User Guide
to the
Digital Topographic Data Base 1998 (DTDB98)
of New Brunswick

DOCUMENT VERSION 0.9

SERVICE NEW BRUNSWICK

The material in this Guide reflects SNB's best judgement in light of the information available at the time of its preparation. Any use which a third party makes of this Guide, or any reliance on / or decisions to be made based on it, are the responsibility of such third parties. SNB accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this Guide.

Table of Contents

New Nouveau **Brunswick**

**Service New Brunswick
Services Nouveau-Brunswick**

UGE1998O

Version 0.8
March 6, 2001

Appendices

LIST OF TABLES

LIST OF FIGURES

About this Guide

Purpose

The purpose of this Guide is to provide an introduction to and a working knowledge of the Service New Brunswick (SNB) Digital Topographic Data Base 1998 (DTDB98). The DTDB98 consists of two data base products: the Digital Topographic Data Base (DTDB98) and the Coastal Topographic Data Base (CTDB98). Each DTDB98 file consists of a suite of files containing the planimetric data, the Enhanced Topographic Data Base (ETB98) and the elevation data, Digital Terrain Model Data Base (DTM98).

Scope

This Guide describes the structure and content of the DTDB98 files and provides guidelines for transferring data from SNB to users. *The Guide does not provide step-by-step procedures for using files in Computer Aided Design (CAD), map browser or Geographic Information Systems (GIS).*

Audience

This Guide was prepared to assist those who wish to use digital topographic data within the Province of New Brunswick.

Pre-requisites

This Guide assumes the user has a basic knowledge of digital geographic data and how this data is stored within a CAD system (for example, AutoCad), map browser (for example, MapInfo) or GIS system (for example CARIS) to be used with the DTDB data. A knowledge of Relational Database Management Systems (RDBMS) and the data base design techniques used to store data within these systems is also assumed.

Some GIS software systems require special modules to manipulate and / or display DTM files. If you are unsure, please consult with your GIS vendor.

Versions of the Digital Topographic Data Base

The Digital Topographic Data Base (DTDB) will be updated over time to reflect changes to features contained within it. Each *version* of the DTDB will be identified by a two-digit Version Number. The version means that the files are current to the end of year stated. For example, the version number for files current to the end of 1998 is *98*.

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O

Version 0.8
March 6, 2001

The current version of the DTDB will be indicated as follows:

- the version number will be attached as a suffix to the data base product name in form DTDByy (for example, DTDB98);

- the version number will be attached as a suffix to the file name extensions of the individual DTDB Map Files and DTDB Attribute Files:

  - 1yy   for ETB Road Theme
  - 3yy   for ETB Hydrographic Theme
  - gyy   for all other ETB map theme
  - ryy   for ETB Road Attribute files
  - hyy   for ETB Hydrographic Attribute files
  - nyy   for ETB DNRE Road Attribute files
  - dyy   for Digital Terrain Model files
  - rxf   for *.198 files in DXF format
  - hxf   for *.398 files in DXF format
  - gxf   for *.g98 files in DXF format; and
  - xyz   for Digital Terrain Model data in xyz format

For ETB98 files, the file name extensions for the above files is 198, 398, G98, H98, R98, and N98 respectively.

For DTM98 files, the file name extension is D98.

Each version of the DTDB will also be associated with a Specification Number, which identifies the level of the structuring specification used to compile the data.

Current Version and Structuring Specification of the DTDB

Version: 98 (last changes made at the end of 1998)
Specification: 0.3

Versions of the DTM Data Base

Structuring of the SNB DTM Data Base was completed in 1995. In 1997 this data base was converted to the NAD83(CSRS). The 1998 version was subjected to some minor updates.

Organization

The Guide is divided into nine sections and thirteen appendices.

Section 1   **Installing the Digital Topographic Data Base**

This section deals with the transfer of data from the supplied media to your computer. It provides a set of file naming conventions, lists the files you receive from SNB and provides guidelines for transferring the data. It also provides a "checklist" to ensure that all data has been properly transferred.

Section 2   **Contents of the ETB98 Files**

This section deals with the contents and organization of the ETB98 Files. It defines terms needed to understand the contents and structure of the topographic data, and describes the various sources from which the files were constructed. The section also tells how data is organized within the files, and provides more detailed information on the topologically structured layers. Current limitations of the files are also discussed.

Section 3   **Contents of the ETB98 Attribute Files**

This section deals with the contents and organization of the ETB98 Attribute Files. It defines terms needed to understand the contents and structure of these files, tells how information is organized within the files, and provides an overview of how the attribute files are linked to the topographic files.

Section 4   **Working with the ETB98 Files**

This section provides explanations and guidelines for working with your digital topographic data. It includes guidelines for enhancement of the files, integration of the digital topographic data base files with other datasets, and ongoing maintenance of the files.

Section 5   **Contents of the DTM98 Files**

This section deals with the contents and organization of the Digital Terrain Model (DTM) Files. It defines the terms, explains the format of the files which comprise the data base, and describes the presentation of the data.

New Nouveau
Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Section 6   **Working with the DTM98 Files**

This section provides explanations and guidelines for working with Digital Terrain Model data.

Section 7   **Ordering the Digital Topographic Data Base**

This section contains information on how to order Digital Topographic Data Base (DTDB) files to suit your applications.

Section 8   **Data Licensing Agreement**

This section contains a sample of the SNB Data Licensing Agreement.

Section 9   **SNB Offices**

This section lists the address and telephone number for each of the SNB Offices. The section also includes an order form for Digital Topographic Data Base Files.

Appendix A   **Frequently Asked Questions**

This Appendix provides a list of common questions concerning the Digital Topographic Data Base along with responses to these questions.

Appendix B   **ETB Feature Codes**

This Appendix presents a list of the valid Feature Codes that may be present within the ETB98, along with a description and the topological status of each Feature.

Appendix C   **ETB Feature Codes By File**

This Appendix presents a list of valid Feature Codes broken down by each file *.d98, *.198, *.g98, and *.398.

Appendix D   **Naming Convention of Support Files**

This Appendix provides information on the SNB File Naming Convention of support files.

Appendix E   **Dates of Photography**

This Appendix shows the dates of photography used for the original compilation of the DTDB files on a provincial map overlay.

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Appendix F   PDP and VAX Compilation Areas

This Appendix shows the areas which were compiled using PDP and VAX methods on a provincial map overlay.

Appendix G   Sample ETB File CARIS Header

This Appendix contains the listing for a representative DTDB File CARIS Header.

Appendix H   Feature Codes Used to Define Areas of Exclusion in Digital Terrain Model Files

This Appendix supplies a list of feature codes of digital topographic data used to form the boundaries of areas excluded from the collection of DTM points in the DTM Files.

Appendix I   Location of 1996 and 1997 Photograph.

This Appendix shows the 1996 and 1997 photography used to complete coastal features for DTDB98 1:10,000 windows.

Appendix J   D98 Files With Points With 1 m of Neatline.

This Appendix lists the D98 files with points within 1 metre of the neatline.

Appendix K   Updated Coastal Windows

This Appendix provides a list of windows with coastal features updated from the 1996 and 1997 photography.

Appendix L   DTM's from Contours

This appendix provides a list of map windows with some DTM data collected from contours.

Appendix M   DOT Extra Issues

The appendix provides details of issues identified by NBDOT relating to the 198 and r98 files

Service New Brunswick
Services Nouveau-Brunswick

New <ship> Nouveau
Brunswick

UGE1998O
Version 0.8
March 6, 2001

Appendix N   DTDB98 Merge Utility Program

> The appendix provides details of the DTDB98 map file merge utility. This utility is a tool to aid merging of the individual layers of one or more DTDB98 map files into a single CARIS Edit file.

Document References

This section contains a list of references which the user may find informative for more specific and detailed information concerning digital mapping, Geographic Information Systems, other SNB digital mapping products, and other topics discussed within this guide.

It should be noted that this list is not exhaustive. It rather represents a sample of reference materials which provide further insight into these topics.

1.   *As Built Technical Specifications for the New Brunswick Enhanced Topographic Data Base: Specification 0.3*, Service New Brunswick, February 2001.

2.   *New Brunswick Land and Water Information Standards Manual: 1998 Edition*, Service New Brunswick, July 1998.

New Nouveau **Brunswick**

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

List of Acronyms

The following acronyms are used within this document.

Acronym	Long Form
ASCII	American Standard Code for Information Exchange.
ATS77	Average Terrestrial System, 1977
CAD	Computer Aided Drafting
CARIS	GIS software owned and developed by CARIS.
CARIS ASCII	A data interchange format used with the CARIS GIS software product. This format is used for ETB Data Base files distributed on CD-ROM.
CARIS NTX	A data interchange format used with the CARIS GIS software product.
CD-ROM	Compact Disk Read Only Memory
CTDB	Coastal Topographic Data Base
DPM	Digital Property Maps
DTM	Digital Terrain Model
DTDB	Digital Topographic Data Base
DXF	Digital Exchange Format, a data interchange format used by Map Browser and CAD system like AutoCAD
ETB	Enhanced Topographic Base
FMB	Forest Management Branch, Department of Natural Resources and Energy
FTP	File Transfer Protocol
GIS	Geographic Information System
GPS	Global Positioning System
LRIS	Land Registration Information Service
NAD83(CSRS)	North American Datum 1983 Canadian Spatial Reference System

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Acronym	Long Form
NBDNR&E	New Brunswick Department of Natural Resources and Energy
NBDOT	New Brunswick Department of Transportation
NBGIC	New Brunswick Geographic Information Corporation
NTDB	National Topographic Data Base
NTS	National Topographic System
PDP	Early series of computers manufactured by Digital Equipment Corporation
RDBMS	Relational Data Base Management System
SNB	Service New Brunswick
SODB	Softcopy Orthophotomap Data Base
SQL	Structured Query Language
VAX	A series of computers manufactured by Digital Equipment Corporation
ZIP	Lossless compression method/engine sold by Pkzip

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Quick Facts

The following is a brief summary of the SNB Digital Topographic Data Base (DTDB) product.

Data Base Components

The Digital Topographic Data Base consists of two distinct data bases and a common set of support files:

- the *Enhanced Topographic Base (ETB)* contains two-dimensional (X,Y) topographic features and associated attributes.

- the *Digital Terrain Model (DTM) Data Base* contains elevation data.

- the *DTDB Support Files* contain support files which may be required by CARIS and other GIS users, a Provincial File index to the DTDB, DTDB user documentation in both English and French, Adobe Acrobat software, and various other support files.

ETB

The ETB consists of:

- ETB Graphic Files which contain spatial features.

- ETB *Attribute Files* which contain descriptive text for spatial data features.

DTM Data Base

The Digital Terrain Model Data Base is a digital representation of elevations throughout the Province of New Brunswick, organized into individual DTM Files with the same 1:10 000 windows used for the ETB Data Base. There are no attribute files associated with these files.

Coverage

The DTDB covers the entire Province of New Brunswick. There are 1894 individual 1:10 000 windows encompassing 0.1 degree in longitude (7.5 kilometres) by 0.05 degree in latitude (5.5 kilometres). There are corresponding DTM Files for each of these windows.

Content

ETB Files contain topographic features organized into nine general categories: Buildings, Designated Areas, Delimiters, Land Cover, Land Features, Transportation (Road/Railroad), Structures, Utilities and Hydrography. Transportation and Hydrography are each maintained in their own files, *.198,*.398 respectively. The remaining seven general categories are maintained in one *.g98 file.

DTM Files, *.d98, contain elevation mass points, check points, and spot heights.

Service New Brunswick
Services Nouveau-Brunswick

New Nouveau Brunswick

UGE1998O
Version 0.8
March 6, 2001

Spatial Framework	Reference System:	NAD83(CSRS)
	Projection:	Stereographic Double
	Resolution (XY):	1.0 metre
	Resolution (Z):	0.1 metre
	Nominal Scale:	1:10 000
	Accuracy:	± 2.5 metres for well defined features

Logical Consistency   The Transportation and Hydrography Themes of the ETB have been structured to New Brunswick logical consistency standards. All other data is unstructured at this time.

Currency   The Transportation Themes of the ETB are current as of late 1998. Coastal Features, Coastal Buildings, and Coastal Hydrography themes of the ETB are current as of 1996 or 1997 (See Appendix I). A list of these 1:10 000 windows are provided in Appendix K. All other data are current as of the date of the original photography from which they were derived (See Appendix E).

Attributes   Index keys are present for Transportation linear features and for Hydrography linear features, coastal feature polygons, and waterbody polygons within the ETB Data Base. SNB feature attribute files are available for these features.

No other features currently have index keys.

CARIS Source Identifier and Feature Code attributes are available for all graphic features.

Availability   Contact your local SNB office (see table 24) or download through the SNB Online (http://www.gnb.ca/snb/e).

Media   Provincial coverage for the Digital Topographic Data Base is distributed on CD-ROM. Users requiring a small number of DTDB files can download these files using the SNB Online service.

Some other media formats may be supplied. Consult your local SNB office for details.

Data Format   DTDB Files are provided in CARIS ASCII and DXF formats. Contact your local SNB office for information on other possible formats.

DTDB Window   Each DTDB File covers a geographic area encompassed by a spatial window extending 0.1 degree in longitude (7.5 kilometres) and 0.05 degree in latitude (5.5 kilometres).

New Nouveau Brunswick

**Service New Brunswick
Services Nouveau-Brunswick**

UGE1998O
Version 0.8
March 6, 2001

Major differences between ETB96 and DTDB98

The major differences between ETB96 and DTDB98 relate to the following:

>   Division of graphic themes
>   New DNRE Road attribute file N98
>   File naming
>   Conversion to NAD83(CSRS) datum
>   New coastal features and coastline
>   Updated coastline in D98
>   Building updates in coastal windows
>   Updated roads and coastal features
>   Elimination of indexed ramp keys

In ETB96 all graphic themes were provided in the *.T96 file. These have been divided into 3 files in ETB98; *.198 for road themes, *.398 for hydrographic themes, and *.G98 for all other themes.

In ETB98 a new attribute file, containing lineage information to DNRE roads was generated. The N98 file contains this lineage information specific for DNRE's use.

In ETB96 a single DXF version of the graphic themes were provided as *.dxf, while in ETB98, it has been divided in 3 files:

>   *.rxf for road themes
>   *.hxf for hydrographic themes
>   *.gxf for general themes

ETB96 files and the DTM files were previously maintained on the ATS77 datum. All ETB98 files and the D98 (DTM) files were translated to NAD83(CSRS).

ETB98 defined and mapped a series of coastline and coastal features. These features were collected from 1996 – 97 aerial photography.

The coastline in the ETB98 has two coastlines. The first line is the landward limit line. It is identified as the most landward edges of Coastal Marshes, Backshore Beaches, Rock Platforms and Dunes. The second line is the ordinary high-water line. It is the most discernible mark on the ground created by the medium high tide between the spring and neap tides.

The two coastlines are combined into one line where the two lines merge.

Coastal features consist of Natural Coastal Features and Associated Coastal Features. These features occur in the area between the two coastlines (ordinary highwater and landward limits lines).

Natural Coastal Features are Backshore Beaches, Backshore Rock Platforms, Coastal Marshes, Dunes and Dyked Land.

Associated Coastal Features are man-made features associated with the Landward Limit of the Coastal Features area, the Ordinary High Water Mark or the Natural Coastal Features. Examples of the features include rip-rap, wharves, breakwaters, drydocks, and dykes.

An elevation value 'z' was collected for each coastline feature WACFOH*. These features were copied into the *.D98 file (WACFOH* in the *.398 do not have a 'z' value).

All data seaward of these new coastlines were removed from the D98 files.

Buildings are updated from aerial photography in the coastal windows as part of ETB98. Buildings on the 1996 – 97 aerial photography were compared to those in the ETB96. Changes were then made to delete buildings that no longer exist and to add new ones.

Features on the Transportation Theme have been updated to reflect late 1998 conditions as contained in the NBDOT Road Inventory Data Base, the NBDNR&E Forest Management Branch Data Base. All other features are current as of the date of the aerial photography from which they have been compiled (coastal features, hydrography and buildings were updated on the coastal windows (CTDB98) of the DTDB with the photography flown in 1996 – 97). The Source Identifier attribute contains information on the currency of individual features. There are 332 windows along the coast line that have been updated. (See Appendix K).

For the purpose of the ETB files, a ramp is defined as a section of road which connects a primary route to a secondary route in the vicinity of an at-grade intersection or grade separated interchange. The Feature Code RRRDRAMP is used to classify the ramps. Ramps were given special consideration within the ETB96 files; they were assigned special index keys which differed in format from those of other road linear features. These only appear in ETB98 as retired records. In ETB98 ramps were treated and indexed following the same rules used on all road features.

SECTION 1 INSTALLING THE DIGITAL TOPOGRAPHIC DATA BASE

INTRODUCTION

This section deals with the transfer of data from the supplied media to your computer. It provides a set of product naming conventions, lists the files you receive from SNB and provides guidelines for transferring the data. It also provides a "checklist" to ensure that all data has been properly transferred.

PRODUCT NAMING CONVENTIONS

In order to avoid confusion when referring to the various data products described within this Guide, the following naming conventions are used to ensure consistency in reference to specific data products and individual files comprising these products.

SNB Digital Data	Refers to the complete collection of digital data products available from SNB, including the Softcopy Orthophotomap Data Base (SODB), Digital Topographic Data Base (DTDB) and the Digital Property Map Data Base (DPM Data Base).
Softcopy Orthophotomap Data Base (SODB)	Refers to the digital files associated with the Provincial Softcopy Orthophotomap Data Base product. It includes the orthophotomap image and its associated files.
Digital Topographic Data Base (DTDB)	Refers to the complete collection of SNB digital topographic data base products. It includes the Enhanced Topographic Base (ETB) and Digital Terrain Models (DTM).
Enhanced Topographic Base (ETB)	Refers to the collection of digital files associated with the ETB product. It includes ETB Graphic Files and ETB Attribute Files.
ETB Graphic Files	Refers to the digital maps (graphic features) of the ETB. These files are organized into individual 1:10 000 windows and subdivided within each window by major thematic group.
ETB Attribute Files	Refers to the non-graphic attributes which describe individual ETB Graphic File features. At present there are three ETB Attribute Files:

- *Road Attribute Files* describe transportation (road / rail) linear features.

- *Natural Resource Road Attribute file, describes the origin of DNRE road features.*

- *Hydrographic Attribute Files describe* hydrographic linear features and waterbody polygons.

Digital Terrain Models (DTM Data Base)	Refers to the digital files of elevation data which are associated with the Digital Topographic Data Base. There is a corresponding DTM Graphic File for each ETB Graphic File.
DTDB Support Files	Refers to the files which are used by CARIS and AutoCAD to define individual DTDB Graphic File features and their display characteristics, as well as user documentation and other miscellaneous support files.
Digital Property Map Data Base (DPM Data Base)	Refers to the digital files associated with the SNB Digital Property Map Data Base product. This product includes DPM Graphic Files and DPM Attribute files.
DPM Graphic Files	Refers to the digital maps of the DPM Data Base. These files contain property parcel polygons which are identified by a unique parcel identifier (PID).
DPM Attribute Files	Refers to the non-graphic attributes which describe individual DPM parcels through the PID.

At present there are two DPM Attribute Files:

- *Parcel Data contains information concerning parcel ownership, size and documents registered against it;*

- *Assessment Data contains information about assessment parcels and the PIDs associated with each assessment parcel.*

NBDOT Road Inventory Data Base	Refers to the collection of digital files maintained by the New Brunswick Department of Transportation (NBDOT) as an inventory of provincial roads.
NBDNR&E Forest Management Branch Data Base (FMB Data Base)	Refers to the collection of digital files maintained by the New Brunswick Department of Natural Resources and Energy (NBDNR&E) as an inventory of forest management areas.

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Figure 1 illustrates the hierarchy associated with the above product naming conventions.
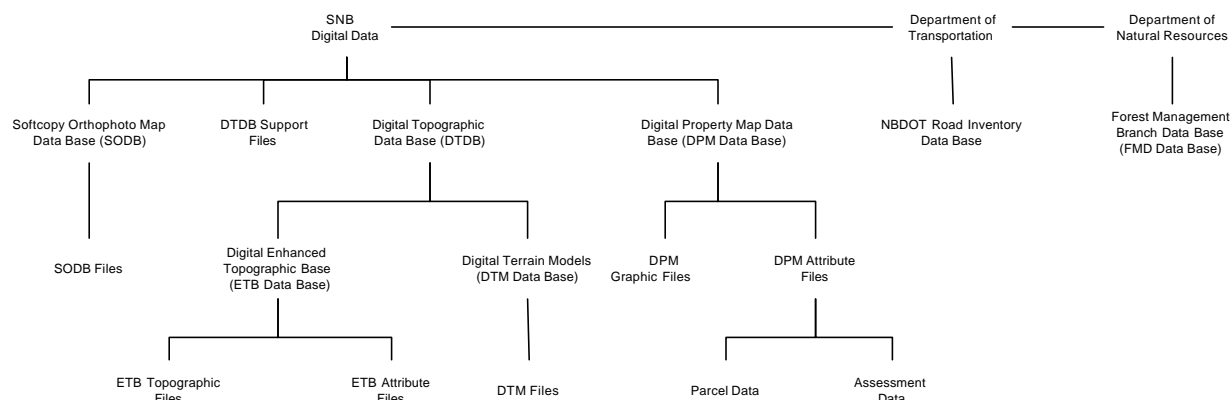
Figure 1 – Product Naming Conventions

RECEIVING THE DTDB GRAPHIC AND ATTRIBUTE FILES

Media
: If the entire provincial coverage of the DTDB is ordered, SNB will normally provide your digital topographic data on CD-ROM. Under certain conditions, data may be provided on other media, such as:

- ZIP diskette
- Various tape media
- Diskette (3.5", 1.44 Mb)
- Files download from the SNB Online
- Files attached to an e-mail

For more information on the use of alternative media, refer to Section 7 of the Guide.

Data Format
: DTDB files distributed on CD-ROM and through the SNB online will be provided in compressed (.zip) file format. Under certain conditions, and when alternate media is requested, files may be provided in alternate data formats. Refer to Section 7 of the Guide for further information concerning data format options.

Data provided
: You will receive on the supplied media a compressed (.zip) file for each 1:10 000 window. Each .zip file will contain the following files:

- A CARIS ASCII 1:10 000 ETB window, containing the Road themes with filename in the form *filename*.1yy, where yy is the version of the digital file.

- A CARIS ASCII 1:10 000 ETB window containing the Hydrographic themes with the form *filename*.3yy.

- A CARIS ASCII 1:10 000 ETB window containing the General theme with the form *filename*.gyy.

- An AutoCAD DXF 1:10 000 ETB window containing the Road themes with the filename in the form *filename*.rxf.

- An AutoCAD DXF 1:10 000 ETB window containing the Hydrographic themes with the filename in the form filename.hxf.

- An AutoCAD DXF 1:10 000 ETB window containing the General themes with the filename in the form filename.gxf.

- ETB Attribute Files for the transportation (.ryy) features, hydrographic (.hyy) features and natural resource roads (.nyy) features associated with each ETB.

- A CARIS ASCII 1:10 000 DTM window corresponding to the ETB window, with filename in the format *filename*.dyy.

- An AutoCAD DXF 1:10 000 DTM window, with filename in the format *filename*.xyz.

DTDB File Names   The naming convention for DTDB files is based upon the latitude and longitude (expressed in decimal degrees) of the South East corner of the window. These file names are coded as follows:

aaaabbbb

Where:

aaaa   Is the North latitude of the SE window corner, expressed as a 4-digit integer number in decimal degrees to the nearest 0.01 degree.

bbbb   Is the West longitude of the SE window corner, expressed as a 4-digit integer number in decimal degrees to the nearest 0.01 degree.

As an example, the DTDB file name for the window having its SE corner at latitude 46º 00' 00" N (i.e., 46.00º) and longitude 66º 54' 00" W (i.e., 66.90º) is 46006690. The corresponding ETB98 and DTM98 file names would therefore be as follows:

Road Theme - ETB File Name:	46006690.198
Hydrographic Theme – ETB File Name:	46006690.398
General Theme – ETB File Name:	46006690.g98
Road Attributes – ETB File Name:	46006690.r98
Hydrographic Attributes – ETB File Name:	46006690.h98
DNRE Road Attributes – ETB File Name:	46006690.n98
DTM File Name:	46006690.d98

Data Packaging   Data supplied on CD-ROM are packaged on two (2) CDs, with each CD containing a set of .zip files for a portion of the province:

- CD 1 contains all DTDB 1:10 000 windows south of latitude 46.5

- CD 2 contains all DTDB 1:10 000 windows north of latitude 46.5

The packaging of data supplied on other media may vary according to the media type and coverage area requested. A packing list will be supplied with each order indicating which files are contained on each individual media unit.

Note that, regardless of the media requested, the DTDB Support Files must be downloaded from the SNB Online site. Refer to Section 7 of this Guide for further information on how to download files using the SNB Online.

Service New Brunswick
Services Nouveau-Brunswick

New ⛴ Nouveau
Brunswick

UGE1998O
Version 0.8
March 6, 2001

RECEIVING THE DTDB SUPPORT FILES

Media   Irrespective of the media on which the DTDB Graphic and Attribute Files are obtained, the DTDB Support Files must be downloaded using the SNB Online. Section 7 of this Guide contains specific instructions for accessing and using the Browser.

Data Format   DTDB Support Files are downloaded in compressed file (.zip) format. These files are divided into the following categories:

- CARIS *Support Files* - These files are required by CARIS GIS software. The complete suite of the CARIS support files have been packaged into a single compressed archive file ETB1998*.zip, where * refers to the version a - z. There are five (5) CARIS Support Files. They are as follows:

    ETB1998A.col   Enhanced Topographic Base 1998 Colour table file (CARIS Format) Version A. This file controls the colour of features.

    ETB1998A.cma   Enhanced Topographic Base 1998 Colour map file (CARIS Format) Version A. This file controls the hue, lightness and saturation of colours.

    ETB1998A.bin   Enhanced Topographic Base 1998 Symbol file (CARIS Binary Format) Version A. This file controls the display of symbols.

    ETB1998A.dat   Enhanced Topographic Base 1998 Symbol file (CARIS ASCII Windows Format) Version A. This file controls the display of symbols.

    ETB1998A.txt   Enhanced Topographic Base 1998 Master file (CARIS Format) Version A. This file is required to load the DTDB files in CARIS.

- AutoCAD *Support Files* – these files are required to properly symbolize DTDB graphic features in AutoCAD. The compressed archive file DXF1998A.zip contains the following two (2) files:

    DXF1998A.shx
    DXF1998A.shp

New Nouveau
Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

- Information Files – these include the Users' Guide and distribution agreement for the Digital Topographic Data Base in English.

  UGE1998A.zip   Digital Topographic Data Base <u>1998</u> <u>U</u>ser <u>G</u>uide in the <u>E</u>nglish language (Adobe Acrobat Format) Version <u>A</u>.   The extracted file name is UGE1998A.pdf.

  AGR1998A.zip   Enhanced Topographic Base <u>1998</u> and Digital Terrain Model distribution <u>agr</u>eement (Adobe Acrobat format) Version <u>A</u>. The extracted file name is AGR1998A.pdf

- Map *Index Files* – These are Provincial Index files containing the New Brunswick 1:10 000, 1:50 000 and 1:250 000 windows in CARIS ASCII, DXF and PRN formats Version A. The compressed archive file NDX1998A.zip contains the following index files:

  NDX1998A.asc   1998 index of the province - It shows the 1:250 000 windows, the 1:250 000 window numbers, 1:50 000 windows, the 1:50 000 window numbers, the 1:10 000 windows, the 1:10 000 file names, the county boundaries and the outline of the province (CARIS format) Version A.

  NDX1998A.prn   1998 index of the province - It shows the 1:250 000 windows, the 1:250 000 window numbers, 1:50 000 windows, the 1:50 000 window numbers, the 1:10 000 windows, the 1:10 000 file names, the county boundaries and the outline of the province (HP DesignJet 750C Plus or compatible format) Version A.

  NDX1998A.dxf   1998 index window of the province - It shows the 1:250 000 windows, the 1:250 000 window numbers, 1:50 000 windows, the 1:50 000 window numbers, the 1:10 000 windows, the 1:10 000 file names, the county boundaries and the outline of the province (AutoCad format) Version A.

  More information on the Naming Convention of the Support Files is provided in Appendix D.

- CARIS utility file is a user friendly software utility that works with CARIS GIS to merge multiple map windows and multiple graphic themes. It consists of the following file:

MRG1998A.zip   Contains all software and documentation to install and use the DTDB98 Merge Utility

GUIDELINES FOR INSTALLING DTDB FILES

Hints   If individual windows are requested or the DTDB is ordered on media other than CD-ROM or through the SNB Online, perform a directory check of the media to ensure that all files are present.

Create a temporary directory on your system for the files being transferred from the supplied media. Move the files to their permanent directory once the data transfer is successfully completed.

It is recommended that a tape backup or a CD of the data directory be made once the files have been successfully loaded and prepared for use with your GIS or CAD software.

The time to install the files will vary according to the number of files you have ordered and the capacity of your computer.

Be familiar with how your GIS software imports geographical data.

If your needs for DTDB files are for occasional project area use, you may wish to load and process these files directly from CD-ROM as they are needed in order to conserve online disk storage requirements.

Disk Storage Requirements   There are 1894 DTDB 1:10 000 windows which cover the entire Province of New Brunswick. The ETB Graphic Files in CARIS ASCII format in total will require approximately 1.05 Gb of disk storage. Typical storage requirements for individual files range from 0.4 Mb to 2.3 Mb.

The DTM Graphic Files in CARIS ASCII format in total require approximately 0.45 Gb of disk storage. A typical file size for a DTM File is 0.37 Mb.

Support Files   In addition to the actual ETB and DTM Files, there are also support files which should be copied to your system. The specific files to be copied depend on which GIS or CAD system you intend to use. Refer to the section *Guidelines for Installing DTDB Support Files* for instructions on which files are to be copied for the most common software packages.

For CARIS Users   CARIS users should be aware that the CARIS ASCII files loaded must be processed by the CARIS utility program REFOASCI before they can be used for analysis, and that the *full filename* (including extension) of each ETB File to be processed must be given as the FILE argument to REFOASCI. (See also section "Joining ETB files")

For Other GIS Users   Users of other GIS software should be aware that translation from CARIS ASCII to the data format required by their GIS software must be completed

before the files can be used for analysis. If no direct translator exists, it may be advisable to obtain the data in DXF format, or consult with SNB regarding other possible delivery formats which might be provided.

For AutoCAD Users   AutoCAD users should request the digital files in DXF format.

GUIDELINES FOR INSTALLING ETB ATTRIBUTE FILES

This section provides instructions for installing the ETB Attribute Files supplied with the ETB Data Base.

Road Attribute Files   There will be one Road Attribute File present for each of the ETB Graphic Files supplied. These files will have a name in the format *filename*.ryy, where *filename* is the name of the individual window.

                           Example: 46006690.r98

Hydrographic   There will be one Hydrographic Attribute File present for each of the ETB
Attribute Files   Graphic Files supplied. These files will have a name in the format *filename*.hyy.

                           Example: 46006690.h98

DNRE Road   There will be one DNRE Road Attribute File for each of the ETB Graphic
Attribute Files   Files supplied. These files will have a name in the format *filename*.nyy.

                           Example: 46006690.n98

Hints   If individual windows are requested or the DTDB is ordered on media other than CD-ROM or through the SNB Online, perform a directory check of the media to ensure that all files are present.

                           Create a temporary directory on your system for the files being transferred from the supplied media. Move the files to their permanent directory once the data transfer is successfully completed.

                           The time required to install the files will vary according to the number of files ordered and the capacity of your computer.

                           It is advisable to make a tape backup or a CD of the data directory once the files have been successfully loaded and prepared for use with your system RDBMS software.

                           You will need to be familiar with how your data base software imports ASCII text files in order to prepare this data for GIS use.

                           If your needs for ETB Attribute Files are for occasional project area use, you may wish to load and process these files directly from the supplied media as they are needed in order to conserve online disk storage requirements.

For UNIX Users   UNIX users who wish to load the ETB Attribute Files should be aware that these files are stored on the supplied media in DOS ASCII format. These files

will need to be translated to UNIX ASCII format either by using FTP or via a utility program such as DOS2UNIX.

Disk Storage Requirements

The ETB Attribute Files are stored on CD-ROM in ASCII format. The approximate disk space required to load all of these files for the provincial coverage is approximately 100 Mb.

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

GUIDELINES FOR INSTALLING DTDB SUPPORT FILES

Hints

The DTDB Support Files must be obtained through the SNB Online regardless of the media format requested.

Support files should be copied to a specific support directory on your system and then copied from this directory to the software support directory. This will ensure that a copy of these files is maintained on your system in the event that installation of a subsequent release of your GIS software overwrites these files in the GIS support directory.

You should be familiar with how your GIS and/or CAD software expects to interface with these files.

For all Users

All DTDB users should download the following files from the DTDB Support Files page of the SNB Online to disk:

- the user guide documentation (UGE1998A.pdf) from the *Information* section.
- the distribution agreement information (AGR1998A.pdf) from the *Information* section.
- the Provincial File Index (NDX1998A.zip) from the *Map Index* section.

Users who do not currently possess a copy of the Adobe Acrobat Reader software program should also download this program to disk. It is required to read and/or print the DTDB Users' Guide and any other files with a .pdf extension.

Users who do not currently possess either WINZIP or PKZIP data compression software should download the PKZIP utility program. It is required to uncompress .zip files transferred by the SNB Online.

New Nouveau
Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

For CARIS Users   CARIS users should download the following DTDB Support Files ETB1998*.zip from the *CARIS Format* section to disk. The uncompressed archive includes:

- ETB1998A.txt, which contains the CARIS Master File associated with the topographic datasets.

- ETB1998A.dat, which contains the CARIS Symbol File (in ASCII text format) associated with the topographic datasets.

- ETB1998A.bin, which contains the CARIS Symbol File (in CARIS Binary Format) associated with the topographic datasets.

- ETB1998A.col, which contains the CARIS Colour Table File associated with the topographic datasets.

- ETB1998A.cma, which contains the CARIS Colour Map File associated with the topographic datasets

Note that, the CARIS utility program BUILSYMB may also be run against the file ETB1998*.dat to create a binary version of the symbol file.

For all Users   All users should also download the following file from the Map Index section to disk:

NDX1998*.zip - the current file index of the province in CARIS, DXF and PRN formats.

For AutoCAD Users AutoCAD users should download the file DXF1998A.zip to their shape file directory from the *AutoCAD Format* section. This file contains custom shapes for features within the ETB Graphic Files. The zip file contains both a compiled (DXF1998A.shx) and uncompiled (DXF1998A.shp) shape file.

For Other GIS Users Users who wish to process the Digital Topographic Data Base with GIS software other than CARIS should be aware that there are no custom support files provided for other GIS packages. Users in this category may wish to download the AutoCAD Shape File DXF1998A.zip to disk from the *AutoCAD Format* section.

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

NOTES ON INSTALLATION

Recommendation

If you will be reformatting the data you should read about Digital Interchange Formats, Chapter 8 in the *Land and Water Information Standards Manual*. It discusses problems which may be encountered when transferring data between platforms and operating systems. The chapter also provides a list of resource persons who may be contacted for assistance.

The *Land and Water Information Standards Manual* may be downloaded from the Digital Topographic Data Base section of the SNB Online Services.

CARIS ASCII to DXF Translation

In transferring from CARIS ASCII to DXF, the Source IDs and Theme numbers will be lost. Each CARIS feature code becomes a layer.

CARIS DXF translation generates text as an AutoCAD ALIGNED text type. This can result in improper positioning of polygon display labels.

Linking to Attribute Files

The ETB Graphic Files contain feature index keys for all Road and Hydrography linear network features, and for Hydrography waterbody polygons. These keys are used to link the Road and Hydrographic Attribute Files to the graphic. These keys will be present in CARIS files created from ASCII files. They will *not* be present if the files are received in DXF format.

Use of Consistent RDBMS Field Names

ETB Attribute Files are supplied for both the Road and Hydrography layers of the ETB Graphic Files. Within these files, a number of data elements exist which are common to both (for example, index key, ETB Feature Code, Source ID, etc.). It is recommended that standard field names be used when creating data base table definitions for ETB Attribute Files (for example, the name SOURCE_ID could be used for the ETB Source ID in all tables).

New Nouveau
Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

VERIFYING THE INSTALLATION

Checking DTDB
Files

Display one of the ETB and/or DTM Files using your GIS software. If the graphics fail to display, check that:

- The format is correct
- The translation from one format to another has been done correctly.

Checking DTDB
Support Files

Display one of the ETB and/or DTM Files using your GIS software. Verify that multiple colours are displayed to represent different feature classes (for example, water features should be blue). Also, verify that text is correctly displayed and that special symbols are present and drawn properly.

Note that these checks are only applicable for CARIS and AutoCAD users.)

New Nouveau Brunswick
**Service New Brunswick
Services Nouveau-Brunswick**
UGE1998O
Version 0.8
March 6, 2001

SECTION 2 CONTENTS OF THE ETB98 FILES

INTRODUCTION

This section deals with the contents and organization of the ETB98 Files. It defines terms needed to understand the contents and structure of the topographic data, and describes the various sources from which the files were constructed. The section also tells how data is organized within the files, and provides more detailed information on the topologically structured layers. Current limitations of the files are also discussed.

Current Version	The current version of the ETB98 has been built according to Specification Version 0.3 (Document #97066D379). These files are often referred to as *ETB98* files.
Future Versions	Future revisions to the ETB are planned. These subsequent versions will reflect changes made to topographic features and may incorporate additional topological structuring on individual topographic themes. New version numbers will be assigned to future versions of the ETB.

DEFINITIONS

There are a number of terms that are used within this section to describe the content of the ETB. Definitions of these terms are given below.

Attributes	Data fields or items which are used to describe individual topographic features. Attributes may either be directly associated with topographic features by the GIS software (for example, the Source ID and Feature Code in CARIS) or linked to topographic features from a data base table using an index key.
AutoCAD	A Computer Assisted Drafting (CAD) package marketed by Autodesk.
CARIS	A GIS software package which is marketed by CARIS of Fredericton, NB. CARIS is the standard GIS software package for SNB and other Provincial government agencies within the Province of New Brunswick.
Co-location	Linear or Polygon features are said to be co-located when two or more of these features share a common boundary along some or all of their length, and this common boundary is duplicated within each feature to maintain the integrity of the feature.

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Digital Topographic Map	A computer generated map file that represents map features in terms of digital numeric co-ordinate values (for example, X, Y, and Z co-ordinates). These co-ordinates are used to define points, lines and polygons, which are the three categories of map features that may be present. Map Features may be stored using either two-dimensional (X, Y) or three dimensional (X, Y, Z) coordinates.
	Topographic maps contain information about the land and its cultural characteristics, including drainage, transportation systems, vegetation, structures and land use. ETB Files are digital topographic maps.
Edge Matching	A digital file editing procedure which aligns individual topographic features along the common edges of adjoining windows.
Feature Code	A CARIS attribute which is used to describe characteristics of a topographic feature. Feature Codes may be up to 12 characters in length.
Index Key	A CARIS attribute which is normally used to cross reference topographic features to associated Relational Data Base Management System attribute files. Index keys may be up to 12 characters in length.
Logical Consistency	The rules which define the relationships among the individual features present within a digital topographic file.
Network Topology	Relationships between connected linear and point features, stored in a GIS, which enable the software to represent a real world linear network entity such as a river system.
Polygon Topology	Relationships between connected linear features and associated textual labels, stored in a GIS, which enable the software to represent a real world area feature such as a lake.
Source ID	A CARIS attribute which is used to describe the data source associated with each digital topographic feature. Source ID's may be up to 12 characters in length.
Theme/User Number	A CARIS numeric attribute which is used to group similar topographic features within a digital topographic file. A CARIS Theme/User Number analogous to a layer within other GIS and CAD packages.

New Nouveau
Brunswick

**Service New Brunswick
Services Nouveau-Brunswick**

UGE1998O
Version 0.8
March 6, 2001

Topological Structuring	The editing process which is used to remove errors and/or inconsistencies present within a digital file, group associated features into common themes or layers, code feature attributes, edge match adjoining files, and other such operations which are designed to structure topographic data according to a defined standard.
Window	The geographic area encompassed by one digital file.

DATA SOURCES FOR THE ETB

There are a number of data sources which have been used to compile the current (1998) Enhanced Topographic Base (ETB). The ETB is one of two digital products associated with the New Brunswick Digital Topographic Data Base (DTDB). It contains two dimensional (X,Y) planimetric features describing natural and human-made features.

The second DTDB digital product is the Digital Terrain Model (DTM) which contains elevation data collected for the whole of New Brunswick. The DTM is further described within Sections 5 and 6 of this Guide.

Original Source

The original ETB Files were collected from aerial photography using classical photogrammetric techniques during the period 1982 to 1993. This data collection was carried out as part of the Maritime Provinces Land Registration and Information Services (LRIS) program under the direction of the Council of Maritime Premiers.

Additional Sources

ETB Files contain data from a number of additional sources which are described below.

NBDOT	Road network features and associated road text within the Transportation Theme have been updated from the New Brunswick Department of Transportation (NBDOT) digital Road Inventory Data Base files. These files were created from original SNB ETB Files and subsequently updated by NBDOT to reflect changes in roadway alignment and/or classification which have occurred on roads under their jurisdiction.
NBDNR&E	Resource road features within the Transportation Theme have been updated from data supplied by the New Brunswick Department of Natural Resources and Energy (NBDNR&E). This data was compiled from aerial photography for use in the Forest Management Branch (FMB) Data Base.

New Nouveau
Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

DPM | The Digital Property Map (DPM) Data Base was used during the production of ETB96 and as such forms part of the source of ETB98. No new information was added or collected from DPM data for ETB98.

1996/97 Aerial Photography | In the summers of 1996 and 1997 colour aerial photography was taken at 1:35 000, to compile the coastal features in the CTDB. The coastal features, coast line, and coastal buildings were collected through traditional photogrammetric techniques. In addition, this data was used to complete the initial five blocks of the SODB.

TYPICAL FILE SIZES

Typical file sizes for an individual ETB File (one - 1:10 000 window) containing all Features (.198, .398, and .g98) may range from 0.4 Mb to 2.3 Mb. These file sizes are associated with the CARIS ASCII format. Total size for the 1894 ETB Files covering the Province of New Brunswick is approximately 1.05 Gb.

CARIS Edit File versions of the ETB Files (as created by the REFOASCI utility) will typically be equivalent in size to the CARIS ASCII files.

Files supplied in AutoCAD DXF format will typically be at least two times larger than the corresponding CARIS ASCII format file.

ABOUT THE ETB FILES

Map Projection | The map projection for the ETB Files is the New Brunswick Stereographic Double Projection.

Reference System | The reference system for all data is the 1983 North American Datum, Canadian Spatial Reference System (NAD83(CSRS)).

Coordinate Resolution | Coordinates associated with individual features within the ETB Files are recorded as X,Y values to the nearest 1.0 metre.

Elevations | Elevations are not present within the ETB Files.

Technical Reference | For more technical information concerning the ETB spatial framework, refer to Chapter 4 of the New Brunswick Land and Water Information Standards Manual. A sample CARIS Header File is contained within Appendix G of this guide.

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Accuracy and Scale

Accuracy
:   The accuracy statement for the 1:10 000 ETB is that 90 percent of all well defined features must fall within ± 2.5 metres of their true ground position. Well defined features are those whose positional accuracy is not adversely affected by vegetative cover.

Nominal Scale
:   The nominal scale of the ETB Files (the scale at which hardcopy maps are produced) is 1:10 000.

Currency

Features
:   Features on the Transportation Theme have been updated to reflect late 1998 conditions as contained in the NBDOT Road Inventory Data Base, the NBDNR&E Forest Management Branch Data Base. All other features are current as of the date of the aerial photography from which they have been compiled (Coastal features, hydrography and buildings were updated on the coastal windows (CTDB98) of the DTDB with the photography flown in 1996 – 1997). The Source Identifier attribute contains information on the currency of individual features. There are 332 windows along the coast line that have been updated. (See Appendix K).

Photography Dates
:   Appendix E indicates, on a provincial overview map, the photography dates for the ETB Files.

    Appendix I indicates, on a provincial overview map, the extent of the 1996 and 1997 photography used to complete the CTDB98 along the coastal lands of the province.

Themes

Self Contained Themes
:   In ETB98, a series of self contained themes, capable of acting as stand alone products with the bounds of each 1:10 000 window were created.

    These include
Road Theme	*.198 file
Hydrographic Theme	*.398 file
General Theme	*.g98 file

Thematic Groups
:   Features within ETB Files and the separate self contained themes are organized into major thematic groups. Table 1 summarizes these Theme groupings.

Service New Brunswick
Services Nouveau-Brunswick
New Nouveau Brunswick
UGE1998O
Version 0.8
March 6, 2001

File	THEME NUMBER	THEME NAME	STRUCTURED	TOPOLOGY	INDEX KEYS
*.198	100	Road/Rail Network	YES	Network	YES
*.198	110	Road/Rail Associated Features	YES		NO
*.g98	200	Map Surround	NO		NO
*.g98	210	Delimiters	NO		NO
*.g98	220	Land Cover/Land Form	NO		NO
*.g98	230	Utilities	NO		NO
*.g98	240	Buildings	NO		NO
*.g98	250	Designated Areas	NO		NO
*.g98	260	Structures	NO		NO
*.398	300	Hydrography	YES	Polygon	YES
*.398	310	Hydrography Spines	YES	Network	YES
*.398	320	Associated Hydrography	YES		NO

Table 1 - ETB File Themes

Structured and Non Structured Themes

Structured Themes   A thematic group which has been fully processed in order to comply with the logical consistency standards contained within the New Brunswick Land and Water Information Standards Manual (see Chapter 4 for a detailed description of these standards) is referred to as being a structured Theme.

Characteristics of structured Themes include:

- all line features have clean intersections (i.e., no overshoots or undershoots);
- all polygon features are closed;
- where linear and/or polygon features share a common boundary, co-location of features is normally used to maintain consistency within each feature class. Note that there are exceptions to this general rule (for example, water bodies are not co-located with swamps). In this latter case, a single line will represent the boundary of both features.
- features are edge matched to ensure connectivity across window boundaries;
- area features spanning more than one window are closed at the neat line with virtual features along the neat line;
- all linear features are assigned index keys; and
- all polygon features are indexed using the polygon label as an index

New Nouveau **Brunswick**

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

key.

Figures 2 through 6 illustrate the above concepts. Refer to the section on Logical Consistency for further information on data structuring.

The structured themes within ETB are indicated within Table 1.

The Road/Railroad Network Theme/User Numbers 100 are topologically clean (network level) and exist as a free standing layer.

The Hydrography Theme/User Number 300 including coastal features are topologically clean (network and polygon) and exist as a free standing layer. The Hydrography Theme/User Number 300 and the hydrographic Spines Theme/User Number 310 when combined are topologically clean (network level).
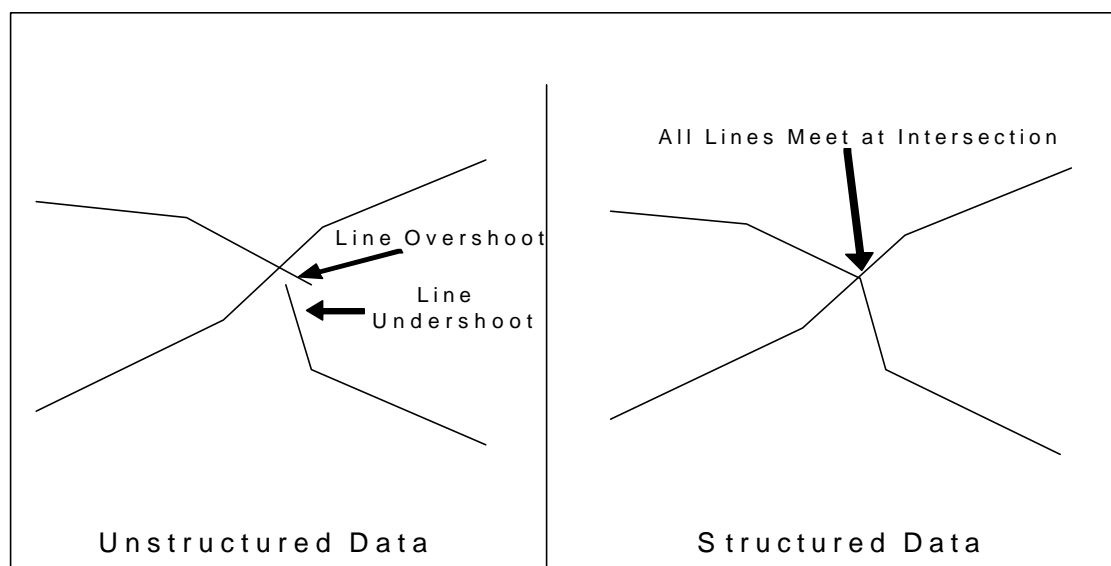
Figure 2 - Clean Line Intersections
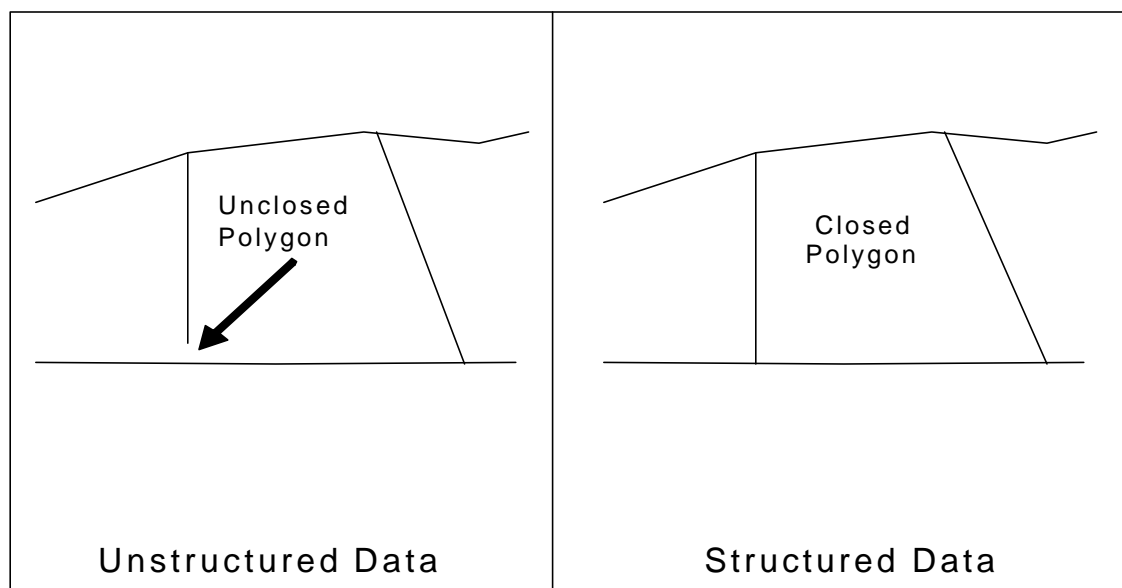
Figure 3 - Closing Of Polygon Features
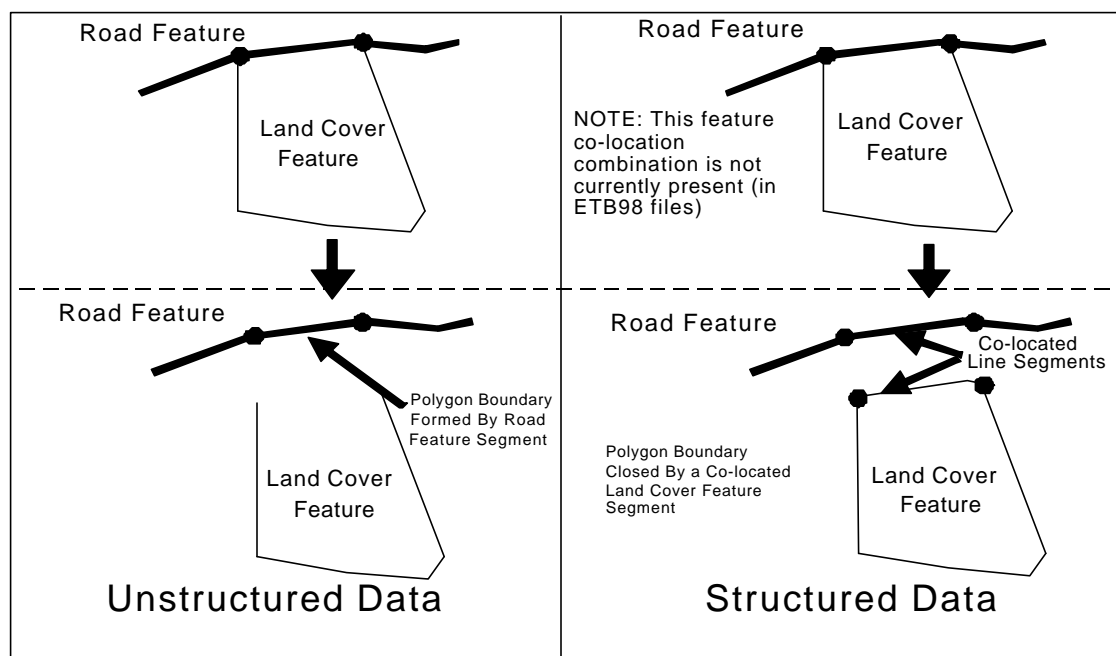
Figure 4 - Co-Location Of Features

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O

Version 0.8

March 6, 2001
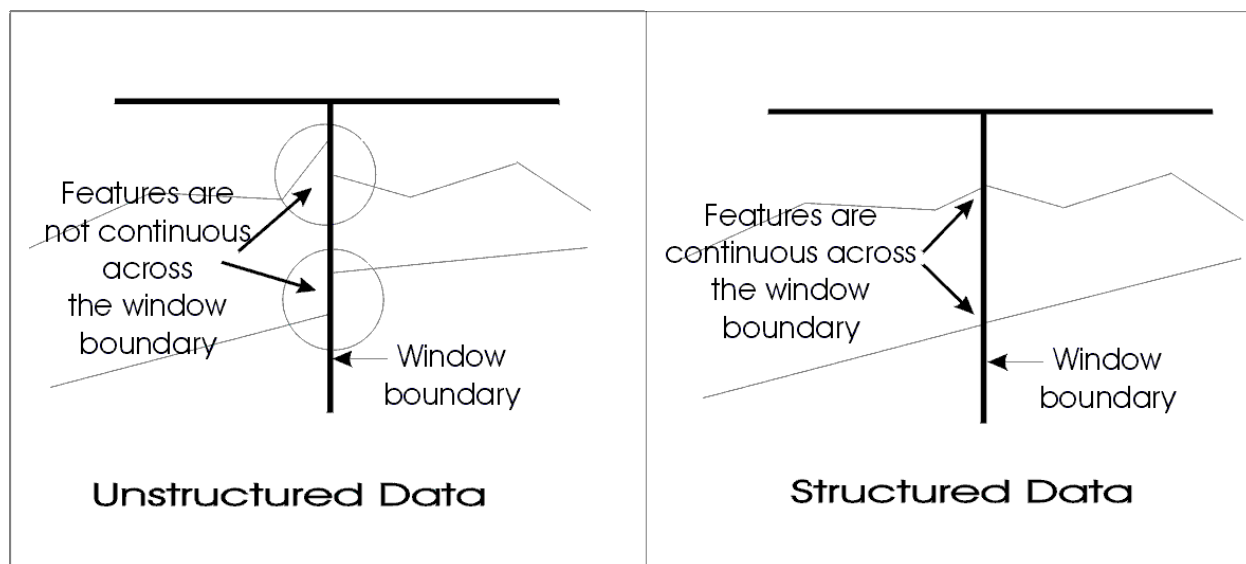
Figure 5 - Edge Matching
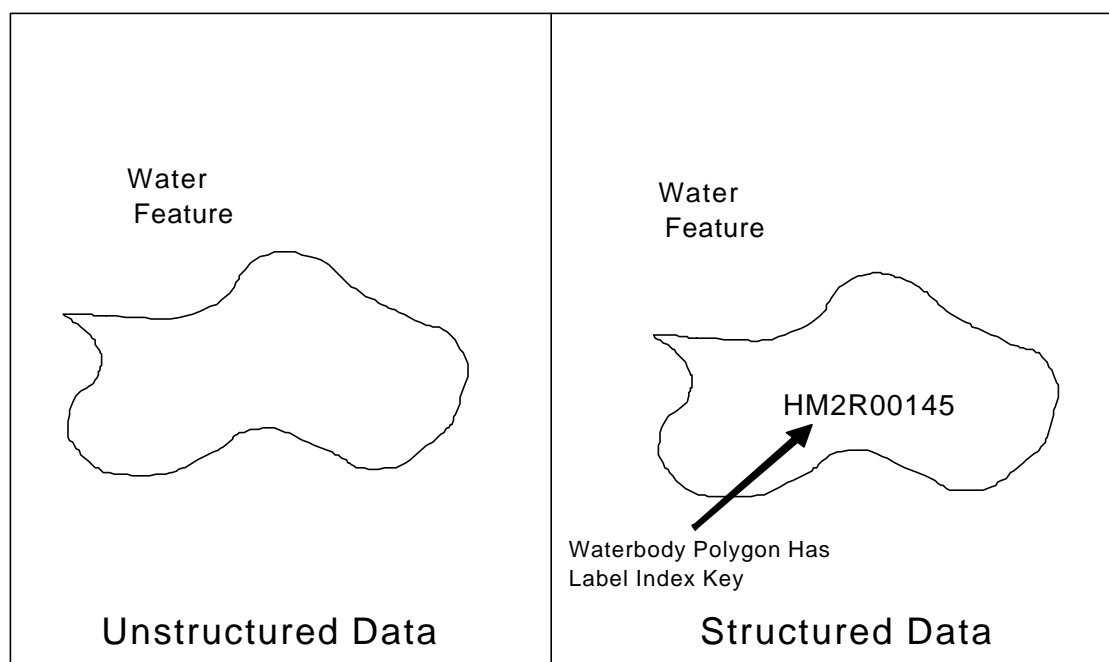
Figure 6 - Polygon Labels

| Non-structured Themes | Themes which have not been processed to logical consistency standards are referred to as non-structured themes. |

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O

Version 0.8
March 6, 2001

Source Identifier

Definition   The Source Identifier or Source ID is a CARIS software feature attribute. A Source ID is an alphanumeric code up to 12 characters in length, used to indicate the source of data or other information pertinent to the data.

Contents   There are established conventions for the coding of Source IDs within structured Themes of the ETB Files. By reading the Source ID you will be able to determine:

- the source of the data comprising the feature;
- the method of original data capture;
- the expected accuracy of the data;
- the organization which edited the data; and
- the year the data was captured.

Format   Source IDs are coded according to the following convention:
                    AABCDEEEFGYY
          where:

          AA   is a code describing the source of the data as defined within Table 2.

          BC   is a code describing the method of data capture as defined with Table 3.

          D   is a code describing the expected accuracy of the data as defined within Table 4.

          EEE   is a code describing the organization which entered the data as defined within Table 5.

          FGYY   is the date the data was surveyed, flown or modified.

          where:

          F   is defined within Table 6,
          G   is defined within Table 7 and
          YY   refers to the last two digits in the year.

CODE	DESCRIPTION
AA	Contractor (defined in Table 5)
AG	NBDARD
D1	NBDOT (everything but theme 2050)
D2	NBDOT (Theme 2050 only)
DN	NBDNR&E
GI	SNB Digital Property Maps
G2	SNB Colour Orthophotomap
LR	LRIS (original ETB data)
MN	Municipalities
ZZ	Unknown

Table 2 - Data Source Codes

CODE	DESCRIPTION
AM	Other Methods/Aerial Photography
AS	Stereo Compilation /Aerial Photography
CT	Coordinate Transfer/Compute Other
HS	Hard Copy/Scanning
HV	Hard Copy/Vector Digitizing
OR	Digitized from Orthophotomap
RS	Digital Data/Remote Sensors
SG	Field Survey/GPS
SM	Field Survey/Other Methods
ST	Field Survey/Total Stations
VD	Video Terminal/Heads Up Digitizing
ZZ	Unknown

Table 3 - Method Of Data Capture

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

CODE	DESCRIPTION
A	less than 1 metre
B	1 - 3 metres
C	3 - 5 metres
D	5 – 10 metres
E	10 - 15 metres
F	15 - 20 metres
G	Greater than 20 metres
Z	Unknown

Table 4 - Expected Accuracy

CODE	DESCRIPTION
ADI	ADI Limited
CSL	CAD/CAM Systems Limited
DOT	NBDOT
DQC	DataQC Inc.
EGC	The Eastcan Group
GAL	Godfrey Associates Limited
GEO	Geoplan Consultants Inc.
GIC	NBGIC
GNT	GeoNet Technologies Inc.
GSL	Geomacadie Services Limited
HSL	Hughes Surveys & Consultants
KSL	Key Surveys Limited
OPX	Optex Inc.
SNB	Service New Brunswick
TCA	Thompson Conn & Associates
ZZZ	Unknown

Table 5 - Editing Organizations

New Nouveau **Brunswick**

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Day	F=	Day	F=	Day	F=	Day	F=	Day	F=	Day	F=	Day	F=	Day	F=
1	A	5	E	9	J	13	N	17	S	21	W	25	3	29	7
2	B	6	F	10	K	14	P	18	T	22	X	26	4	30	8
3	C	7	G	11	L	15	Q	19	U	23	Y	27	5	31	9
4	D	8	H	12	M	16	R	20	V	24	2	28	6		

Table 6 - Day Of Capture

Month	G=	Month	G=	Month	G=
January	A	May	E	September	J
February	B	June	F	October	K
March	C	July	G	November	L
April	D	August	H	December	M

Table 7 - Month Of Capture

Anomalies   Unknown descriptions in any of the Source ID subfields are coded as Z characters.

         The year subfield could be coded as 19ZZ or ZZZZ, depending upon the source of the data.

Feature Code

Definition   A Feature Code is a CARIS software feature attribute consisting of an alphanumeric code of up to 12 characters used to classify or describe each feature within the ETB Files.

Contents   There are established conventions for the coding of topographic features. By reading the Feature Code you will be able to determine

- The classification of the feature
- Certain attributes of the feature

Format   A Feature Code is in the form
         XXXXnn,

     Where:

     XXXX   is a variable length text code describing the type of feature

nn   is an optional Feature code qualifier of one or two digits providing further attributes of the feature

Feature Types (XXXX)   Table 8 describes the general codes used for feature types. The asterisk following the code indicates that a further break-down may exist. For details on each Feature Code consult Appendix B.

Code	Refers to
BL*	Buildings to scale and symbolized buildings
DA*	Designated area features such as drive in theatres, quarries, golf courses, etc.
DL*	Delimiters or boundaries such as municipal, county, or interprovincial boundaries. It also includes certain cartographic details such as grid lines, neat lines, etc.
LC*	Land cover, both natural and cultivated. It includes forested areas, orchards, reforested areas, etc.
LF*	Hypsographic features such as spot heights
RRRR*	Railroad features
RRRD*	Road features
ST*	Structures, such as locks, chimneys, grandstands, etc.
UT*	Utilities such as transmission lines, pipelines, etc
WA*	Includes all water, coastal and water related features

Table 8 - Feature Code Classifications And Descriptions

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Feature code qualifiers

A Feature Code may optionally have a suffix consisting of either 1 or 2 numeric digits. The first number immediately following the text code (for example DAAP) provides more information about the features. The second number further qualifies the feature. Table 9 lists the first set of qualifiers and Table 10 the second.

Number	Means...
0 or blank	Regular feature. If blank, no secondary qualifier will be present.
1	Feature is to the left of the line. This is used only for area features.
2	Feature is to the right of the line. This is used only for area features.
3	Text feature
4	The feature is displayed using parallel lines. The parallel lines can be viewed when the data is symbolized.
5	Hard surface road of more than 2 lanes
6	Hard surface road of two lanes
7	Hard surface road of less than 2 lanes
8	Loose surface road of 2 lanes or more
9	Loose surface road less than 2 lanes

Table 9 - PRIMARY FEATURE CODE QUALIFIERS

Number	Means...
0	A regular feature
1	Paved feature
2	Unpaved feature
3	Feature under construction
4	Ruin / Inactive / Abandoned feature
5	Indefinite / Approximate feature
6	Underground feature
7	Overhead feature
8	Proposed location
9	Road text feature

Table 10 - SECONDARY FEATURE CODE QUALIFIERS

New Brunswick / Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Examples   The following are examples of Feature Codes:

        DAQU10   Quarry which is to the left of the DAQU arc

        DAPA11   This describes a parking area which is paved and to the left
                 of the arc.

Logical Consistency

The ETB specification (ETB Level 3.3) dictates that the Transportation and Hydrography Themes be structured to the logical consistency standards described within the New Brunswick Land and Water Information Standards Manual (Chapter 4). The characteristics of structured Themes have been previously summarized. The individual components of the logical consistency standard are described below.

Clean Data   All map data is free from any spatial inconsistencies such as line gaps or overshoots and area misclosures.

Connection   Lines having a connection relationship will have identical XY end point coordinates at the point of intersection. Note that intersections are formed in two dimensional space, since features do not contain elevations. Thus intersections will occur at overpasses and underpasses on the transportation layer. Figure 7 illustrates the connection relationship.
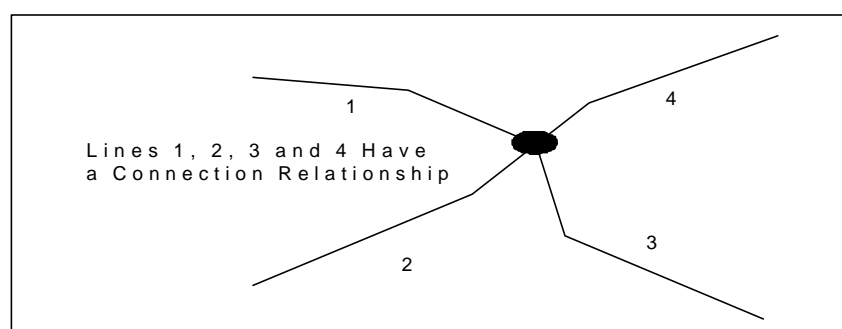
Figure 7 - Connection Relationship

Co-location   Lines having a co-location relationship will have identical co-ordinates (end points and intermediate shape points) in two dimensional co-ordinate space.

Co-location is normally used to ensure that area features may be entirely represented within their own feature class. Figure 4 illustrates the co-location relationship. It should be noted that no co-location of features is present within the structured Themes of the current (ETB98) version of the ETB.

Segmentation   Linear features within ETB File structured themes will normally be continuous and unbroken. Segmentation of linear features is permitted under the following conditions:

- where a change in the CARIS attribute (Source ID, Feature Code or Index Key) occurs;

- where a connection relationship exists at an intersection with another linear feature;

- where a co-location relationship exists at the end points of the co-located line segments.

Figure 8 illustrates the allowable segmentation conditions.
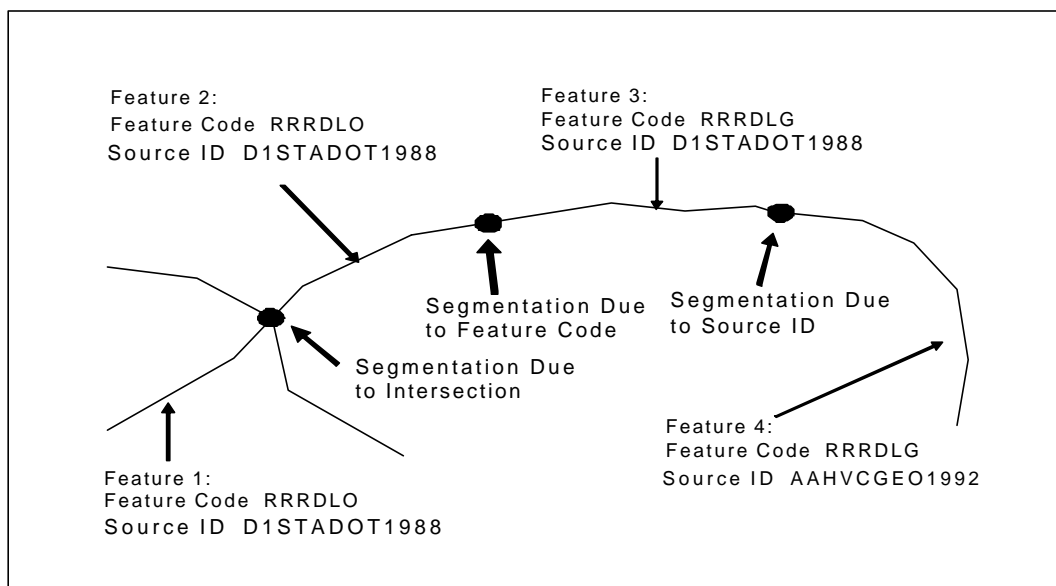
Figure 8 - Allowable Segmentation Conditions

Closure of Area
Features

Each Theme within an ETB File which contains area and/or linear features is enclosed by a neat line at the window boundary. Thematic neat lines will be given a Feature Code of DLNLnnn, where nnn is the Theme Number involved (for example, the neat line for Theme 100 will have a Feature Code of DLNL100). Within structured Themes, area features will be closed by virtual lines which represent a segmented portion of the Theme neat line. These virtual lines will have a Feature Code of the area feature to be closed, appended with the characters "__V". Virtual lines will not be co-located with the neat line. Rather, those portions of the neat line which close area features will have their feature codes changed. Figure 9 illustrates the concept of area closure at the Thematic neat line within an individual ETB File.

Virtual Line used to close polygon.

Area Feature

Dataset Edge
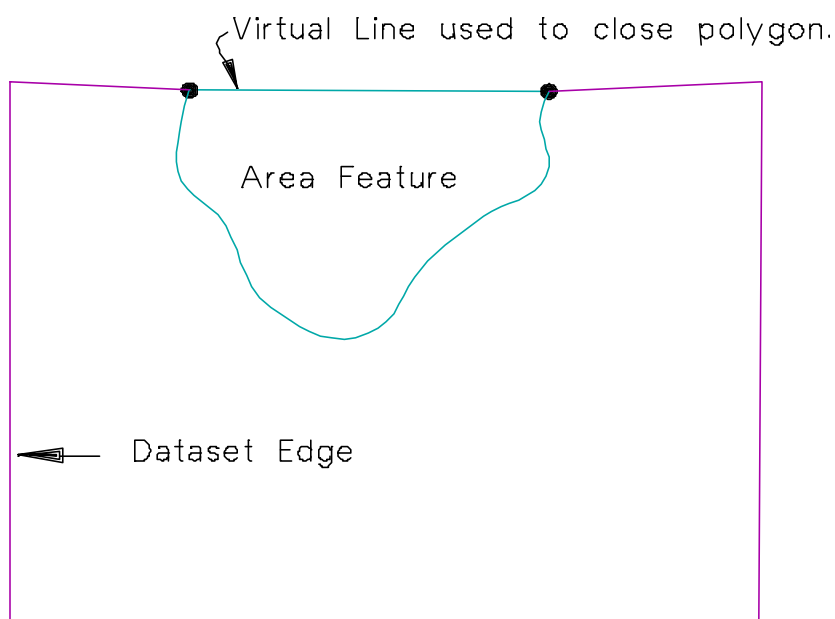
Figure 9 - Area Closure At The Neat Line

Allowable Relationships

Table 11 summarizes the allowable connection and co-location relationships within the structured Themes. The transportation structures feature class consists of bridges, which are represented as symbols (explicit nodes) within the ETB.

Feature Class	Trans. Network	Trans. Structures	Hydro. Network	Water bodies
Transportation Network	Connection	Connection	N/A	N/A
Transportation Structures	Connection	N/A	N/A	N/A
Hydrographic Network	N/A	N/A	Connection	Connection
Waterbodies	N/A	N/A	Connection	Connection

Table 11 - ALLOWABLE RELATIONSHIPS

About the Transportation Themes

The Transportation theme exists as the *.198 file, which is capable of acting as a stand alone product within the bounds of each 1:10 000 ETB window.

Transportation Network (Theme 100)

Content

This Theme contains topologically structured road and rail centrelines according to the logical consistency specifications. Bridge symbols (Feature Code RRBRSY) are included as explicit nodes on this Theme.

Transportation Associated Features (Theme 110)

Content

This Theme contains symbology and text associated with transportation. There is no neat line associated with this Theme.

Roads

Representation

Roads are represented as linear features on Theme 100.

Indexing

Individual road features are assigned unique index keys to permit attribute linkages.

Classification

Roads are classified according to functional classification through the use of Feature Codes. Table 12 summarizes this breakdown.

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Feature Code	Classification Description
RRRDA	Arterial Numbered Route
RRRDC	Collector Numbered Route
RRRDLG	Local Named Road, Gravel Surface
RRRDLN	Local Numbered Route
RRRDLO	Road Local Other
RRRDLP	Local Named Road, Paved Surface
RRRDM	Municipal Road/Street
RRRDN	National Numbered Route (Trans Canada)
RRRDO	Road, Other (includes resource roads)
RRRDOAW	All weathe roads
RRRDODW	Dry Weather Roads
RRRDOTR	Trail
RRRDRAMP	Ramp

Table 12 - ROAD NETWORK CLASSIFICATION

Ramps

Definition   For the purpose of the ETB Files, a ramp is defined as a section of road which connects a primary route to a secondary route in the vicinity of an at-grade intersection or grade separated interchange.

Distinguishing Characteristics

- The Feature Code RRRDRAMP is used to classify ramps;
- Ramps were given special consideration within the ETB96 Files;
- Ramps were assigned special index keys which differed in format from those of other road linear features. These only appear in ETB98 as retired records.

New Nouveau **Brunswick**

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Indexing   ETB96 Ramp index keys are coded according to the following format:

$$Iggggggqn$$

Where:

I   is the one character ramp identifier used for all ramps in the province

gggggg   is a 6 character geocode representing the mid point of the interchange

q   is the interchange quadrant within which the ramp is located

n   is a sequential ramp number within quadrant q

For ETB98 these special ramp index keys were discontinued. Users may encounter these features, as retired records, in the road attribute files for ETB98. For more details the reader is referred to the ETB96 User Guide.

Railroads

Representation   Railroads are represented as linear features on Theme 100. Only main lines are included within the rail network on Theme 100. Bridge symbols (Feature Code RRBRSY) are included as explicit nodes. Sidings and other miscellaneous rail features are contained on Theme 110.

Indexing   Individual rail network features are assigned unique index keys to permit attribute linkage.

Classification   There are only two possible Feature Codes used to classify rail network features within the ETB98:

RRRR   indicates an active rail link
RRRR04   indicates an abandoned rail link

Service New Brunswick
Services Nouveau-Brunswick

New Nouveau Brunswick

UGE1998O
Version 0.8
March 6, 2001

Transportation Theme Index Keys

Format   Index keys are assigned to all linear features on the Transportation Network Theme (100). These keys are unique within the Province of New Brunswick, and are coded according to the following format:

Rmmmnnnnn

Where:

R   is the first character of the index key

mmm   is the 3 character geocode corresponding to the window within which the feature is located

nnnnn   is a 5 digit sequential number within the window, zero filled on the left

Example   RM2M00015

ABOUT THE HYDROGRAPHY THEMES

Hydrography (Theme 300)

Content   The Hydrography Theme contains topologically structured linear and polygon features representing rivers, lakes, islands, coastline and swamps and coastal features. Features are enclosed by a neat line at the window boundary.

Hydrographic Spines and Connectors (Theme 310)

Content   This Theme contains topologically structured hydrographic spines, which are single lines placed approximately through the centre of waterbodies to provide continuous hydrographic network connectivity. Each single line stream which is connected to a waterbody will also be connected to the network. In the DTDB98 files, networks can be joined using Connectors across land masses where the networks are in close proximity. Features are enclosed by a neat line at the window boundary.

Service New Brunswick
Services Nouveau-Brunswick

New Nouveau Brunswick

UGE1998O
Version 0.8
March 6, 2001

Associated Hydrography (Theme 320)

Content   The Associated Hydrography Theme contains non-topological data associated with hydrography, such as text, symbology, dams, breakwaters, dikes, fish ladders, flumes, lobster pounds, rapids, rocks and falls.

Waterbodies

Definition   Waterbodies are polygon features which define an area containing water.

Virtual Features   Virtual features are used to close waterbody polygons between adjacent waterbody features (for example, at the intersection of a double line river and a lake). Boundaries between waterbodies will be represented by only one line. Virtual waterbody features will be given the Feature Code WA_V unless coastline is involved, in which case the Feature Code will be WACFOHLL_V.

                      Figure 10 illustrates the concept of waterbody virtual features.
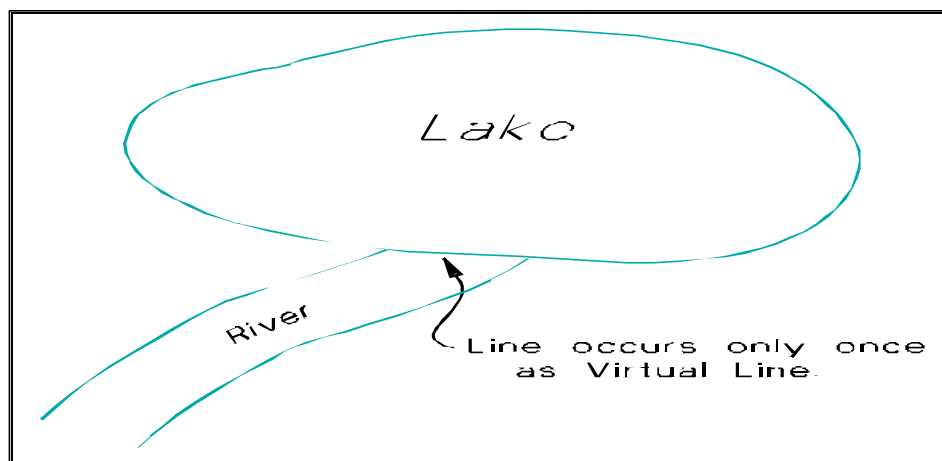
Figure 10 - Waterbody Virtual Features

Classification   Waterbodies are classified using the Feature Code attribute. Table 13 summarizes these codes.

Feature Code	Classification Description
WACA	Canal
WACB	Cranberry Bog
WALK	Lake
WARS	Reservoir
WARVDL	Double Line River
WARVIS	River Island
WARVLK	River Lake
WASW	Swamp

Table 13 - WATERBODY CLASSIFICATION

Note   Waterbody boundaries are indicative of the situation which existed at the date when the aerial photography was collected. They may or may not reflect current conditions, which are subject to seasonal and climatic change.

Indexing   Waterbody polygons are assigned unique polygon labels as index keys to permit attribute linkage.

Rivers

Classification   Rivers are classified using the Feature Code. Table 14 lists these classes:

Feature Code	Classification Description
WARVDL	Double Line River
WARVSL	Single Line River

Table 14 - RIVER CLASSIFICATION

Note   Double line rivers are considered to be waterbody polygons.

River boundaries are indicative of the situation which existed at the time the aerial photography was collected.

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Indexing   Rivers are assigned unique index keys to permit attribute linkage.

Coastline

Definition   The coastline in the ETB98 has two coastlines. The first one is the landward limit line. It is identified as the most landward edges of Coastal Marshes, Backshore Beaches, Rock Platforms and Dunes. The second one is the ordinary high-water line. It is the most discernible mark on the ground created by the medium high tide between the spring and neap tides.

The two coastlines are combined into one line where the two lines merge.

Classification   Coastline features are assigned Feature Codes:

WACFOH	Ordinary highwater coastline
WACFLL	Landward Limit Coastline
WACFOHLL	Combined Ordinary Highwater and Landward Limit Coastline
WACFOHIS	Ordinary Highwater Coastline for an island
WACFOHLLIS	Combined Ordinary Highwater and Landward Limit for an island

Swamps

Classification   Swamp features are assigned to the Feature Code WASW. Swamps are considered to be waterbody polygons and are enclosed by virtual features at the neatline and by other waterbody features where they adjoin.

Note   Swamp boundaries were interpreted by the stereo plotter operator from photography which reflected the status of wetlands as of that date. These boundaries may or may not be indicative of current wetland conditions, which are subject to seasonal and climatic changes.

Indexing   Swamp polygons are assigned unique index keys as polygon labels for attribute linkage.

Spines and Connectors

Definition   A spine is a linear feature comprising a segment or group of segments which provide hydrographic network connectivity through waterbodies.

Connectors   A connector is a linear feature which provides connectivity between two hydrographic networks across a land mass. These connectors are used only in the DTDB98 windows.

Collection   Spines were compiled by creating line segments representing the approximate centreline of double line rivers and waterbodies. Figure 11 illustrates the methodology used to create spines.
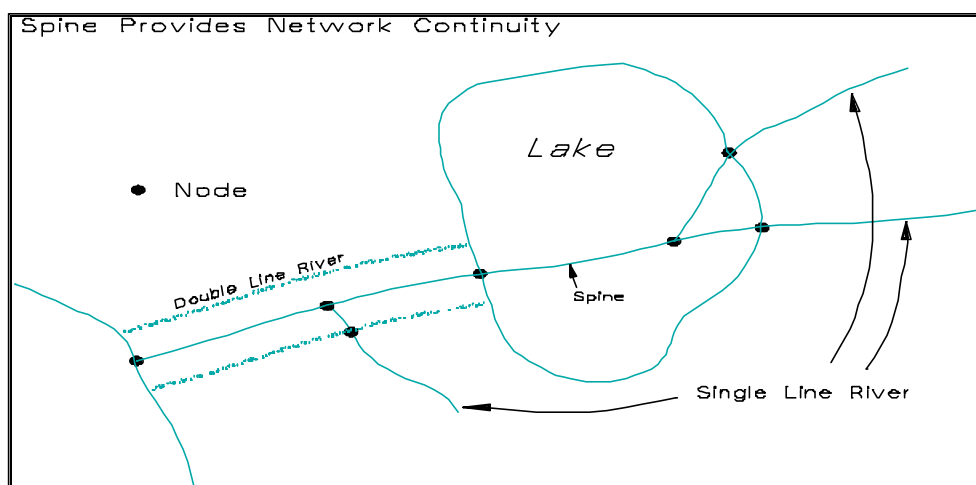
Figure 11 - Waterbody Spines

Limitation   Spines are not present within waterbodies where the total length of the drainage pattern is less than two (2) kilometres in length. The intent is to avoid hydrographic spines in small isolated drainage patterns.

Classification   Spines are assigned the Feature Code WASP_V through water bodies except swamps which receive the Feature code WASQ_V. Connectors are assigned the Feature code WACN_V.

Indexing   Spines are assigned unique index keys to permit attribute linkage.

Coastal Features

Definition   Coastal Features consist of Natural Coastal Features and Associated Coastal Features. These features occur in the area between the two coastlines (ordinary highwater and landward limits lines).

Natural Coastal Features are Backshore Beaches, Backshore Rock Platforms, Coastal Marshes, Dunes, and Dyked Land.

Associated Coastal Features are man-made features associated with the Landward Limit of the Coastal Features Area, the Ordinary High Water Mark or the Natural Coastal Features. Examples of these features include rip-rap, wharves, breakwaters, drydocks and dykes.

Classification   Coastal Features are assigned the following Feature codes:

Feature:	Dyked Land
Feature Code of Boundary:	WACFDL*
Feature Code of Polygon Label:	WACFDL
Feature:	Backshore Rock Platform
Feature Code of Boundary:	WACFRP*
Feature Code of Polygon Label:	WACFRP
Feature:	Dune
Feature Code of Boundary:	WACFDU*
Feature Code of Polygon Label:	WACFDU
Feature:	Coastal Marshes
Feature Code of Boundary:	WACFCM*
Feature Code of Polygon Label:	WACFCM
Feature:	Backshore Beach
Feature Code of Boundary:	WACFBB*
Feature Code of Polygon Label:	WACFBB
Feature:	Man Made Coastal Features
Feature Code of Boundary	WACFMM*
Feature Code of Polygon Label	WACFMM

Other unidentified polygons may occur between the Landward Limit of the Coastal Features Area (WACFLL*) and the Ordinary High Water Mark (WACFOH) where exclusion area features are present. Polygon Labels assigned to each of these areas are as follows:

Feature	Exclusion Area Features
Feature Code of Polygon Label:	WACFEX

Collection   New aerial photography was collected during 1996 and 1997 for the Coastal Topographic Data Base (CTDB) and is the source for all Coastal Features. Coastal Features were collected according to a hierarchy.

Adjacent features, each with Feature Code WACF* and Theme/User Number 300 will have only one line referencing the two features, according to the hierarchy as depicted in the following table (higher entries take precedence; refer also to Figure 12):
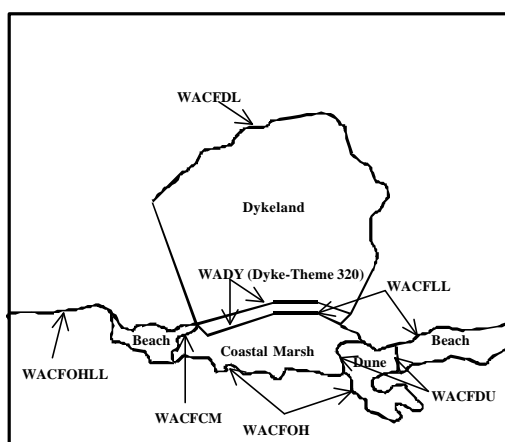
Figure 12 – Feature Hierarchy

Feature Code Hierarchy Designation

WACFOH*	1
WACFLL*	1
WACFOHL*	1
WACFDL*	2
WACFRP*	3
WACFDU*	4
WACFCM*	5
WACFBB*	6
WACFMM	7

Where WACFOH* and WACFLL* are within three (3) metres of each other, the line will be shown only once, and have Feature Code = WACFOHLL*. Otherwise, both lines will be shown. Refer also to Version 0.3 of the

DTDB98 Specifications - Section 6.11 regarding the minimum size criterion for polygons, and to Figure 13.
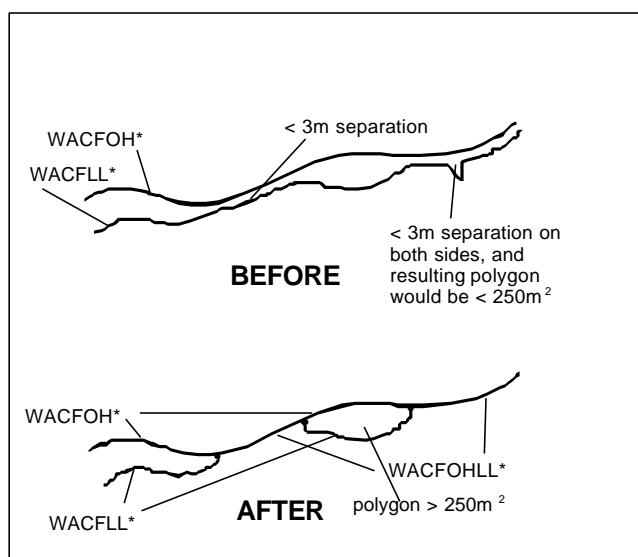
Figure 13 - Proximity Of Coastlines

Indexing   Coastal Features linework and polygons are assigned unique index keys to permit attribute linkage.

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Hydrographic Theme Index Keys

Format   Index keys are assigned to all Hydrographic Network linear features and waterbody polygons within Theme 300 and 310. These keys are unique within the Province of New Brunswick, and are coded according to the following format:

Hmmmnnnnn

Where:

H   is the first character of the index key

mmm   is the 3 character map geocode for the file containing the feature

nnnnn   is a 5 digit sequential number within the window, zero filled on the left

Example   HM2M00015

Note   No distinction is made between spines and waterbodies in the assignment of index keys.

ABOUT THE BUILDINGS THEME

Buildings are updated from aerial photography in the CTDB98 windows. Buildings on the aerial photography was compared to those in the ETB96. Changes were then made to delete buildings that no longer exist and to add new ones.

Classification   Buildings were assigned feature codes as referenced in Appendix B and assigned to theme 240.

Indexing   Buildings are not assigned index keys.

KNOWN LIMITATIONS OF THE DTDB

It is important to note that the ETB represents a version of a digital product which has been compiled to meet a specific structuring specification. The structuring specification was developed to achieve a certain product standard within the constraints of available resource budgets. As such, the ETB contains some limitations.

It is expected that revisions and/or enhancements will be made to this specification based upon feedback from users of the ETB which may result in the removal of some or all of the limitations described within this subsection.

Non Structured Themes

Limitation   There are a number of Themes within the ETB which have not as yet been processed to the logical consistency specifications as described in the New Brunswick Land and Water Information Standards. Table 15 summarizes these themes.

Theme Number	Description
200	Map Surround
210	Delimiters
220	Land Cover/Land Form
230	Utility
240	Buildings
250	Designated Areas
260	Structures

Table 15 - NON STRUCTURED THEMES

Data Format Differences

Limitation   Individual windows within the ETB were collected to one of two different compilation specifications, based primarily on the limitations of the mapping technology available at the time of compilation:

- PDP - this was the original compilation method which was used up to 1988; and

- VAX - this was the compilation procedure used to complete ETB files for the province after 1988.

Major Differences   As a result of this mix of technologies, there are a number of differences in the manner in which features are represented within individual files. Table 16 summarizes these differences.

Category	PDP Files	VAX Files
Feature Codes	No feature code hierarchy is observed for area Features.	Feature code hierarchy is observed for closure of area Features.
Area Features	Area features for Hydrography (WA), Land Cover (LC) and Designated Areas (DA) are closed within this feature class (self contained). Area centroids are not used.	Only features having elevations are self-contained. Other area features are closed using boundaries determined according to Feature Code hierarchy. Area centroids are present as text strings with Feature Code of area feature.
Line Duplication	Duplicate lines occur where features share a common boundary. Duplicate lines are not co-located.	Duplicate lines are not present. Line presentation determined by Feature Code hierarchy.
Elevations	Elevations are not normally present.	Certain features have elevations associated with them.
Sliver Polygons	Sliver polygons may exist along boundaries of features which should be common (co-location was not done).	No sliver polygons exist. Common boundary carries Feature Code of highest feature in hierarchy.

Table 16 - Major Differences Between PDP And VAX Topographic Files

Processing Levels   It should also be noted that, in addition to differences in compilation specifications, original ETB files were processed to one of three possible "levels" HYB, ETX or E15. These processing levels, which are no longer used, may also result in differences in feature representation between files.

A brief description of each of these processing levels is given below:
- HYB - these are commonly known as "hybrid" files. They have not been processed to any logical consistency level;

Service New Brunswick
Services Nouveau-Brunswick

New ⚓ Nouveau
Brunswick

UGE1998O
Version 0.8
March 6, 2001

- ETX - files in this group have been processed to former logical consistency Level 1.0;

- E15 - files in this group have been processed to former logical consistency Level 1.5.

Table 17 summarizes differences between these levels which are relevant to ETB users (i.e., they apply to non-structured Themes). For a more in depth discussion of the differences among these obsolete processing levels, refer to the New Brunswick Topological Processing Procedures (March 1994).

Category	HYB	ETX	E15
Compilation Type(s)	VAX	PDP, VAX	PDP
Network Data	May contain overshoots and undershoots on non-structured Themes	Overshoots and undershoots on Themes 220 and 250	As for ETX
Bridge Representation	Area Features included on Theme 110	Area Features may be present on Theme 110	Area Features included on Theme 110
Text	No corrections	No corrections	Corrections added

Table 17 - Former Processing Level Differences

Feature Code Hierarchy

Table 18 summarizes the Feature Code hierarchy used to determine the feature code associated with common boundaries in the VAX files.

Level	Description
1	Transportation and Hydrographic
2	Features requiring accurate elevations
3	Linear features (fence, tree lines, retaining wall)
4	Tree areas
5	Reforested areas
6	Remaining areas, excluding swamps
7	Swamps

Table 18 - VAX FEATURE CODE HIERARCHY

Significance

Unstructured themes may contain data in either format, depending upon when the ETB File was originally compiled. The level of processing completed on each file prior to ETB Level 3.3 processing, as well as the compilation method (PDP or VAX) are described in the previous ETB96 User Guide (UGE1996*.doc).

New ⚓ Nouveau
Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Edge Matching

Limitation	Edge matching has not been carried out on non structured Themes (see Table 15 for a list of non structured Themes).
Significance	Area misclosures may occur across window boundaries. Network connectivity may be broken across window boundaries.
Limitation	For edge matching between CTDB and DTDB there are cases where lines in DTDB extend beyond the neatline to meet the continuation of the line in the CTDB file. This is required because of the requirement to hold the CTDB file fixed when matching between the contracts.
Significance	Cases of lines undershooting the neatline in the CTDB required this fix. For example: file 46956530 at 2591299, 7553914.

Road Centreline Positional Accuracy

Limitation	The positional accuracy of the road centrelines on the Transportation Network Theme (100) may vary depending upon the source of the data from which the feature was compiled. In particular, road centrelines captured by heads up digitizing from DPM windows were estimated by using the mid point between Right of Way property lines.
Significance	The road centreline may not accurately represent the situation on the ground.
Data Source	The source of the data may be determined from field AA of the Source ID.
Accuracy	The estimated accuracy of the feature may be determined from field D of the Source ID.

New Nouveau **Brunswick**

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Road Name Issue

Situation   The Specifications stated that road names in the ETB96 were to be updated
                          by comparing ETB road names to those used by DOT. Missing or incorrect
                          road names, as identified in this comparison, were to be included in the
                          ETB98 files.

Limitation   Production contractors did the following:
                          • For the DTDB a visual inspection process was used to complete the
                            update – very few files were updated
                          • For the CTDB some of the roads were updated with DOT road
                            names

Significance   DTDB files will have ETB road names, while,
                          CTDB files will have updated some DOT road names.

Road Centreline Completeness

Limitation   The user is advised that the structuring process used to update the road
                          centrelines within the ETB windows is subject to a number of restrictions
                          regarding the completeness of the data:

                          • The data is current as of the date upon which the "snapshots" of the
                            source files were collected for use in the ETB structuring (late 1998).

                          • Roads within mobile home parks (which are treated as private
                            property) will not normally be included.

Significance   Additional revisions may be required to make the data suitable for use with
                          some applications.

DNR Roads

Limitation   There are cases in the DTDB for DNR roads where there is no F* code
                          given in R96 file.

Significance   In these cases it may be that the production contractor has given a default
                          feature code of RRRDOTR and a default value of F4ZZ in N98.

                          Example file 47856810.

R98 Files

Limitation   The production contractor added some retired records to the R98 that were missing from the R96 source files.

Significance   These were for bridges and some roads.

                              Example, key RP1V0084 in file 45406730.

D98 Files

Limitation   A case was found in D98 file where a LFTM point was found outside the neatline.

Significance   The points are within 1 metre of the neatline. A list of D98 windows with this problem areas is provided in Appendix J.

Elevations

Limitation   No elevations are present within the ETB windows.

Significance   All network intersections occur in two dimensional space. This implies that topological nodes will occur at grade separated intersections. Transportation planners using the ETB for routing applications must therefore ensure that impossible real world turns (for example, a right turn off a bridge) are correctly modelled by coding turn restrictions at these nodes to prevent such turns.

                              No checks on drainage patterns (for example, check downhill) are possible.

DTM Files   Each ETB window has a corresponding SNB Digital Terrain Model (DTM) window that may be used to interpolate elevations for features within the Topographic File.

New ⚓ Nouveau
Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Currency of Mapping

Limitation   With the exception of the Transportation Network Theme (100), features within the ETB windows are only current as of the date of the aerial photography from which the file was compiled (see Appendix E for these dates). Changes which have occurred subsequent to this date are not reflected in the files.

Significance   Features within the files may no longer accurately reflect existing conditions.

Maintenance

Limitation   With the exception of the Transportation Network Theme (100), there is no regular maintenance program in place for updating features within the ETB windows.

Updates to Theme 100 are at present limited to those roads under NBDOT or NBDNR&E jurisdiction.

Significance   Features may not reflect current conditions on the ground.

Coast Line and Spine Features

Limitation   Some files in the DTDB98 contract contain coast line features that remain as they were in the ETB96 source. These files contained WACO* and WAC_V features, usually along the inland portions of double line rivers. There were no instructions in the DTDB specifications to update these features.

Significance   This creates a situation in the ETB98 files where spines in the rivers terminate at two locations, leaving a gap between the DTDB spine and the CTDB spine. In the DTDB file, the spine ends at the WAC_V line. In the CTDB file the spine will end either at the neatline or at the closing line WACFOHLL_V.

Line Weights of Features

Limitation   In CARIS all features have a line weight stored in the graphics file (198, 398, G98). The master file also has a line weight parameter for each feature code. If the line weight stored in the graphics file has a zero value then CARIS uses the value in the master file for symbolization. Otherwise, if the graphics line weight is non-zero, it uses the graphics file value.

Also note – in CARED and CARMAN, when you query a feature, only text features show the line weight. For text, they only show the graphics line weight. If the graphics line weight is zero, then the Line Weight field is

New Nouveau
Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

blank, even though the master file value may be non-zero.

Significance   In some files the polygon labels (text) had line weights of 28 when queried in CARIS (CARED or CARMAN). The master file had line weights of zero for those feature codes. In these cases, the line weight for the text in the graphics file is non-zero and cannot be controlled using CARIS from the master file.

Additional Road Issues

Limitation   NBDOT has identified the issues shown in Appendix M relating to the 198 and r98 files.

Significance   At the time of writing this manual, the impact of these issues had not been determined. Additional work must be completed to establish the magnitude of these problems.

New Nouveau **Brunswick**

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

SECTION 3 CONTENTS OF THE ETB98 ATTRIBUTE FILES

INTRODUCTION

This section deals with the contents and organization of the ETB Attribute Files. It defines terms needed to understand the contents and structure of these files, tells how information is organized within the files, and provides an overview of how the attribute files are linked to the topographic file.

DEFINITIONS

RDBMS
Relational Data Base Management System. A software product which organizes data into tables. Rows within these tables represent individual instances of data (records), and columns represent distinct data entities within each record. Examples of RDBMS products include INGRES, ORACLE and Microsoft Access.

Attributes
Attributes are textual records which describe a digital topographic feature. Attributes may be attached to features in one of two ways:

- By encoding descriptive text within a field supplied as part of the internal GIS data base structure. In CARIS, attribute fields include the Source ID, Theme/User Number and Feature Code.

- By linking records within a RDBMS table to a specific topographic feature or group of features through the use of an index key. This method is employed to link the ETB Attribute files to the ETB Topographic Files.

DATA SOURCES FOR THE ETB ATTRIBUTE FILES

SNB ETB98 Files
Some attributes (ETB Source ID, Index Key, Feature Code, Theme/User Number, Source ID field descriptive data) were extracted from the current ETB files during structuring.

NBDOT
For roads under NBDOT jurisdiction, the original Source ID, Feature Code and Index Key attributes were obtained from the NBDOT Road Inventory Data Base.

SNB ETB96 Files
Records were imported from the attribute files of the ETB96 files.

SNB Original ETB
The original Source ID and Feature Code attributes were obtained from the original SNB ETB file (i.e., the file which existed prior to ETB Level 3.3 processing) for those features not extracted from NBDOT Road Inventory Data Base files.

New Brunswick / Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

TYPICAL FILE SIZES

Road Attribute File

Record Length   The length of each record within the Road Attribute File is 161 characters (bytes) including the carriage return (CR) character at the end of each record.

Typical File Sizes   File sizes may vary from approximately 10 Kb to in excess of 100 Kb, depending upon the number of transportation network features present within the file.

Hydrographic Attribute File

Record Length   The length of each record within the Hydrographic Attribute File is 149 characters (bytes), including the carriage return (CR) character at the end of each record.

Typical File Sizes   File sizes may vary from approximately 10 Kb to in excess of 100 Kb, depending upon the number of hydrographic features present within the file.

ABOUT THE ETB ATTRIBUTE FILES

Road Attribute File

Description   The Road Attribute File contains descriptive information about Transportation Network (Theme 100) linear features, including both road and rail features.

Filename   Individual Road Attribute Files will have a filename in the form *filename*.ryy, where filename is the corresponding ETB file name, and yy is the version of the ETB from which the file was produced.

Format   Road Attribute Files are supplied as DOS ASCII text records. Individual fields within these records are fixed length and are not delimited.

Content   Table 19 presents the layout for records within the Road Attribute File.

New 🚢 Nouveau
Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Indexing to Map Features

Field 1 is used to index Road Attribute File records to corresponding features within the ETB graphic files.

Field Number	Record Position (Char.)	Field Description
1	1 – 12	Index key from current ETB file
2	13 – 24	Index key from previous of version of ETB file or database
3	25 – 36	Feature Code from current ETB file
4	37 – 48	Feature Code from source database
5	49 – 52	Theme/User Number from current ETB file
6	53 – 64	Source ID from current ETB file
7	65 – 94	Descriptive data from field AA of source Id for current ETB
8	95 -124	Descriptive data from field BC of Source ID from current ETB file
9	125 - 132	Descriptive data from field D of Source ID from current ETB file
10	133– 152	Descriptive data from field EEE of Source ID from current ETB file
11	153 – 160	Descriptive data from field FGYY of Source ID from current ETB file; eg July 1, 1999 is 19990701
12	161	"A" - if index key in field 1 is active; "R" – if index key in field 1 is retired' "C" – if index key is duplicated by a consolidation of former keys

Note: All fields are left justified

Table 19 - ROAD ATTRIBUTE FILE LAYOUT

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Hydrographic Attribute File

Description   The Hydrographic Attribute File contains descriptive information about hydrographic network and water body features on Themes 300 and 310.

Filename   Individual Hydrographic Attribute Files will have a filename in the form *filename*.hyy, where filename is the corresponding ETB File name, and yy is the version of the ETB from which the file was produced.

Format   Hydrographic Attribute Files are supplied as DOS ASCII text records. Individual fields within these records are fixed length and are not delimited.

Content   Table 20 presents the layout for records within the Hydrographic Attribute File.

Indexing to   Field 1 is used to index Hydrographic Attribute File records to corresponding
Topographic   features within the ETB graphic files.
Features

Links to Topographic Features

Feature Index Keys   All GIS and some CAD packages permit the assignment of RDBMS attribute records to digital topographic features through the use of feature index keys. These keys permit the software to access the RDBMS and find an attribute record in a data table which has the same feature index key within one if its fields.

Unique Keys   All indexed features within ETB windows will be assigned unique keys.

Field Number	Record Position (Char.)	Field Description
1	1 – 12	Index key from current ETB file
2	13 – 24	Index key from previous version of ETB file or Source Data Base
3	25 – 36	Feature Code from current ETB file
4	37 – 40	Theme/User Number from current ETB file
5	41 – 52	Source ID from current ETB file
6	53 – 82	Descriptive data from field AA of Source ID from current ETB file
7	83 – 112	Descriptive data from field BC of Source ID from current ETB file
8	113 – 120	Descriptive data from field D of Source ID from current ETB file
9	121 – 140	Descriptive data from field E of Source ID from current ETB file
10	141 – 148	Descriptive data from field FGYY of Source ID from current ETB file; e.g. July 1, 1999 is 19990701
11	149	"AA" if Index Key in Field 1 is active; "AR" if Index Key in Field 1 is retired. "AC" if Index Key is duplicated by consolidation of former keys.

Note: All fields are left justified

Table 20 - Hydrographic Attribute File Layout

DNRE Resource Roads Attribute

This is a flat ASCII file (DOS), one file for each 1:10 000 ETB window, containing one record for each road where the source of the data is DNRE. The format of the file is as follows is shown in Table 21:

Field Number	Record Position (Char.)	Field Description
1	1 - 12	Index key from current ETB file
2	13 – 24	Feature Code from DNRE (F*)

NOTE: All fields are left justified

Table 21 – DNRE Field Descriptions

File names conform to those referenced in Section 5.1

The file name extension is .n98

The following is a description of the Road Classification Codes for the New Brunswick Department of Natural Resources and Energy Forest Resource Inventory System. These codes appear in the ETB98 attribute files, both the R98 (Road Attribute File) and the N98 (Natural Resources Look-up File). The codes have the general format:

$$F\mathit{dyy}$$

Where:

     "F"   is a constant prefix
     "*d*"   is the feature description code
     "*yy*"   is the year the road is dated

The feature description codes are:

     "1"   - Primary Forest Road (a road passable in all weather conditions)
     "2"   - Secondary Forest Road (a road passable in all weather conditions)
     "3"   - Tertiary Forest Road (a road passable in dry weather conditions)
     "4"   - Poor Road (a track or trail)
     "5"   - Poor Road (a track or trail)
     "9"   - Poor Road (a track or trail)

The year codes are the two right hand digits of the year. For example

     "80"   - for the year 1980
     "00"   - for the year 2000 (note: for ETB98 there will be no year 2000 dated roads)
     "zz"   - for an unknown year

An example of a road classification code is F280, which is a secondary forest road dated 1980.

SECTION 4 WORKING WITH THE ETB98 FILES

INTRODUCTION

This section provides explanations and guidelines for working with your digital topographic data. It includes guidelines for enhancement of the files, integration of the digital topographic data base files with other datasets, and ongoing maintenance of the files.

DISPLAYING ETB FILE DATA

This subsection provides guidelines for displaying ETB File data. Figure 14 illustrates a typical ETB File which contains a variety of topographic features. The map display examples contained within this section are based upon data within this file.
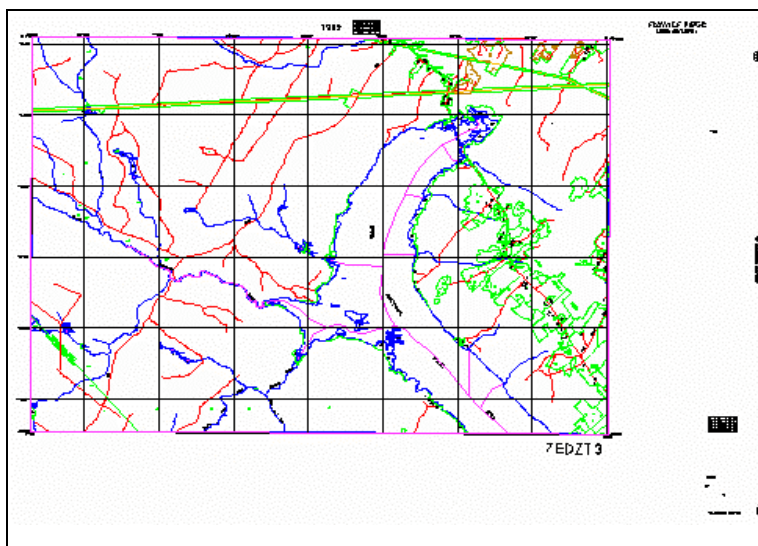
Figure 14 - Typical ETB File Features

By Theme/User Number

Theme Organization   CARIS Theme/User Numbers are used to group common ETB features into layers which can be displayed separately. Table 1 describes the Theme groups within ETB Files.

For CARIS Users   CARIS users can execute the Display Parameters (Visibility Parameters in CARIS for Windows) command from within CARED or CARMAN and then select the Theme Number option. Enter the number(s) of the Theme(s) you wish to display.

For Other Users

If your software allows you to attach attribute records to indexed map features, (ie, a feature with an index key assigned) you can use the ETB Attribute Files to select features by Theme/User Number. Note that only features on Themes 100, 300 and 310 can be displayed in this manner, as these are currently the only Themes containing feature index keys.

Example

Figure 15 illustrates the display produced by selecting Theme 100 features from the file shown in Figure 14.
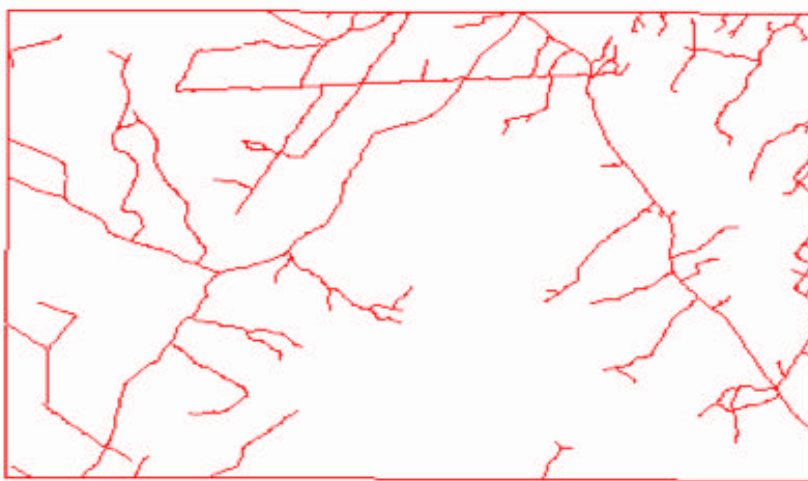
Figure 15 - Feature Display By Theme

By Feature Code Hierarchy

Feature Code Hierarchy

ETB Feature Codes are created in a structured hierarchy, with the two left most characters representing the major feature class to which the features belong. Table 6 summarizes these major classification groups. More detailed classification information is contained in character positions 3 through 12 of the feature code.

The following example is illustrative of the breakdown of feature classes within the transportation category:

RR	Transportation
RRRD	Transportation, road
RRRDA	Transportation, road arterial

For CARIS Users

Execute the Display Parameters (Visibility Parameters in CARIS for Windows) command within CARED or CARMAN and select the Feature Codes option. Then enter as much of the Feature Code as required to select the features you wish to display. Terminate the Feature Code string with a wild card character (*) to avoid exact character matching beyond the limits

of the search string specified.

The following are examples of DP display criteria for Feature Codes:

RR*	will display all features beginning with RR
RRRD*	will display all features beginning with RRRD
RRRDA*	will display all features beginning with RRRDA
RRRDA	will display only those features which exactly match the string RRRDA

For Other Users   If your software allows you to attach attribute records to indexed map features, (ie, a feature with an index key assigned) you can use the ETB Attribute Files to select features by Feature Code. Note that only features on Themes 100, 300 and 310 can be displayed in this manner, as these are currently the only Themes containing feature index keys.

Example   Figure 16 illustrates the display produced by selecting Feature Codes RRRD* from the map shown in Figure 14.
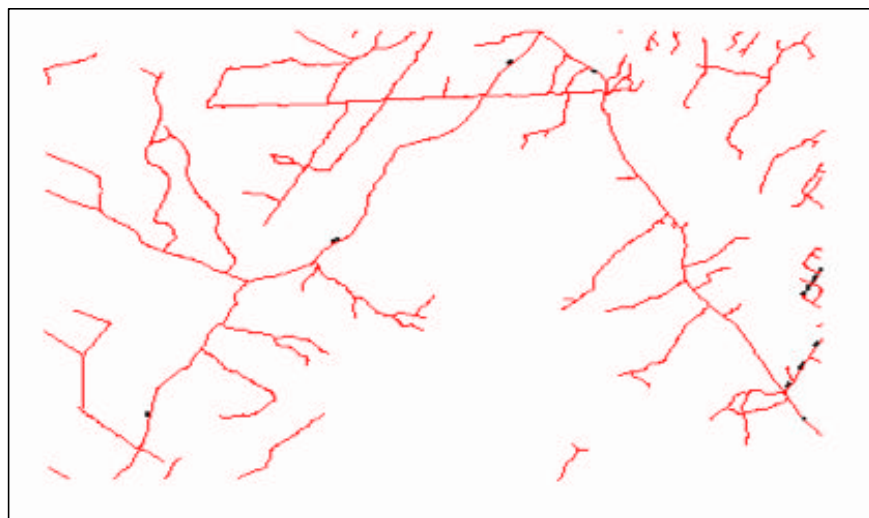
Figure 16 - Feature Display By Feature Code

By Source ID

Format   The format of the Source ID CARIS attribute has been previously described within Section 2 of this guide. Tables 2 through 5 describe the various allowable codes for the subfields comprising this attribute.

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

For CARIS Users Execute the CARIS Display Parameters (Visibility Parameters in CARIS for Windows) command and select the Source ID option. Then enter as much of this Source ID as required to select the features you wish to display. Terminate the string with a wild card character (*) to avoid exact character matching beyond the limits of the search string specified.

The following examples of DP display criteria for Source ID:

D*	will display all features which were obtained from NBDOT Road Inventory topographic files
D2*	will display only those NBDOT features obtained from Theme 2050 of the Road Inventory topographic files
AAVD*	will display those features captured by heads up digitizing by a SNB contractor
AAVDCGEO*	will display those features captured using heads up digitizing with an expected accuracy of 3-5 metres by contractor Geoplan Consultants Inc.

For Other Users If your software allows you to attach attribute records to indexed map features, (ie, a feature with an index key assigned) you can use the ETB Attribute Files to select features by Source ID. Note that only features on Themes 100, 300 and 310 can be displayed in this manner, as these are currently the only Themes containing feature index keys.

Example Figure 17 illustrates the display produced by selecting features with Source ID AAVD* from the map shown in Figure 14.

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001
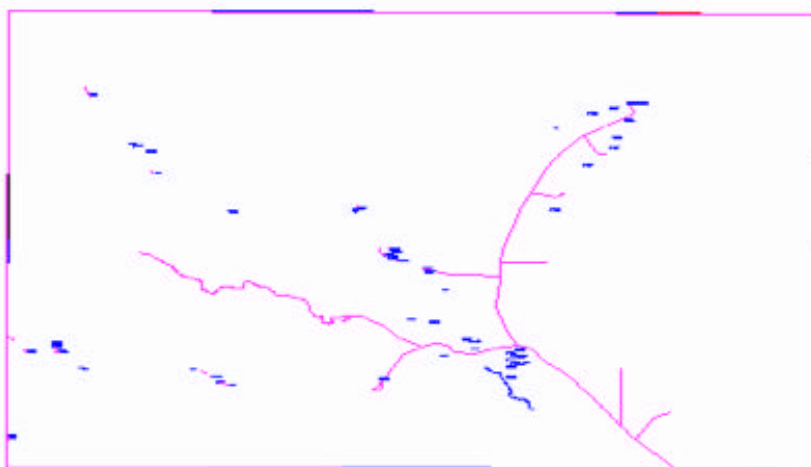
Figure 17 - Feature Display By Source ID

By Attribute Value

Attribute Query   GIS software allows the user to select and display features by specifying a search criteria (filter) to be applied on a specific field (column) in a RDBMS data table. The search is usually specified using a Structured Query Language (SQL) statement.

Hints   You may need to understand SQL syntax in order to carry out a feature selection by attribute search.

You will need to know how data is stored within the RDBMS table to be searched. Some of the data storage characteristics you will need to know include:

- the name(s) of the data base table(s) within which your data is stored;

- the data base field names associated with each data element within a data base table;

- the data format associated with each data field (for example, character or numeric, upper or lowercase letters, number of decimals, etc.).

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

For CARIS Users   The CARIS Data Manager (CARMAN) may be used to display features by
                     attribute value. The following commands are used:

      FESA   Feature Select by Attribute Search
      HLSL   Highlight Selection

      OR

      MKSL   Mark Selection (CARIS requests user to specify a colour)
      DR   Draw

For Non CARIS   Commands will vary depending upon the GIS software used.
Users

Example   Figure 18 illustrates the display produced by searching the Road Attribute
                     File for features with NBDOT Index Key values beginning with the string
                     "R0616".
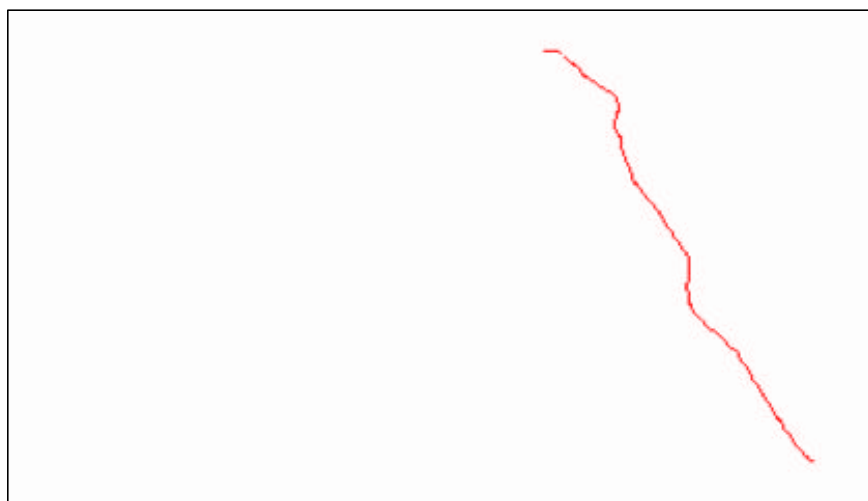
Figure 18 - Feature Display By Attribute Value

SPATIAL ANALYSIS CAPABILITIES

Themes within the ETB windows that are topologically structured (or capable of being topologically structured) can be used for certain analytical operations. Guidelines for spatial analysis are given below by Theme.

Transportation Network Theme (100)

Topology	Network topology is present on Theme 100.
Spatial Analysis	Connectivity analysis can be performed. Examples of connectivity analysis include: • Selection of shortest route between two points • Selection of optimum delivery routes • Determination of service response zones
For Non CARIS Users	Network topology must be constructed using your GIS software prior to performing spatial analysis operations.
Notes	All intersections occur in two dimensional space. This implies that cross roads at grade separated intersections which do not actually connect on the ground will be connected (form explicit nodes) within the digital file. The user will have to code turn restrictions at these nodes to avoid unrealistic turn movements (for example, right turns off a bridge onto the road below). Coding for one way streets, speed limits and other link/node restrictions will have to be added by the user. Network connectivity is assured across window boundaries.

Hydrographic Network Themes (300 and 310)

Topology	Network topology is present across Themes 300 and 310. Natural hydrographic linear network features (single line rivers) are present on Theme 300, and water body spines are present on Theme 310. Polygon topology is present on Theme 300.
Spatial Analysis	Connectivity analysis can be performed using Themes 300 and 310 collectively. Polygon operations can be performed on Theme 300.
For Non CARIS Users	Network and polygon topology must be constructed on Theme 300 prior to performing polygon operations.

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Network topology must be constructed across Themes 300 and 310 prior to performing network connectivity analysis.

Notes   No elevations are present in the ETB files. Network analysis is therefore restricted to two dimensions.

Network connectivity is assured across window boundaries.

Polygon closure is assured across window boundaries. Removal of virtual neat line features will permit the formation of continuous polygons across multiple windows.

Other Spatial Analysis

DTM   Digital Terrain Model windows are also available for each ETB window. Other analysis operations can be performed once DTMs are constructed. See Sections 5 and 6 of the Guide for additional information concerning the DTM Data Base.

CREATING USER ATTRIBUTE FILES

It is possible to create additional feature attribute files using your RDBMS software which can be linked to ETB features.

Use of Keys

ETB File Keys   Index keys exist within ETB Dataset files for the following features:

- Transportation Network linear features on Theme 100

- Hydrographic Network linear features on Themes 300 and 310

- Water body polygons (including islands) on Theme 300

These keys may be used to link additional attributes to ETB features.

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

What to Do

Procedure

1. Construct a new data base table using your RDBMS software. Define the first field (column) in this table to be of type CHARACTER and assign a length of 12 (characters). This field will be used to contain the index key values of features for which attribute records are required.

2. Define additional fields as necessary to store the attribute data desired for each feature.

3. Identify the index key(s) associated with the topographic feature(s) for which you wish to store attribute data.

4. Enter the ETB feature index keys in column 1 of your RDBMS table.

5. Enter the other attributes which describe each topographic feature in the remaining columns next to the applicable Feature index key.

Hints

If you are assigning attributes to a large number of features within an ETB File, use your GIS software to create a plot with the index keys labelled alongside each feature. Keep this plot for future reference.

If you are assigning attributes to a small number of features, you can determine the index keys by interactively selecting each feature and displaying its attributes.

Suggestion

If you wish to assign user attributes to ETB features which are not currently indexed, consult SNB before developing an indexing specification. It may be possible to choose an indexing scheme which can be adopted as an ETB standard and thus avoid future linkage problems when subsequent revisions of the data base are received.

Warning

Future releases of the ETB may contain a different index key for a specific feature if that feature has been subdivided. If this occurs, the original feature index key will be "retired".

Consult SNB for details on accessing historic attribute records for "retired" keys.

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

What Not to Do

Appending Fields to ETB Attribute Files	It is not good practice to add user attributes by appending new fields to existing ETB Road or Hydrographic Attribute files. These files could be overwritten if a subsequent version of the ETB Dataset files are received and the ETB Attribute Files are reloaded from the new version.
Changing Feature Keys	Do not change the index keys assigned to ETB File features. Relationships to user defined keys may be lost if a subsequent version of the ETB is loaded.

Adding New Topographic Features

Users may wish to add new topographic features to ETB Files in order to create custom map products suitable for use within their own agencies. An early example of a custom digital product created from ETB Files is the NBDOT Road Inventory Data Base of digital files.

Users may also wish to enhance existing ETB Files by updating features where changes have occurred.

This section contains guidelines on how to update ETB Files in a manner which will both ensure that such updates are not lost when a new version of the ETB Files is obtained, and also maintain the integrity of the existing structuring specifications.

Use of Separate Themes

Procedure	Assign a new Theme/User Number to be used for the storage of custom topographic features, or revisions to existing ETB File features.
Rationale	Changes to the ETB File can be isolated easily by Theme Number and saved to a backup file. When a new version of the ETB File is received, the custom edits can be restored by simply importing the user Themes to the new ETB version from the backup file.

New Nouveau
Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Guidelines   Consult with SNB and the New Brunswick Land and Water Information Standards Manual prior to establishing Theme Number standards for your agency.

Avoid assigning Theme Numbers within the range of numbers currently in use or planned for use with the ETB (i.e., avoid the numbers 0 through 399).

Establish agency digital standards for Theme Numbers to ensure consistency across all applications.

Create only enough Theme Numbers to provide a logical separation between user topographic feature classes (for example, topological network features versus associated text and symbology). Remember that the Feature Code hierarchy can be used to distinguish between features for display purposes also.

Leave a gap between Theme Numbers to allow room for subsequent additions. An increment of 10 between numbers is suggested.

Use of ETB Feature Code Hierarchy

Procedure   Use the existing Feature Code structure and hierarchy as a basis for the establishment of new Feature Codes to be used to represent custom topographic features.

Rationale   The existing ETB Feature Code hierarchy is based upon standards developed originally at a national level and subsequently adapted for use within the LRIS mapping program. This hierarchy represents the basic feature classification scheme for topographic data within the Maritime Provinces and is widely known within the region.

Use of this standard will facilitate use of your data by others.

Guidelines   Use as much of the existing feature code hierarchy as possible. For example, if you wish to obtain a finer classification of urban streets and determine that this must be done through feature coding (it could also be done through assignment of user attributes to the topographic features), append the refined classification scheme to the end of the existing Feature Code for municipal roads (RRRDM). The new codes would therefore be defined as follows:

RRRDMA   Municipal Road, Class A
RRRDMB   Municipal Road, Class B

Do not use the first character positions within the feature code to identify your agency. The Source ID attribute can be used to do this.

Use attributes wherever possible to avoid the need for new Feature Codes.

Use of ETB Source ID Standards

Procedure
Use the existing ETB standard format for the Source ID attribute to identify the source of your data.

Rationale
The existing standard can easily be expanded to accommodate additional agency requirements.
Use of this standard will facilitate use of your data by others.

Guidelines
Consult SNB regarding the assignment of new codes where necessary to describe various components of the Source ID.
Avoid the use of the Z (unknown) codes if at all possible.

Accuracy Considerations

Procedure
Users collecting topographic data are advised that adding topographic features to the ETB Files which do not meet the minimum accuracy specification for the product ($\pm$ 2.5 metres) is not recommended. If such features are added, ensure that the Source ID accuracy subfield (field D) is properly coded to reflect this anomaly. An example of where this situation occurs within the ETB is where road centrelines were added based upon the property boundaries in the Digital Property Map Data Base.

Rationale
Users expect that all features within an ETB File are collected to the same accuracy standard. Incorrect conclusions may result from analysis of data which does not conform to this standard.

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Guidelines   Data collected using total stations and differentially corrected GPS measurements will normally meet the minimum accuracy standards of the ETB.

Data collected using GPS measurements which has not been differentially corrected will not meet the minimum accuracy standard.

Data captured from hand digitizing or scanning of manuscripts may not meet the minimum accuracy requirement if the scale of the manuscript is smaller than 1:10 000 or if the manuscript is of poor quality.

Consult SNB if in doubt regarding the expected accuracy of custom map data.

USE OF FEATURE INDEX KEYS

Procedure   Use existing ETB File feature index keys to link user attributes to topographic features.
Use an accepted and consistent procedure to assign custom index keys to new topographic features.

Rationale   Use of index keys permits topographic features to be reclassified or more finely classified without the necessity of modifying existing Feature Code structures (and hence editing the digital file).

Guidelines   Consult SNB before establishing a custom indexing scheme to be used with ETB File features.
Avoid the use of index keys which exceed 12 characters in length.

USING ETB FILES WITH DTM AND OTHER DIGITAL PRODUCTS

The user may have occasion to merge or overlay ETB Files with DTM and other digital topographic products. Care must be taken to ensure that the integrity and quality of the individual files is not compromised when this is done.

This section provides guidelines for using ETB Files with other digital topographic products.

New Nouveau Brunswick   **Service New Brunswick**
Services Nouveau-Brunswick   UGE1998O
Version 0.8
March 6, 2001

SNB DTM Data Base

Content   A Digital Terrain Model is a dense collection of points with X, Y, and Z coordinates captured so as to define a topographic surface shape.

File Name   The DTM Data Base files have the same geographic extent and names as the other ETB Files but with the extension .d98.

Collection Density   The points are collected approximately every 70 metres, or closer where terrain characteristics warrant.

Spatial Framework   The DTM Data Base files conform to the following specifications:

Reference System	NAD83(CSRS)
Projection	Stereographic Double
Resolution	1.0 metre (horizontal)
	0.1 metre (vertical)
Nominal Scale	1:10 000

Accuracy   The elevations have an absolute accuracy of approximately ± 2.5 metres except where the ground is obscured by dense forest.

Combining with ETB Files   Since the DTM file is part of the ETB File suite, they have the same spatial framework and extent. Merging of the DTM file with the corresponding ETB file should present no problems.

Further Information   Refer to Sections 5 and 6 of this guide for further information concerning the DTM.

SNB Digital Property Map Data Base

Content   Digital Property Map (DPM) Files contain all property lines, including rivers, lakes, streams and coastline which form property boundaries.

Window   Each DPM window represents one Property Management Unit (MU). Management Units are irregular shaped polygons which follow property line boundaries. There are approximately 2000 parcels in a Management Unit.

Service New Brunswick
Services Nouveau-Brunswick

New Nouveau Brunswick

UGE1998O
Version 0.8
March 6, 2001

File Name	DPM Files have a name of the form NBccnn.NTX

Where:

cc	is a two digit County code
nn	is a two digit MU number within the County

Spatial Framework	The DPM Files conform to the following specifications:

Datum	NAD83(CSRS)
Projection	Stereographic Double
Resolution	0.05 metre (horizontal)
	0.001 metre (vertical)
Nominal Scale	1:1 000

Accuracy	The accuracy of property lines digitized from manuscripts varies according to the accuracy of the original manuscript.

Refer to Appendix 1 of the User Guide to The Digital Property Maps for a discussion of data sources used to construct the DPM files.

Combining with ETB Files	DPM Files exist at a finer coordinate resolution than ETB Files. In order to avoid problems, the resolution of ETB Files should be changed to correspond to that of the DPM Files.

DPM File windows are based on Management Unit boundaries and do not correspond to ETB windows. If DPM Files are clipped at the neat line boundaries of the ETB Files, care must be taken to ensure that polygon labels for parcels along the neat line are moved into the clipped polygon residing within the ETB window boundary.

Combining DPM Files and ETB Files using the above procedures will require topology to be reconstructed within the resulting file if spatial analysis and/or attribute inquiry is to be conducted against the DPM File polygons.

Other Digital Products

There are numerous other digital spatial data base products which have the potential for use in combination with the SNB ETB. One of these is listed below. The user is cautioned that this list is not intended to be complete, nor does it describe the product in detail. For more specific information, contact the agency responsible for maintenance.

FMB Data Base	The New Brunswick Department of Natural Resources and Energy maintains a Forest Management Branch (FMB) Data Base of forest stand boundaries

within the province. Other features included within these files are resource roads, hydrography and wild life habitat. The window for individual FMB files is identical to that for the ETB Files. Files can be provided in the same spatial framework as the ETB.

For more information concerning the FMB Data Base and its availability, contact Danny Crain, DNR&E at (506) 453-5598.

JOINING ETB FILES

Concepts

Rationale   It is often desirable to carry out GIS analysis using an area which exceeds the size of an individual ETB File window. When this situation occurs, adjacent files may be joined to create a new file with a larger spatial extent.

Continuous Data Base   Depending upon the GIS software employed, it may be possible to merely build a data base index which associates the adjoining files and maintains connectivity among them. This is sometimes referred to as tiling. In CARIS, this association is referred to as a continuous data base.

Single File   It may be necessary to merge all data from individual files into one new file with an expanded coverage area.

Size Considerations

Problem   When individual files are merged to create a new file, GIS software performance may degrade due to the increased file size and the number of features within it.

Solutions   Unnecessary features may be removed from the file to reduce storage requirements.

                       The file resolution may be made more coarse. Note that this may cause problems with topological relationships. This solution should only be used by experienced GIS users and only under certain conditions.

Data Filtering

Definition

Data filtering is the systematic removal of unnecessary topographic features through the use of a search criteria based upon topographic feature attributes.

CARIS Users

CARIS users can specify a data filter using the Display Parameter (DP) command. Features within the DP filter can be either included or excluded from subsequent operations.

Once a DP filter is set, the CARIS REMOFEAT command can be used to delete the unwanted features.

Example

If 20 ETB Files need to be combined to perform a transportation network analysis, features residing outside the Transportation Network Theme (100) are not required (except for orientation or cartographic output). All features residing on other Themes could be deleted, thus significantly reducing the size of the combined file.

Removal of Neat Lines

Concept

When ETB Files are merged into one new file, internal neat lines are no longer required on individual Themes in order to close area features.

Procedure

Portions of the neat lines required to close area features are coded as virtual features. These virtual features can be removed to obtain continuous polygons within the merged file.

Exception

The virtual feature code WA_V is used to separate different waterbody features (for example, lakes and double line rivers). These virtual features should not be removed.

DTDB98 Merge Utility

CARIS Users

CARIS users can make use of a new user friendly utility program provided by Service New Bruswick to merge multiple map windows and multiple graphic themes. This utility must be installed and run on a computer with CARIS GIS.

Documentation

Procedures to install and use the DTDB98 Merge Utility are provided in Appendix M.

Map Index Files and Vertical Data Bases

Concept

It is possible within some GIS packages to construct a map index file consisting only of polygons representing the boundaries of windows labelled with the file name of the individual ETB (or other) window which covers the area enclosed by each polygon. Selecting one of these polygons (or its associated label) will cause the software to "zoom in" to the individual window and display its feature content. This process can be repeated through succeeding levels of detailed mapping, and is analogous to the use of insets on a hardcopy map.

Vertical Data Base

The implementation of index mechanisms which permit the user to start with an overview map and then progressively select map files of increasing detail is known as a vertical data base.

Purpose

A vertical data base design can avoid the need to store excessive feature detail at any one map scale (level). The user can work with only those features which are required to solve the specific problem.

GUIDELINES FOR MAINTAINING THE ETB

Production Libraries

Concept

One set of ETB files is maintained in a central location on a map server which is accessible by all users. Files can be downloaded for local use but cannot be updated within the production library.

Rationale

All users have access to the same version of the files.

Updating of individual ETB Files can be controlled using a "Check In/Check Out" procedure.

CARIS File Size Considerations

Concept

Maintain production ETB Files in CARIS file format. Create CARIS Edit files only when needed for analysis.

Rationale

CARIS files require significantly less storage than CARIS Edit files (approximately half).

Caution

CARIS files do not contain topology. This procedure should only be used by experienced CARIS users since topology will have to be recreated when CARIS Edit files are required.

New Nouveau **Brunswick**

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O

Version 0.8
March 6, 2001

Minimizing Customization of ETB98 Files

Concept   Avoid customization of ETB Files unless required for your application.

                            Isolate custom changes on a separate Theme which can be easily reloaded when a subsequent update to the ETB File is received.

Rationale   This approach minimizes the amount of cartographic editing required to maintain agency base maps.

New Brunswick / Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

SECTION 5 CONTENTS OF THE DTM98 FILES

INTRODUCTION

This section deals with the contents and organization of the Digital Terrain Model (DTM) Files. It defines the terms, explains the format of the files which comprise the database, and describes the presentation of the data.

ABOUT THE DTM DATA BASE

The DTM Data Base is one component of the Enhanced Topographic Data Base. Refer to Sections 2 through 4 of this guide for further information concerning the DTDB.

The DTM Data Base is composed of 1894, 1:10 000 files that correspond in geographic extent to the 1:10 000 files of the ETB.

The DTM Data Base is available from Service New Brunswick. It is provided along with the ETB. Refer to Section 7 of this guide for information on how to order DTM Data Base Files.

The DTM Data Base is a digital representation of elevations throughout the province of New Brunswick, organized into DTM Files.

DEFINITIONS

Check Points	Elevations read throughout the file to provide an independent check of the DTM and / or generated contours.
DTM	A Digital Terrain Model is a dense collection of points, with x, y, and z coordinates that define the earth's surface.
Mass Points	Mass points are the individual elevation points of the DTM.
Spot Height	A spot height is an elevation read at a location suitable for cartographic purposes.

New Brunswick / Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

ABOUT SOURCE IDENTIFIERS

Definition   Source Identifier or Source ID is a CARIS software feature. A Source ID is an alphanumeric code 12 characters in length, used to indicate the source of data or other information pertinent to the data.

Conventions   The Source ID indicates the photogrammetric model from which the data was derived in the first 4 characters and the agency responsible for the creation of the data, in the remaining 8 characters. For example:

         4916____LRIS   is model number 4916 created by the Land Registration Information Service;

         4324_GEOPLAN   is model number 4324 created by Geoplan;

         8142GEOMACAD   is model number 8142 created by Geomacadie.

       The Source ID can be changed without affecting the geometric representation.

ABOUT THEME / USER NUMBERS

Definition   A Theme / User number is a CARIS software feature which allows features to be grouped together and accessed by a number. The Theme / User number is important in the topological processing of the data.

Theme/User Number 50   For the purposes of the DTM files, only Theme / User Number 50 is used.

ABOUT FEATURE CODES

Definition   A Feature Code is a alphanumeric code of up to 12 characters used to identify the attributes of each feature within a GIS database.

Contents   There are established conventions for the coding of topographic features. By reading the Feature Code you will be able to determine:
- the classification of the feature
- certain attributes of the feature

Table 22 indicates the Feature Codes to be found in a DTM file.

Feature	Description
LFTM	LFTM is short form for Land Feature Terrain Model; a DTM mass point is an LFTM.
LFCK	LFCK is short form for Land Feature Check Point; a DTM check point is an LFCK.
LFSH	LFSH is short form for Land Feature Spot Height; a DTM spot height is an LFSH.
LFTMDG	LFTMDG is short form for Land Feature Terrain Model Digitized Gap, and are mass points that have been digitized from orthophoto maps due to poor photography.
DLNLIN	DLNLIN is short form for DeLimiter Neat Line Inner; the Neat Line is a DLNLIN.
DLID30	File Number

Table 22 - Feature Code Classifications And Descriptions

ABOUT THE SPATIAL FRAMEWORK

Framework The Digital Terrain Model Data Base data conforms to the following specifications:

Reference System	NAD83(CSRS)
Projection	Stereographic Double
Resolution (x,y)	1.0 metre
Resolution (z)	0.1 metre
Nominal Scale	1:10 000

ABOUT LOGICAL CONSISTENCY

The DTM Files consist of a number of point type elevation values surrounded by a window neat line. No topological structure applies to this data. The neat line forms a geometrically closed polygon completely enclosing the DTM points.

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

SECTION 6 WORKING WITH THE DTM98 FILES

INTRODUCTION

This section provides explanations and guidelines for working with Digital Terrain Model Data.

CHARACTERISTICS OF DTMS

DTM File Names
    File names for the individual DTM Data Base Files are consistent with the new naming conventions for the DTDB as of version ETB96. Specifically, DTM file names are coded as follows:

aaaabbbb

Where:

aaaa   is the North latitude of the SE window corner, expressed as a 4-digit integer number in decimal degrees to the nearest 0.01 degree.

bbbb   is the West longitude of the SE window corner, expressed as a 4-digit integer number in decimal degrees to the nearest 0.01 degree.

Example: 46006690.d98

Geographic Extent
    As indicated previously, these files have the same geographic extent as the other ETB Files.

TYPICAL FILE SIZES

File Size   365 000 bytes in a CARIS ASCII format

Number of Points per file   25 000 (approximately)

New Nouveau Brunswick   **Service New Brunswick**   UGE1998O
Services Nouveau-Brunswick   Version 0.8
March 6, 2001

DATA COLLECTION PRACTICES

The DTM data exhibits two forms of stereo-model compilation.

Early Procedure | This procedure saw the collection of DTM points following the contours of the terrain. This results in irregularly shaped lines of DTM points. Where the terrain is flat or gently sloped, gaps appear in the DTM coverage. Where the terrain is steep, the coverage may be significantly more dense. There are 79 files collected in this manner. (See Figure 19). The location of these files is shown in Appendix L.
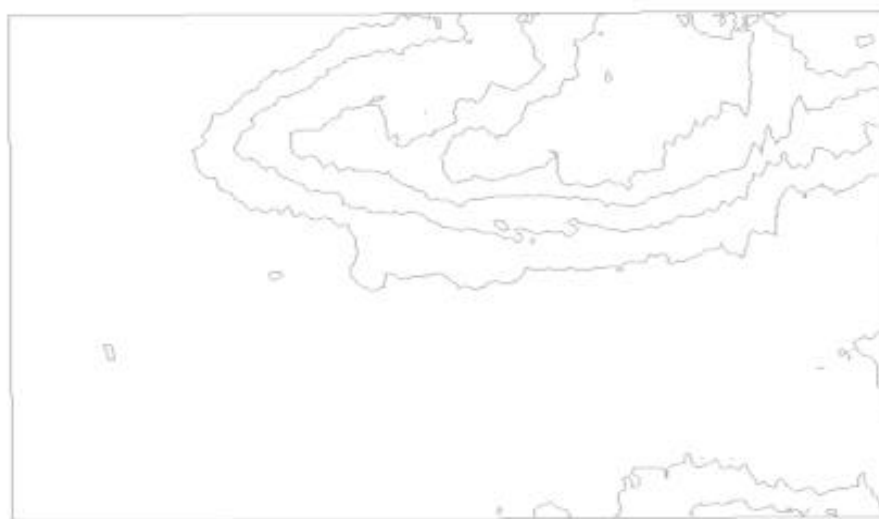
Figure 19 - DTM points following the contours of the terrain

Current Procedure | Most DTM data in the province was collected following regularly spaced profile lines. See Figure 20.

New Brunswick Nouveau

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Figure 20 - DTM Points Following Regularly Spaced Profile Lines

Collection Density   The points are collected approximately every 70 metres, or closer where terrain characteristics warrant. The exceptions are the files collected following terrain contours as explained above. See Figure 21.
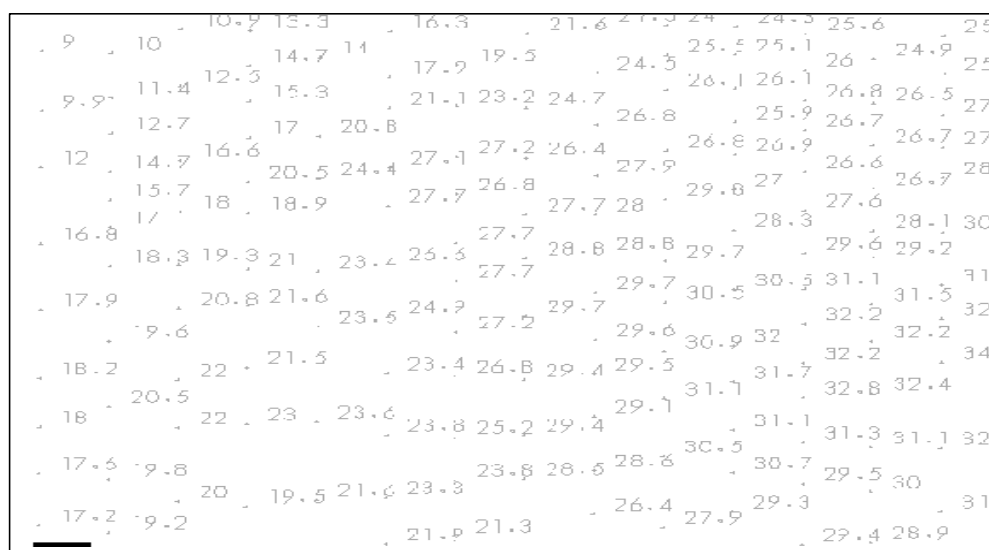
Figure 21 - Typical Data Density Of Regular Terrain

ACCURACY

In areas of good ground visibility, ninety percent of all discrete spot heights and DTM points (mass points, etc.) are accurate to within ± 2.5 metres of their true elevation. In areas where there is significant vegetation, the measurements will be less accurate.

WORKING WITH THE SPATIAL FRAMEWORK

Guideline
When merging data from other sources, be sure that the datum, the projection, and the resolution are the same. Otherwise, the topography will not be a correct representation.

Combining DTMs with the corresponding ETBs
The DTM Files and ETB Files have the same spatial framework. Use appropriate GIS software to merge the files.

Breakline information was not collected with the DTM Files or the ETB Files. If you are interested in deriving elevations along hydrographic features, eg rivers, the following procedure could be followed:

- build the Triangular Irregular Network (TIN)
- drape the ETB over the TIN
- match the ETB location with its corresponding TIN elevation
- transfer the TIN elevation to the feature in the ETB File (Your GIS software may offer you the ability to derive these values)

WORKING WITH FILE RESOLUTION

Guideline
The resolution of data in the DTM File is 1.0 metre in X and Y and 0.1 metre in Z. If you bring the data to a coarser resolution the positions of graphic elements in the file may change slightly with respect to each other.

New Nouveau **Brunswick**

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

GEOMETRIC EFFECTS IN DTM DATA

Ridging Effects

"Ridging" occurs in a large number of DTM Files. This is thought to be a systematic error caused by the method of data collection in the initial stereo-model compilation. The effect is most pronounced in 3-Dimensional perspective views where it is manifested as a series of furrows cut through the model in the direction of the mass point profiles. The crest and trough of each furrow corresponds with adjacent DTM point profile lines. The ridges are less than 10 metres in height. See Figure 22. If ridging is a problem for a particular application, consult your GIS software vendor.

Data Gaps

Gaps in DTM Files are defined here as areas void of elevation values in the DTM coverage that are larger than would be expected by the specified 70 metre point spacing. Legitimate gaps occur in the DTM data for two reasons:
- DTM points are excluded from areas defined by the exclusion area feature codes in Appendix B. These are areas such as bodies of water, pits and man made structures.
- DTM points may be absent from areas of flat or evenly sloped terrain. In these areas a linear interpolation of the ground elevation from the surrounding DTM points would produce an elevation within the accuracy specification.

In some cases, gaps in DTM Files were identified that were a result of problems with the original photography. Since these gaps were outside of specifications, the gaps were filled in with data digitized from orthophoto contour maps. The digitized points were given the Feature Code of LFTMDG.

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Points in exclusion areas

Generally, there are no points in exclusion areas. However, there are cases, due to production methods, where the DTM point may be up to one (1) metre inside an area of exclusion.
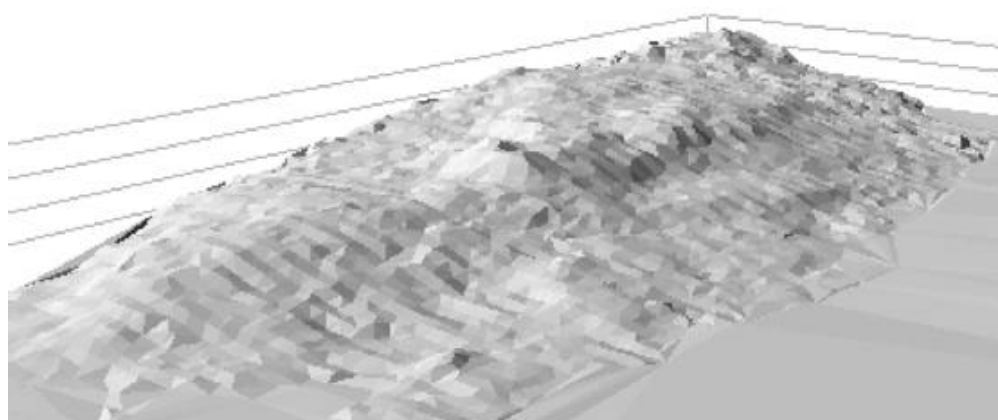
Figure 22 - Example Of Ridging

SECTION 7 ORDERING THE DIGITAL TOPOGRAPHIC DATA BASE

INTRODUCTION

This section contains information on how to order Digital Topographic Data Base (DTDB) files to suit your applications.

PREPARING TO ORDER

Need-to-Know

Prior to ordering DTDB98 files, you must select:

- the media (for example, CD-ROM, SNB Online download, or diskette)
- the file name (s)
- the SNB office for placing the order (unless files are to be downloaded from SNB Online)

How to Order

There are two basic methods by which DTDB data may be ordered:

- by placing an order through an SNB Office
- by directly downloading DTDB files through SNB Online

Each of these methods is further described within the following sections.

SNB Office Orders

You should order your DTDB data through an SNB Office if:

- you are ordering more than 10 files
- you would like to receive the data on CD-ROM or diskette
- you don't have access to SNB Online service

SNB Online Orders

You should order your DTDB data through SNB Online if:

- you are ordering 10 files or less
- you have access to the SNB Online service
- you need the data quickly

ORDERING DTDB FILES FROM AN SNB OFFICE

Overview   Data for all or any part of the province can be ordered from any SNB Office. Data for the entire province on CD-ROM can be ordered from selected SNB offices. Addresses and telephone numbers of the SNB offices are provided in Section 9 of this Guide, along with an order form. Orders may be placed by telephone, fax, mail or in person.

Licensing Agreement After your order has been processed, the DTDB windows will be sent to you along with a licensing agreement which must be signed and returned to SNB within ten days.

Price List   The cost of acquiring DTDB files shall be in accordance with the Price List established by SNB.

Need-to-Do   Read the rest of this section for information about each step for ordering DTDB files. Then complete the order form at the end of Section 9 and mail, fax or deliver it to your local SNB office.

Choosing Media   SNB supplies DTDB windows on certain media. If coverage for the entire province is requested, the data will normally be provided on CD-ROM. Table 23 lists the most common computer operating systems and suggests which media should be chosen when ordering data. Please note that this list is not comprehensive. If you have other software, contact the Director of SNB Office of your area, to discuss your requirements.

        After reading Table 23 select the appropriate media for your hardware and software configuration.

If your computer operating system is...	And you want file coverage for...	Then order on...
MS-DOS	Province	CD-ROM
	Other area	DOS-Diskette
Windows 3.1, Windows 95, 98, 2000 Windows NT	Province	CD-ROM
	Other area	DOS-Diskette
UNIX	Province	CD-ROM
	Other area	DOS-Diskette
VMS (DEC)	Province	CD-ROM
	Other area	DOS-Diskette

Table 23 - SELECTING MEDIA FOR DTDB FILES

Note   Contact your nearest SNB office (see Section 9) if you wish to check the availability of other media for file transfer. In some instances it may be possible to receive data for specific project areas on CD-ROM.

New Nouveau
Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Supported GIS Formats	ETB files are supplied in compressed .zip format by window. Each .zip file contains all ETB files including the DTM files in CARIS ASCII and DXF formats. Non CARIS users will normally require the DXF format files for processing.
Other GIS Formats	In some cases, SNB may be able to supply DTDB files in other GIS formats. Contact your nearest SNB office (see Section 9) for further details.

ORDERING DTDB FILES THROUGH SNB ONLINE

Background	Service New Brunswick provides an Online service through a World Wide Web (WWW) site. This service was initially established in 1996 to provide convenient access to Digital Property Map data. It is now possible to use this service to download DTDB files.
Prerequisites	In order to use SNB Online you must:

- have Internet WWW browser software installed on your computer

- have access to an Internet Service Provider (ISP) from your computer, either directly through a modem or through a computer network direct connection

- have an SNB Online account

WWW Browsers Supported	The following WWW browser packages have been tested and verified to operate correctly with the SNB Online DTDB File Download function:

- Microsoft Internet Explorer, Versions 3.0 and 4.0

- Netscape Navigator and Netscape Navigator Gold, Version 3.0

Users having earlier releases of the above packages are encouraged to upgrade their software.

Service New Brunswick
Services Nouveau-Brunswick

New Nouveau Brunswick

UGE1998O
Version 0.8
March 6, 2001

SNB Online Account   If you currently have an SNB Online Account for access to the Real Property Information, this account cannot be used to download DTDB files. If you do not currently have an account, you will need to apply for one in order to access the DTDB download service. You may obtain the application form and other details concerning this service by:

- calling Customer Support at: (506) 856-3704
- sending an E-mail message to: pallain@nbnet.nb.ca

Costs   Users downloading DTDB files will incur two categories of costs:

- connect time charges which are assessed by your Internet Service Provider
- a flat rate fee per DTDB98 window which is automatically calculated and assessed by the SNB Online service.

Note   It should be noted that there is no volume discount at present if more than 10 DTDB files are ordered through the SNB Online service. Users requiring more than 10 DTDB files may wish to order these files through an SNB office in order to receive a volume discount.

Current information regarding the cost structure for ETB files may be obtained from the SNB WWW site:

http://www.gnb.ca/snb/e/

Select Digital Topographic Data Base from the list of products and services at the top of this Web page.

Downloading ETB Files

WWW Site   DTDB files may be downloaded from the SNB Online www site:

http://www.gnb.ca/snb/e/

User Name and Password   You will be requested to provide the User Name and Password supplied by SNB Customer Support when you connect to the SNB Online site.

Selecting DTDB File Download   From the SNB Online Home Page, select Digital Topographic Data Base. From this page, select Download DTDB

Licence Agreement   You will be presented with a Licence Agreement page at this point. You may choose to either ACCEPT this agreement to proceed with the file download, or CANCEL.

File Selection Options   You may select the individual DTDB windows to be downloaded in one of two ways:

- Graphic Selection will allow you to select individual windows by clicking on them with the mouse cursor

- Non-Graphic Selection will permit you to enter a list of file names

Graphic Selection   You will be presented with a provincial map. To select individual files:

- use the mouse cursor to centre the map on your general area of interest (for example, Fredericton)

- select the Map Scale of the files to be downloaded – this will cause the Map Index windows and file names to be displayed

- ZOOM IN (X 10 recommended initially) to the area of interest, unless the 1:250 000 DTDB files are to be downloaded

- use the ZOOM IN, PAN or ZOOM OUT buttons to further refine your area of interest

- select individual windows by clicking the mouse cursor within the window desired

- when all desired files have been selected, click on the Proceed with File Download button at the bottom left of the page

Non-Graphic Selection   This selection mode permits the use to directly enter DTDB files by entering the file names to a list. Simply follow the instructions on this page to specify the required files.

When all desired files have been entered, click on the Cost and Download button at the bottom left of the page.

Note that users who have selected files using Graphic Selection will be presented with this page also, with the files previously selected being displayed within the ADD window.

Proceeding with
Download   The cost of downloading the selected files will be displayed, along with the total file size. To proceed with the download, click on the Proceed button. Another page will be presented. Click within the [HERE] text to commence download of the files.

New Nouveau
Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O

Version 0.8
March 6, 2001

At this point, you will be prompted to indicate the directory on your computer where the downloaded files are to be stored.

Status of Download
As the files are downloaded, status information will be presented. Both Microsoft Internet Explorer and Netscape Navigator will display the status of the download in a file download popup window.

Completion of Download
Once the file download has been completed, the user will be notified. This notification will vary depending on the Browser being used:

- Microsoft Internet Explorer will close the File Download popup window and display the message "Download complete" in an information popup window.

- Netscape Navigator will display the message "Document done" in the status bar at the bottom of the screen. As well, the file download status window will be closed.

Hints
The following points should be kept in mind when planning to download DTDB files using SNB Online:

- The compressed .zip files are typically quite large - most are greater than 500 kilobytes in size, and some will exceed 1 megabyte. Avoid downloading too many files at once - a reasonable upper limit would be 5 megabytes.

- You must ensure that there is sufficient room on your local hard drive to store the downloaded files. The software does not check this prior to download.

- It is probably not practical to download multiple files in one session unless your modem speed rating is at least 28.8 kb.

- Each file downloaded is a compressed file which contains six (6) individual files (see Section 1 for a description of these files). You must ensure that you have sufficient space on your computer disk to contain the unpacked files. Typical compression ratios for DTDB.zip files may range from 5:1 to 7:1. This means that a downloaded megabyte DTDB file may require as much as 7 megabytes of additional disk space when uncompressed.

- The DTDB compressed files were created with the PKZIP utility program. This utility may be downloaded through a link on the SNB Online DTDB Support Files page:

Service New Brunswick
Services Nouveau-Brunswick

New Nouveau Brunswick

UGE1998O
Version 0.8
March 6, 2001

http://www.planet.snb.ca:8910/PLANET/docs/topo/dtdb98/support.htm

PKZip is a DOS utility. Windows users can alternatively use the WinZip utility program to uncompress the files. An evaluation version is available for downloaded from the WinZip home page (www.winzip.com).

- If for some reason, your download fails, the same files can be downloaded again provided the download take place before 24:00 the same day. Note that the system operation is not necessarily until 24:00.

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

SECTION 8 DATA LICENSING AGREEMENT

INTRODUCTION

This section contains a sample of the SNB Data Licensing Agreement.

Service New Brunswick
Digital Topographic Data Licensing Agreement

This Agreement made in duplicate as of the day of _____.

BETWEEN:

Service New Brunswick hereinafter called "the Licensor"

AND:

_____, hereinafter called "the Licensee.

Whereas the Licensor is the sole owner and distributor of the Digital Topographic Data described in Section 1 of this Agreement; and

Whereas the Licensee wishes to utilize the aforementioned Digital Topographic Data to market a *(specific map product)*_____;

In consideration of the premises and of the mutual covenants and agreements hereinafter contained, the parties hereto agree each with the other as follows:

1. Description of the Digital Topographic Data:

1.1   Topographic Data provided under the terms of this Agreement shall consist of *X* topographic files, in 1: _____ scale, used to produce _____.

1.2   The geographic area for which the Licensor will supply data to the Licensee for this Agreement will consist of _____.

1.3   The Licensor will provide to the Licensee, one copy of each of the aforementioned topographic files.

1.4   The Licensor will provide the Digital Topographic Data to the Licensee in electronic format.

2.   Use of the Land Ownership Data:

2.1   The Licensee will use the Topographic Data described in Section 1 for the exclusive purpose of _____according to the terms set forth in section 2.2 of this Agreement.

2.2   The Licensee shall market *(specified products)*_____, which may contain any of the public information described in section 1.

New Brunswick Nouveau-Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

3.   **Payment provisions:**

3.1   In consideration for the use of the Topographic Data described in Section 2, the Licensee will pay the Licensor, at the end of *(specified period),* _____the accumulated amount of all royalty fees. Royalty fees payable to SNB for each copy of the map product sold will be $_____.

4.   **Auditing provisions:**

4.1   The Licensee will provide to the Licensor a monthly report of sales to include the name of wholesalers and consignees having purchased/sold the product and the number of copies purchased/sold.

4.2   The Licensor reserves the right to audit the Licensee's financial records related to the development, marketing, sale and distribution of the product covered by this   Agreement.

5.   **Restrictive covenants:**

5.1   The Licensor will retain sole ownership rights to the data provided to the Licensee under the terms of this Agreement.

5.2   No data originating directly or indirectly from the Licensor will be used in its original form, customized or changed in any way by the Licensee or its agents for any other purpose than those specified in section 2 of this Agreement without prior written consent from the Licensor.

5.3   Subject to Section 2 of this Agreement, the Licensee shall have an unlimited, but not exclusive, right to use the data supplied by the Licensor. This right shall not extend to affiliates of the Licensee as defined in the <u>Business Corporations Act,</u> R.S.N.B. 1973, Chapter B-91.

5.4   A contractor or business partner may use this data on behalf of the Licensee but has no rights to the data or to the use of it, outside of the purposes described in section 2 of this Agreement.

5.5   The Licensee may not give, loan, lease, sell or otherwise make the aforementioned Topographic Data available to other parties other than for purposes specified in Section 2 without prior written consent from the Licensor.

5.6   The Licensee may not give, loan, lease, sell or otherwise make available the aforementioned Topographic Data in its original form, customized or changed in any way, as part of a value added product, other than for delivering the service specified in Section 2, without prior written consent from the Licensor.

6.   **Warranty**

6.1   The Licensor makes no representations or warranties, either express or implied as to the

accuracy of the Topographic Data. The Licensor shall not be liable for any loss or damage of any kind arising from the use of the Topographic Data or accompanying written materials or from errors, deficiencies or faults therein, whether such damage is caused by negligence or otherwise.

6.2   If the Topographic Data supplied by the Licensor is not usable due to a defective magnetic tape cartridge, the Licensee may return the defective magnetic tape within 30 days of the date of delivery and the Licensor shall replace it at no charge.

6.3   While the Topographic Data may not be free from error or omission, care has been taken to ensure the best possible quality.   A hierarchy of information sources was used to map the property boundaries and the positional accuracy of the data varies according to the source.

7.   Assignment

7.1   This agreement or any portion thereof shall not be assigned by the Licensee without the prior written consent of the Licensor.

7.2   If the Licensee undergoes a change in either ownership or organization, this agreement will become null and void.

8.   Entire Agreement

This Agreement is the entire agreement between the parties and supersedes all previous agreements, arrangements, or understandings between the Parties hereto whether written or oral, in connection with or incidental to the aforementioned Topographic Data.

9.   Law of the Contract

9.1   This Agreement shall be governed by and construed in accordance with the laws of the Province of New Brunswick and the laws of Canada applicable in the Province of New Brunswick.

9.2   The Licensor shall not be liable for any loss, damage of any kind and costs incurred by the Licensee should legislation of the Province of New Brunswick restrict or prohibit   the distribution of all or any products produced as a result of this agreement.

10.   Time is of the essence

Time shall be of the essence of this agreement.

11.   Termination of Contract

11.1   The Licensee may terminate this Agreement by giving notice in writing to the Licensor thirty days prior to termination date.

New ⚜ Nouveau
Brunswick

**Service New Brunswick
Services Nouveau-Brunswick**

UGE1998O
Version 0.8
March 6, 2001

11.2   The Licensor may terminate this Agreement upon written notice if the Licensee breaches this Agreement and fails to correct the breach to the Licensor's satisfaction within 30 days following the written notice specifying the breach.

11.3   Termination of this Agreement shall not relieve the Licensee's obligation to pay all fees that accrued prior to termination date.

11.4   Upon termination or expiration of this Agreement, the Licensee shall cease using the Topographic Data and certify to the Licensor that all copies of the Topographic Data, whether in its original form, modified or merged with other data has been   destroyed or returned to the Licensor within 30 days of termination date.

11.5   This Agreement expires _____.

11.6   This Agreement may be renewed by consent of both parties.

Within 10 business days of receiving this agreement, a signed copy is to be returned and addressed to:

        Marketing Coordinator
        Service New Brunswick
        527 King Street - P.O. Box 6000
        Fredericton, N.B. E3B 5H1

The above conditions are agreed to:

On behalf of _____

_____   _____
Signature   Title   Date

On behalf of Service New Brunswick

_____   _____
Signature   Title   Date

New Nouveau Brunswick   **Service New Brunswick**
Services Nouveau-Brunswick   UGE1998O
Version 0.8
March 6, 2001

SECTION 9 SNB OFFICES

This section lists the address and telephone number for each of the SNB Offices. The section also includes an order form for Digital Topographic Data Base Files.

Notes:

> The information within Table 24 is subject to ongoing change. For the most current information on SNB offices and contacts (including E-mail address if available), consult the "SNB Locations" page on the SNB web site. The address of this page is as follows:

English:	http://www.gnb.ca/snb/e/2000/2001e.htm
French:	http://www.gnb.ca/snb/f/2000/2001f.htm

SNB OFFICES AND LOCATIONS

Location	Address	Contact/Location/Phone #
Bathurst	PO Box 5001 161 Main Street Bathurst, NB E2A 1A6 Tel: (506) 547-2090 Fax: (506) 547-2925	Caroline Landry Bathurst Tel: (506) 547-2611 Fax: (506) 547-2778
Campbellton	PO Box 5001 157 Water Street, City Centre Campbellton, NB E3N 3H5 Tel: (506) 789-2305 Fax: (506) 789-2582	Caroline Landry Bathurst Tel: (506) 547-2611 Fax: (506) 547-2778
Fredericton	PO Box 5001 77 Westmorland Street, 2nd Floor Fredericton, NB E3B 5G4 Tel: (506) 453-3390 Fax: (506) 444-5030	Richard Albert Edmundston Tel (506) 735-2544 Fax: (506) 735-2036
Moncton	PO Box 5001 633 Main Street Moncton, NB E1C 8R3 Tel: (506) 856-3303 Fax: (506) 856-2609	Darrel Parker Moncton Tel: (506) 856-3140 Fax: (506) 856-2609
Miramichi	PO Box 5001 Castle Square Building Pleasant Street, 1st Floor Miramichi, NB E1V 3X1 Tel: (506) 627-4028 Fax: (506) 627-4448	Caroline Landry Bathurst Tel: (506) 547-2611 Fax: (506) 547-2778

Service New Brunswick
Services Nouveau-Brunswick

New Nouveau
Brunswick

UGE1998O
Version 0.8
March 6, 2001

Saint John	PO Box 5001 15 King Square North 2nd Floor Saint John, NB E2L 4Y9 Tel: (506) 643-2865 Fax: (506) 658-2156	Phil Roper Saint John Tel: (506) 643-2865 Fax: (506) 658-2156
Edmundston	PO Box 5001 121 rue de l'Église Suite 219, Carrefour Assomption Edmundston, NB E3V 3L3 Tel: (506) 735-2710 Fax: (506) 735-2036	Richard Albert Edmundston Tel: (506) 735-2544 Fax: (506) 735-2036
Hampton	PO Box 5001 27 Centennial Road, Unit 1 Hampton, NB E5N 6N3 Tel: (506) 832-6060 Fax: (506) 832-6008	Phil Roper Saint John Tel: (506) 643-2865 Fax: (506) 658-2156
Richibucto	PO Box 5001 9239 Main Street Richibucto, NB E0A 2M0 Tel: (506) 523-7725 Fax: (506) 523-7629	Darrel Parker Moncton Tel: (506) 856-3140 Fax: (506) 856-2609
St. Stephen	73 Milltown Boulevard Gagnon Building St. Stephen, NB E3L 1G5 Tel: (506) 466-7335 Fax: (506) 466-7358	Phil Roper Saint John Tel: (506) 643-2865 Fax: (506) 658-2156
Woodstock	PO Box 5001 220 King Street Bicentennial Place Woodstock, NB E7M 5C6 Tel: (506) 325-4410 Fax: (506) 325-4475	Richard Albert Edmundston Tel: (506) 735-2544 Fax: (506) 735-2036

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Perth/Andover	1135 W Riverside Drive PO Box 870 Perth Andover, NB E7H 5G5 Tel: (506) 273-4716 Fax: (506) 273-5900	Richard Albert Edmundston Tel: (506) 735-2544 Fax: (506) 735-2036
Burton	Burton Court House PO Box 80, RR #1 Burton, NB E2V 2G4 Tel: (506) 357-4044 Fax: (506) 357-4046	Richard Albert Edmundston Tel: (506) 735-2544 Fax: (506) 735-2036

Table 24 - SNB Offices and Contacts

DIGITAL TOPOGRAPHIC DATA BASE (DTDB)
ORDER FORM

Client Information   Date: _____

Name of Organization: _____

Address: _____

_____

Telephone: _____

Contact Person: _____

Digital Topographic Data Base File Information

Media (*check appropriate box*)

     CD-ROM   DOS-Diskette

     Other (specify - contact SNB office for available options):

_____

DTDB Support Files (*check appropriate box*)

     I have Internet access and can download these files

     I do not have Internet access. Please provide these files on the media selected above.

Intended use of DTDB File(s) _____

Description of Area and File Names Required:

     Entire Province (*NOTE: Only available on CD-ROM)*

     Others (specify): _____

_____

_____

Send the completed form to the appropriate SNB Office nearest you

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Appendix A- Frequently Asked Questions

This Appendix provides a list of common questions concerning the Digital Topographic Data Base along with responses to these questions.

Q1. Where can I order the Digital Topographic Data Base?

A1. The Digital Topographic Data Base may be ordered from the nearest SNB office. Refer to Section 9 of the Guide for a list of these offices. DTDB files may also be downloaded through SNB Online. Refer to Section 7 of the Guide for instructions.

Q2. Can I order files for a specific project area, or do I have to order the complete provincial coverage?

A2. You can order files for a specific area. The Digital Topographic Data Base (DTDB) Order Form on page 115 of the Guide contains a section for you to describe the area required. You may also specify individual files through SNB Online.

Q3. I am not a CARIS user. Can I order DTDB files in a format compatible with my GIS software?

A3. At this time, SNB supplies DTDB files in CARIS ASCII and DXF (AutoCAD) formats. However, it may be possible to arrange for private sector firms to supply DTDB files in other GIS formats. Contact your local SNB office to discuss this matter.

Q4. Are the DTDB files "GIS ready"?

A4. No. CARIS ASCII files will need to be processed by the REFOASCI utility prior to GIS use. Files supplied in DXF format will need to have topology built for the Transportation and Hydrography Themes within your GIS prior to use.

It is further noted that *only* the Transportation and Hydrography Themes have been structured. All other data will need structuring prior to use for GIS analysis.

Refer to Section 2 of the Guide for more information on the content of the ETB files, and to Section 6 for more information on the content of the DTM Files.

Q5. Can I order only the data themes I need, or must I order the entire set of features for each coverage area?

A5. Data themes are divided into .198, .398, and .g98 files. For a definition of those themes, see Appendix B. If individual thematic groups are not required, they must be deleted by the user. Similarly, .d98 Files contain all DTM Features.

Q6. Do I need to order both ETB and DTM for a project area?

A6. Both ETB and DTM files are included within the DTDB compressed files supplied for each window ordered.

Q7. I don't currently have Internet access on my computer. How can I obtain the DTDB Support Files?

A7. Consult your nearest SNB Office to make arrangements to obtain the DTDB Support Files on alternate media.

New Nouveau
Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Appendix B - ETB Feature Codes

The following table presents a list of the valid Feature Codes which may be present within the ETB Data Base, along with a description and the topological status of each Feature.

Feature Code	Feature Code Definition	Theme/User Number
ARSY	Arrow symbol	200
BLAR	Arena symbol	240
BLAROL	Arena to scale	240
BLBS	Building symbol	240
BLCC	Community center	240
BLCCOL	Community center to scale	240
BLCH	Church symbol	240
BLCHOL	Church to scale	240
BLCHSY	Church identification symbol	240
BLDG	Building (outline)	240
BLFA	Factory symbol	240
BLFAOL	Factory to scale	240
BLFS	Fire station symbol	240
BLFSOL	Fire station to scale	240
BLFSSY	Fire station identification symbol	240
BLFTOL	Fort to scale	240
BLGH	Greenhouse symbol	240
BLGHOL	Greenhouse to scale	240
BLHO	Hospital symbol	240
BLHOOL	Hospital to scale	240
BLHOSY	Hospital identification symbol	240
BLLB	Legislative building to scale	240
BLLI	Library symbol	240
BLLIOL	Library to scale	240
BLMU	Museum symbol	240
BLMUOL	Museum to scale	240

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Feature Code	Feature Code Definition	Theme/User Number
BLPO	Post office symbol	240
BLPOOL	Post office to scale	240
BLPOSY	Post office identification symbol	240
BLPS	Police station symbol	240
BLPSOL	Police station to scale	240
BLPSSY	Police station identification symbol	240
BLPU	Pumping station symbol	240
BLPUOL	Pumping station to scale	240
BLSC	Senior citizens home symbol	240
BLSCOL	Senior citizens home to scale	240
BLSH	School symbol	240
BLSHOL	School to scale	240
BLSHSY	School identification symbol	240
BLTH	Town hall symbol	240
BLTHOL	Town hall to scale	240
DAAD	Ammunition dump	250
DAAP	Airport	250
DAAS	Airstrip	250
DAASSY	Airstrip identification symbol	250
DABU	Built up area	250
DACG	Campground	250
DACGSY	Campground identification symbol	250
DACM	Cemetery	250
DACMSY	Cemetery identification symbol	250
DADI	Drive-in theatre	250
DADISY	Drive in theatre identification symbol	250
DADP	Disposal pile	250
DADPSY	Disposal pile identification symbol	250
DADR	Golf driving range	250

New Brunswick / Nouveau-Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Feature Code	Feature Code Definition	Theme/User Number
DADU	Dump/Sanitary landfill	250
DADUSY	Dump/Sanitary landfill identification symbol	250
DADY	Dock yard	250
DAEX	Exhibition grounds	250
DAEXSY	Exhibition ground identification symbol	250
DAFF	Fur farm	250
DAFH	Fish hatchery	250
DAFHSY	Fish hatchery identification symbol	250
DAFT	Ferry terminal	250
DAFTSY	Ferry terminal identification symbol	250
DAGC	Golf course	250
DAGCSY	Golf course identification symbol	250
DAGM	Game management (area)	250
DAHP	Heliport	250
DAHS	Historic site	250
DAHSSY	Historic site identification symbol	250
DAIR	Indian reserve	250
DALF	Landfill site (land reclamation)	250
DALFSY	Landfill site (land reclamation) identification symbol	250
DALM	Lumber mill	250
DALO	Lookout scenic	250
DAMN	Mine (open pit)/strip	250
DAMNSY	Mine (open pit)/strip identification symbol	250
DAMNUG	Mine (underground)	250
DAMNUGSY	Mine (underground) identification symbol	250
DAMP	Mobile home park	250
DAMPSY	Mobile home park identification symbol	250
DAMR	Military reserve	250
DAPA	Parking area	250

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Feature Code	Feature Code Definition	Theme/User Number
DAPACP	Parking area (car pool)	250
DAPASY	Parking area (car pool) identification symbol	250
DAPC	Peat cutting	250
DAPCSY	Peat cutting identification symbol	250
DAPI	Pile (industrial)	250
DAPK	Park	250
DAPKNA	Park, national	250
DAPKPI	Park, picnic	250
DAPKPISY	Park, picnic identification symbol	250
DAPKPR	Park, provincial	250
DAPM	Pulp/Paper mill	250
DAPT	Pit	250
DAPTSY	Pit identification symbol	250
DAQU	Quarry	250
DAQUSY	Quarry identification symbol	250
DARA	Rest area	250
DART	Racetrack (track only)	250
DARTSY	Racetrack identification symbol	250
DASA	Storage area	250
DASASY	Storage area identification symbol	250
DASF	Sports field	250
DASFSY	Sports field identification symbol	250
DASK	Ski area	250
DASKSY	Ski area identification symbol	250
DASR	Shooting range	250
DASRSY	Shooting range identification symbol	250
DASV	Salvage yard (auto)	250
DASVSY	Salvage yard (auto) identification symbol	250
DASW	Sewage treatment	250

New Brunswick / Nouveau-Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Feature Code	Feature Code Definition	Theme/User Number
DASWSY	Sewage treatment identification symbol	250
DAUC	Under construction area (general)	250
DAUCSY	Under construction area identification symbol	250
DLBNCO	Boundary county	210
DLBNIN	Boundary international	210
DLBNMU	Boundary municipal	210
DLBNPA	Boundary parish	210
DLBNPR	Boundary provincial	210
DLCM	Survey control monument	210
DLGC	Graticule	200
DLGCP	Ground Control Point (Photo)	210
DLGL	Grid line	200
DLGL30	Grid line text	200
DLID30	File Number	200
DLNL100	Map neat line (for road network theme)	100
DLNL210	Map neat line (for delimiters)	210
DLNL220	Map neat line (for land cover and land form theme)	220
DLNL230	Map neat line (for utility theme)	230
DLNL240	Map neat line (for buildings)	240
DLNL250	Map neat line (for designated area theme)	250
DLNL260	Map neat line (for structure theme)	260
DLNL30	Geographic coordinates	200
DLNL300	Map neat line (for hydrographic theme)	300
DLNLIN	Neat line for surround	200
LCCL	Cutline	220
LCNU	Nursery	220
LCOR	Orchard	220
LCORSY	Orchard identification symbol	220
LCRF	Reforested	220

New Nouveau **Brunswick**

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Feature Code	Feature Code Definition	Theme/User Number
LCRFSY	Reforestation identification symbol	220
LCTA	Tree (area of)	220
LCTR	Tree (row of)	220
LCTS	Tree (individual) (symbol)	220
LCTX	Land cover other text	220
LFCF	Cliff	220
LFCK	DTM check point	50
LFEM	Embankment (around storage tanks only)	220
LFSH	DTM spot height	50
LFTM	DTM mass point	50
LFTMDG	DTM mass point digitized gap	50
RRBR	Bridge	110
RRBRSY	Bridge identification symbol	100
RRCL	Culvert (line)	110
RRCT	Cutting (road and railroad)	110
RRCU	Culvert	110
RRFB	Foot bridge	110
RRFC	Ferry landing	110
RRFL	Fill (road and railroad)	110
RROP	Overpass (road and railroad)	110
RRRD30	Road text (general)	110
RRRDA	Road, arterial	100
RRRDATSY	Road, arterial shield symbol	110
RRRDAW30	Road, road loose surface all weather, text	110
RRRDC	Road, collector	100
RRRDCOSY	Road, collector road shield symbol	110
RRRDLG	Road, local gravel	100
RRRDLN	Road, local numbered	100
RRRDLO	Road, local other	100

New Nouveau **Brunswick**

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Feature Code	Feature Code Definition	Theme/User Number
RRRDLOSY	Road, local other shield symbol	110
RRRDLP	Road, local paved	100
RRRDM	Road, municipal	100
RRRDN	Road, national	100
RRRDO	Road, Resource	100
RRRDOAW	Road, all weather	100
RRRDODW	Road, dry weather	100
RRRDOTR	Road, trail	100
RRRDPR30	Road hard surface primary text	110
RRRDRAMP	Road, ramp	100
RRRDSC30	Road hard surface secondary text	110
RRRDSL30	Road loose surface seasonal text	110
RRRDTK30	Road, track text	110
RRRDUC	Road, under construction	100
RRRDUR30	Road, urban street text	110
RRRR	Railroad	100
RRRR04	Railroad, abandoned	100
RRRRTT	Railroad turntable (symbol)	110
RRTU	Tunnel entrance	110
RRTX	Railway other text	110
RRUP	Underpass (road and railroad)	110
SRCOTX	County text	200
SRDLGL	Surround grid lines	200
SRLW6	Surround line weight 6	200
SRLW8	Surround line weight 8	200
SRLW16	Surround line weight 16	200
SRLW30	Surround line weight 30	200
SRTICK	Surround tick mark	200
SRNA	Map name	200

New Nouveau **Brunswick**

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Feature Code	Feature Code Definition	Theme/User Number
STAC	Aerial cableway	260
STBP	Boom pier (symbol)	260
STCD	Communication dome	260
STCH	Chimney	260
STCV	Conveyor	260
STDD	Dry dock	260
STDDSY	Dry dock identification symbol	260
STFE	Fence	260
STGS	Grandstand	260
STGSSY	Grandstand identification symbol	260
STGT	Gate	260
STIN	Burner/Incinerator	260
STKL	Kiln (symbol)	260
STLH	Lighthouse (symbol)	260
STLK	Locks (symbol)	260
STPO	Swimming pool (large)	260
STPOSY	Swimming pool (large) identification symbol	260
STRI	Outdoor rink	260
STRP	Ramps	260
STRW	Retaining wall	260
STSL	Ski lift	260
STSLSY	Ski lift identification symbol	260
STSO	Silo	260
STSP	Slipway	260
STWH	Wharf	260
STWL	Wall	260
STWM	Windmill	260
STWS	Weigh scale	260
UTPI	Pipeline	230

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Feature Code	Feature Code Definition	Theme/User Number
UTPO	Transmission Line (symbol)	230
UTSP	Sewage settling pond (symbol)	230
UTSPOL	Sewage settling pond (to scale)	230
UTSS	Electrical transformer substation	230
UTSY	Electrical transformer substation identification symbol	230
UTTK	Tank (vertical symbol)	230
UTTKOL	Tank (vertical outline)	230
UTTO	Tower (except power transmissions)	230
UTTR	Electrical transmission line symbolized	230
UTTX	Utility, other text	230
WA_V	Hydrographic features (virtual line)	300
WABD	Dam (beaver)	320
WABW	Breakwater	320
WACA	Canal (navigable)	300
WACASY	Canal (navigable) symbol	320
WACA_VN	Canal (virtual line)	300
WACB	Bog, Cranberry	300
WACB_VN	Cranberry Bog (virtual line)	300
WACFBB	Backshore Beach	300
WACFBB_VN	Backshore Beach (virtual line)	300
WACFCM	Coastal Marsh	300
WACFCM_VN	Coastal Marsh (virtual line)	300
WACFDL	Dyked Land	300
WACFDL_VN	Dyked Land (virtual line)	300
WACFDU	Dune	300
WACFDU_VN	Dune (virtual line)	300
WACFEX	Exclusion Area	300
WACFEX_VN	Exclusion Area (virtual line)	300
WACFLL	Landward Limit of the Coastal Features	300

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Feature Code	Feature Code Definition	Theme/User Number
WACFMM	Man-made features polygon label	300
WACFMM_VN	Man-made features (virtual line)	300
WACFOH	Ordinary High Water Mark	300
WACFOH_VN	Ordinary High Water Mark (virtual line)	300
WACFOHIS	Ordinary High Water Mark on Island	300
WACFOHIS_VN	Ordinary High Water Mark on Island (virtual line)	300
WACFOHLL	Coincidence between WACFOH and WACFLL	300
WACFOHLL_VN	Coastal features (virtual line)	300
WACFOHLLIS	WACFOHLL on Island	300
WACFRP	Backshore Rock Platform	300
WACFRP_VN	Backshore Rock Platform (virtual line)	300
WACFT	Coastal Features text	300
WACN_V	Hydrographic Network Connector	300
WACO	ETB96 Coastal Polygon label	300
WACO_VN	ETB96 Coastal Polygon (virtual line)	300
WACOIS	ETB96 Island polygon label	300
WACOIS_VN	ETB96 Island polygon (virtual line)	300
WACT	Coast line text	320
WADI	Ditch, single line	300
WADM	Dam, human made	320
WADMSY	Dam (human made) identification symbol	300
WADY	Dyke/Levee	320
WAFA	Falls	320
WAFASY	Fall identification symbol	300
WAFI	Fish ladder	320
WAFU	Flume	320
WALE	Water level carto	320
WALK	Lake	300
WALK_VN	Lake (virtual line)	300

Feature Code	Feature Code Definition	Theme/User Number
WALKIS	Lake island polygon label	300
WALKIS_VN	Lake island polygon (virtual line)	300
WALP	Lobster Pound	320
WALT	Lake text	320
WARA	Rapids	320
WARESY	Reservoirs identification symbol	320
WARK	Rock (in water)	320
WARS	Reservoir, (natural, open)	300
WARS_VN	Reservoir (virtual line)	300
WART	Reservoir text	320
WARV	River	320
WARVDL	River, double line	300
WARVDL_VN	Double line River (virtual line)	300
WARVIS	Stream or river island polygon label	300
WARVIS_VN	River Island (virtual line)	300
WARVLK	River lake	300
WARVLK_VN	River Lake (virtual line)	300
WARVLKIS	River lake island polygon label	300
WARVLKIS_VN	River lake island polygon (virtual line)	300
WARVSL	River, single line	300
WARVSP	River split, single line	300
WASMSY	Swamp symbol	320
WASP_V	Spine (virtual line)	310
WASQ_V	Virtual Line Through Swamp	310
WAST	Swamp text	320
WASW	Swamp	300
WASW_VN	Swamp (virtual line)	300
WATX	Water, other text	320

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Appendix C - ETB Feature Codes By File

The following table presents a list of the valid Feature Codes which may be present within the ETB Data Base, along with a description and the topological status of each Feature.The list is broken down by each file, *.d98, *.198, *.g98, and *.398

Feature Code	Feature Code Definition	Theme/User Number
	D98 Features	
DLNLIN	Map neat line (for DTM theme)	50
LFCK	DTM check point	50
LFSH	DTM spot height	50
LFTM	DTM mass point	50
LFTMDG	DTM mass point digitized gap	50
	198 Features	
DLNL100	Map neat line (for road network theme)	100
RRBR	Bridge	110
RRBRSY	Bridge identification symbol	100
RRCL	Culvert (line)	110
RRCT	Cutting (road and railroad)	110
RRCU	Culvert	110
RRFB	Foot bridge	110
RRFC	Ferry landing	110
RRFL	Fill (road and railroad)	110
RROP	Overpass (road and railroad)	110
RRRD30	Road text (general)	110
RRRDA	Road, arterial	100
RRRDATSY	Road, arterial shield symbol	110
RRRDAW30	Road, road loose surface all weather, text	110
RRRDC	Road, collector	100
RRRDCOSY	Road, collector road shield symbol	110
RRRDLG	Road, local gravel	100
RRRDLN	Road, local numbered	100
RRRDLO	Road, local other	100
RRRDLOSY	Road, local other shield symbol	110
RRRDLP	Road, local paved	100
RRRDM	Road, municipal	100
RRRDN	Road, national	100

New Nouveau **Brunswick**

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Feature Code	Feature Code Definition	Theme/User Number
RRRDO	Road, Resource	100
RRRDOAW	Road, all weather	100
RRRDODW	Road, dry weather	100
RRRDOTR	Road, trail	100
RRRDPR30	Road hard surface primary text	110
RRRDRAMP	Road, ramp	100
RRRDSC30	Road hard surface secondary text	110
RRRDSL30	Road loose surface seasonal text	110
RRRDTK30	Road, track text	110
RRRDUC	Road, under construction	100
RRRDUR30	Road, urban street text	110
RRRR	Railroad	100
RRRR04	Railroad, abandoned	100
RRRRTT	Railroad turntable (symbol)	110
RRTU	Tunnel entrance	110
RRTX	Railway other text	110
RRUP	Underpass (road and railroad)	110
	G98 Features	
ARSY	Arrow symbol	200
BLAR	Arena symbol	240
BLAROL	Arena to scale	240
BLBS	Building symbol	240
BLCC	Community center	240
BLCCOL	Community center to scale	240
BLCH	Church symbol	240
BLCHOL	Church to scale	240
BLCHSY	Church identification symbol	240
BLDG	Building (outline)	240
BLFA	Factory symbol	240
BLFAOL	Factory to scale	240
BLFS	Fire station symbol	240
BLFSOL	Fire station to scale	240
BLFSSY	Fire station identification symbol	240
BLFTOL	Fort to scale	240
BLGH	Greenhouse symbol	240
BLGHOL	Factory to scale	240
BLHO	Hospital symbol	240
BLHOOL	Hospital to scale	240
BLHOSY	Hospital identification symbol	240
BLLB	Legislative building to scale	240

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Feature Code	Feature Code Definition	Theme/User Number
BLLI	Library symbol	240
BLLIOL	Library to scale	240
BLMU	Museum symbol	240
BLMUOL	Museum to scale	240
BLPO	Post office symbol	240
BLPOOL	Post office to scale	240
BLPOSY	Post office identification symbol	240
BLPS	Police station symbol	240
BLPSOL	Police station to scale	240
BLPSSY	Police station identification symbol	240
BLPU	Pumping station symbol	240
BLPUOL	Pumping station to scale	240
BLSC	Senior citizens home symbol	240
BLSCOL	Senior citizens home to scale	240
BLSH	School symbol	240
BLSHOL	School to scale	240
BLSHSY	School identification symbol	240
BLTH	Town hall symbol	240
BLTHOL	Town hall to scale	240
DAAD	Ammunition dump	250
DAAP	Airport	250
DAAS	Airstrip	250
DAASSY	Airstrip identification symbol	250
DABU	Built up area	250
DACG	Campground	250
DACGSY	Campground identification symbol	250
DACM	Cemetery	250
DACMSY	Cemetery identification symbol	250
DADI	Drive-in theatre	250
DADISY	Drive in theatre identification symbol	250
DADP	Disposal pile	250
DADPSY	Disposal pile identification symbol	250
DADR	Golf driving range	250
DADU	Dump/Sanitary landfill	250
DADUSY	Dump/Sanitary landfill identification symbol	250
DADY	Dock yard	250
DAEX	Exhibition grounds	250
DAEXSY	Exhibition ground identification symbol	250
DAFF	Fur farm	250
DAFH	Fish hatchery	250
DAFHSY	Fish hatchery identification symbol	250
DAFT	Ferry terminal	250

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Feature Code	Feature Code Definition	Theme/User Number
DAFTSY	Ferry terminal identification symbol	250
DAGC	Golf course	250
DAGCSY	Golf course identification symbol	250
DAGM	Game management (area)	250
DAHP	Heliport	250
DAHS	Historic site	250
DAHSSY	Historic site identification symbol	250
DAIR	Indian reserve	250
DALF	Landfill site (land reclamation)	250
DALFSY	Landfill site (land reclamation) identification symbol	250
DALM	Lumber mill	250
DALO	Lookout scenic	250
DAMN	Mine (open pit)/strip	250
DAMNSY	Mine (open pit)/strip identification symbol	250
DAMNUG	Mine (underground)	250
DAMNUGSY	Mine (underground) identification symbol	250
DAMP	Mobile home park	250
DAMPSY	Mobile home park identification symbol	250
DAMR	Military reserve	250
DAPA	Parking area	250
DAPACP	Parking area (car pool)	250
DAPASY	Parking area (car pool) identification symbol	250
DAPC	Peat cutting	250
DAPCSY	Peat cutting identification symbol	250
DAPI	Pile (industrial)	250
DAPK	Park	250
DAPKNA	Park, national	250
DAPKPI	Park, picnic	250
DAPKPISY	Park, picnic identification symbol	250
DAPKPR	Park, provincial	250
DAPM	Pulp/Paper mill	250
DAPT	Pit	250
DAPTSY	Pit identification symbol	250
DAQU	Quarry	250
DAQUSY	Quarry identification symbol	250
DARA	Rest area	250
DART	Racetrack (track only)	250
DARTSY	Racetrack identification symbol	250
DASA	Storage area	250
DASASY	Storage area identification symbol	250
DASF	Sports field	250
DASFSY	Sports field identification symbol	250

New Nouveau **Brunswick**

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Feature Code	Feature Code Definition	Theme/User Number
DASK	Ski area	250
DASKSY	Ski area identification symbol	250
DASR	Shooting range	250
DASRSY	Shooting range identification symbol	250
DASV	Salvage yard (auto)	250
DASVSY	Salvage yard (auto) identification symbol	250
DASW	Sewage treatment	250
DASWSY	Sewage treatment identification symbol	250
DAUC	Under construction area (general)	250
DAUCSY	Under construction area identification symbol	250
DLBNCO	Boundary county	210
DLBNIN	Boundary international	210
DLBNMU	Boundary municipal	210
DLBNPA	Boundary parish	210
DLBNPR	Boundary provincial	210
DLCM	Survey control monument	210
DLGC	Graticule	200
DLGCP	Ground Control Point (Photo)	210
DLGL	Grid line	200
DLGL30	Grid line text	200
DLID30	File Number	200
DLNL210	Map neat line (for delimiters)	210
DLNL220	Map neat line (for land cover and land form theme)	220
DLNL230	Map neat line (for utility theme)	230
DLNL240	Map neat line (for buildings)	240
DLNL250	Map neat line (for designated area theme)	250
DLNL260	Map neat line (for structure theme)	260
DLNL30	Geographic coordinates	200
DLNLIN	Neat line for surround	200
LCCL	Cutline	220
LCNU	Nursery	220
LCOR	Orchard	220
LCORSY	Orchard identification symbol	220
LCRF	Reforested	220
LCRFSY	Reforestation identification symbol	220
LCTA	Tree (area of)	220
LCTR	Tree (row of)	220
LCTS	Tree (individual) (symbol)	220
LCTX	Land cover other text	220
LFCF	Cliff	220
LFEM	Embankment (around storage tanks only)	220
SRCOTX	County text	200

New Brunswick / Nouveau-Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Feature Code	Feature Code Definition	Theme/User Number
SRDLGL	Surround grid lines	200
SRLW16	Surround line weight 16	200
SRLW30	Surround line weight 30	200
SRLW6	Surround line weight 6	200
SRLW8	Surround line weight 8	200
SRNA	Map name	200
SRTICK	Surround tick mark	200
STAC	Aerial cableway	260
STBP	Boom pier (symbol)	260
STCD	Communication dome	260
STCH	Chimney	260
STCV	Conveyor	260
STDD	Dry dock	260
STDDSY	Dry dock identification symbol	260
STFE	Fence	260
STGS	Grandstand	260
STGSSY	Grandstand identification symbol	260
STGT	Gate	260
STIN	Burner/Incinerator	260
STKL	Kiln (symbol)	260
STLH	Lighthouse (symbol)	260
STLK	Locks (symbol)	260
STPO	Swimming pool (large)	260
STPOSY	Swimming pool (large) identification symbol	260
STRI	Outdoor rink	260
STRP	Ramps	260
STRW	Retaining wall	260
STSL	Ski lift	260
STSLSY	Ski lift identification symbol	260
STSO	Silo	260
STSP	Slipway	260
STWH	Wharf	260
STWL	Wall	260
STWM	Windmill	260
STWS	Weigh scale	260
UTPI	Pipeline	230
UTPO	Transmission Line (symbol)	230
UTSP	Sewage settling pond (symbol)	230
UTSPOL	Sewage settling pond (to scale)	230
UTSS	Electrical transformer substation	230
UTSY	Electrical transformer substation identification symbol	230
UTTK	Tank (vertical symbol)	230

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Feature Code	Feature Code Definition	Theme/User Number
UTTKOL	Tank (vertical outline)	230
UTTO	Tower (except power transmissions)	230
UTTR	Electrical transmission line symbolized	230
UTTX	Utility, other text	230
	398 Features	
DLNL300	Map neat line (for hydrographic theme)	300
WA_V	Hydrographic features (virtual line)	300
WABD	Dam (beaver)	320
WABW	Breakwater	320
WACA	Canal (navigable)	300
WACA_VN	Canal (virtual line)	300
WACASY	Canal (navigable) symbol	320
WACB	Bog, Cranberry	300
WACB_VN	Cranberry Bog (virtual line)	300
WACFBB	Backshore Beach	300
WACFBB_VN	Backshore Beach (virtual line)	300
WACFCM	Coastal Marsh	300
WACFCM_VN	Coastal Marsh (virtual line)	300
WACFDL	Dyked Land	300
WACFDL_VN	Dyked Land (virtual line)	300
WACFDU	Dune	300
WACFDU_VN	Dune (virtual line)	300
WACFEX	Exclusion Area	300
WACFEX_VN	Exclusion Area (virtual line)	300
WACFLL	Landward Limit of the Coastal Features	300
WACFMM	Man-made features polygon label	300
WACFMM_VN	Man-made features (virtual line)	300
WACFOH	Ordinary High Water Mark	300
WACFOH_VN	Ordinary High Water Mark (virtual line)	300
WACFOHIS	Ordinary High Water Mark on Island	300
WACFOHIS_VN	Ordinary High Water Mark on Island (virtual line)	300
WACFOHLL	Coincidence between WACFOH and WACFLL	300
WACFOHLL_VN	Coastal features (virtual line)	300
WACFOHLLIS	WACFOHLL on Island	300
WACFRP	Backshore Rock Platform	300
WACFRP_VN	Backshore Rock Platform (virtual line)	300
WACFT	Coastal Features text	300
WACN_V	Hydrographic Network Connector	300
WACO	ETB96 Coastal Polygon label	300
WACO_VN	ETB96 Coastal Polygon (virtual line)	300

Feature Code	Feature Code Definition	Theme/User Number
WACOIS	ETB96 Island polygon label	300
WACOIS_VN	ETB96 Island polygon (virtual line)	300
WACT	Coast line text	320
WADI	Ditch, single line	300
WADM	Dam, human made	320
WADMSY	Dam (human made) identification symbol	300
WADY	Dyke/Levee	320
WAFA	Falls	320
WAFASY	Fall identification symbol	300
WAFI	Fish ladder	320
WAFU	Flume	320
WALE	Water level carto	320
WALK	Lake	300
WALK_VN	Lake (virtual line)	300
WALKIS	Lake island polygon label	300
WALKIS_VN	Lake island polygon (virtual line)	300
WALP	Lobster Pound	320
WALT	Lake text	320
WARA	Rapids	320
WARESY	Reservoirs identification symbol	320
WARK	Rock (in water)	320
WARS	Reservoir, (natural, open)	300
WARS_VN	Reservoir (virtual line)	300
WART	Reservoir text	320
WARV	River	320
WARVDL	River, double line	300
WARVDL_VN	Double line River (virtual line)	300
WARVIS	Stream or river island polygon label	300
WARVIS_VN	River Island (virtual line)	300
WARVLK	River lake	300
WARVLK_VN	River Lake (virtual line)	300
WARVLKIS	River lake island polygon label	300
WARVLKIS_VN	River lake island polygon (virtual line)	300
WARVSL	River, single line	300
WARVSP	River split, single line	300
WASMSY	Swamp symbol	320
WASP_V	Spine (virtual line)	310
WASQ_V	Virtual Line Through Swamp	310
WAST	Swamp text	320
WASW	Swamp	300
WASW_VN	Swamp (virtual line)	300
WATX	Water, other text	320

Service New Brunswick
Services Nouveau-Brunswick

New Nouveau **Brunswick**

UGE1998O
Version 0.8
March 6, 2001

Appendix D - Naming Convention for Support Files

This Appendix provides information on the SNB File naming convention to support files.

Naming Convention for Support Files

Description	*Pre 2000 Name*	*Post 2000 Name*	*Pre 2000 Name for Distribution*	*Post 2000 Name for Distibution*
CARIS Colour Table File	ETB96TBL.col	ETByyyyA.col	ETB96TBL.zip	ETByyyyA.zip
CARIS Colour Map File	ETB96MAP.cma	ETByyyyA.cma	ETB96MAP.zip	included above
CARIS Master File	ETB96MAS.txt	ETByyyyA.txt	ETB96MAS.zip	included above
CARIS Symbol File	ETB96SYM.dat	ETByyyyA.dat	ETB96DAT.zip	included above
CARIS Symbol File - binary	ETB96SYM.bin	ETByyyyA.bin	ETB96BIN.zip	included above
DXF Shape File	NBGIC10.shp	DXFyyyyA.shp	SHAPE.zip	DXFyyyyA.zip
DXF shape file (binary)	NBGIC10.shx	DXFyyyyA.shx	included above	included above
ETB96 Index Map (ASCII)	INDEX96.asc	NDX1996A.asc	INDEX96.zip	NDX1996A.zip
ETB96 Index Map (DXF)	INDEX96.dxf	NDX1996A.dxf	included above	included above
ETB96 Index Map (PRN)	INDEX96.prn	NDX1996A.prn	included above	included above
ETB98 Index Map (ASCII)		NDX1998A.asc	Not Applicable	NDX1998A.zip
ETB98 Index Map (DXF)		NDX1998A.dxf	Not Applicable	included above
ETB98 Index Map (PRN)		NDX1998A.prn	Not Applicable	included above
SODB User Guide (English)		OREyyyyA.doc	Not Applicable	Not Available
SODB User Guide (French)		ORFyyyyA.doc	Not Applicable	Not Available
SODB User Guide (PDF) English		OREyyyyA.pdf	Not Applicable	ORE1998A.pdf
SODB User Guide (PDF) French		ORFyyyyA.pdf	Not Applicable	ORF1998A.pdf

SODB Agreement (English)		See CTDB/DTDB98 Agreement		See CTDB/DTDB98 Agreement
SODB Agreement (French)		See CTDB/DTDB98 Agreement		See CTDB/DTDB98 Agreement
SODB Agreement (PDF) English		See CTDB/DTDB98 Agreement		See CTDB/DTDB98 Agreement
SODB Agreement (PDF) French		See CTDB/DTDB98 Agreement		See CTDB/DTDB98 Agreement
ETB96 User Guide (English)	ETB96UGE.wpd	UGE1996A.doc	Not Available	Not Available
ETB96 User Guide (French)	BDA96GUF.wpd	GUF1996A.doc	Not Available	Not Available
ETB96 User Guide (PDF) English	ETB96UGE.pdf	UGE1996A.pdf	ETB96UGE.zip	UGE1996A.pdf
ETB96 User Guide (PDF) French	BDA96GUF.pdf	GUF1996A.pdf	BDA96GUF.zip	GUF1996A.pdf
ETB96 Agreement (English)	ETB96AGR.wpd	AGR1996A.doc	Not Available	Not Available
ETB96 Agreement (French)	BDA96ENT.wpd	ENT1996A.doc	Not Available	Not Available
ETB96 Agreement (PDF) English	ETB96AGR.pdf	AGR1996A.pdf	ETB96AGR.zip	AGR1996A.pdf
ETB96 Agreement (PDF) French	BDA96ENT.pdf	ENT1996A.pdf	BDA96ENT.zip	ENT1996A.pdf
ETB96 Name Cross Reference (ASCII)	ETB96XRF.asc	XRF1996A.asc	ETB96XRF.zip	XRF1996A.zip
CTDB/DTDB98 User Guide (English)		UGE1998A.doc	Not Applicable	Not Available
CTDB/DTDB98 User Guide (French)		GUF1998A.doc	Not Applicable	Not Available
CTDB/DTDB98 User Guide (PDF) English		UGE1998A.pdf	Not Applicable	UGE1998A.pdf
CTDB/DTDB98 User Guide (PDF) French		GUF1998A.pdf	Not Applicable	GUF1998A.pdf
CTDB/DTDB98 Agreement (English)		AGR1998A.doc		Not Available
CTDB/DTDB98 Agreement (French)		ENT1998A.doc		Not Available
CTDB/DTDB98 Agreement (PDF) English)		AGR1998A.pdf		AGR1998A.pdf
CTDB/DTDB98 Agreement (PDF) French		ENT1998A.pdf		ENT1998A.pdf
LWIS Manual (English)	1998LWISManual.doc	LWIS2000A.doc	1998LWISManual.doc	LWIS2000A.doc
LWIS Manual (French)	1998NITEManual.doc	NITE2000A.doc	1998NITEManual.doc	NITE2000A.doc

New Nouveau
Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

LWIS Manual (English) - PDF	1998LWISManual.pdf	LWIS2000A.pdf	1998LWISManual.pdf	LWIS2000A.pdf
LWIS Manual (French) - PDF	1998NITEManual.pdf	NITE2000A.pdf	1998NITEManual.pdf	NITE2000A.pdf
DTDB Merge Utility		MGR1998A.zip		MGR1998A.ZIP
Notes:				
1. Where: yyyy = 4 digit year, and A = version (A - Z)				
2. All file names must adhere to the character case convention as follows:				
	all text to left of "." is to be UPPERCASE			
	all text to right of "." is to be lowercase			

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Appendix E - Dates of Photography

This Appendix shows the dates of photography used for the original compilation of the ETB files on a provincial map overlay.
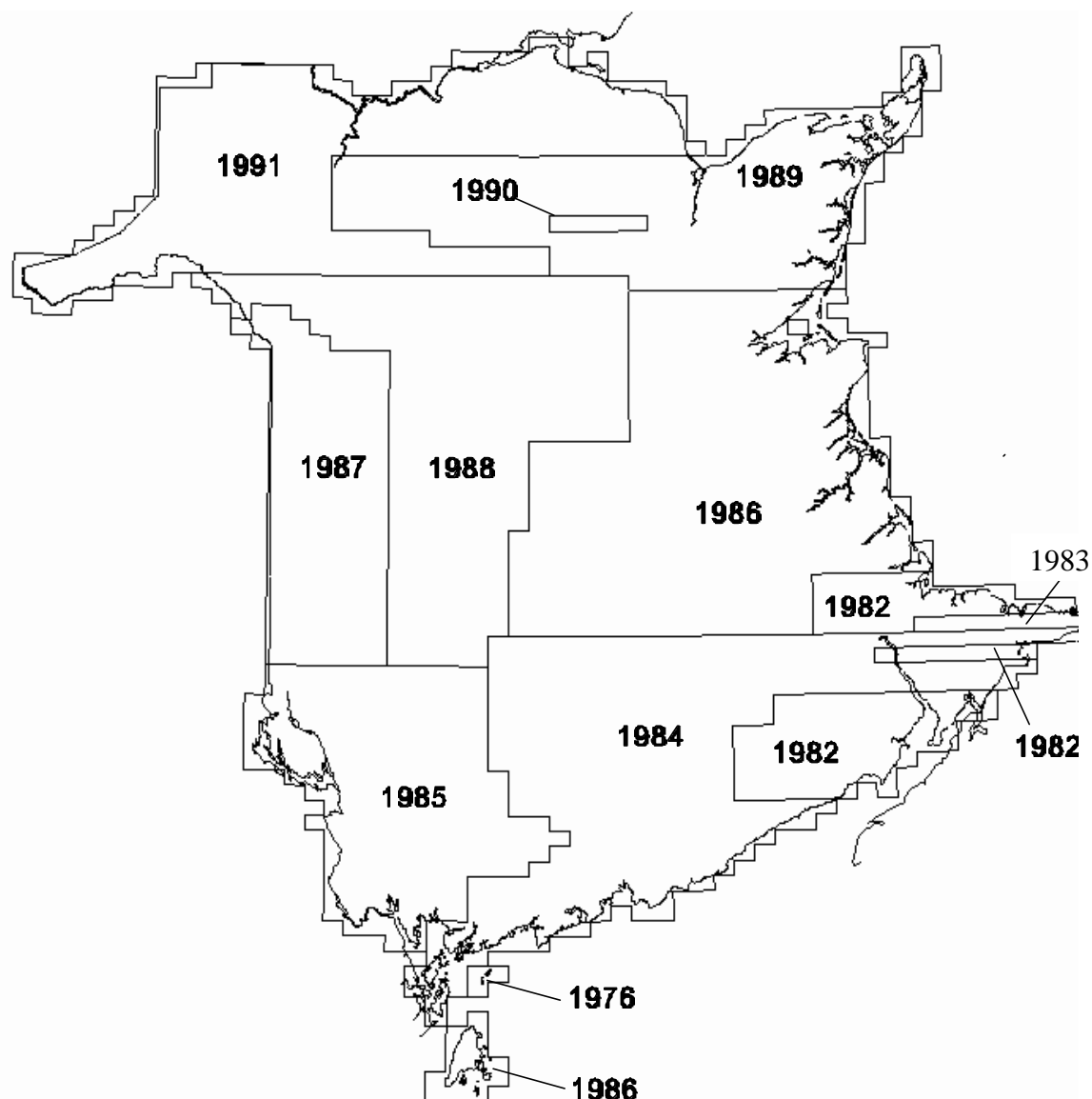
Appendix F - PDP and VAX Compilation Areas

This Appendix shows the areas which were compiled using PDP and VAX methods on a provincial map overlay.
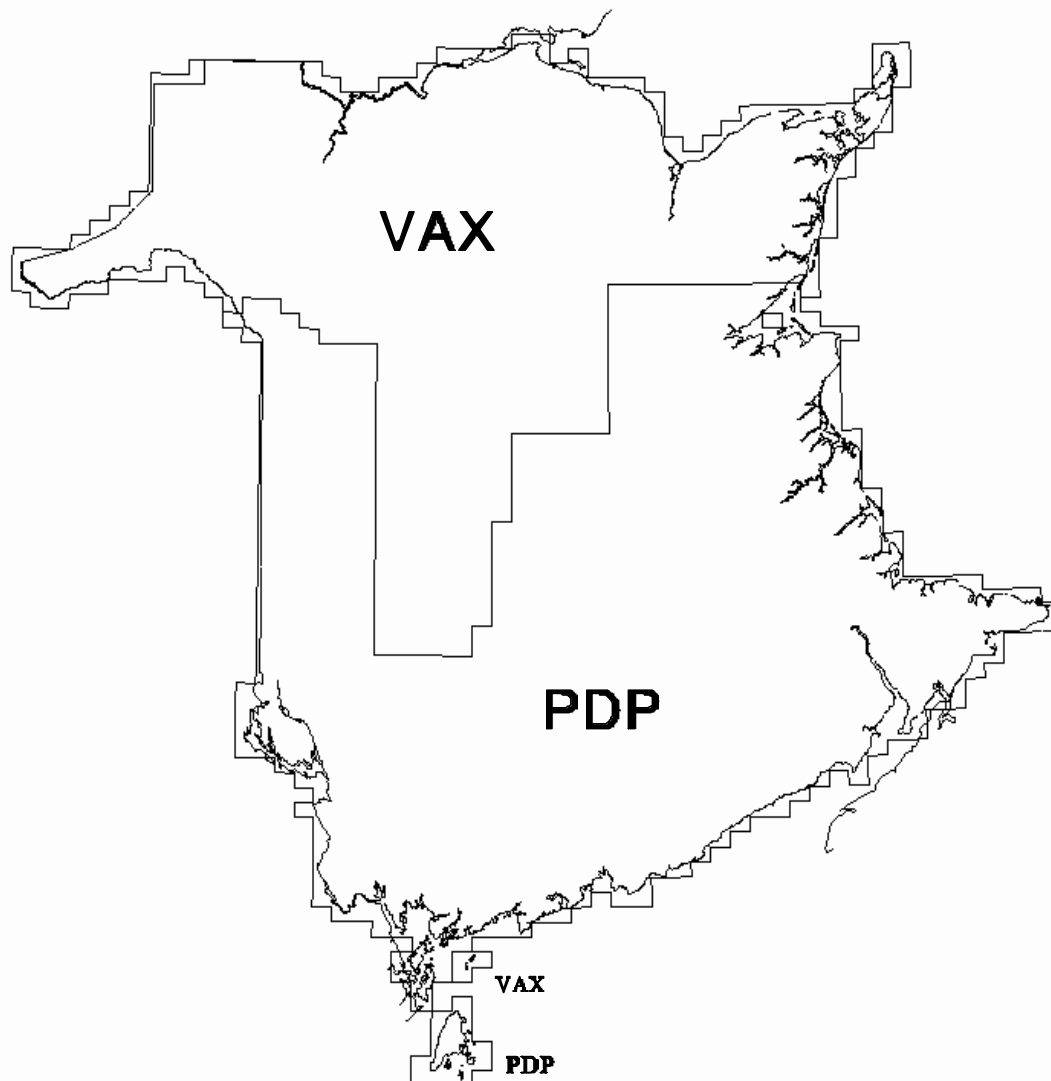
Appendix G - Sample ETB File CARIS Header

This appendix contains the listing for a representative ETB Map File CARIS header. Note that the information contained in Item 20 (Graphic extent) and Item 21 (Neat line corners) will vary depending upon the specific map window selected. The window for which this information was generated (46006690) is the window used as the basis for the figures within Section 4 of the Guide.

```
===================== Header=====================

1. Title  New Brunswick Coastal Topographic Database, ETB98 [7E03HF]
 2. File ID        45706710        3. Horizontal coord system     NEMR
 4. Header length         198      5. Vertical coord system       MR
 6. Descriptor length       16     7. Sounding, Spot Ht units    MR,M1
 8. Coordinate resolutions         9. Coordinate shifts
   XY          1.0000000000            X                   .000000000
                                       Y                   .000000000
   Z            .1000000000            Z                   .000000000
10. Projection          ST       11. Central meridian      66-30-00.000W
12. Scale        10000.00        13. Scaling Lat 1         46-30-00.000N
14. Scaling factor    .999912     15. Scaling Lat 2                 N/A
16. Ellipsoid        NA83         17. Vertical datum                MSL
18. N/A                          19. N/A
20. Graphic extent (        *NAD83 value*           ) (system)
21. Neatline corners (metres) 21. Neatline corners Lat,Long
E=*NAD83 value*N=*NAD83 value*        45-50-15.904N       66-36-51.088W
E=*NAD83 value*N=*NAD83 value*        45-50-16.112N       66-28-18.048W
E=*NAD83 value*N=*NAD83 value*        45-54-14.336N       66-28-17.936W
E=*NAD83 value*N=*NAD83 value*        45-54-14.144N       66-36-51.568W
22. Format ID 5                  23. Last edited       15-DEC-1993 18:19
24. False North   7500000.000    25. False East   2500000.000
```

Appendix H - Feature Codes Used to Define Areas Of Exclusion in Digital Terrain Model Files

The following is a list of feature codes for digital topographic data which form the boundaries of areas excluded from the collection of DTM points.

Area Type Water Features

WACA	CANAL
WACA04	CANAL RUIN/INTACT./ABAND.
WACFOH10	COASTLINE WATER LEFT
WACFOH20	COASTLINE WATER RIGHT
WACFLL10	LANDWARD LIMIT LEFT
WACFLL20	LANDWARD LIMIT RIGHT
WACFOHLL10	
WACFOHLL20	
WACFOHIS10	
WACFOHIS20	
WACFOHLLIS10	
WACFOHLLIS20	
WALK10	LAKE LEFT
WALK20	LAKE RIGHT
WARS10	RESERVOIR LEFT
WARS20	RESERVOIR RIGHT
WARVDL	STREAM DOUBLE LINE
WARVDL10	STREAM DOUBLE LINE LEFT
WARVDL15	STREAM DOUBLE LINE LEFT INDEFINITE
WARVDL20	STREAM DOUBLE LINE RIGHT
WARVDL25	STREAM DOUBLE LINE RIGHT INDEFINITE
WARVLK10	RIVER LAKE LEFT
WARVLK20	RIVER LAKE RIGHT

Service New Brunswick
Services Nouveau-Brunswick

New Nouveau Brunswick

UGE1998O
Version 0.8
March 6, 2001

Water Structures

STWH	WHARF
STWH03	WHARF UNDER CONSTRUCTION
STWH04	WHARF RUIN
SAPO	POOL (LARGE)
UTSPOL	SEWAGE SETTLEMENT POND
WABW	BREAKWATER
WABW03	BREAKWATER UNDER CONSTRUCTION
WADM	DAM (MANMADE)

Land Structures

STRW	RETAINING WALL

Land Areas

DADP	DISPOSAL PILE CENTROID
DADP10	DISPOSAL PILE LEFT
DADP20	DISPOSAL PILE RIGHT
DADU	DUMP CENTROID
DADU10	DUMP LEFT
DADU20	DUMP RIGHT
DALF	LANDFILL SITE CENTROID
DALF10	LANDFILL SITE LEFT
DALF20	LANDFILL SITE RIGHT
DAMN	MINE/OPEN PIT CENTROID
DAMN10	MINE/OPEN PIT LEFT
DAMN20	MINE/OPEN PIT RIGHT
DAPI	PILE AREA CENTROID
DAPI10	PILE AREA LEFT
DAPI20	PILE AREA RIGHT
DAPT	PIT CENTROID
DAPT10	PIT LEFT
DAPT20	PIT RIGHT
DAQU	QUARRY CENTROID
DAQU10	QUARRY LEFT
DAQU20	QUARRY RIGHT

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

DAUC	CONSTRUCTION AREA CENTROID
DAUC10	CONSTRUCTION AREA LEFT
DAUC20	CONSTRUCTION AREA RIGHT

Transportation Structures

RRBR	BRIDGE
RRBR03	BRIDGE UNDER CONSTRUCTION
RRBR04	BRIDGE RUIN
RROP	OVERPASS (ROAD/RAIL ROAD)

NOTE:

In cases where exclusion areas do not form closed polygons, other features may have been used to close them. Features which may be used to close polygons in this manner are:

DLBNIN	BOUNDARY INTERNATIONAL
DLBNPR	BOUNDARY PROVINCIAL
DLNLIN	NEAT LINE
WARVIS10	STREAM ISLAND LEFT
WARVIS15	STREAM ISLAND LEFT INDEFINITE
WARVIS20	STREAM ISLAND RIGHT
WARVIS25	STREAM ISLAND RIGHT INDEFINITE

All features beginning with

DA	DESIGNATED AREAS
LC	LAND COVER
RRRD	TRANSPORTATION FEATURES

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Appendix I – Location of 1996 and 1997 Photography

■ 1996
▓ 1997

New ⚓ Nouveau
Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001
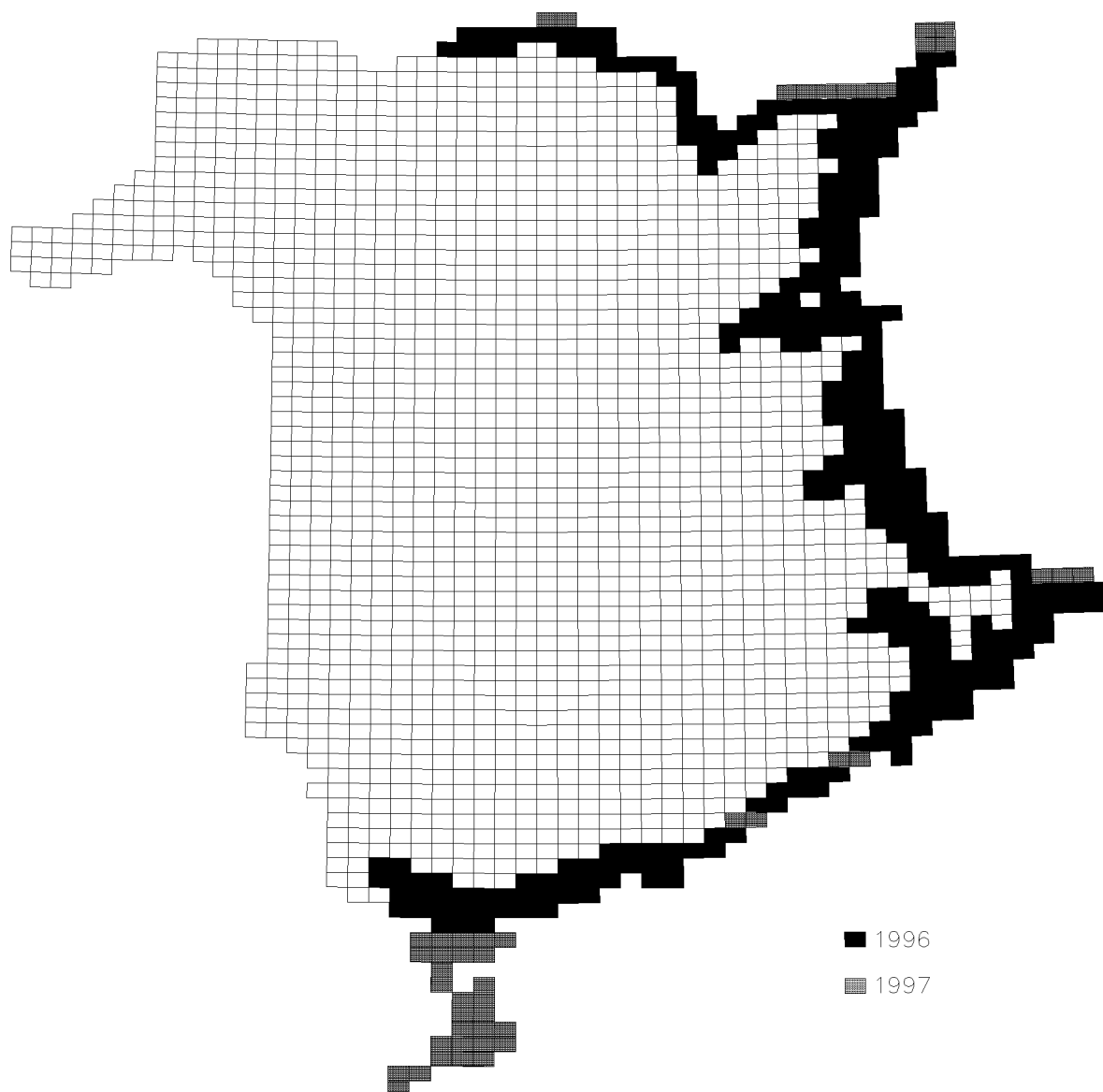
Appendix J - D98 Files with Points within 1m of neatline

45206660	46606670	46906670	47606600
45306740	46606690	46906680	47606630
45356640	46606760	46906770	47606650
45406720	46655580	46956680	47606670
45506650	46656690	47006620	47606680
45556720	46656730	47006640	47606780
45606660	46656740	47006670	47656620
45606710	46656750	47006680	47656630
45606730	46706590	47056640	47656660
45706640	46706640	47056660	47656670
45706680	46756560	47056670	47656680
45706730	46756580	47106650	47656780
45756690	46756620	47106660	47706780
45756730	46756630	47106700	47756650
45856660	46756690	47156640	47756700
45906670	46806550	47156650	47756770
45956650	46806570	47156660	47756790
45956670	46806590	47156670	47806630
45956720	46806610	47206870	47806680
46006690	46806650	47306740	47806700
46056530	46806670	47356710	47806720
46306660	46806730	47356720	47806730
46306710	46806740	47356740	47806770
46356600	46856610	47356810	47856680
46356630	46856620	47406710	47856800
46406720	46856640	47406730	47906690
46506530	46856650	47456710	47906790
46555510	46856660	47506690	47906810
46556610	46856750	47556700	
46556690	46906620	47556770	
46606620	46906650	47606590	

Appendix K – Updated Coastal Window

This Appendix is a list of 1:10 000 windows with updated coastal features, coastal buildings and coastal hydrographic themes current to 1996 – 97.

45056670	45256600	45856440	46156380	46556490	47056510
45056680	45256610	45856450	46156390	46556500	47056520
45056690	45306550	45856460	46156400	46606470	47056530
45056700	45306560	45906410	46156410	46606480	47056540
45056710	45356540	45906420	46156430	46606490	47106490
45106620	45356550	45906430	46156440	46656470	47106500
45106630	45406530	45906450	46156450	46656480	47106520
45106640	45406540	45906460	46206410	46656490	47106530
45106650	45456510	45956400	46206420	46706470	47156500
45106660	45456520	45956410	46206430	46706480	47156510
45106670	45456530	45956420	46206440	46706490	47156520
45106680	45506500	45956430	46206450	46706500	47206490
45106690	45506510	45956450	46206460	46756480	47206500
45106700	45506520	45956460	46256450	46756490	47206510
45106710	45555470	45956470	46256460	46756500	47256490
45156580	45555490	46006400	46306450	46806480	47256500
45156590	45555500	46006410	46306460	46806490	47306490
45156610	45606470	46006430	46306470	46806500	47306500
45156620	45606480	46006450	46356450	46856480	47306510
45156630	45606490	46006460	46356460	46856490	47356490
45156640	45656460	46006470	46356470	46906480	47356500
45156650	45656470	46006480	46356480	46906490	47356510
45156690	45656480	46006490	46406460	46956480	47406480
45156700	45706440	46056370	46406470	46956510	47406490
45156710	45706450	46056380	46406480	46956520	47406500
45156720	45706460	46056390	46456460	46956550	47456480
45206580	45706470	46056400	46456470	47006480	47456490
45206590	45756440	46056410	46456480	47006490	47456500
45206600	45756450	46056460	46456500	47006500	47506480
45206610	45756460	46056470	46456510	47006510	47506490
45206620	45756470	46056480	46506460	47006520	47506500
45206630	45806420	46106370	46506470	47006530	47556480
45206710	45806430	46106380	46506480	47006540	47556490
45206720	45806440	46106390	46506490	47006550	47556560
45256560	45806450	46106400	46506500	47056470	47606470
45256570	45806460	46106410	46506510	47056480	47606480
45256580	45856420	46106470	46556470	47056490	47606490
45256590	45856430	46106480	46556480	47056500	47606500

47606550	47706480	47756510	47806570	47956450	48006630
47606560	47706490	47756520	47856450	47956610	48006640
47656470	47706530	47756530	47856460	47956620	48006650
47656480	47706540	47756570	47856570	47956630	48006660
47656490	47706560	47806450	47856580	47956660	48006670
47656500	47706570	47806460	47906440	47956670	48006680
47656540	47756450	47806470	47906450	47956680	48056630
47656550	47756460	47806480	47906580	47956690	48056640
47656560	47756470	47806490	47906590	48006440	
47656570	47756480	47806500	47906600	48006450	
47706460	47756490	47806510	47906610	48006610	
47706470	47756500	47806520	47956440	48006620	

New Nouveau
Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Appendix L – DTM's from Contours

The following is a list of windows with some DTM data collected from contours:

	45806500	45706530	45606500
	45806490	45706520	45606490
	45806480	45706510	45606480
	45806470	45706500	45606470
	45806460	45706490	45556540
	45806450	45706480	45556530
		45706470	45556520
45856530*		45706460	45556510
45856520*	45756550	45656540	45556500
45856510*	45756540	45656530	45556490
45856500	45756530	45656520	45556470
45856490	45756520	45656510	45506540
45856480	45756510	45656500	45506530
45856470	45756500	45656490	45506520
45856460	45756490	45656480	45506510
45856450	45756480	45656470	45506500
45806540	45756470	45606540	45456540
45806530	45756460	45606530	45456530
45806520	45706550	45606520	45456520
45806510	45706540	45606510	

* Windows with a small protion of the data collected from contours

Service New Brunswick
Services Nouveau-Brunswick

New _{Nouveau} Brunswick

UGE1998O
Version 0.8
March 6, 2001

Appendix M – DOT Extra Issues

Investigation into Issues Raised by
NBDOT related to DTDB98 Files

Item 1

DOT Comment: File has duplicate arcs on theme 100 without keys.

File(s) identified by NBDOT: File = 45156630

Investigation:

The Quality Control (QC) process does a check on the attributes for lines using the output from CARIS command "displine". Using "displine" on theme 100, CARIS reports there are no duplicate features.

Upon detailed investigation, DataQC identified seven lines in the 198 file – feature code RRRDLP, with user number 100 but the theme is undefined. The output for CARIS "lspt" command showed the features as arcs on user number 100 but the theme was undefined. A display descriptor output showed that there were features added by GEONET but did not have a line super descriptor. If there is no super descriptor, the CARIS command "displine" will not report the presence of the line and thus the QC processes would not have been aware of the lines.

Item 2

DOT Comment: Different bridge ETB keys between 198 and R98

File(s) identified by NBDOT: File = 45206610

Investigation:

The bridge symbol keys in the 198 graphics file are RQ3503573, RQ3503574, RQ3503575, RQ3503576, RQ3503577and RQ3503578, while the keys in the R98 file range from RQ3503567 to RQ3503572.

Item 3

DOT Comment: Some files have bridge keys starting at R*6000/7000 range.

File(s) identified by NBDOT: File = 47606570

Investigation:

The last key for line features in the file stop at RD4Q03556 while the symbol keys starts at RD4Q06557. It looks like 3000 was added to the last line key, (3556) plus one to give the first symbol key.

Item 4

DOT Comment: One file with 19 D2 active arcs in R98 but not in 198 file

File(s) identified by NBDOT: File = 47456730

Investigation:

The QC checks make sure that for every line with a key in the 198 file there is an entry in the R98 file. There is not a check which verifies that every active entry in the R98 file has an entity in the 198 file.

Item 5

DOT Comment: Some files whose second field in R98 contains ETB98 keys instead of bridge codes.

File(s) identified by NBDOT: File = 45706550.

Investigation:

The QC processes check to make sure that for every active record in the R98 the previous key field contains a valid entry. Initially, a valid entry was defined as a key matching the DTDB98 specifications. This becomes unworkable as an extremely large number of keys in the NBDOT source data were incorrectly formatted (generating error messages) which the contractor was not allowed to change. The QC test had to be reduced to only checking that the entry in field 2 was non blank. In addition, if a contractor had to add a bridge symbol then field 2 is blank (flagged as an error during QC) but was accepted by the Inspector as valid.

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

Item 6

DOT Comment: One file with arcs changed from rrrdc to rrrdo.

File(s) identified by NBDOT: File = 47456690

Investigation:

We will require the specific feature key to do additional investigation. Without the key we couldn't verify the specific problems in file, but the following addresses the issue in general.

The production processes check to make sure that the source data has been imported from the from the DOT road file, the ETB96 files and where applicable the DNRE road files. A check is performed to make sure that the feature codes in the final 198 file are in the list of valid feature codes. (It does not check to see if the final feature code is the same as the source feature code).

Item 7

DOT Comment: One file whose last key in 198 is R*3227, but last record in R98 is R*3226

File(s) identified by NBDOT: File = 46106380.

Investigation:

The additional key in the file 198 is for a bridge symbol.

Item 8

DOT Comment: Some files with bridge nodes on theme 100 without keys.

File(s) identified by NBDOT: File = 47506830

Investigation:

During production, the CARIS "display index" command is used to generate a list of features in the 198 file with keys. Only those keys were subjected to the verification process. No QC process identifies feature without keys in the 198.

It should be noted that the QC process of verifying the key format for only those features with keys in the graphic file is based on the methodology used in ETB96. In ETB96 keys were extracted from the T96 files, then formats were verified, while the ETB98 process performs the same function on both the 198 and 398 features.

Appendix N – DTDB98 Merge Utility Program

Introduction

MGR1998A.ZIP contains the install program for the DTDB98 map file merge utility. This utility is a tool to aid merging of the individual layers of one or more DTDB98 map files into a single CARIS Edit file. It requires the user have already properly installed and licensed CARIS GIS software on the computer. The utility provides a user friendly method to generate a CARIS Batch File which, once run in CARIS, completes the actual merging of 1:10 000 map windows. It allows the user to easily select which DTDB98 map components to merge and reads a standard text file (list) of windows to merge together. The utility provides a default list of features to suppress during the merge. The user can select no feature suppression or a user defined list of features.

The zip file contains the following items:

- The setup program to install the module to the specified directory and update the ini file with the initial values.
- A redistribution directory which contains copies of the program, the help file, the ini file and an initial set of display filter, which can be used to remove the surround features.
- Pkunzip which is used to extract the map layer files from the map suite zip file.

Installation Instructions

After downloading the MRG1998A.ZIP, place the file in a temporary directory on your computer. Unzip the file. Select and run the setup program (setup.exe). Follow the instruction on the installation program.

For detailed instructions use the online help or review the user guide.

Typical Time Requirements to Merge Map Windows

Several test scenarios were completed during the software development stage to document the time needed to merge various combinations of DTDB98 files. The test PC's and results of two separate tests are provided below:

Test Computer
      Pentium III – 450 MHz
      128 MB RAM
      20 GB Hard Drive
      Windows NT

      Test 1
      Number of files in list: 4 files

Layers used: 198, 398, G98
Time to complete merge: 20 seconds
No suppression

Test 2
Number of files in list: 25 files
Layers used: 198, 398, G98
Time to complete merge: 9 minutes
No suppression

Test 3
Number of files in list: 350 files
Layers used: 198, 398, G98
Time to complete merge: 93.5 hours
No suppression

Test Computer
Pentium III – 600 MHz
128 MB RAM
15 GB Hard drive
Windows 98

Test 1
Number of files in list: 2 files
Layers used: 198, 398, G98
Time to build batch file: 3 seconds
Time to complete merge: 22 seconds
Default suppression

Test 2
Number of files in list: 112 files
Layers used: 198, 398, G98
Time to build batch file: 5 seconds
Time to complete merge: 85 minutes
Default suppression

Testing of Merge Utility on 100 Map Windows

The aim was to run a series of three tests to test the speed of the merge operations on larger groups of files. The tests were run on the following PC:

Pentium III – 600 Mhz.
128 MB RAM
15 GB Hard drive
Windows 98

Service New Brunswick
Services Nouveau-Brunswick

New Nouveau Brunswick

UGE1998O
Version 0.8
March 6, 2001

The time to build the batch file and the time to run the batch file were recorded. The listed input and output directories and file names were also documented.

Test 1

To merge together the 1:10 000 files to create four 1:50,000 map blocks. The four blocks created included: 21G10, 21G09, 21G15 and 21G16. The settings for the test were:

- Read files from CD-ROM
- No feature suppression
- Include the 198, 398 and G98 layers in the output file
- Source files in zip format

Block name	Input Text File	Output Filename	Batch build Time	*Time to run Batch*
21G10	.\1_50000\21G10	.\output1\21G10	2 seconds	6 minutes
21G09	.\1_50000\21G09	.\output1\21G09	2 seconds	5 minutes
21G15	.\1_50000\21G15	.\output1\21G15	2 seconds	7 minutes
21G16	.\1_50000\21G16	.\output1\21G16	2 seconds	6 minutes

Test 2

To merge the four files created in the previous test. The CARIS edit files were copied to a new source directory c:\mergefiles\input2 using the CARIS carcopy command and renamed as follows:

- 21G10   copied to 45506650
- 21G09   copied to 45506600
- 21G15   copied to 45756650
- 21G16   copied to 45756600

New Nouveau Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

The settings for the test were:

- Read files from CARIS edit files: (Source files in CARIS edit format in c:\mergefiles\input2)
- No feature suppression
- Include the 198, 398 and G98 layers in the output file

Block name	Input Text File	Output Filename	Batch build Time	*Time to run Batch*
fourblocks	.\1_100000\4_50000s.txt	.\output2\fourblocks	2 seconds	3 minutes

Test 3

To merge the 100 – 1:10 000 map files (those included in: 21G09, 21G10, 21G15, and 21G16). The settings for the test were:

- Read files from CD-ROM
- No feature suppression
- Include the 198, 398 and G98 layers in the out file
- Source files in zip format

Block name	Input Text File	Output Filename	Batch build Time	*Time to run Batch*
Files100	.\1_100000\1_100000.txt	.\output3\Files100	2 seconds	72 minutes

Comparison:

Merging 4 sets of 25 windows and then merging the 4 sets into one file: 27 minutes.
Merging 1 set of 100 windows, time: 72 minutes.

DTDB98 Merge Utility HELP:

If you encounter problems running the HELP from the button in the program please ensure that you have the the latest HTML help module for your operating system, installed on the computer.

The latest version of the help system can be down loaded from :

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O
Version 0.8
March 6, 2001

New 🛥 Nouveau
Brunswick

"http://msdn.microsoft.com/library/tools/htmlhelp/wkshp/download.h tm".

Example :{HYPERLINK "hhupd.exe"}Download Hhupd.exe 1.32 (716 KB).

Make sure to select the correct upgrade for your operating system.

<u>User Guide</u>

A complete copy of the User Guide is available free on SNB Online. The User Guide is lcated in a compressed suite of files called: "MRG1999*.zip where * is the version (A to Z).

New ⚓ Nouveau
Brunswick

Service New Brunswick
Services Nouveau-Brunswick

UGE1998O

Version 0.8
March 6, 2001