

User Guide

DBSOND

Graphic Representation of Stratigraphic Columns and Sections

geo&soft[®]
international

Geo Soft di ing. G. Scioldo

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Chapter 1 - Introduction to the program

Introduction to the program

This program permits the construction and graphical representation of profiles and boreholes as well as the management of the relevant data.

Thanks to the extremely flexible management of data input, it is possible to file and print stratigraphic data (lithotype descriptions, depth and thickness of layers) along with a large amount of additional information such as the identification and depth of samples taken, RQD, borehole completion, results of laboratory and in situ tests, etc. In this way a synoptic table describing all the information gathered during the drilling and completion of the borehole can be created.

Information on file can be printed inside columns, which can be selected one at a time, or with pre-defined configurations.

In order to enter information, not foreseen by the program's standard configuration, one can create new customized columns by using one of the twenty types of data representation supplied with the program. A single method of data representation is assigned to each type of base column.

Through a simple graphic editor it is possible to configure the heading of the stratigraphy.

For the graphical representation of lithotypes, it is possible to use and mix vectorial textures and bitmap pictures; the user can add his own bitmaps (taken for example with a digital camera) in the directory "textures". The vectorial patterns can be modified with the special editor, which also allows to create new ones till to 99 base textures, each can be reproduced in 9 different scales and be superimposed on any of the others obtaining a vast range of possibilities.

With DBSOND the generation of stratigraphic profiles is very easy: for each profile it is possible to represent the elevation of the points, the section's partial distances, reference number and position on all different lines. Then, the values of the intermediate points are calculated for each profile in relation to the total distances.

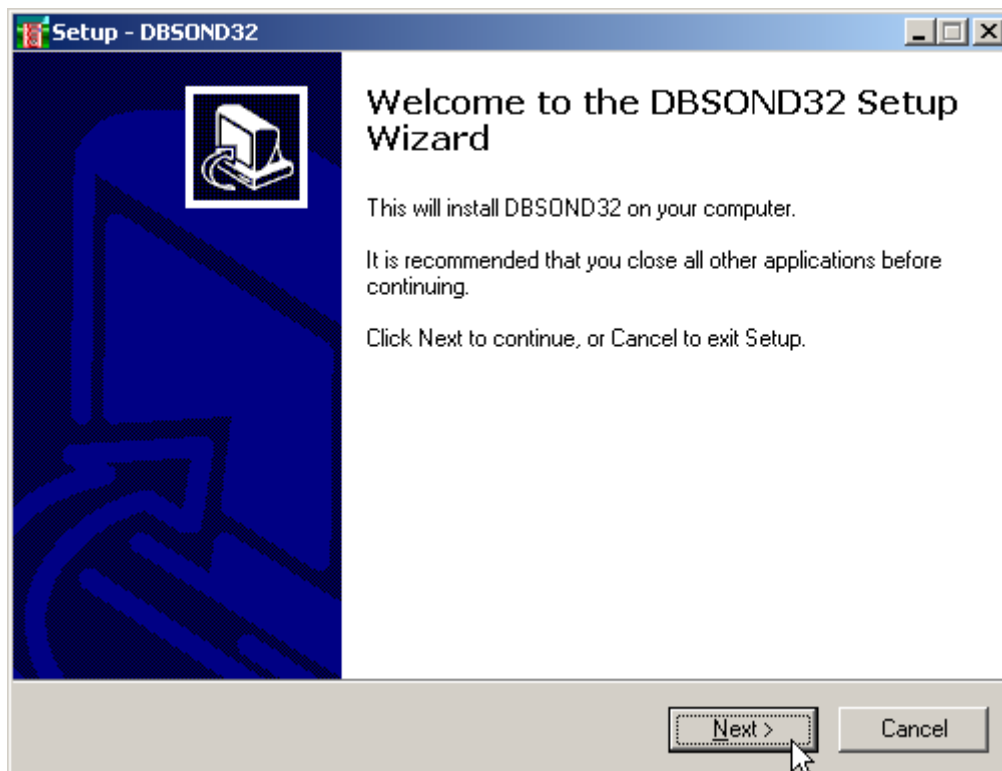
Chapter 2 - Program installation

System requirements

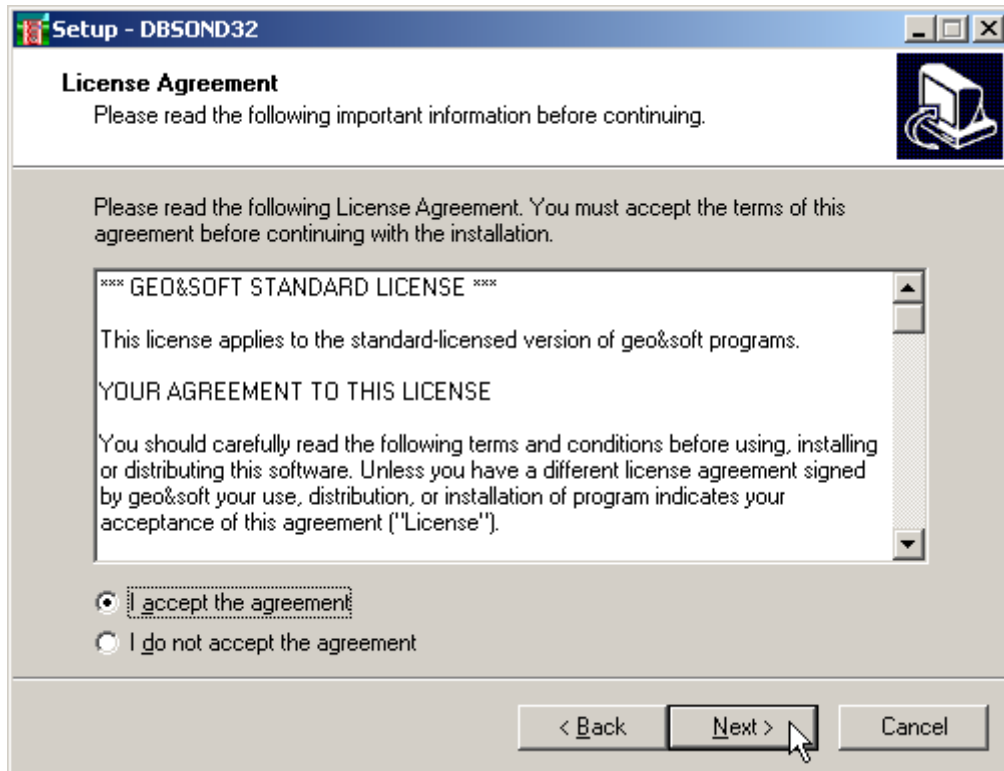
- Pentium® class processor
- Microsoft® Windows® 95 OSR 2.0, Windows 98, Windows Me, Windows NT® 4.0 with Service Pack 5 or 6, Windows 2000, or Windows XP
- 64 MB of RAM (128 MB recommended)
- 100 MB of available hard-disk space
- CD-ROM drive
- A printer driver must be installed, even if the printer itself is not connected to the PC.

Program installation

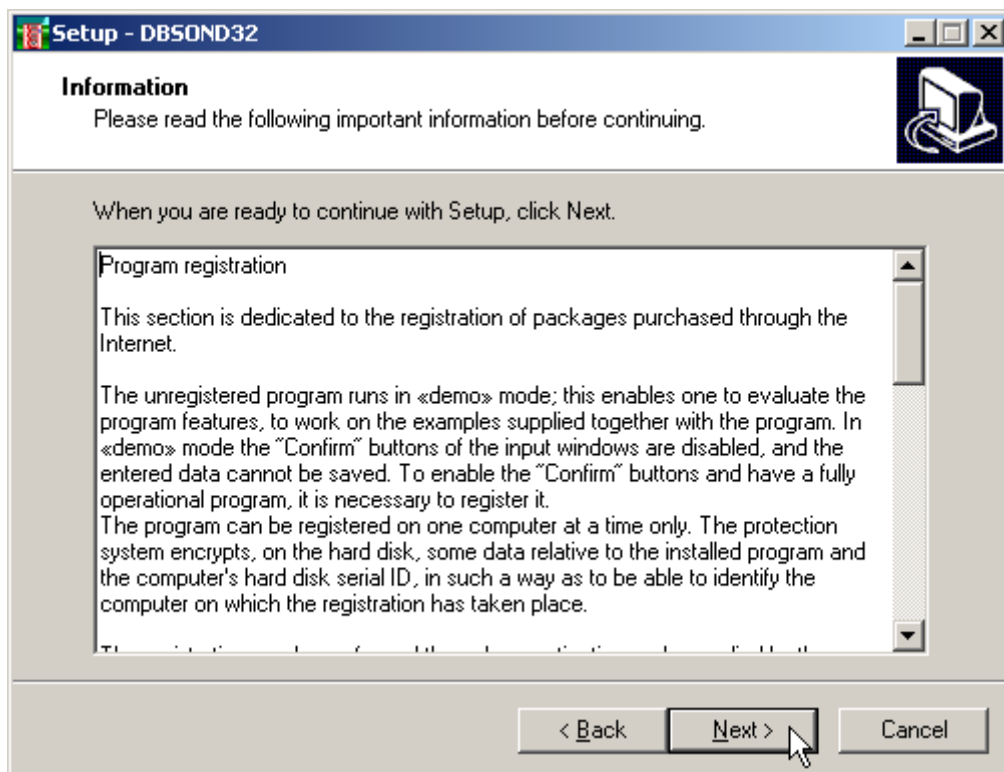
To install the DBSOND program, run **DBSOND32SETUP.EXE** from the CD-ROM or from the folder where you downloaded and saved the setup program.



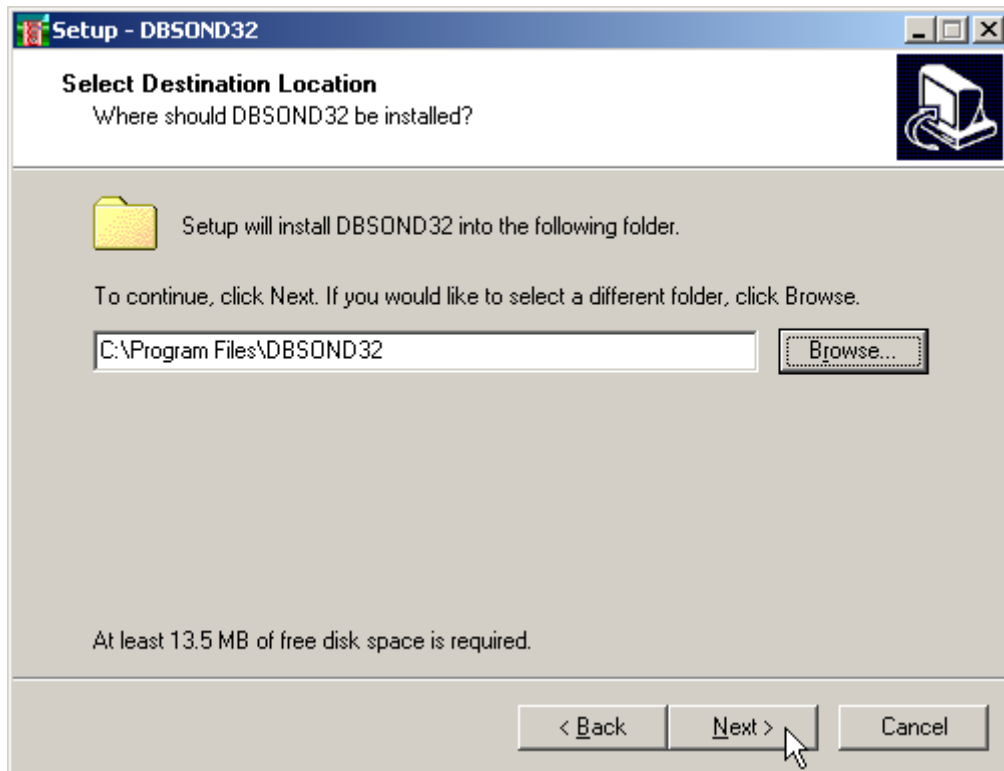
Press the **NEXT** button to start the installation.



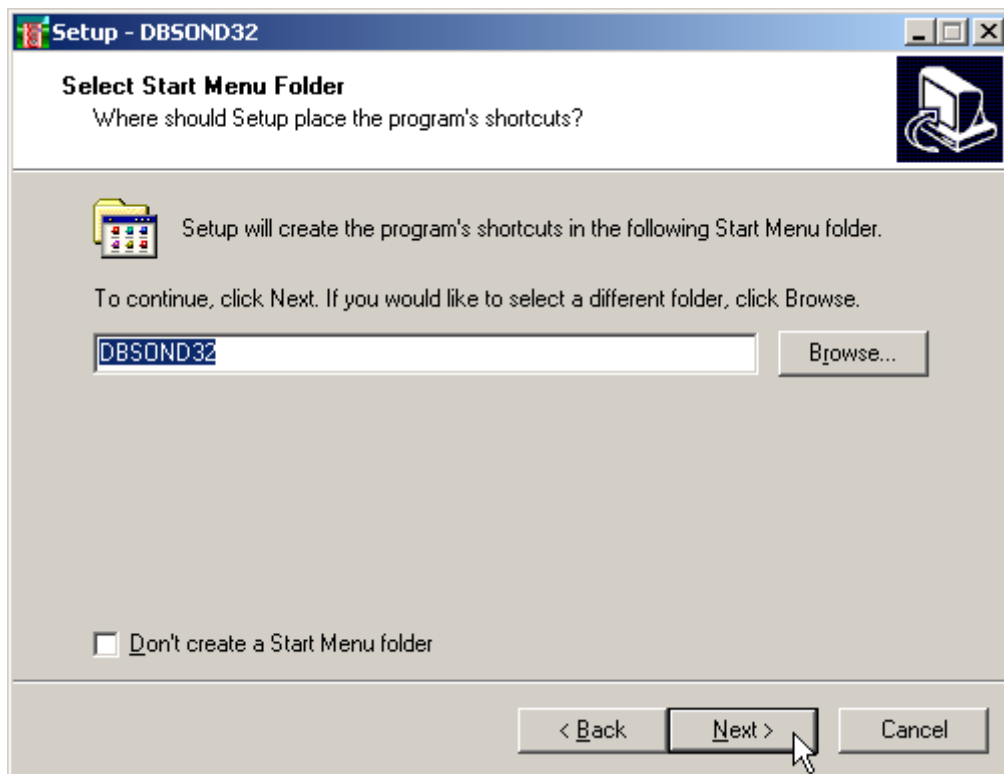
Carefully read the License Agreement and press the **NEXT** button.



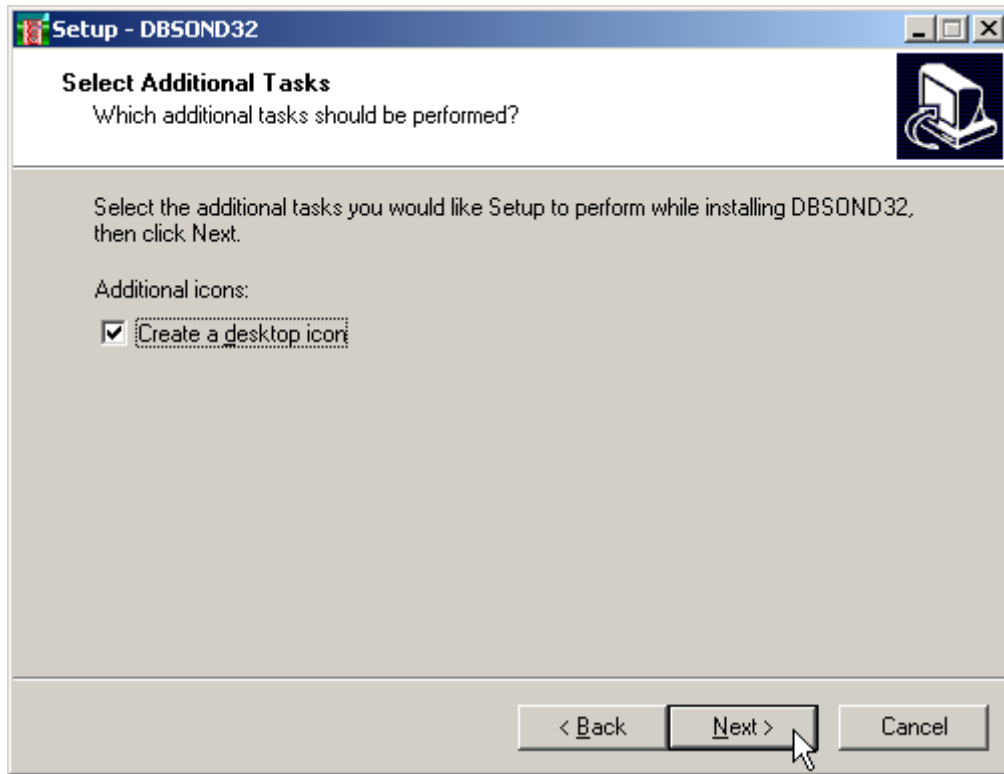
Carefully read the informations about the registration of the software and press the **NEXT** button.



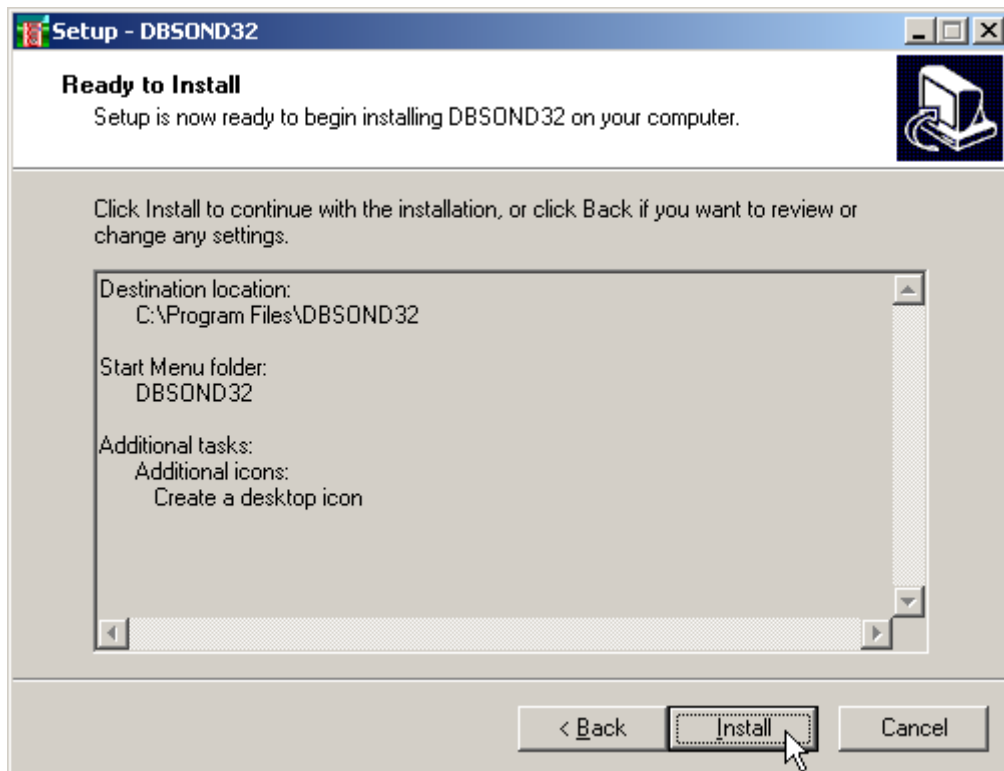
Select the folder where the **DBSOND32** directory would be created and press the **NEXT** button.



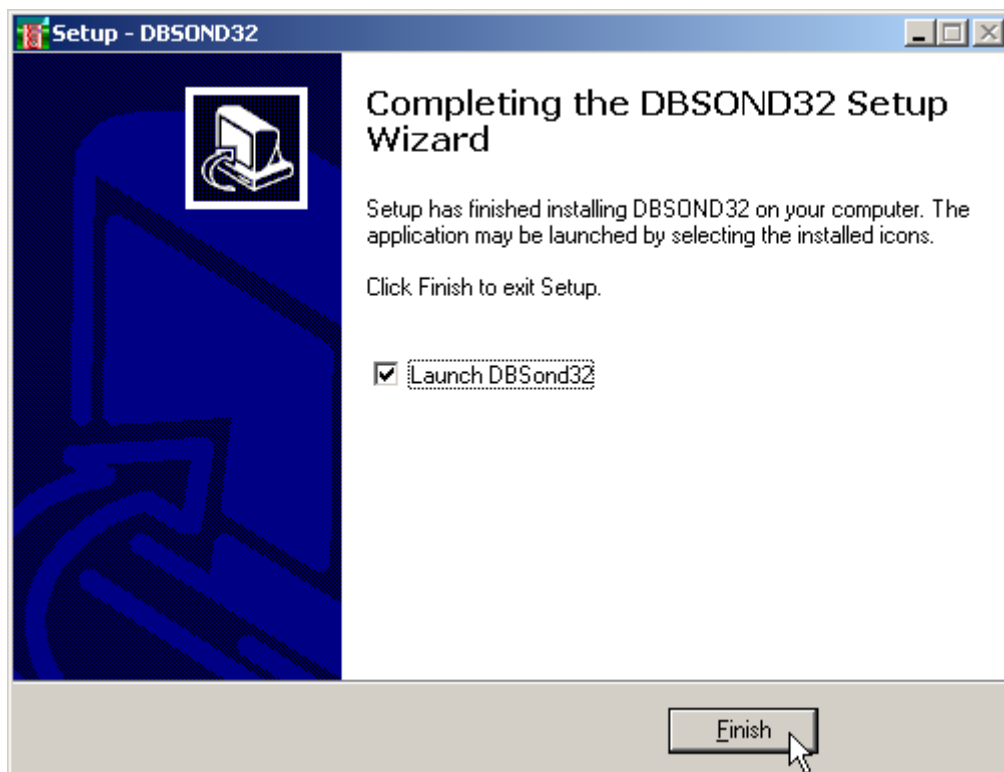
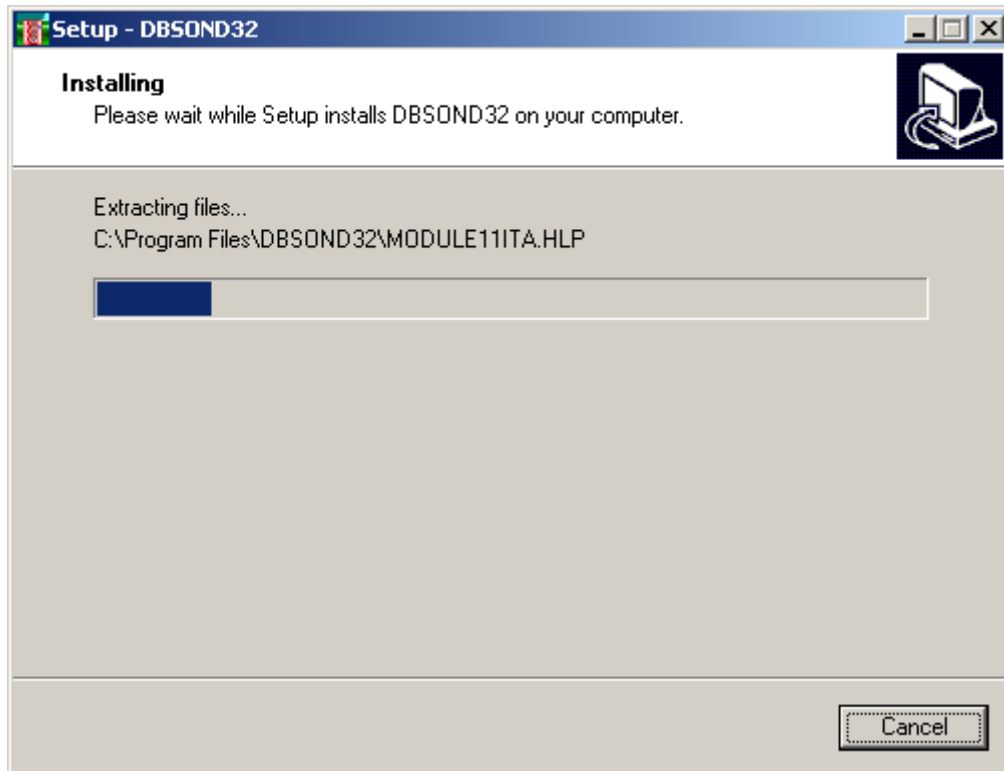
Press the **NEXT** button to create the **DBSOND32** group in the Start menu.



Choose if you want an icon to be created on your desktop, or not.



Press the **INSTALL** button to continue the installation procedure ...



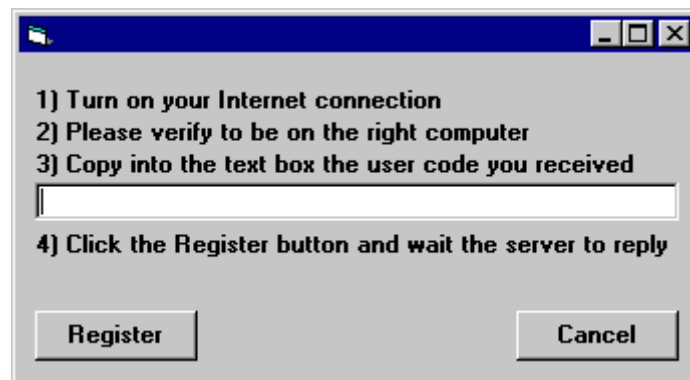
Once completed the installation, press the **END** button to exit the setup procedure and to start **DBSOND32**.

DBSOND32 can be run by clicking the **Start** button, then selecting the **DBSOND32** group in the **Programs** menu, and clicking **DBSOND32**.

Chapter 3 - The program protection

Program registration

This section is dedicated to the registration of packages purchased through the Internet.



The unregistered program runs in «demo» mode; this enables one to evaluate the program features, working on the examples supplied together with the program. In «demo» mode the «Confirm» buttons of the input windows are disabled, and the entered data cannot be saved. To enable the «Confirm» buttons, and have a fully operational program, it is necessary to register it.

The program can be registered on one computer only at a time. The protection system encrypts, on the hard disk, some data relative to the installed program and to the computer hard disk serial ID, in such a way as to be able to identify the computer on which the registration has taken place.

The registration can be performed, by the manufacturer or supplier, with an **activation code**.

We would like to stress that the encrypted protection data on the hard disk are bound in a unique way to the hard disk itself: subsequently, one can no longer use the activation code to install the program on other computers.

Let us describe the procedure for the registration of the software:

1. select the **Registration** command from the Help menu.
2. turn on your Internet connection
3. copy into the box the activation code you received
4. click the <Registration> button and wait the server to replay

Chapter 4 - How to update the program

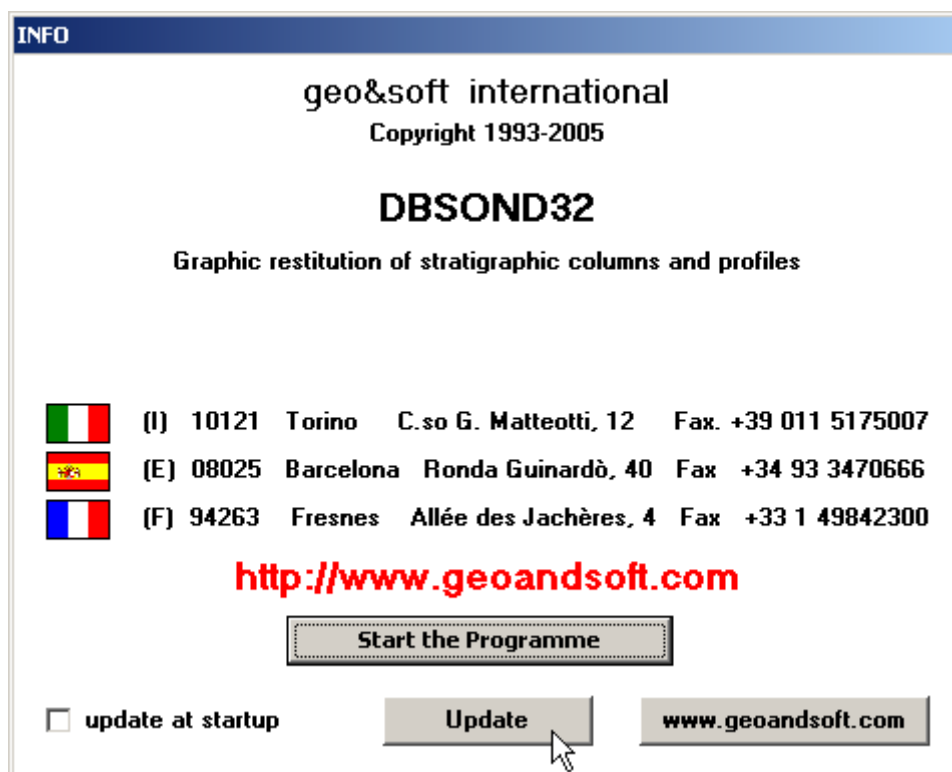
Procedure for updating the program

We believe that the best advertising is a client who shows to the colleagues a state-of-the-art product, so we have always made available the free updates of our packages.

Now a new service is available for free: **AutoUpdater** automatically searches and downloads the new components from our web site **www.geoandsoft.com**, saving the older versions in a backup folder.

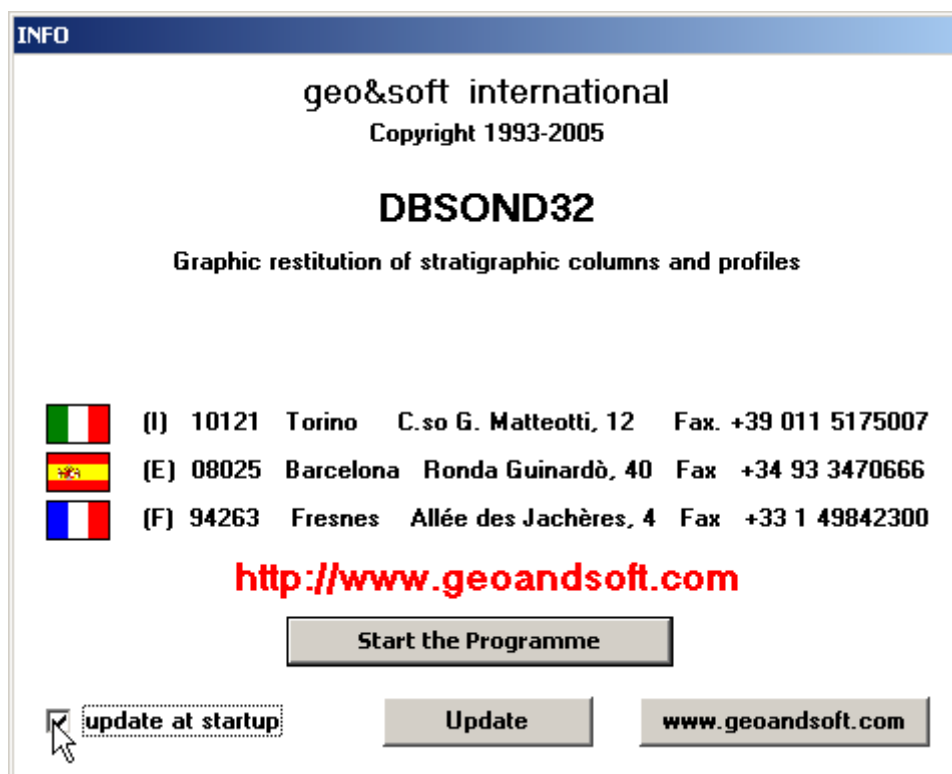
If you prefer, you still can download the updated full setup from our web site, of course.

To download the updated components with AutoUpdater, follow this procedure:



1. Start the program
2. Click the "**Update**" button at the bottom of the first window.
3. Wait for the program to verify if some updated component is available on our servers. If the program finds new components, it shows the list: each component has a check box which allows to choose if a single component has to be downloaded, or not. AutoUpdater automatically checks the boxes of the components whose download is suggested, and leaves unchecked the files which could have been modified by the user, like the colour configuration files.
4. Select the files you want to download and click the "**Update**" button.
5. Once the files have been installed, AutoUpdater runs the updated program.

AutoUpdater can also be configured to automatically start at each run of the program. Simply check the “update at startup” check box, and AutoUpdater will automatically search for new components each time the program is run.



Autoupdating requirements and troubleshooting

The autoupdating procedure requires an active Internet connection.

The search for new components is directly performed by the program, while the download is performed by AutoUpdater: for this reason, both the main program and AutoUpdater need the right to access to the Internet.

All the autoupdating procedures use the HTTP protocol, port 80, and automatically recognize if a proxy server is used on the local network to access the Internet.

If you experience some problems with the autoupdating procedure, they may be due to a FIREWALL: ask your System Administrator to give the right to access the Internet to the executable of the program (*32.exe) and to the AutoUpdater.exe module, in the program folder. No “act as a server” right is needed.

If particularly hard security rules disallow giving those access rights, remember you can download the updated full setup, from our web site, through your web browser.

Chapter 5 - User Interface

Usage Notations

Some typographical notations and keyboard formats are used in this manual to help locate and interpret information more easily.

Bold print is used to indicate command names and related options. Characters appearing in bold print should be typed exactly as printed, including spaces.

Words written in *italics* indicate a request for information.

CAPITAL letters are used to indicate computer, printer, directory, and file names.

User Interface and Data Entering

The user interface is designed to be easy to use and powerful and is supported by complete on-line help. This help contains practical hints and the theoretical background, where applicable. It should reduce the requirement of frequently consulting the printed manuals.

All the commands are located inside a menu bar. Each menu contains a list of commands that one can select with the mouse or the keyboard. The arrangement of the menus, designed with ergonomic criteria, follows the logical order of the operations, inhibiting the access to further operations until all the necessary data have been entered.

The interface layout is maintained in all of our programs, to simplify, as much as possible, the transition from one program to another to avoid having to learn different commands and procedures for similar functions (such as entering data or managing files).

Let us examine the general components that are available in the user interface of geo&soft programs.

User Interface: Menu Bar and Menus

The Menu Bar manages the access to all the program commands. The goal of the menu design is to offer an ergonomic, simple, and understandable arrangement of the commands.

The menus used to perform a complete operation are normally ordered left to right and top to bottom. When possible, the following scheme is used: definition of the name of the project, entering the required data, performing the calculation, and generating the output as a preview or final print.



The programs automatically disable some menus or commands when the execution of such menus or commands is not yet feasible. Typical examples are: a calculation menu is disabled when not all the data needed for the calculation have been completely entered, or a print menu is disabled if not all the calculations have been executed.

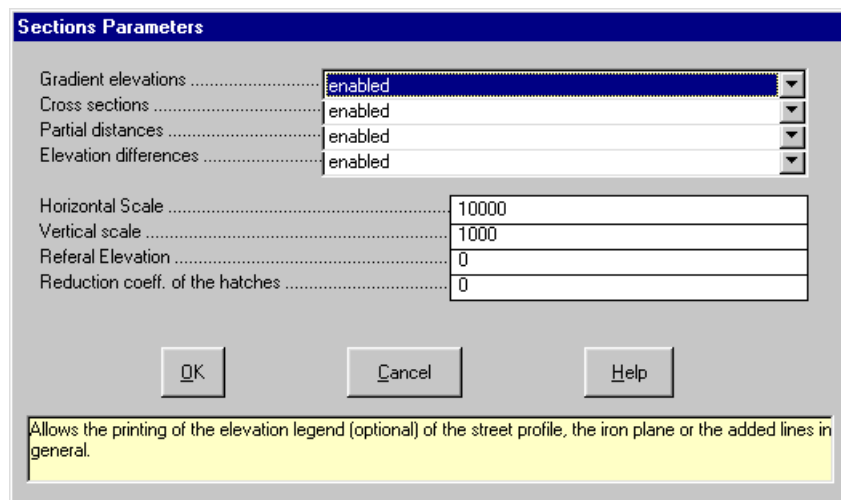
To choose a command from a menu, use the following procedures:

- ☞ Point the menu that is to be activated, click the left button of the mouse, then point the command to be activated, and click the left button of the mouse again. If one does not wish to select any command from the menu that is open, exit the area of the menu before releasing the mouse button.

The Input Dialogue Windows

The different menu commands can perform an immediate action, or display a dialogue window in order to input or edit the various data sets.

When a dialogue window is visible, all the actions that do not pertain to it are ignored. Hence, it is necessary to close the dialogue window to resume the normal use of the program.



Sections Parameters

Gradient elevations enabled

Cross sections enabled

Partial distances enabled

Elevation differences enabled

Horizontal Scale 10000

Vertical scale 1000

Referal Elevation 0

Reduction coeff. of the hatches 0

OK Cancel Help

Allows the printing of the elevation legend (optional) of the street profile, the iron plane or the added lines in general.

Some fundamental tools are used inside the dialogue windows: data fields such as text and list boxes, and buttons.

The text boxes are used to input numerical values and text strings. Most of the editing keys (HOME, END, INS, DEL, etc.) can be used inside these fields. If one sees a small arrow pointing down on the right side of the data field, one has a list box.

To scroll the list box and select an item, do as follows:

- ☞ click the arrow, and then click the item to be selected.

There are three buttons in the dialogue window:

- <Ok> - this button saves the entered information and goes on to the next phase.
- <Cancel> - this button closes the Dialogue window without saving the just entered data, or without executing the command.
- <Help> - this opens a window that contains general information on how to use the dialogue windows.

To edit the data inside the dialogue window, use the following keys:

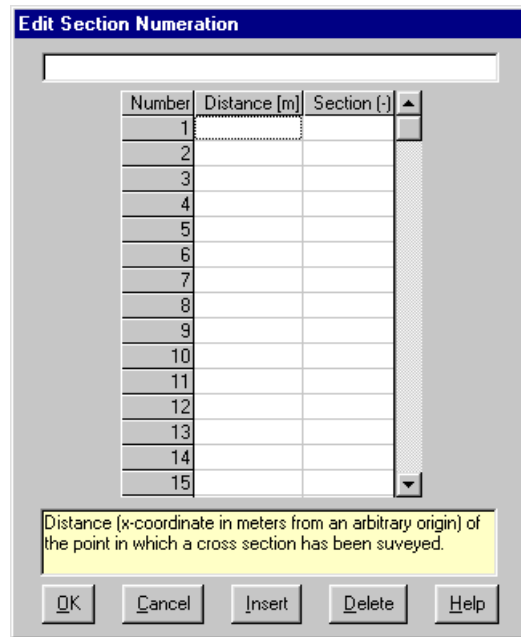
- TAB - moves the cursor to the next field; when the cursor is inside the last visible field the cursor goes to the first control button of the Dialogue window. To return to the previous field, press SHIFT+TAB.
- ENTER - moves the cursor to the next field. If the cursor is positioned on one of the window buttons, the corresponding command is executed.
- BACKSPACE - cancels the last character that has been entered.
- DEL - cancels the character to the right of the cursor.
- ESC - closes the Dialogue window without saving the entered values or without executing the command. The <Cancel> button will do the same.
- UP ARROW/ DOWN ARROW - these are used in multiple fields, or those fields that have a list box.
- LEFT ARROW/ RIGHT ARROW - moves the cursor to the previous or next field.

- HOME - moves the cursor to the beginning of the field.
- END - moves the cursor to the end of the field.

A yellow box with a short text that explains the meaning of the value to be entered, can be seen in the lower part of the window. If the text is not completely visible, click the yellow box to read the complete text.

Data Input With Tables

Tables are used to enter long sequences of numerical values and/or text strings. The keys to be used are the following:



- TAB - moves the cursor to the first button in the window. When one presses this key again, the cursor is moved to the next button.
- SHIFT+TAB - moves the cursor to the previous button.
- ENTER - moves the cursor into the next input field. If the cursor is positioned on one of the window buttons, the corresponding command is executed.
- PAGE UP - moves the cursor up 15 lines.
- PAGE DOWN - moves the cursor forward 15 lines.
- UP ARROW - moves the cursor to the input field directly above.
- DOWN ARROW - moves the cursor to the input field directly below.
- LEFT ARROW / RIGHT ARROW - moves the cursor to the field respectively to the left or to the right of the current position.
- HOME - moves the cursor to the beginning of the line.
- END - moves the cursor to the end of the line.
- F2 - copies the field contents to the extended editing field under the title bar in order to facilitate the editing of the long strings. When working in this editing field, please REMEMBER to press ENTER, even before clicking the <Ok> button. Double-clicking a field has the same effect as pressing the F2 key.

The tables have two additional buttons:

- <Insert> - creates an empty line before the one in which the cursor is positioned.
- <Delete> - deletes the line in which the cursor is positioned.

IMPORTANT SUGGESTION: you can copy data to or from other programs such as Microsoft Excel:

The data entered in the table can be copied in order to be pasted into another table.

To copy the table's contents:



press the key combination CTRL+C. The contents will be copied into the Clipboard of Windows.

To paste the Clipboard contents into the table:

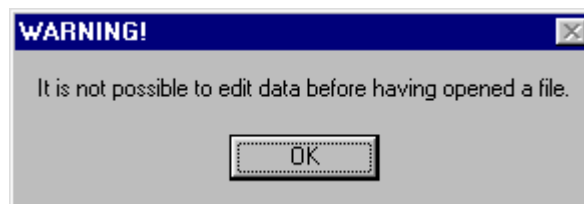


press the key combination SHIFT+INS, or CTRL+V.

A yellow box with a short text that explains the meaning of the value to be entered, can be seen in the lower part of the window. If the text is not completely visible, click the yellow box to read the complete text.

Message Windows

The function of these windows is to give information to the user concerning the system status, as in the case of an error due to an improper use of the program.



Help On Line

A complete Help On Line is available. It is possible to ask for information or suggestions related to the commands or the use of the program. In order to access the help on line, proceed as follows:

1. Position the cursor on a field of a dialogue window and press F1.
2. Use the Summary from the Help menu.

Chapter 6 - Files Menu

Files Menu

This menu contains the commands for opening and saving files that contain all the information relative to the project.



New Borehole Command

To open a new file:

- from the menu choose New borehole by first clicking on the name of the menu then on the New command.

Open Borehole Command

To be able to work with the program one should, first of all, create a new file or open a pre-existing file. To open a file:

- from the menu choose Open Borehole by first clicking on the name of the menu then on the Open command. In the File Name field type the name of the file to be opened or double click on the name of the desired document which can be found in the list underneath the File Name field.

The name of the file being used is shown inside the title bar of the main window and inside a window referable by selecting the Help menu.

The name of the file should not contain spaces and/or punctuation marks. It is not necessary to indicate extensions, since the extension ".DBG" is added automatically: for example, if one enters the name "TEST1" the file name will be "TEST1.DBG".

New Profile Command

To open a new file:

- from the menu choose New Profile by first clicking on the name of the menu then on the New command.

Open Profiles Command

To be able to work with the program one should, first of all, create a new file or open a pre-existing file. To open a file:

- ☞ from the menu choose Open Profile by first clicking on the name of the menu then on the Open command. In the File Name field type the name of the file to be opened or double click on the name of the desired document which can be found in the list underneath the File Name field

The name of the file being used is reported inside the title bar of the main window and inside a window referable by selecting the Help menu.

The name of the file should not contain spaces and/or punctuation marks. It is not necessary to indicate extensions, since the extension ".PRF" is added automatically: for example, the given name "TEST" will have the file name "TEST1.PRF"

Save Command

During the work session the program uses a copy of the file that is temporarily loaded into the computer's RAM. To save the work on the hard disk it is necessary to use the Save command; otherwise all the data entered will be lost when one exits from the program. If an electrical problem or any other type of problem interrupts the computer's functioning, the data not yet saved will be lost, so it is advisable to save the work often.

To save a file:

- ☞ select Save from the file menu by clicking first on the name of the menu and then on the Save command. In the File Name field, the name given to the file when it was originally opened appears. To confirm that name click on the <Ok> button. To assign a new name to the file, type the new name in this field.

The program will save the file in the current disk unit and directory unless specified otherwise. To save the file on a different disk unit or in a different directory, type the full path in the File Name field. For example, to save the document in the root of disk C: type *c:\filename* or select a different unit or directory.

Printer Setup Command

By selecting this command one goes to "Print" dialog box. Here one can verify and modify the Default printer's Setup or select another printer from those installed one ones system.

Chapter 7 - Edit Menu - Stratigraphy

Edit Menu

This menu invokes the module used for data input, necessary to create the stratigraphy, profile or create and modification the textures used in the lithostratigraphic column.

Depending on the type of file that was opened (stratigraphy or profile) the program presents different commands inside of this menu.



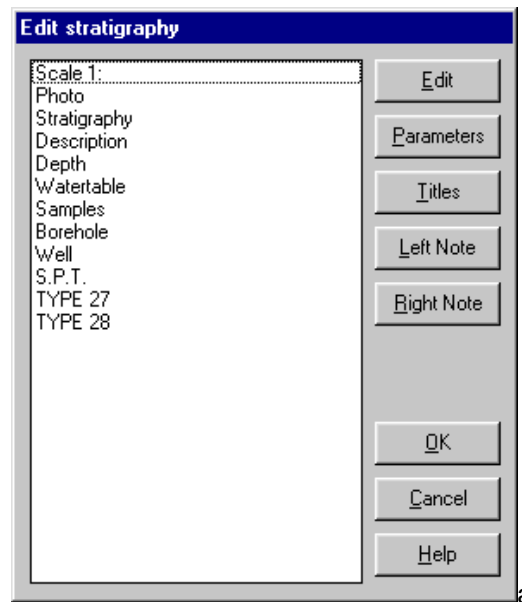
Stratigraphy Command

This command allows one to enter data into the selected columns, and to define printing parameters, titles, and footnotes. If one is working on a new file the program proposes the default column order.

A configuration can be changed using the Configuration command in this menu. Each column is identified by the title associated to it, this title will be used in the printing phase as the heading of the column.

The "Edit stratigraphy" dialog box

The "Edit stratigraphy" dialog box displays five buttons that manage the introduction of data to create the stratigraphy.



<Edit> button

This button gives one access to the data entering dialog boxes. To compile the data columns:

- ☞ click on the name of the column then click on the <Edit> button. One can also open this dialog box, used to enter data, by double clicking on the name of the column.

The dialog box, used to enter data relative to the column selected, will appear. For a complete description of the available columns and the data required, refer to the explanation of the “The predefined columns” command.

<Parameters> button

By selecting the <Parameters> button one opens the “General parameters” dialog box used to define the following parameters:

- the *groundlevel elevation* expressed in meters;
- the *vertical scale*: the default value used by the program as the drawing scale is 1:100;
- the *stratigraphy width (cm)*: the program proposes as default 19 cm, the maximum width of a page in A4 format (portrait) that can be used, in fact, a border of 1 cm is left: these values can be modified by the user by indicating the new values in centimeters or by the program if the number of the requested columns is such that it can not be contained by the indicated width.
- *initial depth and final depth (m)*: to define the borehole range to be printed. If these are left as zero they will not be considered. Each range can be printed with or without titles and the symbol of the company as a heading. If one chooses to print the ranges preceded by such headings use the following illustrated commands. Each range will be subdivided and printed separately. By indicating a final depth as more than the true value, the program will extend the separation lines of the columns until the indicated depth is reached. This is an imposition that may result useful if one wants to render all of the output the same length. It is important to understand that this option does not interfere with the scale defined by the user. Here is an example: by defining a minimum length of 100, and using a vertical scale of 1:250, the program will continue with the border lines of the columns until the 40 cm length is reached, if the scale output is shorter than the minimum length. If the output is longer than 40 cm the lines will be drawn with their exact length.
- *header and footer (cm)*: to define of the upper and lower print margins of the page.
- *left margin (cm)*: to define the left margin of the page. This is useful for binding together the output and the report.
- *block spacing (cm)*: with this command it is possible to increase or decrease not only the space between the titles and the captions of the columns, but also between the annotations at the foot of the page and the end of the stratigraphy.
- *the drawing scale rate (m)*: with this field the rate of the drawing scale is defined for the selected column.
- *pixels per cm*: this value is needed for tuning the scale of the bitmap textures used to fill the stratigraphy. The goal is to have a bitmap printed at the same scale as seen on the screen. On an average screen one

centimeter fits about 30 pixels, which is the default value; you can calculate the correct value as the ratio between the screen width in pixels and in centimeters. You also can use this parameter to get different scales: for example, If you get a 30 pixels per cm value on the screen, and you want the printed output of the bitmaps to be the half of how seen on the screen, you can assign a 60 pixels per cm value instead. You can workaroud this value saving your bitmaps adding `_FIX` to the bitmap file name (gravel.bmp becomes gravel_fix.bmp) to force the programme to scale the bitmap to fit the available space in the stratigraphy, or adding `_PIXn` (gravel.bmp becomes gravel_pix45.bmp) to force a different value of pixels per cm for the individual bitmap, in the example, 45 pixels per cm will be used.

- *print titles and logo*: this makes it possible to exclude the printing of the graphic symbol and the titles might be useful if the printing of boreholes is carried out in separate parts.
- *print footnotes*: to exclude the printing of the annotations at the foot of the page.

After having defined these data click on the <Ok> button to close the window and return to the "Edit stratigraphy" dialog box.

<Titles> button

Selecting the <Titles> button displays the "Titles" dialog box used to set the titles that will be displayed in the printing phase as the borehole heading.

The heading titles are fully configurable through the "Heading Configuration" command of this menu.

<Left Note> button

Selecting the <Left note> button gives one access to the "Edit annotations (left)" dialog box used to enter the notes on the left of the page.

The text that has been entered is aligned on the left. The length of the annotation is not fixed: the value of the longest line will be taken as the right margin. If one should like to insert Notes on the right one ought to remember that the width of the column dedicated to right Notes will be equal to the difference between the width of the left Note and the maximum width of the borehole.

<Right Note> button

Selecting the <Right Note> gives one access to the "Edit annotation (right)" dialog box used to enter the notes on the right of the page.

The text that has been entered is aligned on the left. The length of the note is not fixed but depends on the length of the left note.

Textures Command

Selecting this command starts the utility used to generate and modify geological textures in the stratigraphy column. More than thirty geological types of textures are supplied with the program, the A.G.I. legend and the Standard American legend inspire these, all these can be modified with this command. It is also possible to create new textures up to a maximum of 99 base textures are obtained, each can be reproduced in 9 different scales and be superimposed on any of the others obtaining a vast range of possibilities.

The textures are saved in four files, in the program directory, called SET1.NTR, SET2.NTR, SET3.NTR, SET4.NTR. If it is necessary to reinstall the program, remember to save these four files before beginning the installation to avoid the losing previously executed texture modifications and additions. After the new installation, copy the files one saved in the directory indicated above.

On the right of the "Texture Editing" window is a list of the existing textures, listed in order of creation and distinguished by a number. We shall now consider how to create, modify or eliminate a texture.

Creation of a new texture

- ☞ select the first available position from the list (where the line number followed by a zero) and double click it.

In the appropriate fields of the window, one can define the texture's scale of representation in respect to the dimensions as predefined by the program for the base cell (100x50 cm) and the lithotype description. During the stratigraphy creation phase an enlargement factor (varying from 1 to 9) can be added beside the scale base of the texture defined here; this factor will be multiplied by the base scale when it is printed: this permits the same texture to assume different characteristics enabling, for example, the reproduction of large grain gravel by drawing the texture in large scale and fine gravel by reducing the scale factor.

The drawing of a new texture is done with the mouse. The base cell, which is traced in light gray when a texture is selected, is subdivided into four squares. By moving the mouse inside the base cell the coordinates of the

point in which the mouse is found are reported in the two fields located underneath the list for this purpose. Double click to start drawing a new segment then move the mouse. To interrupt the segment and start a new one connected to it, double click. To end a segment, click once. The program is only able to draw straight lines. To facilitate the drawing phase, the following buttons are available as well:

- <Add segment / Remove segment>: by clicking on this button one passes from the drawing function to segment cancellation. When the form used to create or modify texture is opened the drawing function is active. A reminder to this is placed beneath the list of textures: if the Add segment function is active one can draw in the cell; if the Remove segment function is active the segments composing the textures can be deleted simply by clicking on them.
- <Delete last segment>: deletes the last drawn segment.
- <Restore last segment>: redraws the last segment cancelled.
- <Zoom>: by clicking on this button it is possible to verify the result that will be obtained in the printing phase: all of the modifications effected in the same cell are presented in numerous cells positioned side by side, permitting a more realistic view of what will be obtainable using the texture inside the stratigraphic column. By clicking on this button again, normal visualization is returned.

How to modify a texture

☞ choose the texture to be modified from the list then double click it to select it.

The drawing scale and description of the texture are shown in specific fields present in the window, this enables them to be modified. By using the commands described previously the texture drawing can be modified.

How to copy an existing texture

With the <Import Texture> button it is possible to duplicate an existing texture:

☞ from the list, choose the place into which one wants to import the texture to be copied by double clicking on it. The this can be empty or already occupied by a texture.

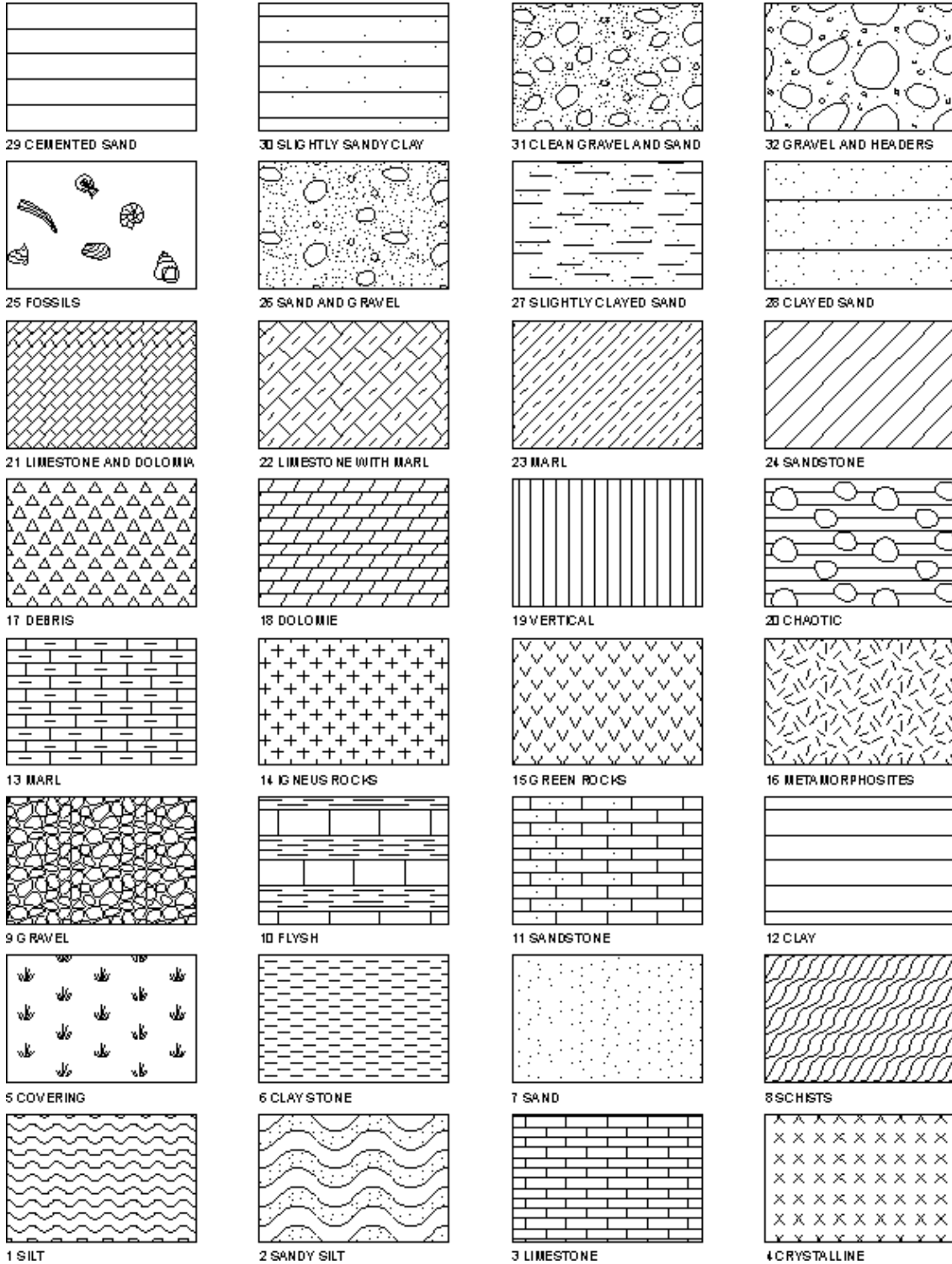
Now one should indicate the texture to import:

☞ click on the <Import Texture> button to call up the "Selection of texture to copy" window and enter the number of the texture to be imported in the Texture number field then click on the <Ok> button. If the selected texture is be imported into a place that is not empty the program asks for confirmation before executing the operation.

How to delete an existing texture

☞ select the texture to be deleted from the list by double clicking on it and then click on the <Delete Texture> button. If the deletion is confirmed the texture is deleted from the list.

Textures used in drawing stratigraphies



Configuration Command

By selecting this command, a sub-menu is displayed that permits the configuration of the columns themselves or their succession.

Column Order Command

With this command one can define, when working on a stratigraphy, the type of data and the disposition of the columns that will be represented inside the final drawing or the disposition and type of column to be reported in the profiles.

All of the previously created column configurations are listed in the "Configuration options" dialog box.

The “Configuration options” dialog box

When one is working on a new stratigraphy, the order and the type of column proposed will be contained inside the limits of the Standard configuration. When one is working on a profile, the order and type of column proposed will be contained inside the limits of the Standard configuration.

To use a configuration of an existing column:

- ☞ click on the name of the configuration to be used, then click on the <Ok> button. It is also possible to select a configuration by double clicking on the name of the desired configuration.

To modify and subsequently use an existing column configuration.

- ☞ click on the name of the configuration to be modified, then click on the <Modify> button. It is also possible to modify a configuration by double clicking on the name of the configuration to be modified.

The “Define column order” dialog box

Now one has access to the “Define column order” dialog box, which displays the following fields:

- Available Columns - All of the available columns, identified by way of the column title description, are listed in this field. This description may be modified using the later described Configure Columns command.
- Borehole Scheme - The columns that are actually contained in the configuration file are listed in this field in the order chosen in the creation phase.

To insert a new column:

- ☞ click on the name of the column present in the Available columns field, then click on the <Insert> button. It is also possible to select a column by double clicking on the column to be inserted.

The inserted columns are automatically added to the end of the list present in the Borehole Scheme field.

To modify the position of a column inside the list contained by the Borehole Scheme field:

- ☞ click on the name of the column to be moved then click on the <Up> button, which will move the column up one position. The <Down> button will move the column down one position.

To eliminate a column from the list contained in the Borehole Scheme field:

- ☞ click on the name of the column to be eliminated then click on the <Remove> button.

Let us consider now, how to create a new configuration of the columns. As we have seen, all of the previously created column configurations are listed inside the “Configuration options” dialog box.

How to create a new configuration of the columns:

- ☞ highlight the name of the already defined configuration by double clicking in the field that contains it, then type the name of the new configuration to be created and click on the <Ok> button.

Now one has access to the “Define column order” dialog box: to enter, eliminate, or modify the position of a column use the previously described procedure.

<Group Editing> Button

With this button the “Editing of the Column Groups” window is opened: here you can group two or more contiguous columns, assigning a common description which will appear as an horizontal text at the top of the columns. For example you might want to group the “SL”, “PL” and “LL” columns as “Atterberg limits”.

The procedure is simple:

- type the ordinal number of the first column you want to group in the “Initial Column” field; for example, if you want to create a group containing the columns 3,4 and 5, assign “3” to the “Initial Column” field;
- type “5” in the “Final Column” field;
- finally, type the description of the group in the “Column Group Caption” field.

Configure Columns Command

This command is used to modify the predefined columns supplied with the program and to create new columns as well. The program has twenty different types of graphics that correspond to particular data. By using one of

the existing types, new columns can be made to enter data not considered in the standard configuration of the program.

Creation of a new column

When this command is selected the "Configure columns" dialog box is displayed.

By clicking on the <Open> button, all of the existing columns are shown with the extension "DFC". To create a new column it is necessary to open one of the graphic types supplied.

To select one of the drawing types for the creation of a new column:

 double click on the name of the drawing type to be used.

The contents of the selected drawing are loaded inside of the "Configure columns" dialog box. At this point one can proceed with the modification of data:

- **Caption** - This field is used to introduce the title of the column that will be used as the heading of the column in the printing phase. The title entered will be used by the program to identify the column in the list of available columns when the Column Order command is used. Remember that the column titles can consist of a maximum of two lines with 16 characters. To define a title on two lines, separate the text on the first line from the text on the second line by using the vertical bar (|). For example, if one should like to give a column the title "Fossil Nomenclature", which has more than 16 characters, one would need to arrange it on two lines; the line to enter would be the following: Fossil|Nomenclature.
- **Header** - This is the field for the heading definition of the fields that will be displayed inside the data introduction dialog box. If the previously chosen graph type provides the presence of more fields for data introduction, the notes for these fields can be defined by clicking on the buttons present next to the Column field.
- **Size** - In this field one can define the display format, which can be numerical or alphanumerical.

Numerical formats: the character "#" is used. Ex.: By introducing #####.## only the numerical values that have a maximum of four figures and two decimals will be accepted.

Fixed alphanumerical format: The character "/" is used, separated by spaces, as the beginning and ending indicator of acceptable text length. The number of characters accepted will be the number of spaces included between the opening and closing "/" characters. Ex.: By introducing / /, a maximum of 8 characters will be accepted. This format is used, for example, in the Code field of the dialog box to enter data relative to undisturbed samples.

Running alphanumerical format: The character "/" is used as beginning and ending indicator of acceptable text length and the character "@", separated by spaces, as the length indicator of the part that will be visualized during the introduction of text. The number of accepted characters will be the number of spaces included between the opening and closing characters "/" and "@". Ex.: By introducing / @, a maximum of eight characters at a time will be shown, scrolling the text to the left when it is longer than eight characters. This format is used, for example, in the Description field to enter data in the lithotype descriptions dialog box.

If the previously chosen graph type provides the presence of more fields for the introduction of data, the format of these fields can be defined by clicking on the buttons present next to the Column field.

- **Help** - This field is used to introduce help text that will be shown by pressing the function key F1 when the cursor is positioned inside this field. If the previously chosen graph type provides the presence of more fields for the introduction of data, the help for these fields can be defined by clicking on the buttons present next to the Column field.
- **Minimum** - This field is used to define the lower limit of the range of values that will be accepted. If the previously chosen graph type provides the presence of more fields to enter the minimum value of these fields can be defined by clicking on the buttons next to the Column field.
- **Maximum** - This field is used to define the upper limit of the range of values that will be accepted. If the previously chosen graph type provides the presence of more fields enter the maximum value of these fields can be defined by clicking on the buttons present next to the Column field.
- **Help Window** - This is the field used to enter help text that will be shown by pressing the <Help> button present in the window for the introduction of data that will be created.
- **Stratigraphy Width** - This field is used to define the width of the column in printing the stratigraphy. The width must be given in centimeters. When the width is equal to zero, the column will be considered as re-sizeable. Based on the number and type of column selected and on the print width defined with the Characteristics button of the Stratigraphy command in this same menu, the dimensions of the column will be changed.

- Profile Width - This is the field used to define of the column width in the printing phase of the profile. By increasing or decreasing the column width entered in the profile according to the adopted scale, it is possible to remarkably improve the result in the printing phase. The width must be indicated in centimeters.
- Decimals - This field is used to define the number of decimals that will be used in the printing phase. This value may not coincide with the number of decimals defined in the adopted format.
- Maximum Value - This field is used to define the maximum value to be used in the histograms. This field will not be present when the selected graph type does not provide for the use of data representation in histogram form.
- Column - This field defines the number of Header fields that will be used in the data introduction dialog box. This number will depend on the type of graph chosen.

Some of the previously described fields may not be present if the selected graph type is not congruent.

After modification, click on the <Save as> button to define the name of the file that will contain the description of the column created. The extension ".DFC" will be automatically added to the columns.

The name given to the file does not have to coincide with the description of the column that will be used as the heading of that column in the printing phase. Remember that in the list of available columns, shown when the Column Order command is used, it is the description entered in the previously described Note field and not the name given to the file containing the description of the created file that will be reported.

Modifying an existing column

Click on the <Open> button to show all the existing columns characterized by the extension ".DFC". The program provides twenty-six predefined columns. The user can modify the basic setup of these predefined columns.

Heading Configuration Command

Through this command it's possible to customize the heading of the stratigraphy. The description of the structure of the stratigraphy heading is contained in the LOGOWIN.CFG file.

The "Heading Configuration" dialog box

The program is sold with a default simple configuration of the heading, which can be modified or substituted by the user with the commands described in the following. The workarea is represented on a grid with a step of one millimeter.

- <Redraw> button: redraws the workarea to show and regenerate a clean image. The <Redraw> button does not affect the execution of the other commands.
- <Add lines> button: allows to draw lines using the mouse like a pencil on a paper sheet.
Click the <Add lines> button, that will appear highlighted.
Click the initial point of the line.
Click the final point of the line.
If one of the snap options is activated, the ending points of the lines are snapped on the nearest millimeter or centimeter of the grid.
- <Add texts> button: allows to add on the grid the text written in the box "Text to be inserted". The inserted text will appear with the font and pitch as described in the "Texts" section.
Click the <Add texts> button, that will appear highlighted.
Click the point where the text will have to be written.
Due to the poor resolution of the screen, the horizontal size of the texts can be different from the size of the same texts when printed. For this reason a white rectangle is drawn under the texts to show the effective size on the printer.
- <Import graphics> button: allows to import both the Bitmap pictures and the CCM files (previous proprietary format for vectorial images). The external files must be in the same directory of the program DBSOND.
Click the <Import graphics> button, that will appear highlighted.
Click the desired file in the "Picture to be imported" list box.
Click the bottom-left corner of the imaginary rectangle where the picture will be drawn.
Click the top-right corner of the same imaginary rectangle.

The images are automatically stretched to best fit the rectangle.

- <Move object> button: allows to change the position of an object (text, line or picture)

Click the <Move object> button, that will appear highlighted.

Choose a reference point on the object and click it, then click the new position of the reference point. The object will be shifted using the current snap settings.

- <Delete object> button: allows to remove an object from the grid. The object will NOT be copied in the clipboard.

Click the <Delete object> button, that will appear highlighted.

Select the object with the mouse pointer.

- <Open> button: loads the current heading.
- <Save> button: saves the modified heading.
- <Cancel> button: quits without saving.
- <New> button: clears the grid allowing to create a new heading.

General settings

- Snap: the options of the Snap command make easier an high precision positioning of the objects, while adding or moving objects; clicking a point it is forced to the nearest millimeter or centimeter of the grid, following the chosen option. The selected point appears as a small red circle. When the Snap is disabled ("Off") the resolution of the positioning is one pixel of the screen.
- Width and Height: are used to describe the final size of the heading.

Text formatting settings

The titles in the DBSOND files are formed of the parts: a common label, used in every stratigraphy (for example "Customer:"), and a variable text (for example "Mr. Charlie Brown") inserted in the "Titles" window of the "Stratigraphy Edition" window. It is possible to assign a different format to the two parts using the following commands.

- Alignment: the text is aligned to the clicked point in two different ways: selecting "Left alignment" the point is the bottom left corner of the text; selecting "Center alignment" the point is the bottom-center point of the text.
- Font face: using the scroll bar all the available font sets are shown. Click the preferred font to select it.
- Font size: it is necessary to set the size of the font (in centimeters) before adding the text to the grid.
- Text to be inserted: once defined font face and size, it is possible to write here the text to be inserted.
- Type: while creating the heading, two types of texts are available: Label and Text. The Label type is used as a common label of the stratigraphy (for example "Customer:"). If no more information is given the program will create automatically a Text type field with the same format of the label and will print the two fields together (for example: "Customer: Mr. Charlie Brown"). It is possible to assign to the Text type a different format. In this case select the "Text" type, set the new format and insert in the "Text to be inserted" box exactly the same text inserted for the corresponding label type. This way it is possible to position the Text filed in any point of the grid, for example under the label instead of beside it. The program compares the values of the "Text to be inserted" boxes to link Labels and Texts, so it is not possible to define two Labels or two Texts with the same name. It is anyway possible to print more then one Text for any Label (for example to get two lines for the informations related to the "Address" Label). To do this, create more Texts calling them, for example "Address_1" and "Address_2", without creating the corresponding labels. This way the program creates automatically two fictitious labels that will appear only in the input window of the titles but not on the printer heading of the stratigraphy.

How to use the titles and symbol in the DOS version.

If the previous DOS version is present on the hard disk where the WINDOWS version of the program is installed, the titles and symbol present in the DOS environment program will be available for use.

To do this, after having installed DBSOND for Windows, one should cancel the LOGOWIN.CFG file present in the program directory before starting the program; in doing so, DBSOND will search for the title and symbol configuration file in the area used in the version for DOS (\GEO&SOFT\MODULE11) environments, transforming them, with the names LOGOWIN.CFG and LOGOWIN.CCM respectively, into the new format used by the program and copying them in the program directory.

How to create a graphic logo

The symbols can be created with any program that is able to save data in *BMP* and *PLT* format.

If your logo is a bitmap, it's enough to save the BMP file in the DBSOND32 folder to make it available to the programme.

DBSOND provides an additional program, which permits the conversion of the file from the PLT format to the CCM format, which is the format used by DBSOND. The transformation of the files can be carried out directly by the user; otherwise DBSOND will provide and execute the transformation when it is launched. The conversion of format PLT to format CCM must be executed only once. To manually execute the conversion, working in DOS, one needs to get into the program directory, call the LOGOCCM.EXE program followed by a space and then the name of the file containing the logo (ex. LOGOWIN LOGO). At the end of the calculation the program will return the file in CCM format (ex. LOGO.CCM).

How to personalise manually the titles and the logo

The description of the structure of the stratigraphy heading is contained in the LOGOWIN.CFG file.

Now let us see how to personalise manually this file. Remember that when one changes the standard configuration supplied with the program by modifying the LOGOWIN.CFG file, it is possible to use any word processor, provided that it reads and saves in text only format.

The LOGOWIN.CFG file

The first line of the file contains the number (x) of title lines which will be used, in the format "LN=x"; the following x lines of the file must contain the title lines.

The following line contain the total height of the space meant for the titles and the graphic symbol, defined in centimetres; on the following line it is necessary to indicate the number of graphic symbols that must be entered.

In the following lines, the coordinates of the lower left corner and of the upper right corner of the area in which the graphic symbols must be positioned, have to be entered using one line for each quadruple of coordinates; the X,Y coordinates (separated by commas) will be entered for each graphic symbol. In this way the size of the symbols are defined, and automatically scaled by the program to optimise the occupation of the space dedicated to these symbols.

In the following lines the names of the files that contain the symbols are to be reported one per line. The files should be present inside the program directory.

In the following line the number of lines in the title format table is to be indicated and then the X,Y coordinates, separated by commas, from the beginning and ending points of each line are to be entered. The origin of the system of Cartesian axis is the same as was used for the positioning of the symbols.

Important suggestion

To create an heading which automatically fits the stratigraphy width, you can assign a negative value to the X coordinate: the programme considers the negative values as measured from the right margin.

For example, a 2x5 cm wide, right aligned rectangle could be defined as (x1,y1,x2,y2 coordinates of the segments):

```
-5,0,-0.0001,0
-0.0001,0,-0.0001,2
-0.0001,2,-5,2
-5,2,-5,0
```

Notice that the programme cannot understand the "-0" value, so you would use a small negative value instead (for example -0.0001).

In the following line it is necessary to indicate to the program, the number of titles to be printed in the output phase. This information allows the use of spaces dedicated to the titles for the introduction of comments and annotations that, in this way, will be saved inside the file. They can be reviewed by selecting the previously described Titles command, but they will not be printed.

The following lines must contain the X,Y coordinates of the point in which the caption is to be positioned, the height of the characters to be used and the rotation, for each title to be printed. These four values must be separated by commas.

It is possible to centre the titles with respect to any point on the page. In this case the information to be introduced, separated by commas, is the following: X coordinate of the point where the program must center the text, Y coordinate, height of the character to be used, rotation and the code -2.

If further information is not given, the program will use the same character height and the same rotation for both the caption and the printing of the text entered through the Titles dialog box. This text will be positioned immediately after the caption so remember to leave a space as the last character of the caption (ex. Borehole:).

For each text that is introduced, it is also possible to use a character of a different size and a different rotation with respect to the caption that is associated with it. In this case it will be necessary to indicate, in the following lines, the X,Y coordinates of the point in which the height of the characters and the rotation to be used are to be

positioned for each text. It is possible to centre the text with respect to any point on the page by entering the X coordinate as the point where the program must centre the text, the Y coordinate, the height of the character to be used, the rotation, and the code -2.

Important suggestion

If you are creating an heading which automatically fits the stratigraphy width, you would assign a negative value to the X coordinate of the texts too.

Now, let's look at an example of the LOGOWIN.CFG file.

LN=10	Caption number
Borehole name:	First caption
Elevation a.s.l.:	Second caption
Site:	Third caption
Customer:	Fourth caption
Coordinates:	Fifth caption
Drilling method:	Sixth caption
Deadline:	Seventh caption
Section:	Eighth caption
Completion:	Ninth caption
Distance:	Tenth caption
3	Height, in cm, of the space for the titles and the logo
1	Number of graphic areas
0,0,3,3	X,Y of the lower left corner, X,Y of the upper right corner
Logo.bmp	Name of the file that contains the logo
9	Number of lines
3.3,0,19,0	X,Y of the starting point, X,Y of the last point of the first line
3.3,0.5,19,0.5	X,Y of the starting point, X,Y of the last point of the second line
3.3,1,19,1	X,Y of the starting point, X,Y of the last point of the third line
3.3,1.5,19,1.5	X,Y of the starting point, X,Y of the last point of the fourth line
3.3,2,19,2	X,Y the starting point, X,Y the last point of the fifth line
3.3,2.5,19,2.5	X,Y the starting point, X,Y the last point of the sixth line
3.3,0,3.3,2.5	X,Y of the starting point, X,Y of the last point of the seventh line
11.15,0,11.15,2.5	X,Y of the starting point, X,Y of the last point of the eighth line
19,0,19,2.5	X,Y of the starting point, X,Y of the last point of the ninth line
10	Number of titles to be printed
3.55,2.15,0.25,0	X,Y of the starting point, character height, rotation
11.4,2.15,0.25,0	X,Y of the starting point, character height, rotation
3.55,1.65,0.25,0	X,Y of the starting point, character height, rotation
11.4,1.65,0.25,0	X,Y of the starting point, character height, rotation
3.55,1.15,0.25,0	X,Y of the starting point, character height, rotation
11.4,1.15,0.25,0	X,Y of the starting point, character height, rotation
3.55,0.65,0.25,0	X,Y of the starting point, character height, rotation
11.4,0.65,0.25,0	X,Y of the starting point, character height, rotation
3.55,0.15,0.25,0	X,Y of the starting point, character height, rotation
11.4,0.15,0.25,0	X,Y of the starting point, character height, rotation

Advanced Command

Through this command some general options related to the aspect of the printed output are selected.

The "Advanced Configurations" dialog box

In the "Advanced Configurations" dialog box are available the following settings:

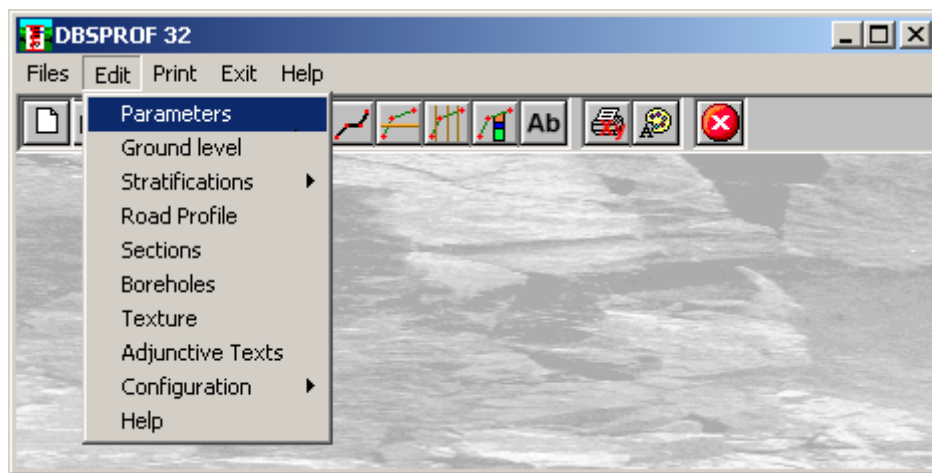
- *Print column captions horizontally (if possible)*: orientation of the captions of the columns if this field is checked the program writes the captions of the columns horizontally (if enough space available); if this field is not checked the captions are always written vertically;

- *Print values between two depths horizontally (if possible)*: orientation of the numerical values between two depths: if this field is checked the program writes the values horizontally (if enough space available); if this field is not checked the values are always written vertically;
- *Print texts between two depths horizontally (if possible)*: orientation of the alpha-numerical values between two depths: if this field is checked the program writes the values horizontally (if enough space available); if this field is not checked the values are always written vertically;
- *Disable bold texts in samples column*: some strings are printed in “bold” style by default, for example the “sample codes”; if this field is checked, all the texts will be printed in “normal” style instead;
- *Enable vertical centering of descriptions*: by default, the text in the “Description” column is aligned to the top of the available space; if this field is checked, the text will be vertically centered instead;
- *Resize characters if texts are too close*: if this field is checked, the programme automatically reduces the font pitch to avoid two texts to be overwritten when they are vertically too close (at the current vertical scale);
- *Height of the column caption boxes (cm, 0=default)*: height in centimeters of the rectangular boxes that contain the captions of the columns. If zero the program uses the default height.
- *Height of the characters in the Description column (cm)*: in this field you can define the font pitch of the texts in the “Description” column. The height of characters must be given in centimeters;
- *Clay texture (granulometry column)*: texture used to describe the clays in the Granulometry column. The default texture is 12;
- *Silt texture (granulometry column)*: texture used to describe the silts in the Granulometry column. The default texture is 1;
- *Sand texture (granulometry column)*: texture used to describe the sands in the Granulometry column. The default texture is 7;
- *Gravels texture (granulometry column)*: texture used to describe the gravels in the Granulometry column. The default texture is 9;
- *Pebbles texture (granulometry column)*: texture used to describe the pebbles in the Granulometry column. The default texture is 309;
- *Order number of the title to be used as borehole name in the sections*: when you plan to plot your stratigraphies on a section, you must choose which one of the titles must be used as the name of the borehole; check the list of the titles, and put here the ordinal number of the field which contains the borehole name. If you assign a zero value, no name will be assigned to the boreholes in the sections.
- *Colour of the texts of the heading*: number of the colour (referring to the Configuration command of the Print menu) to be used to print the texts of the heading;
- *Colour of the lines of the heading*: number of the colour (referring to the Configuration command of the Print menu) to be used to print the liness of the heading;
- *Colour of the vectorial images in the heading*: number of the colour (referring to the Configuration command of the Print menu) to be used to print the vectorial images of the heading; does not affect the bitmapped images.

Chapter 8 - Edit Menu - Profiles

Edit Menu

This menu invokes the module used for data input, necessary to create the stratigraphy, profile or create and modification the textures used in the lithostratigraphic column. Depending on the type of file that was opened (stratigraphy or profile) the program presents different commands inside of this menu.



Parameters Command

This command permits to select which of the legends must be reported in printing the profiles.

The “Sections parameters” dialog box

In the “Sections parameters” dialog box the following data must be entered:

Sections Parameters	
Road profile elevations	enabled
Cross sections	enabled
Partial distances	enabled
Elevation differences	enabled
Horizontal Scale	10000
Vertical scale	1000
Referal Elevation	0
Reduction coeff. of the hatches	0

OK Cancel Help

Allows the printing of the elevation legend (optional) of the street profile, the iron plane or the added lines in general.

- *elevation*: permits the printing height of the street level or rail level or of added lines in general.
- *cross section*: permits the printing the legend containing the numeration of the cross section.
- *partial distance*: permits the printing of the partial distance legend calculated as the difference between two following points of the groundlevel plane profile.
- *Elevation difference*: permits the printing of the elevations difference legend, calculated as the difference between the groundlevel profile and the road profile.
- *horizontal scale*: this is the horizontal reproduction scale of the drawing. The horizontal and vertical scales can be different enough to cause an exaggerate movement of the slope; normally the relation used between the scales is equal to ten.
- *vertical scale*: this is the vertical reproduction scale of the drawing. The horizontal and vertical scales can be different enough to exaggerate the movement of the slope; normally the relation used between scales is equal to ten.
- *referral elevation*: the referral plane elevation must be inferior to the minimum hole depth elevation of the boreholes.
- *reduction coefficient of the textures*: This parameter, which can vary from zero to ten, permits the reduction of the textures used in the stratigraphy entered in the profiles. If zero is left, the textures will be printed with the same scale used in the stratigraphy, but with higher values they will be reduced to the maximum density. This option may be useful when the width of the printing of the stratigraphy inside of the profiles is less than the width used in the graphic output of the boreholes.

The distances and the elevations are reported in every output.

Ground level Command

This command permits the geometric definition of ground level surfaces.

The “Ground level” dialog box

The X,Y coordinates (expressed in meters with respect to an arbitrary origin) of the polyline that represents the profile of the groundlevel plane are to be entered in the “Ground level” dialog box.

Point	Distance [m]	Elevation [m]
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Distance difference (x-coordinate in meters from an arbitrary origin) of the nodes of the polyline that represents the groundlevel.

OK Cancel Insert Delete Help

Stratifications Command

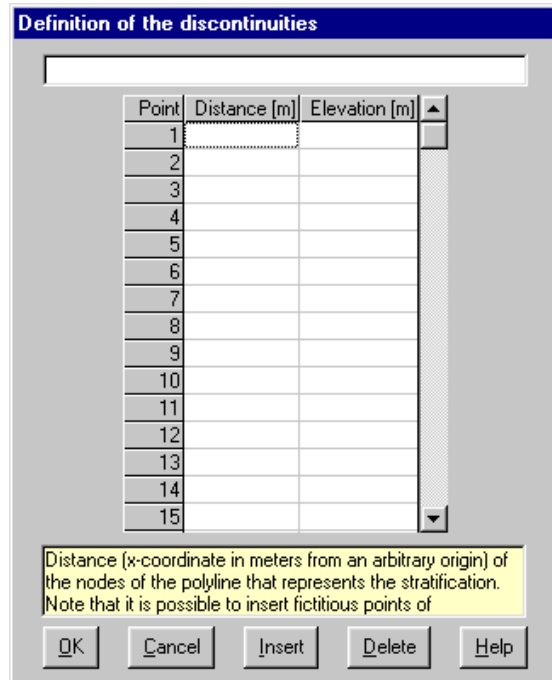
This command opens a sub-menu for the definition of the layer shape and textures.

Geometry Command

This command allows to define the layer shape.

The “Definition of the discontinuities” dialog box

The X,Y coordinates (expressed in meters with respect to an arbitrary origin) of the polyline that represents the discontinuities are to be entered in the "Definition of the discontinuities" dialog box.



It is possible to insert a conventional separation point -999,-999 to split the list into two or more separate polylines. No separation point is needed at the end of the list.

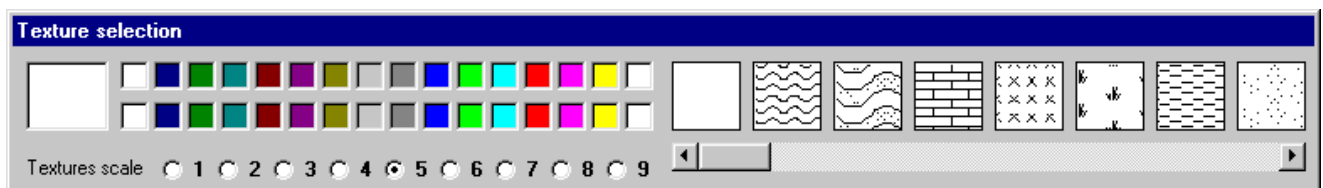
Texture Command

This command allows assigning individual textures to each layer.

The “Define textures” dialog box

This command opens the “Define textures” dialog box, where the textures can be assigned to the ground layers, starting from the top one.

The selection of the texture and of the graphical parameters (foreground and background colours, scale) can be managed in the “Texture selection” window.



Automatic compilation

- *Selecting a texture in BMP format:* the BMP files cannot be used for filling the sections.
- *Selecting a vectorial texture:* right-click the texture field which will receive the texture code: the “Texture selection” tool bar will be opened. Select the foreground colour in upper colour line, and the background colour in the lower line. Choose the texture scale: the lower the number, the smaller the texture. Remember that the default available colours can be changed using the “Configuration” command of the “Print” menu. Double-click a texture (use the scroll bar to find the right one) to select one only texture. To mix two or more textures, click the first ones and double-click the last one. The texture code is now copied to the selected texture field. With this automatic procedure the mixed textures will be printed with the same scale factor; to mix two textures with different scale factors, you need to manually modify the code.

Manual compilation

- *Vectorial textures*: each texture code is composed by three digits (ex. 912), the first one is the scale factor, the other two are the texture number, so 912 means “the 12th texture, printed with a scale factor equal to 9”. To mix two or more textures it is enough to join the codes, for example 912504. To assign the foreground colour add the colour number as "Cn", where n is a value between 1 and 15; to assign the background colour add the colour number as "Bn", where n is, again, a value between 1 and 15; the colour number refers to the order as defined in the “Configuration” command of the “Print” menu; for example the code “912504C3B8” means: “two textures are mixed, the 12th texture, printed with a scale factor equal to 9, and the 4th texture, printed with a scale factor equal to 5, the foreground colour is the #3, the background colour is the #8”. To remove the separation line between a layer and the following one, add the initial character "-" (ex. -504).
- *textures in BMP format*: the BMP files cannot be used for filling the sections.

Road Profile Command

This command permits the definition of the shape of the optional road profile.

The “Edit road profile” dialog box

The X,Y coordinates (expressed in meters with respect to an arbitrary origin) of the polyline nodes that represent the road profile are to be entered in the “Edit road profile” dialog box.

Point	Distance [m]	Elevation [m]
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Distance (x-coordinate in meters from an arbitrary origin) of the nodes of the polyline that represents the road profile.
Note that it is possible to insert fictitious points of

OK Cancel Insert Delete Help

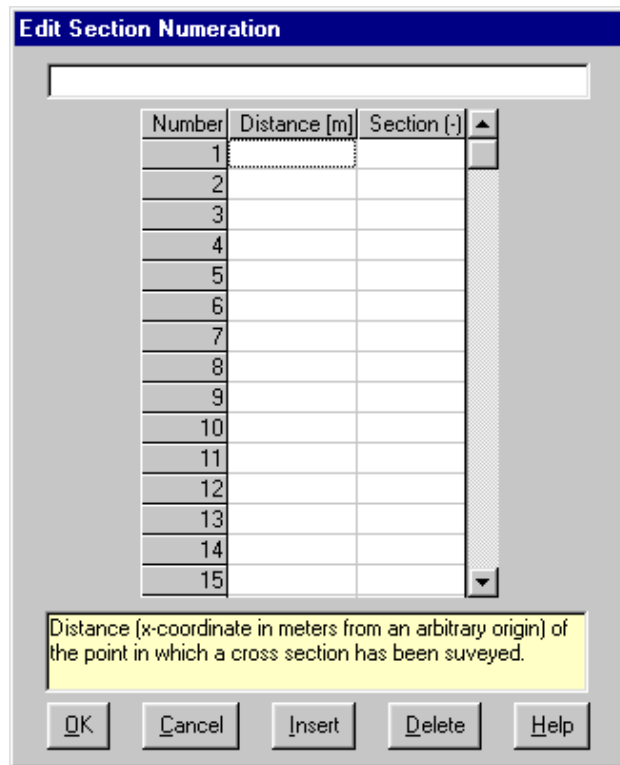
It is possible to define more than one road profile, even if only the first value entered will be quoted, by entering fictitious points of interruption. To indicate to the program where a road profile ends, enter the coordinate couple that represents the closure code -999,-999: in this way the successive points will be represented as a polyline separated by the previous point. When entering the last road profile the closure code must not be entered.

Section Command

This command permits the indication of the position and the distance numeration of the sections.

The “Section numeration” dialog box

The distance of the points that outline the sections (expressed in meters with respect to an arbitrary origin) and the number of the cross section drawn according to the given distance are to be entered in the “Section numeration” dialog box.

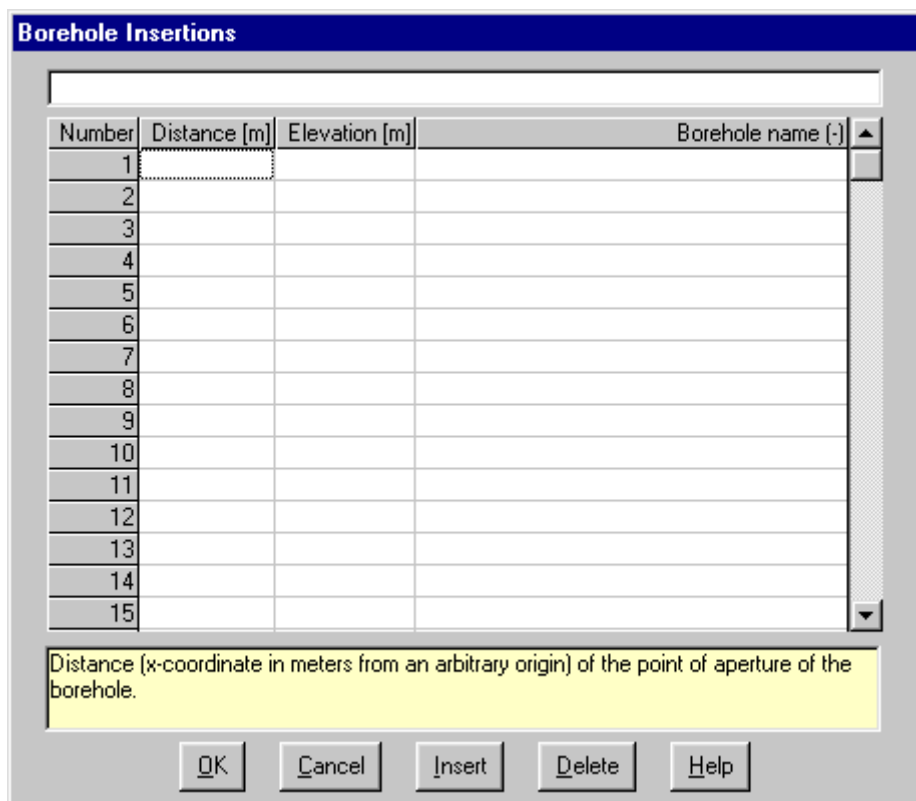


Boreholes Command

This command permits the entering of data columns, filed with this program, to be reported in the profile.

The "Borehole insertions" dialog box

The coordinates of the point of the aperture of the borehole (expressed in meters with respect to an arbitrary origin) and the name of the data file from which the coordinates are to be extracted, are to be entered in the "Borehole insertions" dialog box. If the boreholes have been filed somewhere else on the disc their path should precede them.



The entering of coordinates may be different than the elevation of the groundlevel plane of the profile, making it

possible to represent the true elevation of the borehole executed outside of the axis.

Remember that the order and the typology of the columns to be entered in the profile are defined by way of the Column Order command in this menu.

Adjunctive Text Command

With this command one can enter in the section several lines of text.

The "Adjunctive text in profiles" dialog box

In the "Adjunctive text in profiles" form one can input text, the coordinates (in meters from an arbitrary origin) of the point where the text entered will be positioned, with the font's height in centimeters.

Number	Distance (m)	Elevation (m)	Characters height (cm)	Adjunctive text
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

Distance (x-coordinate in meters from an arbitrary origin) of the bottom-central point of the text to add to the profile.

OK Cancel Insert Delete Help

Configuration Command

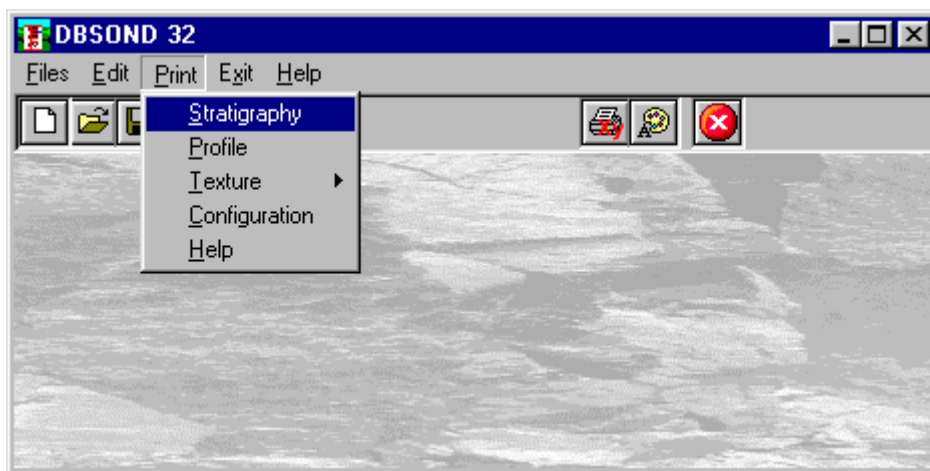
By selecting this command, a sub-menu is displayed that permits the configuration of the columns themselves or their succession.

See Configuration Command - Edit Menu - Stratigraphy for further information.

Chapter 9 - Print Menu

Print Menu

With this menu it is possible to print the graphic output after selecting, directly from the menu voices, all the data to be represented, choosing from Stratigraphy, Profile and Textures.



Stratigraphy Command

By selecting this command the program makes a calculation on the data that were entered and draws the drawing with a reduced size.

The Graphical Output Preview Window

The Toolbar is located in the upper side of the preview window.

The Toolbar allows fast access to the commands with the mouse. Click the corresponding icon, to select one of the commands that belong to the Toolbar. The Toolbar displays the following commands:



- **Zoom +** : clicking the first icon activates the ZOOM function (it can only be used with the mouse) that permits the enlargement of part of the drawing. The function remains active until the Zoom - icon is selected. To enlarge a part of the drawing:
 - click the icon, and then select the area to be enlarged by clicking the upper-left corner and dragging the mouse pointer to the lower-right corner. At this point, release the mouse button. Note: due to the low resolution of the screen, the texts could appear in a slightly different scale at different zoom levels. This does not affect the quality of the final printouts.
- **Zoom -** : click this icon to return to the original scale of the preview.
- **Arrows**: click the arrow icons, in "Zoom +" mode, to pan the on-screen preview.
- **Print**: click the print icon to send the drawing to the default printer.
- **Resized print**: click this icon to send the drawing to the default printer. The image will be resized to fit the

current paper size.

- **DXF:** one can export the graphic output as a DXF file by clicking this icon; it gives access to a dialogue window that enables one to assign a different name to the DXF file, which has, by default, the same name as the current project.
- **EMF/W:** This icon allows the graphic output to be exported to a version of the Enhanced Windows Metafile which is compatible with Microsoft Word. Clicking this icon gives access to a dialogue window that enables one to assign a different name to the EMF file, which has, by default, the same name as the current project.
- **EMF/D:** This icon allows the graphic output to be exported to a version of the Enhanced Windows Metafile which is compatible with Corel Draw. Clicking this icon gives access to a dialogue window that enables one to assign a different name to the EMF file, which has, by default, the same name as the current project.
- **BMP:** one can export the graphic output as a BMP file by clicking this icon; it gives access to a dialogue window that enables one to assign a different name to the BMP file, which has, by default, the same name as the current project.
- **GIF:** one can export the graphic output as a GIF file by clicking this icon; it gives access to a dialogue window that enables one to assign a different name to the GIF file, which has, by default, the same name as the current project.
- **JPG:** one can export the graphic output as a JPG file by clicking this icon; it gives access to a dialogue window that enables one to assign a different name to the JPG file, which has, by default, the same name as the current project.
- **Exit:** click this icon to close the preview window and return to the main menu.

Profile Command

By selecting this command the program evaluates the data entered, then draws a drawing in reduced size.

Texture Command

With this command it is possible to print the geological textures supplied with the program.

Each texture is defined by three figures (ex. 912, 504), the first figure is interpreted as the parametric scale of enlargement to draw the texture inside the drawing and is optional, while the last two figures represent the identification code of the texture.

Single Command

By selecting this command the "Texture selection" dialog box is proposed in which the number of the texture to be printed is to be indicated and preceded by the drawing scale factor (if necessary); to print texture n. 1 it is possible to type 1 or 01 or 701 (in this case the number seven indicates the enlargement factor) in the appropriate field.

Note: When using this command the texture will always be printed in A4 format.

Group Command

By selecting this command the "Texture selection" dialog box is shown that enables one to print a group of textures instead of a single texture. These are the parameters in the dialog box:

- *Starting texture - Final texture:* with these two fields the interval of texture printing is defined.
- *Start scale - End scale:* with these two fields the representation scales for the textures to be printed are defined. As we have said, the representation scale permits the assumption of different parameters for the same texture so that, for example, it is possible to reproduce coarse gravel if drawn in large scale and fine gravel if drawn in small scale. The enlargement factor of the textures can vary from 1 to 9.
- *Total width - Total height:* for the definition of the area to be used for printing, in centimeters.
- *Borders:* by choosing <Yes> the textures will be separated by a border, by choosing <No> separators will not be used.

All Command

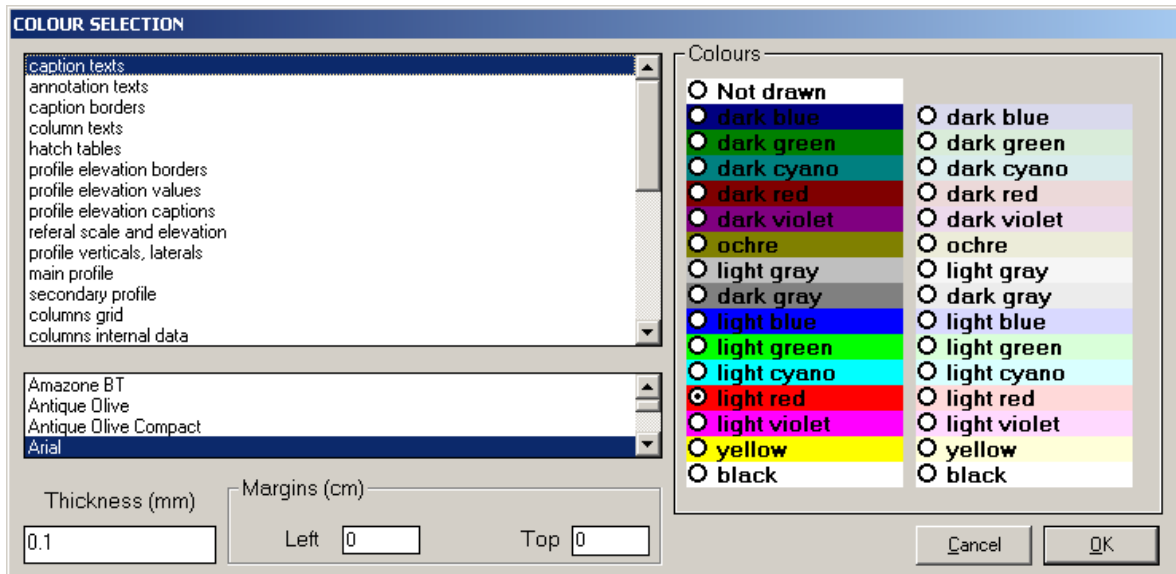
By selecting this command the "Scale selection" dialog box is shown enabling one to print all of the available textures, reproduced in one scale indicated by the user.

The scale factor and the number of the texture will be reported inside the rectangle that will be printed

underneath each texture.

Configuration Command

With this command, one can define the graphical properties of the different objects in the graphical output.



One can associate a colour, a line thickness and a character font to each object. Notice that not all the objects have both a line thickness and a character font: for example, a *title* only requires the colour and the character font to be defined.

- Click an object to select it (use the scroll bar to see the entire list)
- Click one of the option buttons, in the “colours” frame, to select the colour that has to be associated to the selected object. The *Not drawn* option hides the object of the graphical output.
- If the object contains texts, one can choose a character font from the list (use the scroll bar to see the entire list)
- If the object contains lines, one can assign a thickness to the lines (in mm). If the value is zero, the program uses the thinnest line on the output device.
- It is possible, as an option, to assign a left and a top margin (in cm) to the whole graphical output.

NOTE: although the available set is limited to fifteen colours, they can be manually customised; double-click the coloured bar to open the Colour Dialogue Box and choose a different RGB value associated to the selected colour.

Multiple Printouts Command

This command allows to automatically run a sequence of printouts.

To create the list of the files to be printed click the button <File Selection>.

To select a group of files keep pressed the SHIFT key and click the first and the last file name.

To select a group of not consecutive files keep pressed the key CTRL and click all the files.

At the end of the selection, click the <OK> button.

To add files from a different folder, click again the <File Selection> button.

To start printing, click the <Print> button.

To abort the print, click the <Interruption> button.

Chapter 10 - Exit Menu

Exit Menu

This command allows one to exit the program.

If the file being used contains modifications that have not yet been saved, the program will present the dialog box for the saving of the previously described files.

Remember that the files converted from the DOS version will be saved with the same name but with the extension ".DBG".

Chapter 11 - The DBSOND columns

The predefined columns

Water

The standard configuration of the WATER column is contained in the file WATER.DFC. The class of water presence refers to the rock medium classification, proposed by Bieniawsky. It must be indicated with a number and will be reported in roman numerals in the printing phase.

Samples

The standard configuration of the SAMPLES column is contained in the file SAMPLES.DFC. The top and bottom depth for each sample drawn will be reported; an identification code must be entered as well. The depth of the sample must be given in meters from the groundlevel plane.

Borehole

The standard configuration of BOREHOLE column is contained in the file BOREHOLE.DFC. The percentage of borehole core recovered is represented with a histogram.

Box

The standard configuration of the BOX column is contained in the file BOX.DFC. The bed depth of samples drawn and the number of the cell in which they were deposited is required. They will be shown as alternating black and white strips with the identification code of the cell in the white spaces.

Description

The standard configuration of the DESCRIPTION column is contained in the file DESCRIPT.DFC. The descriptions of particular borehole ranges are reported in this column. The program automatically provides for the spelling of the phrases and for the increasing of spaces dedicated to the lithotype description whenever that description surpasses the thickness of the considered layer. The total length of the text must be less than that defined with the general parameters command or less than the length of the borehole otherwise the program superimposes the descriptions of the first two layers. When it is not desired to indicate to the program the separation line between two neighboring descriptions, introduce the character "_" as the first character of the first description. The character "|" is used to subdivide the introduced text, inserting before the following text a carriage return/line feed. The Description column is the only column to have, in the standard configuration, a variable width that is automatically recalculated by the program in a way that satisfies the width of the output indicated by the user through the use of the general Characteristics command. In the "Advanced Configuration" dialog box it is possible to define the height (in centimeters) of the texts printed in this column.

Well Description

The standard configuration of the WELL DESCRIPTION column is contained in the file DESCRPWL.DFC. The descriptions regarding the constructive section of the wells are reported in this column. The program automatically provides for the spelling check of phrases and for the adding of space dedicated to the description when it surpasses the thickness of the range in question. The total width of the text must be less than that defined by way of the general Characteristics command, or less than the length of the borehole, otherwise the program will superimpose the descriptions of the first two layers. In the "Advanced Configuration" dialog box it is possible to define the height (in centimeters) of the texts printed in this column.

Discontinuity

The standard configuration of the DISCONTINUITY column is contained in the file DISCONTI.DFC. The distinction of the discontinuity refers to the classification of the rock medium proposed by Bieniawski. The appropriate class must be indicated with a number and will be reported with roman numerals in the printing phase.

Watertable

The standard configuration of the WATERTABLE column is contained in the file WATRTBL.DFC. The depth of the watertable levels must be expressed in meters from the groundlevel plane.

Filters

The standard configuration of the FILTERS column is contained in the file FILTERS.DFC. In this column it is possible to represent different lining ranges that are distinguished by the following codes:

- 1 = cementation (oblique dashed line);
- 2 = impermeabilization with clay (horizontal dashed line);
- 3 = permeable material (dotted line);
- 4 = permeable material with filter (dotted with vertical dashed line);
- 5 = permeable material with filter (dotted with horizontal dashed line).

Granulometry

The standard configuration of the GRANULOMETRY column is contained in the file GRANULOM.DFC. It manages the graphic representation of the granulometric tests of clay, silt, sand, gravels and pebbles. In the "Advanced Configuration" dialog box it is possible to define the textures to be used for each lithotype. The default textures are the following:

- clay: # 12;
- silt: # 1;
- sand: # 7;
- gravels: # 9;
- pebbles: # 309.

Inclinometer

The standard configuration of the INCLINOMETER column is contained in the file INCLINOM.DFC. The depth reached by the tubes must be expressed in meters starting from the ground level plane.

NSPT

The default configuration of the NSPT column is contained in the file SPT2.DFC. The strikes of each of the three series are written on three different lines.

Perforation

The standard configuration of the PERFORATION column is contained in the file PERFORAT.DFC. The perforation diameters used are represented by reporting the value of the diameter placed between two horizontal lines that delimit the top and bottom perforation depth with that diameter.

Piezometer

The standard configuration of the PIEZOMETER column is contained in the file PIEZOMET.DFC. By using this column the piezometers will be represented with Casagrande tip. The depth reached must be expressed in meters beginning from the groundlevel plane.

Streampipe piezometer

The standard configuration of the STREAMPIPE PIEZOMETER column is contained in the STEAMPIP.DFC. file. By using this column a different type of piezometer with a Casagrande point is obtained. The depth reached must be expressed in meters from the groundlevel plane.

Pocket penetrometer

The standard configuration of the POCKET PENETROMETER column is contained in the file POCKETPE.DFC. The drawing will be made in a diagram that provides that the values 1,2,3,4,>4 in abscissa and on the ordinate the strikes necessary to drive the penetrometer to the reading depth.

Point load

The standard configuration of the POINT LOAD is contained in the file POINTLOA.DFC. The single numerical values taken from the reading of the point Load to the given depth are reported.

Thickness

The standard configuration of the THICKNESS column is contained in the file THICKNES.DFC. This column reports the thickness, expressed in meters, of each layer. It is not necessary to enter data here since the program automatically calculates the data in the stratigraphy function.

Depth

The standard configuration of the DEPTH column is contained in the file DEPTH.DFC. This column reports the bed depth of the layers beginning from the groundlevel plane. It is not necessary to enter data here since the program automatically calculates the data in the stratigraphy function.

SPT Depth

The standard configuration of the SPT DEPTH column is contained in the file PROFSPT.DFC. It is not necessary to enter data here since the program automatically extracts the values from the NSPT column.

Elevation

The standard configuration of the ELEVATION column is contained in the ELEVATIO.DFC file. It is not necessary to enter data here since the program automatically calculates the data in the stratigraphy function. This column does not require one to enter data because the program automatically calculates the data depending on the absolute elevation indicated in the general information ("Parameters" button) and on the stratigraphy.

Lining

The standard configuration of the LINING column is contained in the file LINING.DFC. The linings used are represented by reporting the thickness value of the lining placed between two horizontal lines that delimit the top and bottom depth of the range in which the lining was used.

R.Q.D.

The standard configuration of the R.Q.D. column is contained in the file RQD.DFC. The R.Q.D. percentage will be represented with a histogram.

Graphic scale

The standard configuration of the GRAPHIC SCALE column is contained in the file GRAPHSC.L.DFC. The graphic scale step is defined by way of the <Characteristics> button in the Stratigraphy command. Alternating black and white strips with the numeration along the side will show it.

Well scheme

The standard configuration of the WELL SCHEME column is contained in the file WLScheme.DFC. In this column the graphic representation of the constructive section of the wells is defined. It can be used to represent multiple wells (or more wells placed inside a single hole) as well as one well with three concentric pipes for each section, the first of which is always the furthest out.

First of all, let us look at the procedure to create a display with multiple wells.

With this method, up to 5 different pipes are available: the depth of the first level must be equal to zero; the diameters of the pipes are to be inserted, separated by commas, in the Code field. In the output phase these values will be scaled, using the width defined for the column, so that they maintain a proportion between the indicated diameters. The length of each pipe and the range containing the filters are to be indicated in

increasing order of length (starting with the shortest): enter the length of the shortest pipe in the Depth field, and in the Code field, separated by commas, enter the top and bottom values of the filter ranges. Next comes the definition of the length and the filters of the other pipes: enter the hole depth value in the Depth field, and in the Code field, separated by commas, enter the top and bottom values of the filter ranges. Finally it is necessary to insert in the Depth field the depth of the bottom of the drillhole and in the Code field the initial and final values of the section of cementation, separated by commas.

Now let us look at the procedure to use when entering one well, with three concentric pipes. Enter the bed depth of the first range in the Depth field. In the Code field, enter the diameters of the three pipes and the filling textures. Each range should be defined by 6 values, separated by commas, that in order, represent: the first, the second and the third diameter, the first, the second, and the third type of hatching by preceding the value of the diameter with a minus sign "-" the closing of the section is obtained. Ten different types of hatches are available:

0 - empty

1 - inclined lines from left to right

2 - inclined lines from right to left

3 - inclined crosses

4 - horizontal lines

5 - vertical lines

6 - squared

7 - dotted

8 - vertical dashes

9 - horizontal dashes

Examples

Two simple examples to make more clear the procedure of inserting the data in the Well Scheme column: remember that the only items to be typed, commands or input data, are those written in **bold** print while single keys are identified with SMALL CAPITALS.

Procedure for the creation of multiple wells

1. Start the application by double clicking on the DBSOND icon. To close the message box click on the <Ok> button or press ENTER or the SPACEBAR.
2. Now one is inside the program. Click on File to open the menu, then click on the Open command.
3. In the File Name field, type (in lower or upper case letters) the name of the file as **test1** click on the <Ok> button to confirm.
4. Now start entering the data. Click on the Edit menu and select the Configuration command by clicking on it. The command displays a submenu from which one should select the Column Order command.
5. The "Configuration Options" dialog box is displayed. As this is a new file the configuration used is STANDARD. Double click in the first field of the window, highlighting in this way the text that is contained inside, then type the name of the new column configuration: **test1** and click on the <Ok> button. We have chosen to give the name of the stratigraphy file to the file that will contain the configuration of the columns, but this is not obligatory.
6. To gain access to the "Define column order" dialog box: In the available columns field, all of the columns that can be used in the creation of the drawing are listed. Double click on the name of the column, present in the list, to select it. Select the following columns: Thickness, Stratigraphy, Description, Watertable, Sample, Well, Scale. To scroll the list use the lateral scroll bar. Each selected column will be added to the Borehole Scheme field. After selecting click on the <Ok> button which will bring back the "Configuration Options" dialog box: click again on the <Ok> button
7. Activate the Edit menu again and select the Stratigraphy command. The "Edit stratigraphy" dialog box is displayed and listed inside are the previously selected columns. Now let us look at how to enter data. To activate the dialog boxes for the introduction of the data associated to each column, click on the name of the column to be edited. We shall start with the stratigraphy column. Enter **1.5** as the bed depth of the first layer, press the ENTER key to pass to the next field and enter **705** as the texture code and press the ENTER key. Using the same procedure, enter the following values:

3.5 ENTER

712 ENTER

5 ENTER

907 ENTER

8 ENTER
832 ENTER
11 ENTER
826 ENTER
12 ENTER
907 ENTER
13.5 ENTER
931912 ENTER
15 ENTER
907 ENTER
20 ENTER
726 ENTER

Click on the <Ok> button to confirm.

8. Now select the description column. Enter **1.5** as the bed depth of the first layer, press the ENTER key to pass to the next field and enter **vegetal ground** as the description and press the ENTER key. Using the same procedure, enter the following values:

3.5 ENTER
yellow clay ENTER
5 ENTER
fine sand ENTER
8 ENTER
gravel and sand ENTER
11 ENTER
sand and gravel ENTER
12 ENTER
silt sand ENTER
13.5 ENTER
gravel and sand, compacted clay ENTER
15 ENTER
fine dirty sand ENTER
20 ENTER
sand and gravel ENTER

Click on the <Ok> button.

9. Now select the Watertable column.

5 ENTER
15 ENTER

Click on the <Ok> button.

10. Now enter the data relative to the samples recovered. Select the relative column from the list, then type the following values:

2 ENTER
2.5 ENTER
C1 ENTER
4 ENTER
4.5 ENTER

C2 ENTER

To end entering values, click on the <Ok> button.

11. Enter the data relative to the well:

0 ENTER (as previously explained, if one desires to represent up to 5 different pipes inside the column, the depth of the first level must be equal to zero).

1.5,1,3 ENTER (these three values represent the diameters of the pipe. In the output phase these values will be scaled to maintain the proportion between each diameter indicated on the basis of the defined width for the column.

7 ENTER (this value is the bottom depth of the first pipe)

4,4.5,5,5.5 ENTER (top and bottom values of the ranges with first pipe filter)

10 ENTER (bottom depth of the second pipe)

5.5,6,9.3,9.7 ENTER (top and bottom values of the ranges with second pipe filter)

12 ENTER (bottom depth of the third pipe)

4,4.5,6,6.3,11,11.4 ENTER (top and bottom values of the ranges with third pipe filter)

20 ENTER (hole depth)

8,8.5,15,15.5 ENTER (top and bottom values of the cementation ranges)

To end entering values, click on the <Ok> button.

12. Before going to the graphic representation of the new stratigraphy, click on the <Parameters> button to verify the setup of the general parameters for printing. The program allows the definition of: the groundlevel elevation, the vertical scale, the stratigraphy width which, by default, has a value of 19 cm, equal to the maximum width of a page in A4 portrait format (a 1 cm side border is left), the initial depth and final depth, the upper and lower margins, the left margin, the space blocks, the graphic scale step, the logo, titles, and annotations. Confirm the setup by default by clicking on the <Ok> button.
13. To quicken the handling of this example we will omit the entering the titles; consequently we can terminate entering data by clicking on the <Ok> button.
14. Open the Print menu by clicking on it. These three options are presented:
- Stratigraphy: to visualize and print the drawing.
 - Textures: to print geological textures.
 - Configuration: to define colours, thickness and the set of characters to be used.
15. Now select the Stratigraphy command: the graph is drawn in smaller size. With the instrument bar one can carry out the following operations:
- Zoom +: enlarges a part of a page. Note: if one does not have the character font suitable to draw with the dimension selected, the program will substitute it with another font.
 - Zoom -: returns the drawing to the original dimension.
 - Print: by clicking on this command the drawing will be sent to the default printer. When the printing has finished the program returns to the menu
 - Definition: clicking on this command gives access to the "Print" dialog box used to verify and modify the setting of the default printer. To print without making modifications click on the <Ok> button.
 - DXF: clicking on this command gives access to a dialog box that enables one to assign a different name to DXF file, this has the same name as the data file, by default.
 - Exit: closes the window and returns to the program menu.
16. To terminate the work session, select the Exit menu: the open file contains modifications that have not yet been saved, therefore the program will ask one to save it by showing the "Save as" dialog box. To save the file click on the <Ok> button.

Procedure for the creation of one only well with three concentric pipes

Remember that the only items to be typed, commands or input data, are those written in **bold** print while single keys are identified with SMALL CAPITALS.

1. Start the application by double clicking on the DBSOND icon. To close the message box click on the <Ok>

button or press enter or the spacebar.

2. Now one is inside the program. Click on File to open the menu, then click on the Open command.
3. In the File Name field, type (in lower or upper case letters) the name of the file as test1 click on the <Ok> button to confirm.
4. Now start entering the data. Click on the Edit menu and select the Configuration command by clicking on it. The command displays a submenu from which one should select the Column Order command.
5. The "Configuration Options" dialog box is displayed. As this is a new file the configuration used is STANDARD. Double click in the first field of the window, highlighting in this way the text that is contained inside, then type the name of the new column configuration: **test1** and click on the <Ok> button. We have chosen to give the name of the stratigraphy file to the file that will contain the configuration of the columns, but this is not obligatory.
6. To gain access to the "Define column order" dialog box: In the available columns field, all of the columns that can be used in the creation of the drawing are listed. Double click on the name of the column, present in the list, to select it. Select the following columns: Thickness, Stratigraphy, Description, Watertable, Sample, Well, Scale. To scroll the list use the lateral scroll bar. Each selected column will be added to the Borehole Scheme field. After selecting click on the <Ok> button which will bring back the "Configuration Options" dialog box: click again on the <Ok> button
7. Activate the Edit menu again and select the Stratigraphy command. The "Edit stratigraphy" dialog box is displayed and listed inside are the previously selected columns. Now let us look at how to enter data. To activate the dialog boxes for the introduction of the data associated to each column, click on the name of the column to be edited. We shall start with the stratigraphy column. Enter **1.5** as the bed depth of the first layer, press the ENTER key to pass to the next field and enter **705** as the texture code and press the ENTER key. Using the same procedure, enter the following values:

3.5 ENTER

712 ENTER

5 ENTER

907 ENTER

8 ENTER

832 ENTER

11 ENTER

826 ENTER

12 ENTER

907 ENTER

13.5 ENTER

931912 ENTER

15 ENTER

907 ENTER

20 ENTER

726 ENTER

Click on the <Ok> button to confirm.

8. Now select the description column. Enter **1.5** as the bed depth of the first layer, press the ENTER key to pass to the next field and enter **vegetal ground** as the description and press the ENTER key. Using the same procedure, enter the following values:

3.5 ENTER

yellow clay ENTER

5 ENTER

fine sand ENTER

8 ENTER

gravel and sand ENTER

11 ENTER

sand and gravel ENTER

12 ENTER

silt sand ENTER

13.5 ENTER

gravel and sand, compacted clay ENTER

15 ENTER

fine dirty sand ENTER

20 ENTER

sand and gravel ENTER

Click on the <Ok> button.

9. Now select the Watertable column.

5 ENTER

15 ENTER

Click on the <Ok> button.

10. Now enter the data relative to the samples recovered. Select the relative column from the list, then type the following values:

2 ENTER

2.5 ENTER

C1 ENTER

4 ENTER

4.5 ENTER

C2 ENTER

To end entering values, click on the <Ok> button.

11. Enter the data relative to the well:

2 ENTER (bed depth of the first well range)

2,-1.5,0,1,0,0 ENTER (first, second, and third diameter of the first pipe range, first, second, and third filling texture of each pipe)

4 ENTER (bed depth of the second well range)

2,-1.5,0,1,0,0 ENTER (first, second, and third diameter of the second pipe range, first, second and third filling texture of each pipe)

5 ENTER (bed depth of the third well range)

2,-1.5,0,2,8,0 ENTER (first, second, and third diameter of the third pipe range, first, second, third filling texture of each pipe)

6 ENTER (bed depth of the fourth well range)

2,-1.5,0,2,0,0 ENTER (first, second, third diameter of the fourth pipe range, first, second, third filling texture of each pipe)

8 ENTER (bed depth of the fifth well range)

2,-1.5,0,3,7,0 ENTER (first, second, third diameter of the fifth pipe range, first, second, third filling texture of each pipe)

10 ENTER (bed depth of the sixth well range)

2,1.5,0,3,0,0 ENTER (first, second, third diameter of the sixth pipe range, first, second, third filling texture of each pipe)

12 ENTER (bed depth of the seventh well range)

-2,-1.5,1,4,0,0 ENTER (first, second, third diameter of the seventh pipe range, first, second, third filling texture of each pipe)

13 ENTER (bed depth of the eighth well range)

1.3,-.5,0,4,0,0 ENTER (first, second, third diameter of the eighth pipe range, first, second, third filling texture of each pipe)

15 ENTER (bed depth of the ninth well range)

1.3,-.5,0,5,8,0 ENTER (first, second, third diameter of the ninth pipe range, first, second, third filling texture of each pipe)

16 ENTER (bed depth of the tenth well range)

1.3,-.5,0,5,0,0 ENTER (first, second, third diameter of the tenth pipe range, first, second, third filling texture of each pipe).

17 ENTER (bed depth of the eleventh well range)

1.3,-.5,0,6,9,0 ENTER (first, second, third diameter of the eleventh pipe range, first, second, third filling texture of each pipe)

18 ENTER (bed depth of the last well range)

-1.3,-.5,0,6,0,0 ENTER (first, second, third diameter of the last pipe range, first, second, third filling texture of each pipe)

To finish entering data, click on the <Ok> button.

12. Before going to the graphic representation of the new stratigraphy, click on the <Parameters> button to verify the setup of the general parameters for printing. The program allows the definition of: the groundlevel elevation, the vertical scale, the stratigraphy width which, by default, has a value of 19 cm, equal to the maximum width of a page in A4 portrait format (a 1 cm side border is left), the initial depth and final depth, the upper and lower margins, the left margin, the space blocks, the drawing scale step, the logo, titles, and annotations. Confirm the setup by default by clicking on the <Ok> button.
13. 13. To quicken the execution of this simple example we will leave out the introduction of titles; therefore we can end entering data by clicking on the <Ok> button.
14. Open the Print menu by clicking on it. Three items are presented:
 - Stratigraphy: to visualize and print the drawing.
 - Textures: to print geological textures.
 - Configuration: to define colour configurations, the thickness and set of characters to be used in printing the drawing.
15. Now select the Stratigraphy command: the requested drawing is drawn in reduced format. With the instrument bar one can carry out the following operations:
 - Zoom +: enlarges a part of a page. Note: if one does not have the character font suited to visualize with the selected dimension, the program will substitute it with another font.
 - Zoom -: returns the drawing to the original dimension.
 - Print: by clicking on this command the drawing will be sent to the default printer. When the printing is finished the program returns to menu.
 - Definition: clicking on this command shows the "Print" dialog box used to verify and modify the configuration of the default printer. To print without making modifications click on the <Ok> button.
 - DXF: clicking on this command gives access to a dialog box enabling one to give a different name to the DXF file, this has the same name as the data file by default.
 - Exit: closes the window and returns to the program.
16. To end the work session, select the Exit menu: the open file contains modifications that have not yet been saved, hence the program will present the "Save as" dialog box. To save a file, click on the <Ok> button.

Core samples

The standard configuration of the CORE SAMPLES column is contained in the file CORESAM.DFC. The average length of the core samples extracted from the borehole, expressed in cm, is represented with a histogram.

S.P.T.

The standard configuration of the column is contained in the file SPT.DFC. It will draw the number of strikes on the x-coordinate (10,20,30,40) and the number of strikes given for the different depths as the y-coordinate (99=refused), shown between the top and bottom depth values.

Stratigraphy

The standard configuration of the STRATIGRAPHY column is contained in the file STRATIGR.DFC. For each layer must be inserted the depth of the bed of the layer and the code or the file name of the bitmap to be used to fill the region. The layers can be entered in any order since the program positions them on the basis of the given bed depth (in meters from the groundlevel plane). The program allows to use independently for each layer vectorial patterns or bitmap images.

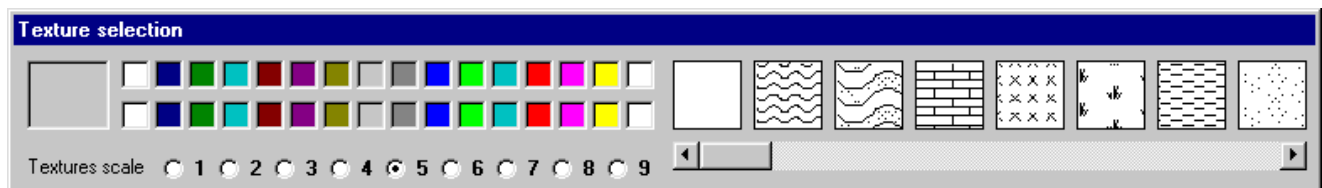
A bitmap image can be used as a texture, repeated like a mosaic, to fill the rectangles of the stratigraphic column. Three method for scaling the bitmaps are available, and are choosen embedding particular strings in the file name.

A normal file name, like "gravel.bmp", would be printed at the same scale as seen on the screen. A "pixels per cm" value could be needed for fine-tuning the scale of the bitmap textures used to fill the stratigraphy. On an average screen one centimeter fits about 30 pixels, which is the default value; you can calculate the correct value as the ratio between the screen width in pixels and in centimeters. You also can use this parameter to get different scales: for example, If you get a 30 pixels per cm value on the screen, and you want the printed output of the bitmaps to be the half of how seen on the screen, you can assign a 60 pixels per cm value instead. You can workaround this value saving your bitmaps adding `_FIX` to the bitmap file name (gravel.bmp becomes gravel_fix.bmp) to force the programme to scale the bitmap to fit the available space in the stratigraphy, or adding `_PIXn` (gravel.bmp becomes gravel_pix45.bmp) to force a different value of pixels per cm for the individual bitmap, in the example, 45 pixels per cm will be used.

The selection of the texture and of the graphical parameters (foreground and background colours, scale) can be managed in the "Texture selection" window.

Automatic compilation

- *Selecting a texture in BMP format:* right-click the texture field which will receive the texture code: the "Texture selection" tool bar will be opened. Now, simply search for the choosen bitmap anddouble-click it. Remember that only the pictures copied to the DBSOND32\TEXTURES folder will be shown in the tool bar.
- *Selecting a vectorial texture:* right-click the texture field which will receive the texture code: the "Texture selection" tool bar will be opened. Select the foreground colour in upper colour line, and the background colour in the lower line. Choose the texture scale: the lower the number, the smaller the texture. Remember that the default available colours can be changed using the "Configuration" command of the "Print" menu. Double-click a texture (use the scroll bar to find the right one) to select one only texture. To mix two or more textures, click the first ones and double-click the last one. The texture code is now copied to the selected texture field. With this automatic procedure the mixed textures will be printed with the same scale factor; to mix two textures with different scale factors, you need to manually modify the code.



Manual compilation

- *Vectorial textures:* each texture code is composed by three digits (ex. 912), the first one is the scale factor, the other two are the texture number, so 912 means "the 12th texture, printed with a scale factor equal to 9". To mix two or more textures it is enough to join the codes, for example 912504. To assign the foreground colour add the colour number as "Cn", where n is a value between 1 and 15; to assign the background colour add the colour number as "Bn", where n is, again, a value between 1 and 15; the colour number refers to the order as defined in the "Configuration" command of the "Print" menu; for example the code "912504C3B8" means: "two textures are mixed, the 12th texture, printed with a scale factor equal to 9, and the 4th texture, printed with a scale factor equal to 5, the foreground colour is the #3, the background colour is the #8". To remove the separation line between a layer and the following one, add the initial character "-" (ex. -504).
- *textures in BMP format:* write in the field the name of one of the bitmaps which have been copied to the DBSOND32\TEXTURES folder; if sub-folders have been created, write the full path of the file.

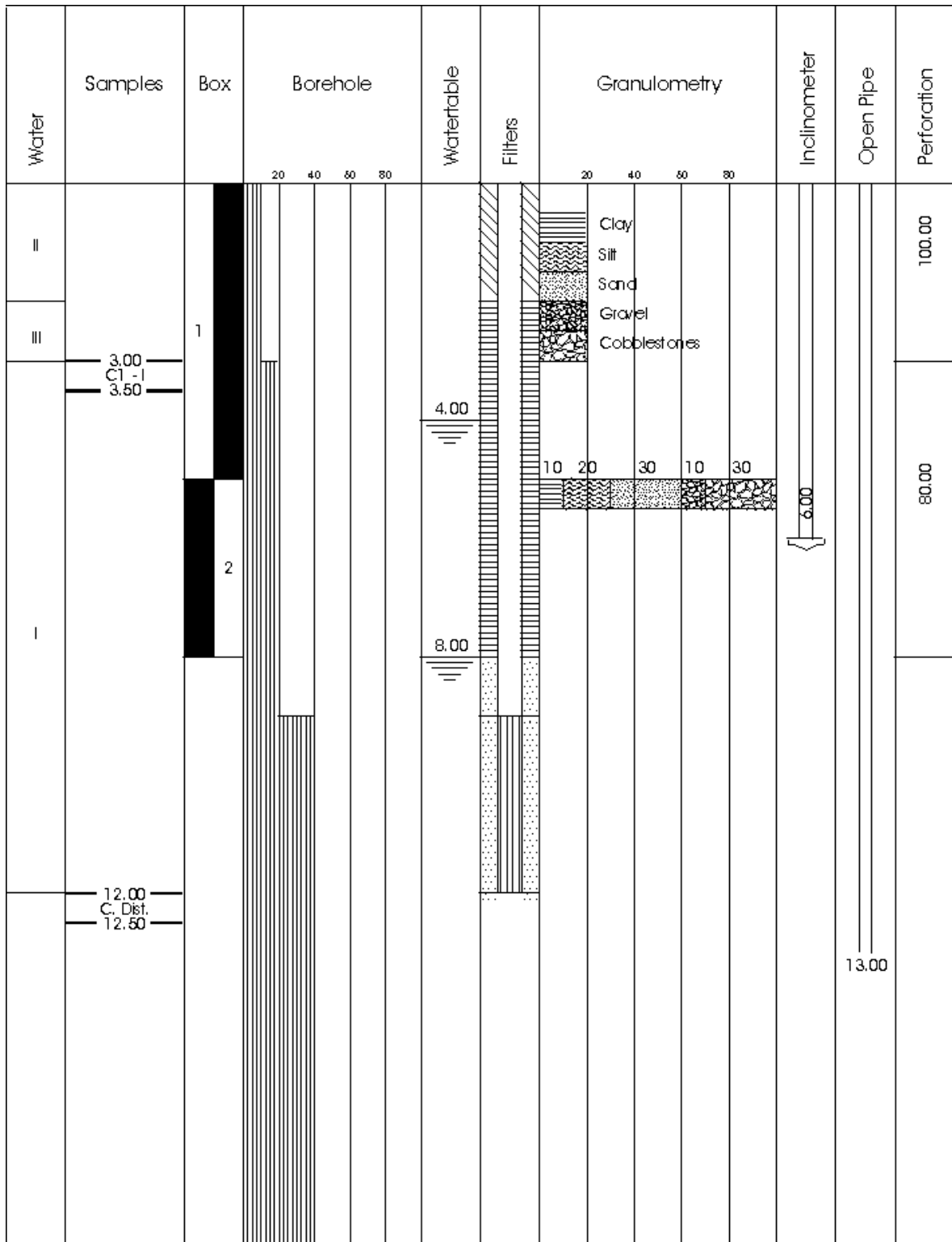
Open Pipe

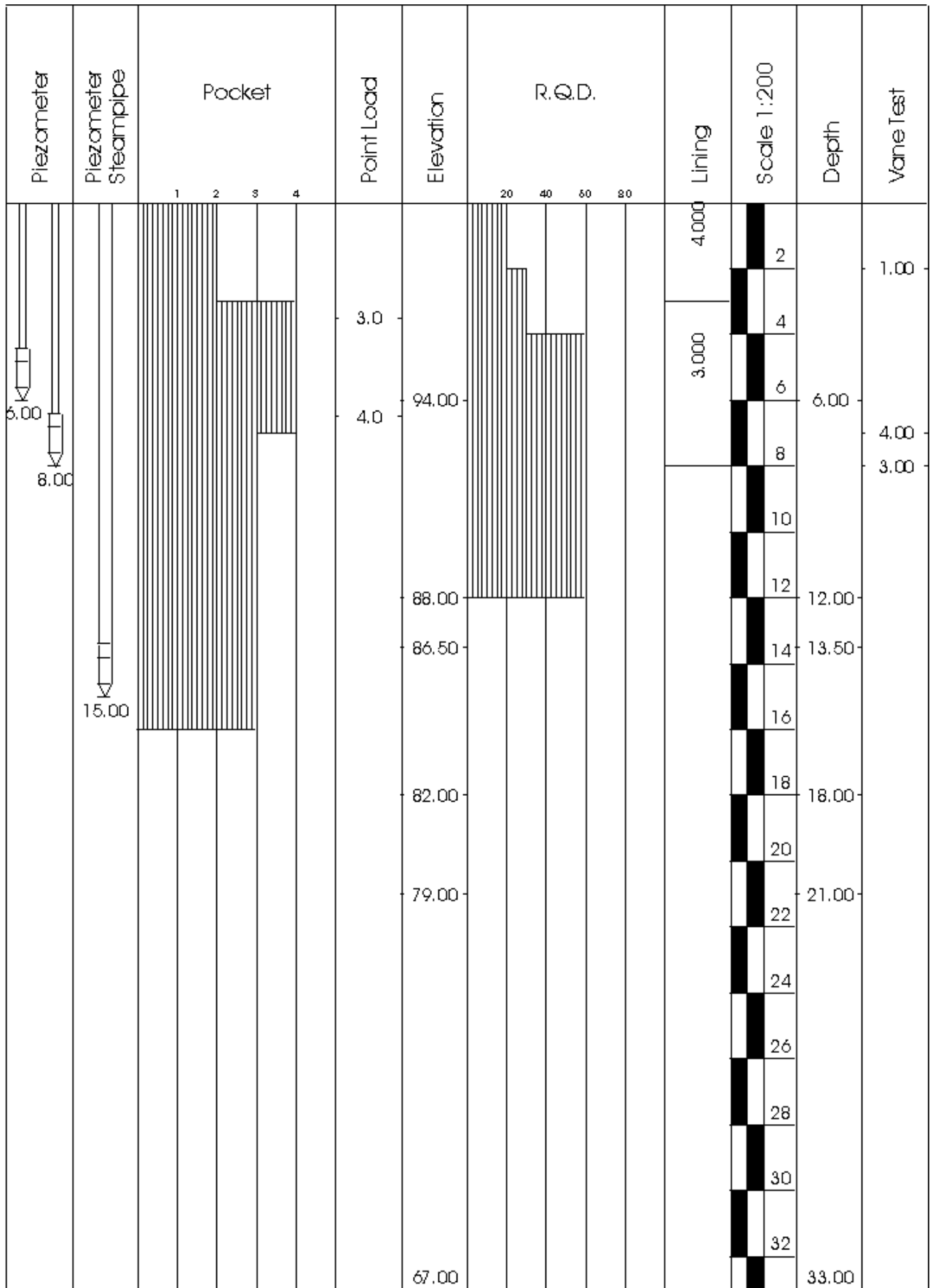
The standard configuration of the OPEN PIPE column is contained in the file OPENPIPE.DFC. Using this column, the piezometers will be represented with open pipe tips.

Vane test

The standard configuration of the VANE TEST column is contained in the file VANETEST.DFC. This column reports, to the defined depth, the value obtained with the test.

The predefined columns - Graphics example





The graphic types supplied

COLUMN01.DFC

Type 1 is for representing single numerical values measured at a given depth (ex.: Point Load column).

COLUMN02.DFC

Type 2 is for the representation of single numerical values that are constant and assigned to the layers as far as the indicated depth (ex.: Perforation column).

COLUMN03.DFC

Type 3 manages the representation of codes relative to determined borehole ranges. Alternating black and white strips with the code in the white spaces will highlight these ranges (ex.: Box column).

COLUMN04.DFC

Type 4 is for the representation of codes relative to determined borehole ranges that will be highlighted by alternating black and white strips with the code alongside (ex.: Graphic Scale column).

COLUMN05.DFC

Type 5 manages the introduction of geological texture codes relative to determined borehole ranges that will be printed in the graphic column form (ex.: Stratigraphy column).

COLUMN06.DFC

Type 6 is for the introduction of descriptive texts of particular borehole ranges (ex.: Description column).

COLUMN07.DFC

Type 7 is for the representation, in histogram form, of values assigned to determined borehole ranges (ex.: Borehole column).

COLUMN08.DFC

Type 8 is for the introduction of descriptive codes assigned to a section of borehole contained between two given depths (ex.: Sample column).

COLUMN09.DFC

Type 9 manages the representation of watertable symbols at different depths.

COLUMN10.DFC

Type 10 manages the representation of open pipe piezometers.

COLUMN11.DFC

Type 11 manages the representation of inclinometric pipes.

COLUMN12.DFC

Type 12 manages the representation of piezometers with a Casagrande tip.

COLUMN13.DFC

Type 13 manages the representation of the S.P.T. tests in diagram form.

COLUMN14.DFC

Type 14 manages the representation of textures (ex.: Filter column).

COLUMN15.DFC

Type 15 manages the representation of the constructive scheme of wells.

COLUMN16.DFC

Type 16 manages the representation of the granulometry.

COLUMN17.DFC

Type 17 is for the representation of single numerical values, punctually measured, that will be restored in diagram form.

COLUMN18.DFC

Type 18 is for the introduction of descriptive codes assigned to a given depth.

COLUMN19.DFC

Type 19 is for the introduction of descriptive codes assigned, at constant intervals, to the layers as far as the indicated depths.

COLUMN20.DFC

Type 20 manages the representation of data relative to the classifications, according to Bieniawsky, of the dimensions being examined and reported with roman numerals.

COLUMN21.DFC

Type 21 manages the representation of Streampipe piezometers.

COLUMN22.DFC

Type 22 allows the introduction of two lines of text assigned to given depth.

COLUMN23.DFC

Type 23 is for the representation of single numerical values, punctually measured, that will be restored in inverted diagram form: the X-axis will increase from right to left.

COLUMN24.DFC

Type 24 is for the representation, in form of histogram not filled, of values assigned to determined borehole ranges.

COLUMN25.DFC

Type 25 is for the numerical representation of the S.P.T.; in this column don't appear the depth, so it is suggested to use it in association with the PROF.SPT (profspt.dfc) column that automatically extracts and represents the depth values.

COLUMN26.DFC

Type 26 is for the introduction of a vectorial pattern between two depths.

COLUMN27.DFC

Type 27 is for drawing an histogram-like column which refers to user-defined classes. Class descriptions must be separated by the "|" (pipe) character (for example: A|B|C|D|E). To assign a layer to one of the classes set the ordinal number of the class (for example: typing 1 the layer will be associated to class A, typing 3 to class C).

COLUMN28.DFC

Type 28 is for the introduction of descriptive codes assigned, at constant intervals, to the layers as far as the indicated depths. This type 28 is similar to type 19, but the depth value is also printed.

The graphic types supplied - Graphics example

