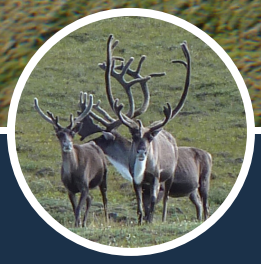


BLM

FINAL

SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

for the Alpine Satellite Development Plan for the Proposed Greater Mooses Tooth One Development Project

Volume 2: Chapter 7
Maps

October 2014

Alaska

Cooperating Agencies:
U.S. Bureau of Ocean Energy Management • U.S. Environmental Protection Agency • U.S. Fish and Wildlife Service
U.S. Army Corps of Engineers, Alaska District • State of Alaska •North Slope Borough • Native Village of Nuiqsut

The Bureau of Land Management Today

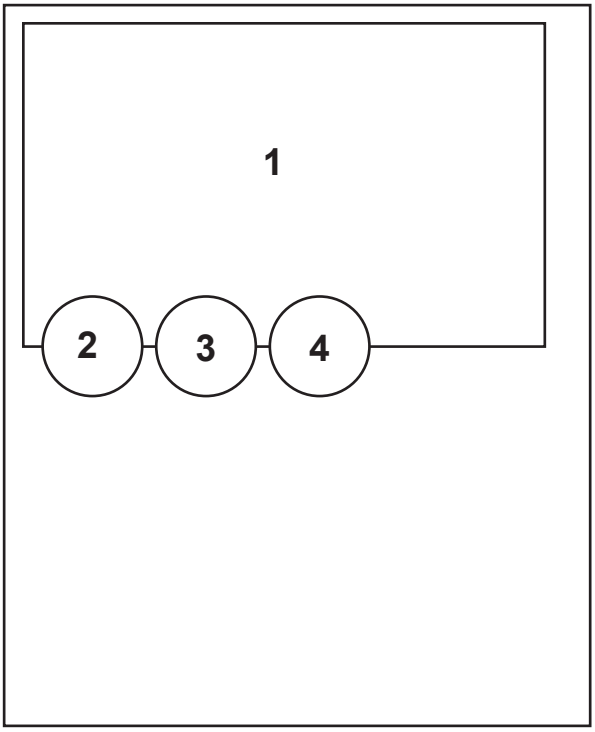
Our Vision

To enhance the quality of life for all citizens through the balanced stewardship of America's public lands and resources.

Our Mission

To sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

DOI-BLM-AK-0000-2013-0001-EIS
BLM/AK/PL-15/002+5101+AK9300



Cover Photos:

1. Aerial of Blackfish Creek downstream from GMT1 Drilling pad, National Petroleum Reserve in Alaska.

2. Caribou, North Slope, Alaska

3. Ice road construction, National Petroleum Reserve in Alaska.

4. Aerial of production pad, North Slope, Alaska. © ConocoPhillips.

Alpine Satellite Development Plan GMT1 Development Project

Final

Supplemental Environmental Impact Statement

Volume 2: Chapter 7
Maps

Prepared by:

U.S. Department of the Interior
Bureau of Land Management
Anchorage, Alaska

In cooperation with:

U.S. Army Corps of Engineers
U.S. Environmental Protection Agency
U.S. DOI Fish and Wildlife Service
U.S. DOI Bureau of Ocean Energy Management
State of Alaska
Native Village of Nuiqsut
North Slope Borough

October 2014

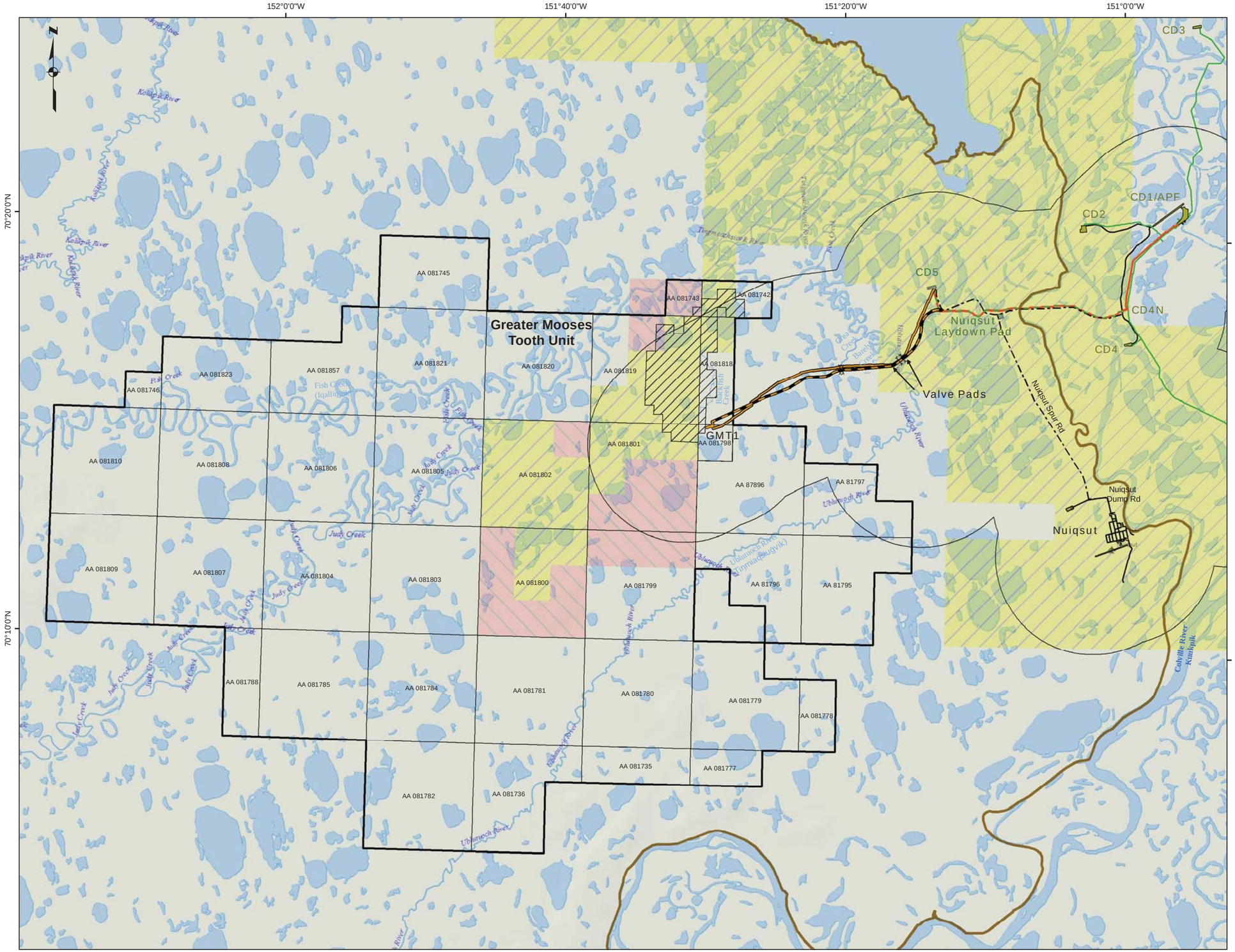
Contents of Volume 2

CHAPTER 7: MAPS

This chapter includes maps referenced throughout this document that are sized to 11x17-inch paper.

Map 1.1-1. Greater Mooses Tooth and CPAI Proposed Project
Map 2.5-1. Vicinity of CPAI Proposed Project
Map 2.5-2. Alternative A: CPAI Proposed Project Layout
Map 2.5-3. Fish Creek and Tiŋmiaqsiġvik (Ublutuoch) River Setback Areas
Map 2.5-4. Alternative A: CPAI Proposed Project Ice Roads
Map 2.5-5. Historic Flights in the Eastern NPR-A, 2008-2013
Map 2.6-1. Alternative B Layout
Map 2.6-2. Alternative B Ice Roads
Map 2.7-1. Alternative C Layout
Map 2.7-2. Alternative C Nuiqsut Airport Facilities
Map 2.7-3. Alternative C Ice Roads
Map 2.8-1. Alternatives D1 and D2 Layout
Map 2.8-2. Alternatives D1 and D2 Ice Roads
Map 2.10-1. Alternative E: No Action
Map 3.1-1. Project Study Area
Map 3.2-1. Geomorphology
Map 3.2-2. Drainage Basins
Map 3.2-3. Surface Water Bodies
Map 3.3-1. Potential and Known Fish Overwintering Habitat
Map 3.3-2. Vegetation
Map 3.3-3. Anadromous Waters and Essential Fish Habitat
Map 3.3-4. Fish Species Distribution
Map 3.3-5. Avian Study Areas
Map 3.3-6. Wildlife Habitat
Map 3.3-7. 2012 Avian Survey
Map 3.3-8. Ranges of the Teshekpuk and Central Arctic Caribou Herds, GPS and Aerial
Map 3.3-9. Ranges of the Teshekpuk and Central Arctic Caribou Herds, Satellite and GPS
Map 3.3-10. Nuiqsut Travel Routes
Map 3.3-11. Visual and Noise Impact Analysis Areas
Map 3.3-12. Caribou Summer Areas
Map 3.3-13. Caribou Calving Areas
Map 3.3-14. Polar Bear Habitat
Map 3.4-1. Nuiqsut Contemporary Subsistence Use Areas, All Resources
Map 3.4-2. Nuiqsut Caribou Subsistence Use Areas, 2008-2011
Map 3.4-3. Nuiqsut Historic and Lifetime Subsistence Use Areas, All Resources
Map 4.2-1. Water Resources Near the GMT1 Pad
Map 4.2-2. Alternatives A and C Potential Inundation Analysis
Map 4.2-3. Alternative B Potential Inundation Analysis
Map 4.2-4. Alternatives D1 and D2 Potential Inundation Analysis

Map 4.2-5. Road and Pipeline Crossings: Tiŋmiaqsiġvik (Ublutuoch) River, Barely Creek, and Crea Creek
Map 4.2-6. Tiŋmiaqsiġvik (Ublutuoch) River Crossing
Map 4.2-7. Crea Creek and Barely Creek Drainage Basins
Map 4.3-1. Yellow-billed Loon Estimated Relative Onshore Density within the Arctic Coastal Plain, 1993-2010
Map 4.3-2. Yellow-billed Loon Estimated Relative Onshore Density within the Project Study Area, 1993-2010
Map 4.3-3. Teshekpuk Caribou Herd Females: Fall Migration Movements Relative to Potential New Infrastructure
Map 4.3-4. Teshekpuk Caribou Herd Males: Fall Migration Movements Relative to Potential New Infrastructure
Map 4.4-1. Caribou Subsistence Use Areas in the Project Study Area, 1995-2006
Map 4.4-2. Caribou Subsistence Use Areas in the Project Study Area, 2008-2011
Map 4.4-3. Geese Subsistence Use Areas in the Project Study Area, 1995-2006
Map 4.4-4. Wolf and Wolverine Subsistence Use Areas in the Project Study Area, 1995-2006
Map 4.4-5. Arctic Cisco Subsistence Use Areas in the Project Study Area, 1995-2006
Map 4.4-6. Burbot Subsistence Use Areas in the Project Study Area, 1995-2006
Map 4.6-1. Oil and Gas Infrastructure
Map 4.6-2. Oil and Gas Exploratory Wells and NPR-A Special Areas



Map 1.1-1

Greater Mooses Tooth and CPAI Proposed Project

DSEIS Proposed Infrastructure

- Road
- Pipeline
- Facility
- 14 inch Water[1] Injection Line
- Bridge

Boundary

- Lookout PA
- Project Study Area
- Unit Boundary
- Lease Tracts
- NPR-A

Proposed or Permitted (not part of GMT1)

- Pipeline
- Road
- Facility

Existing

- Pipeline
- Road
- Facility

Surface Land Ownership Kuukpik Lands

- Conveyed
- Selected

Footnote:
1: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).
2: Background layer is from Delorme World Imagery 2013

Date: 10/20/2014

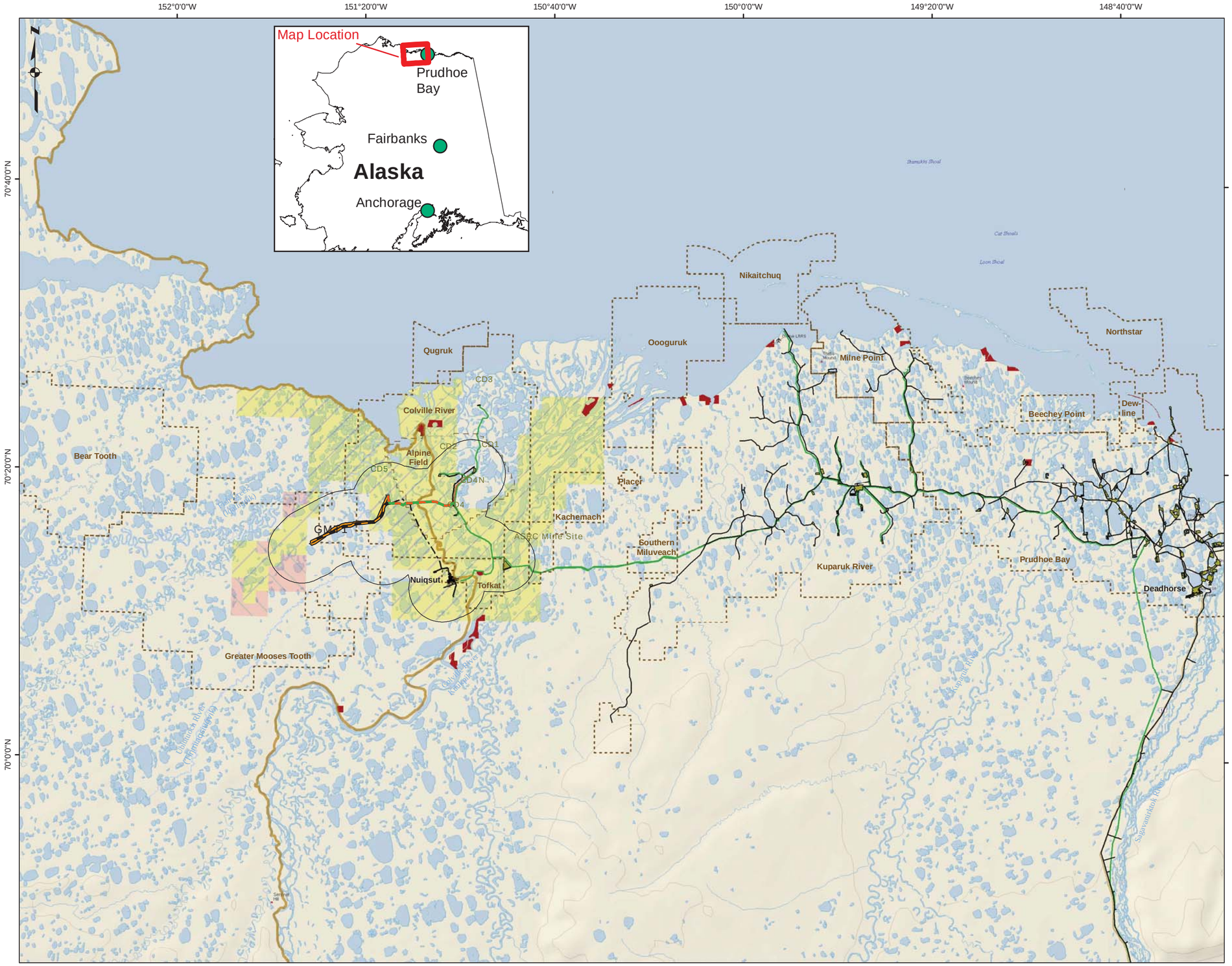
0 0.5 1 2 3 4 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental
Environmental Impact Statement 2014



Map 2.5-1

GMT1 Project Vicinity

DSEIS Proposed Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[1] Injection Line
- Bridge

Boundary
- Project Study Area
- Oil & Gas Unit
- NPR-A

Proposed or Permitted (not part of GMT1)
- Pipeline
- Road
- Facility

Existing
- Pipeline
- Road
- Facility

Surface Land Ownership Kuukpik Lands
- Conveyed
- Selected

Native Allotments
- Private

Footnote:
1: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).
2: Background layer is from Delorme World Imagery 2013.

Date: 10/20/2014

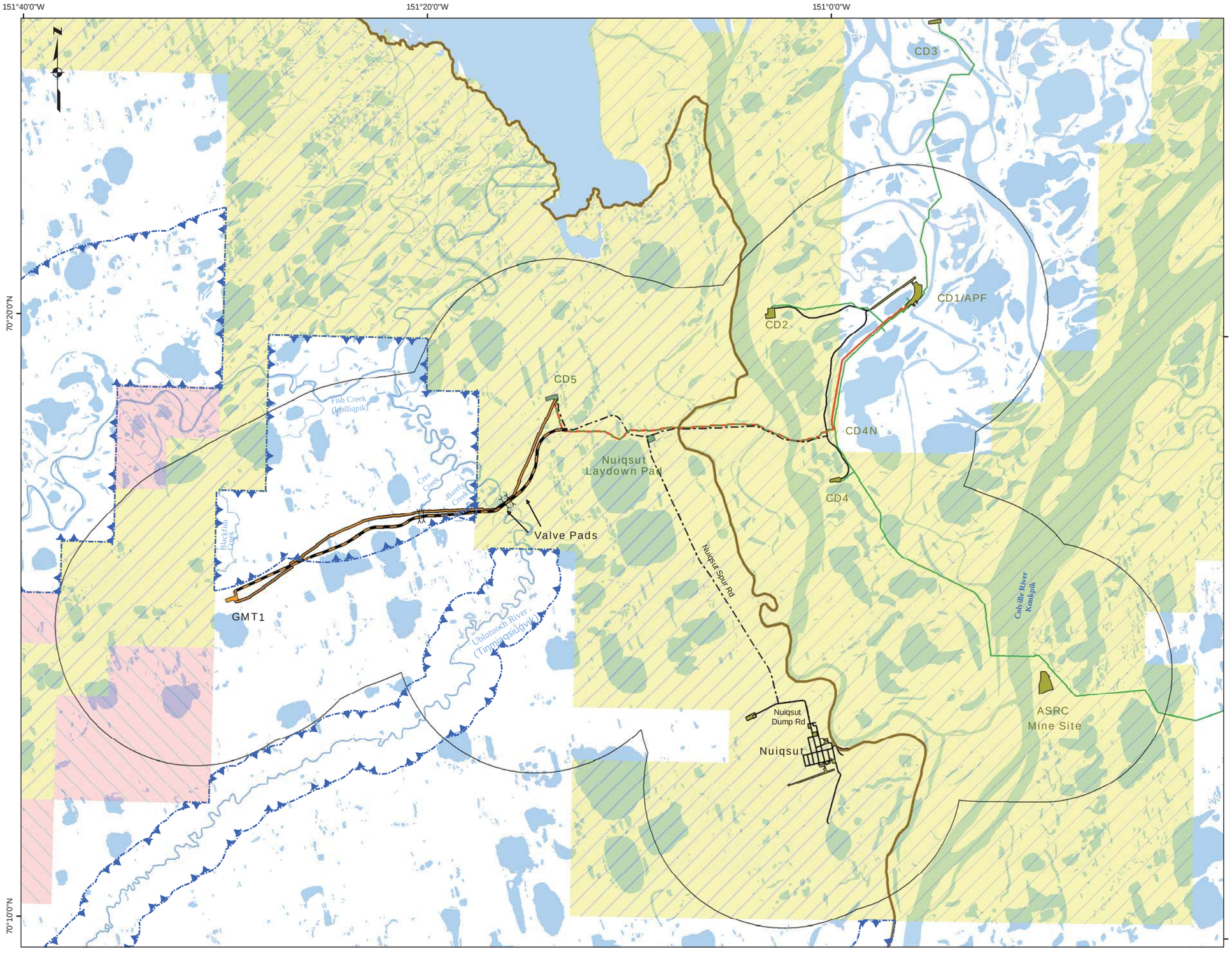
0 2 4 8 12 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Map 2.5-2

Alternative A: CPAI Proposed Project Layout

Alternative A Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[1] Injection Line
- Bridge

Proposed or Permitted (not part of GMT1)
- Pipeline
- Road
- Facility

Existing
- Pipeline
- Road
- Facility

Boundaries
- NPR-A Project Study Area

Surface Land Ownership Kuukpik Lands
- Conveyed
- Selected

Setback Areas
- Fish Creek 3mi
- Ublutuoch River 0.5mi

Footnote:
1: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Date: 9/26/2014

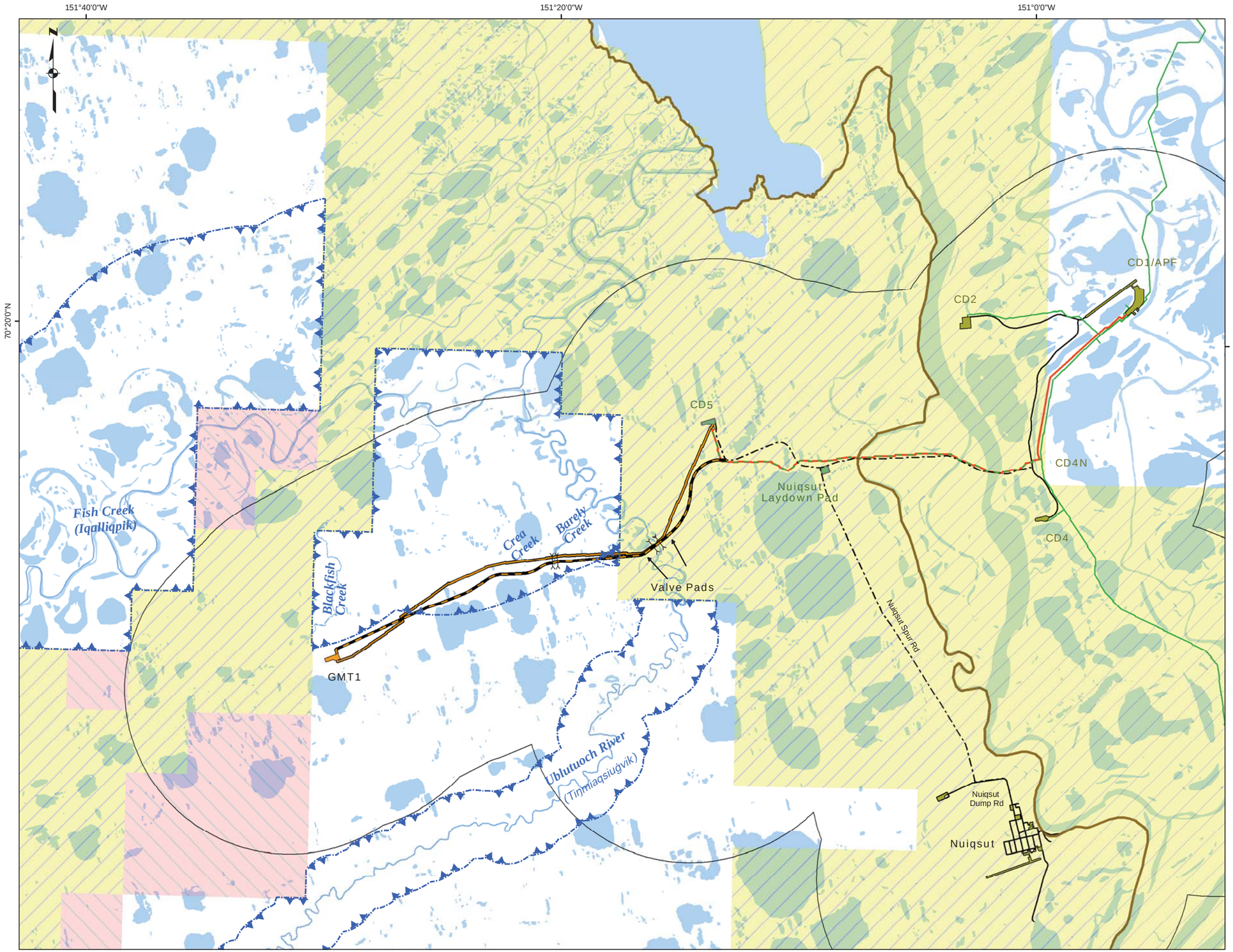
0 0.5 1 2 3 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental
Environmental Impact Statement 2014



Map 2.5-3

Fish Creek and Tiŋmiaqsiġvik (Ublutuoch) River Setback Areas

Alternative A Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[1] Injection Line
- Bridge

Proposed or Permitted (not part of GMT1)
- Pipeline
- Road
- Facility

Existing
- Pipeline
- Road
- Facility

Boundaries
- NPR-A
- Project Study Area

Surface Land Ownership Kuukpik Lands
- Conveyed
- Selected

Setback Areas
- Fish Creek 3mi
- Ublutuoch River 0.5mi

Footnote:
1: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).
2: Background layer is from Delorne World Imagery 2013

Date: 10/21/2014

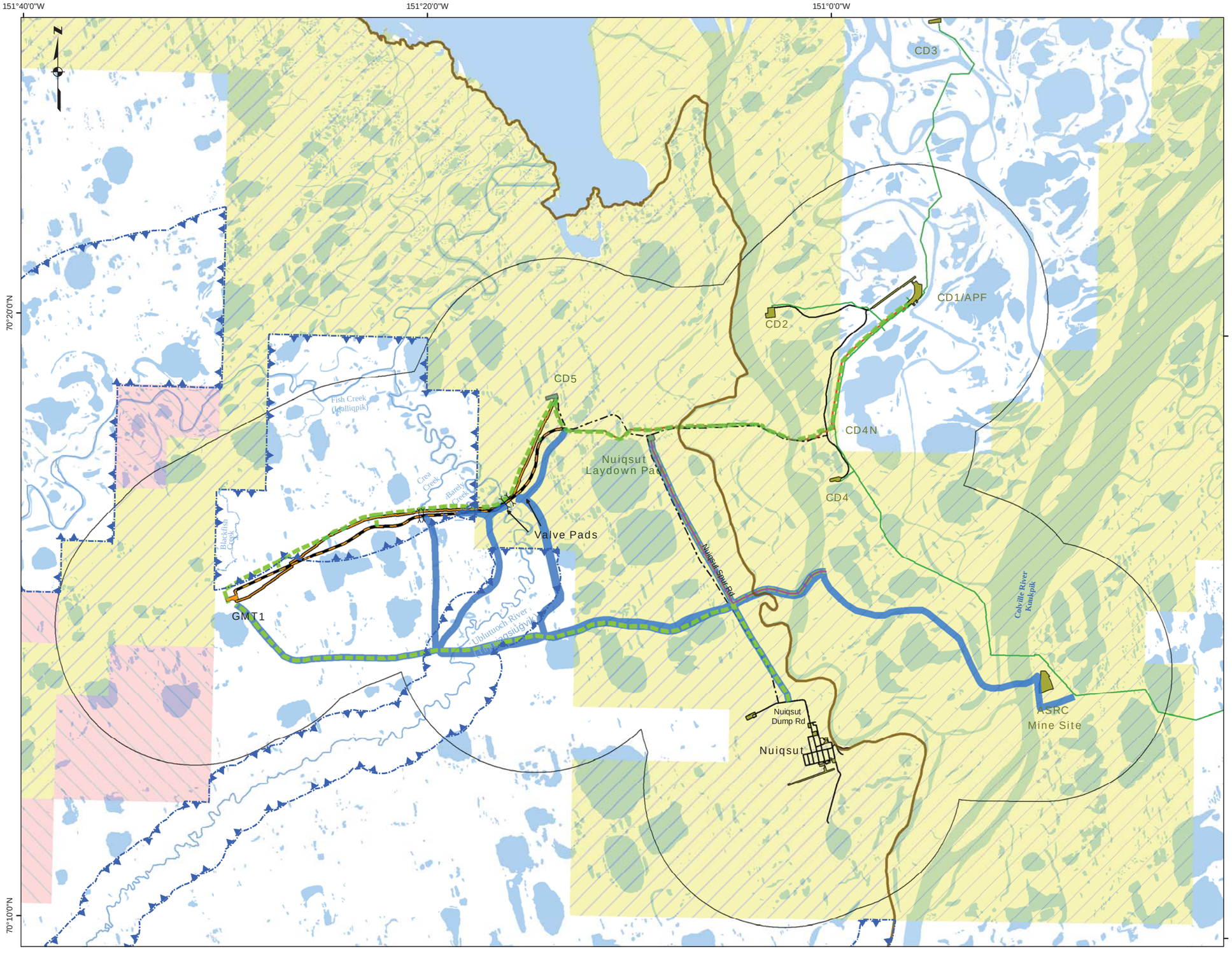
0 0.25 0.5 1 1.5 2 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental
Environmental Impact Statement 2014



Map 2.5-4

Alternative A: CPAI Proposed Project Ice Roads

Alternative A Infrastructure

- Road
- Pipeline
- Facility
- 14 inch Water[1] Injection Line
- Bridge

Proposed or Permitted (not part of GMT1)

- Pipeline
- Road
- Facility

Existing

- Pipeline
- Road
- Facility

Alternative A Ice Roads

- First Year
- Second Year
- Annual resupply Route

Surface Land Ownership Kuukpik Lands

- Conveyed
- Selected

Boundaries

- NPR-A
- Project Study Area

Setback Areas

- Fish Creek 3mi
- Ublutuoch River 0.5mi

Footnote:
1: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Date: 10/20/2014

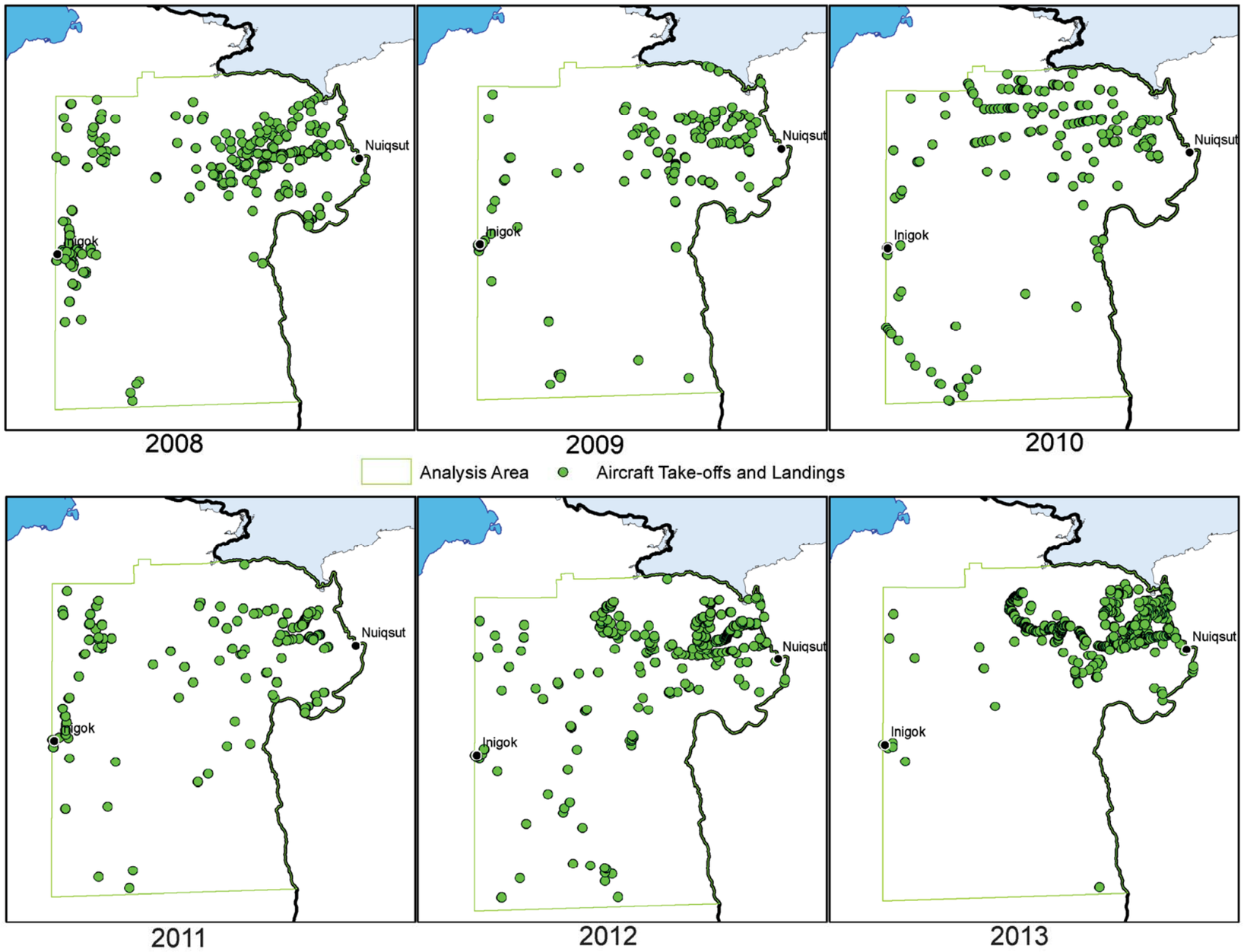
0 0.5 1 2 3 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Map 2.5-5

Historic Flights in the Eastern NPR-A, 2008-2013

Legend

- Aircraft Take-offs and Landings
- Village
- Analysis Area
- NPRA

Year	Number of Flights
2008	1202
2009	1120
2010	1487
2011	1933
2012	777
2013	1758
Total	**8277**

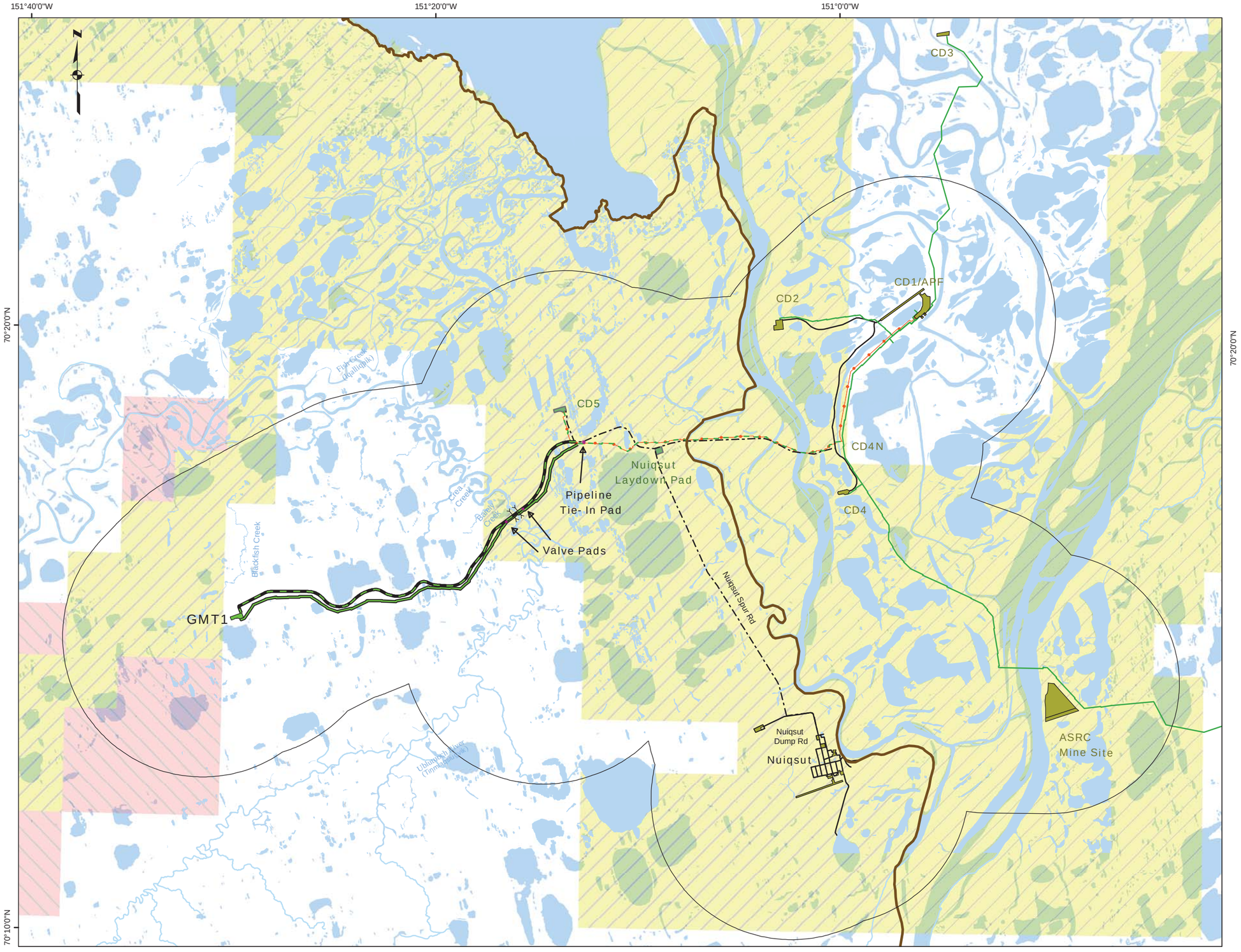
Source: BLM 2013b

Date: 10/21/2014

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Map 2.6-1

Alternative B Layout

Alternative B Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[1] Injection Line
- Bridge

Proposed or Permitted (not part of GMT1)
- Road
- Facility

Existing
- Pipeline
- Road
- Facility

Boundary
- Project Study Area
- NPR-A

Surface Land Ownership Kuukpik Lands
- Conveyed
- Selected

Footnote:
1:14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Date: 9/28/2014

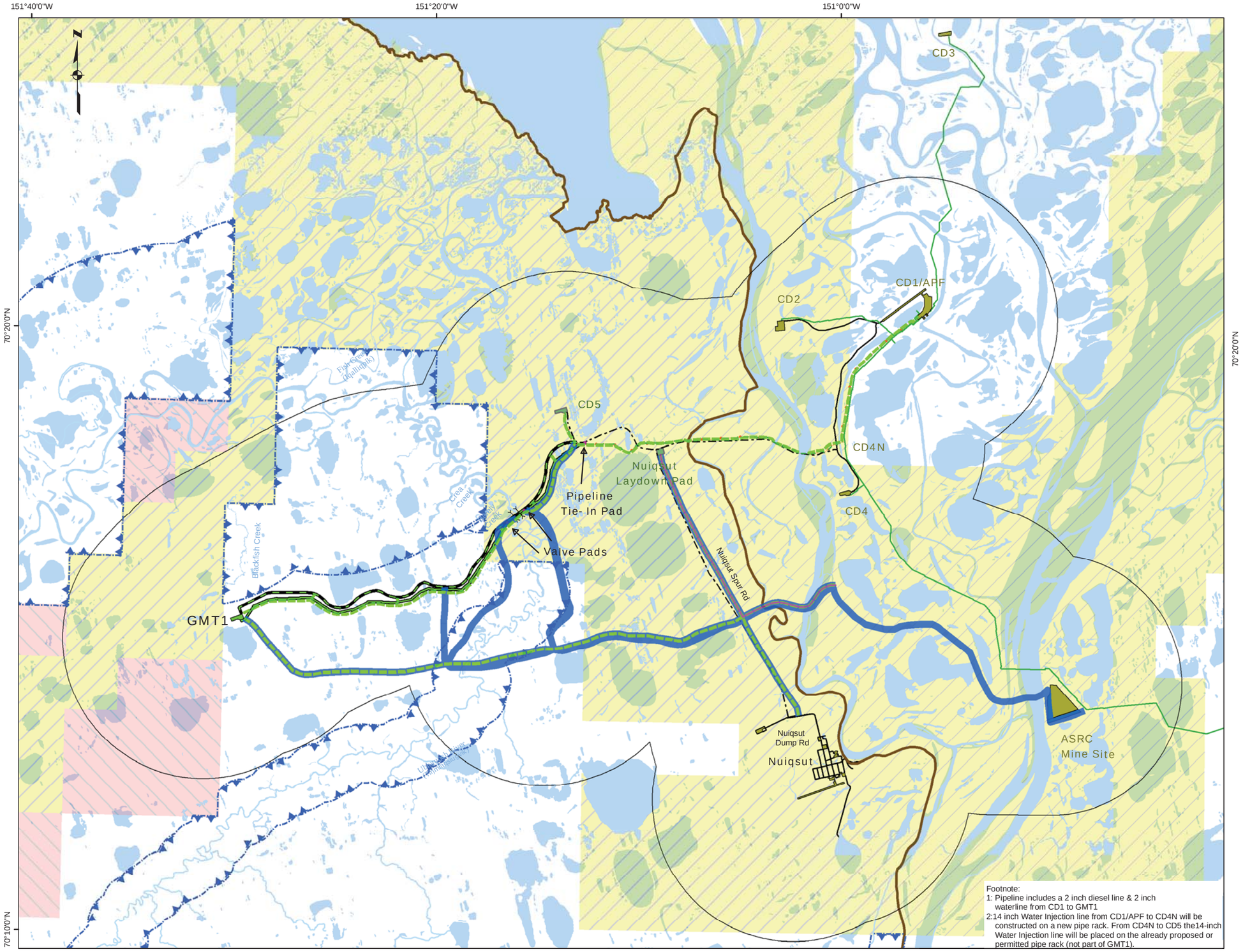
0 0.5 1 2 3 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Footnote:
1: Pipeline includes a 2 inch diesel line & 2 inch waterline from CD1 to GMT1
2:14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Map 2.6-2

Alternative B Ice Roads

Alternative B Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[2] Injection Line
- Bridge

Proposed or Permitted (not part of GMT1)
- Road
- Facility

Existing
- Pipeline
- Road
- Facility

Boundary
- Project Study Area
- NPR-A

Surface Land Ownership Kuukpik Lands
- Conveyed
- Selected

Alternative B Ice Roads
- First Year
- Second Year
- Annual resupply Route

Setback Area
- Fish Creek 3 mi
- Ublutuoch River 0.5 mi

Date: 9/27/2014

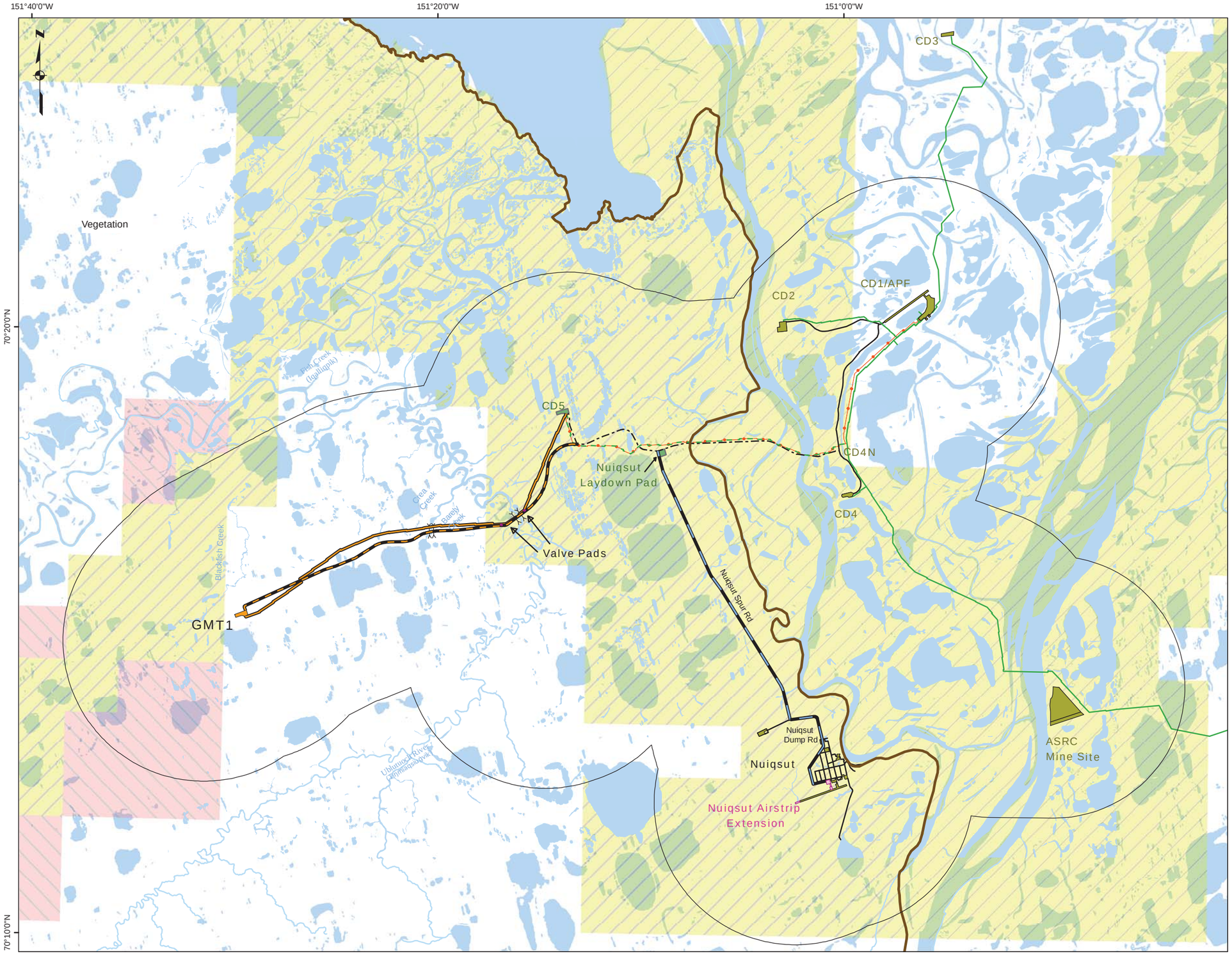
0 0.5 1 2 3 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Map 2.7-1

Alternative C Layout

Alternative C Infrastructure
- Road
- Pipeline
- Facility
- Nuiqsut Road
- Nuiqsut Airport Upgrade Facilities
- 14 inch Water[1] Injection Line
- Bridge

Proposed or Permitted (not part of GMT1)
- Road
- Facility

Existing
- Pipeline
- Road
- Facility

Surface Land Ownership Kuukpik Lands
- Conveyed
- Selected

Boundary
- Project Study Area
- NPR-A

Footnote:
1:14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).
2: Nuiqsut Laydown Pad is a 10 acre gravel storage pad.

Date: 9/27/2014

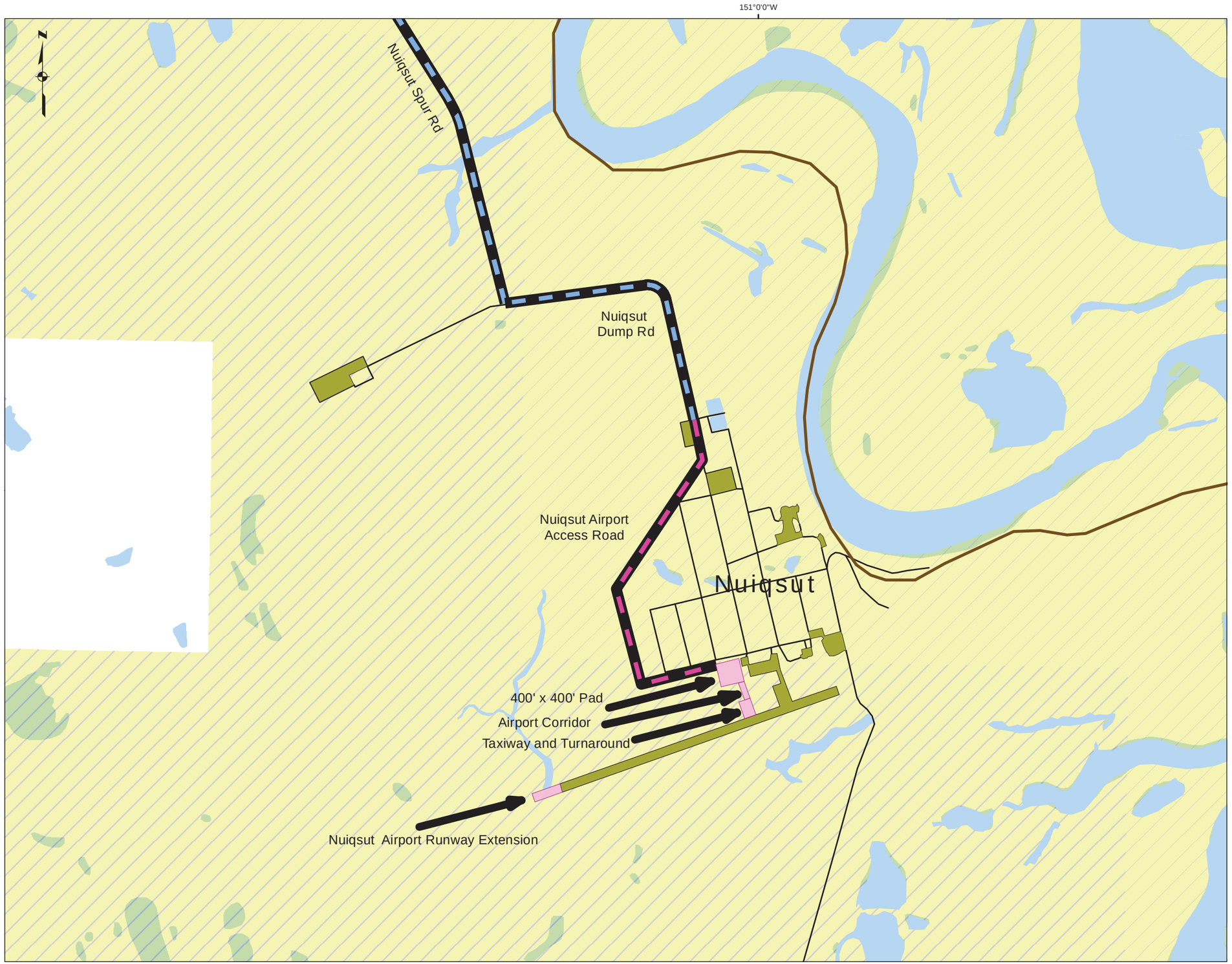
0 0.5 1 2 3 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental
Environmental Impact Statement 2014



Map 2.7-2

Alternative C
Nuiqsut Airport Facilities

Alternative C Proposed
Nuiqsut Infrastructure

- Nuiqsut Dump and Spur Road Upgrade
- Nuiqsut Airport Access Road (new)
- Nuiqsut Airport Upgrade Facilities

Existing
- Road
- Facility

Surface Land Ownership
Kuukpik Lands
- Conveyed

Date: 9/26/2014

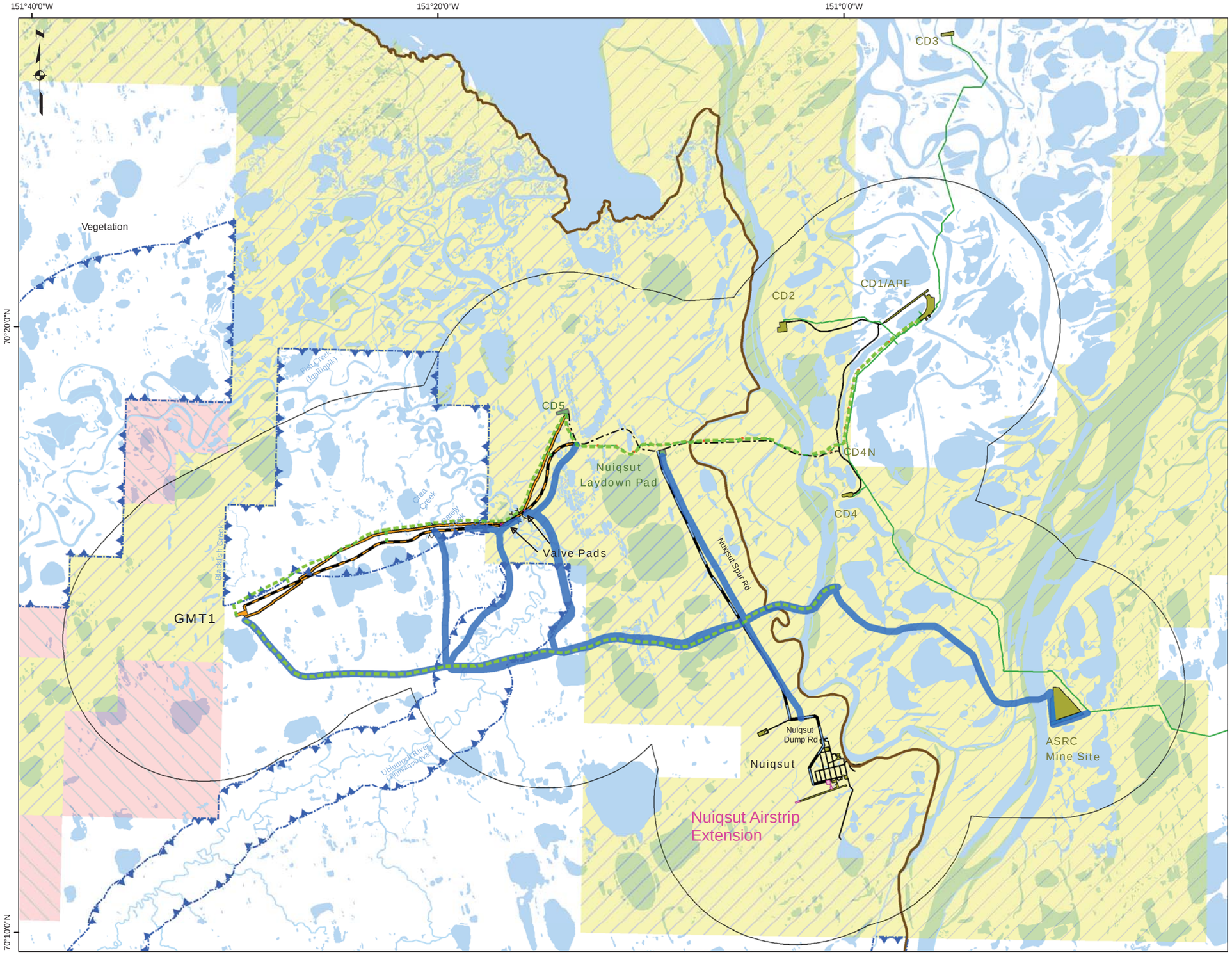
0 0.050.1 0.2 0.3 0.4 0.5 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental
Environmental Impact Statement 2014



Map 2.7-3

Alternative C Ice Roads

Alternative C Infrastructure
- Road
- Pipeline
- Facility
- Nuiqsut Road
- Nuiqsut Airport Upgrade Facilities
- 14 inch Water[1] Injection Line
- Bridge

Proposed or Permitted (not part of GMT1)
- Road
- Facility

Existing
- Pipeline
- Road
- Facility

Surface Land Ownership Kuukpik Lands
- Conveyed
- Selected

Boundary
- Project Study
- NPR-A

- Year One Proposed Ice Road
- Year Two Proposed Ice Road

Setback Area
- Fish Creek 3 mi
- Ublutuoch River 0.5 mi

Footnote:
1:14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).
2: Nuiqsut Laydown Pad is a 10 acre gravel storage pad.

Date: 10/20/2014

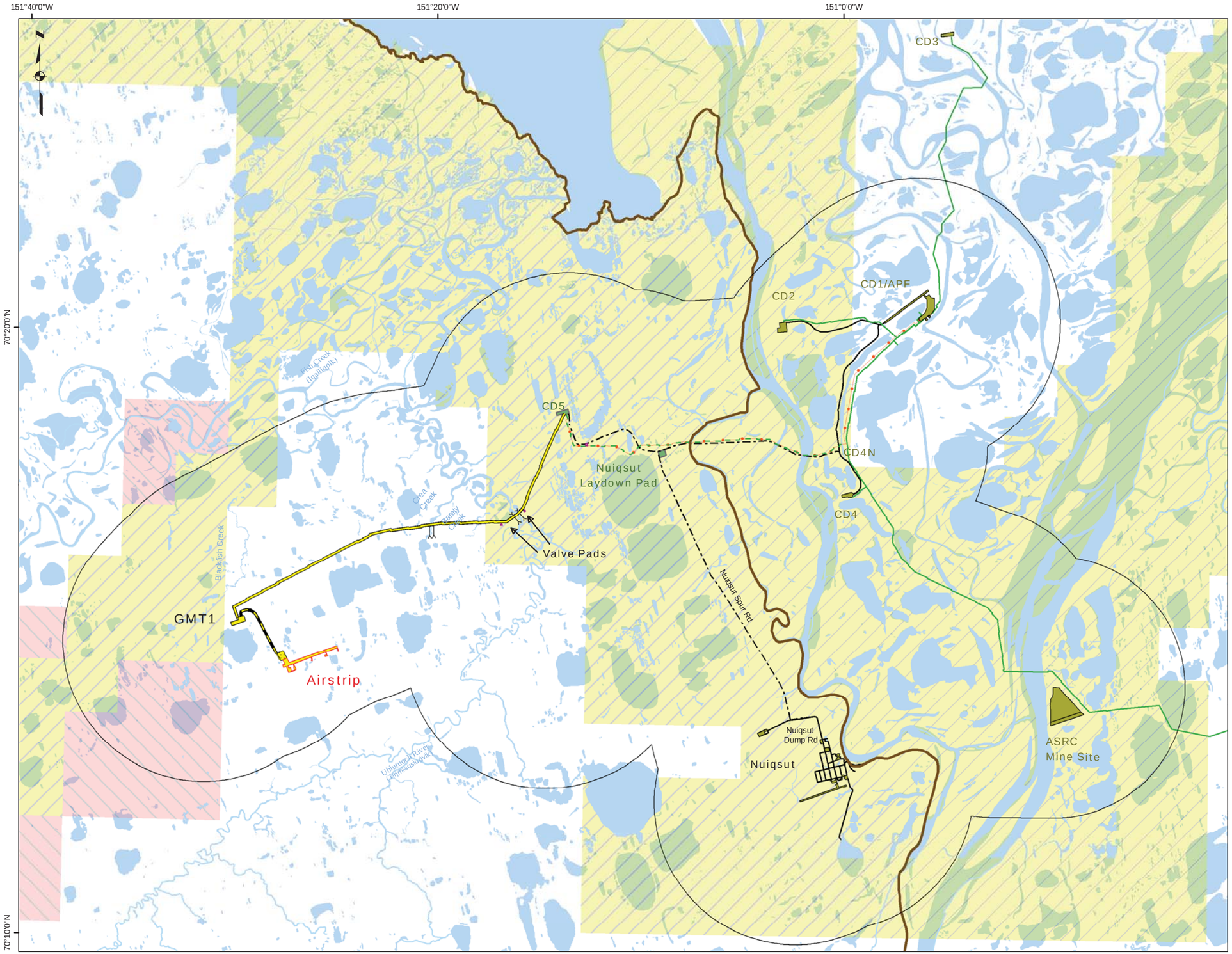
0 0.5 1 2 3 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental
Environmental Impact Statement 2014



Map 2.8-1

Alternative D1 and D2 Layout

Alternative D1/D2 Infrastructure

- Road
- Pipeline
- Facility
- Airstrip
- Airstrip Occupied Pad common to D1 and D 2
- AirStrip additional Occupied Pad-for D1
- 14 inch Water[1,2] Injection Line
- Bridge

Proposed or Permitted (not part of GMT1)

- Road
- Facility

Existing

- Pipeline
- Road
- Facility

Surface Land Ownership Kuukpik Lands

- Conveyed
- Selected

Boundary

- Project Study Area
- NPR-A

Footnote:
1: Pipeline includes a 2 inch diesel line & 2 inch waterline from CD1 to GMT1
2:14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Date: 9/27/2014

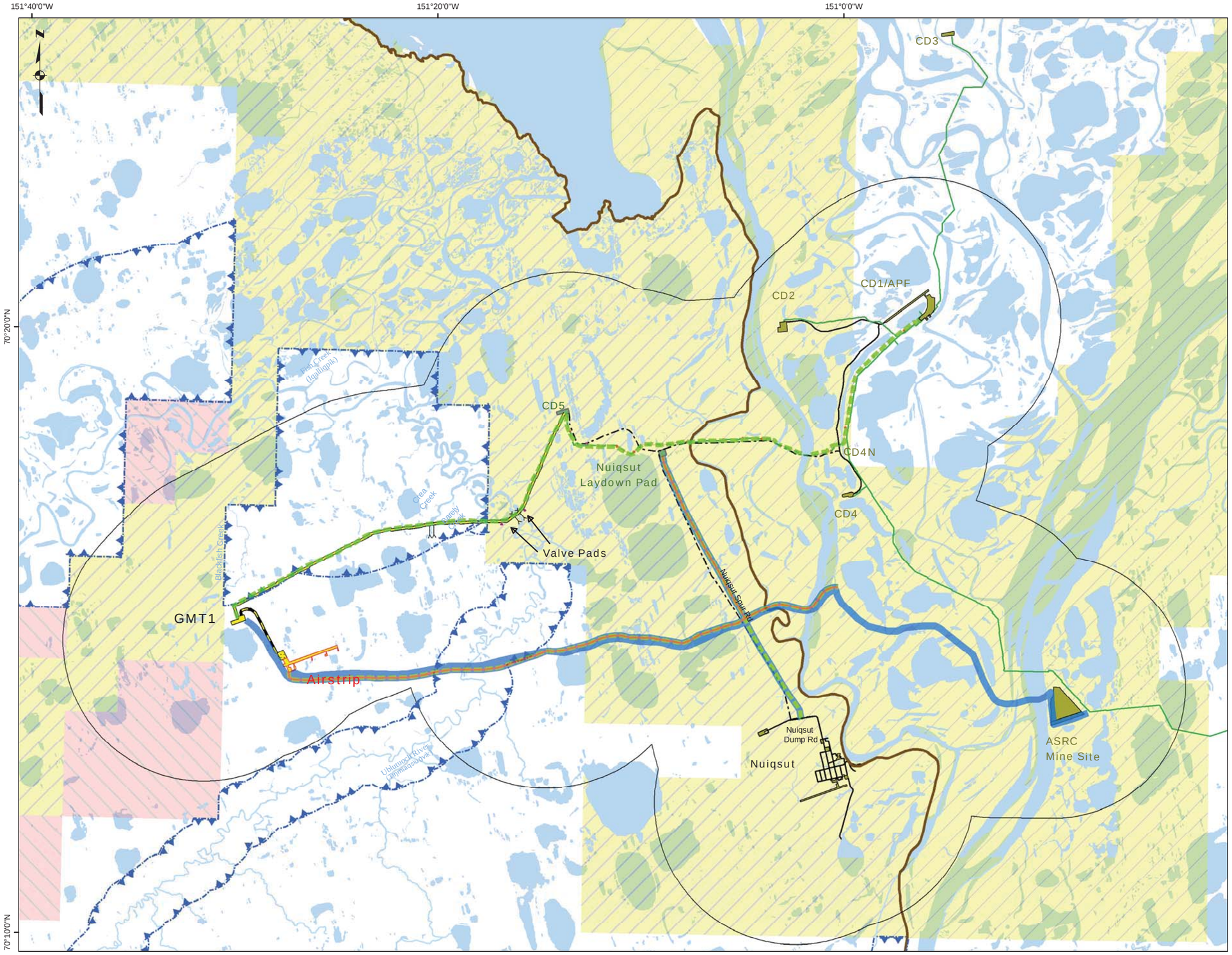
0 0.5 1 2 3 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental
Environmental Impact Statement 2014



Map 2.8-2

Alternative D1 and D2 Ice Roads

Alternative D1/D2 Infrastructure

- Road
- Pipeline
- Facility
- Airstrip
- Airstrip Occupied Pad common to D1 and D 2
- AirStrip additional Occupied Pad-for D1
- 14 inch Water[1,2] Injection Line
- Bridge

Proposed or Permitted (not part of GMT1)

- Road
- Facility

Existing

- Pipeline
- Road
- Facility

Surface Land Ownership Kuukpik Lands

- Conveyed
- Selected

Ice Roads

- First Year
- Second Year
- Annual Resupply Road

Boundary

- Project Study Area
- NPR-A

Setback Area

- Fish Creek 3 mi
- Ublutuoch River 0.5 mi

Footnote:
1: Pipeline includes a 2 inch diesel line & 2 inch waterline from CD1 to GMT1
2:14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Date: 9/27/2014

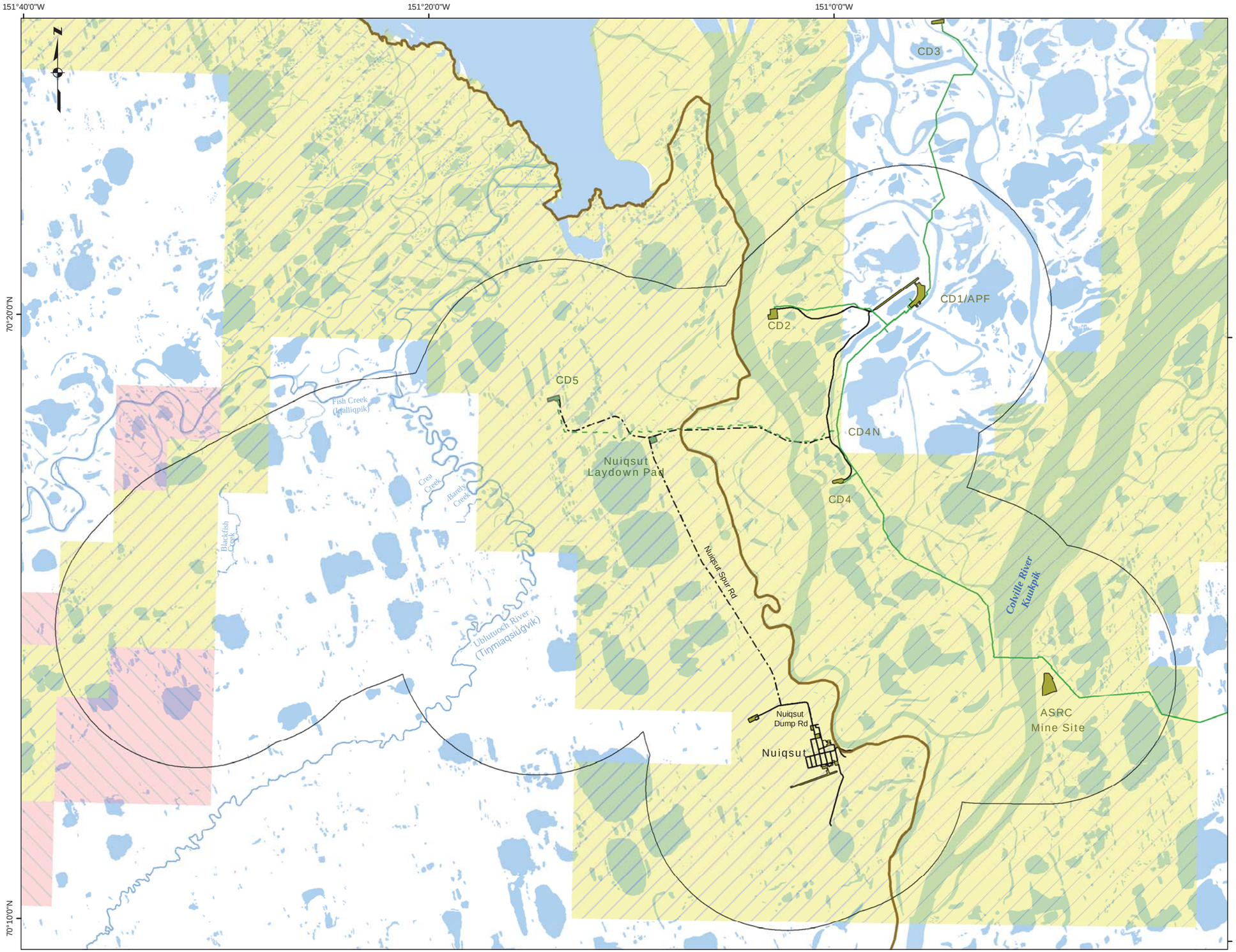
0 0.5 1 2 3 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Map 2.10-1

Alternative E: No Action

Proposed or Permitted (not part of GMT1)
- Pipeline
- Road
- Facility

Existing
- Pipeline
- Road
- Facility

Boundaries
- NPR-A
- Project Study Area

Surface Land Ownership Kuukpik Lands
- Conveyed
- Selected

Date: 10/21/2014

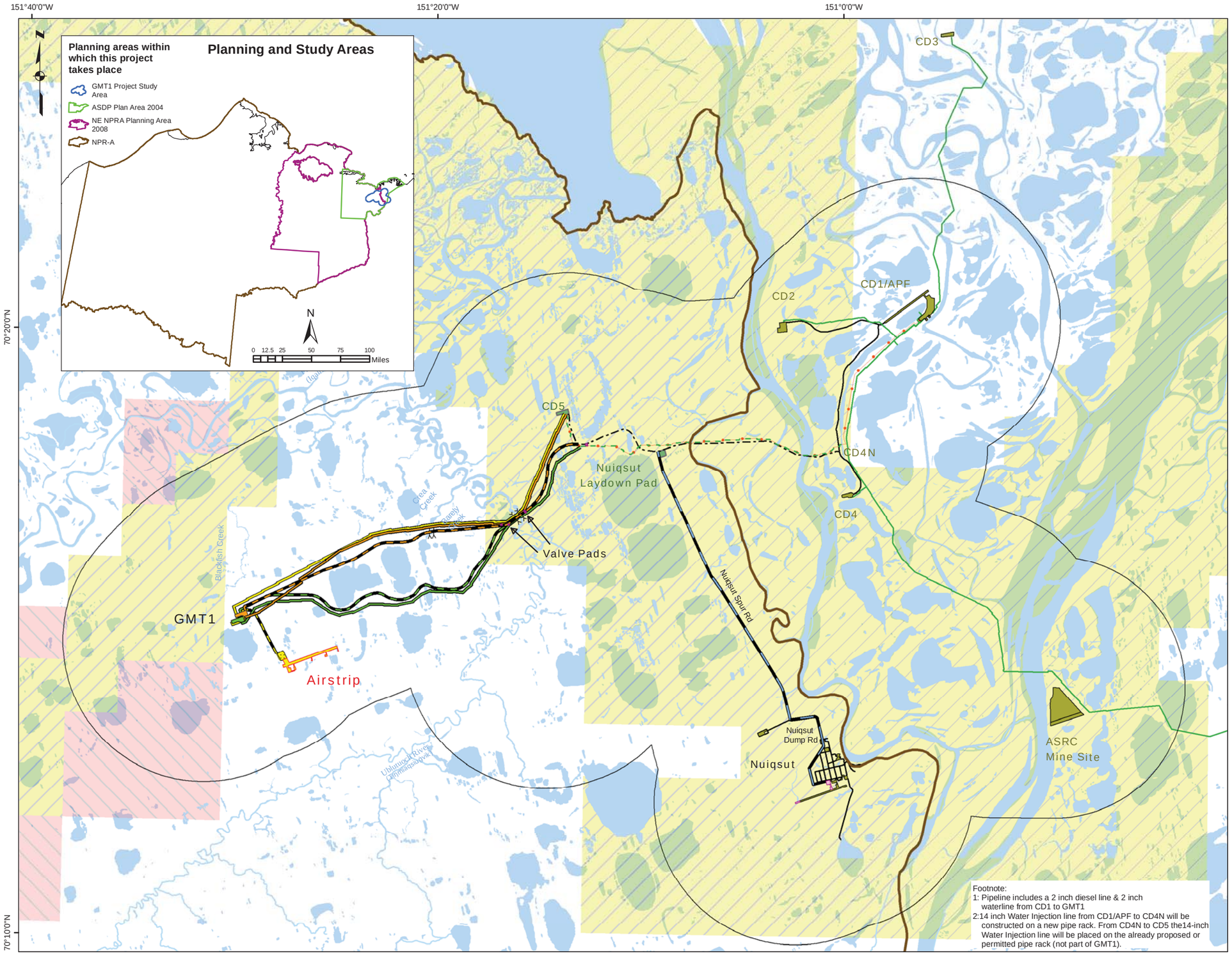
0 0.5 1 2 3 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Map 3.1-1

Project Study Area

Alternative A Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[2] Injection Line
- Bridge

Alternative B Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[2] Injection Line
- Bridge

Alternative C Infrastructure
- Road
- Pipeline
- Facility
- Nuiqsut Road
- Nuiqsut Airport Upgrade Facilities
- 14 inch Water[2] Injection Line
- Bridge

Alternative D1/D2 Infrastructure
- Road
- Pipeline
- Facility
- AirStrip
- AirStrip Occupied Pad common to D1 and D 2
- AirStrip additional Occupied Pad-for D1
- 14 inch Water[1,2] Injection Line
- Bridge

Boundary
- Project Study Area
- NPR-A

Surface Land Ownership Kuukpik Lands
- Conveyed
- Selected

Proposed or Permitted (not part of GMT1)
- Road
- Facility

Existing
- Pipeline
- Road
- Facility

Date: 9/29/2014

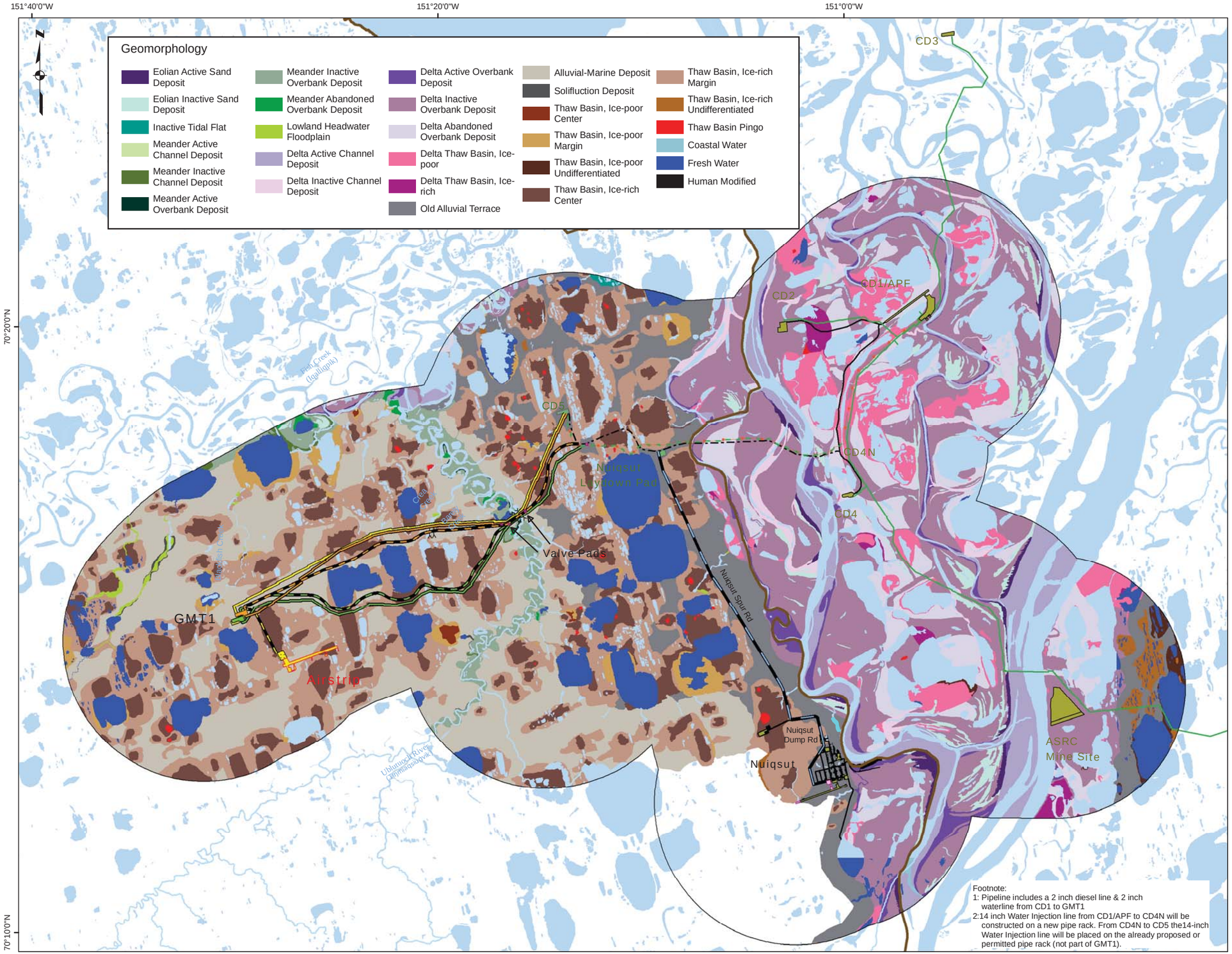
0 0.5 1 2 3 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Map 3.2-1

Geomorphology

Alternative A Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[2] Injection Line
- Bridge

Alternative B Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[2] Injection Line
- Bridge

Alternative C Infrastructure
- Road
- Pipeline
- Facility
- Nuiqsut Road
- Nuiqsut Airport Upgrade Facilities
- 14 inch Water[2] Injection Line
- Bridge

Alternative D1/D2 Infrastructure
- Road
- Pipeline
- Facility
- AirStrip
- AirStrip Occupied Pad common to D1 and D 2
- AirStrip additional Occupied Pad-for D1
- 14 inch Water[1,2] Injection Line
- Bridge

Boundary
- Project Study Area
- NPR-A

Proposed or Permitted (not part of GMT1)
- Road
- Facility

Existing
- Pipeline
- Road
- Facility

Date: 9/27/2014

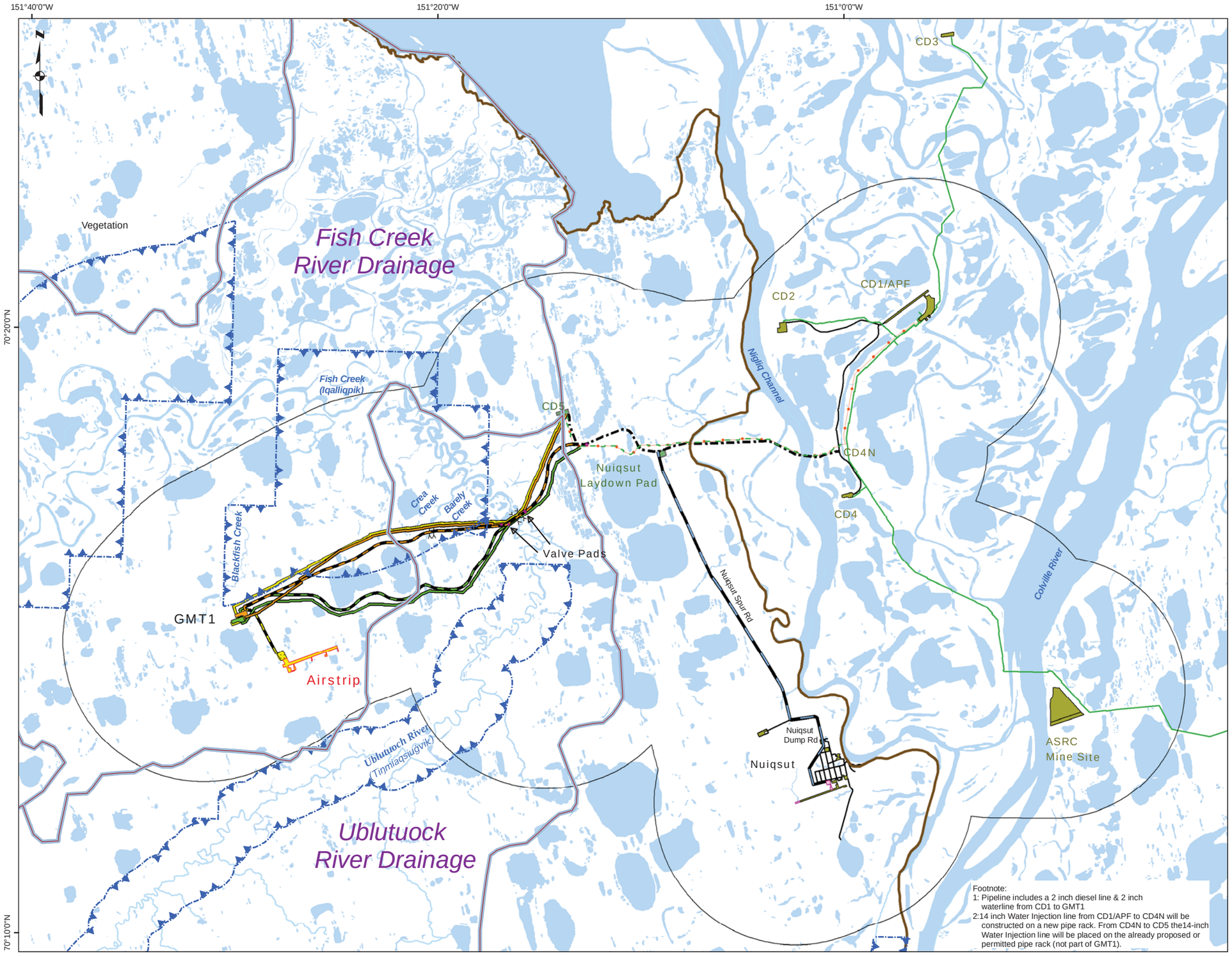
0 0.5 1 2 3 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Footnote:
1: Pipeline includes a 2 inch diesel line & 2 inch waterline from CD1 to GMT1
2:14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Map 3.2-2

Drainage Basins

Alternative A Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[2] Injection Line
- Bridge

Alternative B Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[2] Injection Line
- Bridge

Alternative C Infrastructure
- Road
- Pipeline
- Facility
- Nuiqsut Road
- Nuiqsut Airport Upgrade Facilities
- 14 inch Water[2] Injection Line
- Bridge

Alternative D1/D2 Infrastructure
- Road
- Pipeline
- Facility
- AirStrip
- AirStrip Occupied Pad common to D1 and D 2
- AirStrip additional Occupied Pad-for D1
- 14 inch Water[1,2] Injection Line
- Bridge

Proposed or Permitted (not part of GMT1)
- Road
- Facility

Existing
- Pipeline
- Road
- Facility

Boundary
- Project Study Area
- NPR-A

Drainage Basins

Setback Areas
- Fish Creek 3mi
- Ublutuoch River 0.5mi

Date: 10/21/2014

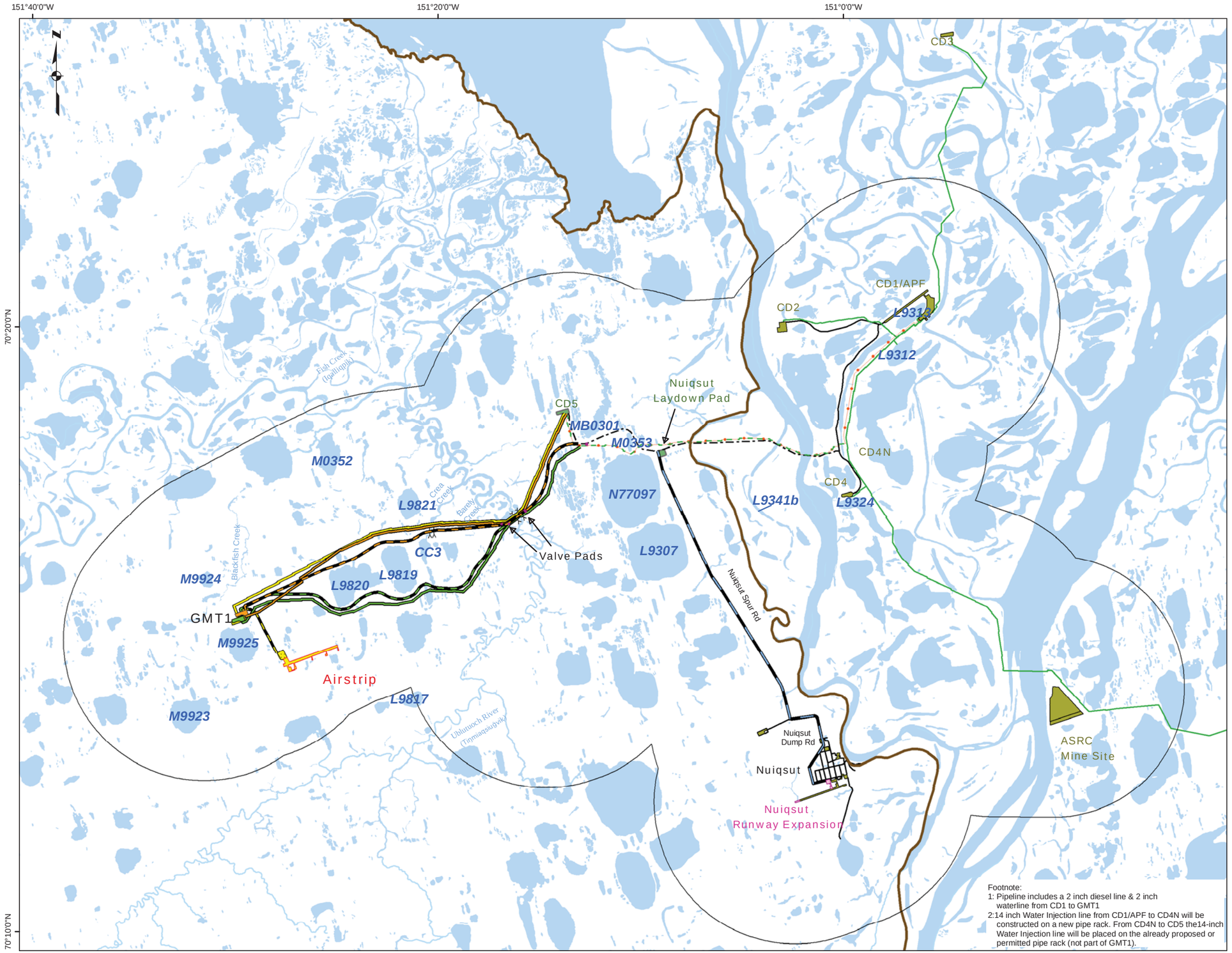
0 0.5 1 2 3 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Footnote:
1: Pipeline includes a 2 inch diesel line & 2 inch waterline from CD1 to GMT1
2:14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Map 3.2-3

Surface Water Bodies

Alternative A Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[2] Injection Line
- Bridge

Alternative B Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[2] Injection Line
- Bridge

Alternative C Infrastructure
- Road
- Pipeline
- Facility
- Nuiqsut Road
- Nuiqsut Airport Upgrade Facilities
- 14 inch Water[2] Injection Line
- Bridge

Alternative D1/D2 Infrastructure
- Road
- Pipeline
- Facility
- AirStrip
- AirStrip Occupied Pad common to D1 and D 2
- AirStrip additional Occupied Pad-for D1
- 14 inch Water[1,2] Injection Line
- Bridge

Proposed or Permitted (not part of GMT1)
- Road
- Facility

Existing
- Pipeline
- Road
- Facility

Boundary
- Project Study Area
- NPR-A

Date: 10/21/2014

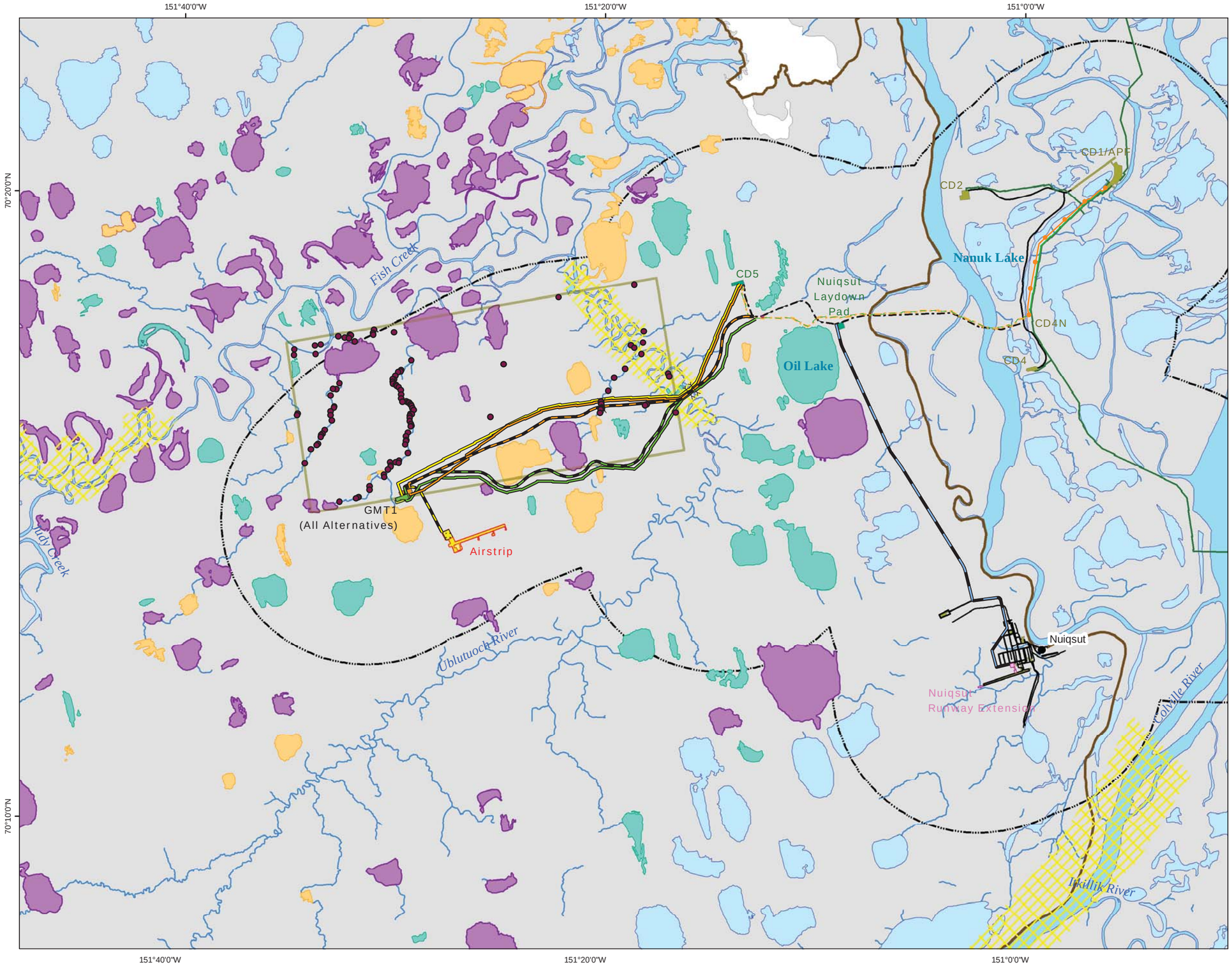
0 0.5 1 2 3 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Map 3.3-1

Potential and Known Fish Overwintering Habitat

- Fish Wintering Areas
- Bedfast Ice Regime
- Transitional Ice Regime
- Floating Ice Regime
- stream pool features with floating ice
- Waterbodies not analyzed
- Jones Project Extent

Alternative A Infrastructure
- Pipeline
- Road
- Facility

Alternative B Infrastructure
- Pipeline
- Road
- Facility

Alternative C Infrastructure
- Pipeline
- Road
- Nuiqsut Spur/Dump/ Airport Roads
- Facility

Alternative D1/D2 Infrastructure
- Pipeline
- Road
- Facility
- Airstrip

Proposed or Permitted (not part of GMT1)
- Pipeline
- Road
- Facility

Existing
- Pipeline
- Road
- Facility

GMT1 SEIS Project Areas
- Project Study Area
- NPR-A

Data sources:
Morris 2003,
Arp et al. 2012,
Jones et al. 2013

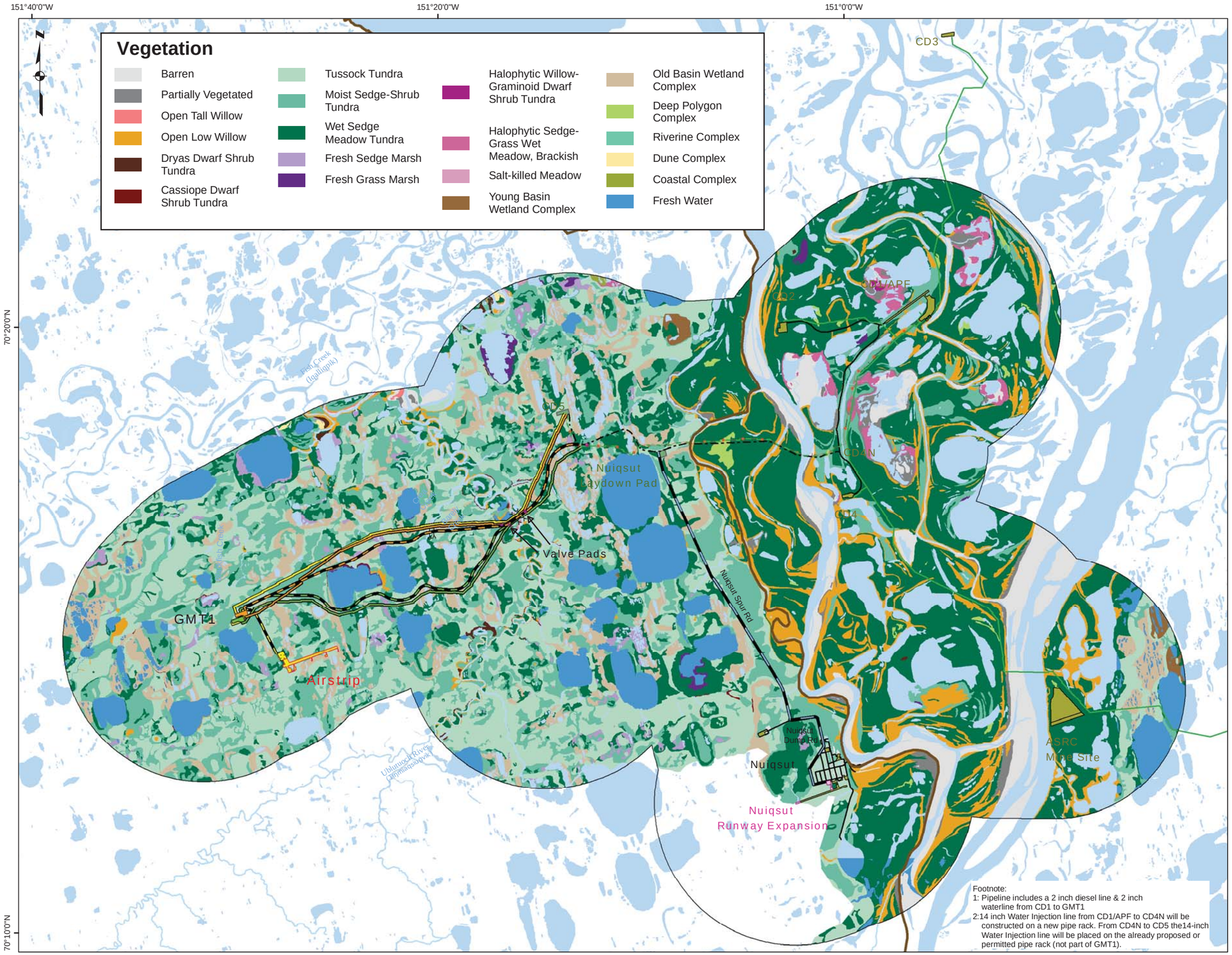
0 0.5 1 2 3 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental
Environmental Impact Statement 2014



Map 3.3-2

Vegetation

Alternative A Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[2] Injection Line
- Bridge

Alternative B Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[2] Injection Line
- Bridge

Alternative C Infrastructure
- Road
- Pipeline
- Facility
- Nuiqsut Road
- Nuiqsut Airport Upgrade Facilities
- 14 inch Water[2] Injection Line
- Bridge

Alternative D1/D2 Infrastructure
- Road
- Pipeline
- Facility
- AirStrip
- AirStrip Occupied Pad common to D1 and D 2
- AirStrip additional Occupied Pad-for D1
- 14 inch Water[1,2] Injection Line
- Bridge

Boundary
- Project Study Area
- NPR-A

Proposed or Permitted (not part of GMT1)
- Road
- Facility

Existing
- Pipeline
- Road
- Facility

Date: 9/27/2014

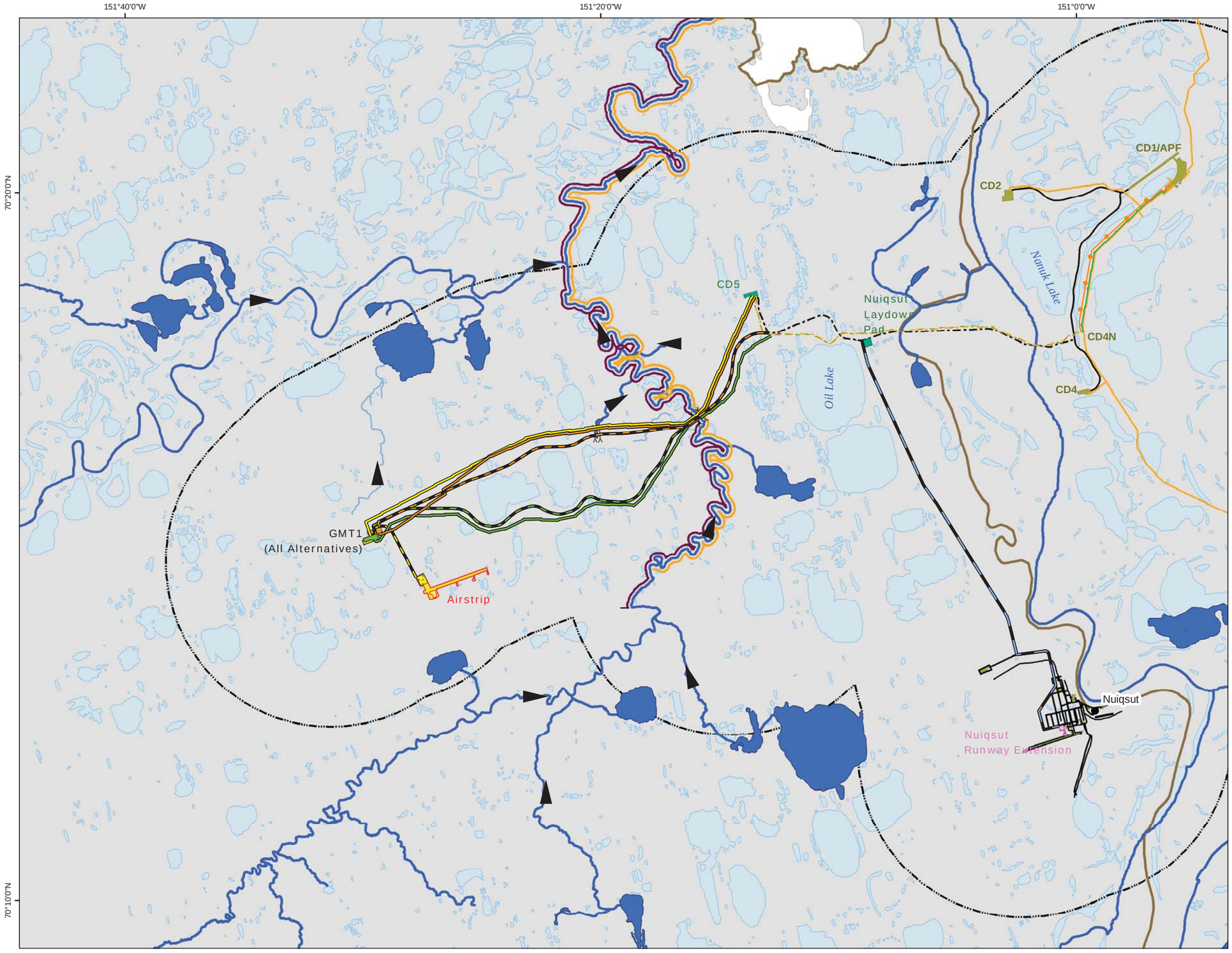
0 0.5 1 2 3 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Map 3.3-3

Anadromous Waters and Essential Fish Habitat

Anadromous Waters

Streams
(black arrows indicate stream flow direction)

Lakes

Essential Fish Habitat

KSp- King salmon present upstream extent

CSp- Chum salmon &
PSp- Pink salmon present upstream extent

Waterbodies

Lake/Pond

Alternative A Infrastructure
- Pipeline
- Road
- Facility

Alternative B Infrastructure
- Pipeline
- Road
- Facility

Alternative C Infrastructure
- Pipeline
- Road
- Nuiqsut Spur/Dump/ Airport Roads
- Facility

Alternative D1/D2 Infrastructure
- Pipeline
- Road
- Facility
- Airstrip

Proposed or Permitted (not part of GMT1)
- Pipeline
- Road
- Facility

Existing
- Pipeline
- Road
- Facility

GMT1 SEIS Project Areas

Project Study Area

NPR-A

Data Sources:
Anadromous Waters Catalog (ADFG), 2013a

0 1 2 Miles

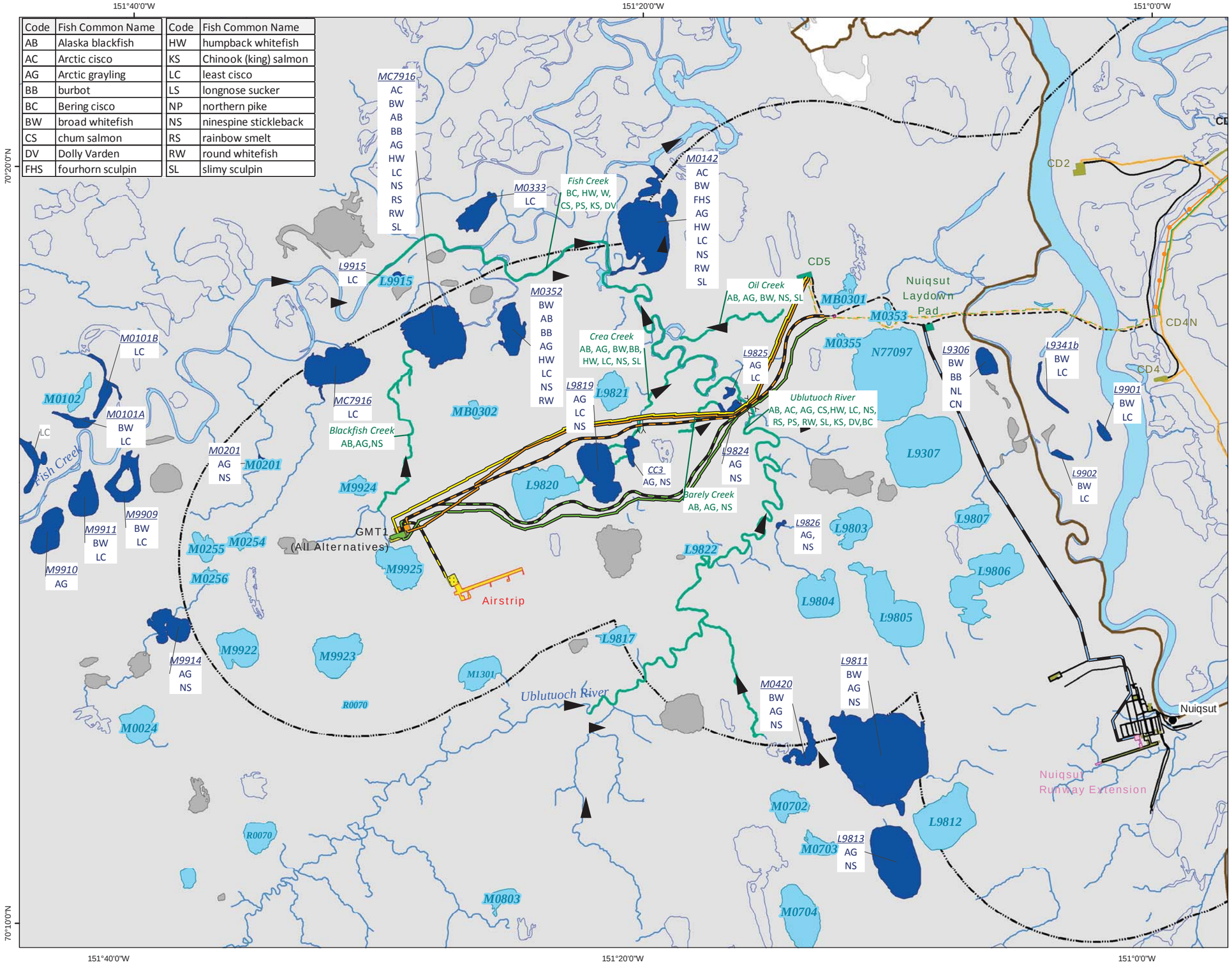
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014

Code	Fish Common Name	Code	Fish Common Name
AB	Alaska blackfish	HW	humpback whitefish
AC	Arctic cisco	KS	Chinook (king) salmon
AG	Arctic grayling	LC	least cisco
BB	burbot	LS	longnose sucker
BC	Bering cisco	NP	northern pike
BW	broad whitefish	NS	ninespine stickleback
CS	chum salmon	RS	rainbow smelt
DV	Dolly Varden	RW	round whitefish
FHS	fourhorn sculpin	SL	slimy sculpin



Map 3.3-4

Fish Species Distribution

- Multiple fish species present in river/stream (black arrows indicate stream flow direction)
- Species other than ninespine stickleback seen
- Only ninespine stickleback seen
- Waterbody surveyed - no fish seen
- Waterbody not surveyed

Alternative A Infrastructure
- Pipeline
- Road
- Facility

Alternative B Infrastructure
- Pipeline
- Road
- Facility

Alternative C Infrastructure
- Pipeline
- Road
- Nuiqsut Spur/Dump/ Airport Roads
- Facility

Alternative D1/D2 Infrastructure
- Pipeline
- Road
- Facility
- Airstrip

Proposed or Permitted (not part of GMT1)
- Pipeline
- Road
- Facility

Existing
- Pipeline
- Road
- Facility

GMT1 SEIS Project Areas
- Project Study Area
- NPR-A

Data Sources:
Anadromous Waters Catalog (ADFG) 2013a,
BLM 2014a,
CPAI 2013f

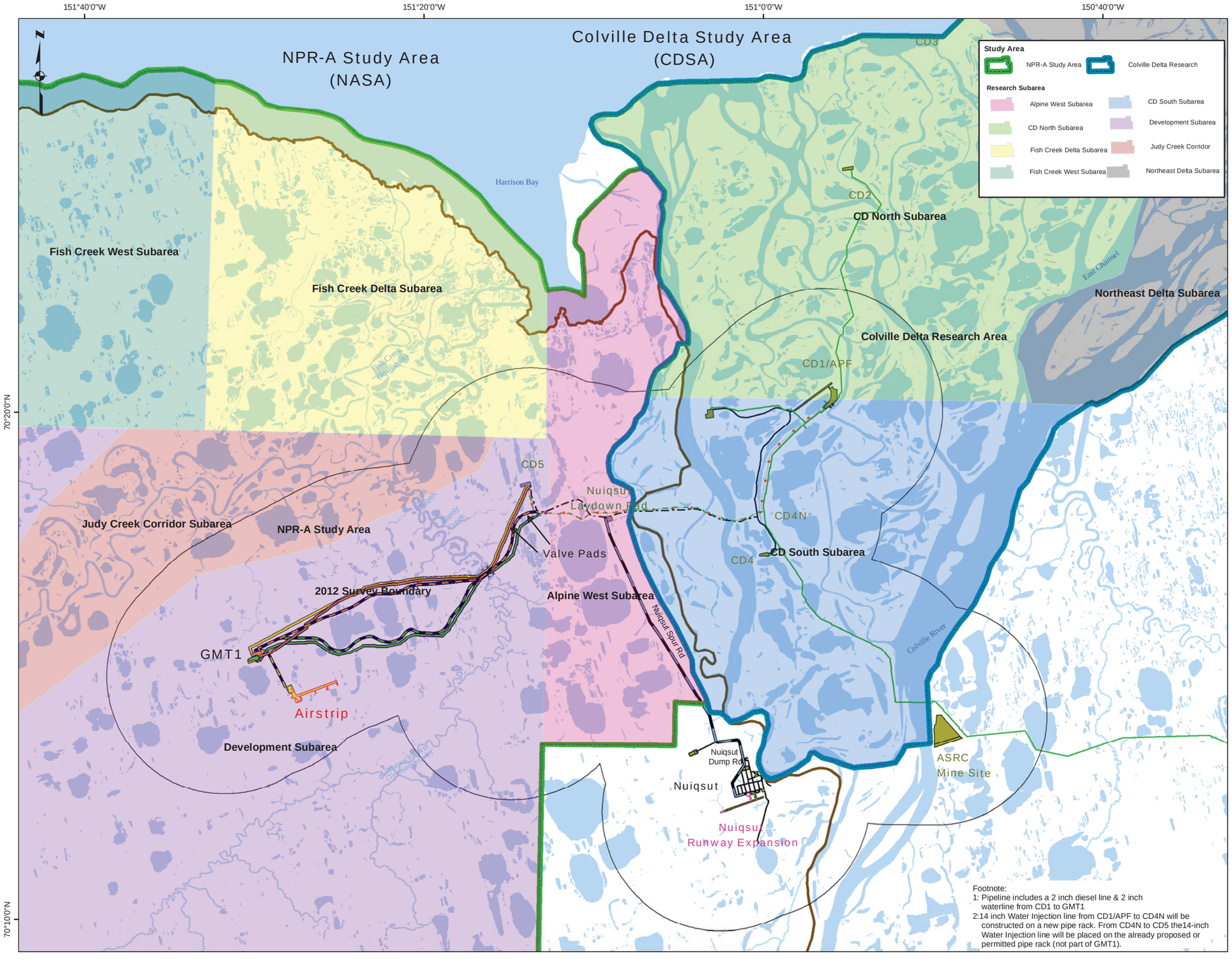
0 0.4 0.8 1.6 2.4 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental
Environmental Impact Statement 2014



Footnote:
1: Pipeline includes a 2 inch diesel line & 2 inch waterline from CD1 to GMT1
2:14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Map 3.3-5

Avian Study Areas

Alternative A Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[2] Injection Line
- Bridge

Alternative B Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[2] Injection Line
- Bridge

Alternative C Infrastructure
- Road
- Pipeline
- Facility
- Nuiqsut Road
- Nuiqsut Airport Upgrade Facilities
- 14 inch Water[2] Injection Line
- Bridge

Alternative D1/D2 Infrastructure
- Road
- Pipeline
- Facility
- AirStrip
- AirStrip Occupied Pad common to D1 and D 2
- AirStrip additional Occupied Pad-for D1
- 14 inch Water[1,2] Injection Line
- Bridge

Boundary
- Project Study Area
- NPR-A

Proposed or Permitted (not part of GMT1)
- Road
- Facility

Existing
- Pipeline
- Road
- Facility

Date: 9/27/2014

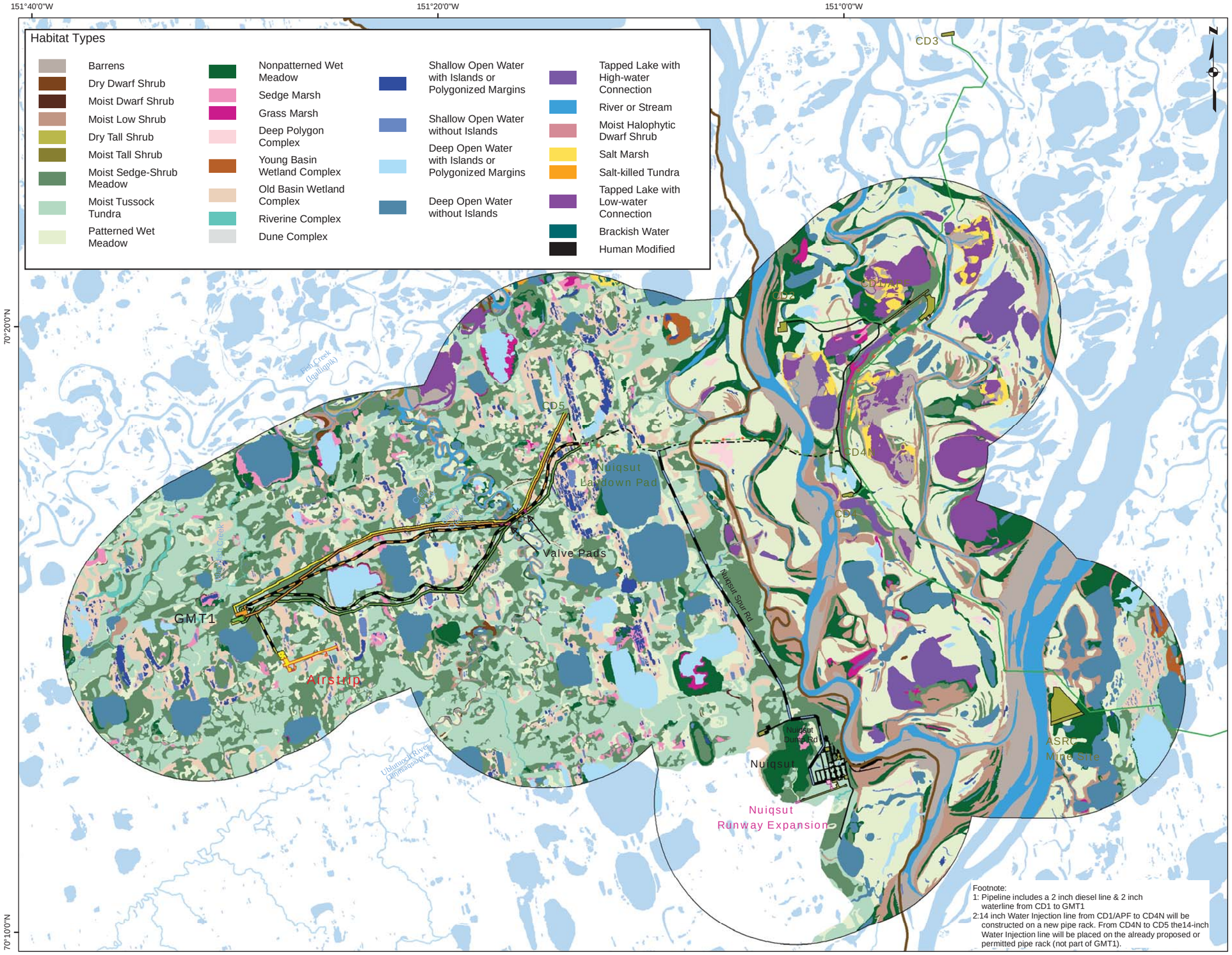
0 0.5 1 2 3 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Footnote:
1: Pipeline includes a 2 inch diesel line & 2 inch waterline from CD1 to GMT1
2:14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Map 3.3-6

Wildlife Habitat

Alternative A Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[2] Injection Line
- Bridge

Alternative B Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[2] Injection Line
- Bridge

Alternative C Infrastructure
- Road
- Pipeline
- Facility
- Nuiqsut Road
- Nuiqsut Airport Upgrade Facilities
- 14 inch Water[2] Injection Line
- Bridge

Alternative D1/D2 Infrastructure
- Road
- Pipeline
- Facility
- AirStrip
- AirStrip Occupied Pad common to D1 and D 2
- AirStrip additional Occupied Pad-for D1
- 14 inch Water[1,2] Injection Line
- Bridge

Boundary
- Project Study Area
- NPR-A

Proposed or Permitted (not part of GMT1)
- Road
- Facility

Existing
- Pipeline
- Road
- Facility

Date: 9/29/2014

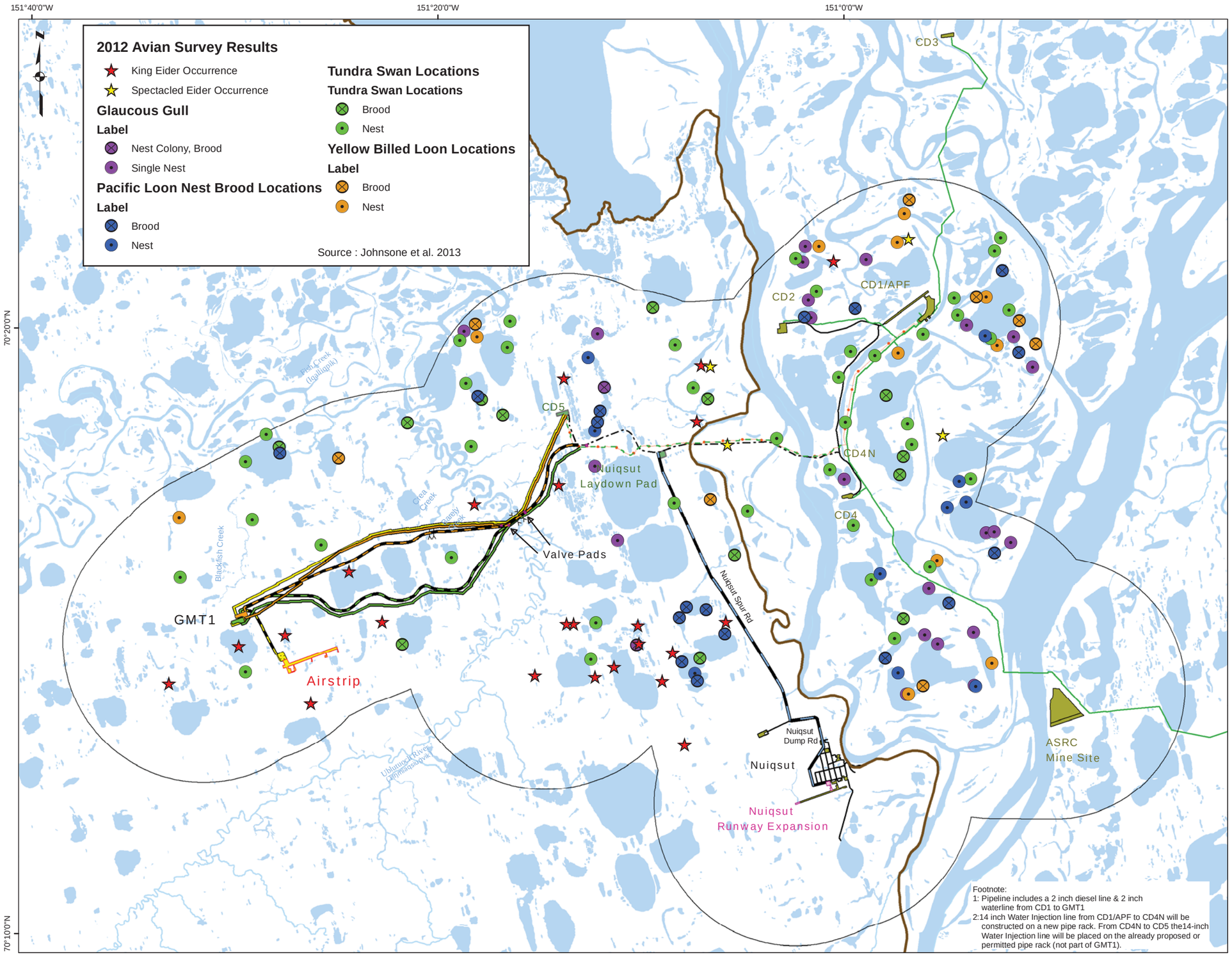
0 0.5 1 2 3 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Footnote:
1: Pipeline includes a 2 inch diesel line & 2 inch waterline from CD1 to GMT1
2:14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Map 3.3-7

2012 Avian Survey

Alternative A Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[2] Injection Line
- Bridge

Alternative B Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[2] Injection Line
- Bridge

Alternative C Infrastructure
- Road
- Pipeline
- Facility
- Nuiqsut Road
- Nuiqsut Airport Upgrade Facilities
- 14 inch Water[2] Injection Line
- Bridge

Alternative D1/D2 Infrastructure
- Road
- Pipeline
- Facility
- AirStrip
- AirStrip Occupied Pad common to D1 and D 2
- AirStrip additional Occupied Pad-for D1
- 14 inch Water[1,2] Injection Line
- Bridge

Boundary
- Project Study Area
- NPR-A

Proposed or Permitted (not part of GMT1)
- Road
- Facility

Existing
- Pipeline
- Road
- Facility

Date: 9/27/2014

0 0.5 1 2 3 Miles

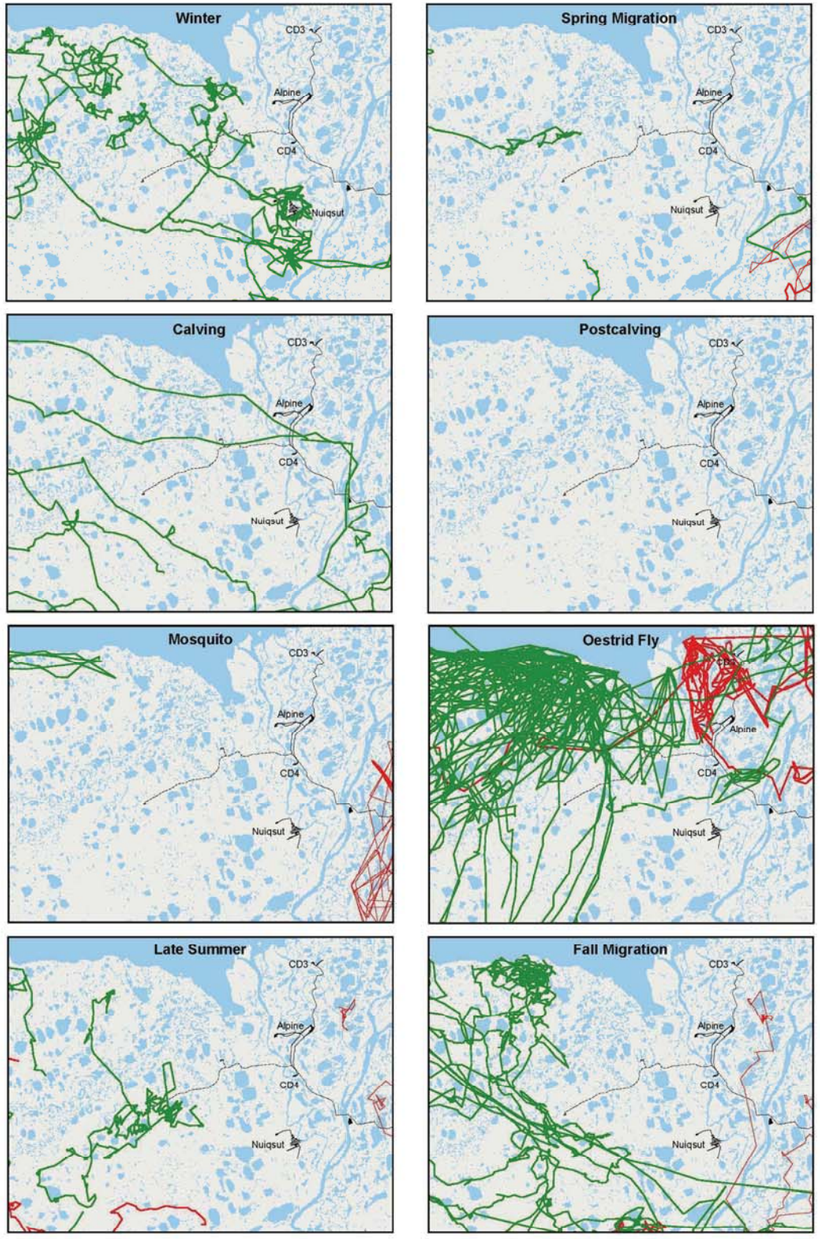
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

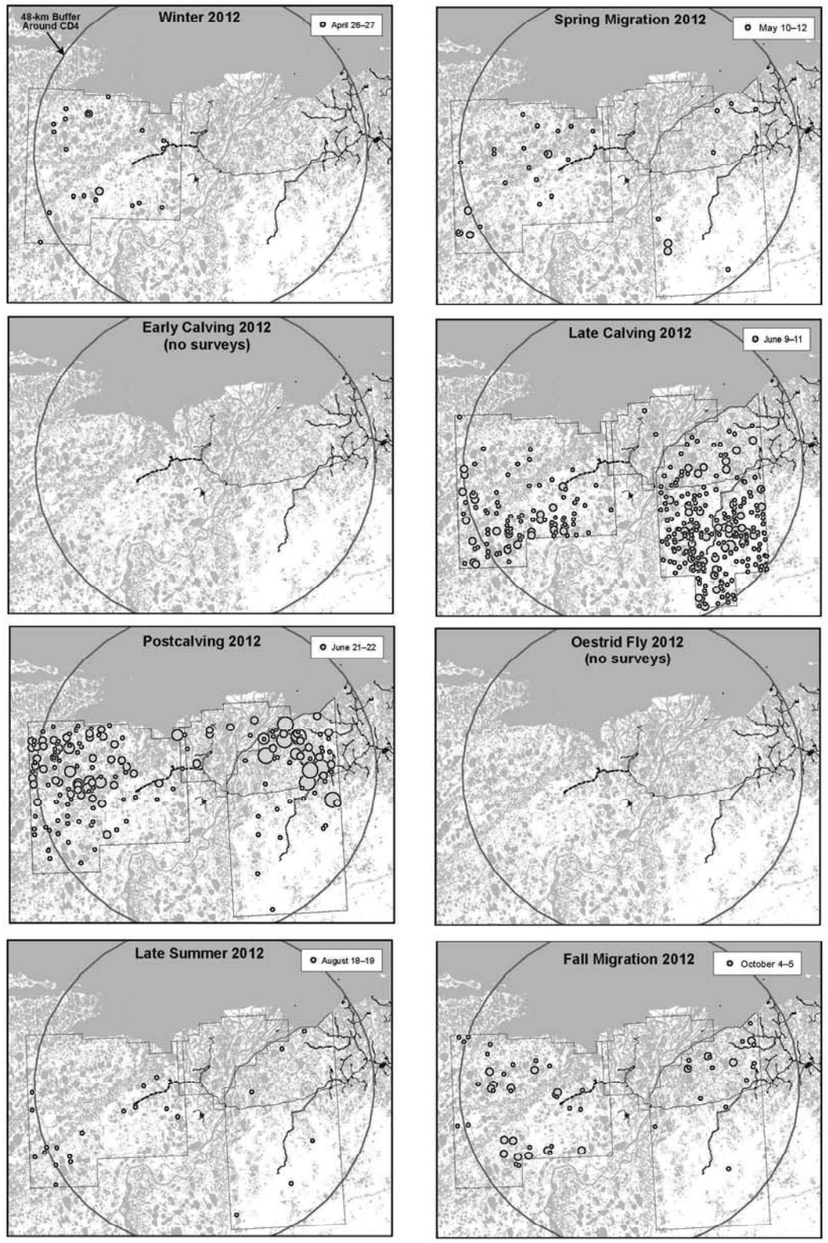
Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014

Movements of GPS-collared caribou from the Teshekpuk Herd (2004-2012) and Central Arctic Herd (2003-2006 and 2008-2012) in the vicinity of the proposed ASDP road during 8 different seasons.



Distribution and size of caribou groups during different seasons in the NPR-A, Colville River Delta, and Colville East survey areas, April-October 2012.



Map 3.3-8

Ranges of the Teshekpuk and Central Arctic Caribou Herds, GPS and Aerial

Legend

- Central Arctic Herd
- Teshekpuk Herd
- Existing Infrastructure
- Proposed ASDP Road
- Aerial Survey Area

Caribou Group Size

- 1 – 5
- 6 – 25
- 26 – 100
- 101 – 525

- Existing Infrastructure
- Proposed ASDP Road

Source: Lawhead et al. 2012

Date: 10/21/2014

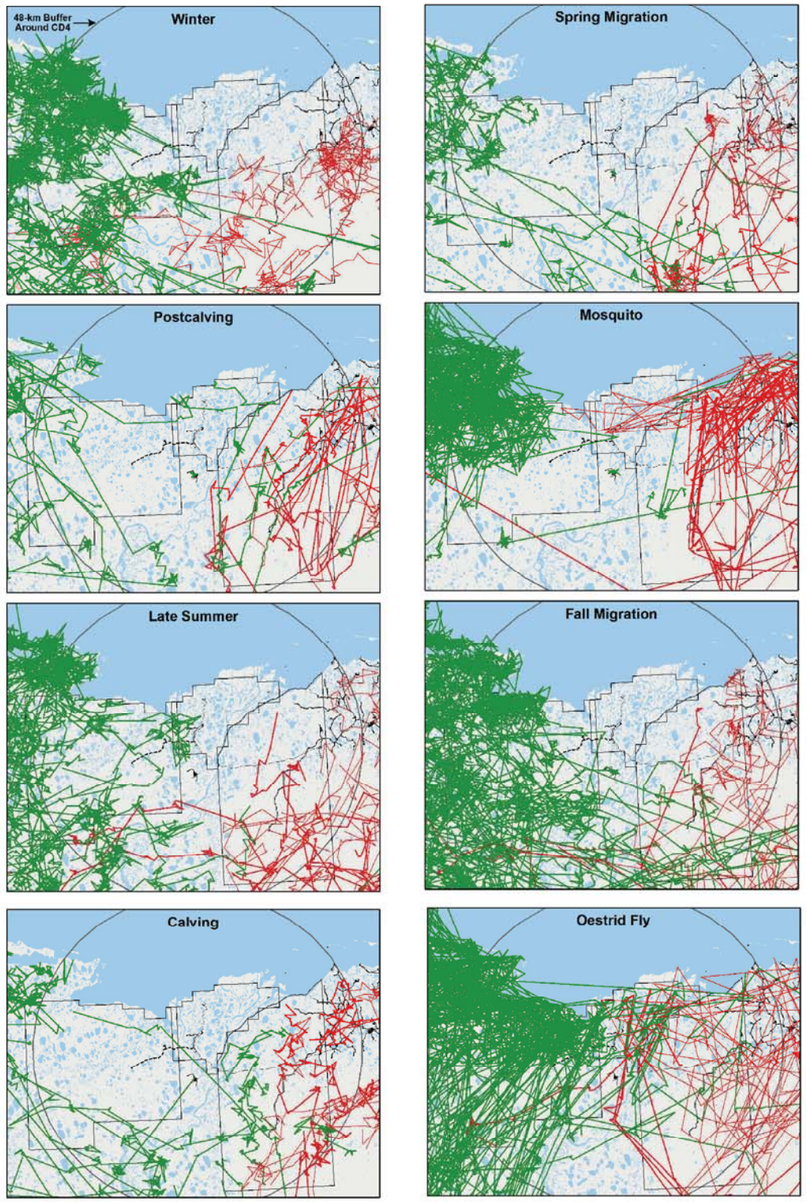
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

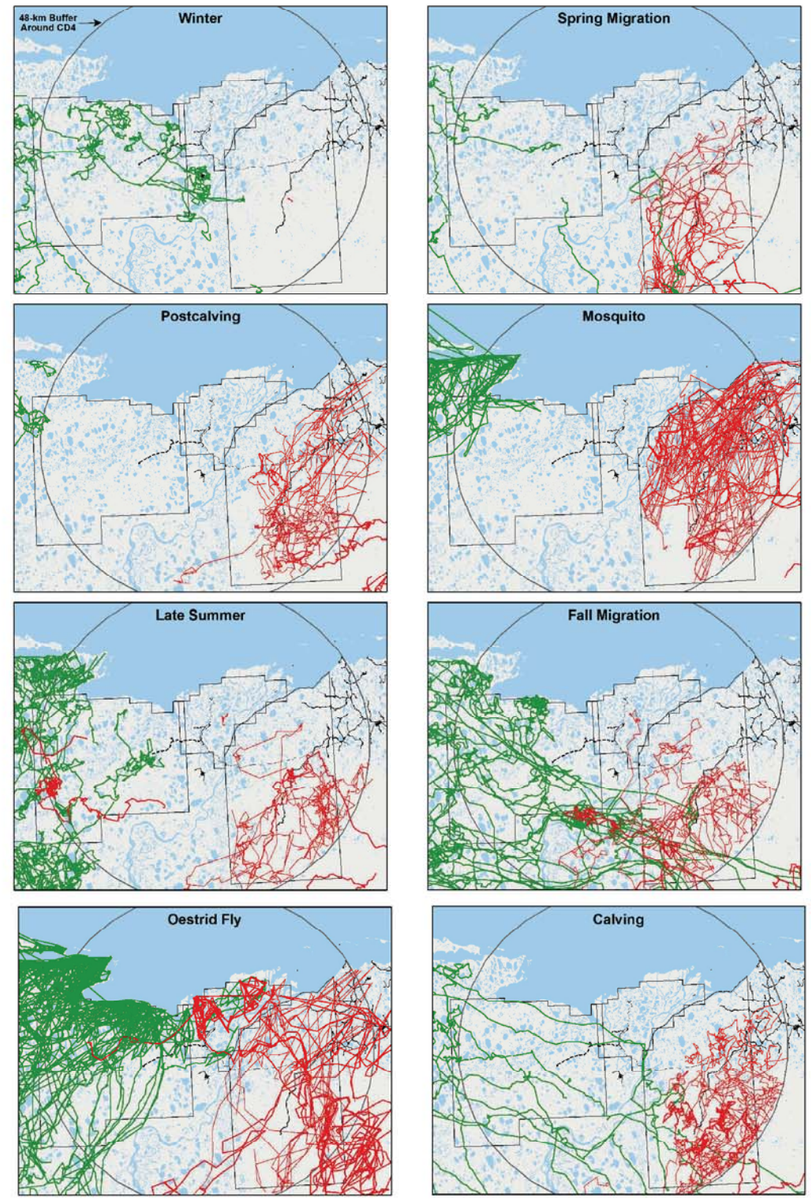
Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental
Environmental Impact Statement 2014

Movements of satelllite-collared caribou from the Teshekpuk Herd (1990-2012 and Central Arctic Herd (1986-1990 and 2001-2009) in the ASDP study area during 8 different seasons.



Movements of GPS-collared caribou from the Teshekpuk Herd (2004-2012) and Central Arctic Herd (2003-2006, 2008-2012) in the ASDP study area during 8 different seasons.



Map 3.3-9

Ranges of the Teshekpuk and Central Arctic Caribou Herds, Satellite and GPS

Legend

- Central Arctic Herd
- Teshekpuk Herd
- Existing Infrastructure
- Proposed ASDP Road
- Aerial Survey Area

Source: Lawhead et al. 2012

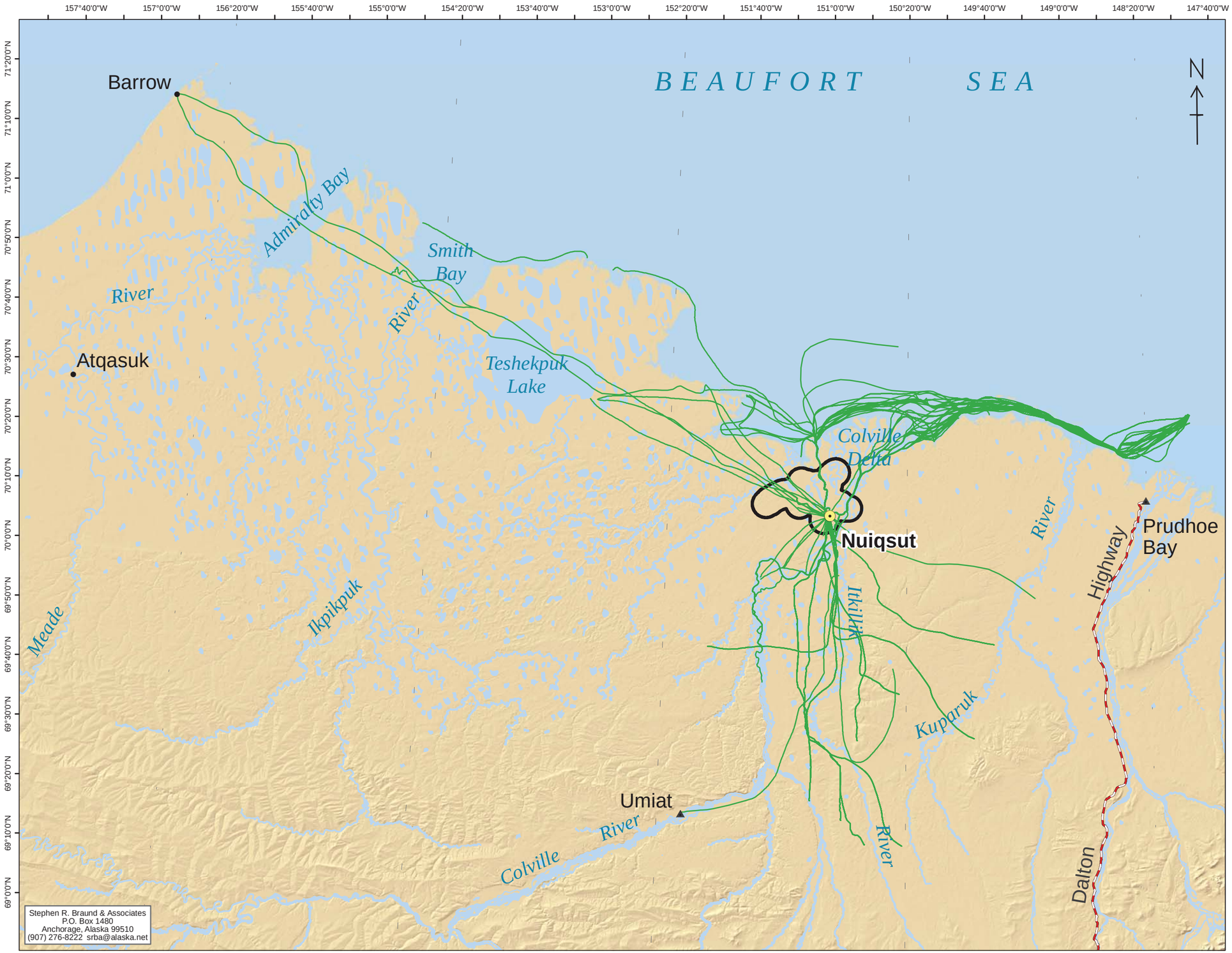
Date: 10/21/2014

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental
Environmental Impact Statement 2014



Stephen R. Braund & Associates
P.O. Box 1480
Anchorage, Alaska 99510
(907) 276-8222 srba@alaska.net

Map 3.3-10

Nuiqsut Travel Routes

Legend

- Nuiqsut Travel Route (Source: SRBA 2010a)
- Project Study Area
- Subsistence Study Community
- Other Community
- Other Place

Draft Date: 12/6/2013

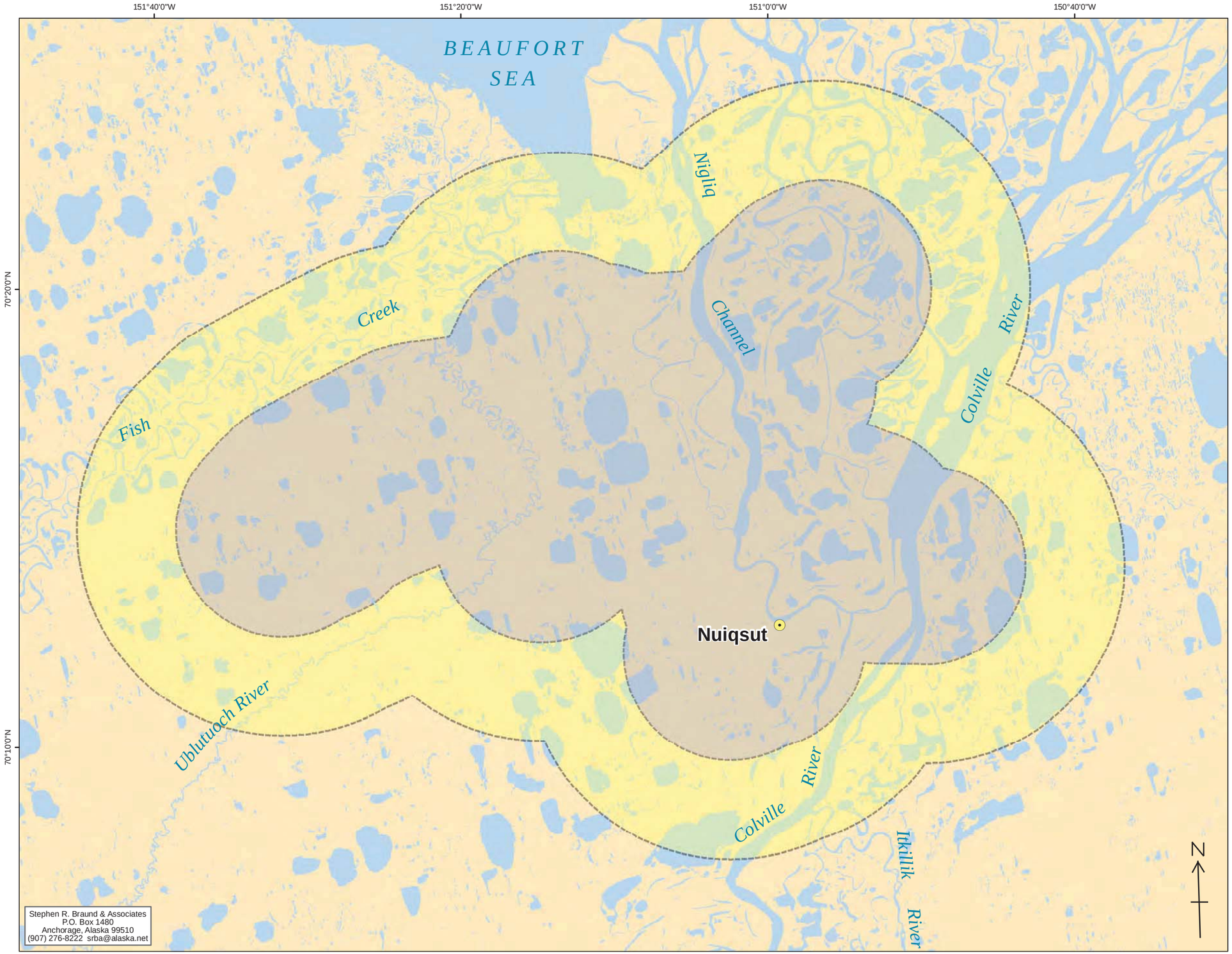
0 5 10 20 30 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Stephen R. Braund & Associates
P.O. Box 1480
Anchorage, Alaska 99510
(907) 276-8222 srba@alaska.net

Map 3.3-11

Visual and Noise Impact Analysis Areas

Legend

- Indirect Impacts Analysis Area (i.e., Project Study Area)
- Visual and Noise Impacts Analysis Area
- Nuiqsut

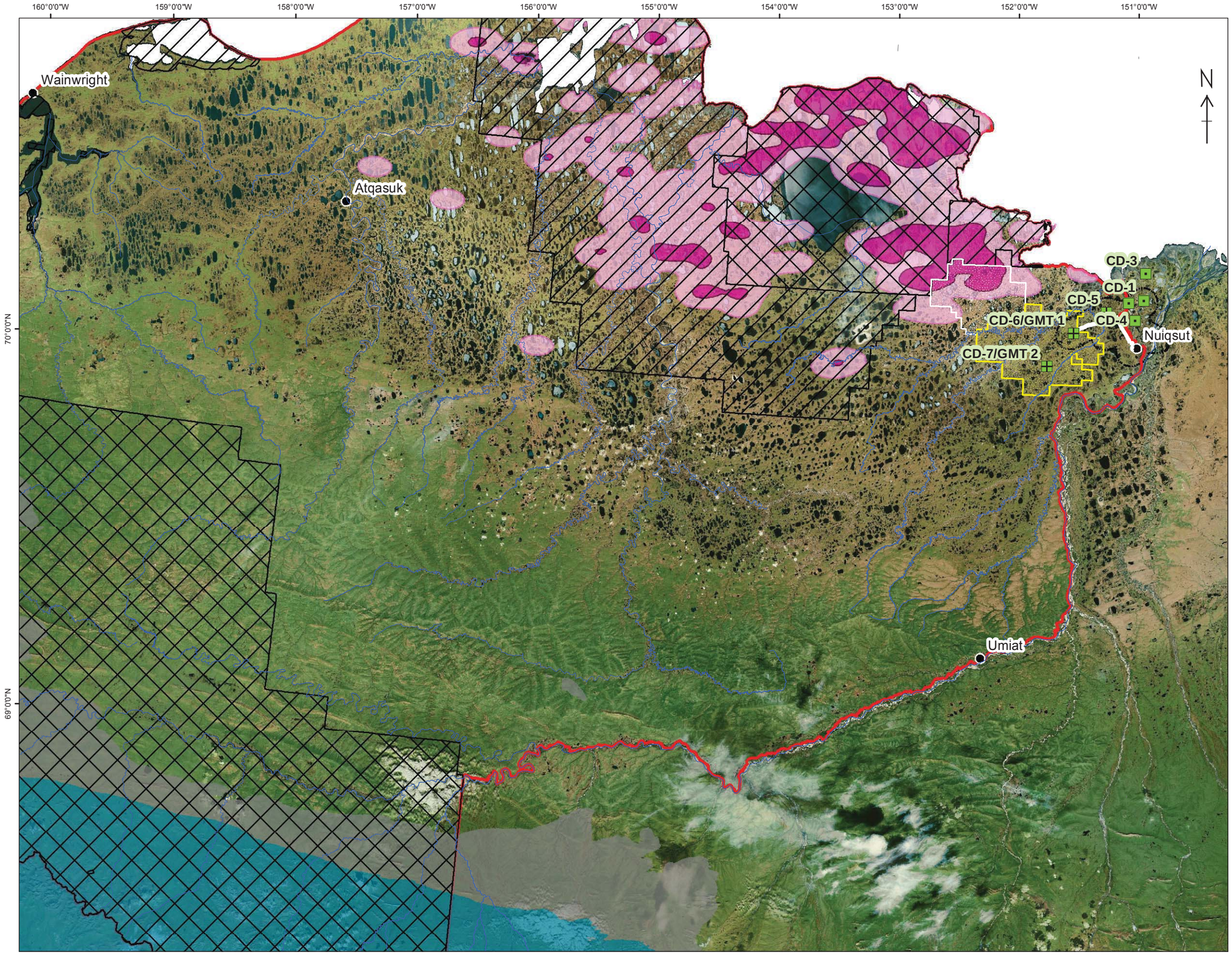
0 0.5 1 2 3 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Map 3.3-12

Caribou Summer Areas

Teshekpuk Lake Caribou Herd Mosquito Relief Areas
(1990-2010 Satellite Telemetry Data)
1-15 July
Kernel Density Analysis - Density Contour

- 50 %
- 95 %

Western Arctic Caribou Herd Summer Line Density
(1988 - 2010)

- 1-2 movement lines crossing each 200 sq mi grid
- >2 movement lines crossing each 200 sq mi grid

Oil & Gas Leasing

- Unavailable
- Unavailable- no new non-subsistence infrastructure
- Greater Mooses Tooth Unit
- Bears Tooth Unit

CONOCO PHILLIPS

- Existing Facility
- Proposed Facility
- Proposed Roads

NPR-A Boundary

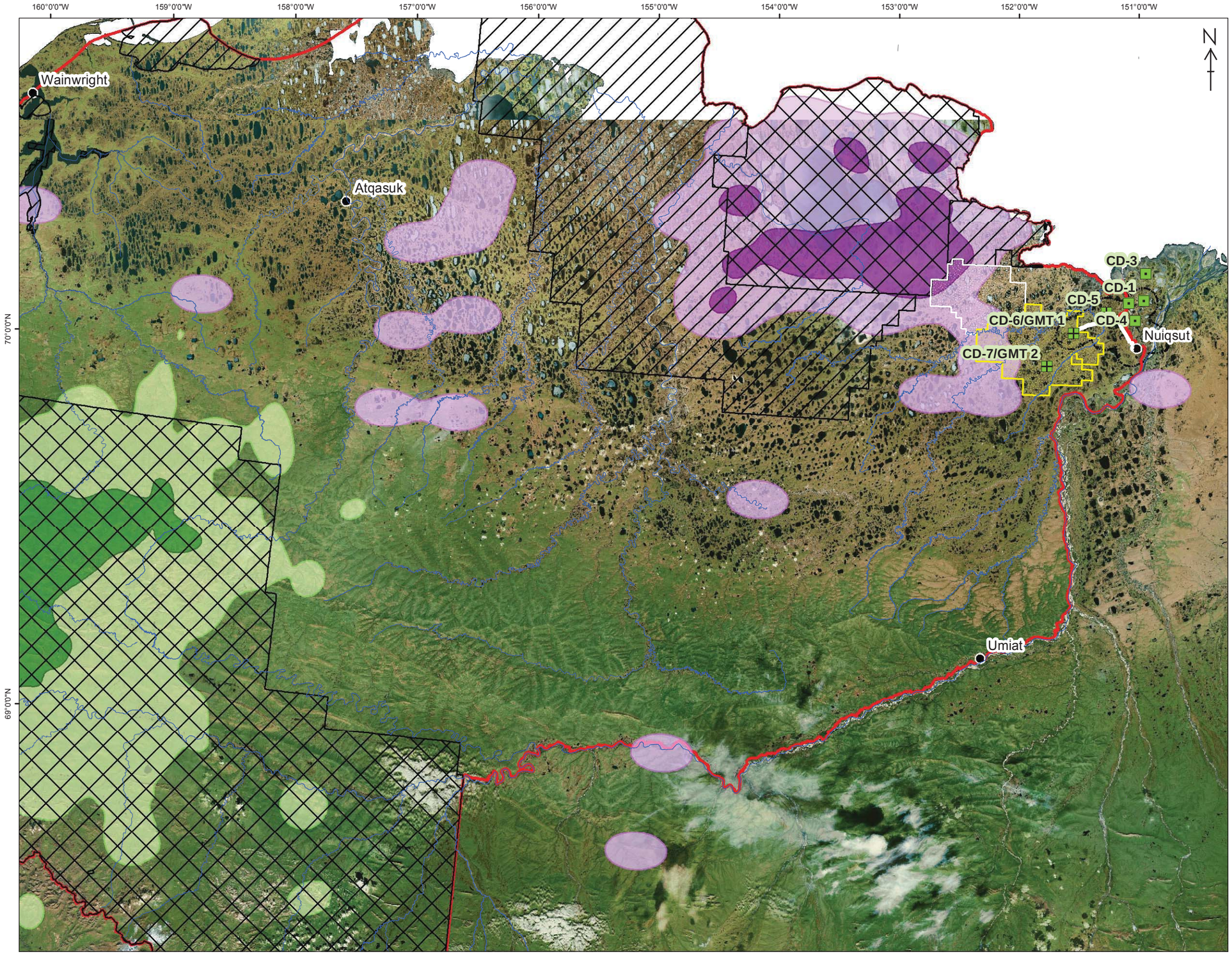
0 5 10 20 30 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - AlaskaMap

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Map 3.3 -13

Caribou Calving Areas

Teshekpuk Lake Caribou Herd Calving Areas
(1990-2010 Satellite Telemetry Data)
Successful Females Only, 1-15 July
Kernel Density Analysis - Density Contour

- 50 %
- 95 %

Western Arctic Caribou Herd Calving Areas
(1987 - 2010, excluding 1990-1991)
Kernel Density Analysis - Density Contour

- 50 %
- 95 %

Oil & Gas Leasing

- Unavailable
- Unavailable- no new non-subsistence infrastructure

- Greater Mooses Tooth Unit
- Bears Tooth Unit

CONOCO PHILLIPS

- Existing Facility
- Proposed Facility
- Proposed Roads

NPR-A Boundary

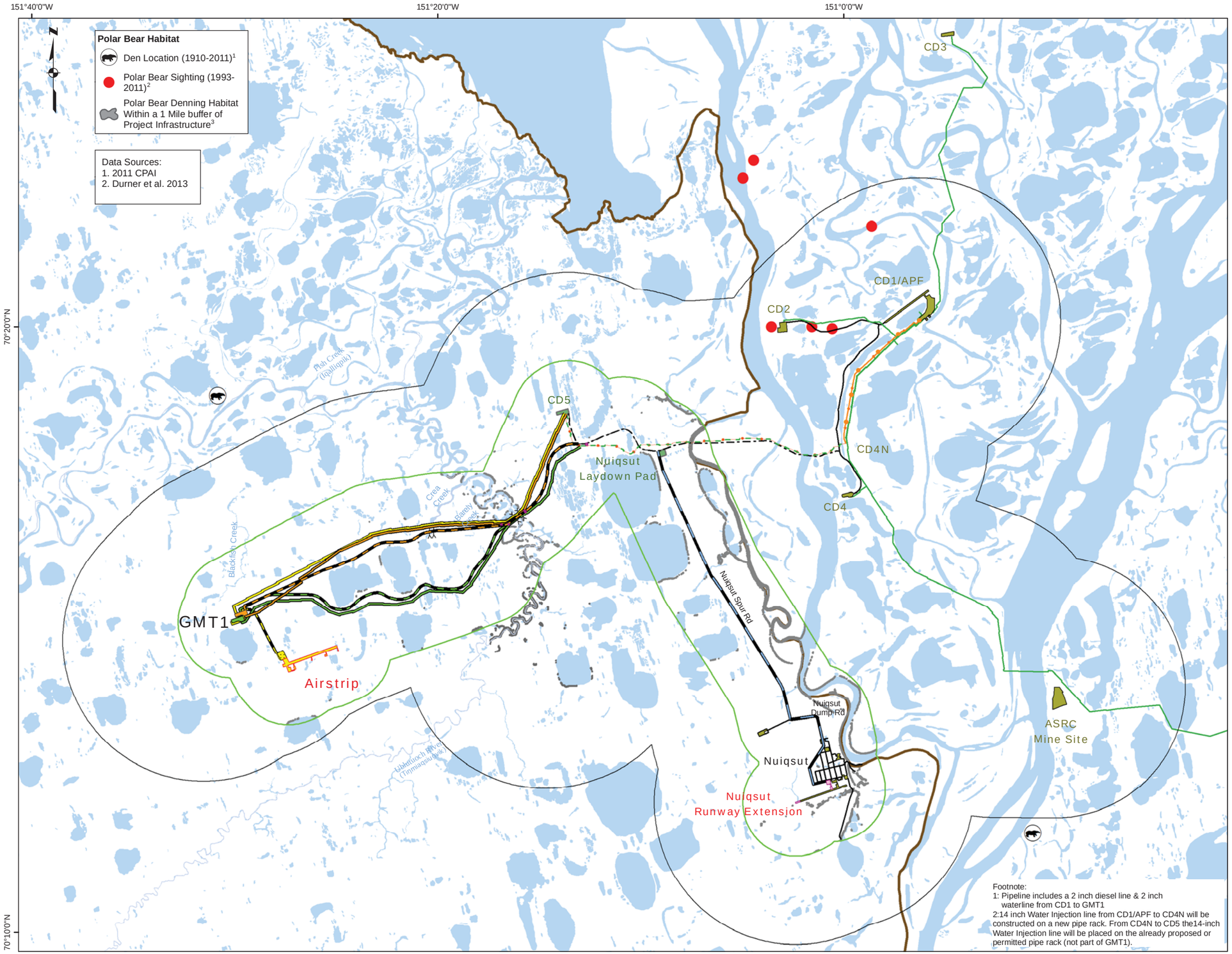
0 5 10 20 30 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Map 3.3-14

Polar Bear Habitat

Alternative A Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[2] Injection Line
- Bridge

Alternative B Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[2] Injection Line
- Bridge

Alternative C Infrastructure
- Road
- Pipeline
- Facility
- Nuiqsut Road
- Nuiqsut Airport Upgrade Facilities
- 14 inch Water[2] Injection Line
- Bridge

Alternative D1/D2 Infrastructure
- Road
- Pipeline
- Facility
- AirStrip
- AirStrip additional Occupied Pad-for D1
- 14 inch Water[1,2] Injection Line
- Bridge

Existing
- Pipeline
- Road
- Facility

Proposed or Permitted (not part of GMT1)
- Road
- Facility

Boundary
- Project Study Area
- NPR-A
- 1 Mile Infrastructure Buffer

Date: 10/21/2014

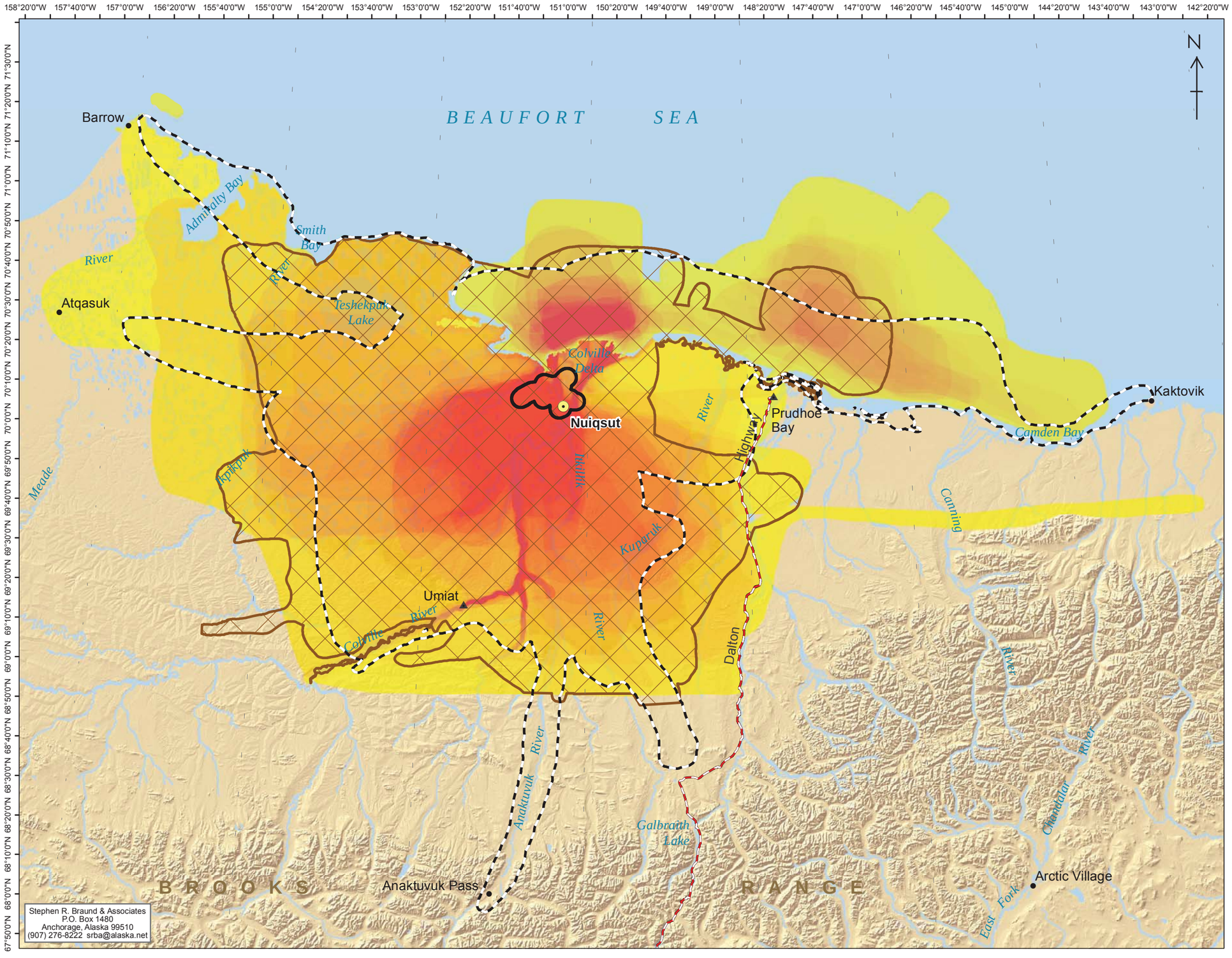
0 0.5 1 2 3 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Stephen R. Braund & Associates
P.O. Box 1480
Anchorage, Alaska 99510
(907) 276-8222 srba@alaska.net

Map 3.4-1

Nuiqsut Contemporary Subsistence Use Areas, All Resources

Legend

All Resources, 1973-1986 (Source: Pedersen 1986)

All Resources, 1994-2003 (Source: SRBA 2003)

Nuiqsut Combine Subsistence Use Areas

Heavy Use

Moderate Use

Project Study Area

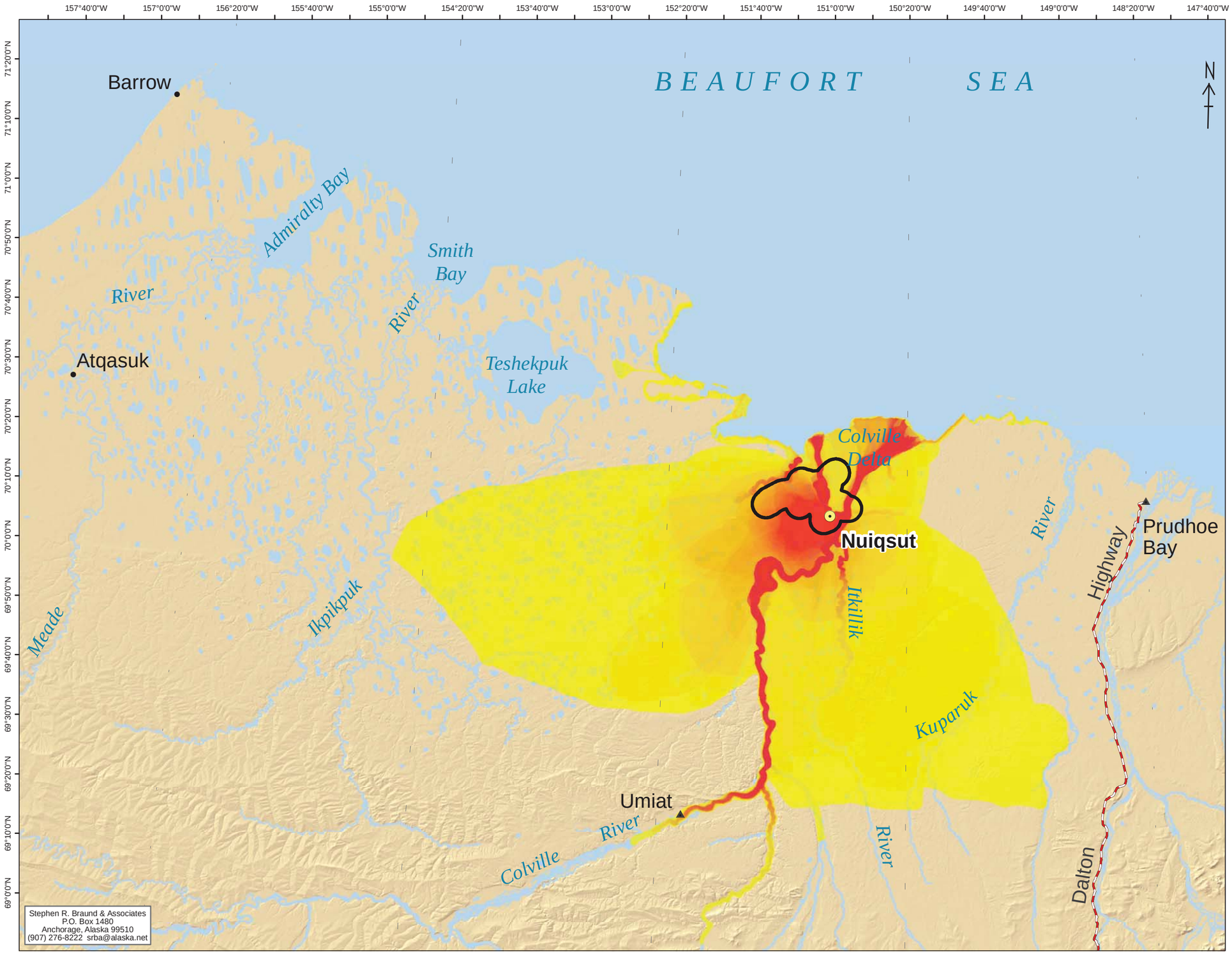
Date: 12/6/2013

0 5 10 20 30 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska



Map 3.4-2

Nuiqsut Caribou Subsistence Use Areas, 2008-2011

Legend

Caribou Subsistence Use Areas

Heavy Use

Moderate Use

Project Study Area

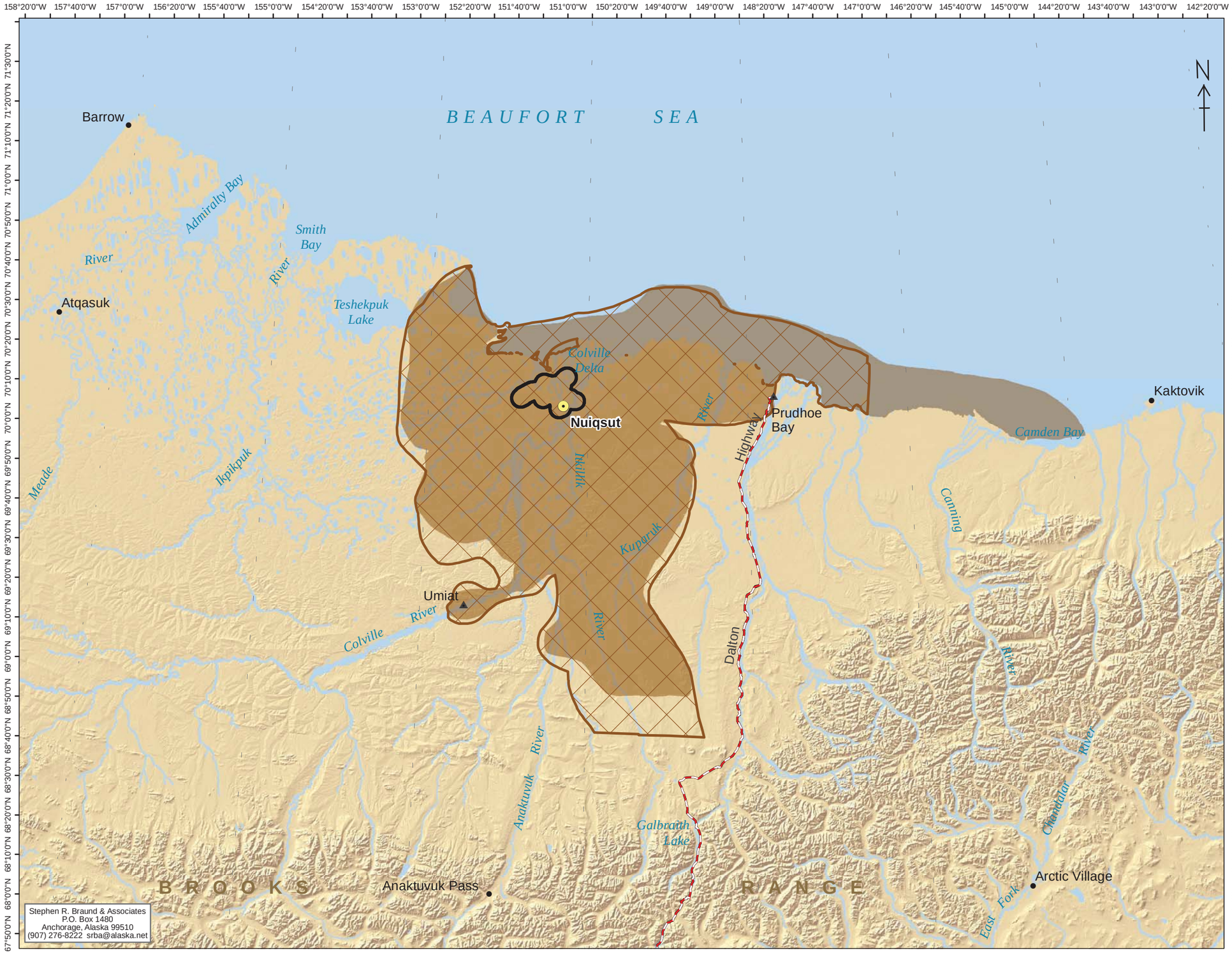
Date: 12/6/2013

0 5 10 20 30 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska



Stephen R. Braund & Associates
P.O. Box 1480
Anchorage, Alaska 99510
(907) 276-8222 srba@alaska.net

Map 3.4-3

Nuiqsut Historic and Lifetime Subsistence Use Areas, All Resources

Legend

- All Resources, Lifetime (Source: Pedersen 1979)
- All Resources, Early 1970s (Source: Brown 1979)
- Project Study Area
- Subsistence Study Community
- Other Community
- Other Place

Date: 12/6/2013

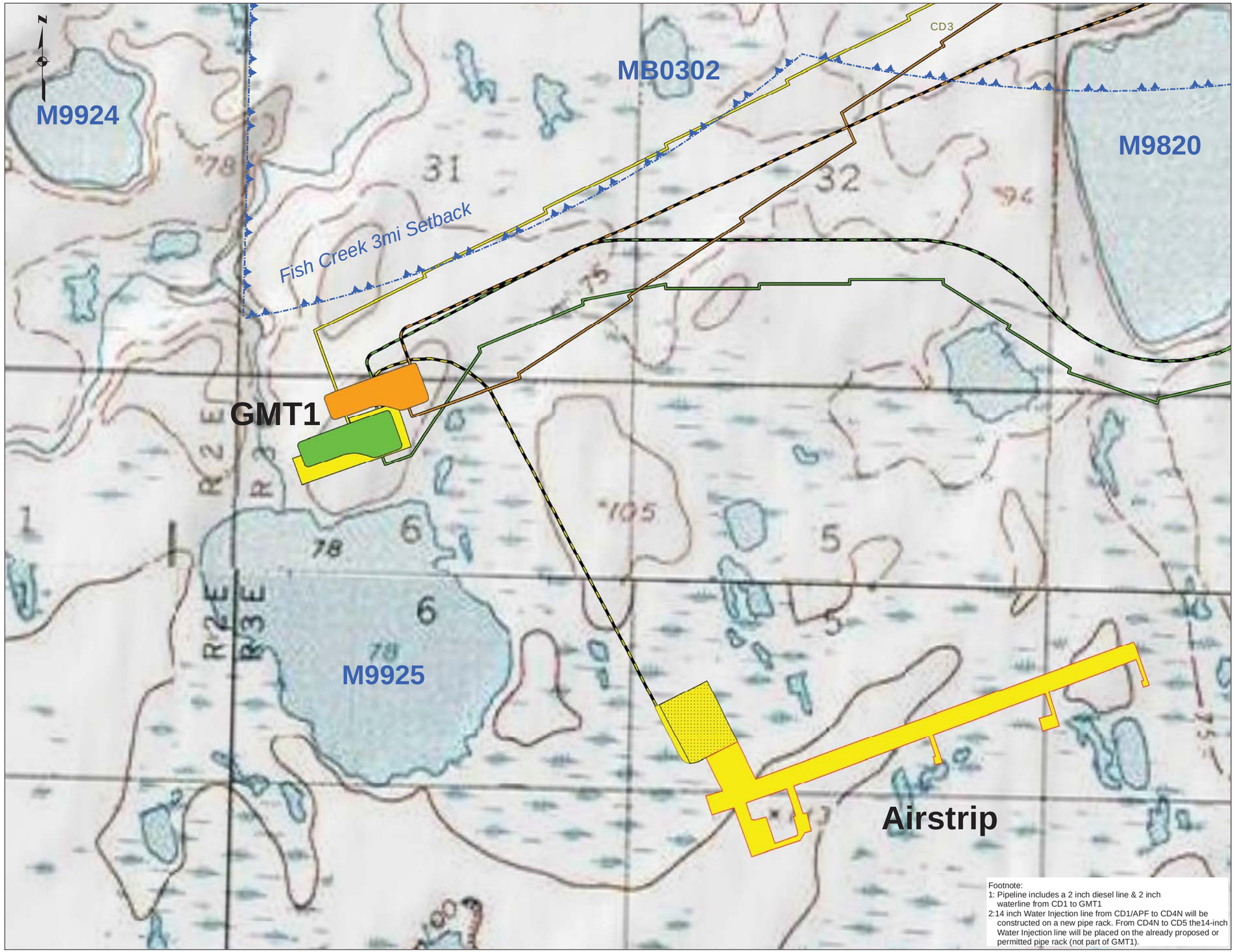
0 5 10 20 30 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Footnote:
1: Pipeline includes a 2 inch diesel line & 2 inch waterline from CD1 to GMT1
2:14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Map 4.2-1

Water Resources Near the GMT1 Pad

Alternative A Infrastructure
- Road
- Pipeline
- Facility

Alternative B Infrastructure
- Road
- Pipeline
- Facility

Alternative C Infrastructure
- Road
- Pipeline
- Facility

Alternative D1/D2 Infrastructure
- Pipeline
- Road
- Facility
- AirStrip
- AirStrip Occupied Pad-D1
- AirStrip Occupied Pad-D 2

Setback Area
- Fish Creek 3mi

Date: 9/27/2014

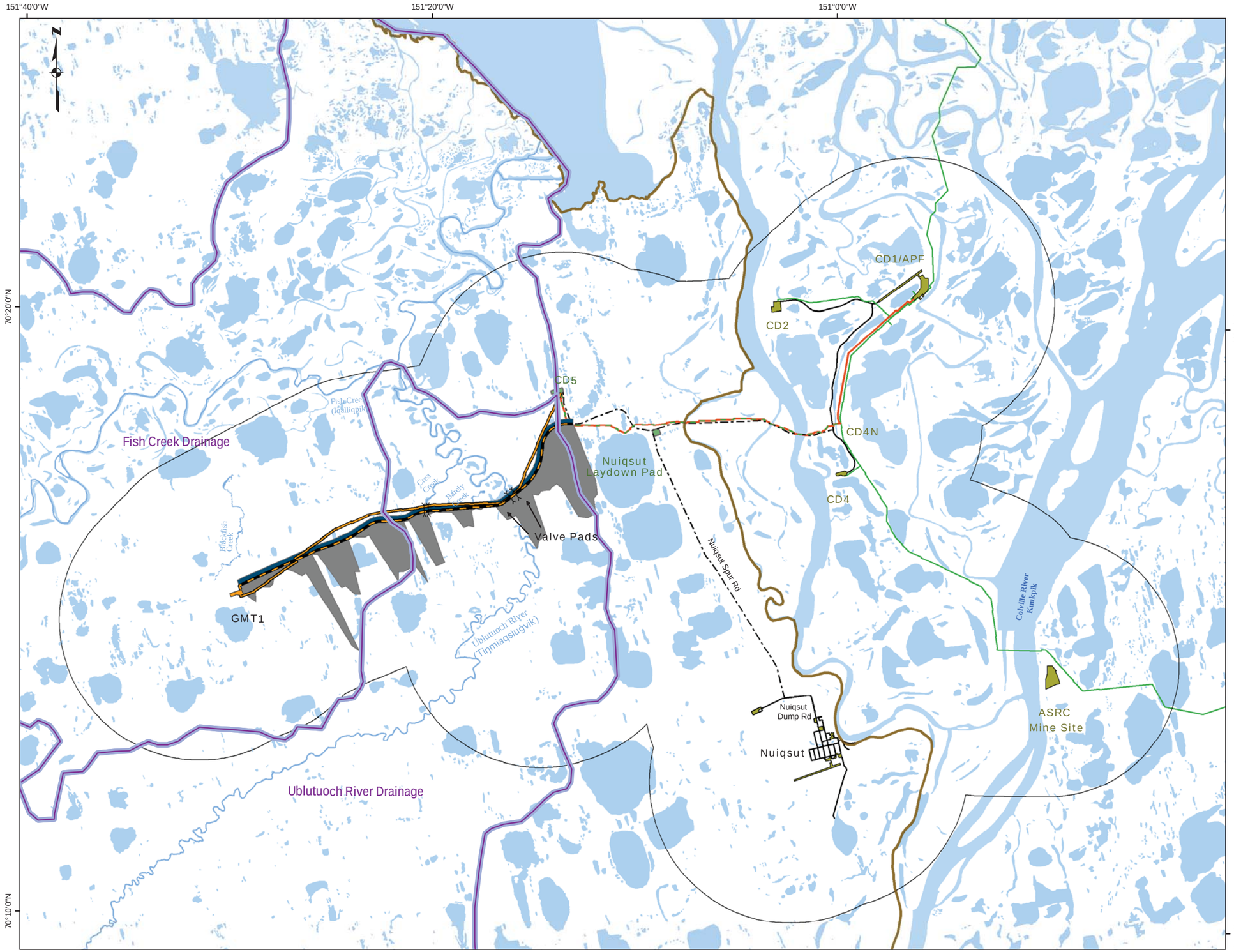
0 400 800 1,600 2,400 Feet

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Map 4.2-2

Alternatives A and C Potential Inundation Analysis

Alternative A Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[1] Injection Line
- Bridge

Proposed or Permitted (not part of GMT1)
- Pipeline
- Road
- Facility

Existing
- Pipeline
- Road
- Facility

Boundaries
- NPR-A Project Study Area
- Drainage Basins

Potential Inundation Area
- Decreased Inundation Area
- Potential Inundation Area

Footnote:
1: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Date: 9/29/2014

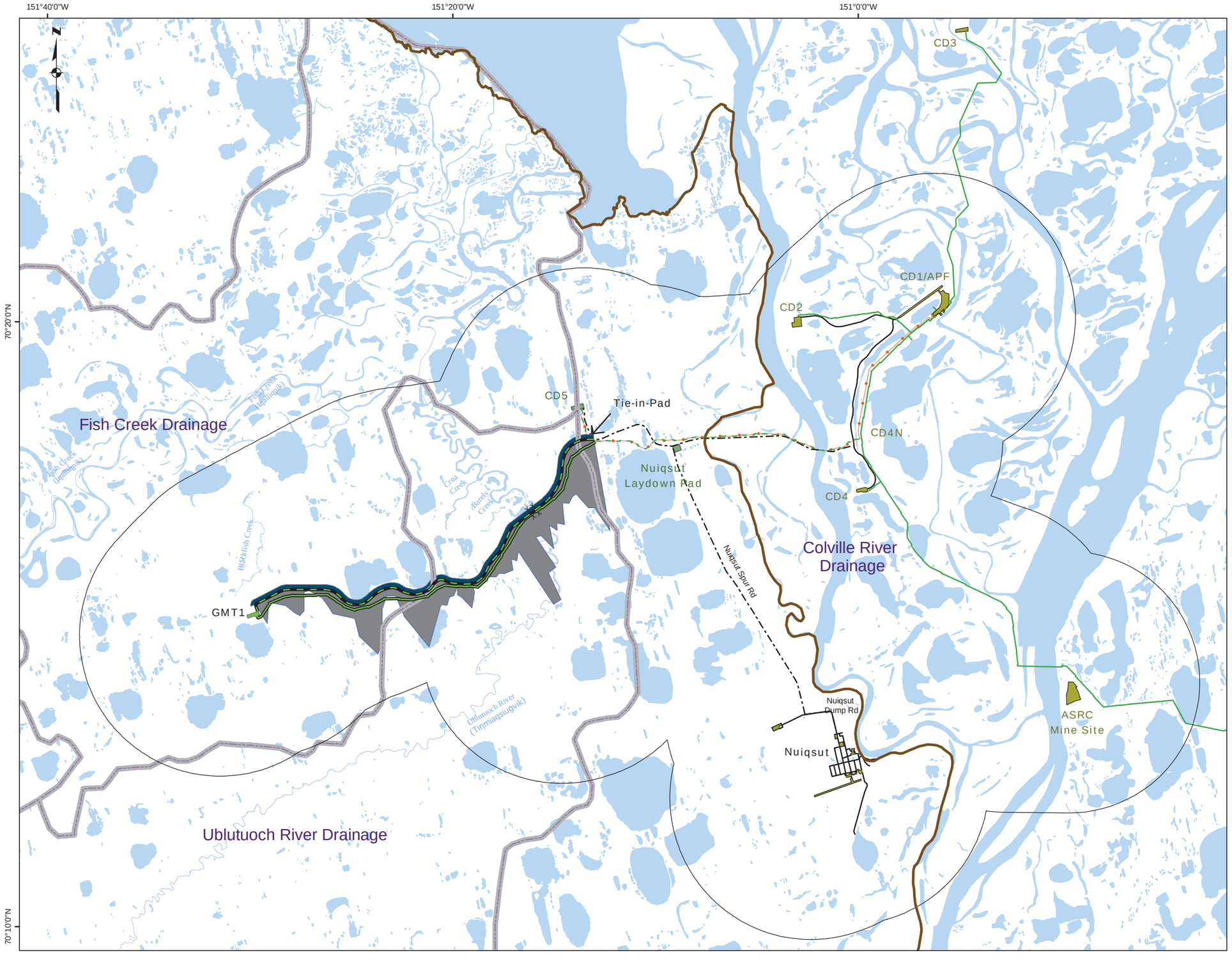
0 0.5 1 2 3 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Map 4.2-3

Alternative B Potential Inundation Analysis

Alternative B Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[1] Injection Line
- Bridge

Existing
- Pipeline
- Road
- Facility

Potential Inundation Area
- Decreased Inundation Area
- Potential Inundation Area

NOTE: ROUGH ORDER OF MAGNITUDE ESTIMATE OF MAXIMUM INUNDATION

Proposed or Permitted (not part of GMT1)
- Pipeline
- Road
- Facility

Boundary
- Drainage Basin
- Project Study Area
- NPR-A

Footnote:
1: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Draft Date: 9/28/2014

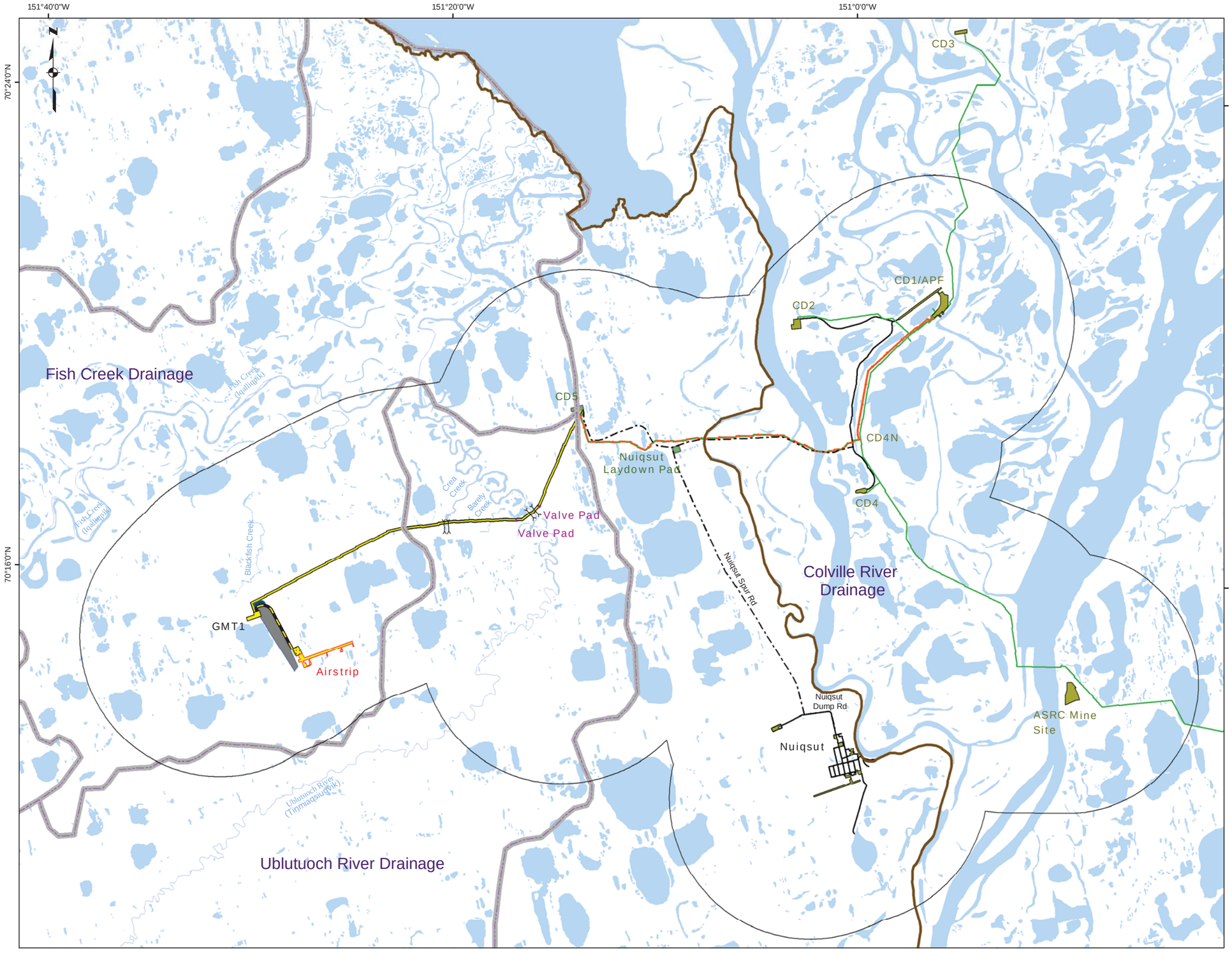
0 0.5 1 2 3 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Map 4.2-4

Alternatives D1 and D2 Potential Inundation Analysis

Alternative D1/D2 Infrastructure

- Road
- Pipeline
- Facility

Proposed or Permitted (not part of GMT1)

- Pipeline
- Road
- Facility

Existing

- Pipeline
- Road
- Facility

- 14 inch Water[1,2] Injection Line
- Bridge

Boundary

- Drainage Basin
- Project Study Area
- NPR-A

Potential Inundation Area

- Decreased Inundation Area
- Potential Inundation Area

NOTE: ROUGH ORDER OF MAGNITUDE ESTIMATE OF MAXIMUM INUNDATION

Footnote:
1: Pipeline includes a 2 inch diesel line & 2 inch waterline from CD1 to GMT1
2:14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Date: 9/29/2014

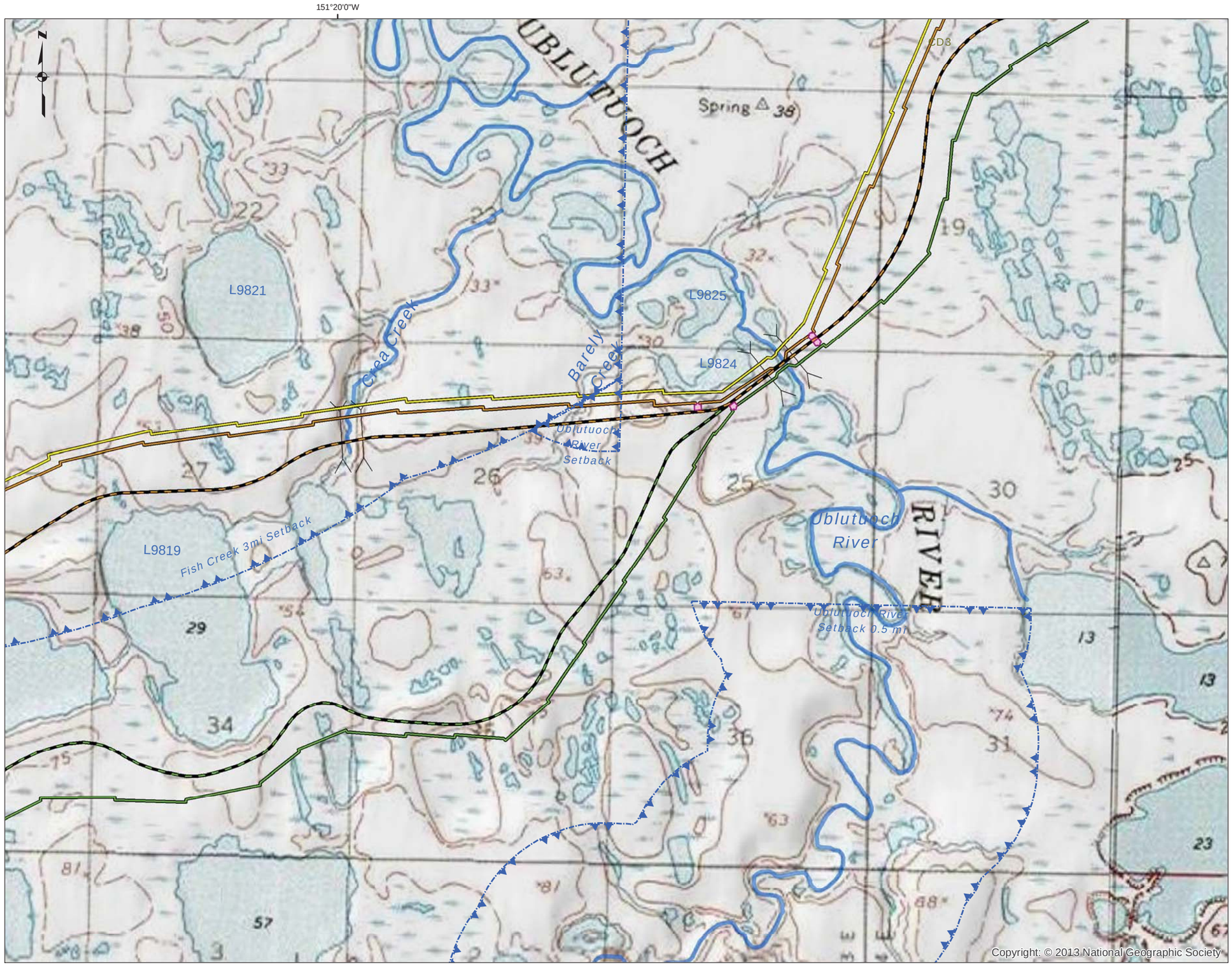
0 0.5 1 2 3 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental
Environmental Impact Statement 2014



Map 4.2-5

Road and Pipeline Crossings: Tiŋmiaqsiġvik (Ublutuoch) River, Crea Creek and Barely Creek

Alternative A Infrastructure
- Road
- Pipeline
- Pipeline Valvepad
- Bridge

Alternative B Infrastructure
- Road
- Pipeline
- Facility
- Bridge
- Pipeline Valvepad

Alternative C Infrastructure
- Road
- Pipeline
- Pipeline Valvepad
- Bridge

Alternative D1/D2 Infrastructure
- Pipeline
- Pipeline Valvepad
- Bridge

Setback Area
- Fish Creek 3mi
- Ublutuoch River 0.5mi

Date: 10/21/2014

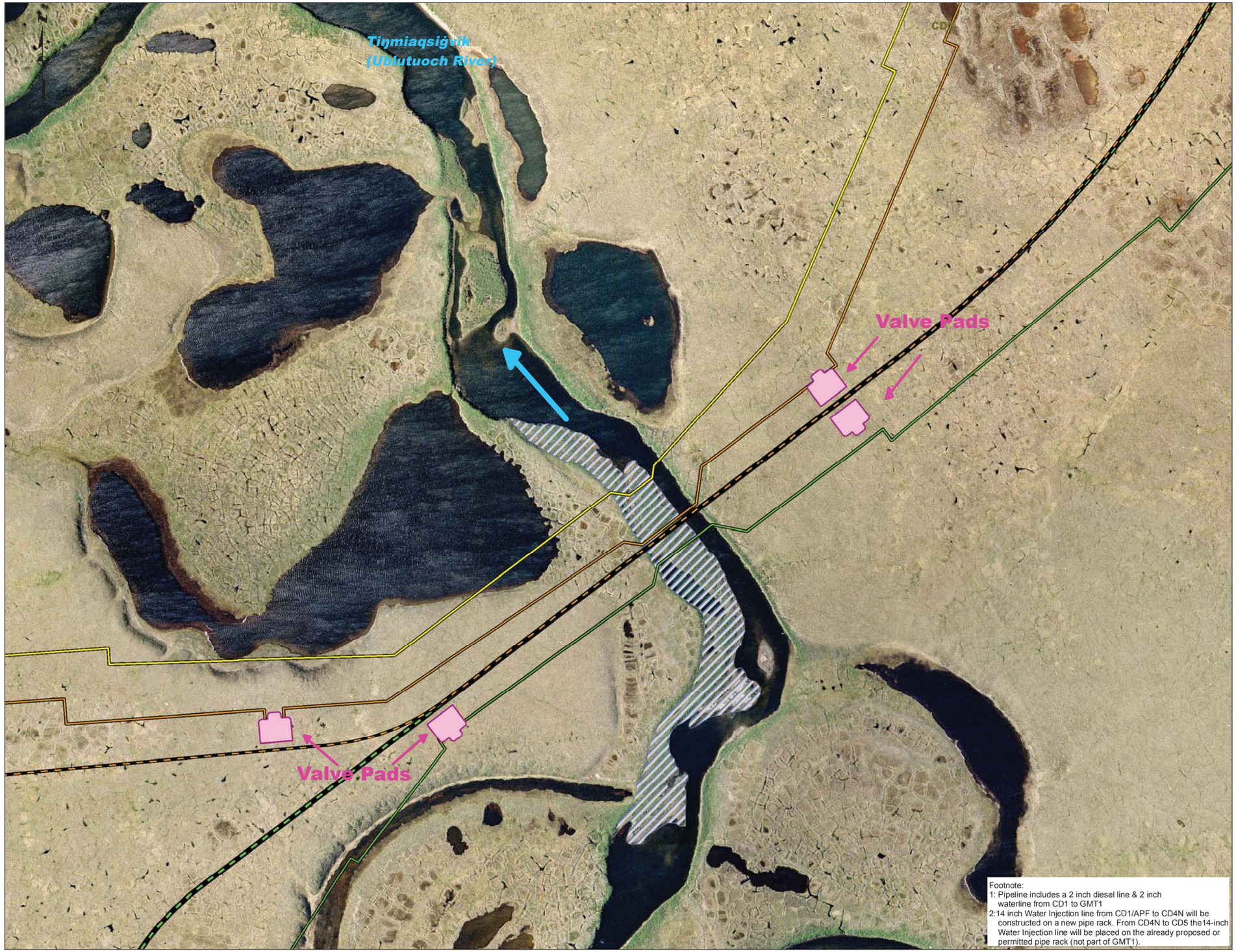
0 0.125 0.25 0.5 0.75 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Footnote:
1: Pipeline includes a 2 inch diesel line & 2 inch waterline from CD1 to GMT1
2:14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Map 4.2-6

Road and Pipeline Crossings: Tiŋmiaqsiġvik (Ublutuoch) River Crossing

Alternative A Infrastructure
- Road
- Pipeline
- Pipeline Valvepad

Alternative B Infrastructure
- Road
- Pipeline
- Pipeline Valvepad

Alternative C Infrastructure
- Road
- Pipeline
- Pipeline Valvepad

Alternative D1/D2 Infrastructure
- Pipeline
- Pipeline Valvepad

Hydrology
- Water Flow Direction of Gradient
- Lower Flood Plain Area

Date: 9/29/2014

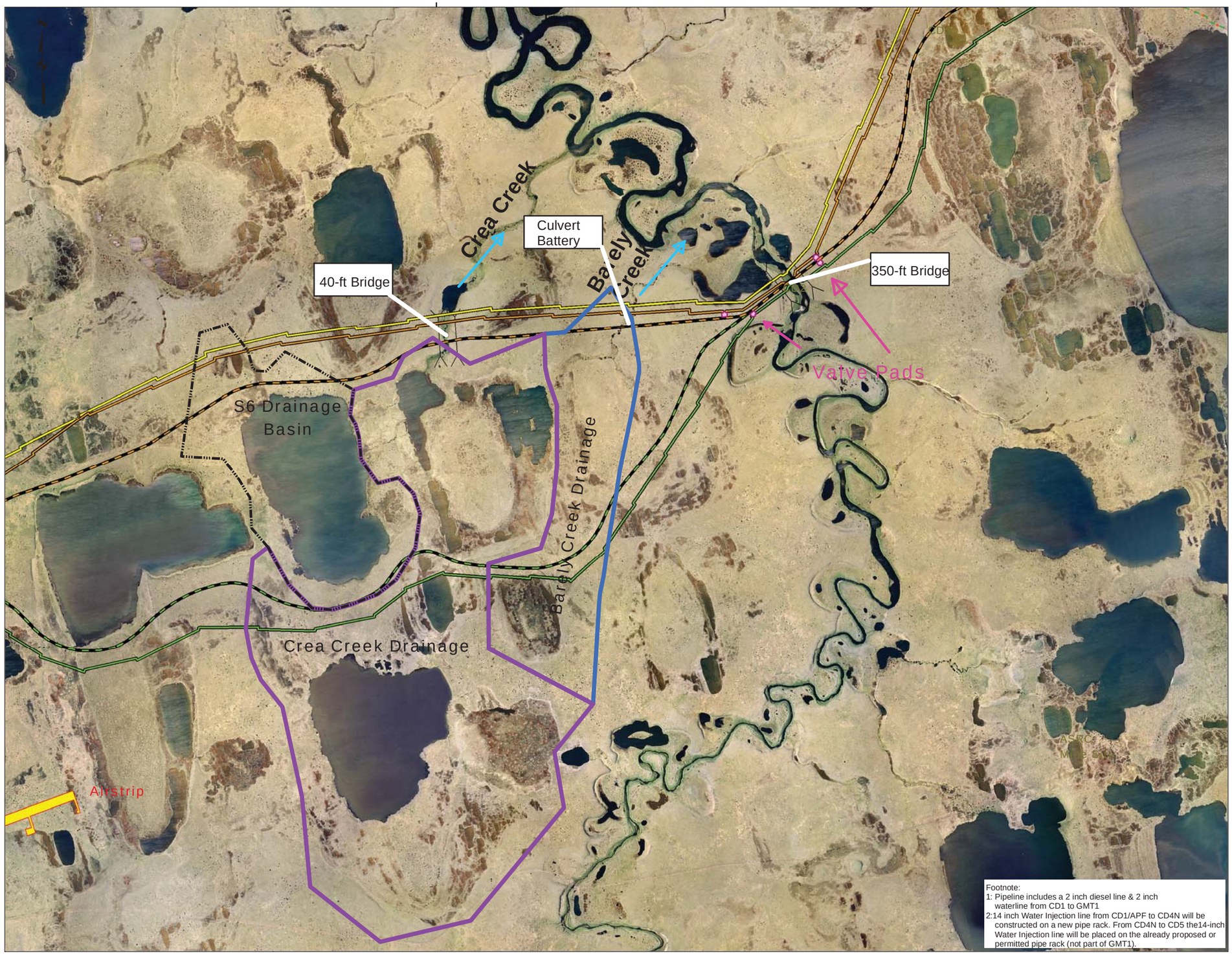
0 140 280 560 840 Feet

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Footnote:
1: Pipeline includes a 2 inch diesel line & 2 inch waterline from CD1 to GMT1
2:14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Map 4.2-7

Crea Creek and Barely Creek Drainage Basins

Alternative A Infrastructure
- Road
- Pipeline
- Bridge

Alternative B Infrastructure
- Road
- Pipeline
- Bridge

Alternative C Infrastructure
- Road
- Pipeline
- Bridge

Alternative D1/D2 Infrastructure
- Pipeline
- AirStrip
- Bridge

Creek_Drainage
- Barely Creek Drainage
- Crea Creek Drainage
- S6 Drainage Basin
- Direction of water flow

Date: 9/27/2014

0 0.125 0.25 0.5 0.75 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014

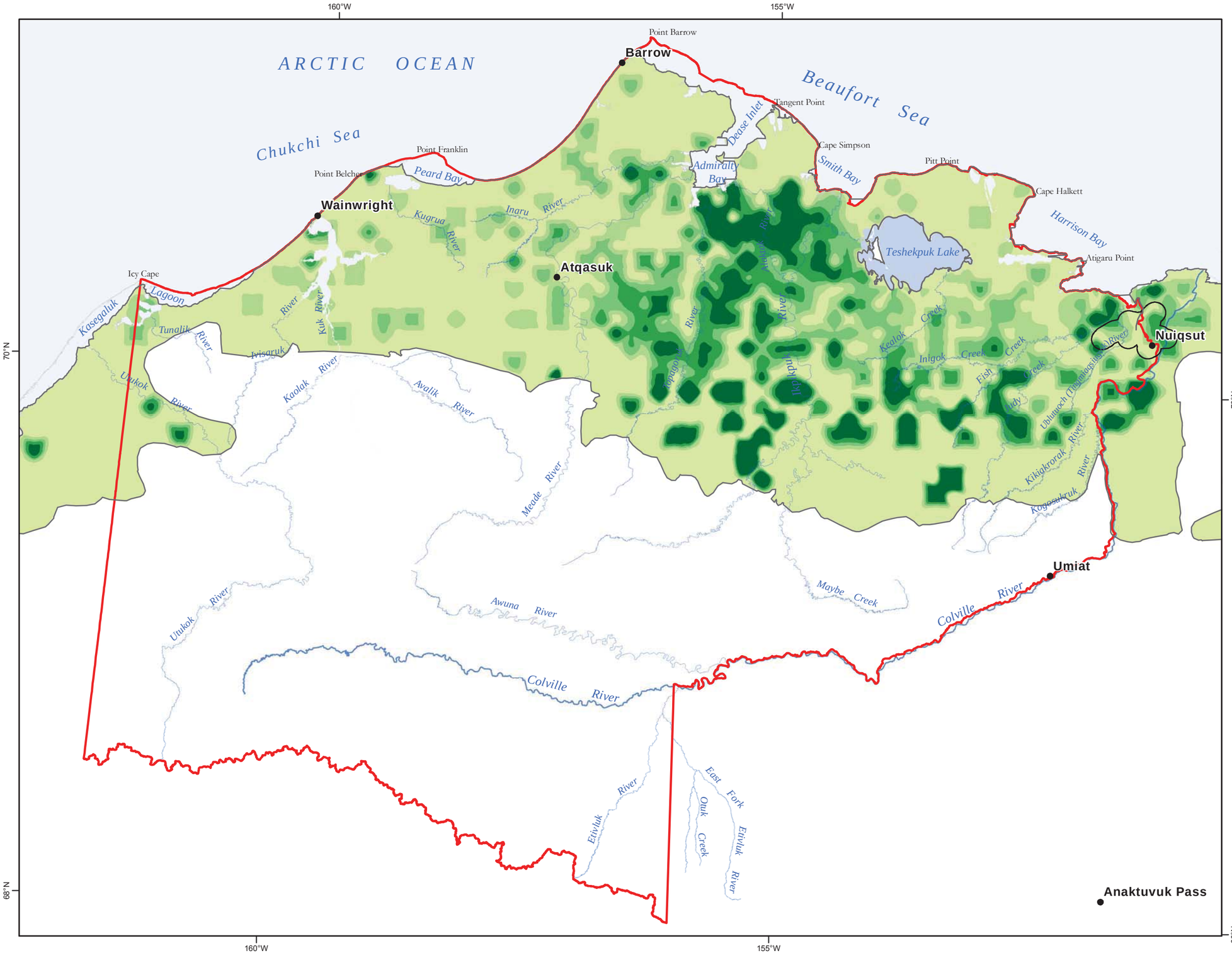


Figure 4.3-1

Yellow Billed Loon Estimated Relative Onshore Density Within The Arctic Coastal Plain, 1993-2010

Source: USFWS - 2010b

YELLOW-BILLED LOON

Estimated Relative Onshore Density (1993-2010)

Birds per Square Kilometer

- 0.19- 0.38
- 0.11 - 0.18
- 0.06 - 0.10
- 0.02 - 0.05
- 0.00 - 0.01

Survey Area Boundary

GMT1 Project Study Area

NPR-A Boundary

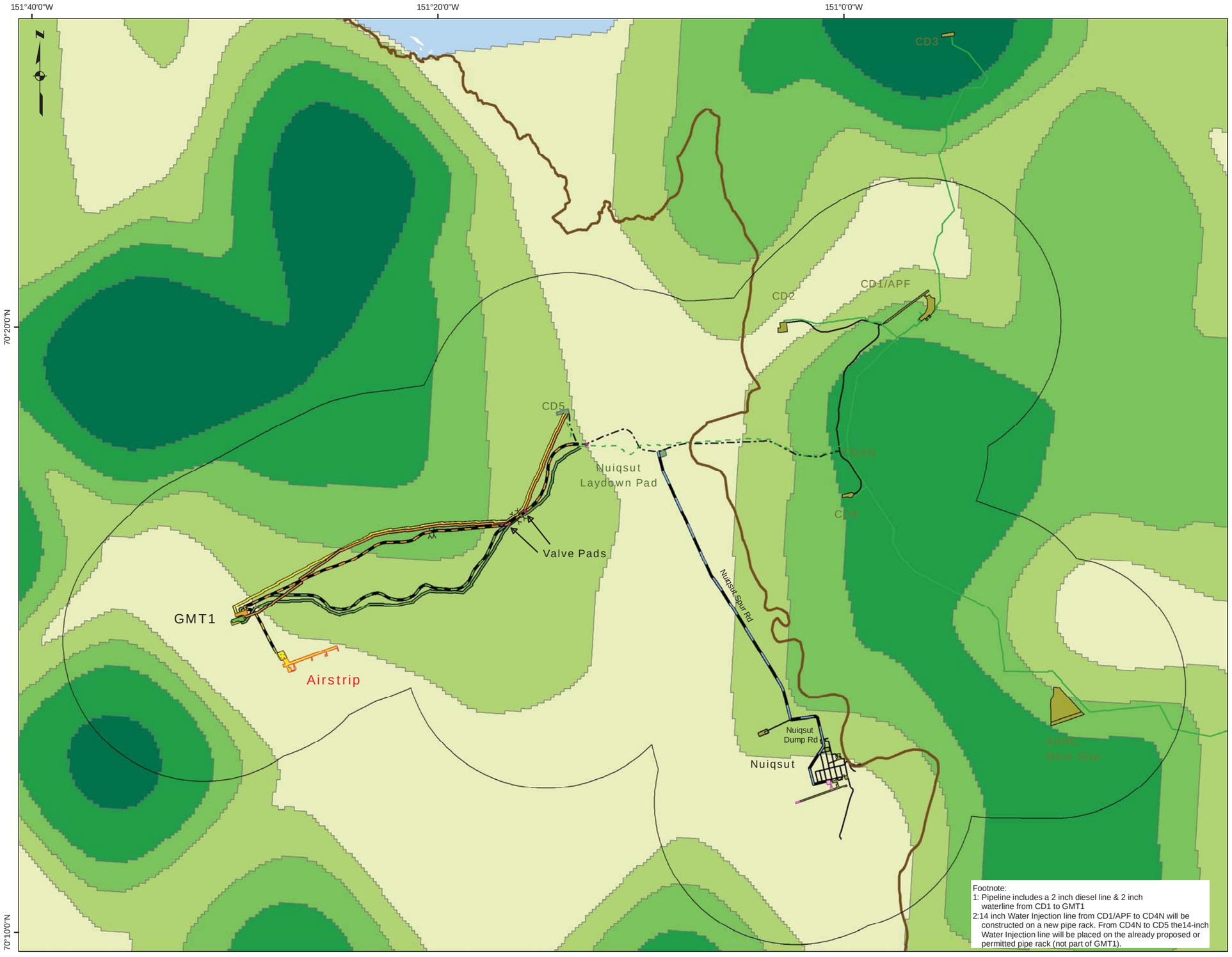
0 12 24 36 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. For official land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

Projection: Albers Conic Equal Area referencing NAD83

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT 1 Development Project Final Environmental Impact Statement 2014



Footnote:
1: Pipeline includes a 2 inch diesel line & 2 inch waterline from CD1 to GMT1
2:14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Map 4.3-2

Yellow-billed Loon Estimated Relative Onshore Density within the Project Study Area, 1993-2010

Alternative A Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[2] Injection Line
- Bridge

Alternative B Infrastructure
- Road
- Pipeline
- Facility
- 14 inch Water[2] Injection Line
- Bridge

Alternative C Infrastructure
- Road
- Pipeline
- Facility
- Nuiqsut Road
- Nuiqsut Airport Upgrade Facilities
- 14 inch Water[2] Injection Line
- Bridge

Alternative D1/D2 Infrastructure
- Road
- Pipeline
- Facility
- AirStrip
- AirStrip Occupied Pad common to D1 and D 2
- AirStrip additional Occupied Pad-for D1
- 14 inch Water[1,2] Injection Line
- Bridge

Boundary
- Project Study Area
- NPR-A

Proposed or Permitted (not part of GMT1)
- Road
- Facility

Existing
- Pipeline
- Road
- Facility

Yellow Billed Loons Estimated Relative Onshore Density (1993-2010)
- 0.00-0.01
- 0.02-0.05
- 0.06-0.10
- 0.11-0.18
- 0.19-0.38

Date: 9/29/2014

Source: USFWS 2010b

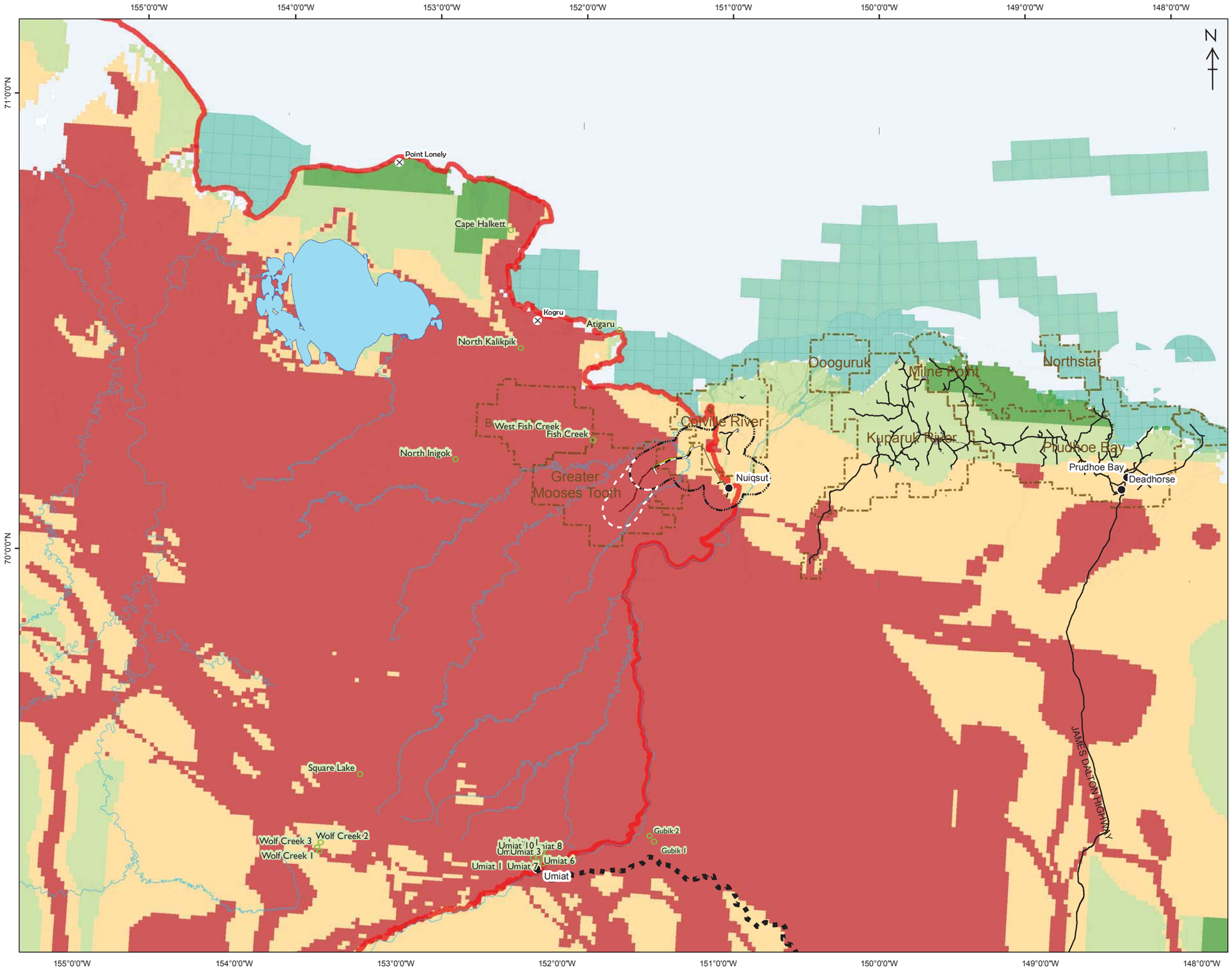
0 0.5 1 2 3 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Map 4.3-3

Teshekpuk Caribou Herd Females: Fall Migration Movements Relative to Potential New Infrastructure

Teshekpuk Caribou Herd Males Fall Migration Movements
Brownian Bridge Analysis

- Low use
- Moderately-low use
- Moderately-high use
- High use

Data analysis by Lincoln Parrett of ADF&G
Data gathered cooperatively by ADF&G, NSB, and BLM

Existing Oil & Gas Infrastructure

- Above Ground
- Existing Facility
- Oil & Gas Unit

Proposed Infrastructure

GMT-1 Alt. A	GMT-2
Pipeline	Road
Access Road	Pipeline
Nuiqsut Spur Road	

GMT1 SEIS Project Areas

- Project Study Area
- GMT2 2.5-Mile Buffer

- Proposed Foothills West Route (Road to Umiat)
- Offshore Leases- BOEM
- Offshore Leases- State of Alaska
- Formerly Used Military Sites
- Legacy Wells NPR-A
- NPR-A

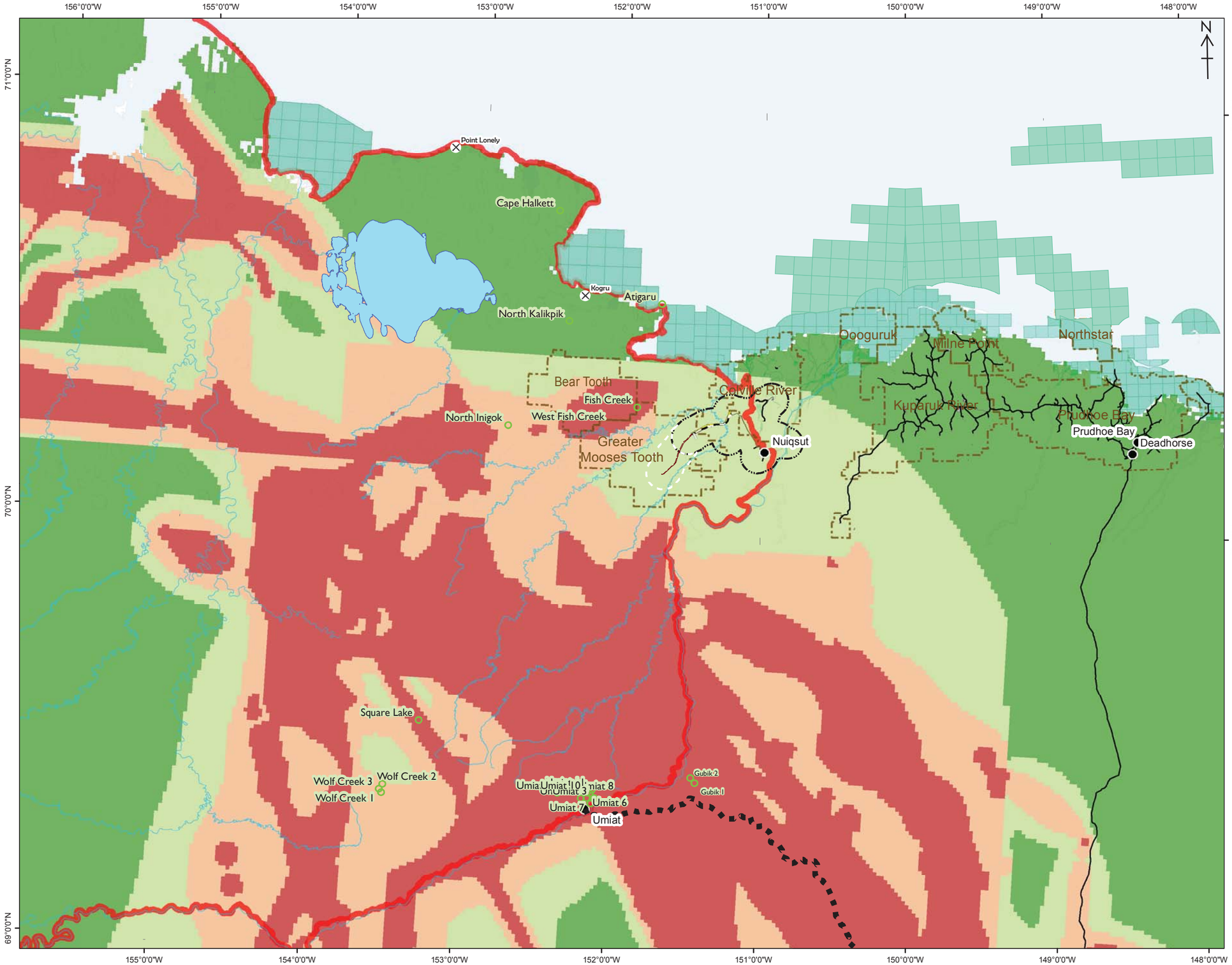
0 4 8 16 24 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Map 4.3-4

Teshekpuk Caribou Herd Males: Fall Migration Movements Relative to Potential New Infrastructure

Teshekpuk Caribou Herd Males Fall Migration Movements
Brownian Bridge Analysis

- Low use
- Moderately-low use
- Moderately-high use
- High use

Data analysis by Lincoln Parrett of ADF&G
Data gathered cooperatively by ADF&G, NSB, and BLM

Existing Oil & Gas Infrastructure

- Above Ground
- Existing Facility
- Oil & Gas Unit

Proposed Infrastructure

GMT-1 Alt. A
- Pipeline
- Access Road
- Nuiqsut Spur Road

GMT-2
- Road
- Pipeline

GMT1 SEIS Project Areas

- Project Study Area
- GMT2 2.5-Mile Buffer

- Proposed Foothills West Route (Road to Umiat)
- Offshore Leases- BOEM
- Offshore Leases- State of Alaska
- Formerly Used Military Sites
- Legacy Wells NPR-A
- NPR-A

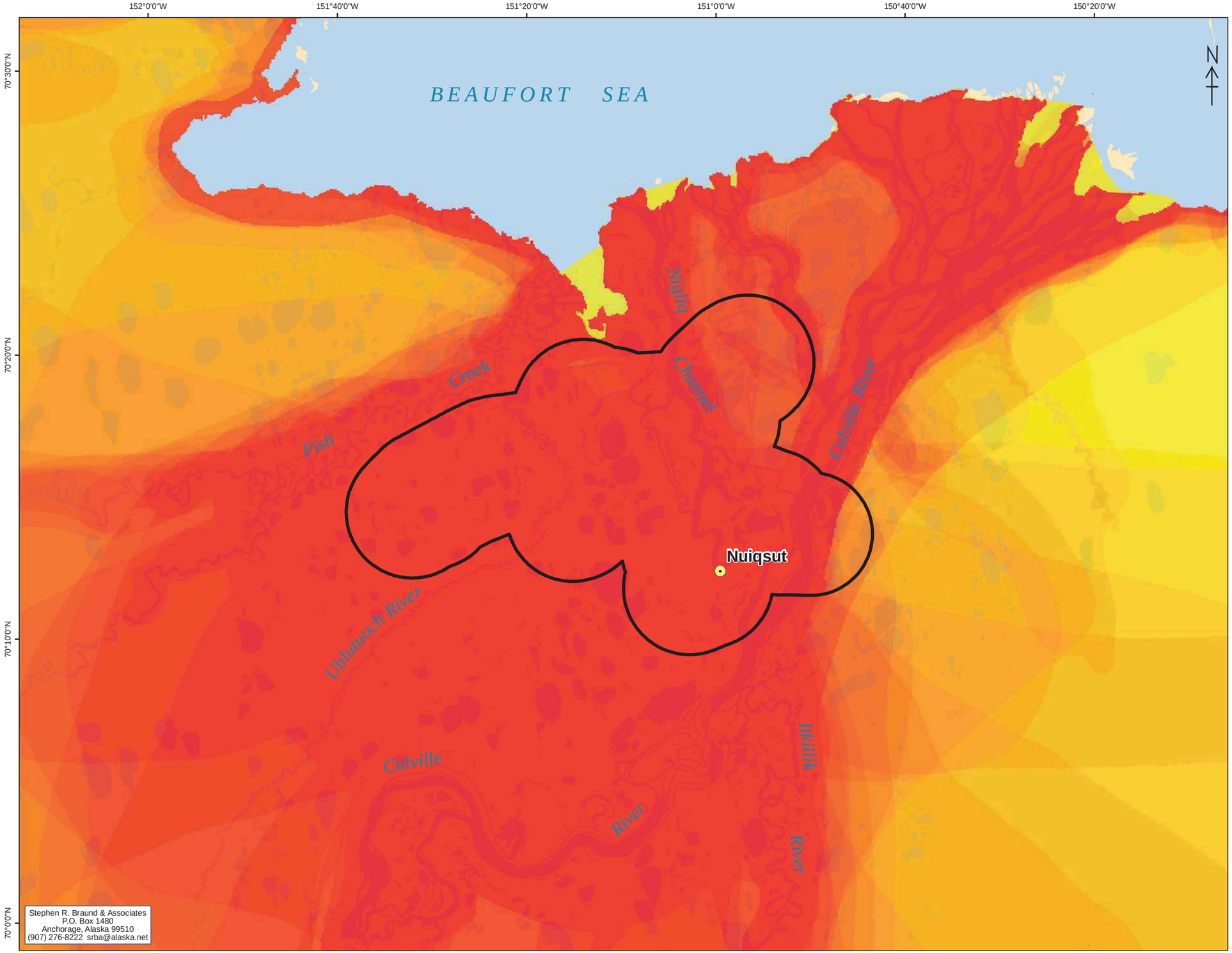
0 4 8 16 24 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Stephen R. Braund & Associates
P.O. Box 1480
Anchorage, Alaska 99510
(907) 276-8222 srba@alaska.net

Map 4.4-1

Caribou Subsistence Use Areas In The Project Study Area, 1995-2006

Legend

High
Low
Overlapping Subsistence Use Areas, Caribou, 1995-2006 (Source: SRBA 2010a)

In Nuiqsut, 94 caribou use areas were reported by 32 respondents. Use areas extend beyond the extent of this map.

Project Study Area
Subsistence Study Community

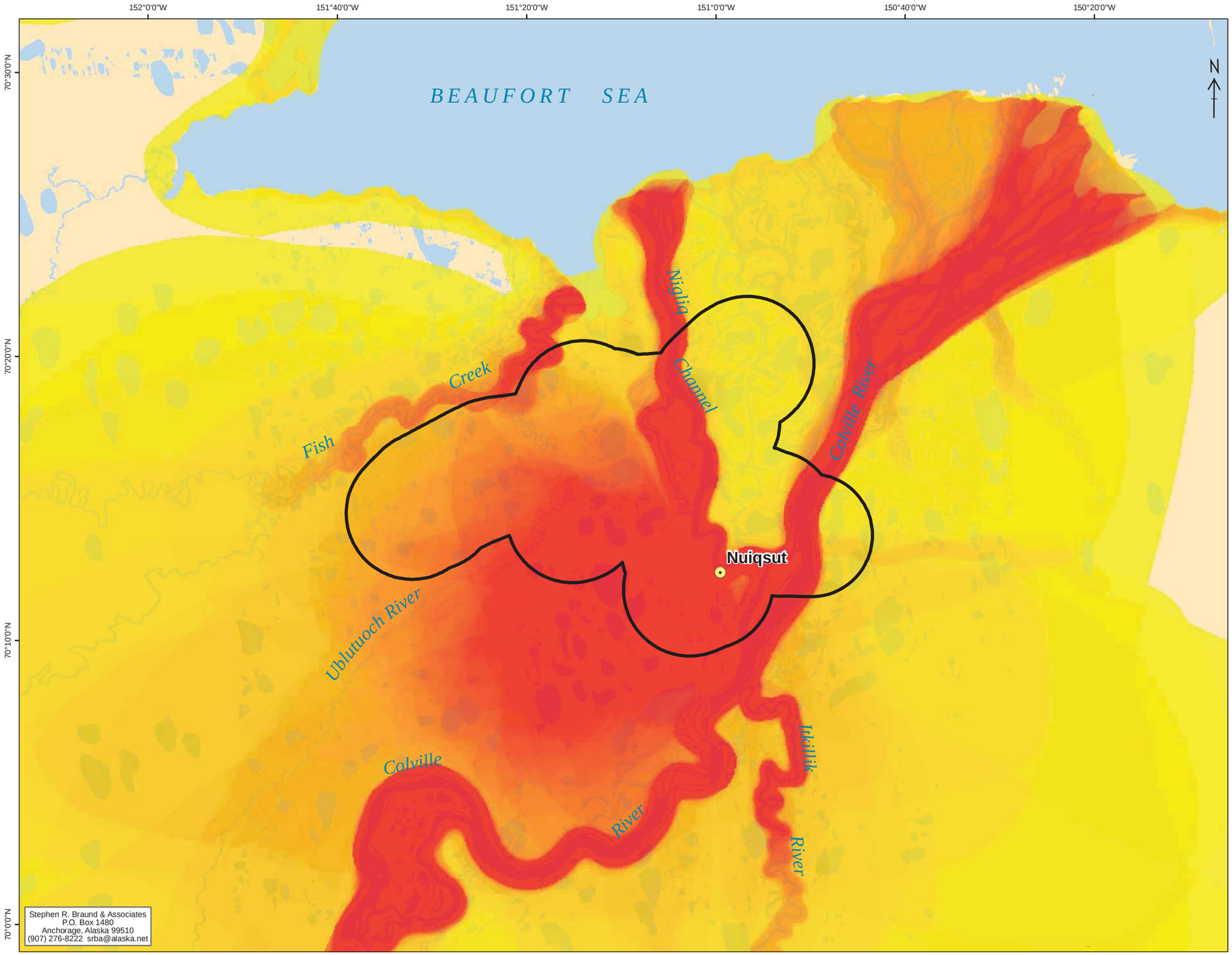
0 1 2 4 6 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Stephen R. Braund & Associates
P.O. Box 1480
Anchorage, Alaska 99510
(907) 276-8222 srba@alaska.net

Map 4.4-2

Caribou Subsistence Use Areas In The Project Study Area, 2008-2011

Legend

High
Low
Overlapping Subsistence Use Areas, Caribou, 2008-2011

Source: SRBA 2010b, 2011a, 2012, 2013b

SRB&A interviewed 96 active harvesters from March 2009 through November of 2011. The harvesters reported 731 use areas. Use areas extend beyond the extent of this map.

Project Study Area
Subsistence Study Community

Date: 12/9/2013

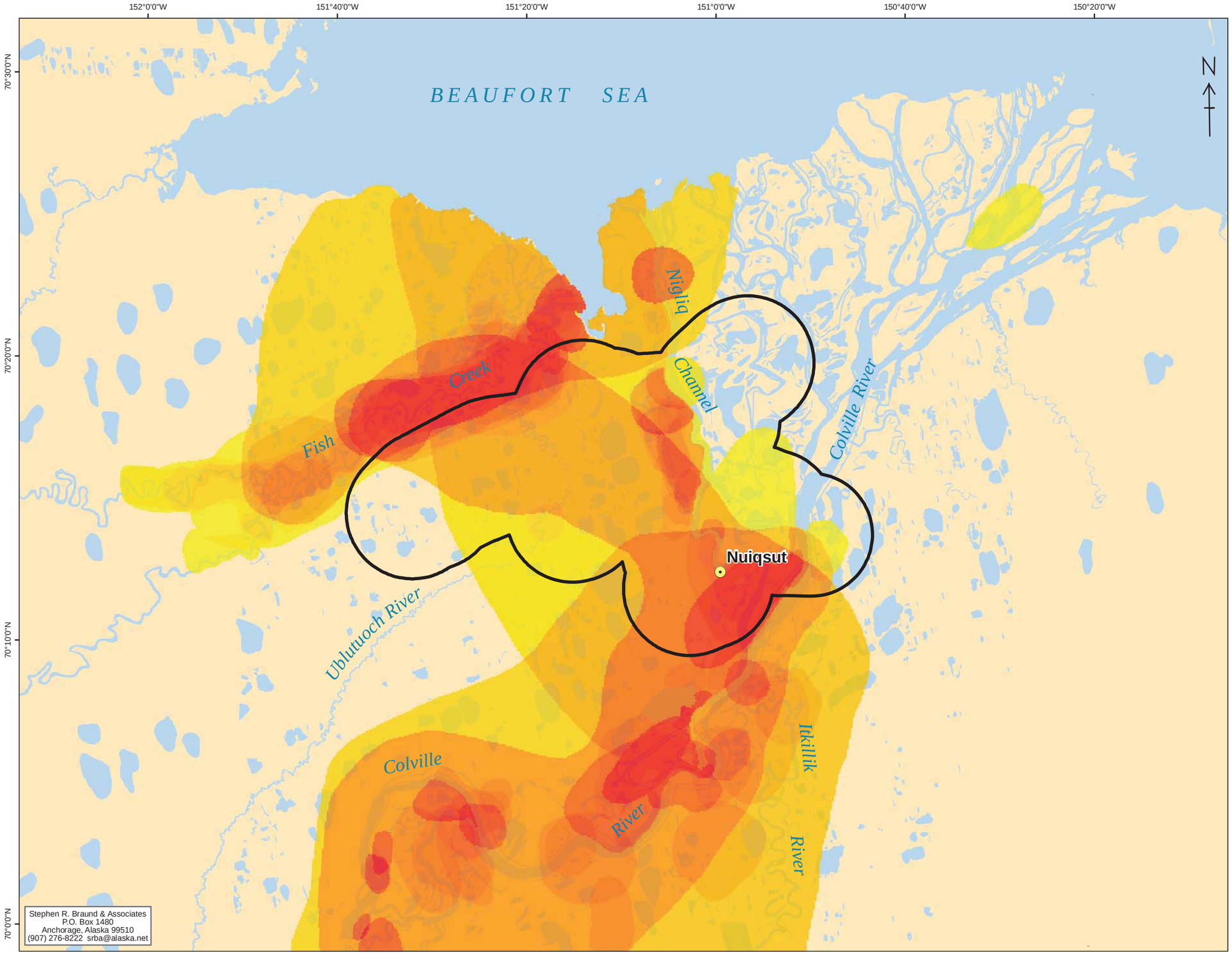
0 1 2 4 6 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Map 4.4-3

Geese Subsistence Use Areas in the Project Study Area, 1995-2006

Legend

High
Low
Overlapping Subsistence Use Areas, Geese, 1995-2006 (Source: SRBA 2010a)

In Nuiqsut,179 geese use areas were reported by 33 respondents. Use areas extend beyond the extent of this map.

Project Study Area

Subsistence Study Community

Draft Date: 12/9/2013

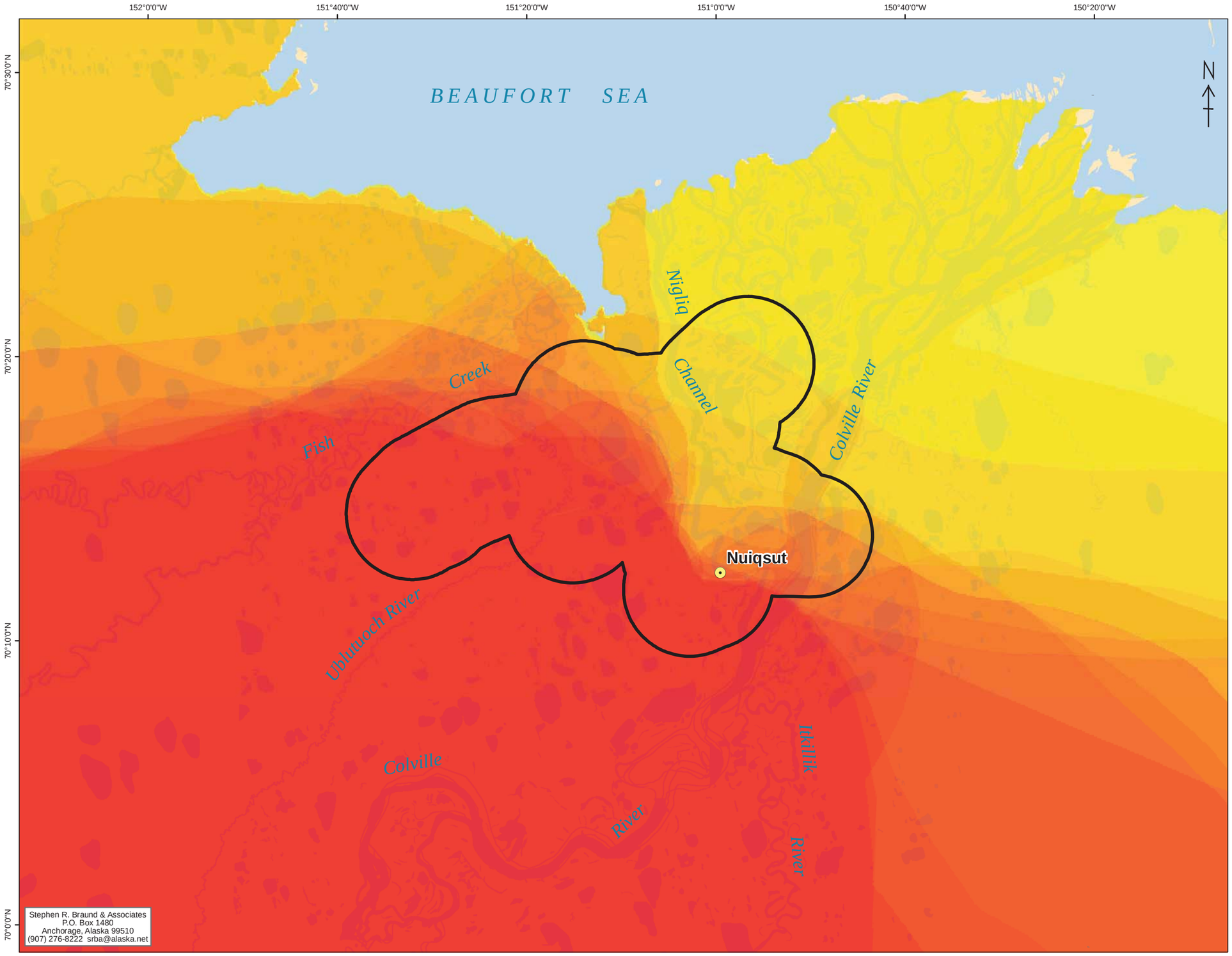
0 1 2 4 6 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Map 4.4-4

Wolf and Wolverine Subsistence Use Areas in the Project Study Area, 1995-2006

Legend

High
Low

Overlapping Subsistence Use Areas, Wolf and Wolverine, 1995-2006
(Source: SRBA 2010a)

In Nuiqsut, 69 wolf and wolverine use areas were reported by 24 respondents. Use areas extend beyond the extent of this map.

Project Study Area
Subsistence Study Community

Draft Date: 12/9/2013

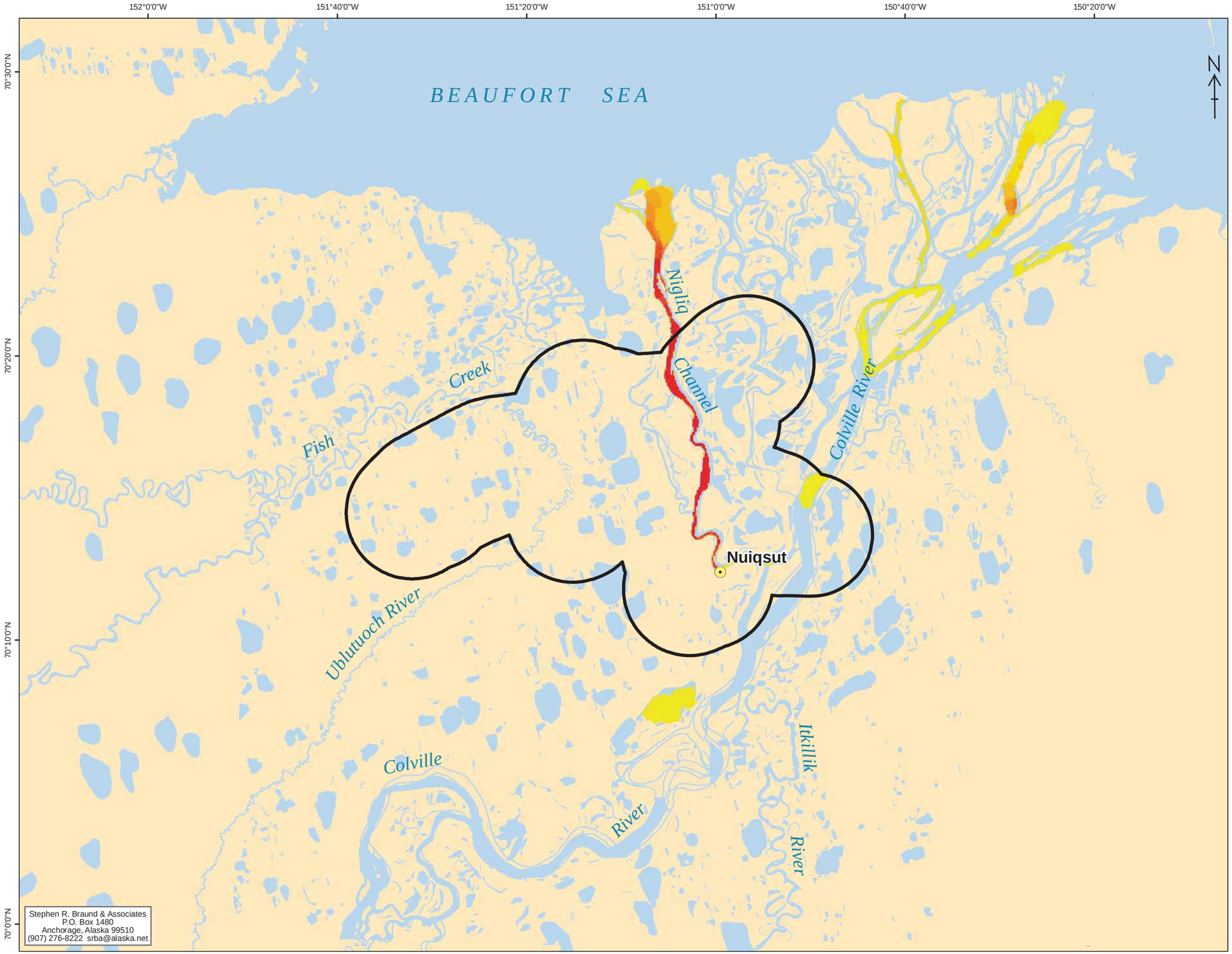
0 1 2 4 6 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Stephen R. Braund & Associates
P.O. Box 1480
Anchorage, Alaska 99510
(907) 276-8222 srba@alaska.net

Map 4.4-5

Arctic Cisco Subsistence Use Areas in the Project Study Area, 1995-2006

Legend

High
Low

Overlapping Subsistence Use Areas, Arctic Cisco, 1995-2006 (Source: SRBA 2010a)

In Nuiqsut, 66 Arctic Cisco use areas were reported by 33 respondents. Use areas extend beyond the extent of this map.

Project Study Area

Subsistence Study Community

Draft Date: 12/9/2013

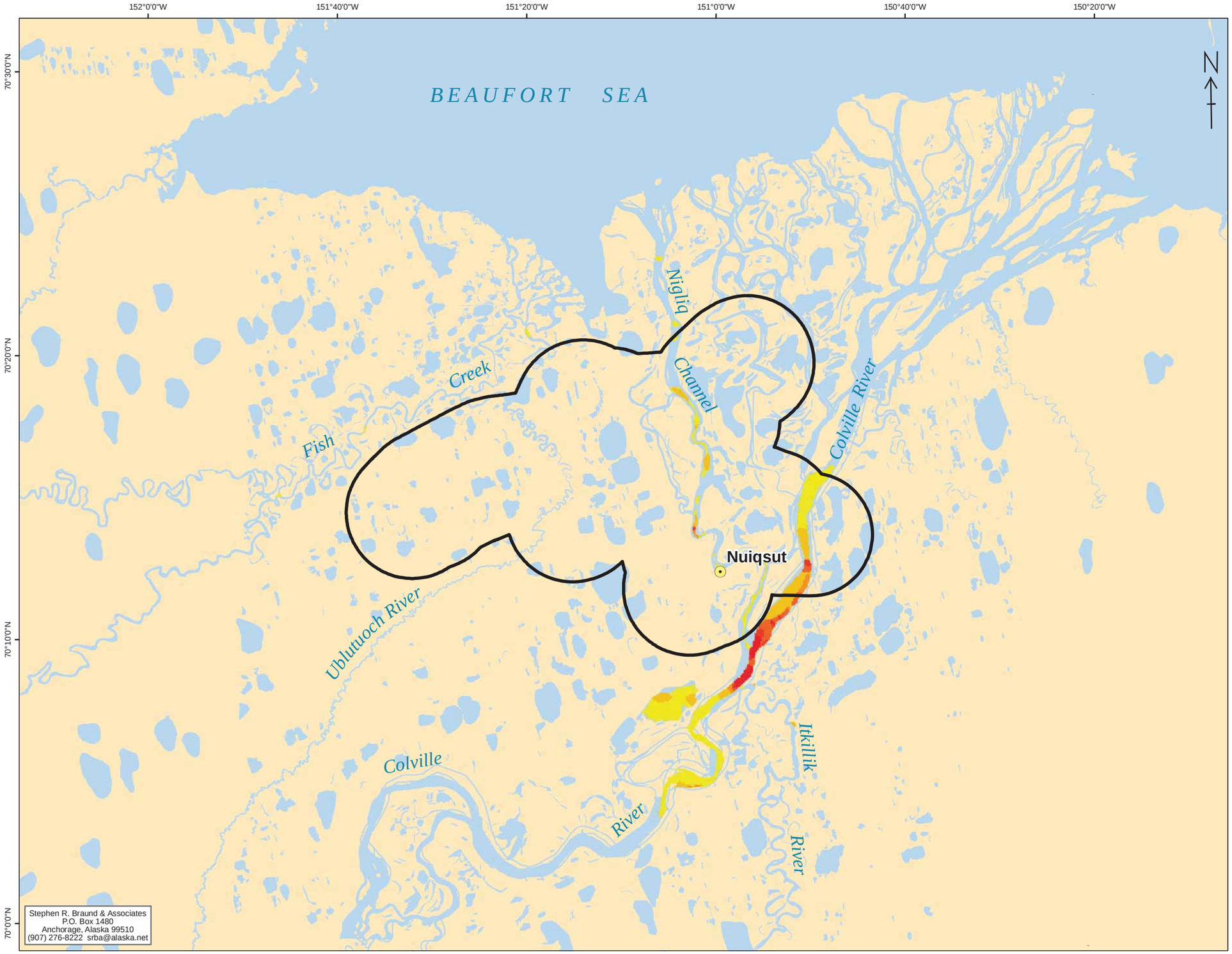
0 1 2 4 6 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Map 4.4-6

Burbot Subsistence Use Areas in the Project Study Area, 1995-2006

Legend

High
Low
Overlapping Subsistence Use Areas, Burbot, 1995-2006 (Source: SRBA 2010a)

In Nuiqsut, 62 burbot use areas were reported by 30 respondents. Use areas extend beyond the extent of this map.

Project Study Area
Subsistence Study Community

Draft Date: 12/9/2013

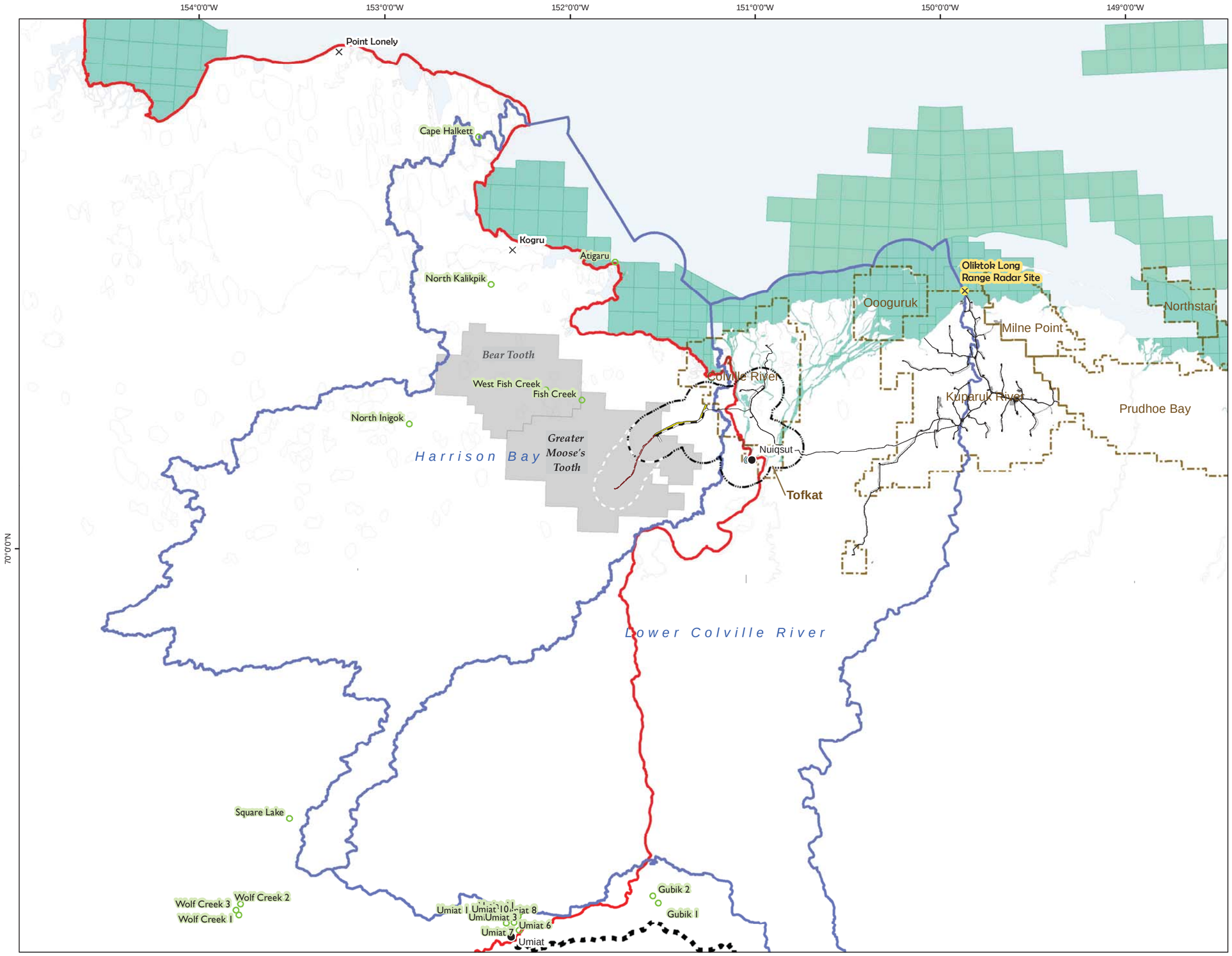
0 1 2 4 6 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Map 4.6-1

Oil & Gas Infrastructure

Exisiting Oil & Gas Infrastructure

- Above Ground
- Existing Facility

Oil & Gas Producing Units

Production Status

- Not Producing
- Producing

Proposed Infrastructure

GMT-1 Alt. A
- Pipeline
- Access Road
- Nuiqsut Spur Road

GMT-2
- Road
- Pipeline

GMT1 SEIS Project Areas

- Project Study Area
- GMT2 2.5-Mile Buffer

- Proposed Foothills West Route (Road to Umiat)
- Offshore Leases- BOEM
- Offshore Leases- State of Alaska
- Active Military Site
- Formerly Used Military Sites
- Legacy Wells NPR-A
- Hydrologic Units (HUC8)
- NPR-A

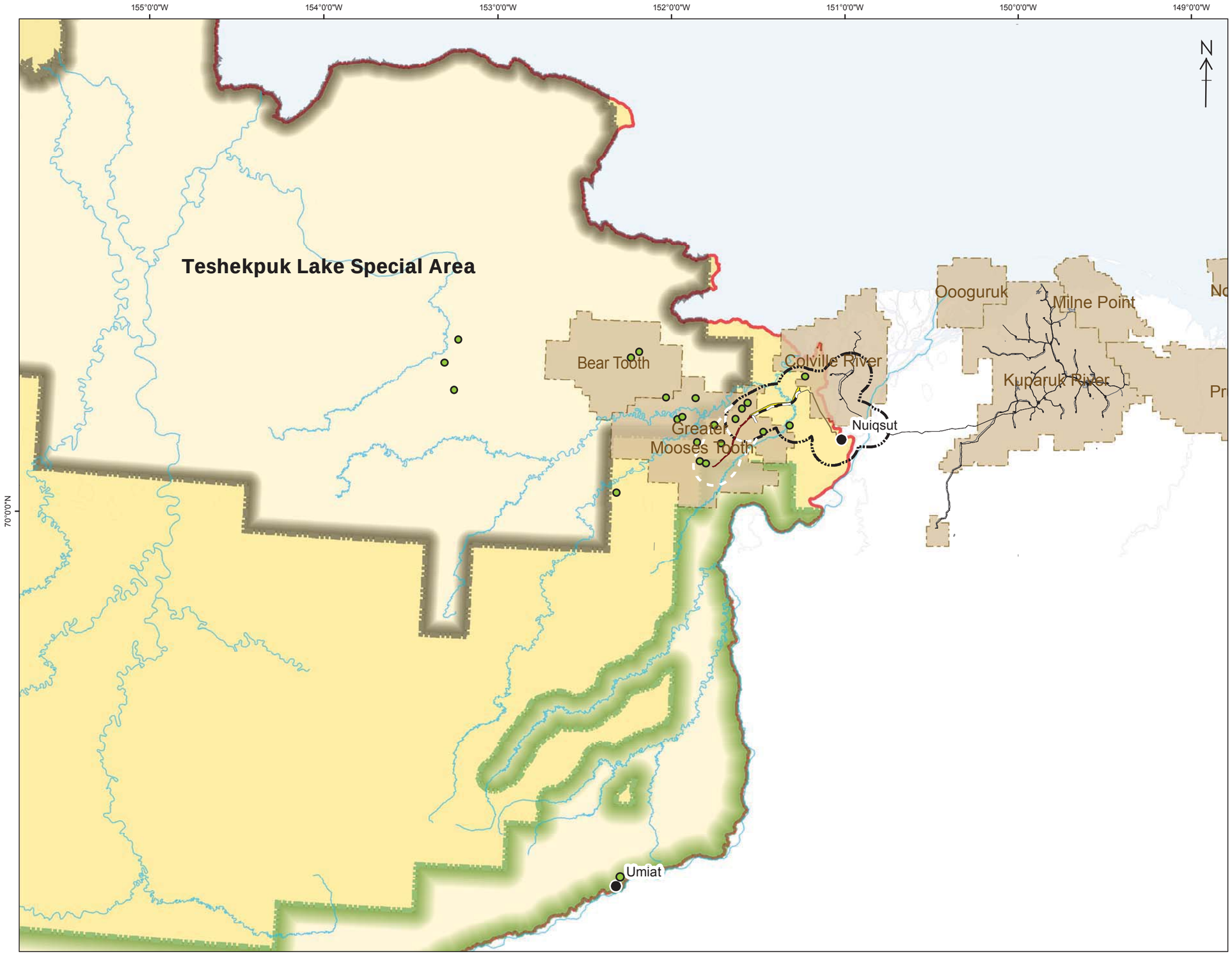
0 6.5 13 19.5 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014



Map 4.6-2

Oil and Gas Exploratory Wells and NPR-A Special Areas

Exploratory Well

NPR-A Special Areas

Colville River Special Area

Teshekpuk Lake Special Area

Existing Oil & Gas Infrastructure

Above Ground

Existing Facility

Oil & Gas Producing Units

Proposed Infrastructure

GMT-1 Alt. A	GMT-2
Pipeline	Road
Access Road	Pipeline
Nuiqsut Spur Road	

GMT1 SEIS Project Areas

Project Study Area

GMT2 2.5-Mile Buffer

NPR-A

0 8 16 Miles

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. for offical land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014