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**These standards are intended for use with CFL .x30 criteria files**



## Chapter 11: GEOPAK Introduction

### Purpose

GEOPAK 2004 Edition (GEOPAK), the civil engineering design software in use at the Federal Highway Administration's Central Federal Lands Highway Division (CFLHD), is complex software with many options to select from while working on projects for or at CFLHD. This manual is not intended to teach the novice user how to use GEOPAK, but rather how CFLHD intends GEOPAK to be used on CFLHD projects. As with any powerful software, and many complex processes, there are many different ways to accomplish a given task. This manual will outline the necessary procedures to ensure proper adherence to CFLHD standards for project design.

CFLHD is implementing new criteria files and a new generation of MicroStation/Geopak standard files. This new generation is known as the X30 Generation of standard files, these files will need to be run using MicroStation 2004 and Geopak 2004 Edition Typical Section Generator.

### Overview of GEOPAK 2004

The GEOPAK 2004 Edition has been updated to take advantage of all of the new features of MicroStation 2004 including level names, level filters, models, and true type fonts, as well as providing a more consistent look. In each of the following chapters we will outline the CFLHD standard as well as discuss the more pertinent new tools available.



## Files Used

There are many types of GEOPAK files in use at CFLHD. In many cases you will use the default files delivered with GEOPAK, as these take their settings from the AASHTO green book. This chapter will outline the files used by CFLHD and GEOPAK, paying particular attention to those that are specific to CFLHD, which must be substituted for the default GEOPAK files. The following chapters discuss in detail where to find these files, how to attach them, and information that will be helpful on the use of CFLHD files.

.GPK	GEOPAK coordinate geometry file	Created the first time COGO is accessed. The CFLHD project manager will assign a file name to use.
.SMD	Survey manager database	Controls how survey information, feature codes, are interpreted by GEOPAK.
.SEP	Superelevation preferences	Controls how superelevation is calculated by GEOPAK
.PRJ	Project manager	Stores information for use by the GEOPAK project manager.
.DAT	Data file used to create .TIN	Contains string and point information used to create DTM's.
.TIN	Triangulated irregular network	Triangulation based on the points stored in the .dat file
.DDB	D&C manager database	Hierarchical database containing information concerning functional classification and display preferences for each feature and item used in a MicroStation design file.
.X08, .X10	Criteria file	Previous version of CFLHD criteria files.
.X30	Criteria file	New version of CFLHD criteria files.

Table 1.1: GEOPAK Files

Of the files listed above, the **.SMD**, **.SEP**, **.DDB**, and all criteria files, are specific to CFLHD projects and must be used in place of the GEOPAK defaults.

For the locations of the files listed above, see chapter 2, directory structures. For CFLHD consultants, see the CFLHD web site to download these files. CFLHD standard files required to run Geopak 2004 Edition Typical Section Generator is available through the download **V8\_Resource.zip**. Detailed use of each of these files, as well as directions for finding or downloading is contained in the chapter relating to each tool.

The following GEOPAK chapters cover the topics listed below:

- User Preferences
- Project Manager
- Survey Manager
- DTM creation
- Design and Computation Manager
- Horizontal and Vertical Design
- Cross-Sections
- Plan & Profile Sheet Clipping
- Quantities



- Reports



Consultants working on CFLHD projects must download current versions of all CFLHD standard files at the start of each project. CFLHD standard files may be updated from time to time, however, files current at the start of each project will typically be used for the duration of the project. The COTR will notify the consultant if an updated file needs to be used during a project.

## GEOPAK 2004 Tools

WFLHD has developed an extensive guide to using the Geopak 2004 software. The guide is called “The Complete Knucklehead’s Guided Tour of Geopak 2004 Edition”. This site contains tips, examples and procedures. Selecting the following link can access this guide:

[The Complete Knucklehead's Guided Tour of GEOPAK 2004 Edition](#)