should be removed and all the excavation should be backfilled and properly compacted. Smooth the site to blend with the terrain. The disturbed area must be seeded following removal of ECM's.



Geotextile Triangular Dike with Rock Backing

INLET PROTECTION

The purpose of inlet protection is to prevent sediment from entering storm drainage systems, prior to temporary or permanent stabilization of the disturbed area. This practice contains several types of inlet filters and traps that have different applications dependent upon site conditions and type of inlet. Other innovative techniques for accomplishing the same purpose are encouraged and should be submitted for approval of the on site engineer. Sediment that is collected around the inlet should be removed when the sediment levels reach half the height of the ECM.

Design Considerations

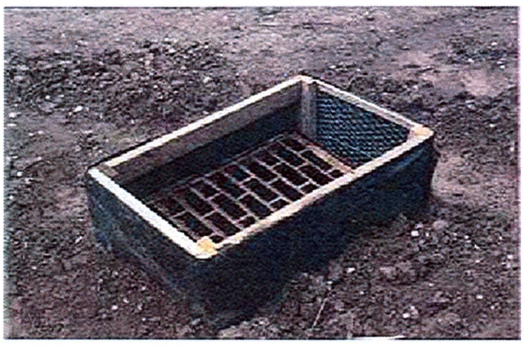
- The drainage area should be no greater than one acre. Runoff from larger disturbed areas should be routed to a Temporary Sediment Trap or a Temporary Sediment Basin.
- The inlet protection device should be constructed in a manner that will facilitate cleanout and disposal of trapped sediment and minimize interference with construction activities.
- The inlet protection devices should be constructed in such a manner that storm water will not cause excessive ponding.

Silt Fence Inlet Structure

Silt fence inlet protection structures intercept, pond and filter sediment-laden runoff. Ponding the water reduces the velocity of the incoming flow and allows most of the suspended sediment to settle. As the ponded water percolates through the silt fence fabric, much of the remaining suspended sediment is filtered out.

Materials

- The material used to frame the tops of the posts should be 2 inch x 4 inch (nominal). Use nails or screws for fastening.
- Woven wire



Silt Fence inlet protection structure

Placement

- When used as an inlet protection device the silt fence fabric and posts must be supported at the top by a wooden frame.

Installation

- Posts should be driven a minimum of 18 inches deep around the inlet.

See Silt Fence section for all other details for materials, placement, installation, and removal.

Fence Backed Bale Inlet Protection Structure

Fence Backed Bale inlet protection structures operate by intercepting and ponding sediment-laden runoff. Ponding the water reduces the velocity of the incoming flow and allows most of the suspended sediment to settle out.

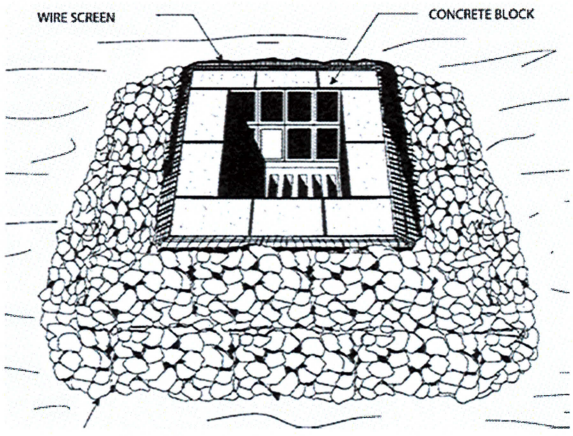
Installation

- Bales should be placed lengthwise in a single row surrounding the inlet with the ends of adjacent bales pressed together.
- The silt fence should be placed around the *outside* of the bales utilizing them for support.

See Silt Fence and Bale Checks section for all other details for materials, placement, installation, and removal.

Block and Gravel Inlet Barrier

Block and gravel inlet barriers operate by intercepting, ponding, and filtering the sediment-laden runoff. Ponding the water reduces the velocity of the incoming flow and allows most of the suspended sediment to settle. As the ponded water percolates through the Block and Gravel inlet barrier, much of the remaining suspended sediment is filtered out. Block and Gravel inlet barriers work well in areas of moderate flow and moderate slopes.



Block and Gravel inlet barrier

Materials

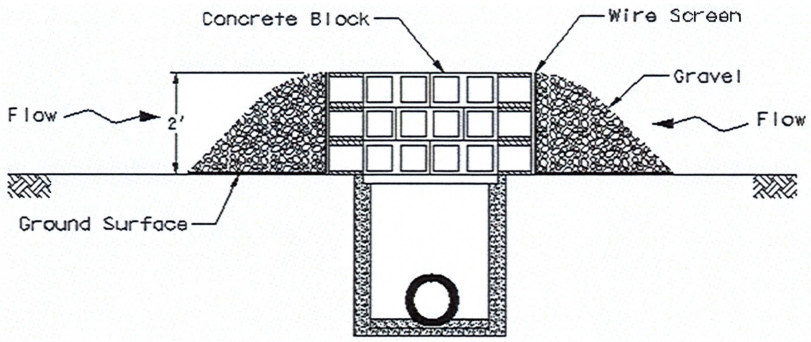
- Concrete masonry blocks – 8 inches x 8 inches x 16 inches
- ½ inch opening wire screen
- 1 ½ inch diameter maximum size gravel

Placement

- When the Block and Gravel inlet barrier is placed in a shallow median ditch, make sure the top of the barrier is not higher than the road. Otherwise, water may spread onto the roadway causing a hazardous condition.

Installation

- Place concrete blocks around the inlet structure to a height of 2 feet.
- Place the wire screen against the blocks. The wire screen may have to be secured to the blocks to allow placement of the gravel.
- Place gravel against the wire to the top of the barrier.



Block and Gravel Inlet Barrier Detail

Removal

The barrier should be removed and the area stabilized when the remaining drainage area has been properly stabilized. If possible, leave the gravel around the inlet to dissipate energy from the water. The gravel should be leveled out, so that the water does not pond once the site is stabilized.

Block and Gravel Curb Inlet Barrier

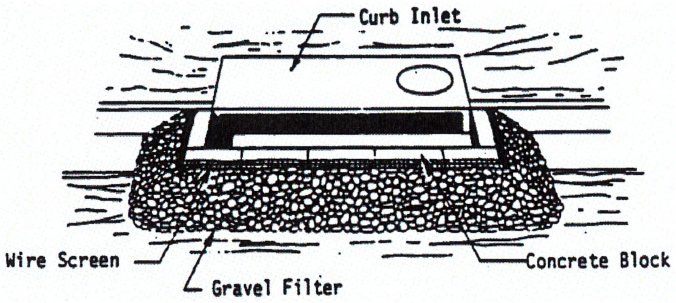
The block and gravel curb inlet barrier operates on the same concepts as the block and gravel inlet barrier.

Materials

- Concrete masonry blocks – 8 inches x 8 inches x 16 inches
- ½ inch opening wire screen
- 1 ½ inch maximum size gravel
- 2 inch x 4 inch (nominal) wood stud

Placement

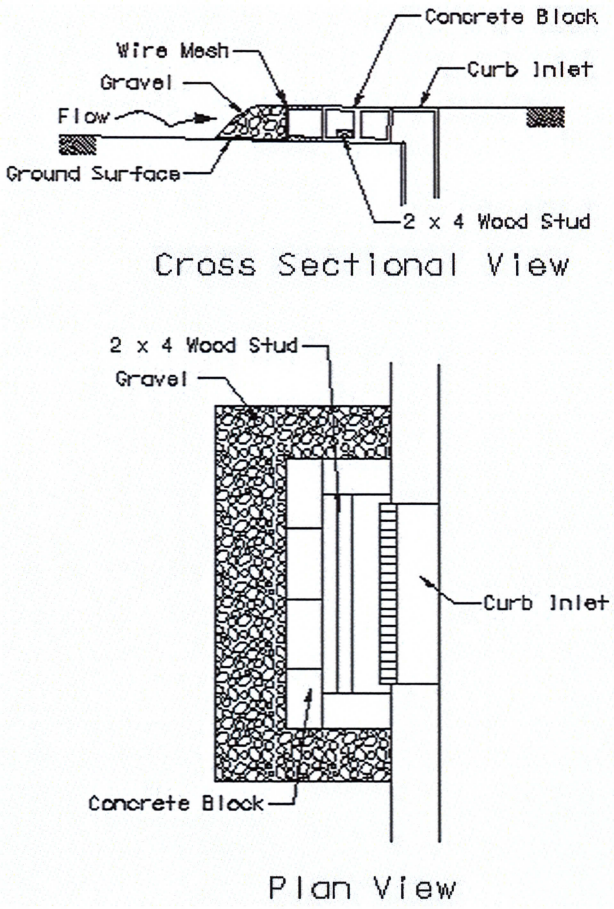
- This method of inlet protection is applicable at curb inlets where an overflow capability is necessary to prevent excessive ponding in front of the structure.



Gravel Curb Inlet Barrier

Installation

- Two concrete blocks should be placed on their sides abutting the curb at either side of the inlet opening.
- A 2 inch by 4-inch (nominal) stud should be cut and placed through the outer holes of each spacer block to help keep the front blocks in place.
- Concrete block should be placed on their sides across the front of the inlet and abutting the spacer blocks as illustrated.
- Wire mesh should be placed over the outside vertical face (webbing) of the concrete block to prevent stone from being washed through the holes in the blocks.
- Place gravel against the wire to the top of the barrier.



Block and Gravel Curb Inlet Barrier Details

Maintenance

Problem	Corrective Maintenance
Flooding around or below inlet. Stakes and fabric leaning/falling in toward grate.	Check grade Regrade or redesign Check for blockage in culvert or catch basin
Undercutting of bales or silt fence, bale displacement, torn fabric, etc.	Replace, rearrange and/or regrade
Sediment level at one half the ECM	Clean out

Removal

The curb barrier should be removed when the remaining drainage area has been properly stabilized.

SEDIMENT TRAP

The purpose of this practice is to detain sediment-laden runoff from small-disturbed areas for a sufficient period to allow the majority of sediment and other water-based debris to settle out. Sediment traps should have sediment removed when the sediment level is more than ½ the depth or sediment is near the outlet elevation.



Sediment Trap

Design Considerations

- The drainage area should be no greater than 5 acres.
- Runoff from larger disturbed areas should be routed to a Sediment Basin.

Materials

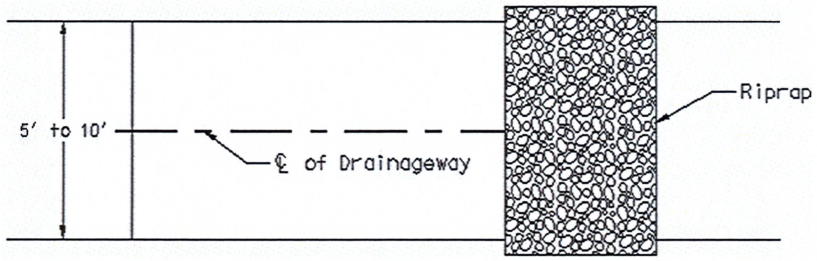
- Riprap
- Geotextile fabric should be placed underneath the riprap outlet

Placement

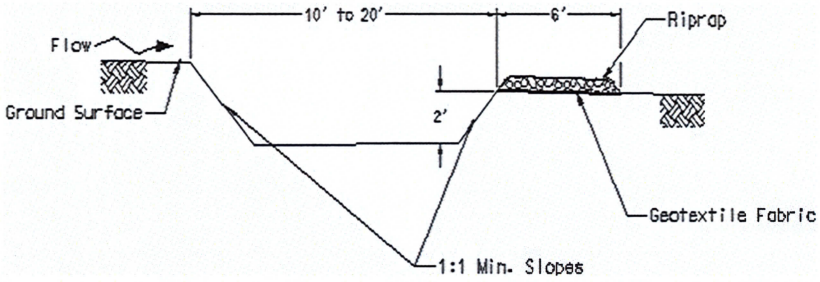
- Typical locations include ditch bottoms, and the downgrade end of a cut section, and areas where it becomes necessary to capture larger amounts of sediment where a silt fence continues to fail.

Installation

- Excavate the sediment trap to the appropriate dimensions and remove the soil and place it in an area and in such a manner that it will not erode. The trap should be at least twice as long as it is wide.
- Place geotextile fabric where the riprap is to be placed.
- Place riprap on the downstream side of the trap extending 6 feet downstream. The riprap should be placed the width of the trench plus ½ foot on each side.



Plan View of Sediment Trap



Profile of Sediment Trap

Maintenance

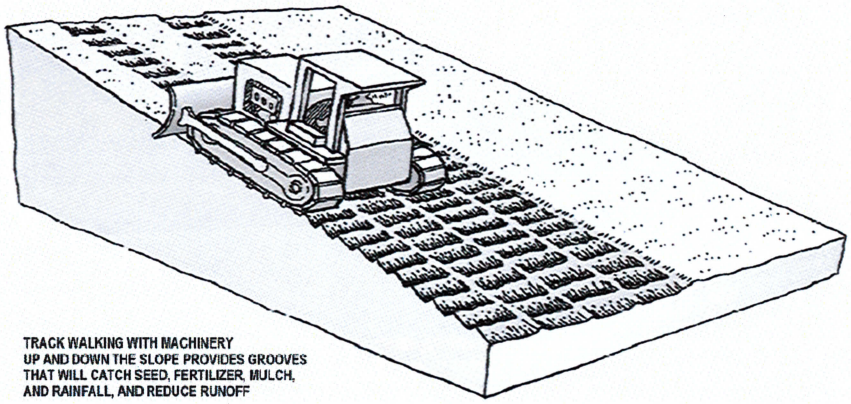
Problem	Corrective Maintenance
Obstructed outlet	Clean and Regrade
Damaged embankments	Regrade, Redesign
Spillway erosion	Regrade, Add rock
Excessive discharge to and from trap	Look for breaks in trap
Sediment storage zone fills to quickly	Add basins or traps Add ditch checks
Sediment level more than ½ the depth or sediment near outlet elevation	Clean out

Removal

Temporary sediment traps should be filled in and graded over at the time of final shaping. The rock should be removed or be buried in the hole first. The disturbed area must be seeded following removal of ECM's.

SURFACE ROUGHENING

Surface Roughening is a practice that abrades the soil surface with horizontal ridges and depressions across the slope, decreasing erosion by reducing runoff velocities. In addition, this practice also increases infiltration and fosters the establishment of vegetation.



Tracking

Tracking is a method that utilizes the depressions formed by the tracks from bulldozers and other construction vehicles. The vehicle is driven parallel to the slope leaving horizontal depressions. These depressions interrupt the runoff's flow, reducing its velocity and erosive capacity.

- Tracking should be performed on all slopes of 3:1 or steeper that can be mechanically climbed.
- The tracking vehicle is to be operated up and down the slope and leaves behind horizontal depressions in the soil.

MULCHING

Specification 708.02

Mulching is done primarily with Hydro-mulch or Straw Mulch. Mulching involves the application of straw or other organic materials to form a temporary, protective soil cover. Mulch protects the soil surface from the forces of raindrop impact and overland flow. Organic mulches foster the growth of vegetation, reduce evaporation, insulates the soil, and suppresses weed growth.

Hay or Straw Mulching



Machine Blown Mulch

Materials

- Mulch material should consist of native hay or the straw from oats or barley, and should be seed free to prevent introduction of weeds as defined by the rules and regulations of the North Dakota Department of Agriculture.
- At least 50% of the mulch by weight should be 10 inches or more in length.

Placement

- The mulch should be machine blown and should be uniformly distributed over the seeded areas. The machine should be of a design that minimizes cutting or breaking of the mulching material.
- Mulching operations should not be performed during periods of excessively high winds, which would preclude the proper placing of the mulch.
- Mulch containing excessive moisture which prevents uniform feeding through the machine should not be used.
- Bales should be broken up and loosened as they are fed into the blower to avoid placement of matted or unbroken lumps.

Installation

- The mulch should be placed within 24 hours after the seeding has been completed.
- The mulch should be placed uniformly over the seeded areas at the rate of 2 tons per acre.
- Approximately 10% of the soil surface should be visible through the mulch blanket before the mulch tiller (punching) operation.

Maintenance

Problem	Corrective Maintenance
Rills or gullies forming	Regrade and reseed, Add additional controls
Bare soil patches	Remulch and/or reseed
Sediment at the toe of the slope	Regrade, Add silt fence or filter dike if next to a body of water

Hydro-mulching



Hydro-mulching

Materials

Hydro-mulching is used when Class III seeding is specified. It contains a wood cellulose fiber that has not been treated with any germination or growth inhibitive substance but will be treated with a tackifier to enhance seed and mulch placement and adherence to the

soil. The mulch should be free of contamination from noxious weed seed and seed from competitive plants.

Placement

The mulch should be uniformly applied at a rate of one ton per acre and should cover a minimum of 95% of the seedbed area. After application, the mulch should permit percolation of water to the underlying soil.

Removal

Mulching does not need to be removed.

SOIL RETENTION BLANKET

Specification 708.03

Soil Retention Blankets are biodegradable materials that can be used to protect disturbed slopes and channel areas from wind and water erosion. The blanket materials are natural materials such as straw, wood excelsior, coconut, or are geotextile synthetic woven materials.



Straw-Coconut Fiber Mat

Materials

Wood Excelsior Fiber Mat

- The wood excelsior fiber mat should consist of a machine produced mat of cured wood excelsior in which 80% of the fibers are 6 inches or longer.
- The fiber should have a consistent thickness of fiber evenly distributed over the entire area.
- The top of each mat should be covered with a photo-degradable extruded plastic mesh with maximum openings of 1 inch by 3 inches.
- The wood excelsior fiber mat should be treated to be smolder resistant without using chemical additives.

Wood Excelsior Fiber Mat Physical Properties	
Width	Minimum 36 inches
Roll Length	Minimum 100 feet
Weight	Minimum 0.7 lbs/yd^2

Straw and Fiber Mats

A. Straw Mat

- The straw mat shall be machine produced of clean straw from agricultural crops and be sewn together with biodegradable cotton or nylon thread.
- The top side should be covered with a biodegradable plastic mesh or netting with maximum openings of 5/8 by 5/8 inches.

Straw Mat Physical Properties	
Width	Minimum 48 inches
Roll Length	Minimum 80 feet
Weight	Minimum 0.5 lbs/yd^2

B. Straw Mat with Mesh or Netting on Top and Bottom

- Material should coincide with the *Straw Mat* except that it should be furnished with mesh or netting on the top and bottom of the mat.

C. Straw-Coconut Fiber Mat

- Material should coincide with the *Straw Mat* except that the mat should consist of 70% straw and 30% coconut fibers.

D. Straw-Coconut Fiber Mat with Mesh or Netting on Top and Bottom

- Material should coincide with the *Straw Mat with Mesh or Netting on Top and Bottom* except that the mat shall consist of 70% straw and 30% coconut fibers.

E. Coconut Fiber Mat

- Material should coincide with the *Straw Mat with Mesh or Netting on Top and Bottom* except that the mat should be machine produced or 100% coconut fiber and shall be sewn together with biodegradable nylon (polyester) thread.
- Both the top and bottom should be covered with a biodegradable plastic mesh of netting.
- One side should be heavy duty mesh with a minimum weight of 2.5 pounds per 1,000 ft^2.
- Maximum size mesh openings should be 5/8 by 5/8 inches.

Placement

Soil Stabilization Mats may be suitable for:

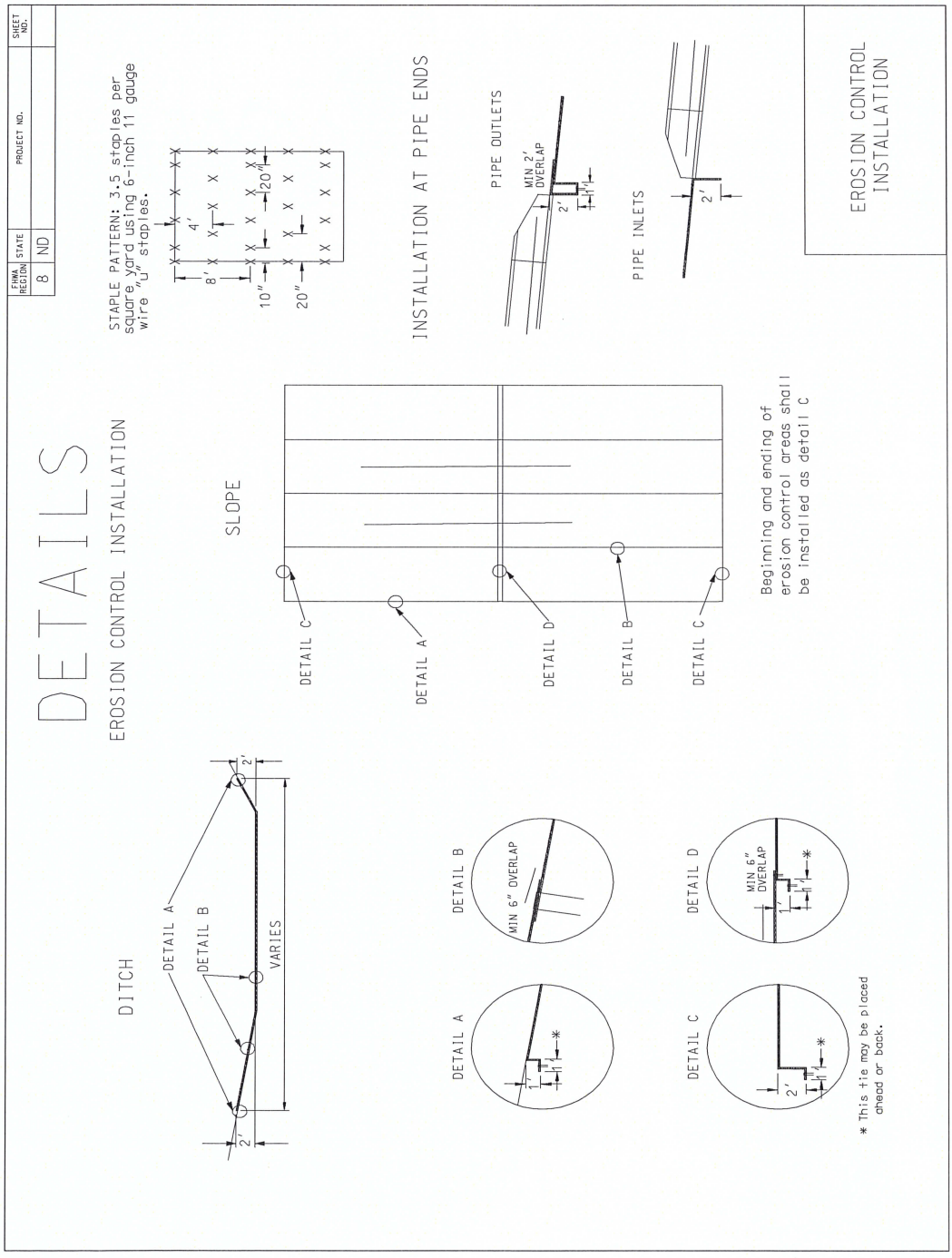
- Stabilization of steep to moderate slopes
- New landscaped areas
- Drainage swales and ditches that are to be planted or seeded



Retention Blanket in Ditch

Installation

- The area to be covered should be properly prepared and seeded before the blanket is applied. All rocks or clods of 1 ½ inches in diameter or greater, and all sticks and other foreign material should be removed.
- If netting is specified for one side only, the blanket should be placed with the netting on top and the fibers in contact with the soil.
- In ditches, blankets should be unrolled in the direction of water flow, and stapled every 5 feet at joints and edges or as specified in the plans. When multiple blankets are used, the upstream blankets should overlap the downstream blankets.
- On slopes, blankets may be unrolled either horizontally or vertically to the slope. Ends and sides shall be stapled. When multiple blankets are utilized, the upslope blanket should overlap the down slope blanket.



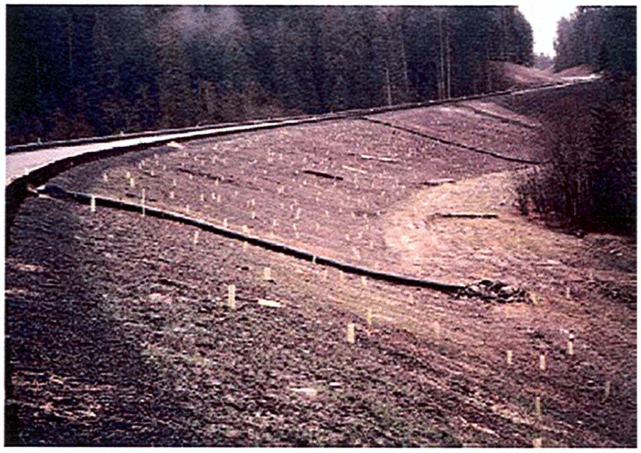
Example of a blanket installation detail. See the Design Manual for the correct detail.

Removal

Unless specified in plans soil retention blankets can be left in place to degrade naturally.

TEMPORARY SLOPE DRAIN

A slope drain is a flexible tubing or conduit extending from the top to the bottom of a cut or fill slope. Its purpose is to temporarily conduct runoff safely down the disturbed face of an embankment without causing erosion.



Slope Drains

Materials

- Heavy duty flexible tubing or conduit designed for this purpose
- The diameter of the tubing or conduit should be uniform over its entire length
- Hold down stakes
- Optional riprap for outlet protection

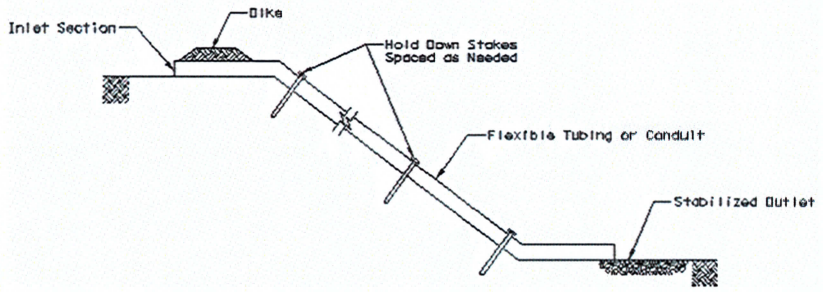
Placement

- On cut or fill slopes before permanent stormwater drainage structures are installed and before permanent erosion control vegetation is established.
- Place slope drains on undisturbed soil or well-compacted fill.

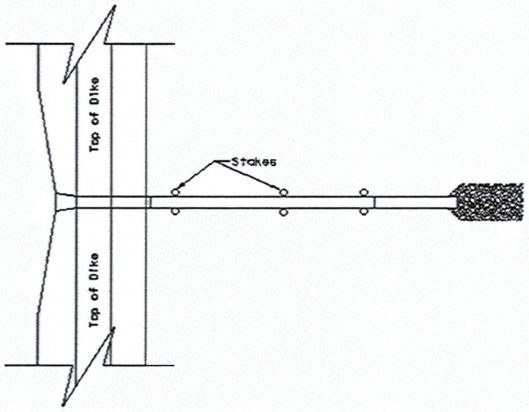
Installation

- The soil around and under the entrance section should be hand tamped to the top of the dike to prevent piping failure around the inlet.
- The inlet section may need to be modified for each situation
- The slope drain should be securely staked to the slope at the grommets provided.

- The slope drain sections should be securely fastened together and have watertight fittings.
- If the drain is conveying sediment-laden runoff, direct all flows into a sediment trap or other adequate sediment control device.
- Installation of temporary slope drains should be completed and their outlets protected before runoff is diverted to them.



Profile of Slope Drain



Plan View of Slope Drain



Slope Drain used with a combination or other measures

Maintenance

Problem	Corrective Maintenance
Blocked inlet or outlet	Unblock and regrade
Runoff bypassing inlet	Regrade
Erosion at outlet	Add rock

Removal

The Temporary slope drain can be removed once the reason for the drain is no longer necessary, i.e. permanent vegetation has been established or a permanent structure has been placed to address the water issue.

RIPRAP

Specification 708.04

Riprap is used on slopes, riverbanks, drainage channels, and for outlet protection. Riprap significantly reduces the erosion and sediment movement.



Riprap at Culvert Outlet

Material

- Riprap must first be accepted by gradation, soundness, and abrasion.
- Riprap fabric used must meet specification 709.03 and 858.01.
- Sandstone, shale, and soft limestone will not be accepted, along with any rock that has cracks or flaws that would cause splitting during the placement process.
- Riprap should meet the following gradation:

Size (Inches)	Percent Smaller
28*	80-100
22*	30-80
16	20-50
10	0-5

*The maximum size of stone permitted for riprap installation should not exceed the specified thickness of the riprap blanket by more than 6 inches. Stone of this excess size may be placed providing it does not exceed 10% of the total stone and can be blended satisfactorily into the riprap.

- Aggregate Cushion – Class 8 Aggregate
- Wire Mesh when specified
- Grout when specified

Riprap may be suitable:

- Along a stream or within drainage channels, as a stable lining resistant to erosion.
- On lakefronts and riverfronts, or other areas subject to wave action.
- Around culvert outlets and inlets to prevent scour and undercutting.
- In channels where infiltration is desirable, but velocities are too excessive for vegetative or geotextile lining.
- On slopes and areas where conditions may not allow vegetation to grow.



Riprap

Installation

- Slopes should be excavated, shaped, and completed to the required cross section and elevation.
- Install an aggregate cushion to the specified depth and shape.
- When loose riprap is laid on a slope, placement must begin at the toe of the slope and work up the hill. At the toe, a trench should be dug to the specified size. If no size is specified, the trench will be at least one foot deep and the width of the area. The larger rocks are to be placed in the trench first.
- The riprap should be compacted throughout the process and the finished surface should have an even, tight surface. Any gaps will be filled with smaller rock.

- Rocks may be placed by mechanical means or by hand but should be distributed evenly.
- The area will not deviate from plan slope and grade by more than 6".
- When wire mesh riprap is specified, a wire mesh will be placed above, below, and around the ends and sides of the riprap. The ends of strips will be tied every 18" at all abutting sections. End splices should be staggered at least 10'. No mesh under 10' of length will be used. The lower layer of mesh will be tied to the upper layer at a minimum of 2' on center each way.

Removal

Temporary riprap should be removed and disposed of in accordance with the plans or direction of the engineer.

SEEDING and SODDING

Specification 708.02

SEEDING



Tractor mounted seed drill

Material

- The species and variety of seed used should be specified in the plans and should meet or exceed Pure Live Seed requirements.
- Seed and seeding mixtures should be free of all prohibited noxious weed seed and should not contain more than ½ of 1% by weight of restricted noxious weed seeds as classified by the North Dakota State Seed Department.
- Seed will be accepted by certification after it has been tested by an approved laboratory within nine months of planting. Seed that has not been planted within nine months of testing will need to be retested.
- Seed that has become wet, moldy or damaged before it is planted will not be accepted.
- Fertilizer should be placed according to the class of seed as specified in the specifications.
- When hydro-mulch is used, the fertilizer should be in the slurry mixture.

Placement

- Areas to be seeded should be done as specified in the plans.

Installation

- Areas to be seeded should be cleared of all material that is detrimental to seedbed preparation.
- The cleared areas should be shaped to the plan cross sections, or to the cross section that best fits existing conditions.
- Grass seeds of the required mixture and quality shall be sown by a mechanical seeder or other method, which will sow a uniform quantity as required over the whole area to be seeded.
- No seed should be sown when the wind velocity exceeds 15 miles per hour.
- No seed should be sown in standing water or frozen ground.
- All slopes should be worked on the contour, or as directed by the Engineer.
- Seeded areas should be watered and mulched immediately following placement when specified by the project designer or site conditions dictate.

Maintenance

Problem	**Corrective Maintenance**
Rills or gullies forming	Regrade and reseed, Add additional controls
Bare soil patches	Remulch and/or reseed
Sediment at the toe of the slope	Regrade, Add silt fence or filter dike if next to a body of water

SODDING



Sod Installation

Material

- Sod shall consist of dense well-rooted growth of permanent and desirable grass, with uniform thickness that is adapted to the general location of which it is placed.
- Sodding must be accompanied by a certification of compliance (from an approved laboratory) stating that the soil upon which the furnished sod was grown does not contain more than 20% organic matter. The percentage of organic matter shall be determined according to the latest version of AASHTO test method T-267. If the sod comes from multiple locations, each location will require certification. The certifications for the fields are good for 5 years.
- All sod shall be free of weeds and undesirable grasses and shall be cut when the grass is less than two inches tall.
- Peat sod will not be allowed.

Placement

- Prior to placement, the area to be sodded shall be shaped to the required cross section and contoured in accordance with the plans.
- Stones larger than two inches diameter and other debris, which will interfere with proper placement or growth of the sod, shall be removed.

- Immediately prior to placing the sod, the soil shall be loosened and lumps, weeds and other undesirable materials shall be removed.
- Sod on slopes shall be laid in horizontal strips beginning at the bottom of the slope working upwards.
- In ditches, the long length of the strip shall be placed perpendicular to the flow.

Installation

- Each section of sod shall join the adjacent section without overlapping but shall abut snugly against the section previously laid. End joints shall be staggered and open joints or gaps shall be filled with sod cut to the proper size and shape.
- On slopes of 4:1 or steeper, the sod shall be anchored with stakes of at least 6 inches in length spaced 18 inches to 36 inches apart along the longitudinal axis of the sod strip.
- Fertilizer should be placed as specified in the plans.
- Maintenance and watering shall be done for 4 weeks after the sod is laid. Any sod that dies, washes out, is damaged, or contains excessive organic material during this maintenance period will be replaced at the contractor's cost.

SANDBAGS

Sandbags can be used to dike off an area, divert water, control a ditch grade, and be used as inlet protection.



Sand Bag Barrier

Materials

- Sandbags should be woven polypropylene, polyethylene or polyamide fabric.
- All sandbag fill material should be non-cohesive permeable material free from clay and deleterious material.

Placement

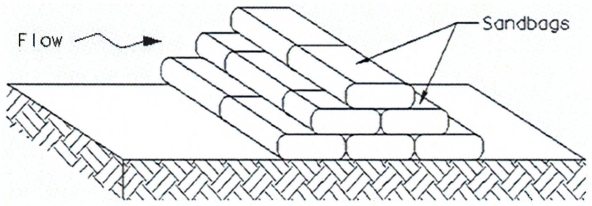
Sandbag barriers may be suitable:

- As sediment traps at culvert/pipe outlets
- Below the toe of slopes and erodible slopes
- Down slope of exposed soil areas
- Around storm sewer inlets.

Installation

- Sandbags need to be stacked tightly against one another in a pyramidal-type fashion.

- Generally a bag or two is left out of the top row to provide a spillway.



Pyramidal Stacking Pattern (Number of Rows Vary)

Removal

Remove sandbags when no longer needed. Remove sediment accumulation, clean, regrade if necessary, and stabilize the area. The disturbed area must be seeded following removal of ECM's.

OTHER MEASURES

FLOATING SILT CURTAIN

A floating silt curtain is a silt barrier for use within a lake, pond, stream or other water. The floating silt curtain consists of a geotextile curtain weighted at the bottom and attached to a flotation device, or carrier, at the top. This structure is used to isolate an active construction area within a water body to prevent silt-laden water from migrating out of the construction zone.

STABILIZED CONSTRUCTION ACCESS

A stabilized construction access is a defined point of entrance/exit to a construction site that is stabilized to reduce the tracking of mud and dirt onto public roads by construction vehicles. Stabilized construction access is typically 50 to 100 feet in length and is comprised of large aggregate.

STRAW WATTLES

Straw wattles are permeable barriers used to detain runoff long enough to reduce flow velocity and allow sediment to settle out.



Inspection and Maintenance

Inspection

Inspect ECM controls at least **once every 7 days** and **within 24 hours after any storm event of ½ inch or more**. The following things should be evaluated:

- Ascertain whether controls are adequate and properly implemented according to the schedule of operations or whether additional control measures are required.
- Inspect disturbed areas and storage areas for potential or evidence of pollutants entering the drainage system.
- Inspect discharge locations to ascertain whether control measures are effective in preventing significant impacts to receiving waters.
- Inspect entrances and exits of site for evidence of off-site tracking.

Maintenance

All control practices will be maintained and repaired as needed to assure continued performance of their intended function. Each ECM previously discussed has maintenance issues, additional maintenance information is discussed below.

ECM	Problem	Corrective Measure
Outlet Protection	Erosion below outlet	Add Rock, Add ditch checks to slow the water
	Sediment leaving project	Add sediment basins, ditch checks, silt fence etc.
	Dislodged Rock	Add or rearrange rock
General Ditch Erosion and Sediment Problems	Loose soil	Regrade, Recompact
	Erosion of Ditch	Regrade, Add additional controls
	Gully on slope above ditch	Regrade, Add Slope Drains, Add Rock
	Sediment or debris in ditch	Clean Out, Regrade and add ditch checks and/or sediment basins
	Erosion of unlined ditch surface	Place ditch checks or to slow the water or sediment blankets
	Erosion of ditch blankets	Straighten, Regrade, Reline, and Repin more securely.

SITE INSPECTION RECORD
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF WATER QUALITY
SFN 19391 (11/02)

Clear All Form Fields

Permit Number: NDR0

Instructions: Please fill out the inspection information below for the permit number referenced above. See example below:

Time & Date	Name of Inspector	Date, Amount (inches), & Duration (hours) of Precipitation event	Observations and actions taken: Document incidents such as erosion, sediment accumulation, spills, SWPP-related maintenance, remediation, etc.
Example: 2:00pm 7/02/2002	Example: John Smith	Example: 7/1/2002, 2 inches of rain, 5 hours	Example: Up to 20 inches of sediment captured behind silt fence on western edge of property - sediment needs to be removed. Silt fence on northern side is OK. Noticed small oil leak from

Example of Site Monitoring form

NPDES PERMITS

The National Pollution Discharge Elimination System (NPDES) is a program aimed to reduce and eventually eliminate pollution from point and non-point sources. In North Dakota, the NPDES is administered and enforced by the North Dakota Department of Health (NDDOH), where it is referred to as the North Dakota Pollution Discharge Elimination System (NDPDES). The forms required for individual permits can be found on the NDDOH's website located at **http://www.health.state.nd.us/wq/Storm/StormWaterHome.htm.**

An operator (a person in charge of day to day supervision and in control of activities occurring at the construction sites) or owner (NDDOT) of construction activity needs a permit:

- If land disturbance (clearing, grading, or excavating) is greater than or equal to one acre.
- If land disturbance is less than one acre and the site is part of a larger common plan of development or sale with the total land area disturbed in the development being equal to or greater than one acre. An example of this is a highway construction project that includes twelve half-acre sections that are not connected to each other but the combined total area of the twelve sites equals six acres.
- If there is potential for contribution to a violation of a water quality standard or potential for significant contribution of pollutants to waters of the state.

Permit Contents:

1. Storm Water Pollution Prevention (SWPP) Plan

The core of the permit process is the Storm Water Pollution Prevention Plan. This packet of forms is used to describe the scope of the project, erosion and sediment control measures, and other measures taken to prevent pollutants from leaving the site with storm water.

Elements of a SWPP Plan:

1. Project Description (SF 19388)
2. Site Map Development
3. Vegetative/Structural Practices (SF 19389)
4. Other Erosion Control Measures (SF 19390 and SF 19390-2)
5. Significant Materials (SF 19387)
6. Signatory Certification (SF 19137)

2. Notice of Intent (NOI):

Small Construction Activity - Land disturbance of equal to or greater than one acre and less than five acres and when the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale. Erosion control measures must be implemented in order to prevent erosion and sediment runoff.

An operator of a small construction activity must submit one single NOI form to the NDDOH to obtain coverage of the storm water discharges from all of their small construction sites. The NOI for small construction activity should contain, at a minimum, the following information:

- Name and mailing address of the owner or operator
- Contact name and phone number
- A brief description of the construction activity type
- The signature of the applicant(s)

The NOI for small construction should be submitted to the NDDOH prior to the start of construction. A SWPP does not need to be submitted for small construction activity unless requested in writing by the NDDOH.

Large Construction Activity – Land disturbance greater than or equal to five acres. Large construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale, if the larger common plan will ultimately disturb equal to or greater than five acres. An example of this is a

highway construction project that includes twelve half-acre sections that are not connected to each other but the combined total area of the twelve sites equals six acres.

The operator of a large construction activity should submit a NOI and SWPP Plan to obtain coverage for storm water discharges for each construction project. The NOI for large construction activity should contain, at a minimum, the following information:

- Name and mailing address of the owner or operator
- Contact name and phone number
- The type of owner or operator of the construction site (federal, state, private, or other entity)
- Name of construction project
- A brief description of the construction activity
- List of contractors/subcontractors working at the site (if known)
- Construction project's Standard Industrial Code (SIC) code
- The anticipated starting date and the anticipated date of the completion for the project
- The estimated area of total disturbance in acres
- County and location of the construction site, including latitude and longitude or township, range, section, and ¼ section
- Name of receiving water(s) or the name of the receiving municipal storm sewer system and receiving water(s)
- The signature of the applicant(s)

The NOI and SWPP Plan for large construction activity should be submitted to the NDDOH 30 days prior to the start of construction.

NOTICE OF INTENT TO OBTAIN COVERAGE UNDER NDPDES GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF WATER QUALITY
SFN 19145 (11/02)

Clear Entire Form

FOR DEPT. USE ONLY

Application No.

Date Received

GENERAL INFORMATION

Name of Owner or Operator of Construction Project Seeking Authorization to Discharge	Contact Person/Contact Phone No.	Business Phone No.	
Mailing Address	**City**	**State**	**Zip Code**

Type of Owner or Operator: ☐ Developer/Builder ☐ General Contractor ☐ Municipality ☐ State of ND ☐ Federal ☐ Other (Specify):

This NOI is to obtain coverage under Small Construction Activity (see Part I.C of permit): ☐ YES ☐ NO Clear Buttons

There are special reporting requirements for Small Construction Activity in Part III.D of permit

Name of Construction Project (Large Construction Activity only - see Part I.D of permit)

Brief Description of Construction Activity (Please fill out for both Small and Large Construction Activity)

LARGE CONSTRUCTION ACTIVITY INFORMATION

Names of Contractors Working at Site (if known)

1)

2)

3)

Project Start Date:

Estimated Completion Date:

Estimated Area of Total Disturbance in Acres

Facility Location							
	Street			City			
	OR	1/4 1/4	Section	Township	Range	County	
	OR	Latitude ° ' "		Longitude ° ' "		County	

Receiving Waters			
	☐ Natural Surface Drainage	Name or Description of Receiving Waters	
	OR ☐ Municipal Storm Sewer	Name of City	

Clear Buttons Above

SIGNATURE INFORMATION

RETURN COMPLETED APPLICATION TO:

North Dakota Department of Health
Division of Water Quality
1200 Missouri Ave., Rm. 203
PO Box 5520
Bismarck, ND 58506-5520

Telephone: 701-328-5210

I certify I am familiar with NDCC 61-28-08, and with the information contained in this application. To the best of my knowledge and belief, the information in this application is true, complete, and accurate.

Printed Name of Applicant(s)	Title
Signature of Applicant(s)	**Application Date**

(Attach additional pages if needed)

Example of the NOI Form

3. Permit Certification:

Automatic Coverage – If the applicant does not receive a request for additional information or a notification of denial from the NDDOH within 10 days of receipt of the application by NDDOH, authorization to discharge in accordance with the conditions of this permit shall be deemed granted.

Request for Additional Information – The NDDOH shall have the right to request additional data and/or deny the authorization for any particular discharge.

Individual or Alternative General Permits – Refer to the NDDOH for individual or alternative general permits.

Local Authority – This permit does not preempt or supersede the authority of local agencies to prohibit, restrict, or control discharges or storm water to storm sewer systems or other water courses within their jurisdiction.

4. Continuation of Coverage

Facilities covered under this permit can continue coverage under the renewed permit, provided a satisfactory request is made. Any request to retain coverage under a renewal of this permit shall be made in writing to the NDDOH at least 15 days prior to the expiration date of this permit. If requested by the NDDOH, a new NOI should be submitted.

5. Transfer of Ownership or Control

- Coverage under this permit may be transferred to a new permittee if the existing and new permittees notify the NDDOH in writing, at least 48 hours before the transfer of ownership or control; and the notice includes a written agreement between the existing and new permittees containing a specific date of transfer of permit responsibility, coverage and liability between them. If requested by the NDDOH, a Notice of Termination should be submitted by the existing permittee and a NOI submitted by the new permittee. Contractors will be responsible for

transferring ownership to the NDDOT following the final project inspection and written acceptance. All erosion control measures must be installed properly and cleared of all sedimentation. Following final inspection and written acceptance, all maintenance operations will be performed by the NDDOT Districts and the SWPP Plan measures will be followed.

- The new owner or operator must comply with all regulations in this permit and with all provisions of the existing SWPP Plan until such time as the existing SWPP Plan is amended or replaced by a new SWPP Plan. If the personnel responsible for implementing the SWPP Plan change, these changes must be amended to the SWPP Plan within 30 days of transfer of ownership or control.

6. Notice of Termination (NOT)

Final Stabilization is reached when all construction activities that are authorized by this permit have been completed, and uniform vegetative cover has been established with a density of at least 70 percent of pre-disturbed levels, or equivalent permanent, physical erosion reduction methods have been employed. The NDDOH has a form available on their website that must be completed for this step.

Operators of small construction activity are not required to submit a notice of termination for their individual small construction sites, however, final stabilization is required on all sites. If an operator ceased all of its small construction activity and has submitted Annual Location Records that certify final stabilization has been completed on its small construction sites, a notice of termination must be submitted to end permit coverage for small construction activity. The content of the notice of termination for small construction activity should contain the following:

- Permit number
- Name and mailing address of the owner or operator
- Contact name and phone number
- Certification that all small construction activity has been stabilized
- Signature of the applicant(s)

NOTICE OF TERMINATION TO CANCEL COVERAGE UNDER (NDPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF WATER QUALITY
SFN 19146 (11/02)

Clear All Form Fields

FOR DEPT. USE ONLY
Date Received: ___/___/___

GENERAL INFORMATION

Name of Construction Project			Permit Number NDR03 -
Name of Owner or Operator of Construction Project Which Received Authorization to Discharge	Contact Person		Telephone Number
Mailing Address	City	State	Zip Code

This Notice is to terminate coverage for all Small Construction Activity (see Part I.C of permit): ☐ YES ☐ NO Clear Selections There are special reporting requirements for Small Construction Activity in Part I.H and III.D of permit

LOCATION (for Large Construction Activity Only)

SITE LOCATION	Street			City		
	OR	___ 1/4 ___ 1/4	Section	Township	Range	County
	OR	Latitude ___ ° ___ ' ___ "		Longitude ___ ° ___ ' ___ "		County

CERTIFICATION STATEMENT

I certify under penalty of law that for the construction project(s) and permit described above:

As of _____, disturbed soils at the identified site(s) have been finally stabilized, seventy percent restored vegetative coverage as compared to preexisting vegetation, and temporary erosion control measures have been removed, or that all storm water discharges associated with construction activity from the identified site, authorized by a NDPDES general permit have been eliminated.

I understand that by submitting this Notice of Termination, that I am no longer authorized to discharge storm water associated with construction activity by the general permit, and that discharging pollutants in storm water to waters of North Dakota is unlawful under North Dakota Century Code 61-28 where the discharge is not authorized by a NDPDES permit.

Return Completed Application to:	I certify I am familiar with NDCC 61-28-08 and with the information contained in this application. To the best of my knowledge and belief the information in this application is true, complete and accurate.	
North Dakota Department of Health Division of Water Quality P.O. Box 5520 Bismarck, ND 58506-5520 Telephone: (701)328-5210	Printed Name of Applicant(s)	Title
	Signature of Applicant(s)	Application Date

(Attach additional page if needed)

Example of a NOT form

Operators of large construction activity should submit the following when the site has been stabilized:

- Permit number
- Name of construction site
- Name and mailing address of the owner or operator
- Contact name and phone number
- County and location or the construction site, including latitude and longitude or township, range, section and ¼ section
- Certification that the site has been stabilized.
- Signature of the applicant(s)
- Once final stabilization has been established, Notice of Terminations will be prepared by the NDDOT District's.

NOI's, SWPP's and Notice of Termination's should be submitted by mail, or hand delivery to:

North Dakota Department of Health
Division of Water Quality
1200 Missouri Avenue
PO Box 5520
Bismarck, ND 58506-5520

Responsibilities within the NDDOT

DESIGN

- Coordinate all MS4 activities
- Submit Annual Report to NDDOH
- Design project site plan for Erosion Control Measures (ECM).
- Develop a partnership with the five MS4 permittees to address common issues.
- Develop ECM's for pre and post construction runoff water quality control.
- Develop and review construction standards for onsite erosion and sediment control.
- Develop educational material and train personnel on the review of storm water management plans and inspection procedures.
- Develop penalties for contractors failing to comply with the storm water management plan.

CONSTRUCTION

- Pre-construction staking of ECM's
- Weekly and Storm Event Runoff (>.50in. /24hrs.) inspection of ECM's during construction.
- Enforcement of ECM's.
- Maintain inspections until final inspection and acceptance.
- Develop penalties for contractors failing to comply with the storm water management plan.

MAINTENANCE/DISTRICTS

- Responsible for overseeing compliance for insuring MS4 compliance on all NDDOT projects within MS4 municipalities and properties (State Owned Gravel Pits and maintenance yards), and submit reports to the Design Division.
- Following final inspection and acceptance the Maintenance/Districts will be responsible for maintaining and removing all ECM's until 70% coverage on disturbed areas is established.

- Develop and review construction standards in NDDOT Standard Specifications for Road and Bridge Construction, for onsite erosion and sediment control.
- Submit Notice of Termination's to NDDOH and a copy to Design Division.

CONTACTS

Permits

North Dakota Department of Health
Division of Water Quality
1200 Missouri Avenue
Bismarck, ND 58506-5520

Erosion and Sediment Control

North Dakota Department of Transportation
Design Division
608 East Boulevard Avenue
Bismarck, ND 58505-0700

REFERENCES

American Association of State Highway and Transportation Officials. *Guidelines for Erosion and Sediment Control in Highway Construction.* 1992.

Minnesota Department of Transportation. *Erosion Control Handbook.*

Minnesota Department of Transportation. *The Inspectors Erosion and Sediment Control Pocketbook Guide.* 2003

Montana Department of Transportation. *Erosion and Sediment Control Best Management Practices: Reference Manual.* 2003

North Dakota Department of Transportation. *Standard Specifications for Road and Bridge Construction.* Oct. 2002.

North Dakota Department of Health. *A Guide to Temporary Erosion-Control Measures for Contractors, Designers, and Inspectors.* June 2001.

Ohio Department of Transportation. *Handbook for Sediment and Erosion Control.* February 2000.

NORTH DAKOTA
DEPARTMENT of HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov

March 14, 2013

North Dakota Pollutant Discharge Elimination System (NDPDES)
General Permit for Stormwater Discharges from Construction Activity
NOTICE OF COVERAGE

Permittee(s)

Owner Contact: Barry Haugen
Dakota Prairie Refining LLC
PO Box 5601
Bismarck, ND 58506

Operator Contact: Jeff Rust
Westcon Inc
7401 Yukon Dr
Bismarck, ND 58503

Coverage under the 2009 reissued construction general permit (NDR10-0000) is identified as follows:

Permit ID:	Site Name:
NDR105300	**Dakota Prairie Refining**

Please remember to update the Stormwater Pollution Prevention (SWPP) plan as appropriate for site conditions. The best management practices (BMPs) and temporary structures must be inspected, maintained and adjusted until the site is stabilized following construction activities. Once the site is stabilized as outlined in the general permit, you may end permit coverage by filing a termination notice. Cities or counties may impose additional requirements and/or specific BMPs for construction affecting their storm drainage system. Please check with the local officials to be sure all local stormwater management considerations are addressed.

Additional Information

Patterson Lake and the Heart River have restrictions on the amount of sediment and nutrients that may enter Patterson Lake from different activities in the Heart River watershed (e.g., construction). The lake was identified as impaired by sediment and nutrients and a total maximum daily load (TMDL) allocation was developed for the lake and contributing watershed. The purpose of the TMDL is to remove the impairment and improve the quality of the lake. The SWPP plan must ensure the discharge of sediment from the site is minimal and does not impact the Heart River or Patterson Lake. Information about the TMDL may be found at:

www.ndhealth.gov/WQ/SW/Z2_TMDL/TMDLs_Completed/Southwest/Patterson_Lake_TMDL_Final.pdf

NORTH DAKOTA
DEPARTMENT of HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov

The permit conditions, forms and related information may be found on our web site at:

www.ndhealth.gov/wq/Storm/Construction/ConstructionHome.htm

Should you have any questions on the permit, please contact a stormwater staff person listed below.

Dallas Grossman
Division of Water Quality
701.328.5242
dgrossma@nd.gov

APPLICATION (NOTICE OF INTENT) TO OBTAIN COVERAGE UNDER NDPDES GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY (NDR10-0000)

NORTH DAKOTA DEPARTMENT OF HEATLH
DIVISION OF WATER QUALITY
SFN 19145 (01/10)

FOR DEPT. USE ONLY

Application No.
Date Received

GENERAL INFORMATION

Name of Owner of Construction Project	Contact Person Name (Mr / Ms)	Contact Phone No.	
Dakota Prairie Refining, LLC.	Mr. Barry Haugen	701-530-1504	
Mailing Address	**City**	**State/Province**	**Zip Code**
PO Box 5601	Bismark	ND	58506

Name of Operator Working at Site (attach additional, if needed)	Contact Person Name (Mr / Ms)	Contact Phone No.	
Westcon, Inc.	Mr. Jeff Rust	701-355-2132	
Mailing Address	**City**	**State/Province**	**Zip Code**
7401 Yukon Dr.	Bismarck	ND	58503

PROJECT INFORMATION

Name of Construction Project
Dakota Prairie Refining

Brief Description of Construction Activity
Construction of a new crude oil refinery,office space and associated transportation related facilities.

Project Start Date	Estimated Completion Date	Estimated Total Area of Site (acres)	Estimated Area of Disturbance (acres)
2nd Qtr 2013	1st Qtr 2015	125 acres	175 acres

Project Location	Street Address: 3815 116th Ave SW				City: Dikinson		
	OR	Township	Range	Section	¼ ¼ ¼	County	
		Latitude: 46deg 51' 21"			Longitude: 102deg 54' 37"		
Receiving Waters	Name of Municipal Storm Sewer System, Including Receiving Water: NA						
	OR	Name or Description of Receiving Water: Heart River					

Stormwater Pollution Prevention Plan (SWPPP) Requirements

Has a SWPPP been developed in accordance with Part II.C of NDR10-0000?		STOP: A SWPPP must be prepared and available for review at the time of application. See Part I.D.2 of NDR10-0000 for submittal information.
☒ YES ☐ NO		
SWPPP Contact (NDR10-0000, Part II.C.2.a)	**SWPPP Contact Phone No.**	**SWPPP Location (NDR10-0000, Part III.B)**
Mr. Jeff Rust	701-355-2132	Construction Trailer & Attached

Mobile 701-471-1227

Signature Information

RETURN COMPLETED APPLICATION TO:

North Dakota Department of Health
Division of Water Quality, 4th Floor
918 East Divide Avenue
Bismarck, ND 58501-1947

Telephone: (701) 328-5210
Fax: (701) 328-5200

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein. Based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possiblity of fine and imprisonment.

Printed Name of Owner(s)	Title
Mr. Barry Haugen	Vice President
Signature of Owner(s)	**Date**
Barry Haugen	3/11/2013
Printed Name of Operator(s)	**Title**
Signature of Operator(s)	**Date**
	3/11/2013

(Attach additional pages if needed)

CONSTRUCTION PHASE SPILL PREVENTION, CONTROL AND COUNTERMEASURE (SPCC) PLAN

Dakota Prairie Refining, LLC

3815 116th Ave SW

Revision 1

June 7, 2013

Prepared by Barr Engineering Company

Construction Phase Spill Prevention, Control and Countermeasure (SPCC) Plan

Dakota Prairie Refining, LLC

Dakota Prairie Refinery

Table of Contents

1.0 Facility Information & General Requirements, 40 CFR § 112.7(a-f) 1

1.1 Introduction [40 CFR § 112.7(a)(1 & 2)] 1

1.2 Facility Description [40 CFR § 112.7(a)(3)] 1

1.3 Response Plan [40 CFR § 112.7(a)(4 & 5)] 2

1.4 Spill Prediction [40 CFR § 112.7(b)] 3

1.5 Spill Containment [40 CFR 112.7(c)] 3

1.6 Impracticability [40 CFR §112.7(d)] 3

1.7 Inspections, Tests and Records [40 CFR § 112.7(e)] 3

1.8 Personnel Training and Discharge Prevention Procedures [40 CFR § 112.7(f)] 3

2.0 Security, 40 CFR § 112.7 (g) 5

3.0 Facility Loading/Unloading Operations, 40 CFR § 112.7 (h) 6

3.1 Adequate Secondary Containment of Loading [40 CFR § 112.7(h)(1)] 7

3.2 Warning and Barrier System [40 CFR § 112.7(h)(2)] 7

3.3 Bottom Drains of Vehicles Examined [40 CFR § 112.7(h)(3)] 7

4.1 Brittle Fracture [40 CFR § 112.7(i)] 8

4.2 State Rules, Regulations and Guidelines [40 CFR § 112.7(j)] 8

4.3 Qualified Oil-Filled Operational Equipment [40 CFR § 112.7(k)] 8

5.0 Facility Drainage, 40 CFR § 112.8 (a)(b) 9

5.1 112.7 Facility Drainage Requirements [40 CFR § 112.8(a)] 9

5.2 Drainage from the Diked Areas [40 CFR § 112.8(b)(1 & 2)] 9

5.3 Drainage System for the Undiked Areas [40 CFR § 112.8(b)(3)] 9

5.4 Diversion System and Lift Pumps [40 CFR § 112.8(b)(4 & 5)] 9

6.0 Bulk Storage Containers, 40 CFR § 112.8 (c) 10

6.1 Containers Compatible with the Material Stored [40 CFR § 112.8(c)(1)] 10

6.2 Tanks Have Adequate Secondary Containment [40 CFR § 112.8(c)(2)] 10

6.3 Storm Water Drainage [40 CFR § 112.8(c)(3)] 10

6.4 Buried or Partially Buried Metallic Storage Tanks [40 CFR § 112.8(c)(4 & 5)] 10

6.5 Integrity Testing [40 CFR § 112.8(c)(6)] 10

Table of Contents (Continued)

6.6 Internal Coils [40 CFR § 112.8(c)(7)] 10
6.7 Engineered Discharge Prevention [40 CFR § 112.8 (c)(8)] 10
6.8 Facility Effluent [40 CFR § 112.8(c)(9)] 11
6.9 Oil Leaks Promptly Corrected [40 CFR § 112.8(c)(10)] 11
6.10 Mobile and Portable Oil Storage Containers 40 CFR § 112.8(c)(11)] 11
7.0 Facility Transfer Operations, 40 CFR § 112.8 (d) 12
7.1 Buried Piping Protected and When Exposed, Inspected [40 CFR § 112.8(d)(1)] 12
7.2 Out-of-Service Pipes Capped/Blank Flanged [40 CFR § 112.8(d)(2)] 12
7.3 Aboveground Pipe Supports [40 CFR § 112.8(d)(3)] 12
7.4 Testing/Inspection Aboveground Valves and Pipe [40 CFR § 112.8(d)(4)] 12
7.5 Drivers are Warned of Aboveground Piping [40 CFR § 112.8(d)(5)] 12

List of Tables

Table 1	Oil Storage Containers and Oil-Filled Equipment
Table 2	Emergency Contacts and Spill Response Notification

List of Figures

Figure 1	Facility Location
Figure 2	SPCC Facility Diagram

List of Appendices

Appendix A	Certification of the Applicability of Substantial Harm Criteria
Appendix B	Containment Drainage Record Form
Appendix C	Oil Discharge Prevention Training Outline
Appendix D	Certification Documents
Appendix E	Plan Review, Amendment Requirements and Change Tracking
Appendix E	Tank Inspection Form

1.0 Facility Information & General Requirements, 40 CFR § 112.7(a-f)

1.1 Introduction [40 CFR § 112.7(a)(1 & 2)]

This document is the Dakota Prairie Refining, LLC (DPR) construction site Spill Prevention, Control and Countermeasure (SPCC) Plan. This plan is intended to minimize the potential for the facility to adversely impact the environment and to attain and maintain compliance with United States Environmental Protection Agency (EPA) standards for oil pollution prevention and response (40 CFR § 112). This plan conforms to the requirements of 40 CFR 112 and does not deviate from the requirements as found in 112.7(g), (h)(2), (h)(3) or (i) and 112 Sub B and C. This document is a carefully thought out plan and has been prepared in accordance with good engineering practices. This SPCC plan has the full approval of DPR management at a level to commit the necessary resources to carry it out. The required professional engineer's certification is part of this plan.

This plan outlines the procedures, methods, and equipment used at the facility to comply with the EPA oil spill prevention, control and countermeasures standards, as well as inspection, training, and record-keeping requirements.

For the purposes of this SPCC plan, "oil" is defined as oil of any kind or in any form including but not limited to: fats, oils, or greases of animal, fish, or marine mammal origin; vegetables oils, including oils from seeds, nuts, fruits, or kernels; and other oils and greases, including petroleum, fuel oil, sludge, synthetic oils, mineral oils, oil refuse, or oil mixed with wastes other than dredged spoil (40 CFR §112.2).

A complete copy of this plan will be maintained at the DPR construction offices and will be made available upon request.

1.2 Facility Description [40 CFR § 112.7(a)(3)]

The DPR construction site is located at 3815 116th Ave SW, Dickinson, ND. The closest surface water is the Heart River. A location map of the facility including navigable waters is presented in Figure 1. Figure 2 shows the layout of the facility, property boundaries, entrance and exit routes to the facility, loading and unloading facilities, tank capacities, product storage areas and direction of drainage from product storage areas.

Process Description

The facility is a construction site which stores fuels and oils needed for construction equipment. This plan is for construction activities undertaken to build the refinery including vehicle fueling stations and miscellaneous oil storage.

Operating Schedule

Construction at the facility will occur primarily during weekday daylight hours, but may occur at any time on any day.

Table 1 provides a description of all containers of oil that are regulated by 40 CFR § 112.7 including the type of oil and each container's storage capacity.

Figure 2 shows the layout of the facility, property boundaries, loading facilities, product storage areas, structural spill controls and direction of drainage from product storage areas. All tanks shown in Figure 2 correspond with the tank identification numbers given in Table 1. The contents of each container and its capacity are listed on Table 1. Spills are cleaned up promptly and disposed of according to applicable regulations.

Measures to prevent discharge are outlined in Sections 1.5, 3.1, 6.3, and 6.7 of this plan. Table 2 is the contact list including phone numbers for the facility response coordinator, National Response Center, and all appropriate federal, state and local agencies who must be contacted in case of a discharge.

1.3 Response Plan [40 CFR § 112.7(a)(4 & 5)]

Once a spill has been identified, facility workers are trained to follow these steps:

1. Identify applicable safety and security measures and ensure that they are followed;
2. If safe to do so, shut off ignition sources and close valves or pumps to stop further release of oil and contain the spilled oil;
3. Notify Shift Supervisor and warn the other employees that a spill has occurred;
4. Initiate containment procedures if the spill starts to overfill the secondary containment by placing absorbent material, close gate valves located at ditch culverts; and,
5. If necessary, call the outside spill cleanup contractor identified on the emergency telephone posting (Table

The person who identifies a spill at the facility will notify the Spill Prevention Coordinator or alternate immediately (during the evening hours, they will contact them at their home). The Spill Prevention Coordinator is responsible for directing the cleanup operations, calling for additional help and if appropriate, notifying the regulatory agencies listed in Table 2.

The facility has also readily available absorbent pads, floor dri, absorbent booms and sawdust to contain oil spills at the site. An outside spill cleanup contractor will be call to assist with response to larger spills. In the event of a large spill, which exceeds the capabilities of the facility personnel, the state spill response contractor will be called in to assist.

The emergency telephone numbers are boldly displayed on the bulletin board in the construction trailer where all shift employees have access. A copy of the posting is attached in Table 2.

1.4 Spill Prediction [40 CFR § 112.7(b)]

A determination of substantial harm has been performed and is in Appendix A. Table 1 includes a prediction of the direction and total quantity of oil that could be discharged from the facility as a result of an equipment failure. Because of the relatively small size of the tanks on site, the rate of flow is assumed worst case or 100 percent loss with instantaneous flow to containment or the lowest collection point.

Of the equipment failure types, bulk transfer operations of oils represent the highest potential for spills. Oil is delivered to the facility via tank truck. Spills during bulk transfers occur near to the fuel tank and would flow towards the Heart River. Based on the minimum overland flow rates listed in the appendix to 40 CFR 112, spills during transfers to fuel storage tanks are estimated to flow over land at a rate of approximately 3 feet per second. Spills from both sides of the river flow to the Heart River

1.5 Spill Containment [40 CFR 112.7(c)]

Secondary containment for fueling tanks are provided by a combination of double-walled tanks and/or prefabricated containment. In addition, absorbent mats, hand shovels and heavy equipment are available for spill response throughout the facility.

A list of containers of oil at the facility is in Table 1. Secondary containment for bulk storage containers is addressed in Section 6.2 and Table 1. Oil is stored and dispensed in a manner that prevents spillage outside secondary containment or into the environment.

1.6 Impracticability [40 CFR §112.7(d)]

Controls, spill containment equipment and procedures listed in Section 1.5 have been or will be implemented to address the potential spills outlined in Section 1.4. Therefore, this section does not apply.

1.7 Inspections, Tests and Records [40 CFR § 112.7(e)]

The facility's written inspection procedures for oil containers is maintained by the facility as a standard operating procedure and includes inspection forms for containers. Inspection and testing records are kept in the environmental files for the facility and retained for a minimum of three (3) years.

1.8 Personnel Training and Discharge Prevention Procedures [40 CFR § 112.7(f)]

A contact list including the names and telephone numbers for the facility response coordinator and a designated alternate is in Table 2. The facility response coordinator is the person responsible for discharge prevention and reports to facility management.

A copy of the facility's oil discharge prevention training outline is included in Appendix C. Newly hired personnel responsible for handling or dispensing of oil participate in the spill prevention and control training program. All oil-

handling employees participate in a regularly scheduled review and update of spill prevention and control procedures. The oil discharge prevention training contains at a minimum:

- Operation and maintenance of equipment to prevent discharges.
- Discharge procedure protocols.
- Applicable pollution control laws, rules and regulations.
- General facility operations.
- The contents of this SPCC plan.

In addition, every oil-handling employee will participate in continuing training to maintain proficiency, to learn new techniques and procedures, and to reinforce safety and quality consciousness. Personnel are instructed in the contents of this plan on an annual basis during discharge prevention briefings. Any known discharges, failures or malfunctions that resulted in a discharge of oil, as well as recently developed precautionary measures, are discussed at these briefings.

2.0 Security, 40 CFR § 112.7 (g)

The following features of the site described below provide security and control access to oil handling, processing and storage areas adequate to prevent acts of vandalism and assist in the discovery of oil discharges.

Master flow and drain valves are secured by locking the valves in the closed position when not in use.

Lighting adequate to help prevent acts of vandalism and assist in the discovery of oil discharges is provided by security lighting and fencing

3.0 Facility Loading/Unloading Operations, 40 CFR § 112.7 (h)

Per §112.2, loading/unloading racks are defined as fixed structures (such as a platform or gangway) necessary for loading or unloading a tank truck or tank car. A loading/unloading rack includes a loading or unloading arm, and may include any combination of the following: piping assemblages, valves, pumps, shut-off devices, overfill sensors, or personnel safety devices. EPA has stated that this definition is not intended to include simple oil loading or unloading operations.

This facility does not have any loading or unloading racks. Therefore § 112.7(h) is not applicable to the facility. However, the facility does include areas other than "racks" where fuel transfer occurs as shown in Figure 2. It is good engineering practice to consider whether any releases of oil occurring during fuel transfer processes would be contained within the site by secondary containment or diversionary structures as required by § 112.7(c). The remainder of this section addresses oil transfer operations.

Containment

General containment for the loading and fueling areas will be provided by storm water ponds and if necessary dedicated containment areas to prevent spills from discharging to the Heart River. Spill equipment and supplies are available near the transfer area. Employees are trained to respond to spills and are required to monitor transfer activities at all times during oil transfers. In the event of a spill, the employee will immediately call for help, if possible stop the leak, and deploy spill containment boom and equipment.

Loading Procedures

The oil loading operation is closely supervised to prevent any product spill. All loading personnel have been instructed in the following procedures:

1. Place wheel chocks, traffic cones or other device to prevent bulk tanker truck movement or premature departure.
2. Check the reserves in the tank before loading commences.
3. Plug drains in secondary containment of the bulk oil transfer area and plug/cover nearby storm sewer inlets as appropriate.
4. Continuously attend the loading operation while pumping oil into the tank.
5. Check for line disconnection before vehicle departure.
6. Ensure bottom valves on the tanker are closed and covers on the stationary tank are secured.
7. Remove wheel chocks, traffic cones or other device from the bulk tanker truck.

Training sessions have been held on spill prevention, containment and retrieval methods.

In the event of a small oil product spill, the spill kit and/or vacuum pumps can be used to remove oil from the ground. If the spill is significant, an outside contractor will be called to collect the oil from the ground.

3.1 Adequate Secondary Containment of Loading [40 CFR § 112.7(h)(1)]

Table 1 lists the bulk loading and unloading areas for oil, the containers associated with each area, and the secondary containment applicable to each loading area.

3.2 Warning and Barrier System [40 CFR § 112.7(h)(2)]

During loading and unloading operations, drivers are required to be out of the equipment, monitoring the operations. equipment drivers prevent premature departure by chocking the tanker truck wheels prior to loading. The chocks are not removed until the bulk transfer has been completed, the lines stowed, and the valves have been checked to ensure they are secured. Warning lights, signs or other physical barriers may also be used to prevent trucks from departing prior to complete disconnection of flexible of fixed oil transfer lines..

3.3 Bottom Drains of Vehicles Examined [40 CFR § 112.7(h)(3)]

Prior to departure of tank trucks, the bottom drain and all outlets are closely examined for leakage, and if necessary, tightened to make sure that no leakage occurs while in transit.

4.0 Additional General Requirements, 40 CFR § 112.7 (l, j & k)

4.1 Brittle Fracture [40 CFR § 112.7(i)]

There are no field-erected tanks at this facility. Therefore, this section is not applicable.

4.2 State Rules, Regulations and Guidelines [40 CFR § 112.7(j)]

North Dakota does not have rules and regulations that are more restrictive than 40 CFR § 112 regarding spill prevention and containment. Therefore, this section does not apply.

4.3 Qualified Oil-Filled Operational Equipment [40 CFR § 112.7(k)]

There is no qualified oil-filled operational equipment subject to 112.7(k) at this facility. Therefore, this section is not applicable.

5.0 Facility Drainage, 40 CFR § 112.8 (a)(b)

5.1 112.7 Facility Drainage Requirements [40 CFR § 112.8(a)]

The requirements of 112.7(a) are covered in Sections 1 through 4 of this plan.

5.2 Drainage from the Diked Areas [40 CFR § 112.8(b)(1 & 2)]

The primary diesel storage tank features a double wall and does not have diked areas. This section will be updated in the future if subsequent tanks feature diked areas.

5.3 Drainage System for the Undiked Areas [40 CFR § 112.8(b)(3)]

Not applicable per Section 5.2.

5.4 Diversion System and Lift Pumps [40 CFR § 112.8(b)(4 & 5)]

Not applicable per Section 5.2.

6.0 Bulk Storage Containers, 40 CFR § 112.8 (c)

Table 1 lists oil stored and used at this facility.

6.1 Containers Compatible with the Material Stored [40 CFR § 112.8(c)(1)]

All storage containers are constructed and used in accordance with the implied intent of the manufacturers. All containers are fully compatible with the material they hold and the environmental conditions to which they can be reasonably expected to be subjected. None of the bulk storage containers are used to store oil at greater than atmospheric pressure.

6.2 Tanks Have Adequate Secondary Containment [40 CFR § 112.8(c)(2)]

All of the tanks have been provided adequate secondary containment either thru double walled construction or other means of secondary containment. Table 1 describes the containment for each tank / container.

6.3 Storm Water Drainage [40 CFR § 112.8(c)(3)]

Currently there are no diked containment areas. In the future should diked areas be utilized and in the event of a large storm should occur, a site inspector will manage the accumulated stormwater from within the bermed area.

6.4 Buried or Partially Buried Metallic Storage Tanks [40 CFR § 112.8(c)(4 & 5)]

The facility has no partially buried storage tanks.

6.5 Integrity Testing [40 CFR § 112.8(c)(6)]

All oil storage tanks will be visually inspected on a monthly basis to assess the tank's integrity. All of the tanks will be above ground shop built tanks. Therefore, additional non-destructive testing will not be required.

6.6 Internal Coils [40 CFR § 112.8(c)(7)]

There are no internal coils at this facility subject to §112.8(c)(7)

6.7 Engineered Discharge Prevention [40 CFR § 112.8 (c)(8)]

The oil storage containers have engineered discharge prevention features as described in Table 1.

Direct read gauges are used to visually check the levels of the ASTs prior to and during filling operations to meet the requirement of 40 CFR 112.8 b. 8 and to prevent the over filling of the tank.

Tanks fitted with electronic gauges are checked once a month with a manual dip stick check. Tanks fitted with direct read gauges are visually inspected, at a minimum, on a monthly basis for proper operation.

In addition, the possibility of a significant discharge is reduced by the following equipment/procedures:

- Manual control over and physical presence of trained facility employees at all movements of oil products.
- Regular inspections of tanks and auxiliary equipment.
- Training regarding procedures for tank filling.

6.8 Facility Effluent [40 CFR § 112.8(c)(9)]

This facility does not have an effluent treatment system.

6.9 Oil Leaks Promptly Corrected [40 CFR § 112.8(c)(10)]

If an oil discharge is discovered, the oil will be promptly cleaned up and the source of the leak promptly corrected. If, by regular inspections or otherwise, it is determined that the integrity of the containers or ancillary equipment is or may have been compromised, the system shall immediately be taken out of service, the problem evaluated, and appropriate steps taken to correct all deficiencies.

6.10 Mobile and Portable Oil Storage Containers 40 CFR § 112.8(c)(11)]

Oil storage associated with this plan can be used in either mobile or stationary mode. A combination of proper siting, double wall tanks, and/or diked containment is used to assure containment for either use.

7.0 Facility Transfer Operations, 40 CFR § 112.8 (d)

The receipt and dispensing of oil is conducted with equipment and by procedures common to the petroleum industry.

7.1 Buried Piping Protected and When Exposed, Inspected [40 CFR § 112.8(d)(1)]

This facility has no buried oil-filled piping at this time

7.2 Out-of-Service Pipes Capped/Blank Flanged [40 CFR § 112.8(d)(2)]

This facility has no oil-filled piping at this time

7.3 Aboveground Pipe Supports [40 CFR § 112.8(d)(3)]

This facility has no oil-filled piping at this time

7.4 Testing/Inspection Aboveground Valves and Pipe [40 CFR § 112.8(d)(4)]

This facility has no oil-filled piping or valves at this time

7.5 Drivers are Warned of Aboveground Piping [40 CFR § 112.8(d)(5)]

This facility has no oil-filled piping at this time

Table 1

Dakota Prairie Refining, LLC

Dakota Prairie Refinery

Oil Containers and Oil-Filled Equipment

Container Name	Container Type	Location	Substance	Capacity (gal.)	Overfill /Discharge Prevention Features	Direction/ Destination of Flow[1]	Secondary Containment type
Bulk Oil Storage Containers							
Knife River Diesel Storage Tank	Double-walled steel AST	See Figure 2	Off-Road Diesel Fuel	12,000	Direct read gauges	See Figure 2	Double Wall
Westcon Diesel Storage Tank 1	Single-wall steel AST	See Figure 2	Off-Road Diesel Fuel	500	Direct read gauges	See Figure 2	Metal containment box
Westcon Gasoline Storage Tank 1	Single-wall steel AST	See Figure 2	Gasoline	500	Direct read gauges	See Figure 2	Metal containment box
Drums and Totes							
Oil in Use or Underground Storage							

[1]Flow rate is assumed 100 percent loss of container into secondary containment.

Table 2

Dakota Prairie Refining, LLC

Dakota Prairie Refinery

Spill Response Notification Posting

Facility Name: Dakota Prairie Refining, LLC

Facility Address: **3816 16th Ave SW, Dickinson, ND**

	PHONE
Facility Response Coordinator **Jeff Rust, Project Director**	**701-355-2132 – Office** **701-471-1227 – Cell**
Alternate Facility Response Coordinator **Reed Slates, Superintendent**	**471-684-5005 – Cell**
National Response Center (NRC) **(if oil spill reaches river, call this number immediately)**	**800-424-8802**
EPA Region VIII	**303-312-6312 (Spill reporting)** **800-227-8917 (within Region 8)**
North Dakota Department of Health **(24-hour Environmental Emergency Response)**	**701-328-5210** **800-472-2121**
North Dakota Department of Emergency Services	**701-328-8100** **800-773-3259**
Stark County LEPC	**701-456-7605**
Stark County Sheriff	**911 – EMERGENCY** 701-456-7610 - Normal
Dickinson Fire Department	**911 – EMERGENCY** 701-456-7848 - Normal
North Dakota Highway Patrol Dickinson Office	**911 – EMERGENCY** 701-227-6565 - Normal

Whenever the facility has a discharge of 1,000 gallons of oil into or upon navigable waters of the United States or adjoining shorelines in a single spill event, or discharged oil in harmful quantities in two spill events within any 12-month period, the area supervisor will submit a report within 60 days to the EPA Regional Administrator, including the following information:

- Name of the facility.
- Name of the owner or operator of the facility.
- Location of the facility.
- Date and year of initial facility operation.
- Maximum storage or handling capacity of the facility and normal daily throughput.
- Description of the facility, including the maps, flow diagrams and topographic maps.
- A complete copy of the SPCC plan with amendments.
- The cause(s) of such spill, including a failure analysis of system or subsystem in which the failure occurred.
- The corrective action and/or countermeasures taken, including an adequate description of equipment repairs and/or replacements.
- Additional preventive measures taken or contemplated to minimize the possibility of recurrence.
- Such other information as the Regional Administrator may reasonably require pertinent to the plan or spill event.

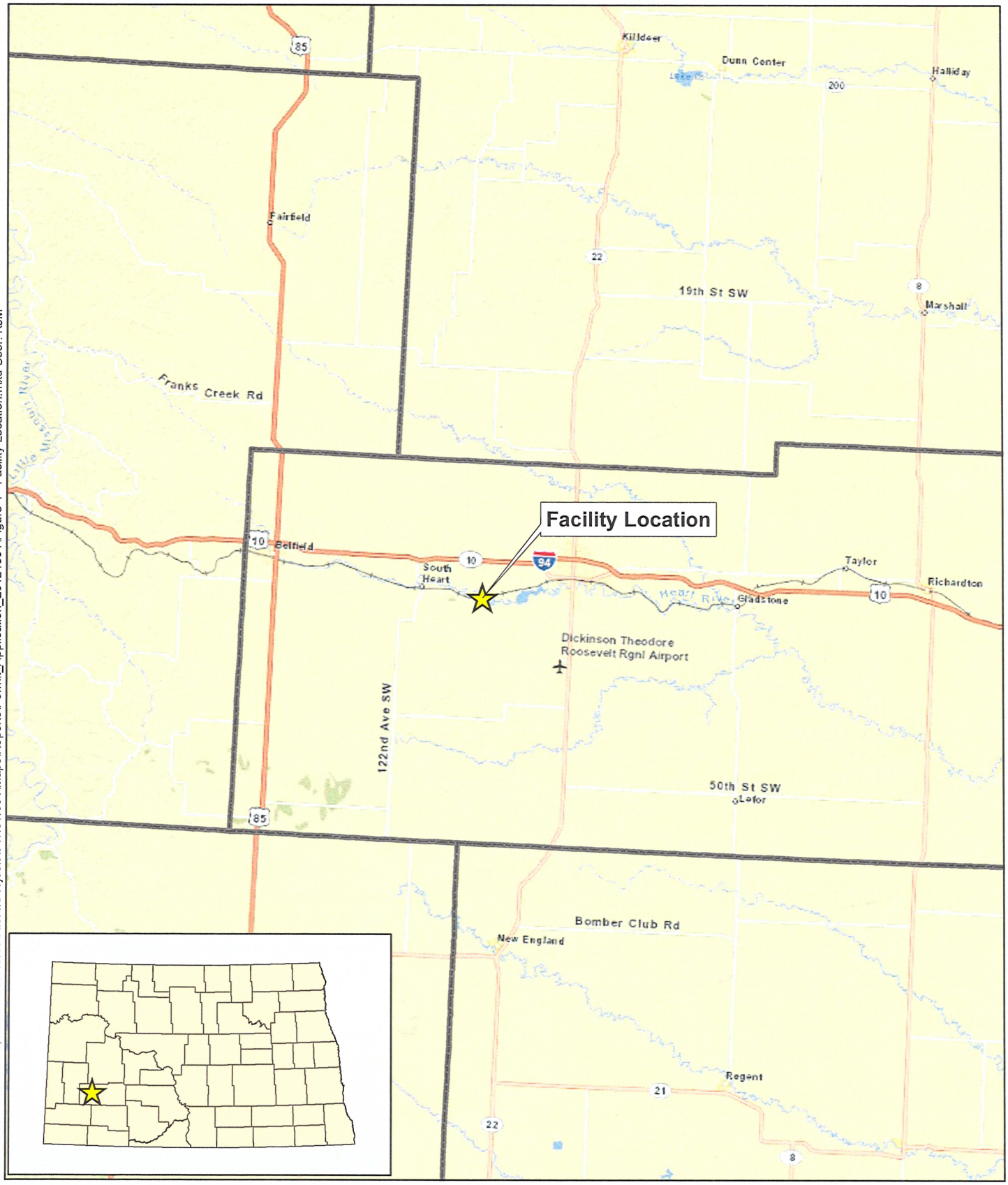
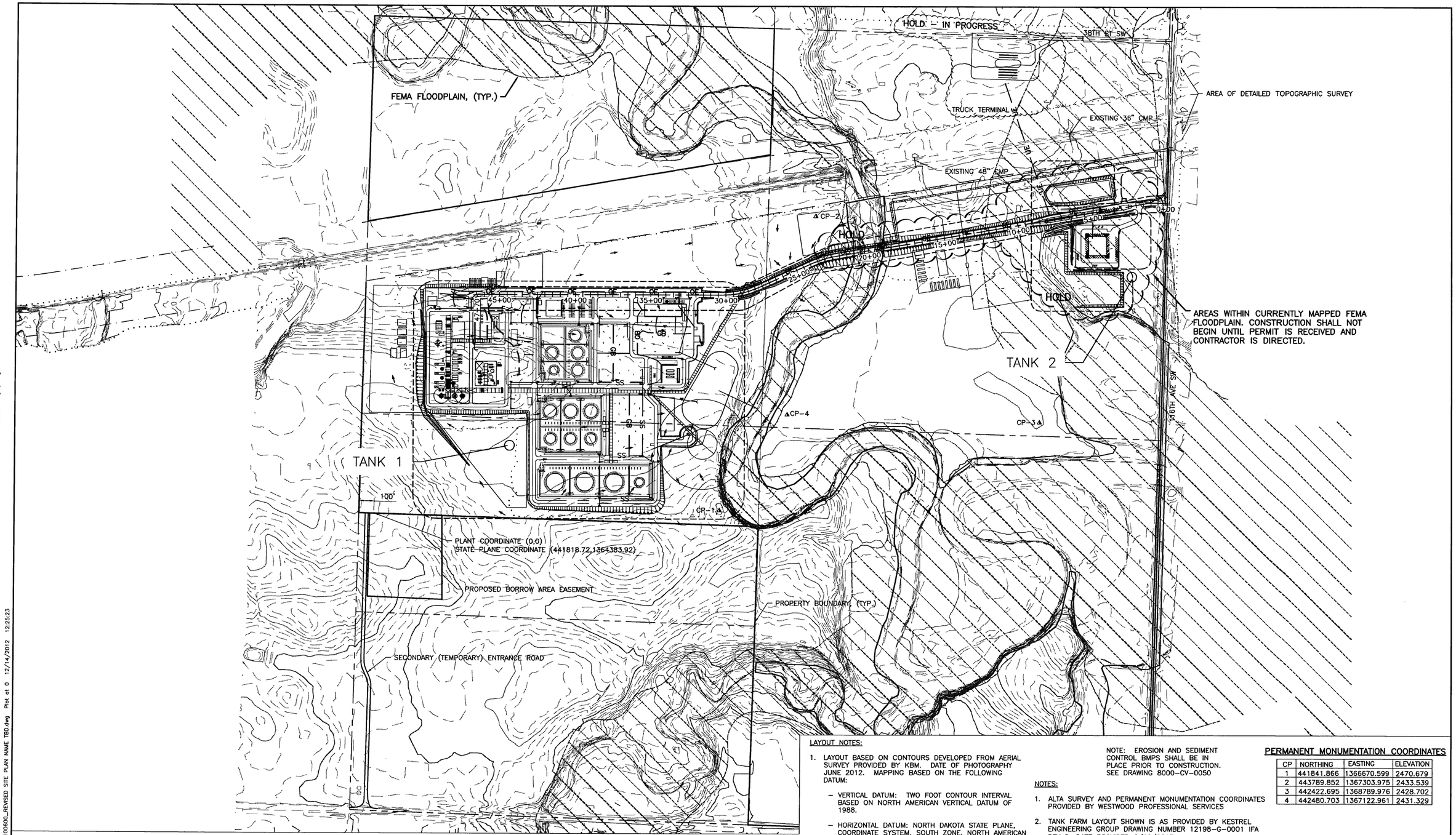


Figure 1

FACILITY LOCATION
Dakota Prairie Refining, LLC
Stark County, North Dakota

Barr Footer: ArcGIS 10.1, 2013-03-08 10:16 File: I:\Projects\34\45\10001\Maps\Reports\Pe...._Application_20121001\Figure 1 - Facility Location.mxd User: KJM



1 PLAN: DAKOTA PRAIRIE REFINERY OVERALL SITE PLAN

0 300 600

SCALE IN FEET

LAYOUT NOTES:

1. LAYOUT BASED ON CONTOURS DEVELOPED FROM AERIAL SURVEY PROVIDED BY KBM. DATE OF PHOTOGRAPHY JUNE 2012. MAPPING BASED ON THE FOLLOWING DATUM:
   - VERTICAL DATUM: TWO FOOT CONTOUR INTERVAL BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988.
   - HORIZONTAL DATUM: NORTH DAKOTA STATE PLANE, COORDINATE SYSTEM, SOUTH ZONE. NORTH AMERICAN DATUM 83/96
2. DETAILED TOPOGRAPHIC SURVEY PERFORMED BY WESTWOOD PROFESSIONAL SERVICES (PROVIDED ON 2/07/2013 & 3/04/2013)

NOTE: EROSION AND SEDIMENT CONTROL BMPS SHALL BE IN PLACE PRIOR TO CONSTRUCTION. SEE DRAWING 8000-CV-0050

NOTES:

1. ALTA SURVEY AND PERMANENT MONUMENTATION COORDINATES PROVIDED BY WESTWOOD PROFESSIONAL SERVICES
2. TANK FARM LAYOUT SHOWN IS AS PROVIDED BY KESTREL ENGINEERING GROUP DRAWING NUMBER 12198-G-0001 IFA REV D, DATE PROVIDED 2/19/2013
3. ISBL FACILITY SHOWN IS AS PROVIDED BY VENTECH ENGINEERS DRAWING PA-001 REV A4, DATE PROVIDED 3/11/2013

PERMANENT MONUMENTATION COORDINATES

CP	NORTHING	EASTING	ELEVATION
1	441841.866	1366670.599	2470.679
2	443789.852	1367303.975	2433.539
3	442422.695	1368789.976	2428.702
4	442480.703	1367122.961	2431.329

ISSUED FOR CONSTRUCTION 3/22/2013

THIS DOCUMENT WAS ORIGINALLY ISSUED AND SEALED BY GREGORY S. JOHNSON, REGISTRATION NUMBER PE-8340 ON 3/22/2013 AND THE ORIGINAL DOCUMENT IS STORED AT BARR ENGINEERING COMPANY.

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
0	GSJ	LCH	GSJ	3/22/2013	ISSUED FOR CONSTRUCTION
B	GSJ	LCH	GSJ	3/19/2013	ISSUE FOR REVIEW
A	GSJ	LCH	GSJ	3/8/2013	ISSUE FOR REVIEW

BARR
Corporate Headquarters: Minneapolis, Minnesota
Ph: 1-800-632-2277

Project Office:
BARR ENGINEERING CO.
3128 14TH AVENUE EAST
HIBBING, MN 55746
Ph: 1-800-225-1966
Fax: (218) 262-3460
www.barr.com

Scale	AS SHOWN
Date	3/4/2013
Drawn	GSJ
Checked	LCH
Designed	GSJ
Approved	GSJ

DAKOTA PRAIRIE REFINING, LLC
BISMARCK, NORTH DAKOTA

20,000 BPSD DAKOTA PRAIRIE REFINERY
DICKINSON, NORTH DAKOTA

FIGURE 2

BARR PROJECT No. 34/45-1006
CLIENT PROJECT No.
DWG. No. Figure 2
REV. No. 0

CADD USER: Kate K. Brown FILE: K:\DESIGN\34451006.01\FIGURE 2.DWG PLOT SCALE: 1:2 PLOT DATE: 5/3/2013 12:10 PM
Xrefs in Drawing - M:\Design\34451006.00\34451006.00_Proposed Planimetric - REV 1.dwg M:\Design\34451006.00\34451006.00_Existing Planimetric.dwg M:\Design\34451006.00\34451006.00_REVISED SITE PLAN NAME TBD.dwg Plot at 0 12/14/2012 12:25:23
GSJ M:\Design\34451006.00\34451006.00_REVISED SITE PLAN NAME TBD.dwg Plot at 0 12/14/2012 12:25:23

Appendix A

Dakota Prairie Refining, LLC

Dakota Prairie Refinery

Certification of the Applicability of Substantial Harm Criteria

Certification of the Applicability of Substantial Harm Criteria

Facility Name: Dakota Prairie Refining, LLC

Facility Address: 3815 116th Ave SW

1. Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?

   Yes____ No X

2. Does the facility have a total oil storage capacity greater than or equal to one million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground oil storage tank area?

   Yes____ No X

3. Does the facility have a total oil storage capacity greater than or equal to one million gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-iii to this appendix or a comparable formula (1)) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments? For further description of fish and wildlife and sensitive environments, see Appendices I, II, and III to DOC/NOAA's "Guidance for Facility and Vessel Response Plans: Fish and Wildlife and Sensitive Environments" (see Appendix E to this part, section 10, for availability) and the applicable Area Contingency Plan.

   Yes____ No X

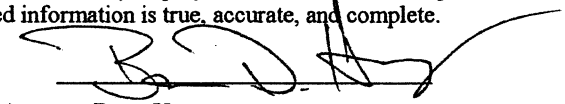
4. Does the facility have a total oil storage capacity greater than or equal to one million gallons and is the facility located at a distance (as calculated using the appropriate formula to Attachment C-III to this appendix or a comparable formula (1)) such that a discharge from the facility would shut down a public drinking water intake (2)?

   Yes____ No X

5. Does the facility have a total oil storage capacity greater than or equal to one million gallons and has the facility experienced a reportable oil spill in an amount greater than or equal to 10,000 gallons within the last five years?

   Yes____ No X

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Signature: 

Name (please type or print): Barry Haugen

Title: Vice President

Date: 5/6/13

Appendix B

Dakota Prairie Refining, LLC

Dakota Prairie Refinery

Containment Drainage Record

Dakota Prairie Refining, LLC

Dakota Prairie Refinery

Containment Drainage Record

This report must be completed when storm water is drained from the secondary containment such as the oil/water tank vault area or oil drum storage containers. The report must be filed with the environmental files and kept for a minimum of three years.

Facility Name: _____

Date: _____ Inspector: _____

1. Name of containment being drained		
2. Approximate water depth		inches
3. Does the storm water have an oil sheen on the surface? *** Circle one	Yes	No
4. Was the drainage activity monitored?	Yes	No
5. Was the bypass valve closed after the drainage was complete?	Yes	No
6. Date of drainage		
7. Time of drainage		
8. Completed by		
** **If the water has a sheen, do not drain!** Contact Environmental Department staff to make arrangements for proper disposal.		

Comments:

_____

_____

_____

Appendix C

Dakota Prairie Refining, LLC

Dakota Prairie Refinery

Oil Discharge Prevention Training Outline

Annual SPCC Briefing

Dakota Prairie Refining, LLC

Dakota Prairie Refinery

Oil Discharge Prevention Training Outline
Annual SPCC Briefing

Training programs are conducted annually for all facility personnel that handle or dispense oil products as part of their job. This training is also given to new facility personnel that handle or dispense oil products as part of their job. Discharge prevention briefings for oil-handling personnel are scheduled at least once each year to assure adequate understanding of the DPR SPCC plan. Training consists of review of the topics listed below:

- SPCC plan provisions.
- Oil discharge prevention and spill response.
- Spill reporting procedures.
- Operation and maintenance of equipment to prevent discharges of oil.
- Emergency response personnel.
- Applicable pollution control laws, rules, and regulations.
- Changes in regulatory requirements.
- Previous spill history (if any).
- Changes in facility operation that may affect the SPCC plan.
- Review of any failures or malfunctioning components 112.7 (f)(3).
- Recently developed spill prevention measures.
- Proper use of personal protective equipment.
- Location and proper use of spill response equipment.

Appendix D

Dakota Prairie Refining, LLC

Dakota Prairie Refinery

Professional Engineer Certification and Management Plan Review

Dakota Prairie Refining, LLC

Dakota Prairie Refinery

40 CFR □112.3 (d) [PE Certification□

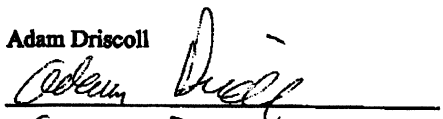
Certification Document

Facility Name:	Dakota Prairie Refinery
Owner Name:	Dakota Prairie Refining, LLC
Current Facility Operation:	Petroleum Refinery Construction
Facility Location:	3815 116th Ave SW, Dickinson, ND

Professional Engineer Certification:

I hereby certify that I, or my agent, have examined the facility and, being familiar with the provisions of 40 CFR §112, attest that this SPCC plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of 40 CFR §112. I certify that the plan is adequate for this facility and that procedures for the required inspections and testing have been established.

Name: Adam Driscoll

Signature: 

Date: 5-3-13

State Registration No: MN 49501

Current Registration Valid Until: 6/30/2014

Dakota Prairie Refining, LLC

Dakota Prairie Refinery

40 CFR § 112.7 [Management Approval]
Certification Document

Facility Name:	Dakota Prairie Refinery
Owner Name:	Dakota Prairie Refining, LLC
Current Facility Operation:	Petroleum Refinery Construction
Facility Location:	3815 116th Ave SW, Dickinson, ND

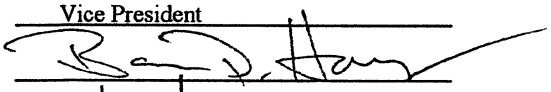
Management Certification:

This document is a carefully thought out plan, prepared in accordance with good engineering practices, and which has full approval of Dakota Prairie Refining, LLC management at a level to commit necessary resources to carry it out. This document is referred to as the DPR Spill Prevention, Control and Countermeasure (SPCC) Plan and is intended to minimize the potential to adversely impact the environment and to attain and maintain compliance with 40 CFR § 112.

Dakota Prairie Refining, LLC Management

Name: Barry Haugen

Title: Vice President

Signature: 

Date: 5/6/13

Appendix E

Dakota Prairie Refining, LLC

Dakota Prairie Refinery

Plan Review, Amendment Requirements and Change Tracking

SPCC Plan Review and Amendments [40 CFR § 112.5]

Section 40 CFR § 112.5 requires this SPCC plan to be reviewed every five years. As a result of this review and evaluation, the owner or operator shall amend the SPCC plan within six months of the review to include more effective prevention and control technology if:

- Such technology will significantly reduce the likelihood of a spill event from the facility.
- If such technology has been field-proven at the time of the review.

The owner or operator must also amend the plan when:

- There is a change in the facility design, construction, operation, or maintenance that materially affects its potential for a discharge as described in Section 40 CFR § 112.1 (b).

No amendment to this SPCC plan shall be effective to satisfy the requirements of 40 CFR § 112, unless it has been certified by a professional engineer in accordance with 40 CFR § 112.3 (d).

Review Certificate

I have reviewed this document and found it to be a carefully thought out plan, prepared in accordance with good engineering practices, and which has full approval of DPR management at a level to commit the necessary resources to carry it out. This document is referred to as the DPR Spill Prevention, Control and Countermeasure (SPCC) Plan. This plan is intended to minimize the potential to adversely impact the environment and to attain and maintain compliance with 40 CFR § 112.

Review in 2018

I have completed a review and evaluation of the SPCC plan for the facility on _____ and _____ (will/will not) amend the plan as a result.

Name:	Title:	Signature:

Tracking Table for SPCC Plan Updates

Date of Plan Update	Description of Change(s)	Portion(s) of Plan Updated	Name of Person Completing the Update

Appendix F

Dakota Prairie Refining, LLC

Dakota Prairie Refinery

Tank Inspection Checklist

Dakota Prairie Refining, LLC

Dakota Prairie Refinery

SPCC Plan Inspection Log and Procedure Checklist

Monthly inspections include a determination of storage tank conditions (drip marks, discoloration, corrosion, cracks, dead vegetation), storage tank foundations (cracks, settling, damage from vegetation, etc.), piping (droplets, corrosion, material seepage, etc.), dike or berm system or secondary containment. See sample blank inspection records. These inspection records are kept on file in the facility manager's office for a period of at least three (3) years.

SPCC Plan Inspection Log and Procedure Checklist

Date _____

Type	Location	Tank/ Container Condition Corrosion, Deterioration etc.	Piping Conditions Leaks, Spills etc.	Actions Recommended	Inspection Date, Signature
Bulk Oil Storage Containers					

Inspector Signature _____

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
NORTH DAKOTA REGULATORY OFFICE
1513 SOUTH 12TH STREET
BISMARCK ND 58504-6640

March 11, 2013

North Dakota Regulatory Office [NWO-2013-0297-BIS]

Ms. Shanna Braun
Barr Engineering Company
4700 West 77th Street
Minneapolis, Minnesota 55435

Dear Ms. Braun:

We have reviewed your request on behalf of **Dakota Prairie Refining Company, LLC** for Department of the Army (DA) authorization to construct a bridge across the Heart River to provide access to a proposed diesel refinery located west of Dickinson, North Dakota. To facilitate bridge construction, a temporary cofferdam/crane pad will be required. Rock riprap will be placed in the channel to prevent erosion. Work would occur in Section 15, Township 139 North, Range 97 West, Stark County, North Dakota.

We have prepared a preliminary jurisdictional determination (JD) for the site which is a written indication that the waters in the project area may be jurisdictional waters of the United States. Such waters have been treated as jurisdictional for purposes of computation of impacts and compensatory mitigation requirements. If you concur with the preliminary JD, please sign it and return it to the letterhead address. If you believe the preliminary JD is inaccurate, you may request this office complete an approved JD prior to commencement of any work in waters of the US. An approved JD is an official determination regarding the presence or absence of such waters. Completion of an approved JD may require coordination with the US Environmental Protection Agency.

If you do not want the Corps to complete an approved JD, you may proceed with your project in accordance with the terms and conditions of DA Nationwide Permit No.39, found in the February 21, 2012 Federal Register (77 FR 10184), Reissuance of Nationwide Permits. Enclosed is a fact sheet that fully describes this Nationwide Permit and lists the General, Regional and Water Quality Certification Conditions that must be adhered to for this authorization to remain valid. **Please note that deviations from the original plans and specifications of your project could require additional authorization from this office.**

This determination is applicable only to the permit program administered by the Corps of Engineers. It does not eliminate the need to obtain other Federal, state, tribal, and local approvals before beginning work.

You are responsible for all work accomplished in accordance with the terms and conditions of the Nationwide Permit, **including the Regional Conditions specific to projects undertaken in North Dakota.** If a contractor or other authorized representative will be accomplishing the work authorized by the Nationwide Permit on your behalf, it is strongly recommended that they be provided a copy of this letter and the attached conditions so that they are aware of the limitations of the applicable Nationwide Permit. Any activity that fails to comply with all of the terms and conditions of the Nationwide Permit will be considered unauthorized and subject to appropriate enforcement action.

Printed on Recycled Paper

In compliance with General Condition 30, **you are required to submit the following project compliance certification within thirty (30) days of project completion.** [Please check all applicable statements]

[ ] I certify that I have completed the projects as permitted.
[ ] I certify that I have completed a modified version of the projects.
[ ] I certify that I have completed all required mitigation.

Permittee's Signature:_____ **Date:**_____

This verification will be valid until **March 18, 2017.** If the nationwide permit is modified, suspended, or revoked prior to this date, but is reissued without modification or the activity complies with any subsequent modification, this authorization remains valid until the expiration date. All of the existing nationwide permits are scheduled to be modified, reissued, or revoked prior to March 18, 2017. It is incumbent upon you to remain informed of changes to the nationwide permits. We will issue a public notice when the nationwide permits are reissued. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant nationwide permit is modified or revoked, you will have twelve (12) months from the date of the modification or revocation to complete the activity under the present terms and conditions.

Should you at any time become aware that either an endangered and/or threatened species or its critical habitat exists within the project area, you must immediately notify this office.

The Omaha District, Regulatory Branch is committed to providing quality and timely service to our customers. In an effort to improve customer service, please take a moment to complete our Customer Service Survey found on our website at http://per2.nwp.usace.army.mil/ survey.html. If you do not have Internet access, you may call and request a paper copy of the survey that you can complete and return to us by mail or fax.

If you have any questions concerning this determination or jurisdiction, please feel free to contact Ms. Toni R. Erhardt of this office at (701) 255-0015 and reference Nationwide Permit No. **NWO-2013-0297-BIS.**

Sincerely,

Daniel E. Cimarosti

Daniel E. Cimarosti
State Program Manager
North Dakota Regulatory Office

Enclosures

U.S. Army Corps of Engineers
North Dakota Regulatory Office
1513 South 12th Street
Bismarck, North Dakota 58504
Telephone (701) 255-0015 Fax (701) 255-4917

IMPORTANT INSTRUCTIONS FOR OUR PERMIT CUSTOMERS

Notice of the Reissuance of Nationwide Permits was published in the Federal Register [77 FR 10184] on February 21, 2012. The Nationwide Permits went into effect on March 19, 2012. Project compliance certification is required by General Condition 30. The following instructions are provided to clarify the information contained within the nationwide permit authorization letter and attachments. [1]

STEP 1
Review the permit authorization and be sure you understand the terms and conditions for the authorization to remain valid. If you do not understand, or have any questions, please do not hesitate to contact this office at the above address.

STEP 2
Complete your project in accordance with the permit terms and conditions. [Remember that any deviation from the original plans and specifications of your project could require additional authorization from this office.]

STEP 3
Within thirty (30) days of project completion, please complete the permit compliance certification contained within your permit authorization letter. A photocopy of the first page (marked with a colored COPY stamp) has been provided for this purpose. Mark the applicable statements, sign and date where indicated, and forward the COPY to this office at the above address.

---

[1] There is no charge associated with any aspect of this nationwide authorization or the follow-up compliance certification.

COPY

In compliance with General Condition 30, **you are required to submit the following project compliance certification within thirty (30) days of project completion.** [Please check all applicable statements]

[ ] I certify that I have completed the projects as permitted.
[ ] I certify that I have completed a modified version of the projects.
[ ] I certify that I have completed all required mitigation.

Permittee's Signature:_____ **Date:**_____

This verification will be valid until **March 18, 2017.** If the nationwide permit is modified, suspended, or revoked prior to this date, but is reissued without modification or the activity complies with any subsequent modification, this authorization remains valid until the expiration date. All of the existing nationwide permits are scheduled to be modified, reissued, or revoked prior to March 18, 2017. It is incumbent upon you to remain informed of changes to the nationwide permits. We will issue a public notice when the nationwide permits are reissued. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant nationwide permit is modified or revoked, you will have twelve (12) months from the date of the modification or revocation to complete the activity under the present terms and conditions.

Should you at any time become aware that either an endangered and/or threatened species or its critical habitat exists within the project area, you must immediately notify this office.

The Omaha District, Regulatory Branch is committed to providing quality and timely service to our customers. In an effort to improve customer service, please take a moment to complete our Customer Service Survey found on our website at http://per2.nwp.usace.army.mil/ survey.html. If you do not have Internet access, you may call and request a paper copy of the survey that you can complete and return to us by mail or fax.

If you have any questions concerning this determination or jurisdiction, please feel free to contact Ms. Toni R. Erhardt of this office at (701) 255-0015 and reference Nationwide Permit No. **NWO-2013-0297-BIS.**

Sincerely,

Daniel E. Cimarosti
State Program Manager
North Dakota Regulatory Office

Enclosures

resourceful. naturally.
engineering and environmental consultants

BARR

February 11, 2013

Ms. Toni Erhardt
U.S. Army Corps of Engineers – North Dakota Regulatory Office
1513 South 12th Street
Bismarck, ND 58504

Re: 404 Permit Submittal
New Vehicular Bridge and Stormwater Outlet for Dakota Prairie Refinery
Stark County, North Dakota

Dear Ms. Erhardt:

Barr Engineering Co. (Barr) is assisting Dakota Prairie Refining Company, LLC. with the development of a new vehicular bridge to provide access to the proposed Dakota Prairie Refinery (DPR) (formerly known as the proposed Calumet Refinery), located west of Dickinson in Stark County. ***Please refer to enclosed Facility Location Map.***

Western Ecosystems Technology, Inc. (West) conducted field wetland delienations of at the DPR property on August 29 and September 27, 2012. A technical memo summarizing their findings is included at the end of this submittal package. The proposed project would result in placement of fill in the Heart River, which has been assumed to be under the jurisdiction of the USACE.

All bridge components would be constructed and placed above the ordinary high water mark of the Heart River. Therefore, there would be no impacts to wetlands or other waters of the U.S. associated with the bridge itself. The proposed bridge would require the placement of approximately 8 cubic yards of riprap in the channel to prevent scour, resulting in 220 square feet (0.005 acres) of permanent wetland impact.

Additionally, a temporary crane pad would be constructed within the Heart River channel to aid in construction/placement of bridge components that span the Heart River. The crane pad would consist of a cofferdam, filled with approximately 575 cubic yards of Class 5 (rock) material to provide a level surface for the crane to sit on. The crane pad would be removed immediately following bridge construction. This would result in 1,800 square feet (0.04 acres) of temporary impact.

Finally, the DPR facility would also require construction of a stormwater pond, which would include an outlet structure to the Heart River to prevent flooding. Approximately 4 cubic yards of riprap may be placed at the outlet to prevent channel scour, resulting in 100 square feet (0.002 acres) of permanent wetland impact. At this time, the outlet structure may be placed below the OHWM of the Heart River, although the exact location could be modified as project design is refined. In the interest of maintaining the project's timeline, it is assumed that the outlet will be placed below the OHWM of the Heart River.

We believe these actions meet the parameters to qualify for Nationwide Permits 14 and 43 and that mitigation wold not be required for the cumulative 0.007 acres of permanent wetland impact. A Section 404 Permit application and associated construction drawings is attached for your review.

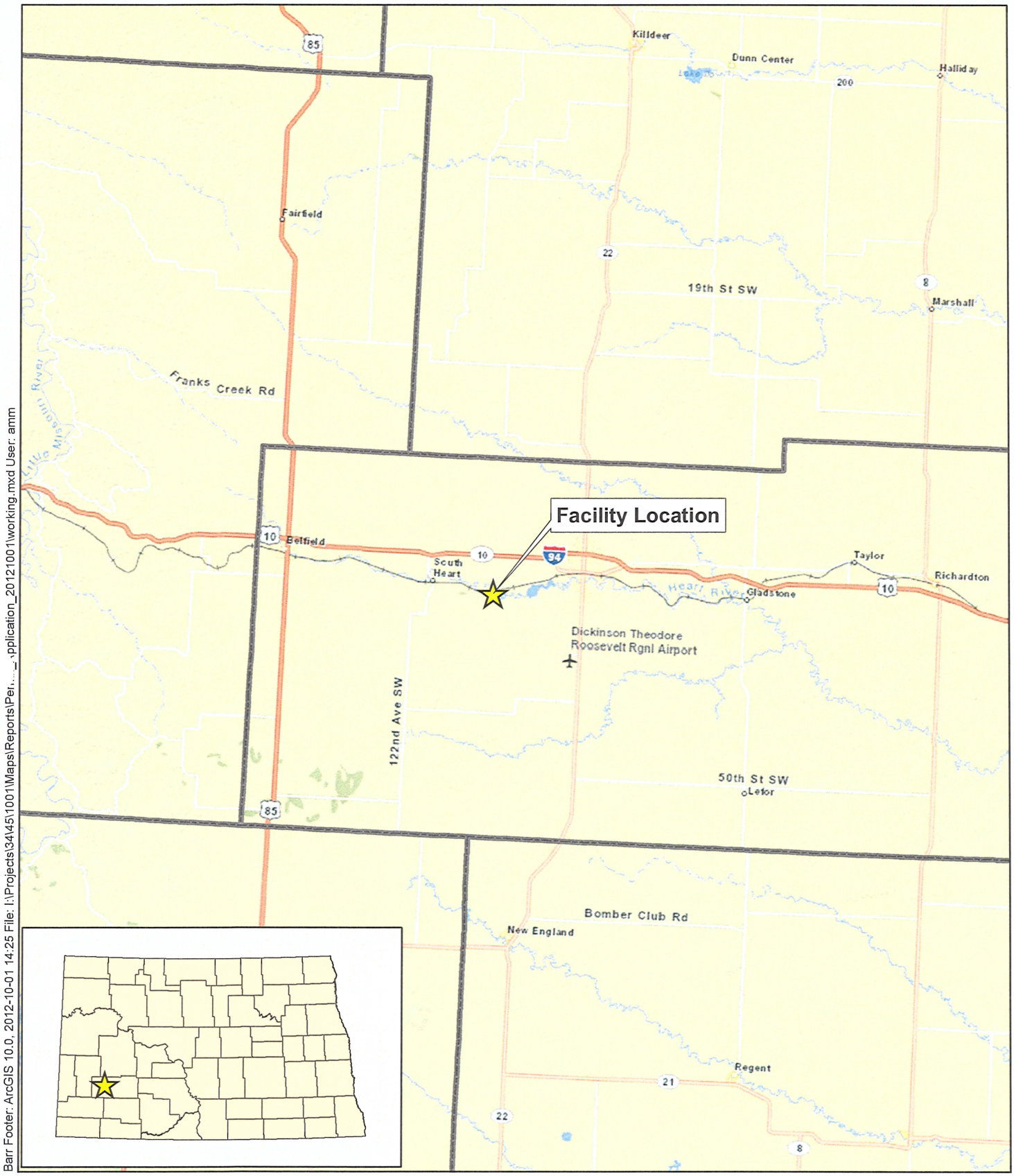
A Class III cultural resources inventory for the overall refinery site, including the area of the proposed vehicular bridge, was completed by SWCA Environmental Consultants (SWCA). The findings of the cultural resources inventory will be forwarded to your office by SWCA to assist in your evaluation of this permit application.

Please contact me at 952-842-3619 if you have questions.

Thank you,

Shanna Braun
Environmental Scientist

Enclosures:
- 404 Permit Application
- Technical Memo – Delineated Wetlands and Other Waters of the U.S.



Barr Footer: ArcGIS 10.0, 2012-10-01 14:25 File: I:\Projects\34\45\1001\Maps\Reports\Per... ...pplication_20121001\working.mxd User: amm

Facility Location

County Boundary

0 4 8 16

Miles

Figure A-1

FACILITY LOCATION
Dakota Prairie Refinery
Stark County, North Dakota

U.S. ARMY CORPS OF ENGINEERS

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

33 CFR 325. The proponent agency is CECW-CO-R.

OMB APPROVAL NO. 0710-0003
EXPIRES: 28 FEBRUARY 2013

Public reporting for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required)
First - Barry Middle - Last - Haugen	First - Shanna Middle - R Last - Braun
Company - Dakota Prairie Refining Company, LLC	Company - Barr Engineering Company
E-mail Address - barry.haugen@wbienergy.com	E-mail Address - sbraun@barr.com
6. APPLICANT'S ADDRESS:	**9. AGENT'S ADDRESS:**
Address- PO Box 5601	Address- 4700 West 77th Street
City - Bismarck State - ND Zip - 58506 Country - USA	City - Minneapolis State - MN Zip - 55435 Country - USA
7. APPLICANT'S PHONE NOs. w/AREA CODE	**10. AGENTS PHONE NOs. w/AREA CODE**
a. Residence b. Business c. Fax	a. Residence b. Business c. Fax
701-530-1504	952-842-3619

STATEMENT OF AUTHORIZATION

11. I hereby authorize, Shanna Braun to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

Barry Haugen — SIGNATURE OF APPLICANT

2/8/2013 — DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)

New Vehicle Bridge and Outfall Structure for Dakota Prairie Refinery

13. NAME OF WATERBODY, IF KNOWN (if applicable)	14. PROJECT STREET ADDRESS (if applicable)
Heart River	Address 3815 116th Avenue SW
15. LOCATION OF PROJECT Latitude: °N 46.857769 Longitude: °W -102.902181	City - Dickinson State- ND Zip- 58601

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)

State Tax Parcel ID Municipality

Section - 15 Township - 139N Range - 97W

17. DIRECTIONS TO THE SITE

From the intersection of State Avenue N and Villard Street W (I-94 business loop) in the city of Dickinson, travel west 4 miles on Villard Street (which becomes Highway 10). Turn south on 116th Avenue SW and travel 1.25 miles to the eastern edge of the project site.

18. Nature of Activity (Description of project, include all features)

Please refer to Block 18 section of attached page.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

Please refer to Block 19 section of attached page.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

The proposed vehicular bridge would require the permanent placement of riprap within the channel to prevent scour. Additionally, a temporary crane pad would be constructed within the Heart River channel to aid in construction/placement of bridge components that span the Heart River. The crane pad would consist of a cofferdam, filled with Class 5 (rock) material to provide a level surface for the crane to sit on. The crane pad would be removed immediately following bridge construction. A crane would be used to place both the permanent riprap and temporary crane pad fill.

The proposed outlet structure would also require placement of riprap in the channel to prevent scour.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards

Please refer to Block 21 of attached page

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres Please refer to Block 22 of attached page

or

Linear Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

Turbidity curtains would be used to minimize sedimentation in the channel. Construction in upland areas would implement best management practices (BMPs) to minimize sedimentation into the channel. BMPs may include, but are not limited to silt fences, biologs, and/or biomats. The work site would be equipped with spill kits to minimize the potential for fuel or oil leaks to enter the Heart River.

24. Is Any Portion of the Work Already Complete? [ ] Yes [X] No IF YES, DESCRIBE THE COMPLETED WORK

25 Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (If more than can be entered here, please attach a supplemental list)

a. Address- Dakota Prairie Refining Company, LLC (the applicant) owns all property adjoining the Heart River in this location.

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26 List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
BLM	Letter of Intent		2013-02-08		
SHPO	Sec. 106 Concurrence		2013-02-08		
ND SWC	Sov. Lands Permit		2013-02-08		

* Would include but is not restricted to zoning, building, and flood plain permits

27 Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

Ray Stamper 2/8/2013
SIGNATURE OF APPLICANT DATE

SIGNATURE OF AGENT 2-11-13
DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

BLOCK 18

As part of construction, topsoil would be stripped from the upland on both sides of the vehicle bridge location. The river bank would be contoured as needed to accommodate the bridge approaches. Piling would be installed, and the bridge buttresses would be formed/poured. The bridge beams would be installed, and the bridge deck would be poured and formed. Each of the activities discussed thus far would take place above the ordinary high water mark (OHWM) of the Heart River and would not impact the channel or associated wetlands.

A cofferdam and crane pad would be temporarily used within the Heart River channel to allow a 400-ton hydraulic crane to erect the main bridge beam supports. A 30'x60' crane pad would be constructed within a three-sided cofferdam filled with Class 5 material. The crane pad would extend 3-4' above the water elevation at the time of construction and is anticipated to temporarily occupy up to 50% of the channel width. The crane pad is anticipated to be needed in the channel for up to four weeks.

Upon completion of bridge construction, the cofferdam and crane pad would be removed and the river bank would be re-contoured to match pre-construction conditions and stabilized as needed. Riprap would be placed in the channel to minimize the potential for scour.

A stormwater pond would be required as part of the Dakota Prairie Refinery facility. The pond would include an outlet structure to the Heart River to prevent pond flooding. At this time, the outlet structure may be placed below the OHWM of the Heart River. Riprap would be placed at the outlet to prevent channel scour.

BLOCK 19

The purpose of this project is to construct a vehicle bridge to provide access to the Dakota Prairie Refinery. A paved county road (116th Avenue SW) that would provide primary access to the site is located east of the Heart River; however, the east side of the property is not large enough to accommodate the refinery facility. Therefore, the refinery is planned to be constructed on the west side of the river. The vehicle bridge is necessary to transport construction materials to the site, as well as provide access for workers. The refinery facility would eventually include a crude oil distillation unit, tank truck load-out facility, wastewater treatment plant, product storage tanks, office buildings, parking spaces, and either a railroad loop or pipeline for product distribution.

The vehicle bridge is planned to begin construction in April/May 2013 would be completed by the end of August 2013. Construction of the stormwater pond outlet is planned for April 2013. Construction of the associated refinery facility is anticipated to begin in April 2013 and be completed by the end of 2014.

Construction of the Dakota Prairie Refinery is privately funded, but ultimately it is the driving force behind the need for the vehicle bridge proposed as part of this application.

BLOCK 21

Permanent fill:

- 8 cubic yards riprap for bridge
- 4 cubic yards riprap for outlet protection
- 1 cubic yard outlet pipe

Temporary fill:

- 575 cubic yards Class 5 fill

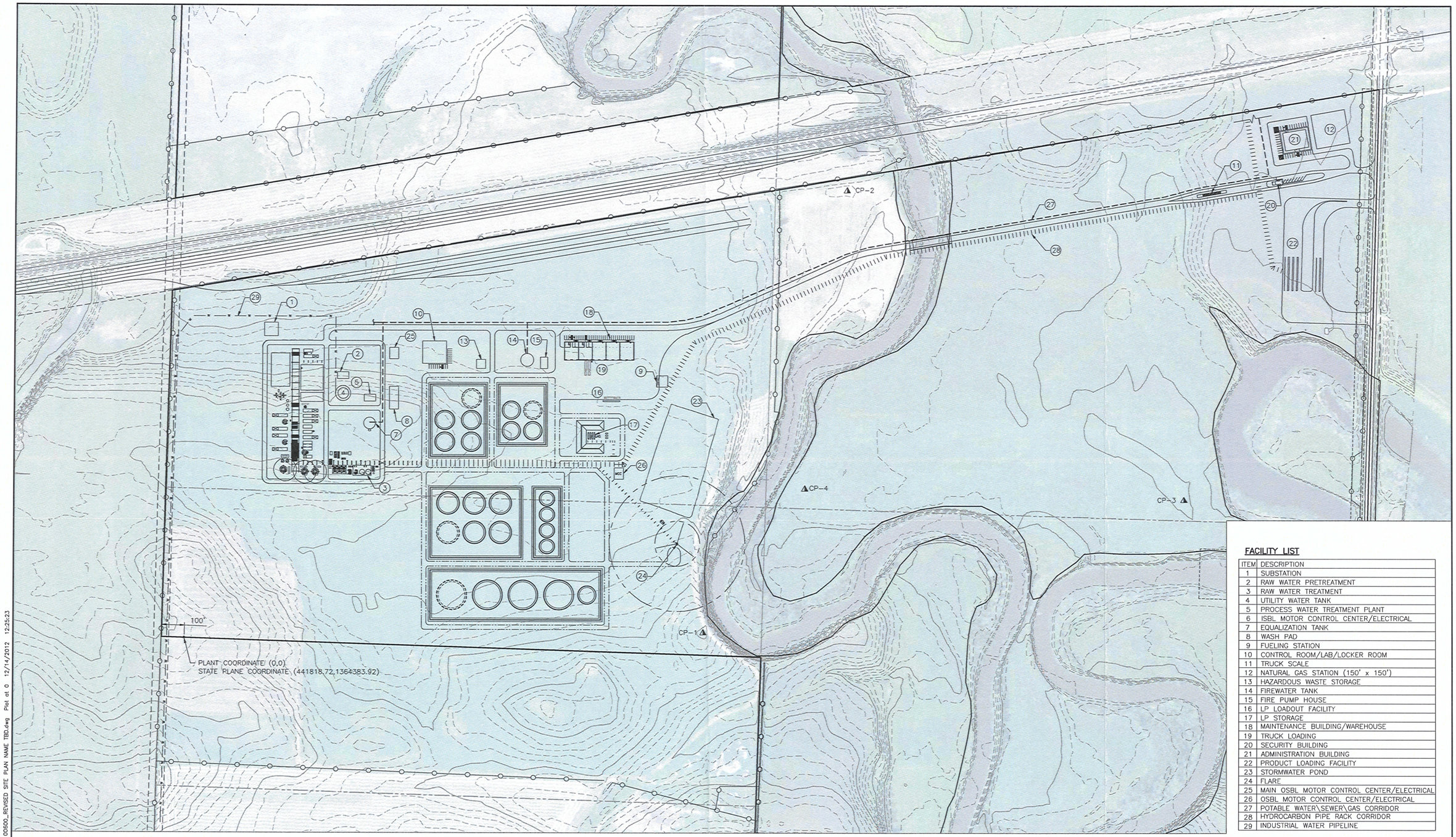
BLOCK 22

Impact associated with bridge:

- 220 square feet (0.005 acres) permanent impact
- 1,800 square feet (0.04 acres) temporary impact

Impact associated with outlet:

- 100 square feet (0.002 acres) permanent impact



FACILITY LIST

ITEM	DESCRIPTION
1	SUBSTATION
2	RAW WATER PRETREATMENT
3	RAW WATER TREATMENT
4	UTILITY WATER TANK
5	PROCESS WATER TREATMENT PLANT
6	ISBL MOTOR CONTROL CENTER/ELECTRICAL
7	EQUALIZATION TANK
8	WASH PAD
9	FUELING STATION
10	CONTROL ROOM/LAB/LOCKER ROOM
11	TRUCK SCALE
12	NATURAL GAS STATION (150' x 150')
13	HAZARDOUS WASTE STORAGE
14	FIREWATER TANK
15	FIRE PUMP HOUSE
16	LP LOADOUT FACILITY
17	LP STORAGE
18	MAINTENANCE BUILDING/WAREHOUSE
19	TRUCK LOADING
20	SECURITY BUILDING
21	ADMINISTRATION BUILDING
22	PRODUCT LOADING FACILITY
23	STORMWATER POND
24	FLARE
25	MAIN OSBL MOTOR CONTROL CENTER/ELECTRICAL
26	OSBL MOTOR CONTROL CENTER/ELECTRICAL
27	POTABLE WATER\SEWER\GAS CORRIDOR
28	HYDROCARBON PIPE RACK CORRIDOR
29	INDUSTRIAL WATER PIPELINE

1 PLAN: DAKOTA PRAIRIE REFINERY OVERALL SITE PLAN

0 200 400
SCALE IN FEET

PRELIMINARY DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION

12/14	01/03	02/01				
A	B	C	0	1	2	3

DATE RELEASED

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

Project Office:
BARR ENGINEERING CO.
3128 14TH AVENUE EAST
HIBBING, MN 55746
Ph: 1-800-225-1966
Fax: (218) 262-3460
www.barr.com

Scale	AS SHOWN
Date	12/13/2012
Drawn	GSJ
Checked	
Designed	
Approved	

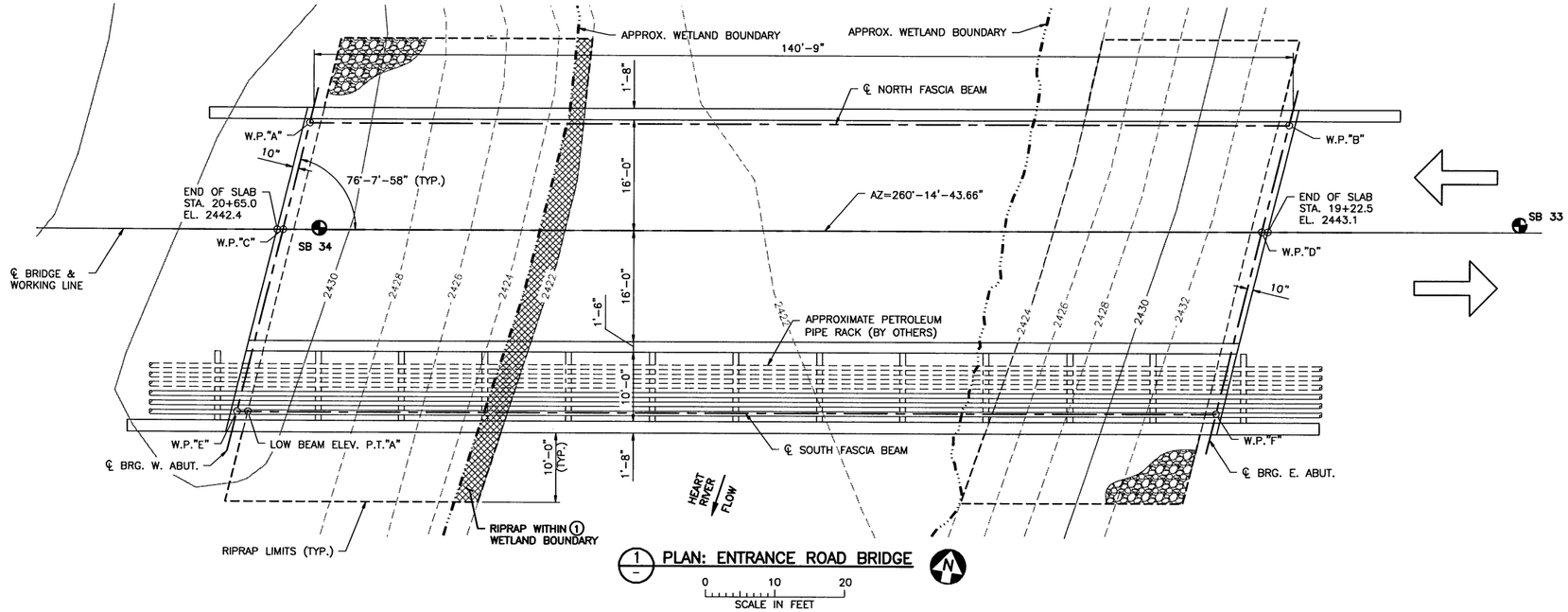
DAKOTA PRAIRIE REFINING, LLC
BISMARCK, NORTH DAKOTA

DAKOTA PRAIRIE REFINERY
DICKINSON, NORTH DAKOTA

OVERALL SITE PLAN

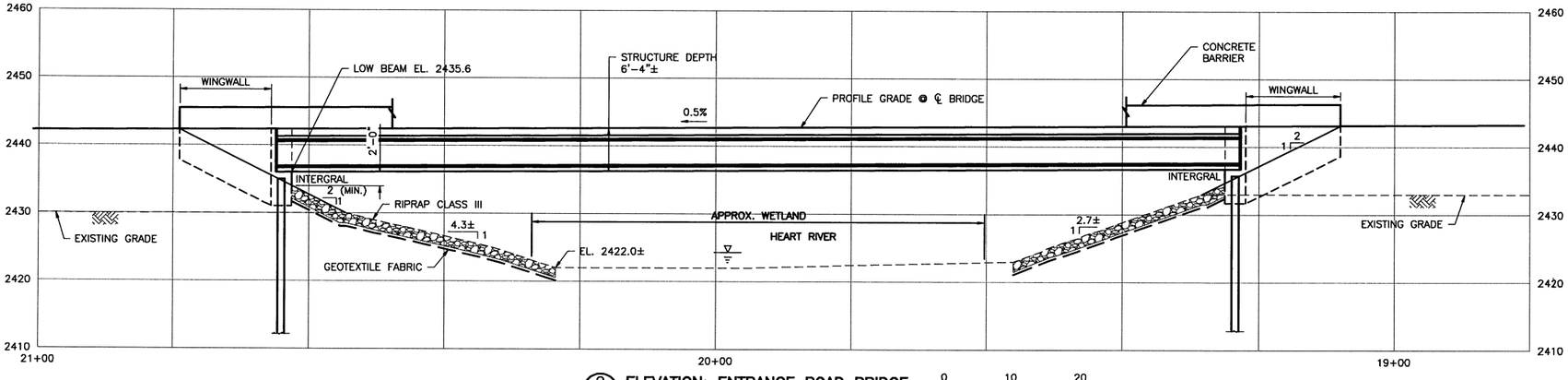
BARR PROJECT No. 34/45-1006.00
CLIENT PROJECT No.
DWG. No. 01-D-02-0020
REV. No. C

CADD USER: Greg Johnson FILE: K:\DESIGN\34451006.01\34451006D0_01-D-02-0020.DWG PLOT SCALE: 1:2 PLOT DATE: 2/1/2013 3:16 PM
Xrefs in Drawing - M:\Design\34451006.00\34451006D0_Proposed Planimetric - REV 1.dwg M:\Design\34451006.00\34451006D0_Existing Planimetric.dwg M:\Design\34451006.00\34451006D0_REVISED SITE PLAN NAME TBD.dwg Plot at 0 12/14/2012 12:25:23
GSJ M:\Design\34451006.00\34451006D0_ImageryA.dwg



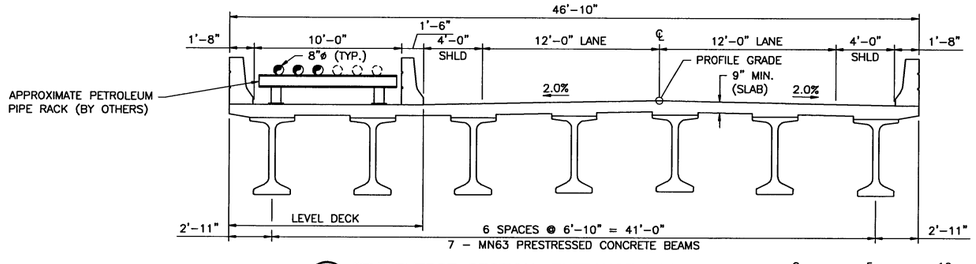
1 — PLAN: ENTRANCE ROAD BRIDGE

0 10 20
SCALE IN FEET



2 — ELEVATION: ENTRANCE ROAD BRIDGE

0 10 20
SCALE IN FEET



3 — TRANSVERSE SECTION: ENTRANCE ROAD BRIDGE

0 5 10
SCALE IN FEET

DESIGN DATA

2012 AND CURRENT INTERIM AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

LOAD AND RESISTANCE FACTOR DESIGN METHOD: HL 93 LIVE LOAD

DEAD LOAD INCLUDES WEIGHT OF EIGHT 12"ø PIPES SUPPORTED ON PIPE RACK.

MATERIAL DESIGN PROPERTIES:

REINFORCED CONCRETE:

f'c = 4 K.S.I. n = 8

fy = 60 K.S.I. FOR REINFORCEMENT

PRESTRESSED CONCRETE:

f'c = 9 K.S.I. n = 1

fpu = 270 K.S.I. LOW RELAXATION STRANDS

DECK AREA = 7,014 SQ. FT.

DESIGN SPEED = XX MILES PER HOUR

OPERATING RATING: HS XX

NOTES:

(1) WETLAND IMPACTS FROM RIPRAP = 210.1 SF (0.005 Ac.)

PRELIMINARY DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

CLIENT
BID
CONSTRUCTION
RELEASED TO/FOR

A	B	C	0	1	2	3
DATE RELEASED						

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

Project Office:
BARR ENGINEERING CO.
3128 14TH AVENUE EAST
HIBBING, MN 55746
Ph: 1-800-225-1966
Fax: (218) 262-3460
www.barr.com

Scale	AS SHOWN
Date	09/20/2012
Drawn	MJJ
Checked	PKN
Designed	
Approved	

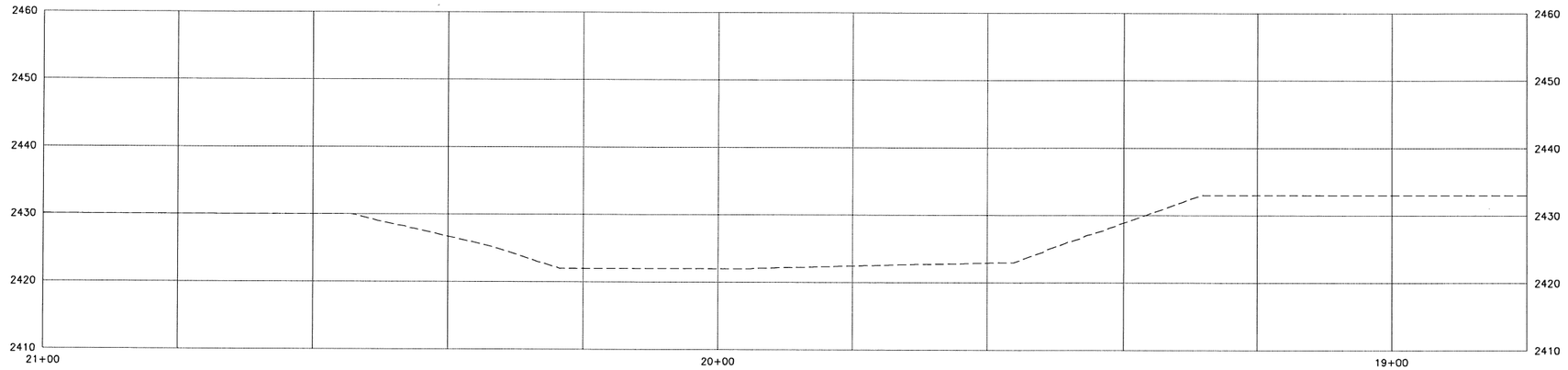
DAKOTA PRAIRIE REFINING, LLC
BISMARCK, NORTH DAKOTA

DAKOTA PRAIRIE REFINERY
DICKINSON, NORTH DAKOTA

PROPOSED
ENTRANCE ROAD BRIDGE

BARR PROJECT No. 34/45-1006.01
CLIENT PROJECT No. –
DWG. No. S1
REV. No. –

CADD USER: Max J. Jouppa FILE: K:\DESIGN\34451006.01\34451006D1_S-01.DWG PLOT SCALE: 1:2 PLOT DATE: 2/6/2013 10:32 AM



1 ELEVATION: EXISTING GROUND ENTRANCE ROAD BRIDGE

0 10 20
SCALE IN FEET

PRELIMINARY
DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

RELEASED TO/FOR: CLIENT ☐ BID ☐ CONSTRUCTION ☐

DATE RELEASED: A B C 0 1 2 3

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

Project Office:
BARR ENGINEERING CO.
3128 14TH AVENUE EAST
HIBBING, MN 55746
Ph: 1-800-225-1966
Fax: (218) 262-3460
www.barr.com

Scale	AS SHOWN
Date	09/20/2012
Drawn	MJJ
Checked	PKN
Designed	
Approved	

DAKOTA PRAIRIE REFINING, LLC
BISMARK, NORTH DAKOTA

DAKOTA PRAIRIE REFINERY
DICKINSON, NORTH DAKOTA

PROPOSED
ENTRANCE ROAD BRIDGE

BARR PROJECT No. 34/45-1006.01
CLIENT PROJECT No. –
DWG. No. –
REV. No. –

CADD USER: Max J. Jouppe FILE: K:\DESIGN\34451006.01\34451006.01_SECTION_MJJ.DWG PLOT SCALE: 1:2 PLOT DATE: 2/5/2013 4:28 PM

NATURAL RESOURCES ◆ SCIENTIFIC SOLUTIONS

Western **E**co**S**ystems **T**echnology, Inc. ◆ 415 W. 17th St., Suite 200 ◆ Cheyenne, WY 82001
Phone: 307.634.1756 ◆ Fax: 307.637.6981 ◆ Website: www.west-inc.com

TECHNICAL MEMORANDUM

DATE: October 8, 2012

TO: Daniel Flo, Barr

FROM: Elizabeth Lack & Clayton Derby, WEST

RE: **Wetland delineation and identification of other waters of the U.S. at the Calumet Refinery Site, Dickinson, ND**

Western EcoSystems Technology, Inc. (WEST) was contracted by Barr Engineering to delineate wetlands and identify other waters of the U.S. at the Calumet refinery site west of Dickinson, North Dakota (Figure 1). The project area encompasses approximately 465 acres; however the delineation of wetlands and other waters of the U.S. was limited to specific areas planned for development within the larger project area as shown in Figure 1. WEST wetland specialists visited the site on August 29 and September 27, 2012; the second visit was conducted due to additional areas identified for wetland delineations by Barr. The purpose of the field effort was to locate and delineate any wetlands and other waters of the U.S. within the wetland delineation areas in support of permitting efforts related to the project.

Currently, the primary land use at the project site is agricultural (hay production). The Heart River meanders through the project area but only crosses one area identified for wetland delineation. The Heart River, a tributary to the Missouri River, is dammed to create Patterson Lake a couple miles downstream from the project area. The project area is within Land Resource Region F (LRR F), Northern Great Plains Spring Wheat Region. The general vegetation types within this region are agricultural crops and native prairie; green ash, chokecherry, buffaloberry occur in draws and narrow valleys. Average annual precipitation at nearby Dickinson is 16.4 inches (usclimatedata.com). Elevation at the project area is approximately 2,440 feet.

Methods

Prior to the field visit, Google Earth aerial photography, topographic maps, National Wetland Inventory (NWI) maps, and the National Hydrography Dataset (NHD) were reviewed to identify previously mapped and other possible wetlands and waterbodies within the wetland delineation

area. A site visit was conducted on August 29th to field check the initial wetland delineation areas (Figure 1). The east wetland delineation area was accessed from 116th Avenue SW and the entire boundary was walked with particular attention paid to proximity of the Heart River and the NHD mapped "blue line" in the western part of this area. The western area was accessed from 39th Street SW; we parked and walked north to the site along the property boundary fence as instructed. Again, the entire boundary was walked with particular attention paid to the portion adjacent to the Heart River. On September 27th, a second field visit was made to investigate additional wetland delineation areas that had been added since the initial site visit. All the new areas were accessed by walking along the railroad tracks.

Wetlands are considered special aquatic sites and were delineated in accordance with methods described in the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual (manual) (U.S. Army Corps of Engineers 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0) (U.S. Army Corps of Engineers 2010). The 2012 National Wetland Plant List for North Dakota was used to determine the indicator status of plant species (Lichvar and Kartesz. 2009). Soil mapping units were determined from the Natural Resources Conservation Service's Web Soil Survey (NRCS 2012).

Determination of wetland vs. upland was made according to the three-parameter approach described in the manual. The boundary between wetland and upland was recorded on a sub-meter Trimble Geo XT GPS unit. The location of the soil pit in each wetland and corresponding upland was also recorded on the GPS unit. The resulting shape files were plotted on color IR aerial photographs (1 m resolution) using ArcView 9.2. The boundaries between wetland and upland were distinct due to geomorphic features (e.g. steep banks) or abrupt vegetation changes. Wetland acreage was calculated based on the GPS boundaries collected in the field. The ordinary high water mark (OHWM) of other waters of the U.S. was also recorded on the GPS unit.

Results

Water Bodies

The Heart River crosses one wetland delineation area and comes near (within 10 feet) of a second area. A third potential water body shown as a blue line on the NHD map was investigated but it is not a traditional navigable water, nor a tributary to a navigable water with no defined bed and bank and no evidence of periodic flow. These water bodies are described below with accompanying photographs; data sheets are found in the attachment to this technical memo.

While portions of several wetland delineation areas follow the Heart River, the boundaries were investigated and found to be outside the OHWM of the river, and in most instances, also outside of the associated riparian corridor. At many locations, the wetland delineation area boundaries were 10 to 20 feet above the river.

- WB1 – Heart River crossing
  The Heart River contained a narrow wetland delineation area just south of the railroad tracks (Figure 1). At the crossing, the river at the time of the field visit was an estimated 60 feet in width, with an approximate width OHWM to OHWM of 70 feet. Both the east and west bank have a slope of approximately 45°. The slopes were covered in dense woody vegetation, notably snowberry (*Symphoriocarpos* sp.), boxelder (*Acer negundo*), and green ash (*Fraxinus pennsylvanica*), to or near the water's edge.



WB1 – Heart River

- WB2 – Heart River
  The OHWM of the Heart River is approximately 10 feet outside the boundary of a second wetland delineation area (Figure 1). At this location, the river at the time of the field visit was an estimated 60 feet in width, with an approximate width OHWM to OHWM of 70 feet. The east bank had wetland vegetation (cattail – *Typha* latifolia), and hydric, saturated soils (based on hydrogen sulfide odor) within the OHWM. The bank, with a slope of approximately 45°, was covered in dense woody vegetation (e.g., snowberry, dogwood [*Cornus sericea*], and rose [*Rosa arkansana*].



WB2 (outside of wetland delineation area)

- WB3-no – NHD "blue line" stream
  The NDH map showed a blue line crossing through two wetland delineation blocks at the eastern end of the project area. These areas were investigated and found to be a swale, with no defined bed and bank and no evidence of periodic flow. Such features are generally not considered to be waters of the U.S.



WB3-no (swale)

Wetlands

Three wetlands occur in the wetland delineation areas at the Calumet refinery site. Two wetlands occur in the narrow wetland delineation area adjacent to the railroad, and the third is located in the wetland delineation area north of the railroad (Figure 1). All three wetlands were dominated by hydrophytes. Wetlands 1a and 1b are both within the Haverlon silt loam, channeled, wooded, 0-2% slopes soil mapping unit, which is not on the hydric soils list. Wetland WL2 is within the Arnegard loam, saline, 0-2% slopes soil mapping unit; which is also not on the hydric soils list. Due to the timing of the field visit (late summer/fall in a generally dry year) typical hydrologic indicators, such as saturation or standing water, were not present but the geomorphic position on the landscape (all three wetlands were in a depression) and evidence of oxidized rhizospheres on living roots indicate hydrology. Following is a summary table describing each wetland, including photographs; data sheets are found in the attachment to this technical memo.

Table 1. Summary of Wetlands within Wetland Delineation Areas.

Wetland ID Number	Description	Type	Size (acres)
1a	Small depressional wetland adjacent to railroad embankment; culvert present. Based on aerial photo, wetland is located in an old oxbow/floodplain of the Heart River. Dominated by hydrophytes with hydric soils; hydrology was determined based on oxidized rhizospheres on living roots.	PEM	0.02
1b	Small depressional wetland adjacent to railroad embankment. Based on aerial photo, wetland is located in an old oxbow/floodplain of the Heart River. Dominated by *Spartina pectinata* with hydric soils; hydrology was determined based on oxidized rhizospheres on living roots.	PEM	0.02
2	Wetland located within a depressional area within a larger swale. Dominated by hydrophytes with hydric soils; hydrology was determined based on oxidized rhizospheres on living roots.	PEM	0.19
Total			0.23



WL 1a wetland



WL 1a wetland – view of culvert



WL 1a – adjacent upland



WL 1b



WL 2 – overview



WL 2

Literature Cited

Lichvar, Robert W. and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (September 2012).

Natural Resources Conservation Service (NRCS). Web Soil Survey, available online at http://websoilsurvey.nrcs.usda.gov/. Accessed September 2012.

U.S. Army Corp of Engineers. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. Waterways Experiment Station, Vicksburg, Mississippi.

U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0). ERDC/EL TR-10-1. Environmental Laboratory, Vicksburg, Mississippi.

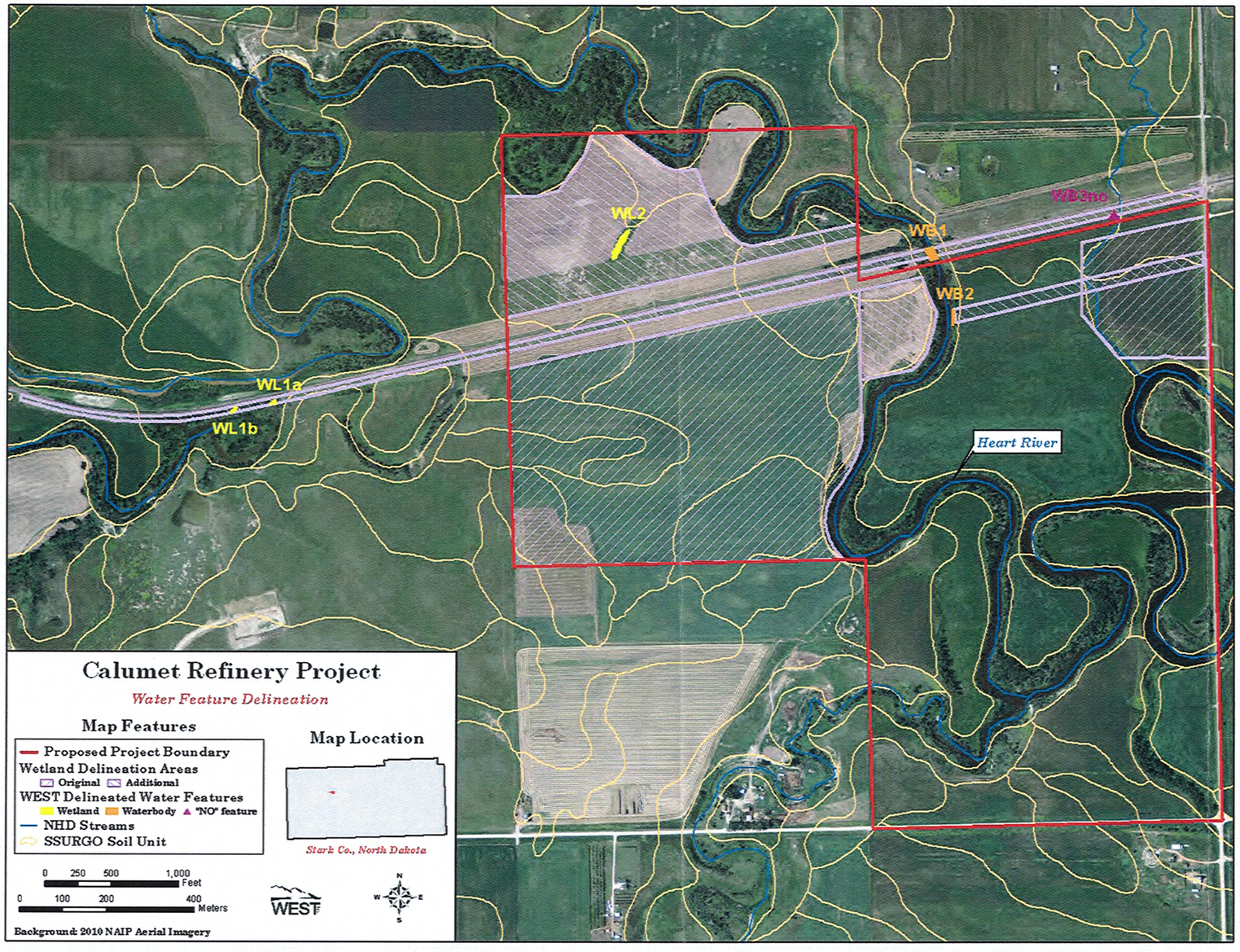

WL2
WB1
WB3no
WB2
WL1a
WL1b
Heart River
Calumet Refinery Project
Water Feature Delineation
Map Features
Proposed Project Boundary
Wetland Delineation Areas
Original
Additional
WEST Delineated Water Features
Wetland
Waterbody
"NO" feature
NHD Streams
SSURGO Soil Unit
Map Location
Stark Co., North Dakota
0 250 500 1,000 Feet
0 100 200 400 Meters
WEST
N
W
E
S
Background: 2010 NAIP Aerial Imagery

Figure 1.

ATTACHMENTS

Waterbody Survey Data Sheet

- **COLLECT ALL DATA FROM THE CENTER LINE (if otherwise collect GPS point)**
- **Collect GPS data on both sides for major waterbodies**

Unique Site ID: WB1			
Date: Sept. 27, 2012	State: ND	County: Stark	
Project: Calumet Refinery			

Waterbody Characteristics

Stream classification (Circle One):	Intermittent	(Perennial)	Ephemeral
Approx. Water open water width (ft): 60		Approx. ave. water depth (ft): 3	
Approx. Top of bank width (ft): 70		Bank slope (left): 45°	
Approx. OHWM to OHWM width (ft): 70		Bank slope (right):45°	
Approximate water velocity: slow		Riparian Forest (Present/Absent): absent	
Riparian Corridor (describe veg. communities w/ riparian corridor, list dominant species in each community): Shrubby thicket dominated by snowberry, boxelder, ash			

Stream bottom composition:		(silt)	clay	sand
	gravel	cobble	boulders	bedrock	muck
Unique features:	seeps	gravel beds	erosion	bank collapse
	riprap road	bedrock	wells	adjacent wetlands
	buildings	cut-off channels	riffles/runs	steep side slopes

If a seep is present please describe (e.g. seep out of west bank 10 feet up bank):
Where was GPS Data Taken (Bank, OHWM, Water edge): bank

Notes

Heart River

Waterbody Survey Data Sheet

- **COLLECT ALL DATA FROM THE CENTER LINE (if otherwise collect GPS point)**
- **Collect GPS data on both sides for major waterbodies**

Unique Site ID: WB2			
Date: Sept. 27, 2012	State: ND	County: Stark	
Project: Calumet Refinery			

Waterbody Characteristics

Stream classification (Circle One):	Intermittent	(Perennial)	Ephemeral
Approx. Water open water width (ft): 60		Approx. ave. water depth (ft): 3	
Approx. Top of bank width (ft): 70		Bank slope (left): 45°	
Approx. OHWM to OHWM width (ft): 70		Bank slope (right):45°	
Approximate water velocity: slow		Riparian Forest (Present/Absent): absent	
Riparian Corridor (describe veg. communities w/ riparian corridor, list dominant species in each community): Shrubby thicket dominated by ash, dogwood, snowberry, and rose on bank; cattail along bank within OHWM			

Stream bottom composition:		(silt)	clay	sand
gravel	cobble	boulders	bedrock	muck
Unique features:	seeps	gravel beds	erosion	bank collapse
	riprap road	bedrock	wells	adjacent wetlands
	buildings	cut-off channels	riffles/runs	steep side slopes
If a seep is present please describe (e.g. seep out of west bank 10 feet up bank):				
Where was GPS Data Taken (Bank, OHWM, Water edge): bank				

Notes

Heart River – approximately 10 feet outside of wetland delineation boundary.

Waterbody Survey Data Sheet

- **COLLECT ALL DATA FROM THE CENTER LINE (if otherwise collect GPS point)**
- **Collect GPS data on both sides for major waterbodies**

Unique Site ID: WB3-no			
Date: Sept. 27, 2012	State: ND	County: Stark	
Project: Calumet Refinery			

Waterbody Characteristics

Stream classification (Circle One):	Intermittent	Perennial	Ephemeral
Approx. Water open water width (ft):		Approx. ave. water depth (ft):	
Approx. Top of bank width (ft):		Bank slope (left):	
Approx. OHWM to OHWM width (ft):		Bank slope (right):	
Approximate water velocity:		Riparian Forest (Present/Absent):	
Riparian Corridor (describe veg. communities w/ riparian corridor, list dominant species in each community):			
Stream bottom composition:	silt	clay	sand
gravel	cobble	boulders	bedrock	muck
Unique features:	seeps	gravel beds	erosion	bank collapse
	riprap road	bedrock	wells	adjacent wetlands
	buildings	cut-off channels	riffles/runs	steep side slopes
If a seep is present please describe (e.g. seep out of west bank 10 feet up bank):			
Where was GPS Data Taken (Bank, OHWM, Water edge):			

Notes

Blue line on map; a swale, not a waterbody.

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Calumet Refinery Site City/County: Stark County Sampling Date: Sep 27, 2012

Applicant/Owner: State: ND Sampling Point: WL 1 a & b

Investigator(s): J. Flaig, E. Lack Section, Township, Range: T139N R97W Sec 16

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): F Lat: 46°51'22.81"N Long: 102°55'21.62"W Datum: WGS 1984

Soil Map Unit Name: Haverlon silt loa, channeled, wooded, 0-2% slopes NWI Classification: PEM

Are climatic / hydrologic conditions on site typical for this time of year? : ☐ YES ☒ NO (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? ☒ YES ☐ 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	**Is the Sampled Area within a Wetland?** ☒ YES ☐ NO
Hydric Soil Present? ☒ YES ☐ NO	
Wetland Hydrology Present? ☒ YES ☐ NO	

Remarks: Dry year. Wetland sample point near mouth of culvert. Data collected at polygon "a"; data sheets applies to both "a" and "b" polygons.

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: 5')			
1. Phalaris arundinaceae	20	No	FACW
2. Echinochloa mucrata	20	No	FACW
3. Spartina pectinata	70	Yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	110 = 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		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:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤ 3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problem Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? ☒ YES ☐ NO

Remarks:

SOIL

Sampling Point: WL1

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 3/2	80	7.5 YR 4/6	20	C	M	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)
- ☐ Redo 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)**
- ☐ Other (Explain in Remarks)
- ☐ 1 cm Muck (A9) **(LRR I, J)**
- ☐ Coast Prairie Redox (A16) **(LRR F, G, H)**

[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)
- ☐ Surface Soil Cracks (B6)
- ☐ Innundation 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 2 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**
Water Table Present? ☒ **YES** ☐ **NO**
Saturation Present? (Includes capillary fringe) ☒ **YES** ☐ **NO**

Wetland Hydrology Present? ☒ **YES** ☐ **NO**

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

Remarks:

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Calumet Refinery City/County: Stark County Sampling Date: Sep 27, 2012

Applicant/Owner: State: ND Sampling Point: WL 1- upl

Investigator(s): J. Flaig, E. Lack Section, Township, Range: T139N R97W Section16

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 50

Subregion (LRR): F Lat: 46°51'22.81"N Long: 102°55'21.62"W Datum: WGS1984

Soil Map Unit Name: Haverlon silt loam,channeled, wooded, 0-2% slopes NWI Classification: upland

Are climatic / hydrologic conditions on site typical for this time of year? : ☐ YES ☒ NO (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? ☒ YES ☐ 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 Hydric Soil Present? ☐ YES ☐ NO Wetland Hydrology Present? ☐ YES ☐ NO	**Is the Sampled Area within a Wetland?** ☐ YES ☒ NO

Remarks:
Dry year. Upland sample point taken adjacent to wetland on a hillslope

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: 5')			
1. Symphoriocarpos albus	20	Yes	UPL
2.			
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot Size: 5')			
1. Bromus inermis	50	Yes	UPL
2. Spartina pectinata	25	Yes	FACW
3. Mentha sp.	5	No	
4. Bassia scoparia	15	No	
5.			
6.			
7.			
8.			
9.			
10.			
	95 = 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:	3	(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		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:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤ 3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problem Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? ☒ YES ☐ NO

Remarks:

SOIL

Sampling Point: WL1 upl

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	100					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)
- ☐ Redo 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)**
- ☐ Other (Explain in Remarks)
- ☐ 1 cm Muck (A9) **(LRR I, J)**
- ☐ Coast Prairie Redox (A16) **(LRR F, G, H)**

[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)
- ☐ Surface Soil Cracks (B6)
- ☐ Innundation 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 2 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**
Water Table Present? ☐ **YES** ☐ **NO**
Saturation Present? (Includes capillary fringe) ☐ **YES** ☐ **NO**

Wetland Hydrology Present? ☒ **YES** ☐ **NO**

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

Remarks:

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Calumet Refinery City/County: Stark Sampling Date: Sep 27, 2012

Applicant/Owner: State: ND Sampling Point: WL 2

Investigator(s): J. Flaig, E. Lack Section, Township, Range: T139N, R97W, Section16

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): F Lat: 46°51'33.58" Long: 102°54'42.61" Datum: WGS 1984

Soil Map Unit Name: Arnegard loam, saline, 0-2% slopes NWI Classification: PEM

Are climatic / hydrologic conditions on site typical for this time of year? : ☐ YES ☒ NO (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? ☐ YES ☒ 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	**Is the Sampled Area within a Wetland?** ☒ YES ☐ NO
Hydric Soil Present? ☒ YES ☐ NO	
Wetland Hydrology Present? ☒ YES ☐ NO	

Remarks:
Dry year.

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: 5')			
1. Persecaria amphibia	90	Yes	OBL
2. Thalaspi arvense	10	No	NI
3. Bassia scoparia	5	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	105 = 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		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:

☐ Dominance Test is >50%

☒ Prevalence Index is ≤ 3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problem Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? ☒ YES ☐ NO

Remarks:

SOIL

Sampling Point: WL 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
0-10	10YR 3/2	95	7.5 YR 4/6	5	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 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)
- ☐ Redo 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)**
- ☐ Other (Explain in Remarks)
- ☐ 1 cm Muck (A9) **(LRR I, J)**
- ☐ Coast Prairie Redox (A16) **(LRR F, G, H)**

[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)
- ☐ Surface Soil Cracks (B6)
- ☐ Innundation 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 2 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**
Water Table Present? ☒ **YES** ☐ **NO**
Saturation Present? (Includes capillary fringe) ☒ **YES** ☐ **NO**

Wetland Hydrology Present? ☒ **YES** ☐ **NO**

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

Remarks:

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Calumet Refinery City/County: Stark Sampling Date: Sep 27, 2012

Applicant/Owner: State: ND Sampling Point: wl2 upl

Investigator(s): J. Flaig, E. Lack Section, Township, Range: T139N R97W Section 15

Landform (hillslope, terrace, etc.): plain Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): F Lat: 46°51'33.58" Long: 102°54'42.61" Datum: WGS 1984

Soil Map Unit Name: Arnegard loam, saline, 0-2% slopes NWI Classification: UPL

Are climatic / hydrologic conditions on site typical for this time of year? : ☐ YES ☒ NO (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? ☒ YES ☐ 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 Hydric Soil Present? ☐ YES ☐ NO Wetland Hydrology Present? ☐ YES ☐ NO	**Is the Sampled Area within a Wetland?** ☐ YES ☒ NO

Remarks:
Dry year. Upland sample point located on flat plain adjacent to wetland.

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: 5')			
1. Symphoriocarpos orbiculatus	20	Yes	FACU
2.			
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot Size: 5')			
1. Bromus inermis	100	Yes	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-): ____ (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:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤ 3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problem Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? ☒ YES ☐ NO

Remarks:

SOIL

Sampling Point: WL 2 upl

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	10 YR 3/2	100					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)
- ☐ Redo 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)**
- ☐ Other (Explain in Remarks)
- ☐ 1 cm Muck (A9) **(LRR I, J)**
- ☐ Coast Prairie Redox (A16) **(LRR F, G, H)**

[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)
- ☐ Surface Soil Cracks (B6)
- ☐ Innundation 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 2 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**
Water Table Present? ☐ **YES** ☐ **NO**
Saturation Present? (includes capillary fringe) ☐ **YES** ☐ **NO**

Wetland Hydrology Present? ☒ **YES** ☐ **NO**

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

Remarks:

Josh Nuss

om: Adam C. Driscoll <ADriscoll@barr.com>
ɔent: Thursday, June 13, 2013 10:09 AM
To: Zach Verke
Subject: FW: Requested Revision to NW-2013-0297-BIS - Dakota Prairie Refinery (UNCLASSIFIED)

Importance: High

Zach, please save a copy of this email in the permits folder.

Adam C. Driscoll, PE
Environmental Engineer
Minneapolis office: 952.832.2791
cell: 701.426.6132
adriscoll@barr.com
www.barr.com

-----Original Message-----
ɒm: Erhardt, Toni R NWO [mailto:Toni.R.Erhardt@usace.army.mil]
ɔent: Thursday, June 13, 2013 11:02 AM
To: Adam C. Driscoll
Cc: Eric Hochhalter (eric.hochhalter@westconindustries.com); Mike Ziemba; Shanna R. Braun; Trull, JW (JW.Trull@kniferiver.com)
Subject: RE: Requested Revision to NW-2013-0297-BIS - Dakota Prairie Refinery (UNCLASSIFIED)
Importance: High

Classification: UNCLASSIFIED
Caveats: NONE

Adam, On March 11, 2013, Dakota Prairie Refining Company, LLC received authorization to construct a bridge over the Heart River to access a proposed diesel refinery west of Dickinson, North Dakota. The authorization included installation of a temporary cofferdam/crane pad to facilitate construction of the bridge. I have reviewed your request to install two temporary cofferdams/crane pads in the locations shown on the drawing provided instead of one. While the area of impact nearly doubles, the impacts are considered minor and the project continues to meet the criteria of Nationwide Permit No. 39. No additional authorization is necessary. This email and a copy of the drawing will be added to the administrative record for compliance purposes. You may begin installation upon receipt of this email. Feel free to give me a call if you have any questions. Toni

Toni R. Erhardt, Project Manager
USACE, North Dakota Regulatory Office
1513 South 12th Street
ɜmarck, North Dakota 58504
(701) 255-0015

-----Original Message-----
From: Adam C. Driscoll [mailto:ADriscoll@barr.com]
Sent: Wednesday, June 12, 2013 10:24 AM
To: Erhardt, Toni R NWO
Cc: Eric Hochhalter (eric.hochhalter@westconindustries.com); Mike Ziemba; Shanna R. Braun; Trull, JW (JW.Trull@kniferiver.com)
Subject: Requested Revision to NW-2013-0297-BIS - Dakota Prairie Refinery

Toni,

This email serves as Dakota Prairie Refining Company's request to revise NW-2013-0297-BIS, consistent with our phone conversations held on June 11 and 12, 2013.

In our original permit application, we indicated that a temporary crane pad would be used for bridge construction, located southeast of the bridge location and consisting of a cofferdam and fill with approximate dimensions of 30' x 60' and a water displacement volume of around 575 cubic yards that would temporarily occupy up to 50% of the channel width.

We request a revision to this application, replacing the single temporary crane pad with two crane pads located on opposite sides of the river, north of the bridge location. A diagram of the new temporary crane pads is shown in the attachment. The two temporary crane pads will displace approximately 1,300 cubic yards of water and will temporarily occupy less than 50% of the channel. The approximate total footprint of the two temporary crane pads is 3,000 square feet (0.07 acres; approximately 2,000 square feet on the west side and 1,000 square feet on the east side).

The temporary crane pads will consist of cofferdams comprised of 3 ft x 3 ft x 3 ft sandbags. The area within the cofferdams would then be filled with a Class 5 material. Geotextile fabric will be utilized between the sandbag cofferdams and fill to provide a stabilization and to prevent sediment loading to the Heart River.

Please let us know of any questions you have, or anything that I or our staff can do to assist you in expediting the review process.

Adam C. Driscoll, PE

Environmental Engineer
Minneapolis office: 952.832.2791
Cell: 701.426.6132
adriscoll@barr.com
www.barr.com

DEMAG AC180
98.1 FT MAIN BOOM (LK-CODE: 12)
141,000 LBS CTWT
100% EXTENDED OUTRIGGERS

LOAD INFORMATION
MAXIMUM EXPECTED LOAD WEIGHT: 61,700 LBS
TYPE 160 7 SHEAVE BLOCK: 3,308 LBS
RIGGING: 500 LBS (ESTIMATED)
LINE WEIGHT: 589 LBS @ 4 PARTS LINE
OTHER DEDUCTIONS: 0 LBS
NET LOAD WEIGHT: 66,097 LBS

CRANE SETUP
MAX PLANNED OPERATING RADIUS: 52'-0"
CAPACITY @ 52'-0": 72,300 LBS
PERCENT CAPACITY REACHED: 91.4%

WORKSITE SETUP
MAX PAD LOAD @ 52'-0" RADIUS: 156,226 LBS
RECOMMENDED SUPPORT SIZE: 104 FT² OR GREATER OF SUPPORT PER OUTRIGGER
SUPPORT EXAMPLE: 10.5' x 10.0' x 2" STEEL PLATES (1,488 PSF)

GENERAL LIFT PROCEDURE
1. TRANSPORT ENTERS FROM NE OF BRIDGE
2. RIGGING IS ATTACHED TO LIFTING POINT ON BEAM END "A"
3. RIGGING/BEAM END "A" IS ATTACHED TO GROVE GMK5275 AT APPROXIMATELY 65 FT OPERATING RADIUS
4. GROVE GMK5275 HOISTS BEAM END "A" FROM TRANSPORT
5. WHILE TRANSPORT CONTINUES TO BACK BEAM END "B" FROM NE, GROVE GMK5275 HOISTS/SWINGS BEAM END "A" TOWARDS SHADED REGION
6. ONCE BEAM END "A" REACHES SHADED REGION, GROVE TMS800E EXTENDS MANBASKET AND RIGGING PERSONNEL TO TRANSITION POINT
7. ADDITIONAL SET OF RIGGING IS ATTACHED TO BEAM END "A" VIA MANBASKET
8. RIGGING/BEAM END "A" IS ATTACHED TO DEMAG AC180 AT APPROXIMATELY 52 FT OPERATING RADIUS
9. GROVE GMK5275 LOWERS BEAM END "A" UNTIL DEMAG AC180 ASSUMES ENTIRE LOAD WEIGHT
10. RIGGING IS DISCONNECTED FROM GROVE GMK5275 AND BEAM END "A"
11. WHILE TRANSPORT CONTINUES TO BACK BEAM END "B" FROM NE, DEMAG AC180 HOISTS/SWINGS BEAM END "A" TOWARDS FINAL DESTINATION
12. WHEN BEAM END "B" REACHES OPERATING RADIUS OF GROVE GMK5275, TRANSPORT AND DEMAG AC180 STOPS OPERATION
13. RIGGING/BEAM END "B" IS ATTACHED TO GROVE GMK5275 AT APPROXIMATELY 65 FT OPERATING RADIUS
14. TRANSPORT IS REMOVED AND GROVE GMK5275 AND DEMAG AC180 HOISTS/SWINGS LOAD IN TANDEM TO FINAL DESTINATION

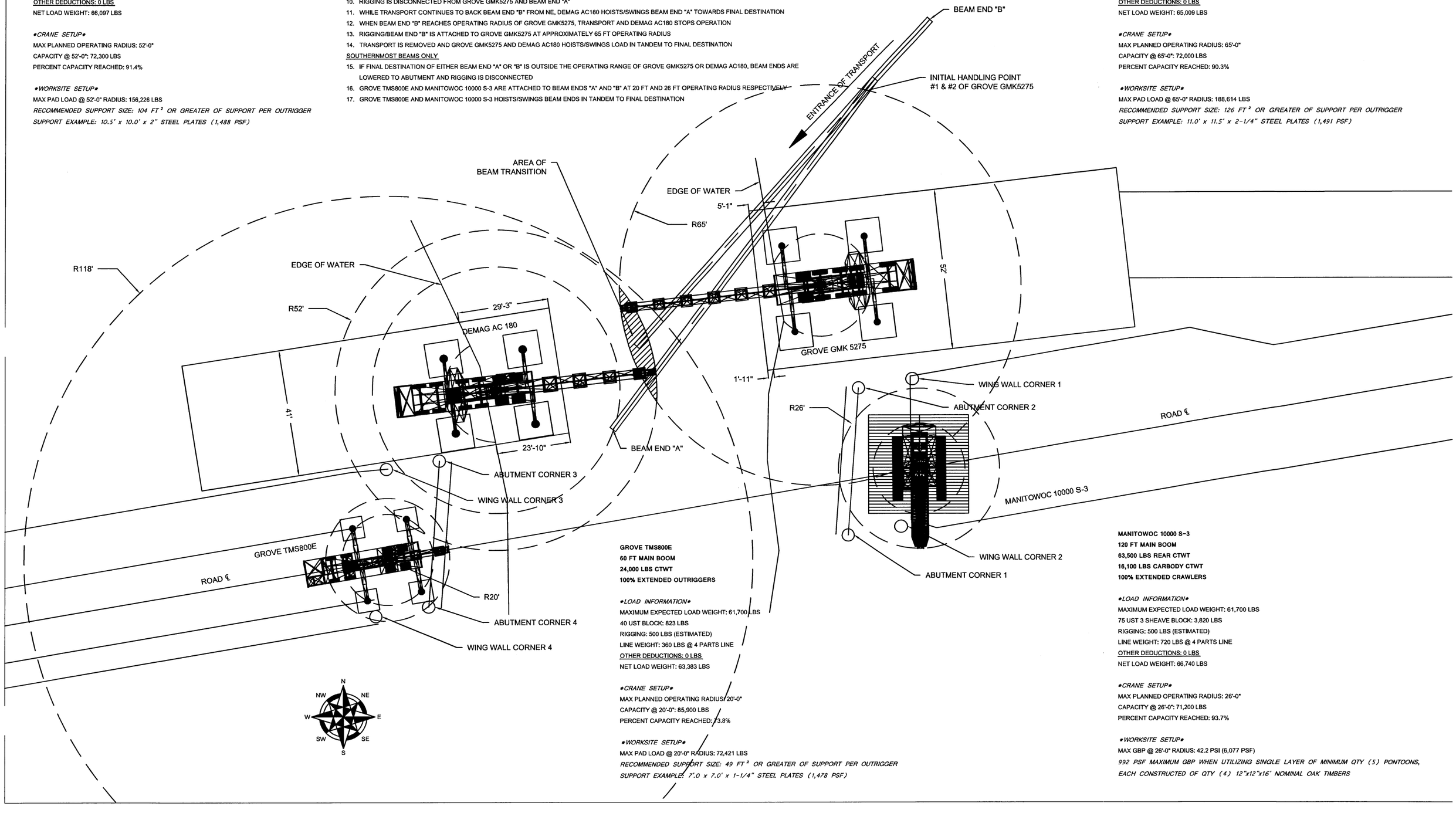
SOUTHERNMOST BEAMS ONLY
15. IF FINAL DESTINATION OF EITHER BEAM END "A" OR "B" IS OUTSIDE THE OPERATING RANGE OF GROVE GMK5275 OR DEMAG AC180, BEAM ENDS ARE LOWERED TO ABUTMENT AND RIGGING IS DISCONNECTED
16. GROVE TMS800E AND MANITOWOC 10000 S-3 ARE ATTACHED TO BEAM ENDS "A" AND "B" AT 20 FT AND 26 FT OPERATING RADIUS RESPECTIVELY
17. GROVE TMS800E AND MANITOWOC 10000 S-3 HOISTS/SWINGS BEAM ENDS IN TANDEM TO FINAL DESTINATION

GROVE GMK5275
119.1 FT MAIN BOOM (SLI-CODE: 2200)
169,700 LBS CTWT
100% EXTENDED OUTRIGGERS

LOAD INFORMATION
MAXIMUM EXPECTED LOAD WEIGHT: 61,700 LBS
80 mt 3 SHEAVE BLOCK: 2,095 LBS
RIGGING: 500 LBS (ESTIMATED)
LINE WEIGHT: 714 LBS @ 4 PARTS LINE
OTHER DEDUCTIONS: 0 LBS
NET LOAD WEIGHT: 65,009 LBS

CRANE SETUP
MAX PLANNED OPERATING RADIUS: 65'-0"
CAPACITY @ 65'-0": 72,000 LBS
PERCENT CAPACITY REACHED: 90.3%

WORKSITE SETUP
MAX PAD LOAD @ 65'-0" RADIUS: 188,614 LBS
RECOMMENDED SUPPORT SIZE: 126 FT² OR GREATER OF SUPPORT PER OUTRIGGER
SUPPORT EXAMPLE: 11.0' x 11.5' x 2-1/4" STEEL PLATES (1,491 PSF)



GROVE TMS800E
60 FT MAIN BOOM
24,000 LBS CTWT
100% EXTENDED OUTRIGGERS

LOAD INFORMATION
MAXIMUM EXPECTED LOAD WEIGHT: 61,700 LBS
40 UST BLOCK: 823 LBS
RIGGING: 500 LBS (ESTIMATED)
LINE WEIGHT: 360 LBS @ 4 PARTS LINE
OTHER DEDUCTIONS: 0 LBS
NET LOAD WEIGHT: 63,383 LBS

CRANE SETUP
MAX PLANNED OPERATING RADIUS: 20'-0"
CAPACITY @ 20'-0": 85,900 LBS
PERCENT CAPACITY REACHED: 73.8%

WORKSITE SETUP
MAX PAD LOAD @ 20'-0" RADIUS: 72,421 LBS
RECOMMENDED SUPPORT SIZE: 49 FT² OR GREATER OF SUPPORT PER OUTRIGGER
SUPPORT EXAMPLE: 7'.0 x 7.0' x 1-1/4" STEEL PLATES (1,478 PSF)

MANITOWOC 10000 S-3
120 FT MAIN BOOM
63,500 LBS REAR CTWT
16,100 LBS CARBODY CTWT
100% EXTENDED CRAWLERS

LOAD INFORMATION
MAXIMUM EXPECTED LOAD WEIGHT: 61,700 LBS
75 UST 3 SHEAVE BLOCK: 3,820 LBS
RIGGING: 500 LBS (ESTIMATED)
LINE WEIGHT: 720 LBS @ 4 PARTS LINE
OTHER DEDUCTIONS: 0 LBS
NET LOAD WEIGHT: 66,740 LBS

CRANE SETUP
MAX PLANNED OPERATING RADIUS: 26'-0"
CAPACITY @ 26'-0": 71,200 LBS
PERCENT CAPACITY REACHED: 93.7%

WORKSITE SETUP
MAX GBP @ 26'-0" RADIUS: 42.2 PSI (6,077 PSF)
992 PSF MAXIMUM GBP WHEN UTILIZING SINGLE LAYER OF MINIMUM QTY (5) PONTOONS, EACH CONSTRUCTED OF QTY (4) 12"x12"x16' NOMINAL OAK TIMBERS

United States Department of the Interior

BUREAU OF RECLAMATION
Dakotas Area Office
P.O. Box 1017
Bismarck, North Dakota 58502

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
DK-5000
LND 6.00

MAR 27 2013

WBI HOLDINGS
MAR 2[illegible] 2013

Mr. Barry Haugen
Vice President
Dakota Prairie Refining, LLC
P.O. Box 5601
Bismarck, ND 58501

Subject: Letter of Consent to Dakota Prairie Refining to Install an Access Road/Vehicular Bridge with Pipe Rack Across Bureau of Reclamation Flowage Easements Upstream of Dickinson Reservoir (Patterson Lake), Stark County, North Dakota

Dear Mr. Haugen:

I have executed and enclosed a copy of the Letter of Consent for Dakota Prairie Refining to install an access road/vehicle bridge as specified upstream of Dickinson Reservoir.

You may contact Larry Kuntz at 701-221-1256 if you have questions relating to this LOC

Sincerely,

RL Long

Richard L. Long
Area Manager

Enclosure

United States Department of the Interior
BUREAU OF RECLAMATION
Dakotas Area Office
P.O. Box 1017
Bismarck, North Dakota 58502

TAKE PRIDE® IN AMERICA

IN REPLY REFER TO:
DK-5000
LND 6.00

MAR 22 2013

Mr. Barry Haugen
Vice President
Dakota Prairie Refining, LLC
P.O. Box 5601
Bismarck, ND 58501

Subject: Letter of Consent to Dakota Prairie Refining (DPR) to Install an Access Road/Vehicular Bridge with Pipe Rack Across Bureau of Reclamation Flowage Easements Upstream of Dickinson Reservoir (Patterson Lake), Stark County, North Dakota

Dear Mr. Haugen:

Bureau of Reclamation received your February 11, 2013, letter requesting we issue a letter of consent for an access road and related vehicle bridge which will carry multiple pipelines and utility service lines over a flowage easement held by Reclamation.

The flowage easement in question was acquired by Reclamation in 1952 and conveys the perpetual right, privilege, and easement to intermittently and completely overflow, flood, and inundate, and the right to enter upon at any time for the purpose of making surveys and investigations or for any purpose incidental to the construction, operation, and maintenance of the Dickinson Dam and Reservoir upon certain lands lying below elevation 2424.4 feet sea level datum in Section 15, Township 139 North, Range 97 West, and Fifth Principal Meridian. Furthermore, the easement stipulates that no buildings or improvements, other than fences, shall be erected below elevation 2422.0 sea level datum.

After reviewing the information provided in your letter and attachments, Reclamation is issuing this letter of consent to cross those lands associated with the flowage easement referenced above, provided the following conditions are satisfied.

Flowage Easement Crossing Conditions

Unless notified differently by Reclamation, you shall adhere to the following requirements for all construction, repair, operation, or maintenance that is performed within the flowage easement:

1. Reclamation was granted a flowage easement by the underlying landowner that gives a perpetual right and privilege and easement to intermittently and completely overflow, flood, and inundate. You must ensure unrestricted flow and protect the natural quality of

water within the easement. The proposed access road and vehicle bridge must not interfere with Reclamation's ability to impound water within the easement. DPR accepts that no buildings or improvements shall be situated below elevation 2422.0 sea level datum. You shall notify Reclamation 72 hours before construction or placement of any temporary structure upon flowage easement lands. It is recommended that you have a Reclamation representative present when construction is initiated and periodically at key milestones as work proceeds.

2. Reclamation shall be given the opportunity to conduct an on-the-ground review of the proposed bridge installation not less than 3 days prior to the start of and during installation.

3. DPR shall be responsible to install the bridge in accordance with all applicable Federal, State, and local codes.

4. DPR shall furnish Reclamation a copy of as-built drawings and surveys upon completion of the access bridge installation. The drawings and surveys shall provide measured distances or other appropriate information to show the location of the bridge relative to the flowage easements.

5. Construction, operations, and maintenance of the bridge and associated features are at the expense of DPR.

6. DPR shall notify Reclamation of any changes in the size or location of the bridge.

7. DPR shall immediately notify Reclamation of any operations or maintenance which may be deemed to affect Dickinson Dam (i.e., Reclamation facilities) and Reservoir (i.e., waters and adjacent resources).

8. If trees, shrubs, or other vegetation are removed within the flowage easement to accommodate construction, DPR shall be responsible to return the area to original condition upon completion of the bridge installation including, but not limited, to reseeding all disturbed areas.

9. DPR will be held responsible for any erosion, rutting, or other deterioration of the easement lands. All land disturbances associated with construction, operation, or maintenance of the bridge will be restored by, and at the expense of, DPR.

10. DPR shall ensure that specific measures are identified in the Storm Water Pollution Prevention Plan and implemented to prevent the release of sediment into the river and reservoir from the bridge construction site, including the temporary coffer dam and bridge pad.

11. DPR shall not interfere with Reclamation, or any other authorized personnel, in the performance of duties associated with operating or maintaining Dickinson Dam and Reservoir.

12. If, at any time or for any reason, the access road and vehicle bridge would require removal or relocation, such work will be undertaken by DPR at their sole expense. DPR will notify Reclamation in advance of any future work required within the flowage easement.

13. Bridge construction shall be halted immediately if Reclamation determines that the conditions imposed by this letter of consent are not being followed, or if it becomes apparent that Reclamation facilities, lands, or waters would be adversely impacted by continued construction.

14. This letter does not supersede any existing easements, ROWs, or reservations.

15. DPR shall be liable for any and all damages to the easement of the United States resulting from the exercise of the privileges granted by this letter. DPR will be responsible for costs associated with remediating any adverse and documented impacts or affects on Reclamation easements.

16. DPR agrees to hold harmless Reclamation, its employees, agents, and assigns from any loss or damage and from any liability on account of personal injury, property damage, or claims for personal injury or death arising due to the proposed activities addressed in this letter. Reclamation shall not be responsible for any loss or damage to property arising from issuance of this Letter of Consent, including but not limited to damages to growing crops, animals, and machinery; or injury to you or your associates, officers, agents, employees, or any others who are on the premises; or for damages or interference caused by natural phenomena.

17. DPR agrees to accept the Reclamation Flowage Easement location in the existing condition at the time of this letter, shall keep the premises in a neat and orderly condition at all times, and shall comply with all municipal-county-State-Federal laws, rules, and regulations applicable to their operations under this Letter of Consent.

These conditions of consent will be periodically reviewed, and Reclamation will seek remedy to correct any violations that may be identified. We understand from your letter that a railroad siding line and related railroad bridge may also be constructed across Reclamation's flowage easement. Reclamation requests that you provide location and design information for this facility if or when it becomes available. We will issue a separate letter of consent for that facility once that information is provided, which can be expected to include similar conditions.

We appreciate the information that you provided about the Storm Water Pollution Prevention Plan, the Spill Prevention Control and Countermeasure Plan, and the Facility Response Plan.

These are of significant interest to us. The preservation and protection of the water and related resources at Dickinson Dam and Reservoir are of the utmost importance. Construction of this refinery immediately upstream of the reservoir is a significant source of concern. We request that DPR provide Reclamation the opportunity to review and comment on these plans as they are developed and implemented. We also request that you coordinate with us in our Emergency Management Program by participating in future orientation, tabletop, and functional exercises of our Emergency Action Plan for Dickinson Dam and Reservoir.

We look forward to working with you on this important project to ensure that the new facility can be operated in a way that will be compatible with the authorized purposes of Dickinson Dam and Reservoir.

If you agree with the terms of this letter of consent, please sign, date, and return to our office, Reclamation will sign the letter of consent and return a fully executed copy for your records. If you have any questions, please contact Larry Kuntz at 701-221-1256.

Sincerely,

R L Long

Richard L. Long
Area Manager

Concur:

Barry Haugen 3/25/2013

Barry Haugen
Vice President
Dakota Prairie Refining, LLC

Date

Concur:

R L Long 3/26/13

Richard L. Long
Area Manager
Bureau of Reclamation

Date

United States Department of the Interior
BUREAU OF RECLAMATION
Dakotas Area Office
P.O. Box 1017
Bismarck, North Dakota 58502

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
DK-5000
LND 6.00

MAR 22 2013

Mr. Barry Haugen
Vice President
Dakota Prairie Refining, LLC
P.O. Box 5601
Bismarck, ND 58501

Subject: Letter of Consent to Dakota Prairie Refining (DPR) to Install an Access Road/Vehicular Bridge with Pipe Rack Across Bureau of Reclamation Flowage Easements Upstream of Dickinson Reservoir (Patterson Lake), Stark County, North Dakota

Dear Mr. Haugen:

Bureau of Reclamation received your February 11, 2013, letter requesting we issue a letter of consent for an access road and related vehicle bridge which will carry multiple pipelines and utility service lines over a flowage easement held by Reclamation.

The flowage easement in question was acquired by Reclamation in 1952 and conveys the perpetual right, privilege, and easement to intermittently and completely overflow, flood, and inundate, and the right to enter upon at any time for the purpose of making surveys and investigations or for any purpose incidental to the construction, operation, and maintenance of the Dickinson Dam and Reservoir upon certain lands lying below elevation 2424.4 feet sea level datum in Section 15, Township 139 North, Range 97 West, and Fifth Principal Meridian. Furthermore, the easement stipulates that no buildings or improvements, other than fences, shall be erected below elevation 2422.0 sea level datum.

After reviewing the information provided in your letter and attachments, Reclamation is issuing this letter of consent to cross those lands associated with the flowage easement referenced above, provided the following conditions are satisfied.

Flowage Easement Crossing Conditions

Unless notified differently by Reclamation, you shall adhere to the following requirements for all construction, repair, operation, or maintenance that is performed within the flowage easement:

1. Reclamation was granted a flowage easement by the underlying landowner that gives a perpetual right and privilege and easement to intermittently and completely overflow, flood, and inundate. You must ensure unrestricted flow and protect the natural quality of

water within the easement. The proposed access road and vehicle bridge must not interfere with Reclamation's ability to impound water within the easement. DPR accepts that no buildings or improvements shall be situated below elevation 2422.0 sea level datum. You shall notify Reclamation 72 hours before construction or placement of any temporary structure upon flowage easement lands. It is recommended that you have a Reclamation representative present when construction is initiated and periodically at key milestones as work proceeds.

2. Reclamation shall be given the opportunity to conduct an on-the-ground review of the proposed bridge installation not less than 3 days prior to the start of and during installation.

3. DPR shall be responsible to install the bridge in accordance with all applicable Federal, State, and local codes.

4. DPR shall furnish Reclamation a copy of as-built drawings and surveys upon completion of the access bridge installation. The drawings and surveys shall provide measured distances or other appropriate information to show the location of the bridge relative to the flowage easements.

5. Construction, operations, and maintenance of the bridge and associated features are at the expense of DPR.

6. DPR shall notify Reclamation of any changes in the size or location of the bridge.

7. DPR shall immediately notify Reclamation of any operations or maintenance which may be deemed to affect Dickinson Dam (i.e., Reclamation facilities) and Reservoir (i.e., waters and adjacent resources).

8. If trees, shrubs, or other vegetation are removed within the flowage easement to accommodate construction, DPR shall be responsible to return the area to original condition upon completion of the bridge installation including, but not limited, to reseeding all disturbed areas.

9. DPR will be held responsible for any erosion, rutting, or other deterioration of the easement lands. All land disturbances associated with construction, operation, or maintenance of the bridge will be restored by, and at the expense of, DPR.

10. DPR shall ensure that specific measures are identified in the Storm Water Pollution Prevention Plan and implemented to prevent the release of sediment into the river and reservoir from the bridge construction site, including the temporary coffer dam and bridge pad.

11. DPR shall not interfere with Reclamation, or any other authorized personnel, in the performance of duties associated with operating or maintaining Dickinson Dam and Reservoir.

12. If, at any time or for any reason, the access road and vehicle bridge would require removal or relocation, such work will be undertaken by DPR at their sole expense. DPR will notify Reclamation in advance of any future work required within the flowage easement.

13. Bridge construction shall be halted immediately if Reclamation determines that the conditions imposed by this letter of consent are not being followed, or if it becomes apparent that Reclamation facilities, lands, or waters would be adversely impacted by continued construction.

14. This letter does not supersede any existing easements, ROWs, or reservations.

15. DPR shall be liable for any and all damages to the easement of the United States resulting from the exercise of the privileges granted by this letter. DPR will be responsible for costs associated with remediating any adverse and documented impacts or affects on Reclamation easements.

16. DPR agrees to hold harmless Reclamation, its employees, agents, and assigns from any loss or damage and from any liability on account of personal injury, property damage, or claims for personal injury or death arising due to the proposed activities addressed in this letter. Reclamation shall not be responsible for any loss or damage to property arising from issuance of this Letter of Consent, including but not limited to damages to growing crops, animals, and machinery; or injury to you or your associates, officers, agents, employees, or any others who are on the premises; or for damages or interference caused by natural phenomena.

17. DPR agrees to accept the Reclamation Flowage Easement location in the existing condition at the time of this letter, shall keep the premises in a neat and orderly condition at all times, and shall comply with all municipal-county-State-Federal laws, rules, and regulations applicable to their operations under this Letter of Consent.

These conditions of consent will be periodically reviewed, and Reclamation will seek remedy to correct any violations that may be identified. We understand from your letter that a railroad siding line and related railroad bridge may also be constructed across Reclamation's flowage easement. Reclamation requests that you provide location and design information for this facility if or when it becomes available. We will issue a separate letter of consent for that facility once that information is provided, which can be expected to include similar conditions.

We appreciate the information that you provided about the Storm Water Pollution Prevention Plan, the Spill Prevention Control and Countermeasure Plan, and the Facility Response Plan.

These are of significant interest to us. The preservation and protection of the water and related resources at Dickinson Dam and Reservoir are of the utmost importance. Construction of this refinery immediately upstream of the reservoir is a significant source of concern. We request that DPR provide Reclamation the opportunity to review and comment on these plans as they are developed and implemented. We also request that you coordinate with us in our Emergency Management Program by participating in future orientation, tabletop, and functional exercises of our Emergency Action Plan for Dickinson Dam and Reservoir.

We look forward to working with you on this important project to ensure that the new facility can be operated in a way that will be compatible with the authorized purposes of Dickinson Dam and Reservoir.

If you agree with the terms of this letter of consent, please sign, date, and return to our office, Reclamation will sign the letter of consent and return a fully executed copy for your records. If you have any questions, please contact Larry Kuntz at 701-221-1256.

Sincerely,

Richard L. Long
Area Manager

Concur:

_____ _____

Barry Haugen
Vice President
Dakota Prairie Refining, LLC

Date

Concur:

_____ _____

Richard L. Long
Area Manager
Bureau of Reclamation

Date

February 11, 2013

Richard Long, Area Manager
Dakotas Area Office
Bureau of Reclamation
304 East Broadway Avenue
Bismarck, ND 58502-1017

RE: Dakota Prairie Refining, LLC - Request for Letter of Consent for Construction in Flowage Easement

Dear Mr. Long

Dakota Prairie Refining, LLC (DPR) plans to construct a diesel refinery between Dickinson, ND, and South Heart, ND in Section 15, Township 139N, Range 97W (see attached Figures 1 and 2).

The refinery location is directly upstream of Lake Patterson and adjacent to a flowage easement along the Heart River in Section 15 which the Bureau of Reclamation holds. This easement is shown on Figure 2. It is our understanding that a letter of consent is required to construct within the flowage easement. The main refinery and buildings are all outside of the flowage easement but there will be at least one crossing of the Heart River with the potential for others that are still being examined at this time. The crossings include: 1) an access road and related vehicle bridge which will carry multiple pipelines and utility service lines, 2) a railroad siding line and related railroad bridge (optional, being examined at this time).

The design of the individual features of the DPR is in various stages of development and construction schedules are also varied. One of the first items to be constructed is the access road and vehicular bridge shown in Figure 2 and 3. Due to the varied design and construction schedule this letter of request is only for the access road and vehicle bridge. Subsequent request(s) will be made in the future for all other crossings.

Request No. 1 – Access Road and Vehicular Bridge

DPR requests a letter of consent for the access road and vehicular bridge as shown on the attached site plan (Figure 2). The bridge details are shown on Figure 3. The current construction schedule calls for construction to start as early as April, 2013. The roadway elevation of the bridge across the Heart River will range between 2442.4 and 2443.1 msl and the low chord elevation will be 2435.6 msl. The low level water surface was about 2422 msl at the time of an aerial survey performed in the 2nd quarter of 2012. The cross sectional area below the low chord is approximately 1,534 square feet. By comparison, the cross sectional area below the low chord of the existing BNSF railroad bridge is approximately 1,291 square feet. The low chord elevation of 2435.6 msl is the same elevation of the low chord of the existing BNSF railroad bridge located immediately upstream of this vehicle bridge. Additionally, the maximum

design water surface at the Dickinson Dam is 2430.6. As a result, DPR's proposed vehicular bridge should handle flows in excess of a 100 year event.

A temporary cofferdam and bridge pad will be constructed in the Heart River to facilitate construction of the bridge. At this time, this temporary cofferdam and bridge pad is expected to be in place for approximately one month. The base of the 30' by 60' structure will be about 2428 msl. The pad will support a crane for setting the bridge beams and a concrete pump truck. The pad will consist of a sheet piling perimeter filled with aggregate. The entire pad will be removed upon completion of the bridge and the area will be returned to its previous state.

General Information on DPR and Subsequent Correspondences

Figure 2 shows a preliminary site plan for the DPR. DPR owns all of Section 15 except for the railroad corridor and the southwest portion of the section. The main refinery area and all is expected to be above 2445 msl. Two water sources will serve the DPR. Drinking water and emergency backup industrial water will be obtained from the Southwest Pipeline Project. DPR's main industrial water will be obtained from the City of Dickinson's waste water facility. The process wastewater generated at DPR will be pretreated at an onsite wastewater treatment facility then piped to the City of Dickinson's waste water facility for final treatment. Stormwater generated at the DPR plant site will flow into an onsite stormwater pond. Water would be released from the pond to the Heart River via a controlled outlet structure only after inspections/testing.

Prior to beginning construction, DPR will develop a construction stormwater pollution prevention plan (SWPPP) and obtain coverage under the state of North Dakota's general construction stormwater permit (NDR10-000).

Additionally, prior to beginning operation of the facility, DPR will develop an industrial SWPPP and obtain coverage under the state of North Dakota's general industrial stormwater permit (NDR05-0000). Finally, prior to beginning operation, DPR will develop a Spill Prevention Control and Countermeasure (SPCC) as well as a Facility Response Plan (FRP), both consistent with the requirements of 40 CFR 112 in order to provide containment for oil storage and to provide a plan to respond to spills of oil in the unlikely event that they occur. The industrial SWPPP, SPCC, and FRP will be developed in the months leading up to the start-up of the facility (projected 4th quarter of 2014). Copies of these plans can be made available to you for your information once they are developed (3rd/4th quarter 2014).

Subsequent correspondence(s) will include more detailed information on the stormwater pond, facility spill containment, and any further river crossings.

Feel free to contact any of the following individuals for questions and comments.

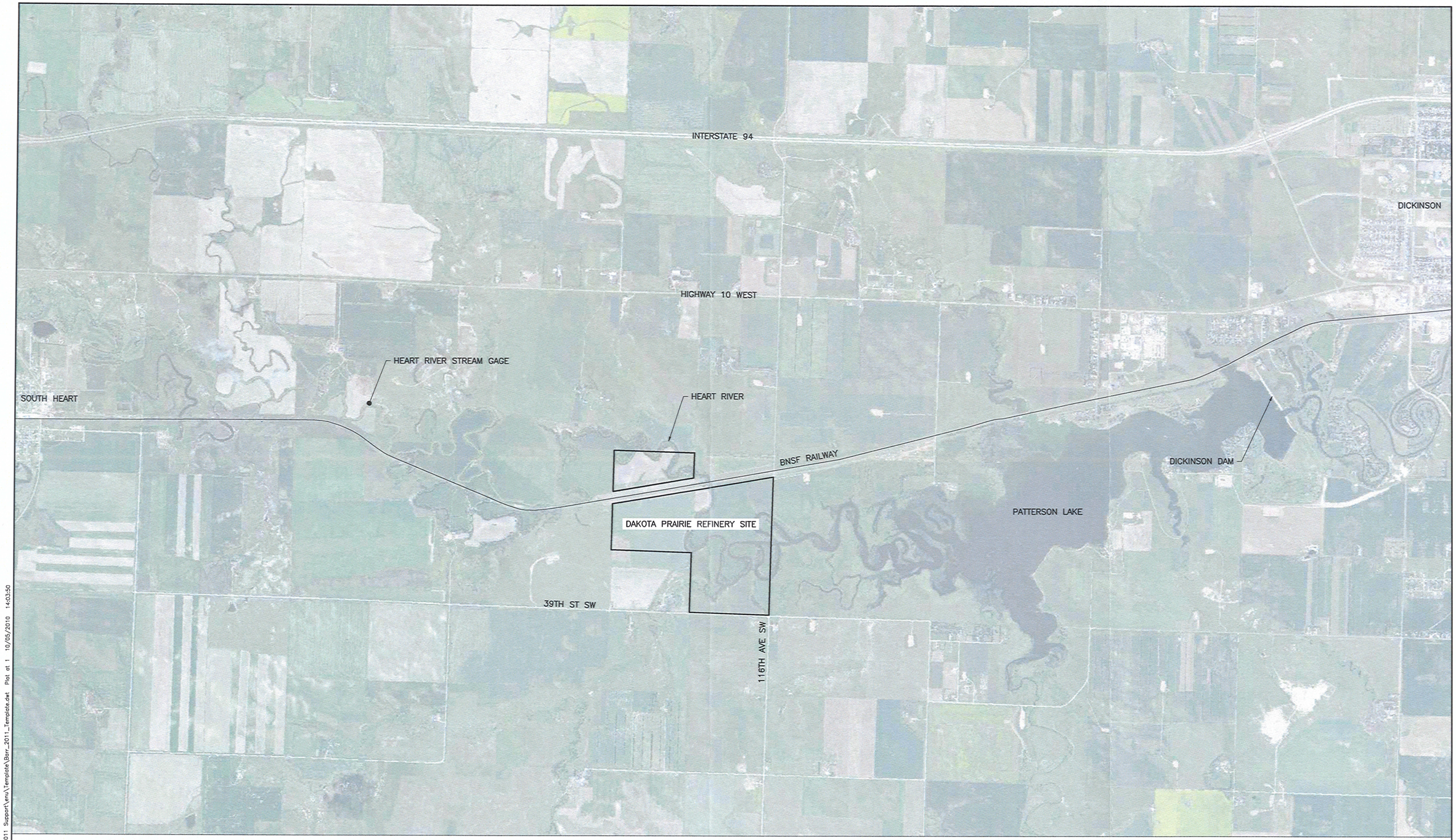
Mike Ziemba, Barr Engineering - 218-262-8630; mziemba@barr.com
Dale Frink, Barr Engineering - 701-471-4910; dfrink@barr.com

Sincerely,



Barry Haugen
Vice President

Enclosures



1 PLAN

N

0 1500 3000
SCALE IN FEET

PRELIMINARY DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

CLIENT
BID
CONSTRUCTION

RELEASED TO/FOR

A	B	C	D	0	1	2
DATE RELEASED						

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

Project Office:
BARR ENGINEERING CO.
3128 14TH AVENUE EAST
HIBBING, MN 55746
Ph: 1-800-225-1966
Fax: (218) 262-3460
www.barr.com

Scale	AS SHOWN
Date	1/14/2013
Drawn	GSJ
Checked	
Designed	
Approved	

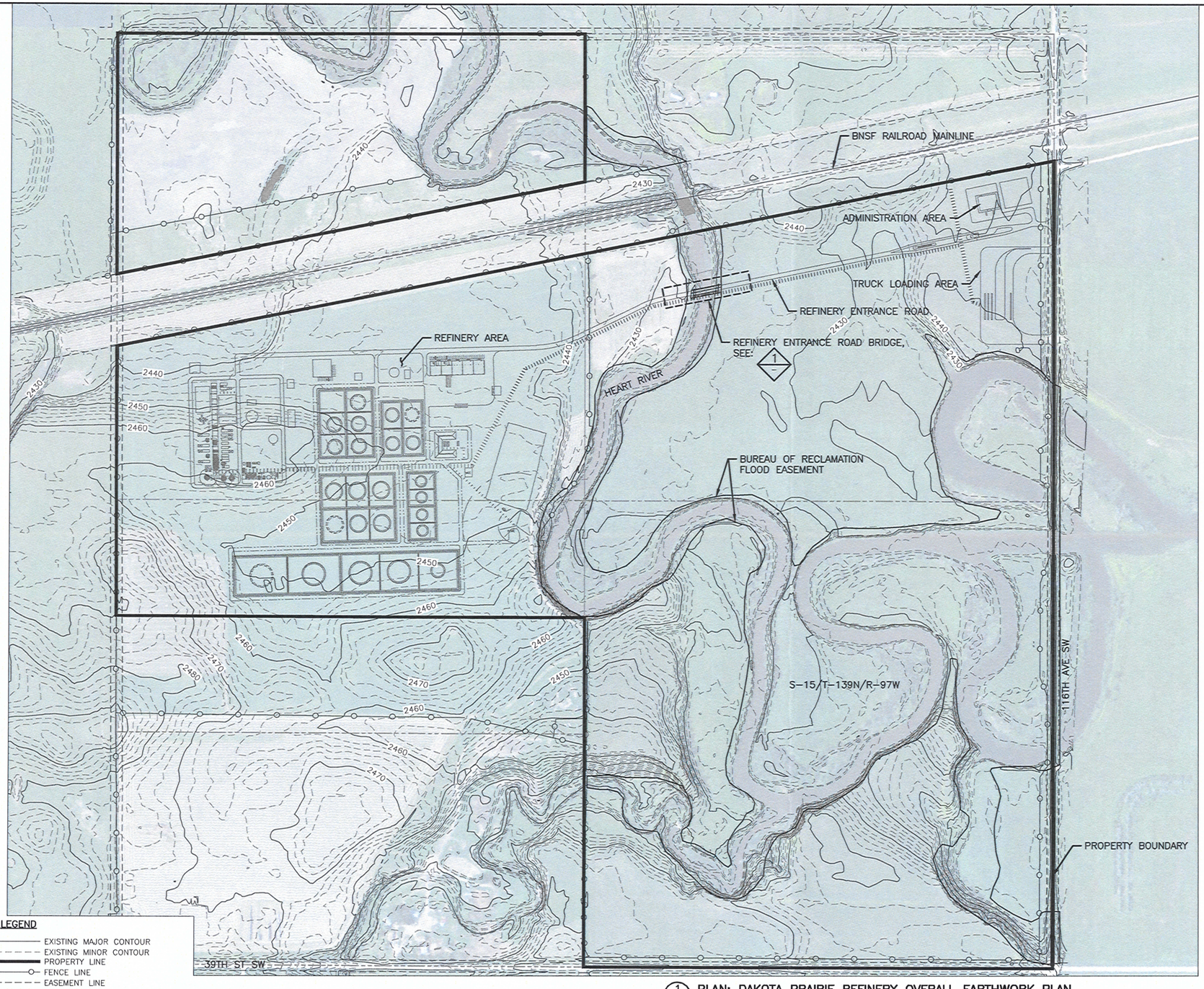
DAKOTA PRAIRIE REFINING, LLC
BISMARCK, NORTH DAKOTA

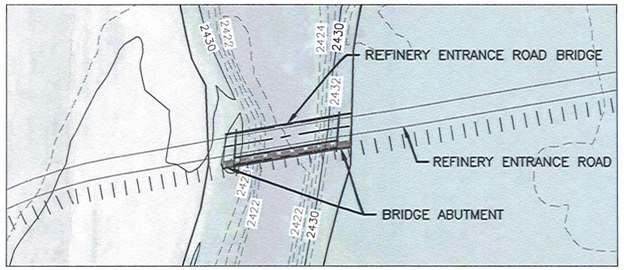
DAKOTA PRAIRIE REFINERY
DICKINSON, NORTH DAKOTA

OVERALL SITE PLAN

BARR PROJECT No. 34/45-1006.00
CLIENT PROJECT No.
DWG. No. FIGURE 1
REV. No. A

CADD USER: Greg Johnson FILE: K:\DESIGN\34451006.01\34451006Q_BR_FIGURE 1.DWG PLOT SCALE: 1:2 PLOT DATE: 1/21/2013 9:13 AM
BAR M:\AutoCAD 2011\AutoCAD 2011 Support\enu\Template\Barr_2011_Template.dwt Plot at 1 10/05/2010 14:03:50





1/- DETAIL: PROPOSED REFINERY ENTRANCE ROAD BRIDGE

0 100 200
SCALE IN FEET

N

LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPERTY LINE
- FENCE LINE
- EASEMENT LINE
- SECTION LINE
- WETLAND

1/- PLAN: DAKOTA PRAIRIE REFINERY OVERALL EARTHWORK PLAN

0 300 600
SCALE IN FEET

N

PRELIMINARY DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

RELEASED TO/FOR: CLIENT / BID / CONSTRUCTION

A	B	C	0	1	2	3

DATE RELEASED

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

Project Office:
BARR ENGINEERING CO.
3128 14TH AVENUE EAST
HIBBING, MN 55746
Ph: 1-800-225-1966
Fax: (218) 262-3460
www.barr.com

Scale	AS SHOWN
Date	1/18/2013
Drawn	GSJ
Checked	
Designed	
Approved	

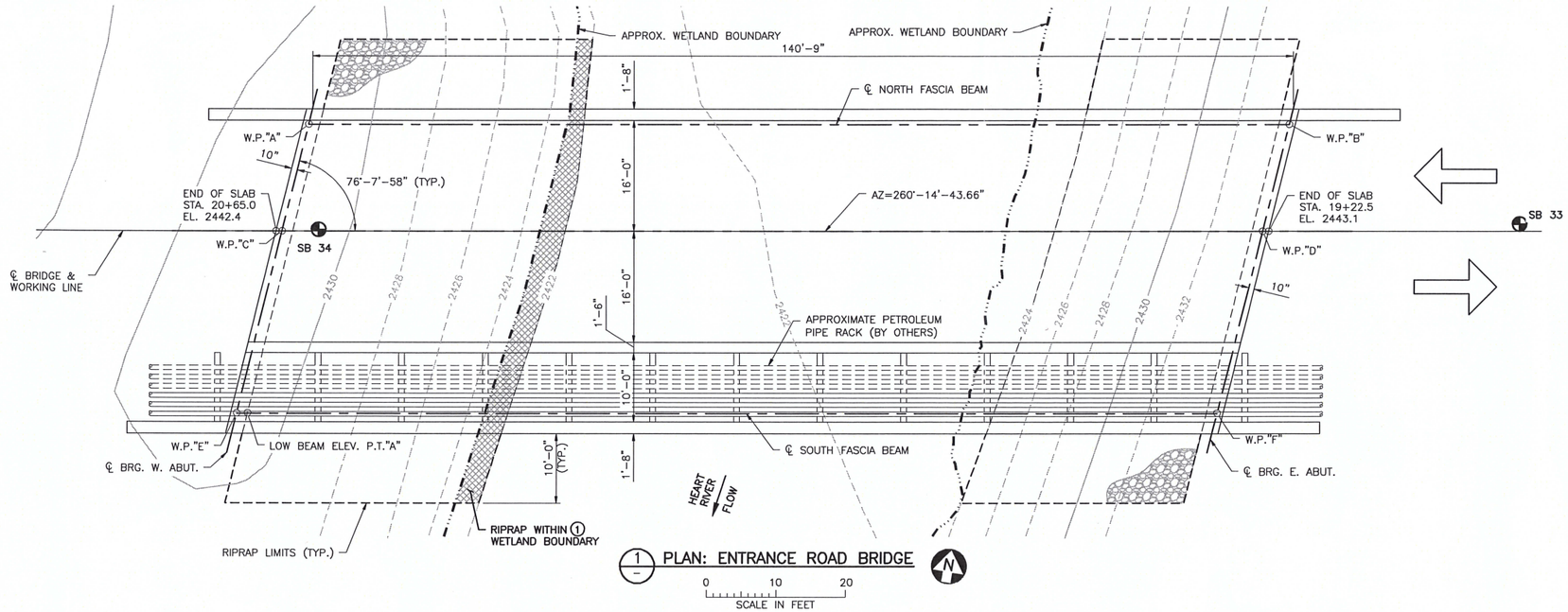
DAKOTA PRAIRIE REFINING, LLC
BISMARCK, NORTH DAKOTA

DAKOTA PRAIRIE REFINERY
DICKINSON, NORTH DAKOTA

PRELIMINARY SITE PLAN

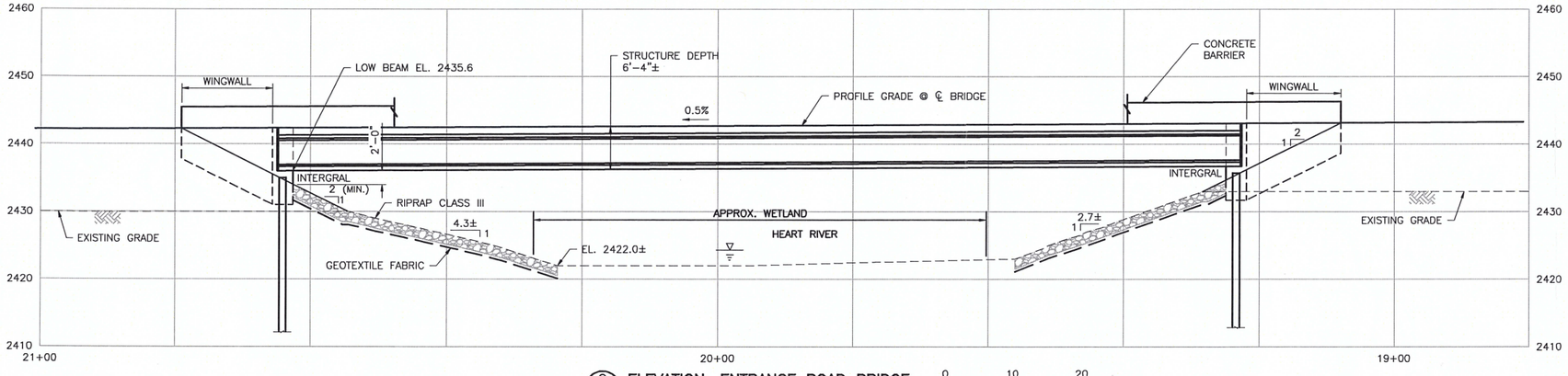
BARR PROJECT No. 34/45-1006.00
CLIENT PROJECT No.
DWG. No. FIGURE 2
REV. No. A

CADD USER: Greg Johnson FILE: K:\DESIGN\34451006.01\34451006600_BR_FIGURE 2.DWG PLOT SCALE: 1:2 PLOT DATE: 2/5/2013 3:38 PM GSJ M:\Design\34451006.00\34451006600_Proposed Planimetric - REV 1.dwg M:\Design\34451006.00\34451006600_Existing Planimetric.dwg M:\Design\34451006.01\Xrefs in Drawing M:\Design\34451006.00\34451006600_REVISED SITE PLAN NAME TBD.dwg Plot at 0 12/14/2012 12:25:23



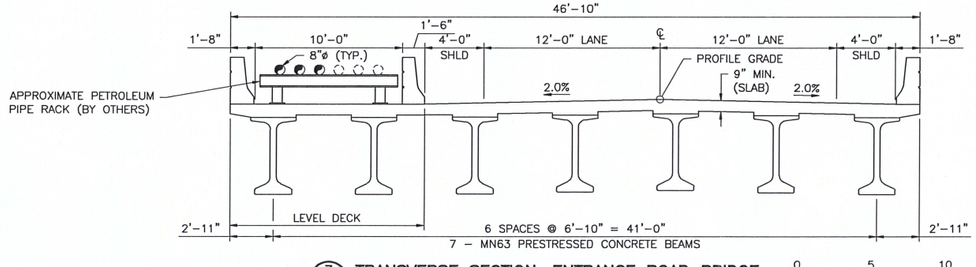
1 PLAN: ENTRANCE ROAD BRIDGE

0 10 20
SCALE IN FEET



2 ELEVATION: ENTRANCE ROAD BRIDGE

0 10 20
SCALE IN FEET



3 TRANSVERSE SECTION: ENTRANCE ROAD BRIDGE

0 5 10
SCALE IN FEET

DESIGN DATA

2012 AND CURRENT INTERIM AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

LOAD AND RESISTANCE FACTOR DESIGN METHOD: HL 93 LIVE LOAD

DEAD LOAD INCLUDES WEIGHT OF EIGHT 12"ø PIPES SUPPORTED ON PIPE RACK.

MATERIAL DESIGN PROPERTIES:

REINFORCED CONCRETE:

f'c = 4 K.S.I. n = 8

fy = 60 K.S.I. FOR REINFORCEMENT

PRESTRESSED CONCRETE:

f'c = 9 K.S.I. n = 1

fpu = 270 K.S.I. LOW RELAXATION STRANDS

DECK AREA = 7,014 SQ. FT.

DESIGN SPEED = XX MILES PER HOUR

OPERATING RATING: HS XX

NOTES:

(1) WETLAND IMPACTS FROM RIPRAP = 210.1 SF (0.005 Ac.)

PRELIMINARY DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

CLIENT / BID / CONSTRUCTION

RELEASED TO/FOR

A	B	C	0	1	2	3
DATE RELEASED						

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

Project Office:
BARR ENGINEERING CO.
3128 14TH AVENUE EAST
HIBBING, MN 55746
Ph: 1-800-225-1966
Fax: (218) 262-3460
www.barr.com

Scale	AS SHOWN
Date	09/20/2012
Drawn	MJJ
Checked	PKN
Designed	
Approved	

DAKOTA PRAIRIE REFINING, LLC
BISMARCK, NORTH DAKOTA

DAKOTA PRAIRIE REFINERY
DICKINSON, NORTH DAKOTA

PROPOSED
ENTRANCE ROAD BRIDGE

BARR PROJECT No. 34/45-1006.01
CLIENT PROJECT No. –
DWG. No. S1
REV. No. –

CADD USER: Max J. Jouppe FILE: K:\DESIGN\34451006.01\34451006I_S-01.DWG PLOT SCALE: 1:2 PLOT DATE: 2/6/2013 10:32 AM

FACT SHEET
NATIONWIDE PERMIT 39
(2012)

COMMERCIAL AND INSTITUTIONAL DEVELOPMENTS.

Discharges of dredged or fill material into non-tidal waters of the United States for the construction or expansion of commercial and institutional building foundations and building pads and attendant features that are necessary for the use and maintenance of the structures. Attendant features may include, but are not limited to, roads, parking lots, garages, yards, utility lines, storm water management facilities, and recreation facilities such as playgrounds and playing fields. Examples of commercial developments include retail stores, industrial facilities, restaurants, business parks, and shopping centers. Examples of institutional developments include schools, fire stations, government office buildings, judicial buildings, public works buildings, libraries, hospitals, and places of worship. The construction of new golf courses and new ski areas is not authorized by this NWP.

The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States, including the loss of no more than 300 linear feet of stream bed, unless for intermittent and ephemeral stream beds the district engineer waives the 300 linear foot limit by making a written determination concluding that the discharge will result in minimal adverse effects. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters. (See general condition 31.) (Sections 10 and 404)

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 31.)

Note: For any activity that involves the construction of a wind energy generating structure, solar tower, or overhead transmission line, a copy of the PCN and NWP verification will be provided to the Department of Defense Siting Clearinghouse, which will evaluate potential effects on military activities.

Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are

encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

13. Removal of Temporary Fills. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the NWP activity, or whether additional ESA consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed work or that utilize the designated critical habitat that might be affected by the proposed work. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-

construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs.

(e) Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. FWS or the NMFS, The Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.noaa.gov/fisheries.html respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for obtaining any "take" permits required under the U.S. Fish and Wildlife Service's regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the U.S. Fish and Wildlife Service to determine if such "take" permits are required for a particular activity.

20. Historic Properties. (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address section 106 compliance for the NWP activity, or whether additional section 106 consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of Section 106 of the National Historic Preservation Act. The district engineer shall

make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties on which the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

(d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for

any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 31, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse effects of the proposed activity are minimal, and provides a project-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in minimal adverse effects on the aquatic environment.

(2) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

(3) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) – (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

(4) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

(5) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream rehabilitation, enhancement, or preservation, to ensure that the activity results in minimal adverse effects on the aquatic environment.

(e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.

(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the restoration or establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to establish a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or establishing a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(g) Permittees may propose the use of mitigation banks, in-lieu fee programs, or separate permittee-responsible mitigation. For activities resulting in the loss of marine or estuarine resources, permittee-responsible compensatory mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality. *Specifically for North Dakota, the North Dakota Department of Health has issued water quality certification for projects under this Nationwide Permit that do not result in a loss or relocation of 150 feet or more of stream provided the attached Construction and Environmental Disturbance*

Requirements are followed. Water quality certification has been denied for projects proposed to authorize more than 150 feet of stream loss or relocation, individual certification must be obtained.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____

(Transferee)

_____

(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized work was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu

fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the work and mitigation.

31. Pre-Construction Notification—(a) *Timing.* Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either: (1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or (2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or in the vicinity of the project, or to notify the Corps pursuant to general condition
20 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification:* The PCN must be in writing and include the following information: (1) Name, address and telephone numbers of the prospective permittee; (2) Location of the proposed project; (3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause, including the anticipated amount of loss of water of the United States expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but

do not need to be detailed engineering plans); (4) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate; (5) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse effects are minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan. (6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and (7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act. (c) *Form of Pre-Construction Notification:* The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used. (d) *Agency Coordination:* (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level. (2) For all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States, for NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of intermittent and ephemeral stream bed, and for all NWP 48 activities that require pre-construction notification, the district engineer will immediately provide (e.g., via email, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site specific comments. The comments must explain why the agency believes the adverse effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the preconstruction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37,

the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5. (3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act. (4) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of preconstruction notifications to expedite agency coordination.

Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project.

2012 Nationwide Permits
Regional Conditions
Omaha District
State of North Dakota

The following Nationwide Permit regional conditions will be used in the State of North Dakota. Regional conditions are placed on Nationwide Permits to ensure projects result in less than minimal adverse impacts to the aquatic environment and to address local resources concerns.

Wetlands Classified as Peatlands – Revoked for Use

All Nationwide Permits, with the exception of 3, 5, 20, 32, 38 and 45, are revoked for use in peatlands in North Dakota.

Peatlands are saturated and inundated wetlands where conditions inhibit organic matter decomposition and allow for the accumulation of peat. Under cool, anaerobic, and acidic conditions, the rate of organic matter accumulation exceeds organic decay. Peatlands can be primarily classified into ombrotrophic bogs and minerotrophic fens; the latter subdivided into poor, moderate-rich, and extreme-rich fens, each with distinctive indicator species, community physiognomy, acidity, alkalinity, and base cation content.

Wetlands Classified as Peatlands – Pre-construction Notification Requirement

For Nationwide Permits 3, 5, 20, 32, 38, and 45 permittees must notify the Corps in accordance with General Condition 31 (Notification) prior to initiating any regulated activity impacting peatlands in North Dakota.

Waters Adjacent to Natural Springs – Pre-construction Notification Requirement

For all Nationwide Permits permittees must notify the Corps in accordance with General Condition No. 31 (Notification) for regulated activities located within 100 feet of the water source in natural spring areas in North Dakota. For purposes of this condition, a spring source is defined as any location where there is artesian flow emanating from a distinct point at any time during the growing season. Springs do not include seeps and other groundwater discharge areas where there is no distinct point source.

Missouri River, including Lake Sakakawea and Lake Oahe within the State of North Dakota – Pre-construction Notification Requirement

For all Nationwide Permits permittees must notify the Corps in accordance with General Condition No. 31 (Notification) prior to initiating any regulated activity in the Missouri River, including Lake Sakakawea and Lake Oahe, within the State of North Dakota.

Borrow Site Identification – All Nationwide Permits

The permittee is responsible for ensuring that the Corps is notified of the location of any borrow site that will be used in conjunction with the construction of the authorized activity so that the Corps may evaluate the site for potential impacts to aquatic resources, historic properties, and endangered species. For projects where there is another lead Federal agency, the permittee shall provide the Corps documentation indicating that the lead Federal agency has complied with the National Historic Preservation Act and Endangered Species Act for the borrow site. The permittee shall not initiate work at the borrow site in conjunction with the authorized activity until approval is received from the Corps.

Counter-sinking Culverts and Associated Riprap – All Nationwide Permits

That culverts and riprap proposed to be installed within waters of the United States listed as Class III or higher on the 1978 Stream Evaluation Map for the State of North Dakota shall be installed one foot below the natural streambed. The 1978 Stream Evaluation Map for the State of North Dakota can be accessed on the North Dakota Regulatory Office's website at: http://www.nwo.usace.army.mil/html/od-rnd/ndhome.htm.

REGIONAL CONDITIONS APPLICABLE TO SPECIFIC NATIONWIDE PERMITS

Nationwide Permit 7 – Outfall Structures and Associated Intake Structures and Nationwide Permit 12 – Utility Line Activities

Intake Structures - Intake screens with a maximum mesh opening of 1/4-inch must be provided, inspected annually, and maintained. Wire, Johnson-like, screens must have a maximum distance between wires of 1/8-inch. Water velocity at the intake screen shall not exceed ½-foot per second.

Pumping plant sound levels will not exceed 75 dB at 50 feet.

Intakes located in Lake Sakakawea, above river mile 1519, are subject to the following conditions:

- The intakes shall be floating.
- At the beginning of the pumping season, the intake shall be placed over water with a minimum depth of 20 feet.
- If the 20-foot depth is not attainable, then the intake shall be located over the deepest water available.
- If the water depth falls below six feet, the intake shall be moved to deeper water or the maximum intake velocity shall be limited to ¼ foot per second.

Intakes located in Lake Sakakawea, below river mile 1519, and in the Missouri River below Garrison Dam are subject to the following conditions:

- The intakes shall be submerged.
- At the beginning of the pumping season, the intake will be placed at least 20 vertical feet below the existing water level.
- The intake shall be elevated 2 to 4 feet off the bottom of the river or reservoir bed.
- If the 20-foot depth is not attainable, then the intake velocity shall be limited to ¼-foot per second with the intake placed at the maximum practicable attainable depth.

Nationwide Permit 11 – Temporary Recreational Structures - Boat Docks

a. If future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

b. No boat dock shall be located on a sandbar or barren sand feature located in or along the banks of the Missouri River.

c. The farthest point riverward on the dock located on the Missouri River proper shall not exceed a total length of 30 feet from the ordinary high water line found along the high bank out into the River. Information Note: Issuance of this permit does not supersede authorization required by the North Dakota State Engineer's Office.

d. Any boat dock located on the Missouri River shall be anchored to the top of the high bank.

e. Any boat dock located within an excavated bay or marina off the main river channel may be anchored to the bay or marina bottom with spuds.

Nationwide Permit 13 - Bank Stabilization

Permittees must notify the Corps in accordance with General Condition No. 31 (Notification) prior to initiating any regulated activity within the State of North Dakota.

Nationwide Permit 23 - Approved Categorical Exclusions

Permittees must notify the Corps in accordance with General Condition No. 31 (Notification) prior to initiating any regulated activity within the State of North Dakota. In addition to information required by General Condition 31, permittees must identify the approved categorical exclusion that applies and provide documentation that the project fits the categorical exclusion.

Nationwide Permit 27 - Aquatic Habitat Restoration, Establishment and Enhancement Activities

Permittees must notify the Corps in accordance with General Condition No. 31 (Notification) prior to initiating any regulated activity within the State of North Dakota.

GENERAL CONDITIONS (REGIONAL ADDITIONS)

General Condition 3- Spawning Areas

No regulated activity within waters of the United States listed as Class III or higher on the 1978 Stream Evaluation Map for the State of North Dakota or on the North Dakota Game and Fish Department's website as a North Dakota Public Fishing Water shall occur between 15 April and 1 June. No regulated activity within the Red River of the North shall occur between 15 April and 1 July. North Dakota Public Fishing Waters can be accessed at: http://gf.nd.gov/fishing/nd-fish-wat.html. The 1978 Stream Evaluation Map for the State of North Dakota can be accessed on the North Dakota Regulatory Office's website at: http://www.nwo.usace.army.mil/html/od-rnd/ndhome.htm.

General Condition 6 – Suitable Material

Permittees are reminded that General Condition No. 6 prohibits the use of unsuitable material. In addition, organic debris, some building waste, and materials excessive in fines are not suitable material. Specific verbiage on prohibited materials can be accessed on the North Dakota Regulatory Office's website at: http://www.nwo.usace.army.mil/html/od-rnd/ndhome.htm.

General Condition 9 - Management of Water Flows

Permittees are reminded that water flow management addressed in General Condition 9 is applicable to all aspects of a permitted project, including temporary features.

General Condition 31 – Pre-construction Notification

Prospective permittees should be aware that a **field delineation** may be required for applications where notification is required in accordance with General Condition 31 and/or mitigation may be required. The Corps 1987 Wetland Delineation Manual and applicable Regional Supplements to the Manual can be accessed on the North Dakota Regulatory Office's website at: http://www.nwo.usace.army.mil/html/od-rnd/ndhome.htm.

Sovereign Land Permit No. S-1838

Permittee: **Dakota Prairie Refining Co., LLC**
P.O. Box 5601
Bismarck, ND 58506

Location: **SW ¼ NE ¼ and SE ¼ NW ¼ of Section 15, Township 139 North, Range 97 West, Stark County.**

Project Description:

The Permittee is hereby authorized to construct a vehicular bridge, temporary construction pad, and a storm water outlet structure on the Heart River in Stark County.

Specifically, the project will involve stripping topsoil from the site leading to the vehicle bridge location and reshaping the riverbanks as necessary to accommodate the bridge approaches. The bridge will be approximately 140 feet in length.

A temporary three-sided cofferdam enclosing a 30-foot by 60-foot work pad constructed of approximately 575 cubic yards of Class 5 fill material will be constructed within the Heart River channel to allow a 400-ton hydraulic crane to erect the main bridge beam supports. The work pad will extend 3 to 4 feet above the water elevation of the Heart River at the time of construction and is anticipated to occupy up to 50% of the river channel.

Upon completion of bridge construction, the cofferdam and work pad will be removed and the riverbank re-contoured to match pre-construction conditions. Geotextile fabric and rock riprap will be placed to minimize the potential for channel scour.

The storm water pond will include an outlet structure with a 210-foot long 24-inch pipe that will discharge onto a rock riprap apron located on the right bank of the Heart River. The apron will consists of either a 6-inch aggregate or geotextile fabric base which will be covered by approximately 24 cubic yards of rock riprap placed on the riverbank to prevent channel scour.

This authorization is subject to the conditions listed below and to the attached North Dakota Department of Health "Construction and Environmental Disturbance Requirements." Any other use of sovereign land is prohibited. Any proposed additional use must comply with the application and permitting process and all other requirements of state law.

General Conditions

1. Authorization of this undertaking is a privileged use of a public resource and does not constitute a property right. The public use and enjoyment of the Heart River is of high priority.

2. All construction, maintenance, and reclamation activities shall be carried out in a manner reasonably designed to prevent degradation of the Heart River.

3. The Permittee shall implement measures to minimize the opportunity for sediment to enter the Heart River during construction.

4. The Permittee shall comply with the North Dakota Department of Health's *Construction and Environmental Disturbance Requirements* (copy attached).

5. No work shall be conducted within the waters of the Heart River from April 15 to June 1 in order to protect fishery resources.

6. The Permittee shall comply with all state regulations with regard to the prevention of introduction of Aquatic Nuisance Species (ANS) into the state's waters. The Permittee shall contact Mr. Fred Ryckman, ANS Biologist, North Dakota Game and Fish Department at (701) 770-0920 to schedule an inspection of all vehicles and equipment a minimum of 72 hours prior to those items being launched or placed in the Heart River.

7. Any construction debris or excess material shall be disposed of in a non-wetland, non-timbered upland site or in an approved landfill.

8. Any disturbed areas shall be restored to pre-project conditions and revegetated with species native to the area.

9. Prior to or during construction, if items of substantial archeological value are discovered or a deposit of such items is disturbed, the Permittee shall cease construction activities in the area so affected. The State Engineer shall be promptly notified of the discovery, and construction will not resume until the State Engineer gives written permission.

10. This Authorization is site specific for the project as proposed and outlined in the application and supporting documents. Any changes or deviation from the site or design will need authorization from the State Engineer.

11. At the discretion of the State Engineer, in accordance with the exercise of any of the State Engineer's duties, the project is subject to modification or removal at the expense of the Permittee.

12. The State Engineer or the State Engineer's representative shall have access to inspect the authorized project during construction and associated activities and for the life of the project to ensure that it is being or has been accomplished and maintained in accordance with the terms and conditions of this Authorization.

13. The Permittee is responsible for obtaining any other local, state, or federal permits or approvals that may be necessary prior to construction.

14. By granting this Authorization, no liability for damages of any kind, including those caused by improper construction, operation and maintenance, design or failure in design, materials, or workmanship, is assumed by or transferred to the State of North Dakota, the State Engineer, the State Water Commission or any of their respective employees, agents, or assigns. The Permittee will indemnify and hold harmless the State of North Dakota, its officials, employees, agents, boards, commissions, and assigns for any and all liability for work performed and action taken under this Authorization.

Todd Sando

Date: 5/13/2013

Todd Sando
State Engineer

FLOODPLAIN DEVELOPMENT PERMIT APPLICATION
NON-BUILDING SITUATION

COMMUNITY: **Stark County**

GENERAL INFORMATION:

1. PERMIT # 3-3-13
2. DATE: 3/6/2013
3. ESTIMATED COST OF THE PROJECT: $ $300,000,000

Applicant: Barry Haugen, Vice President Address: Dakota County Prairie, LLC PO Box 5601 Bismarck, ND 58506 Telephone # : (701) 530-1504	Primary Contact Applicant's Representative: Jason Westbrock, P.E. Address: Barr Engineering Co. 234 West Century Avenue Bismarck, ND 58503 Telephone # : (701) 255-5472 Email: jwestbrock@barr.com
	Secondary Contact Applicant's Representative: Nathan Campeau, CFM Address: Barr Engineering Co. 4700 W 77th St. Edina, MN 55435 Telephone # : (952) 832-2854 Email: ncampeau@barr.com

Project description: (attach additional maps, drawings, diagrams, and information as necessary)

Construction of a refinery and associated infrastructure. See attached memo for full project description.

PROPOSED DEVELOPMENT ACTIVITIES: (check all that apply)

- x Fill placement (fill brought in from outside the floodplain)
- x Excavation (where fill is removed from the floodplain)
- ____ Landscaping (cut and fill, fill borrow and placement)
- ____ Removal or relocation of fill, embankment, or dikes
- x Construction/Maintenance of a dike/levee/floodwall/embankment
- x Road, street or bridge construction (new, repair or replacement, realignment)
- ____ Drainage improvements (channelization, culverts & other physical work)
- ____ Watercourse alterations (river, stream, drain, lake - channel modifications, rip-rap)
- ____ Mining (removal of gravel, rock, fill or other natural materials)
- ____ Land Reclamation (gravel pits, spoil banks, borrow areas)
- x Installation of utilities (water/sewer, pipeline, gas, electric, communications)
- ____ Tower Construction (communications tower, antennae etc.)
- x Pipeline construction (temporary construction activity)
- ____ Well drilling (water, oil, natural gas etc.)
- ____ Subdivision (new or expansion of existing subdivision)
- ____ Other (please specify) _____

FLOODPLAIN INFORMATION:

Beginning land elevation at development site: varies, see attached (MSL)
Estimated Base Flood Elevation at development site: varies, see attached (MSL)
Development will be elevated above: varies, see attached (MSL)

Please describe explain any changes to panel 425 of the Stark County FIRM:
We are not proposing any changes to the FEMA mapping at this time. We may request a Letter of Map Revision from FEMA later to create a physical change to the FEMA maps.

ACTION / APPROVAL:

The proposed development is in conformance with applicable community floodplain standards.

PERMIT IS APPROVED: (As conditioned - as well as receiving project's as-built information)

Signature: Diane Brines
(Diane Brines, Stark County Floodplain Administrator)

Approval Date: 4/1/2013

Comments/conditions related to the Issuance of this permit:
Attached engineering report.

1505 South 30th Avenue
PO Box 96
Moorhead, MN 56561-0096
218 287 0300
kljeng.com

KLJ

March 26, 2013

Ms. Diane Brines
Tax Director
Stark County
PO Box 130
Dickinson, ND 58601

Re: Review of Heart River Floodplain Permit Request for Dakota Prairie Refinery

Dear Ms. Brines:

On the behalf of Stark County, KLJ was requested to review the Floodplain Permit for the Dakota Prairie Refinery submitted by Barr Engineering, March 6, 2013. That review was completed on March 25, 2013 with a letter and review report provided to you and Barr Engineering.

KLJ and Barr Engineering have discussed the comments and they were addressed in part in a revised document by Barr Engineering on March 25, 2013. The remainder, of the comments, was addressed in an email from Barr Engineering on March 26, 2013 which they plan to incorporate in a final submittal. The county was added as an addressee on the email. For completeness, a portion of that email comprising the response to the comments, provided by Nathan Campeau of Barr Engineering is attached.

The county should note, that the access road crossing does incur an increase in the floodplain; as Barr Engineering discusses in their submittal. Therefore, a portion of the submittal is a hydraulic model that will allow for tracking of cumulative impacts per FEMA rules.

At this time, KLJ has no further comments and recommends moving forward with the permit process upon receipt, by the county, of the anticipated final submittal from Barr Engineering.

Sincerely,

KLJ

John Wirries
PE, CFM

Enclosure(s): Email response to comments from Barr Engineering; March 26, 2013
Project #: 3312107
c: Tim Kelly, PE KLJ
Jason Westbrook, PE Barr Engineering
Nathan Campeau, CFM, PE Barr Engineering

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): March 11, 2013

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD: Barr Engineering Company, ATTN: Shanna Braun, Environmental Scientist, 4700 West 77th Street, Suite 200, Minneapolis, Minnesota 55435

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: Omaha District (NDRO) | NWO-2013-0297-BIS | Dakota Prairie Refinery Bridge Across Heart River west of Dickinson, ND

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION: This project is located on the Heart River in Section 15, Township 139 North, Range 97 West, Stark County, North Dakota. Dakota Prairie Refinery proposes to construct a bridge to access the proposed refinery site. The Heart River meets the criteria of a Traditional Navigable Waterway (TNW).

State: North Dakota County/parish/borough: Stark City: West of Dickinson
Center coordinates of site (lat/long in degree decimal format):
Lat. 46.85780° N Long. -102.90207° W
Universal Transverse Mercator: 14
Name of nearest waterbody: Heart River

Identify (estimate) amount of waters in the review area:
Non-wetland waters: 100 linear feet: 70 width (ft) and/or 0.16 acres.
Cowardin Class: R2UBF
Stream Flow:
Wetlands: acres.
Cowardin Class:
Name of any water bodies on the site that have been identified as Section 10 waters:
Tidal:
Non-Tidal:

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒ Office (Desk) Determination. Date: March 11, 2013
☐ Field Determination. Date(s):

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit

applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.
This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Plans and plans overlaid on a recent aerial photo.
- ☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: .
- ☐ Corps navigable waters' study: .
- ☒ U.S. Geological Survey Hydrologic Atlas: .
  - ☐ USGS NHD data.
  - ☒ USGS 8 and 12 digit HUC maps. Upper Heart | 10130202
- ☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24,000 | South Heart, ND.
- ☐ USDA Natural Resources Conservation Service Soil Survey. Citation: .
- ☒ National wetlands inventory map(s). Cite name: South Heart, ND.
- ☐ State/Local wetland inventory map(s): .
- ☐ FEMA/FIRM maps: .
- ☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- ☒ Photographs: ☐ Aerial (Name & Date): ORM2/GoogleEarthPro/ArcMap .
  or ☐ Other (Name & Date): .
- ☐ Previous determination(s). File no. and date of response letter:
- ☐ Other information (please specify): .

<u>IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.</u>

Tami R Gehardt 3/11/13
Signature and date of
Regulatory Project Manager
(REQUIRED)

3-14-13
Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining the signature is impracticable)

NORTH DAKOTA
DEPARTMENT of HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov

September 27, 2013

Julia Macejkovic, P.E.
Barr Engineering, Co.
3128 14th Ave. East
Hibbing, MN 55746

RE: 20,000 BPSD Dakota Prairie Refinery
Sanitary Sewer – Packages 2 and 3
Potable Water – Packages 2 and 3
Project No. 34/45-1006.01
Addenda Numbers 1 and 2 to Sanitary Sewer – Packages 2 and 3
Addenda Numbers 1 and 2 to Potable Water – Packages 2 and 3
Dickinson, North Dakota

Dear Ms. Macejkovic:

The plans and specifications including the addenda for the above referenced project have been reviewed by this Department and are hereby approved.

Should you have any questions, please contact Hristo Papalichev at 701.328.5223 or hpapalichev@nd.gov.

Sincerely,

D. Wayne Kern

D. Wayne Kern, P.E.
Director
Municipal Facilities

DWK:HAP:dgg
xc: Shawn Kessel, Admin, Dickinson
Southwestern District Health Unit

A Class I and Class III Cultural Resource Inventory of the Dakota Prairie Refinery, Stark County, North Dakota

Prepared for

Barr Engineering

Prepared by

SWCA Environmental Consultants

February 2013

MANUSCRIPT DATA RECORD FORM

1. Manuscript Number:

2. SHPO Reference #:

3. Author(s): Craig Picka and Sean Doyle

4. Title: A Class I and Class III Cultural Resource Inventory of the Dakota Prairie Refinery, Stark County, North Dakota

5. Report Date: February 19, 2013

6. Number of Pages: 61

7. Type – I, T, E, O: I

8. Acres: 25.45

9. Legal Location(s) (no quarter sections) with Historic Context Study Unit(s): Consult the township tables in *The North Dakota Comprehensive Plan for Historic Preservation: Archeological Component*, (SHSND 2008; available at http://history.nd.gov/hp/hpforms.html) for Study Unit assignments. Study Units: LM, CB, KN, HE, SM, GA, JA, GR, NR, SR, SO, SH, YE

COUNTY	TWP	RNG	SEC	SU
Stark	139N	97W	15, 16	HE

A Class I and Class III Cultural Resource Inventory of the Dakota Prairie Refinery, Stark County, North Dakota

Submitted to:

Omaha District Corps of Engineers
Bismarck Regulatory Office
1513 South 12th Street
Bismarck, North Dakota 58504

Prepared for:

Barr Engineering Co.
4700 W. 77th Street
Minneapolis, MN 55435

Prepared by:

Craig Picka and Sean Doyle

Principal Investigators:

Judith Cooper and William Harding

SWCA Environmental Consultants
116 North 4th Street, Suite 200
Bismarck, North Dakota 58501

SWCA Cultural Resource Report Number 13-59

February 19, 2013

ABSTRACT

SWCA Environmental Consultants (SWCA) conducted a Class I and Class III cultural resource inventory on behalf of Barr Engineering (Barr) for the proposed Dakota Prairie Refinery. The proposed refinery is located on private lands in Stark County, North Dakota. The project is approximately 4.5 miles west of the town of Dickinson, North Dakota, and 3.1 miles east of South Heart, North Dakota. The project is located to the west of 116 R Avenue SW and to the north of 39 R Street SW.

Although the project as a whole does not fall under the jurisdiction of any federal or state agency, Barr retained SWCA to complete a Class I and Class III cultural resource inventory for the portions of the project which cross wetlands or potential waters of the U.S. potentially under the jurisdiction of the U.S. Army Corps of Engineers (USACE). Therefore, the survey was to be conducted in compliance with Section 404 of the Clean Water Act and Section 106 of the National Historic Preservation Act. The lead agency for the proposed project is the USACE. Three parcels surrounding four potentially USACE jurisdictional wetlands which have the potential to be impacted by the proposed project were inventoried and are discussed within this document. The initial inventory recorded two sections of an historic railroad, a rail bridge, and a culvert. The railroad sections are part of the Northern Pacific Railroad (32SK795) which has been nominated for the National Register of Historic Places. The proposed refinery is planned to spur off the railroad at two locations outside of the initial inventoried area, therefore SWCA returned to the project area to record the two sections of railroad that may be impacted.

The Class I and III inventory was conducted surrounding the USACE jurisdictional wetlands for the Dakota Prairie Refinery on November 5 and 8, 2012, and January 28, 2013, located in Sections 15 and 16, Township 139 North, Range 97 West. For the initial inventory, irregular parcels were surveyed for 200 feet surrounding wetlands 1a, 1b, and 2, and waterbody 1, within the proposed project area. For wetland 1, a parcel measuring 747 by 438 feet was surveyed, totaling 6.23 acres; for wetland 2, a parcel measuring 443 by 649 feet was surveyed, totaling 5.53 acres; and for waterbody 1, a parcel measuring 400 by 1,373 feet was surveyed, totaling 12.11 acres. The second inventory included two parcels along the railroad measuring 633 by 50 feet, totaling 0.73 acre, and 733 by 50 feet, totaling 0.84 acre. In total, 25.45 acres were inventoried for this project.

During the inventory, SWCA relocated one previously recorded cultural resource comprised of four segments of an historic railroad (32SK795), and newly recorded one cultural resource, a railroad bridge (32SK1076). Both 32SK795 and 32SK1076 are recommended eligible for listing on the National Register of Historic Places. Neither resource will be adversely affected and no further work is recommended for 32SK795 and 32SK1076. It is therefore recommended that a determination of *No Historic Properties Affected* be granted for the project to proceed as planned.

This page intentionally left blank.

TABLE OF CONTENTS

Page

ABSTRACT ii
INTRODUCTION 1
PROJECT SETTING 3
Topography 3
Climate 4
Hydrology 4
Geology 4
Soils 4
Flora and Fauna 5
Environmental Constraints 6
CULTURAL/HISTORIC OVERVIEW 7
Prehistoric Contexts 7
Paleoindian Tradition (ca. 11,500–7,900 years before present [B.P.]) 7
Plains Archaic Tradition (ca. 8000–1500 B.P.) 9
Plains Woodland Tradition (ca. 2000–450 B.P.) 10
Plains Village Tradition (ca. 1050–350 B.P.) 11
Historic Contexts 13
European Trade and Exploration (A.D. 1738–1858) 13
Post-Contact Tribal Overview (A.D. 1780–1900) 13
Homesteading in the Dakotas (A.D. 1860–1930) 14
BACKGROUND RESEARCH 15
FIELDWORK METHODS 18
Site Evaluation 19
Prehistoric Archaeological Sites 19
Historic Archaeological Sites or Components 20
Non-Archaeological Historic Sites or Components 20
INVENTORY RESULTS 21
PREVIOUSLY recorded site 21
32SK795 Update 21
Newly recorded site 34
32SK1076 34
CONCLUSIONS 38
REFERENCES CITED 39

LIST OF TABLES

Table **Page**

1 Summary of Soil Series within the Project Area. 5
2 Summary of Previous Cultural Resource Inventories within 1 Mile of the Project Area. 15
3 Previously Recorded Cultural Resources Identified within 1 Mile of the Project Area. 17

TABLE OF CONTENTS (continued)

LIST OF FIGURES

Figure		Page
1	Project area map showing the Dakota Prairie Refinery.	2
2	Project area overview depicting general topography, facing northeast.	3
3	Overview of the vegetation characteristic of the project area, facing west.	6
4	32SK795 aerial map showing the four railroad segment locations	22
5a	32SK795 Segment 1 site sketch map.	23
5b	32SK795 Segment 2 site sketch map.	24
5c	32SK795 Segment 3 site sketch map.	25
5d	32SK795 Segment 4 site sketch map.	26
6	Project design map provided by Barr, showing the areas of potential railroad impact.	27
7	32SK795 site overview (Segment 1), facing west.	28
8	32SK795 site overview (Segment 2), facing east.	29
9	32SK795 site overview (Segment 3), depicting the use of concrete ties in this section, facing west.	29
10	32SK795 site overview (Segment 4), facing east.	30
11	32SK795 site overview (Segment 3), showing the berm/bed height, facing north	30
12	32SK795 site overview (Segment 1), showing the berm/bed height, facing north	31
13	32SK795 rail production date, 1998 (Segment 4)	32
14	32SK795 rail production date, 2004 (Segment 1)	32
15	32SK1076 site sketch map.	35
16	32SK1076 site overview, facing northwest.	36
17	32SK1076 site overview, with the bridge in the distance, facing west	37

LIST OF APPENDICES

Appendix	
A	North Dakota Site Forms (Detached)
B	Resource Location Map

INTRODUCTION

SWCA Environmental Consultants (SWCA) conducted a Class I and Class III cultural resource inventory on behalf of Barr Engineering (Barr) for the proposed Dakota Prairie Refinery. The proposed project area is located on private lands in Stark County, North Dakota. The project is approximately 4.5 miles west of the town of Dickinson, North Dakota, 3.1 miles east of South Heart, North Dakota, and west of 116 R Avenue SW and north of 39 R Street SW. The inventory area is located in the W½ NW¼ NE¼, SE¼ NW¼ NE¼, N½ SW¼ NE¼, E½ NW¼ NE¼, and NE¼ NE¼ NE¼ of Section 15, and SW¼ NE¼, NW¼ SE¼ NW¼, and NE¼ SW¼ NW¼ of Section 16, Township (T) 139 North (N), Range (R) 97 West (W). The inventory area is situated on the South Heart (1978), North Dakota, U.S. Geological Survey topographic quadrangle (Figure 1).

Although the project as a whole does not fall under the jurisdiction of any federal or state agency, Barr retained SWCA to complete a Class I and Class III cultural resource inventory for the portions of the project which cross wetlands or potential waters of the U.S. potentially under the jurisdiction of the U.S. Army Corps of Engineers (USACE). Therefore, the survey was to be conducted in compliance with Section 404 of the Clean Water Act and Section 106 of the National Historic Preservation Act. The lead agency for the proposed project is the USACE. Three parcels surrounding four potentially USACE jurisdictional wetlands which have the potential to be impacted by the proposed project were inventoried and are discussed within this document. The initial inventory recorded two sections of an historic railroad, a rail bridge, and a culvert. The railroad sections are part of the Northern Pacific Railroad (32SK795) which has been nominated for the National Register of Historic Places (NRHP). The proposed refinery is planned to spur off of the railroad at two locations outside of the initial inventoried area, therefore SWCA returned to the project area to record the two sections of railroad that may be impacted.

The Class III inventory was conducted surrounding the USACE jurisdictional wetlands for the Dakota Prairie Refinery on November 8, 2012, and January 28, 2013. For the initial inventory irregular parcels were surveyed for 200 feet surrounding wetlands 1a, 1b, and 2, and waterbody 1, within the proposed project area. For wetland 1, a parcel measuring 747 by 438 feet was surveyed, totaling 6.23 acres; for wetland 2, a parcel measuring 443 by 649 feet, totaling 5.53 acres, was surveyed; and for waterbody 1, a parcel measuring 400 by 1,373 feet, totaling 12.11 acres, was surveyed. The second inventory included two parcels of the Burlington Northern-Santa Fe Railroad measuring 633 by 50 feet, totaling 0.73 acre, and 733 by 50 feet, totaling 0.84 acre. In total, 25.45 acres were inventoried for this project.

For the cultural resource investigation, Judith Cooper and William Harding served as Principal Investigators. Fieldwork was conducted by Jolene Schleicher, Craig Picka, and Matthew Cox (SWCA archaeologists). All field notes and photographs are on file at SWCA's Bismarck, North Dakota, office under project number 24468.

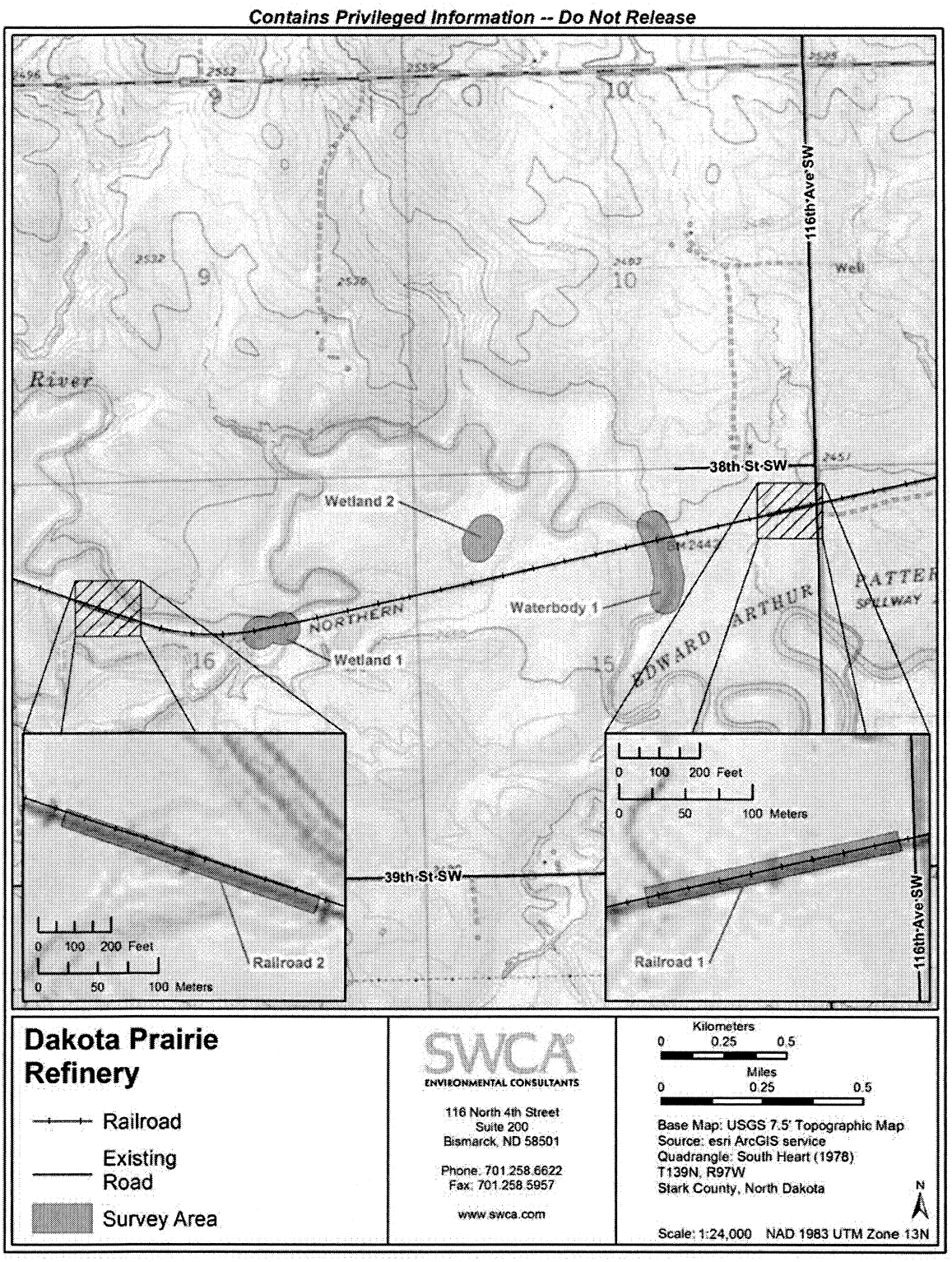


Figure 1. Project area map showing the Dakota Prairie Refinery.

PROJECT SETTING

TOPOGRAPHY

The project area is located in the unglaciated Missouri Plateau section of the Great Plains physiographic province in west-central North Dakota (Fenneman 1931). The unglaciated Missouri Plateau section is characterized by old plateaus, terrace lands, local badlands, and isolated mountains (Fenneman 1931). Located on the Missouri Plateau, in the northwest Great Plains ecoregion, the general topography of the project area was largely unaffected by glaciations and consists of moderately dissected level to rolling plains with isolated sandstone buttes (Bryce et al. 1998) (Figure 2). The Missouri Plateau retains its original soils and complex stream drainage pattern creating a mosaic of shortgrass prairie suited to grazing and agriculture (Bryce et al. 1998).

More specifically, the project area is located within cultivated fields and rolling grasslands overlooking numerous wetlands and some drainages that lead toward Heart River, which bisects the project area. The Heart River drains into Edward Arthur Patterson Lake west of Dickinson, approximately 1.3 miles east of the project area. The elevation in the project area ranges from approximately 2,442 to 2,461 feet (744 to 750 meters [m]), with the highest elevations in the southern portion of the project area.

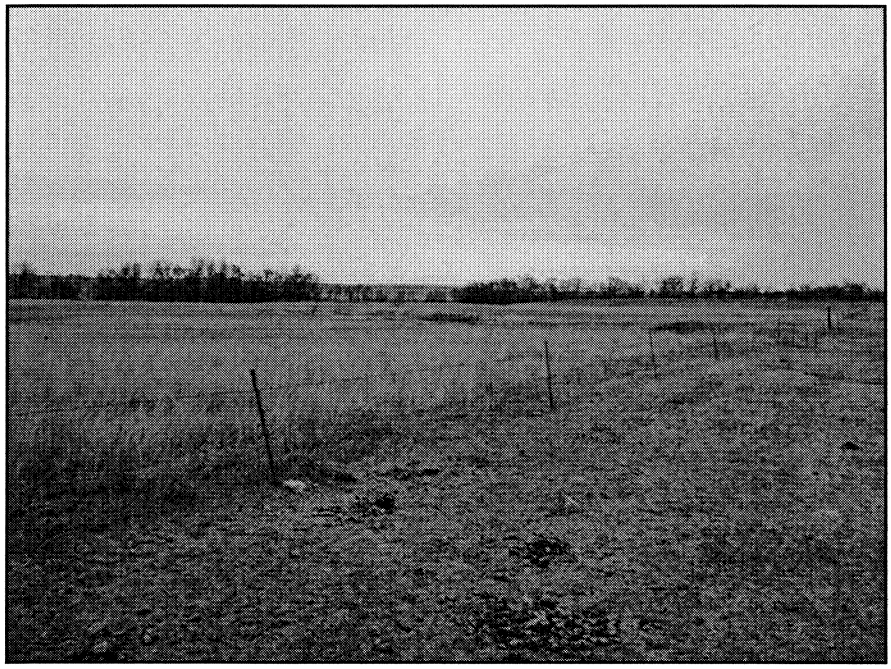


Figure 2. Project area overview depicting general topography, facing northeast.

CLIMATE

The climate in west-central North Dakota is temperate. Based on climatic data collected from Dickinson AP, North Dakota, between 1971 to 2000, January is the coldest month with a mean daily temperature of 23.7 degrees Fahrenheit (°F) while July is the warmest month with a mean daily temperature of 83.2°F (National Climatic Data Center [NCDC] 2009). Temperature extremes on record range from -46°F at the coldest to 110°F at the warmest. On average, 137 days are frost-free (28°F or above) and the average date of the first fall frost is September 27 and the average date of the last spring frost is May 12 (North Dakota Agricultural Statistics Service 2005). Per annum, Dickinson AP receives 16.35 inches of precipitation (NCDC 2009). The wettest month is June, with an average of 3.31 inches of precipitation received; December is the driest, with only 0.34 inch of precipitation received on average. Thirty-seven inches of snow are received annually, on average, with the highest accumulations (7.2 inches, on average) received in March (NCDC 2009). The highest monthly snow fall on record occurred in March at which time 32.0 inches of snow fell. Overall, west-central North Dakota, like much of the northwestern Great Plains, is characterized by a moderate to cool climate, with cold, dry winters and mild to warm, dry to moderately wet summers.

HYDROLOGY

The Heart River crosses the eastern portion of the project area, indicated on Figure 1 as waterbody 1. The eastern portion of the project area is approximately 1.60 miles west of Edward Arthur Patterson Lake. Numerous unnamed drainages to the north, south, east, and west of the project area drain into the Heart River. Numerous wetlands and intermittent drainages are located within the proposed project area.

GEOLOGY

In general, the geology of the project area is characterized by the Paleocene-aged Sentinel Butte formation. The Sentinel Butte formation consists of gray/brown silt, sand, clay, sandstone, and lignite riparian and swamp sediments, up to 600 feet thick (Clayton 1980).

SOILS

Ten soil series are present in the project area (Natural Resources Conservation Service 2012). The soil types found in the project area range from well-drained loamy tills found on hills, terraces, and ridges to poorly drained alluvium found in oxbows on floodplains. The three most dominant soil types within the project area—Arnegard loam; Havrelon silt loam, channeled, wooded; and Havrelon Silt loam—are all well-drained fine loamy tills found on alluvial flats and floodplains. Table 1 summarizes the soils within the project area in order of prevalence.

Table 1. Summary of Soil Series within the Project Area.

Soil Series	Parent Material	Drainage	Slope	Landform
Arnegard Loam	Loamy alluvium derived from sedimentary rock	Moderately well-drained	0%–2%	Alluvial flats, swales
Havrelon Silt Loam, Channeled, Wooded	Fine-loamy alluvium derived from sedimentary rock	Well-drained	0%–2%	Floodplains on river valleys
Havrelon Silt Loam	Fine-loamy alluvium derived from sedimentary rock	Well-drained	0%–2%	Floodplains on river valleys
Stady Loam	Fine-loamy alluvium derived from sedimentary rock	Well-drained	0%–2%	Stream terraces
Straw Loam	Fine-loamy alluvium derived from sedimentary rock	Well-drained	0%–2%	Floodplains
Lallie Silty Clay	Clayey alluvium derived from sedimentary rock	Poorly drained	0%–1%	Oxbows on floodplains
Straw-Rhoades-Daglum Silt Loams	Fine-loamy alluvium derived from sedimentary rock	Well-drained	0%–2%	Floodplains
Amor-Cabba Loams	Loamy residuum weathered from mudstone	Well-drained	9%–15%	Hills, ridges
Vebar-Parshall Fine Sandy Loams	Coarse-loamy residuum weathered from calcareous sandstone	Well-drained	0%–3%	Pediments
Dogtooth-Janesburg Silt Loams	Clayey residuum weathered from shale	Well-drained	3%–6%	Pediments

Source: Natural Resources Conservation Service (2012)

FLORA AND FAUNA

The project area is situated within the northwestern Great Plains ecoregion, characterized by native grasslands over rolling plains (Figure 3) (Bryce et al. 1998). Vegetation typical to the northwestern Great Plains ecoregion includes such species as blue grama (*Bouteloua gracilis*), western wheatgrass (*Pascopyrum smithii*), little bluestem grasses (*Schizachyrium scoparium*), and prairie sandreed *(Calamovilfa longifolia*) (Bryce et al. 1998). Vegetation observed within the project area included such species as western wheatgrass (*Pascopyrum smithii*), little bluestem grass (*Schizachyrium scoparium*), smooth brome (*Bromus inermis*), fringed sagebrush (*Artemisia frigida*), switchgrass (*Panicum virgatum*), prairie rose (*Rosa arkansana*), and buffaloberry (*Shepherdia argentea*).

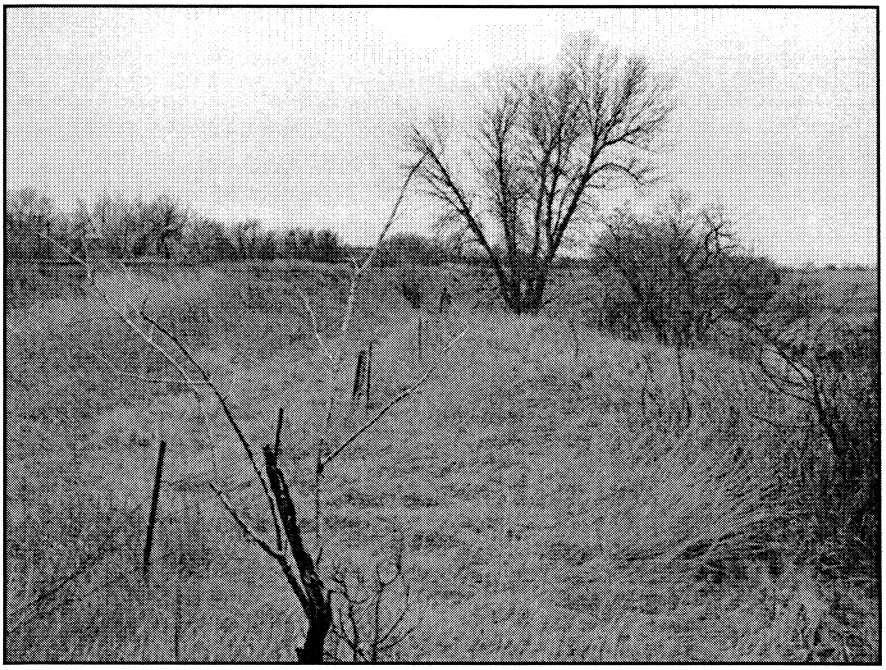


Figure 3. Overview of the vegetation characteristic of the project area, facing west.

Approximately 160 wildlife species are resident or seasonal visitors to the Heart River ecosystem, and hundreds of native fish species live in the mainstem and tributaries. Some of the animal species that would have been common and available for human use in the Heart River Valley area—both prehistorically and historically—include fur bearing mammals such as beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), eastern cottontail (*Sylvilagus floridanus*), elk (*Cervus elaphus*), moose (*Alces alces*), mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*), pronghorn (*Antilocapra americana*), and bison (*Bison bison*); and bird and waterfowl species such as mallard (*Anas platyrhynchos*), Canada goose (*Branta canadensis*), sharp-tailed grouse (*Tympanuchus phasianellus campestris*), golden eagle (*Aquila chrysaetos*), and bald eagle (*Haliaeetus leucocephalus*) (Seabloom et al. 1978).

Several wildlife species that are listed as threatened or endangered under the Endangered Species Act either currently reside or once resided in Stark County. These include the black-footed ferret (*Mustela nigripes*), gray wolf (*Canis lupus*), Sprague's pipit (*Anthus spragueii*), and whooping crane (*Grus americana*) (U.S. Fish and Wildlife Service 2010).

ENVIRONMENTAL CONSTRAINTS

Within or adjacent to the project area, preservation of archaeological materials (including both site burial and, conversely, exposure) has been affected primarily by erosion, including ongoing aeolian, colluvial, and alluvial processes. Additional sources of impact to archaeological resources in the project area include livestock grazing; agriculture; railroad construction and maintenance; road construction; vehicle traffic; and oil and gas development.

In some places, these varied land uses have resulted in increased ground visibility and removal of overburden, allowing for the exposure of and subsequent identification of numerous sites, thereby resulting in the interpretation of high site density. In other cases, however, it has removed the archaeological materials and resulted in the identification of low site densities. In combination, these factors may have disrupted the contexts of a moderate percentage of cultural materials.

CULTURAL/HISTORIC OVERVIEW

PREHISTORIC CONTEXTS

The following discussion incorporates a variety of sources to develop a prehistoric overview for the work conducted for this project and includes information from the Heart River Study Unit (HRSU) in which the project area is located (Gregg and Bleier 2008). Much of this Study Unit is somewhat understudied considering its location within North Dakota. As of 2007, 506 archaeological sites and 499 archaeological site leads and isolated finds were identified in the HRSU, the majority of which were identified on terraces (25 percent); while all other sites have been recorded on hills, knolls, bluffs, terraces, and ridges (Gregg and Bleier 2008).

Paleoindian Tradition (ca. 11,500–7,900 years before present [B.P.])

Paleoindian sites are underrepresented in the HRSU, but with the greater numbers of Paleoindian sites that are represented within the Knife River and Cannonball River study units to the north and south, and the Little Missouri study unit to the west, it is likely that early paleoindian populations should have been regular users of the land within the HRSU (Gregg and Bleier 2008).

Although speculation exists regarding the possibility of earlier habitation of the Great Plains, the Paleoindian tradition is the oldest of the region, and, in general, is associated with a hunting and gathering adaptation (Gregg 1985). The Paleoindian tradition is subdivided here into six main complexes: Clovis, Goshen, Folsom, Hell Gap/Agate Basin, Alberta/Cody, and Parallel Oblique Flaked. Ten Paleoindian archaeological resources have been identified in the HRSU; five of which are from unspecified sites (Gregg and Bleier 2008). Paleoindian sites in the HRSU include, but are not limited to, 32MO320, 32SK37, 32SK844, and 32SKX48, all of which are known from private collections (Gregg and Bleier 2008).

The Clovis complex (ca. 11,500–10,800 B.P.), defined by large, fluted lanceolate projectile points, is the earliest unequivocal complex in North America. Clovis artifacts have been found with megafauna, such as mammoth, in buried contexts in the Southwest and Great Plains (Grayson and Meltzer 2002); however, although megafauna were probably dietary constituents, it is debated to what degree Early Paleoindians pursued large game (Cannon and Meltzer 2004; Grayson and Meltzer 2002). In the South Dakota Badlands, the Lange-Ferguson site yields the best evidence for proboscidean exploitation (Hannus 1990). Here, modified mammoth bones are directly associated with a flake and three projectile points were recovered from deposits similar to those containing mammoth, indicating that Clovis hunter-gatherers either killed the animals or scavenged their carcasses (Hannus 1990). No Clovis sites have been recorded in the HRSU.

Goshen (ca. 10,900–10,100 B.P.) is a technological complex first identified at Hell Gap, Wyoming (Irwin 1967, 1971), but it is also found at Mill Iron, Montana, Carter-Kerr/McGee, Wyoming, and the Jim Pitts site, located in the South Dakota Black Hills (Sellet 2001). Goshen is poorly understood—the basally thinned, unfluted projectile points share affinities with both Clovis and Folsom, but are also similar to Southern Plains Plainview points. In stratified deposits, Goshen materials typically underlie Folsom (Frison et al. 1996). The base of a Goshen point (32SKX53) was found with several bone fragments and a piece of shell in a stripped railroad right-of-way near the community of Richardton (Gregg and Bleier 2008).

The Folsom complex (ca. 10,900–10,200 B.P.) is typified by distinctive fluted lanceolate projectile points. With most large grazers extinct by Folsom times and grasslands dominating the Great Plains, bison populations flourished, providing resources for Folsom hunters (Frison 1991). However, many high-elevation Folsom sites also demonstrate broad diets of diverse small prey (Hill 2007). Probable structures recorded at the Mountaineer and Barger Gulch sites in Colorado suggest long-term occupations in mountain settings (Stiger 2006; Surovell and Waguespack 2007). In North Dakota, there are numerous documented Folsom sites (Gregg 1985), including the Bobtail Wolf (32DU955A), Big Black (32DU955C), and Young-Man-Chief (32DU955D) sites (Root 2000; Shifrin 2000; William 2000). These sites are interpreted as camps, quarries, and lithic workshops where Knife River flint was procured and used for tool production. No Folsom sites have been recorded in the region.

Both the Agate Basin (ca. 10,500–10,000 B.P.) and Hell Gap (ca. 10,000–9,500 B.P.) technocomplexes are typified by lanceolate projectile points with thick lenticular cross-sections (Frison 1991). Based on morphological similarities and stratigraphic evidence, Hell Gap is technologically descended from Agate Basin. Agate Basin and Hell Gap hunter-gatherers were probably specialized bison hunters. Sites like Agate Basin II (Hill 2001) and Casper (Todd et al. 1997) indicate more frequent extraction of marrow and within-bone nutrients, suggesting a greater focus on planning than previously evident. Some sites associated with this tradition have been recorded in North Dakota and South Dakota, but these mainly consist of isolated and surface finds (Gregg 1985). No Agate Basin sites have been recorded in the HRSU.

Alberta (9800–9000 B.P.) is a poorly dated technology that probably descends from Hell Gap and is documented at the Hell Gap, Wyoming, and Hudson-Meng, Nebraska, sites (Agenbroad 1978; Frison 1991). Hudson-Meng is one of the largest documented bison kills and suggests that Alberta people focused on bison hunting (Agenbroad 1978); however, more recent work suggests that humans were not responsible for killing the bison and that they died of a natural event (Todd and Rapson 1999). The Cody Complex (9200–8800 B.P.), which includes stemmed/shouldered Eden and Scottsbluff projectile points and the distinctive Cody knife, apparently arose from Alberta (Frison 1991). These sites are widespread across the northwestern and central Great Plains, with components at the Wyoming Horner I, Finley, and Medicine Lodge Creek sites (Frison and Todd 1986; Frison and Walker 2007) and the Mammoth Meadows, Myers-Hindman, and MacHaffie sites in Montana (Davis 1993). Such sites indicate that Cody adaptations were diverse and utilized large fauna as well as small prey and floral resources (Frison et al. 1996; Galvan 2007). Alberta/Cody sites have been recorded in North Dakota and South Dakota. In fact, Hudson-Meng contains a substantial amount of Knife River flint, showing a strong connection to the Missouri River region.

The Parallel Oblique Flaked complex is a catch-all grouping of Paleoindian projectile point types (Gregg 1985) including Angostura, Milnesand, Browns Valley, Lusk, Allen, and Frederick; these range in age from around 9400 to 7900 B.P. All types are lanceolate with parallel oblique flaking. Bison kill-butcheries became rare on the northwestern and northern Great Plains after approximately 8000 B.P. (Frison 1998), perhaps due to severe ecological deterioration that could no longer support large bison populations. Complex excavated and surface sites have been recorded in the Dakotas, including sites on the Missouri River. In the HRSU, four archaeological resources defined under the general "Plano" category have been identified from private collections (Gregg and Bleier 2008).

Plains Archaic Tradition (ca. 8000–1500 B.P.)

The transition from Paleoindian to Archaic is archaeologically visible as an abrupt shift to large notched projectile points (Frison 1991), perhaps indicating a shift to atlatl propelled darts from hand-thrown spears. This transition is also associated with warming/drying trends that prompted diverse subsistence adaptations among hunter-gatherers (Carlson 1994). Ground stone appears in the Archaic, suggesting a greater focus on processing floral resources. In conjunction with the appearance of pithouses and storage pits in the western intermontane basins, this suggests a shift in subsistence base, a reduction in overall residential mobility, and more predictable seasonal rounds (Frison 1991). In the HRSU, 65 archaic archaeological resources have been identified. Fourteen of these are from unspecified associations (Gregg and Bleier 2008). Plains Archaic-age sites in the HRSU include, but are not limited to, the Judson site (32MO58) and the Jones site (32MO242) (Gregg and Bleier 2008).

The Logan Creek/Mummy Cave complex (5600–4000 B.P.) is the earliest example of large side-notched projectile points on the northern Great Plains. The blending of the Logan Creek and Mummy Cave for this complex is due to varied nomenclature used among archaeologists regionally for similar archaeological complexes (Gregg 1985). Settlement types associated with this complex include bison kills, transient camps, and some stone circle sites. No archaeological resources containing large side-notched projectile point varieties have been identified in the HRSU (Gregg and Bleier 2008).

The Oxbow complex (5000–4000 B.P.), typified by side-notched, deeply concave-based projectile points, is concentrated in northern Montana, Alberta, and Saskatchewan (Hannus 1994:180) but is also quite common in North and South Dakota, with numerous sites along the Missouri River and its tributary system. Oxbow subsistence apparently centered on bison and sites include bison impoundments and jumps, encampments on stream terraces, stone circles, and processing areas (Hannus 1994; Reeves 1969). However, numerous birds and small mammals were probably exploited (Aaberg et al. 2006:174). Some northern Great Plains sites further yield evidence of complex cultural behavior including bundle burials with elaborate grave goods (Bryan 1991). Five Oxbow archaeological resources have been identified in the HRSU (Gregg and Bleier 2008).

The McKean complex (ca. 4500–3400 B.P.) encompasses three distinct sub-phases—the McKean lanceolate, Duncan, and Hannah. The McKean complex is widespread across the Great Plains, and sites from this period can be found associated with bison kills, stone circles,

lithic caching, and seasonal settlements (Frison 1991). Slab-lined pit hearths are common, as are ground stone artifacts suggesting a greater reliance on plant resources (Carlson 1994; Frison 1991). McKean complex sites often demonstrate evidence of lithic raw material exchange, including Swan River chert, Tongue River silicified sediment, and Knife River flint (Gregg 1985). In the HRSU, 22 archaeological resources dating to the McKean complex have been identified (Gregg and Bleier 2008).

Pelican Lake (ca. 3000–2700 B.P.), typified by broad, thin corner-notched projectile points, is likely a descendant of McKean and is found across the northern and central Great Plains (Frison 1991). This wide spatial distribution may indicate significant population growth in response to the favorable moist conditions of the Sub-Atlantic episode (Reeves 1983). Numerous communal bison kills, such as Head-Smashed-In (Frison 1991), indicate communal bison hunting, but this does not suggest it was an exclusive feature of their subsistence. Rather, Pelican Lake populations probably relied on a broad-based economy across diverse ecozones (Hannus 1994). Twenty Pelican Lake archaeological resources have been identified in the HRSU (Gregg and Bleier 2008).

Plains Woodland Tradition (ca. 2000–450 B.P.)

Temporally overlapping with the Northwestern Plains Late Archaic, the Plains Woodland tradition is characterized by increased sedentism, garden horticultural activity, expanding regional exchange networks with eastern Woodland populations (Adena and Hopewell), and the elaboration of ceremonial activities and mortuary practices, specifically mound burials (Griffin 1967). Significant technological advances such as bow and arrow and ceramics-use are also apparent (Gregg 1985); however, the fundamental subsistence strategies of the Plains Woodland did not drastically differ from their Archaic predecessors (Zimmerman 1985). It is assumed that this tradition saw the beginning of horticultural practices in the region. For the purposes of this study, the complexes that are classed as belonging to the Plains Woodland include Besant, Sonota, Laurel, Avonlea, Old Woman's, and Blackduck. Of the 63 Woodland sites in the HRSU, 40 are unspecified, one is Early Plains Woodland, 18 are Besant/Sonata age sites, three are Late Plains Woodland, and one is Avonlea (Gregg and Bleier 2008).

The Besant complex (ca. 2000–1500 B.P.), typified by small to medium-sized side-notched triangular projectile points, represents the earliest presence of ceramics in North Dakota, probably resulting from eastern woodland influence (Walde 2006). Besant ceramics are more common in the eastern half of the Dakotas; the vessels show a basic conoidal shape and suggest lump modeling manufacture with some coarse cording (Wood and Johnson 1973). Besant sites show extensive use of Knife River flint (Reeves 1970). Site types include stone circle sites, habitations on stream and river terraces, and bison kills. Numerous communal kill sites, including the Ruby bison pound in Wyoming (Frison 1991), suggest that Besant people were sophisticated bison hunters. The Sonota complex (1850–1350 B.P.) appears to be a possible sub-complex of Besant, but differs in that burial mounds are common at Sonota sites (Reeves 1983; Wood 1967). These mounds include rectangular subfloor pits/tombs with dismembered bodies and, commonly, articulated bison remains (Johnson and Johnson 1998). The presence of associated exotic artifacts is often cited as evidence of Hopewell influence on Middle Plains Woodland populations (Johnson and Johnson 1998). In the HRSU, 18 Besant/Sonota archaeological resources have been identified.

Sites from the Laurel complex (2100–850 B.P.) are generally found in the eastern portions of North Dakota, northern Minnesota, and southern Canada. Laurel pottery and mound building are fairly distinct, but lithics associated with this complex tend to be various and lack a particular style (Gregg 1985).

Avonlea complex (ca. 1800–1000 B.P.) sites occur across the northern Great Plains and are contemporaneous with Besant. This complex includes a variety of site types, including stone circles, bison kills, and rock shelter habitations (Reeves 1970). Avonlea represents the first regional complex to produce arrow points exclusively, suggesting a transition to bow and arrow technology (Frison 1988). Avonlea point types are small and indistinctly side-notched. Saskatchewan Basin Complex: Early Variant pottery is found at Avonlea sites (Byrne 1973). Avonlea subsistence in the north relied heavily on communal bison procurement, but in their southern range bison hunting was supplemented by smaller game (e.g., pronghorn), fish, and seasonal plant exploitation (Smith and Walker 1988). Avonlea sites are relatively rare in the Dakotas (Vickers 1994). In North Dakota, the Evans site (32MN301) contained Avonlea projectile points and ceramics (Schneider and Kinney 1978). Only one Avonlea-aged archaeological resource was identified in the HRSU.

Rare in North Dakota is the Old Woman's complex (A.D. 700–1300). This complex is contemporary with the Plains Village tradition, so it would seem likely that many associated sites would be granted the latter designation (Gregg 1985).

The Blackduck complex (A.D. 1150–450) derives from northern Minnesota and was concentrated in southern Manitoba. It is contemporary with both Avonlea and Old Woman's complexes, and with Extended and Terminal Middle Missouri traditions. Some evidence of possible Blackduck pottery has been found along the Missouri River, which suggests trade between the Missouri River villagers and the Blackduck people to the north (Joyes 1970).

Plains Village Tradition (ca. 1050–350 B.P.)

Lehmer (1971) defined the Plains Village tradition as possessing the following diagnostic traits: equal horticulture and hunting and gathering strategies; semi-permanent villages near the Missouri River floodplain; earthlodges; large storage and refuse pits; distinctive ceramics; abundant end scrapers and arrow points; bison scapula hoes; and a well-developed bone tool industry. The Plains Village Tradition is divided into the Middle Missouri tradition (A.D. 969–1500) and the Coalescent tradition (A.D. 1300–1650), discussed below. Twelve Plains Village archaeological resources have been identified in the HRSU (Gregg and Bleier 2008).

Three primary Middle Missouri variants are recognized: Initial Middle Missouri (A.D. 969–1297), Extended Middle Missouri (A.D. 1075–1443), and Terminal Middle Missouri (A.D. 1300–1500) (Eighmy and LaBelle 1996). These represent a continuation and intensification of Northern Plains Woodland lifeways and their appearance coincides with the onset of the Medieval Warm Period (Bryson et al. 1970) when a moisture increase likely permitted horticulture in areas previously characterized by tenuous farming conditions (Wood 2001).

The Initial Middle Missouri Variant (IMMV) is thought to have developed as an outgrowth of the Great Oasis (Tiffany 2007) or via the arrival of eastern populations already exploiting a Plains Village lifeway (Lehmer 1971). The IMMV was concentrated in the southern portions

of the Middle Missouri region and characterized by highly fortified villages of large, semi-subterranean rectangular houses (Lehmer 1971; Winham and Calabrese 1998).

The Extended Middle Missouri Variant (EMMV) is concentrated in the northern portions of the Middle Missouri region (Lehmer 1971). EMMV groups resided in small villages of semi-subterranean rectangular houses; southern villages were more often fortified than those in the north (Wood 2001). It is unclear whether the EMMV replaced the IMMV or represents a contemporaneous offshoot of the IMMV. Origins aside, it is assumed that IMMV populations were eventually absorbed into EMMV populations. The final expression of this tradition was the Terminal Middle Missouri (Winham and Calabrese 1998:282). These sites were concentrated in a smaller geographic area along the Missouri River in southern North Dakota and characterized by fewer but much larger villages (Wood 2001). Sites again contained long, rectangular semi-subterranean houses but were highly fortified (Wood 2001). A continuation of the Middle Missouri Tradition is recognized historically as the Siuoan-speaking Mandan and Hidatsa (Wood 2001).

The Coalescent period is temporally divided into Initial (650–350 B.P.), Extended (500–300 B.P.), and Post-Contact Coalescent (300 B.P.–Historic period) (Johnson 1998; Lehmer 1971). The Coalescent Tradition is thought to represent a geographic movement of Central Plains Tradition village-dwelling populations to the Missouri River Valley in South Dakota (Blakeslee 1993). Central Plains Traditions might have migrated from Nebraska and Kansas in response to drought brought on by the Pacific climatic episode (Lehmer 1971). Similar to Middle Missouri Tradition groups, Coalescent populations practiced an economy split between mixed cultigen horticulture and bison hunting (Johnson 1998).

Initial Coalescent Variant sites are located on bluffs overlooking the Missouri River and its drainages in southern South Dakota. Populations lived in fortified villages consisting of subrectangular to circular/oval earthlodges and often surrounded by complex fortifications (Johnson 1998). Violence amongst Coalescent groups is evidenced at the Crow Creek site (39BF11) where approximately 486 individuals were killed in the village fortification ditch around 625 B.P. (Willey and Emerson 1993). Crow Creek is interpreted as evidence of internecine warfare amongst Initial Coalescent groups over land competition (Zimmerman and Bradley 1993) or, conversely, as evidence of warfare between immigrant Coalescent groups and resident Middle Missouri Tradition peoples (Johnson 1998). The Extended Coalescent Variant apparently descended from the Initial Coalescent sometime in the fifteenth century A.D. Sites are concentrated along the Missouri River and its tributaries in central and northern South Dakota (Krause 2001). Extended Coalescent sites are far more abundant than during the Initial Coalsecent and are characterized by a dispersed, unfortified village structure of circular earthlodges (Johnson 1998; Krause 2001; Lehmer 1971). The Extended Coalescent Variant evolved into the Post-Contact Coalescent during the Protohistoric and Historic and the Coalescent Tradition is recognized as the Arikara (Krause 2001). The last post-contact village was Like-a-Fishhook Village, occupied by the Arikara, Mandan, and Hidatsa; it was abandoned in 1886 when groups relocated to the Fort Berthold Indian Reservation (Smith 1972).

HISTORIC CONTEXTS

European Trade and Exploration (A.D. 1738–1858)

Perhaps the earliest attempts at exploring the northern Great Plains came as a result of the ventures of Pierre Gaultier de Varennes Siure de la Verendrye (Dill 1983). His travels from New France into North Dakota led him as far as the Missouri River (somewhere near Bismarck), and led to subsequent expeditions by his sons, which went farther south into South Dakota (near Pierre) and west towards the Black Hills. While the elder la Verendrye met the Mandan, his sons encountered the Arikara and other tribes in South Dakota. Their reports heightened interest in the region and the possibilities that existed for trade with its inhabitants.

Following the la Verendryes, a modest fur trade developed in the region, but until the expedition of Captains Meriwether Lewis and William Clark returned successfully from their voyage up the Missouri, the region was considered a wild unknown (Schulenberg 1957).

In 1807, Manuel Lisa established a short-lived post at the mouth of the Bighorn, and by 1809 his St. Louis Missouri Fur Company was building posts among most of the tribes all along the Missouri River. Other notable companies, such as the Northwest Company, Hudson Bay Company, the Columbia Fur Company, and the American Fur Company, soon followed suit (Schulenberg 1957). The life of these posts tended to be short, but they did much to influence the tribes who frequented the Missouri River in both North and South Dakota. Fort Union—at the confluence of the Yellowstone and Missouri Rivers—was the last of the great posts, and its waning during the late 1850s saw the fur trade in the Dakotas in its last throes.

Post-Contact Tribal Overview (A.D. 1780–1900)

In addition to the tribes that arose from the Middle Missouri and Coalescent traditions (Mandan, Hidatsa, and Arikara), the northern Great Plains and the Missouri River were also used by countless other tribes since before European contact.

The Assiniboine were known to frequent the northern Missouri River (mainly near the confluence with the Yellowstone), and were active in the fur trade throughout the eighteenth and nineteenth centuries. As well, the Cheyenne were pushed westward by the Chippewa during the middle of the eighteenth century and took up at least a temporary settlement period on the Missouri River. At least one earthlodge village has been attributed to the Cheyenne in eastern North Dakota, and some Cheyenne villages on the Missouri River were located between the Mandan to the north, and the Arikara to the south, where they built earthlodges and pursued horticulture and buffalo hunting (Schlesier 1968).

The Plains Cree and Plains Chippewa also frequented the northern Missouri—mainly near the confluence with the Yellowstone, but also near Fort Clark. Both tribes traded actively with the Mandan and Hidatsa. The Crow, although more westerly in their territory, were related to the Hidatsa and would often trade and visit with the Missouri River tribes (Schulenberg 1957).

Based on linguistic evidence, the Sioux (or Dakota) originated from the southwest Great Lakes region (DeMallie 2001a). The timing of the migration is unclear, but ceramic evidence suggests that the Dakota were living on the plains several centuries before the arrival of

Europeans (Hanson 1998). Based on linguistics, it is thought that the Assiniboine split from the Sioux sometime before the mid-seventeenth century (Hanson 1998). The Teton Dakota are divided into seven sub-tribes, including the Oglala, Brule, Sans Arc, Hunkpapa, Blackfeet, Miniconjou, and Two Kettles (Hanson 1998). According to DeMallie (2001a), by the mid-eighteenth century, the Teton Dakota hunted bison in the area east of the Missouri River, their movements limited in part by the Arikara stronghold along the Missouri River. However, a series of smallpox epidemics from 1771 to 1781 devastated the Arikira villages (Johnson 1998) and permitted the Teton Dakota to move west of the Missouri River. Like the Teton Dakota, the Yankton and Yanktonai Dakota occupied the prairies east of the Missouri River and north into Minnesota in the mid-seventeenth century (DeMallie 2001a). By the mid-nineteenth century, the Yankton and Yanktonai occupied the prairies east of the Missouri River from the mouth of the Big Sioux River in the south to the Red River in the north (DeMallie 2001b).

The Reservation Period began in the 1860s and continues into today. This time period contains numerous accounts of hurt feelings and unjust actions—including government actions to stop tribal ceremonialism, forced boarding school education of Indian children, and attempts at termination and relocation to solve the "Indian Problem" in the Dakotas. Regardless of this checkered history, the tribes who lived on, and used, the Missouri River have persisted to the present as strong and vital people with a living culture which has survived for present and future generations.

In the HRSU, no historic Native American archaeological resources have been identified (Gregg and Bleier 2008).

Homesteading in the Dakotas (A.D. 1860–1930)

The first homestead in North Dakota was filed in 1868, which was the only homestead filed until 1871. The true rush for homesteads did not take place until 1885. This rush was spurred by the extension of the Northern Pacific Railroad across the Red River from Minnesota (Works Progress Administration [WPA] 1950). Western North Dakota—including Stark and Billings Counties—did not see much settlement prior to the 1890s, and the major settlement of this region did not start in any great numbers until between 1900 and 1910. In general, those homesteaders who selected lands along the Heart River were able to do some crop farming, but the majority of homesteads were arranged as ranch operations for sheep or cattle.

In addition to the homesteading, which brought an increasing number of people to western North Dakota, the discovery of large deposits of lignite coal further boosted interest in the development of the area (WPA 1950). Although slow at first, the mining industry started to flourish during the 1930s; to this day it remains a major focus of activity which drives the economy of the western portion of the state. One historic Euro-American archaeological resource has been identified in the HRSU (Gregg and Bleier 2008).

BACKGROUND RESEARCH

SWCA conducted a background search of archaeological and historical literature and records for the project area and surrounding 1-mile area on November 5, 2012, as part of the initial phase of this investigation. An additional files search was conducted on January 31, 2013, as a result of additional inventory. Researchers searched relevant records holdings at the State Historical Society of North Dakota (SHSND) and General Land Office (GLO) maps for information regarding previously recorded historic and prehistoric sites located within the project area.

Results of the SHSND background search indicate nine previous cultural resource inventories within the 1-mile study area (Table 2). One previously conducted inventory crosses the current project area, which consisted of a fiber optic cable project. The other inventories were conducted in support of river rechanneling, transmission line, bridge replacement, and oil and gas projects.

The 24 previously recorded cultural resources within 1 mile of the project area consist of six unknown prehistoric cultural material scatter sites (32SK8, 32SK101, 32SK814, 32SK823, 32SK825, and 32SK826); three Late Prehistoric cultural material scatter sites (32SK822, 32SK824, and 32SK830); one historic railroad (32SK795); one unknown historic cultural material scatter/machinery/depression site (32SK9); one unknown historic depression site (32SK110); one 1970s farm (32SK852); one historic bridge (32SK853); one unknown historic coal mine site lead (32SKX33); seven unknown prehistoric chipped stone isolated finds (32SKX67, 32SKX68, 32SKX69, 32SKX70, 32SKX71, 32SKX192, and 32SKX282); and two Late Prehistoric projectile point isolated finds (32SKX66 and 32SKX72). One resource (32SK795) is eligible for listing on the NRHP. Eight sites and one isolated find remain unevaluated for the NRHP. The remaining five sites and nine isolated finds are not eligible for inclusion on the NRHP. 32SK795 is located within the project area and was revisited during the inventory.

Table 2. Summary of Previous Cultural Resource Inventories within 1 Mile of the Project Area.

Manuscript Number	Location	Title	Author	Year
002772	Sections 14, 15, T139N, R97W	A Cultural Resource Survey for Viegel Engineering, P.C., Heart River Rechannel, River Rechannel and Road Fill, Stark County, ND	B. Rippeteau	1980
004638	Sections 11, 14, 15, 16, T139N, R97W	US Sprint Fiber Optic Cable Project Spokane, Washington to Fargo, Billings, Stark, Golden Valley, Morton, Kidder, Stutsman, Burleigh, and Cass Co., North Dakota	K. Deaver, S. Deaver, M. Bergstrom, J. Brownell, D. Martin	1988
004667	Sections 10, 11, 14, 23, T139N, R97W	A Class III Cultural Resource Inventory of a Proposed 46 KV Transmission Line in Stark and Hettinger Counties, North Dakota	R. Persinger, J. Whitehurst, J. Dahlberg	1988

Manuscript Number	Location	Title	Author	Year
005048	Sections 14, 15, T139N, R97W	Edward Patterson Lake Cultural Resources Inventory Stark County, North Dakota	M. Floodman	1990
006448	Sections 16, 22, 23, T139N, R97W	Southwest Pipeline Phase II Cultural Resources Inventory of Selected Segments, Hettinger, Slope, & Stark Counties, North Dakota: Belfield and New England Service Areas (Construction Segments 7-2 & 2-5A)	C. Kordecki	1995
006650	Section 22, T139N, R97W	Southwest Pipeline Phase II Cultural Resources Inventory of Reroute Segments in Dunn, Hettinger, and Stark Counties, North Dakota: New Hradec, Belfield, and New England Service Areas (Construction Segments 7-1B, 7-2, and 2-5A) Southwest Pipeline Phase II Cultural Resources Inventory of Reroute Segments in Dunn, Hettinger, and Stark Counties, North Dakota: New Hradec, Belfield, and New England Service Areas (Construction Segments 7-1B, 7-2, and 2-5A)	D. Klinner	1995
008742	Sections 15, 22, T139N, R97W	Stark County Bridge Replacement Project in Sections 15 and 22, T139N, R97W, North Dakota, Structure 45-116-11.0 UW #2418	G. Wermers	2003
012311	Sections 9, 10, 11, 15, 21, 22, 23, T139N, R97W	CTC Dickinson Fiber Optic Line Exchange Project: A Class III Cultural Resource Inventory in Dunn, Hettinger, and Stark Counties, ND. Addendum Included.	B. Odonnchadha, R. Glaad, I. Randall, K. McDowell	2011
013558	Section 21, T139N, R97W	Fidelity's Diamond J 21-16H: A Class III Cultural Resource Inventory in Stark County, North Dakota	C. Cael, W. Bluemie	2012

Table 3. Previously Recorded Cultural Resources Identified within 1 Mile of the Project Area.

Site Number	Location	Site Type(s)	Cultural Affiliation	NRHP Eligibility
32SK8	N½ NE¼ SE¼ Section 15, T139N, R97W	Cultural Material Scatter	Unknown Prehistoric	Unevaluated
32SK9	NE¼ SE¼ NE¼ Section 15, T139N, R97W	Cultural Material Scatter, Depression, and Machinery	Unknown Historic	Not Eligible
32SK101	W½ SE¼ SE¼, E½ SW¼ SE¼ Section 15, T139N, R97W	Cultural Material Scatter	Unknown Prehistoric	Unevaluated
32SK110	NE¼ SE¼ SE¼ Section 22, T139N, R97W	Depression	Unknown Historic	Not Eligible
32SK795	NW¼ NE¼ SE¼ Section 5, T139N, R92W; SW¼ SW¼ SE¼, SE¼ SE¼ SW¼ Section 8, T139N, R94W; SW¼ NW¼ SW¼, SE¼ NE¼ SW¼ Section 11, T139N, R97W	Railroad/Elevator	1880s Historic	Eligible
32SK814	N½ SE¼ SE¼, S½ NE¼ SE¼ Section 14, T139N, R97W	Cultural Material Scatter	Unknown Prehistoric	Unevaluated
32SK822	SE¼ SW¼ SW¼ Section 14, T139N, R97W	Cultural Material Scatter	Late Prehistoric	Unevaluated
32SK823	S½ NE¼ SW¼ Section 14, T139N, R97W	Cultural Material Scatter	Unknown Prehistoric	Unevaluated
32SK824	SE¼ SE¼ SE¼ Section 15, T139N, R97W	Cultural Material Scatter	Late Prehistoric	Unevaluated
32SK825	SE¼ NW¼ NE¼ Section 15, T139N, R97W	Cultural Material Scatter	Unknown Prehistoric	Not Eligible
32SK826	SW¼ SW¼ NE¼ Section 14, T139N, R97W	Cultural Material Scatter	Unknown Prehistoric	Unevaluated
32SK830	W½ SE¼ NW¼, E½ SW¼ NW¼ Section 14, T139N, R97W	Cultural Material Scatter	Late Prehistoric	Unevaluated
32SK852	SW¼ SW¼ SW¼ Section 23, T139N, R97W	Modern Farm	1970s Historic	Not Eligible
32SK853	SW¼ SW¼ NW¼ Section 14, T139N, R97W; SE¼ SE¼ NE¼ Section 15, T139N, R97W	Bridge	Historic	Not Eligible
32SKX33	SW¼ Section 14, T139N, R97W	Coal Mine Site Lead	Unknown Historic	Unevaluated
32SKX66	SW¼ SW¼ SW¼ Section 14, T139N, R97W	Projectile Point Isolated Find	Late Prehistoric	Not Eligible

Site Number	Location	Site Type(s)	Cultural Affiliation	NRHP Eligibility
32SKX67	SE¼ SW¼ SW¼ Section 14, T139N, R97W	Chipped Stone Isolated Find	Unknown Prehistoric	Not Eligible
32SKX68	NW¼ NW¼ SW¼ Section 14, T139N, R97W	Chipped Stone Isolated Find	Unknown Prehistoric	Not Eligible
32SKX69	SE¼ NW¼ SE¼ Section 15, T139N, R97W	Chipped Stone Isolated Find	Unknown Prehistoric	Not Eligible
32SKX70	NE¼ SW¼ NE¼ Section 15, T139N, R97W	Chipped Stone Isolated Find	Unknown Prehistoric	Not Eligible
32SKX71	NE¼ SE¼ NW¼ Section 15, T139N, R97W	Chipped Stone Isolated Find	Unknown Prehistoric	Not Eligible
32SKX72	NW¼ SW¼ NE¼ Section 14, T139N, R97W	Projectile Point Isolated Find	Late Prehistoric	Not Eligible
32SKX192	SW¼ SE¼ SE¼ Section 16, T139N, R97W	Chipped Stone Isolated Find	Unknown Prehistoric	Not Eligible
32SKX282	NW¼ SW¼ NW¼ Section 14, T139N, R97W	Chipped Stone Isolated Find	Unknown Prehistoric	Not Eligible

NRHP = National Register of Historic Places

FIELDWORK METHODS

Fieldwork was designed so that project archaeologists could collect all appropriate and necessary data for the completion of the project report of results and recommendations, and to ensure accurate completion of site forms for all resources encountered.

In accordance with the scope of work, archaeologists surveyed each of the three wetland areas using parallel linear transects with spacing not exceeding 30 m. The ground surface was examined for artifacts, features, or other evidence of cultural occupation. Cut banks, eroded surfaces, rodent burrows, and other areas with significant exposure were examined intensively throughout fieldwork, especially where previously recorded cultural resources existed. In areas with a high probability of cultural resources, survey transects were reduced to 10 m to maintain adequate visibility. Bare ground surface visibility during the project varied from 0 to 15 percent across most portions of the project area, with bare ground surface visibility in a few portions reaching 40 percent. During the second inventory on January 28, 2013, snow was present on the ground, allowing for 0 to 5 percent ground visibility. The second inventory was limited to the recording of the railroad, and no other survey was conducted, thereby making the lack of ground surface visibility not an issue.

Where cultural resources were located, project archaeologists made an intensive effort to fully and accurately establish the extent and boundaries of newly recorded sites. As such, sites were mapped using submeter-accurate Trimble global positioning system (GPS) units. When detailed mapping or remapping was required, all linear site features, such as site boundaries, roads, and fence lines, as well as point features, such as the site datum, cultural features, artifact concentrations, diagnostic artifacts and tools, and other necessary data, were mapped with the Trimble GPS unit for post-processing into ArcMap 10.0 shapefiles, and for plotting

onto associated U.S. Geological Survey 7.5-minute quadrangles to ensure accuracy and to produce required location maps of all sites and resources.

In addition to site mapping, associated features and diagnostic artifacts were described, measured, recorded using a handheld GPS unit, and photographed as appropriate. Field personnel noted environmental setting, context, topography, and geographical location for each cultural resource. No collection or subsurface testing was conducted during the inventory.

SITE EVALUATION

SWCA evaluated sites and their significance, as defined by criteria set forth in Title 36 Code of Federal Regulations 60.4 (National Park Service 1991), which states:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> A) That are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> B) That are associated with the lives of persons significant in our past; or
>
> C) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> D) That have yielded, or may be likely to yield, information important in prehistory or history.

Not eligible sites have lost integrity and are unlikely to contribute further data significant to knowledge of prehistory or history.

Prehistoric Archaeological Sites

Prehistoric lithic scatters/campsites (sites without any structures or association with known significant events or persons) recorded for the project generally will not contain NRHP discussion for Criteria A, B, and C. Instead, for NRHP recommendation purposes, these properties will be discussed for their potential to yield information significant to prehistory or the archaeological record under NRHP Criterion D. Special cases generally apply to Criterion A, where a prehistoric site type (such as a stone circle site) may not be recommended eligible for the NRHP from an archaeological perspective, but may be considered important to cultures of Native American peoples.

Evaluation of the significance of archaeological sites under Criterion D considers general characteristics such as the nature, size, and diversity of the site assemblage; the potential presence or absence of subsurface cultural deposits; the nature of any features within the site (construction techniques, building materials, structural integrity); and the age range reflected

by the site assemblage. Sites considered to be significant generally contain an assemblage of cultural remains that reflects sufficient diversity to permit identification of activities and to allow confirmation of the period of site use. Sites with the most potential to address research questions about human lifeways contain associated features, structures, and/or relatively intact and dateable artifacts.

Historic Archaeological Sites or Components

Historic sites containing or consisting of preserved features or structures are evaluated primarily under Criteria A, B, and C. Historic trash scatters lacking associated features or structures are primarily evaluated under Criterion D. In general, these types of sites represent ephemeral prospecting or stock management activities, but they lack identifiable or important association with specific persons or events of regional or national history (Criteria A and B), and they lack the formal and structural attributes necessary to qualify as eligible under Criterion C. The evaluation of significance of historic archaeological sites under Criterion D focuses on the capacity of the sites or components to yield significant information regarding knowledge of history during the period(s) of site significance. Evaluation of the significance of historic sites considers general characteristics such as the nature, size, and diversity of the site assemblage; the potential presence or absence of subsurface cultural deposits; the nature of any features within the site; construction techniques; building materials; structural integrity; and the age range reflected by the site assemblage.

Historic sites considered to be significant under Criterion D generally contain an assemblage of cultural remains that reflects sufficient diversity to permit identification of activities and to allow confirmation of the period of site use. Sites with the most potential to address research questions contain associated features, structures, and relatively intact and datable artifacts. Significant sites are those that could impart information not available solely from historical documents. Although archival research may provide an essential form of information, often historical records are inaccurate or incomplete. For example, examination of construction techniques or household assemblages can provide information on economic slumps, reuse of structures for other than original purposes, and re-occupation cycles. As a result, insight may be gained into questions about human lifeways that are often asked in archaeology, but rarely specified directly in historical documentation.

Non-Archaeological Historic Sites or Components

Non-archaeological historic sites or sites with non-archaeological components are those primarily assessed for NRHP eligibility under Criteria A, B, and C, rather than Criterion D and typically are not subject to subsurface testing. Individual segments of significant historic sites are evaluated as contributing or non-contributing in terms of physical and environmental integrity. Examples of historic site types include linear historic features, such as transportation routes and water conduits, standing building and structure sites, and potentially extend to any historic feature on an otherwise archaeological site, such as Traditional Cultural Property features. Historic and ethnographic sites evaluated for potential contribution to history or cultural traditions for reasons beyond their possible future research value tend to have different evaluation and management considerations than archaeological sites. Typically, the integrity of historic sites is addressed using the guidelines presented in National Register Bulletin 15 (National Park Service 1991), which defines the seven elements of integrity as

location, design, setting, materials, workmanship, feeling, and association. As such, properties are basically evaluated in consideration of their physical integrity and the integrity of their surroundings. Traditional Cultural Properties are also considered under the guidelines of National Register Bulletin 38 (Parker and King 1998).

INVENTORY RESULTS

SWCA archaeologists updated one previously recorded cultural resource (32SK795) and newly recorded one resource (32SK1076) during the inventory survey for the Dakota Prairie Refinery. 32SK795 consists of four segments of an historic railroad and 32SK1076 consists of a railroad bridge. SWCA also documented a culvert associated with the railroad, but the culvert is too recent to be considered an archaeological site. Copies of the North Dakota site forms are included in Appendix A (detached) and resource location map is provided in Appendix B.

PREVIOUSLY RECORDED SITE

32SK795 Update

Site Type:	Historic Railroad Segment/Bridge
Association:	1880–Present
Site Size (Segment 1):	633 by 30 feet (18,990.0 feet^2)
Site Size (Segment 2):	407 by 30 feet (12,210.0 feet^2)
Site Size (Segment 3):	734 by 30 feet (22,020.0 feet^2)
Site Size (Segment 4):	733 by 30 feet (21,990.0 feet^2)
NRHP Recommendation:	Eligible
Management Recommendation/Project Effect:	No Adverse Effect/No Further Work

Site Description

This update for 32SK795 consists of four east/west-trending segments of the historic Northern Pacific Railroad (Figures 4, 5a–5d, and 6). The segments are located approximately 0.6 mile north of 39 R Street SW and intersect with 116 R Avenue SW in Stark County, North Dakota. The site is located within rolling grassland topography, surrounded by agricultural fields. Local vegetation consists of native prairie grasses within the railroad right-of-way and deciduous trees surrounding the railroad right-of-way. The site is in good condition. Though materials on the railway have been updated in the recent past, the site retains overall integrity.

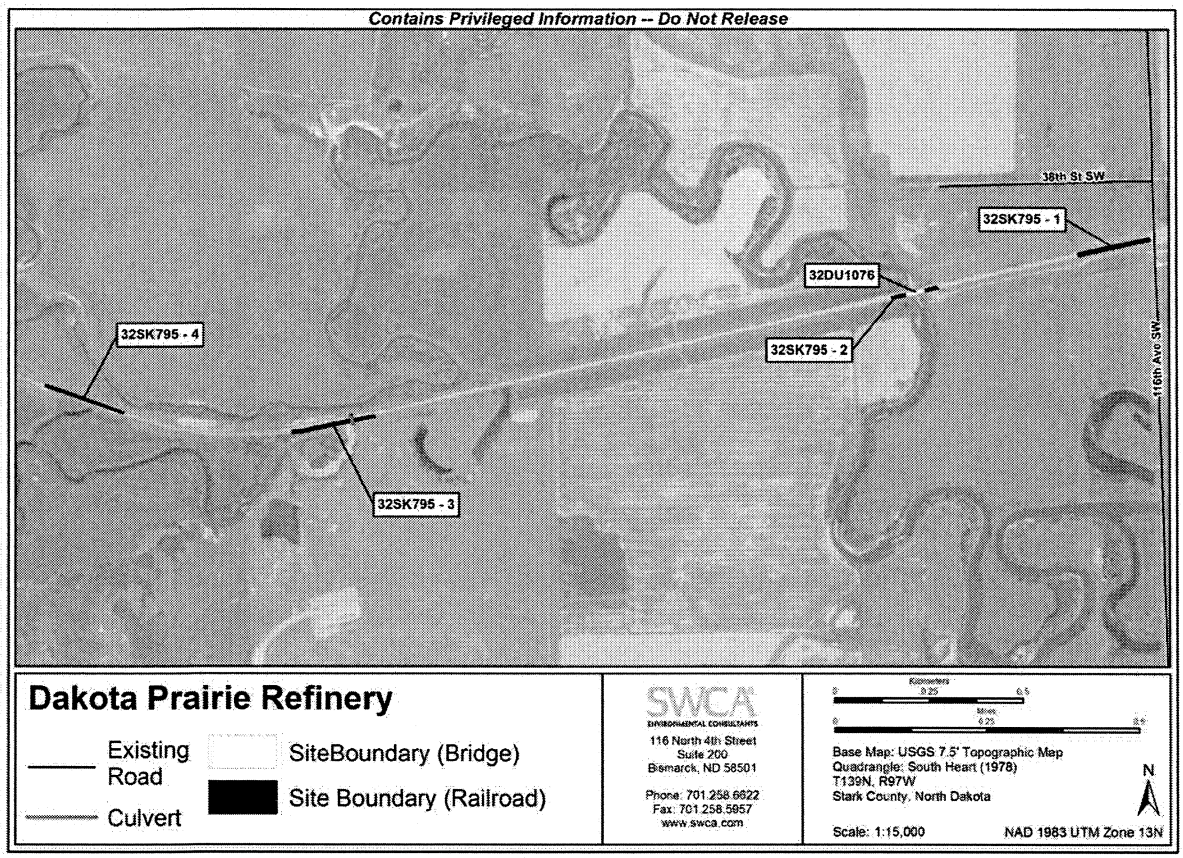


Figure 4. 32SK795 aerial map showing the four railroad segment locations.

Contains Privileged Information -- Do Not Release

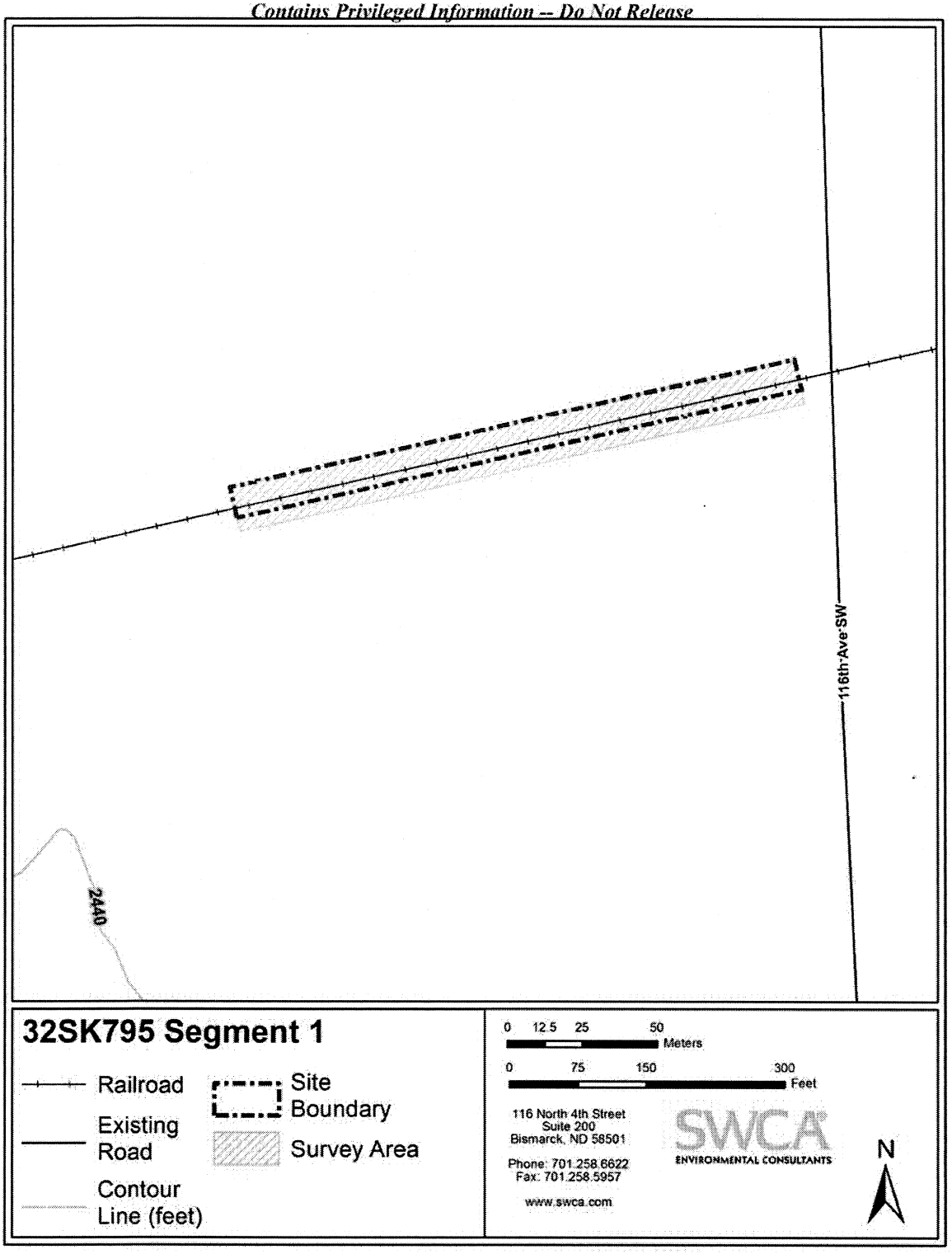


Figure 5a. 32SK795 Segment 1 site sketch map.

Contains Privileged Information -- Do Not Release

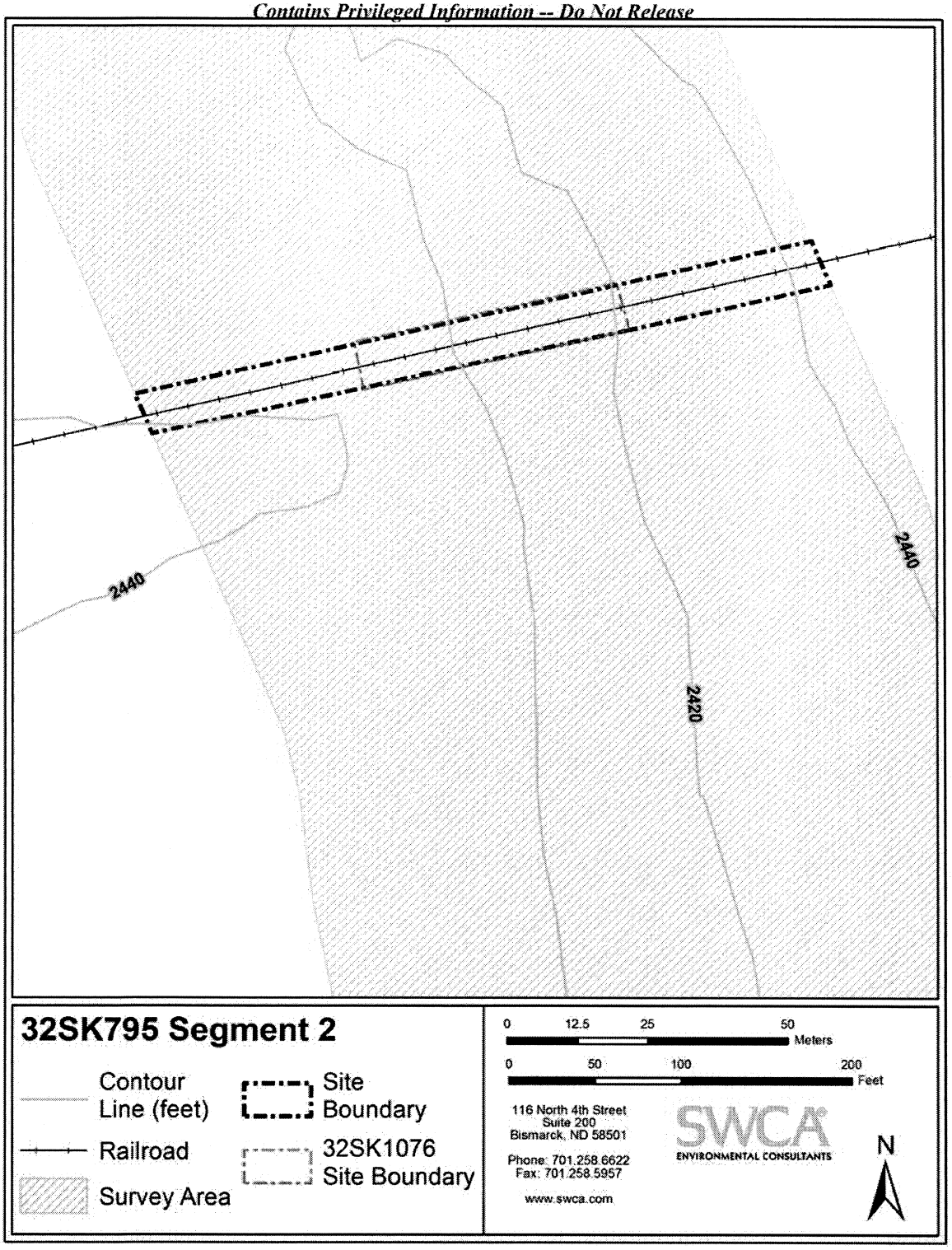


Figure 5b. 32SK795 Segment 2 site sketch map.

Contains Privileged Information -- Do Not Release

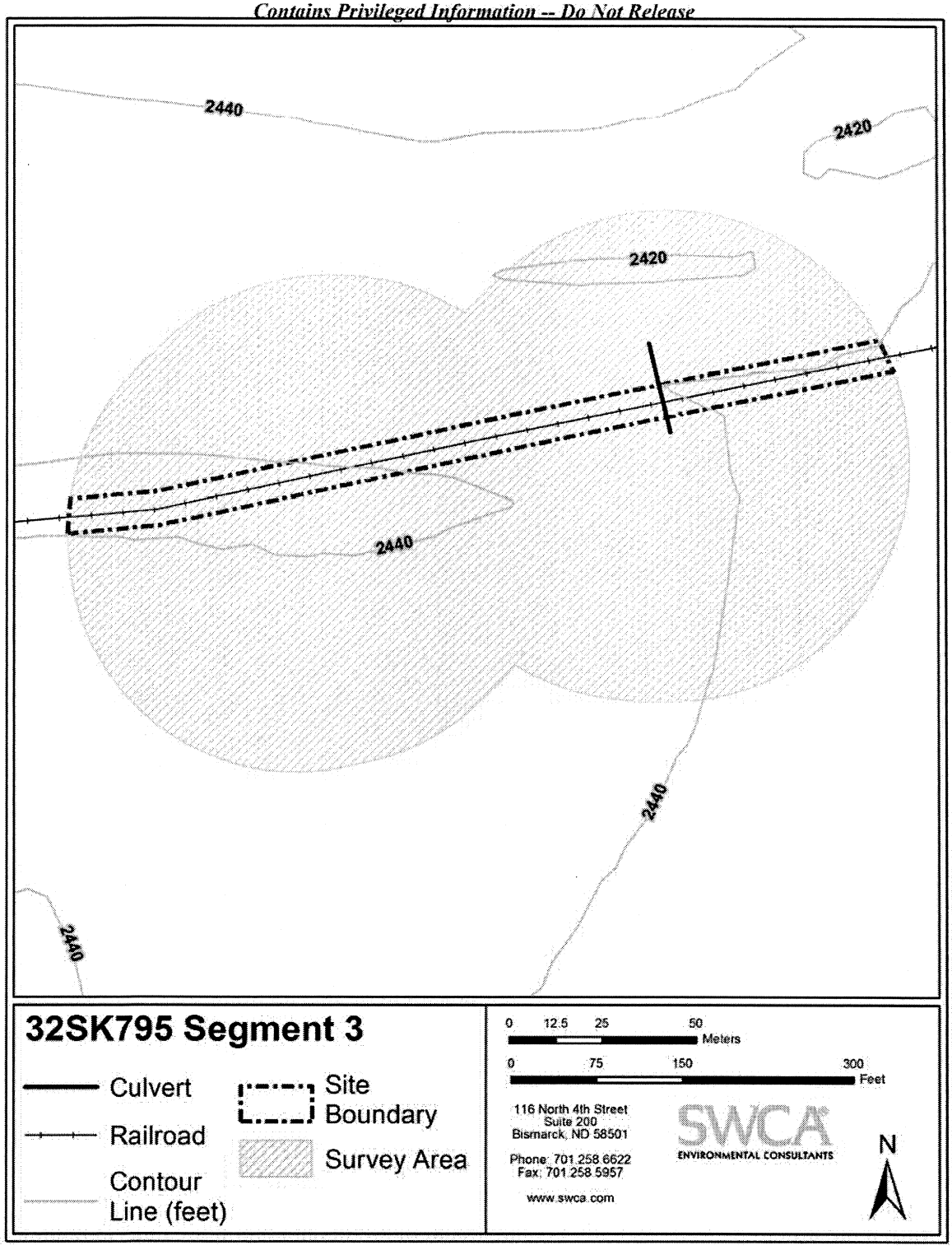


Figure 5c. 32SK795 Segment 3 site sketch map.

Contains Privileged Information -- Do Not Release

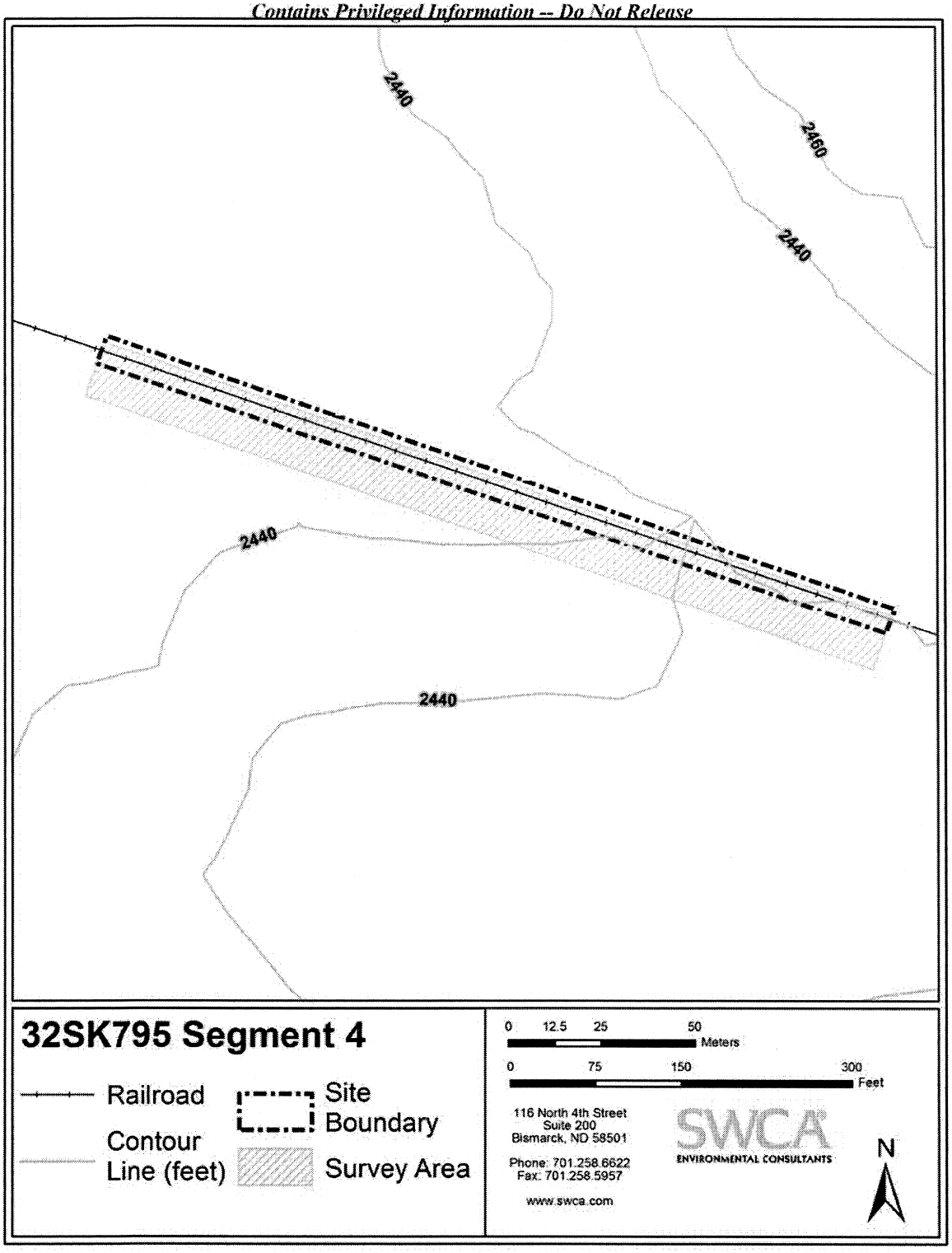


Figure 5d. 32SK795 Segment 4 site sketch map.

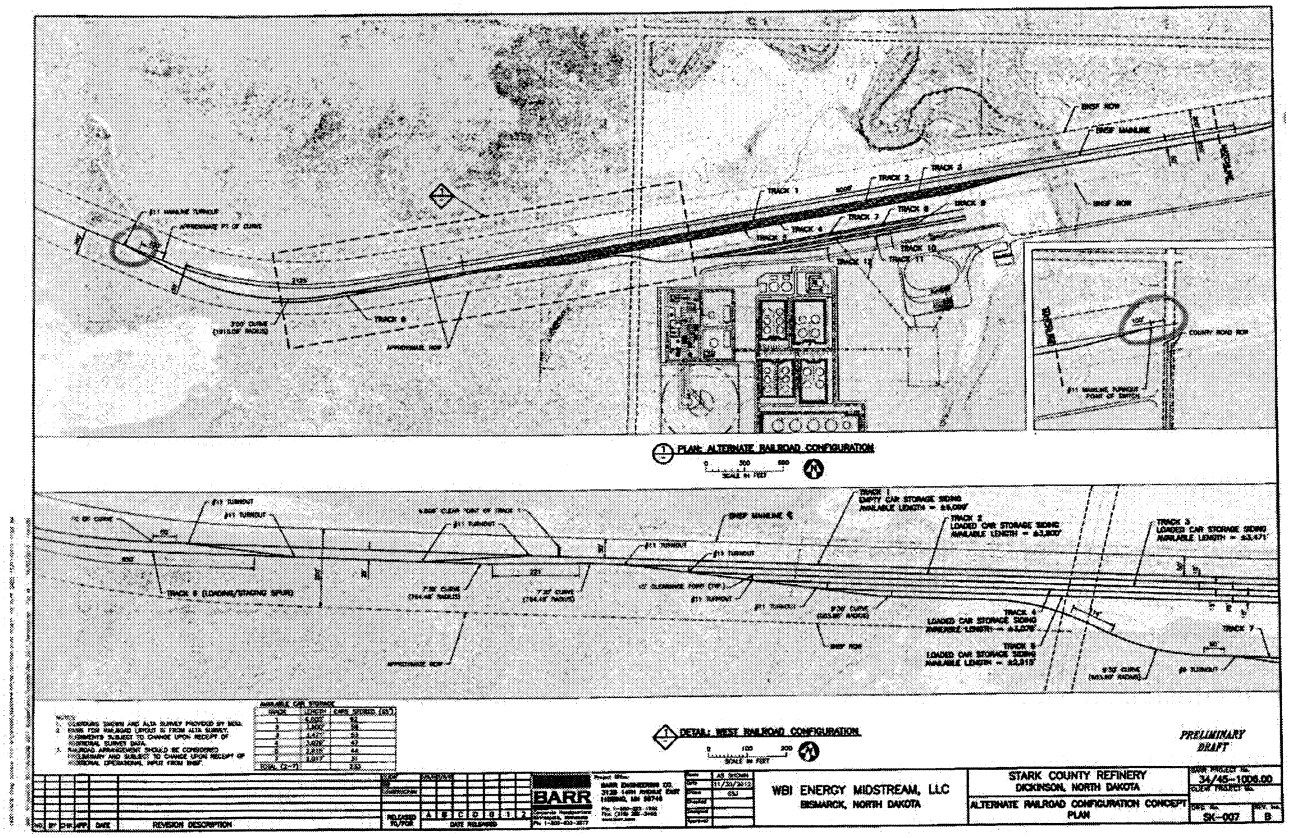


Figure 6. Project design map provided by Barr, showing the areas of potential railroad impact.

These rail line segments are part of the Northern Pacific Railroad. Other segments of the railroad have been previously recorded in Stark County in 1988 and twice in 2012, though this is the first recording of the current segments. Both 2012 recordings were by Metcalf Archaeological Consultants. The first 2012 recording was recorded by Livers and Kinsey on June 21, 2012, in support of an unknown project. The second of the 2012 recordings was recorded by Bluemle on September 5, 2012, in support of a pipeline project. Bluemle recommended the site as eligible for the NRHP only under Criterion A, citing the railroad's influence on the economic development of rural North Dakota. However, an eligibility statement is not provided in the other 2012 recording. The initial 1988 recording of the site was recorded by Ragan and Johnson on June 7, 1988, but the recording focused on a rock and concrete slab pile (Feature 1), concrete foundation (Feature 2), a chaff storage shed (Feature 3), the Birdsall Elevator (Feature 4), and a poured concrete foundation attached to the elevator (Feature 5), all of which are located adjacent to the railroad. The structures were found not eligible for NRHP, but no NRHP recommendation was noted for the railroad. It should be noted that the site was constructed in 1952, and at the time of recording in 1988, the site was not eligible because it was considered "relatively new," and that the eligibility of the site may have changed, as it is now over 50 years old.

Survey Results

Two segments (2 and 3) of 32SK795 were recorded on November 8, 2012, and two segments (1 and 4) of 32SK795 were recorded on January 28, 2013 (Figures 7–10). The site consists of a single railway on top of a tall berm, ranging from 4 to 12 feet in height (Figures 11 and 12). Only the portions of the railroad within the project survey corridor were recorded; however, the alignment extends beyond the survey corridor in both directions.

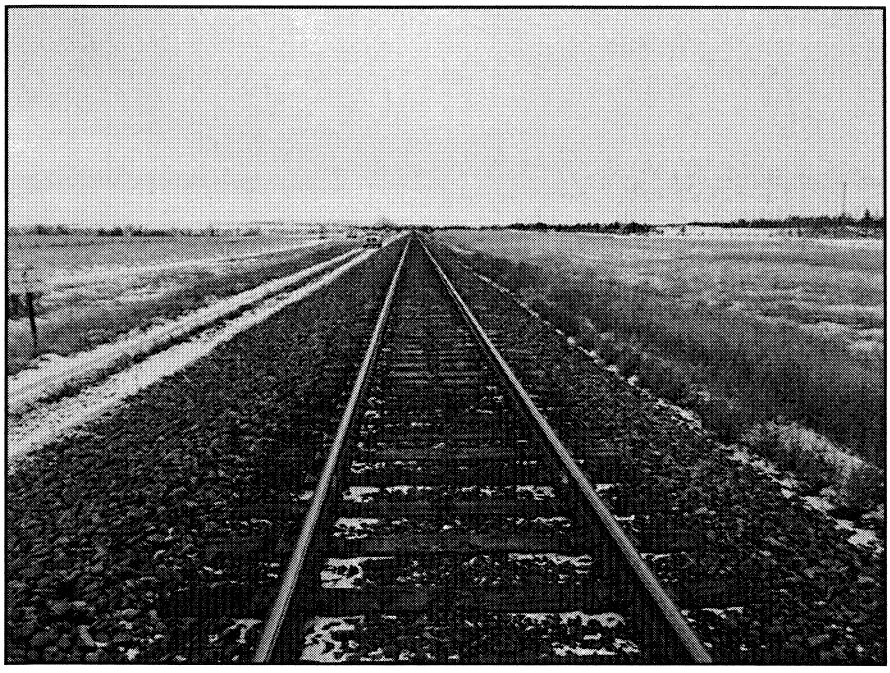


Figure 7. 32SK795 site overview (Segment 1), facing west.

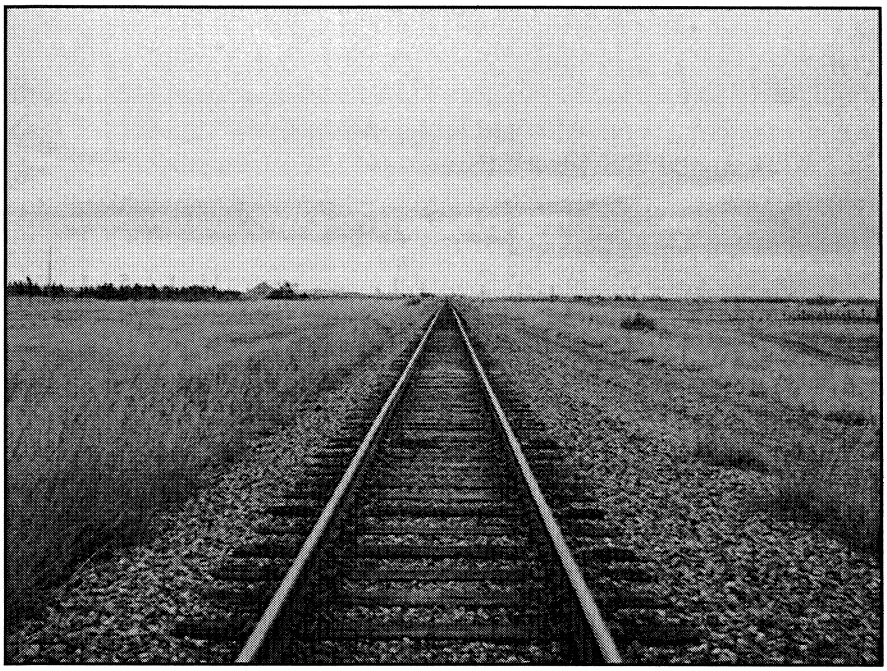


Figure 8. 32SK795 site overview (Segment 2), facing east.

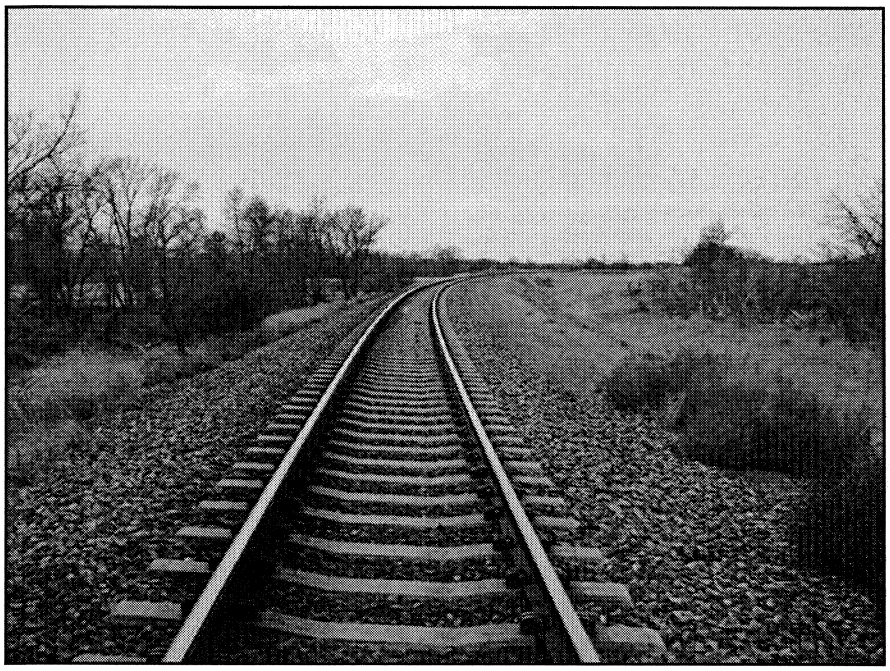


Figure 9. 32SK795 site overview (Segment 3), depicting the use of concrete ties in this section, facing west.

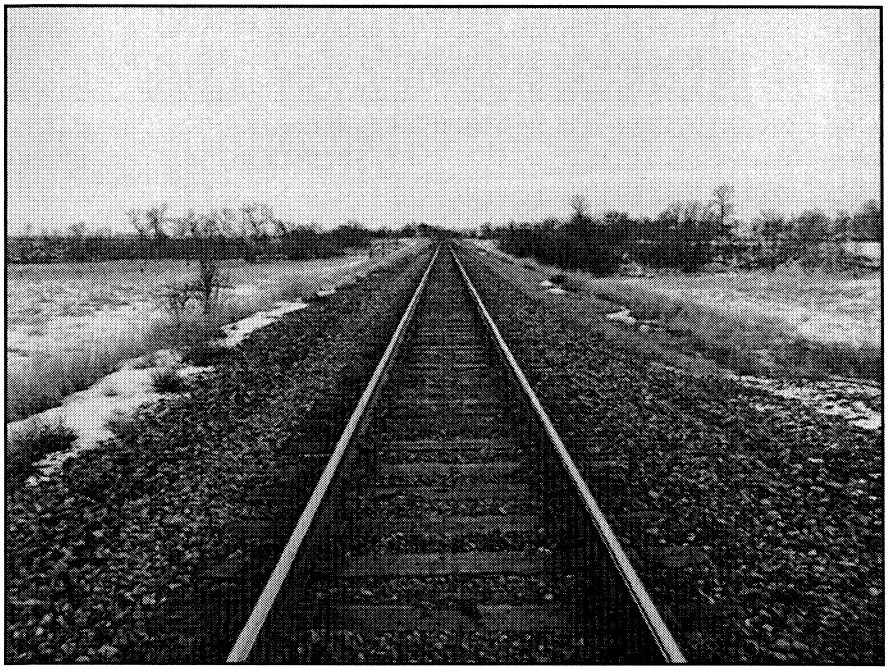


Figure 10. 32SK795 site overview (Segment 4), facing east.



Figure 11. 32SK795 site overview (Segment 3), showing the berm/bed height, facing north.

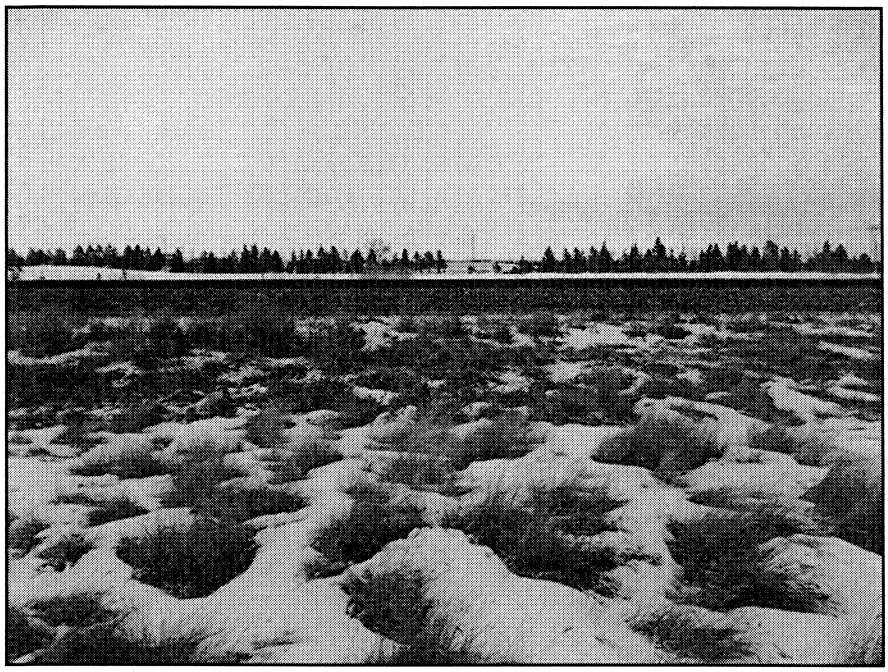


Figure 12. 32SK795 site overview (Segment 1), showing the berm/bed height, facing north.

The railway consists of standard gauge, modern, fairly rusted rail track on top of a bed of multi-colored granite ballast and associated river cobble subgrade berm/bed. Track consists of modern steel 136-pound, continuous weld, T-rails attached to milled timber ties (Segments 1, 2, and 4) via domed spikes and square attachment plates (tie plates) or concrete ties (Segments 3 and 4). The rails along this stretch of the railway have been replaced post 2000, evident through dates provided by the Burlington Northern-Santa Fe railroad company. The earliest date found for rail production was 1998 and the latest was 2004 (Figures 13 and 14). The gap length between ties is irregular. This rail line is still active in all four segments. Segment 2 also has a steel bridge, but the structure is considered a separate resource from the railroad and was recorded and discussed separately as 32SK1076 (Schmidt and Vermeer n.d.). Segment 3 features a culvert underneath the associated railroad, but the culvert is too recent to be considered an archaeological site.

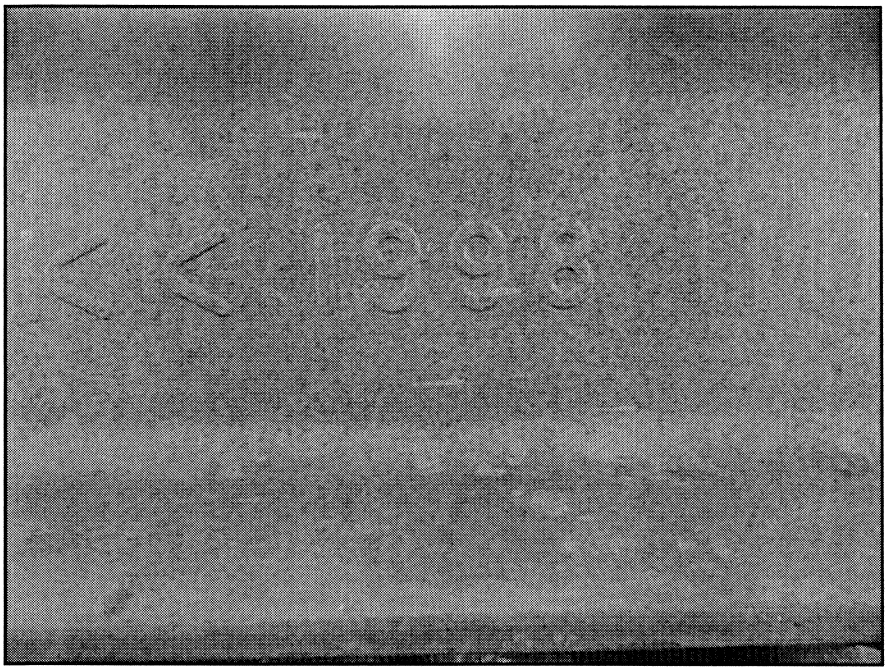


Figure 13. 32SK795 rail production date, 1998 (Segment 4).



Figure 14. 32SK795 rail production date, 2004 (Segment 1).

Historic Background

This branch of the Northern Pacific Railroad was constructed in 1880 when the Northern Pacific extended from Bismarck, North Dakota, to the Montana/North Dakota border (Schmidt and Vermeer n.d.). The Northern Pacific Railway Company was created after a bill was signed by Abraham Lincoln in 1864 as part of a national push for transcontinental railroads to the Pacific Ocean. The Northern Pacific traverses the northern part of the country from Lake Superior to the Puget Sound. Josiah Perham, a wealthy entrepreneur and an important figure in promoting the transcontinental railroad, was the first president of Northern Pacific. Perham eventually stepped down and Gregory Smith took over in 1865. Construction of the Northern Pacific Railroad began in August 1870 at Carlton, Minnesota, and reached Fargo, North Dakota, in June 1872. The line eventually reached Bismarck, North Dakota, in June 1873, but construction took a hiatus due to the Northern Pacific overextending its finances. This financial crisis caused ripples in the company, and three changes within 6 years in management from Gregory Smith to George Cass to Charles Wright to Frederick Billings. Under Billings, railroad construction finally resumed west from Bismarck in April 1879. The railroad eventually completed construction west of Beach, North Dakota, at the Montana/North Dakota border in November 1880 when it merged with a line heading east from the Montana Territory. The Northern Pacific enjoyed a period of great economic growth, transporting wheat, coal, cattle, and passengers. The success started a wave of branch line construction in 1882. By 1890, the Northern Pacific significantly grew by gathering numerous railroad company acquisitions and associated railroad lines. In 1893, further financial difficulties caused the Northern Pacific back into bankruptcy (Schmidt and Vermeer n.d.).

The Northern Pacific rebounded from the bankruptcy, but struggled through the early 1900s, but continued constructing several branch lines. During World War I, the federal government temporarily nationalized the country's railroads from 1918 to 1919. After a profitable 1920s, the Northern Pacific steadily declined during the 1930s and had financial difficulties throughout the Great Depression. The United States entry into World War II helped propel the Northern Pacific to a rapid financial recovery. Post World War II gave the Northern Pacific more financial difficulties leading to cut staff, abandoned line, and high rates. Competition with the growing trucking industry caused further changes with a transition from the steam engine to diesel. Eventually the Northern Pacific and Great Northern, among other companies, merged together in 1966 becoming the Burlington Northern Railroad (Schmidt and Vermeer n.d.).

This segment of the Northern Pacific corresponds with the development of the nearby town of Dickinson, North Dakota, originally known as Pleasant Valley. The Northern Pacific Railroad helped Dickinson to become the main trade center within a 150-mile radius (Dickinson Convention and Visitors Bureau 2012).

NRHP Eligibility Recommendation

Segments 1, 2, 3, and 4 of this branch of the Northern Pacific Railroad are eligible for inclusion in the NRHP under Criterion A for their role in opening up remote areas of Stark County for Euro-American settlement. These segments are especially significant in local and regional history for fostering the development of the town of Dickinson, North Dakota. The segments were also an influential part of greater southern North Dakota's entire railway

system. Railroads were built by corporations and not by individuals, hence no individual is associated with this segment of the Northern Pacific; therefore, the segment is not eligible under Criterion B. At the time of construction, the basic engineering methods used in the construction of the railway were common and well established; hence, these segments do not embodiy the distinctinve characteristics of a type, period, or method of construction, or represents the work of a master. Therefore, SWCA recommends the segments not eligible under Criterion C. The railroad is unlikely to yield information important in the history of the area; therefore, SWCA recommends the site not eligible under Criterion D.

Management Recommendation

SWCA recommends that the newly recorded sections of 32SK795 are contributing segments to an eligible resource. The creation of sidings is a compatible use to the function of the railroad. Additionally, the undertaking is an additive action, rather than destructive, thereby actually preserving the resource by capping the current berm and adding ballast when the additional sidings are created. Less than 0.1 percent of the alignment within the county will be impacted by the additional sidings and the resource will not be adversely affected. No further work is necessary for this resource.

NEWLY RECORDED SITE

32SK1076

Site Type:	Historic Railroad Bridge
Association:	1880–Present
Site Size:	159 by 30 feet (4,770.0 feet^2)
NRHP Recommendation:	Eligible
Management Recommendation/Project Effect:	No Further Work

Site Description

32SK1076 is an east/west-trending steel girder railroad bridge that crosses Heart River (Figures 15 and 16). It includes the bridge that includes a walkway with a handrail extending south of the rails. The site is located approximately 0.6 mile north of 39 R Street SW in Stark County, North Dakota. The site is located within rolling grassland topography, surrounded by agricultural fields. Local vegetation consists of native prairie grasses within the railroad right-of-way and deciduous trees surrounding the railroad right-of-way which allowed for less than 5 percent bare ground visibility at the time of survey. The site is in good condition. Though materials on the rail bed have been updated in the recent past, the site retains overall integrity.

The rail bridge is located on the Bismarck to Dickinson branch of the Northern Pacific Railroad. Though the bridge is a portion of the Northern Pacific Railroad (32SK795), bridges are a separate property type. Therefore, the bridge is assessed as its own resource.

Contains Privileged Information -- Do Not Release

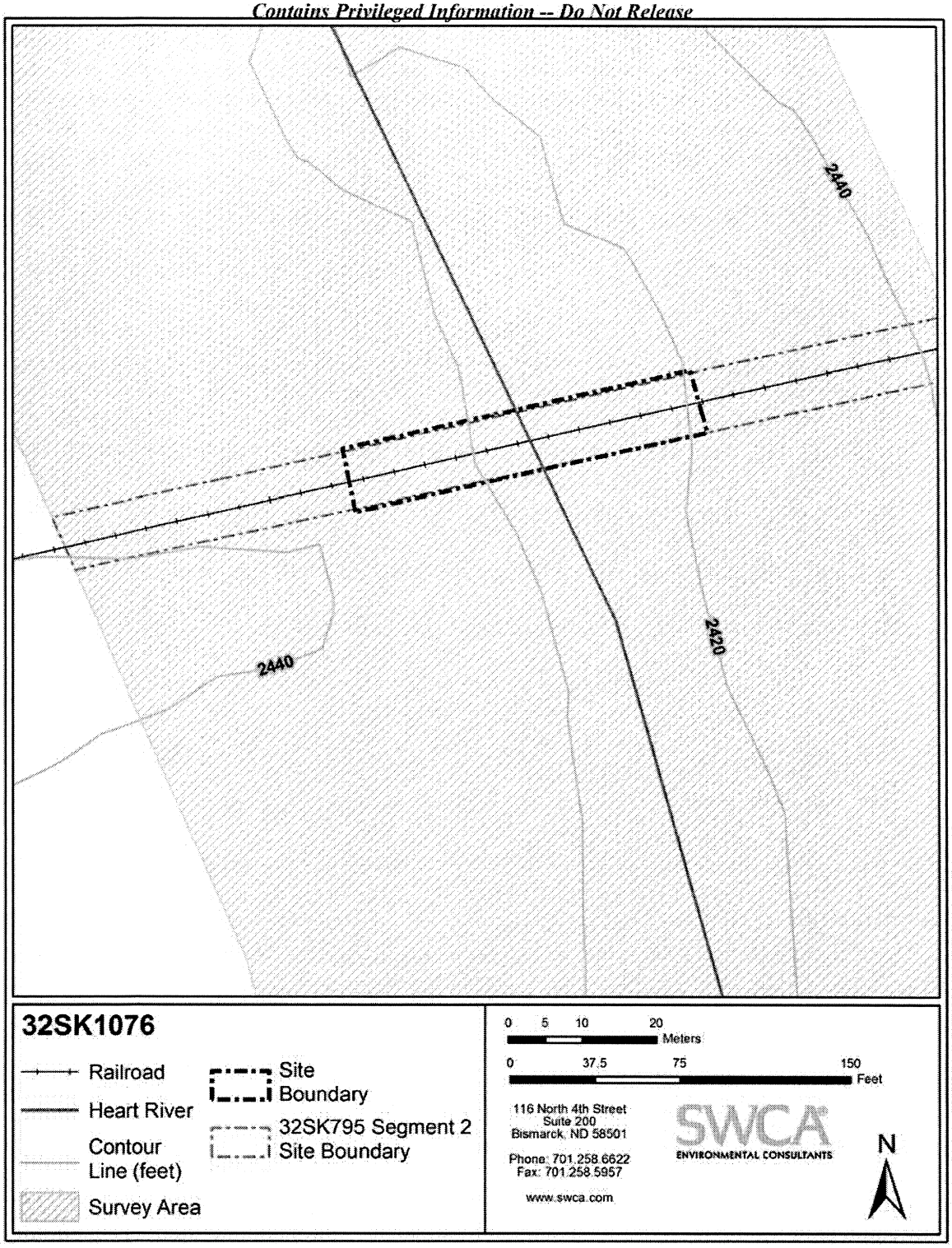


Figure 15. 32SK1076 site sketch map.

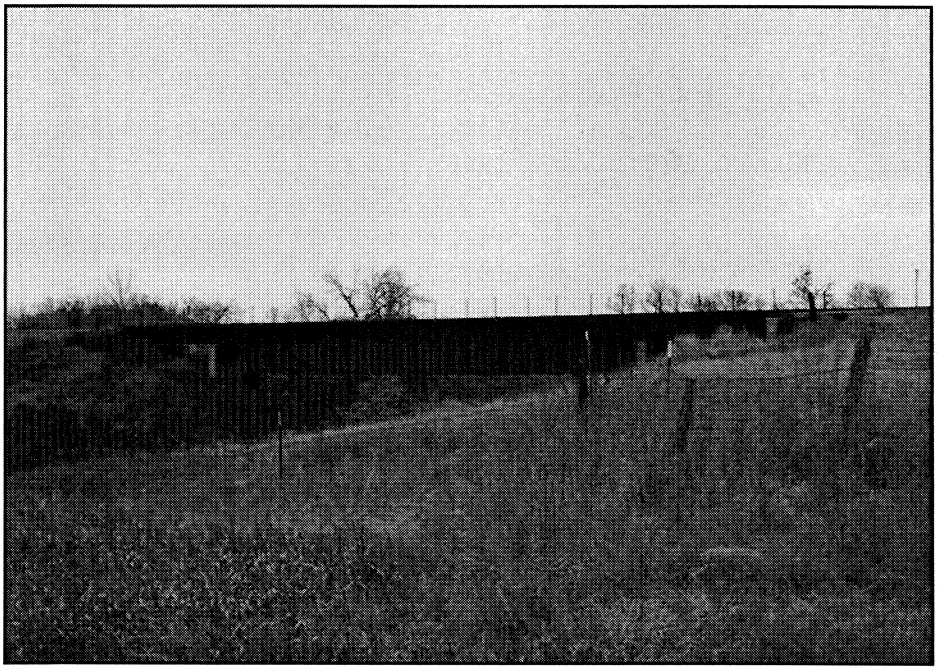


Figure 16. 32SK1076 site overview, facing northwest.

Survey Results

32SK1076 was recorded on November 8, 2012. The site consists of a single continuous span, steel plate girder truss bridge raised upon two poured concrete piers and two wingwall abutments over which wood decking is laid. The rails rest on the decking constructed of ties (Figure 17). A handrail and a wood plank trainmen's walkway are along the south side of the bridge. The present bridge, identified by Burlington Northern-Santa Fe as Bridge 115, is not original to the corridor, and was installed in 1928 (Masters 1960). The bridge is approximately 159 feet long and it spans the Heart River. The railroad was also recorded; however, the railroad alignment extends beyond the survey corridor in both directions. The recorded portion of the railroad is an active, single-track line composed of steel 'I' type rails joined to milled timber ties, and supported on top of a trapezoidal berm clad with angular stone ballast.

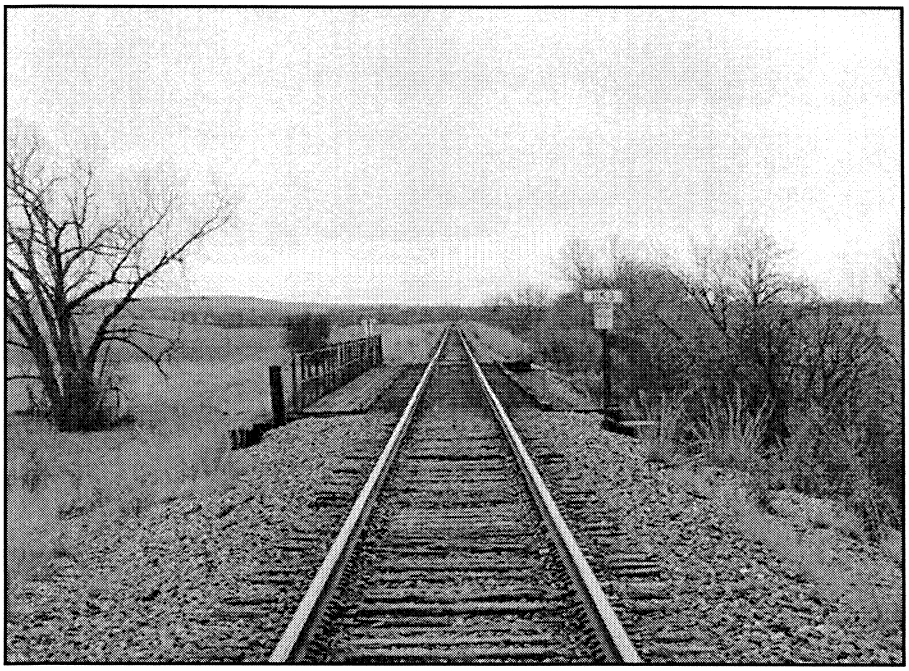


Figure 17. 32SK1076 site overview, with the bridge in the distance, facing west.

Historic Background

Constructed in 1928, the bridge is known Bridge 115, a component of the historic main line of the Northern Pacific Railroad, currently operated by Burlington Northern-Santa Fe (Masters 1960; Eisenberg 2005) This portion of the main line is a part of the main line constructed between Mandan and Medora through 1879 and 1881, a segment which has not been realigned in its long history (Eisenberg 2005). Construction on the Northern Pacific Railroad began in 1879 and 1880 when the Northern Pacific extended from Bismarck, North Dakota, to the Montana/North Dakota border (Schmidt and Vermeer n.d.; Eisenberg 2005).

As a component of the Northern Pacific main line, the history of the Bridge 115 parallels that of the Northern Pacific after 1928. However, it is not original to the line which when completed in the 1890s was a significant factor in the development of the nearby town of Dickinson, North Dakota, originally known as Pleasant Valley. The Northern Pacific Railroad helped Dickinson to become the main trade center within a 150-mile radius (Dickinson Convention and Visitors Bureau 2012).

Although not associated with the early functioning of the road, the bridge conveys a bridge style representative of the changing technologies in the rail industry during the 1920s. During the 1920s trains had become much more powerful, faster, and heavier machines than their nineteenth century counterparts, and the new machines caused an increase in wear on the rail network. Prior to the early decades of the twentieth century, America's rail network had been engineered for comparably slower, lighter machines with significantly lower cargo capabilities. As trains became faster and heavier, the tracks and structures of the past wore out or simply failed under the growing loads. To address this, private companies overhauled their

rail infrastructure to allow for bigger and faster cargo (Brown 1961; Sellew 1913; Hultgren 1944). The steel plate truss bridge was one of the technologies improved upon to accommodate the new engines and higher traffic (Bianculli 2003; Chase 1908).

NRHP Eligibility Recommendation

Bridge 115 is eligible for inclusion in the NRHP under Criterion C for its representation of the steel plate girder truss rail bridge type first introduced into rail infrastructure in the 1920s. Review of historic documentary materials revealed that this bridge is not related to the early development of Dickinson and the region, and the feature is recommended not eligible under Criterion A. Additional work is needed to establish a firm link between an individual and the bridge; therefore, the segment is left unevaluated under Criterion B. The bridge is unlikely to yield information important in the history of the area; therefore, SWCA recommends the site not eligible under Criterion D.

Management Recommendation

SWCA recommends avoidance of 32SK1076. By project design, the site will not be impacted. No further work is necessary for this resource.

CONCLUSIONS

SWCA conducted a Class I and Class III cultural resource inventory on behalf of Barr in support of the Dakota Prairie Refinery project in November 2012 and January 2013. Inventories were conducted in parcels for 200 feet surrounding three wetlands and one waterbody under the jurisdiction of the USACE, as well as two sections of railroad where there will be potential impact. In total, 25.45 acres were inventoried for the project.

During the inventory, SWCA relocated one cultural resource (32SK795) and newly recorded one resource (32SK1076). 32SK795 consists of four segments of an historic railroad, all four of which are recommended eligible for listing on the NRHP. 32SK1076 consists of a railroad bridge and is recommended eligible for listing on the NRHP. Neither resource will be adversely affected and no further work is recommended for 32SK795 and 32SK1076. It is therefore recommended that a determination of *No Historic Properties Affected* be granted for the project to proceed as planned.

REFERENCES CITED

Aaberg, Stephen A., Rebecca R. Hanna, Chris Crofutt, Jayme Green, and Marc Vischer
2006 *Class I Overview of Paleontological & Cultural Resources in Eastern Montana.* Miles City Field Office Resource Management Plan (RMP) and Environmental Impact Statement (EIS). Volume 1. Report prepared by Aaberg Cultural Resource Consulting Service for the U.S. Department of the Interior, Bureau of Land Management, Miles City.

Agenbroad, Larry D.
1978 The Hudson-Meng Site: An Alberta Bison Kill in the Nebraska high Plains. In *Bison Procurement and Utilization: A Symposium*, edited by L. B. Davis and M. Wilson. *Plains Anthropologist, Memoir* 14:128–131.

Bianculli, Anthony
2003 *Trains and Technology: The American Railroad in the Nineteenth Century*: *Bridges and Tunnels Signals*, [Vol. 4]. Univ. of Delaware Press, Newark, Del.

Blakeslee, Donald J.
1993 Modeling the Abandonment of the Central Plains: Radiocarbon Dates and the Origin of the Initial Coalescent. In *Prehistory and Human Ecology of the Western Prairies and Northern Plains,* edited by Joseph A. Tiffany, pp. 199–214. *Plains Anthropologist* Memoir 27.

Brown, H. F.
1961 Economic Results of Diesel Electric Motive Power on the Railways of the United States of America. *Proceedings of the Institution of Mechanical Engineers* Vol. 175, No. 5.

Bryan, Liz
1991 *The Buffalo People: Prehistoric Archaeology on the Canadian Plains.* University of Alberta Press, Edmonton.

Bryce, Sandra, James M. Omernik, David E. Pater, Michael Ulmer, Jerome Schaar, Jerry Freeouf, Rex Johnson, Pat Kuck, and Sandra H. Azevedo
1998 Ecoregions of North Dakota and South Dakota. Jamestown, ND: Northern Prairie Wildlife Research Center Online. Electronic document available online at http://www.npwrc.usgs.gov/resource/habitat/ndsdeco/nodak.htm. Accessed May 27, 2011.

Bryson, Reid A., David A. Baerreis, and Wayne M. Wendland
1970 The Character of Late-glacial and Post-glacial Climatic Changes. In *Pleistocene and Recent Environments of the Central Great Plains,* edited by Wakefield Dort, Jr., and J. Knox Jones, Jr., pp. 53–74. University of Kansas, Special Report of the Department of Geology 3.

Byrne, William J.
1973 *The Archaeology and Prehistory of Southern Alberta as Reflected by Ceramics.* Archaeological Survey of Canada Paper 14. National Museum of Man Mercury Series, Ottawa.

Cannon, Michael D., and David J. Meltzer
2004 Early Paleoindian Foraging: Examining the Faunal Evidence for Large Mammal Specialization and Regional Variability in Prey Choice. *Quaternary Science Reviews* 23:1955–1987.

Carlson, Gayle F.
1994 The Foragers: Diversified Lifestyle. In *The Cellars of Time: Paleontology and Archaeology in Nebraska. Nebraskaland Magazine* 72(1):95–106.

Chase, Thomson
1908 *Design of Typical Steel Railway Bridges.* The Engineering News Pub. Co., New York, NY.

Clayton, Lee
1980 Geologic Map of North Dakota, U.S. Geological Survey, Scale 1:500K. Available online at http://tin.er.usgs.gov/geology/state/state.php?state=ND. Accessed July 23, 2009.

Davis, Leslie B.
1993 Paleo-Indian Archaeology in the High Plains and Rocky Mountains of Montana. In *From Kostenki to Clovis: Upper Paleolithic-Paleo-Indian Adaptations*, edited by Olga Soffer and Nikolai D. Praslov, pp. 263–277.

DeMallie, Raymond J.
2001a Sioux Until 1850. *Handbook of North American Indians: Plains,* Vol. 13, Part 2, edited by Raymond J. DeMallie, pp. 718–760. William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

2001b Yankton and Yanktonai. *Handbook of North American Indians: Plains,* Vol. 13, Part 2, edited by Raymond J. DeMallie, pp. 777–793. William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Dickinson Convention and Visitors Bureau
2012 Dickinson History. Electronic document available online at http://www.visitdickinson.com/media/dickinson-history/. Accessed December 10, 2012.

Dill, Christopher L.
1983 *Early Peoples of North Dakota (before 1858).* Occasional Publication No. 5, State Historical Society of North Dakota, North Dakota Heritage Center, Bismarck.

Eighmy, Jeffrey L., and Jason M. LaBelle
1996 Radiocarbon Dating of Twenty-seven Plains Complexes and Phases. *Plains Anthropologist* 41(155):53–69.

Eisenberg, Alan
2005 *Track Segment Listings,* BNSF History Project & Annual Review [No. 9]. HAE Enterprises, Portland, OR.

Fenneman, Nevin M.
1931 *Physiography of Western United States*. McGraw-Hill, New York.

Frison, George C.
1988 Avonlea and Contemporaries in Wyoming. In *Avonlea Yesterday and Today: Archaeology and Prehistory*, edited by Leslie B. Davis, pp. 81–88. Saskatchewan Archaeological Society, Saskatoon, Saskatchewan.

1991 *Prehistoric Hunters on the High Plains*, 2nd Edition. Academic Press, New York.

1998 Paleoindian Large Mammal Hunters on the Plains of North America. *Proceedings of the National Academy of Sciences* 95:14576–14583.

Frison, George C., David Schwab, L. Adrien Hannus, Peter Winham, David Walter, and Robert C. Mainfort
1996 Archeology of the Northwestern Plains. In *Archeological and Bioarcheological Resources of the Northern Plains*, edited by George C. Frison and Robert C. Mainfort, pp. 8–40. Arkansas Archeological Survey Research Series No. 47, Fayetteville.

Frison, George C., and Larry C. Todd
1986 *The Colby Mammoth Site: Taphonomy and Archaeology of a Clovis Kill in Northern Wyoming*. University of New Mexico Press, Albuquerque.

Frison, George C., and Danny N. Walker
2007 The Medicine Lodge Creek Archaeological Project. In *Medicine Lodge Creek: Holocene Archaeology of the Eastern Big Horn Basin, Wyoming*, edited by George C. Frison and Danny N. Walker, pp. 11–31. Volume 1. Clovis Press.

Galvan, Mary Elizabeth
2007 Vegetative Ecology. In *Medicine Lodge Creek: Holocene Archaeology of the Eastern Big Horn Basin, Wyoming*, edited by George C. Frison and Danny N. Walker, pp. 155–176. Volume 1. Clovis Press.

Grayson, Donald K., and David J. Meltzer
2002 Clovis Hunting and Large Mammal Extinction: A Critical Review of the Evidence. *Journal of World Prehistory* 16:313–359.

Gregg, Michael L.
1985 *An Overview of the Prehistory of Western and Central North Dakota: Class I Cultural Resources Inventory, Dickinson District, Bureau of Land Management,* February 1984. Cultural Resources Series No. 1. University of North Dakota, Grand Forks. Prepared for the Bureau of Land Management, Billings Montana.

Gregg, Michael L., and Amy Bleier
2008 The Heart River Study Unit. *North Dakota Comprehensive Plan for Historic Preservation: Archaeological Component.* North Dakota State Historic Preservation Office, Bismarck.

Griffin, James B.
1967 Eastern North American Archaeology: A Summary. *Science* 56:175–191.

Hannus, L. Adrien
1990 The Lange-Ferguson Site: A Case for Mammoth Bone Butchering Tools. In *Megafaua & Man: Discovering America's Heartland,* edited by Larry D. Agenbroad, Jim I. Mead, and Lisa W. Nelson, pp. 86–99. Scientific Papers, Volume 1. The Mammoth Site of Hot Springs, South Dakota, Inc., Hot Springs.

1994 Cultures of the Heartland: Beyond the Black Hills. In *Plains Indians, A.D. 500-1500: The Archaeological Past of Historic Groups,* edited by Karl H. Schlesier. University of Oklahoma Press, Norman.

Hanson, Jeffrey R.
1998 The Late High Plains Hunters. In *Archaeology of the Great Plains,* edited by W. Raymond Wood, pp.456–480.

Hill, Matthew E.
2007 A Moveable Feast: Variation in Faunal Resource Use among Central and Western North American Paleoindian Sites. *American Antiquity* 72(3):417–438.

Hill, Matthew G.
2001 Paleoindian Diet and Subsistence Behavior on the Northwestern Great Plains. Unpublished Ph.D. Dissertation, Department of Anthropology, University of Wisconsin, Madison.

Hultgren, Thor
1944 Railway Traffic Expansion and Use of Resources in World War II. *Our Economy in War* [Occasional Paper No. 15; February]. National Bureau of Economic Research, Inc. New York, NY.

Irwin, Henry T.
1967 The Itama: Late Pleistocene Inhabitants on the Plains of the United States and Canada and the American Southwest. Unpublished Ph.D. Dissertation, Department of Anthropology, Harvard University, Cambridge.

1971 Developments in Early Man Studies in Western North America, 1960–1970. *Arctic Anthropology* 8(2):42–67.

Johnson, Craig M.
1998 Coalescent Tradition. In *Archaeology on the Great Plains*, edited by W. Raymond Wood, pp. 308–344. University Press of Kansas, Lawrence.

Johnson, Anne M., and Alfred E. Johnson
1998 The Plains Woodland. In *Archaeology on the Great Plains*, edited by W. Raymond Wood, pp. 201–234. University Press of Kansas, Lawrence.

Joyes, Dennis C.
1970 The Culture Sequence at the Avery Site at Rock Lake. In *Ten Thousand Years: Archaeology in Manitoba,* edited by W. M. Hlady, pp. 209–222. D. W. Friensen & Sons Ltd., Altona, Manitoba.

Krause, Richard A.
2001 Plains Village Tradition: Coalescent. In *Handbook of North American Indians: Plains,* Vol. 13, Part 1, edited by Raymond J. DeMallie, pp. 196–206. William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Lehmer, Donald J.
1971 *Introduction to Middle Missouri Archeology.* National Park Service, U.S. Department of the Interior, Washington, D.C.

Masters, J.R.
1960 *Pocket Bridge List* [orig. 1945, rev. 1960]. Office of the Bridge Engineer, Northern Pacific Railway, St. Paul, MN.

National Climatic Data Center (NCDC)
2009 Climatography of the United States, No. 20, 1971-2000. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Asheville, North Carolina. Available online at http://cdo.ncdc.noaa.gov/cgi-bin/climatenormals/climatenormals.pl. Accessed July 23, 2009.

National Park Service
1991 *How to Apply the National Register Criteria for Evaluation.* National Register Bulletin 15. United States Department of the Interior, Washington, D.C.

Natural Resources Conservation Service
2012 Web Soil Survey – Stark County, ND. Available online at http://websoilsurvey.nrcs.usda.gov. Accessed December 10, 2012.

North Dakota Agricultural Statistics Service
2005 Crop and Weather Date, 2004. Electronic document available online at http://www.nass.usda.gov/nd/weather74.pdf. Accessed July 23, 2009.

Parker, Patricia L., and Thomas F. King
1998 *Guidelines for Evaluating and Documenting Traditional Cultural Properties.* National Register Bulletin 38. United States Department of the Interior, Washington, D.C.

Reeves, Brian
1969 The Southern Alberta Paleo-Cultural Paleo-Environmental Sequence. In *Post Pleistocene Man and His Environment on the Northern Plains*, edited by R. G. Forbis. Student Press, University of Calgary.

1970 Culture Change in the Northern Plains; 1000 B.C.-A.D. 1000. Unpublished Ph.D. dissertation, Department of Archaeology, University of Calgary.

1983 *Culture Change in the Northern Plains: 1000 B.C. - A.D. 1000.* Occasional Paper No. 20. Archaeological Survey of Alberta, Edmonton.

Root, Matthew J. (editor)
2000 *The Archaeology of the Bobtail Wolf Site: Folsom Occupations of the Knife River Flint Quarry Area, North Dakota.* Washington State University, Pullman. Submitted to the US Fish and Wildlife Service, Denver, Colorado.

Schlesier, Karl H.
1968 Migration and Cultural Ways of the Middle Missouri, 1550–1850. *Journal for Ethnologies* Vol. 93 (1–2). Braunschweig, DE.

Schmidt and Vermeer
n.d. Railroads in North Dakota, 1872–1956. NRHP Multiple Property Documentation Form on file with North Dakota SHPO, Bismarck, North Dakota.

Schneider, Fred E., and W. Jeffrey Kinney
1978 Evans: A Multi-Component Site in Northwestern North Dakota. *Archaeology in Montana* 19(1&2):1–39.

Schulenberg, Raymond F.
1957 *Indians of North Dakota.* North Dakota History, 23(3 and 4). State Historical Society, Bismarck.

Seabloom, Robert W., Richard D. Crawford, and Michael G. McKenna
1978 *Vertebrates of Southwestern North Dakota: Amphibians, Reptiles, Birds, Mammals.* Institute for Ecological Studies, University of North Dakota, Grand Forks, ND.

Sellet, Frederic
2001 A Changing Perspective on Paleoindian Chronology and Typology: A View from the Northwestern Plains. *Arctic Anthropology* 38(2):48–63.

Sellew, William
1913 *Steel Rails: Their History, Properties, Strength and Manufacture*. D. Van Nostrand Company, London, UK.

Shifrin, Lisa K.
2000 *Young-Man-Chief (32DU955D): A Folsom, Late Plains Archaic, and Late Prehistoric Site*. Bilby Research Center, Northern Arizona University, Flagstaff. Submitted to the U.S. Fish and Wildlife Service, Denver.

Smith, Brian J., and Ernest G. Walker
1988 Evidence for Diverse Subsistence Strategies in an Avonlea Component. In *Avonlea Yesterday and Today: Archaeology and Prehistory*, edited by Leslie B. Davis, pp. 81–88. Saskatchewan Archaeological Society, Saskatoon, Saskatchewan.

Smith, G. Hubert
1972 *Like-a-Fishhook Village and Fort Berthold, Garrison Reservoir, North Dakota.* National Park Service, Anthropological Papers, No. 2, Washington, D.C.

Stiger, Mark
2006 A Folsom Structure in the Colorado Mountains. *American Antiquity* 71(2):321–352.

Surovell, Todd A., and Nicole M. Waguespack
2007 Folsom Hearth-Centered Use of Space at Barger Gulch, Locality B. In *Frontiers in Colorado Paleoindian Archaeology*, edited by Robert Brunswig and Bonnie Pitblado, pp. 219–259. University of Colorado Press, Boulder.

Tiffany, Joseph A.
2007 Examining the Origins of the Middle Missouri Tradition. In *Plains Village Archaeology: Bison Hunting Farmers in the Central and Northern Plains*, edited by Stanley A. Ahler and Marvin Kay, pp. 3–14. University of Utah Press, Salt Lake City.

Todd, Larry C., Matthew G. Hill, David J. Rapson, and George C. Frison
1997 Cutmarks, Impacts, and Carnivores at the Casper Site Bison Bonebed. In *Proceedings of the 1993 Bone Modification Conference Hot Springs, South Dakota*, edited by L. A. Hannus, L. Rossum, and L. Winham, pp. 136–157. Occasional Publication No. 1. Archaeological Laboratory Augustana College, Sioux Falls.

Todd, Larry C., and David J. Rapson
1999 Formational Analysis of Bison Bonebeds and Interpretation of Paleoindian Subsistence. In *Le Bison: Gibier et Moyen de Subsistance des Hommes du Paléolithique aux Paléoindiens des Grandes Plaines*, edited by J.-Ph. Brugal, F. David, J. G. Enloe, and J. Jaubert, pp. 479–499. Editions APDCA, Anitbes.

U.S. Fish and Wildlife Service
2010 County Occurrence of Endangered, Threatened, and Candidate Species and Designated Critical Habitat in North Dakota. Available online at http://www.fws.gov/northdakotafieldoffice/county_list.htm. Accessed May 14, 2010.

Vickers, J. Roderick
1994 Cultures of the Northwestern Plains: From the Boreal Forest Edge to Milk River. In *Plains Indians, A.D. 500-1500: The Archaeological Past of Historic Groups*, edited by Karl H. Schlesier, pp. 3–33. University of Oklahoma Press, Norman.

Walde, Dale A.
2006 Avonlea and Athabaskan Migrations: A Reconsideration. *Plains Anthropologist* 51(198):185–197.

Willey, P., and Thomas E. Emerson
1993 The Archaeology and Osteology of the Crow Creek Massacre. In *Prehistory and Human Ecology of the Western Prairies and Northern Plains,* edited by Joseph A. Tiffany, pp. 227–269. *Plains Anthropologist* Memoir 27.

William, Jerry D.
2000 *The Big Black Site (32DU955C): A Folsom Complex Workshop in the Knife River Flint Quarry Area, North Dakota.* Washington State University Press, Pullman.

Winham, R. Peter, and F. A. Calabrese
1998 The Middle Missouri Tradition. In *Archaeology on the Great Plains*, edited by W. Raymond Wood, pp. 269–307. University Press of Kansas, Lawrence.

Wood, W. Raymond
1967 *An Interpretation of Mandan Culture History*. Bureau of American Ethnology Bulletin 198, River Basin Surveys Paper 39.

2001 Plains Village Tradition: Middle Missouri. In *Handbook of North American Indians: Plains,* Vol. 13, Part 1, edited by Raymond J. DeMallie, pp. 186–195. William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Wood, W. Raymond, and Ann M. Johnson
1973 High Butte, 32ME13: A Missouri Valley Woodland-Besant Site. *Archaeology in Montana* 14(3):35–83.

Works Progress Administration (WPA)
1950 *North Dakota: A Guide to the Prairie State*. Compiled by workers of the Federal Writers' Project of the Works Progress Administration for the State of North Dakota. Oxford University Press.

Zimmerman, Larry J.
1985 *Peoples of Prehistoric South Dakota.* University of Nebraska Press, Lincoln.

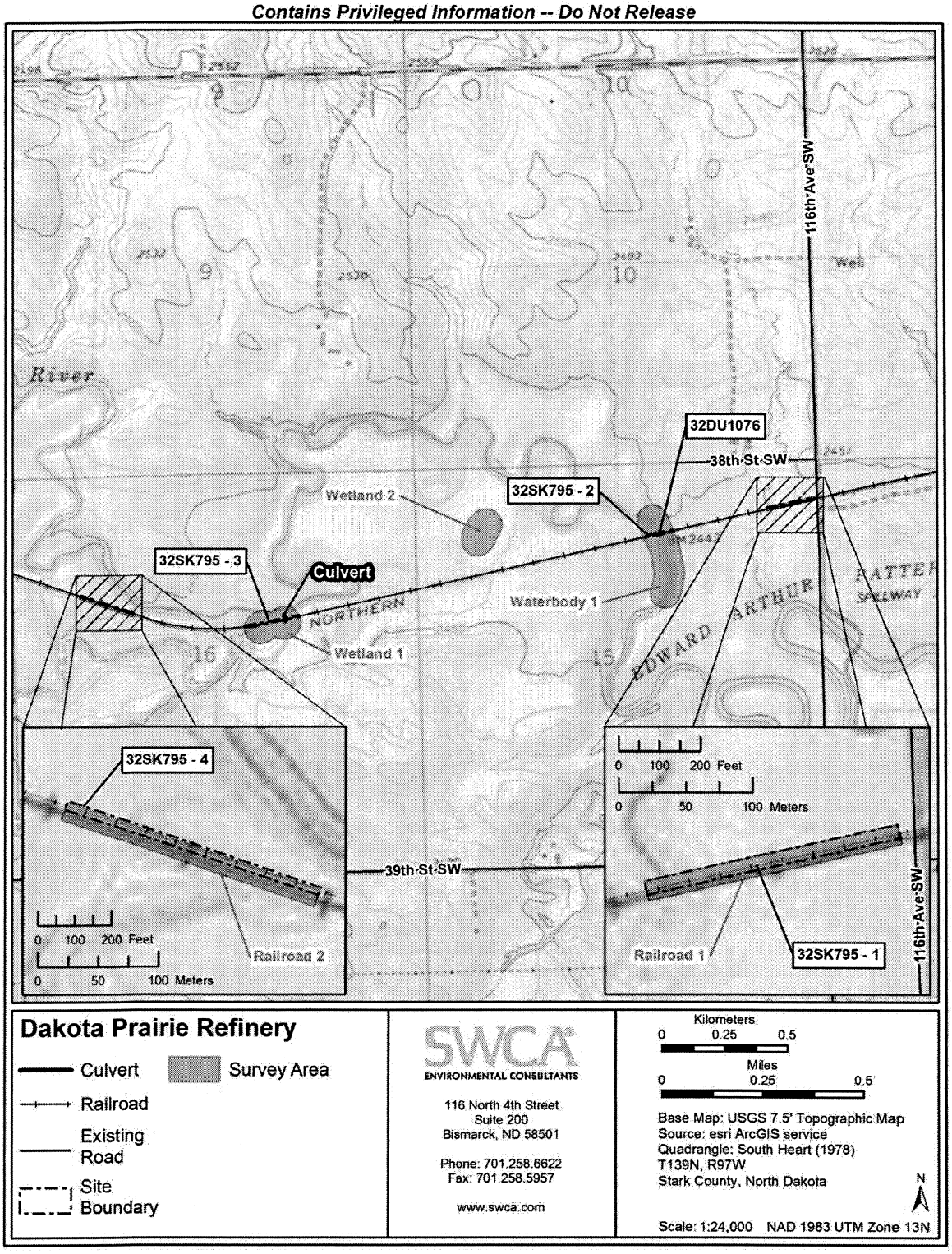
Zimmerman, Larry J., and Lawrence E. Bradley
1993 The Crow Creek Massacre: Initial Coalescent Warfare and Speculations about the Genesis of Extended Coalescent. In *Prehistory and Human Ecology of the Western Prairies and Northern Plains,* edited by Joseph A. Tiffany, pp. 215–226. *Plains Anthropologist* Memoir 27.

This page intentionally left blank.

APPENDIX A
(Detached)
North Dakota Site Forms

APPENDIX B
Resource Location Map

Contains Privileged Information -- Do Not Release



Resource location map at 1:24,000-scale.

This page intentionally left blank.