



DREDGEPACK® Project Creation Cheat Sheet for Beginners

By Rob Baird

There are more dredging companies using DREDGEPACK® now than ever before, with a wide-ranging variety of applications. However, a great percentage of these companies are tasked with digging simple, straight-centerline channels. So, with this in mind, I have come up with this “cheat sheet” for DREDGEPACK® beginners to get started creating a new DREDGEPACK® project with a very simple channel. It assumes that an XYZ of the pre-dredge survey will be available for you to begin channel preparations. Here it goes...

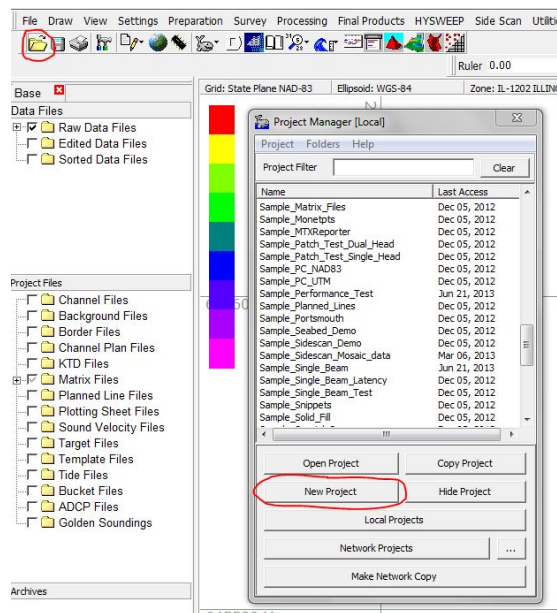
CREATING A NEW PROJECT

For every new project, use the Project Manager:

1. **Open the Project Manager.** Select FILE-PROJECT MANAGER or click on the manila-colored folder icon.
2. **Click [New Project] and give it a name.**



FIGURE 1. Creating a New Project in the Project Manager



DOWNLOAD/SAVE XYZ FILE OF PRE-DREDGE SURVEY TO DESKTOP

Most clients provide XYZ (“*.xyz”) files of their pre-dredge surveys. Download these from your email OR use a USB memory stick to copy them to the Desktop of your DREDGEPACK® computer.

LOAD XYZ FILES INTO HYPACK®

To load your pre-survey XYZ files to the project, right-click on the Sorted Data Files folder in the Data Files list and select “Add file and copy”.

Once XYZ files have been loaded, you should be able to see them in the HYPACK® Shell (HYPACK Administrator). If not, click the “Zoom to Extents” icon in the HYPACK Shell to see full data set.



OPTIMIZE THE VIEW OF YOUR XYZ FILE

1. **Zoom in on the soundings** using the Zoom tools (any of the magnifying glass icons on the right side of the HYPACK Shell).
2. **Confirm the depth color scale is relevant to the sounding depths shown in the XYZ files.**
3. **Change the color scale, if necessary.**
 - a. **Click the red, blue and green icon** on the right side of the shell.
 - b. **Set the depth range for the color scale.** Select [Set Bands] and enter the minimum and maximum depths. Remember to click [OK] for the change to take effect.
4. **Measure the distance (spacing) between soundings** for later use in the TIN MODEL program. (Figure 2)



FIGURE 2. Measuring the Maximum Distance Between Soundings



USE LINE EDITOR TO CREATE CENTERLINE OF CHANNEL

Use the Line Editor to create the channel centerline.

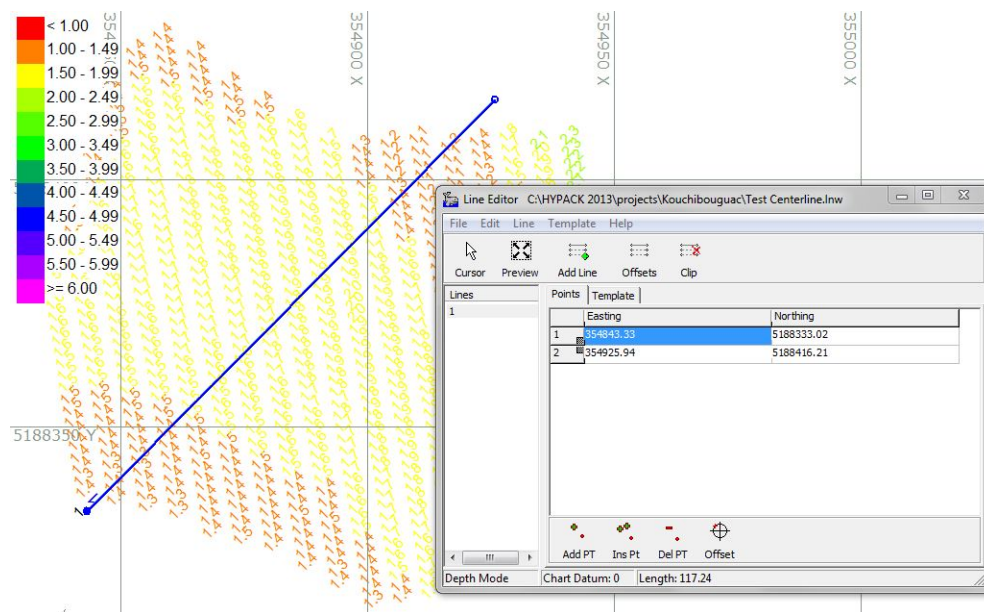
1. **Open the LINE EDITOR.** Click the pencil and paper icon in the Shell and select Line Editor.
2. **Use the cursor method for creating a line.**



- a. **Click on the Cursor icon.**
- b. **Click on the map in the HYPACK® Shell at the point you want to start your channel's centerline.** This will be Point #1.
- c. **Click on the map in the HYPACK® Shell at the point you want to end your channel's centerline** (Point #2). (Line direction is relative to the direction from Point #1 to Point #2.)

Note: Exact X,Y coordinates can also be entered manually for the centerline in the "Easting" (for X) and "Northing" (for Y) columns.

FIGURE 3. Creating the Center Line in the LINE EDITOR



- d. **Save your centerline.** (Select FILE-SAVE AS, name the file and click [Save].) You should now have saved your planned line file. (This planned line, also known as an LNW or "*.lnw" file, is your channel's centerline.)
 - e. **Close the Line Editor.**
3. **Make sure that the centerline (LNW) file is checked and visible in the HYPACK® Shell.**

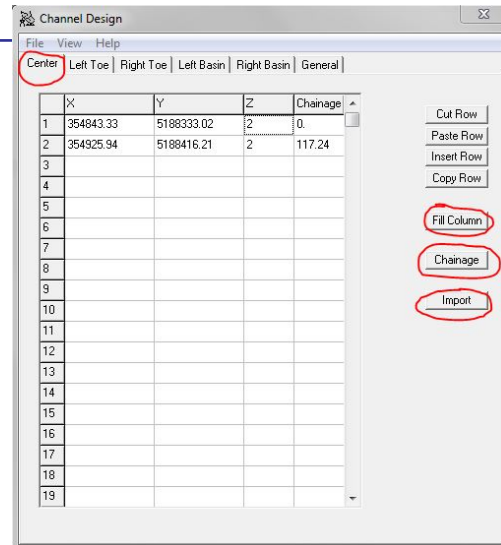
USE CHANNEL DESIGN TO IMPORT CENTERLINE AND CREATE CHANNEL

Now that you have your planned line, begin the creation of your channel.

1. Open the CHANNEL DESIGN program. Select PREPARATION-CHANNEL DESIGN.
2. **In the Center tab, do the following:**
 - a. **Select "Import"**, choose your centerline and click [Open].

FIGURE 4. Entering the Center Line Data

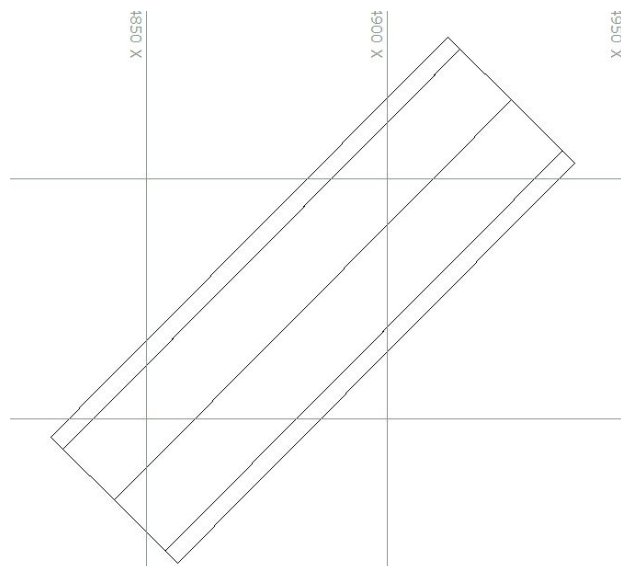
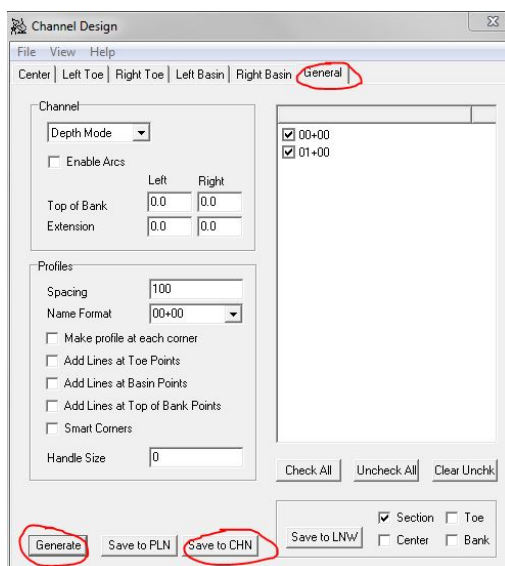
- b. **Fill in your “Z” value on the spreadsheet with the grade to which you want to dig.** Enter the depth in the top cell then click “Fill Column”.
- c. **Calculate chainage of the centerline** (distance down the line, measured from origin point). Enter the chainage value for the first point in your center line list then click [Chainage].
3. **In the “Left Toe” tab, click [Offset] then enter the offset (distance from centerline to the left toe of channel) and slope of the banks.**



Important: You MUST input a value for the slope, *even if there is no slope beyond the toes of the channel.*

4. **In the “Right Toe” tab click [Offset] then enter the offset (distance from centerline to the left toe of channel) and slope of the banks.** (The offset and slope will be inherited from the Left Toe UNLESS you change them.)
(You don’t need the basins (for now), so don’t worry about them.)
5. **Generate your Channel.**
 - a. **In the “General” Tab, click [Generate].**
 - b. **Click [Save to CHN] and name your channel.**

FIGURE 5. Generating your Channel



CREATE A MATRIX OF YOUR PROJECT AREA

Typically, you generate a filled matrix from your pre-dredge XYZ data using the TIN MODEL program.

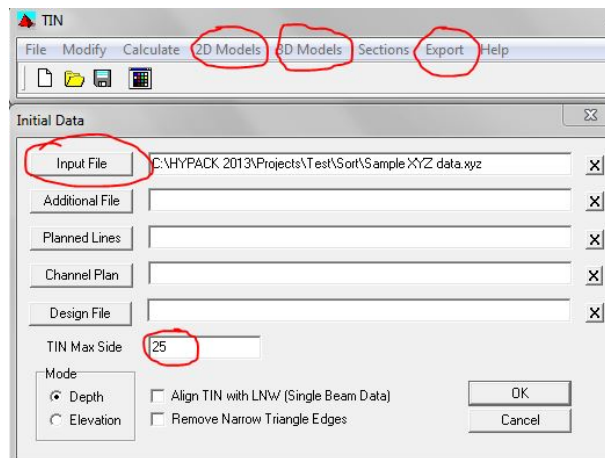
If, however, you want to paint to a *blank matrix*, you can create the matrix in the MATRIX EDITOR.

USING TIN MODEL TO CREATE A MATRIX FROM THE XYZ FILE

1. **Open the TIN MODEL program.** Click the red pyramid icon in the HYPACK® Shell OR select FINAL PRODUCTS-TIN MODEL.
2. **Select FILE-NEW.**
3. **Click [Input File] and select the pre-dredge XYZ file.**
4. **Enter an appropriate TIN Max Side, and click [OK].** The TIN Max Side is approximately 1.5 X greatest distance between soundings of XYZ file. This is the measurement you took when you adjusted your XYZ display. (See [“Optimize the View of your XYZ File” on page 2.](#))

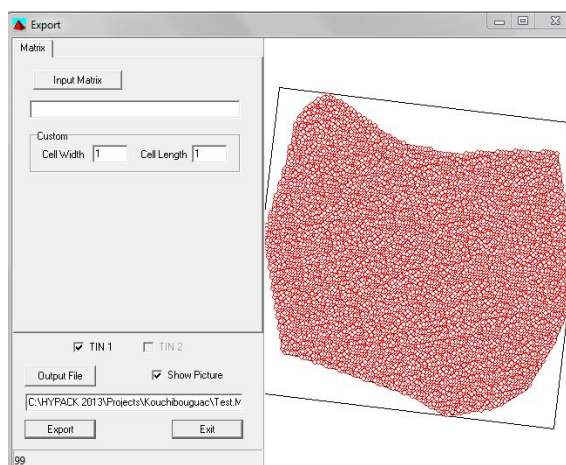


FIGURE 6. Generating your TIN Model



5. **Confirm coverage of TIN Model.** Open any of the “2D Models” or “3D Models” and verify an accurate model has been generated.
6. **Export your matrix.**
 - a. **Select EXPORT-MATRIX.**
 - b. **Enter the desired cell dimensions for the matrix.** This will usually be 1 X 1 for most (US Survey foot) dredging applications. For metric surveys, you may want to input 0.5 for each.
 - c. **Name your output file.** Click [Output File], enter a name for the matrix, then click [Save].
 - d. **Click [Export]** to complete the export of the XYZ to a matrix.

FIGURE 7. *Exporting your Matrix*



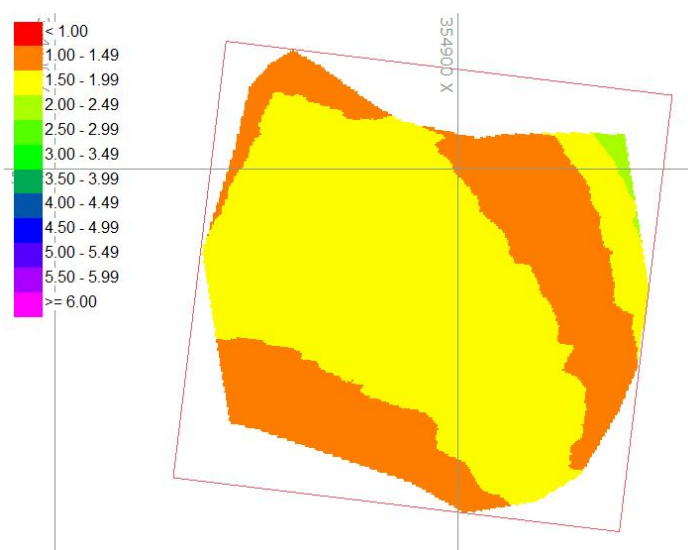
USING MATRIX EDITOR TO CREATE A MATRIX

1. **Select PREPARATION-EDITORS-MATRIX EDITOR.**
2. **Use the tools at the four corners of the preliminary matrix to size it to fit your desired dig area.**
3. **Save the matrix.** Select File-Save As, provide a name and click [Save].

LOAD MATRIX FILE IN HYPACK® SHELL

After saving the matrix, load the matrix into the HYPACK® Shell (if it hasn't already appeared automatically by closing the TIN MODEL Export window).

FIGURE 8. *Your Matrix Displayed in HYPACK®*



CONFIRM ALL DESIRED FILES ARE ENABLED IN THE HYPACK® SHELL

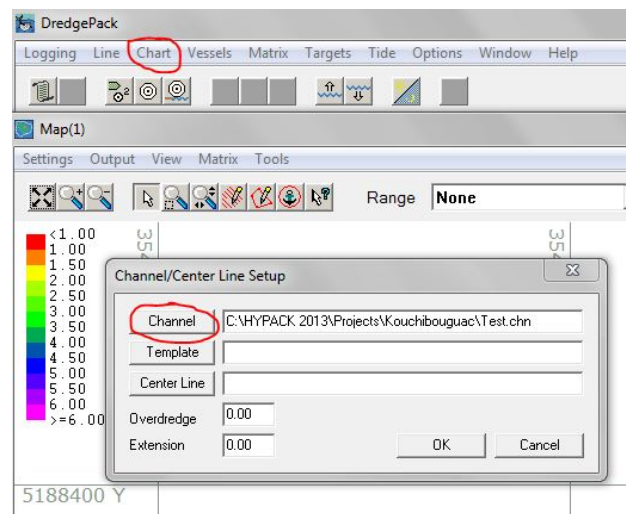
Check that the following files are enabled in your project.

- **Planned Line File (.lnw)** – your channel center line
- **Channel File (.chn)** – your channel
- **Matrix File (.mtx)** – your matrix which will be updated in DREDGEPACK®

OPEN DREDGEPACK® AND LOAD YOUR CHANNEL

1. **Open DREDGEPACK®.**
2. **Select CHART-CHANNEL.**
3. **Click [Channel].**
4. **Set the file type to Channel Files (“.CHN”), then select the proper CHN file and click [Open].** This will provide the template information for the profile window.

FIGURE 9. Loading the Channel File to DREDGEPACK®



Start dredging!!!