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UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 8

EPA REGION VIII
HEARING CLERK

IN THE MATTER OF	)	
	)	
C-2 Construction, Inc.	)	
805 S. 18th W., Suite 100	)	
Mountain Home, Idaho 83647	)	**ADMINISTRATIVE ORDER ON CONSENT**
	)	
and	)	
	)	Docket No. **CWA-08-2018-0013**
Iron Man Enterprises, LLC.	)	
4168 E. 600 N.	)	
Rigby, Idaho 83442,	)	
	)	
Respondents.	)	
	)	

I. INTRODUCTION

1. This Administrative Compliance Order on Consent (Consent Order) is entered into voluntarily by the United States Environmental Protection Agency and the Respondents, C-2 Construction, Inc. (C-2), and Iron Man Enterprises, LLC (Iron Man). This Consent Order concerns restoration of environmental damage caused by alleged illegal discharges of dredged or fill material into an unnamed tributary of Gumbo Creek and its adjacent wetlands on parcels 01-1228-000, 01-1228-101, 01-1228-108, and 01-1228-201 in the northwest ¼ of the northwest ¼ of Section 10, Township 145 North, Range 95 West, Dunn County, Killdeer, North Dakota (the Site).

II. STATUTORY AUTHORITY

2. This Consent Order is issued under section 309(a) of the Clean Water Act (CWA), 33 U.S.C. § 1319(a). The authority to issue this Consent Order has been properly delegated to the Assistant Regional Administrator of the Office of Enforcement, Compliance and Environmental Justice, EPA Region 8. This Consent Order is based on the following findings of violation of section 301(a) of

the CWA, 33 U.S.C. § 1311(a), which, among other things, prohibits the discharge of pollutants into waters of the United States except as in compliance with section 404 of the CWA, 33 U.S.C. § 1344.

III. PARTIES BOUND

3. This Consent Order shall apply to and be binding upon the EPA and upon Respondents and Respondents' agents, successors and assigns. Each signatory to this Consent Order certifies that he or she is authorized to execute and legally bind the party he or she represents to this Consent Order. No change in the ownership of the Site shall alter Respondents' responsibilities under this Consent Order unless the EPA, Respondents and the transferee agree, in writing, to allow the transferee to assume such responsibilities. Additionally, no later than thirty (30) calendar days prior to such transfer, Respondents shall notify the EPA at the address specified in paragraph 35, below.

IV. STATEMENT OF THE PARTIES

4. The EPA's FINDINGS OF FACT AND OF VIOLATION are made solely by the EPA. In signing this Consent Order, Respondents neither admit nor deny the EPA's FINDINGS OF FACT AND OF VIOLATION. As such, and without any admission of liability, Respondents consent to the issuance of this Consent Order and agree to abide by all of its conditions. Respondents waive any and all remedies, claims for relief and otherwise available rights to judicial or administrative review that Respondents may have with respect to any issue of fact or law set forth in this Consent Order, including any right of judicial review under the Administrative Procedure Act, 5 U.S.C. §§ 500-596. Respondents further agree not to challenge the jurisdiction of the EPA or the EPA's FINDINGS OF FACT AND OF VIOLATION below in any proceeding to enforce this Consent Order or in any action under this Consent Order.

V. EPA'S FINDINGS OF FACT AND OF VIOLATION

5. Respondent C-2 is a corporation organized under the laws of Idaho with a business address of 805 S. 18th W., Suite 100, Mountain Home, Idaho 83647.

6. Respondent Iron Man is a limited liability company organized under the laws of Idaho with a business address of 4168 E. 600 N., Rigby, Idaho 83442.

7. At all relevant times, Respondents owned, managed, operated and/or otherwise controlled property at the Site.

8. The unnamed tributary at the Site is a relatively permanent tributary to Gumbo Creek, which is a relatively permanent tributary to Spring Creek, which is a relatively permanent tributary to Lake Ilo. Lake Ilo is currently used, or was used in the past, or may be susceptible to use by interstate or foreign travelers, for recreational or other interstate or foreign commerce. Spring Creek continues from Lake Ilo to its junction with Knife River, which is a relatively permanent tributary to the Missouri River, a navigable, interstate waterway.

9. Sometime in fall 2011, Respondent Iron Man acquired property at the Site.

10. Sometime in spring 2012, Respondent Iron Man and/or persons acting on its behalf began construction of the Killdeer Industrial Park, which involved land clearing, earthwork, utility installation, road construction, grading, and drainage at the Site. As part of this construction, the unnamed tributary was realigned and channelized, and the unnamed tributary's original channel and adjacent wetlands were filled at the Site.

11. Sometime in March 2012, Respondent Iron Man sold portions of the Site to Respondent C-2.

12. Beginning in March 2012, Respondent C-2 and/or persons acting on its behalf continued the construction of the Killdeer Industrial Park, which involved land clearing, earthwork, utility installation, road construction, grading, and drainage at the Site. As part of this construction, the unnamed tributary was realigned and channelized, and the unnamed tributary's original channel and adjacent wetlands were filled at the Site.

13. On June 18, 2015, the U.S Army Corps of Engineers (Corps) conducted an inspection of the Site. The Corps found that Respondents and/or persons acting on their behalf discharged dredged or

fill material into the unnamed tributary and its adjacent wetlands during Respondents' construction of the Killdeer Industrial Park at the Site without a permit required by section 404 of the CWA, 33 U.S.C. § 1344. The Corps estimated that dredged or fill material had been discharged into 1,000 linear feet of the unnamed tributary and 1.0 acre of wetlands.

14. On December 29, 2015, the Corps referred this matter to the EPA for enforcement in accordance with the "*Memorandum of Agreement Between the Department of the Army and the Environmental Protection Agency Concerning Federal Enforcement of the Section 404 Program of the Clean Water Act*," dated January 19, 1989.

15. The activities described in paragraphs 10, 12, and 13 resulted in discharges of dredged or fill material into the unnamed tributary and its adjacent wetlands, which provide numerous functions and values including recreation, aquatic and wildlife habitat, water quality enhancement, flood attenuation and groundwater recharge.

16. The activities described in paragraphs 10, 12, and 13 were performed using common earthmoving vehicles and equipment, which were operated by Respondents or persons acting on their behalf.

17. Each Respondent is a "person" as defined in section 502(5) of the CWA, 33 U.S.C. § 1362(5).

18. The material discharged at the Site described in paragraphs 10, 12, and 13 is and was at all relevant times "dredged material" or "fill material" as defined in 33 C.F.R. § 323.2(c) or 33 C.F.R. § 323.2(e), respectively, and "pollutants" as defined in section 502(6) of the CWA, 33 U.S.C. § 1362(6).

19. The vehicles and equipment described in paragraph 16 are and were at all relevant times each a "point source" as defined in section 502(14) of the CWA, 33 U.S.C. § 1362(14).

20. The unnamed tributary and its adjacent wetlands are and were at all relevant times "waters of the United States" as defined in 33 C.F.R. § 328.3 (1993) and therefore "navigable waters" as defined in section 502(7) of the CWA, 33 U.S.C. § 1362(7).

21. The placement of dredged or fill material into the unnamed tributary and its adjacent wetlands constitutes the "discharge of pollutants" as defined in section 502(12) of the CWA, 33 U.S.C. § 1362(12).

22. Section 301(a) of the CWA, 33 U.S.C. § 1311(a), prohibits, among other things, the discharge of pollutants by any person into waters of the United States except as in compliance with section 404 of the CWA, 33 U.S.C. § 1344(a).

23. Section 404 of the CWA, 33 U.S.C. § 1344, sets forth a permitting system authorizing the Secretary of the Army, acting through the Chief of Engineers of the Corps, to issue permits for the discharge of dredged or fill material into navigable waters which are defined as waters of the United States.

24. According to 33 C.F.R. § 323.3(a), a permit issued by the Corps is required for the discharge of dredged or fill material into waters of the United States, unless an exemption pursuant to 33 C.F.R. § 323.4 applies.

25. Respondents are not and never have been authorized by a permit issued pursuant to section 404 of the CWA, 33 U.S.C. § 1344, to conduct any of the activities described in paragraphs 10, 12, and 13.

26. The activities conducted by Respondents and/or by persons acting on their behalf as described in paragraphs 10, 12, and 13 violate section 301(a) of the CWA, 33 U.S.C. § 1311(a). Each discharge of pollutants from a point source by Respondents into waters of the United States without the required permits issued pursuant to section 404 of the CWA, 33 U.S.C. § 1344, constitutes a separate violation of section 301(a) of the CWA, 33 U.S.C. § 1311(a). Each day the discharges remain in place

without the required permits constitutes an additional day of violation of section 301(a) of the CWA, 33 U.S.C. § 1311(a).

27. Activities to be carried out under this Consent Order are remedial, not punitive, and are necessary to achieve the CWA's objective "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters," as specified in section 101(a) of the CWA, 33 U.S.C. § 1251(a). Restoration and mitigation are appropriate to address the actual and potential harm to water quality, aquatic habitat and wildlife habitat, as well as other functions and values, caused by Respondents' unpermitted activities.

28. This Consent Order was issued after consultation and coordination with the Corps' Omaha District, North Dakota Regulatory Office.

VI. ORDER FOR COMPLIANCE

Based upon the EPA's FINDINGS OF FACT AND OF VIOLATION and pursuant to the authority vested in the Administrator of the EPA pursuant to section 309(a) of the CWA, 33 U.S.C. § 1319(a), as properly delegated to the Assistant Regional Administrator of the Office of Enforcement, Compliance and Environmental Justice, EPA Region 8, it is hereby ORDERED:

29. Respondents shall immediately terminate all unauthorized discharges of dredged or fill material, now and in the future, into waters of the United States, unless specifically authorized by the Corps under a valid permit issued pursuant to section 404 of the CWA, 33 U.S.C. § 1344. This prohibition includes all mechanical land clearing, dredging, filling, grading, leveling, installation of utilities, construction and any other activities that result in a discharge of dredged or fill material into waters of the United States.

30. Respondents shall conduct restoration and mitigation activities for impacts to waters of the United States resulting from the unauthorized discharges of dredged or fill material at the Site in

accordance with the schedule and other requirements set forth in the Restoration and Mitigation Plan attached to this Consent Order as Exhibit A (the Plan), which is hereby approved by the EPA.[1]

31. Within fourteen (14) calendar days of receipt of this Consent Order, Respondents shall submit to the EPA the name and qualifications, including professional resume, of a consultant experienced in stream and wetlands restoration who will directly supervise all work performed pursuant to the Plan.

32. Respondents shall obtain all necessary permits to implement the Plan and then commence all restoration activities in accordance with the approved Plan, including the time frames specified therein, and all granted permits. Respondents shall demonstrate that all necessary permits have been granted by providing copies of all such permits, and any amendments thereto, to the EPA within seven (7) calendar days of the issuance of each permit.

33. All restoration and mitigation activities conducted pursuant to this Consent Order and involving the use of heavy construction equipment shall be undertaken under the supervision of the consultant retained pursuant to paragraph 31.

34. This Consent Order is not a permit or an authorization to place or discharge dredged or fill material in waters of the United States. Respondents shall consult with the Corps at the address and telephone number below to determine if any work to be performed pursuant to this Consent Order requires a permit from the Corps under section 404 of the CWA. If any such permit is required, Respondents shall obtain such permit(s) and provide a copy or copies to the EPA pursuant to paragraph 32 prior to initiating any work that is to be performed pursuant to this Consent Order.

U.S. Army Corps of Engineers
North Dakota Regulatory Office
1513 South 12th Street
Bismarck, North Dakota 58504

[1] The EPA takes no position regarding extraneous information provided in the Plan, including, but not limited to, information pertaining to legal defenses, that is beyond the scope of what is required by this Consent Order and the "U.S. Environmental Protection Agency, Region 8 Clean Water Act § 404 Enforcement: Removal/Restoration Plans and Habitat Mitigation/Monitoring Proposals."

Telephone: 701-255-0015
Facsimile: 701-255-4917

35. Respondents shall submit all notifications under this Consent Order to:

Kenneth Champagne, 8ENF-W
U.S. Environmental Protection Agency, Region 8
1595 Wynkoop Street
Denver, Colorado 80202-1129
Telephone: 303-312-6608
Facsimile: 303-312-7518

A copy of all notifications also shall be provided to:

Abigail Dean, 8ENF-L
U.S. Environmental Protection Agency, Region 8
1595 Wynkoop Street
Denver, Colorado 80202-1129
Telephone: 303-312-6106
Facsimile: 303-312-6953

36. In addition to the notification requirements set forth in paragraph 35, after the issuance of any Corps authorization for the restoration work, Respondents shall submit all notifications and correspondence to the Corps in accordance with the terms and conditions in the Corps permit(s).

37. The Plan and any other deliverables, reports, specifications, schedules and attachments required by this Consent Order are, upon approval by the EPA, incorporated into this Consent Order. Any non-compliance with the Plan, deliverables, reports, specifications, schedules, permits or attachments shall be deemed a failure to comply with this Consent Order and shall be subject to EPA enforcement.

38. Until termination of this Consent Order, the EPA and the Corps, and any of the agencies' authorized representatives and contractors shall have the authority, at all reasonable times, to enter the Site to:

a. Inspect and monitor progress of the activities required by this Consent Order;

b. Inspect and monitor compliance with this Consent Order;

c. Inspect and review any records relevant to this Consent Order, and

d. Verify and evaluate data and other information submitted to the EPA.

This Consent Order shall in no way limit or otherwise affect the EPA's authority or the authority of any other governmental agency to enter the Site, conduct inspections, access records, issue notices and order for enforcement, compliance or abatement purposes or monitor compliance pursuant to any statute, regulation, permit or court order.

39. This Consent Order shall be effective upon receipt by Respondents of a fully executed copy.

40. Issuance of this Consent Order shall not be deemed an election by the United States to forego any civil or criminal action to seek penalties, fines or other appropriate relief under the CWA for violations giving rise to the Consent Order.

41. The EPA agrees to submit all notifications and correspondence to:

C-2 Construction, Inc.
Attn: John Cristobal
805 S. 18th W., Suite 100
Mountain Home, Idaho 83647

Iron Man Enterprises, LLC.
Attn: Jeff McKinlay
4168 E. 600 N.
Rigby, Idaho 83442

42. Any party hereto may, by written notice, change the address to which future notices shall be sent or the identities of the persons designated to receive notices hereunder.

43. If an event causes or may cause delay in the achievement of the requirements of this Consent Order, Respondents shall notify the EPA orally within forty-eight (48) hours and in writing within ten (10) working days from the date Respondents first knew of such event or should have known of such event by exercise of due diligence, whichever is earlier. Respondents' written notice shall specify the length of the anticipated delay, the cause(s) of the delay, the measures taken or to be taken by Respondents to minimize the delay and a timetable by which those measures will be or have been implemented. Notification to the EPA pursuant to this paragraph of any anticipated delay, by itself, shall

not excuse the delay or the obligation of Respondents to comply with the requirements and deadlines of this Consent Order, unless the EPA grants in writing an extension of the applicable requirement or deadline.

44. If Respondents demonstrate to the EPA's satisfaction that the delay or anticipated delay has been or will be entirely caused by circumstances beyond Respondents' control (or the control of any of Respondents' agents) that Respondents could not have foreseen and prevented despite due diligence, and that Respondents have taken all reasonable measures to prevent or minimize such delay, the EPA may excuse performance or extend the time for performance of such requirement for a period not to exceed the actual delay resulting from such circumstances. The EPA's determination on these matters shall be made as soon as possible, and in writing within (10) ten working days, after the receipt of Respondents' written notification of the event. The parties agree that changed economic circumstances shall not be considered circumstances beyond the control of Respondents.

45. Each party shall bear its own costs and attorneys fees in connection with this matter.

46. Respondents understand and acknowledge the following:

a. Section 309(d) of the CWA, 33 U.S.C. § 1319(d), as adjusted for inflation, authorizes civil penalties of up to $53,484 per day for each violation of an order issued by the Administrator of the EPA under section 309(a) of the CWA, 33 U.S.C. § 1319(a).

b. Compliance with the terms and conditions of this Consent Order shall not be construed to relieve Respondents of their obligations to comply with any applicable federal, state or local law or regulation.

c. Failure by Respondents to complete the tasks described herein in the manner and time frame specified pursuant to this Consent Order may subject Respondents to a civil action under section 309 of the CWA, 33 U.S.C. § 1319, for violations of this Consent Order.

47. Upon full performance of its obligations under this Consent Order, Respondents may request in writing that the EPA terminate this Consent Order. In seeking termination, Respondents shall demonstrate that they have satisfactorily completed all of the actions required by this Consent Order, including all actions required by the approved Plan. The EPA will evaluate any such request and terminate the Consent Order if it agrees that all of the required actions have been successfully completed.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 8

DATE: 8/7/2018

By: _____
Suzanne J. Bohan
Assistant Regional Administrator
Office of Enforcement, Compliance and Environmental Justice

C-2 Construction, Inc.
Respondent

DATE: 7-19-2018

By: _____

Iron Man Enterprises, LLC.
Respondent

DATE: _____

By: _____

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 8

DATE: 8/7/2018

By: _____
Suzanne J. Bohan
Assistant Regional Administrator
Office of Enforcement, Compliance and Environmental Justice

C-2 Construction, Inc.
Respondent

DATE: _____

By: _____

Iron Man Enterprises, LLC.
Respondent

DATE: 7/26/2018

By: _____

EXHIBIT A

Restoration and Mitigation Plan

C-2 Construction, Inc. and Iron Man Enterprises
Section 4, Township 145 North, Range 95 West
Dunn County, Killdeer, North Dakota

July 9, 2018

Contacts:

C-2 Construction
c/o John Cristobal
805 S. 18th W., Suite 100
Mountain Home, ID 83647
c2john@msn.com

Iron Man Enterprises
Jeff McKinley
c/o John Cristobal
805 S. 18th W., Suite 100
Mountain Home, ID 83647
c2john@msn.com

EPA File Nos.:
7009 3410 0000 2596 5340
7009 3410 0000 2596 5364

USACE File No.:
NOW-2015-1288-BIS

I. EXECUTIVE SUMMARY

On May 6, 2016, the U.S. Environmental Protection Agency (EPA) issued a letter of potential violation of the Clean Water Act (CWA) to C-2 Construction and Iron Man Enterprises (C-2 & IM) related to the Killdeer Industrial Park (KIP or "the Site"), located east of North Dakota Highway 22 (Hwy 22) in the North half of the Northwest Quarter of Section 10, Township 145 North, Range 95 West in Dunn County, ND. Letter from EPA to C-2 & IM re: *Letter of Potential Violation of the Clean Water Act*, Ref: 8ENF-W (May 6, 2016) ("EPA Letter"). Prior to receipt of the EPA Letter, C-2 was in communications with the U.S. Army Corps of Engineers (USACE) regarding a letter the USACE sent to C-2 in August 2015 alleging potential illegal fills of wetlands at the Site. C-2 (and later IM) worked with the USACE to clarify and resolved the alleged issues and received a letter from USACE indicating that the fills could be resolved through potential mitigation. C-2 & IM proceeded to work with USACE on mitigation for the Site. According to the EPA Letter, the USACE inspected the Site and believed that approximately 1,000 linear feet of an un-named tributary of Gumbo Creek had been channelized, relocated, and filled with dredged or fill material, and one acre of wetlands and a man-made pond were filled with dredged or fill material. The exact locations of the alleged fill have not been established. EPA's Letter alleged that these activities were performed without a CWA permit in violation of section 301 of the CWA, 33 U.S.C. § 1311. EPA's Letter notified that EPA would consider additional information submitted by C-2 & IM. Information was submitted regarding the site by C-2 & IM in a letter to EPA dated June 22, 2016, and during a July 2016 meeting with EPA. This Mitigation Plan also provides supplemental information regarding the Site and the alleged fill.[1]

To resolve these allegations, C-2 & IM[2] agreed to evaluate remediation and/or mitigation of the intermittent stream, wetland, and pond area that were allegedly impacted. This Mitigation Plan presents information on current conditions at the Site and outlines a Proposed Mitigation Plan to resolve these issues.[3] The Proposed Mitigation Plan presented herein is contingent upon USACE/EPA authorization of the activities under Section 404 of the CWA and is subject to seasonal conditions that limit planting between the fall and spring.

II. PROJECT DESCRIPTION

A. Location of Project

The project area is located in the North half of the Northwest Quarter of Section 10, Township 145 N., Range 95 W. in Dunn County, North Dakota. It excludes Hwy 22 and the adjacent ROW. The project area west of Hwy 22 is accessible from an approach located 3,830 feet northwest of the Killdeer Airport access road. The project area east of Hwy 22 is accessible

[1] C-2 & IM respectfully request that all of their informational submittals be considered for EPA's response to this Mitigation Plan.

[2] Note that some of the land is now owned by Carroll Drilling, LLC and other property owners. C-2 & IM are in the process of entering into an agreement regarding the option of using land owned or partly owned by Carroll Drilling, LLC to resolve this matter. As such, there are references throughout this Mitigation Plan (and attachments) that also reference Carroll Drilling.

[3] Portions of the technical information included in this report was prepared by Western Plains Consulting, Inc. (WPC) and Brosz Engineering, Inc.

by the road entering the KIP, which begins at a point 3,820 feet northwest of the Killdeer Airport access road on Hwy 22. The project area access points connect to Hwy 22 at Lat. 47.3980720, Long. -102.7776170.

Prior to development of KIP, the Site was used for agricultural purposes – specifically hay and livestock grazing. The drainage channel was intermittent, flowing during periods of rainfall and crop irrigation. A stock watering pond was also created during the Site's prior use for agriculture. These improvements/modifications existed prior to ownership of the property by C-2 & IM.

Figure 1. KIP Site Map. *See also* **Appendix A, Location and Site Maps.**

B. Methods For Characterization of KIP Site and Wetlands

C-2 and IM engaged WPC to review available background aquatic resource information for the project area. Offsite data sources reviewed included Google Earth aerial imagery dated 2003 through 2014, U.S. Fish & Wildlife Service (FWS) National Wetland Inventory (NWI) maps, United States Geological Survey (USGS) Topographic Maps, USDA-Natural Resources Conservation Service (NRCS) Web Soil Survey data, USDA and Google Earth aerial imagery, and climatic data posted on the NRCS Field Office.

EPA's letter did not identify specific areas where there were alleged fills of jurisdictional wetlands. To determine the extent of the existing wetlands (jurisdictional and non-jurisdictional) and identify potential mitigation areas, wetland delineations were conducted in accordance with the USACE 1987 Wetland Delineation Manual, hereafter referred to as the Manual, and the Regional Supplement to the USACE Wetland Delineation Manual: Great Plains Region (Version

2.0), hereafter referred to as the Regional Supplement. For the field delineations, wetland boundaries within the project area were determined by completing USACE Wetland Determination Data Forms for paired soil sample points and observing vegetation and hydrology in the area.

To delineate the aquatic resource areas that existed prior to development, WPC examined NRCS soil survey data, USGS topographic map, USFWS NWI map, and aerial imagery on the Google Earth Website from 2003 through 2013. The boundary between hydrophytic and non-hydrophytic vegetation on property adjacent to the north edge of the project area was also observed.

WPC followed USACE and NDDOT instructions for determining the presence of "Other Waters" subject to the Clean Water Act. Other Waters include traditional navigable waters (named rivers, streams, and lakes); non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months); and deep water habitat (greater than 2 meters) not dominated by persistent, emergent vegetation. One Other Water was identified offsite using aerial imagery and delineated with G.I.S. tools and another was identified in the field and also delineated with G.I.S. tools.

WPC performed an on-Site functional assessment of an existing wetland located west of Hwy 22. WPC performed functional assessments of two other wetlands on-Site. The Interim Hydrogeomorphic Functional Assessment Model for Groundwater Discharge, Low Permeability (Glacial Till) Substrate, Slope (Linear) Wetlands in the Northern Plains, Version 4.0 (hereafter referred to as the Slope Model), was used. The model was developed by the USDA-Natural Resources Conservation Service (NRCS). NRCS accepts the Slope Model as suitable for use on slope wetlands in western North Dakota. Except for the excavated pond, WPC used the Slope Model to determine or project wetland function losses and gains for all wetlands and time periods relevant to this Mitigation Plan.

C. Site Characterization

1. Landscape Setting Prior to KIP Development

Prior to construction, the project area east of Hwy 22 was predominantly cropland. A grassland area bisected the cropland. Evidence of landscape alteration when the land was used for farming is evident on aerial photographs. For instance, a stock pond in the grassland area is visible on USDA aerial photography dating back to 1983.

The project area west of Hwy 22 was grassland dominated by introduced species, with a watercourse running through it. The watercourse was a wetland dominated by native vegetation and may have been utilized for hay production.

2. Landscape Setting After KIP Development

East of Hwy 22, construction of the KIP involved grading to fill low areas with soil/subsoil from high areas. Private businesses have constructed buildings and facilities on other lots. The project area west of Hwy 22 was not disturbed by construction of the KIP.

Figure 2. Ownership of KIP Development Sites.

3. Evidence of Wetlands and Other Waters of the U.S. Impacted by KIP Development

A saline seep in the eastern part of the cropland was identified by whitish mottling visible on the aerial photographs dated 1993, 1995, 1998-2000, 2002, 2003, 2005, 2006, and 2010. A constructed drain or gully through the saline area and extending to the west-northwest was visible in photographs dated 1995, 1997, 1999, 2002, 2003, 2005, 2006, 2009, and 2010. Although some signatures were similar to wetland signatures, the saline seep area and channel were determined to be non-wetland because of the obvious salinity signatures, the predominantly uniform channel width, and the fact that it was not classified by NRCS as being a hydric soil nor having any hydric inclusions. *See* **Appendix B, Offsite Data – Aquatic Resources** (data form for area identified as Salin Sp) and **Appendix B, Climatic Data**. WPC determined that both before and after KIP development, there has not been a continuous hydrologic connection between the project area and a navigable water.

Offsite data indicated the presence of two wetlands/segments east of Hwy 22 in the project area prior to development of the KIP, and a third area that was either wetland or Other

Water. The two wetlands and the one area considered by WPC to be Other Water were delineated offsite and are shown below.

4. Evidence of Wetlands Existing After Alleged Unauthorized Fill, Channelization and Relocation

Wetlands created as a result of construction at the Site or remaining after construction were field-delineated.

Figure 3. Aquatic Resource Map – After KIP Construction.

On-Site photographs of these areas can be found in **Appendix C, Site Photographs.**

Three separate reaches of constructed/relocated channel were identified:

- The north reach is field-delineated as Wetland Other Owner (Wetland OO).
- The middle reach of the channel is on fenced property belonging to another owner. The middle reach has less than five percent vegetation cover, apparently due to routine application of broad-spectrum herbicide. The middle reach is delineated offsite as having two segments (Other Water OON and OOS) divided by a bridge comprised of two side-by-side pipes.
- The southwest reach of the constructed/relocated channel is delineated as Wetland Channel.

Wetlands 2A and 2B are delineated west of Hwy 22.

Wetland 3 is delineated near the south boundary of the project area east of Hwy 22.

Wetland OO

Herbaceous, hydrophytic vegetation has colonized approximately 50 percent of the wetland/channel since 2013. WPC expects colonization of the bare areas will continue. This wetland is on property belonging to another entity. The wetland is within soil map unit E4005A, Harriet loam, 0 to 2 percent slopes, and occasionally floods. The NRCS classified the map unit as 87 percent hydric. The soil, at the time of the 2016 field visits in various parts of the wetland was disturbed by burial, excavation, and/or erosion. The NWI did not inventory any feature corresponding to Wetland OO. Water was flowing through the wetland/channel during WPC field visits on August 10-11, Sept. 26, and October 25, 2016 and exited through culverts to Other Water OO.

Wetland Channel

Herbaceous, hydrophytic vegetation remain or colonize about 75 percent of Wetland Channel. Most of the source water comes to this wetland from Other Water OO. Street ditches in the KIP also convey water to this wetland. This wetland is within soil map unit E4005A, Harriet loam, 0 to 2 percent slopes, and occasionally floods. The NRCS classified the map unit as 87 percent hydric. The soil, at the time of the 2016 field visits in various parts of the wetland was disturbed by burial, excavation, and/or erosion. The NWI inventoried a PEM1A as partially overlapping this wetland. *See* **Appendix D, National Wetland Inventory Map** and **Appendix E, NWI Wetlands and Deepwater Map Code Diagram.** Water was flowing through the wetland during WPC field visits on August 10-11, Sept. 26, and October 25, 2016.

Wetland 2A

This slope wetland abuts the Hwy 22 west ditch. During the 2016 field visits, the land was idle. The vegetation is predominantly herbaceous, perennial native species. This wetland is

within soil map unit "E4005A, Harriet loam, 0 to 2 percent slopes, occasionally flooded." The NRCS classified the map unit as 87 percent hydric. Water from Wetland Channel was flowing through two Hwy 22 culverts to this slope wetland during all of WPC's 2016 field visits. Wetland in the abutting west highway ditch connects it to Wetland 2B. Wetland 2A was not disturbed by the KIP development. It may be altered when adjacent mitigation to Wetland 7 is created. The NWI did not map an aquatic resource that corresponds to Wetland 2A.

Wetland 2B

Water flows from Wetland 2A to this slope wetland via the abutting wetland/channel to the Hwy 22 west ditch. During the 2016 field visits, the land was idle. The vegetation is predominantly herbaceous, perennial native species. This wetland is located within soil map unit "E4005A, Harriet loam, 0 to 2 percent slopes, occasionally flooded." The NRCS classified the map unit as 87 percent hydric. Water was flowing westward through this slope wetland during all of WPC's 2016 field visits. Wetland 2B was not disturbed by the KIP development. The NWI mapped an area as PEM1A that corresponds to Wetland 2B.

Wetland 3

This wetland is field-delineated along the south edge of the project area on the east side of Hwy 22. The wetland was not identified by the NWI. Hydrophytic vegetation entirely covers the east end of this wetland. The vegetative cover is about 60 percent in the middle reach, and diminishes to about 10 percent cover on the northwest end of the wetland. The NRCS did not map any hydric soil or hydric soil inclusion in the area of this wetland. The NWI did not map an aquatic resource that corresponds to Wetland 3.

Topsoil may have been scraped from the upland area adjacent to this wetland. This wetland is close to the high, south property edge that may have accumulated wind-blown sediment. The USGS topographic map does not indicate a blue-line waterway or wetland corresponding to this wetland's location.

The southeast end of the wetland has a slight depression. The middle reach of the wetland is slightly gullied slope wetland. The western reach of this wetland that parallels Hwy 22 is slope wetland with sandy soil. Water was flowing westward on the surface of the eastern and middle reaches of this wetland on Aug. 10-11, 2016, but it diminished to no flow on the west reach, as it all infiltrated the sandy soil.

Color tones on aerial photography in the vicinity of this wetland are grayer than the adjacent area in most years, indicating possible soil deposition, crop washout, or crop growth suppression due to poor fertility, poor soil structure or other cause. The locations of the contrasting color tones follows a straighter path than the field-delineated wetland. *See* **Appendix F, Aerial Photographs**. The east end of the wetland has hydric soil in a tiny depressed area. This wetland was apparently cropland prior to construction of the KIP, and likely incurred ephemeral erosion.

Much of the watershed of this wetland is recently industrialized land south of the project area. It is that there was any wetland area down-slope from the depressed portion of Wetland 3

prior to 2013. WPC expects that the size and functions of Wetland 3 are at least equivalent to and may provide more benefit than what existed before construction of the KIP.

5. Evidence of Other Waters of the U.S. Existing After Alleged Unauthorized Fill, Channelization and Relocation

Other Water OO-N and OO-S

The middle reach of the altered channel east of Hwy 22 is on fenced property belonging to another owner. The middle reach has less than five percent vegetation cover, apparently due to routine application of broad-spectrum herbicide. Eighty feet of this reach is a bridge constructed by covering two pipes with fill and constructing a concrete slab over the fill. WPC assumes the channel will be maintained devoid of vegetation indefinitely, and it will not become a wetland.

Other Water OO-N and OO-S are within soil map unit "E4005A, Harriet loam, 0 to 2 percent slopes, occasionally flooded." The NRCS classified the map unit as 87 percent hydric. The NWI mapped a linear-shaped PEM1A in the same vicinity as Other Water OO-N and OO-S. Other Water OO-N and OO-S are within the area identified as Wetland 1A that existed prior to KIP construction.

The NWI inventoried a PEM1A as roughly overlapping this Other Water. See **Appendix D, National Wetland Inventory Map** and **Appendix E, NWI Wetlands and Deepwater Map Code Diagram.**

Water was flowing through this channel reach during all of WPC's 2016 field visits. Due to restricted access, the middle reach was delineated offsite and labeled Other Water OO. Due to the lack of significant vegetation in this channel reach and no evidence it will improve, it was not assigned any mitigation value.

6. Cultural Resources

During the field review on August 10-11, WPC discovered an artifact in the project area, and contacted EPA. EPA recommended a Class III Cultural Resource Inventory be performed on the project area, and submission of the findings to the State Historic Preservation Officer (SHPO), to enable the SHPO to determine any limitations or requirements applicable to the Mitigation Plan.

Metcalf Archaeological Consultants, Inc. (Metcalf), performed a Class III Cultural Resource Inventory on October 24-25, 2016. Another artifact was found during the October 24-25, 2016 inventory. *See* **Appendix G – Killdeer Wetland Restoration: A Class III Cultural Resource Inventory in Dunn County, North Dakota.**

7. Airport/Runway Concerns for Wetland Restoration/Creation

The north end of the Dunn County Airport runway is approximately 610 feet from the south edge of the project area where wetland restoration was considered. The area is approximately 240 feet from the ascent/descent line extending beyond the northwest end of the

runway. Because waterfowl attracted to wetlands create a hazard to aircraft, WPC contacted Dunn County Airport Manager Greg Synnes regarding zoning restrictions applicable to wetland creation/restoration in the project area. Mr. Synnes referred WPC to Mr. Chris Hans from Ulteig Engineering, who serves the Dunn County Airport. Mr. Hans was not aware of any formal restrictions, and forwarded the question to the North Dakota Aeronautics Commission (NDAC). The response from NDAC Airport Planner Jared Wingo stated that creation of wetlands in the proximity of the airport would have a potentially adverse impact on aeronautical activity, but did not cite any zoning restriction. *See* **Appendix H, NDAC Letter** - October 4, 2016.

8. Invasive Species

WPC identified one salt cedar tree in the project area in 2016 and notified C-2 & IM of its location and the environmental threat it poses, so it could be eradicated. There were scattered Canada thistle and absinth wormwood plants on the project area.

9. Endangered Species Act

WPC evaluated the project area for Endangered Species Act (ESA) concerns. No significant impact on Candidate, Threatened, or Endangered Species; Critical Habitat; or potential habitat was identified.

III. GOALS OF MITIGATION

The goals of this Proposed Mitigation Plan are the restoration of one (1) acre of wetlands on the east side of Highway 22, the control of invasive species east and west of Highway 22, construction projects to enhance the wetlands located east of Highway 22, and establish deed restrictions on restored and mitigated areas for long-term project preservation as set forth in the following summary table:

		PROPOSED MITIGATION			
Aquatic Resource	**Alleged Impacts**	**Restoration**	**Creation**	**Enhancement**	**Protective Easement**
Unnamed Tributary of Gumbo Creek	1,250 linear feet or 1,250' x 20' = 0.57 acres	0.0	1,200 linear feet or 1,200' x 20' = 0.55 acres	250 linear feet or 250' x 30' = 0.17 acres	0.55 acres (east) 0.17 acres (west)
Adjacent Wetlands	1.00 acres	0.0	1.00 acres	3.90 acres	1.00 acres (east) 3.90 acres (west)
Total	**1.57 acres**	**0.0**	**1.55 acres**	**4.07 acres**	**5.62 acres**

Complete restoration is expected to be achieved within two years.

IV. FINAL SUCCESS CRITERIA

Final success of the project will be measured based on a number of criteria:

- Four inches or thicker of topsoil is restored or replaced on the entire wetland creation/restoration areas.

- A hydrophytic plant community covers the mitigation wetlands with an average of at least three perennial plants per square foot.
- The soil surface is stabilized with sufficient vegetation to prevent rill and gully erosion.
- Perennial vegetation within 50 feet of the wetlands (i.e., the buffer zone) stabilizes the soil to prevent sheet, rill, and gully erosion.
- The wetland vegetation is maintained in accordance with the Maintenance Plan (below).
- Excessive sediment accumulations are removed in accordance with the Maintenance Plan (below).
- Hydrology criteria will be considered successful where a hydrophytic community is established in the restored wetlands.
- For each year of the five-year monitoring period for the wetland area, at least 80% of the woody and herbaceous species must be alive and judged to be of moderate or better vigor.
- The restoration areas must have a minimum vegetation cover (excluding trees) of 25% the first year, 50% the second year, 75% the third and fourth years, and a minimum of 80% the fifth year of the monitoring period.
- A minimum of 50% of the dominant hydrophytic species (Facultative, Facultative Wetland, and/or Obligate Wetland) must be present in wetland vegetative communities by the end of the five year monitoring period.
- Restoration areas (wetland and upland buffer) must have no more than 10% non-native species in all stratigraphic levels (forbs, shrubs, trees), unless determined otherwise by EPA and the USACE.

V. PROPOSED MITIGATION SITE

C-2 & IM will establish an easement or deed restriction to prevent future development for the property to the west of highway 22 (KIP Lot 8; approximately 4.12 acres). This property currently contains a wetland and channel area as shown in **Appendix I, 1A**. This proposal would include specific tasks to improve the quality of the habitat in place at this location, including selectively spraying invasive plants. Iron weed is particularly prevalent in this area. The draft easement or deed restriction will be provided to EPA for review and approval on or before December 31, 2018.

C-2 & IM will also install control structures on the existing channel area east of Highway 22 and enhance plantings by approximately one hundred feet along the existing channel (which is approximately 225 feet long) resulting in approximately one (1) acre of additional protected

wetland. Erosion repair will also be completed in the area east of Highway 22 and north of the existing channel area (approximately 0.15 acres) (the "waste area" as depicted on **Appendix I, Page 1A** ("Topography Map")) and erosion structures will be installed at the side ditches (the "rock check dams" depicted on **Appendix A, Page 1A**). These areas would be enhanced by the installation of contoured straw waddles and appropriate wetlands vegetation. During excavation and construction, jute mats, straw waddles, and other appropriate best management practices to prevent erosion would be utilized. An easement or deed restriction would be placed on these areas of the Site to restrict future development.

The Mitigation Plan area is currently owned by C-2 & IM. The property does not currently contain any easements or encroachments. C-2 & IM are expected to continue to own the property following completion of the mitigation project and will be responsible for ensuring long-term management and protection of the area, in part through the imposition of an easement or deed restriction, as indicated above. Water flow to and from the Site is not currently controlled by a particular party, but rather flows naturally from the agricultural land to the north of the KIP. Water flow is expected to continue in this same manner during and after completion of the Mitigation Plan.

VI. IMPLEMENTATION PLAN

C-2 & IM will rely on the expertise of the following qualified professionals to perform the work outlined in this Mitigation Plan (the "Responsible Parties"):

John Paulson, Engineer
Brosz Engineering, Inc.
109 S. Main, Box 357
Bowman, ND 58623
johnp@broszengineering.com
(701) 523-6581

Todd Edmonson, Owner
Toddco Welding and Excavation
11769 1st Street
Killdeer, ND 58640
nanedmonson@gmail.com
Tele: (208) 369-6618

The areas subject to the Mitigation Plan that are located to the north of Highway 22 will be flagged and surveyed prior to the start of construction pursuant to the Plan. The following types of equipment will be used to prepare the area:

- Skidsteer (for small, confined areas)
- Trackhoe/backhoe (to pull slopes and create berms)
- Scrapers (for major earthwork to move material)

- Dumptrucks (to import or export dirt to stockpile areas)

Appendix I, Page 1A ("Topography Map") provides a general overview of the Proposed Mitigation Plan area, the locations of work, and general topography of the Proposed Mitigation Plan area.

Appendix I, Page 1 ("Construction Sheet"), which shows the Proposed Mitigation Plan area to the north of Highway 22, depicts the elevation of existing ground, elevations of new cut and fill areas, the size and length of the culvert, the elevations and placement of proposed control structures, the areas where erosion will be repaired, and representative cross-sections of the work to be completed. As per the Construction Sheet, the Responsible Parties will ensure proper grading and sloping of the new channel and disturbed areas and that there will be a hydrologic connection (e.g., a culvert) between the proposed wetland creation area and Wetland 3.

In addition, the Responsible Parties will utilize straw waddles and other appropriate Best Management Practices to minimize and eliminate any negative impacts to the existing North Dakota Department of Transportation ("NDDOT") mitigation site located west of Highway 22. NDDOT has agreed to identify the geographic location of its right-of-way with flags prior to commencement of construction so that these areas are avoided.

Appendix I, Page 2 ("Seeding Sheet"), which also shows the Proposed Mitigation Plan area to the north of Highway 22, provides an overview of the area to the hydro-seeded (pond bottom and slopes). The Responsible Parties will ensure that the new channel and disturbed areas are revegetated. Planting and seeding will occur during the appropriate season(s) and will include a wetland seed mix appropriate for use in North Dakota. For example, seeds and plants will include Prairie Cordgrass, American Slough Grass, Fowl Blue Grass, American Mannagrass, Fowl Mana Grass, Blue Joint, and Canada Wildrye.

Appendix I, Page 3 ("Erosion Control"), shows the location of erosional control check dams, straw waddles, and matting to be installed to control for erosion within the Proposed Mitigation Plan area.

Appendix I, Page 4 ("Selective Spraying Area"), shows the locations west of Highway 22 that will be selectively sprayed with herbicides to control for invasive/undesirable vegetative species, such as thistle, salt cedar, and wormwood, among others. Any herbicides that are used will be designated safe for aquatic use. This area covers approximately four (4) acres.

Appendix I, Page 5, identifies the estimated quantities of materials needed to implement the Proposed Mitigation Plan.

Site preparation, construction, and initial planting will be completed in dry times between June and September 2018. EPA and USACE will be notified upon completion of site preparation, construction, and initial planting.

VII. MAINTENANCE AND MONITORING

C-2 and IM will employ or contract qualified professionals to conduct all field inspections, maintenance, and repair actions for this Mitigation Plan. Existing conditions,

needed maintenance, and follow-up will be documented during each inspection until vegetation is satisfactorily established and all project features are fully functional and stable.

Vegetation will be inspected six months after initial planning and at least one each following year until satisfactory hydrophytic vegetation is established, but for no less than five years following completion of site preparation, construction, and initial planting.[4] Areas that do not become established by the end of the second growing season or that lack sufficient density and distribution of desirable vegetation to colonize the wetlands will be reseeded with approved species.

Excessive weed competition will be controlled by clipping weeds to a height of about 6 to 9 inches. Noxious weeds will be spot-controlled by physical removal or spot-spraying with herbicide according to label directions. Any herbicides that are used will be designated safe for aquatic use.

Field inspections will include identifying and mapping any silt accumulations more than three inches thick. Any silt deposits with a cumulative thickness exceeding three inches will be removed in a manner that will minimize risk of erosion. Rills and gullies will be filled and re-seeded as necessary.

Anchored mulch and siltation barriers (i.e., waddles/matting) will be inspected and repaired/replaced as needed. Berms and other water control structures will be inspected after the spring runoff and during each 6 month inspection. Maintenance will be completed in a timely manner.

All needed maintenance will be completed in a timely manner. After vegetation is fully established (anticipated fall 2023), inspections will occur at least once annually.

VIII. COMPLETION OF MITIGATION

When C-2 & IM believes the final success criteria have been met (identified above), C-2 & IM will notify EPA and USACE. C-2 and IM expect that vegetation will be fully established by fall 2023. Status reports will be provided annually to USACE/EPA by December 31st. The status reports will describe the status of the mitigation effort, including the status of vegetation at the site, construction completed to date, and any construction or maintenance work or vegetative growth needed to complete the mitigation effort. EPA and USACE will confirm completion of the mitigation effort.

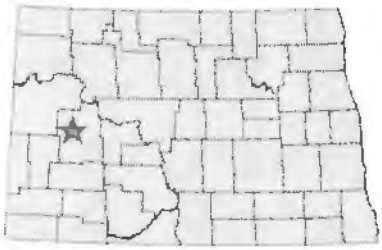
15930328.6

[4] C-2 and IM reserve the right to submit a written request to EPA requesting a reduction to the five-year monitoring requirement after submittal of at least two consecutive annual monitoring reports are submitted, demonstrating that all final performance standards have been met, including verification through an EPA/USACE inspection.

Appendix A

Appendix A. Location Map

C-2 Construction, Inc. and Iron Man/Carroll Drilling, LLC
Wetland Mitigation Project
N. Half of NW Quarter – Section 10-T. 145 N. – R. 95 W.
The project area is within the yellow boundary on the above image, about 1.9 miles from the north edge of Killdeer, ND.

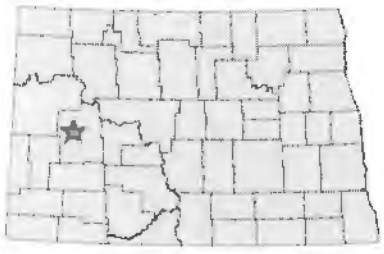


2016 Google Earth Image
Dunn County, North Dakota

WPC, Inc.

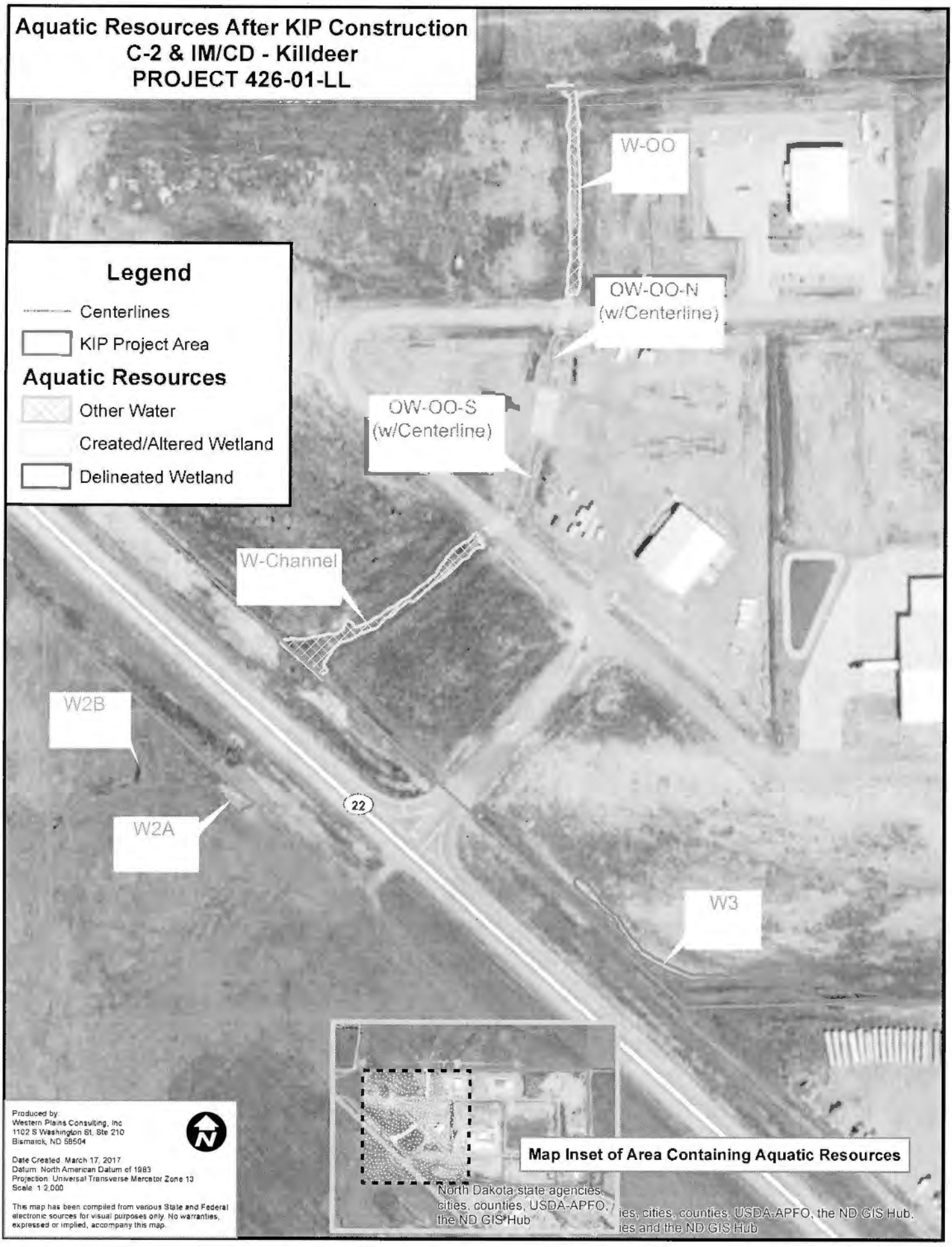
Appendix A. Site Map

Site Map
C-2 Construction, Inc. and Iron Man/Carroll Drilling, LLC
Wetland Mitigation Project
N. Half of NW Quarter – Section 10-T. 145 N. – R. 95 W.,
excluding the ND Highway 22 right-of-way.
2016 Google Earth Image
Dunn County, North Dakota



WPC, Inc.

Appendix B


Aquatic Resources After KIP Construction
C-2 & IM/CD - Killdeer
PROJECT 426-01-LL
Legend
Centerlines
KIP Project Area
Aquatic Resources
Other Water
Created/Altered Wetland
Delineated Wetland
W-OO
OW-OO-N
(w/Centerline)
OW-OO-S
(w/Centerline)
W-Channel
W2B
W2A
22
W3
Produced by:
Western Plains Consulting, Inc
1102 S Washington St, Ste 210
Bismarck, ND 58504
Date Created: March 17, 2017
Datum: North American Datum of 1983
Projection: Universal Transverse Mercator Zone 13
Scale: 1:2,000
This map has been compiled from various State and Federal electronic sources for visual purposes only. No warranties, expressed or implied, accompany this map.
Map Inset of Area Containing Aquatic Resources
North Dakota state agencies, cities, counties, USDA-APFO, the ND GIS Hub
ies, cities, counties, USDA-APFO, the ND GIS Hub,
ies and the ND GIS Hub

US Department of Agriculture
Natural Resources Conservation Service

ND-CPA-340
June 2011

OFFSITE DATA - AQUATIC RESOURCES

Legal Description:	Part of N half NW qtr Sec. 10-145-95 Dunn Co.			**Preparer(s):**	Mark A. Anderson
Owner/Operator:	C-2 Construction & Iron Man/Carroll Drilling			**Date:**	20-Mar-17
Wetland #	**1A**	**Year**	**Indicator**	**Remarks**	
NRCS Inventory					
CIR	*W D N				
NWI			PEM1A	It is mapped as a narrow, linear wetland.	
B&W Photos	*W D N				
	*W D N				
	*W D N				
	*W D N				
Soil Survey			Hydric	Map unit E4005A is classified 87% hydric.	
FSA Slides	*W D N	1983	CT	Narrow dark green area was apparent channel. Intensity of green diminished w. distance from channel. East fork north of stock pond has whitish blotches on east side.	
Weather Station	W D N	1993	CT	Narrow channel is lighter green. Green color is rather uniform outside the channel to the field edges. East fork north of stock pond has whitish blotches on east side.	
	W D N	1994	NC	Grayish-green area with more intense green is spots corresponding to channel.	
	W D N	1995	NC	Area is mostly green, slightly tan/gray. More intense green spots generally follow channel.	
Assumed Date of FSA slide	W D N	1997	NC	Green area. Adjacent fields are tan-gray. Forked channel north of stock pond.	
	W D N	1998	NC	Dark green area.	
	W D N	1999	NC	Grayish green area; it is narrower than most other years.	
	W D N	2000	CT	Slightly more green than adjacent gray and tan/gray area; boundary is not distinct.	
	W D N	2001	*	* Area appears to be mostly very dark cloud shadow.	
	W D N	2002	-	Dark green but no distincti on from area to the west. Part of area to east is more gray.	
	W D N	2003	CT	Greener than adjacent area. Signature is narrow. East fork north of stock pond greener than west fork.	
	W D N	2005	IN	Narrow inundated channel. Boundary beyond inundated area is not distinct. Fewer inundation spots in east fork north of stock pond.	
	W D N	2006	CT/IN	Greener color.	
	W D N	2009	CT	Edge is darker than adjacent area, inner part is slightly greener. Small gray center by ROW is possibly IN.	
	W D N	2010	IN	Blotches of mixed dark gray and green.	
	W D N	2013	-	Narrow channel runs through part of the area tha had wetland signatures prior to KIP construction.	
	W D N				
	W D N				
	W D N				
	W D N				
	W D N				
	W D N				
	W D N				
	W D N				
	W D N				
	W D N				
	W D N				
	W D N				
	W D N				
	W D N				
FSA Slides - Total Hits (Normal Years)					

Hydrological Signature Codes:

d = drain **DO = Crop Drown Out** **F = Fill** **IN = Inundation** **NC = Not Cropped** **- = none**

CT = Color Tone Difference from Upland Vegetation Indicating Wetness **ST = Saturation visible as darker soil**

** Circle the appropriate climate condition for the year the slide was taken, wet (W), dry (D), or normal (N)*

US Department of Agriculture
Natural Resources Conservation Service

ND-CPA-340
June 2011

OFFSITE DATA - AQUATIC RESOURCES

Legal Description:	Part of N half NW qtr Sec. 10-145-95 Dunn Co.			**Preparer(s):**	Mark A. Anderson
Owner/Operator:	C-2 Construction & Iron Man/Carroll Drilling			**Date:**	20-Mar-17

Wetland #	1B	Year	Indicator	Remarks
NRCS Inventory				
CIR	*W D N			
NWI			PEM1A	It is mapped as a narrow, linear wetland.
B&W Photos	*W D N			
	*W D N			
	*W D N			
	*W D N			
Soil Survey			Part hydric	Map unit E4005A is classified 87% hydric; the other half is Map Unit E1635C, rated zero hydric.
FSA Slides	*W D **N**	1983	none	Green area does not contrast with adjacent area, but slightly further north a large, dark green band extended eastv
Weather Station	**W** D N	1993	NC	Dark green, compared to adjacent crop or hay field that is tan.
	W **D** N	1994	-	Cropped or hayed same as adjacent field.
	W D **N**	1995	CT/NC	Not cropped. There is a dark gray area that may be inundated.
Assumed Date of FSA slide	W D **N**	1997	NC	Green area is non-crop. Adjacent field is tan.
	W D **N**	1998	-	Cropped or hayed.
	W **D** N	1999	CT/NC	Area is darker and more green than adjacent cropped or hayed area; uncertain if cropped/hayed or not.
	W D **N**	2000	CT	Small area appears slightly more green.
	W D N	2001	CT	Lighter gray center and perimeter is stronger green.
	W D N	2002	-	Dark green but no distinction from adjacent field.
	W D **N**	2003	CT or NC	Area is darker greenish-gray than adjacent field, with indistinct boundary.
	W **D** N	2005	IN	Dark gray. Distinct field edge.
	W D N	2006	CT	Greener than adjacent gray field.
	W D N	2009	IN	Short, narrow inundated channel reaches. Narrow, pale green channel otherwise. Indistinct boundary beyond channel.
	W D N	2010	NC/IN	Short, narrow inundated channel reaches are dark gray. Indistinct boundary beyond channel with blotches of light green.
	W D N	2013	-	No contrast from adjacent filled area.
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
FSA Slides - Total Hits (Normal Years)				

Hydrological Signature Codes:

d = drain DO = Crop Drown Out F = Fill IN = Inundation NC = Not Cropped - = none

CT = Color Tone Difference from Upland Vegetation Indicating Wetness ST = Saturation visible as darker soil

** Circle the appropriate climate condition for the year the slide was taken, wet (W), dry (D), or normal (N)*

US Department of Agriculture
Natural Resources Conservation Service

ND-CPA-340
June 2011

OFFSITE DATA - AQUATIC RESOURCES

Legal Description:	Part of N half NW qtr Sec. 10-145-95 Dunn Co.		**Preparer(s):**	Mark A. Anderson
Owner/Operator:	C-2 Construction & Iron Man/Carroll Drilling		**Date:**	20-Mar-17

Wetland #	3	Year	Indicator	Remarks
NRCS Inventory				
CIR	*W D N			
NWI			-	
B&W Photos	*W D N			
	*W D N			
	*W D N			
	*W D N			
Soil Survey			-	Soil map units E0454B, E0515B, and E1625B are all non-hydric with no listed hydric inclusions.
FSA Slides	*W D **N**	1983	CT	Narrow dark green area was apparent channel. Intensity of green diminished w. distance from channel.
Weather Station	**W** D N	1993	CT	Channel appears cropped same as adjacent tan field but is slightly darker & more greenish-gray.
	W **D** N	1994	-	Cropped or hayed same as adjacent field.
	W D **N**	1995	CT/NC	There is a wide area of green that appears to be non-crop. It does not match aother years.
Assumed Date of FSA slide	W D **N**	1997	CT	Narrow area slightly more gray than adjacent is apparently channel.
	W D **N**	1998	tiny IN	Very small dark spot on east end of where channel signatures appear in other years.
	W **D** N	1999	CT	Two spots of green in gray area overlay part of the area that shows up as channel in other years.
	W D **N**	2000	-	Slide is dark, mostly gray.
	W D N	2001	*	* Area appears to be mostly very dark cloud shadow.
	W D N	2002	CT	What appears as channel in 1997 is darker gray, with an odd curving band on the N side of east end.
	W D **N**	2003	CT	Area is blotched with light gray, particularly on east end.
	W **D** N	2005	CT	Slightly greener.
	W D N	2006	-	Splotchy, indistinct area. Whitish spot near east end looks like potential saline area.
	W D N	2009	-	No contrast.
	W D N	2010	CT	Curved grayer area on east end could be salinity, sediment, wetness, or crop impairment; it might be north of where channel signature appeared in 1997.
	W D N	2013	CT	Solid dark green on east end of field delineation, and solid gray on western part of field delineation. Field delineation is close to south property border and highway ROW. The channel signature before KIP construction was straighter, oriented west-northwest.
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
FSA Slides - Total Hits (Normal Years)				

Hydrological Signature Codes:

d = drain DO = Crop Drown Out F = Fill IN = Inundation NC = Not Cropped - = none

CT = Color Tone Difference from Upland Vegetation Indicating Wetness ST = Saturation visible as darker soil

** Circle the appropriate climate condition for the year the slide was taken, wet (W), dry (D), or normal (N)*

OFFSITE DATA - AQUATIC RESOURCES

Legal Description:	Part of N half NW qtr Sec. 10-145-95 Dunn Co.	**Preparer(s):**	Mark A. Anderson
Owner/Operator:	C-2 Construction & Iron Man/Carroll Drilling	**Date:**	20-Mar-17

Wetland #	OW Stock Pond	Year	Indicator	Remarks
NRCS Inventory				
CIR	*W D N			
NWI			PUBFx	
B&W Photos	*W D N			
	*W D N			
	*W D N			
	*W D N			
Soil Survey			Hydric	Map unit E4005A is classified 87% hydric.
FSA Slides	*W D **N**	1983	IN	
Weather Station	**W** D N	1993	IN	
	W **D** N	1994	IN	
	W D **N**	1995	IN	
Assumed Date of FSA slide	W D **N**	1997	IN	
	W D **N**	1998	IN	
	W **D** N	1999	NC	Grayish green area; it is narrow er than most other years.
	W D **N**	2000	IN	
	W D N	2001	IN	Barely discernible IN due to cloud shadow.
	W D N	2002	IN	
	W D **N**	2003	IN	
	W **D** N	2005	IN	
	W D N	2006	IN	
	W D N	2009	IN	
	W D N	2010	IN	
	W D N	2013	-	Occupied by Killdeer Industrial Park road and developed lot
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
FSA Slides - Total Hits (Normal Years)				

Hydrological Signature Codes:

d = drain **DO = Crop Drown Out** **F = Fill** **IN = Inundation** **NC = Not Cropped** **- = none**

CT = Color Tone Difference from Upland Vegetation Indicating Wetness **ST = Saturation visible as darker soil**

** Circle the appropriate climate condition for the year the slide was taken, wet (W), dry (D), or normal (N)*

OFFSITE DATA - AQUATIC RESOURCES

Legal Description:	Part of N half NW qtr Sec. 10-145-95 Dunn Co.			**Preparer(s):**	Mark A. Anderson
Owner/Operator:	C-2 Construction & Iron Man/Carroll Drilling			**Date:**	**20-Mar-17**

Wetland #	Salin Sp	Year	Indicator	Remarks
NRCS Inventory				
CIR	*W D N			
NWI			-	
B&W Photos	*W D N			
	*W D N			
	*W D N			
	*W D N			
Soil Survey			-	Soil map unit E2401B is listed as non-hydric with no hydric inclusions.
FSA Slides	*W D N	1983	CT	Narrow channel is darker gray amidst whitish mottled area that appears to be saline seep.
Weather Station	W D N	1993	-	Whitish mottled area appears to be saline seep.
	W D N	1994	-	Obscured by cloud shadow.
	W D N	1995	CT/NC	Green/dark gray area in light gray field. Whitish mottled area appears to be saline seep.
Assumed Date of FSA slide	W D N	1997	CT	Whitish edges on channel.
	W D N	1998	-	Whitish mottled area appears to be saline seep.
	W D N	1999	NC/CT	Green area in gray field. Few whitish spots toward east end.
	W D N	2000	-	Whitish mottles along east end of channel location.
	W D N	2001	*	* Area appears to be mostly very dark cloud shadow.
	W D N	2002	CT or NC	Dark grayish green on west end; east end of channel goes through strong whitish-mottled area.
	W D N	2003	CT	West reach is darker gray-geen than adjacent; east end of channel goes through strong whitish-mottled area.
	W D N	2005	CT	West reach is darker gray-geen than adjacent; east end of channel goes through strong whitish-mottled area.
	W D N	2006	-	West reach is slightly greener than adjacent; east end of channel goes through strong whitish-mottled area.
	W D N	2009	-	No contrast.
	W D N	2010	CT	West reach is slightly greener than adjacent; east end of channel goes through strong whitish-mottled area.
	W D N	2013	CT	Killdeer Industrial Park roads, scoria-covered lots, and buildings are visible.
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
	W D N			
FSA Slides - Total Hits (Normal Years)				

Hydrological Signature Codes:

d = drain DO = Crop Drown Out F = Fill IN = Inundation NC = Not Cropped - = none

CT = Color Tone Difference from Upland Vegetation Indicating Wetness ST = Saturation visible as darker soil

** Circle the appropriate climate condition for the year the slide was taken, wet (W), dry (D), or normal (N)*

Rainfall Data
DUNN CENTER 2 SW
Station #: ND2365
Dunn County, ND

		Evaluation of Conditions					
	Year	June	July	Aug	Sept.	Oct.	Nov.
1	1980	DRY	DRY	DRY	NORM	WET	WET
2	1981	DRY	NORM	NORM	WET	NORM	NORM
3	1982	NORM	WET	NORM	NORM	NORM	WET
4	1983	NORM	NORM	NORM	DRY	NORM	NORM
5	1984	NORM	NORM	NORM	NORM	NORM	NORM
6	1985	NORM	NORM	NORM	NORM	NORM	WET
7	1986	WET	WET	WET	NORM	NORM	NORM
8	1987	NORM	DRY	NORM	WET	NORM	DRY
9	1988	NORM	DRY	DRY	DRY	DRY	DRY
10	1989	WET	NORM	DRY	DRY	NORM	NORM
11	1990	NORM	WET	NORM	NORM	NORM	NORM
12	1991	NORM	WET	NORM	NORM	NORM	NORM
13	1992	DRY	NORM	NORM	NORM	DRY	DRY
14	1993	NORM	WET	WET	WET	NORM	NORM
15	1994	DRY	NORM	DRY	DRY	DRY	NORM
16	1995	WET	NORM	NORM	WET	WET	NORM
17	1996	NORM	DRY	NORM	NORM	WET	WET
18	1997	NORM	NORM	NORM	NORM	NORM	NORM
19	1998	DRY	NORM	NORM	WET	NORM	NORM
20	1999	NORM	NORM	DRY	NORM	WET	NORM
21	2000	NORM	DRY	NORM	DRY	DRY	NORM
22	2001	NORM	NORM	WET	NORM	NORM	DRY
23	2002	NORM	WET	WET	WET	NORM	NORM
24	2003	NORM	NORM	NORM	DRY	DRY	NORM
25	2004						
26	2005	DRY	NORM	DRY			
27	2006	NORM					
28	2007						
29	2008	DRY	NORM	NORM	WET	NORM	WET
30	2009	NORM	WET	WET	WET	WET	WET
31	2010	WET	WET	WET	NORM	NORM	NORM
32	2011	DRY					
33	2012						

☐ Blank cell indicates no data reported

WETS Table

WETS Station: DUNN CTR 1E, ND

Requested years: 1971 - 2000

Month	Avg Max Temp	Avg Min Temp	Avg Mean Temp	Avg Precip	30% chance precip less than	30% chance precip more than	Avg number days precip 0. 10 or more	Avg Snowfall
Jan	22.5	0.9	11.7	0.40	0.22	0.49	1	6.0
Feb	29.7	8.4	19.1	0.44	0.21	0.53	1	5.9
Mar	40.3	17.8	29.0	0.68	0.39	0.83	2	7.3
Apr	55.4	30.3	42.9	1.55	0.65	1.89	4	4.1
May	68.4	42.7	55.6	2.41	1.21	2.94	5	0.5
Jun	76.8	51.6	64.2	3.26	2.37	3.83	7	0.0
Jul	83.7	55.6	69.6	2.17	1.03	2.65	5	0.0
Aug	83.9	54.0	69.0	1.76	1.03	2.14	4	0.0
Sep	72.0	43.4	57.7	1.57	0.79	1.91	4	0.4
Oct	57.8	32.4	45.1	1.27	0.50	1.53	3	1.9
Nov	38.1	17.9	28.0	0.68	0.34	0.82	2	6.9
Dec	27.2	6.2	16.7	0.38	0.20	0.45	1	5.5
Annual:					15.81	19.50		
Average	54.6	30.1	42.4	-	-	-	-	-
Total	-	-	-	16.56			39	38.4

GROWING SEASON DATES

Years with missing data:	24 deg = 5	28 deg = 5	32 deg = 5
Years with no occurrence:	24 deg = 0	28 deg = 0	32 deg = 0
Data years used:	24 deg = 25	28 deg = 25	32 deg = 25
Probability	24 F or higher	28 F or higher	32 F or higher
50 percent *	4/22 to 10/12: 173 days	5/5 to 10/3: 151 days	5/12 to 9/22: 133 days
70 percent *	4/17 to 10/18: 184 days	5/1 to 10/8: 160 days	5/8 to 9/27: 142 days

* Percent chance of the growing season occurring between the Beginning and Ending dates.

STATS TABLE - total precipitation (inches)

Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annl
1918		0.60		3.38	1.43	0.86	2.97	3.48	0.39	0.28	0.40	0.43	14.22
1919	0.15	0.35	0.55	1.25	2.07	0.75	0.21	0.29	M0.61	1.00	M0.40	0.50	8.13
1920	0.20	0.20	1.15	1.22	0.90	M3.57	0.93	3.50	1.33	0.81	T	0.05	13.86
1921	0.03	0.16	1.35	M1.35	1.69	6.14	M2.12	0.18	M1.88	T	M0.35	0.82	16.07
1922	M0.30	1.90	0.05	M1.19	2.74	M5.70	M1.54	M1.60	M3.06	0.95	M2.67	M0.68	22.38
1923	M0.43	M0.48	0.70	M3.82	M1.38	M2.23	3.82	M2.10	3.80	M1.07	M0.30	MT	20.13
1924	M0.17	0.20	M0.72	1.45	M0.76	3.88	1.21	M0.33	0.83	3.48	MT	M0.56	13.59
1925	M0.10	0.10	M0.69	1.24	0.98	4.46	0.33	0.62	M1.35	M0.45			10.32
1926	M0.24	M0.40	M0.10	M0.32	3.37	2.21	M1.04	0.83	M2.	M0.	M0.	0.50	12.

									62	42	38		43
1927	0.20	0.16	0.22	1.61	6.73	1.64	6.99	1.25	0.63	1.02	0.62	0.97	22.04
1928	M0.20	M0.08	0.67	0.91	1.33	M3.64	6.34	M2.72	0.43	0.44	MT	M0.08	16.84
1929	0.92	M0.15	0.65	0.83	4.29	0.93	0.79	M0.28	M1.51	M0.94	M0.32	M1.50	13.11
1930	MT	M1.40	MT	2.46	1.68	3.41	M0.43	0.61	1.89	1.38	MT	M0.10	13.36
1931			1.06	M0.65	0.90	2.32	2.72	3.58	3.39	0.43	M0.11	0.22	15.38
1932	M0.93	M0.30	0.78	1.47	1.80	M3.67	2.54	2.10	0.14	2.52	0.88	T	17.13
1933	M0.85	T	0.49	1.53	3.93	M0.94	1.19	1.04	0.70	0.61	0.70	0.60	12.58
1934	T	0.00	0.59	0.20	0.49	2.96	0.48	0.37	0.66	0.06	0.00	0.12	5.93
1935	0.14	0.08	0.75	1.79	3.15	3.49	6.10	1.06		T	0.74	0.07	17.37
1936	0.69	M0.58	0.63	0.06	0.37	1.50	0.70	1.11	0.88	0.10	0.15	M0.40	7.17
1937	M0.04	0.52	0.09	0.70	2.14	4.97	3.76	0.80	1.01	0.72	M0.12	0.32	15.19
1938	0.27	0.68	0.41	0.82	2.72	3.69	4.46	2.35	0.42	0.60	1.43	0.11	17.96
1939	0.36	0.31	0.21	1.49	2.31	2.64	2.22	2.72	0.25	0.28	MT	0.25	13.04
1940	T	M0.37	M0.60	2.44	1.98	1.79	3.81	0.98	1.75	1.40	0.41	0.08	15.61
1941	0.18	0.13	0.38	1.55	2.71	8.01	2.76	2.32	M4.18	1.29	0.13	0.07	23.71
1942	T	M0.67	M0.65	M2.04	M1.86	5.24	1.38	2.27	2.68	M0.32	T	0.43	17.54
1943	1.11	0.28	0.93	2.08	1.44	5.19	1.65	3.91	0.64	0.89	0.57	0.06	18.75
1944	0.31	0.09	0.36	0.70	2.48	8.63	1.01	3.17	1.73	0.15	M2.52	T	21.15
1945	0.47	0.15	1.68	1.10	1.35	3.63	1.74	1.84	1.39	0.24	0.70	M0.52	14.81
1946	MT	0.53	0.24	0.58	1.95	1.60	2.26	0.45	1.86	M2.76	0.18	0.70	13.11
1947	M0.33	0.10	0.59	1.64	1.14	8.69	M1.33	3.04	0.66	0.55	0.47	0.33	18.87
1948	0.49	0.83	0.19	2.05	3.73	4.11	5.41	0.90	0.00	0.54	0.93		19.18
1949	1.81	0.47	0.74	T	1.32	2.48	3.00	2.17	0.27	1.75	T	0.25	14.26
1950	0.80	0.33	1.73	1.90	1.73	4.29	1.61	0.83	1.91	0.79	0.83	0.51	17.26
1951	M0.45	1.09	0.20	1.16	0.64	2.02	2.79	2.54	1.11	1.43	0.16	0.66	14.25
1952	0.37	0.77	0.63	T	0.71	2.97	2.33	1.87	0.82	0.12	0.34	T	10.93
1953	0.38	0.33	1.15	2.51	4.71	3.72	1.31	4.56	0.84	1.33	0.03	0.47	21.34
1954	0.73	0.47	1.24	0.77	1.34	4.48	1.30	2.53	2.78	0.80	0.09	0.08	16.61
1955	0.38	M0.45	MT	2.30	3.02	3.23	0.74	0.64	0.92	0.60	0.35	0.20	12.83
1956	0.16	0.11	0.56	0.02	2.00	1.07	3.95	2.29	0.40	0.35	0.60	0.40	11.91
1957	0.38	0.06	0.50	1.91	1.94	6.00	2.28	1.73	2.36	1.89	0.76	0.10	19.91
1958	0.05	1.27	0.21	0.83	0.04	3.33	4.80	0.60	0.14	0.94	1.51	0.22	13.94
1959	0.41	0.68	0.53	0.27	1.07	2.42	0.68	1.59	4.68	0.58	0.70	0.44	14.05
1960	0.21	0.12	0.36	0.32	2.78	3.11	1.19	2.74	0.	0.	0.64	0.23	11.

									10	06			86
1961	0.03	0.95	0 25	2.55	0.91	2.50	2.68	0.14	2. 54	T	T	0.16	12. 71
1962	0.33	0.27	1.39	0.73	5.41	5.03	3.87	1.59	0. 42	1. 54	0.27	0.18	21. 03
1963	0.29	0.51	0.86	3.14	1.65	4.76	2.34	3.96	0. 50	0. 53	T	0.18	18. 72
1964	0.30	0.08	0.14	1.18	2.44	6.38	2.50	5.12	0. 57	0. 27	0.97	0.95	20 90
1965	0.61	0.16	0.31	1.54	6.76	3.61	3.91	1 23	2. 13	0. 05	0.68	0.18	21. 17
1966	0.21	0.22	0.28	0.93	1.29	4.26	2.04	2.50	0. 85	0. 55	0.32	0.32	13. 77
1967	1.03	0.77	0.41	3.28	1.16	5.65	0 76	1.04	2. 55	0. 66	0.18	0.44	17. 93
1968	0.51	0.13	0.13	1.04	1.13	3.27	1.36	4.18	1. 39	1. 51	0.60	0.85	16 10
1969	0.67	0.66	0.35	0.53	1.16	4.63	3.70	1.82	0. 93	1. 00	T	0.66	16. 11
1970	0.53	0.07	0.34	4.31	4.88	5.15	4.52	0.38	2. 23	0. 42	0.75	0.18	23. 76
1971	0.63	0.29	0.66	2.78	1.28	5 00	0.67	0.34	3. 77	2. 87	0 60	0.26	19. 15
1972	0.58	0.68	1.66	0.81	6.13	2 23	2.43	3.44	1. 53	0. 91	0.09	0.85	21. 34
1973	0 11	0.82	0.65	2.11		2.64	1.29	0.79	2 76	0. 58	0.54	0.56	12. 85
1974	0.28	0.18	0.33	2.07	4.48	1.73	2.42	1.26	0. 38	0. 54	1.15	0.09	14. 91
1975	0.14	0.51	2.53	4.79	2.98	4.28	0.84	2.32	1 84	1. 22	0.77	0.37	22. 59
1976	0.80	0.24	0.70	2.40	0.99	4.12	1.24	1.22	1. 22	0. 84	0.28	0.55	14. 60
1977	0 61	0.37	0.50	0.19	4.12	4.62	1.52	1.40	4. 28	1. 05	1 13	1.12	20. 91
1978	0.17	0.78	0.40	1.58	4.92	3.06	2 92	2.54	2. 03	0. 06	1.15	0.41	20. 02
1979	0 14	0.98	0.39	1.51	1 30	1 84		1.78	0. 92	0. 43	0.10	0 25	9.64
1980	0.38	0.39	0.31	0.36	0.06	3.64	0.65	3.44	2. 54	2. 91	0.45	0.42	15. 55
1981	0.11	0.17	T	1.15	0.49	4.08	2.58	2.93	0. 76	0. 71	0.54	0.46	13. 98
1982	1.05	0.35	M1.77	0.95	2.58	5.44	2.29	1.54	1. 57	7. 24	0.22	0.50	25. 50
1983	0.47	0.02	0.41	0.32	1.89	3.55	1.86		0. 81	0. 97	0.58	0.42	11. 30
1984	0.14	0.11	0.58	4.39	0.21	4.43	0.02	3.02	0. 59	1. 06	0.12	0.32	14. 99
1985	0.04	M0.01	0.68	1.53	2.70	3.05	1.62	1.62	1. 51	1. 78	0.67	0.56	15. 77
1986	0.53	0.23	M0.73	2.34	4.93	M3 42	4.53	0.62	4. 86	0. 14	1.77	T	24. 10
1987	0.26	0.44	0.94	M0.08	2.04	1.56	5.90	2.68	0. 31	0. 18	0.22	0.06	14. 67
1988	M0.62	0.26	0.64	0.01	2.03	1.33	M0.97	0.43	1. 02	0. 15	0.25	M0. 74	8.45
1989	0.84	0.37	0.98	3.34	M1.77	1.90	0 68	1.81	0. 79	0. 84	0.45	M0. 26	14. 03
1990	0.05	0.06	M0.12	1.60	M2.64	M5.23	1.54	0.33	0. 88	0. 85	0.10	M0. 44	13. 84
1991	0.22	M0.36	M0.12	1.97	M1.96	4.89	0.76	M2.92	2. 58	1. 15	0.24	0.04	17. 21
1992	0.46	M0.25	0.75	M1.48	1.06	2.52	1.25	1.91	0. 68	M0. 40	M1. 15	0.31	12. 22
1993	0.32	0.27	M0.48	1.12	1.62	4.47	6.66	1.56	0. 04	0. 62	M0. 96	0.48	18. 60
1994	M0.58	M0.32	M0.17	0.96	M0.91	3.46	0.85	M0.29	M0.	4.	M0.	0.23	13.

									48	55	51		31
1995	0 11	M0.09	0.87	0.93	5.00	0 75	4.00	3.12	M1.06	0.97	M1.38	M0.48	18.76
1996	M0.56	M0.35	M1.05	M0.78	2.54	2 14	2.36	2.17	2.61	0.69	M1.18	M0.47	16.90
1997	M0.57	M0.10	M0.99	2.36	0.52	2.99	5.99	0.55	1.27	0.70	M0.26	M0.01	16.31
1998	M0.37	M2.39	M0.19	0.29	1.82	5.50	2.02	2.20	0.62	2.09	M2.04	M0.37	19.90
1999	0 76	M0.38	M0.24	0.79	M4.76	M1.55	0.90	2.20	M2.52	M0.19	T	0.30	14.59
2000	M0.22	M0.46	M0.35	M0.73	M2.08	2.24	M1.23	0.57	0.74	M2.40	M1.54	M0.19	12.75
2001	M0.30	T	0.00	M2.19	0.63	M6.78	M5.05	0.00	1.57	0.00	M0.25	M0.21	16.98
2002	M0.18	M0.11	M0.72	M1.40	M2.20	M4.18	M6.78	M2.79	M0.56	1.07	0.22	0.50	20.71
2003	M0.23	M0.32	M0.97	0.70	3.19	M3.88	M0.14	M0.60	1.81	0.96	0.44	0.48	13.72
2004	M0.63	M0.44	MT										1 07
2005					M1.80	M3.54	M0.85						6.19
2006			M0 21	M2 32						M0.51			3.04
2007													
2008		MT	M0.26	M0.43	M1.92	M3.82	M1.46	M3.59	M1 20	M2.64	M0.94	M1.14	17.40
2009	0.94	M1.64	M0.40	M0.66	M1.43	4.09	2.81	M1.17	2.01	M1.61	T	M1.59	18.35
2010	0.20	M0.30	M0.70	M1.02	4.25	M4.59	M2.11	0.72	M3.45	M0.60	0.89	0.52	19.35
2011	M0.38	M0.13	M0.67	M1.76	M7.20	M1.47	M4.52	M1.21	1.44	0.92	M0.03	M0.40	20.13
2012	M0.75	M0.15	M0.02	M2.06	M2.55	M1.93	M2.08	M2.76	M0.17	M2.23	0.34	M0.12	15.16
2013	M0.04	M0.11	M0.85	M0.74	M8.11	2.40	M2.27	M3.13	2.44	M3.68	0.10	M0.24	24 11
2014	M0.30	M0.12	M0.78	M1.37	M5.23	M3 95	M0.96	M5.27	M1.00	M1.88	M0.05	M0.71	21.62
2015	M0 55	M0.49	M0.60	M0.51	M2.18	6.30	M2.10	M2.66	M1.74	M1.50	M0.48	M0.72	19.83
2016	M0.12	0.09	M1.14	M4.18	M1.84	M2.39	M5.10	M1.18	M4.79	M2.04	M0.52	M0.40	23.79
2017	M0.78	M0.24	M0.59										1.61

Notes: Data missing in any month have an "M" flag. A "T" indicates a trace of precipitation.

Data missing for all days in a month or year is blank.

Creation date: 2016-07-22

NDAWN Logo

NDSU NDSU Agriculture NDSU School of Natural Resource Sciences
NDAWN » Monthly Weather Data » Table

NDAWN monthly data for 12 months beginning December, 2015

Key: E = Estimate; M = Missing; N/A = Not Available [English | Metric] Export CSV File
Click on column headings for definition Print table
Click on graph icon in column headings (graph) for graph Switch station: Dunn 1SW (2009-)

Year Month	Dunn Total Rainfall (inch) graph
2015 12	M
2016 1	M
2016 2	M
2016 3	M
2016 4	3.53
2016 5	2.25
2016 6	2.06
2016 7	4.00
2016 8	0.67
2016 9	3.86
2016 10	2.46
2016 11	M
Totals:	152M 18.84
Max:	152M 4.00
Min:	152M 0.67

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NDAWN: The North Dakota Mesonet

Appendix C

Site Photographs

Wetland Delineations and Mitigation Plan
C-2 Construction, Inc. and Iron Man/Carroll Drilling, LLC

Photo 1: A view of Wetland Channel from the east end.
Direction: Southwest.

Photo 2: A view of the west half of Wetland Channel.
Direction: Southwest.

Photo 3: Wetland OO viewed from the south end.
Direction: North.

Photo 6: Wetland 2A. The open water on the right is in the ND Highway 22 west ditch.
Direction: Northwest.

Photo 5: Wetland 2B.
Direction: West.

Photo 6: East end of Wetland 3.
Direction: West.

Photo 7: Middle reach of Wetland 3.
Direction: West.

Photo 8: Northwest reach of Wetland 3. The surface flow infiltrated the sandy soil completely.
Direction: Northwest.

Photo 9: Other Water OO-N. It was considered to have no mitigation value.
Direction: South.

Photo 10: Other Water OO-S. It is managed to suppress all vegetation, the same as OO-N.
Direction: North.

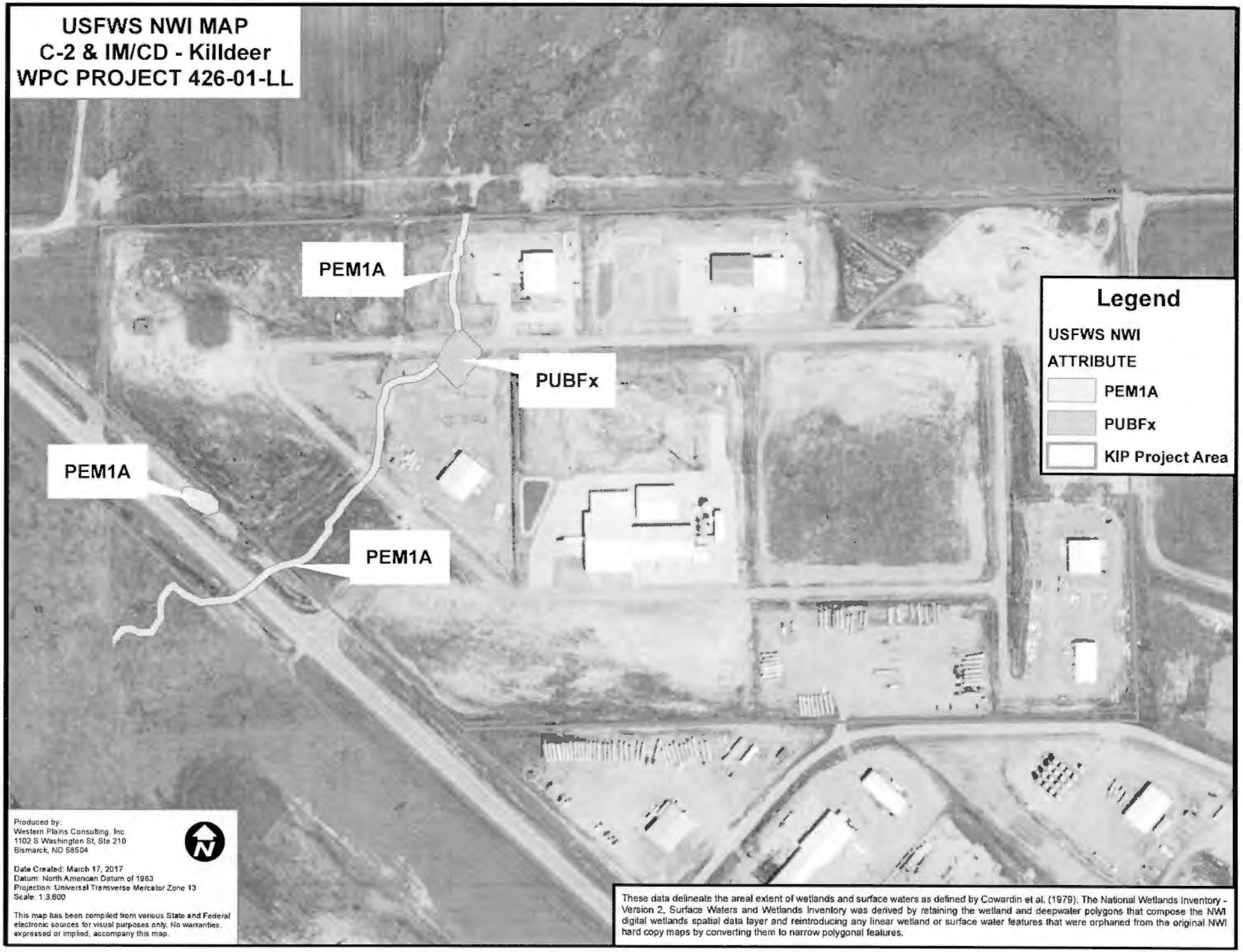
Photo 11: Lot 8 - the vegetation was predominantly smooth bromegrass. Wetland Channel is between blue lines.

Direction: North.

Photo 12: One of two projectile points that were found in the project area.

Appendix D

USFWS NWI MAP
C-2 & IM/CD - Killdeer
WPC PROJECT 426-01-LL

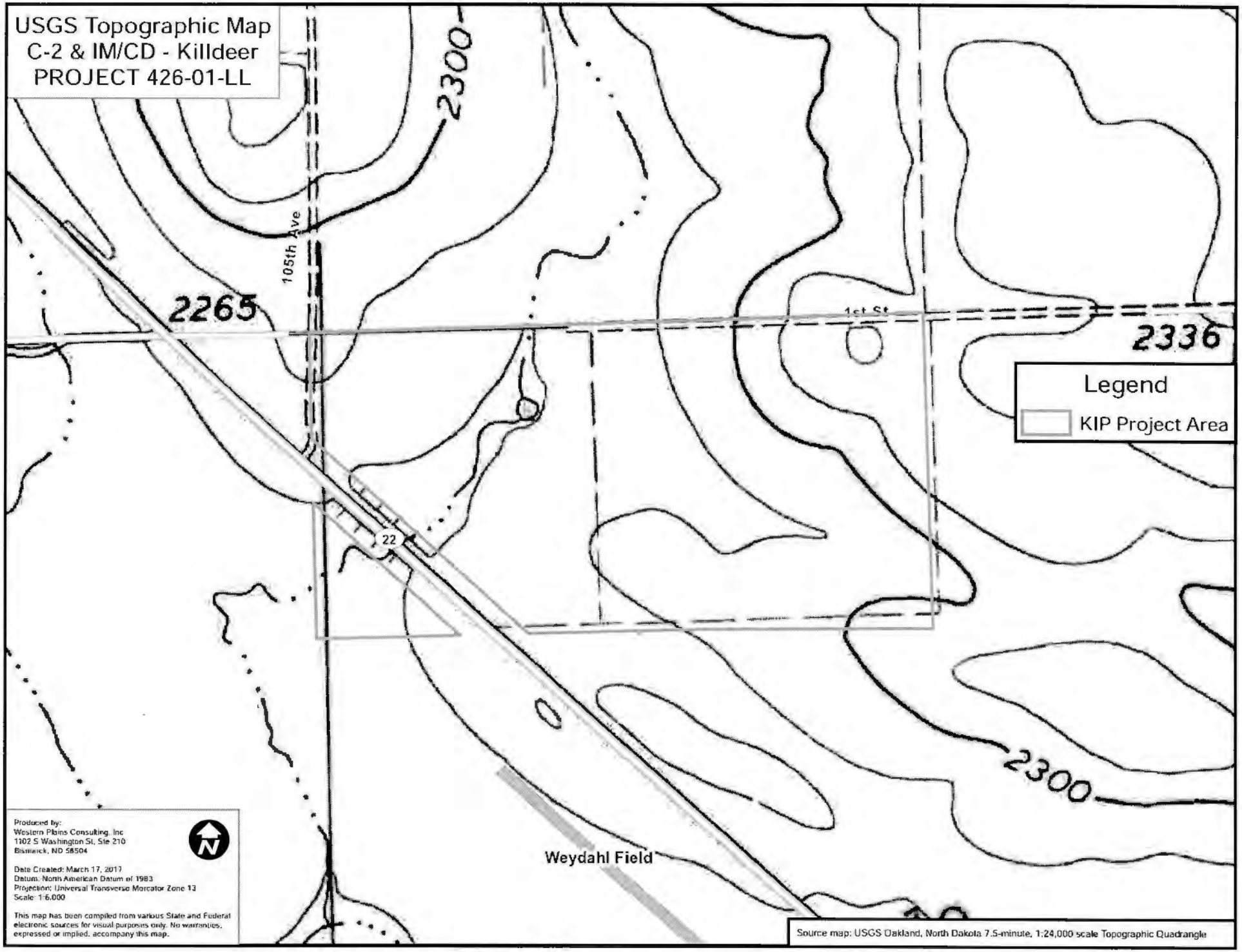


Produced by:
Western Plains Consulting, Inc
1102 S Washington St, Ste 210
Bismarck, ND 58504

Date Created: March 17, 2017
Datum: North American Datum of 1983
Projection: Universal Transverse Mercator Zone 13
Scale: 1:3,600

This map has been compiled from various State and Federal electronic sources for visual purposes only. No warranties, expressed or implied, accompany this map.

These data delineate the areal extent of wetlands and surface waters as defined by Cowardin et al. (1979). The National Wetlands Inventory - Version 2, Surface Waters and Wetlands Inventory was derived by retaining the wetland and deepwater polygons that compose the NWI digital wetlands spatial data layer and reintroducing any linear wetland or surface water features that were orphaned from the original NWI hard copy maps by converting them to narrow polygonal features.


USGS Topographic Map
C-2 & IM/CD - Killdeer
PROJECT 426-01-LL
2300
105th Ave
2265
1st St
2336
Legend
KIP Project Area
22
2300
Weydahl Field
Produced by:
Western Plains Consulting, Inc
1102 S Washington St, Ste 210
Bismarck, ND 58504
N
Date Created: March 17, 2017
Datum: North American Datum of 1983
Projection: Universal Transverse Mercator Zone 13
Scale: 1:6,000
This map has been compiled from various State and Federal electronic sources for visual purposes only. No warranties, expressed or implied, accompany this map.
Source map: USGS Oakland, North Dakota 7.5-minute, 1:24,000 scale Topographic Quadrangle

Soil Map—Dunn County, North Dakota
(C-2 Construction, Inc. & Iron Man/Carrol Drilling, LLC)

Map Scale: 1:4,510 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

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

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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 map measurements.

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

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

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

Soil Survey Area: Dunn County, North Dakota
Survey Area Data: Version 21, Sep 20, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

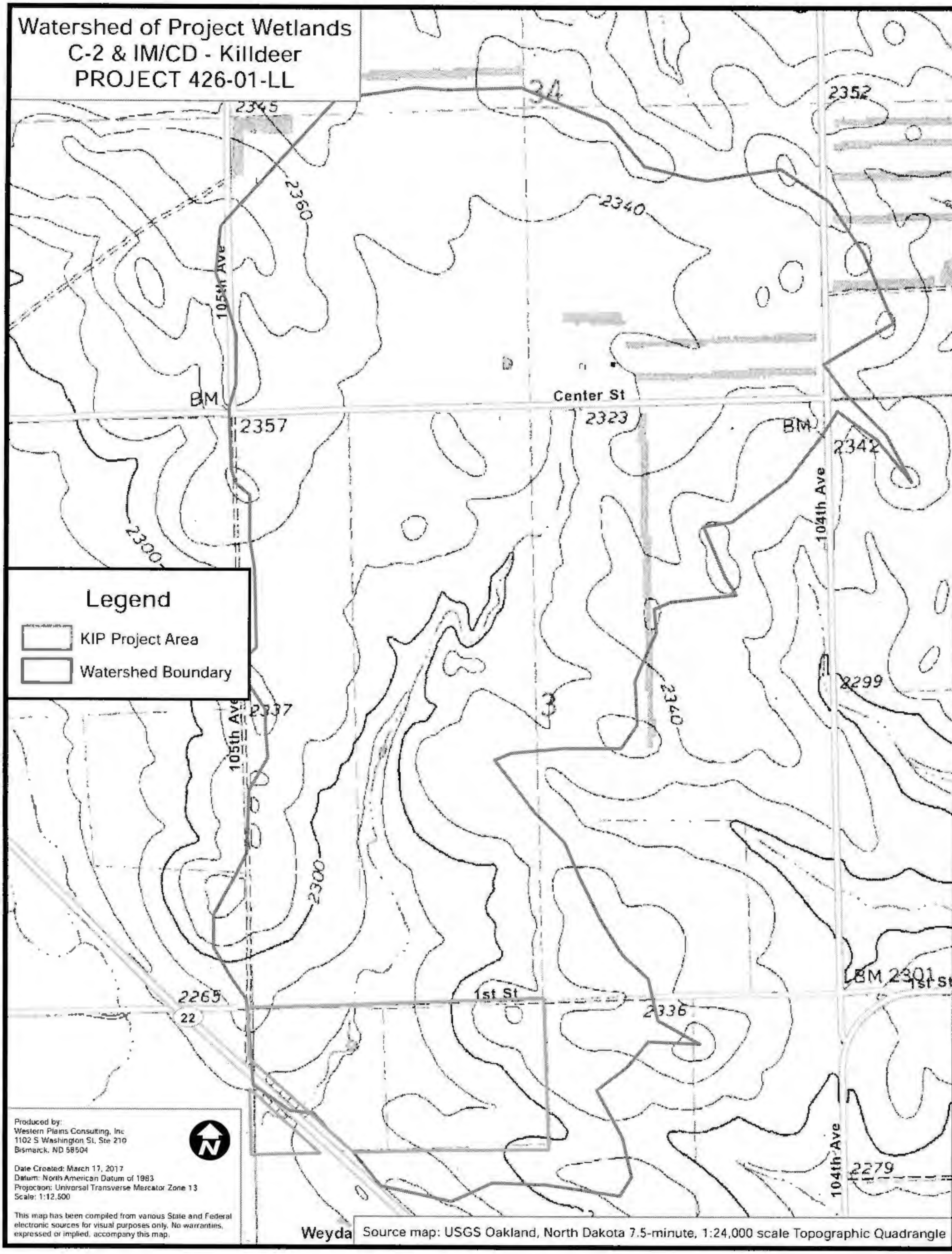
Date(s) aerial images were photographed: Jun 23, 2011—Jul 30, 2011

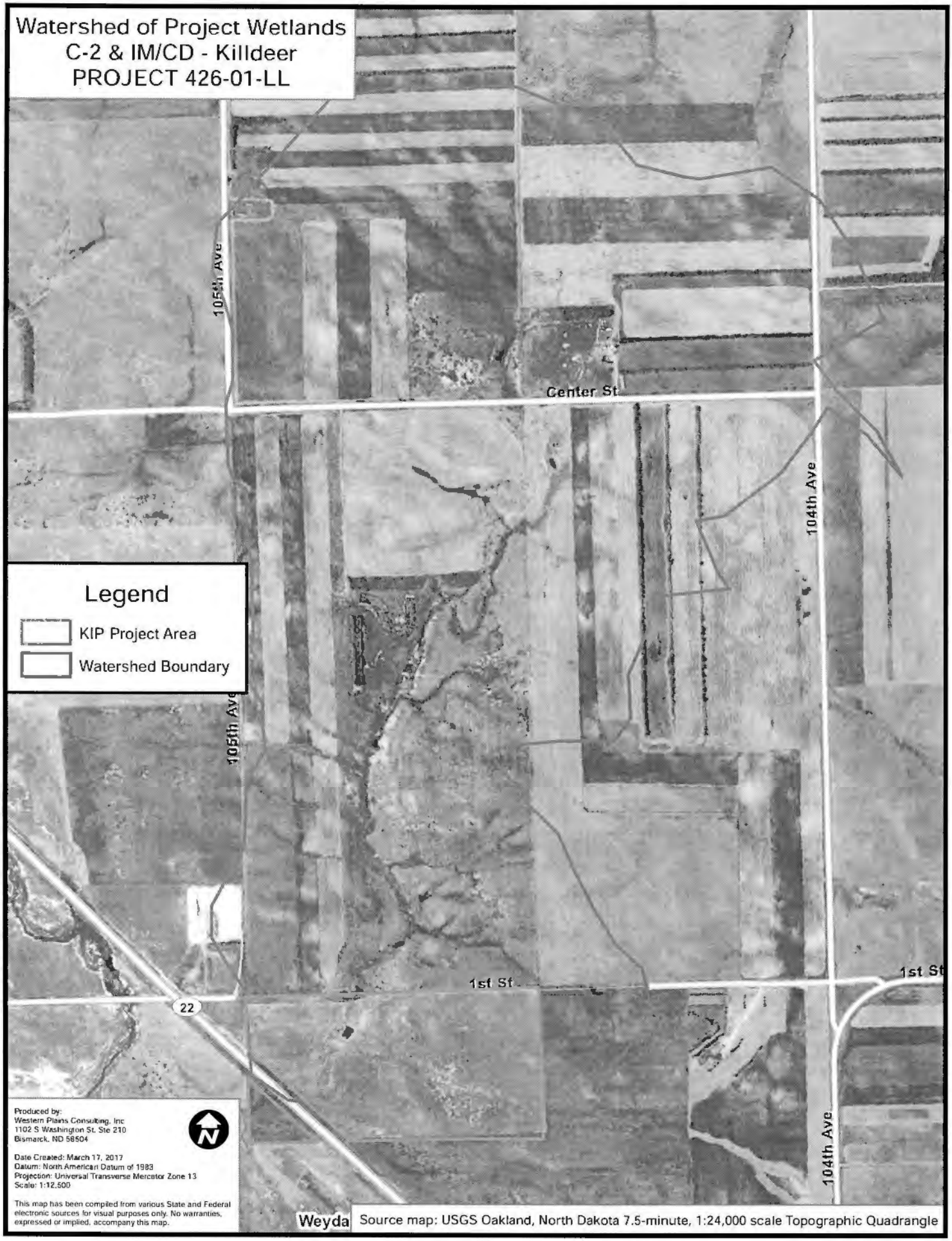
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Dunn County, North Dakota (ND025)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
E0454B	Daglum-Rhoades complex, 0 to 6 percent slopes	4.8	6.3%
E0515B	Rhoades-Daglum complex, 0 to 6 percent slopes	0.6	0.8%
E1333D	Vebar-Cohagen fine sandy loams, 9 to 15 percent slopes	8.1	10.5%
E1625B	Vebar-Parshall fine sandy loams, 3 to 6 percent slopes	3.0	3.8%
E1635C	Vebar-Tally fine sandy loams, 6 to 9 percent slopes	24.8	32.2%
E1823B	Parshall fine sandy loam, 2 to 6 percent slopes	0.2	0.2%
E2401B	Belfield-Morton silt loams, 3 to 6 percent slopes	19.0	24.7%
E2927B	Morton-Farland silt loams, 3 to 6 percent slopes	1.6	2.0%
E2931C	Morton-Cabba silt loams, 6 to 9 percent slopes	4.7	6.1%
E4005A	Harriet loam, 0 to 2 percent slopes, occasionally flooded	10.3	13.4%
Totals for Area of Interest		**77.1**	**100.0%**

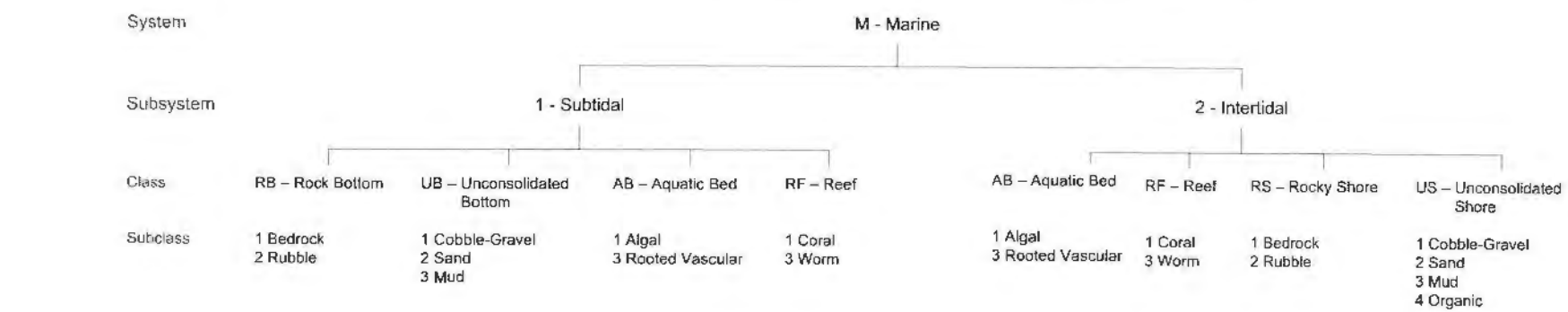
C-2 & IM/CD Lot Ownership
C-2 & IM/CD - Killdeer
PROJECT 426-01-LL

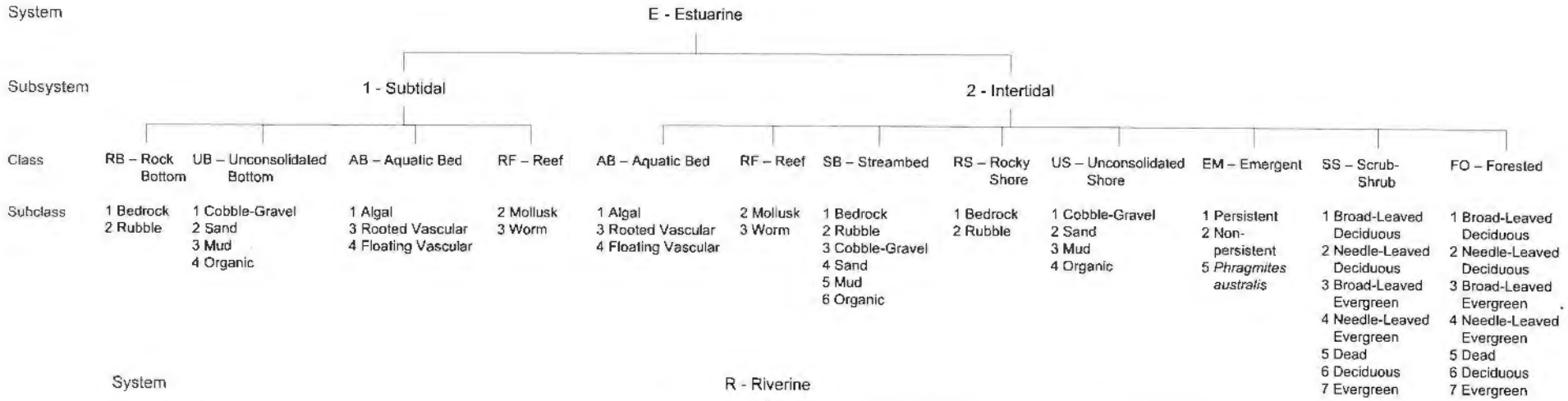

Watershed of Project Wetlands
C-2 & IM/CD - Killdeer
PROJECT 426-01-LL
Legend
KIP Project Area
Watershed Boundary
2345
2352
2360
2340
105th Ave
BM
2357
Center St
2323
BM
2342
104th Ave
2300
2337
2340
2299
2300
2265
22
1st St
2336
BM 2301
1st St
2279
Produced by:
Western Plains Consulting, Inc
1102 S Washington St, Ste 210
Bismarck, ND 58504
Date Created: March 17, 2017
Datum: North American Datum of 1983
Projection: Universal Transverse Mercator Zone 13
Scale: 1:12,500
This map has been compiled from various State and Federal electronic sources for visual purposes only. No warranties, expressed or implied, accompany this map.
N
Weyda
Source map: USGS Oakland, North Dakota 7.5-minute, 1:24,000 scale Topographic Quadrangle

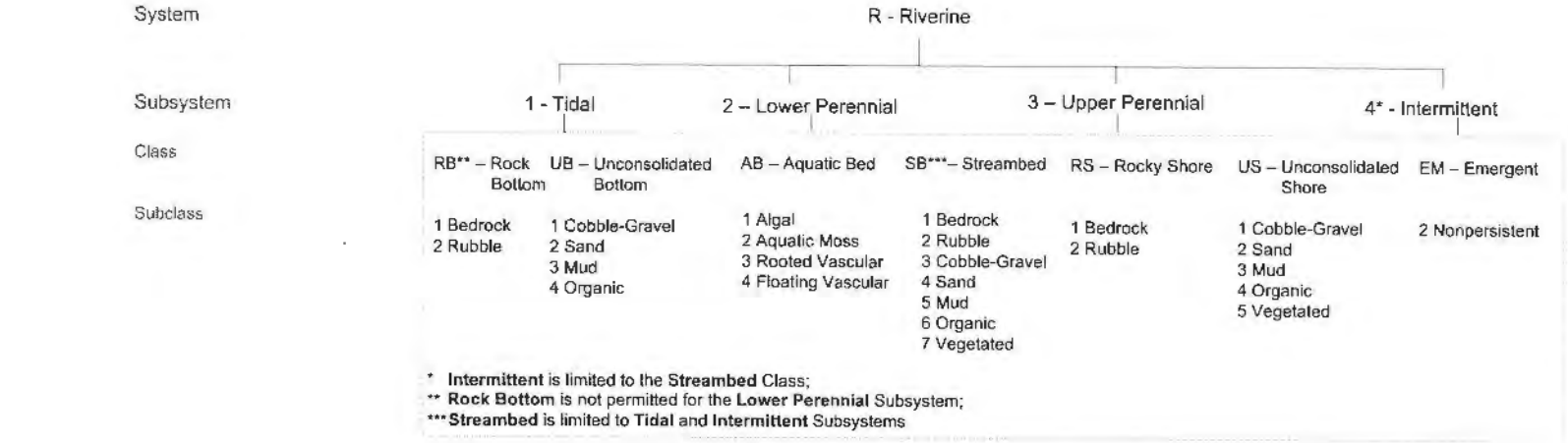

Watershed of Project Wetlands
C-2 & IM/CD - Killdeer
PROJECT 426-01-LL
105th Ave
Center St
104th Ave
Legend
KIP Project Area
Watershed Boundary
105th Ave
1st St
1st St
22
104th Ave
Produced by:
Western Plains Consulting, Inc
1102 S Washington St, Ste 210
Bismarck, ND 58504
Date Created: March 17, 2017
Datum: North American Datum of 1983
Projection: Universal Transverse Mercator Zone 13
Scale: 1:12,500
This map has been compiled from various State and Federal electronic sources for visual purposes only. No warranties, expressed or implied, accompany this map.
Weyda
Source map: USGS Oakland, North Dakota 7.5-minute, 1:24,000 scale Topographic Quadrangle

Appendix E

NWI Wetlands and Deepwater Map Code Diagram



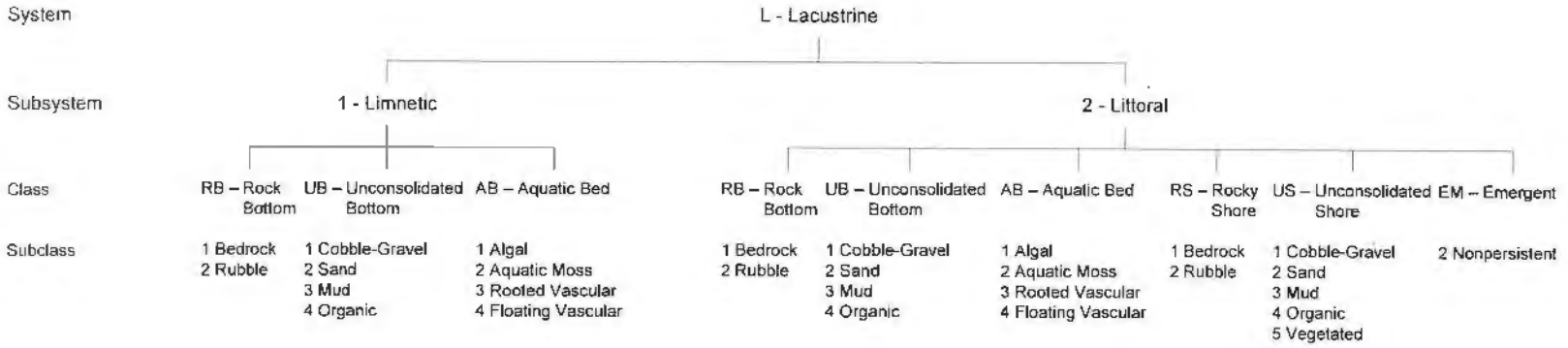


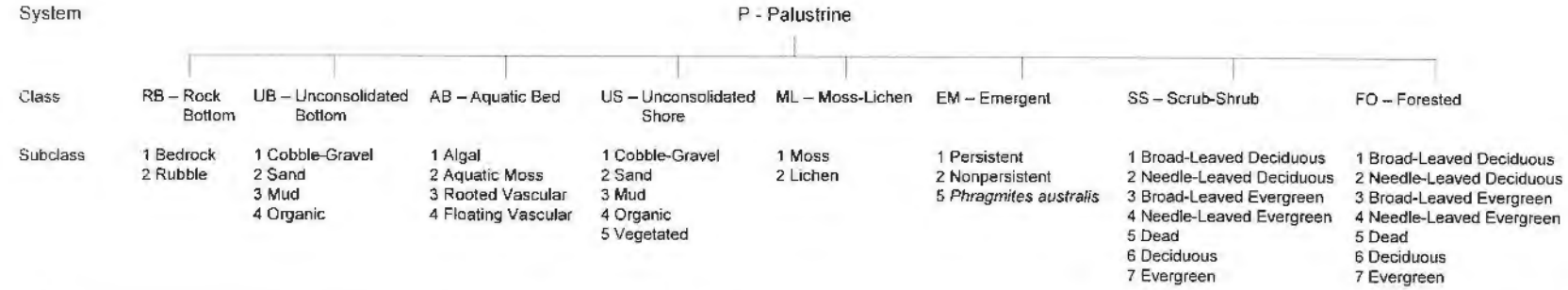


* **Intermittent** is limited to the **Streambed** Class;
** **Rock Bottom** is not permitted for the **Lower Perennial** Subsystem;
*** **Streambed** is limited to **Tidal** and **Intermittent** Subsystems

Classification of Wetlands and Deepwater Habitats of the United States, Cowardin *et al.* 1979

NWI Wetlands and Deepwater Map Code Diagram





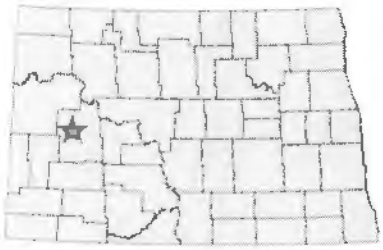
MODIFIERS

In order to more adequately describe the wetland and deepwater habitats, one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy.

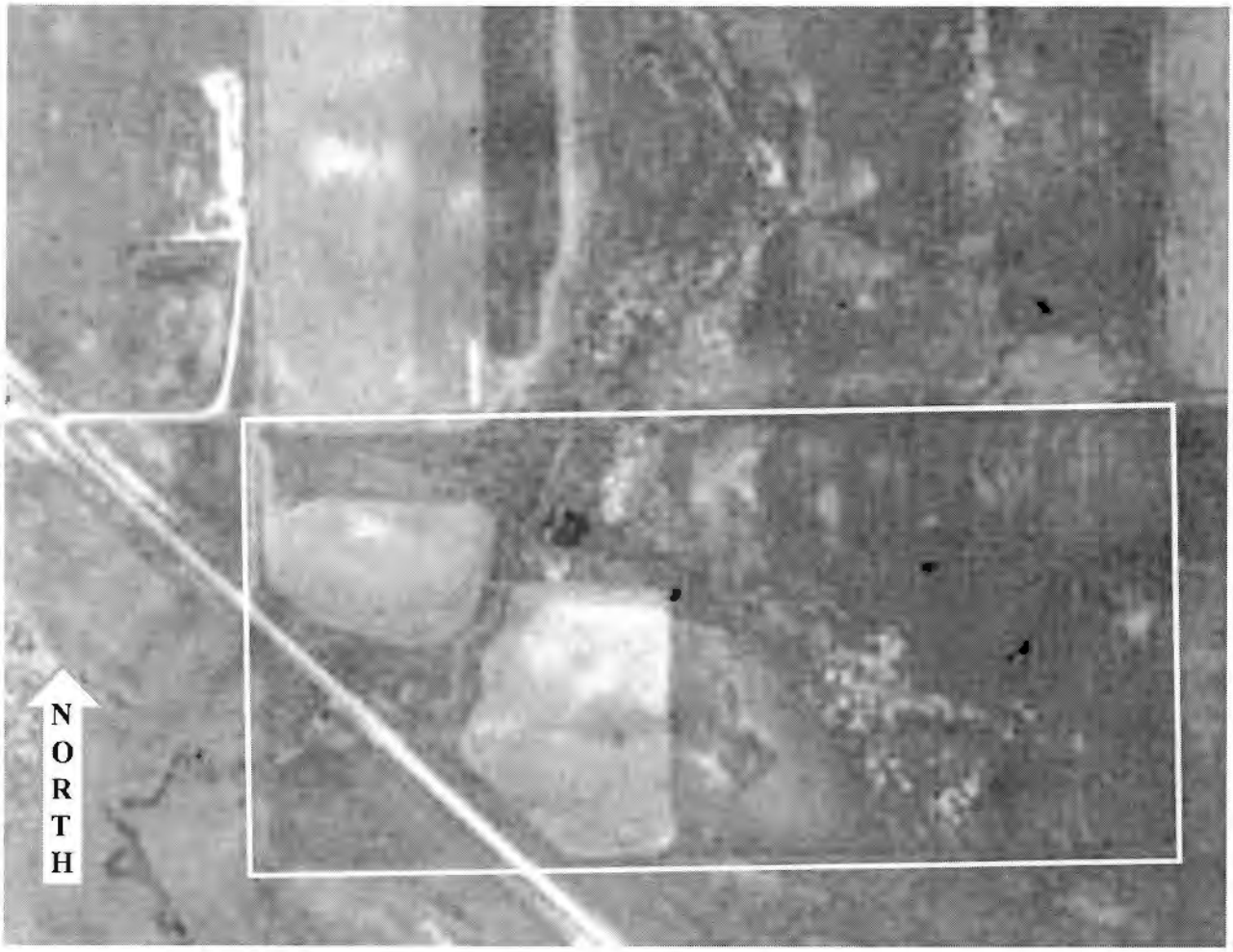
Water Regime			Special Modifiers	Water Chemistry		Soil
Nontidal	**Saltwater Tidal**	**Freshwater Tidal**		**Halinity/Salinity**	**pH Modifiers for Fresh Water**	
A Temporarily Flooded	L Subtidal	S Temporarily Flooded- Fresh Tidal	b Beaver	1 Hyperhaline / Hypersaline	a Acid	g Organic
B Seasonally Saturated	M Irregularly Exposed	Q Regularly Flooded-Fresh Tidal	d Partly Drained/Ditched	2 Euhaline / Eusaline	t Circumneutral	n Mineral
C Seasonally Flooded	N Regularly Flooded	R Seasonally Flooded-Fresh Tidal	f Farmed	3 Mixohaline / Mixosaline (Brackish)	i Alkaline	
D Continuously Saturated	P Irregularly Flooded	T Semipermanently Flooded-Fresh Tidal	m Managed	4 Polyhaline		
E Seasonally Flooded / Saturated		V Permanently Flooded-Fresh Tidal	h Diked/Impounded	5 Mesohaline		
F Semipermanently Flooded			r Artificial Substrate	6 Oligohaline		
G Intermittently Exposed			s Spoil	0 Fresh		
H Permanently Flooded			x Excavated			
J Intermittently Flooded						
K Artificially Flooded						

Appendix F

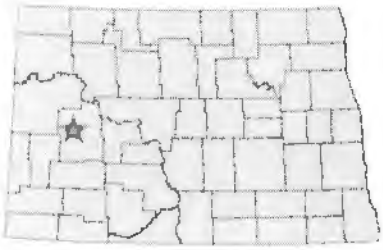
Project Area Prior to Development
1983 USDA Aerial Photograph
C-2 Construction, Inc. and Iron Man/Carroll Drilling, LLC
N. Half of NW Quarter – Section 10-T. 145 N. – R. 95 W.
Dunn County, North Dakota
Not to Scale



WPC, Inc.

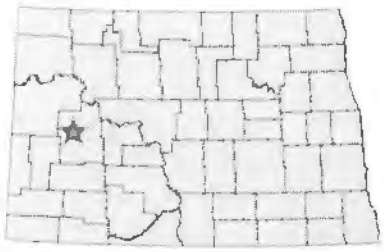


Project Area Prior to Development
1993 USDA Aerial Photograph
C-2 Construction, Inc. and Iron Man/Carroll Drilling, LLC
N. Half of NW Quarter – Section 10-T. 145 N. – R. 95 W.
Dunn County, North Dakota
Not to Scale



WPC, Inc.

Project Area Prior to Development
1994 USDA Aerial Photograph
C-2 Construction, Inc. and Iron Man/Carroll Drilling, LLC
N. Half of NW Quarter – Seetion 10-T. 145 N. – R. 95 W.
Dunn County, North Dakota
Not to Scale



WPC, Inc.

Project Area Prior to Development
1995 USDA Aerial Photograph
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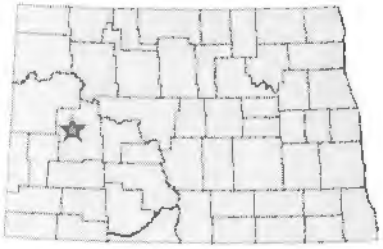
Dunn County, North Dakota
Not to Scale



WPC, Inc.

Project Area Prior to Development
1997 USDA Aerial Photograph
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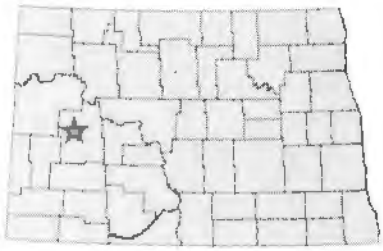
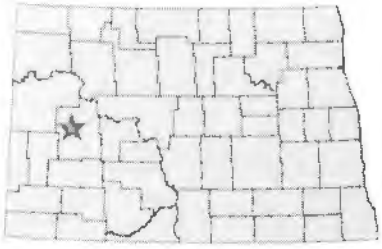
Dunn County, North Dakota
Not to Scale



WPC, Inc.

Project Area Prior to Development
1998 USDA Aerial Photograph
C-2 Construction, Inc. and Iron Man/Carroll Drilling, LLC
N. Half of NW Quarter – Section 10-T. 145 N. – R. 95 W.
Dunn County, North Dakota
Not to Scale



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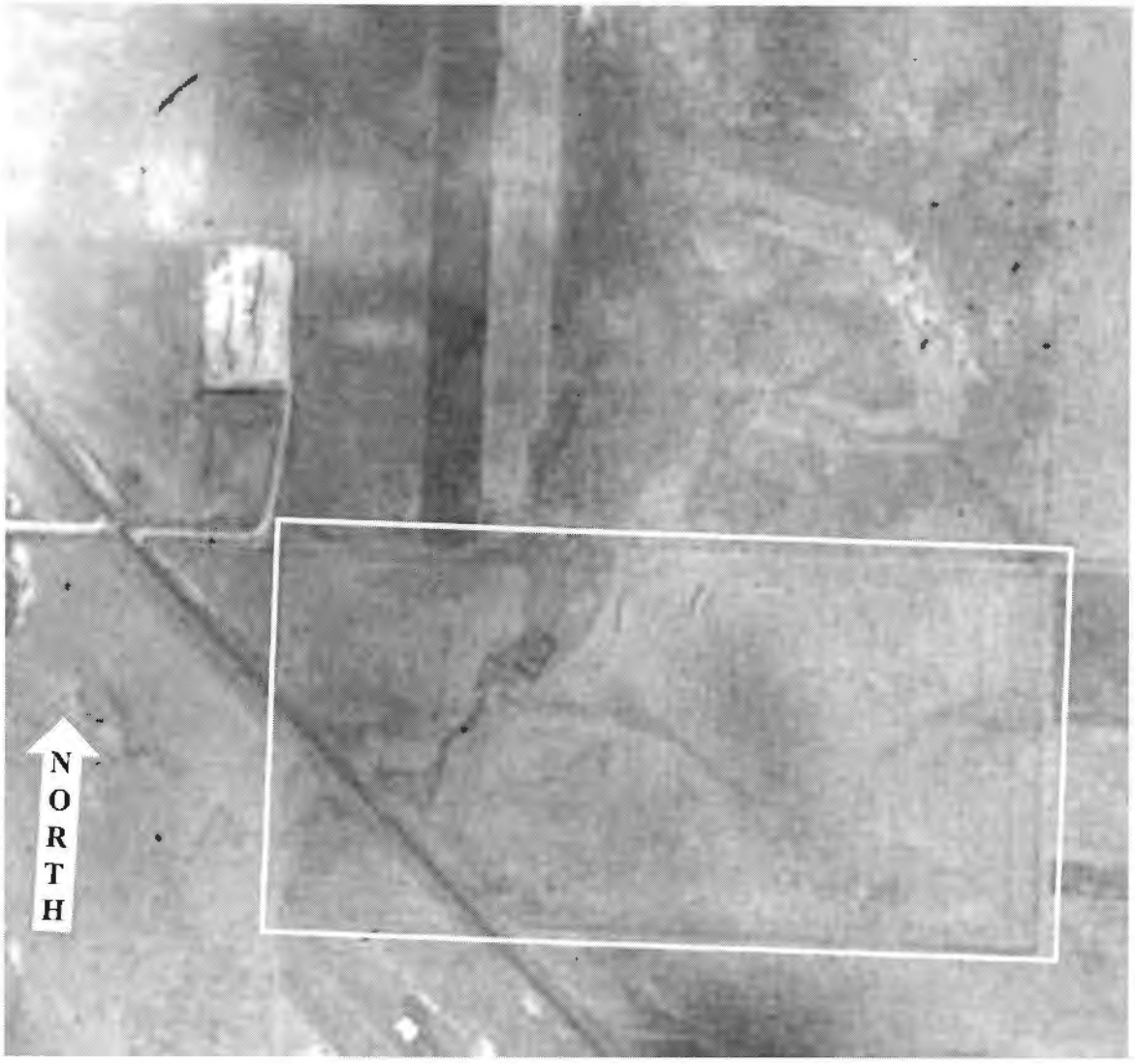
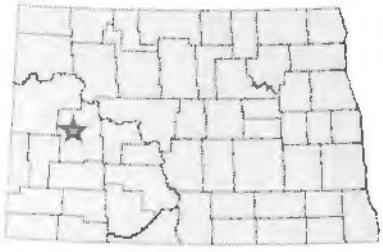


Project Area Prior to Development
1999 USDA Aerial Photograph
C-2 Construction, Inc. and Iron Man/Carroll Drilling, LLC
N. Half of NW Quarter – Section 10-T. 145 N. – R. 95 W.
Dunn County, North Dakota
Not to Scale



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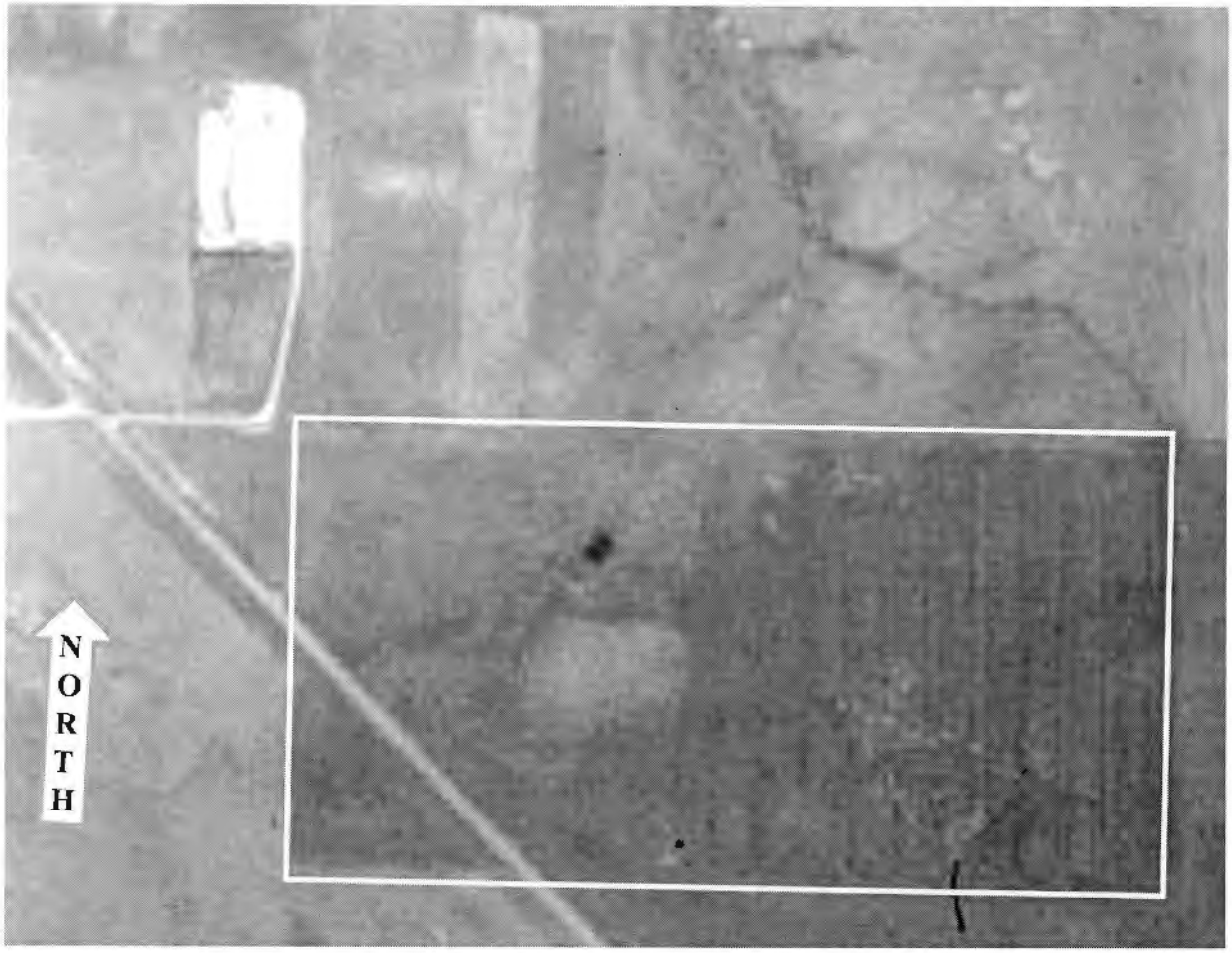

Project Area Prior to Development
2000 USDA Aerial Photograph
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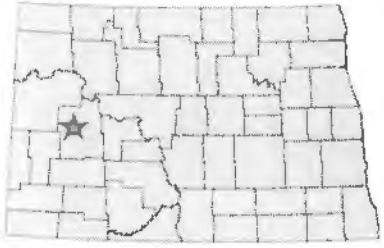
Dunn County, North Dakota
Not to Scale



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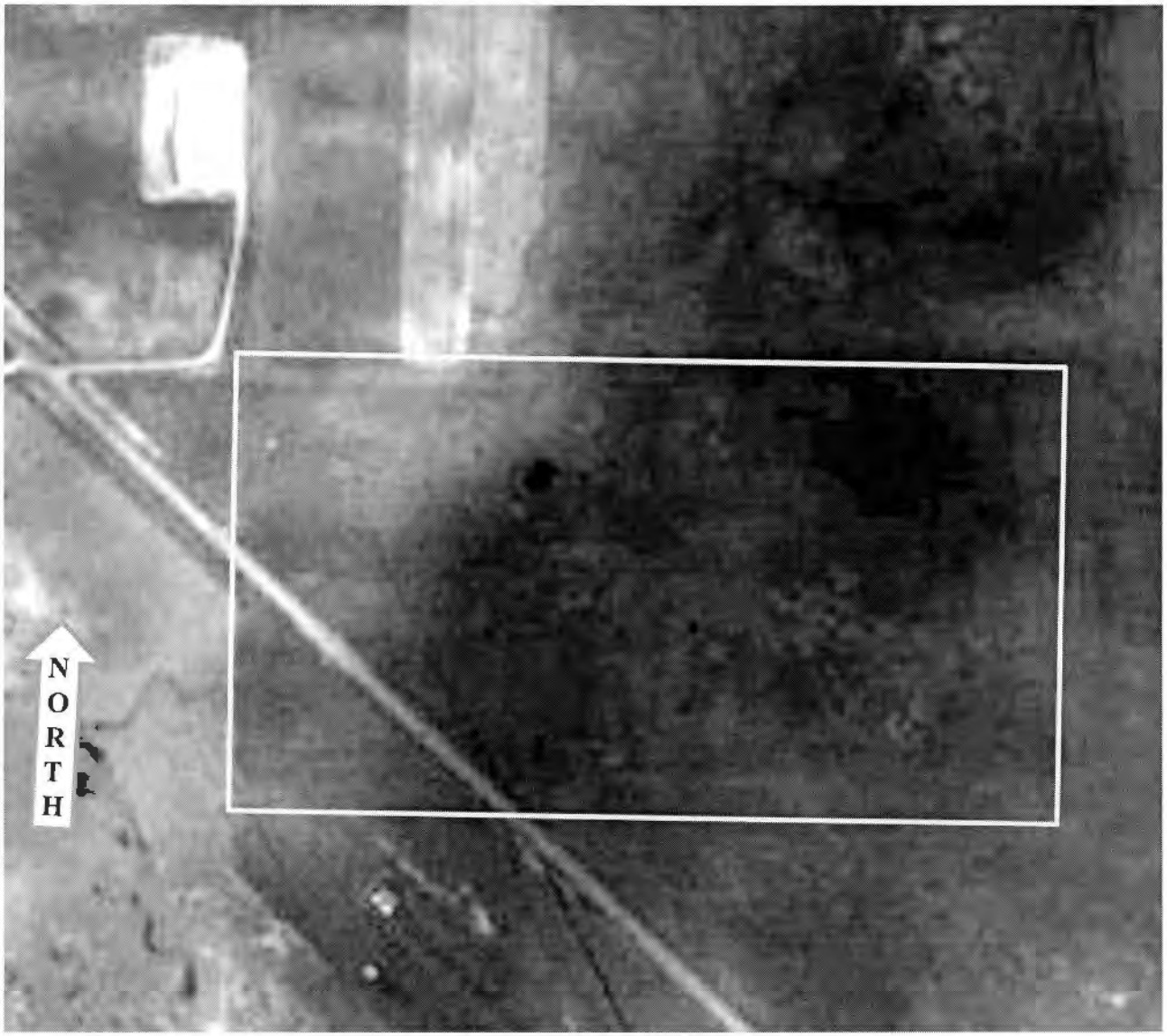

Project Area Prior to Development
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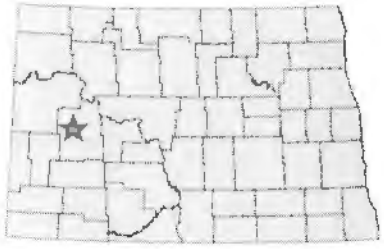
C-2 Construction, Inc. and Iron Man/Carroll Drilling, LLC
N. Half of NW Quarter – Section 10-T. 145 N. – R. 95 W.
Dunn County, North Dakota
Not to Scale



WPC, Inc.

Project Area Prior to Development
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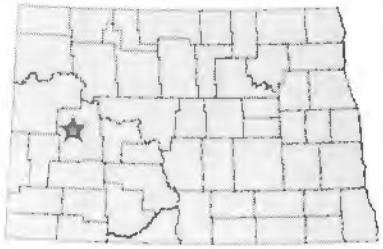
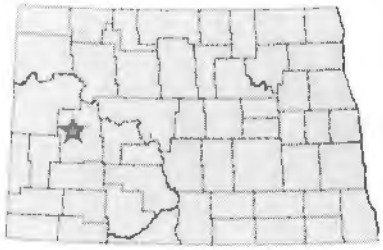
N. Half of NW Quarter – Section 10-T. 145 N. – R. 95 W.
Dnnn County, North Dakota
Not to Scale



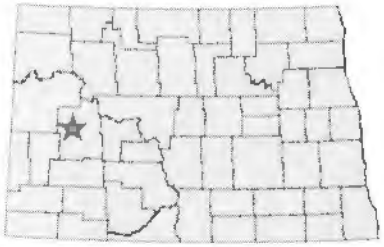
WPC, Inc.

Project Area Before Development
2003 USDA Aerial Photograph on Google Earth
C-2 Construction, Inc. and Iron Man/Carroll Drilling, LLC
N. Half of NW Quarter of Section 10-T. 145 N. – R. 95 W.
Dunn County, North Dakota



WPC, Inc.

Project Area Before Development
2005 USDA Aerial Photograph on Google Earth
C-2 Construction, Inc. and Iron Man/Carroll Drilling, LLC
N. Half of NW Quarter – Section 10-T. 145 N. – R. 95 W.
Dunn County, North Dakota



WPC, Inc.

Project Area Before Development
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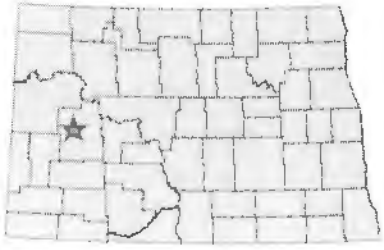
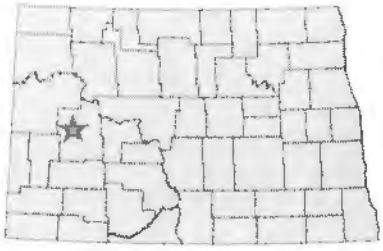
C-2 Construction, Inc. and Iron Man/Carroll Drilling, LLC
N. Half of NW Quarter – Section 10-T. 145 N. – R. 95 W.
Dunn County, North Dakota



WPC, Inc.

Projeet Area Before Development
2009 USDA Aerial Photograph on Google Earth
C-2 Construction, Inc. and Iron Man/Carroll Drilling, LLC
N. Half of NW Quarter – Seetion 10-T. 145 N. – R. 95 W.
Dunn County, North Dakota



WPC, Inc.

Project Area Before Development
2010 USDA Aerial Photograph on Google Earth
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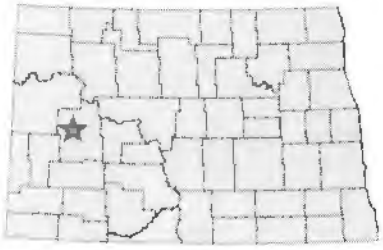
Dunn County, North Dakota



WPC, Inc.

Appendix G

MANUSCRIPT DATA RECORD FORM

1. Manuscript Number:

2. SHPO Reference #: 17-0056

3. Author(s): Damita Engel and Rebecca Wallace

4. Title: Western Plains Consulting Killdeer Wetland Restoration: A Class III Cultural Resource Inventory in Dunn County, North Dakota

5. Report Date: December 2016

6. Number of Pages: 38

7. Type: I

8. List formally tested or excavated sites (not probes): N/A

9. Acres: 20

10. Legal Location(s):

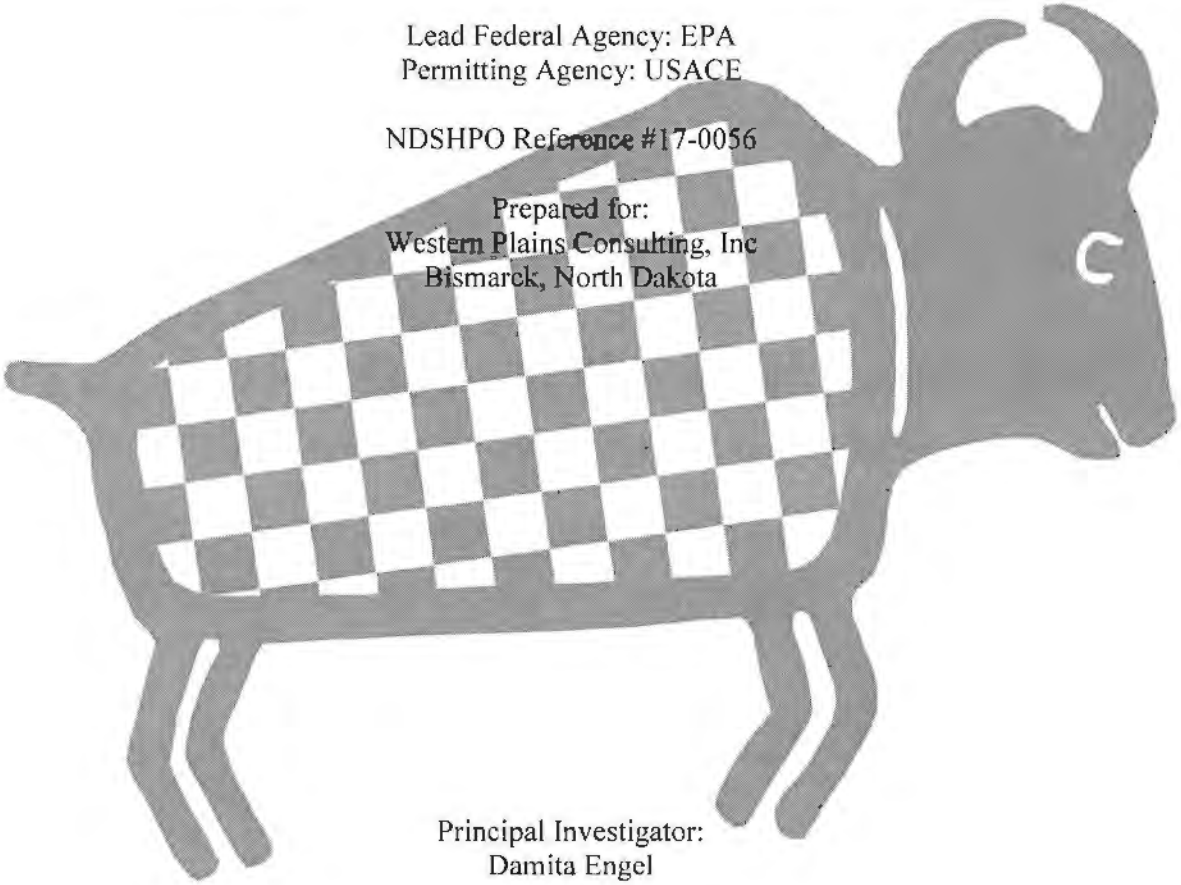
County	TWP	R	SEC	SU
Dunn	N145	W95	10	KN

WESTERN PLAINS CONSULTING
KILLDEER WETLAND RESTORATION:
A CLASS III CULTURAL RESOURCE INVENTORY
IN DUNN COUNTY, NORTH DAKOTA

Lead Federal Agency: EPA
Permitting Agency: USACE

NDSHPO Reference #17-0056

Prepared for:
Western Plains Consulting, Inc
Bismarck, North Dakota



Principal Investigator:
Damita Engel

Prepared by:
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Bismarck, North Dakota

December 2016

ABSTRACT

Western Plains Consulting, Inc. proposes to restore an area of wetland in Killdeer, North Dakota. Western Plains Consulting, Inc. contracted Metcalf Archaeological Consultants, Inc. to conduct a Class III cultural resource inventory for the proposed project. The Environmental Protection Agency is the lead federal agency; the United State Army Corps of Engineers is the permitting agency.

The cultural resource inventory was conducted between October 24 and 25, 2016 by Principal Investigator Damita Engel and Archaeological Technician Rebecca Wallace. The survey encompassed 20 acres and included three shovel probes and two soil profiles. Metcalf Archaeological Consultants, Inc. recorded one site, 32DU2339, an historic foundation and trash dump; and three precontact isolated finds: a projectile point (32DUx1462), a uniface fragment (32DUx1463), and a knife (32DUx1464).

Due to the potential for intact buried deposits near the current stream channel, Metcalf recommends archaeological monitoring during wetland restoration activities near 32DUx1462. A monitoring plan will be developed and adhered to by Metcalf Archaeological Consultants, Inc. and Western Plains Consulting, Inc. Provided that archaeological monitoring will take place during wetland restoration activities, a finding of *No Historic Properties Affected* (36CFR800.4[d][1]) is recommended for the undertaking.

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INTRODUCTION

Western Plains Consulting, Inc. (Western Plains) proposes to mitigate an alleged wetland violation. Western Plains contracted Metcalf Archaeological Consultants, Inc. (Metcalf) to conduct a Class III cultural resource inventory for the proposed project's area of potential effects (APE). Metcalf inventoried a 20-acre area centered on the disturbed areas. This project takes place on private land with federal involvement from the Environmental Protection Agency (EPA). The cultural resource inventory was conducted between October 24 and 25, 2016 by Principal Investigator Damita Engel and Archaeological Technician Rebecca Wallace. Metcalf recorded one site, an historic foundation and trash dump; and three precontact isolated finds.

THE UNDERTAKING LOCATION

The undertaking's APE is located in Dunn County, North Dakota, northwest of the community of Killdeer. The legal description is N 1/2 NW 1/4 Section 2, T. 145N, R. 95W. The project's general location is depicted in Figure 1 and the relevant portions of the project APE are depicted on the USGS 7.5' Oakdale (1974) quadrangle maps (Maps 1 and 2).

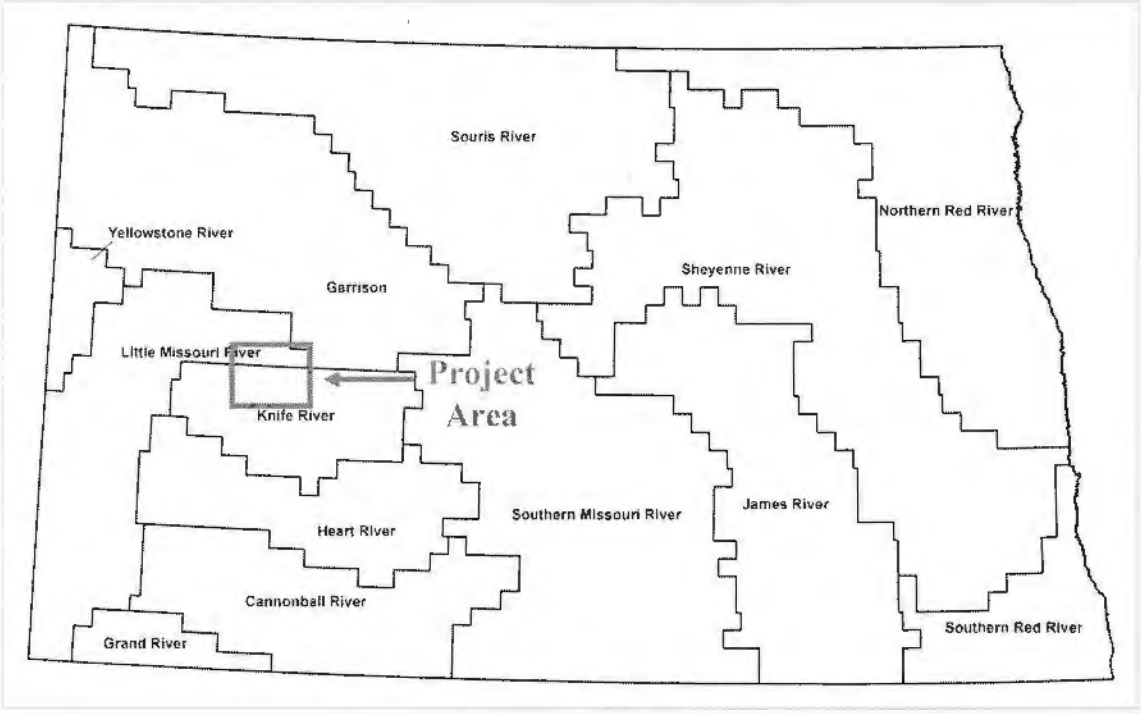
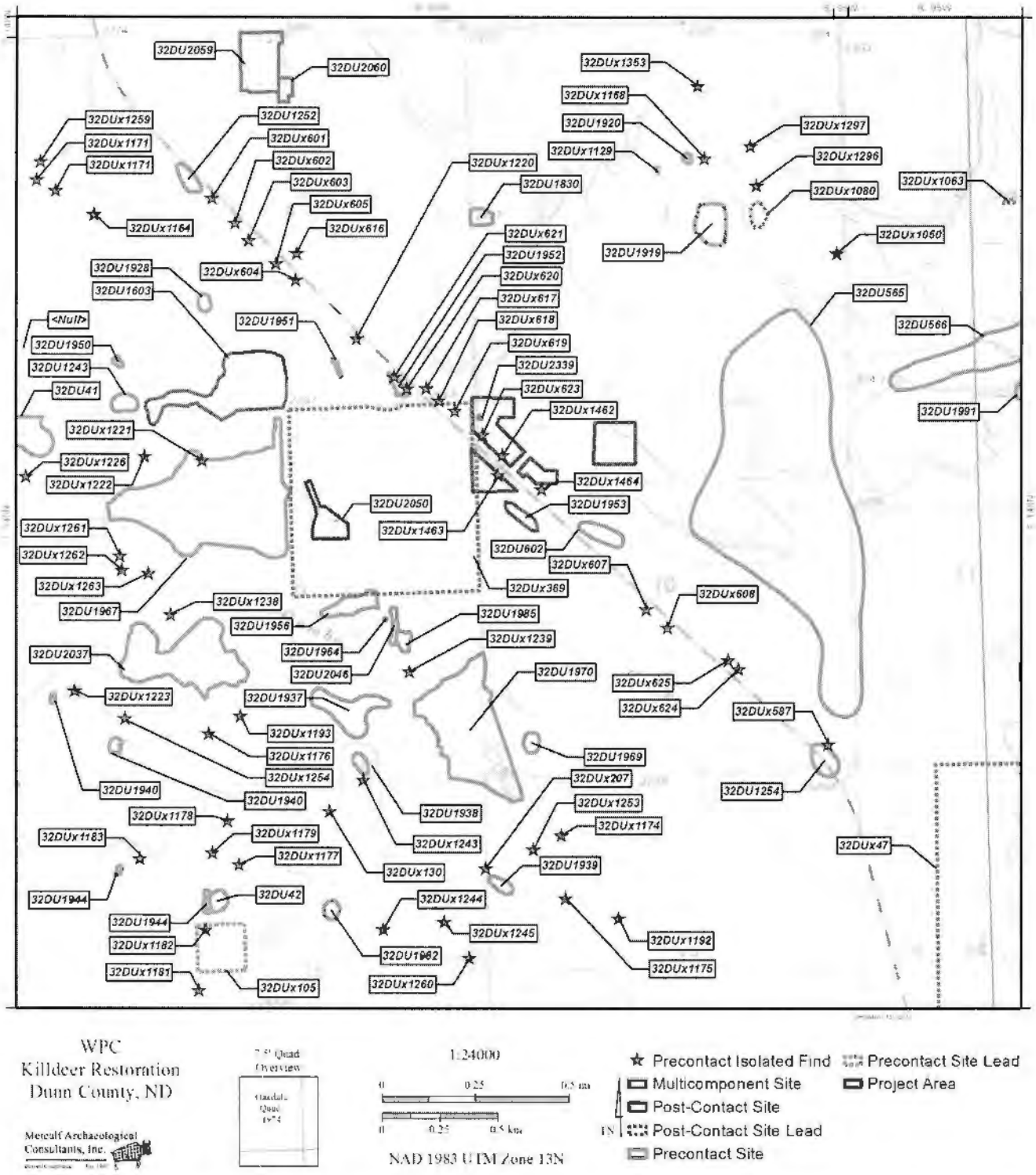
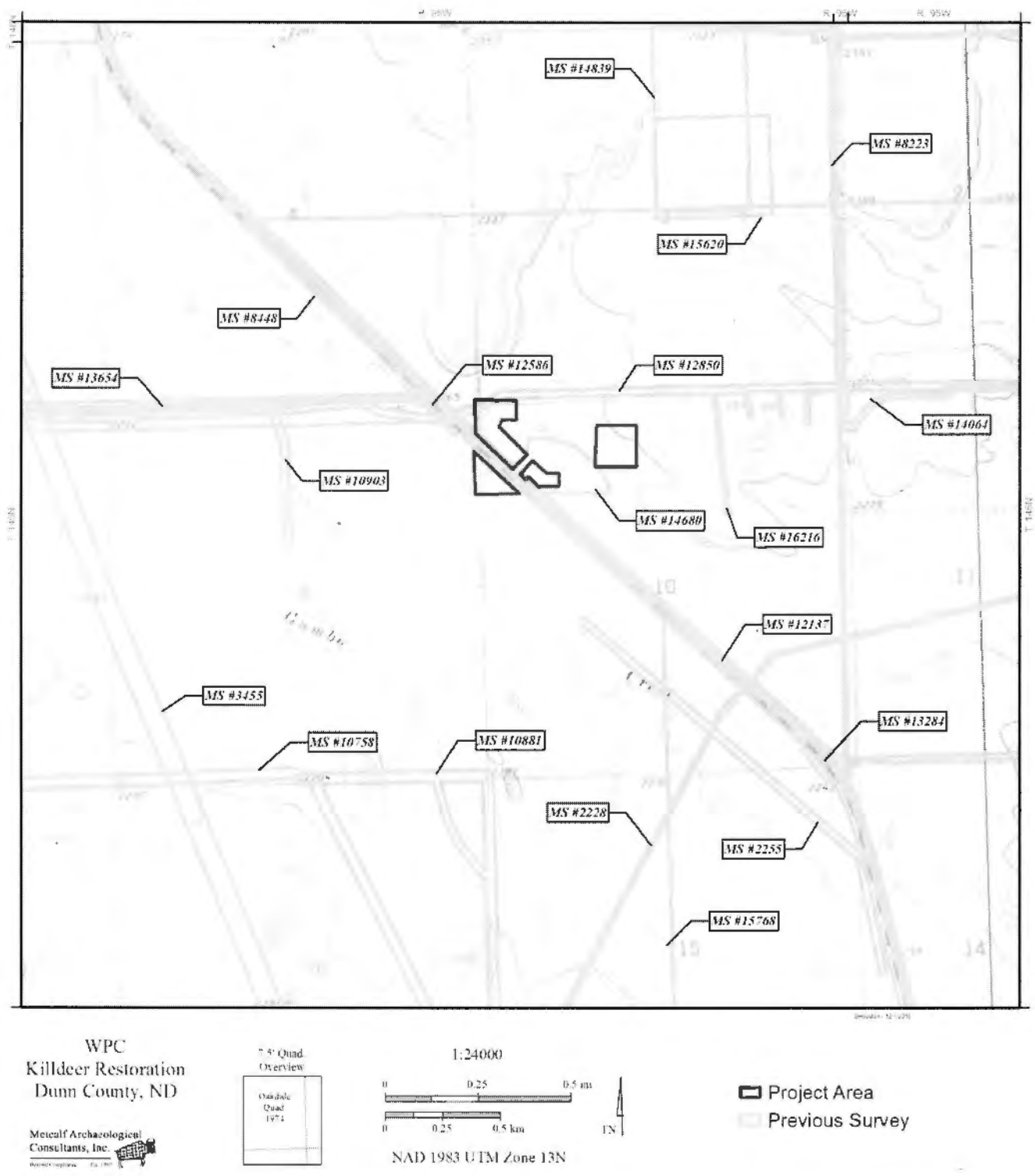


Figure 1: The general location of the project area depicted on a map of North Dakota.



Map 1: The location of the project APE and cultural resources depicted on the USGS 7.5' Oakdale (1974) quadrangle map.

Metcalf
Archaeological
Consultants, Inc.



Map 2: The location of the project APE and previous inventories depicted on the USGS 7.5' Oakdale (1974) quadrangle map.

PROJECT SETTING

Physiographically, the APE is in the Missouri Slope Upland of the Great Plains Physiographic Region (Bluemle 2000). Archaeologically, the proposed undertaking is in the Knife River Study Unit as defined in the *North Dakota Comprehensive Plan for Historic Preservation: Archeological Component* (SHSND 2008). Overviews of the area's physiography and archaeology are summarized in these two references.

The APE is located on the northeast and southwest side of North Dakota Highway 22 (ND 22). ND 22 splits the APE into two parts: an area of former wetland surrounding an intermittent stream to the northeast and another area of wetland where the intermittent stream drains into Gumbo Creek to the southwest. The Killdeer Mountains are located approximately 10 kilometers to the northwest. None of the original landform remains in the northeastern section of the APE, but the 1974 Oakdale 7.5' quadrangle map shows that it was formerly characterized by gentle southeast and northwest facing slopes on either side of the intermittent stream. The southwestern section has been least disturbed and is characterized by a moderate slope down into Gumbo Creek's floodplain.

Soils in the APE range from clay loams to fine sandy loams. The most prolific soil type is the Vebar-Tally fine sandy loams complex, characterized by a shallow plow horizon, a weakly developed B horizon, a BC horizon with carbonate accumulation, and regolith derived from calcareous sandstone. This complex is found on ridges and hills. The next most prolific is the Belfield-Morton silt loams complex, characterized by a shallow plow horizon, an E/B horizon, a natric B horizon, a carbonaceous B horizon, and regolith derived from fine-grained calcareous sedimentary rocks. This complex is found on flats and pediments. Approximately as prolific as the Belfield-Morton complex is the Daglum-Rhoades silt loams complex. It is characterized by a shallow plow horizon, an E horizon, a natric B horizon with accumulated silicate clays, a B horizon with accumulated evaporites, a BC horizon with accumulated carbonates, and regolith derived from fine-grained sedimentary rocks. This complex is found on hillslopes.

Figure 2: Soil coring efforts conducted by Western Plains (Image 121).

Concurrent with Metcalf's work, Western Plains was conducting a soil core survey (Figure 2). Observation of the soil cores indicated that intact sediments exist close to the stream that runs through the northwestern block of the APE. It appears as though sediment from the eastern side of the block were graded on top of the original ground surface near the stream to the west. Cores taken east of the road allowing access to the industrial park also showed buried soils.

There is one area of cattails and other wetland plants in the northeastern section of the APE, but otherwise the vegetation is composed of introduced grasses and forbs (Figure 3). Ground surface visibility (GSV) at the time of inventory was 60-90 percent. The southwestern section of the APE appears to be a mix of introduced vegetation, indicating previous cultivation (Figure 4). GSV was 0-30 percent.

Figure 3: View east over part of northeastern section of APE (Image 115).

Figure 4: View northwest over southwestern section of APE (Image 116).

FILES SEARCH

On October 21, 2016, prior to the Class III inventory, Metcalf staff Erica Scherr conducted a search of the site and manuscript files at the State Historical Society of North Dakota to determine if any cultural resources have been recorded or if any cultural resource inventories have been conducted within the APE and the surrounding mile.

The site files search revealed that 145 cultural resources have been recorded in the search area (Table A-1). These resources consist of eight architectural sites, three postcontact (historical) sites, one post-contact isolate, two post-contact site leads, nine multicomponent sites, 59 precontact (prehistoric/archaeological) sites, 59 precontact isolates, and four precontact site leads. Precontact isolated find 32DUx623 is the only site or isolate within the APE and is not eligible for inclusion in the National Register of Historic Places (NRHP).

The manuscript files search revealed that 28 cultural resource projects have been conducted in the search area (Table A-2). These projects consist of nine transportation surveys, five surveys for oil and gas exploration, five electrical transmission surveys, three miscellaneous surveys, one telecommunication survey, one survey for borrow and gravel exploration, one waterline survey, two evaluation and mitigation surveys, and one state project survey. Two inventories, MS #8448 and #14680, overlap the project's APE.

FIELD METHODS

The inventory conformed to North Dakota's guidelines for cultural resource inventories (SHSND 2012). The inventory employed a pedestrian transect methodology with transects spaced no more than 15 meters apart. This methodology was used to inventory the entire undertaking's APE. Metcalf thoroughly examined cutbank areas within each block which supplemented GSV.

During the course of the inventory, Metcalf used handheld GPS units to follow APE boundaries, took representative digital photographs, and maintained detailed field notes. When encountering a cultural resource, Metcalf photographed the resource(s), recorded measurements, took detailed notes, completed a North Dakota Cultural Resources Survey (NDCRS) form, created a field sketch map, and recorded information via a handheld GPS unit. Copies of all photos, NDCRS forms, maps, GPS data, and field notes are on file at the Metcalf Bismarck office.

RESULTS

Metcalf recorded one post-contact site and three precontact isolates during the course of this survey. None of the cultural resources are considered eligible for the NRHP.

32DU2339

Post-contact site 32DU2339 is situated in rolling uplands on the side of a draw overlooking Gumbo Creek to the south. It consists of a field stone foundation approximately 18 feet north-south by 24 feet east-west (Figures 5 through 7). The stones are of variable size and type, and appear to have been dry-stacked. On the eastern wall is an opening of appropriate size for a doorway. It is offset north, toward the northeastern corner of the structure. On the northern and southern walls are two additional openings, directly opposite each other and of approximately the same size, offset to the west. A free standing, hollow square foundation is located in the center of the structure, approximately 18 inches square. This foundation retains pieces of plaster surface on the lower portions. The foundation is filled with historic rubbish and the floor is no longer visible. Cultural materials observed within the foundation include a car chassis, a 1950s-era refrigerator, scrap metal (both bare iron and galvanized), lumber, rubber tires, steel and aluminum cans, glass jars, glass bottles, ceramics, plastic containers, pieces of a scanner, pieces of masonry, and a bone. Located approximately 50 meters northeast of the site (still within the APE) is a modern dump unassociated with the historic foundation.

Site 32DU2339 is in fair condition. It retains integrity of location, workmanship, and setting. Loss of superstructure and deterioration of the foundation along the south wall have affected integrity of materials and design to some extent, though the plan and function of the feature are discernible. Integrity of feeling has been compromised due to the loss of superstructure. Metcalf recommends 32DU2339 as *not eligible* for inclusion in the NRHP. It is found to lack association with events that have made significant contribution to the broad patterns of our history under Criterion A. A deed search found no association with historically significant persons under Criterion B (Table 1). The site does not represent significant characteristics of a type, period, or method of construction under Criterion C, and is unlikely to yield important information in reference to research questions under Criterion D.

Figure 5: Overview of 32DU2339, view south (Image 105).

Figure 6: Interior of 32DU2339, view southwest (Image 84).

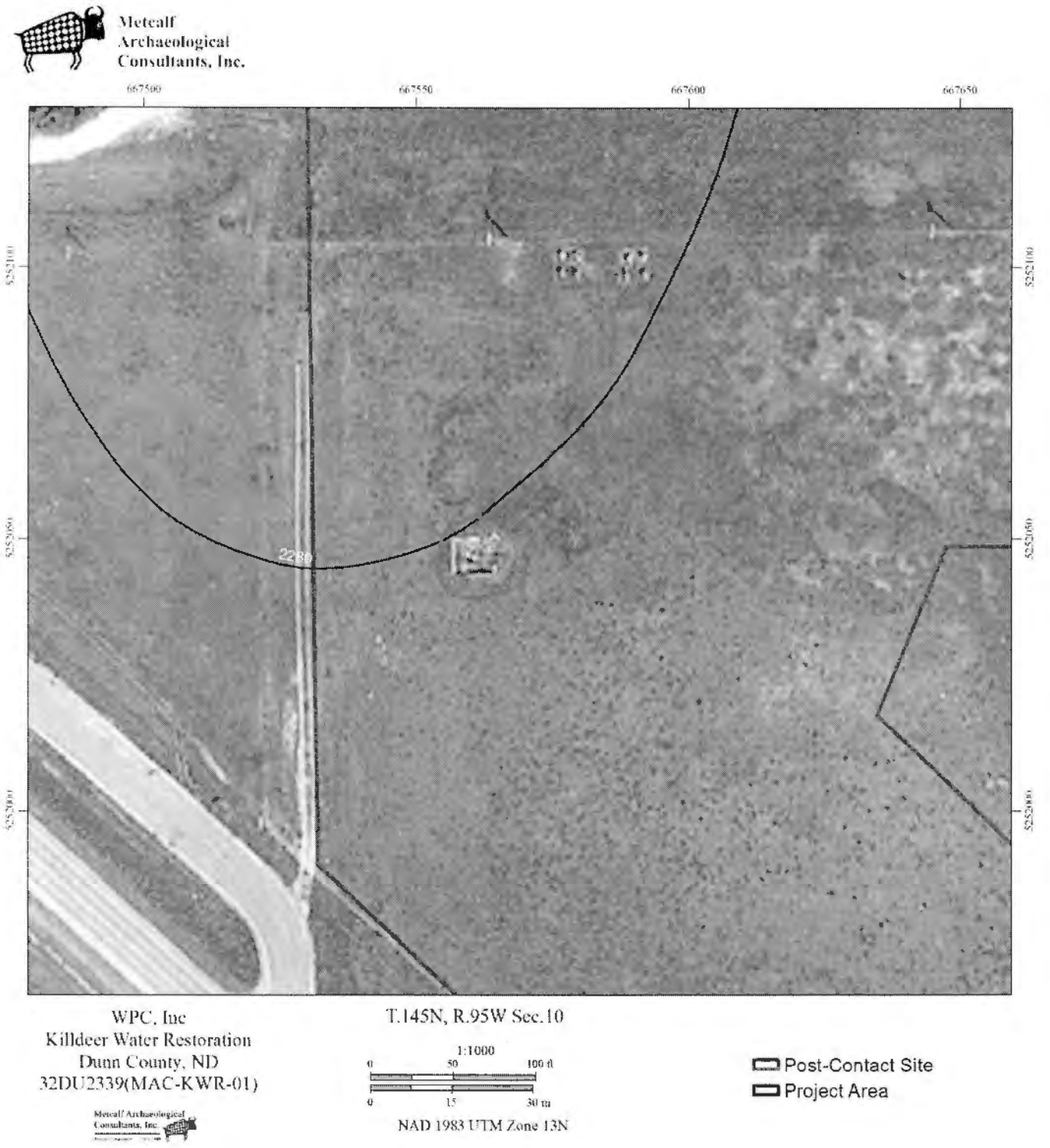


Figure 7: Sketch map of 32DU2339.

Table 1: Deed Search Results* for Site 32DU2339				
Grantor	**Grantee**	**Date of Original Signing**	**Document Type/ Transfer Type**	**Comments**
United States	James Mathias Schollmeyer	06/06/1912	Affidavit	
United States	James Mathias Schollmeyer	10/25/1917	Land patent	
Alwina Farner	James Mathias Schollmeyer Ella Hertzfeldt Otto C. Farner Arthur Farner Waldo C. Farner Edna Farner Wilma Engel	01/21/1953	Distribution	
Anna K. Farner	Elsie Kluthie Florence Dahl John Schaffner John Hohmann Donovan Hohmann Leonard Hohmann Melvin Hohmann Irvin Hohmann	07/11/1968	Distribution	
Arthur & Fannie Farner	Donald Bice	03/27/1970	Warranty	
Ella Hertzfeldt Otto C. Farner Arthur Farner Waldo C. Farner Edna Farner Wilma Engel	Donald Bice	04/14/1970	Warranty	
Otto C. Farner	Donald Bice	12/09/1970	Distribution	
Donald & Vernetta Bice	David & Gale Bice	10/06/1987	Warranty	
David & Gale Bice	Jeff & Kristy McKinlay	11/28/2011	Warranty	
Jeff & Kristy McKinlay	Iron Man Enterprises & Carroll Drilling	01/09/2012	Warranty	

*The deeds search was completed at Dunn County Recorder in Manning, North Dakota. The names were compared with the North Dakota Biography Index database and, when appropriate, names and documents were also searched at the State Archives at the State Historical Society of North Dakota in Bismarck, North Dakota.

Project: Killdeer Wetland Restoration
Site Number: 32DU2339
Legal Location: NW1/4 NW1/4 NW1/4 Sec 10 Twp 145W R 95N
Date of Deed Search: 10/25/2016
Names: Damita Engel and Rebecca Wallace

32DUx1462

Precontact isolate 32DUx1462 was observed in a heavily infilled stream bed. The find is located in a scoria wash within an intermittent stream that feeds into Gumbo Creek to the southeast in the Knife River drainage system (Figures 8-9). GSV at the time of inventory was 80-100 percent. The artifact assemblage consists of one incomplete Knife River flint projectile point (Table 2). Typology dates the point to the Late Prehistoric, Plains Nomadic Period. The point is missing only the tip. It measures 26.6 mm long by 15.9 mm wide by 3.5 mm thick. The point is well-patinated on the obverse side and minimally patinated on the reverse side. It was collected and returned to the landowner.

Metcalf recommends 32DUx1462 as *not eligible* for inclusion in the NRHP. It is found to lack association with events and/or people that have made significant contribution to the broad patterns of our history under Criteria A and B. There is no architecture present to evaluate under Criterion C. The location has been heavily disturbed with low potential for any intact buried deposits that may yield information important to our understanding of local, regional, or national history under Criterion D.

Table 2: Projectile Point Measurements for Killdeer Wetland Restoration and Precontact Isolate 32DUx1462

Length (mm)	Actual	26.6
	Estimated unbroken	32.2
Width (mm)	Shoulder	15.9
	Neck	12.9
	Base	15.9
Thickness (mm)		3.5
Mass (g)		1.8

Figure 8: Overview of 32DUx1462, view north (Image 82).

Figure 9: Projectile point (Image 695).

32DUx1463

Precontact isolate 32DUx1463 was observed in an area with introduced vegetation, indicating previous cultivation. The find is located on top of a small knoll in an area of rolling uplands in the Knife River drainage system (Figures 10 and 13). It is in close proximity (approximately three meters) to the right-of-way for ND 22. GSV at the time of inventory was approximately 20-30 percent. The artifact assemblage consists of one partial Knife River flint uniface of size grade 1 (SG 1), one simple SG 3 tertiary flake, and one complex SG 3 tertiary flake. Three shovel probes were placed in the vicinity of isolated find 32DUx1463 due to poor GSV (Table 3). Only one of these probes was positive for cultural material. Shovel Probe 1 (SP 1) was excavated at the location of the uniface; two flakes were found between 10 and 30 centimeters below the surface in SP 1 (Figure 11). SP 2 was placed approximately 10 meters southwest of SP 1, on the side of the small knoll, and was negative (Figure 12). SP 3 was placed approximately 10 meters southeast of SP 1 and was negative.

Table 3: Shovel Probe Results for Site 32DUx1463

Probe #	Results	Depth (cmbs)	Description	Artifacts
1	Positive	0-10	Organics; SL, 10YR5/3-4/3	1 simple SG 3 tertiary flake 1 complex SG 3 tertiary flake
		10-47	SiS, 10YR5/2	
		47-50	CL, mottled 10YR5/2 and 6/2	
2	Negative	0-10	Organics; SL	N/A
		10-39	SL (more silt than layer above)	
		39-58	SL (more clay than layers above)	
		58-63	CL, mottled	
3	Negative	0-10	Organics; SL, 10YR3/2	N/A
		10-18	SL, 10YR3/2	
		18-30	SL, 10YR4/3	
		30-34	Krotovina	
		34-62	S, 10YR5/3 fading to 6/2	

Munsell colors:
10YR3/2 Very Dark Grayish Brown
10YR4/2 Dark Grayish Brown
10YR5/2 Grayish Brown
10YR6/2 Light Brownish Gray
10YR4/3 Brown
10YR5/3 Brown

Soil textures:
S- Sand
SL- Sandy Loam
SiS- Silty Sand
CL- Clay Loam

Metcalf recommends 32DUx1463 as *not eligible* for inclusion in the NRHP. It is found to lack association with events and/or people that have made significant contribution to the broad patterns of our history under Criteria A and B. There is no architecture present to evaluate under Criterion C. There is low potential for undisturbed sediments that may yield information important to our understanding of local, regional, or national history under Criterion D.

Figure 10: Overview of 32DUx1463, view northwest (Image 116).

Figure 11: SP 1, 32DUx1463 (Image 122).

Figure 12: SP 2, 32DUx1463 (Image 124).

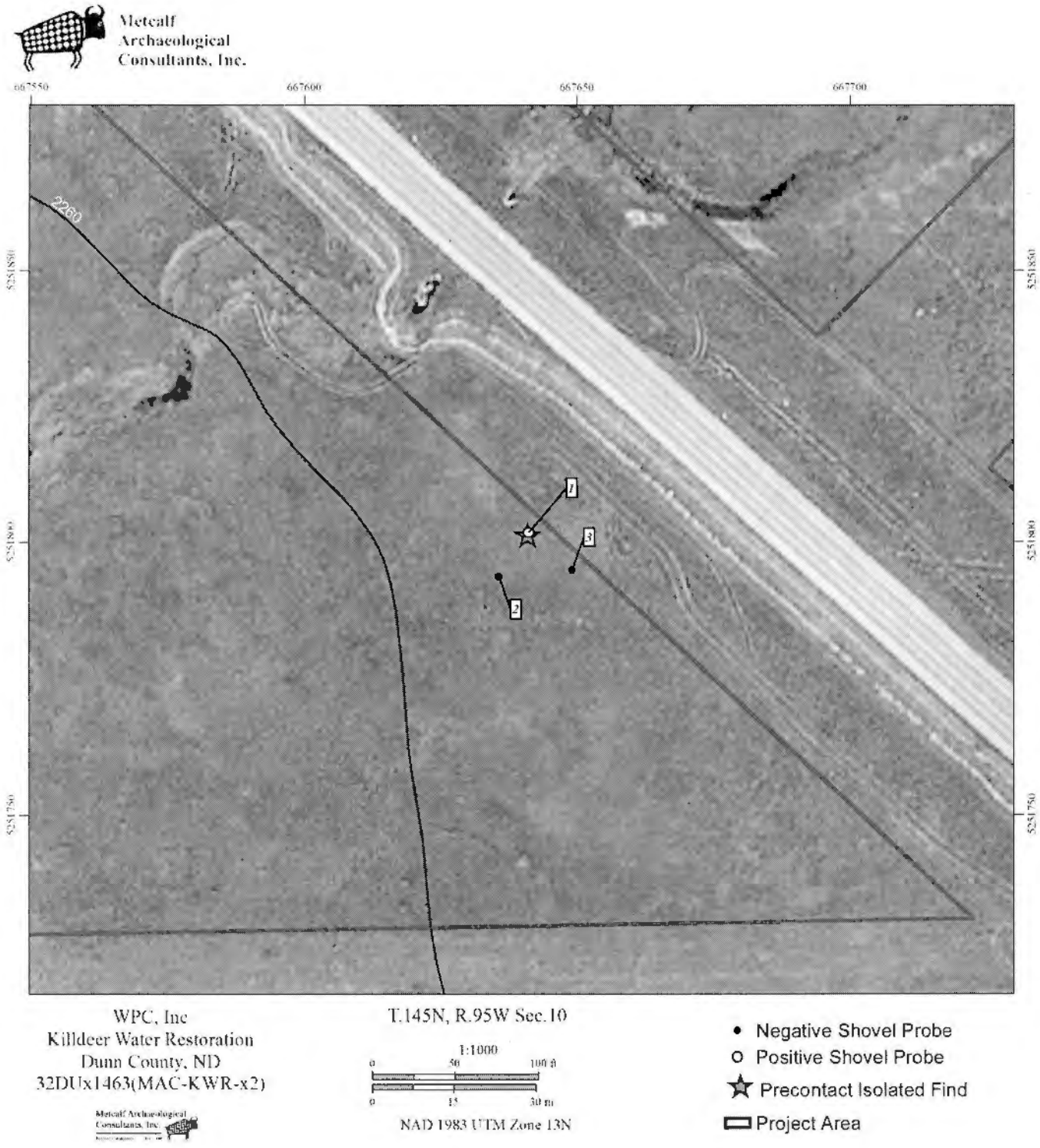


Figure 13: Sketch map of 32DUx1463.

32DUx1464

Precontact isolate 32DUx1464 was found by the client in an artificially created stream wash in an area of rolling uplands in the Knife River drainage system. The find is located within an erosional feature resulting from leveling of the landform in advance of its development into an industrial park (Figures 14 through 17, 19). None of the original sediments remain undisturbed. GSV at the time of inventory was 70-100 percent. The isolate is one complete Knife River flint knife/projectile point. Typology dates the knife/projectile point to the Middle Plains Archaic Hanna Complex. The knife is approximately 8 cm long by 3 cm wide by 1 cm thick. The thickest part of the tool is due to step fracturing during thinning; the majority of the tool is 0.5 cm thick. It was collected and will be returned to the landowner. Soil profiles were recorded in the cutbank east and west of the find (Table 4, Figure 18). Both profiles showed no sign of cultural material and heavy disturbance from slumping.

Table 4: Soil Profile Results for Site 32DUx1464

Profile #	Results	Depth (cmbs)	Description	Artifacts
1	Negative	0-4	Organics; SL, 10YR3/2	N/A
		4-10	SL, 10YR5/2	
		10-20	Krotovina	
		20-62	S,10YR5/2 fading to 6/2; very wet just above contact with below	
		62-72	S, 10YR6/1	
2	Negative	0-3	Organics; SL, 10YR3/2	N/A
		3-14	S, 10YR3/3	
		14-70	S, 10YR6/1-6/2	

Munsell colors:
10YR3/2 Very Dark Grayish Brown 10YR3/3 Dark Brown 10YR6/1 Gray
10YR5/2 Grayish Brown
10YR6/2 Light Brownish Gray

Soil textures:
SL- sandy loam
SiS- silty sand
Cl- clay
CL- clay loam

Metcalf recommends 32DUx1464 as *not eligible* for inclusion in the NRHP. It is found to lack association with events and/or people that have made significant contribution to the broad patterns of our history under Criteria A and B. There is no architecture present to evaluate under Criterion C. There is low potential for undisturbed sediments that may yield information important to our understanding of local, regional, or national history under Criterion D.

Figure 14: Overview of 32DUx1464, view east (Image 133).

Figure 15: Obverse view knife/projectile point (Image 63).

Figure 16: Reverse view knife/projectile point (Image 72).

Figure 17: Lateral edge view of knife/projectile point, showing thickness (Image 142).

Figure 18: Soil Profile 1 (Image 126).

Figure 19: Sketch map of 32DUx1464.

RECOMMENDATIONS

During the inventory, Metcalf archaeologists recorded one post-contact site, 32DU2339 and three precontact isolated finds: 32DUx1462; 32DUx1463; and 32DUx1464. All of the cultural resources are recommended *not eligible* for the NRHP.

Due to the potential for intact buried deposits near the in-filled wetland, Metcalf recommends archaeological monitoring during wetland restoration activities near 32DUx1462. A monitoring plan will be developed and adhered to by Metcalf and Western Plains Consulting. Provided that archaeological monitoring will take place during wetland restoration activities, a finding of *No Historic Properties Affected* (36CFR800.4[d][1]) is recommended for the undertaking.

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APPENDIX A: FILES SEARCH RESULTS

Table A1: Site Files Search Results – WPC – Killdeer Wetland Restoration				
T/R-Section	**SITS #**	**Site Type-Description**	**Recorder, Date**	**MS #**
14S/09S-02	32DU0566	Archaeological-cultural material scatter-chipped stone	Simon, 1979; Anderson, 2013	002229, 002564, 002902, 008223, 012850, 013319, 014064, 015768
	32DU1817	Historical-foundation	Engel, 2012	
	32DU1818	Archaeological-cultural material scatter-chipped stone	Engel, 2012; Anderson, 2013	
	32DU1991	Archaeological-cultural material scatter-chipped stone	Anderson, 2013	
	32DUx1063	Historical-site lead: depression, cultural material scatter- glass	Engel, 2012	
	32DUx1212	Historical-isolated find: metal, wood	Anderson, 2013	
14S/09S-03	32DU0565	Archaeological-cultural material scatter-projectile point, chipped stone, ground stone	Jessen, 1980; Ritterbush, 1982; Bluemle, 2002; Cox/Miller, 2015	002564, 008223, 012850, 013319, 014064, 014839, 015620, 015768
	32DU1830	Archaeological-cultural material scatter-chipped stone	Stine, 2012; Mueller, 2013	
	32DU1919	Archaeological-cultural material scatter-fire cracked rock, chipped stone, ground stone	Engel, 2012; Banks/Bluemle, 2013; Pierce, 2014	
	32DU1920	Archaeological-cultural material scatter-chipped stone	Bluemle/Banks, 2013; Pierce, 2014	
	32DUx1050	Archaeological-isolated find: chipped stone	Macy, 2012	
	32DUx1080	Archaeological-site lead: cultural material scatter- chipped stone	Stine, 2012; Kinsey, 2014	
	32DUx1129	Archaeological-site lead: cultural material scatter- chipped stone	Bluemle/Banks, 2013; Pierce, 2014	
	32DUx1168	Archaeological-isolated find: chipped stone	Mueller, 2013 Pierce, 2014	
	32DUx1296	Archaeological-isolated find: chipped stone	Kinsey, 2014	
	32DUx1297	Archaeological-isolated find: chipped stone	Kinsey, 2014	
	32DUx1353	Archaeological-isolated find: projectile point	Harty, 2014	
14S/09S-04	32DU1243	Archaeological-cultural material scatter-chipped stone	Bluemle, 2002; Kinneer, 2013	008223, 008448, 012586, 013654, 015768
	32DU1252	Archaeological-cultural material scatter-chipped stone (site not observed during 2012 survey)	Morrison, 2002; Kinsey, 2012	
	32DU1603	Multicomponent site: Archaeological-cultural material scatter- projectile point, chipped stone, Architectural-storage structure, windmill base, Historical-machinery, cultural material scatter-glass, masonry, metal, plastic, rubber, wood	Whiteman/Lonski/ Jackson, 2011; Kinneer/Plimpton, 2013	
	32DU1928	Archaeological-cultural material scatter-chipped stone	Mueller, 2013	
	32DU1950	Archaeological-cultural material scatter-chipped stone	Kinneer, 2013	

Table A1: Site Files Search Results – WPC – Killdeer Wetland Restoration				
T/R-Section	**SITS #**	**Site Type-Description**	**Recorder, Date**	**MS #**
	32DU1951	Archaeological-cultural material scatter-chipped stone	Kinneer, 2013	
	32DU1952	Archaeological-cultural material scatter-chipped stone	Kinneer, 2013	
	32DU2059	Architectural-farmstead	Weishar/Wright, 2013	
	32DU2060	Architectural-farmstead	Weishar, 2013	
	32DUx0601	Archaeological-isolated find: chipped stone	Potter, 2002; Mueller, 2013	
	32DUx0602	Archaeological-isolated find: chipped stone	Potter, 2002; Mueller, 2013; Harty, 2014	
	32DUx0603	Archaeological-isolated find: chipped stone	Potter, 2002	
	32DUx0604	Archaeological-isolated find: chipped stone	Potter, 2002; Mueller, 2013	
	32DUx0605	Archaeological-isolated find: chipped stone	Potter, 2002; Mueller, 2013	
	32DUx0616	Archaeological-isolated find: chipped stone	Potter, 2002	
	32DUx0617	Archaeological-isolated find: chipped stone	Potter, 2002	
	32DUx0618	Archaeological-isolated find: chipped stone	Potter, 2002	
	32DUx0620	Archaeological-isolated find: chipped stone	Potter, 2002	
	32DUx0621	Archaeological-isolated find: chipped stone	Potter, 2002	
	32DUx1220	Archaeological-isolated find: chipped stone	Kinneer, 2013	
145/095-09	32DU1603	Multicomponent site: Archaeological-cultural material scatter- chipped stone, projectile point, Architectural-farm building, Historical-machinery, cultural material scatter- glass, masonry, metal, plastic, rubber, wood	Whitman/Lonski/ Jackson, 2011; Plimpton/Kinneer, 2013	002229, 003455, 008223, 008448, 010758, 010881, 010903, 012586, 012850, 013654, 015768
	32DU1937	Archaeological-cultural material scatter-chipped stone	Albright, 2013	
	32DU1938	Archaeological-depression, cultural material scatter- chipped stone	Albright, 2013	
	32DU1940	Archaeological-cultural material scatter-chipped stone	Albright, 2013	
	32DU1956	Archaeological-cultural material scatter-chipped stone	Kinneer, 2013	
	32DU1964	Historical-Sully Expedition Killdeer Mountains, grave, historic marker, welded pipe fence, human remains, cultural material scatter- metal *contains site 32DUx0369	Thorson, 1980; Kinneer, 2013	
	32DU1967	Archaeological-cultural material scatter-projectile point, chipped stone, ground stone (includes 32DUx756 and 32DUx758)	Hiemstra, 2009; Kinneer, 2013	

Table A1: Site Files Search Results – WPC – Killdeer Wetland Restoration				
T/R-Section	**SITS #**	**Site Type-Description**	**Recorder, Date**	**MS #**
	32DU1970	Archaeological-cultural material scatter-ash lens, charcoal, chipped stone	Albright, 2013	
	32DU1985	Archaeological-cultural material scatter-chipped stone	Mueller, 2013	
	32DU2046	Archaeological-cultural material scatter-chipped stone	Mark, 2013	
	32DU2050	Multicomponent site: Archaeological-cultural material scatter- chipped stone, Architectural-farmstead, Historical-foundation, cultural material scatter-ceramics, glass, metal	Kinneer/Plimpton, 2013	
	32DU2073	Archaeological-cultural material scatter-projectile point, chipped stone	Hetland, 1982; Kinneer, 2013	
	32DUx0618	Archaeological-isolated find: chipped stone	Potter, 2002	
	32DUx0619	Archaeological-isolated find: chipped stone (site not observed during 2013 survey)	Potter, 2002; Kinneer, 2013	
	32DUx1176	Archaeological-isolated find: chipped stone	Albright, 2013	
	32DUx1193	Archaeological-isolated find: chipped stone	Albright, 2013	
	32DUx1221	Archaeological-isolated find: chipped stone	Kinneer, 2013	
	32DUx1222	Archaeological-isolated find: chipped stone	Kinneer, 2013	
	32DUx1238	Archaeological-isolated find: chipped stone	Kinneer, 2013	
	32DUx1239	Archaeological-isolated find: chipped stone	Kinneer, 2013	
	32DUx1243	Archaeological-isolated find: chipped stone	Lux, 2013	
	32DUx1254	Archaeological-isolated find: chipped stone	Albright, 2013	
	32DUx1261	Archaeological-isolated find: chipped stone	Kinneer, 2013	
	32DUx1262	Archaeological-isolated find: chipped stone	Kinneer, 2013	
	32DUx1263	Archaeological-isolated find: chipped stone	Kinneer, 2013	
145/095-10	32DU0565	Archaeological-cultural material scatter-chipped stone, ground stone, projectile point	Jessen, 1980; Ritterbush, 1982; Bluemle, 2002; Cox/Miller, 2015	002228, 002229, 002255, 008223, 008448, 012137, 012850, 013284, 013319, 014064, 014680, 015768, 016216
	32DU0602	Archaeological-cultural material scatter-ceramics, projectile point, chipped stone, Paleo projectile point	Freese, 1981; Morrison, 2002	
	32DU1254	Archaeological-cultural material scatter-chipped stone	Morrison, 2002	

Table A1: Site Files Search Results – WPC – Killdeer Wetland Restoration				
T/R-Section	**SITS #**	**Site Type-Description**	**Recorder, Date**	**MS #**
	32DU1953	Multicomponent site: Archaeological-cultural material scatter- chipped stone, Historical-cultural material scatter-ceramics, glass	Kinneer, 2013	
	32DU1969	Archaeological-cairn, cultural material scatter- chipped stone	Albright, 2013	
	32DU1970	Archaeological-cultural material scatter-ash lens, charcoal, chipped stone	Albright, 2013	
	32DUx0587	Archaeological-isolated find: chipped stone	Bluemle, 2002	
	32DUx0607	Archaeological-isolated find: chipped stone (site not observed during 2013 survey)	Potter, 2002; Kinneer, 2013	
	32DUx0608	Archaeological-isolated find: chipped stone (site not observed during 2013 survey)	Potter, 2002; Kinneer, 2013	
	32DUx0623	Archaeological-isolated find: chipped stone	Potter, 2002	
	32DUx0624	Archaeological-isolated find: chipped stone	Potter, 2002; Christensen, 2011	
	32DUx0625	Archaeological-isolated find: chipped stone	Potter, 2002: Christensen, 2011	
145/095-11	32DU0565	Archaeological-cultural material scatter-chipped stone, ground stone, projectile point	Jessen, 1980; Ritterbush, 1982; Bluemle, 2002; Cox/Miller, 2015	002228, 002229, 013319, 014064, 015768
	32DU0566	Archaeological-cultural material scatter-chipped stone	Simon, 1979; Anderson, 2013	
	32DU1990	Archaeological-cultural material scatter-chipped stone	Anderson, 2013	
	32DU1991	Archaeological-cultural material scatter-chipped stone	Anderson, 2013	
	32DU1992	Archaeological-cultural material scatter-chipped stone	Anderson, 2013	
	32DU1994	Archaeological-cultural material scatter-chipped stone	Anderson, 2013	
	32DU2021	Multicomponent site: Archaeological-stone feature, cultural material scatter-chipped stone, Historical-dump, cultural material scatter- ceramics, glass, metal, rubber, wood	Kinneer, 2013	
	32DU2062	Architectural-farmstead, Historical-foundation	Weishar, 2013	
	32DUx1151	Archaeological-site lead: chipped stone	Anderson, 2013	
145/095-14	32DU0036	Archaeological-quarry, cultural material scatter- chipped stone (cultural material scatter not found in 2005)	Samuelson, 1980; Jessen, 1980; Pearson/Montgomery, 1981; Kordecki, 2005	002255, 006049, 008223, 008448, 009561, 010128, 013319, 013580, 014064, 014398, 015768
	32DU0791	Architectural-bridge (replaced in 1989)	Dowdy, 1987; Kulevsky, 2003; Kinneer, 2013	

Table A1: Site Files Search Results – WPC – Killdeer Wetland Restoration				
T/R-Section	SITS #	Site Type-Description	Recorder, Date	MS #
	32DU0793	Multicomponent site: Archaeological-cultural material scatter- chipped stone. Historical-well, masonry	Dowdy, 1987; Kinneer, 2013	
	32DU1079	Archaeological-cultural material scatter-chipped stone	Borchert/Blikre, 1993; Kinneer, 2013	
	32DU1080	Archaeological-cultural material scatter-fire cracked rock, chipped stone	Borchert/Blikre, 1993; Kinneer, 2013	
	32DU1081	Archaeological-cultural material scatter-chipped stone	Borchert/Blikre, 1993; Kinneer, 2013	
	32DU1082	Archaeological-cultural material scatter-chipped stone	Borchert/Blikre, 1993; Kinneer, 2013	
	32DU1083	Archaeological-cultural material scatter-chipped stone	Borchert/Blikre, 1993; Kinneer, 2013	
	32DU1084	Archaeological-cultural material scatter-chipped stone, projectile point	Borchert/Blikre, 1993; Kinneer, 2013	
	32DU1085	Archaeological-cultural material scatter-chipped stone (site destroyed-2013)	Borchert/Blikre, 1993; Kinneer, 2013	
	32DU1086	Archaeological-cultural material scatter-chipped stone, fire cracked rock, projectile point	Borchert/Blikre, 1993; Kinneer, 2016	
	32DU1211	Architectural-St. John's Lutheran Church	Ford-Dunker, 1999	
	32DU1232	Architectural-bridge	Hufstetler/ McCormick, 2000; Kinneer, 2013	
	32DU1272	Architectural-residence	Hafermehl, 2002	
	32DU1295	Historical-Burlington Northern Railroad, earthworks, rail grade, trail, wood	Wermers, 2004; Jackson, 2014	
	32DU1305	Architectural-bridge (replaced-2013)	Kordecki, 2005; Kinneer, 2013	
	32DU2012	Archaeological-cultural material scatter-chipped stone	Kinneer, 2013	
	32DU2014	Archaeological-cultural material scatter-chipped stone	Kinneer, 2013	
	32DU2021	Multicomponent site: Archaeological-cultural material scatter- chipped stone, Historical-dump, cultural material scatter-ceramics, glass, metal, rubber, wood	Kinneer, 2013	
	32DU2023	Multicomponent site: Archaeological-cultural material scatter- chipped stone, Historical-cultural material scatter- glass, masonry, metal, wood	Kinneer, 2013	
	32DU2024	Multicomponent site: Archaeological-cultural material scatter- chipped stone, Historical- cultural material scatter-ceramics, glass, metal, wood	Kinneer, 2013	
	32DU2025	Archaeological-cultural material scatter-chipped stone	Kinneer, 2013	
	32DU2026	Archaeological-cultural material scatter-chipped stone	Kinneer, 2013	
	32DU2027	Archaeological-cultural material scatter-chipped stone	Kinneer, 2013	

Table A1: Site Files Search Results – WPC – Killdeer Wetland Restoration				
T/R-Section	SITS #	Site Type-Description	Recorder, Date	MS #
	32DU2028	Archaeological-cultural material scatter-chipped stone	Kinneer, 2013	
	32DU2029	Archaeological-cultural material scatter-chipped stone	Kinneer, 2013	
	32DUx0047	Historical-site lead: unknown	Benson, 1980	
	32DUx0532	Archaeological-isolated find: chipped stone	Borchert/Blikre, 1993; Lux, 2013	
	32DUx1232	Archaeological-isolated find: chipped stone	Kinneer, 2013	
	32DUx1241	Archaeological-isolated find: chipped stone	Kinneer, 2013	
145/095-15	32DU1254	Archaeological-cultural material scatter-chipped stone	Morrison, 2002	002228, 002255, 008223, 008448, 010881, 013319, 013284, 015768
	32DU1939	Archaeological-cultural material scatter-chipped stone	Albright, 2013	
	32DU1966	Archaeological-cultural material scatter-projectile point, chipped stone	Anderson, 2013	
	32DU1970	Archaeological-ash lens, cultural material scatter- chipped stone	Albright, 2013	
	32DU1975	Multicomponent site: Archaeological-cultural material scatter- chipped stone, Historical-collapsed cairn, cultural material scatter- ceramics, glass, metal	Anderson, 2013	
	32DU1977	Multicomponent site: Archaeological-cultural material scatter- chipped stone, Historical-cultural material scatter- metal, wood	Anderson, 2013	
	32DUx1174	Archaeological-isolated find: chipped stone	Albright, 2013	
	32DUx1175	Archaeological-isolated find: chipped stone	Albright, 2013	
	32DUx1192	Archaeological-isolated find: chipped stone	Albright, 2013	
	32DUx1200	Archaeological-isolated find: chipped stone	Anderson, 2013	
	32DUx1201	Archaeological-isolated find: chipped stone	Anderson, 2013	
	32DUx1202	Archaeological-isolated find: chipped stone	Anderson, 2013	
	32DUx1253	Archaeological-isolated find: chipped stone	Albright, 2013	
145/095-16	32DU0042	Archaeological-cultural material scatter-chipped stone	Root, 1980; Kordecki, 1983; Albright, 2013	002228, 002229, 003455, 010758, 010881, 015768
	32DU0043	Archaeological-cultural material scatter-chipped stone	Jessen, 1980; Root, 1980; Kordecki, 1983; Anderson, 2013	
	32DU1944	Archaeological-cultural material scatter-chipped stone	Albright, 2013	
	32DU1945	Archaeological-cultural material scatter-chipped stone	Albright, 2013	

Table A1: Site Files Search Results – WPC – Killdeer Wetland Restoration				
T/R-Section	SITS #	Site Type-Description	Recorder, Date	MS #
	32DU1962	Archaeological-cultural material scatter-chipped stone	Lux, 2013	
	32DU1970	Archaeological-ash lens, cultural material scatter- charcoal, chipped stone	Albright, 2013	
	32DU1976	Archaeological-cultural material scatter-chipped stone	Anderson, 2013	
	32DUx0105	Archaeological-site lead: chipped stone	Hetland, 1982	
	32DUx0130	Archaeological-isolated find: chipped stone	France, 2008: Lux, 2013	
	32DUx0207	Archaeological-isolated find: chipped stone	France, 2008: Kinneer, 2013	
	32DUx1177	Archaeological-isolated find: chipped stone	Albright, 2013	
	32DUx1178	Archaeological-isolated find: chipped stone	Albright, 2013	
	32DUx1179	Archaeological-isolated find: chipped stone	Albright, 2013	
	32DUx1180	Archaeological-isolated find: chipped stone	Albright, 2013	
	32DUx1181	Archaeological-isolated find: chipped stone	Mueller, 2013	
	32DUx1182	Archaeological-isolated find: chipped stone	Albright, 2013	
	32DUx1183	Archaeological-isolated find: chipped stone	Albright, 2013	
	32DUx1198	Archaeological-isolated find: chipped stone	Anderson, 2013	
	32DUx1203	Archaeological-isolated find: chipped stone	Anderson, 2013	
	32DUx1244	Archaeological-isolated find: chipped stone	Lux, 2013	
	32DUx1245	Archaeological-isolated find: chipped stone	Lux, 2013	
	32DUx1260	Archaeological-isolated find: chipped stone	Albright, 2013	

Table A2: Manuscript Files Search Results – WPC – Killdeer Wetland Restoration	
MS #	Reference
002228	Loendorf, L. and J. Borchert 1980 Class III Intensive Inventory for All Cultural Resources for the Proposed Amoco Pipeline Company's Gathering Line Through Portions of Billings and Dunn Counties, North Dakota
002229	Loendorf, L. and A. Simon 1979 Montana-Dakota Utilities: Killdeer Pipeline Survey, Billings County and Dunn County, North Dakota
002255	Simon, A. and J. Pearson 1981 A Class III Intensive Inventory for All Cultural Resources for the Proposed Montana-Dakota Utilities Killdeer Lateral Pipeline, Dunn County, North Dakota

Table A2: Manuscript Files Search Results – WPC – Killdeer Wetland Restoration	
MS #	**Reference**
002564	Root, M. 1981 Archeological Site Survey and Testing Along the Northern Border Pipeline, North Dakota: Annual Progress Report, 1980. McKenzie, Mercer, Dunn, Stark, Morton, Emmons, McIntosh and Williams Counties
002902	Simon, A. 1979 Monitoring of Bull Dozer Work for MDU Pipeline, Dunn County, North Dakota
003455	Root, M. 1983 Archeology of the Northern Border Pipeline, North Dakota: Volume 2, Parts. 1-3 Survey and Background Information, McIntosh, Emmons, Morton, Stark, Mercer, Dunn, McKenzie, and Williams Counties, North Dakota
006049	Borchert, J. 1993 Killdeer Outdoor Recreation Project, Dunn County, Class III Cultural Resource Inventory UW#1614
008223	Bluemle, W. 2002 Killdeer Exchange: A Class II and III Cultural Resource Inventory, Dunn County, North Dakota
008448	Morrison, J. 2003 North Dakota Highway 22 From Killdeer to Lost Bridge: A Class III Cultural Resource Inventory, Dunn County, North Dakota
009561	Kordecki, C. 2005 Dunn County Road Improvement Survey, Class III Cultural Resources Inventory Near Killdeer, Dunn County, North Dakota
010128	Hufstetler, M. and J. Goff 2005 Historic Bridges in North Dakota 2004 Revision
010758	Hiemstra, D. and E. France 2008 Killdeer 115 kV Transmission Line: A Class III Cultural Resource Inventory Near Killdeer North Dakota in Dunn County, North Dakota
010881	France, E., D. Hiemstra, and E. Stine 2009 Title: Addendum to the Killdeer 115 kV Transmission Line: A Class III Cultural Resource Inventory Near Killdeer North Dakota in Dunn County: Access Roads, Reroute and Substation
010903	Hiemstra, D. 2009 Fettig Forest Land Enhancement Project: A Class III Cultural Resource Inventory in Dunn County, North Dakota
012137	Christensen, R. 2011 Drive Permit ND 22 RP 107.333 Rt: A Class III Cultural Resource Inventory in Dunn County
012586	Green, D. 2011 Highway 22: A Class III Cultural Resource Inventory and Reassessment of 32DU1246 in Dunn County, North Dakota
012850	Jackson, M., M. Lonski, and D. Toom 2011 Dunn Center Main Transmission Line 2011 Class III Cultural Resources Inventory Dunn Center Service Area, Southwest Water Pipeline Project, Dunn and Mercer Counties, North Dakota
013284	Harty, J. 2012 Evaluative Testing at 32DU1254: North Dakota Highway 22, Dunn County, North Dakota
013319	Metcalf, M., M. McFaul, J. Hall, and D. Hiemstra 2009 KRF Predictive Model: Resource Distribution and Land Use Through Time in Dunn and Mercer Counties, North Dakota
013580	Macy, J., K. Morgan, and J. Harty 2012 Highway 22 NDDOT 5-22(108)077, PCN 19836: A Class III Cultural Resource Investigation in Dunn County, North Dakota

Table A2: Manuscript Files Search Results – WPC – Killdeer Wetland Restoration	
MS #	**Reference**
013654	Jackson, M. and D. Toom 2012 Dunn County Gartner Road Construction Project 2011 Class III Cultural Resources Inventory, Dunn County, North Dakota
014064	Mitchell, M., C. Tinti, A. Robinson, J. Macy, and S. Asbury 2013 Killdeer, Manning, and South Heart Exchanges: Class II and III Cultural Resource Investigations in Billings, Dunn, and Stark Counties, North Dakota Volume I and II
014398	Engel, D. and E. Stine 2013 HDR Highway 200 Waste Material Sites: A Class III Cultural Resource Inventory in Dunn County, North Dakota
014680	McCann, E. 2013 Dunn County Borrow Sections 10 Material Source Areas: A Class III Cultural Resources Inventory in Dunn County, North Dakota
014839	Bluemle, B. 2014 Basin Electric Power Cooperative's Red, White, and Blue Substations: A Class III Cultural Resource Inventory in Dunn and McKenzie Counties, North Dakota
015620	Harty, J. and C. Cecil 2014 Basin Electric Power Cooperative's Roundup Substation: A Class III Cultural Resource Inventory and Testing in Dunn County, North Dakota
015768	HDR-Denver 2014 Results of a Class III Cultural Resource Inventory for the Proposed Killdeer Truck Bypass, Dunn County, North Dakota PCN 20027
016216	Cox, M. 2015 A Class I and Class III Cultural Resource Inventory and Shovel Testing at 32DU565 for the Southwest Pipeline Project Rural Distribution Line, Dunn County, North Dakota

Appendix H

4 October 2016

Mr. Mark A. Anderson
Senior Natural Resource Specialist
Western Plains Consulting, Inc.
1102 S. Washington St. Ste. 210
Bismarck, ND 58504

Mr. Anderson,

Thank you for the opportunity to review the information pertaining to the proposed wetland near the Dunn County Airport in Killdeer, North Dakota.

Based on the information provided, the North Dakota Aeronautics Commission has the following comments regarding the proposed wetland:

The North Dakota Aeronautics Commission does not maintain any regulatory standards regarding the creation, maintenance or removal of wetlands near public-use airports; However, the North Dakota Aeronautics Commission utilizes federal guidance regarding hazardous wildlife attractants on or near airports as defined in the Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5200-33B.

Based upon recommended separation standards within this AC, the North Dakota Aeronautics Commission acknowledges the presence of existing wildlife attractants, due to wetlands within this area. The creation of additional wetlands has the potential to create a greater wildlife threat than in current conditions.

While at this time, Dunn County Airport is not a federally obligated airport through the National Plan of Integrated

P.O. Box 5020 • Bismarck, ND 58502 • 2301 University Drive, Bldg. 22 • Tel: 701.328.9650 • Fax: 701.328.9656
E-mail: ndaero@nd.gov • Web: www.nd.gov/ndaero

Airport System (NPIAS), the airport has been identified by the 2014 North Dakota State Aviation System Plan as a potential candidate for inclusion in the federal system at a future date. During the evaluation process, the airport would have to address wetland issues on and/or near the vicinity of the airport. Therefore, this proposed wetland could be mitigated at that time.

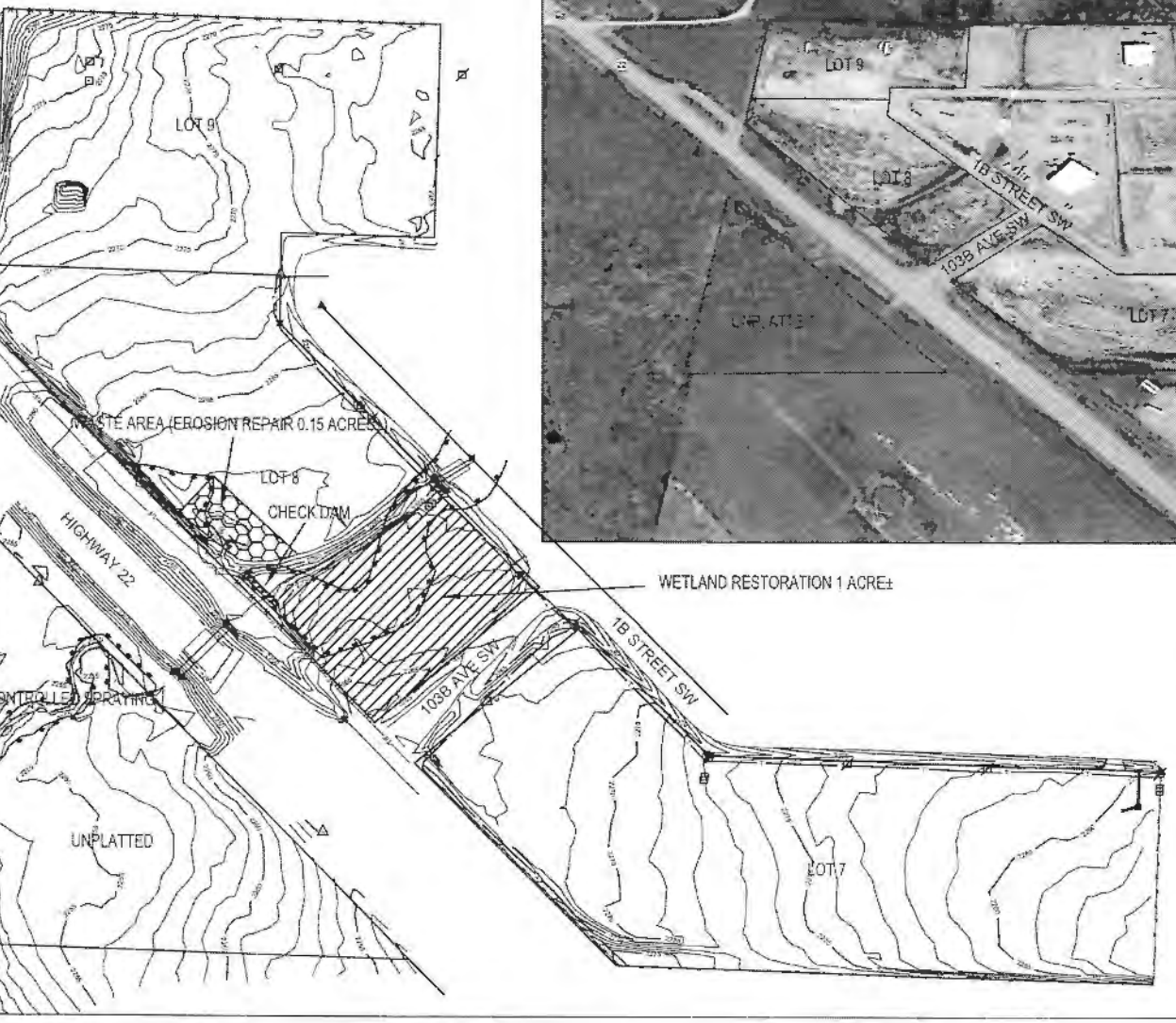
Based on this assumption and the proximity of these proposed wetlands in relation to the airport's runway, the North Dakota Aeronautics Commission views this as a potential adverse impact to aeronautical activities.

If you have any comments, concerns, and/or questions, feel free to contact me.

Jared L. Wingo

Airport Planner
North Dakota Aeronautics Commission
Phone: (701) 328-9655
Email: jwingo@nd.gov

Appendix I



Scale 1" = 150'

TOPOGRAPHY MAP
KILLDEER INDUSTRIAL PARK
MITIGATION PLAN
BLOCK 1, LOTS 7 TO 9 PLUS UNPLATTED
NW1/4 SECTION 10, T145N, R95W
DUNN COUNTY, NORTH DAKOTA

1A

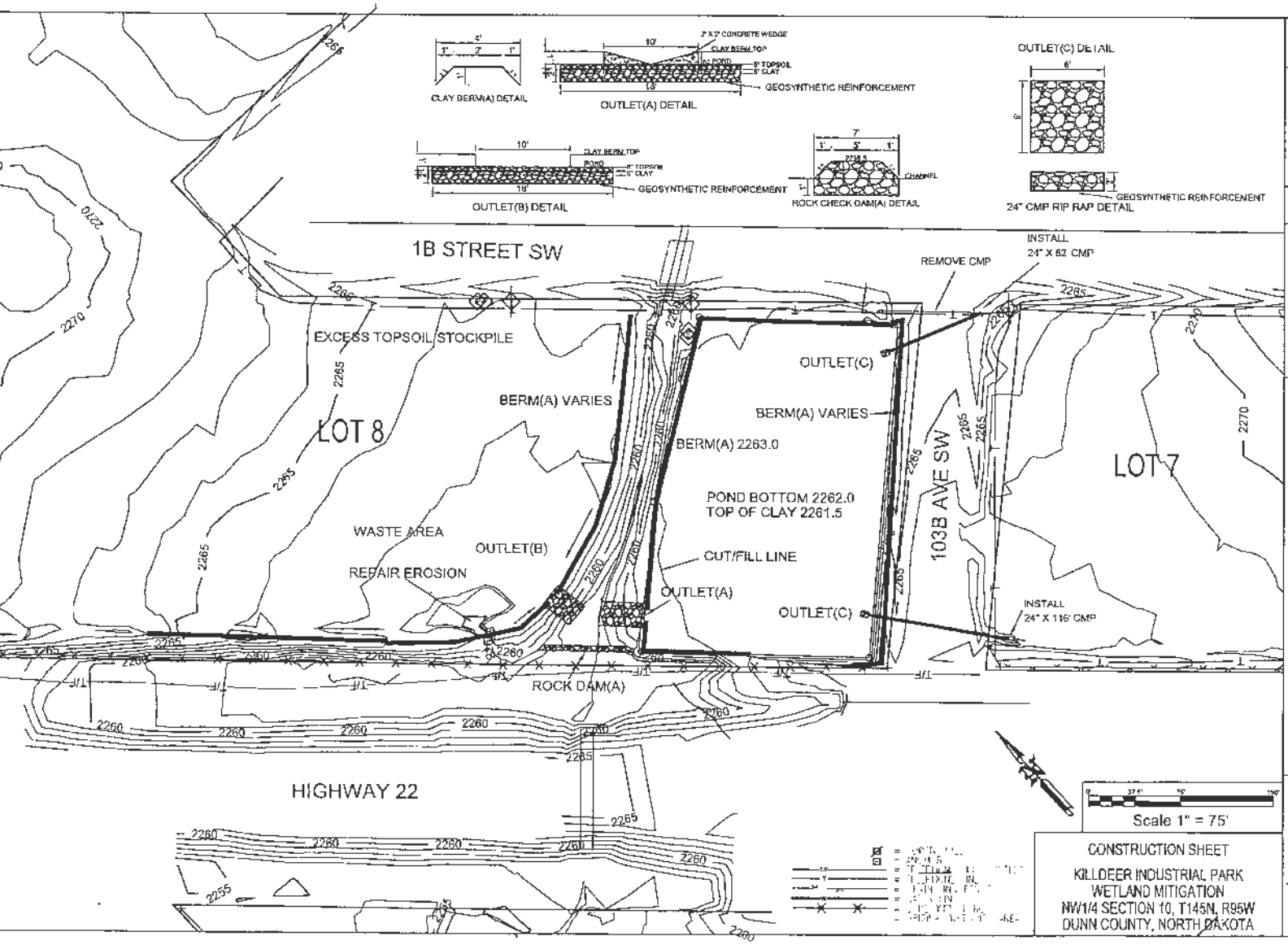
DESIGNED BY: JP

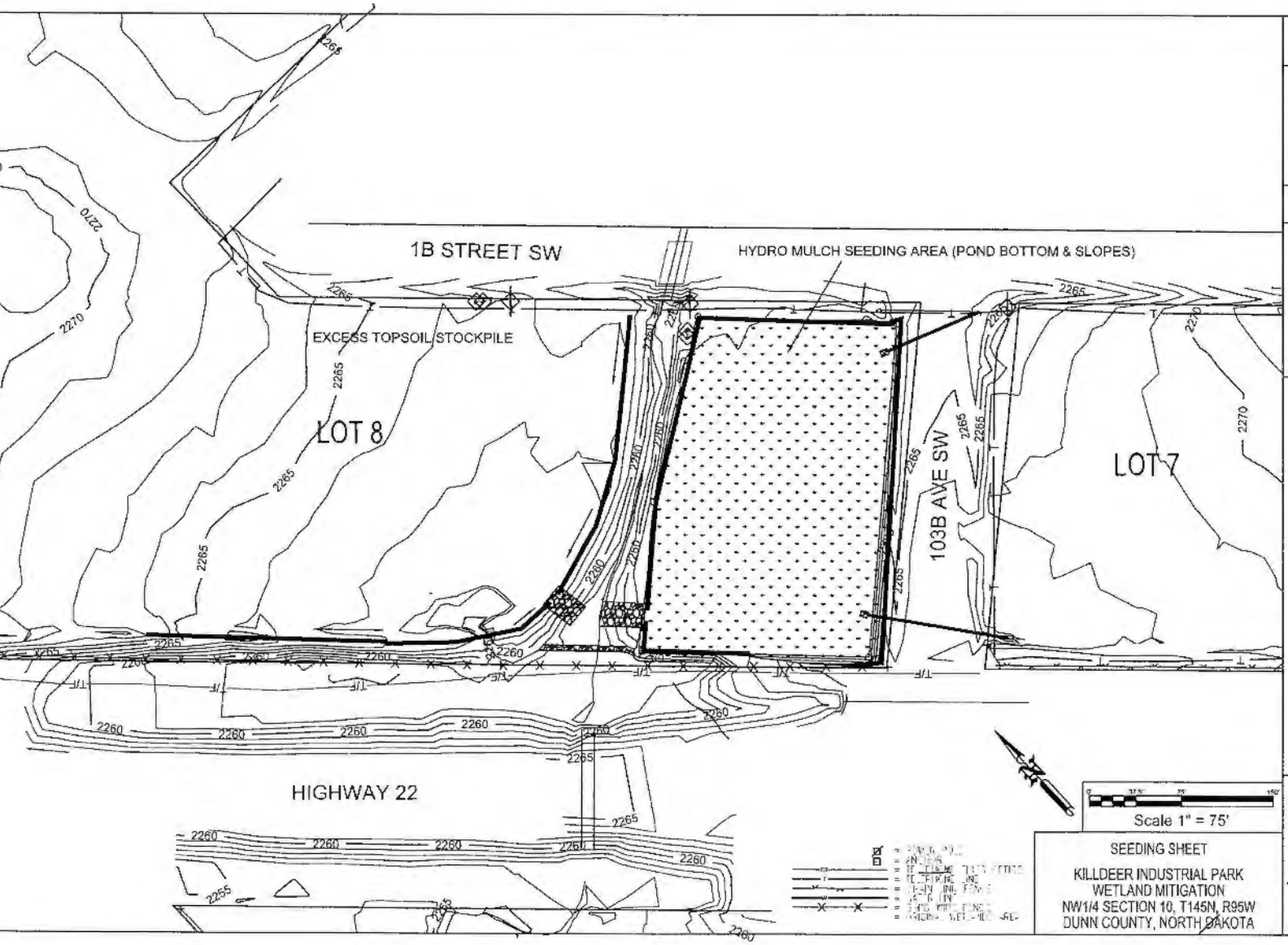
DATE

REVISION

SHEET DESCRIPTION: TOPOGRAPHY MAP

PROJECT NAME: KILLDEER INDUSTRIAL PARK WETLANDS MITIGATION


CLAY BERM(A) DETAIL
OUTLET(A) DETAIL
2' X 2' CONCRETE WEDGE
CLAY BERM TOP
POND
6" TOPSOIL
6" CLAY
GEOSYNTHETIC REINFORCEMENT
OUTLET(B) DETAIL
ROCK CHECK DAM(A) DETAIL
OUTLET(C) DETAIL
24" CMP RIP RAP DETAIL
1B STREET SW
REMOVE CMP
INSTALL
24" X 82' CMP
EXCESS TOPSOIL STOCKPILE
LOT 8
BERM(A) VARIES
BERM(A) 2263.0
POND BOTTOM 2262.0
TOP OF CLAY 2261.5
OUTLET(C)
103B AVE SW
LOT 7
WASTE AREA
OUTLET(B)
REPAIR EROSION
CUT/FILL LINE
OUTLET(A)
INSTALL
24" X 116' CMP
ROCK DAM(A)
HIGHWAY 22
Scale 1" = 75'
CONSTRUCTION SHEET
KILLDEER INDUSTRIAL PARK
WETLAND MITIGATION
NW1/4 SECTION 10, T145N, R95W
DUNN COUNTY, NORTH DAKOTA
DESIGNED BY: JP
SHEET DESCRIPTION: LOT 8, CONSTRUCTION SHEET
PROJECT NAME: KILLDEER INDUSTRIAL PARK WETLANDS MITIGATION



SEEDING SHEET

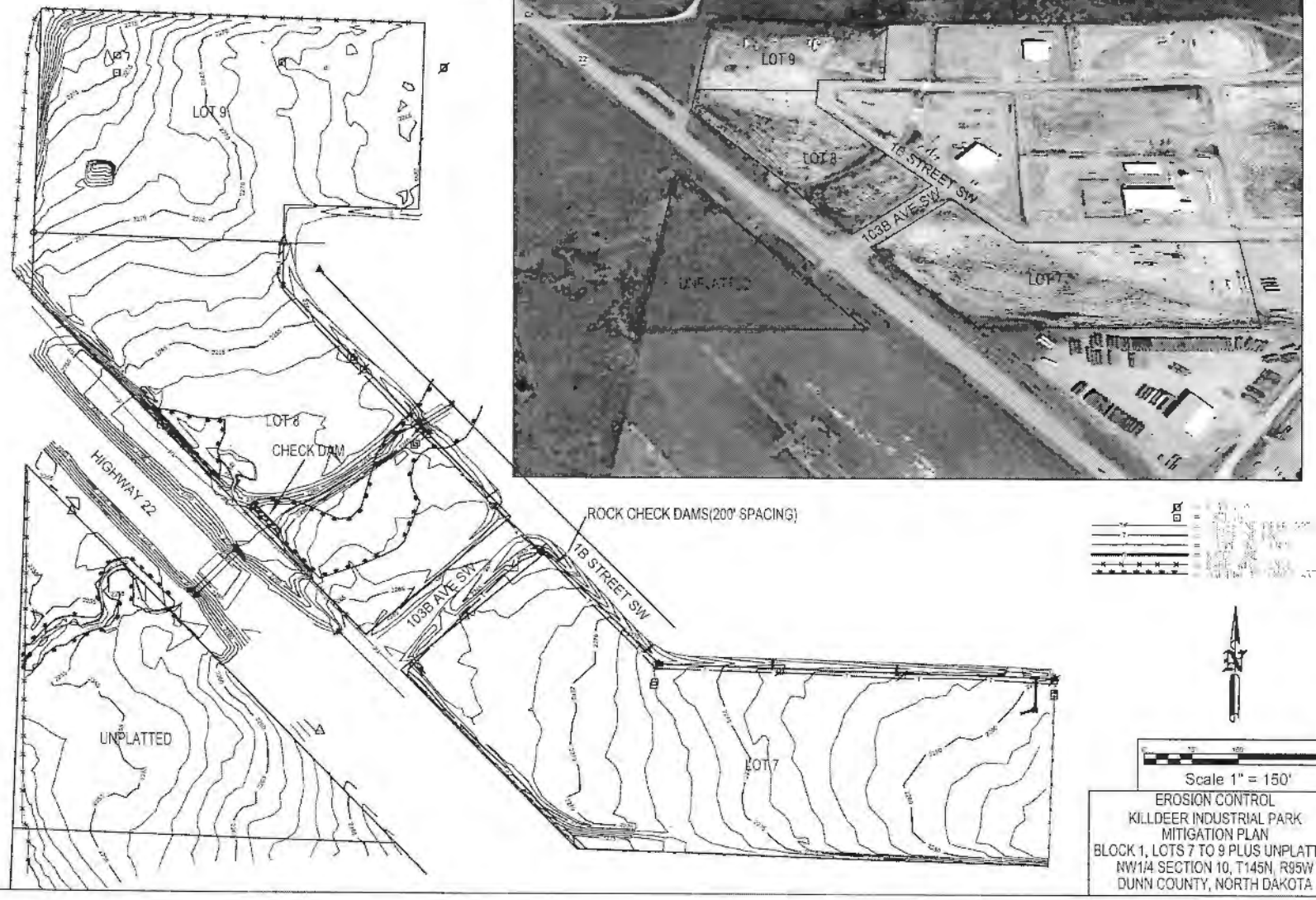
KILLDEER INDUSTRIAL PARK
WETLAND MITIGATION
NW1/4 SECTION 10, T145N, R95W
DUNN COUNTY, NORTH DAKOTA

2

DESIGNED BY: JP

SHEET DESCRIPTION: LOT 8, SEEDING SHEET

PROJECT NAME: KILLDEER INDUSTRIAL PARK WETLANDS MITIGATION



EROSION CONTROL
KILLDEER INDUSTRIAL PARK
MITIGATION PLAN
BLOCK 1, LOTS 7 TO 9 PLUS UNPLATTED
NW1/4 SECTION 10, T145N, R95W
DUNN COUNTY, NORTH DAKOTA

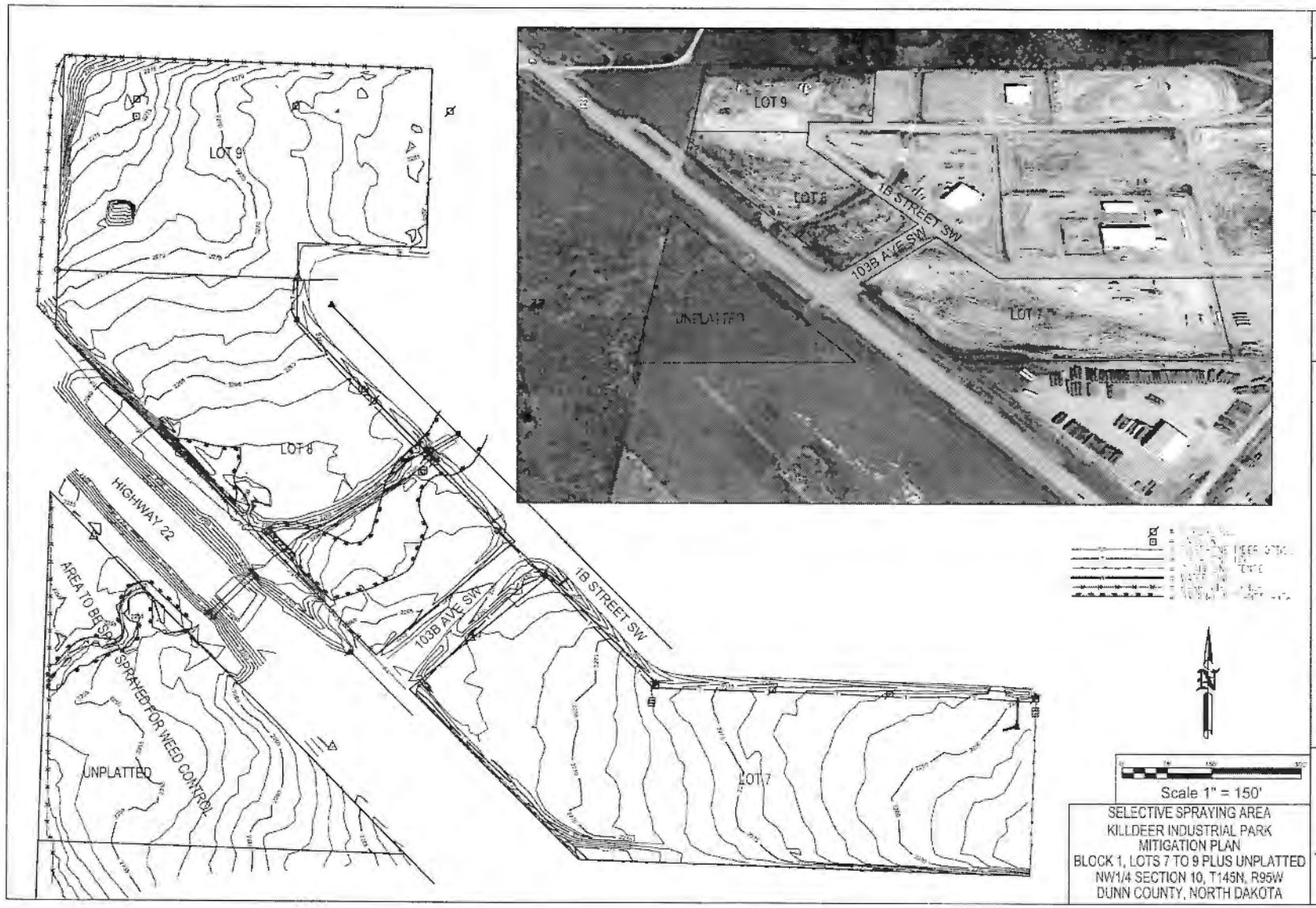
3 OF 5

DESIGNED BY: JP
DRAWN BY: JP
DATE PRINTED: 6-21-17

REVISION	DATE
1	
2	
3	
4	

SHEET DESCRIPTION: TOPOGRAPHY MAP
PROJECT NAME: KILLDEER INDUSTRIAL PARK WETLANDS MITIGATION
#PROJECT NO.: NW-18130

BROSZ
ENGINEERING



SELECTIVE SPRAYING AREA
KILLDEER INDUSTRIAL PARK
MITIGATION PLAN
BLOCK 1, LOTS 7 TO 9 PLUS UNPLATTED
NW1/4 SECTION 10, T145N, R95W
DUNN COUNTY, NORTH DAKOTA

4 OF 5

REVISION	DATE
1	
2	
3	
4	

DESIGNED BY: JP
DRAWN BY: JP
DATE PRINTED: 6-21-17

SHEET DESCRIPTION: TOPOGRAPHY MAP
PROJECT NAME: KILLDEER INDUSTRIAL PARK WETLANDS MITIGATION
PROJECT NO.: N16-8133

BROSZ ENGINEERING, INC.

ESTIMATE OF QUANTITIES - LOT 8 - EAST OF HIGHWAY

SECTION NO.	DESCRIPTION OF WORK	UNITS	NO. OF UNITS
251-02	WETLAND SEED MIX		
203	EXCAVATION (TO FINISH GRADE) 1' subcut for clay and topsoil	CU YD CU YD	1,965 1,822
203	PLACING TOPSOIL 6"	CU YD	911
253	HYDRAULIC MULCH/WITH SEED	SQ YD	5,787
265	RIP RAP (GRADE II)	CU YD	160
261	EROSION CONTROL - 12" WATTLES(10'/PIPE INLET)	LF	20
714	24" CORRUGATED METAL PIPE 0.079" THICKNESS FOR STEEL, OR 0.079" THICKNESS FOR ALUMINUM	LF	198
709	GEOSYNTHETIC REINFORECEMENT	SQ YD	220

CULVERT SCHEDULE

LOCATION	SIZE	LENGTH	RIPRAP (CY)
SE CORNER	24"	82'	3
SW CORNER	24"	116'	3

SECTION NUMBERS AND CONSTRUCTION METHODS TO FOLLOW THE NDDOT STANDARD SPEC BOOK 2014

DESIGNED BY: JP

DATE

REVISION

SHEET DESCRIPTION: Estimate of Quantities