



Final Stormwater Control and Devices Environmental Assessment



Project No.: AMC204638
Contract No.: F41624-03-D-8595
Task Order 0202

Prepared for
US Air Force Center
for Environmental
Excellence

August 2005



CH2MHILL

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**FINDING OF NO SIGNIFICANT IMPACT (FONSI)
AND FINDING OF NO PRACTICABLE ALTERNATIVE (FONPA)**

Name of Proposed Action

Environmental Assessment (EA) of Stormwater Control and Devices at Grand Forks Air Force Base AFB, North Dakota.

Introduction

The United States Air Force (USAF) Air Mobility Command proposes to construct flow control structures and sampling points at stormwater outfalls at Grand Forks AFB in Grand Forks County, North Dakota. The flow control structures would allow emergency personnel to prevent or control discharge from the stormwater outfalls to adjoining navigable waterways and the stormwater outfall sampling points would provide safer access for collecting stormwater samples. The flow control structures and sampling points would ensure that the quality of the stormwater being discharged off base would not have a detrimental impact on local, state, and regional surface waters.

Purpose Of and Need for the Proposed Action

Stormwater is channeled off base through a series of stormwater inlets, grated manholes, culvert pipes, and open trenches. Deicing fluids (a mix of propylene glycol and water) and other fluids that are used on the runway, aircraft ramps, and staging areas can get into the stormwater system and eventually migrate to the Turtle River and Kelly's Slough (a national wildlife refuge). Spill prevention and recovery policies are already in place to control the release of hazardous materials into the environment. However, the potential for some of these materials to escape these controls exists. The Turtle River is ranked S2 by the North Dakota Natural Heritage Program, indicating that the community type is rare or vulnerable. Controlling and/or preventing runoff containing hazardous materials off base would benefit the water quality of the receiving waters. The proposed flow control structures would effectively reduce the potential impact of discharges from the Base to the surface waters of North Dakota.

Description of Proposed Action and Alternatives

Alternatives analyzed include the Proposed Action, Alternative 2, and the No Action Alternative. Feasible alternatives should be low cost so they can be built with available funding; effectively control stormwater discharge; enable safe access to stormwater ditch sampling points; comply with state and federally mandated stormwater sampling requirements and protocols; and be environmentally sound.

Under the Proposed Action, the U.S. Air Force (Air Force) proposes to construct flow control structures in all four stormwater ditches at Grand Forks AFB. These structures would consist of barriers (earthen or concrete) extending between the two slopes of the ditches. An adequately sized pipe, fitted with either a head gate or a valve, would be installed in each barrier. The head gates or valves would be operated manually to prevent or control the discharge of potentially environmentally harmful liquids off base.

Stormwater sampling points would consist of stairs constructed on the slope of the ditch, made of wood with concrete footers for the posts. A stable platform, surrounded by a railing, would be placed close to the toe of the slope to allow sampling; personnel would lean over the railing to collect stormwater samples. This stable platform would significantly improve the safety of accessing the ditch. Platforms would also provide a specific point for gathering stormwater samples, facilitating compliance with National Pollutant Discharge Elimination System (NPDES) permit requirements.

Under Alternative 2, a hasty dam would be erected to prevent the discharge of stormwater off base in the event of a spill or release. A hasty dam is constructed by placing a load of soil at the outfall pipe. This method of controlling the flow of stormwater would not provide a timely response to a release and would likely allow some contaminants to flow off base. It would also require constant supervision to ensure the hasty dam did not fail as a result of erosion. If platforms were not built, stormwater sampling sites would continue to have unsafe access and sampling sites would vary between events.

Under the No Action Alternative, stormwater discharge would continue to run unimpeded to the Turtle River and Kelly's Slough, a national wildlife refuge. The Proposed Action is the only alternative that meets the requirements of the Base and provides optimum protection of the environment.

Summary of Environmental Consequences

Potential impacts to the human and natural environment were evaluated relative to the existing environment. For each environmental resource or issue, anticipated direct and indirect effects were assessed, considering both short-term and long-term project effects. Although implementation of the Proposed Action would affect the human and natural environment, analysis indicates there are no significant impacts. The Proposed Action would:

- Have short-term minor effects (due to construction), but no long-term effects on air quality. Best management practices such as properly maintaining engines, running engines for a minimum time, and dust abatement measures would be used to reduce emissions;
- Result in short-term minor adverse impacts on noise due to construction;
- Have long-term unavoidable minor impacts on wetlands (in the ditches) but would also protect wetlands and surface waters downstream of the Base;
- Result in soil disturbance during construction activities, but Best Management Practices (BMPs) would be implemented during construction to minimize impacts to soils;
- Result in only short-term minor adverse impacts on the transportation system during construction;
- Have no effect on geologic features underlying Grand Forks AFB;
- Result in long-term beneficial impacts to surface water resources at Grand Forks AFB;
- Have no adverse impacts on any natural plant communities, groundwater, land use, or environmental justice;
- Not likely result in impacts to archaeological resources. If any artifacts were discovered during construction, work would immediately stop and the site would be protected from further disturbance until the Base cultural resources staff can consult with the North Dakota State Historic Preservation Office; and

- Have long-term minor beneficial impacts on pollution prevention, and safety and occupational health at Grand Forks AFB and short-term minor beneficial impacts on socioeconomics.

Overall, the analysis for this EA indicates the Proposed Action for the construction project would not result in or contribute to significantly adverse cumulative impacts to resources in the region.

Public Review and Interagency Coordination

The Draft EA and Draft Finding of No Significant Impact/Finding of No Practicable Alternative were furnished to the agencies listed in Section 6.0 of the EA and were made available at the Grand Forks AFB Library and at the Grand Forks Public Library from January 19, 2005 until February 22, 2005. A public notice was placed in local newspapers to advertise the public comment period. No comments were received.

FINDINGS

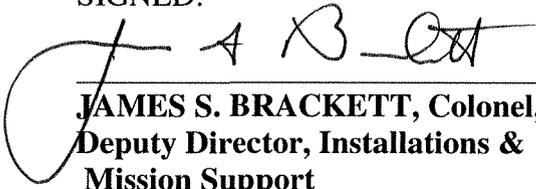
Finding of No Practicable Alternative

Considering the information contained herein (including the attached EA), in accordance with Executive Order 11990, Protection of Wetlands, and pursuant to the authority delegated by the Secretary of the Air Force Order 791.1, I find that there is no practicable alternative to completing the Proposed Action within wetland areas. The Proposed Action, as designed, includes all practicable measures to minimize harm to wetlands.

Finding of No Significant Impact

In accordance with the CEQ regulations implementing NEPA and the Air Force Environmental Impact Analysis Process, I conclude that the Proposed Action will have no significant impact on the quality of the environment and that the preparation of an Environmental Impact Statement is not warranted.

SIGNED:



JAMES S. BRACKETT, Colonel, USAF
Deputy Director, Installations &
Mission Support

10 Sep 05
DATE

Attachment: Environmental Assessment

Architect-Engineering (A-E) Services



Final Stormwater Control and Devices Environmental Assessment

CDRL A001B, A001D, A001E, and A001J
Paragraphs 9.1, 9.4.2, and 12.6

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Preface

CH2M HILL is performing Architect-Engineering (A-E) Services to support Natural Resource Liability Asset Management (NRLAM) Assessment, Environmental Assessments, and Various Conservation Projects at Grand Forks Air Force Base, North Dakota. This work is being conducted under the Air Force Center for Environmental Excellence Contract No. F41624-03-D-8595, Task Order No. 0202 (Project No. AMC204638 and Project No. AMC208892).

Key CH2M HILL project personnel for the Final Environmental Assessment for Stormwater Control and Devices at Grand Forks Air Force Base completed under this contract are:

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For quality control purposes, CH2M HILL staff has reviewed this document. The senior reviewer listed below, by virtue of her signature, has concluded that this document meets or exceeds the deliverable requirements set forth in the Statement of Work.



Karin Lilienbecker

August 18, 2005

Date

Executive Summary

Introduction

The U.S. Air Force (Air Force) Air Mobility Command proposes to construct flow control structures and sampling points at stormwater outfalls at Grand Forks Air Force Base (AFB or Base) in Grand Forks County, North Dakota. The purpose of this EA is to determine whether the Proposed Action would have a significant adverse effect on the quality of the environment.

Purpose and Need for the Action

The purpose of the Proposed Action is to construct flow control structures and sampling points for discharges from Grand Forks AFB, in order to prevent potential impacts on surface water bodies and to meet environmental guidelines for discharging pollutants into navigable waterways.

The Base needs to construct flow control structures in the four stormwater ditches to allow emergency personnel to prevent/control discharge from the outfalls offbase into adjoining navigable waterways. The Base also needs to construct stormwater sampling points at outfalls to provide safe access to regulators and sampling personnel and to provide a specific point to complete mandated stormwater sampling. The specific point for sampling would improve quality assurance and quality control (QA/QC) of stormwater sampling collection and analysis.

Stormwater is channeled offbase through a series of stormwater inlets, grated manholes, culvert pipes, and open trenches. Deicing fluids (a mix of propylene glycol and water) and other fluids that are used on the runway, aircraft ramps, and staging areas can get into the stormwater system and eventually migrate to the Turtle River and Kelly's Slough (a national wildlife refuge). Spill prevention and recovery policies are already in place to control the release of hazardous materials into the environment. However, the potential for some of these materials to escape these controls exists. The Turtle River is ranked S2 by the North Dakota Natural Heritage Program, indicating that the community type is rare or vulnerable. Controlling and/or preventing runoff containing hazardous materials offbase would benefit the water quality of the receiving waters. The proposed flow control structures would effectively reduce the potential impact of discharges from the Base to the surface waters of North Dakota.

Proposed Action and Alternatives

Proposed Action

The Air Force proposes to construct flow control structures within the embankments of all four stormwater ditches at Grand Forks AFB. The flow control structure would consist of a barrier (earthen or concrete) that extends between the two slopes of the ditch. A pipe would

be installed in the barrier with head gates or valves that would be operated manually by emergency personnel, to prevent and/or control the offbase discharge of potentially environmentally harmful liquids.

The sampling points would consist of stairs constructed on the slope of the ditch with a platform, placed close to the toe of the slope to allow sampling personnel to lean over the railing to collect stormwater samples.

Alternative 2: Emergency Flow Control Measures and Sampling Methods

A second build alternative, Alternative 2, is to erect a hasty dam to prevent the discharge of stormwater offbase. A hasty dam is constructed by placing a load of soil at the outfall pipe in the event of a contaminant release. This method of controlling the flow of stormwater would provide a less timely response to a release, which would potentially result in a release of contaminants to receiving waters. In addition, stormwater sampling would be conducted further downstream at more accessible locations and thus not meet the need to improve QA/QC of surface water sampling and analysis.

No Action Alternative

The No Action Alternative does not satisfy the purpose and need for the Proposed Action; it serves as a baseline against which the impacts of the Proposed Action can be evaluated.

If the stormwater ditch system remains unchanged, stormwater discharges would continue to run unimpeded to the Turtle River and Kelly's Slough. The potential for environmental impacts to these receiving waters would continue.

In addition, stormwater samples would continue to be collected in an unsafe manner. The personnel involved in this activity would continue to follow precarious paths down the ditch slope, exposing them to injury due to falling. This alternative would not improve QA/QC of surface water sampling and analysis.

Environmental Consequences

The EA evaluates potential effects on air quality, noise, wastes, hazardous materials, and stored fuels, water resources, biological resources, land use, safety and occupational health, environmental management, and protection of children, including indirect and cumulative impacts. Effects on resources where adverse impacts are possible are summarized below.

Air Quality

Proposed Action

The Proposed Action would result in short-term emissions of pollutants from equipment and vehicular traffic during construction. Fugitive dust would be controlled by dust abatement measures, such as watering access roads.

The Proposed Action would not cause any net increase in emissions from stationary sources, or major modifications to an existing major source that would be subject to prevention of

significant deterioration (PSD) requirements. No long-term impacts to air quality are anticipated as a result of the Proposed Action.

Alternative 2

Alternative 2 would also experience temporary short-term emissions during emergency operations, similar to the Proposed Action. However, because of the temporary nature of hasty dams, these emissions would continue to occur as emergencies dictate.

No Action Alternative

The No Action Alternative would not result in air quality impacts, since no construction activities are associated with this alternative.

Noise

Proposed Action

The Proposed Action would not result in long-term noise impacts. Sensitive receptors near the location of the Proposed Actions would experience temporary increases in ambient noise levels. These increases would be experienced during daylight hours when noise increases are expected and tolerable. All motorized construction equipment would be required to have mufflers constructed in accordance with the equipment manufacturer's specifications or a system of equivalent noise reducing capacity. It would also be required that mufflers and exhaust systems be maintained in good working condition, free from leaks and holes.

Alternative 2

Impacts would be similar to the Proposed Action but the timing of noise impacts during emergency operations could not be predicted and would have negative impact to sensitive receptors if they occur during evening and early morning hours.

No Action Alternative

The No Action Alternative would not result in noise impacts since no construction activities are associated with this alternative.

Wastes, Hazardous Materials, and Stored Fuels

Proposed Action

The Proposed Action would help to either control or prevent the discharge of hazardous materials offbase into the Turtle River and Kelly's Slough. It would also permit Grand Forks AFB Environmental Management personnel to determine the quality of the stormwater being discharged, provide for the QA/QC of sampling, and to maintain compliance with federal and state stormwater discharge standards.

Alternative 2

Alternative 2 would provide some level of control or prevention of stormwater discharges, but would require constant attention by emergency personnel, in effect reducing their flexibility to respond to emergencies at other locations on the Base. This alternative would also fail to improve the QA/QC of stormwater sampling and analysis

No Action Alternative

The No Action Alternative would not provide any level of control or prevention of stormwater discharges. This alternative would not improve QA/QC of surface water sampling and analysis.

Water Resources – Surface Water, Wetlands, and Groundwater

Proposed Action

The Proposed Action would have long-term beneficial impacts to surface water by controlling the amount and quality of stormwater that is discharged offbase. Controlling the discharge of runoff potentially containing hazardous materials to adjacent surface water bodies, would provide an improved level of protection to the quality of those surface waters and the aquatic life that is present. The improved QA/QC of stormwater sampling made possible by constructing sampling platforms would enable the environmental management team to make more informed decisions regarding stormwater discharges.

Implementation of the Proposed Action would have long-term adverse impacts on wetlands at Grand Forks AFB. The drainage ditches at Grand Forks AFB have been identified as wetland. Construction of the stormwater flow control structures would remove portions of wetland from productive function.

Implementation of the Proposed Action is not anticipated to result in impacts to groundwater. Jet fuel and other hydrocarbon-based fluids impounded in the stormwater ditch after an accidental release would not reach groundwater as they would either volatilize or float on the surface water until removed for proper disposal. The majority of sprayed deicing fluid is captured and properly disposed. Some oversprayed deicing fluid is carried by runoff during the snow melt to the stormwater ditches where it biodegrades. Upon testing of pertinent water quality parameters (e.g., dissolved oxygen), impounded water is released downstream as soon as permissible. As a result of capture of most deicing fluid, biodegradation, and the short holding period, it is unlikely that deicing fluid would migrate into the groundwater.

In the short term, construction activities could increase surface erosion and increase the dissolved solid and sediment content in stormwater, in turn degrading water quality in the surface waters. Water quality impacts to surface water and groundwater potentially could affect wetlands as well. Erosion control best management practices (BMPs) would be followed to ensure that no soils or construction material migrate offbase during the construction phase.

Alternative 2

Alternative 2 provides some level of protection, but the effectiveness and efficiency of this alternative is less than the Proposed Action. This alternative would allow some level of discharge during a spill event, because response time is slower due to the need for getting heavy equipment to the outfall point. Unless Erosion Control BMPs are followed, this alternative has the potential to release soil and sediment offbase. This could affect the water quality of the receiving waters.

Wetland impacts would also result from implementation of Alternative 2. However, those impacts would be short-term and minor as the hasty dam would be removed once it was no longer needed.

As discussed above for the Proposed Action, Alternative 2 has the same potential for groundwater impacts.

Stormwater sampling under this alternative would not ensure QA/QC of stormwater sampling and analysis, as they would not be taken at point of discharge, but rather they would be taken downstream at a more accessible location.

No Action Alternative

The No Action alternative would not result in any construction-related impacts. It would not provide any level of protection to surface waters from hazardous material spills and contaminated runoff. Wetland and Groundwater impacts are not anticipated under the No Action alternative.

Biological Resources

Proposed Action

The Proposed Action would not adversely affect the biological resources on Grand Forks AFB. It would not result in long-term changes to the vegetative or wildlife resources and would not affect any federal or state endangered species. The Proposed Action would result in the removal of some vegetation on the slopes of the stormwater ditches where the flow control structure and sampling points would be constructed. The Proposed Action would provide improved safeguards to the aquatic species and wildlife that utilizes the Turtle River and Kelly's Slough.

Alternative 2

Alternative 2 is similar to the Proposed Action in its effect on the biological resources. However, due to the response time during emergency operations the potential for causing harm to the environment is greater.

No Action Alternative

The No Action Alternative has the highest potential for adversely affecting the natural environment, as no control would be employed in regards to stormwater quality.

Safety and Occupational Health

Proposed Action

The Proposed Action has the greatest potential for affecting the safety and occupational health of the workers involved in constructing the flow control structures and the sampling points. Work would occur within the ditch where the potential for contact with water and other fluids is the greatest; therefore, proper precautions would have to be taken to avoid adversely affecting the safety and health of those workers. The slopes of the ditches are also grass lined and steep and the potential exists for falls to occur during construction activities. The contractor would have to follow proper precautions to provide safe access for construction workers.

The sampling points, as described in Section 2.4.2, would allow sampling personnel a safe access point for collecting stormwater samples by providing a stairway down the slope and utilizing a railing system to keep them from falling into the ditch.

Alternative 2

Alternative 2 has the potential to impact the safety and health of construction workers due to the emergency response nature of the action. Proper operating procedures for heavy equipment, safe access of the outfall sites, and training of personnel in the construction of hasty dams are necessary to protect the health and safety of emergency personnel. Some of the level of hazard is also associated with gathering samples under this alternative, as sampling personnel would still have to walk down the steep, grassy slopes of the ditch embankments. Caution would still be warranted for access and gathering water samples.

No Action Alternative

The No Action Alternative would not have any impact on the safety and occupational safety of Base personnel or construction workers.

Environmental Management

Proposed Action

The Proposed Action would have long-term beneficial effects in relation to environmental management. The flow control structure would allow Grand Forks AFB to control/prevent the release of hazardous materials into area surface waters. In addition, the sampling points would allow the environmental management team to ensure the quality of stormwater discharges and maintain compliance with federal and state NPDES requirements.

Construction activities associated with the flow control structures would not affect the underlying geological structure of the area. Soils exposed during the construction activities at the proposed flow control structures would be subject to increased runoff and erosion. However, it is unlikely that a construction permit from the North Dakota Department of Health (NDDH) would be required as less than 1 acre would be disturbed during construction. Appropriate BMPs for erosion control and sedimentation would be implemented during construction.

Alternative 2

Alternative 2 would neither improve the management of potentially contaminated runoff nor improve the QA/QC of the stormwater sampling and analysis.

No Action Alternative

The No Action alternative would not result in impact to soils or geologic features. However, the No Action Alternative would have the greatest adverse impacts on environmental management goals and objectives. The lack of flow control structures and sampling points has the greatest potential for exposing Grand Forks AFB to violations of federal and state water quality standards and increases the likelihood of penalties and fines for those violations.

Protection of Children

Proposed Action

Children can be drawn to and potentially endangered by construction sites. Precautions such as construction fencing would keep children out of dangerous areas. Therefore, no risks to the safety or health of children are anticipated. Preventing children from accessing the stormwater sampling points would be considered during the design of the structure.

Alternative 2

It is unlikely, in the event of an emergency, that construction fences would be erected before construction of a hasty dam. Although emergency personnel would attempt to ensure that no harm comes to children during construction activities, it is possible that children could have access to the ditches during emergency construction activities. The potential for this to happen is greater at the South Ditch and North Ditch outfalls, which are located near Base housing and an offbase residence.

No Action Alternative

The No Action Alternative poses no threat to children on or near Grand Forks AFB.

Conclusion

Implementation of the preferred alternative (Proposed Action) would result in no significant long-term effects on the quality of the natural or human environment. An Environmental Impact Statement is not required and will not be prepared. The issuance of a Finding of No Significant Impact is appropriate.

Contents

	Page
Executive Summary	v
Acronyms and Abbreviations	xvii
Section	
1.0 Purpose of and Need for Action	1-1
1.1 Introduction.....	1-1
1.2 Need for the Action.....	1-1
1.3 Objectives for the Action	2-1
1.4 Scope of the Environmental Assessment	2-1
1.5 Decisions that Must be Made.....	2-1
1.6 Applicable Regulatory Requirements and Required Coordination.....	3-1
2.0 Description of Proposed Action and Alternatives	2-1
2.1 Introduction.....	2-1
2.2 Selection Criteria for Alternatives.....	2-1
2.3 Alternatives Considered but Eliminated from Detailed Study	2-1
2.4 Description of Proposed Alternatives	2-2
2.4.1 Proposed Action (Construction of Flow Control Structures and Sampling Points).....	2-2
2.4.2 Alternative 2: Emergency Flow Control Measures and Sampling Methods	2-2
2.4.3 No Action Alternative	2-2
2.5 Description of Past and Reasonably Foreseeable Future Actions Relevant to Cumulative Impacts	2-3
2.6 Identification of Preferred Alternative	2-3
2.7 Comparison of the Environmental Impacts of Alternatives	2-3
3.0 Affected Environment	3-1
3.1 Introduction.....	3-1
3.2 Air Quality.....	3-1
3.2.1 Regulatory Requirements.....	3-1
3.2.2 Existing Conditions	3-2
3.3 Noise.....	3-2
3.4 Wastes, Hazardous Materials, and Stored Fuels.....	3-3
3.4.1 Hazardous Waste	3-3
3.4.2 Solid Waste Management.....	3-3
3.4.3 Installation Restoration Program	3-4
3.4.4 Underground Storage Tanks	3-4
3.4.5 Aboveground Storage Tanks	3-4
3.5 Water Resources	3-4
3.5.1 Surface Water	3-5

Contents, Continued

	Page
3.5.2	Stormwater3-5
3.5.3	Groundwater..... 3-6
3.5.4	Floodplains 3-6
3.5.5	Wetlands3-7
3.6	Biological Resources..... 3-8
3.6.1	Vegetation..... 3-8
3.6.2	Wildlife 3-8
3.6.3	Threatened and Endangered Species3-8
3.7	Socioeconomic Resources 3-9
3.7.1	Population 3-9
3.7.2	Income and Employment 3-9
3.8	Cultural Resources 3-10
3.8.1	Archeological Resources..... 3-10
3.8.2	Historic Architectural Resources..... 3-10
3.8.3	Traditional Cultural Properties 3-10
3.9	Land Use 3-11
3.10	Transportation Systems 3-11
3.11	Airspace/Airfield Operations 3-11
3.12	Safety and Occupational Health..... 3-12
3.13	Environmental Management 3-12
3.13.1	Pollution Prevention 3-12
3.13.2	Geology 3-12
3.13.3	Soils 3-13
3.14	Environmental Justice and Protection of Children..... 3-14
3.14.1	Environmental Justice 3-14
3.14.2	Protection of Children 3-15
4.0	Environmental Consequences..... 4-1
4.1	Introduction..... 4-1
4.2	Air Quality..... 4-1
4.2.1	Proposed Action - Construction of Flow Control Structures and Sampling Points..... 4-1
4.2.2	Alternative 2..... 4-2
4.2.3	No Action Alternative 4-2
4.3	Noise..... 4-2
4.3.1	Proposed Action 4-2
4.3.2	Alternative 2..... 4-2
4.3.3	No Action Alternative 4-2
4.4	Wastes, Hazardous Materials, and Stored Fuels..... 4-3
4.4.1	Proposed Action 4-3
4.4.2	Alternative 2..... 4-3
4.4.3	No Action Alternative 4-3

Contents, Continued

	Page
4.5	Water Resources 4-3
4.5.1	Surface Water 4-3
4.5.2	Wetlands 4-4
4.5.3	Groundwater 4-5
4.5.4	Floodplains 4-6
4.6	Biological Resources 4-6
4.6.1	Proposed Action 4-6
4.6.2	Alternative 2 4-6
4.6.3	No Action Alternative 4-6
4.7	Socioeconomic Resources 4-7
4.7.1	Proposed Action 4-7
4.7.2	Alternative 2 4-7
4.7.3	No Action Alternative 4-7
4.8	Cultural Resources 4-7
4.8.1	Proposed Action 4-7
4.8.2	Alternative 2 4-7
4.8.3	No Action Alternative 4-7
4.9	Land Use 4-8
4.10	Transportation Systems 4-8
4.10.1	Proposed Action 4-8
4.10.2	Alternative 2 4-8
4.10.3	No Action Alternative 4-8
4.11	Airspace/Airfield Operations 4-8
4.11.1	Proposed Action 4-8
4.11.2	Alternative 2 4-8
4.11.3	No Action Alternative 4-8
4.12	Safety and Occupational Health 4-9
4.12.1	Proposed Action 4-9
4.12.2	Alternative 2 4-9
4.12.3	No Action Alternative 4-9
4.13	Environmental Management 4-9
4.13.1	Proposed Action 4-9
4.13.2	Alternative 2 4-10
4.13.3	No Action Alternative 4-10
4.14	Environmental Justice and Protection of Children 4-10
4.14.1	Proposed Action 4-10
4.14.2	Alternative 2 4-11
4.14.3	No Action Alternative 4-11
4.15	Indirect and Cumulative Impacts 4-11
4.16	Unavoidable Adverse Impacts 4-12

Contents, Continued

	Page
4.17 Relationship Between Short-term Uses and Enhancement of Long-term Productivity	4-12
4.18 Irreversible and Irretrievable Commitment of Resources	4-12
5.0 List of Preparers	5-1
6.0 List of Agencies and Persons Consulted and/or Provided Copies	6-1
7.0 Works Cited	7-1

Appendices

A	Air Force Form 813
B	Regulator Correspondence
C	Proof of Publication

Tables

2-1	Summary of Potential Environmental and Socioeconomic Consequences	2-4
3-1	Air Pollutant Emissions (tpy) for 2001 at Grand Forks AFB	3-2
	<i>Stormwater Control and Devices Environmental Assessment, Grand Forks</i>	
	<i>Air Force Base, North Dakota</i>	3-2
3-2	Population Characteristics of Census Tracts 114 and 119	3-14

Figures

1-1	Location Map	5
2-1	Stormwater Outfalls	2-7
3-1	Construction Equipment Noise Levels	3-17
3-2	Site Overview	3-19
3-2A	Northwest Ditch Area	3-21
3-2B	West Ditch	3-23
3-2C	North Ditch	3-25
3-2D	South Ditch	3-27

Acronyms and Abbreviations

$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
AFB	Air Force Base
AFI	Air Force Instruction
AICUZ	Air Installation Compatible Use Zone
Air Force	U.S. Air Force
AMC	Air Mobility Command
AST	aboveground storage tank
Base	Grand Forks Air Force Base
BMP	Best Management Practice
BOD	biochemical oxygen demand
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CES	Civil Engineering Squadron
CEV	Civil Engineering Environmental
CFR	Code of Federal Regulations
CO	carbon monoxide
CWA	Clean Water Act
dB	decibel
dba	A-weighted decibel
DoD	Department of Defense
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process

EO	Executive Order
EPA	U.S. Environmental Protection Agency
H ₂ S	hydrogen sulfide
HAP	hazardous air pollutants
ICRMP	Integrated Cultural Resources Management Plan
INRMP	Integrated Natural Resources Management Plan
IRP	Installation Restoration Program
kg	kilogram
mg/m ³	milligrams per cubic meter
NAAQS	National Ambient Air Quality Standards
NDAAQS	North Dakota Ambient Air Quality Standards
NDAC	North Dakota Administrative Code
NDDH	North Dakota Department of Health
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWR	National Wildlife Refuge
O ₃	ozone
OSHA	Occupational Safety and Health Act
Pb	lead
PM10	particulate matter less than 10 microns in diameter

PM2.5	particulate matter less than 2.5 microns in diameter
ppm	parts per million
PSD	prevention of significant deterioration
P2	Pollution Prevention
QA/QC	quality assessment and quality control
RCRA	Resource Conservation and Recovery Act
ROI	region of influence
SARA	Superfund Amendments and Reauthorization Act
SHPO	State Historic Preservation Officer
SO ₂	sulfur dioxide
SWMU	solid waste management unit
tpy	tons per year
TSP	total suspended particulates
USC	U.S. Code
UST	underground storage tank
VOC	volatile organic compounds

Purpose of and Need for Action

1.1 Introduction

The U.S. Air Force (Air Force) Air Mobility Command (AMC) proposes to construct flow control structures and sampling points at stormwater outfalls at Grand Forks Air Force Base (AFB or Base) in Grand Forks County, North Dakota (see Figure 1-1). The flow control structures would allow emergency personnel to prevent or control discharge from the stormwater outfalls to adjoining navigable waterways and the stormwater outfall sampling points would provide safer access for collecting stormwater samples. The flow control structures and sampling points would ensure that the quality of the stormwater being discharged offbase would not have a detrimental impact on local, state, and regional surface waters.

Grand Forks AFB, with support of AMC and the Air Force Center for Environmental Excellence (AFCEE), has prepared an Environmental Assessment (EA) for the Proposed Action, in accordance with the National Environmental Policy Act (NEPA) implementing regulations of the Council on Environmental Quality (CEQ) at 40 Code of Federal Regulations (CFR) §§1500-1508, Air Force Environmental Impact Analysis Process (EIAP) at 32 CFR §989, and related Department of Defense (DOD) directives.

The purpose of this EA is to determine whether the Proposed Action would have a significant adverse effect on the quality of the environment.

1.2 Need for the Action

The purpose of the Proposed Action is to construct flow control structures and sampling points for discharges from Grand Forks AFB, in order to prevent potential impacts on surface water bodies and to meet environmental guidelines for discharging pollutants into navigable waterways.

The Base needs to construct flow control structures in the four stormwater ditches to allow emergency personnel to prevent or control discharge from the outfalls offbase into adjoining navigable waterways. The Base also needs to construct stormwater sampling points at outfalls to provide safe access to regulators and sampling personnel and to provide a specific point to complete mandated stormwater sampling. The specific point for sampling would ensure quality assessment and quality control (QA/QC) of stormwater sampling collection and analysis.

Currently, stormwater is channeled offbase through a series of stormwater inlets, grated manholes, culvert pipes, and open trenches. There are no structures in place to impede discharges in the event of an emergency on the West, North or Northwest Ditches. A sluice gate is located on the South Ditch controlling a portion of the outfall. Deicing fluids (propylene glycol mixed with water) and other fluids that are used on the runway, aircraft

ramps, and staging areas can get into the stormwater system and eventually migrate to the Turtle River and Kelly's Slough, which is a National Wildlife Refuge (NWR) and a tributary to the Turtle River.

Propylene glycol mixed with water is the primary deicing fluid that is sprayed on the aircraft when required. Different dilutions of the two can be used as needed, depending upon the weather conditions. Propylene glycol replaced ethylene glycol as the primary constituent in deicing fluid, because it is less toxic and is not subject to hazardous substance regulations. However, it places a greater biochemical oxygen demand (BOD) effect on receiving waters and remains in the environment longer. BOD impairs receiving waters by decreasing dissolved oxygen concentrations available to fish and other biota. At extreme concentrations, BOD can cause dissolved oxygen to decrease to levels that are lethal to aquatic biota. Controlling or preventing the flow of propylene glycol offbase would reduce the BOD load on the receiving waters.

Spill prevention and recovery policies are already in place to control the release of hazardous materials into the environment. However, the potential for some of these materials to escape these controls exists and should be addressed. Preventing the release of hazardous materials into the Turtle River and Kelly's Slough NWR is a highly desirable objective. The proposed flow control structures would effectively reduce the potential impact of discharges into the surface waters of North Dakota.

1.3 Objectives for the Action

The objective of constructing the flow control structures is to prevent or control the discharge of runoff containing deicing fluids and other hazardous materials offbase into the Turtle River and the Kelly Slough Wildlife Refuge. The objective of the sampling points is to provide safer access for conducting stormwater sampling at several stormwater outfalls and to ensure that discharges meet North Dakota stormwater quality standards as required by the NPDES permit for Grand Forks AFB. The Proposed Actions should be low cost, so that they can be built with available funding; be effective in the control of stormwater discharges; provide flexibility for emergency personnel to respond to emergencies; enable safe access to stormwater ditch outfall points; comply with state and federally-mandated stormwater sampling requirements and protocols; and be environmentally sound.

1.4 Scope of the Environmental Assessment

This EA documents and analyzes the potential environmental and socioeconomic effects associated with the no-action alternative, the Proposed Action, and one additional alternative and focuses on evaluation of environmental effects that are reasonably foreseeable at the present time.

1.5 Decisions that Must be Made

The Base civil engineer and chairman of the Environmental Protection Committee at Grand Forks AFB will be responsible for selecting which alternative to implement to meet the need to prevent or control the discharge of stormwater offbase into the Turtle River and Kelly's

Slough. A decision to take action would result in proposed construction of a flow control structure on the four stormwater ditch outfalls and sampling points at all of the outfalls. A decision to take No Action could result in Grand Forks AFB falling into non-compliance with the requirements of the North Dakota Department of Health for pollutant discharges and for stormwater sampling requirements and protocols.

1.6 Applicable Regulatory Requirements and Required Coordination

This environmental analysis has been conducted consistent with the National Environmental Policy Act (NEPA) of 1969 (Public Law 91-190), the President's Council on Environmental Quality (CEQ) regulations implementing NEPA, Title 40 of the Code of Federal Regulations (CFR) §§1500-1508, and Air Force and Army instructions and regulations implementing NEPA.

As required by the regulations implementing NEPA, this EA evaluates the direct, indirect and cumulative impacts of the Proposed Action and alternatives. In addition, this EA evaluates the compliance of the Proposed Action with potential requirements of the following state and federal environmental laws and regulations:

- Clean Air Act (CAA)
- Clean Water Act (CWA)
- Pollution Prevention Act of 1990
- National Historic Preservation Act
- Archaeological Resources Protection Act
- Endangered Species Act of 1973
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (40 CFR 302)
- Resource Conservation and Recovery Act (RCRA)
- Toxic Substances Control Act (TSCA) of 1970
- Occupational Safety and Health Act (OSHA)
- Executive Order (EO) 11988 (Floodplain Management)
- EO 11990 (Protection of Wetlands)
- EO 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations)

NEPA implementing regulations require coordination with relevant federal, state, and local agencies to evaluate the potential environmental impacts associated with the alternatives and to use these analyses in making decisions. Regulatory coordination was completed with relevant agencies, including the North Dakota Game and Fish Commission, North Dakota Department of Health, State Historical Society of North Dakota, and U.S. Fish and Wildlife Service (USFWS), by making this EA available for public and agency comments.

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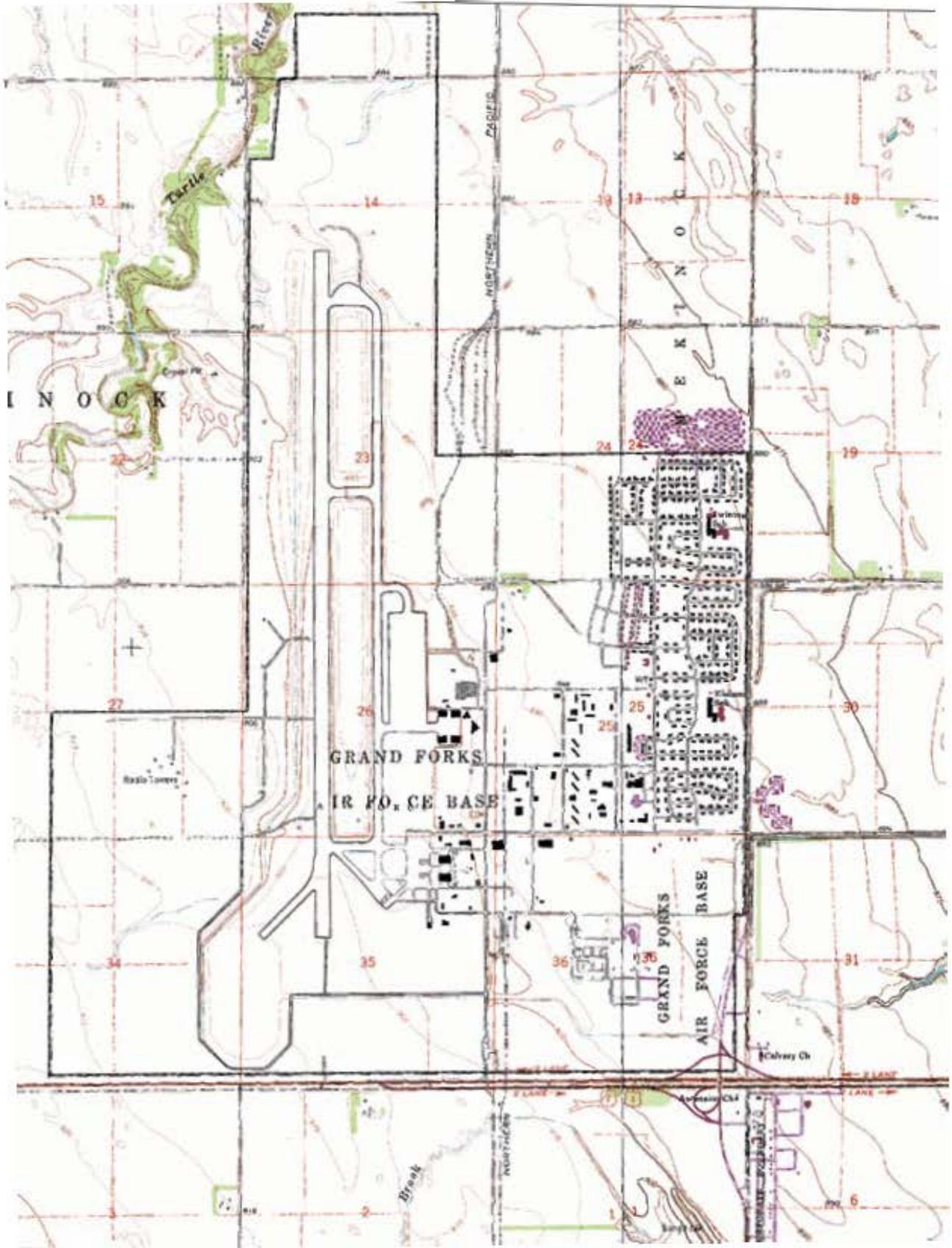
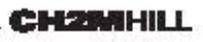


FIGURE 1-1
LOCATION MAP
 STORMWATER CONTROL AND DEVICES
 ENVIRONMENTAL ASSESSMENT
 GRAND FORKS AIR FORCE BASE, NORTH DAKOTA



Description of Proposed Action and Alternatives

2.1 Introduction

This section describes the Proposed Action and alternatives carried forward for analysis in this EA (the Proposed Action, one additional build alternative, and the No Action Alternative), and the alternatives considered but eliminated from detailed study. Alternatives carried forward for detailed analyses in this EA were identified as meeting the underlying purpose and need for the action. The alternatives eliminated did not fully meet the selection criteria established for the Proposed Action. The No Action Alternative is carried forward for analysis as a baseline against which all other alternatives are compared, in accordance with CEQ regulations [40 CFR 1502.14(d)].

2.2 Selection Criteria for Alternatives

To be considered a reasonable alternative, the proposed flow control structures should improve the management of stormwater and other fluids that are discharged offbase and improvements to the sampling points should improve the safety of collecting stormwater samples. A reasonable alternative should provide a cost efficient and effective solution with minimal impact on the natural and man-made environment. Reasonable alternatives for controlling stormwater runoff and sampling stormwater at Grand Forks AFB should accomplish the following:

- Be low cost, so that it can be constructed with available funding
- Be effective in the control of stormwater runoff discharges offbase
- Increase flexibility of available emergency personnel to prevent/control stormwater discharges offbase
- Be environmentally sound and avoid or minimize impacts to the natural and man-made environment
- Provide a safe and effective access to the outfall areas for stormwater sampling
- Comply with state and federally mandated sampling requirements and protocols

2.3 Alternatives Considered but Eliminated from Detailed Study

An alternative to installing flow control structures in the stormwater ditches is to build detention basins adjacent to the ditches to control the amount of discharge offbase. This alternative was not analyzed in detail, because it was determined early in the EA process

that this would not meet the requirement for being low cost. In addition, detention basins would attract waterfowl and would increase the potential for a bird aircraft strike hazard. Because safety is the primary concern for airfield operations and in order to minimize impacts to the man-made environment, this alternative was deemed to be infeasible.

2.4 Description of Proposed Alternatives

2.4.1 Proposed Action (Construction of Flow Control Structures and Sampling Points)

The Air Force proposes to construct flow control structures in all four stormwater ditches at Grand Forks AFB (see Figure 2-1). The flow control structures would be built in locations to be identified by the 319th Civil Engineering Squadron (CES). The structures themselves would be completely within the embankments of the ditches. The flow control structure would consist of a barrier (earthen or concrete) that extends between the two slopes of the ditch. The width of the barrier would be determined by the width of the ditch. A pipe, sized according to the general hydraulics of the ditches, with either a head gate or a valve would be installed in the barrier. The head gates or valves would be operated manually by emergency personnel. The gates or valves would effectively reduce or retard the flow of stormwater and other fluids offbase. The gates or valves would only be used during emergencies, to prevent or control the discharge of potentially environmentally harmful liquids.

The sampling points would consist of stairs constructed on the slope of the ditch, most likely of wood construction with concrete footers for the posts. A platform, surrounded by a railing, would be placed close to the toe of the slope to allow sampling personnel to lean over the railing to collect stormwater samples. This would significantly improve the safety of accessing the ditch and provide a stable platform from which to operate. It would also provide a specific point in the ditch for gathering the stormwater samples, effectively allowing Grand Forks AFB to meet permit requirements, sampling protocols, and NPDES permit mandates.

2.4.2 Alternative 2: Emergency Flow Control Measures and Sampling Methods

A second build alternative, Alternative 2, is to erect a hasty dam to prevent the discharge of stormwater offbase. A hasty dam is constructed by placing a load of soil at the outfall pipe. This method of controlling the flow of stormwater would not provide a timely response to a release and would allow contaminants to flow offbase. It would also require constant supervision to ensure that the hasty dam did not fail due to normal erosion activity. In addition, stormwater sampling would be conducted further downstream at more accessible locations.

2.4.3 No Action Alternative

Inclusion of the No Action Alternative is prescribed by CEQ regulations at 40 CFR 1502.14 (d). Although the No Action Alternative does not satisfy the purpose and need for the Proposed Action, it serves as a baseline against which the impacts of the Proposed Action can be evaluated.

Under the No Action Alternative, flow control structures and stormwater sampling points would not be constructed at the four outfalls.

Currently, stormwater runoff is discharged to the Base's four stormwater ditches via a series of inlets, grated manholes and culvert pipes. Stormwater in the West, North and Northwest Ditches runs unimpeded to the outfall points; a sluice gate on the South Ditch controls a portion of that outfall. Stormwater continues offbase in ditches until reaching the Turtle River, west of Grand Forks AFB, and tributaries that feed Kelly's Slough NWR (a tributary to the Turtle River), east of the Base. The stormwater inlets and grated manholes are located along the aircraft ramps, staging areas, and portions of the runway.

In the winter, deicing fluid is used for safe operation of aircraft. Overspray is collected in a system of inserts installed in deicing pad catch basins and periodically removed for disposal. Fugitive deicing fluid is collected by a vacuum truck. Deicing fluid neither captured in the inserts nor collected by the truck is deposited on snow which, upon melting, carries the remnant deicing fluid to the inlets and grated manholes and is eventually discharged to the stormwater ditches. Additionally, in the event of aircraft crash involving, e.g., a KC-135R/T Stratotanker, jet fuel could be released into the stormwater system and would eventually migrate to the Turtle River and Kelly's Slough NWR.

If the stormwater ditch system remains unchanged, stormwater discharges would continue to run unimpeded to the Turtle River and Kelly's Slough NWR. The potential for environmental impacts to these receiving waters would continue. In addition, stormwater samples would continue to be collected in an unsafe manner. The personnel involved in this activity would continue to follow precarious paths down the ditch slope, exposing them to injury due to falling. This alternative would not ensure that the stormwater sampling is conducted in the same location each time. The No Action Alternative would have the potential of placing Grand Forks AFB in jeopardy of violating state and federal laws regarding water quality.

2.5 Description of Past and Reasonably Foreseeable Future Actions Relevant to Cumulative Impacts

This EA identifies the past, present and reasonably foreseeable future actions that have the potential to interact with the Proposed Alternative in Section 4.15.

2.6 Identification of Preferred Alternative

The Air Force's preferred alternative for this EA is to implement the Proposed Action as described in Section 2.4.1.

2.7 Comparison of the Environmental Impacts of Alternatives

Table 2-1 compares the environmental effects of the alternatives described above.

TABLE 2-1

Summary of Potential Environmental and Socioeconomic Consequences

Stormwater Control and Devices Environmental Assessment, Grand Forks Air Force Base, North Dakota

Resource	Environmental and Socioeconomic Consequences		
	Proposed Action	Alternative 2	No Action Alternative
Air Quality	Short-term minor adverse due to construction	Short-term minor adverse due to construction	No effects
Noise	Short-term minor adverse	Short-term minor adverse	No effects
Wastes, Hazardous materials and Stored Fuels	No effects	No effects	No effects
Water Resources			
• Floodplains	No effects	No effects	No effects
• Wetlands	Long-term minor adverse effects (filling of wetland)	Short-term minor adverse effects	No effects
• Groundwater	No effects	No effects	No effects
• Surface Water	Long-term major beneficial effects	Short-term minor adverse effects	Long-term minor adverse effects
Biological Resources			
• Vegetation and Wildlife	Short-term minor adverse effects due to construction	Short-term minor adverse effects due to construction	No effects
• Threatened or Endangered Species, Federal/State	No effects	No effects	No effects
Socioeconomic Resources	Short-term minor beneficial effects	No effects	No effects
Cultural Resources	Long-term minor adverse effects (if unknown artifacts are disturbed)	No effects (no ground disturbing activities)	No effects
Land Use	No effects	No effects	No effects
Transportation Systems	Short-term minor adverse effects	Short-term minor adverse effects	No effects
Airspace/Airfield Operations	No effects	No effects	No effects
Safety and Occupational Health	Long-term minor beneficial effects	Long-term minor adverse effects	Long-term minor adverse effects
Environmental Management			
• Pollution Prevention	Long-term minor beneficial effects	Short-term minor adverse effects (sediment)	Long-term minor adverse effects
• Geology and Soils	Short-term minor adverse effects due to construction	Short-term minor adverse effects due to construction	No effects

TABLE 2-1

Summary of Potential Environmental and Socioeconomic Consequences

Stormwater Control and Devices Environmental Assessment, Grand Forks Air Force Base, North Dakota

Resource	Environmental and Socioeconomic Consequences		
	Proposed Action	Alternative 2	No Action Alternative
Environmental Justice	No effects	No effects	No effects
Indirect and Cumulative Impacts	No effects	No effects	No effects
Unavoidable Adverse Impacts	Long-term minor adverse effects (wetland fill)	Short-term minor adverse effects (wetland fill)	No effects
Relationship between Short-term Uses and Enhancement of Long-term Productivity	No effects	No effects	No effects
Irreversible and Irretrievable Commitment of Resources	Short-term minor adverse effects	Short-term minor adverse effects	No effects

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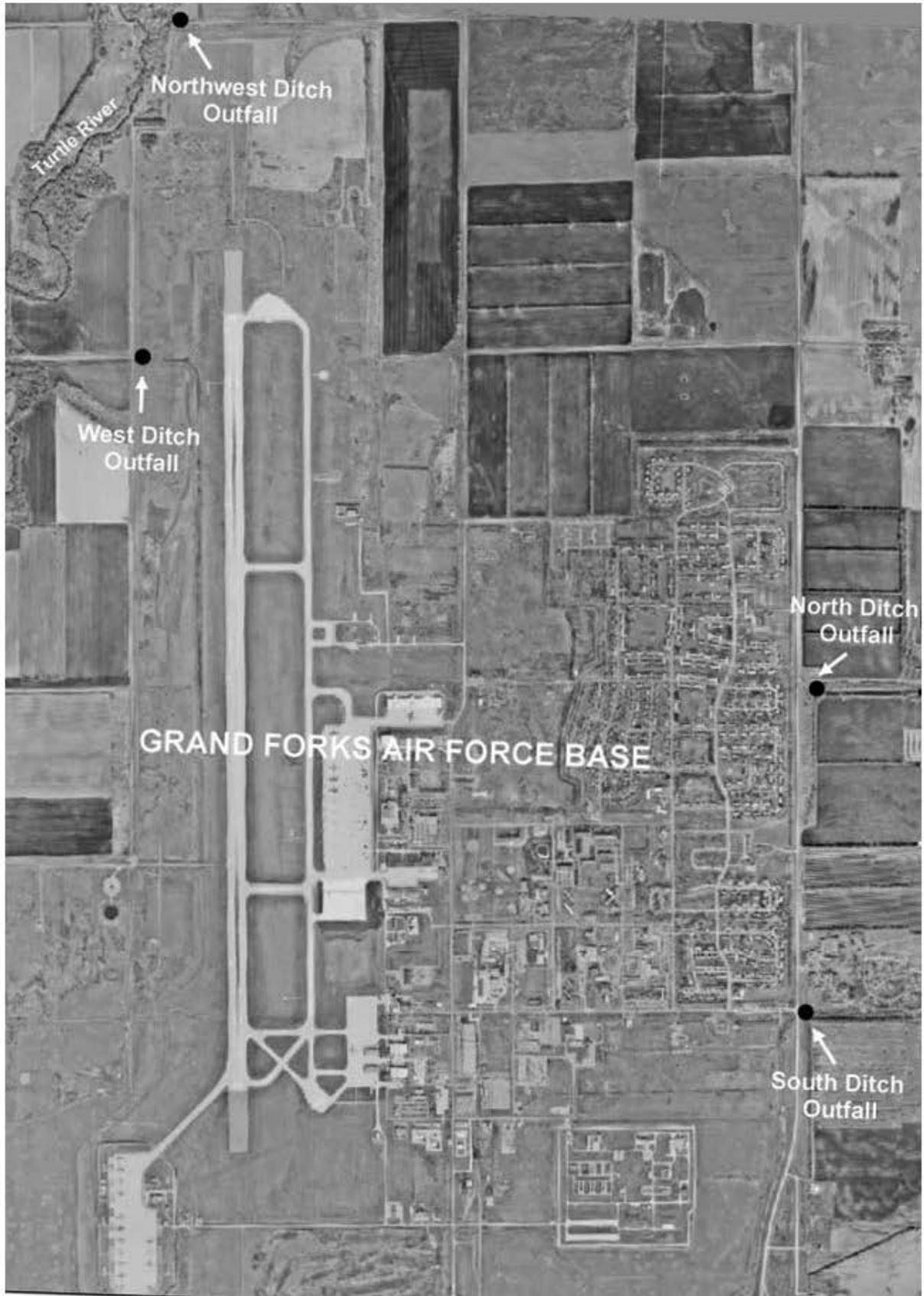


FIGURE 2-1
STORMWATER OUTFALLS
 STORMWATER CONTROL AND DEVICES
 ENVIRONMENTAL ASSESSMENT
 GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

Affected Environment

3.1 Introduction

This section describes the relevant environmental conditions at Grand Forks AFB for resources that would be potentially affected by implementation of the Proposed Action and alternatives described in Section 2.0. Although the expected geographic scope or region of influence (ROI) of some potential impacts includes all of Grand Forks AFB and certain adjacent areas, the actual limit of ground disturbance for the Proposed Action would be less than 1 acre. In compliance with guidelines contained in CEQ regulations, the description of the affected environment focuses on those resources potentially subject to impacts.

3.2 Air Quality

3.2.1 Regulatory Requirements

The CAA (42 USC §7401, et seq., as amended) requires the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The CAA established two types of national air quality standards – Primary and Secondary. Primary standards set limits to protect public health with an adequate margin of safety, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

The EPA Office of Air Quality Planning and Standards has set NAAQS for six principal pollutants, which are called criteria pollutants. These are ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), and particulate matter less than 10 microns in diameter (PM_{10}) and less than 2.5 microns in diameter ($PM_{2.5}$). Most ozone is a result of volatile organic compounds (VOC) and nitrogen oxides (NO_x) reacting with sunlight. Units of measure for the standards are parts per million (ppm) by volume, milligrams per cubic meter of air (mg/m^3), and micrograms per cubic meter of air ($\mu g/m^3$). Areas that meet the NAAQS for a criteria pollutant are designated as being in attainment; areas not meeting NAAQS are designated as nonattainment areas for specified pollutants.

The North Dakota Air Quality Standards (North Dakota Administrative Code (NDAC) Title 33) sets air quality standards and the North Dakota Hazardous Air Pollutants (HAP) Emission Standards (NDAC Title 33) establishes standards for hazardous air pollutants for the state. Provisions for the control of air pollution in the state are provided in the North Dakota Air Pollution Control Act (NDAC Title 23). The North Dakota Ambient Air Quality Standards (NDAAQS) are more stringent than the federal NAAQS. In addition to the six NAAQS, North Dakota also has a standard for hydrogen sulfide (H_2S). Existing Conditions

Grand Forks AFB is located in EPA Air Quality Control Region VIII. Data from the North Dakota Department of Health (NDDH) air quality monitoring survey found that the ambient quality in North Dakota is generally good. The entire North Dakota Air Quality Control Region (including Grand Forks County) is in attainment for all NAAQS criteria pollutants.

Prevention of significant deterioration (PSD) regulations (40 CFR §52.21) establish air quality levels that cannot be exceeded by major stationary emission sources in specified geographic areas. Grand Forks AFB is located in a PSD Class II area, which means that the addition of a major source or a significant increase in emissions from stationary sources would be subject to limits under PSD regulations. A significant increase in emissions would include 100 tons per year (tpy) of CO; 40 tpy of NO_x, VOCs, or SO_x; or 15 tpy of PM₁₀. These limits do not include emissions from mobile sources during construction of facilities.

3.2.2 Existing Conditions

An air emissions survey, conducted for Grand Forks AFB in 2001, found only minor levels of hazardous air pollutants (HAP) generated on base and actual emissions below PSD air quality levels (Air Force, 2002). However, Grand Forks AFB is a major stationary source because the potential to emit for NO_x and CO is more than 100 tpy. The 2001 emissions inventory from the NDDH Title V Permit for Grand Forks AFB is presented in Table 3-1.

TABLE 3-1

Air Pollutant Emissions (tpy) for 2001 at Grand Forks AFB

Stormwater Control and Devices Environmental Assessment, Grand Forks Air Force Base, North Dakota

Emissions	PM₁₀	NO_x	SO_x	CO	VOC	HAP
Actual Stationary Sources	1.4	29.8	1.4	12.7	18.8	2.2
Potential to Emit	33.3	422.0	31.6	132.0	77.0	6.6

Source: Air Force, 2002

3.3 Noise

Federal agencies must comply with the Noise Control Act of 1972 (42 USC §4901, et seq.), which establishes a policy to promote an environment free from noise harmful to the health and welfare of people. The range of ambient noise in the United States varies up to 50 decibels A-weighted (dBA) based on a number of different factors (EPA, 1974). Some of the factors are distance from major thoroughfares and airports, population density, and time of day. Noise is any unwanted sound that disrupts normal activities or otherwise reduces the quality of the environment. It ranges from the threshold of human hearing at 10 dBA to 80 dBA which most residents would find annoying. Ground-generated noise attenuates approximately 6 dB for every doubling of distance from the noise source.

The primary source of noise on Grand Forks AFB is from fixed-wing aircraft operations. Other sources include vehicular traffic and construction activities. The number of daily aircraft operations directly affects the level of noise at Grand Forks AFB. The Air Force developed the Air Installation Compatible Use Zone (AICUZ) Program (AFI 32-7063) to protect Air Force installations from incompatible land use and to assist local, state, and

federal officials in protecting and promoting public health, safety, and welfare by providing information on aircraft accident potential and noise.

Noise contours from the AICUZ for Grand Forks AFB indicate that the west stormwater ditch outfall is located in the 70 to 75 dBA sound level contours (Air Force, 1995). The remaining outfall points are located outside of the 65 to 75 dBA sound level contours. Figure 3-1 presents noise levels associated with construction equipment (located at the end of Section 3).

Three of the stormwater outfall points are located near residential noise receptors. The distances to these noise receptors from the location of the Proposed Actions range from 450 feet to 1,400 feet in distance. The west stormwater ditch outfall point is not located near a sensitive noise receptor.

3.4 Wastes, Hazardous Materials, and Stored Fuels

Hazardous materials include, but are not limited to, hazardous substances, hazardous wastes, or any materials that pose a potential hazard to human health and safety or the environment due to their quantity, concentration, or physical and chemical properties. Hazardous wastes are products characterized by their ignitability, corrosiveness, reactivity, and toxicity. Hazardous waste includes any waste which, due to its quantity, concentration, or physical/chemical/infectious characteristics, may either (1) cause or significantly contribute to an increase in mortality, serious irreversible illness, or incapacitating reversible illness; or (2) pose a substantial threat to human health or the environment. Hazardous materials (e.g., petroleum fuels, flammable solvents, paints, corrosives, pesticides, and cleaners) are used and managed through the hazardous materials pharmacy program.

3.4.1 Hazardous Waste

Grand Forks AFB is classified as a small quantity hazardous waste generator, greater than 100 kilograms (kg) but less than 1,000 kg per month. Grand Forks AFB does not maintain a permitted hazardous waste storage facility. All wastes are stored in containers and may be accumulated for up to 180 days at the central accumulation site located at Base Supply. The Grand Forks AFB Hazardous Waste Management Plan (Plan 7042) assigns organizational responsibilities for the handling of hazardous waste (Grand Forks AFB, 2001b).

3.4.2 Solid Waste Management

Grand Forks AFB has a mandatory recycling program to facilitate management of non-hazardous solid waste from military family housing, dormitories, industrial shops, offices, tenants, and contractors. Grand Forks AFB has a Qualified Recycling Program (Grand Forks AFB, 2001b) managing a monthly average of 260 tons of waste; 120,000 tons of construction/demolition debris was diverted for reuse and recycling in 2000. Municipal waste generated at Grand Forks AFB is disposed of at the Grand Forks Municipal Landfill, approximately 12 miles from the Base.

Grand Forks AFB also operates a land treatment facility (IT-183) for the remediation of petroleum-contaminated soils (PCS). PCSs are generated on-base through spills, are

encountered while excavating for various subsurface repairs, or encountered while replacing or removing underground storage tanks (UST) and piping.

3.4.3 Installation Restoration Program

The IRP at Grand Forks AFB was initiated in 1984. Grand Forks AFB is not on the EPA's National Priorities List for site cleanup (Grand Forks, AFB 2003).

In 1993, the seven existing IRP sites and 48 newly-identified areas of concern were grouped together and reclassified as 20 solid waste management units (SWMUs). All SWMUs are subject to RCRA Corrective Action and are regulated by the Base's RCRA Corrective Action Permit.

None of the IRP and RCRA sites on Grand Forks AFB are in close proximity to any of the outfall points.

3.4.4 Underground Storage Tanks

Gasoline, diesel fuel, heating fuel, JP-8, and oil-water separator (OWS)-recovered oils are stored in 39 USTs on Grand Forks AFB. Twenty regulated USTs include three gasoline tanks, eight diesel tanks, three JP-8 tanks, and six OWS product recovery tanks. Deferred USTs include 14 JP-8 tanks, of which nine are no longer in use and are programmed for removal. Five USTs exempt from regulation include one heating oil tank, four emergency spill containment tanks, and one hydraulic oil recovery tank.

These USTs are not in close proximity to any of the outfall points and do not require further analysis in this EA.

3.4.5 Aboveground Storage Tanks

Gasoline, diesel fuel, heating oil, JP-8, and used oil are stored in sixty-six (66) aboveground storage tanks (AST). The majority of petroleum is JP-8 stored in seven tanks with a capacity of 3,990,000 gallons for the hydrant fuel system. Diesel fuel is stored in 51 tanks primarily for emergency generators. Other tanks include: heating oil stored in two tanks; gasoline stored in two tanks; and used oil stored in four tanks. All ASTs have secondary containment. The six hydrant fuel system tanks each are contained by a concrete dike system. Runway deicing fluid (potassium acetate) is stored in two 5,000-gallon tanks while aircraft deicing fluid (propylene glycol) is stored in a 20,000 gallon tank (Type I) and a 4,000 gallon tank (Type IV).

These ASTs are not in close proximity to any of the outfall points and do not require further analysis in this EA.

3.5 Water Resources

Water resources include both surface water and groundwater (see Figure 3-2). Surface water includes all the lakes, rivers, streams, and wetlands, within a watershed. Groundwater includes aquifers. The Clean Water Act of 1972 (CWA) is the primary federal law that protects the waters of the United States. Since 1972, additional regulations have been enacted to meet the objective of maintaining and restoring the integrity of those water

bodies. The National Pollutant Discharge Elimination System (NPDES) permit program establishes federal limits on discharge of pollutants to surface waters.

3.5.1 Surface Water

Grand Forks AFB falls entirely within the watershed boundaries of the Turtle River. The Turtle River watershed includes 311 square miles. The Turtle River originates approximately 10 miles west of Grand Forks AFB and its northeastward flow to the Red River crosses the northwestern corner of the Base. The Turtle River joins the Red River approximately 25 miles northeast of Grand Forks AFB. The Turtle River is a fourth order tributary to the Red River and accounts for only 1.5 percent of the total discharge to the Red River.

Stream banks of the Turtle River tend to be steep (with the highest banks being 12-13 feet), highly eroded and subject to slumping. Riparian vegetation is confined to narrow strips consisting mostly of woody shrubs. Aquatic plants grow in shallow areas, but are limited in deeper or more turbid areas.

The Turtle River has a Class II stream designation from the NDDH, which means that the water is the same overall quality as Class I, but that it may require additional treatment to meet the requirements of drinking water. Streams in this category may be intermittent, making them less beneficial to uses such as municipal water, fish life or irrigation.

Surface water impoundments on Grand Forks AFB include the sewage treatment lagoons, the dormitory reflection pond and the impoundment in the fire training area.

3.5.2 Stormwater

There are four ditches conveying stormwater from a variety of individual stormwater outlets at the Base. The ditches are man-made and they discharge at the property boundary to receiving waters in the immediate vicinity of the facility, under an approved NPDES permit (General Permit No. NDR02-0314, April 1, 2000). The South and North Ditches collect stormwater and discharge it to Kelly's Slough, which is approximately 2 miles east of Grand Forks AFB. The West and Northwest Ditches collect and discharge stormwater to the Turtle River.

The four stormwater drainages are designated the Northwest Ditch, West Ditch, South Ditch, and North Ditch. The Northwest Ditch collects drainage from the old sanitary landfill area, the new sanitary landfill area (both closed and capped), the Base small arms range, the northern-most end of the airfield and the eastern flowing drainage of the north half of the parallel taxiway. Under typical working conditions, the entire area would not pose a stormwater contamination threat. The West Ditch collects drainage from the majority of the airfield runway and taxiway areas (including associated pavement underdrain systems), the two largest aircraft parking aprons, the area around the now-closed Explosive Ordnance Detonation Area (EODA), and the western perimeter area of the Base. The South Ditch collects drainage from the central and south portions of the Base. The South Ditch has a south tributary which drains vehicle maintenance, power production, and the main bulk fuel storage area; and a north tributary which receives stormwater from hangars, selected aircraft maintenance areas, and non-industrial areas.

The South Ditch has a sluice gate, located near the Base's East Gate, which can be operated to control or prevent discharge of stormwater offbase. The Base maintains four 50,000 gallon oil/water separators, in addition to several smaller oil/water separators. The West Ditch has a 50,000 gallon oil/water separator located along the drainage course. A second 50,000 gallon oil/water separator is located along the north tributary of the south drainage ditch. A third 50,000 gallon oil/water separator is located near the East gate to collect drainage from the main Base storm sewer system prior to discharge at the South Ditch outfall. A fourth 50,000 gallon oil/water separator is located along the storm sewer system prior to discharge at the North Ditch outfall.

As a result of the activities in these drainage areas, stormwater discharging to surface waters via the Northwest, West, South, and North Ditches has the potential to contain "significant materials". Based on the definition of General Stormwater Permit, Part VI, the significant materials that may be present in surface-discharged stormwater include propylene glycol, fuels (jet fuel, diesel, and motor vehicle gasoline), oils and lubricants, used oils, and hazardous chemicals under CERCLA Section 101 (14).

The 319 Bioenvironmental Engineering Flight samples the stormwater outfalls monthly during the months that aircraft are deiced. Construction projects that disturb 1.0 or more acres are required to obtain a construction permit from the NDDH and use Best Management Practices (BMP) to control erosion and sedimentation.

3.5.3 Groundwater

Groundwater in Grand Forks County occurs in unconsolidated glacial drift aquifers, and in rocks of Cretaceous and Ordovician age underlying the glacial deposits. The Emerado Aquifer is a major glacial drift aquifer underlying Grand Forks AFB approximately 50 to 75 feet below ground surface.

The principal bedrock aquifer in the area is the Dakota Aquifer, which is a widespread regional aquifer present in most of the Great Plains states. The aquifer is comprised of Lower Cretaceous strata, which are primarily the Fall River and Lakota Formations in the vicinity of Grand Forks AFB. Wells tapping the Dakota Aquifer in the vicinity of Grand Forks AFB are generally in the 100 to 200-foot depth range.

Grand Forks AFB does not contain any potable water wells, but does obtain 20 percent of its potable water from groundwater sources via the Agassiz Water Users Association. The remainder of the Base's potable water needs is supplied through the City of Grand Forks, who intake their water from the Red River and Red Lake River.

3.5.4 Floodplains

The shape of the Red River Valley has resulted from past glacial activity. The floodplain is poorly defined, and floods are frequent. Flooding usually lasts only for a short period because of a vast network of drainage ditches and channelized streams. The Red River has several basin characteristics that make it susceptible to flooding, including an undersized main channel in relation to its floodplain, a small main channel gradient, and a northerly flow that synchronizes flooding with the northerly progression of the spring thaw. Floods typically occur during late spring resulting from quick temperature rise, spring rains, snowmelt, and soil-moisture content held over from the fall. Floods in the Red River Valley

can be severe, such as one in early 1997, which caused the evacuation of the entire town of Grand Forks.

Review of the National Flood Insurance Rate Map (FIRM) indicates that a small portion of the Turtle River's 100-year floodplain is located in the extreme northwest corner of the Base where the river crosses the Grand Forks AFB boundary and in close proximity to the Proposed Action in the Northwest Ditch.

3.5.5 Wetlands

Wetlands on Grand Forks AFB occur frequently in stormwater drainage ways, low lying depressions, and potholes. Wetlands are highly concentrated in drainage ways leading from the wastewater treatment lagoons to Kelly's Slough NWR. The wetlands located immediately east of the Base contain extensive emergent marshes. The majority of other wetland areas occur in the north central portions of the Base at the end of the airfield and southwest of the airfield, while the remaining areas are near the eastern boundary and southeastern corner of the Base.

According to the 2004 wetland inventory activities conducted at Grand Forks AFB, a total of 195 wetland areas were discovered on Grand Forks AFB property, comprising 301 acres. The majority of the wetlands are less than an acre in size. Palustrine wetlands compose the majority of the total at approximately 298 acres. Lacustrine wetlands associated with the Base sewage lagoons, but not the lagoons themselves, make up approximately 3 acres. The remaining 3 acres are riverine wetlands found in the northwest corner of the Base near the Turtle River. The wetland areas located during the 2004 survey were not submitted to the US Army Corp of Engineers for jurisdictional review according to Section 404 of the Clean Water Act. However, during a previous survey in 2000, 33 wetlands, comprising 12.2 acres, were delineated west of the runway and were deemed jurisdictional by the US Army Corps of Engineers. Development in or near any potential wetland area should include coordination with the North Dakota State Water Commission and the U.S. Army Corps of Engineers. Any approved construction requires compliance with the "No-Net-Loss" policy.

In addition, stormwater drainage ways (including the sites of the Proposed Action) and low-lying depressions on Grand Forks AFB generally have extensive, although intermittently localized palustrine emergent marsh and palustrine scrub-shrub wetland habitat. This is due to the decrease in elevation compared to the relatively flat terrain surrounding the Grand Forks AFB and the heavy clay soils that prevent rapid water absorption. These stormwater drainage ways and low-lying depressions were not included during the February 2000 *Final Wetland Identification and Jurisdictional Report* and as mentioned previously, the jurisdictional status of these areas in regards to Section 404 of the Clean Water Act is not known. Species most commonly associated with the emergent marsh and scrub-shrub wetland areas include cattail (*Typha latifolia* and *Typha angustifolia*), water smartweed (*Polygonum coccineum*), spike rush (*Eleocharis sp.*), water dock (*Rumex pseudonatronatus*), soft rush (*Juncus effusus*), Indianhemp dogbane (*Apocynum cannabinum*), sedge (*Carex sp.*), reed canary grass (*Phalaris arundinacea*), willow (*Salix exigua*), and cottonwood (*Populus deltoides*) (Grand Forks AFB, 2004).

3.6 Biological Resources

Grand Forks AFB is in the Bluestem Prairie region of the Northern Great Plains physiographic region (Grand Forks AFB, 2003). This tallgrass prairie community originally covered eastern North Dakota southward to South Dakota and Nebraska. The physiographic region and land management practices have influenced the occurrence of vegetation, wildlife, and threatened and endangered species.

3.6.1 Vegetation

Prior to land acquisition for development of Grand Forks AFB in 1956 by the DoD, the land was intensively cultivated for agricultural production. Many of the unimproved areas remain in cultivation under agricultural outleases for hay and alfalfa (*Medicago sativa*). There are no known remnants of the tallgrass prairie on Grand Forks AFB. When the initial construction of the Base was completed in the 1950s, smooth brome (*Bromis inermis*) and Kentucky bluegrass (*Poa pratensis*) were planted in the developed areas. Leafy spurge (*Euphorbia esula*) and Russian thistle (*Salsola tragus*) are noxious weeds that are common in some areas. The dominant trees on Grand Forks AFB are elm (*Ulmus Americana*), eastern cottonwood (*Populus deltoids*), and green ash (*Fraximus pennsylvanica lanceolata*). Understory vegetation includes the highly invasive and exotic species European buckthorn (*Rhamnus cathartica*) and Russian olive (*Elaeagnus angustifolia*), common chokecherry (*Promos virginiana*), and wood rose (*Rosa woodsii*). Common forbs include wood nettle (*Laportea canadensis*), stinging nettle (*Urtica dioica*), and beggar ticks (*Bidens frondosa*) (Grand Forks AFB, 2003).

The slopes of the stormwater ditches are vegetated with a brome grass mix and in some instances small shrubs.

3.6.2 Wildlife

In general, Grand Forks AFB supports a good diversity of wildlife species, given its location within an agricultural matrix. The western, less developed, portions of the Base appear to support larger species, such as deer and fox, compared to the more developed and manicured areas in the central and eastern portions of the Base. Abundant wildlife habitats and wildlife populations occur on Kelly's Slough National Wildlife Refuge (3 miles northeast of Grand Forks AFB) and Turtle River State Park (5 miles west of Grand Forks AFB). Nuisance wildlife species on Grand Forks AFB include Richardson's ground squirrel (*Spermophilus richardsonii*) and whitetail jackrabbit (*Lepus townsendi*). Review of the Integrated Natural Resources Management Plan (INRMP) and field observations indicate that the project areas provide only minimal habitat for small mammals and birds.

3.6.3 Threatened and Endangered Species

According to the 2003 Draft INRMP, there are no federal or state threatened or endangered species known to occur on Grand Forks AFB. However, two federally-listed threatened species are known to occur in Grand Forks County: the Bald eagle (*Haliaeetus leucocephalus*), and Gray wolf (*Canis lupus*). A bald eagle was observed in flight over an area west of the flightline during the winter of 2003-2004. In addition, a bald eagle was observed to be using the sewage lagoons as hunting grounds in October and November, 2003. The USFWS North

Dakota Field Office was contacted and confirmed that the information on the federally-listed species was still valid (see Appendix B).

The Biological Survey Update recently conducted for the Base documented several state species of concern on Grand Forks AFB, during three field surveys in July and December 2003 and in June 2004. The state-listed rare plant species, yellow lady slipper, was found on the Base in June 2004 during a biological inventory update. State rare birds observed in the update survey include the ferruginous hawk (*Buteo regalis*), green heron (*Butorides virescens*), pileated woodpecker (*Drycopus pileatus*), and white-throated sparrow (*Zonotrichia ablicollis*).

The Draft Biological Survey Report notes that a green heron was spotted near the West Ditch during a July 2003 bird survey. It also states that in May 2004, white-throated sparrows were seen in the Turtle River area near the Northwest Ditch. No other species of concern were documented as occurring in or adjacent to the stormwater ditches.

3.7 Socioeconomic Resources

The ROI for this analysis is Grand Forks County. Socioeconomic conditions in the ROI could be affected if a Proposed Action caused changes in the rate of population growth, demographic characteristics, or employment. In addition to these characteristics, populations of special concern, as addressed by EO 12898 and EO 13045 (Environmental Justice and Protection of Children), are identified and analyzed in section 3.14 and 4.14. The local housing market, schools, community services, and infrastructure are not evaluated because there are no personnel changes associated with the Proposed Action that would affect demand for these services.

3.7.1 Population

Grand Forks County had a 3.2 percent decrease in population from the 1990 Census to a population of 66,109 in 2000. The median age was 29.2 years. The City of Grand Forks had a 2000 Census population of 49,321, which was a 0.5 percent decrease from the 1990 figures. The countywide population declined during this period as a result of two major events: a citywide flood that occurred in the City of Grand Forks, and the deactivation of the 321st Missile Group in 1997, following a 1995 Base Realignment and Closure (BRAC) Commission decision to realign the ICBMs from the 321st Missile Group missile complex to Malmstrom AFB, Montana. Grand Forks County had 10.3 percent of the total population in North Dakota in 2000. The state population grew by 0.5 percent between 1990 and 2000 (U.S. Census Bureau, 2003).

In 2004, approximately 3,650 individuals live on Grand Forks AFB in 1,358 family housing units and 613 dormitory rooms provided for military service members and their families.

3.7.2 Income and Employment

Total personal income for 2001 in Grand Forks County was \$1.69 billion and per capita income was \$26,031, while the State of North Dakota had a per capita income of \$29,248 (Bureau of Economic Analysis, 2003). Grand Forks AFB is the third-largest employer in Grand Forks County, with approximately 2,624 active duty military employees and 347 civilian employees in 2004.

In 2000, Grand Forks County had a labor force of 37,211, from a population of 52,229 persons 16 years and older (U.S. Census Bureau, 2003). The civilian labor force was 94 percent and the military labor force was 6 percent of the total labor force. Average monthly unemployment in both Grand Forks County and North Dakota was 3.5 percent in 2003 (North Dakota Job Service, 2003).

3.8 Cultural Resources

Cultural resources consist of historic properties, which include both archeological resources (prehistoric and historic) and architectural resources that are eligible for inclusion in the National Register of Historic Places (NRHP); as well as traditional cultural properties, which may include archeological sites, buildings, prominent topographic features, objects, habitats, plants, animals, and minerals that hold importance or significance to Native Americans or other ethnic groups in the persistence of traditional culture.

Such resources are protected under several laws, including the Native American Graves Protection and Repatriation Act and the National Historic Preservation Act (NHPA). Section 106 of the NHPA requires federal agencies with jurisdiction over a federal or federally assisted or federally licensed undertaking to consider the effects of that undertaking on properties that are listed eligible for listing on the NRHP; and to provide an opportunity for comment and consultation with the State or Tribal Historic Preservation Officer (SHPO or THPO). The action must also comply with AFI 32-7065, Cultural Resources Management.

3.8.1 Archeological Resources

The 2003 Integrated Cultural Resources Management Plan (ICRMP) developed for Grand Forks AFB includes a synopsis of previous cultural resources surveys and architectural inventories conducted, and outlines and assigns responsibilities for the management and preservation of cultural resources at the Base (AMC 2003). The ICRMP indicates that Grand Forks AFB has completed its inventory and identification of archeological resources under Section 110 of the NHPA and that no new inventory efforts are needed.

Two archeological surveys have been conducted at Grand Forks AFB. In 1989, a survey of 235 acres was conducted, identifying two archeological sites and three isolated finds (Artz, 1989). In 1995-1996, an intensive (Class III) archeological survey was conducted of 740 acres of the Base (AMC, 1996a). A potential for deeply buried archeological sites has been identified within the terraces of the Turtle River, within proximity of the Northwest Ditch outfall. No known archeological sites exist within the drainage ditches.

3.8.2 Historic Architectural Resources

Historic architectural surveys have been completed for Grand Forks AFB. However, there are no historic architectural resources in close proximity of the Proposed Action sites.

3.8.3 Traditional Cultural Properties

Grand Forks AFB has not identified any Native American sacred sites or properties of traditional religious and cultural importance on the Base. During the development of the

2003 ICRMP, Grand Forks AFB sent letters to the Fort Berthold Reservation, the Fort Totten Reservation, the Standing Rock Reservation, the Turtle Mountain Band of Chippewa, and the Indian Affairs Commission; to inquire whether there are any known sacred sites or other culturally sensitive areas on Grand Forks AFB. To date, no new information has been acquired.

3.9 Land Use

Grand Forks AFB land use plan lists ten specific land uses. The predominant land use at Grand Forks AFB is Airfield, accounting for nearly 42 percent of the Base's total area. The next largest land use is Open Space. Together, Open Space and Airfield land uses account for nearly two-thirds of the Base's total land area.

Two of the stormwater ditch outfalls, west and northwest, occur in the airfield land use zone. The remaining two outfall areas are located outside of the Base's land use planning jurisdiction, but can be characterized as rural or agricultural.

3.10 Transportation Systems

The existing roadway systems in Grand Forks County provide ready access to Interstate 29 and the regional highway systems. There are two entrances to the Base. The primary entrance is the main gate, which handles most offbase traffic and provides access to Steen Boulevard, the primary east-west roadway. The South Gate connects U.S. Highway 2 to Eielson Street. The traffic on Base is characterized as slight, except for rush hour in the morning and afternoon.

Steen Boulevard acts as the center spine of the Base roadway system. It begins at the main Base entrance on County Highway B-3 and terminates at the air operations area. The first two of four primary intersections along Steen Boulevard are for accessing family housing; the third intersection accesses Holzapple Street for commercial areas, and the fourth intersection accesses Eielson Street for flight line operations. Eielson Street is the longest single road at Grand Forks AFB, spanning the main Base north to south, crossing Steen Boulevard. North Eielson Street provides access to the northern end of the flight line, while South Eielson Street is the connection to the southern end of the flight line area and the Base industrial area (Grand Forks AFB, 2001b).

All of the outfall points are accessible by offbase roadways. The Proposed Action at the West Ditch is within the security perimeter of the Base and is only accessible through a secured gate.

3.11 Airspace/Airfield Operations

Grand Forks AFB has one runway, which is 12,350 feet long. The primary unit that utilizes the airfield is the 319th Air Refueling Wing (ARW). There are no other tenants units that use the airfield. There are about 18,000 landings and takeoffs per year at Grand Forks. KC-135s are the predominant type of aircraft that utilizes the airfield. A small percentage of transient aircraft, from jet fighters to C-5 Transports, use Grand Forks annually.

Only the West Ditch outfall is located near the airfield.

3.12 Safety and Occupational Health

Health and safety issues relevant to the Proposed Action include construction job site safety, and worker occupational health and safety. The potential areas of concern for worker health and safety at Grand Forks AFB are the defined clear zones associated with airfield runways defined under 14 CFR 77 (Federal Aviation Regulations - Objects Affecting Navigable Airspace). Permissible uses, structure heights, and construction material in these areas are prescribed to protect both the safety of the aircrews and the safety of persons and property on the airfield.

As a part of the contracts for construction services, standard terms and conditions include safety as a priority. Areas of concern include compliance with regulations typical to construction projects, such as confined space regulations; minimum personal protection equipment standards including footwear, hardhats, and eye protection; heavy equipment operations; and limited access to the airfield.

Human health effects of exposure to deicing chemicals are documented in an EPA survey report on deicing documents (EPA, 2000). As no change in potential for human health impacts from chemical exposure to deicing fluids in stormwater runoff is expected, it is not addressed further in this EA.

3.13 Environmental Management

The Environmental Flight (319 CES/CEV) manages the environmental programs in accordance with all applicable federal, state, local, DoD, and Air Force regulations, standards, and laws that apply to Grand Forks AFB.

3.13.1 Pollution Prevention

The pollution prevention (P2) program at Grand Forks AFB sets objectives for the reduction of air, land, surface water, and groundwater pollution at the Base. The Base's P2 plan focuses on eight subject areas: ozone-depleting chemicals, EPA-17 Industrial Toxic Pollutants, hazardous waste, municipal solid waste, affirmative procurement of environmentally friendly products, energy conservation, air and water pollutant reduction, and training.

Some of the P2 strategies presented to achieve these objectives include source reduction (defined by the Federal Pollution Prevention Act as any practice that reduces the amount of any hazardous substance, pollutant, or contaminant released into the environment prior to recycling, treatment, and disposal) and waste recycling (defined as minimizing the generation of waste by recovering usable products that might otherwise become waste).

3.13.2 Geology

Grand Forks County is located near the eastern edge of the Williston Structural Basin. The bedrock strata underlying the county dip gently to the west, toward the center of the basin.

Surficial deposits at Grand Forks AFB are comprised of late Wisconsin glacial drift, and are approximately 225 feet thick beneath the Base. The glacial deposits beneath the Agassiz Lake Plain consist of up to 95 feet of clay and silt-rich lake deposits, underlain by glacial till containing isolated deposits of sand and gravel. The glacial deposits are underlain by the sandstones, siltstones, and shales of the Lower Cretaceous Fall River and Lakota Formations, which in turn are unconformably underlain by the limestones and dolomites of the Ordovician Red River Formation. The oldest and deepest rocks underlying the area are Precambrian igneous and metamorphic granites, schists, and greenstones. The depth to these rocks is several hundred feet in eastern Grand Forks County, and increases rapidly to over 2,000 feet in the western portion of the county.

3.13.3 Soils

The soils at Grand Forks AFB generally formed in glaciolacustrine deposits overlying glacial till. The following information was taken from the May 1981 Soil Survey of Grand Forks County, North Dakota, U.S. Department of Agriculture, Soil Conservation Service, in cooperation with North Dakota Agricultural Experiment Station. Grand Forks AFB is within prime and unique farmlands. This land is designated as prime farmland and is subject to the requirement of the Farmland Protection Policy Act.

The following six soils associations encompass Grand Forks AFB: Antler-Gilby-Svea, Glyndon-Garden, LaDelle-Cashel, Bearden-Antler, Ojata and Wyndmere-Tiffany-Arveson. The West, South, and North Ditch outfalls are located in the Glyndon-Gardena soil association, and the Northwest Ditch is located in the LaDelle-Cashel association.

3.13.3.1 Glyndon-Gardena

These soils are deep, level to nearly level, somewhat poorly drained to moderately well drained, and medium textured. They occur as slight swells and swales on glacial lake plains. This association makes up about 9 percent of the soils in Grand Forks County, and consists of 56 percent Glyndon soils, 18 percent Gardena soils, and about 26 percent soils with minor extent. This association is present in sub-parallel northwest-southeast trending swells in the eastern and central portions of the Base in the housing, operations, and airfield areas.

Most areas of this soil are used for cultivated crops. Wind blown soil erosion is the major cultivation-related management concern. This association is generally suited to sanitary facilities and building site development, with wetness being the main limitation.

3.13.3.2 LaDelle-Cashel

These soils are deep, level to moderately steep, moderately well drained to somewhat poorly drained, and medium to fine textured. They occur on flood plains, bottomlands, and terraces along major streams. This association makes up about 3 percent of the soils in Grand Forks County, and consists of 47 percent LaDelle soils, 30 percent Cashel soils, and about 23 percent soils with minor extent. The extent of these soils is very limited, and occurs only at the northernmost end of the Base.

Most areas of this soil are used for cultivated crops or support native hardwoods in level to gently sloping areas. Moderately sloping to steep areas are generally unsuited to cultivation

due to erosion. Soil blowing and flooding are the major cultivation-related management concerns in gently sloping areas. This association is generally unsuited to sanitary facilities and building site development, with flooding being the main limitation.

3.14 Environmental Justice and Protection of Children

3.14.1 Environmental Justice

EO 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, February 1994) requires each federal agency to “make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high human health or environmental effects of its programs, policies, and activities on minority populations and low income populations.” According to the CEQ (1997), a minority population can be described as being composed of the following population groups: American Indian or Alaskan Native, Asian or Pacific Islander, Black, not of Hispanic origin, or Hispanic, and exceeding 50 percent of the population in an area or the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population.

The U.S. Census Bureau defines the national poverty thresholds, which are measured in terms of household income dependent upon the number of persons within the household. Individuals falling below the poverty threshold (\$17,524 for a household of four in 2000) are considered low-income individuals. Census tracts where at least 20 percent of the residents are considered poor are known as poverty areas (U.S. Census Bureau, 1995).

The project areas are within Census Tracts 114 and 119. Census Tract 119 covers the entire Base and Tract 114 is the area where the North Ditch is located. Table 3-2 presents characteristics of the population in Census tracts 114 and 119. Census tract data indicates that there are no concentrations of low-income or minority populations near the boundaries of Grand Forks AFB, and also that there are very few residences located near the project areas.

TABLE 3-2
Population Characteristics of Census Tracts 114 and 119
Stormwater Control and Devices Environmental Assessment, Grand Forks Air Force Base, North Dakota

Population Characteristic	Census Tract 114 (Number/%)	Census Tract 119 (Number/%)
Population	2,530/100	4,832/100
White	2,464/97.4	3,907/80.9
African American	15/0.6	406/8.4
American Indian and Alaska Native	21/0.8	43/0.9
Asian	9/0.4	117/2.4
Native Hawaiian and Other Pacific Islander	0/0	15/0.3
Hispanic	26/1.0	289/6.0
Income in 1999 Below Poverty Level	252/9.9	181/4.2

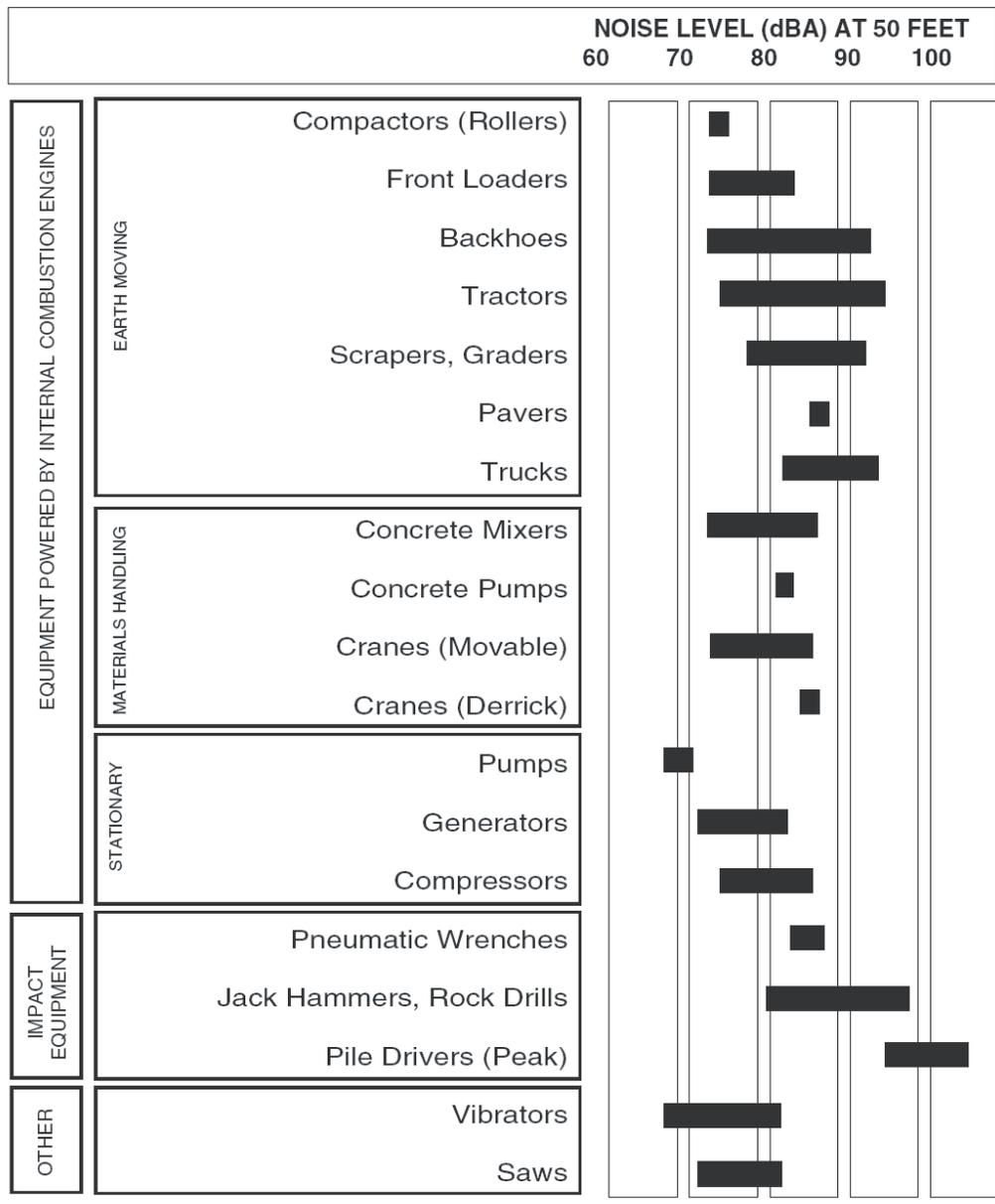
Source: U.S. Census, 2000

3.14.2 Protection of Children

On April 21, 1997, the President issued EO 13045, "Protection of Children from Environmental Health Risks and Safety Risks," which seeks to protect children from disproportionately incurring environmental health or safety risks that might arise as a result of government policies, programs, activities, and standards.

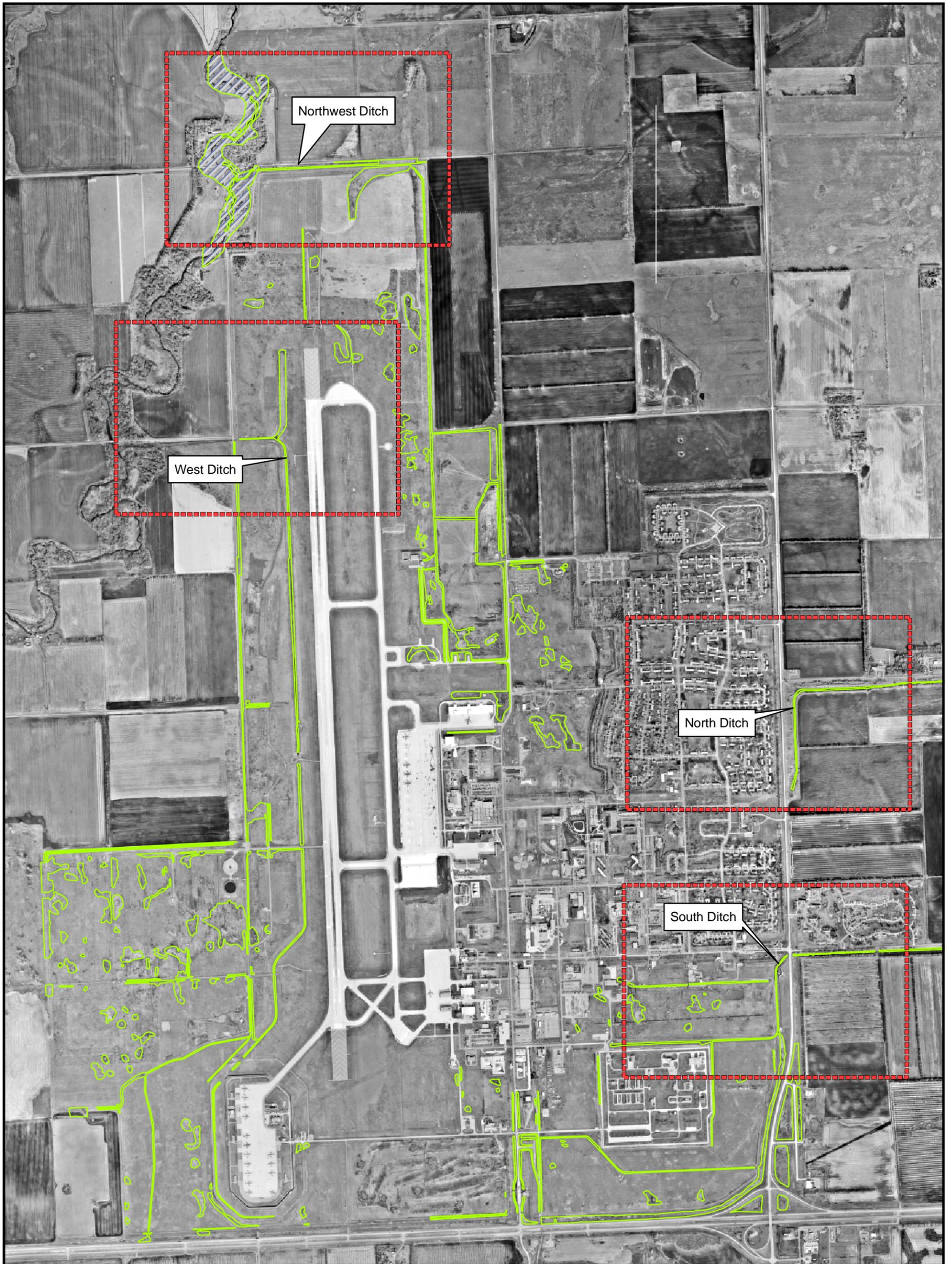
Children are present at Grand Forks as residents of family housing and as users of recreational and community facilities. The South Ditch outfall is located within 500 feet of the Base's Sunflake Family Housing sub-division. The North Ditch outfall is located near a rural residence offbase and onbase family housing units. Grand Forks AFB routinely takes precautions for their safety by a number of means including, but not limited to, the use of fencing, limitations on access to certain areas, and provision of adult supervision. Children do not have access to the airfield.

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NOTE: Based on limited available data samples.
 SOURCE: U.S. EPA, 1971

FIGURE 3-1
CONSTRUCTION EQUIPMENT NOISE LEVELS
 STORMWATER CONTROL AND DEVICES
 ENVIRONMENTAL ASSESSMENT
 GRAND FORKS AIR FORCE BASE, NORTH DAKOTA



LEGEND

- Drainage Ditch
- Floodplain
- Wetland
- Project Areas

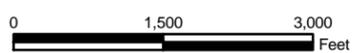


FIGURE 3-2
SITE OVERVIEW
 STORMWATER CONTROL AND DEVICES
 ENVIRONMENTAL ASSESSMENT
 GRAND FORKS AIR FORCE BASE, NORTH DAKOTA



LEGEND

-  Drainage Ditch
-  Floodplain
-  Wetland

Northwest Ditch



FIGURE 3-2A
NORTHWEST DITCH AREA
STORMWATER CONTROL AND DEVICES
ENVIRONMENTAL ASSESSMENT
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA



LEGEND

-  Drainage Ditch
-  Floodplain
-  Wetland

West Ditch



0 150 300
Feet

FIGURE 3-2B
WEST DITCH
STORMWATER CONTROL AND DEVICES
ENVIRONMENTAL ASSESSMENT
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA



LEGEND

-  Drainage Ditch
-  Floodplain
-  Wetland

North Ditch

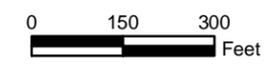


FIGURE 3-2C
NORTH DITCH
STORMWATER CONTROL AND DEVICES
ENVIRONMENTAL ASSESSMENT
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA



LEGEND

-  Drainage Ditch
-  Floodplain
-  Wetland

South Ditch

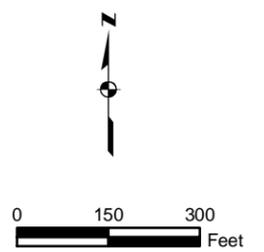


FIGURE 3-2D
SOUTH DITCH
STORMWATER CONTROL AND DEVICES
ENVIRONMENTAL ASSESSMENT
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

Environmental Consequences

4.1 Introduction

This section presents the potential environmental consequences of implementing the Proposed Action and alternatives. The potential impacts to the human and natural environment were evaluated relative to the existing environment described in Section 3.0.

4.2 Air Quality

Air quality at Grand Forks AFB would be affected if the proposed construction activities exceeded the NAAQS or NDAAQS, jeopardized the area's attainment status, or exposed sensitive receptors to increased pollutant concentrations.

4.2.1 Proposed Action – Construction of Flow Control Structures and Sampling Points

The Proposed Action would result in short-term emissions of pollutants from equipment and vehicular traffic during construction. Emissions from fuel-burning internal combustion engines (e.g., heavy equipment) could temporarily increase the levels of some criteria pollutants, including CO, NO₂, O₃, PM₁₀, and non-criteria pollutants such as VOCs. These increases would be temporary. To reduce emissions of criteria pollutants, fuel-burning equipment running times would be kept to a minimum and engines would be properly maintained. Fugitive dust also would be generated by construction activities. To reduce temporary impacts to air quality, dust abatement measures, such as watering access roads would be utilized.

The Proposed Action would not cause any net increase in emissions from stationary sources, or major modifications to an existing major source that would be subject to PSD requirements. No long-term impacts to air quality are anticipated as a result of the Proposed Action.

The CAA General Conformity Rule (40 CFR Parts 6, 51, and 93 and 93) requires federal agencies to make written conformity determinations for federal actions in or affecting nonattainment or maintenance areas. Proposals for federal actions must include evaluations of potential changes in direct and indirect air emissions caused by the actions and must determine whether the actions conform to applicable state and federal implementation plans.

The General Conformity Rule is not applicable to the Proposed Action (or alternatives) because the Grand Forks AFB region is in attainment for all criteria pollutants.

4.2.2 Alternative 2

Alternative 2 would also experience short-term emissions during emergency operations. Similar to the Proposed Action, emissions would be temporary. However, because of the temporary nature of hasty dams, these emissions would occur whenever emergencies dictate. No long-term air quality impacts are anticipated as a result of Alternative 2.

4.2.3 No Action Alternative

The No Action Alternative would not result in air quality impacts, since no construction activities are associated with this alternative.

4.3 Noise

An increase in noise exposure levels to 73 dB (24-hour average sound level) and above for one year (a level that could cause hearing loss in a portion of the general public) would be considered a significant impact (U.S. Army, 1978). Residential noise receptors are located within 450 feet of the south stormwater ditch outfall, 1,400 feet of the North Ditch, and 1,100 feet of the Northwest Ditch.

4.3.1 Proposed Action

The Proposed Action would not result in long-term noise impacts. Sensitive receptors near the location of the Proposed Actions would experience temporary increases in ambient noise levels from construction equipment (see Figure 3-1). These increases would be experienced during daylight hours when noise increases are expected and tolerable. Construction noise would be more noticeable at the North Ditch and South Ditch outfalls than at the Northwest Ditch and West Ditch outfalls, which are closer to the airfield and its greater noise sources.

All motorized construction equipment would be required to have mufflers constructed in accordance with the equipment manufacturer's specifications or a system of equivalent noise reducing capacity. It would also be required that mufflers and exhaust systems be maintained in good working condition, free from leaks and holes.

4.3.2 Alternative 2

Alternative 2 would not result in long-term noise impacts. Impacts would be similar to the Proposed Action. However, due to the temporary nature of Alternative 2, sensitive receptors could experience noise impacts during emergency operations. These impacts could not be predicted and emergency operations would be conducted regardless of the time of day. Although temporary, these actions would have negative impact to sensitive receptors if they occur during evening and early morning hours.

4.3.3 No Action Alternative

The No Action Alternative would not result in noise impacts because no construction activities are associated with this alternative.

4.4 Wastes, Hazardous Materials, and Stored Fuels

Potentially significant impacts could occur if the Proposed Action or alternatives substantially increased the human health risks or environmental exposure to hazardous wastes and materials.

4.4.1 Proposed Action

Construction of the flow control structures and sampling points is not expected to generate any hazardous wastes. The Proposed Action would help to either control or prevent the discharge of hazardous materials offbase into the Turtle River and Kelly's Slough. It would also permit Grand Forks AFB Environmental Management personnel to determine the quality of the stormwater being discharged, provide for the stormwater sampling to demonstrate compliance with federal and state stormwater discharge standards. Therefore, the Proposed Action would result in beneficial effects on environmental exposure to hazardous materials.

The Proposed Action would not disturb any of the IRP or RCRA sites on Grand Forks AFB. The IRP and RCRA sites are not in close proximity to any of the outfall points. None of the Base's 39 USTs or 58 ASTs is located near any of the outfall points and would not be affected by the Proposed Action.

4.4.2 Alternative 2

Alternative 2 would provide some level of control or prevention of stormwater discharges, but would require constant attention by emergency personnel, in effect reducing their flexibility to respond to emergencies at other locations on the Base. This alternative would also not provide for proper collection of stormwater samples, potentially exposing Grand Forks AFB to enforcement actions (e.g., fines and penalties) by the state of North Dakota.

4.4.3 No Action Alternative

The No Action Alternative would not provide any level of control or prevention of stormwater discharges. The QA/QC of stormwater samples would also expose Grand Forks AFB to regulatory enforcement actions similar to those described above under Alternative 2.

4.5 Water Resources

4.5.1 Surface Water

4.5.1.1 Proposed Action

The Proposed Action would add controls to the other 3 outfalls in addition to the existing sluice gate on the South Ditch, providing greater protection to Kelly's Slough and especially to Turtle River, because outfalls discharging to it have no controls now. It would have long-term beneficial impacts to surface water by controlling the amount and quality of stormwater that is discharged offbase. Deicing and other fluids used in the maintenance of aircraft are collected by the storm sewer system and eventually discharged offbase. Propylene glycol was selected as an alternative to ethylene glycol for environmental

purposes; however, it stays in the environment longer and places a higher BOD on the receiving waters. Controlling runoff or accidental releases containing propylene glycol, fuels, and other fluids used during aircraft operations and maintenance, that is discharged to adjacent surface water bodies would provide an improved level of protection to the quality of those surface waters and the associated aquatic life.

The ability for regulators and environmental management personnel to assess the quality of the stormwater discharge would be beneficial to the environment. The improved QA/QC of stormwater sampling made possible by constructing sampling platforms would enable the environmental management team to make more informed decisions regarding stormwater discharges.

In the short term, construction activities could increase surface erosion and increase the dissolved solid and sediment content in stormwater, in turn degrading water quality in the surface waters. The Proposed Action would not disturb more than 1 acre in total, so no construction permit is required. Nevertheless, erosion control BMPs would be followed to ensure that no soils or construction materials migrate offbase during the construction phase.

4.5.1.2 Alternative 2

Alternative 2 would provide some level of protection to stormwater receiving waters, but the effectiveness and efficiency of this alternative is less than the Proposed Action. This alternative would allow some level of discharge during a spill event, because response time is slower due to the need for getting heavy equipment to the outfall point. Unless Erosion Control BMPs are followed, this alternative has a greater potential to release soil and sediment offbase because the hasty dam would be constructed of earth. This could affect the water quality of the receiving waters and wetlands.

Stormwater sampling under this alternative would not provide for proper collection of stormwater samples, as they would not be taken at point of discharge, but rather they would be taken downstream at a more accessible location. The Base would also risk violating permit requirements, potentially resulting in penalties and fines.

4.5.1.3 No Action Alternative

The No Action alternative would not result in any construction-related impacts, but also would not provide any level of protection to surface waters from hazardous material spills and deicing fluids in the stormwater ditches.

4.5.2 Wetlands

4.5.2.1 Proposed Action

The Proposed Action would have a greater direct impact on wetlands than the other alternatives. A 2004 wetland inventory for Grand Forks AFB has identified the stormwater drainage ditches and other low-lying depressions on Grand Forks AFB as wetlands. However, because wetlands in drainage ways were not included in the February 2000 *Final Wetland Identification and Jurisdictional Report*, the jurisdictional status of these areas in regards to Section 404 of the Clean Water Act is not known.

Preliminary design of the flow control structure has not been completed; therefore, impacts are based on the assumptions that an earthen berm with a length of 70 feet and a varying width of 15 to 30 feet would be constructed in each stormwater ditch. The range of wetland impacts for the four stormwater ditches would range from 0.096 to 0.193 acres. The total direct impacts to wetlands would be less than a half acre in size.

No requirement for wetlands mitigation is anticipated at this time; however, if the U.S. Army Corps of Engineers determines that these ditches are jurisdictional wetlands, a 404 Permit may be required prior to construction.

In addition, short-term indirect impacts to wetlands are possible during construction activities. If increased sediment in stormwater reaches surface waters, it could affect wetlands as well. Erosion control BMPs would be followed to ensure that no soils or construction materials migrate offbase during the construction phase.

4.5.2.2 Alternative 2

Alternative 2 would have short-term impacts on wetlands. The hasty dam would be constructed at the discharge pipe and left in place until the potential for an accidental release to harm the environment has been effectively controlled or eliminated. Residual sediment would most likely remain in the wetland. Sediment transport would also likely occur during construction of the hasty dam. Erosion control BMPs would need to be followed to prevent erosion of the barrier material.

4.5.2.3 No Action Alternative

The No Action Alternative would have no direct effect on wetlands. However, No Action would not provide any level of protection to surface waters from hazardous material spills and deicing fluids in the stormwater ditches, which could result in indirect effects on wetlands connected to those surface waters, downstream of the Base.

4.5.3 Groundwater

4.5.3.1 Proposed Action

Accidental releases of fuels and other fluids would be prevented from flowing downstream by ponding fluids behind the proposed flow control structures. Fuels and other hydrocarbon-based fluids would either volatilize or float on the surface water from where they would be removed for proper disposal. The fluids would not reach groundwater and, therefore, groundwater would not be impacted.

Snow contaminated with de-icing fluids is stockpiled at the north end of Charlie Ramp, in an area that is surrounded by an earthen berm. As this snow melts, the water flows north toward the northwest ditch and outfall. As the fluids flow through the grass towards the ditch they readily biodegrade into harmless constituents that do not impact the environment (USEPA, 2000).

Biodegradation of fluids might not be complete and remnant de-icing fluid could be impounded in the stormwater drainage ditches where biodegradation would continue. Base personnel would not release fluids from the impoundments to the receiving water until

water sampling analysis indicates that the BOD is less than 30mg/l and Dissolved Oxygen (DO) is higher than 6 mg/l. These levels of BOD and DO are protective of aquatic life.

It is not anticipated that groundwater resources would be affected by the impoundment of deicing fluid in the stormwater drainage ditches because the fluids would degrade prior to infiltration into the soils and groundwater and would have a relatively short storage duration prior to being released. Several U.S. airports maintain permanently saturated vegetative swales to help mitigate stormwater runoff and allow deicing chemicals to naturally degrade (USEPA, 2000).

4.5.3.2 Alternative 2

A hasty dam would also result in the storage of discharged fluids and has the same potential for groundwater contamination as the Proposed Action.

4.5.3.3 No Action Alternative

The No Action Alternative would not impound discharged fluids and, therefore, there is no potential for groundwater contamination.

4.5.4 Floodplains

There would be no impacts to floodplains as a result of the actions described in Section 2.0.

4.6 Biological Resources

4.6.1 Proposed Action

The Proposed Action would not adversely affect the biological resources on Grand Forks AFB. It would not result in long-term changes to the vegetative or wildlife resources and would not affect any federally-listed or state-listed endangered species or state species of concern. The Proposed Action would result in the removal of some vegetation (grasses and small shrubs) on the slopes of the stormwater ditches where the flow control structure and sampling points would be constructed.

However, the Proposed Action would provide improved water quality safeguards to the aquatic species and other wildlife that utilize the Turtle River and Kelly's Slough downstream of Grand Forks AFB. Therefore, the overall effect on biological resources would be beneficial.

4.6.2 Alternative 2

Alternative 2 is similar to the Proposed Action in its effect on biological resources. However, due to the response time during emergency operations, the potential for a release to cause harm to the environment is greater.

4.6.3 No Action Alternative

The No Action Alternative has the highest potential for adversely affecting biological resources, because no control would be employed in regards to stormwater quality.

4.7 Socioeconomic Resources

4.7.1 Proposed Action

None of the actions described in Section 2.0 for the Proposed Action would have adverse impacts on the socioeconomic resources at Grand Forks AFB or the surrounding region. No change in population or the permanent workforce would result from the Proposed Action. Due to the small nature of this project, no migration of construction workers from outside the area is expected.

Short-term minor increases in local economic activity would be induced by construction jobs, purchase of construction materials and services, as well as convenience retail sales near the Base to construction workers, if the Proposed Action were implemented.

4.7.2 Alternative 2

Alternative 2 would be implemented by Base emergency personnel and would not benefit the local economy.

4.7.3 No Action Alternative

The No Action Alternative would not add any value to the local economy.

4.8 Cultural Resources

4.8.1 Proposed Action

Both architectural and archaeological resources are known to occur on Grand Forks AFB. However, none of the actions described in Section 2.0 would affect those resources. There are no historic structures in the project area. The banks of the Turtle River, within proximity of the Northwest Ditch outfall, provide the most likely source for undiscovered archeological resources on the Base. The construction area for the Proposed Action would not affect those buried resources. The North Dakota SHPO has requested that the area adjacent to the Northwest Ditch outfall location be surveyed and monitored during ground disturbing activities (see SHPO letter dated August 16, 2004 in Appendix B).

In the unlikely event that unexpected buried artifacts are discovered within the areas affected by construction activities, construction work would immediately stop and the site would be protected from further disturbance, until the Base cultural resources staff can consult with the North Dakota SHPO.

4.8.2 Alternative 2

Alternative 2 would not affect any known cultural resources.

4.8.3 No Action Alternative

The No Action Alternative would not affect any known cultural resources.

4.9 Land Use

The Proposed Action and alternatives would not result in any changes to land use or related impacts.

4.10 Transportation Systems

4.10.1 Proposed Action

During construction, additional cars with workers and construction/supply trucks would need to access Grand Forks AFB. These additional trips would be temporary. Because they would occur throughout the day, many of these trips are anticipated to occur outside of peak hours, when the roadways are less traveled. The additional vehicle traffic expected during construction is not expected to degrade traffic operations on roadways within or surrounding Grand Forks AFB. Impacts to the transportation system, associated with the Proposed Action, are expected to be less than significant.

The Proposed Action would not add any long-term vehicle trips to/from Grand Forks AFB.

4.10.2 Alternative 2

Alternative 2 could have minor traffic inconveniences due to the movement of heavy equipment, but the effects would be negligible and less than significant.

4.10.3 No Action Alternative

The No Action Alternative would not affect traffic conditions on or around Grand Forks AFB.

4.11 Airspace/Airfield Operations

4.11.1 Proposed Action

Only the West Ditch outfall is located near the airfield. Both the flow control structures and the sampling points would be constructed within the confines of the stormwater ditch and would not present any airfield obstructions during or after construction.

4.11.2 Alternative 2

Alternative 2 would not affect airfield operations or aircraft at Grand Forks AFB.

4.11.3 No Action Alternative

The No Action alternative would not affect airfield operations or aircraft at Grand Forks AFB.

4.12 Safety and Occupational Health

4.12.1 Proposed Action

In the short term, the Proposed Action has the greatest potential for affecting the safety and occupational health of the workers involved in constructing the flow control structures and the sampling points. Work would occur within the ditch where the potential for contact with water and other fluids is the greatest; therefore, proper precautions would have to be taken to avoid adversely affecting the safety and health of those workers. The slopes of the ditches are also grass-lined and steep and the potential exists for falls to occur during construction activities. The contractor would have to follow proper precautions to provide safe access for construction workers.

Because construction would occur within the confines of the stormwater ditch, no concern for worker safety from airfield operations (near the West Ditch outfall) is expected.

In the long-term, the Proposed Action would improve occupational safety for personnel who conduct sampling. The sampling points, as described in Section 2.4.2, would allow sampling personnel a safe access point for collecting stormwater samples, by providing a stairway down the slope and a railing to reduce the chances of falling into the ditch.

4.12.2 Alternative 2

Alternative 2 has a higher potential for affecting the safety and health of both emergency personnel and stormwater sampling personnel than the Proposed Action, because construction of the hasty dam would occur under emergency conditions and because there would not be a safe access point for sampling.

4.12.3 No Action Alternative

The No Action Alternative would not have any impacts on the safety and occupational safety of construction workers, but does have the potential for affecting the safety and health of stormwater sampling personnel, who would continue to take samples without a safe access point (stairway and railing).

4.13 Environmental Management

Potentially significant geological impacts of a Proposed Action are those that would alter aquifer recharge zones, or are located near faults or other geological hazards. Impacts to soils would include erosion and runoff. Pollution prevention impacts of a Proposed Action include those that would significantly increase the air, land, surface water, and groundwater pollution at the Base, or would increase the generation and disposal of wastes (i.e., hazardous, municipal, or non-hazardous solid wastes).

4.13.1 Proposed Action

The Proposed Action would have long-term beneficial effects in relation to environmental management. The flow control structure would allow Grand Forks AFB to control or prevent the release of hazardous materials into offbase surface waters. In addition, the sampling points would allow the environmental management team to ensure the quality of

stormwater discharges and to maintain compliance with federal and state NPDES requirements.

Construction activities associated with the flow control structures would not affect the underlying geological structure of the area. Soils exposed during the construction activities at the proposed flow control structures would be subject to increased runoff and erosion. However, it is unlikely that a construction permit from the NDDH would be required, because less than 1 acre would be disturbed during construction. Appropriate BMPs for erosion control and sedimentation would be implemented during construction.

Although the stormwater ditches are located in prime farmland soil series, the ditches and adjacent areas are currently in a built-up condition and not currently in use as farmland. Reversion of these areas back to agricultural land would not be feasible. Therefore, no further action is required under the Farmland Protection Policy Act of 1981 (Title 7 CFR, Part 658; the Natural Resources Conservation Service [NRCS] Final Rule, Farmland Policy, revised 1 January 1998).

4.13.2 Alternative 2

Alternative 2 would not afford the environmental management team the same level of benefits as the Proposed Action. Emergency construction of a hasty dam could result in increased runoff and erosion.

4.13.3 No Action Alternative

The No Action alternative would not result in impacts to soils or geologic features. However, the No Action Alternative would have the greatest adverse impacts on environmental management goals and objectives. The lack of flow control structures and sampling points has the potential for exposing Grand Forks AFB to future violations of federal and state water quality standards and increases the likelihood of penalties and fines for those violations.

4.14 Environmental Justice and Protection of Children

4.14.1 Proposed Action

There are very few residences and no concentrations of low-income or minority populations near the boundaries of Grand Forks AFB and the project areas. The alternatives described in this document would not disproportionately affect minority populations or low income populations.

The EO regarding Protection of Children recognizes the special vulnerability of children's health and safety. A significant impact would result from activities that substantially increased such risks.

Children can be drawn to and potentially endangered by construction sites. Precautions such as construction fencing would keep children out of the construction areas. Preventing children from accessing the stormwater sampling points after construction would be considered during the design of the structure. Therefore, no risks to the safety or health of children are anticipated.

4.14.2 Alternative 2

Alternative 2 would be implemented on an as-needed basis. It is unlikely, in the event of an emergency, that construction fences would be erected before construction of a hasty dam. Children could have complete access during construction activities. The potential for this to happen is greater at the South Ditch outfall, since it is located within 500 feet of the Base's Sunflake Family Housing sub-division. The North Ditch outfall is also located by a rural residence and presents some level of concern. The emergency personnel would ensure that no harm comes to children during construction activities. However, stormwater that is retained by the hasty dam could present a hazard after emergency personnel leave the scene. The West Ditch and Northwest Ditch outfalls are in remote locations and are unlikely to pose any hazard to children.

4.14.3 No Action Alternative

The No Action Alternative poses no threat to children on or near Grand Forks AFB.

4.15 Indirect and Cumulative Impacts

The CEQ regulations state that the cumulative effects analysis within an EA should consider the potential environmental impacts resulting from "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR §1508.7).

Cumulative effects are likely to arise when a relationship exists between a Proposed Action and other actions expected to occur in a similar location or during a similar time period. Actions overlapping with or in proximity to the Proposed Action would be expected to have more potential for a relationship than those more geographically separated. Similarly, actions that coincide in time would tend to offer a higher potential for cumulative effects.

The scope of the cumulative effect analysis involves both the geographic extents of the effects and the time frame in which the effects could be expected to occur. Actions occurring within or adjacent to the region are considered relevant for cumulative effect analysis.

The potential adverse impacts to resources of interest in this EA are short-term and minor. The Proposed Action would be limited to the interior of the existing stormwater ditches and would not have long-term adverse impacts to resources on Grand Forks AFB, Grand Forks County, or the state of North Dakota. Beneficial impacts to water resources would result from implementing the Proposed Action.

Grand Forks AFB has proposed to purchase or lease equipment and to make infrastructure modifications for the collection and disposal of deicing and anti-icing fluid left on the ramp after spraying aircraft. This action would entail modifying storm drains by installing catch basins. Further, a RampRanger T750 Collection Unit or similar vacuum unit, and a bulk storage tank would be purchased or leased to collect and store recovered fluids until it is disposed of offbase. This action is covered in a separate NEPA document prepared by Grand Forks AFB. This action, if implemented, would reduce the amount of deicing and anti-icing fluids that would be discharged to the drainage ditches. This action in concert

with the Proposed Action discussed in Section 2.0 would insure long-term benefits to surface water quality.

Grand Forks AFB is currently rehabilitating the existing main runway. The project consists of grinding down the existing concrete. The touch-down areas of the runway would be paved with concrete and the roll-out areas would be paved with asphalt. This project is not expected to cause long-term impacts to the social, economic, or environmental resources at the Base. Short-term effects associated with construction would include minor and temporary impacts to air quality, noise, transportation, and the generation of solid waste.

The analysis for this EA indicates that the Proposed Action would not result in, or contribute to, significant negative cumulative impacts to the resources of the region.

4.16 Unavoidable Adverse Impacts

Unavoidable adverse impacts are likely to occur if the Proposed Action is not implemented. Degradation of surface water resources and the aquatic species and wildlife dependent on those waters could result if hazardous materials or large volumes of deicing fluids are discharged offbase via stormwater ditches.

The Proposed Action would result in the removal of some vegetation on the slopes of the stormwater ditches where the flow control structure and sampling points would be constructed. However, these impacts are negligible in comparison to the benefits of implementing the Proposed Action.

4.17 Relationship Between Short-term Uses and Enhancement of Long-term Productivity

Short-term effects would be those associated with the construction of the flow control structures and the sampling points at the four outfall points. Implementation of the Proposed Action would not sacrifice long-term productivity of the environment for short-term uses. The long-term enhancement of productivity would be those effects associated with the control of stormwater discharges offbase and the benefits of improved stormwater quality. The Proposed Actions would be limited to the interior of the stormwater ditches. No loss of long-term productivity is expected to occur.

4.18 Irreversible and Irretrievable Commitment of Resources

An irreversible effect would result from the use of resources that cannot be replaced within a reasonable time. An irretrievable effect would result from loss of resources that cannot be restored as a result of the Proposed Action.

Use of fill material and other construction materials and loss of vegetation for implementation of the Proposed Action would represent an irreversible commitment of resources, because the flow control structures and the sampling points would be expected to remain for many years, but minor in comparison to typical construction projects. The use of fuel for operation of construction equipment also represents an irreversible commitment of

resources in the Proposed Action. The amount of fuel used during construction activities is negligible when compared to the amount of fuel that is used during normal operations at Grand Forks AFB.

SECTION 5

List of Preparers

Name	Education	Experience	Role
David Rodebaugh	M.S., Urban and Regional Planning	10 years	Environmental Planner, EA Task Manager
Virginia Farris	B.A., Psychology	20 years	NEPA Senior Reviewer
Christine Roberts	M.C.P., Architecture and Urban Planning	14 years	NEPA Senior Reviewer
Doug Malik	M.S., Civil Engineering	25 years	Project Manager
Corey Wilcox	B.S., Biology	5 years	Water Resources
Matthew Becker	B.S., Natural Resources and Environmental Science	4 years	Water Resources

SECTION 6

List of Agencies and Persons Consulted and/or Provided Copies

The following Grand Forks AFB personnel were consulted during the preparation of this Environmental Assessment:

- Diane Strom, Environmental Protection Specialist, NEPA/EIAP Program, 319 CES/CEV
- Kristen Rundquist, Air Programs/Natural Resources Manager, 319 CES/CEV
- Christopher Klaus, Stormwater, 319 CES/CEV
- Heidi Nelson, Community Planner, 319 CES/CECP

The following agencies/persons were provided copies of this Environmental Assessment for review and comment:

- Mr. Bill Bicknell, Biologist
U.S. Fish and Wildlife Service
North Dakota Field Office
3425 Miriam Avenue
Bismarck, North Dakota 58501-7926
- Mr. Dave Glatt, Section Chief
North Dakota Department of Health
Environmental Health Section
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P.O. Box 5520
Bismarck, North Dakota 58506-5520
- Mr. Merlen E. Paaverud
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612 East Boulevard Avenue
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- Dr. Terry Dwelle, State Health Officer
North Dakota Department of Health
600 East Boulevard Avenue, Department 301
Bismarck, North Dakota 58505-0200
- Mr. Dean Hildebrand, Commissioner
North Dakota Game and Fish
100 North Bismarck Expressway
Bismarck, North Dakota 58505-5095

The public was offered a 30-day period to comment on this EA. A public notice was published in the Grand Forks AFB Ledger and Grand Forks Herald on January 19, 2005 and the EA was available for public review at the Grand Forks AFB Library and at the Grand Forks Public Library. A copy of the proof of publication is included in Appendix C.

SECTION 7

Works Cited

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Appendix A
Air Force Form 813

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

Report Control Symbol
RCS: **0 LI - 00**

INSTRUCTIONS: Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).

SECTION I - PROPONENT INFORMATION

1. TO (Environmental Planning Function)	2. FROM (Proponent organization and functional address symbol)	2a. TELEPHONE NO.
319 CES/CEVA	319 CES/CEV	7-6156

3. TITLE OF PROPOSED ACTION
Stormwater Control Structure and Outfall Sampling Point, JFSD 532089

4. PURPOSE AND NEED FOR ACTION (Identify decision to be made and need date)

See Attached.

5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES (DOPAA) (Provide sufficient details for evaluation of the total action)

See Attached.

6. PROPONENT APPROVAL (Name and Grade) MARY C. GILTNER, GM-13, DAF Deputy Base Civil Engineer	6a. SIGNATURE	6b. DATE
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SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY. (Check appropriate box and describe potential environmental effects including cumulative effects.) (+ = positive effect; 0 = no effect, - = adverse effect; U= unknown effect)

	+	0	-	U
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (Noise, accident potential, encroachment, etc.)		FOR		
8. AIR QUALITY (Emissions, attainment status, state implementation plan, etc.)		~~		
9. WATER RESOURCES (Quality, quantity, source, etc.)		12		
10. SAFETY AND OCCUPATIONAL HEALTH (Asbestos/radiation/chemical exposure, explosives safety quantity-distance, bird/wildlife aircraft hazard, etc.)	1.11			
11. HAZARDOUS MATERIALS/WASTE (Use/storage/generation, solid waste, etc.)			~~	
12. BIOLOGICAL RESOURCES (Wetlands/floodplains, threatened or endangered species, etc.)		041		
13. CULTURAL RESOURCES (Native American burial sites, archaeological, historical, etc.)		~~		
14. GEOLOGY AND SOILS (Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)		~~		
15. SOCIOECONOMIC (Employment/population projections, school and local fiscal impacts, etc.)			OR	
16. OTHER (Potential impacts not addressed above.)				

SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION

17. PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) # _____ ; OR
 PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.

18. REMARKS

Project does not qualify for CATEX. Actions are of concern to surrounding off-base landowners. The action is not "regionally significant" and does not require a conformity determination in accordance with 40 CFR 93.153(1). The total emission of criteria pollutant from the proposed action are below the de minimus thresholds and less than 10 percent of the Air Quality Region's planning inventory.

19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name and Grade) WAYNE A. KOOP, R.E.M., GS-13 Environmental Management Flight Chief	19a. SIGNATURE	19b. DATE
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4.0 Purpose and Need for Action.

4.1 Purpose: To construct a flow control structure on the west storm water outfall and to construct storm water sampling points at outfalls.

4.2 Need: To construct a flow control structure on the west storm water outfall to allow emergency response personnel to prevent/control discharge from this outfall off-base into adjoining navigable waterways. In addition, to construct storm water sampling points at outfalls to provide safe access for regulators and sampling personnel to complete mandated stormwater sampling.

5.0 Description of Proposed Action and Alternatives

5.1 Under the Proposed Action, Grand Forks AFB would construct a flow control structure on the west storm water outfall to allow emergency response personnel to prevent/control discharge from this outfall off-base into adjoining navigable waterways. In addition, to construct storm water sampling points at outfalls to provide safe access for regulators and sampling personnel to complete mandated stormwater sampling.

5.2 Alternative Action 1: Exigent flow control measures would be used such as blocking the stormwater flow with a hasty dam. This method would not provide timely response to a release and would allow downstream/off-base contamination. Stormwater sampling points would be taken downstream at more accessible location. The sampling results would not meet permit requirements/protocols and permit mandates.

5.3 No Action Alternative Action 2: Under the No Action Alternative, Grand Forks AFB would not construct a flow control structure on the west storm water outfall to allow emergency response personnel to prevent/control discharge from this outfall off-base into adjoining navigable waterways. In addition, Grand Forks AFB would not construct storm water sampling points at outfalls to provide safe access for regulators and sampling personnel to complete mandated stormwater sampling. This action risks noncompliance, Notice of Violation, and fines.

5.4 Decision: Grand Forks AFB must decide whether or not to install stormwater control structures and sampling to maintain regulatory compliance.

5.5 Permits: Section 404 and North Dakota Department of Health National Pollutant Discharge Elimination System (NPDES) construction permis will be required for stormwater controls/sampling structures construction.

Appendix B
Regulator Correspondence



STATE
HISTORICAL
SOCIETY
OF NORTH DAKOTA

John Hoeven
Governor of North Dakota

August 16, 2004

North Dakota
State Historical Board

Diane K. Larson
Bismarck - President

Marvin L. Kaiser
Williston - Vice President

Albert I. Berger
Grand Forks - Secretary

Chester E. Nelson, Jr.
Bismarck

Gereld Gerntholz
Valley City

A. Ruric Todd III
Jamestown

Sara Otte Coleman
*Director
Tourism Division*

Kathi Gilmore
State Treasurer

Alvin A. Jaeger
Secretary of State

Douglass Prchal
*Director
Parks and Recreation
Department*

David A. Sprynczynatyk
*Director
Department of Transportation*

John E. Von Rueden
Bismarck

Merlan E. Paaverud, Jr.
Director

David Rodebaugh
EA Task Manager
CH2M Hill
135 South 84th Street, Suite 325
Milwaukee, WI 53214-1456

ND SHPO Ref.: 97-0527ap, Flow Control Devices and Sampling Points, Grand Forks AFB, ND.

Dear Mr. Rodebaugh:

We have reviewed Project: 97-0527ap, proposed flow control devices and/or sampling points at four locations in the Grand Forks Air Force Base boundaries, Grand Forks County, ND.

That portion of the APE identified as "Northwest Ditch Outfall" is situated along the Turtle River terrace system, and near archeologically sensitive areas as defined in the CRMP. We therefore recommend that this portion of the APE and other locations where ground disturbance will occur (such as any access/electric line routes and staging areas) within the area identified in Figure 3.3 of the CRMP and adjacent to the "Northwest Ditch Outfall" location be surveyed and monitored during ground disturbance activities.

Thank you for the opportunity to review this project. Please include the ND SHPO Reference number listed above in any further correspondence for this specific project. If you have any questions please contact Duane Klinner at (701) 328-3576.

Sincerely,

Duane Klinner for

Merlan E. Paaverud, Jr.
State Historic Preservation Officer (North Dakota)

cc: Diane Strom, GF AFB

*Accredited by the
American Association
of Museums*

CH2MHILL TELEPHONE CONVERSATION RECORD

Call To:

Phone No.: (701) 250-4481

Date: August 09, 2004

Call From: Bill Bicknell

Time: 9:30 AM

Message

Taken By: Dave Rodebaugh

Subject: Federally-Listed Threatened and Endangered Species - Grand Forks County, ND

Bill Bicknell, Fish and Wildlife Biologist, from the U.S. Fish and Wildlife Service, North Dakota Field Office phoned to confirm that the T&E species listed in the Stormwater Control and Devices EA is current information. I asked Mr. Bicknell if this phone conversation would suffice for agency coordination for the Stormwater EA that CH2M HILL was preparing for Grand Forks AFB. He agreed that the information presented in the 2004 Integrated natural Resource Management Plan was accurate. I told him that I would make a record of this conversation and include it in the EA. He said that he was fine with that idea.

Appendix C
Proof of Publication

Affidavit of Publication
State of North Dakota, County of Grand Forks

David Austin of said State and County being first duly sworn, on oath says:
That he is Advertising Director of Grand Forks Herald, Inc., publisher of the Grand
Forks Herald, Morning Edition, a daily newspaper of general circulation, printed and
published in the City of Grand Forks, in said County and State, and has been during the
time hereinafter mentioned, and that the advertisements of

CH 2M Hill

was printed and published in **34,080 copies** of following issues of said newspaper to
wit:

January 19, 2005

and that the full amount of the fee for the publication of the annexed notice insures
solely to the benefit of the publishers of said newspaper; that no agreement or
understanding for a division thereof has been made with any other person and that no
part thereof has been agreed to be paid to any person whomsoever.

That said newspaper was, at the time of the aforesaid publication, the duly
elected and qualified Official Newspaper within said County, and qualified in
accordance with the law of the State of North Dakota to do legal printing in said
County and State.

David Austin

Subscribed and sworn to before me this 14th day of
April A. D. 2005

ELAINE FAWCETT
NOTARY PUBLIC
STATE OF NORTH DAKOTA
My Commission Expires: Feb. 7, 2007

Elaine Fawcett
Notary Public, Grand Forks, ND

PUBLIC NOTICE

Availability of Environmental Assessment and Draft Finding of No Significant Impact for Stormwater Control and Devices Grand Forks Air Force Base, North Dakota

Pursuant to the regulations for implementing the National Environmental Policy Act, the Air Force has conducted an Environmental Assessment (EA) of the potential environmental and socioeconomic effects associated with implementing the proposed stormwater control and device improvements at Grand Forks Air Force Base in Grand Forks County, North Dakota.

The Air Force proposes to construct flow control structures within the embankments of all four stormwater ditches here. The structures would consist of a barrier (earthen or concrete) extending between the two slopes of a ditch. A pipe would be installed in the barrier with head gates or valves that could be operated manually by emergency personnel to prevent the off-base discharge of potentially environmentally harmful liquids. Stairs constructed on the slope of the ditch with a platform placed close to the toe of the slope would allow access for storm water sampling.

Based on the EA, it was determined that the proposed action would result in no significant impact to the quality of the natural or human environment. Therefore, an Environmental Impact Statement is not required and a Draft Finding of No Significant Impact has been prepared. In accordance with Air Force regulations, a Finding of No Practicable Alternative has also been prepared for minor wetland impacts.

The draft final EA and draft FONSI/FONPA are available for review and comment for 30 days, from **January 19, 2005** through **February 22, 2005**, at the Grand Forks Public Library (2110 Library Circle, Grand Forks, ND 58201, telephone 701-772-8116) and at the Grand Forks AFB Library.

If you have any questions or comments please contact Public Affairs Officer, 319 ARWPA, 375 Steen Blvd., Grand Forks AFB, North Dakota 58205-6434; telephone (701) 747-5017; or email PA@grandforks.af.mil

Written comments should be sent to the above address or email no later than **February 22, 2005** to ensure consideration. The Vice Commander of the Air Mobility Command, will review all comments received by that date before making a decision to sign the Final FONSI.