ITCM 410

Lab 1: Vertical Control Survey- Three Wire Leveling

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OBJECTIVE

The objective of this lab was to teach us how to run a vertical control survey. We were also to use three wire leveling in this lab. We were to determine the distances between each turning point by using stadia measurements.

EQUIPMENT

* Auto Level
* Philadelphia Rod

In this lab we set up a level loop around Lloyd Cassidy in which we determined the elevation of all of the doors by using side shots. This lab required us to be able to read a Philadelphia rod and use an auto level accurately. The data that was taken from the level loop will be shown below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Station | Forsight | Stadia | Back Sight | Stadia | Elevation |
| BM1 |  |  |  |  | 500 |
|  | 0.535 |  | 6.415 |  |  |
|  | 0.315 | 44.5 | 6.175 | 47.5 | 0.313 |
|  | 0.09 |  | 5.94 |  | 500.313 |
|  | -0.313 |  | 6.176 |  | -6.176 |
|  |  |  |  |  |  |
| TP1 |  |  |  |  |  |
|  | 0.695 |  | 6.455 |  |  |
|  | 0.515 | 35.5 | 6.1 | 70.5 | 0.516 |
|  | 0.34 |  | 5.75 |  | 494.653 |
|  | 0.516 |  | -6.103 |  | -6.101 |
|  |  |  |  |  |  |
| Door 1 |  |  |  |  | 488.552 |
|  |  |  | 5.655 |  |  |
|  |  |  | 5.435 | 44 |  |
|  |  |  | 5.215 |  |  |
|  |  |  | -5.435 |  |  |
|  |  |  |  |  |  |
| TP2 |  |  |  |  | 488.552 |
|  | 4.75 |  | 6.22 |  |  |
|  | 4.37 | 71 | 5.665 | 107 | 4.387 |
|  | 4.04 |  | 5.15 |  | 492.939 |
|  | 4.387 |  | -5.678 |  | -5.678 |
|  |  |  |  |  |  |
| Door 2 |  |  |  |  | 487.261 |
|  |  |  | 4.21 |  |  |
|  |  |  | 3.895 | 67 |  |
|  |  |  | 3.59 |  |  |
|  |  |  | -3.898 |  |  |
|  |  |  |  |  |  |
| TP3 |  |  |  |  | 487.261 |
|  | 6.7 |  | 0.62 |  |  |
|  | 5.79 | 62 | 0.42 | 40.5 | 5.857 |
|  | 5.59 |  | 0.215 |  | 493.118 |
|  | 5.897 |  | -1.255 |  | -1.255 |
|  |  |  |  |  |  |
| TP4 |  |  |  |  |  |
|  | 4.245 |  | 4.45 |  |  |
|  | 8.89 | 51.5 | 3.965 | 99.06 | 8.988 |
|  | 8.73 |  | 3.46 |  | 500.851 |
|  | 8.988 |  | -3.958 |  | -3.958 |
|  |  |  |  |  |  |
| TP5 |  |  |  |  | 496.893 |
|  | 5.91 |  | 2.88 |  |  |
|  | 5.635 | 55 | 2.5 | 67 | 5.635 |
|  | 5.36 |  | 2.33 |  | 502.528 |
|  | 5.635 |  | -2.57 |  | -2.57 |
|  |  |  |  |  |  |
| Door 3 |  |  |  |  | 499.958 |
|  |  |  | 3.07 |  |  |
|  |  |  | 2.8 |  |  |
|  |  |  | 2.53 |  |  |
|  |  |  | -2.8 |  |  |
|  |  |  |  |  |  |
|  | Total Dist.= | 751 |  |  | 500 |
|  |  |  |  |  | -499.958 |
|  |  |  |  |  | 0.042 |
| Error of closure= | 1:18000 |  |  |  |  |

CONCLUSION

This lab was very helpful in learning how to keep the notes straight. I was having trouble with that until after we did this lab. I also learned how to better use the instruments. I feel like I am more able to actually survey after completing this lab.