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File No. 1632-11/20-04-0366

Compilation of Selected Additional Granular Resource Information Mackenzie Valley, NWT

FINAL REPORT

Prepared for

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EXECUTIVE SUMMARY

Indian and Northern Affairs Canada (INAC) has the lead responsibility for the control and management of most lands in Canada's northern territories under the Territorial Lands Act and Regulations. While most of the land management and administration activities have been decentralized to the Northern Affairs Program's regional and district offices, the Ottawa headquarters retains a significant body of research materials on the lands and land resources.

The work program under this contract has transformed information of land form classifications (generated by the Geological Survey of Canada) hand drawn atop 1:125,000 scaled NTS sheets, Surveys and Mapping Branch, Department of Mines and Technical Surveys, into Geographic Information System (GIS) format. This includes transformation of granular and bedrock resources depicted on digitally scanned NTS map sheets into a geospatial format for use in GIS systems. The objective for this project is to improve access to the data in a variety of media types. This information includes Granular Resource Inventory data recorded in hard copy NTS map sheets. These granular resources will be needed for construction of resource development projects such as pipelines, roads, mines and related infrastructure.

OBJECTIVES

The objective of this project was to continue the compilation of existing information on granular resources retained within the Land Program section of the Northern Affairs Program into spatially enabled electronic format. Some of the report text information is available in digital format, however much is only available in hard copy (paper) format. The maps and figures are generally available in paper. Many of these maps were only printed on non-stable paper products and some of these are deteriorating with time.

SCOPE OF WORK UNDERTAKEN

The extent of the area includes the Granular Resource Inventories of Root River, Sibbeston Lake, Trout Lake, Dahadinni River, Bulmer Lake, Kakisa River, and Mills Lake. INAC provided the maps from these inventories, which were to be digitized (Table 1). The areas covered by the Granular Resource Inventories are outlined on Map 1. The Granular Resource Inventory Reports that accompany these Figures had been previously scanned into PDF format by INAC, and are available online through the Northern Granular Resources Bibliography (http://www.aina.ucalgary.ca/ngr/).

a) INAC provided maps (figures) for the Granular Resource Inventories (Table 1) including:

- Figures to Accompany Granular Resource Inventory Root River, 95K
- Figures to Accompany Granular Resource Inventory Dahadinni River, 95N
- Figures to Accompany Granular Resource Inventory Bulmer Lake, 95I
- Figures to Accompany Granular Resource Inventory Kakisa River, 85D
- Figures to Accompany Granular Resource Inventory Mills Lake, 85E

- Figures to Accompany Granular Resource Inventory Sibbeston Lake, 95G
- Figures to Accompany Granular Resource Inventory Trout Lake, 95A

These maps include granular, bedrock resource data, geological boundaries, and other features such as Faults, Eskers, and Ridges (Drumlinoid, Morainal). Not all features are represented for each mapped area. Table 2 provides a summary of the features information found for each.

b) Control points from the NTS map sheets were identified on the Granular Resource Inventory Figures, registered and locked in, and the information plotted on the figures was digitized. Each of the features was digitized into individual electronic files (layers). Five Index Maps illustrating the extent of digitizing of these features are listed on Table 3.

   From Granular Resource Inventory Figures
   - Area of Coverage for the Granular Resource Inventories (Map1)
   - Granular Resource Deposits (Map 2)
   - Eskers, Beaches and Morainal Ridges (Map 3)
   - Geological Boundaries (Map 4)
   - Fault Lines Approximate and Assumed (Map 5)

c) There were 2 types of legends that accompanied the Figures. Both of these legends were scanned into PDF format. The first (Figure 2b in each Inventory) is “Surficial Geology and Geomorphology”. This legend was the same for each of the Granular Resource Inventories. The second legend accompanied each of the Bedrock Maps. These legends were inconsistent, and varied from one Granular Resource Inventory to the next. Due to this there was not a way to keep consistency between Inventories when labeling the digitized data.

d) One challenge in the digitizing process was using the folded maps provided by INAC to digitize the data. Because of the folds in the maps, it was difficult to get the maps to lay flat for digitizing. We were able to get them relatively flat, but there is the potential for the digitized data to be slightly off in its final digitized form.

e) AggMapR Inc has scanned a few selected areas to be used for Overlays. These selected areas show examples of the digitized data overlaying the scanned original map sheet as samples to show a comparison between the original maps and the digitized data (Appendix B).

FINAL PRODUCTS

1) GIS Information

A series of electronically based and geo-referenced map based datasets have been compiled that may be searched and retrieved using a variety of GIS software. The data is available as MapInfo (includes .tab, .mif, .mid, .id, .map, .dat) and Arc Info Export (E00) formatted files for conversion to other software programs. The files are also provided in shape file (.shp) format (with accompanying .dbf and .shx files). The mapped data has also been exported in AutoCAD DXF format although caution is recommended with this format since some of the tabular information is be lost when transferred to "dxf format".

2) PDF Scans of Legends to accompany the Figures from the Aggregate Resource Inventories.

3) Compact Disks (CD ROMs)

Two Compact disks (CD Roms) have been provided in the envelope attached to the Appendix. The Appendix also includes a "Table of Contents" for the CD ROMs.

Respectively submitted by:

Doug Vanderveer, PGeo
Principal Consultant
AggMapR Inc.

Tim Hayward, Sr. GIS Technician
AggMapR Inc.

Bibliography

Granular Resource Inventory - Southern Mackenzie Valley, Bulmer Lake (95I) (1:125,000) / Geological Survey of Canada. Terrain Sciences Division Minning, G.V. Rennie, J.A. Domansky, J.L. Sartorelli, A.N. 1972 Web Link

Granular Resource Inventory - Southern Mackenzie Valley, Dahadinni River (95N) 1:125,000 / Geological Survey of Canada. Terrain Sciences Division Minning, G.V. Rennie, J.A. Domansky, J.L. Sartorelli, A.N. 1973 Web Link

Granular Resource Inventory - Southern Mackenzie Valley, Kakisa River (85D) 1:125,000 / Geological Survey of Canada. Terrain Sciences Division Minning, G.V. Rennie, J.A. Domansky, J.L. Sartorelli, A.N. 1973 Web Link

Granular Resource Inventory - Southern Mackenzie Valley, Mills Lake (85E) (1:125,000) / Geological Survey of Canada. Terrain Sciences Division Minning, G.V. Rennie, J.A. Domansky, J.L. Sartorelli, A.N. 1972 Web Link

Granular Resource Inventory - Southern Mackenzie Valley, Root River (95K) 1:125,000 / Geological Survey of Canada. Terrain Sciences Division Minning, G.V. Rennie, J.A. Domansky, J.L. Sartorelli, A.N. 1973 Web Link

Granular Resource Inventory - Southern Mackenzie Valley, Sibbeston Lake (95G) 1:125,000 / Geological Survey of Canada. Terrain Sciences Division Minning, G.V. Rennie, J.A. Domansky, J.L. Sartorelli, A.N. 1973 Web Link

Granular Resource Inventory - Southern Mackenzie Valley, Trout Lake (95A) (1:125,000) / Geological Survey of Canada. Terrain Sciences Division Minning, G.V. Rennie, J.A. Domansky, J.L. Sartorelli, A.N. 1972 Web Link

TABLE 1
MACKENZIE VALLEY AREA

LIST OF AGGREGATE RESOURCE INVENTORY FIGURES PROVIDED BY INAC

Granular Resource Inventory	Figure #*	Figure Title
Root River, 95K	Fig. 2	Natural Granular Materials, Root River, 95K
Root River, 95K	Fig. 2b	Surficial Geology & Geomorphology map legend
Root River, 95K	Fig. 3	Bedrock Geology, Root River, 95K
Mills Lake, 85E	Fig. 2	Natural Granular Materials, Mills Lake, 85E
Mills Lake, 85E	Fig. 2b	Surficial Geology & Geomorphology map legend
Mills Lake, 85E	Fig. 3	Bedrock Geology, Mills Lake, 85E
Bulmer Lake, 95I	Fig. 2	Natural Granular Materials, Bulmer Lake, 95I
Bulmer Lake, 95I	Fig. 2b	Surficial Geology & Geomorphology map legend
Bulmer Lake, 95I	Fig. 3	Bedrock Geology, Bulmer Lake, 95I
Kakisa River, 85D	Fig. 2	Natural Granular Materials, Kakisa River, 85D
Kakisa River, 85D	Fig. 2b	Surficial Geology & Geomorphology map legend
Kakisa River, 85D	Fig. 3	Bedrock Geology, Kakisa River, 85D
Trout Lake, 95A	Fig. 2	Natural Granular Materials, Trout Lake, 95A
Trout Lake, 95A	Fig. 2b	Surficial Geology & Geomorphology map legend
Trout Lake, 95A	Fig. 3	Bedrock Geology, Trout Lake, 95A
Sibbeston Lake, 95G	Fig. 2	Natural Granular Materials, Sibbeston Lake, 95G
Sibbeston Lake, 95G	Fig. 2b	Surficial Geology & Geomorphology map legend
Sibbeston Lake, 95G	Fig. 3	Bedrock Geology, Sibbeston Lake, 95G
Dahadinni River, 95N	Fig. 2	Natural Granular Materials, Dahadinni River, 95N
Dahadinni River, 95N	Fig. 2b	Surficial Geology & Geomorphology map legend
Dahadinni River, 95N	Fig. 3	Bedrock Geology, Dahadinni River, 95N

* - Figure # refers to figures in original Granular Resource Inventory Reports

TABLE 2
MACKENZIE VALLEY AREA

TABLE OF FEATURES FOR EACH GRANULAR RESOURCE INVENTORY

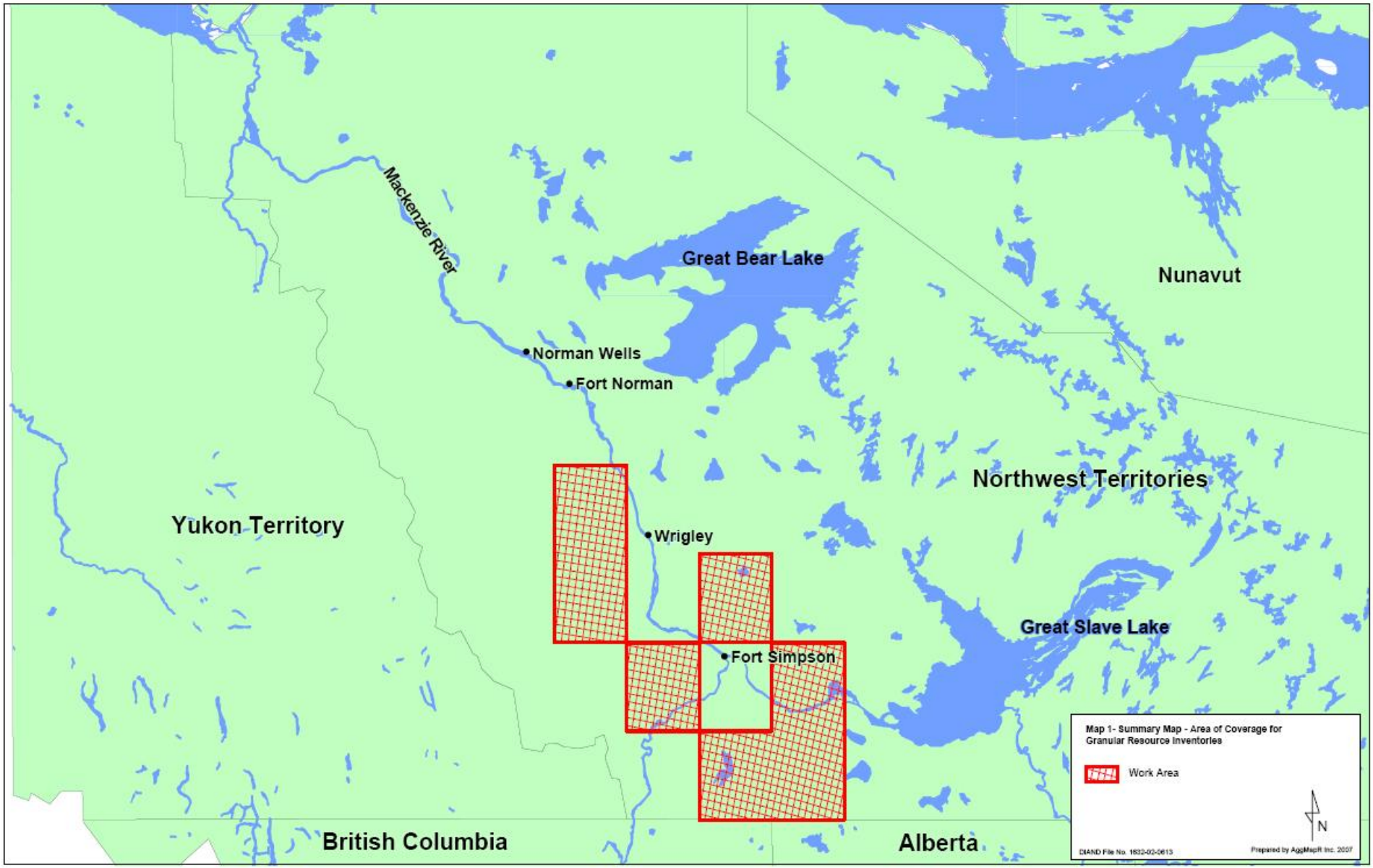
NTS #	Map Name	Granular Material	Eskers Ridge	Beach Ridge	Morainal Ridge	Geological Boundary	Fault Line	Syncline	Anticline	Cross Section	Report Areas
95I	Bulmer Lake	X	X	N/F	X	X	N/F	N/F	N/F	N/F	N/F
95N	Dahadinni River	X	X	N/F	N/F	X	X	X	X	X	N/F
85D	Kakisa River	X	X	X	X	X	X	N/F	N/F	N/F	N/F
85E	Mills Lake	X	N/F	X	N/F	X	X	N/F	N/F	N/F	X
95K	Root River	X	N/F	N/F	N/F	X	X	X	X	N/F	X
95G	Sibbeston Lake	X	X	N/F	X	X	X	X	X	X	X
95A	Trout Lake	X	X	N/F	X	X	N/F	N/F	N/F	N/F	X

N/F = No Features

TABLE 3
MACKENZIE VALLEY AREA

LIST OF SUMMARY MAPS

Item	Name	PDF filename	File Size
Map 1	Area of Coverage for Granular Resource Inventories	Map1.pdf	181 KB
Map 2	Granular Resource Deposits	Map2.pdf	209 KB
Map 3	Esker, Morainal & Beach Ridges	Map3.pdf	93 KB
Map 4	Geological Boundaries	Map4.pdf	333 KB
Map 5	Fault Lines Approximate and Assumed	Map5.pdf	100 KB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Great Bear Lake
Nunavut
Norman Wells
Fort Norman
Northwest Territories
Yukon Territory
Wrigley
Great Slave Lake
Fort Simpson
British Columbia
Alberta
Map 1- Summary Map - Area of Coverage for Granular Resource Inventories
Work Area
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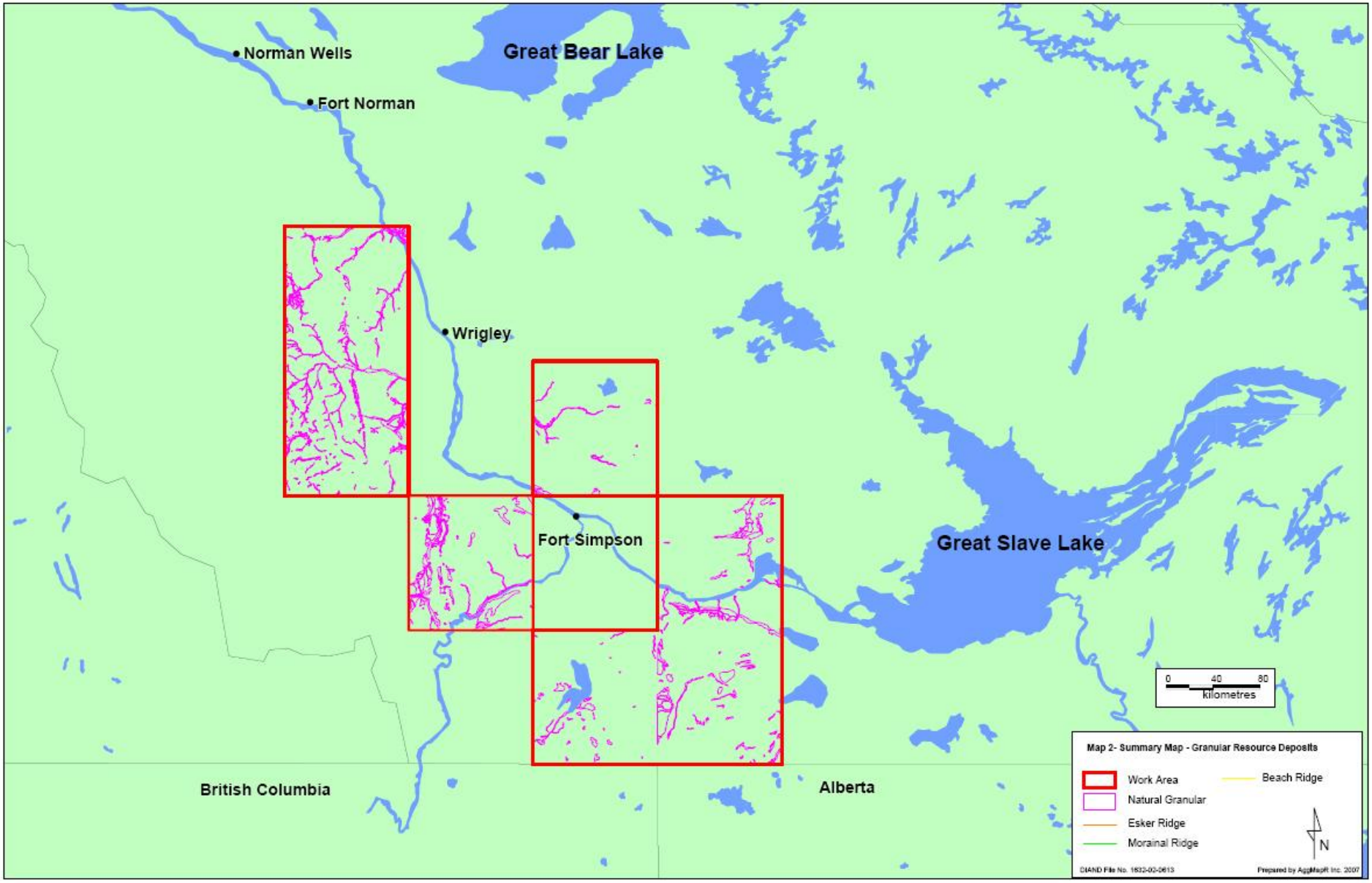
DIAND File No. 1632-02-0613
Prepared by AggMapR Inc. 2007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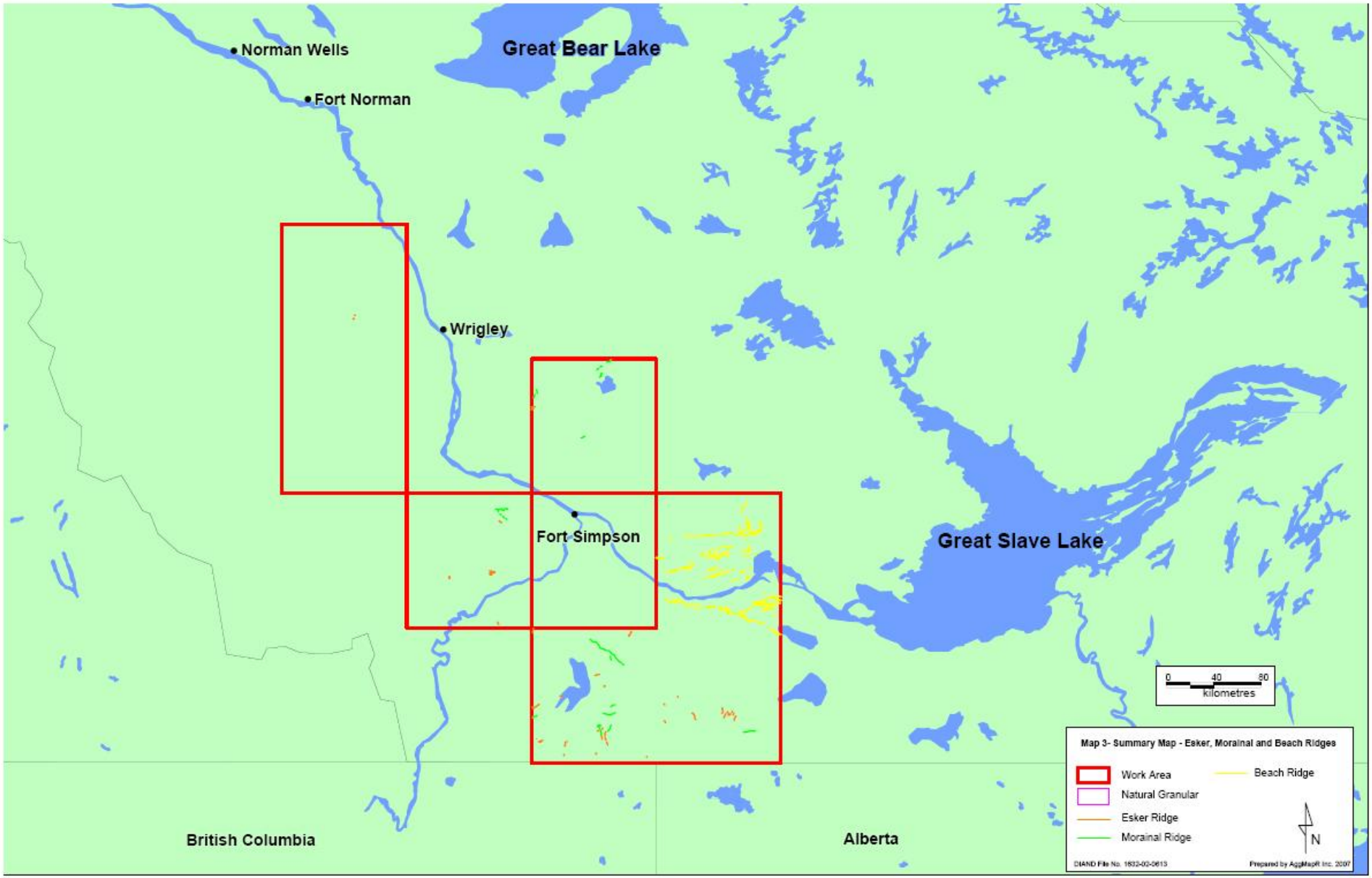
Fort Norman
Wrigley
Fort Simpson
Great Slave Lake
British Columbia
Alberta
0 40 80
kilometres
Map 2- Summary Map - Granular Resource Deposits
Work Area
Natural Granular
Esker Ridge
Morainal Ridge
Beach Ridge
N
DIAND File No. 1832-02-0613
Prepared by AggMapR Inc. 2007


Norman Wells
Great Bear Lake
Fort Norman
Wrigley
Fort Simpson
Great Slave Lake
British Columbia
Alberta
0 40 80
kilometres
Map 3- Summary Map - Esker, Moraine and Beach Ridges
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Natural Granular
Esker Ridge
Morainal Ridge
Beach Ridge
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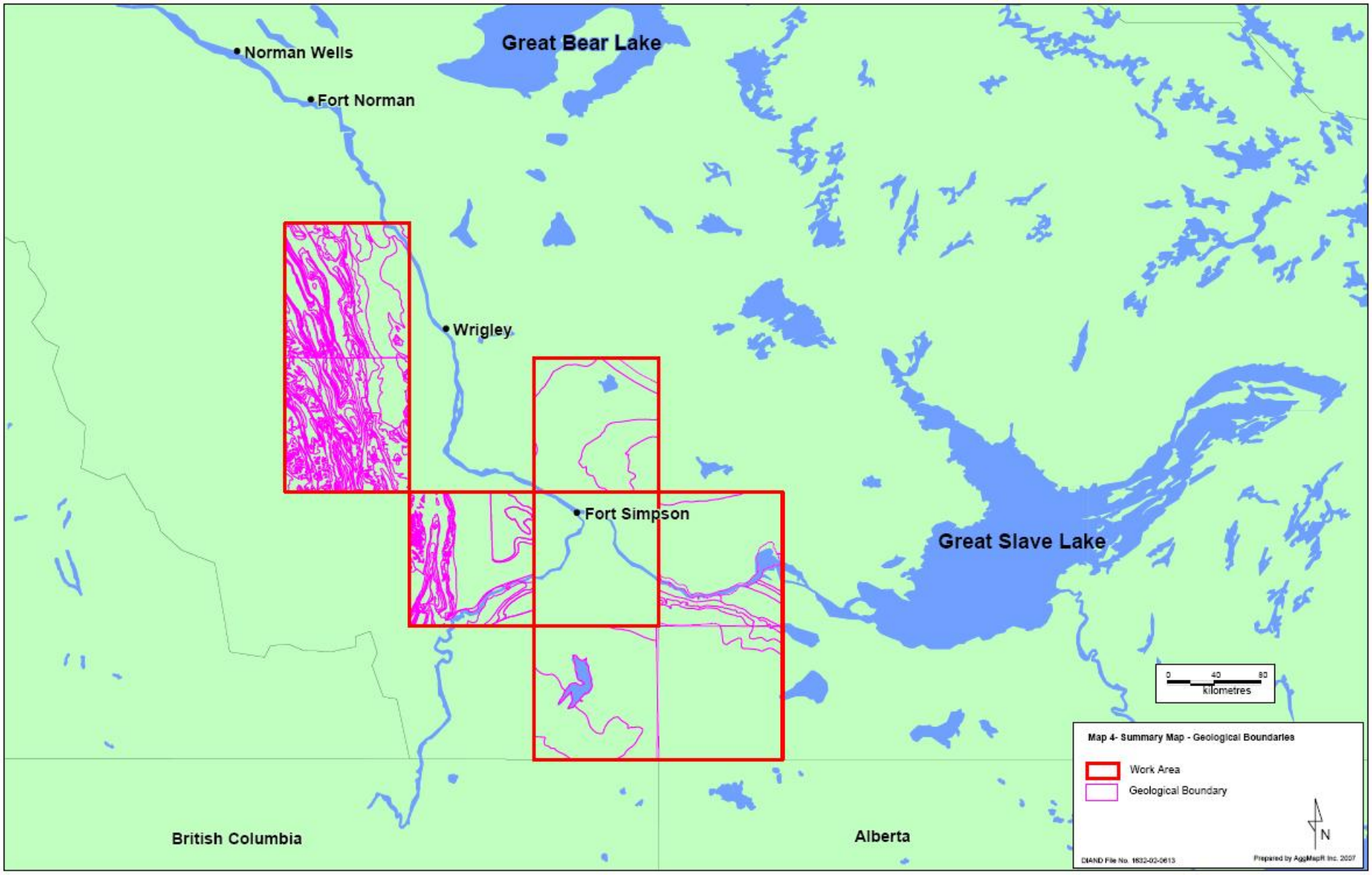
DIAND File No. 1832-02-0613
Prepared by AggMapR Inc. 2007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Great Slave Lake
British Columbia
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Map 4- Summary Map - Geological Boundaries
Work Area
Geological Boundary
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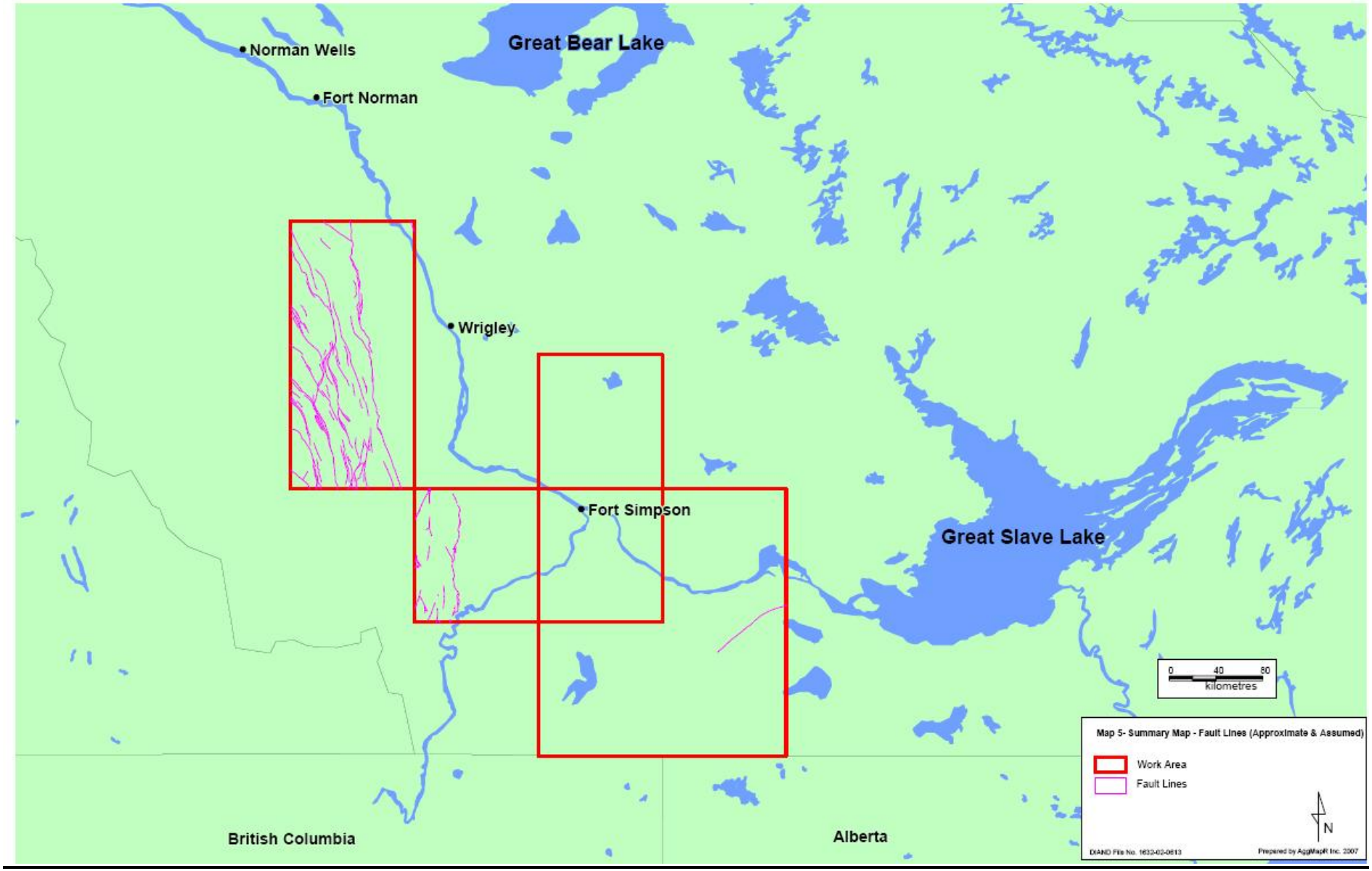
DIAND File No. 1832-02-0613
Prepared by AggMapR Inc. 2007


Norman Wells
Great Bear Lake
Fort Norman
Wrigley
Fort Simpson
Great Slave Lake
British Columbia
Alberta
0 40 80
kilometres
Map 5- Summary Map - Fault Lines (Approximate & Assumed)
Work Area
Fault Lines
N
DIAND File No. 1632-02-0613
Prepared by AggMapR Inc. 2007

Appendix A: Table of Contents - Compact Disk (CD Rom)

GIS Files, Summary Maps, Final Report

GIS Files

Dahadinni River

Dahadinni River Fault Approx Assumed 95N.tab
Dahadinni River Fault Approx Assumed 95N.map
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Dahadinni River Fault Approx Assumed 95N.dat
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Dahadinni River Geological Boundaries Uncontrolled Approx_polyline.shp
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Dahadinni River Geological Boundary

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Dahadinni River Geological Boundaries
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Bulmer Lake

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Kakisa River

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Kakisa River Well Location Petroleum_point 85D.dbf
Kakisa River Well Location Petroleum 85D.mid
Kakisa River Well Location Petroleum 85D.mif
Kakisa River Well Location Petroleum 85D.e00

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Kakisa River Morainal Ridges 85D.id
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Kakisa River Morainal Ridges_polyline 85D.prj
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Kakisa River Morainal Ridges_polyline 85D.shx
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Mills Lake Report Areas_region 85E.shp
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Mills Lake Fault_polyline 85E.prj
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Mills Lake Geological Boundaries Approx&Assumed 85E.mid
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Mills Lake Natural Granular_region 85E.shx
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Mills Lake Beach Ridges 85E.tab
Mills Lake Beach Ridges 85E.map
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Mills Lake Beach Ridges 85E.dxf
Mills Lake Beach Ridges_polyline 85E.prj
Mills Lake Beach Ridges_polyline 85E.shp
Mills Lake Beach Ridges_polyline 85E.shx
Mills Lake Beach Ridges_polyline 85E.dbf
Mills Lake Beach Ridges_none 85E.prj
Mills Lake Beach Ridges_none 85E.shp
Mills Lake Beach Ridges_none 85E.shx
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Mills Lake Other Points 85E.dat
Mills Lake Other Points 85E.E00
Mills Lake Other Points 85E.dxf
Mills Lake Other Points_point 85E.prj
Mills Lake Other Points_point 85E.shp
Mills Lake Other Points_point 85E.shx
Mills Lake Other Points_point 85E.dbf
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Root River Fault 95K.dxf
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Summary Maps

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Map3.pdf
Map4.pdf
Map5.pdf

Report

Final Report.doc

Granular Resource Inventories

Granular Resource Inventory - Southern Mackenzie Valley, Bulmer Lake (95I)
Granular Resource Inventory - Southern Mackenzie Valley, Dahadinni River (95N)
Granular Resource Inventory - Southern Mackenzie Valley, Kakisa River (85D)
Granular Resource Inventory - Southern Mackenzie Valley, Mills Lake (85E)
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