MACKENZIE VALLEY TRANSPORTATION CORRIDOR
GRANULAR RESOURCES DATABASES
NORTHWEST TERRITORIES, CANADA

0101-11085

1992 DECEMBER

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GRANULAR RESOURCES DATABASES
NORTHWEST TERRITORIES, CANADA

Prepared for:

SUPPLY AND SERVICES CANADA

and

INDIAN AND NORTHERN AFFAIRS CANADA

Prepared by:

EBA Engineering Consultants Ltd.

0101-11085

DSS Contract No: A-7134-2-036/01-ST
DSS File No: 38ST.A134-2-037

1992 DECEMBER

SUMMARY

This report describes the programming work done to convert granular source databases compiled in 1988 for the North and South Mackenzie Valley to a consistent format. Portions of the existing report catalogue database, which catalogues reports, fieldwork, maps, and other information for the entire Mackenzie Valley, were also checked and edited for consistency with the source databases. These efforts were intended to facilitate linking the databases. The present assignment was carried out under a contract with Supply and Services Canada on behalf on Indian and Northern Affairs Canada.

The project tasks, deliverables, participants, and report organization are described herein. Diskette copies of the modified databases have been provided under separate cover.

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1.0 INTRODUCTION

This report summarizes efforts to standardize two databases of Mackenzie Valley granular source information. In 1988, EBA Engineering Consultants Ltd. (EBA) compiled a database of 762 granular source deposits in the Upper (Southern) Mackenzie Valley. These deposits were researched using data obtained from existing reports, maps and fieldwork completed in the Mackenzie Valley between 1972 and 1987. Similarly, Mr. L. Bennett compiled a granular source database for the Lower (Northern) Mackenzie Valley in 1988. The new standardized databases are in a format consistent with the existing Yukon and Paulatuk databases compiled by EBA for other Indian and Northern Affairs Canada (INAC) projects.

In 1991 and 1992, EBA also compiled a report catalogue database to catalogue reports, fieldwork, maps, and other information for the entire Mackenzie Valley. The standardized source databases can now be conveniently linked to the report catalogue database.

The present assignment was carried out under a contract with Supply and Services Canada (DSS) on behalf on Indian and Northern Affairs Canada (INAC). The project was conducted under DSS File No. 38ST.A134-2-037 and DSS Contract No. A-7134-2-036/01-ST, dated September 29, 1992, and authorized by Ms. Mary-Ann Tang, Science Contracting Officer. The contract includes two other tasks which will be addressed under separate cover. These tasks are as follows:

- Work completed in the 1992/1993 work period on a similar report catalogue and ESEBase borehole database (1988, 1989, 1991, and 1992) for the Canadian Beaufort Sea.

- As part of the present project to modify existing northern granular resource databases, EBA is continuing work with Earth and Oceans Research to develop new data handling routines to facilitate linking of ESEBase software with the existing mapping program INFOCUS using FOXPRO routines.

The terms of reference and deliverables are documented in EBA's letters of September 15, 1992 to the Science Contracting Officer and November 30, 1992, to Mr. R.J. Gowan, P.Geol., Geotechnical Advisor, and Appendix B of Mr. Peter Dixon's letter of August 20, 1992.

2.0 PROJECT OUTLINE

2.1 Objectives

The primary objective of this work was to standardize the two source databases to a format consistent with the existing Yukon and Paulatuk databases compiled by EBA for other Indian and Northern Affairs Canada (INAC) projects, to allow convenient linking of the databases.

Some of the major tasks that were required to standardize the source databases for the Mackenzie Valley included:

- Write routines to convert formats of the existing source databases for the North (Bennett, 1988) and South (EBA, 1988) Mackenzie Valley.
- Test programs on a subset of each database prior to conversion of the complete databases.
- Run programs, check/edit as necessary.
- Check/edit "other" field (listing of other reports) in report catalogue to ensure consistent study numbers are used.
- Update Relational Report Writer format files for database printing.
- Prepare floppy disks of the modified North and South Mackenzie source databases.
- Prepare floppy disks of the report catalogue and bibliographic entries.
- Prepare this final report.

2.2 Methodology

To convert the source databases to a standardized format, the data from each record in the database was loaded into memory, calculations and/or data manipulations were performed, and the record rewritten into the new database. Some examples of calculations and data manipulations included:

North Mackenzie

- Convert the cross-reference field (containing the contractor, year, and source number for a particular report) into two fields to show the source references and study references associated with that deposit.
- Use a table lookup (database) to convert contractor/year references to study numbers. Remove duplicate study numbers, if necessary.
- Separate UTM zone and easting.
- Calculate the density of test holes in the area
- Calculate total proven, probable, and prospective volumes based on class volumes.
- Calculate decimal latitudes and longitudes from degrees, minutes, seconds
- Determine study priority based on development potential.
- Add compilation data fields.
- Insert new fields where data could not be inferred or calculated from other fields input data as "NOT RECORDED".

South Mackenzie

- Convert the eleven cross-reference fields (each containing source number(s) and a report cross-reference number) into two fields to show the source references and study references associated with that deposit.
- Use a table lookup (database) to convert report cross-reference numbers to study numbers. Remove duplicate study numbers, if necessary.
- Use the first (of the eleven original cross-reference fields) non-map cross-reference for source and study number linking fields.
- Calculate the area of a granular deposit.

- Calculate the density of test holes in the area.
- Combine several related fields into one field, resulting in combined fields for location, access, landform, granular material, and development constraints.
- Calculate total recoverable volume based on total volume available and known excavated volumes for highway and pipeline work.
- For records showing only one granular material class, calculate the class volumes based on the given total proven, probable, and prospective volumes. For records with more than one granular material class, show the material class at the end of the granular description.
- Determine development potential based on overall assessment.
- Add compilation data fields.
- Add new fields where data could not be inferred or calculated from other fields and input data as "NOT RECORDED".

After conversion of each source database to the new format, the databases were checked for errors and consistency in data, with edits made as required. The "other" field in the report catalogue was checked and edited to ensure consistent study numbers were used.

2.3 Deliverables

Final deliverables required for this portion of the contract are listed below:

- Source databases for the North and South Mackenzie Valley in two copies on floppy disks.
- Updated report catalogue and bibliographic databases for the Mackenzie Valley in two copies on floppy disks.
- This final report (fifteen copies) describing the work undertaken and summarizing significant aspects of the database.

2.4 Data Presentation

The report catalogue and bibligraphic databases are presented in the same manner as was done for EBA's April, 1992 report. For simplicity, the descriptions of the databases are described also in this report. In total, 131 report catalogue entries are included in the report catalogue database, and 188 bibligraphic entries are included in the bibliographic database. All entries are stored on floppy disk in two databases called "MACK92RC" and "MACK92BB" for the report catalogue and the bibliography, respectively. In case of future requirements to transfer entries between these two databases, a database called "MACK92AL" containing all fields of the report catalogue and all reports/maps listed in the bibliography is also included. These databases were stored on disk using the DOS copy command. A location map for the project is presented as Figure 1.

The source database for the South Mackenzie Valley contains 762 entries and is called "SRCE92SM". The source database for the North Mackenzie Valley contains 558 entries and is called "SRCE92NM". Due to the format changes and addition of fields to the databases, the databases have roughly doubled in size from the original 1988 versions. The South Mackenzie database is about 2.1 MB in size, and the North Mackenzie database is about 1.5 MB in size. For this reason, these databases were backed up on disk by use of the FASTBACK mass storage software program, and can be similarly restored to the hard drive.

Also included for each database is a Relational Report Writer report format file so that each record can be printed as needed on a standard 8.5 by 11 inch page.

2.5 Project Participants

Personnel from EBA's Yellowknife office were primarily involved in this project, programming the source database conversions, and editing the source databases and report catalogue and bibliography entries for consistency, and preparing the report. EBA Edmonton staff participated by providing programming consultation.

Liaison with Government departments and other firms was conducted by EBA Yellowknife and EBA Calgary staff, for the purpose of information collection for future phases of this project. The following organizations and people are acknowledged for their assistance:

- ESSO Resources Canada Ltd.
  - Dr. Jeff Weaver, P.Eng.
- Geological Survey of Canada
  - Mr. Bob Harmes (Atlantic GeoScience Centre)
  - Mr. Scott Dallimore (Atlantic GeoScience Centre)
- Government of Northwest Territories
  - Mr. Mike Jennings (Department of Transportation)

3.0 CATALOGUE OF GEOTECHNICAL AND GEOPHYSICAL REPORTS

In total, 188 reports, maps and papers provide information for the report catalogue and bibliographic databases. The report catalogue includes 131 of these entries, in dBase III + format, standardized according to the terms defined in the Data Dictionary presented in Appendix A. The database structures and some sample entries are also included in Appendix A. The sample entries were printed using the Relational Report Writer library "MACKCAT.RP1" using the format file "MACKENZIE".

The report catalogue contains a list of other reports which discuss the same sources and/or the same area. This list appears in a field called "other". The list was checked and edited as required to ensure consistent study numbers were used. There are some cases where a reference was not replaced with a study number because the report had not been catalogued yet, and a suitable study number could not be determined.

4.0 GRANULAR SOURCE DATABASES

In total, 1320 sources have been described in the source databases compiled by EBA (1988) and Bennett (1988). These databases thus far have been kept separate, as they will be for the present project; however, they can now be merged if desired.

The entries in the source databases are in dBase III + format, standardized according to the terms defined in the Data Dictionary presented in Appendix B. Most items contained in the report catalogue and the source databases are explained in sufficient detail in the Appendix A and B Data Dictionaries. Further explanation for study number and source number is provided below.

The source database structure and some sample entries are also included in Appendix B. The sample entries were printed using the Relational Report Writer library "MACKSRCE.RP1" using format file "MACKSR92".

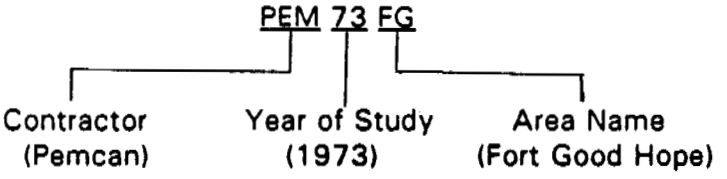
The following paragraphs detail changes made to each source database.

4.1 South (Upper) Mackenzie Valley

EBA's computerized source database (1988) covers the South (Upper) Mackenzie Valley from Fort Providence to Norman Wells and includes 762 granular sources. EBA's study area is shown in Figure 2.

4.1.1 Study Number

The study number identifies the report from which borehole information is obtained, and is used as a link to other databases. For EBA's earlier 1992 work on the report catalogue, the first four characters of the study number identified the contractor, the following two characters identified the year of the study, and (up to) the remaining four characters were allowed to identify the geographic area or local name. For example:



The only change from the previous work is that now up to 12 characters are permitted in the study number, consistent with other onshore databases done recently by EBA.

As described in EBA's April, 1992 report, if there were two or more contractors, the contractor conducting most of the work was listed first under the "contractor" field, and was used in the study number. Table 1 lists the abbreviations used for the contractor names. Table 2 lists the abbreviations used for the geographic/area names.

In the 1988 database, studies used to obtain information for each granular source were listed as cross-references. Up to eleven fields were allowed for these cross-references, because in many cases, the same deposit was identified in more than one study. The original borrow source number was recorded with the reference study assigned an arbitrary one or two-digit number (based on the list of references used for EBA's 1988 report) in parentheses: source number (reference number). For example, the assigned source number 7.075 has two cross-references: IPP(23) and AREA I-Af(31). Sometimes, more than one source number or more than one report reference number appeared in a cross-reference field. These occurrences were relatively few, and were checked for consistency after running the conversion program.

There was some discussion with INAC during earlier phases of this work with respect to choosing a "primary" study number to use as a link to the report catalogue. For convenience of the reader, some of the concerns described in EBA's April, 1992 report are repeated here.

The entries in the source database were intended to be a compilation of information from all the references listed for each source, therefore, a "primary" study (report) reference was not used in EBA's 1988 work. In some cases, sources which were listed as separate sources in the original reports have been combined. Thus, choosing one report over another may be misleading. Also, because they are part of the same geologic feature, numerous sources described in the source database cross geographic boundaries such as creeks or rivers. One report may be more applicable for one side of the creek, another may be more applicable to the other side of the creek.

With these concerns in mind, and the assumption that a researcher with a more than cursory interest in a specific source would no doubt obtain all of the original references to that source, we have proceeded to assign a single unique study number to each source, for the sole purpose of creating a convenient link to the report catalogue. The field used is "study_no". Generally, the first field ("xref1", of eleven cross-reference fields) was used, except where that field contained a non-map reference. For the few cases where the first reference was a map, the first non-map reference was used instead as the link. There are a few cases where a map is the only reference. All study numbers extracted were added to the field "study_ref". Checking was done to eliminate duplicates.

The present update of the source database has also replaced the arbitrary report cross-reference numbers with the new contractor/year/area study numbers by use of a lookup table similar to Table 3. Table 3 is a list of EBA's 1988 reference numbers correlated to the new (1992) study numbers. A complete list of references is included in Appendix C.

4.1.2 Source Number

The source number identifies the original source deposit number where information has been obtained and is also a link to other databases. The source number field is also twelve characters long.

For most reports specific to source deposits, the original source numbers appear in the report catalogue entry. No further work has been done to add source numbers to the report catalogue. The source database includes the original source numbers in the field "source_no" and the EBA-assigned source numbers in the field "asn_src_no". The cross-referenced (original) source numbers were extracted from the cross-reference fields as described above for the study numbers, and added to one field "source_ref". Checking was done to eliminate duplicates.

4.2 North (Lower) Mackenzie Valley

Mr. L. Bennett's 1988 computerized source database for the North (Lower) Mackenzie Valley covers the area from Norman Wells to Fort MacPherson (south border of the Inuvialuit Lands) as shown in Figure 3. A total of 558 sources were included in the database. The general descriptions of the study number and source number presented above for the South Mackenzie Valley are also valid for the North Mackenzie Valley. Details specific to the North Mackenzie database are presented in the following paragraphs.

4.2.1 Study Number

As of EBA's April, 1992 work, Bennett's North Mackenzie source database was linked with the report catalogue via the study number. The format of the study number is the same as described above in Section 4.1.1 for the South Mackenzie. Table 4 lists Bennett's 1988 reference numbers correlated to the new (1992) study numbers. A complete list of references is included in Appendix C.

The original database chose a primary study number and report reference which were recorded in two fields called "study_no" and "source_ref", respectively. Therefore, no additional work was required to achieve a link to the report catalogue. The "source_ref" field contained the bibliographic citation, by author and year, of the report describing the deposit, which became redundant when the 1992 study number format was inserted into "study_no".

When additional reports existed describing the source, they were cross-referenced by Bennett using a single field called "x_ref" which was 75 characters in length. These cross-references also used a bibligraphic citation, by author and year, as well as any alternative source number or name included in the cross-referenced report. These have now been correlated with the study numbers, and inserted into "source_ref" and "study_ref".

4.2.2 Source Number

Only the original source numbers appear in the source database. The source number appears in the field "source_no". EBA has not assigned source numbers in the field "asn_src_no". This is a task which could be done at some later date, perhaps by use of UTM grid coordinates. The cross-referenced (original) source numbers were extracted from the cross-reference fields as described above for the study numbers, and added to one field "source_ref". Checking was done to eliminate duplicates.

5.0 SUMMARY

The source databases for the North and South Mackenzie Valley have been linked to the report catalogue by use of study number and source number. Further work could be done to add assigned source numbers to the North Mackenzie source database, and to insert additional source numbers to the report catalogue, where they are not already present.

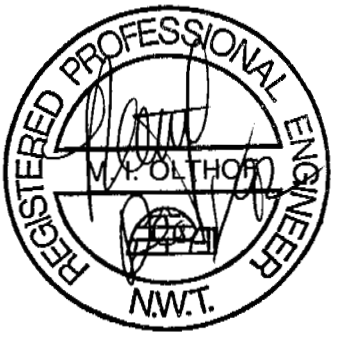
Information not yet acquired could be catalogued. The existing ESEBase borehole database could be linked to the report catalogue and source databases. Borehole logs not yet included in the ESEBase borehole database can be added. Up to date information on each granular deposit, for example, current pit use, should be collected and added to the databases. We understand that the Geological Survey of Canada (GSC) is already in the process of modifying and adding to EBA's ESEBase borehole database for the Mackenzie Valley, thus further efforts in this regard should consider the results of GSC's work.

We trust that this report and the updated databases satisfy your present requirements. If you require further information, please call this office.

Respectfully submitted,

EBA ENGINEERING CONSULTANTS LTD.

Prepared by:



Rita I. Olthof, P.Eng.
Project Engineer

Reviewed by:

92-12-14

N.R. MacLeod, P.Eng.
Sr. Project Engineer

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TABLES

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TABLE 1
CONTRACTOR NAMES AND ABBREVIATIONS

CONTRACTOR NAME	ABBREVIATION
Acres Consulting Services Ltd.	ACR
BBT Geotechnical Consultants and GVM Geological Consultants Ltd.	BBT
J.M. Blackwell	BLK
J.M. Blackwell and G.H. Watson	BW
Canada North Engineering Ltd.	CNE
Canadian Arctic Gas Pipeline Ltd.	CAG
EBA Engineering Consultants Ltd.	EBA
Elmer W. Brooker & Associates Ltd.	EWB
Gas Arctic/Northwest Project Study Group	GSNP
Gas Arctic Systems Study Group Ltd.	GAS
Gentile, D.J., and Zaturechy, J.W.	GENT
Golder Associates (Western Canada) Ltd.	GAL
Hardy Associates (1978) Ltd.	HAL
Hardy BBT Ltd.	HBT
Nesbitt, T.H.D., and Howell, J.D.	HBT
Inuvialuit Development Corporation	IDC
Klohn Leonoff Consultants Ltd.	KLC
Klohn Leonoff Ltd.	KLL
Lombard Group North	LNG
Mackenzie Highway Granular Materials Working Group	MHG
Mackenzie Valley Pipe Line Research Ltd.	MVPL
MacLaren PlanSearch	MLP
J.D. Mollard and Associates Ltd.	MOL
not available	NA
Northern Engineering Services Co. Ltd.	NES
Pemcan Services (1972) Ltd.	PEM
Polar Gas Project	PGP
Public Works Canada	PWC
Ripley, Klohn and Leonoff Alberta Ltd.	RKL
Ripley, Klohn & Leonoff International Ltd.	RKL
R.M. Hardy & Associates Ltd.	RMH
Schultz International Ltd.	SCH
F.F. Slaney & Company Ltd.	FFS
Techman Ltd.	TEC
Templeton Consultants Ltd.	TEM
Terrain Analysis and Mapping Services Ltd.	TAM
Thurber Consultants Ltd.	TCL
Underwood McLellan and Associates	UMA
G.H. Watson	WAT

TABLE 2
GEOGRAPHIC REGION OR LOCAL NAMES AND ABBREVIATIONS

GEOGRAPHIC NAME	ABBREVIATION
Aklavik	AK
Arctic Red River	AR
Axe Point	AX
Big Smith Creek	BS
Bosworth Creek	BC
Blackwater River	BR
Campbell Creek	CC
Campbell River	CR
Camsell Bend	CB
Canot Lake	CL
Canyon Creek	CY
Caribou Hills	CH
Central Mackenzie Valley	CM
Cristine Creek	CR
Dempster Highway	DH
Enterprise	EN
Fort Good Hope	FG
Fort McPherson	FM
Fort Norman	FN
Fort Simpson	FS
Francis Creek	FC
Great Bear (River)	GB
Great Bear River Alternate Crossings	GBA
Hanna River	HR
Heart Lake	HL
Helava Creek	HV
Hodson Creek	HC
Inuvik	IN
Jungle Ridge Creek	JR
Kakisa Lake	KL
Liard	LI
Liard River	LR
Little Smith Creek	LS
Mackenzie Crossing	MC
Mackenzie Delta	MD
Mackenzie Highway	MH
Mackenzie River	MR
Mackenzie Valley	MV
Mackenzie Valley Transportation Corridor	MVTC
Mahony Lake	ML

TABLE 2 continued
GEOGRAPHIC REGION OR LOCAL NAMES AND ABBREVIATIONS

GEOGRAPHIC NAME	ABBREVIATION
Martin House	MHS
Martin River	MR
Mount Gaudet	MG
Norman Wells	NW
North Mackenzie Valley	NM
Ochre River	OR
Ontaratue River	ON
Parsons Lake	PL
Pointed Mountain	PM
Prohibition Creek	PC
Prudhoe Bay	PB
Rainbow Creek	RC
Richards Island	RI
River-Between-Two-Mountains	RM
Saline River	SR
Sans Sault Rapids	SS
Shallow Bay	SB
Sibbeston Lake	SL
Smith Creek	ST
South Mackenzie Valley	SM
Steep Creek	SC
Thunder River	TR
Travaillant Lake	TL
Trout Lake	TO
Tuktoyaktuk	TK
Tuktoyaktuk Peninsula	TP
Vermilion Creek	VC
Whitesand Creek	WC
Willowlake River	WL
Wrigley	WR
Yukon/Alaska Border	YA
Yukon Coastal Plain	YC
Zama Lake	ZL

TABLE 3
EBA 1988 REFERENCE NUMBERS AND EBA 1992 STUDY NUMBERS

EBA 1988 REFERENCE NUMBER	EBA 1992 STUDY NUMBER
1	NES75FGAB
2	PEM73FSWR
3	NES74MV
4	PEM73WRFN
5	PEM73FS
6	NES75MDFS
7	PEM73FNNW
8	PEM73FN
9	PEM73WR
10	PEM73NW
11	PEM73FS
11A-19	GSC73SM5 - GSC73SM13
20	ESP73SM
21	EBA80MV
22	PAAG74MV
23	IPL80NW
24	PWC75MH1
25	PWC73MH
26	PWC76FSRM
27	PWC81MH
28	PWC86MH
29-36	GSC73SM14 - GSC73SM21
37	IPL80NW
38	EWB73MH1
39	HAL86NM
40	GNWT88MV
41	EWB73MH2
42	EWB73MH3
43-46	PWC75MH2 - PWC75MH5
47	PWC ? (#82248)
48	PWC ? (#02225)
49	RMH73MH
50	CAGS ?
51	EBA87MR
52	MLP82MV

TABLE 4
BENNETT 1988 STUDY NUMBERS AND EBA 1992 STUDY NUMBERS

BENNETT 1988 STUDY NUMBERS	EBA 1992 STUDY NUMBERS
A-0101-1	EBA74FGAR
A-0102-1	PEM73FG PEM73NWFG PEM73NW
A-0103-1	RKL73AR RKL73MV
A-0104-1	NES76NM *
A-0105-1 A-105-01	TEC76MV

* Report not seen by EBA at time of writing, preliminary entry done in report catalogue dated 1975, 1976; designated NES76NM.

FIGURES

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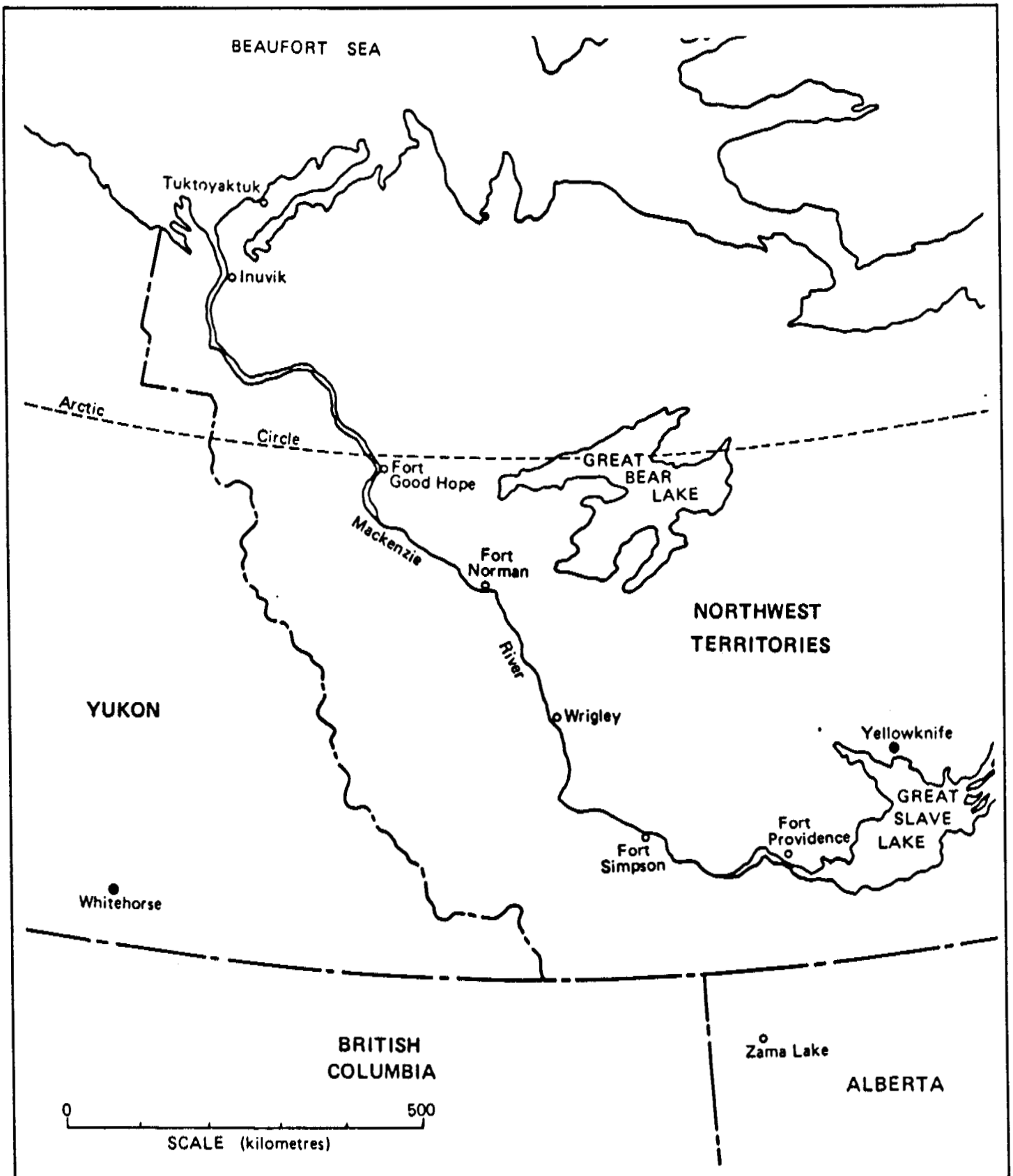
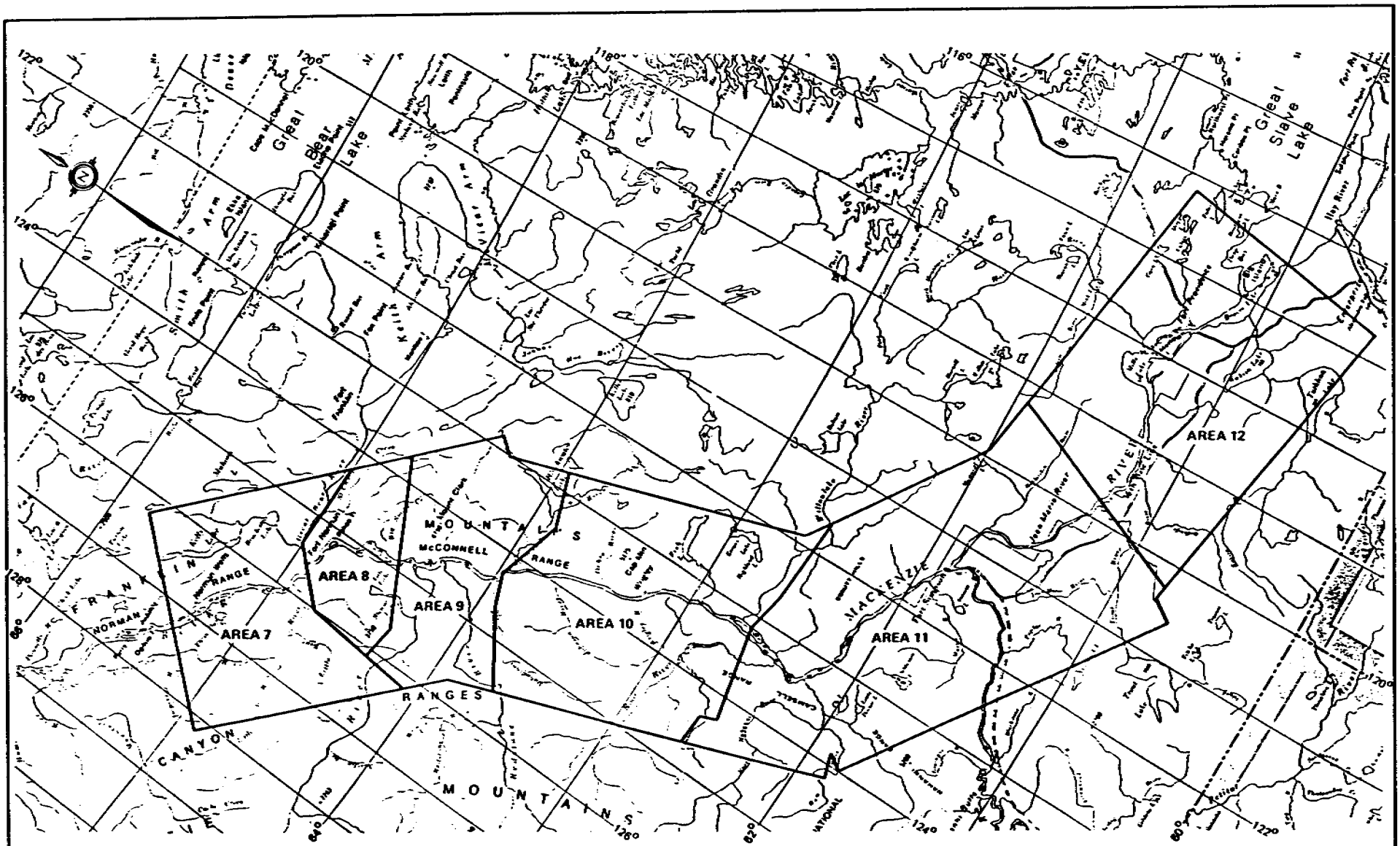
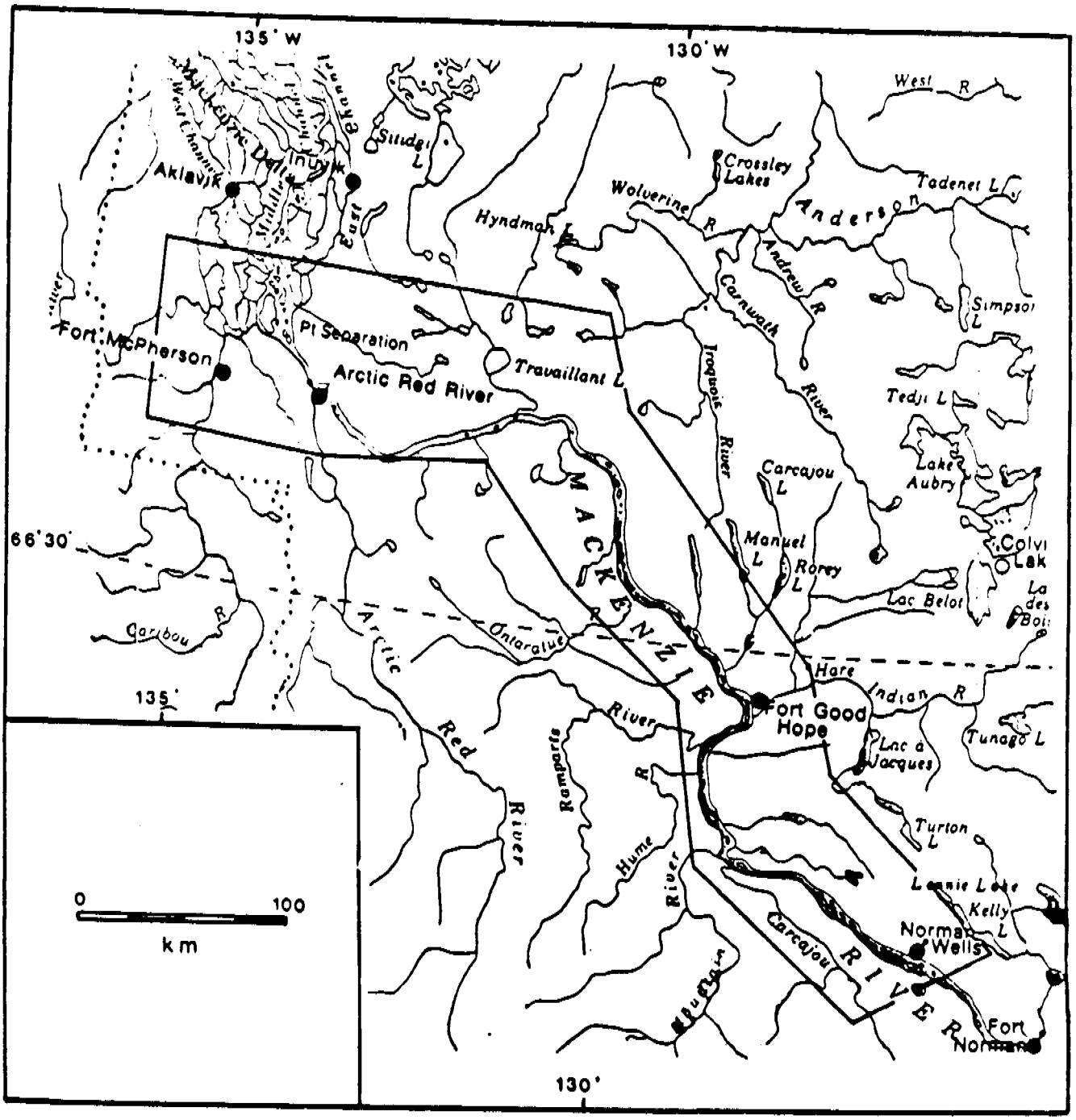


EBA Engineering Consultants Ltd.			PROJECT: GRANULAR RESOURCES DATABASES MACKENZIE VALLEY, N.W.T.
CLIENT: INDIAN AND NORTHERN AFFAIRS CANADA			TITLE: AREA MAP OF THE MACKENZIE VALLEY
DATE: 92-12-07	DWN.: WMG	CHKD.: RIO	FILE NO.: 0101-11085 / FIGURE 1



EBA Engineering Consultants Ltd.				PROJECT	GRANULAR RESOURCES DATABASES MACKENZIE VALLEY, N.W.T.
CLIENT	INDIAN AND NORTHERN AFFAIRS CANADA			TITLE	**UPPER (SOUTHERN) MACKENZIE STUDY AREA (EBA, 1988, 0306-34395)**
DATE 92-12-07	DWN. WMG	CHKD. RIO		FILE NO. 0101-11085	FIGURE 2



EBA Engineering Consultants Ltd.				PROJECT	GRANULAR RESOURCES DATABASES MACKENZIE VALLEY, N.W.T.
CLIENT	INDIAN AND NORTHERN AFFAIRS CANADA			TITLE	LOWER (NORTHERN) MACKENZIE STUDY AREA (BENNETT, 1988, LBcon, 1988)
DATE 92-12-07	DWN. WMG	CHKD. RIO		FILE NO. 0101-11085	FIGURE 3

APPENDIX A

REPORT CATALOGUE DATA DICTIONARY, STRUCTURE AND SAMPLE ENTRIES

CATALOGUE OF GRANULAR RESOURCES - RELATED INFORMATION

DATA DICTIONARY - REPORT CATALOGUE

PART A: STUDY REFERENCE AND LOCATION

AA - STUDY NUMBER:

A unique study identifier number which serves as a link to other databases (e.g. Source Database, ESEBase Borehole Database).

AB - YEAR:

The calendar year in which the majority of the field work on the study was complete (e.g. 1983).

ABI - MONTH:

The month in which the majority of the field work was completed (e.g. 07).

AC - SPONSOR:

The name of the company, department, agency or organization sponsoring the study. (e.g. Indian and Northern Affairs Canada, Yukon Transportation Engineering, Public Works Canada)

AC1 - SPONSOR JOB/FILE NUMBER:

The sponsor's job number.

AD - SPONSOR CONTACT NAME:

The name of the person within the sponsoring organization who might be contacted to obtain additional information on the study and/or authorization for its use.

AE - CONTRACTOR:

The name of the prime contractor, consultants or group contracted by the sponsor to undertake the study (e.g. EBA Engineering Consultants Ltd., Northern Engineering Services Company Ltd.)

AE1 - CONTRACTOR JOB/FILE NUMBER:

The contractor's file number.

AE2 - CONTRACTOR CONTACT NAME

The name of the person within the contractor organization who might be contacted to obtain additional information on the study and/or authorization for its use.

AE3 - REPORT TITLE:

The title of the original report.

AF1 - MINIMUM ZONE:

The UTM zone in which the southwestern corner of the enclosing block occurs (e.g. 07).

AF2 - MINIMUM EASTING:

The UTM grid line of the western extremity of the enclosing block (e.g. 381987).

AF3 - MINIMUM NORTHING:

The UTM grid line of the southern extremity of the enclosing block (e.g. 7548335).

AG1 - MINIMUM LATITUDE:

The latitude in decimal degrees of the southern extremity of the enclosing block (e.g. 69.72345).

AG2 - MINIMUM LONGITUDE:

The longitude in decimal degrees of the eastern extremity of the enclosing block (e.g. 135.03926).

AH1 - CENTRE LATITUDE:

The latitude in decimal degrees of the centre of the enclosing block (e.g. 70.72345).

AH2 - CENTRE LONGITUDE:

The longitude in decimal degrees of the centre of the enclosing block (e.g. 135.53926).

AI1 - CENTRE ZONE:

The UTM zone of the centre of the enclosing block (e.g. 08).

AI2 - CENTRE EASTING:

The UTM grid line of the centre of the enclosing block (e.g. 476321).

AI3 - CENTRE NORTHING:

The UTM grid line of the centre of the enclosing block (e.g. 7602500).

AJ1 - MAXIMUM ZONE:

The UTM zone in which the northeastern corner of the enclosing block occurs (e.g. 08).

AJ2 - MAXIMUM EASTING:

The UTM grid line of the western extremity of the enclosing block. (e.g. 567428).

AJ3 - MAXIMUM NORTHING:

The UTM grid line of the northern extremity of the enclosing block (e.g. 7661560).

AK1 - MAXIMUM LATITUDE:

The latitude in decimal degrees of the northern extremity of the enclosing block (e.g. 70.72345).

AK2 - MAXIMUM LONGITUDE:

The longitude in decimal degrees of the western extremity of the enclosing block (e.g. 136.03926).

AL - GENERAL LOCATION - AREA NAME

Regional or local name in location map or plan.

AM - LOCATION MAP NUMBER:

The map or plan number of any small scale accompanying regional map or trackplot which indicates the location of the study area, or series of separate detailed study/borrow sites or regional survey lines.

AN - LOCATION MAP FORMAT:

The format or type of data containing the location of the study area, or series of separate detailed study/borrow sites or regional survey lines (e.g. paper copy; mylar original, folded blueline).

AO - LOCATION MAP SCALE:

The scale, expressed in terms of the representative fraction (e.g. 1:250,000) of any small scale accompanying regional map or trackplot which indicates the location of the study area, or series of separate detailed study/borrow sites or regional survey lines. The denominator only of the representative fraction is given since the numerator is consistently "1" (e.g. 250000)

AP - LOCATION MAP DIGITIZER NUMBER:

A unique five digit identifier number, to be assigned by INAC, which identifies a data set of points, lines, or polygons to be digitized from the location plan. This number links the report catalogue database to INAC's spatial database system.

AQ - LOCATION MAP ARCHIVING:

The general availability and where appropriate, specific location of storage of any map or plan number of any small scale accompanying regional map or trackplot which indicates the location of the study area, or series of separate detailed study/borrow sites or regional survey lines (e.g. sponsor/ contractor in-house, private/public repository, government agencies, etc.)

AR - SITE PLAN/SITE NAME:

Site or block name in site plans.

AS - SITE PLAN NUMBER:

The map or plan number(s) of up to six larger scale accompanying local maps, site plans or trackplots which indicate the location of individual detailed study/borrow sites, boreholes/testpits/grab samples or detailed survey grids for separate study/borrow sites within the main study area.

AT - SITE PLAN FORMAT:

The format(s) or type(s) of up to six larger scale accompanying local maps, site plans or trackplots which indicate the location of individual detailed study/borrow sites, boreholes/testpits/grab samples or detailed survey grids for separate study/borrow site within the main study area (e.g. paper copy; mylar original, folded blueline).

AU - SITE PLAN SCALE:

The scale(s), expressed in terms of the representative fraction(s) (e.g. 1:50,000, 1:10,000) of up to six larger scale accompanying local maps, site plans or trackplots which indicate the location of individual detailed study/borrow sites, boreholes/testpits/grab samples or detailed survey grids for separate study/borrow sites within the main study area. The denominator only of the representative fraction is given since the numerator is consistently "1" (e.g. 5000).

AV - SITE PLAN DIGITIZER NUMBER:

A unique five digit identifier number or series of numbers, to be assigned by INAC, which identifies a data set of points, lines or polygons to be digitized from the site plans. This number links the report catalogue database to INAC's spatial database system.

AW - SITE PLAN ARCHIVING:

The general availability and, where appropriate, specific location of storage of up to six larger scale accompanying local maps, site plans or trackplots which indicate the location of individual detailed study/borrow sites, boreholes/testpits/grab samples or detailed survey grids for separate study/borrow sites within the main study area (e.g. sponsor/contractor in-house, private/public repository, government agencies).

AX - SOURCE NUMBERS:

A cross-reference field (to the source databases) which lists the source numbers of the sources included in the report.

AY - SURVEY LINE NUMBERS/LOCATION DETAILS:

Description of geophysical or hydrographic survey line numbers or locations, or further location details of geotechnical studies.

PART B: STUDY DETAILS

BB - STUDY TYPE:

The type of data collected during the study or sub-study (e.g. hydrographic, geophysical, seabed sampling, geotechnical, dredging).

BC - STUDY SCOPE:

The areal scope of the study or sub-study (e.g. regional, site specific single site, many sites).

BD - STUDY SIZE:

The extent of size of the study in terms of number of potential borrow sites identified, number of testpits or boreholes, or total number of line kilometres of geophysical data (e.g. 21 sites; 55 BH's; 145 km).

BE - SURVEY LEVEL:

The general purpose or level of detail of the study (e.g. airphoto interpretation, reconnaissance, exploration, delineation, production).

BF - SURVEY PATTERN:

The pattern in which the individual borrow sites within the study area occur, or in which boreholes or survey lines within specific detailed study sites were laid out. (e.g. random, corridor, line, grid).

BG - SURVEY SPACING:

The relative (e.g. random, wide) or actual (range and/or average) spacing of the survey data or study site (e.g. 250 m E-W, 500 m N-S; 10 - 15 km).

BH - PROGRAM LENGTH/SURVEY LENGTH:

The length of the field data collection or survey program, in days or showing specific dates.

BI - SEASON:

The season of the year in which the field data collection or survey program was conducted (e.g. late summer, winter).

BJ - EQUIPMENT TYPE:

The type(s) of equipment used to collect data or obtain samples (e.g. hand-excavated testpits; D8 cat; sonic drill; CME 750 Auger drill, etc.).

BK - PENETRATION:

The average penetration of drilling or soil sampling equipment, (e.g. 5, 7.5, 10), directly related to the equipment type.

BL - RESOLUTION:

The suitability of the data for distinguishing variations in subsurface stratigraphy, expressed in relative (e.g. poor, variable, unknown) or actual (e.g. range and/or average in tenths of metres) terms (e.g. 0.5).

BM - SAMPLING/RECORDING RATE:

The relative (e.g. continuous, intermittent, slow) and/or actual rate of sampling or recording (e.g. samples at 1 m intervals; chart speed).

BN - SAMPLE/RECORDING QUALITY:

A description of the relative overall quality or range in quality of the data, samples or records with regard to its use for determining subsurface stratigraphy and/or borrow quality (e.g. poor-fair, good, disturbed, etc.).

BO - SAMPLE/RECORDING TYPE(S):

Additional details on the type(s) of samples (e.g. 75 mm diam. CRREL core, 1-2 kg grab samples, 100 mm sonic casing) or records obtained with the indicated types of equipment.

BP - SAMPLE/RECORDING SIZE:

The total number(s) of samples obtained during the study, where appropriate, and related to the Sample/Recording type(s) (e.g. 75 grabs, 15 CRREL core).

BQ - INTERPRETATION/TESTING LEVEL:

The extent of laboratory testing of samples (e.g. routine classification testing only, concrete aggregate suitability testing); or the level of detail of the interpretation of geophysical records (e.g. field, preliminary, detailed) or geotechnical data (e.g. pit plans for 3 sources), as appropriate.

BR - REPORT LEVEL:

The type or level of detail of any report(s) resulting from the study. (e.g. annotated records, field logs/report only, summary/data compilation report, formal geophysical interpretation/geotechnical evaluation report).

BS - REPORT DISTRIBUTION:

The extent of distribution and/or general availability of any reports resulting from the study (e.g. internal, sponsor/contractor only, specific government department/agencies/libraries, published).

BT - DATA ARCHIVING:

The general availability and, where appropriate, specific location of storage of raw data obtained during the study. (e.g. sponsor/contractor in-house, private/public repository, government agencies).

BU - OTHER REPORTS:

Related to present report or sources covered in present report, lists references in same format as study number.

BY1 - COMPILER:

Record compiled by (company/name).

BY2 - COMPILE DATE:

Date record compiled.

BY3 - DATA COMPILATION PROJECT NUMBER:

Job number data compilation was done under.

BZ1 - UPDATER:

Record updated by (Company/Name).

BZ2 - UPDATE DATE:

Date record updated (most recent).

BZ3 - DATA UPDATE PROJECT NUMBER:

Job number data update was done under.

BZ4 - PROPRIETARY:

Indicates whether report/data is public or proprietary. If proprietary, contact organization and/or person is listed.

BZ5 - REPORT CATALOGUE OR BIBLIOGRAPHY:

If report contains borehole data or significant new information related to granular resources, it is designated "RC/BB" to be included in the report catalogue as well as the bibliography. However, if the item is a map or summary report or review of granular resources information, it is generally designated "BB" to be included in the bibliography only.

Structure for database: C:MACK92RC.dbf
Number of data records: 130
Date of last update : 12/10/92

Field	Field Name	Type	Width	Dec
1	STUDY_NO	Character	12	
2	YEAR	Numeric	4	
3	MONTH	Numeric	2	
4	SPONSOR	Character	50	
5	SP_JOB_NO	Character	15	
6	SP_CONTACT	Character	20	
7	CONTRACTOR	Character	65	
8	CO_JOB_NO	Character	16	
9	CO_CONTACT	Character	24	
10	MN_ZONE	Numeric	2	
11	MN_EAST	Numeric	6	
12	MN_NORTH	Numeric	7	
13	MN_LAT_DEG	Numeric	8	5
14	MN_LON_DEG	Numeric	9	5
15	CN_LAT_DEG	Numeric	8	5
16	CN_LON_DEG	Numeric	9	5
17	CN_ZONE	Numeric	2	
18	CN_EAST	Numeric	6	
19	CN_NORTH	Numeric	7	
20	MX_ZONE	Numeric	2	
21	MX_EAST	Numeric	6	
22	MX_NORTH	Numeric	7	
23	MX_LAT_DEG	Numeric	8	5
24	MX_LON_DEG	Numeric	9	5
25	LOC_MAP_NO	Character	40	
26	LOC_MAP_FM	Character	40	
27	LOC_MAP_SC	Numeric	10	
28	LOC_MAP_DN	Character	10	
29	LOC_MAP_AR	Character	60	
30	AREA_NAME	Character	40	
31	SITE_NAME	Character	40	
32	SIT_PLN_NO	Character	80	
33	SIT_PLN_FM	Character	120	
34	SIT_PLN_SC	Character	45	
35	SIT_PLN_DN	Character	20	
36	SIT_PLN_AR	Character	120	
37	SOURCE_NOS	Character	180	
38	NEW_SRC_NO	Character	180	
39	LINE_NO	Character	180	
40	STUDY_TYPE	Character	120	
41	STUDY_SCOP	Character	60	
42	SURV_LEVEL	Character	180	
43	STUDY_SIZE	Character	40	
44	SURV_PATT	Character	40	
45	SURV_SPAC	Character	50	
46	PGM_LEN	Character	30	
47	SEASON	Character	25	
48	EQUIP_TYPE	Character	120	
49	PENETRATN	Character	120	
50	RESOLUTION	Character	15	
51	SAMPL_RATE	Character	60	
52	SAMPL_QUAL	Character	80	
53	SAMPL_TYPE	Character	100	
54	SAMPL_SIZE	Character	60	
55	INTRP_LEVL	Character	120	

56	RPT_LEVL	Character	100
57	RPT_ARCHIV	Character	100
58	RPT_DIST	Character	120
59	DAT_ARCHIV	Character	120
60	OTHER	Character	100
61	COMPILER	Character	120
62	COMP_DATE	Character	8
63	DC_PROJ_NO	Character	15
64	UPDATE_BY	Character	120
65	UPDT_DATE	Character	8
66	DU_PROJ_NO	Character	15
67	RPT_TITLE	Character	180
68	PROPRI	Character	80
69	RPT_OR_BIB	Character	10
** Total **			3786

Structure for database: C:MACK92BB.dbf
Number of data records: 188
Date of last update : 12/10/92

Field	Field Name	Type	Width	Dec
1	STUDY_NO	Character	12	
2	YEAR	Numeric	4	
3	MONTH	Numeric	2	
4	SPONSOR	Character	50	
5	SP_JOB_NO	Character	15	
6	SP_CONTACT	Character	20	
7	CONTRACTOR	Character	65	
8	CO_JOB_NO	Character	16	
9	CO_CONTACT	Character	24	
10	MN_ZONE	Numeric	2	
11	MN_EAST	Numeric	6	
12	MN_NORTH	Numeric	7	
13	MN_LAT_DEG	Numeric	8	5
14	MN_LON_DEG	Numeric	9	5
15	CN_LAT_DE	Numeric	8	5
16	CN_LON_DEG	Numeric	9	5
17	CN_ZONE	Numeric	2	
18	CN_EAST	Numeric	6	
19	CN_NORTH	Numeric	7	
20	MX_ZONE	Numeric	2	
21	MX_EAST	Numeric	6	
22	MX_NORTH	Numeric	7	
23	MX_LAT_DEG	Numeric	8	5
24	MX_LON_DEG	Numeric	9	5
25	LOC_MAP_NO	Character	40	
26	LOC_MAP_FM	Character	40	
27	LOC_MAP_SC	Numeric	10	
28	LOC_MAP_DN	Character	10	
29	LOC_MAP_AR	Character	60	
30	AREA_NAME	Character	40	
31	SITE_NAME	Character	40	
32	SIT_PLN_NO	Character	80	
33	SIT_PLN_FM	Character	120	
34	SIT_PLN_SC	Character	45	
35	SIT_PLN_DN	Character	20	
36	SIT_PLN_AR	Character	120	
37	STUDY_TYPE	Character	120	
38	STUDY_SCOP	Character	60	
39	SURV_LEVEL	Character	180	
40	STUDY_SIZE	Character	40	
41	RPT_LEVL	Character	100	
42	RPT_ARCHIV	Character	100	
43	RPT_DIST	Character	120	
44	DAT_ARCHIV	Character	120	
45	OTHER	Character	100	
46	COMPILER	Character	120	
47	COMP_DATE	Character	8	
48	DC_PROJ_NO	Character	15	
49	UPDATE_BY	Character	120	
50	UPDT_DATE	Character	8	
51	DU_PROJ_NO	Character	15	
52	RPT_TITLE	Character	180	
53	PROPRI	Character	80	
54	RPT_OR_BIB	Character	10	
** Total **			2426	

Structure for database: C:MACK92AL.dbf
Number of data records: 188
Date of last update : 12/10/92

Field	Field Name	Type	Width	Dec
1	STUDY_NO	Character	12	
2	YEAR	Numeric	4	
3	MONTH	Numeric	2	
4	SPONSOR	Character	50	
5	SP_JOB_NO	Character	15	
6	SP_CONTACT	Character	20	
7	CONTRACTOR	Character	65	
8	CO_JOB_NO	Character	16	
9	CO_CONTACT	Character	24	
10	MN_ZONE	Numeric	2	
11	MN_EAST	Numeric	6	
12	MN_NORTH	Numeric	7	
13	MN_LAT_DEG	Numeric	8	5
14	MN_LON_DEG	Numeric	9	5
15	CN_LAT_DE	Numeric	8	5
16	CN_LON_DEG	Numeric	9	5
17	CN_ZONE	Numeric	2	
18	CN_EAST	Numeric	6	
19	CN_NORTH	Numeric	7	
20	MX_ZONE	Numeric	2	
21	MX_EAST	Numeric	6	
22	MX_NORTH	Numeric	7	
23	MX_LAT_DEG	Numeric	8	5
24	MX_LON_DEG	Numeric	9	5
25	LOC_MAP_NO	Character	40	
26	LOC_MAP_FM	Character	40	
27	LOC_MAP_SC	Numeric	10	
28	LOC_MAP_DN	Character	10	
29	LOC_MAP_AR	Character	60	
30	AREA_NAME	Character	40	
31	SITE_NAME	Character	40	
32	SIT_PLN_NO	Character	80	
33	SIT_PLN_FM	Character	120	
34	SIT_PLN_SC	Character	45	
35	SIT_PLN_DN	Character	20	
36	SIT_PLN_AR	Character	120	
37	SOURCE_NOS	Character	180	
38	NEW_SRC_NO	Character	180	
39	LINE_NO	Character	180	
40	STUDY_TYPE	Character	120	
41	STUDY_SCOP	Character	60	
42	SURV_LEVEL	Character	180	
43	STUDY_SIZE	Character	40	
44	SURV_PATT	Character	40	
45	SURV_SPAC	Character	50	
46	PGM_LEN	Character	30	
47	SEASON	Character	25	
48	EQUIP_TYPE	Character	120	
49	PENETRATN	Character	120	
50	RESOLUTION	Character	15	
51	SAMPL_RATE	Character	60	
52	SAMPL_QUAL	Character	80	
53	SAMPL_TYPE	Character	100	
54	SAMPL_SIZE	Character	60	
55	INTRP_LEVL	Character	120	

56	RPT_LEVL	Character	100
57	RPT_ARCHIV	Character	100
58	RPT_DIST	Character	120
59	DAT_ARCHIV	Character	120
60	OTHER	Character	100
61	COMPILER	Character	120
62	COMP_DATE	Character	8
63	DC_PROJ_NO	Character	15
64	UPDATE_BY	Character	120
65	UPDT_DATE	Character	8
66	DU_PROJ_NO	Character	15
67	RPT_TITLE	Character	180
68	PROPRI	Character	80
69	RPT_OR_BIB	Character	10
** Total **			3786

MACKENZIE VALLEY TRANSPORTATION CORRIDOR
INDIAN AND NORTHERN AFFAIRS CANADA
CATALOGUE OF GRANULAR RESOURCE-RELATED INFORMATION

STUDY NUMBER: ACR73HC MONTH: 2 YEAR: 1973

SPONSOR : DEPARTMENT OF PUBLIC WORKS OF CANADA
JOB NO : CONTACT:
CONTRACTOR : ACRES CONSULTING SERVICES LTD.
JOB NO : CONTACT:
REPORT TITLE: FOUNDATION REPORT FOR CROSSING AT HODGSON CREEK MILE 436 MACKENZIE HIGHWAY NWT

COORDINATES :	MINIMUM	CENTRE	MAXIMUM
UTM: ZONE:	0	10	0
EASTING:	0	0	0
NORTHING:	0	0	0
OR: LATITUDE:	0.00000	63.23000	0.00000
LONGITUDE:	0.00000	123.48000	0.00000

LOCATION:

GENERAL LOCATION	SITE PLAN
NAME : MACKENZIE HIGHWAY	HODGSON CREEK CROSSING MOSAIC&TH LOC PLN
NUMBER:	
SCALE : 1:0	FIGURE 1
FORMAT:	1:12000
ARCHIV:	FOLDED BLUELINE
DIG NO:	IN REPORT
SOURCE NUMBER(S):	

SURVEY LINES / LOCATION DETAILS:

DESCRIPTION OF STUDY AND SURVEY DETAILS:
TYPE : GEOTECHNICAL
SCOPE: BRIDGE SITE
LEVEL: FIELD DRILLING

SIZE : 7 BOREHOLES
SURVEY PATTERN: ALIGNMENT
SURVEY SPACING: RANDOM
SEASON: WINTER PROGRAM LENGTH: FEB/73

EQUIPMENT : GARDNER-DENVER 200 HELIDRILL

PENETRATION: 7.3 M

RESOLUTION : GOOD

INFORMATION ON SAMPLES OR SURVEY RECORDS:
RATE : CONTINUOUS
QUALITY: GOOD
TYPE : DISTURBED, 75MM SHELBY, SPT SPLIT SPOON
SIZE : 29 DISTURBED, 1 SHELBY, 12 SPT

LEVEL OF DETAIL: INTERPRETATION/ANALYSIS/REPORTING:
INTERP : CLASSIFICATION
REPORT : FORMAL REPORT WITH FOUNDATION RECEOMMENDATIONS
DISTRIB: SPONSOR/CONTRACTOR/GSC
OTHER :

ARCHIVING OF INFORMATION:
REPORT : GSC LIBRARY STORAGE (CALGARY)
DATA : CONTRACTOR

DATA COMPILATION AND UPDATING:
COMPILED BY: EBA ENGINEERING CONSULTANTS LTD.
DATE : 92/03/23 COMPILATION PROJECT NO.: 0101-10902
UPDATED BY : EBA
DATE : 92/12/10 UPDATE PROJECT NO.: 0101-11085

MACKENZIE VALLEY TRANSPORTATION CORRIDOR
INDIAN AND NORTHERN AFFAIRS CANADA
CATALOGUE OF GRANULAR RESOURCE-RELATED INFORMATION

STUDY NUMBER: EBA74FGAR MONTH: 0 YEAR: 1973

SPONSOR : DIAND
JOB NO : OSR3-0053 CONTACT: BOB GOWAN
CONTRACTOR : EBA ENGINEERING CONSULTANTS LTD
JOB NO : E-666 CONTACT: NEIL MACLEOD
REPORT TITLE: GRANULAR MATERIALS INVENTORY,STAGE III V.1,GENERAL REPORT,1975 APRIL(SPECIFIC SITE EVALUATION AND DATA IN VOLUMES II,III,IV)

COORDINATES :

UTM: ZONE:	MINIMUM	CENTRE	MAXIMUM
EASTING:	8	9	9
NORTHING:	0	0	0
OR: LATITUDE:	0	0	0
LONGITUDE:	66.31666	67.30000	68.26666
	127.16666	130.50000	133.66666

LOCATION:

NAME :	GENERAL LOCATION	SITE PLAN
	FORT GOOD HOPE TO ARCTIC RED R	FT GOOD HOPE-LITTLE CHICAGO-RED RIVER
NUMBER:	1.1	
SCALE :	1:1707000	SOUTH HALF,NORTH HALF
FORMAT:	PAPER COPY	1:250000
ARCHIV:	IN REPORT	PAPER COPY
DIG NO:	N/A	IN REPORT
		N/A

SOURCE NUMBER(S):
1001-1156

SURVEY LINES / LOCATION DETAILS:

DESCRIPTION OF STUDY AND SURVEY DETAILS:
TYPE : GEOTECHNICAL
SCOPE: REGIONAL-150 SITES
LEVEL: EXPLORATION,BORROW INVESTIGATION(GRANULAR AND BEDROCK),REVIEW OF EXISTING DATA

SIZE :
104 BHS,245 TPS,17400 KM
SURVEY PATTERN: UP TO 5 BHS PER SITE,IRREGULAR
SURVEY SPACING: IRREGULAR
SEASON: PROGRAM LENGTH: 41 DAYS,SEPT-OCT 1974

EQUIPMENT : MOBILE ARCTIC AUGER-CONTINOUS FLIGHT WITH SEISMIC TYPE AIR CIRCULATING OPTION,HELI-DRILL WITH BECKER DOUBLE WALL PIPE
PENETRATION:
0.9M-5.0M-9.1M FOR BHS,0.9M FOR TPS
RESOLUTION :
GOOD

INFORMATION ON SAMPLES OR SURVEY RECORDS:
RATE : 0.6M-1.5M
QUALITY: GOOD
TYPE : DISTURBED
SIZE : N/A

LEVEL OF DETAIL: INTERPRETATION/ANALYSIS/REPORTING:
INTERP : CLASSIFICATION OF BORROW,RECOMMENDATIONS FOR DEVELOPMENT AND RESTORATION
REPORT : FORMAL GEOTECHNICAL,MAPS,ASSESSMENTS,SITE DESCRIPTIONS
DISTRIB: SPONSOR/CONTRACTOR
OTHER : PWC74FGDH,MVPL72NM,RMH73FSIN,CASSL,CN-CP ARCTIC RAILWAY STUDY GROUP

ARCHIVING OF INFORMATION:
REPORT : SPONSOR/CONTRACTOR
DATA : SPONSOR/CONTRACTOR,FOOTHILLS PIPELINES

DATA COMPILATION AND UPDATING:
COMPILED BY: EBA ENGINEERING CONSULTANTS LTD.
DATE : 91/03/13 COMPILATION PROJECT NO.: 0306-34693
UPDATED BY : EBA
DATE : 92/12/10 UPDATE PROJECT NO.: 0101-11085

MACKENZIE VALLEY TRANSPORTATION CORRIDOR
INDIAN AND NORTHERN AFFAIRS CANADA
CATALOGUE OF GRANULAR RESOURCE-RELATED INFORMATION

STUDY NUMBER: PEM73FS MONTH: 2 YEAR: 1973

SPONSOR : DIAND
JOB NO : N/A CONTACT: BOB GOWAN
CONTRACTOR : PEMCAN SERVICES (72)
JOB NO : P72-502 CONTACT: N/A
REPORT TITLE: GRANULAR MATERIALS INVENTORY FORT SIMPSON NWT,COMMUNITY STUDY AREA

COORDINATES :	MINIMUM	CENTRE	MAXIMUM
UTM: ZONE:	10	10	10
EASTING:	571000	587000	602000
NORTHING:	6844000	6859000	6876000
OR: LATITUDE:	0.00000	0.00000	0.00000
LONGITUDE:	0.00000	0.00000	0.00000

LOCATION:

	GENERAL LOCATION	SITE PLAN
NAME :	FORT SIMPSON	FORT SIMPSON
NUMBER:		
SCALE :	1:113600	1:36000
FORMAT:	PAPER COPY	PAPER COPY
ARCHIV:	SPONSOR/GNWT TRANSPORTATION	SPONSOR/GNWT TRANSPORTATION
DIG NO:	N/A	N/A

SOURCE NUMBER(S): FS-1 TO FS-13

SURVEY LINES / LOCATION DETAILS:

DESCRIPTION OF STUDY AND SURVEY DETAILS:
TYPE : GEOTECHNICAL
SCOPE: REGIONAL
LEVEL: EXPLORATION,EVALUATION OF POTENTIAL GRANULAR BORROW SOURCES DEVELOPMENT & ABANDONMENT RECOMMENDATIONS

SIZE : 30 BHS,27 TPS,4 EXP
SURVEY PATTERN: IRREGULAR
SURVEY SPACING: IRREGULAR
SEASON: FALL/WINTER PROGRAM LENGTH: N/A

EQUIPMENT : CONVENTIONAL AIR ROTARY DRILL RIG MODEL UNKNOWN,MACHINE DUG TEST PITS,EQUIP UNKNOWN,HAND DUG TEST PITS
PENETRATION: 6-10M (BHS),1.5-3.5M (TPS)
RESOLUTION : FAIR

INFORMATION ON SAMPLES OR SURVEY RECORDS:
RATE : SPORADIC
QUALITY: N/A
TYPE : N/A
SIZE : N/A

LEVEL OF DETAIL: INTERPRETATION/ANALYSIS/REPORTING:
INTERP : EVALUATION OF POTENTIAL GRANULAR BORROW SOURCES
REPORT : FORMAL GEOTECHNICAL EVALUATION
DISTRIB: SPONSOR/CONTRACTOR
OTHER : TOTAL OF 10 VOLUMES PLUS SUMMARY VOLUME,FORT SIMPSON TO FORT GOOD HOPE

ARCHIVING OF INFORMATION:
REPORT : SPONSOR/GNWT TRANSPORTATION
DATA : N/A

DATA COMPILATION AND UPDATING:
COMPILED BY: EBA ENGINEERING CONSULTANTS LTD.
DATE : 91/03 COMPILATION PROJECT NO.: 0306-34693
UPDATED BY : EBA
DATE : 92/12/10 UPDATE PROJECT NO.: 0101-11085

MACKENZIE VALLEY TRANSPORTATION CORRIDOR
INDIAN AND NORTHERN AFFAIRS CANADA
CATALOGUE OF GRANULAR RESOURCE-RELATED INFORMATION

STUDY NUMBER: TAMS75MD MONTH: 0 YEAR: 1975

SPONSOR : DPW NWT
JOB NO : 9305-52-023-1 CONTACT:
CONTRACTOR : TERRAIN ANALYSIS AND MAPPING SERVICES LTD.
JOB NO : CONTACT: VERN RAMPTON
REPORT TITLE: BEDROCK SOURCES OF HIGHWAY MATERIALS,INUVIK TO TUKTOYAKTUK HIGHWAY OCT 1975

COORDINATES :	MINIMUM	CENTRE	MAXIMUM
UTM: ZONE:	8	8	8
EASTING:	550000	565000	580000
NORTHING:	7585000	7647500	7710000
OR: LATITUDE:	0.00000	0.00000	0.00000
LONGITUDE:	0.00000	0.00000	0.00000

LOCATION:

	GENERAL LOCATION	SITE PLAN
NAME :	INUVIK TO TUKTOYAKTUK	CARIBOU HILLS,DOUGLAS CR,NOELL L,INUVIK
NUMBER:	FIG. 1	
SCALE :	1:250000	FIG. 2,3,5,7,8
FORMAT:	PAPER COPY	1:
ARCHIV:	IN REPORT	
DIG NO:	N/A	

SOURCE NUMBER(S):
1-18

SURVEY LINES / LOCATION DETAILS:

DESCRIPTION OF STUDY AND SURVEY DETAILS:
TYPE : GEOLOGICAL
SCOPE: REGIONAL
LEVEL: EXTRAPOLATION OF GEOLOGIC,STRATIGRAPHY,INTERP. OF GEOLOGIC TERMS,NO DRILLING,FIELD RECON. OF EXPOSURES,ESCARPMENTS,LAND FORMS
SIZE :
18 BORROW SOURCES
N/A
SURVEY PATTERN: N/A
SURVEY SPACING: PROGRAM LENGTH: N/A
SEASON: N/A

EQUIPMENT : N/A

PENETRATION: N/A

RESOLUTION : N/A

INFORMATION ON SAMPLES OR SURVEY RECORDS:
RATE : N/A
QUALITY: N/A
TYPE : N/A
SIZE : N/A

LEVEL OF DETAIL: INTERPRETATION/ANALYSIS/REPORTING:
INTERP : TERTIARY/CRETACEOUS GEOLOGY & GEOMORPHOLOGY,NEAR SURFACE BEDROCK FOR BORROW
REPORT : GEOLOGICAL REVIEW
DISTRIB: SPONSOR/CONTRACTOR
OTHER : DPW SHOT HOLE LOGS, EBA76IN

ARCHIVING OF INFORMATION:
REPORT : SC/U OF C AINA
DATA : SPONSOR/CONTRACTOR

DATA COMPILATION AND UPDATING:
COMPILED BY: EBA ENGINEERING CONSULTANTS LTD.
DATE : 91/03/20 COMPILATION PROJECT NO.: 0306-34693
UPDATED BY : EBA
DATE : 92/12/10 UPDATE PROJECT NO.: 0101-11085

APPENDIX B

SOURCE DATABASE DICTIONARY, STRUCTURE AND SAMPLE ENTRIES

NORTHERN GRANULAR RESOURCE SOURCE DATABASE

DATA DICTIONARY

PART A: DEPOSIT LOCATION AND STATUS

AA1 - OLD STUDY NUMBER:

The sources listed in Bennett's 1988 source database have an old study number which was the original study number assigned to the report reference for the source by Bennett.

AA2 - STUDY NUMBER:

Each source has been assigned a unique study identifier number, to serve as a link to other databases (e.g. the report catalogue, and ESEBase borehole database). This number identifies the study in which the source was first described in detail and provides a link to INAC's granular resource study catalogue database. The number consists of an alphabet prefix representing the sponsor of the report (4 characters), the year of the study (2 digits, and the geographic location or area (up to 6 characters), (e.g. INAC87PL).

AA3 - ASSIGNED SOURCE NUMBER:

The sources listed in EBA's 1988 source database have a unique source number which correlate to mapped source locations. These source numbers refer to granular deposits which may comprise one or several of the original source numbers. This number is a numeric sequence with the Land Management Area as a prefix, and an arbitrarily assigned source number as a suffix (e.g. 7.043).

AA4 - SOURCE NUMBER:

Each source has been assigned a unique source identifier number, normally the number of the source in the original study which located the source, which will serve as a link to other databases (e.g. ESEBase borehole database). This number consists of an alphanumeric sequence of up to twelve digits (e.g. 87-P-12).

AB1 - SOURCE REFERENCE:

A list of other source numbers related to the source described.

AB2 - STUDY REFERENCE:

A list of other study numbers referring to reports which have more information on the source.

AC - NTS MAP REFERENCE:

The National Topographic Series (NTS) 1:50,000 scale map reference number of the map containing the majority of the outlined deposit (e.g. 107A/15).

AD - LOCAL NAME(S):

Many sources are known locally by a name or more than one names, rather than the designated source number. Although these names may vary over time or be duplicated between sources, they should be recorded as is (e.g. Callison Pit).

AE - MAP DIGITIZER NUMBER:

A unique five digit indentifier number, to be assigned by INAC, which identifies a data set of points, lines, or polygons to be digitized from the location plan. This number links the granular deposit database to INAC's spatial database system.

AF - LOCATION MAP/PLAN SCALE:

The scale, expressed in terms of the representative fraction (e.g. 1:250,000) of any small scale accompanying regional map which indicates the location of separate study/borrow sites. The denominator only of the representative fraction is given since by definition the numerator is unity (e.g. 250000).

The next eleven fields (AG-AM) provide location details for the source, including Universal Transverse Mercator (UTM) coordinates, and highway kilometre posts. In each case, the coordinates are normally determined for the approximate centre of the source, unless otherwise stated.

AG - LOCATION:

The descriptive location of the source relative to a geographic feature (e.g. 500m north of Rat Lake).

AH1 - CENTRE LATITUDE:

Centre latitude of the site in decimal degrees.

AH1 - CENTRE LONGITUDE:

Centre longitude of the site in decimal degrees.

AH1 - CENTRE ZONE (UTM):

Number of the zone(s) in which the middle or main body of the source occurs. Serves as a link to other databases.

AH1 - CENTRE EASTING (UTM):

Easting of the middle or main body of the source. Serves as a link to other databases.

AH2 - CENTRE NORTHING (UTM):

Northing of the middle or main body of the source. Serves as a link to other databases.

AI - CORRIDOR NUMBER AND NAME:

The number (i.e. Territorial Highway number, where appropriate) and the name of the transportation route within whose corridor the deposit occurs (e.g. 05-Robert Campbell Highway; 00-Foothills Pipeline - Dempster Lateral).

AJ - KILOMETER-POST:

The kilometer-post (KP) of the point along the transportation corridor at which access is relatively direct to the deposit, or the most nearly adjacent point on the corridor to the location of the deposit.

AK - OFFSET: DISTANCE AND DIRECTION:

The distance in meters from the corridor centreline to the centre of the deposit and the direction, determined facing towards the increasing kilometer-post, to the deposit from the corridor (e.g. 35-L[eft]; 1500-R[ight]).

AL - DISTANCE:

The distance along the above described access route from the corridor to the deposit. Ideally, this should be the same as the offset distance; however, where this is not possible due to steep slopes or rivers, the access distance can vary significantly from offset (e.g. 40; 1250).

AM - SOURCE ACCESS:

A short description of the most practical route leading from the corridor to the deposit. Where the access route does not lead directly from the corridor to the source, the KP of the corridor at the location of the access route should be given (e.g. series of seismic cutlines; along north bank of river; follows ridge crest from KP 265.7; shorter but steeper alternative at KP 576).

AN - CONDITION:

A description of the type and condition of the access route (e.g. seismic line; undeveloped; winter road; ice road).

AO - AREA:

The total areal extent, in hectares, of potentially usable granular resources which comprise the deposit (e.g. 1; 10; 100).

AP - SITE PLAN SCALE:

The scale, expressed in terms of the representative fraction (e.g. 1:10,000) of any larger scale accompanying site plan which indicates the location of boreholes/ testpits/grab samples or geophysical survey grids. The denominator only of the representative fraction is given since the numerator is consistently "1" (e.g. 10000).

AQ - PLAN DIGITIZER NUMBER(S):

A unique five digit identifier number or series of numbers, to be assigned later by INAC, which identifies a data set of points, lines, or polygons to be digitized from the site plan. This number links the granular deposit database to INAC's spatial database system.

AR - LAND TENURE:

The legal status of the land upon which the deposit is located (e.g. Inuvialuit 7(1)a; private; Territorial).

AS - STATUS:

The current status of the deposit in terms of development of granular resources (e.g. active; inactive; abandoned; depleted; undeveloped; stripped; unproven).

AT - STOCKPILE TYPE:

A qualitative description of the processed materials on site (e.g. 38mm screened gravel).

AU - STOCKPILE QUANTITY:

An estimate of the quantity stockpiled at a site, at the time of the last record update.

AW - PAST USE:

A summary of any known previous source development or exploitation activity in terms of type and amount of material removed and use of material (e.g. 12,000 cu.m of silty sand removed by YTG in 1979 for gravel surfacing).

AW1 - EXCAVATED VOLUME FOR HIGHWAY:

This is an estimate of the volume of material which was removed from the deposit for the construction of the Mackenzie Highway. These volumes were determined from Public Works Canada documents, correspondence and as-built maps for the Mackenzie Highway.

AW2 - EXCAVATED VOLUME FOR PIPELINE:

This is an estimate of the volume of material which was removed from the deposit for the construction of the Interprovincial Pipeline. These volumes were determined from information provided by W.M. Pearce, Director, Special Projects for Interprovincial Pipeline (NW) Ltd.

AX - PERFORMANCE RATING:

A summary of any known assessment of the performance of previously used material from the source (e.g. poor binding, segregates with minimal traffic).

PART B: SOURCE INVESTIGATION AND DESCRIPTION INFORMATION

BA - INVESTIGATION LEVEL:

The greatest level of detail of previous site investigation work at the subject deposit (e.g. airphoto interpretation; reconnaissance; exploratory drilling; delineation drilling; production drilling).

BB - LAST INVESTIGATION DATE:

The year in which the most recent site investigation work was completed.

BC - GEOPHYSICAL DATA:

The type and length of any geophysical surveys completed at the deposit in format: TYPE: LINE LENGTH (e.g. EM-31 : 1550 m).

BD - TEST HOLE DENSITY

The number of boreholes plus the number of test pits divided by the estimated source area (Field AP). Exposures are uncommon, but are added to test holes when they are present.

SUBSURFACE DATA:

The number, and range and average depth of subsurface penetration of various site investigation methods.

BE - BOREHOLES: NUMBER:

The total number of boreholes (augerings, borings, coreholes, etc.) completed and logged within, or immediately adjacent to the deposit, which provide subsurface information defining the type, extent and quality of granular materials.

BF - BOREHOLES: DEPTH:

A listing of the minimum, average and maximum depth of penetration of the total collection of boreholes for the deposit, in tenths of metres (e.g. 03.1-05.6-10.3).

BG - TESTPITS: NUMBER:

The total number of hand- or equipment-excavated testpits or trenches completed and logged within, or immediately adjacent to the deposit, which provide subsurface information defining the type, extent and quality of granular materials.

BH - TESTPITS: DEPTH:

A listing of the minimum, average and maximum depth of penetration of the total collection of testpits for the deposit, in tenths of metres (e.g. 0.5-2.6-5.3).

BI - EXPOSURES: NUMBER:

The total number of natural or man-made exposures or outcrops (e.g. on steep slopes, stream banks; or exposed pit faces, cutbanks), within, or immediately adjacent to the deposit, which have been logged to provide subsurface information defining the type, extent and quality of granular materials.

BJ - EXPOSURES: DEPTH:

A listing of the minimum, average and maximum depth of subsurface materials exposed in the total collection of exposures for the deposit, in tenths of metres (e.g. 01.5-06.1-15.0).

BK - DATA QUALITY:

A subjective description of the usefulness of the data with respect to the preparation of the source database.

SOURCE DESCRIPTION:

A brief summary of the physical setting of the deposit which will aid in the analysis and understanding of the type, extent, quality and uniformity of the available granular materials and the suitability of the deposit for development and exploitation.

BL - GENERIC ORIGIN:

The environment of deposition or geologic process believed to be responsible for the formation of the subject surficial feature or deposit comprised of granular materials (e.g. alluvial; fluvial; glacial; glaciofluvial; glaciomarine; lacustrine).

BM - LANDFORM:

The type of surficial feature comprising the subject granular materials, within which geologic conditions are interpreted to be relatively uniform or are variable within limits characteristic of the type of feature (e.g. delta; esker; fan; kame; outwash plain; terrace).

BN - TOPOGRAPHY:

A general description of the collective physical features, relief and contour of the area (e.g. flat, gently rolling, rolling, hummocky, undulating, ridged, dissected, plateau, mountainous).

BO - SLOPE:

A general description of the slopes on and immediately adjacent to the deposit in terms of type (e.g. simple; compound; complex), degree (e.g. flat; gentle; moderate; steep; precipitous) and direction (e.g. to NNW).

BP - AREA DRAINAGE:

A general description of the general direction and apparent condition (e.g. well; moderate; poor; saturated; flooded) of surface and subsurface drainage at the site (e.g. SSE-moderate, flooded to S).

BQ - VEGETATION:

A general description of the most significant features of the vegetation cover on and immediately adjacent to the deposit which may provide an indication of the type of materials within the deposit, the presence or absence of permafrost or wet conditions, or potential site development or restoration difficulties. Vegetation should be described, as appropriate, in terms of age, size or complexity (e.g. mixed; sapling; mature), density (eg. nil; sparse; moderate; dense) and type (e.g. poplar; black/white spruce; jackpine; willow) for each of tree cover, understorey and ground cover (e.g. mature mixed poplar and white spruce to 15 m, few tamarack /sparse poplar saplings / dense bearberry, sparse sphagnum and sedges).

BR - PERMAFROST FEATURES:

A general description of surface and/or subsurface features which demonstrate or indicate the presence of permafrost conditions within or adjacent to the deposit (e.g. low-centre polygons and thermokarst to W; sparse stunted black spruce and thick sphagnum; trace Vx in 2 BHs).

BS - ACTIVE LAYER THICKNESS:

A listing of the minimum, average and maximum measured thickness of the seasonally thawed and frozen active layer within and adjacent to the deposit, determined from the boreholes, testpits, probings and exposures which encountered apparently perennially frozen materials, in tenths of metres (e.g. 0.2-1.0-1.8).

BT - SITE DESCRIPTION DATE:

The date on which the site descrition was completed, or where more than one site visit was involved, the date upon which the maximum active layer thickness was measured, presented in the format: yy-mm-dd (e.g. 79-09-13).

SOURCE STRATIGRAPHY:

A general description of the type and range and average thickness of the main surficial materials units comprising the granular source, based on subsurface information from only those boreholes, testpits and exposures which encountered granular materials.

BU - GRANULAR TYPE:

A brief description of the type of granular materials encountered within the area delineated as a granular source (e.g. GRAVEL AND SAND - well-graded; SAND - gravelly, some silt).

BV - GRANULAR THICKNESS:

A listing of the minimum, average and maximum thickness of granular materials over the deposit, determined from the boreholes, testpits and exposures in the area delineated as a granular source, in tenths of metres (e.g. 01.0-05.2-12.8).

BW - OVERBURDEN TYPE:

A brief description of the type of overburden materials present over the area containing granular materials (e.g. PEAT - over silt).

BX - OVERBURDEN THICKNESS:

A listing of the minimum, average and maximum thickness of overburden materials over the deposit, determined from the boreholes, testpits and exposures which encountered granular materials, in tenths of metres (e.g. 0.0-1.2-2.8).

BY - UNDERBURDEN TYPE:

A brief description of the type of materials underlying the granular materials in the source area (e.g. CLAY (TILL) - wet).

B1 - DEVELOPMENT CONSTRAINTS:

A general indication of any potential constraints to short or long term development of the source, expressed in terms of the type of constraint, (e.g. access; materials; drainage; permafrost; environmental; socio-economic) with details, as appropriate, on the nature and impact of the constraint.

B2 - DEVELOPMENT POTENTIAL:

A summary comment, expressed in qualitative terms, of the general suitability of the deposit for development. The potential is based essentially on the anticipated overall extent and quality of the available granular materials, but also considers the level of detail of existing site investigation, the presence, extent and type of overburden, drainage and permafrost conditions, other surface or sub- surface characteristics and general accessibility (e.g. unknown; unsuitable; poor; fair; good; excellent).

PART C: TEST RESULTS AND MATERIAL QUANTITY

TEST RESULTS:

A summary of the cumulative results of laboratory testing, completed in accordance with ASTM or CSA standard test procedures, of samples from the deposit in terms of test name, number of samples tested, and ranges and averages of test results.

CA - UNIFIED SOIL CLASSIFICATION: NUMBER:

The number of samples classified under the Unified Soil Classification (USC) system, in accordance with ASTM standard D 2487 (e.g. 121)

CB - UNIFIED SOIL: CLASS:

The range and most common material types sampled from the deposit as classified by the Unified Soil Classification (USC) system and presented in the order: poorest/most/best (e.g. SM-SP/SP-GP/GW-..).

CC - MOISTURE (%): NUMBER:

The number of samples for which soil Moisture Content (MC%) has been determined, in accordance with ASTM standard D 2216 (e.g. 102).

CD - MOISTURE (MC%): RESULTS:

The range and average soil Moisture Content (MC%), based on percentage of dry soil weight, for the collection of samples tested, presented in the format: minimum-average-maximum MC% (e.g. 03-12-021).

CE - SIZE ANALYSIS: NUMBER:

The number of samples for which particle-size analysis testing has been completed, in accordance with ASTM standards D 421 and D 422 (e.g. 111).

CF - OVERSIZE (O/S%):

The range and average percentage of oversized (O/S%) material; that is, cobble- and boulder-size material (Size Fraction over 75 mm diameter), in pit run material from the source, as determined by field estimates, field sieving, or laboratory testing (e.g. 00-10-35).

CG - GRAVEL (Grav%):

The range and average percentage of gravel-sized (Grav%) material; that is, material in the Size Fraction 4.76 mm - 75 mm diameter, as determined by particle-size analysis testing (e.g. 05-45-85).

CH - SAND (Sand%):

The range and average percentage of sand-sized (Sand%) material; that is material in the Size Fraction 0.074 mm - 4.76 mm diameter, as determined by particle-size analysis testing (e.g. 25-37-52).

CI - FINES (Fine%):

The range and average percentage of silt- and clay-sized (Fine%) material; that is material in the Size Fraction under 0.074 mm diameter, as determined by particle-size analysis testing (e.g. 02-07-12).

CJ - D-50:

The range and average Median Diameter (D-50), in microns, of samples subjected to particle-size analysis testing (e.g. 00210-01200-03600).

CK - PETROGR. NO.: NUMBER:

The number of samples for which Petrograhic Analysis testing has been completed to determine the Petrographic Number (PN) of samples from the deposit, in accordance with CSA standard A23.2, Appendix B (e.g. 01, 10).

CL - PETROGR. NO.: RESULTS:

The range and average Petrographic Number (PN) for the deposit, based on petrographic analysis, for the above collection of samples, presented in the format: minimum-average-maximum (e.g. 102-114-123).

CM - OTHER TESTS:

A listing of up to eight other types of tests conducted on samples from the deposit, the number of samples tested, and the average values of the test results, presented in the format: test (11 digits)-number (2 digits)-average results (4 digits). Typical entries, described in more detail below, include: (e.g. Organ_Plate-02-03.5; Durab_Index-01-0063; React_Pr_3M-01-0.08%; LA_ Abrasion-05-23.2; Sulph_Sd_Mg-03-05.8; RelDensity-03-2.64; Absorption%-06-1.11; Other Tests-11-vary).

ABSORPTION%:

The number and average of all results, expressed in terms of weight percentage, of all Absorption testing on samples from the deposit, in accordance with CSA standard A23.2-12A (e.g. Absorption%-12-01.1).

CLEANESS(C/F):

The number and average of all results of Cleaness of Aggregate testing on samples of coarse or fine aggregate from the deposit, in accordance with California Test Method 224 (e.g. Cleaness(C)-04-50.5).

DURAB_INDEX:

The number and average of all results of durability index testing on samples from the deposit (e.g. Durab_Index-03-65.3).

LA_ABRASION:

The number and average of all results, expressed in percentage weight loss, of Los Angeles (LA) Abrasion Testing on samples from the deposit, in accordance with CSA A23.2-16A (e.g. LA Abrasion-03-26.3).

ORGAN_PLATE:

The number and average of all results, expressed in terms of reference plate number, of Organic Plate testing on samples from the deposit (e.g. Organ Plate-05-03.2).

ORG_CONTENT:

The number and average of all results, expressed in terms of percentage weight loss, of Organic Content testing, in accordance with the Alaskan test method (e.g. Org Content-12-00.5).

SULPH_SD_MG/NA:

The number and average of all results, expressed in percentage weight loss, of all Sulphate Soundness (Magnesium or Sodium, Mg/Na) testing on samples from the deposit, in accordance with CSA standard A23.2-9A (e.g. Sulph Sd Na-02-03.2).

REACT_PR/MB_3M/6M/12/18:

The number and average of all results, expressed in terms of percentage expansion, of alkali-aggregate reactivity testing on concrete prisms, or mortar bars, after three, six, twelve or eighteen months, in accordance with CSA A23.2-14A-M77 or ASTM C-227, respectively. (e.g. React_Mb_3M-02-.085)

REL_DENSITY:

The number and average of all results, expressed in terms of saturated surface dry conditions, of all Relative Density testing on samples from the deposit, in accordance with CSA standard A23.2-12A. (e.g. Rel Density-12-2.62)

MATERIAL QUANTITY (all in cubic metres):

Calculated and/or estimated volumes of granular material contained in the deposit, expressed in terms of DIAND-designated material classes, and in terms of confidence level of the quantities determined in accordance with the following definitions:

CLASS:

DIAND has developed a simple classification system for granular resources, presented in the draft Territorial and Public Lands Pits and Quarries Regulations, which considers both the Unified Soil Classification of materials, and their most suitable end use. The quantity estimates should be given, where possible, in terms of each of the five material classes, as defined in each class field (see CQ to CU, below), and in terms of the total (see CV) for the deposit.

CN - PROVEN VOLUME:

Material in each class whose occurrence, distribution, thickness and quality is supported with a high degree of confidence by ground truth such as geotechnical drilling, test pitting, and/or exposed stratigraphic sections. The thickness of material encountered in a borehole is usually extrapolated to a radius not exceeding 50 metres around the hole, with adjustments applied by assessing landform type and anticipated or known deposit homogeneity.

CO - PROBABLE VOLUME:

Material in each class whose existence and extent is inferred on the basis of several types of direct and indirect evidence, including topography, landform characteristics, airphoto interpretation, extrapolation of stratigraphy, geophysical data and/or limited sampling. Additional investigation is needed to determine a reliable material volume. The volume is estimated by projecting known parameters (typically those of proven resources) over the entire deposit, with adustments for landform type, anticipated homogeneity and other site characteristics such as ice content and drainage.

CP - PROSPECTIVE VOLUME:

Material in each class whose existence is merely speculated on the basis of limited indirect evidence, such as airphoto interpretation and/or general geological considerations. The volume is typically estimated for the maximum areal extent of the deposit and the estimated relief of the geomorphic feature, with adjustments for anticipated site and deposit characteristics.

The material quantities are presented in the following format:

CLASS: PROVEN/PROBABLE/PROSPECTIVE VOLUMES:

CQ - CLASS 1:

The calculated and/or estimated volumes of excellent quality granular material, consisting of clean, well-graded, structurally sound sands and gravels suitable for use as high quality surfacing materials, or as high quality asphalt or concrete aggregate, with a minimum of processing.

CR - CLASS 2:

The calculated and/or estimated volumes of good quality granular material, consisting of well-graded sands and gravels with varying, limited quantities of silt (fines), and suitable for use as good quality base and surface course aggregates, embankment or structure-supporting fill. May be suitable for production of concrete aggregate with extensive processing, except where deleterious material is present.

CS - CLASS 3:

The calculated and/or estimated volumes of fair quality granular material, consisting of generally poorly-graded sands and gravels with or without substantial quantities of silt (fines), and suitable for fair quality general fill (subbase, base, embankment fill) for roads, flexible foundation pads, or lay-down yards.

CT - CLASS 4:

The calculated and/or estimated volumes of poor quality granular material, consisting of generally poorly-graded, silty fine sands with minor gravels, with or without weak particles and deleterious materials, and suitable for marginal general (non-structural) fill.

CU - CLASS 5:

The calculated and/or estimated volumes of fair to excellent quality bedrock, felsenmeer, talus or similar extremely coarse granular material, suitable for quarrying and processing to produce potentially excellent construction materials ranging from general fill, to concrete aggregate, building stone, and erosion control materials such as rip rap or armour stone.

CV - TOTAL VOLUME:

The calculated and/or estimated volume of all of the above classes of granular materials potentially available in the deposit.

CW - TOTAL RECOVERABLE:

The calculated or estimated volume of useable granular material from the deposit, based on the maximum areal extent of useable material in the deposit, and the anticipated maximum recoverable thickness, as determined from test pit and borehole information or inferred from assessment of deposit and site characteristics.

CX - ANNUAL RECOVERABLE:

The calculated or estimated volume of material which is likely to be recovered in a single extraction season, based on the maximum areal extent of useable material in the deposit, and the anticipated maximum thickness of annual thawing of surficial materials, as determined from test pit and borehole information or inferred from assessment of deposit and site characteristics.

CY - STUDY PRIORITY:

Priority of granular source to receive further study (e.g. high).

The following fields record compilation data:

C1 - RECORD COMPILED BY:

The name of the contractor or person who originally compiled the database.

C2 - DATE COMPILED:

The original compiliation date of the information presented for the subject granular materials deposit, presented in the format: mm/dd/yy (e.g. 12/13/87).

C3 - COMPILATION PROJECT NUMBER:

Job number of the contractor or person who originally compiled the database.

C4 - RECORD UPDATED BY:

Listing of contractors or persons who have subsequently undertaken significant updating of the content of the database (e.g. Granular Resource Consultants Ltd./J. Doe).

C5 - LAST UPDATE:

The date of the last update of the information presented for the subject granular materials deposit, presented in the format: mm/dd/yy (e.g. 12/13/87).

C6 - UPDATE PROJECT NUMBER:

Job number of the contractor or person who most recently updated the database.

DATABASE STRUCTURES FOR NORTH AND SOUTH MACKENZIE VALLEY GRANULAR SOURCE DATABASES

Structure for database: C:SRCE92NM.dbf
Number of data records: 558
Date of last update : 12/07/92

Structure for database: C:SRCE92SM.dbf
Number of data records: 762
Date of last update : 12/08/92

Field	Field Name	Type	Width	Dec
1	O_STUDY_NO	Character	12	
2	STUDY_NO	Character	12	
3	ASN_SRC_NO	Character	6	
4	SOURCE_NO	Character	12	
5	STUDY_REF	Character	132	
6	SOURCE_REF	Character	125	
7	NTS_REF	Character	15	
8	LOCAL_NAME	Character	25	
9	MAP_DIG_NO	Character	5	
10	LOC_MAP_SC	Character	8	
11	LOCATION	Character	100	
12	CN_LAT_DEG	Numeric	8	5
13	CN_LON_DEG	Numeric	9	5
14	CN_ZONE	Numeric	2	
15	CN_EAST	Numeric	6	
16	CN_NORTH	Numeric	7	
17	COR_NO_NAM	Character	50	
18	KILO_POST	Numeric	6	1
19	OFST_DS_DR	Character	37	
20	DISTANCE	Character	10	
21	ACCESS	Character	150	
22	CONDITION	Character	40	
23	AREA	Numeric	4	
24	SIT_PLN_SC	Character	8	
25	PLN_DIG_NO	Character	5	
26	LND_TENURE	Character	30	
27	STATUS	Character	22	
28	STOCK_TYPE	Character	30	
29	STOCK_QUAN	Character	15	
30	PAST_USE	Character	75	
31	EXC_VOL_MH	Numeric	9	
32	EXC_VOL_PL	Numeric	9	
33	PERF_RATIN	Character	50	
34	INVEST_LEV	Character	25	
35	LAST_DATE	Character	4	
36	GEPHYS_DAT	Character	60	
37	THDENSITY	Character	10	
38	BHOLE_NO	Numeric	4	
39	BHOLE_DEPT	Character	14	
40	TESTP_NO	Numeric	3	
41	TESTP_DEPT	Character	14	
42	EXPOS_NO	Numeric	3	
43	EXPOS_DEPT	Character	14	
44	DATAQUALIT	Character	40	
45	GENERIC_OR	Character	25	
46	LANDFORM	Character	50	

47	TOPOGRAPHY	Character	20
48	SLOPE	Character	25
49	DRAINAGE	Character	40
50	VEGETATION	Character	75
51	PERMF_FEAT	Character	60
52	ACTV_LAYER	Character	11
53	ACTV_DATE	Date	8
54	GRANULR_TP	Character	150
55	GRANULR_TH	Character	14
56	OVRBURD_TP	Character	30
57	OVRBURD_TH	Character	14
58	UNDRBUR_TP	Character	30
59	DEV_CONSTR	Character	180
60	DEV_POTENT	Character	20
61	USC_NO	Numeric	3
62	USC_CLASS	Character	30
63	MC_NO	Numeric	3
64	MC_RESULTS	Character	14
65	SIZANAL_NO	Numeric	3
66	OVERSIZE	Character	8
67	GRAVEL	Character	8
68	SAND	Character	8
69	FINES	Character	8
70	D_50	Character	17
71	PETRO_NO	Numeric	3
72	PETRO_RESU	Character	11
73	OTHERTESTS	Character	152
74	CLASS_1	Character	32
75	CLASS_2	Character	32
76	CLASS_3	Character	32
77	CLASS_4	Character	32
78	CLASS_5	Character	32
79	TOTAL_VOLU	Numeric	9
80	PROV_VOL	Numeric	9
81	PROB_VOL	Numeric	9
82	PROS_VOL	Numeric	9
83	TOTAL_RECO	Numeric	9
84	ANNUAL_REC	Numeric	8
85	STDY_PRIOR	Character	15
86	COMPILER	Character	120
87	COMP_DATE	Date	8
88	CO_PROJ_NO	Character	15
89	UPDATE_BY	Character	120
90	UPDT_DATE	Date	8
91	UP_PROJ_NO	Character	15
** Total **			2760

MACKENZIE VALLEY TRANSPORTATION CORRIDOR (NWT)
GRANULAR RESOURCES DATABASE
SOURCE DATABASE DATA SHEET

========== PART A: LOCATION AND STATUS ==========

SOURCE NUMBER : 100 STUDY NO. : EWB73MH1 ASSIGNED SOURCE NUMBER: 7.043
NTS MAP REFERENCE : 96-E(6) DIGITIZ NO: NR MAP SCALE : 1:NR
UTM ZONE-EASTING : 9 - 584500 LOCATION : W of Billy Creek N of Mac
UTM NORTHING : 7249900
LOCAL NAME(S) : NOT RECORDED
CORRIDOR NO./NAME : 03 - MACKENZIE VALLEY
KILOMETRE POST : OFFSET(m) : SEE AC
CROSS REFERENCES : HAL86NM,EWB73MH1,EWB73MH2

SOURCE ACCESS : Mackenzie Hwy
ACCESS DISTANCE (m): SEE ACCESS CONDITION : SEE ACCESS
AREA (ha) : 1 SITE SCALE: 1:NR DIGITIZ NO: NR

LAND TENURE : NOT RECORDED STATUS : NOT RECORDED
PAST USE - SOURCE : SEE EXC_VOL_MH (HIGHWAY) AND EXC_VOL_PL (PIPELINE) IN M^3 STOCKPILE - TYPE : NOT RECORDED
- QUANTITY : NOT RECORDED
PERFORMANCE RATING : NOT RECORDED

==========PART B: SOURCE INVESTIGATION AND DESCRIPTIVE INFORMATION ==========

INVESTIGATION LEVEL: NOT RECORDED LAST INVEST DATE : NR
GEOPHYSICAL DATA : NOT RECORDED TEST HOLE DENSITY (#/ha): 5.
BOREHOLES - NUMBER : 8 TEST PITS - NO. : 0 EXPOSURES - NO. : 0
- DEPTH (m) : 5.50 (MAX) - DEPTH (m): 0.00 (MAX - DEPTH (m) : NOT RECORDED
DATA QUALITY : fair
SOURCE TOPOGRAPHY : NOT RECORDED SLOPE: NOT RECORDED
AREA DRAINAGE : -
SOURCE VEGETATION : NOT RECORDED
PERMAFROST FEATURES: ICE CONTENT - high
ACTIVE LAYER (m) : NOT REC'D DESCRIPTION DATE :
GENERIC ORIGIN : aeolian LANDFORM(S) : sand dunes
GRANULAR - TYPE : SAND OVERBURDEN-TYPE : peat & silt
- THICKNESS (m) : 3.50 - THICKNESS (m) : 0-0.8
UNDERBURDEN : NOT RECORDED
DEVELOP. CONSTRAINT: -
DEVELOP. POTENTIAL : poor to unsuitable

========== PART C: TEST RESULTS AND MATERIAL QUANTITY ==========

USC - NUMBER : MOISTURE CONTENT-NUMBER : 32
CLASS : NOT RECORDED SAND (%): NOT RECO -RESULTS: NOT RECORDED
SIZE ANALYSIS-NO. : 2 GRAVEL (%) : NOT RECO FINES (%): NOT RECO
- OVERSIZE (%) : NOT RECO D-50 (um) : NOT RECORDED

PETROGRAPHIC ANALYSIS-NO. OF TESTS: 0 RESULTS: NOT RECORD

OTHER TESTS (see the DATA DICTIONARY) : 0

MATERIAL QUANTITY (All in cubic metres) CLASS 1:
CLASS 2:
TOTAL RECOVERABLE : 50000 CLASS 3:
ANNUAL RECOVERABLE : CLASS 4: 0/ 50000/ 0
TOTAL VOLUME : 50000 CLASS 5:
PROVEN : 0 PROBABLE : 50000 PROSPECTIVE : 0

========== UPDATE INFORMATION ==========

RECORD UPDATED BY : EBA ENGINEERING CONSULTANTS LTD.
LAST UPDATE : 12/07/92
UPDATE PROJECT NO. : 0101-11085

MACKENZIE VALLEY TRANSPORTATION CORRIDOR (NWT)
GRANULAR RESOURCES DATABASE
SOURCE DATABASE DATA SHEET

========== PART A: LOCATION AND STATUS ==========

SOURCE NUMBER : 7.43 STUDY NO. : HAL86NM ASSIGNED SOURCE NUMBER: 7.044
NTS MAP REFERENCE : 96-E(6) DIGITIZ NO: NR MAP SCALE : 1:NR
UTM ZONE-EASTING : 9 - 564000 LOCATION : along Carcajou River
UTM NORTHING : 7240000
LOCAL NAME(S) : NOT RECORDED
CORRIDOR NO./NAME : 03 - MACKENZIE VALLEY
KILOMETRE POST : OFFSET(m) : SEE AC
CROSS REFERENCES : HAL86NM

SOURCE ACCESS : undeveloped winter road, thermokarst, summer barge
ACCESS DISTANCE (m): SEE ACCESS CONDITION : SEE ACCESS
AREA (ha) : 0 SITE SCALE: 1:NR DIGITIZ NO: NR

LAND TENURE : NOT RECORDED STATUS : NOT RECORDED
PAST USE - SOURCE : SEE EXC_VOL_MH (HIGHWAY) AND STOCKPILE - TYPE : NOT RECORDED
EXC_VOL_PL (PIPELINE) IN M^3 - QUANTITY : NOT RECORDED
PERFORMANCE RATING : NOT RECORDED

==========PART B: SOURCE INVESTIGATION AND DESCRIPTIVE INFORMATION ==========

INVESTIGATION LEVEL: NOT RECORDED LAST INVEST DATE : NR
GEOPHYSICAL DATA : NOT RECORDED TEST HOLE DENSITY (#/ha): 0.
BOREHOLES - NUMBER : 0 TEST PITS - NO. : 0 EXPOSURES - NO. : 0
- DEPTH (m) : 0.00 (MAX) - DEPTH (m): 0.00 (MAX - DEPTH (m) : NOT RECORDED
DATA QUALITY : none
SOURCE TOPOGRAPHY : NOT RECORDED SLOPE: NOT RECORDED
AREA DRAINAGE : -
SOURCE VEGETATION : NOT RECORDED
PERMAFROST FEATURES: ICE CONTENT -
ACTIVE LAYER (m) : NOT REC'D DESCRIPTION DATE :
GENERIC ORIGIN : fluvial LANDFORM(S) : fluvial floodplain
GRANULAR - TYPE : SAND AND SILTE OVERBURDEN-TYPE : -
- THICKNESS (m) : 4.50 - THICKNESS (m) :
UNDERBURDEN : NOT RECORDED
DEVELOP. CONSTRAINT: siltation of Carcajou River
DEVELOP. POTENTIAL : unsuitable

========== PART C: TEST RESULTS AND MATERIAL QUANTITY ==========

USC - NUMBER : MOISTURE CONTENT-NUMBER : 0
CLASS : NOT RECORDED SAND (%): NOT RECO -RESULTS: NOT RECORDED
SIZE ANALYSIS-NO. : 0 GRAVEL (%) : NOT RECO FINES (%): NOT RECO
- OVERSIZE (%) : NOT RECO D-50 (um) : NOT RECORDED

PETROGRAPHIC ANALYSIS-NO. OF TESTS: 0 RESULTS: NOT RECORD

OTHER TESTS (see the DATA DICTIONARY) : 0

MATERIAL QUANTITY (All in cubic metres) CLASS 1:
CLASS 2:
TOTAL RECOVERABLE : 0 CLASS 3:
ANNUAL RECOVERABLE : CLASS 4: 0/ 0/ 450000
TOTAL VOLUME : 0 CLASS 5:
PROVEN : 0 PROBABLE : 0 PROSPECTIVE : 450000

========== UPDATE INFORMATION ==========

RECORD UPDATED BY : EBA ENGINEERING CONSULTANTS LTD.
LAST UPDATE : 12/07/92
UPDATE PROJECT NO. : 0101-11085

MACKENZIE VALLEY TRANSPORTATION CORRIDOR (NWT)
GRANULAR RESOURCES DATABASE
SOURCE DATABASE DATA SHEET

========== PART A: LOCATION AND STATUS ==========

SOURCE NUMBER : 1054 STUDY NO. : EBA74FGAR ASSIGNED SOURCE NUMBER:
NTS MAP REFERENCE : 1060/ DIGITIZ NO: MAP SCALE : 1:250000
UTM ZONE-EASTING : 9 - 424000 LOCATION : 24km NW Little Chicago
UTM NORTHING : 7466400
LOCAL NAME(S) :
CORRIDOR NO./NAME : 00-Mackenzie Highway
KILOMETRE POST : 0.0 OFFSET(m) : 14000R
CROSS REFERENCES : TEC76MV

SOURCE ACCESS : ice bridge across Mackenzie R. required
ACCESS DISTANCE (m): 0 CONDITION : undeveloped; winter road, summer barge
AREA (ha) : 80 SITE SCALE: 1:36000 DIGITIZ NO:

LAND TENURE : STATUS : undeveloped
PAST USE - SOURCE : STOCKPILE - TYPE : NOT RECORDED
PERFORMANCE RATING : - QUANTITY : NOT RECORDED

==========PART B: SOURCE INVESTIGATION AND DESCRIPTIVE INFORMATION ==========

INVESTIGATION LEVEL: exploratory drilling LAST INVEST DATE : 1976
GEOPHYSICAL DATA : TEST HOLE DENSITY (#/ha): 0.
BOREHOLES - NUMBER : 2 TEST PITS - NO. : 2 EXPOSURES - NO. : 0
- DEPTH (m) : 01.5-03.6-05.6 - DEPTH (m): 0.9-0.9-0.9 - DEPTH (m) :
DATA QUALITY : NOT RECORDED
SOURCE TOPOGRAPHY : flat with scarp SLOPE:
AREA DRAINAGE : good
SOURCE VEGETATION : moderate to dense spruce; mixed conifer; muskeg
PERMAFROST FEATURES: limited Vc in 1 BH
ACTIVE LAYER (m) : 3.9-3.9-3.9 DESCRIPTION DATE : 09/26/73
GENERIC ORIGIN : glaciofluvial LANDFORM(S) : outwash, esker compl
GRANULAR - TYPE : GRAVEL - sandy, some silt OVERBURDEN-TYPE : PEAT- over clay
- THICKNESS (m) : 00.9-03.0-05.2 - THICKNESS (m) : 0.0-0.1-0.2
UNDERBURDEN :
DEVELOP. CONSTRAINT: access (difficult & long)
DEVELOP. POTENTIAL : good

========== PART C: TEST RESULTS AND MATERIAL QUANTITY ==========

USC - NUMBER : 4 MOISTURE CONTENT-NUMBER : 9
CLASS : SM/GM/GP-GM -RESULTS: 02-11-048
SIZE ANALYSIS-NO. : 4 GRAVEL (%) : 21-41-55 SAND (%): 31-43-54 FINES (%): 05-16-31
- OVERSIZE (%) : D-50 (um) :

PETROGRAPHIC ANALYSIS-NO. OF TESTS: 0 RESULTS:

OTHER TESTS (see the DATA DICTIONARY) :

MATERIAL QUANTITY (All in cubic metres)

CLASS 1:	0/	0/	0
CLASS 2:	0/	0/	0
CLASS 3:	300000/	1500000/	30000000
CLASS 4:	0/	0/	0
CLASS 5:	0/	0/	0

TOTAL RECOVERABLE : 1500000
ANNUAL RECOVERABLE : 0
TOTAL VOLUME : 3000000
PROVEN : 300000 PROBABLE : 1500000 PROSPECTIVE : 30000000

========== UPDATE INFORMATION ==========

RECORD UPDATED BY : EBA ENGINEERING CONSULTANTS LTD.
LAST UPDATE : 12/07/92
UPDATE PROJECT NO. : 0101-11085

MACKENZIE VALLEY TRANSPORTATION CORRIDOR (NWT)
GRANULAR RESOURCES DATABASE
SOURCE DATABASE DATA SHEET

========== PART A: LOCATION AND STATUS ==========

SOURCE NUMBER : 1055 STUDY NO. : EBA74FGAR ASSIGNED SOURCE NUMBER:
NTS MAP REFERENCE : 1060/ DIGITIZ NO: MAP SCALE : 1:250000
UTM ZONE-EASTING : 9 - 420500 LOCATION : 31km NW Little Chicago
UTM NORTHING : 7469030
LOCAL NAME(S) :
CORRIDOR NO./NAME : 00-Mackenzie Highway
KILOMETRE POST : 0.0 OFFSET(m) : 14000R
CROSS REFERENCES : TEC76MV

SOURCE ACCESS :
ACCESS DISTANCE (m): 0 CONDITION : undeveloped; winter road, summer barge
AREA (ha) : 20 SITE SCALE: 1:36000 DIGITIZ NO:

LAND TENURE : STATUS : undeveloped
PAST USE - SOURCE : STOCKPILE - TYPE : NOT RECORDED
PERFORMANCE RATING : - QUANTITY : NOT RECORDED

==========PART B: SOURCE INVESTIGATION AND DESCRIPTIVE INFORMATION ==========

INVESTIGATION LEVEL: reconnaissance LAST INVEST DATE : 1976
GEOPHYSICAL DATA : TEST HOLE DENSITY (#/ha): 0.
BOREHOLES - NUMBER : 0 TEST PITS - NO. : 2 EXPOSURES - NO. : 0
- DEPTH (m) : - DEPTH (m): 0.6-0.8-0.9 - DEPTH (m) :
DATA QUALITY : NOT RECORDED
SOURCE TOPOGRAPHY : flat SLOPE:
AREA DRAINAGE : good
SOURCE VEGETATION : mature dense spruce; mixed conifer
PERMAFROST FEATURES:
ACTIVE LAYER (m) : DESCRIPTION DATE :
GENERIC ORIGIN : glaciofluvial LANDFORM(S) : esker
GRANULAR - TYPE : GRAVEL AND SAND - trace silt OVERBURDEN-TYPE : PEAT- occasionally over clay
- THICKNESS (m) : 00.8-00.8 00.8 - THICKNESS (m) : 0.2-0.4-0.6
UNDERBURDEN :
DEVELOP. CONSTRAINT: access (difficult & long)
DEVELOP. POTENTIAL : fair to good

========== PART C: TEST RESULTS AND MATERIAL QUANTITY ==========

USC - NUMBER : 0 MOISTURE CONTENT-NUMBER : 1
CLASS : -RESULTS: 04-04-004
SIZE ANALYSIS-NO. : 1 GRAVEL (%) : 62-62-62 SAND (%): 33-33-33 FINES (%): 05-05-05
- OVERSIZE (%) : D-50 (um) :

PETROGRAPHIC ANALYSIS-NO. OF TESTS: 0 RESULTS:

OTHER TESTS (see the DATA DICTIONARY) :

MATERIAL QUANTITY (All in cubic metres)

CLASS 1:	0/	0/	0
CLASS 2:	45000/	450000/	3500000
CLASS 3:	0/	0/	0
CLASS 4:	0/	0/	0
CLASS 5:	0/	0/	0

TOTAL RECOVERABLE : 450000
ANNUAL RECOVERABLE : 0
TOTAL VOLUME : 3500000
PROVEN : 45000 PROBABLE : 450000 PROSPECTIVE : 3500000

========== UPDATE INFORMATION ==========

RECORD UPDATED BY : EBA ENGINEERING CONSULTANTS LTD.
LAST UPDATE : 12/07/92
UPDATE PROJECT NO. : 0101-11085

APPENDIX C

REFERENCE LISTS FROM PREVIOUS DATABASE REPORTS

EBA 1988
BENNETT 1988

LIST OF EBA 1988 CROSS-REFERENCES (from 0306-34395 report)

1 - Northern Engineering Services Company Ltd. (1975). Pipeline Borrow Investigations. Fort Good Hope, N.W.T. to Latitude 60°N, Vol. III.

2 - Pemcan Services (1972) Ltd. (1973). Granular Materials Inventory. Intercommunity Study Area. Fort Simpson to Wrigley, N.W.T. For Department of Indian Affairs and Northern Development.

3 - Northern Engineering Services Company Ltd. (1973). Pipeline Related Borrow Studies. For Canadian Arctic Gas Study Ltd.

4 - Pemcan Services (1972) Ltd. (1973). Granular Materials Inventory. Intercommunity Study Area. Wrigley to Fort Norman, N.W.T. Book I - Wrigley to Blackwater River, Book II - Blackwater River to Fort Norman. For Department of Indian Affairs and Northern Development.

5 - Pemcan Services (1972) Ltd. (1973). Granular Materials Inventory. Community Study Area. Fort Simpson, N.W.T. For Department of Indian Affairs and Northern Development.

6 - Northern Engineering Services Company Ltd. (1975). Pipeline Related Borrow Studies - Cross Delta Alternative Route and East of Fort Simpson Realignment. For Canadian Arctic Gas Study Ltd.

7 - Pemcan Services (1972) Ltd. (1973). Granular Materials Inventory. Intercommunity Study Area. Fort Norman to Norman Wells, N.W.T. For Department of Indian Affairs and Northern Development.

8 - Pemcan Services (1972) Ltd. (1973). Granular Materials Inventory. Community Study Area. Fort Norman, N.W.T. For Department of Indian Affairs and Northern Development.

9 - Pemcan Services (1972) Ltd. (1973). Granular Materials Inventory. Community Study Area. Wrigley, N.W.T. For Department of Indian Affairs and Northern Development.

10 - Pemcan Services (1972) Ltd. (1973). Granular Materials Inventory. Community Study Area. Norman Wells, N.W.T. For Department of Indian Affairs and Northern Development.

11 - Pemcan Services (1972) Ltd. (1973). Granular Materials Inventory. Community Study Area. Fort Simpson, N.W.T. For Department of Indian Affairs and Northern Development.

LIST OF EBA, 1988 CROSS-REFERENCES continued

11A to

19 - Geological Survey of Canada (1973). Granular Resource Inventory. Southern Mackenzie Valley, N.W.T.
- 11 - Fort Simpson 95-H
- 12 - Trout Lake 95-A
- 13 - Dahadinni River 95-H
- 14 - Bulmer Lake 95-I
- 15 - Fort Liard 95-K
- 16 - Wrigley 95-O
- 17 - Sibbeston Lake 95-G
- 18 - Mills Lake 85-E
- 19 - Kakisa River 85-D

20 - Environmental - Social Program Northern Pipelines (1973). Terrain Evaluation Mackenzie Transportation Corridor, Southern Part (Lat 60° - 64° N).

21 - EBA Engineering Consultants Ltd. (1980). Mackenzie Valley Pipeline Assessment. For Department of Indian Affairs and Northern Development.

22 - Pipeline Application Assessment Group (1974). Mackenzie Valley Pipeline Assessment. For Department of Indian Affairs and Northern Development.

23 - Interprovincial Pipeline (NW) Ltd. (1980). Norman Wells Pipeline Project. Environmental Impact Statement, Vol. 3A of 4.

24 - Public Works Canada, Western Region. Geotechnical Investigation (1975). Mile 347 to Mile 690, Mackenzie Highway, Vol. 1 - Report.

25 - Department of Public Works (1973). Mackenzie Highway, Mile 346 to Mile 450. Geotechnical Investigation, Vol. 9 - Photomosaics.

26 - Department of Public Works. In-house, Gravel Search:
- a) Fort Simpson to Camsell Bend - Blue Shading (hand dug test holes, 1976 September), Green Shading (drilled test holes, 1986 February).
- b) Red Shading - Camsell Bend to River-Between-Two_Mountains (hand dug test holes, 1982 September).

27 - Public Works Canada, January 1981. Final Report - Contract no. 35-4-2026. Mackenzie Highway Construction, N.W.T. - Mile 347.03 to Mile 394.60 - Clearing, Grading, Grubbing, Drainage and Structures - Project 085965.

LIST OF EBA, 1988 CROSS-REFERENCES continued

28 - Department of Public Works, November 1986. As-built drawings, Mackenzie Highway, N.W.T.
- M.P. 296-344
- M.P. 345-394
- M.P. 395-425
- M.P. 426-450

29 to
36 Geological Survey of Canada (1973). Granular Resources Inventory, Southern Mackenzie Valley, N.W.T.
29 - Camsell Bend 95-J
30 - Norman Wells 96-E
31 - Norman Wells - Addendum 96-E
32 - Blackwater Lake 96-B
33 - Fort Norman 96-C
34 - Mahony Lake 96-F
35 - Carcajou Canyon 96-D
36 - Grain Size Analysis from (95-N,O,K,J,G,H,I,B,A, 85-D,E)

37 - Interprovincial Pipeline (NW) Ltd. (1980). Norman Wells Pipeline Projects. Environmental Impact Statement, Vol 3C of 4.

38 - E.W. Brooker and Associates Ltd. (1973). Mackenzie Highway Geotechnical Evaluation, Vol. XIV, Borrow Borehole Logs, Mosaics and Borrow Profiles, Borrow Area Summary Table. Section V, Mile 648 to Mile 632, Mackenzie Highway.

39 - Hardy Associates (1978) Ltd. (1986). Granular Resource Potential, Lower Mackenzie Valley (1986). For Indian and Northern Affairs Canada.

40 - Department of Public Works. Maps 1-5, Community Supply of Granular Material - not published, supplied by Sandy Murray, Project Officer, DPW and Highways Transportation, Engineering Division, Yellowknife, N.W.T.

41 - E.W. Brooker and Associates Ltd. (1973). Mackenzie Highway Geotechnical Evaluation, Vol. I. Centreline Subgrade Conditions and Borrow Resources, Mile 632 to Mile 725.

42 - E.W. Brooker and Associates Ltd. (1973). Mackenzie Highway Geotechnical Evaluation, Vol. III. Airphoto Mosaics, Borrow Borehole Profiles and Centreline Terrain Summary, Mile 674 to Mile 632.

LIST OF EBA, 1988 CROSS-REFERENCES continued

43 to
46 - Public Works Canada, Western Region. Geotechnical Investigation, Mile 347 to Mile 690, Mackenzie Highway Winter 1975.
43 - Volume II - Soil Data Mile 347 to 440.
44 - Volume III - Soil Data Mile 440 to 510.
45 - Volume IV - Soil Data Mile 510 to 583.
46 - Volume V - Soil Data Mile 583 to 690.

47 - Department of Public Works. As-built maps, Mile 229.032 to Mile 297.865, Mackenzie Highway, Project No. 82248

48 - Department of Public Works. As-built maps, Mackenzie Highway, Mile 86 to Mile 117.4, Project No. 02225

49 - R.M. Hardy and Associates Ltd. (1973 April 20). Geotechnical Investigations, Mackenzie Highway, Mile 544 to Mile 635, Vol.1.

50 - Environmental and Social-Economic Effects of the Proposed Canadian Arctic Gas Pipeline on the Northwest Territories and Yukon.

51 - EBA Engineering Consultants Ltd. (1987 April). An Evaluation of the Feasibility of Developing Granular Borrow from the Bed of the Mackenzie River. For Indian and Northern Affairs Canada.

52 - MacLaren Plansearch (1982). Environmental Guidelines, Pits and Quarries. For Indian and Northern Affairs Canada.

LIST OF BENNETT 1988 CROSS-REFERENCES (from LBCon 1988 report)

A-0101-1 EBA Engineering Consultants Ltd. (1973). Stage III, Granular Materials Inventory: Volumes I, II, III, IV. Department of Indian Affairs and Northern Development.

A-0102-1 Pemcan Services "72" Ltd. (1972) Community Study Area, Norman Wells, Granular Materials Inventory, Stage I, Department of Indian Affairs and Northern Development.

A-0102-1 Pemcan Services "72" Ltd. (1972) Community Study Area, Fort Good Hope, Granular Materials Inventory, Stage I, Department of Indian Affairs and Northern Development.

A-0102-1 Pemcan Services "72" Ltd. (1972) Intercommunity Study Area, Norman Wells to Fort Good Hope, Granular Materials Inventory, Stage I, Department of Indian Affairs and Northern Development.

A-0103-1 Ripley, Klohn and Leonoff International Ltd. (1973). Stage II, Granular Materials Inventory: Zone IV, V, VI (zone IV not used for Bennett's work). Department of Indian Affairs and Northern Development.

A-0103-1 Ripley, Klohn and Leonoff International Ltd. (1973). Arctic Red River, N.W.T., Community Granular Materials Inventory. Department of Indian Affairs and Northern Development.

A-0103-1 Ripley, Klohn and Leonoff International Ltd. (1973). Fort MacPherson, N.W.T., Community Granular Materials Inventory. Department of Indian Affairs and Northern Development.

A-0104-1 Northern Engineering Services Company Ltd. (1976,1975). Pipeline Related Borrow Investigations, Richards Island to Fort Good Hope, N.W.T. Volume III, Canadian Arctic Gas Study Ltd.

A-105-01 or
A-0105-1 Techman Ltd. (1976). Preliminary Borrow Source Study, Mackenzie Valley Corridor, Volumes I, II, III, IV. Beaufort Delta Oil Project Ltd.

- Hardy Associates (1978) Ltd. (1986), Granular Resource Potential, Lower Mackenzie Valley, Indian and Northern Affairs Canada.