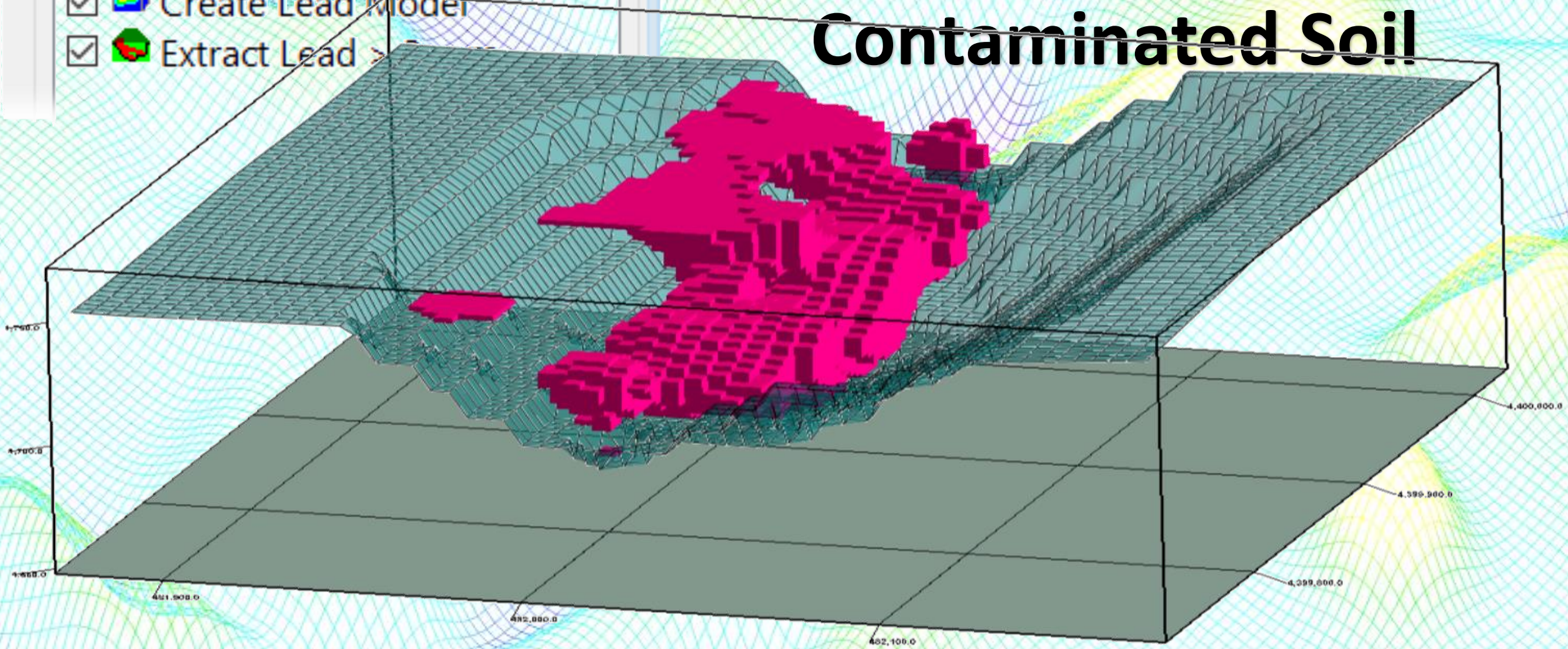


Creating a 3-Step Playlist for Modeling & Excavating Contaminated Soil

3 Playlist Items (No Item selected)

- Create Surface Model
- Create Lead Model
- Extract Lead



This presentation will show how to model and excavate a contaminant in three steps within the RockWorks Playlist.

Borehole Manager

Borehole



- DH-01
- DH-02
- DH-03
- DH-04
- DH-05
- DH-06
- DH-07
- DH-08
- DH-09
- DH-10
- DH-11

Borehole Data

Location

Borehole Name*
DH-01

Symbol

Raster:  Vector: 

Collar Coordinates

Horizontal

Easting* 481,976.20 meters

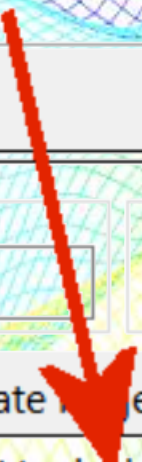
Northing* 4,399,822.30 meters

Vertical: Meters

Z (Elevation)* 1754.60 meters

Collar Elevation 1755.80 meters


Total Depth* 56.30 meters




We'll start by creating a surface model based on the borehole collar elevations within the Samples database.


Borehole Operations


 Maps


 Borehole Map ...

 Optional Fields ...

 Striplog Map ...

 Striplogs - Plan View ...

 Location Map ...

 Total Depth Grid ...

 Google Earth Borehole Map - Simple

 Google Earth Borehole Map - Advanced

This is accomplished by selecting the Borehole Map option from the Borehole Operations / Maps menu.

Borehole Location Map

Main Options | Spatial Filter | Time Filter | Strat. Rules

Symbol Options

- Surface Contours
- Add -----
- Background Image
- Labeled Axes
- Map Overlays
- Other 2D Files
- Peripherals
- Border
-
- Output Options

Grid Model

Contour Options

Grid File

- Dimensions
- Algorithm
- Options

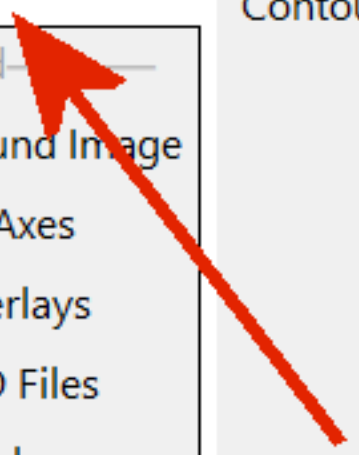
Create New Grid

Use Existing Grid

Grid Model Output File

Ground_Surface.RwGrd

Export Output Grid ?



Check the Surface Contours option, and



Borehole Location Map

Main Options

Spatial Filter

Time Filter

Strat. Rules

Symbol Options

Surface Contours

— Add —

Background Image

Labeled Axes

Map Overlays

Other 2D Files

Peripherals

Border

Output Options

Grid Model

Contour Options

Grid File

Dimensions

Algorithm

Options

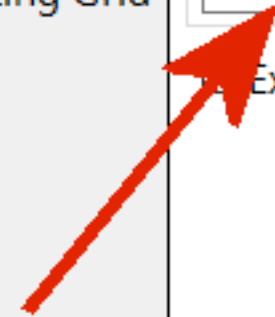
Create New Grid

Use Existing Grid

Grid Model Output File

Ground_Surface.RwGrd

Export Output Grid ?



... set the name of the grid to be created to “Ground_Surface.RwGrd”.

Borehole Location Map

Settings Favorites Playlist Layout

Main Options Spatial Filter Time Filter Strat. Rules

Symbol Options

- Surface Contours
- Add —
- Background Image
- Labeled Axes

Grid Model

Contour Options

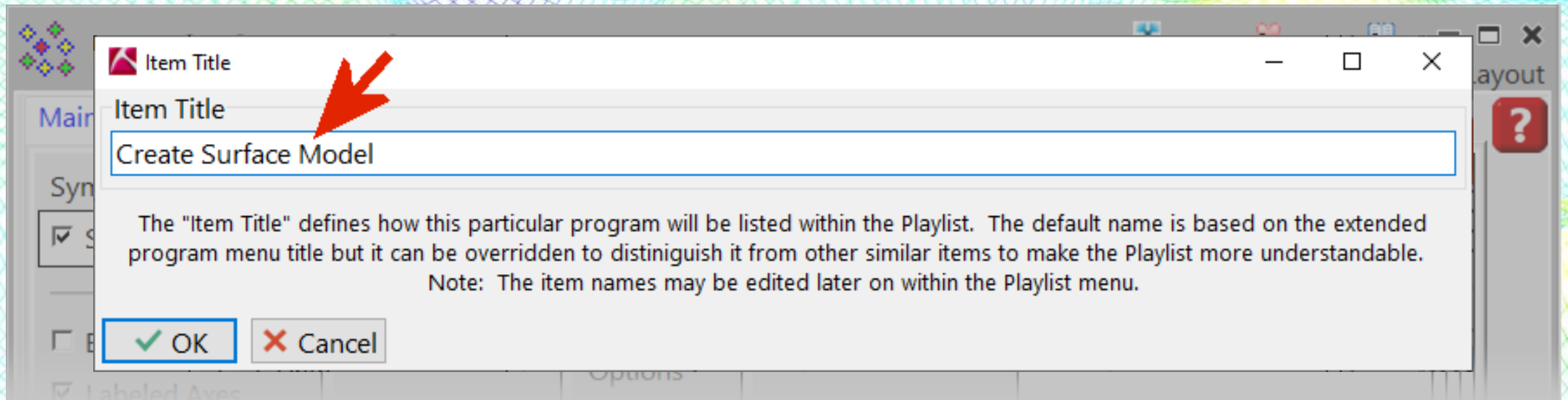
Grid File

- Dimensions
- Algorithm
- Options

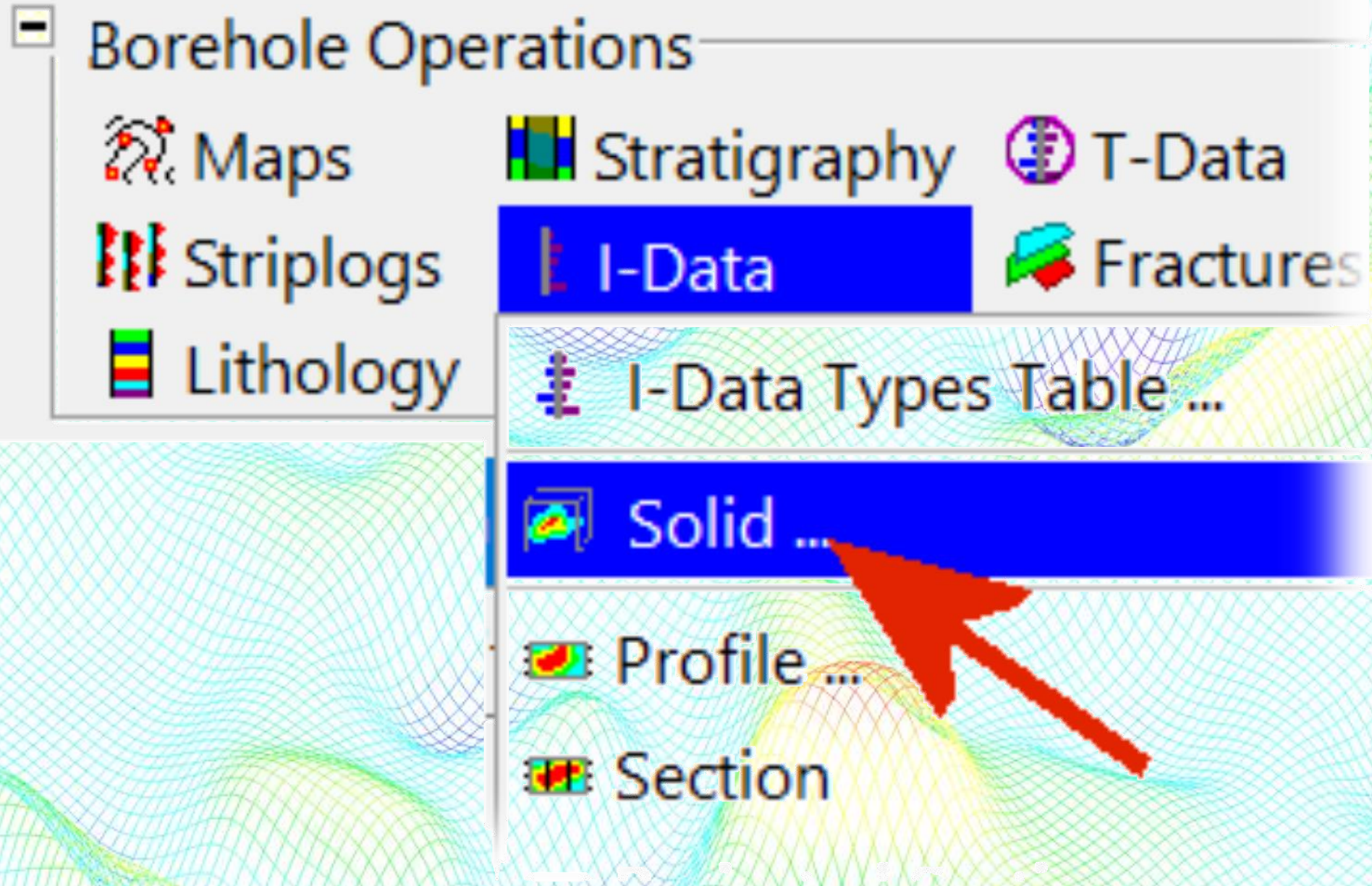
Grid Model Output File

- Create New Grid
- Use Existing Grid
- Ground_Surface.RwGrd
- Export Output Grid ?

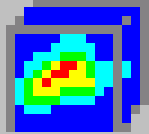
Click on the Playlist button and ...



Type-in "Create Surface Model" when prompted for an Item Title.



Select the Solid option from the Borehole Operations / I-Data menu.



I-Data → Solid Model

Main Options

Spatial Filter

Time Filter

 Strat. Rules

 3D Log D

Create New Model

Use Existing Model

Create 3D Diagram

Solid to be Created

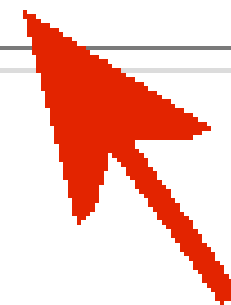
I-Data Track

Algorithm

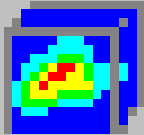
Special Options

Solid Model Output File

Lead.RwMod



Set the name of the Solid Model that is to be created to “Lead.RwMod”.



I-Data → Solid Model

Main Options

Spatial Filter

Time Filter

 Strat. Rules

Create New Model

Use Existing Model

Create 3D Diagram

Solid to be Created

I-Data Track

Algorithm

Special Options

Lead

Benzene Soil

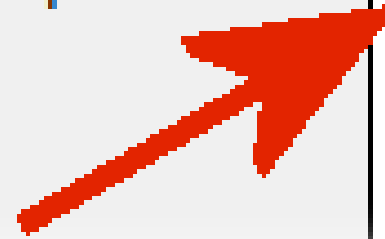
Ca

Gravel

Lead

Mg

Sand



Set the track to be modeled as "Lead".

I-Data → Solid Model

Settings Favorites **Playlist** Layout

Main Options Spatial Filter Time Filter Strat. Rules 3D Log Design

Create New Model
 Use Existing Model
 Create 3D Diagram

Solid to be Created: Lead

I-Data Track

Algorithm

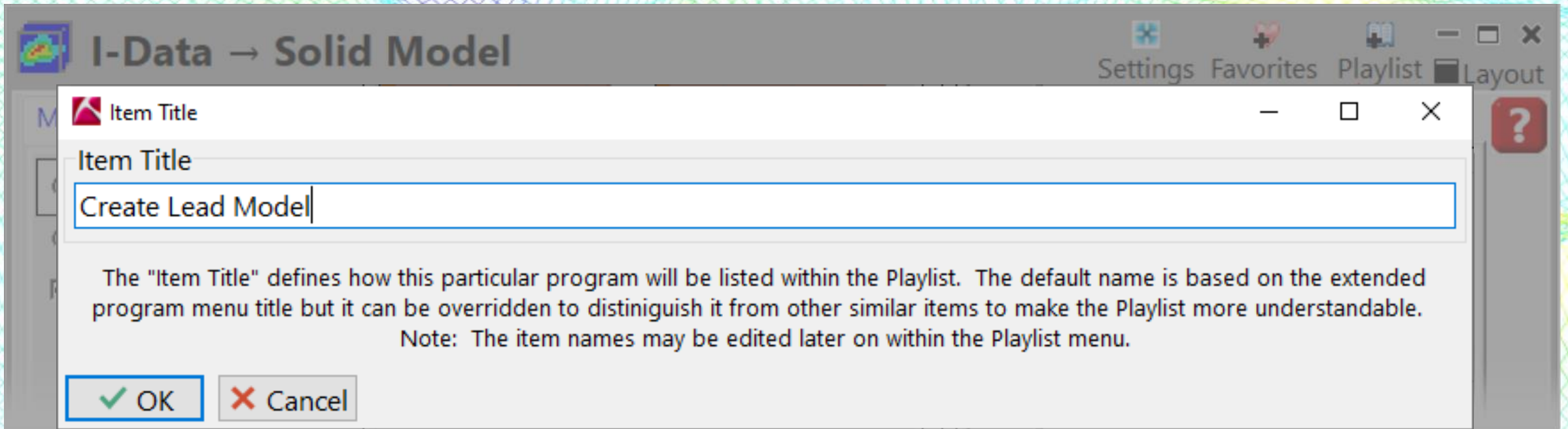
Special Options

Save Points To File
 G-Value Filter
 Resample

Method
Without Resampling Enclosing Interval

A red arrow points to the **Playlist** button in the top right corner of the panel.


Select the Playlist option.




Enter “Create Lead Model” as the name for this item.


ModOps


 Grid


 Solid

 Volume

 Triangulation Volumetrics ...


 Ore Grid ...

 Thickness → GT Grid ...

 Elevations → GT Grid ...

 Extract Via Surface Excavation ...


 Time-Based Volumetrics ...

 Time-Based Mass ...

Next, select the “Extract Via Surface Excavation” option from the ModOps / Volume menu.

Solid & Grid → Optimized Excavation

Settings Favorites Playlist Layout

Main Options Spatial Filter Time Filter  Strat. Rules  3D Log Design

Options


- 3D Solid Diagram
- Report

Input / Output Models


Thresholds & Filters
Report Options

Pre-Excavation Models (Input)

Ground Surface (Pre-Excavation) Grid Model


Ground_Surface.RwGrd 

Resource Model (Solid)


Lead.RwMod 

Post Excavation Models (Output)


Pit (Grid)

Pit.RwGrd 

Ore (Solid)

Extracted_Lead.RwMod 

Mined Waste (Solid)

Mined_Waste.RwMod 

Please note that selecting the Open button for the input files is not an option because these files don't exist yet.

Solid & Grid → Optimized Excavation

Settings Favorites Playlist Layout

Main Options Spatial Filter Time Filter  Strat. Rules  3D Log Design

Options

- 3D Solid Diagram
- Report

Input / Output Models

Thresholds & Filters

Report Options

Pre-Excavation Models (Input)

Ground Surface (Pre-Excavation) Grid Model

Ground_Surface.RwGrd



Resource Model (Solid)

Lead.RwMod



Post Excavation Models (Output)

Pit (Grid)

Pit.RwGrd



Ore (Solid)

Extracted_Lead.RwMod



Mined Waste (Solid)


Mined_Waste.RwMod



Instead, you'll need to manually type in the name of the Ground Surface grid, ...

Solid & Grid → Optimized Excavation

Settings Favorites Playlist Layout

Main Options Spatial Filter Time Filter  Strat. Rules  3D Log Design

Options

- 3D Solid Diagram
- Report

Input / Output Models

Thresholds & Filters
Report Options

Pre-Excavation Models (Input)

Ground Surface (Pre-Excavation) Grid Model

Ground_Surface.RwGrd

Resource Model (Solid)

Lead.RwMod

Post Excavation Models (Output)

Pit (Grid)

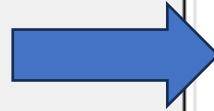
Pit.RwGrd

Ore (Solid)

Extracted_Lead.RwMod

Mined Waste (Solid)

Mined_Waste.RwMod



... the contaminant model (Lead.RwMod), ...

Solid & Grid → Optimized Excavation

Main Options Spatial Filter Time Filter Strat. Rules 3D Log Design

- Options
- 3D Solid Diagram
- Report

Input / Output Models
Thresholds & Filters
Report Options

Pre-Excavation Models (Input)

Ground Surface (Pre-Excavation) Grid Model
Ground_Surface.RwGrd

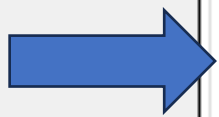
Resource Model (Solid)
Lead.RwMod

Post Excavation Models (Output)

Pit (Grid)
Pit.RwGrd

Ore (Solid)
Extracted_Lead.RwMod



Mined Waste (Solid)
Mined_Waste.RwMod



... the final excavation pit, and ...

Solid & Grid → Optimized Excavation

Settings Favorites Playlist Layout

Main Options Spatial Filter Time Filter  Strat. Rules  3D Log Design

Options

- 3D Solid Diagram
- Report

Input / Output Models

Thresholds & Filters
Report Options

Pre-Excavation Models (Input)

Ground Surface (Pre-Excavation) Grid Model

Ground_Surface.RwGrd

Resource Model (Solid)

Lead.RwMod

Post Excavation Models (Output)

Pit (Grid)

Pit.RwGrd

Ore (Solid)



Extracted_Lead.RwMod

Mined Waste (Solid)

Mined_Waste.RwMod



... the model which shows what can be extracted given the soon-to-be-described filters.

Main Options | Spatial Filter | Time Filter |  Strat. Rules |  3D Log Design

Options

- 3D S
- Report

Input / Output Models

Thresholds & Filters

Report Options

Thresholds

Lower Threshold: Minimum G-Value for resource to be mined.

Upper Threshold: Maximum G-Value for resource to be mined.

Maximum Slope: Degrees (-90 = Straight Down)

Maximum Depth: Meters Maximum pit depth limit regardless of maximum resource depth.

Maximum Acceptable Stripping Ratio: Stripping Ratio = (Overburden + Interburden) / Ore ?

Add Benches ?

Height: Meters

Width: Meters

Optimize Pit Design ?

Height Increment: Automatic Manual: Meters ?

Perimeter (Property Boundary) Filter

Polygon Table:

Add Unmined Vertical Pedestals Based on Boolean Grid Model - ?

Click on the Thresholds & Filters tab.

Main Options Spatial Filter Time Filter Strat. Rules 3D Log Design

Options

- 3D Solid Diagram
- Report

Input / Output Models

Thresholds & Filters

Report Options

Thresholds

Lower Threshold: Minimum G-Value for resource to be mined.

Upper Threshold: Maximum G-Value for resource to be mined.

Maximum Slope: Degrees (-90 = Straight Down)

Maximum Depth: Meters Maximum pit depth limit regardless of maximum resource depth.

Maximum Acceptable Stripping Ratio: Stripping Ratio = (Overburden + Interburden) / Ore ?

Add Benches ?

Height: Meters

Width: Meters

Optimize Pit Design ?


Height Increment: Automatic Manual: Meters ?

Perimeter (Property Boundary) Filter

Polygon Table:

Add Unmined Vertical Pedestals Based on Boolean Grid Model ?

The Lower Threshold defines the minimum Lead value to be excavated.

Main Options | Spatial Filter | Time Filter |  Strat. Rules |  3D Log Design

Options

3D Solid Diagram

Report

Input / Output Models

Thresholds & Filters

Report Options

Thresholds

Lower Threshold: Minimum G-Value for resource to be mined.

Upper Threshold: Maximum G-Value for resource to be mined.

Maximum Slope: Degrees (-90 = Straight Down)

Maximum Depth: Meters Maximum pit depth limit regardless of maximum resource depth.

Maximum Acceptable Stripping Ratio: Stripping Ratio = (Overburden + Interburden) / Ore ?

Add Benches ?

Height: Meters

Width: Meters

Optimize Pit Design ?

Height Increment: Automatic Manual: Meters ?

Perimeter (Property Boundary) Filter

Polygon Table:

Add Unmined Vertical Pedestals Based on Boolean Grid Model ?

The Upper Threshold doesn't really apply so set it to a very high value.

- Options
 - 3D Solid Diagram
 - Report
- Input / Output Models
- Thresholds & Filters
- Report Options

Thresholds

Lower Threshold: Minimum G-Value for resource to be mined.

Upper Threshold: Maximum G-Value for resource to be mined.

Maximum Slope: Degrees (-90 = Straight Down)

Maximum Depth: Meters Maximum pit depth limit regardless of maximum resource depth.

Maximum Acceptable Stripping Ratio: Stripping Ratio = (Overburden + Interburden) / Ore ?

Add Benches ?



Height: Meters

Width: Meters


Optimize Pit Design ?

Height Increment: Automatic Manual: Meters ?

Perimeter (Property Boundary) Filter

Polygon Table:  

Add Unmined Vertical Pedestals Based on Boolean Grid Model- ?





The Maximum Slope determines how steep the walls of the excavation will be.

Main Options | Spatial Filter | Time Filter | Strat. Rules | 3D Log Design

- Options
- 3D Solid Diagram
- Report

- Input / Output Models
- Thresholds & Filters
- Report Options

Thresholds

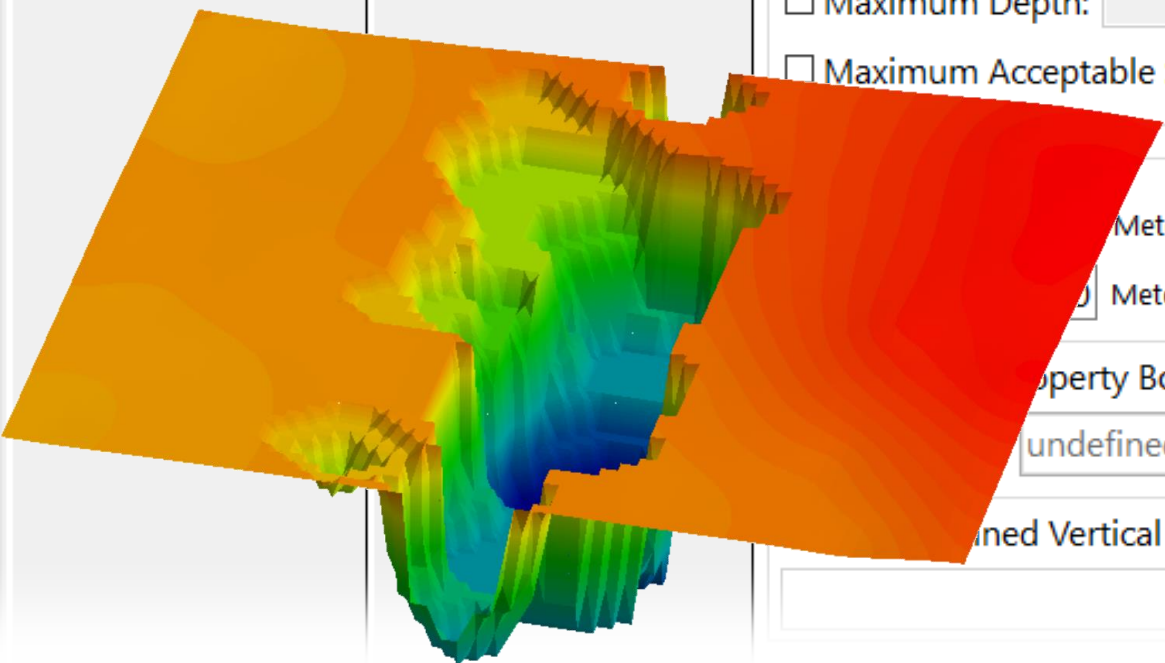
Lower Threshold: Minimum G-Value for resource to be mined.

Upper Threshold: Maximum G-Value for resource to be mined.

Maximum Slope: Degrees (-90 = Straight Down)

Maximum Depth: Meters Maximum pit depth limit regardless of maximum resource depth.

Maximum Acceptable Stripping Ratio: Stripping Ratio = (Overburden + Interburden) / Ore ?



Optimize Pit Design ?

Height Increment: Automatic Manual: Meters ?



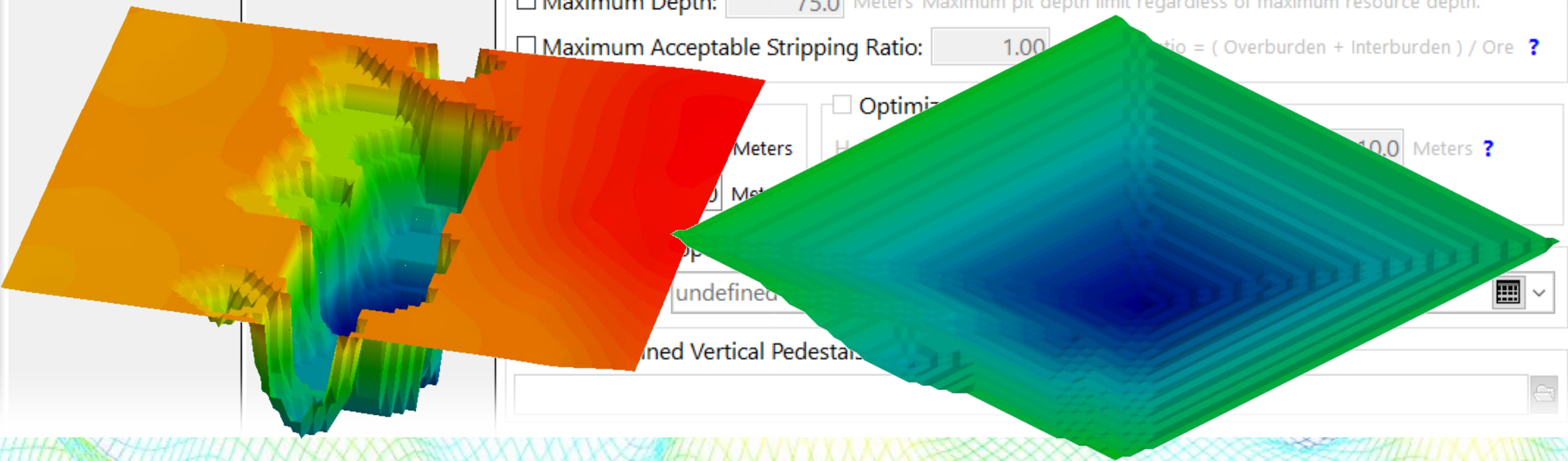
-90 will produce a pit with vertical edges.

Main Options Spatial Filter Time Filter Strat. Rules 3D Log Design

Options
 3D Solid Diagram
 Report

Input / Output Models
Thresholds & Filters
Report Options

Thresholds
Lower Threshold: Minimum G-Value for resource to be mined.
Upper Threshold: Maximum G-Value for resource to be mined.
Maximum Slope: Degrees (-90 = Straight Down)
 Maximum Depth: Meters Maximum pit depth limit regardless of maximum resource depth.
 Maximum Acceptable Stripping Ratio: Ratio = (Overburden + Interburden) / Ore ?



-10 will produce a much larger pit with gentle slopes.

Main Options Spatial Filter Time Filter Strat. Rules 3D Log Design

Options

- 3D Solid Diagram
- Report

Input / Output Models

Thresholds & Filters

Report Options

Thresholds

Lower Threshold: Minimum G-Value for resource to be mined.

Upper Threshold: Maximum G-Value for resource to be mined.

Maximum Slope: Degrees (-90 = Straight Down)

Maximum Depth: Meters Maximum pit depth limit regardless of maximum resource depth.

Maximum Acceptable Stripping Ratio: Stripping Ratio = (Overburden + Interburden) / Ore ?

Add Benches ?

Height: Meters

Width: Meters

Optimize Pit Design ?

Height Increment: Automatic Manual: Meters ?

Perimeter (Property Boundary) Filter

Polygon Table:

Add Unmined Vertical Pedestals Based on Boolean Grid Model - ?

Check the box labeled "Add Benches" and set the bench width and height to 10 meters.

Main Options Spatial Filter Time Filter Strat. Rules 3D Log Design

Options

- 3D Solid Diagram
- Report

Input / Output Models

Thresholds & Filters

Report Options

Thresholds

Lower Threshold: Minimum G-Value for resource to be mined.

Upper Threshold: Maximum G-Value for resource to be mined.

Maximum Slope: Degrees (-90 = Straight Down)

Maximum Depth: Meters Maximum pit depth limit regardless of maximum resource depth.

Maximum Acceptable Stripping Ratio: Stripping Ratio = (Overburden + Interburden) / Ore ?

Add Benches ?

Height: Meters

Width: Meters

Optimize Pit Design ?

Height Increment: Automatic Manual: Meters ?

Perimeter (Property Boundary) Filter

Polygon Table:

Add Unmined Vertical Pedestals Based on Boolean Grid Model - ?

There are plenty of other options, but we're trying to limit this video to a reasonable duration.

Main Options Spatial Filter Time Filter Strat. Rules 3D Log Design

- Options
 - 3D Solid Diagram
 - Report
- Input / Output Models
 - Thresholds & Filters
 - Report Options

Thresholds

Lower Threshold: Minimum G-Value for resource to be mined.

Upper Threshold: Maximum G-Value for resource to be mined.

Maximum Slope: Degrees (-90 = Straight Down)

Maximum Depth: Meters Maximum pit depth limit regardless of maximum resource depth.

Maximum Acceptable Stripping Ratio: Stripping Ratio = (Overburden + Interburden) / Ore ?

Add Benches ?



Height: Meters

Width: Meters

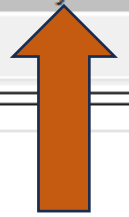
Optimize Pit Design ?

Height Increment: Automatic Manual: Meters ?

Perimeter (Property Boundary) Filter

Polygon Table:  

Add Unmined Vertical Pedestals Based on Boolean Grid Model ?



So let's continue by selecting the Playlist option.

Main Options | Spatial Filter | Time Filter | Strat. Rules | 3D Log Design

Options

3D Solid Diagram

Report

Input / Output Models

Thresholds & Filters

Report Options

Thresholds

Lower Threshold: Minimum G-Value for resource to be mined.

Upper Threshold: Maximum G-Value for resource to be mined.

Maximum Slope: Degrees (-90 = Straight Down)

Item Title

Item Title

Extract Lead > 3ppm

The "Item Title" defines how this particular program will be listed within the Playlist. The default name is based on the extended program menu title but it can be overridden to distinguish it from other similar items to make the Playlist more understandable.

Note: The item names may be edited later on within the Playlist menu.


OK


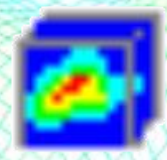

Cancel

Add Unmined Vertical Pedestals Based on Boolean Grid Model ?

Type in "Extract Lead > 3ppm" when prompted for the Item Title.

Playlist (Lead_Excavation)




 3 Playlist Items (No Item selected)

-  Create Surface Model
-  Create Lead Model
-  Extract Lead > 3ppm

Now, if you click on the Playlist tab you'll see the three items that you just created.

Playlist (Lead_Excavation)

+ 3 Playlist Items (No Item selected)

-  Create Surface Model
-  Create Lead Model
-  Extract Lead > 3ppm

PROCESS PLAYLIST

Click the Process Playlist button and the program will ...

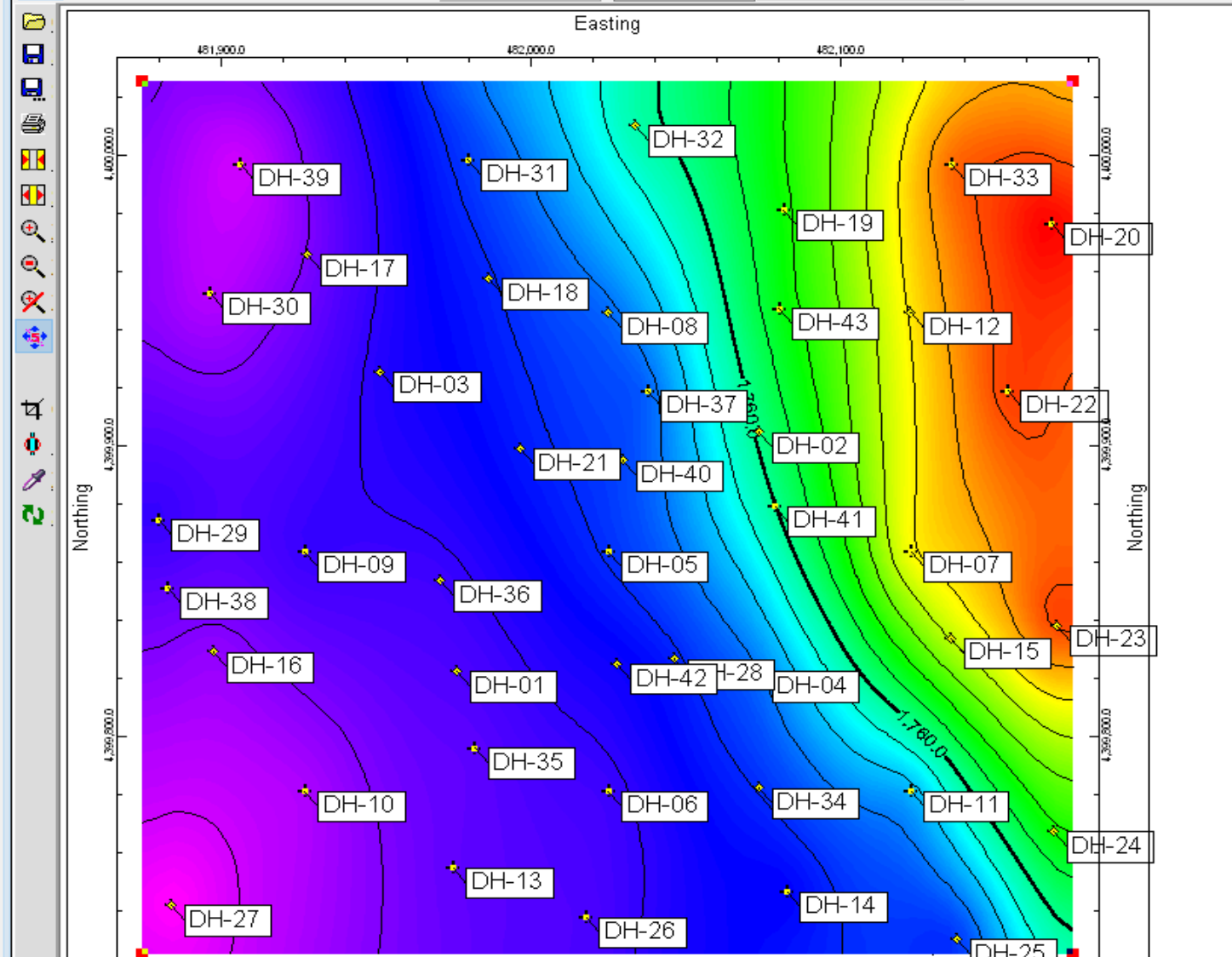
3 Playlist Items (Item # 1)

- Create Surface Model
- Create Lead Model
- Extract Lead > 3ppm

New
Open
Save
Save As ...
Rename
Up
Down
Cut
Copy
Paste
Enable
Disable
Delete
Clear

File Edit View Draw Measure Digitize Utilities Layers Window Help

VE: 1.00 | 100.00% | Google Earth

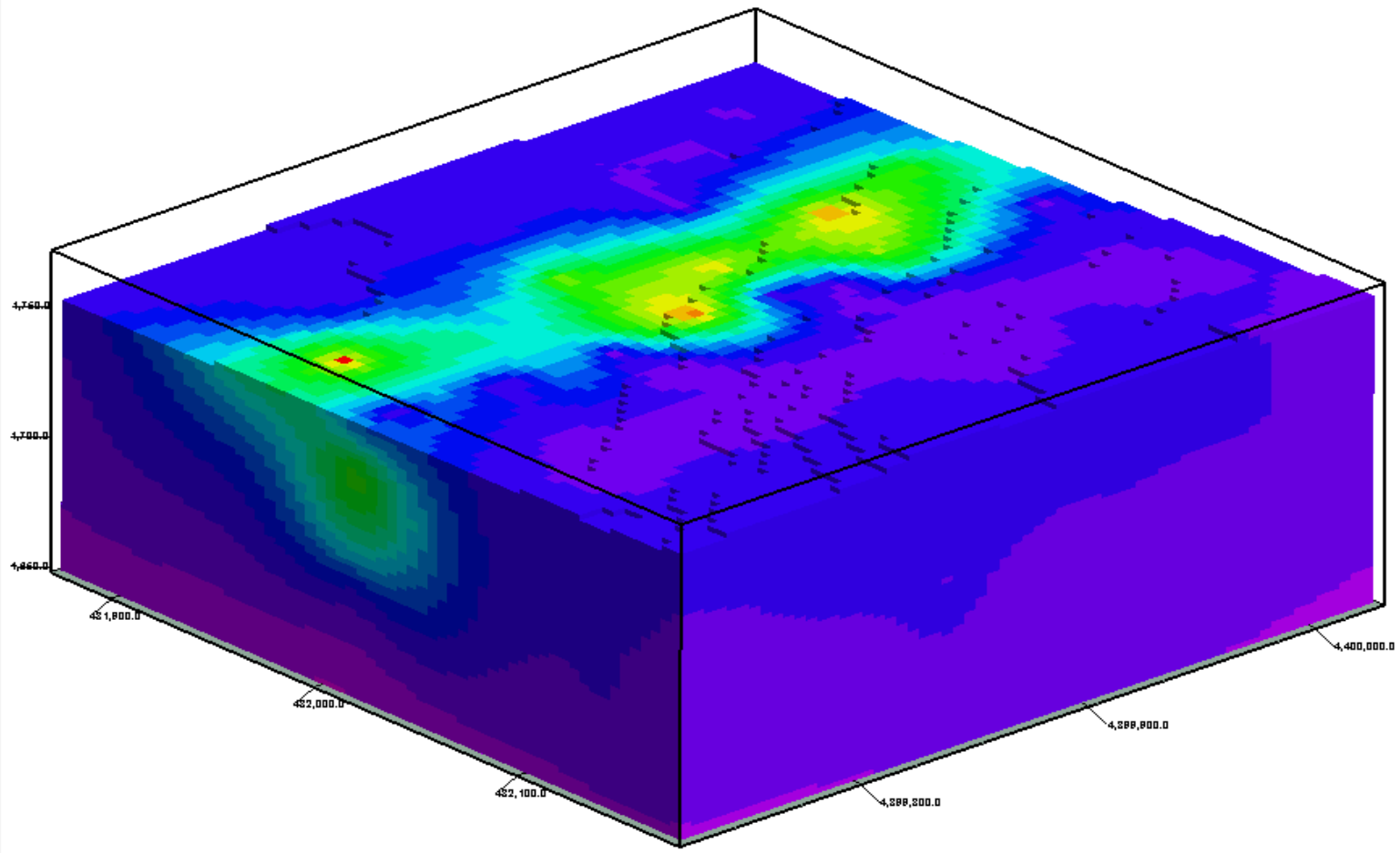


... create the surface model, ...

- New
- Open
- Save
- Save As ...
- Rename
- Up
- Down
- Cut
- Copy
- Paste
- Enable
- Disable
- Delete
- Clear

- 3 Playlist Items (Item # 1)
- Create Surface Model
 - Create Lead Model
 - Extract Lead > 3ppm

- Reference
 - Orientation
 - Axes
 - World Outline
 - Labels
- Tables
- Views
 - Default View
- Legends
- Data
 - I-Data Solid (Lead)
 - Perimeter Cage

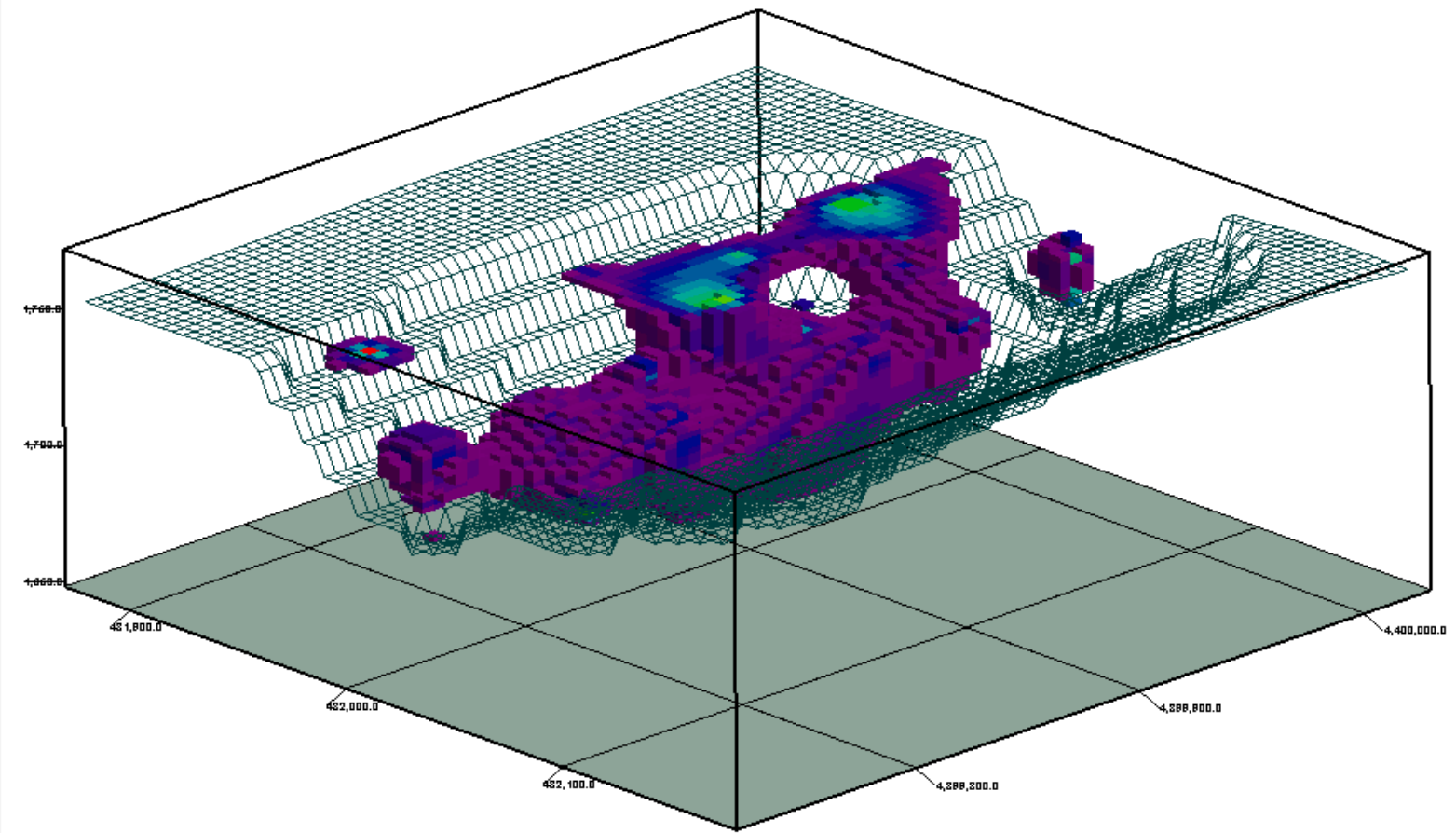


... the lead model, ...

- New
- Open
- Save
- Save As ...
- Rename
- Up
- Down
- Cut
- Copy
- Paste
- Enable ▾
- Disable ▾
- Delete
- Clear

- 3 Playlist Items (Item # 1)
- Create Surface Model
 - Create Lead Model
 - Extract Lead > 3ppm

- Reference
 - Orientation
 - Axes
 - World Outline
 - Labels
- Tables
- Views
 - Default View
- Legends
- Data
 - Extracted Ore
 - Excavation
 - Perimeter Cage



... the extraction pit, and ...

3 Playlist Items (Item # 1)

- Create Surface Model
- Create Lead Model
- Extract Lead > 3ppm

New

Open

Save

Save As ...

Rename

Up

Down

Cut

Copy

Paste

Enable ▾

Disable ▾

Delete

Clear

File Edit View

Save as Print Copy Copy All Font Larger Smaller Exit

Ore Extraction Report		
Description	Results	Units
Pit Shell:		
Volume	0.002	Cubic Kilometers
Mass	0.002	Long Tons
Depth	74.12	Meters
Areal Extent	0.059	Square Kilometers
Extracted Materials:		
Ore Volume	0.0	Cubic Kilometers
Ore Mass	0.0	Long Tons
Waste Volume	0.002	Cubic Kilometers
Waste Mass	0.002	Long Tons
Stripping Ratio	5.419	Mined Waste / Mined Ore
User-Defined Parameters:		
Maximum Depth	n/a	
Maximum Slope	-30.0	Degrees
Maximum Bench Height	10.0	Meters
Minimum Ore Value	3.0	PPM
Maximum Ore Value	999,999.0	PPM
Maximum Acceptable Stripping Ratio ..	n/a	
Density Conversion Factor	1.0	Long Tons Per Cubic Kilometers
Unmined Ore:		
Volume	0.0	Cubic Kilometers
Mass	0.0	Long Tons


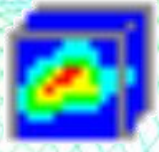

... a volumetric report.



Playlist (Lead_Excavation)



3 Playlist Items (No Item selected)

-  Create Surface Model
-  Create Lead Model
-  Extract Lead > 3ppm

You can examine and/or change any of the settings within the playlist items by double-clicking on an item title.

Project Folder: C:\Users\Jim\Documents\RockWorks Data\Samples\

Playlist (Lead_Excavation) Borehole Manager Project Manager Faults Datasheet (Test) Execution History

File Edit View Configure Add SuperUser

- New
- Open
- Save
- Save As ...
- Rename
- Up
- Down
- Cut
- Copy
- Paste
- Enable
- Disable
- Delete
- Clear

- 3 Playlist Items (Item # 1)
- Create Surface Model
 - Create Lead Model
 - Extract Lead > 3ppm

RockWorks Advanced
Version 2024.8.16

Project Folder: C:\Users\Jim\Documents\RockWorks Data\Samples\

Playlist (Lead_Excavation) Borehole Manager Project Manager Faults

menu settings & return to Playlist. Cancel Playlist Item Title: Create


Borehole Location Map (BHMAP)

Main Options Spatial Filter Time Filter Strat. Rules

Symbol Options

- Surface Contours
- Add —
- Background Image
- Labeled Axes
- Map Overlays
- Other 2D Files

- Symbols
- Proportional Shapes
- Rosegrams
- Log Traces
- Borehole IDs
- Coordinates
- Elevations


- Raster Symbols
- Size: 1.000 % of Project
- Use Borehole Raster Sym
- Other:
- Raster Symbol:  Note
- Vector Symbols


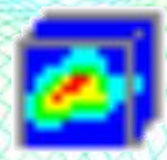

This will show all of the settings for that particular program.

The image shows the RockWorks Advanced software interface. At the top, the title bar reads "RockWorks Advanced Version 2024.8.16". Below this, the "Project Folder" is set to "C:\Users\Jim\Documents\RockWorks Data\Samples\". The main menu includes "File", "Edit", "View", "Configure", "Add", and "SuperUser". A playlist titled "Playlist (Lead_Excavation)" is active, containing three items: "Create Surface Model", "Create Lead Model", and "Extract Lead > 3ppm". The "Create Surface Model" item is selected, and a configuration dialog box is open for it. The dialog box has a title bar "RockWorks Advanced Version 2024.8.16" and a "Project Folder" field. It features a "Back" button and a green button labeled "Go to menu settings & return to Playlist." with a red arrow pointing to the "Create Surface Model" item in the playlist. The dialog is titled "Borehole Location Map (BHMAP)" and has tabs for "Main Options", "Spatial Filter", "Time Filter", and "Strat. Rules". The "Main Options" tab is active, showing three sections: "Symbol Options" with checkboxes for "Surface Contours", "Background Image", "Labeled Axes", "Map Overlays", and "Other 2D Files"; "Symbol Options" with checkboxes for "Symbols", "Proportional Shapes", "Rosegrams", "Log Traces", "Borehole IDs", "Coordinates", and "Elevations"; and "Raster Symbols" with a "Size" field set to "1.000", radio buttons for "Use Borehole Raster Sym" and "Other:", a "Raster Symbol" preview showing a yellow circle with a black radiation symbol, and a "Vector Symbols" checkbox.

In this way, you can iteratively “tweak” the settings to get exactly what you want.

Playlist (Lead_Excavation)

 3 Playlist Items (No Item selected)

-  Create Surface Model
-  Create Lead Model
-  Extract Lead > 3ppm

Now, you'll have a template that can be applied to other projects as well as a "recipe" that shows how you did it..