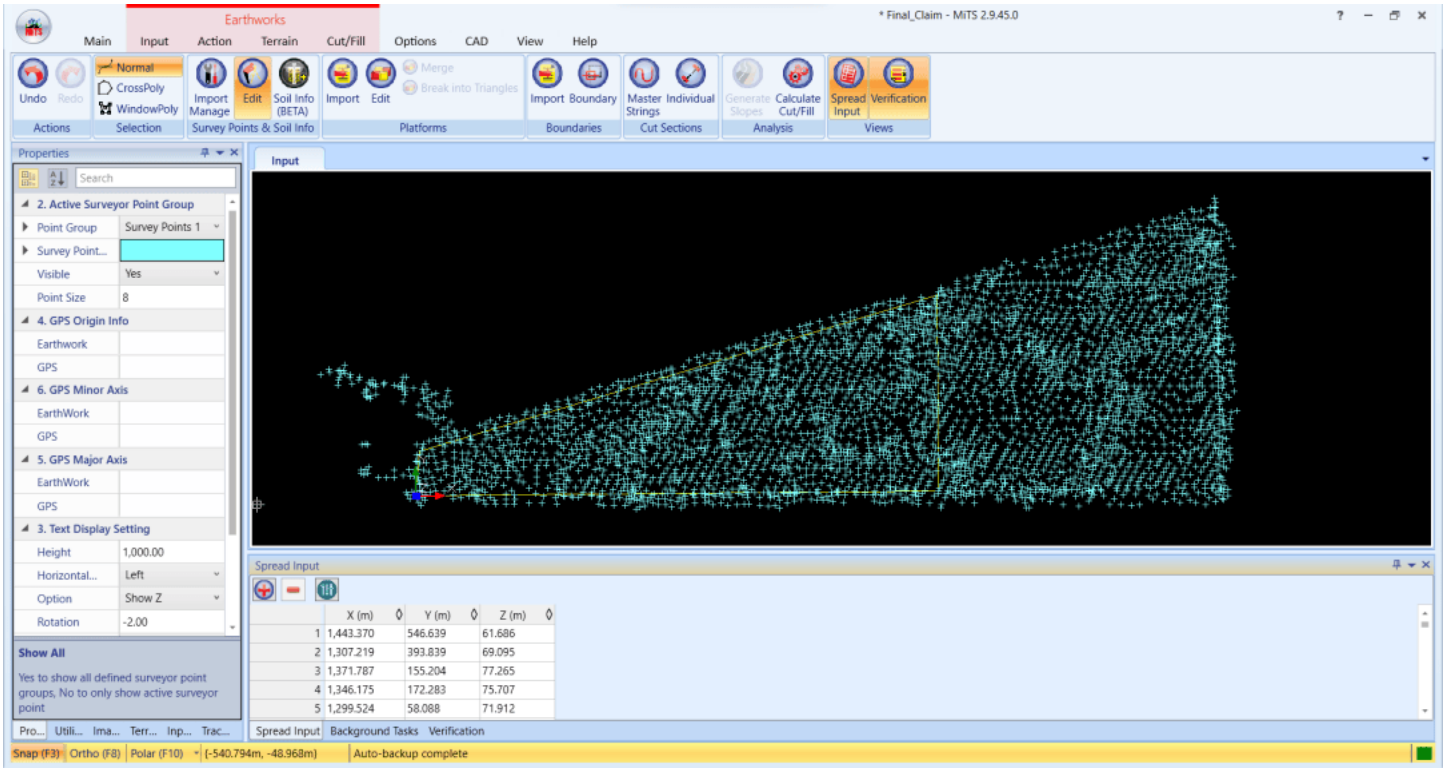
The Comparison of Earthwork Cut and Fill for As-Built

Earthwork · https://mes100.com/docs/ew-cut-fill-volume-ogl-compared-to-as-built/

Project file can refer here

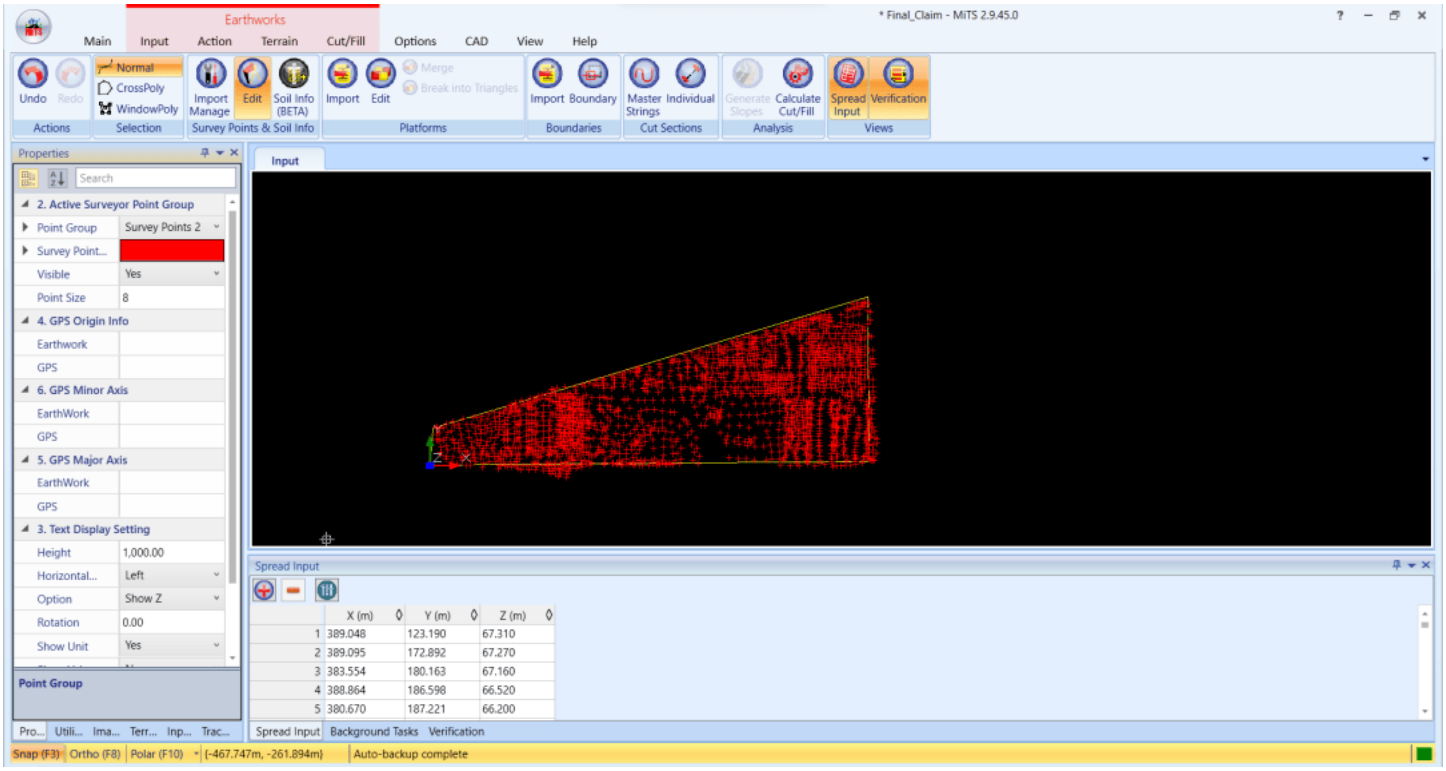
Normally, the contractor will provide an as-built drawing for Earthwork progress and C&S engineer will be required to check the EW volume submitted by the contractor. Hence, we will have two survey groups which represent our Original Ground Level (OGL) and As-Built Level.

In this project, we have the OGL and we import to the project file named “Survey Points 1” as per image below.



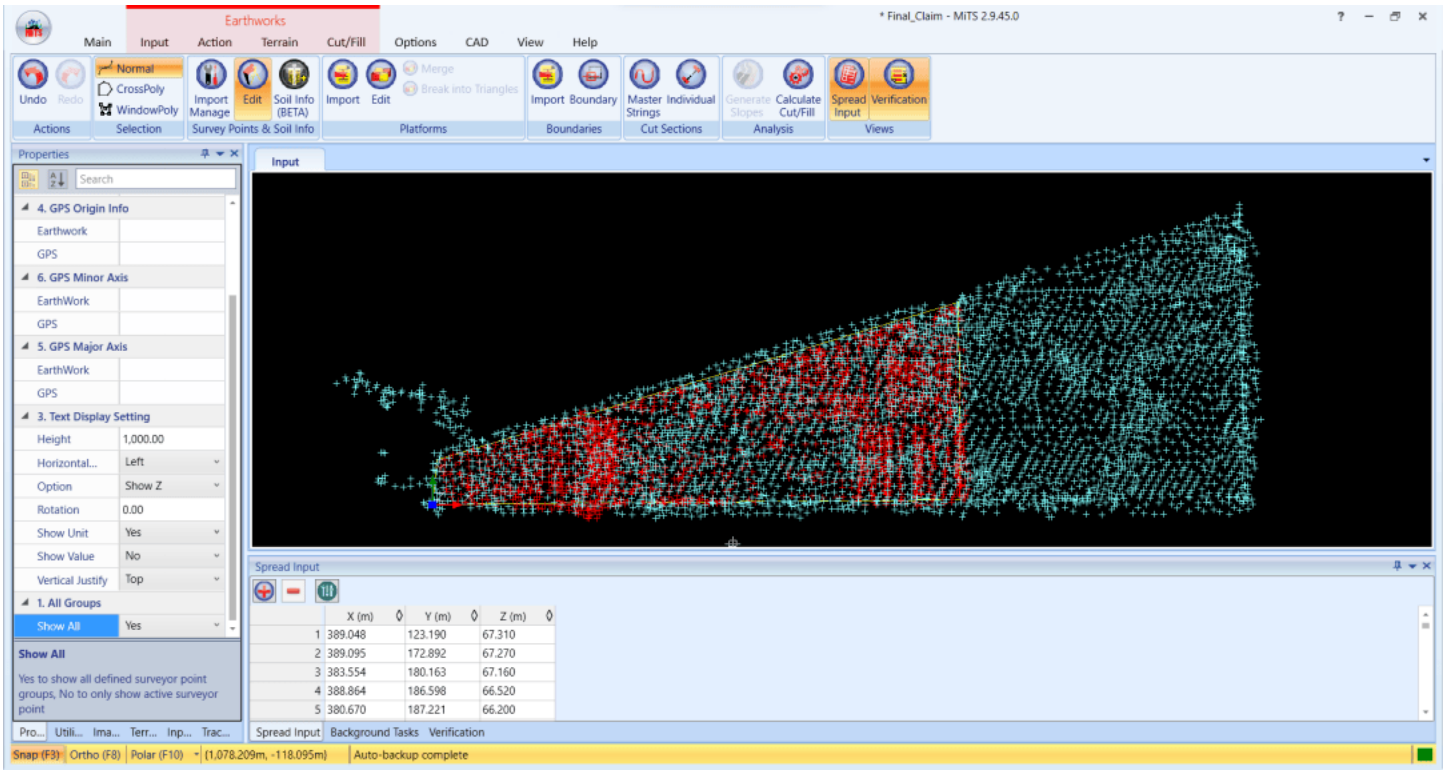
Survey Points 1 - OGL

Next, we have the second group of survey points named “Survey Points 2” which is our As-Built Level as per image below.



Survey Points 2 - As-Built Level

If we were to overlap both Survey Points, the visual is as per image below.

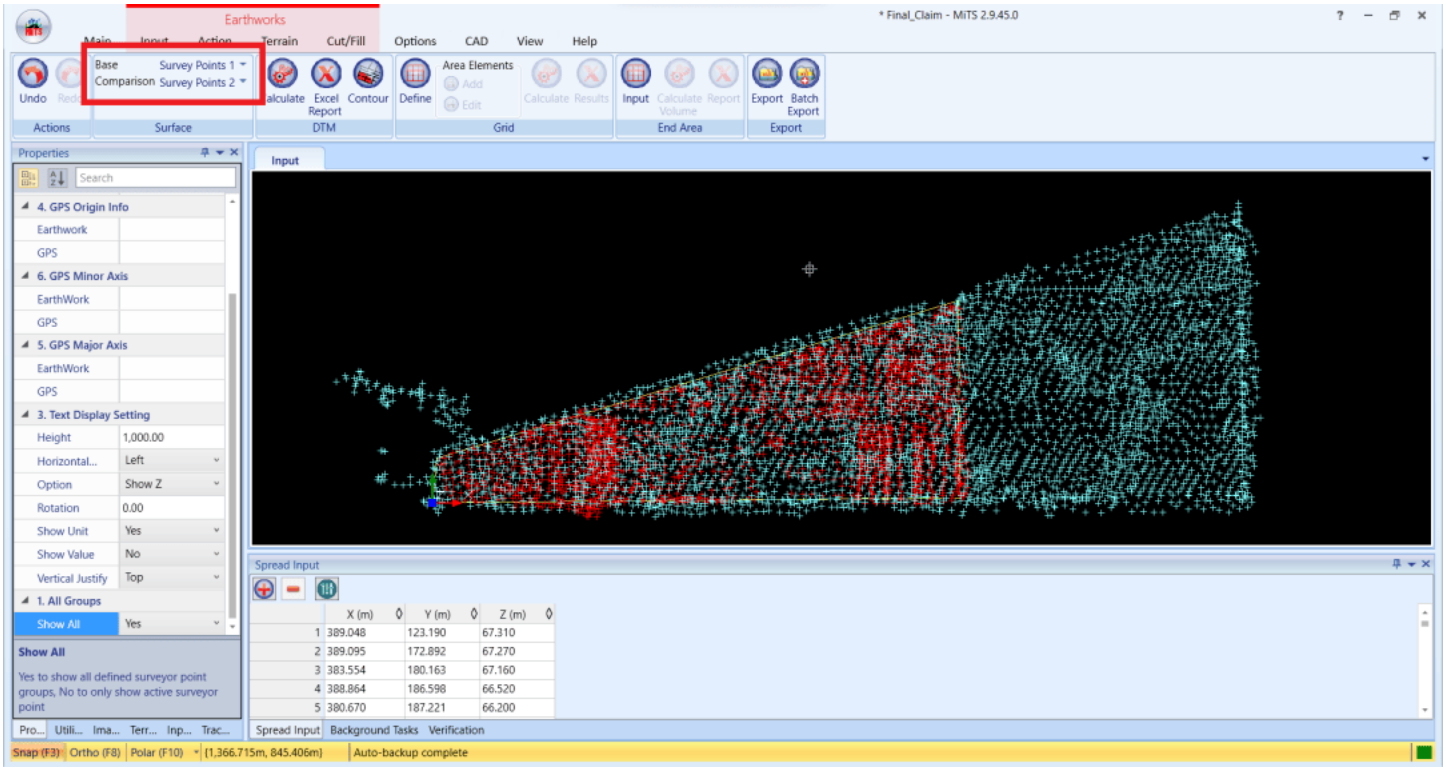


Overlapping Survey Points 1 and Survey Points 2

Before we proceed to compute the earthwork volume, we will first need to ensure that the base surface and comparison surface has been chosen correctly as highlighted in the image below. You can go to;

Earthwork > Cut/Fill > Surface > Base: Survey Points 1

Earthwork > Cut/Fill > Surface > Comparison: Survey Points 2



In this project file, Survey Points 1 or OGL should be our base surface. Whereas, our Survey Points 2 or As-Built Level should be set as the comparison surface. This is because we are comparing the OGL with our As-Built Level. Then, you can proceed to compute the earthwork volume using any method you prefer.

The output for each method is shown as follow:

1. DTM Method

8	**Earthworks Volume Summary**		
9	**DTM Method**		
10			
11			
12	Overlapped As-Built Area	843339.98	m^2
13	Topsoil Stripping Depth	boundary Boundary 1:0mm	
14	Topsoil Stripping Volume	0.00	m^3
15	Expanded Cut	2435871.53	m^3
16	Volume Needed Before Compacted Fill	1862500.36	m^3
17	Export/Import*	573371.17	m^3

2. Grid Method

10	**Earthworks Volume Summary**		
11			
12	Top Soil	0.00	m^3
13			
14	Expanded Cut	2428595.81	m^3
15	Volume Needed Before Compacted Fill	1858481.38	m^3
16			
17	Export/Import	570114.43	m^3
18	Defined Zone Area	1486100.00	m^2

3. End-Area Method

8	**Earthworks Volume Summary**		
9	**End Area Calculation Method**		
10			
11			
12	Cut Section Interval	10000.00	mm
13	Top Soil Volume	0.00	m^3
14	Expanded Cut Volume	2435686.04	m^3
15	Vol. Needed before compact fill	1861646.08	m^3
16	Export/Import*	574039.95	m^3

The discrepancy between each method for the earthwork computation is less than 1%. However, if you encounter a large discrepancy between each method, you can refer to our blogpost on how to reduce the discrepancy between each method. Hence, this proof that any method can be used for comparison of earthwork cut and fill for as-built.

Related



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I'm the Benevolent Dictator for Life for MiTS Software cum Editor of this website. Read more here.

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