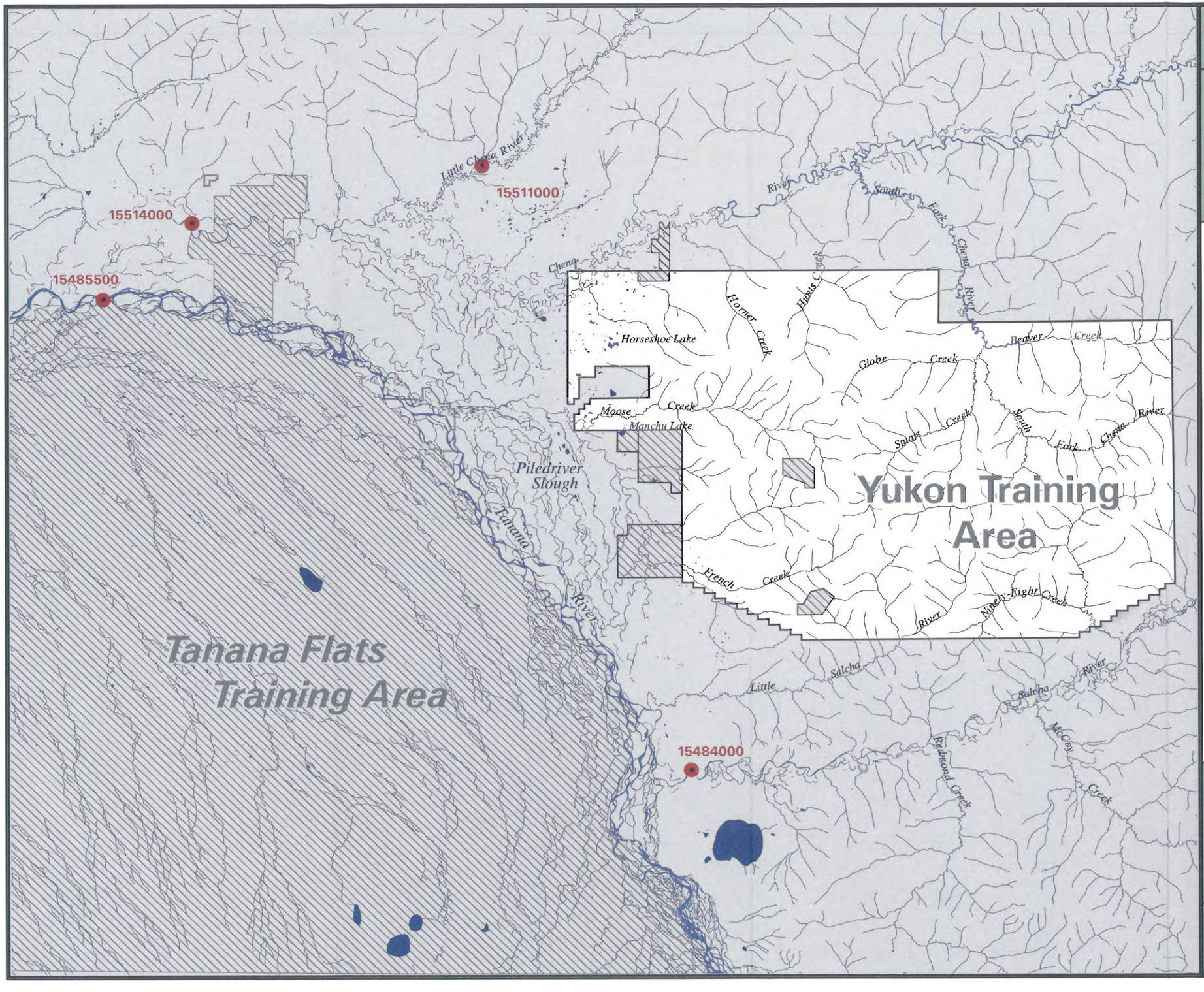
Figure 3.8.a

Surface Water

Fort Wainwright Yukon Training Area



Legend

- Stream Gaging Station
- PL99-606 Withdrawal Boundary
- Other Military Withdrawal Boundaries
- Stream
- Lake

SCALE 1 : 290,000

1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 Kilometers

1 0 1 2 3 4 5 6 7 8 9 Miles

N

Sources:

USGS 7.5 Minute Quadrangles
USGS 1998

	Tanana River	Chena River	South Fork Chena River	Other Streams within Fort Wainwright Yukon Training Area
General	Major perennial stream flowing westward. Bordering terrain is flat to the south and rolling uplands to the north . Heavily braided upstream and meandering downstream of Fairbanks.	Major perennial stream meandering westward. Located in northwest corner of Fort Wainwright Yukon Training Area.	Perennial stream that meanders through narrow valley and dissected hills. Flow northwestward across the northeastern portion of Fort Wainwright Yukon Training Area. Empties into Chena River off-base.	Perennial streams mostly originating on-base as straight streams in narrow valleys. Flowing off-base to the north, west and south as meandering streams in fairly narrow valleys.
Regime	High water - June to September Low water - January to March Frozen surface - late October to mid May Flooding - May to September, especially on south side of river	High water - May to September Low water - January to March Frozen surface - late October to May Flooding - May to September, mostly in May	High water - May to August Frozen surface - late October to mid May Frozen to bottom - December to April No flooding	High water - May to August Frozen surface - late October to mid May Frozen bottom - December to April Flooding occasionally on lower reaches of Moose and French Creeks.
Width	*Upstream of Fairbanks* - 0.3 to 0.9 miles *Downstream of Fairbanks* - 0.2 to 0.3 miles	300 to 400 feet through cantonment Maintained by dredging	*Upper reaches* - 20 to 30 feet *Lower reaches* - 30 to 40 feet	*Moose and French Creeks* - 20 feet *Ninety-eight Creek* - 25 feet *Other streams* - 10 feet
Depth	*Upstream of Fairbanks* - Low water - 1 to 5 feet High water - 12 feet *Downstream of Fairbanks* - Low water - 6 feet High water - 18 feet	5 feet through cantonment Maintained by dredging	*Upper reaches* - 1 foot *Lower reaches* - 1 to 2 feet	*Moose and French Creeks* - 2 feet *All others* - <1 foot
Velocity and Discharge	Velocity at Fairbanks - 3.6 feet per second at low water Average annual discharge at Fairbanks - 19,970 cubic feet per second Estimated peak flow - 125,000 cubic feet per second on 8/16/67	Velocity - 1.5 to 2.3 feet per second at low water Average annual discharge at Fairbanks - 1,395 cubic feet per second Recorded peak flow - 74,400 cubic feet per second on 8/15/67	Velocity - 0.5 to 1.5 feet per second at normal water Estimated discharge - 200 cubic feet per second	Velocity - 0.5 to 1.5 feet per second at normal water *Average discharge at Moose, French, and Ninety-eight Creeks* - 100 cubic feet per second *Average discharge at other streams* - 25 cubic feet per second Discharges usually double in high water.
Bank Composition	Mostly sand and gravel with a top layer of silt Slopes >60% *Upstream height* - 3 to 5 feet *Downstream height* - 6 to 9 feet	Mostly sand and gravel with top layer of silt Slopes - 45% to vertical Height - 10 to 15 feet	Mostly sand and gravel with top layer of silt Slopes - 30% to vertical *Upper reach height* - 1 to 2 feet *Lower reach height* - 1 to 3 feet	Mostly sand and gravel with top layer of silt *Moose and French Creeks* - Slopes - 30% to vertical *Other streams* - Slopes - 30% Height - 2 to 5 feet
Bottom Composition	Mostly gravel and some sand.	Gravel and sand with some silt.	Sand and gravel with some silt.	Sand and gravel with some silt, particularly in lower reaches. Silt heavier in lower reaches of Moose and French Creeks.

Table 3.8.a

Drainage Characteristics of Selected Streams

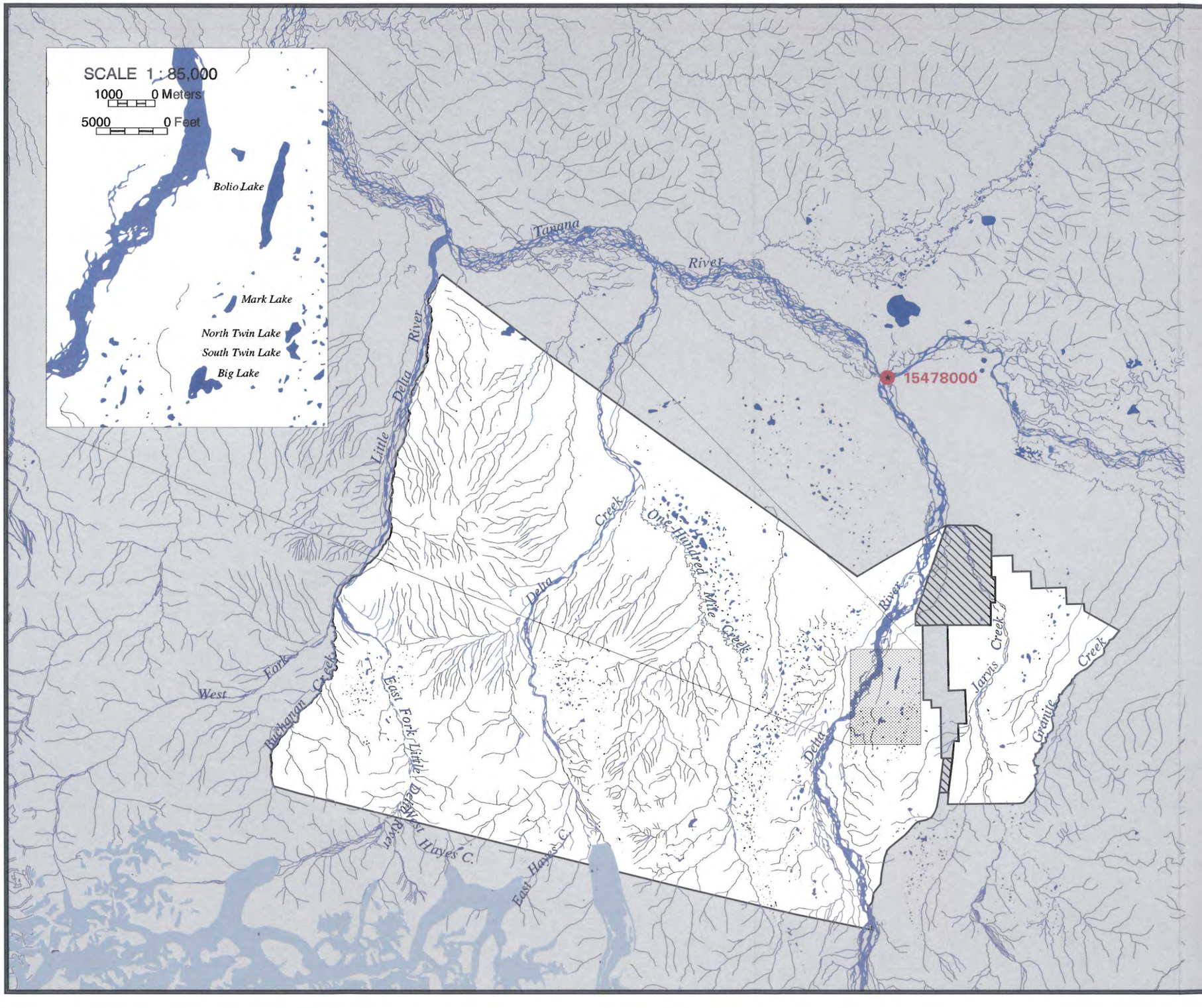
Fort Wainwright Yukon Training Area

Source:
Adapted from Defense Mapping Agency 1978

Figure 3.8.b

Surface Water

Fort Greely



Legend

- Stream Gaging Station
- PL99-606 Withdrawal Boundary
- Other Military Withdrawal Boundaries
- Stream
- Lake
- Glacier

SCALE 1 : 375,000

2 0 2 4 6 8 10 12 14 16 Kilometers

2 0 2 4 6 8 10 Miles

N

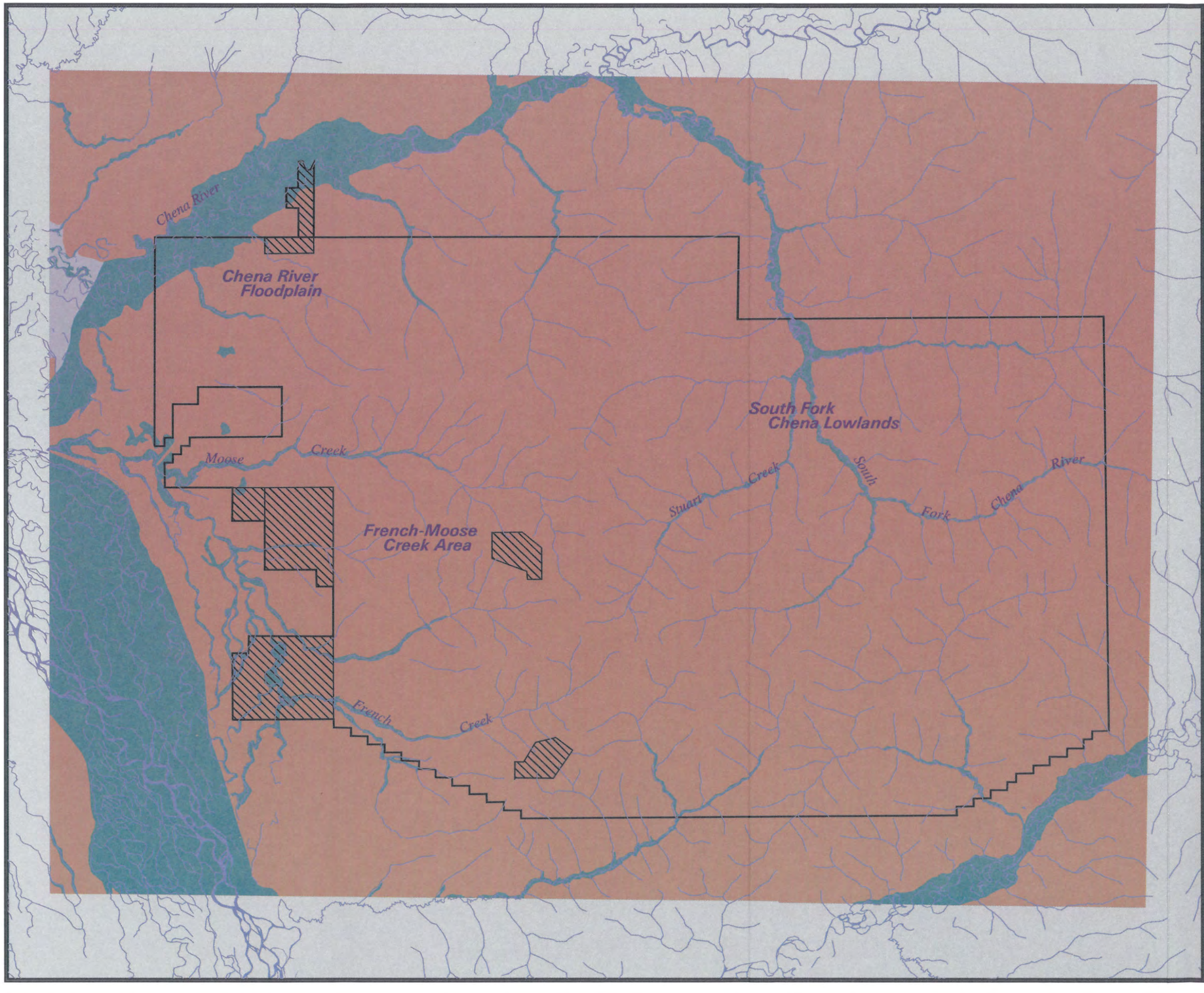
Sources:

USGS 7.5 Minute Quadrangles
USGS, 1998

Figure 3.8.c

Floodplains

Fort Wainwright Yukon Training Area



Legend

- **Zone A**
  Special Flood Hazard Areas Inundated by 100-year Flood No base flood elevations determined
- **Zone X**
  Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood
- **Zone XO**
  Areas determined to be outside the 500-year floodplain
- *PL99-606 Withdrawal Boundary*
- *Other Military Withdrawal Boundaries*
- *Stream*

SCALE 1 : 185,000

1 0 1 2 3 4 5 6 7 8 Kilometers

1 0 1 2 3 4 5 Miles

N

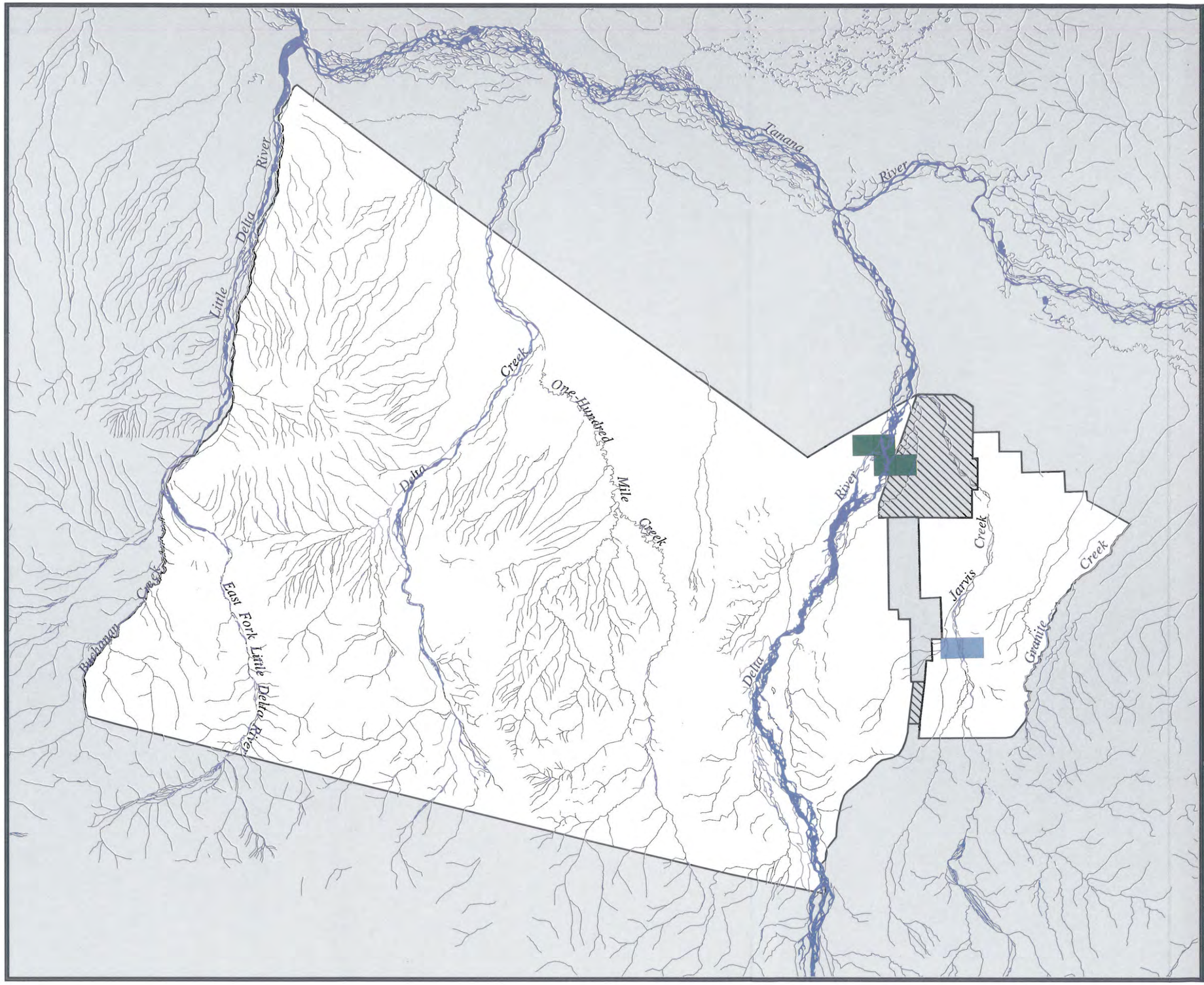
Sources:

Federal Emergency Management Agency, 1996

Figure 3.8.d

Ice Bridge Locations

Fort Greely



Legend

- *Jarvis Creek Bridge No. 2*
  Water use: 40,000 gal/day
  Number of days in use: 90
- *Delta River Bridge*
  Water use: 300,000 gal/day
  Number of days in use: 90
- *PL99-606 Withdrawal Boundary*
- *Other Military Withdrawal Boundaries*
- *Stream*

SCALE 1 : 300,000

1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 Kilometers

1 0 1 2 3 4 5 6 7 8 9 Miles

N

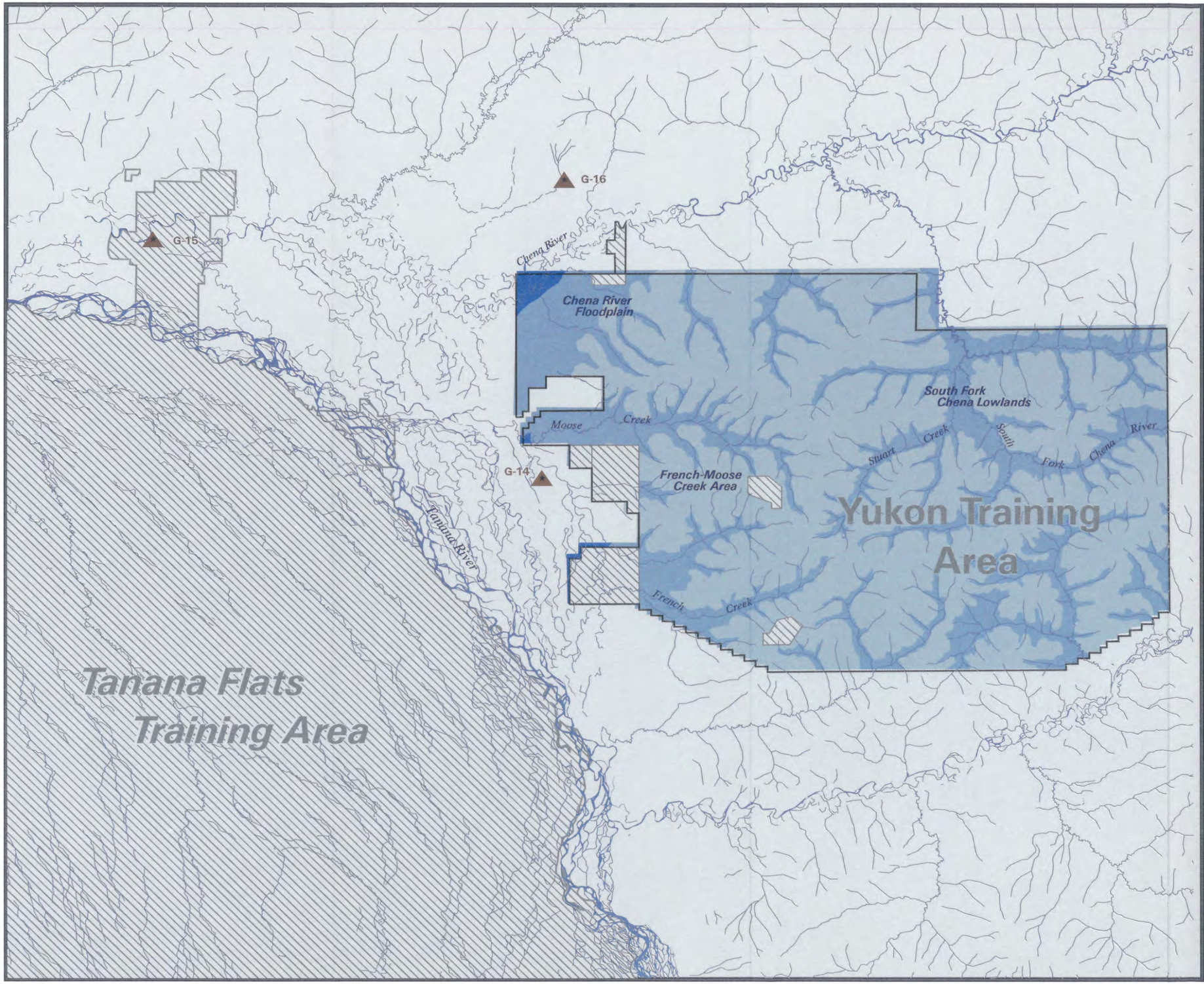
Sources:

Department of Army, Real Estate Division, 1998

Figure 3.9.a

Groundwater

Fort Wainwright Yukon Training Area



Legend

- **Tanana-Chena Rivers Floodplain**
  (1,500,000-15,000,000 gallons per day)
  Very large quantities available from floodplain deposits of the Tanana and Chena River
- **Creek Valley Bottoms**
  (15,000-1,500,000 gallons per day)
  Moderate to large quantities available from gravel deposits in creek valley bottoms
- **Upland Hills**
  (< 15,000 gallons per day)
  Small quantities available from joints and fractures in upland bedrock
- Groundwater Quality Station
- PL99-606 Withdrawal Boundary
- Other Military Withdrawal Boundaries
- Stream

SCALE 1 : 270,000

1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 Kilometers

1 0 1 2 3 4 5 6 7 8 Miles

N

Sources:

Defense Mapping Agency, 1978
EarthInfo, 1993

	Tanana-Chena Rivers Floodplain	Creek Valley Bottoms	Upland Hills
Quantity and Yield	Very Large - 2.35 to 23.50 cfs Yield - 4.5 to 6.7 cfs	Moderate to Large - 0.0235 to 0.235 cfs Yield - 0.17 to 0.45 cfs	Small - 0.00235 to 0.0235 cfs Yield - 0.0035 to 0.021 cfs
Aquifer Description and Depth	Lenses of water-bearing river sands and gravels under alluvial silt fans. Alluvial fill - 9.8 to 656.2 feet	Stream sorted gravel in major upland stream valleys, overlain by organic silt. Gravel fill - 32.8 to 328.1 feet.	Fractures and joints in crystalline rocks. Depth unknown.
Depth to Water Table	9.8 to 26.2 feet	Water table beneath permafrost. Depth unknown.	98.4 to 196.9 feet
Quality	Poor - high iron and hardness. High potential for contamination of water above permafrost.	Very Poor - high organic content. Better quality from valley fill.	Good to Very Good - low iron content.
Development Potential	Excellent aquifer. Wells can be drilled almost anywhere. Wells are generally less than 98.4 feet deep.	Permafrost may cause difficulties. Valley muck prevents access to areas.	Sources difficult to find.

Table 3.9.a

General Description of Groundwater Source Areas

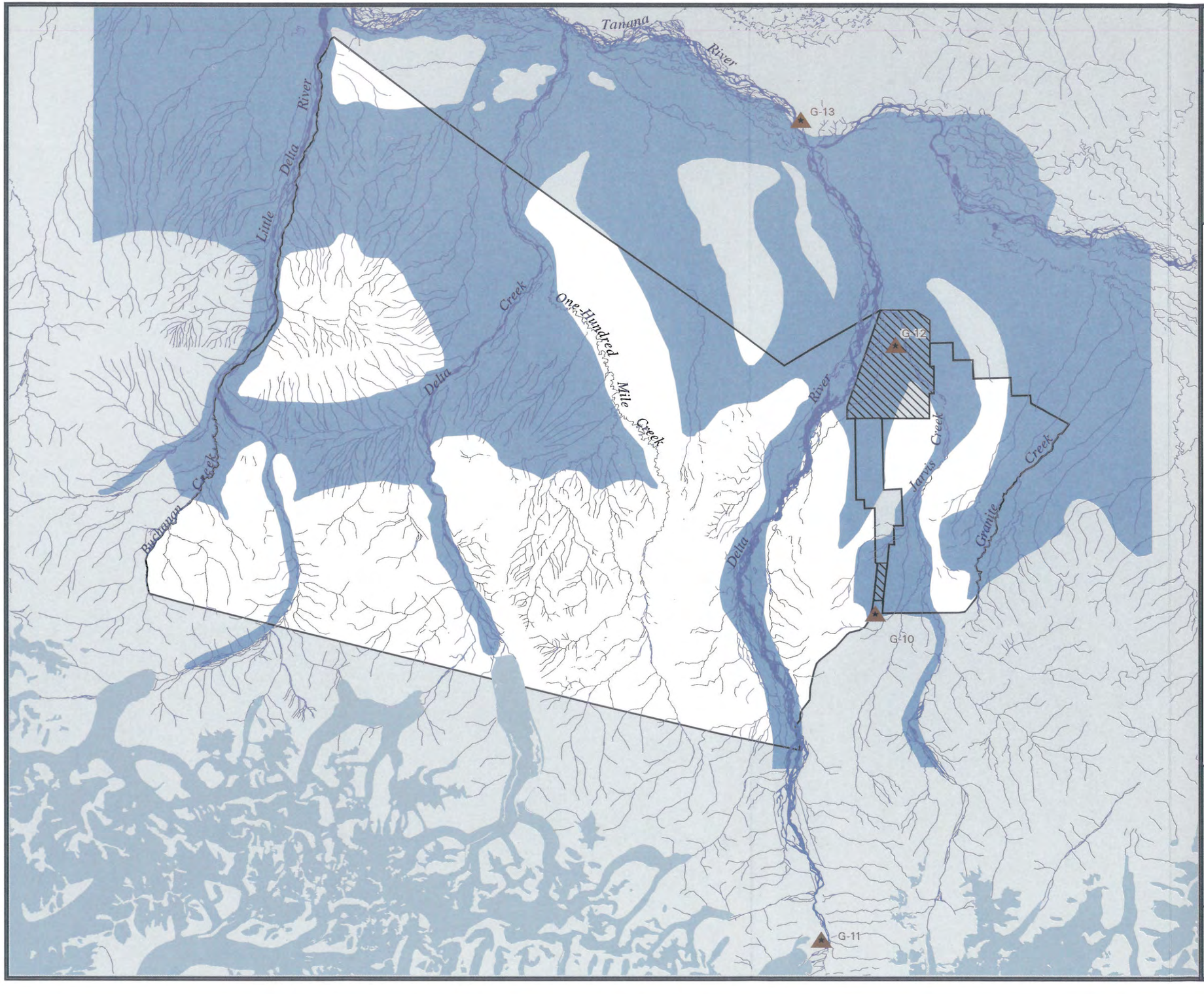
Fort Wainwright Yukon Training Area

Source:
Adapted from Defense Mapping Agency 1978.

Figure 3.9.b

Groundwater

Fort Greely



Legend

- Groundwater Quality Station
- Groundwater Potential of 1000-3000 Gallons per Minute*
- PL99-606 Withdrawal Boundary
- Other Military Withdrawal Boundaries
- Stream
- Glacier

*unshaded areas represent unknown groundwater potential

SCALE 1 : 340,000

1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 Kilometers

1 0 1 2 3 4 5 6 7 8 9 10 Miles

N

Sources:

U.S. Army Alaska, 1980
EarthInfo, 1993

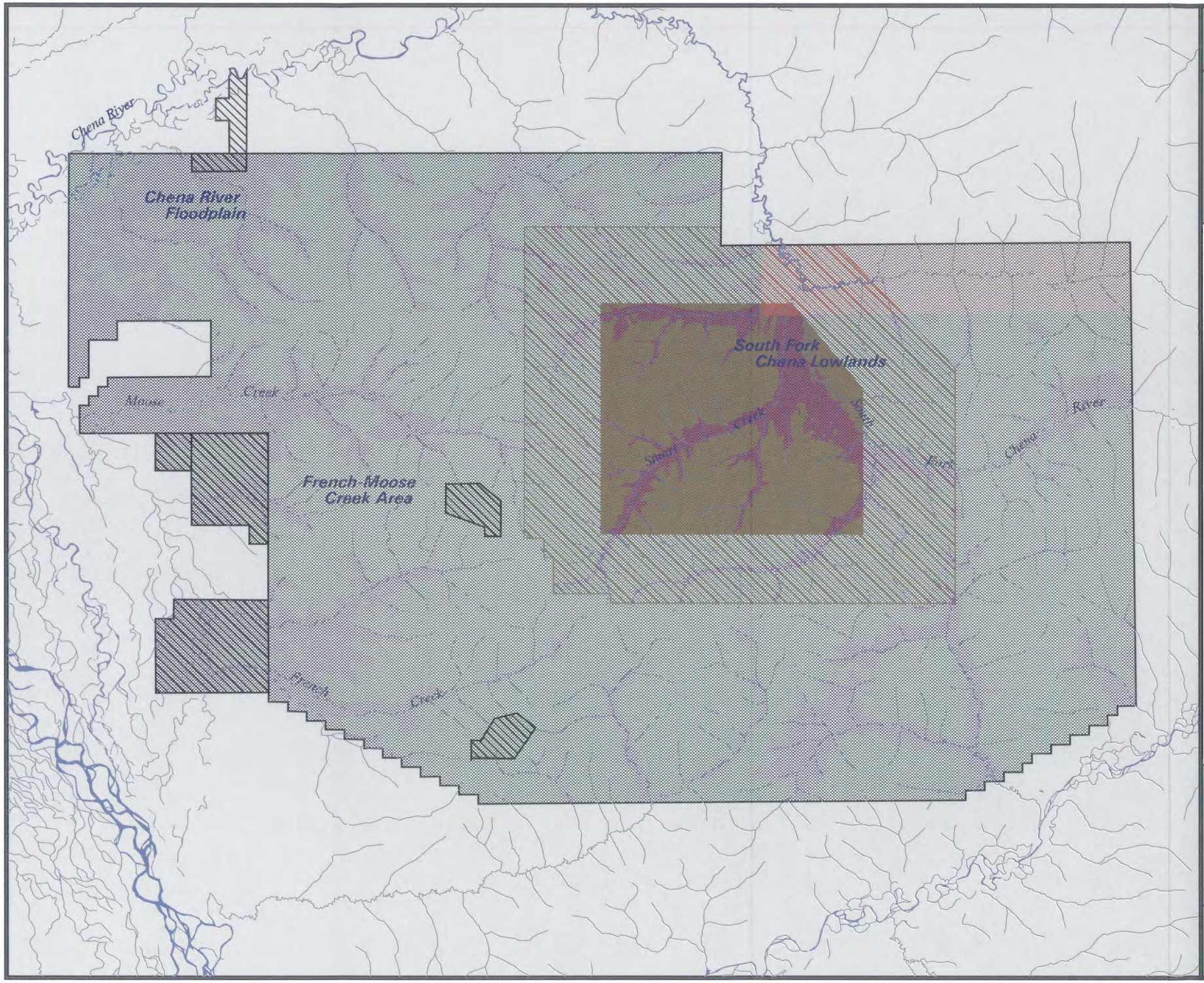


Figure 3.10.a

Wetlands

Fort Wainwright Yukon Training Area

Legend

- Wetland
- Upland
- No Data
- PL99-606 Withdrawal Boundary
- Other Military Withdrawal Boundaries
- Stuart Creek Impact Area
- Impact Area Buffer Zone
- Stream

SCALE 1 : 165,000

1 0 1 2 3 4 5 6 7 Kilometers

1 0 1 2 3 4 Miles

N

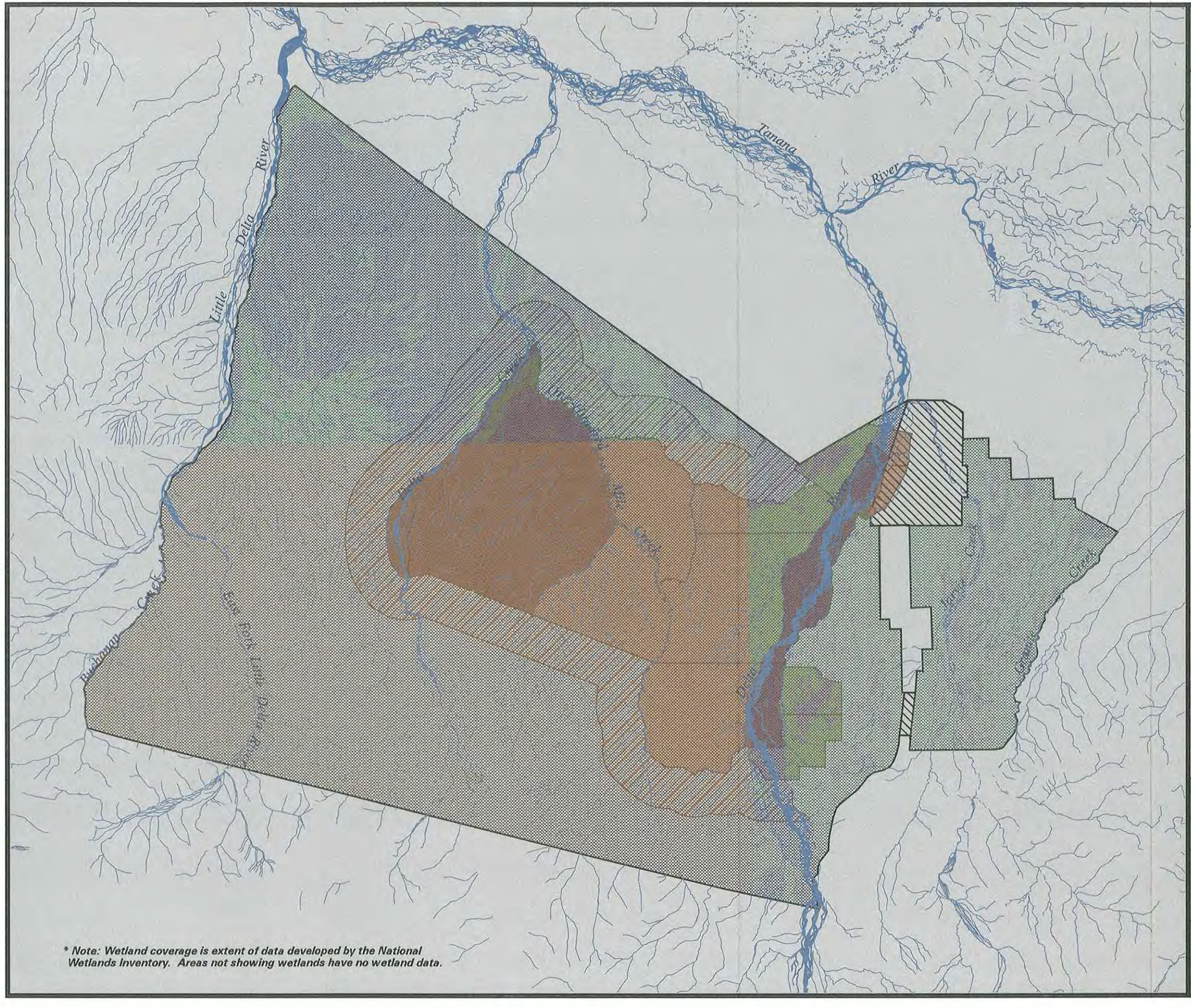
Sources:

National Wetlands Inventory, 1992

Figure 3.10.b

Wetlands

Fort Greely



Legend

- Wetland
- Upland
- No Data
- PL99-606 Withdrawal Boundary
- Other Military Withdrawal Boundaries
- Impact Area Boundary
- Dedicated Impact Area
- High Hazard Impact Area
- Impact Area Buffer Zone
- Stream

SCALE 1 : 300,000

1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 Kilometers

1 0 1 2 3 4 5 6 7 8 9 Miles

N

Sources:

National Wetlands Inventory, 1992

* Note: Wetland coverage is extent of data developed by the National Wetlands Inventory. Areas not showing wetlands have no wetland data.

Ecological Land Classification-Ecosubdistricts for Fort Wainwright Yukon Training Area

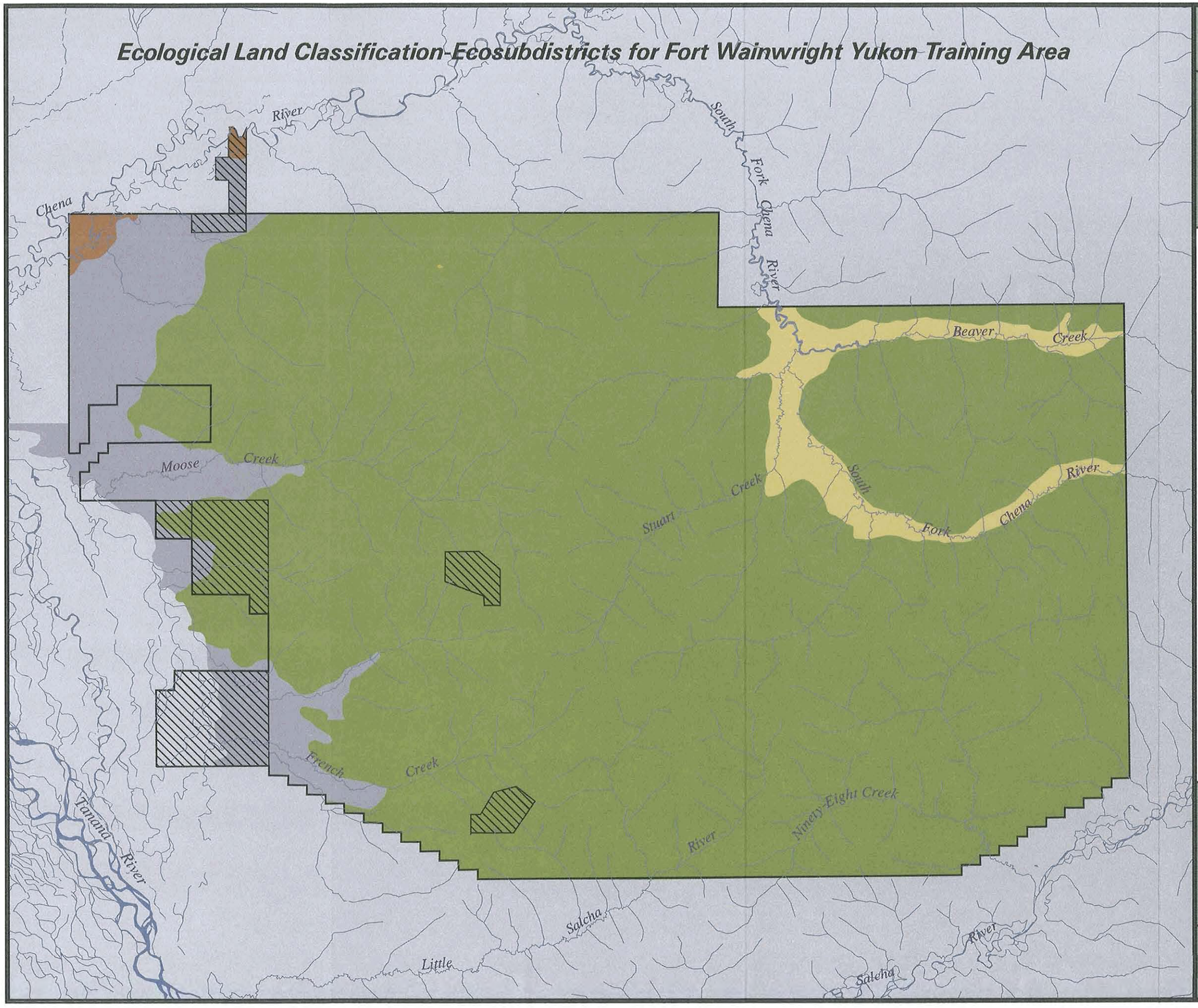


Figure 3.11.a

Ecosubdistricts

Fort Wainwright Yukon Training Area

Legend

- *French-Moose Creek Lowlands*
- *Chena-Salcha Highlands*
- *South Fork Chena Lowlands*
- *Chena Floodplain*
- *PL99-606 Withdrawal Boundary*
- *Other Military Withdrawal Boundaries*
- *Stream*

SCALE 1 : 165,000

1 0 1 2 3 4 5 6 7 Kilometers

1 0 1 2 3 4 Miles

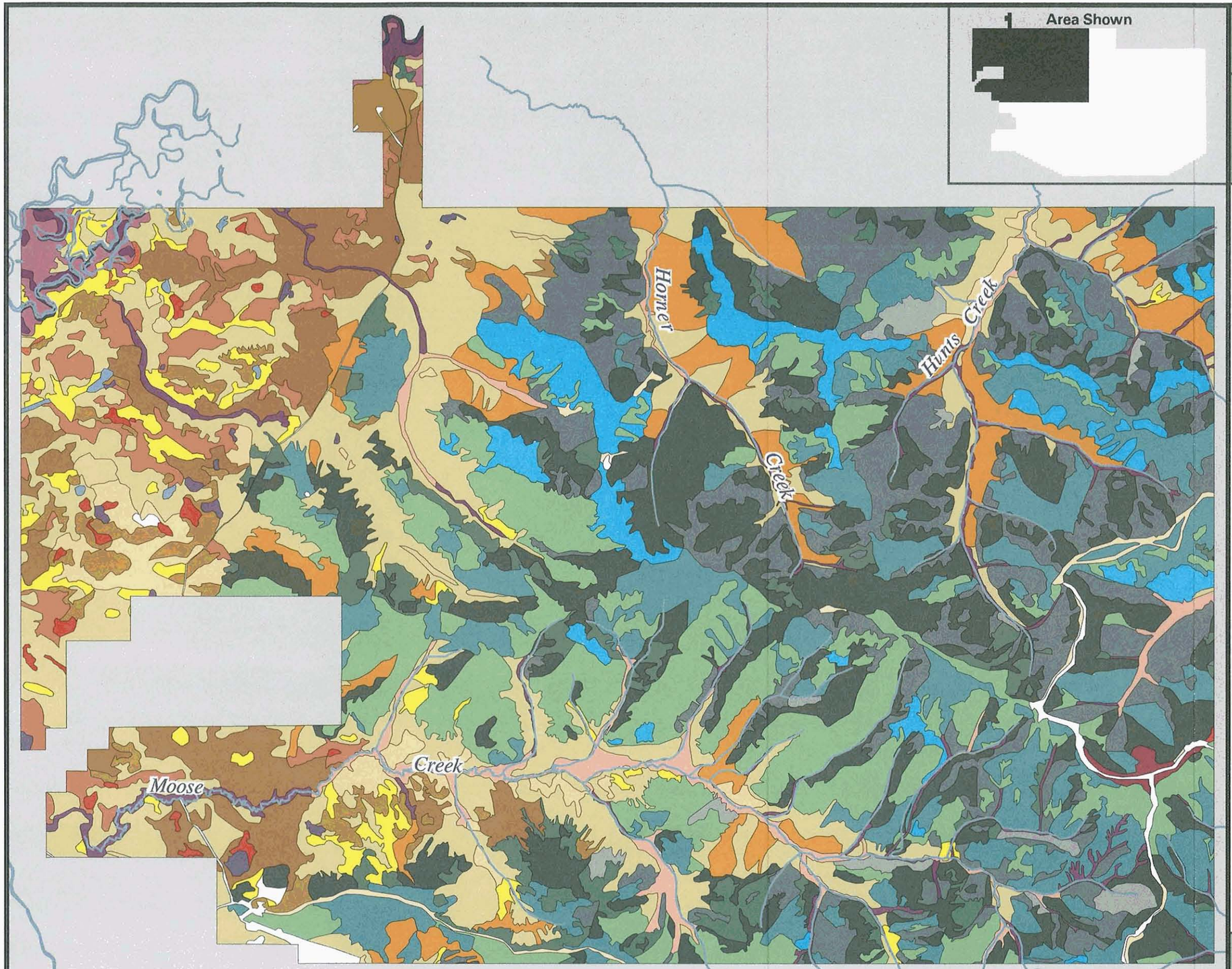
N

Sources:

ABR, Inc. Environmental Research and Services
Cold Regions Research and Engineering Laboratory (1996)

Figure 3.11.b

Ecosites - NW
Fort Wainwright
Yukon Training Area



Legend

- River
- Riverine Broadleaf Forest
- Riverine Mixed Forest
- Riverine Tall Scrub
- Riverine Wet Meadow
- Riverine Complex
- Lakes or Ponds
- Lowland Needleleaf Forest
- Lowland Broadleaf Forest
- Lowland Mixed Forest
- Lowland Tall Scrub
- Lowland Low Scrub
- Lowland Moist Meadow
- Lowland Eolian Complex
- Lowland Slope Drainage Complex
- Scrub Bog
- Bog Meadow
- Upland Needleleaf Forest (N, E or W-facing)
- Upland Needleleaf Forest (S-facing)
- Upland Broadleaf Forest (N, E or W-facing)
- Upland Broadleaf Forest (S-facing)
- Upland Mixed Forest (N, E or W-facing)
- Upland Mixed Forest (S-facing)
- Upland Tall Scrub
- Upland Slope Drainage Complex
- Subalpine Forest
- Alpine Scrub
- Human Modified

Stream

SCALE 1 : 75,000

1 0 1 2 Kilometers

1 0 1 Mile

N

Sources:

Original map from USDA Soil Conservation Service and Alaska Dept. of Natural Resources, 1985
Map revisions by ABR Inc, 1996

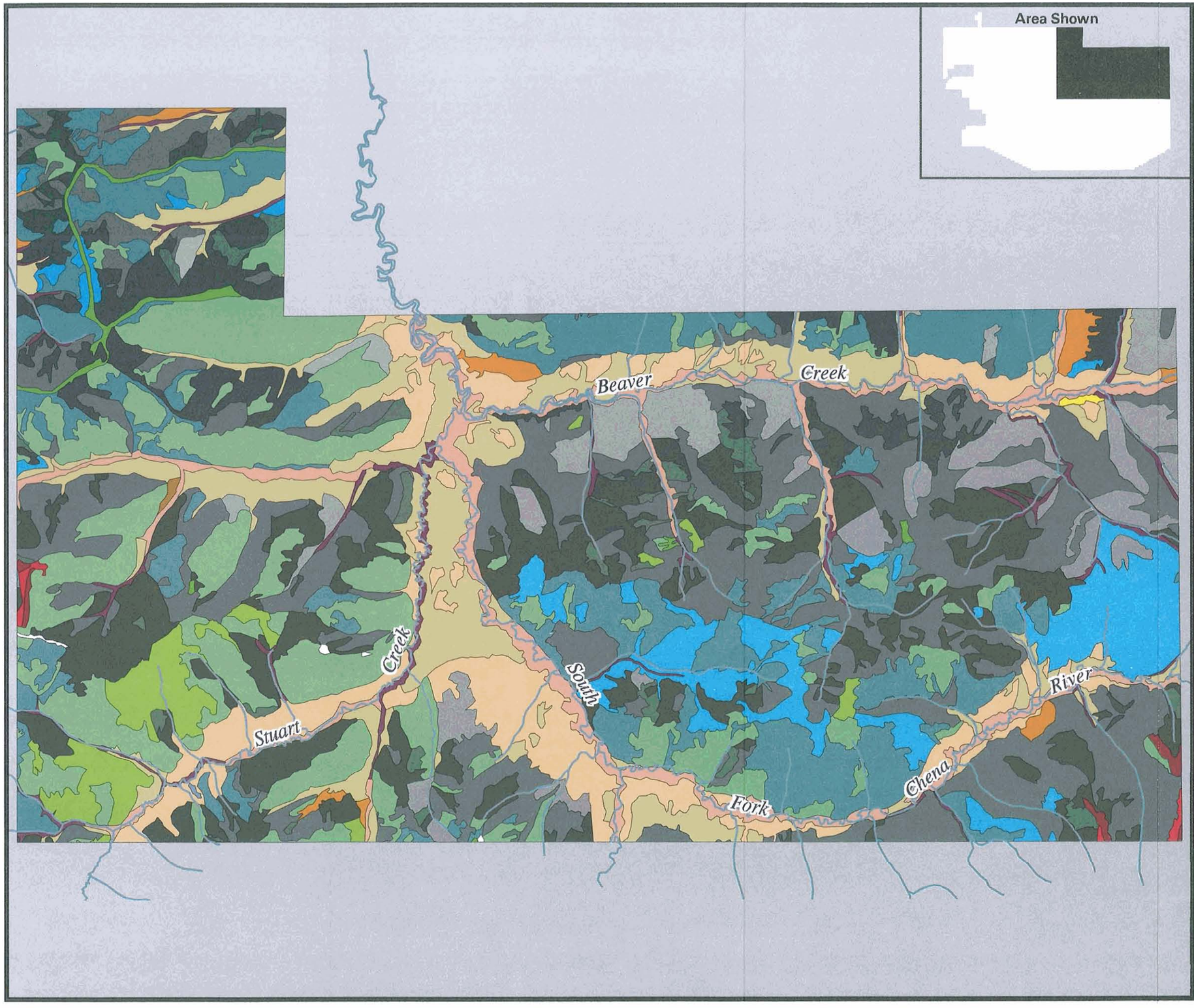


Figure 3.11.c

Ecosites - NE
Fort Wainwright
Yukon Training Area

Legend

- Riverine Tall Scrub
- Riverine Complex
- Lowland Needleleaf Forest
- Lowland Broadleaf Forest
- Lowland Mixed Forest
- Lowland Tall Scrub
- Lowland Low Scrub
- Lowland Moist Meadow
- Lowland Slope Drainage Complex
- Upland Needleleaf Forest (N, E or W-facing)
- Upland Needleleaf Forest (S-facing)
- Upland Broadleaf Forest (N, E or W-facing)
- Upland Broadleaf Forest (S-facing)
- Upland Mixed Forest (N, E or W-facing)
- Upland Mixed Forest (S-facing)
- Upland Low Scrub
- Upland Tall Scrub
- Upland Slope Drainage Complex
- Subalpine Forest
- Alpine Scrub
- Human Modified
- Stream

SCALE 1 : 75,000

Kilometers 1 0 1 Mile

N

Sources:

Original map from USDA Soil Conservation Service and Alaska Dept. of Natural Resources, 1985
Map revisions by ABR Inc, 1996

Area Shown

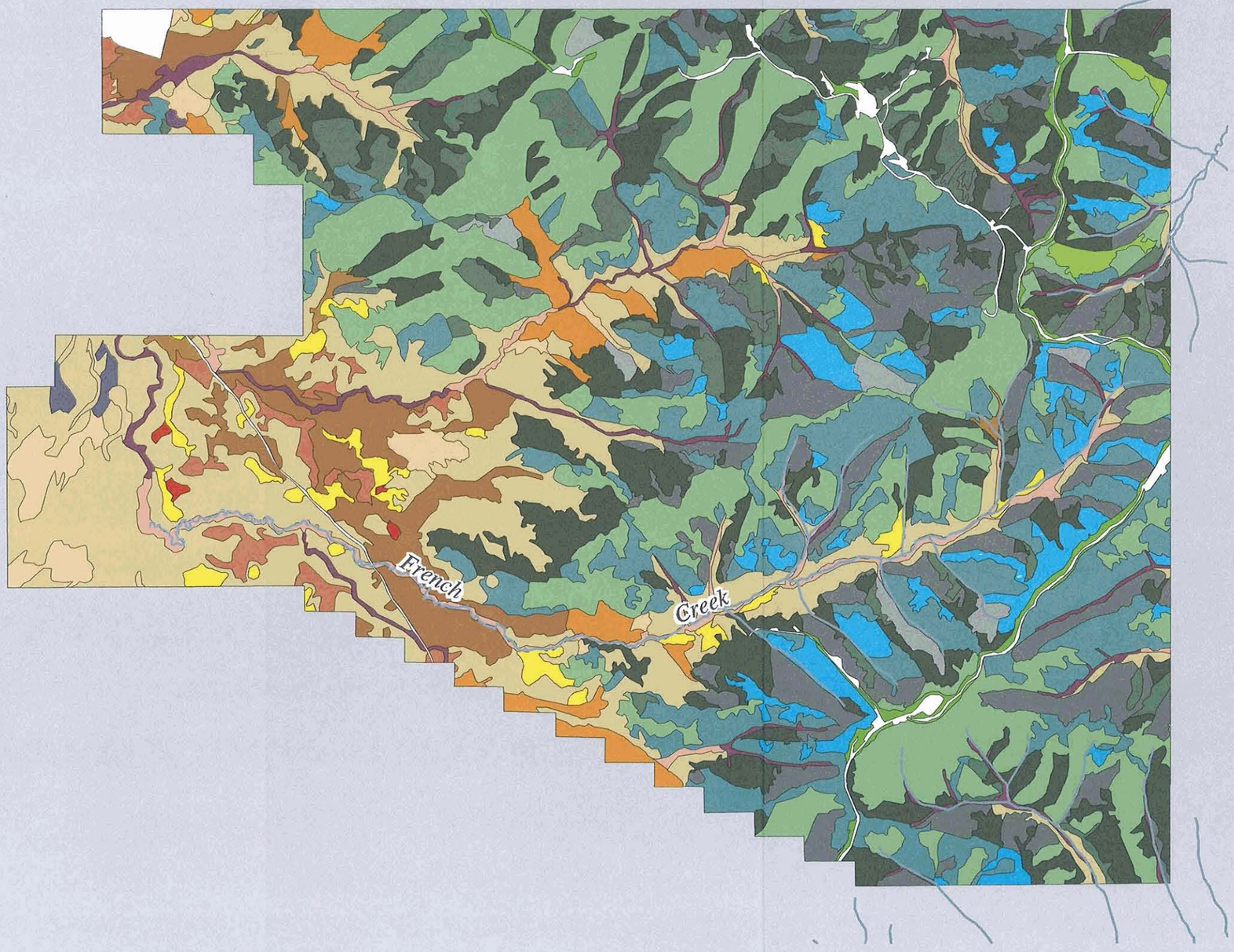


Figure 3.11.d

Ecosites - SW
Fort Wainwright
Yukon Training Area

Legend

- Riverine Mixed Forest
- Riverine Tall Scrub
- Riverine Complex
- Lakes or Ponds
- Lowland Needleleaf Forest
- Lowland Broadleaf Forest
- Lowland Mixed Forest
- Lowland Tall Scrub
- Lowland Low Scrub
- Lowland Moist Meadow
- Lowland Eolian Complex
- Lowland Slope Drainage Complex
- Lowland Abandoned Channel Complex
- Scrub Bog
- Bog Meadow
- Upland Needleleaf Forest (N, E or W-facing)
- Upland Needleleaf Forest (S-facing)
- Upland Broadleaf Forest (N, E or W-facing)
- Upland Broadleaf Forest (S-facing)
- Upland Mixed Forest (N, E or W-facing)
- Upland Mixed Forest (S-facing)
- Upland Low Scrub
- Upland Tall Scrub
- Upland Slope Drainage Complex
- Human Modified
- Stream

SCALE 1 : 75,000

1 0 1 2 Kilometers

1 0 1 Mile

N

Sources:

Original map from USDA Soil Conservation Service and Alaska Dept. of Natural Resources, 1985
Map revisions by ABR Inc, 1996