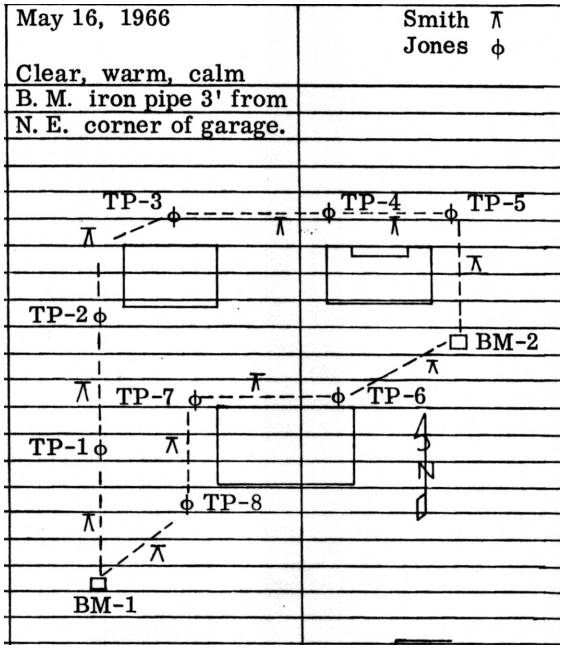
Field Notes for **Differential Leveling**

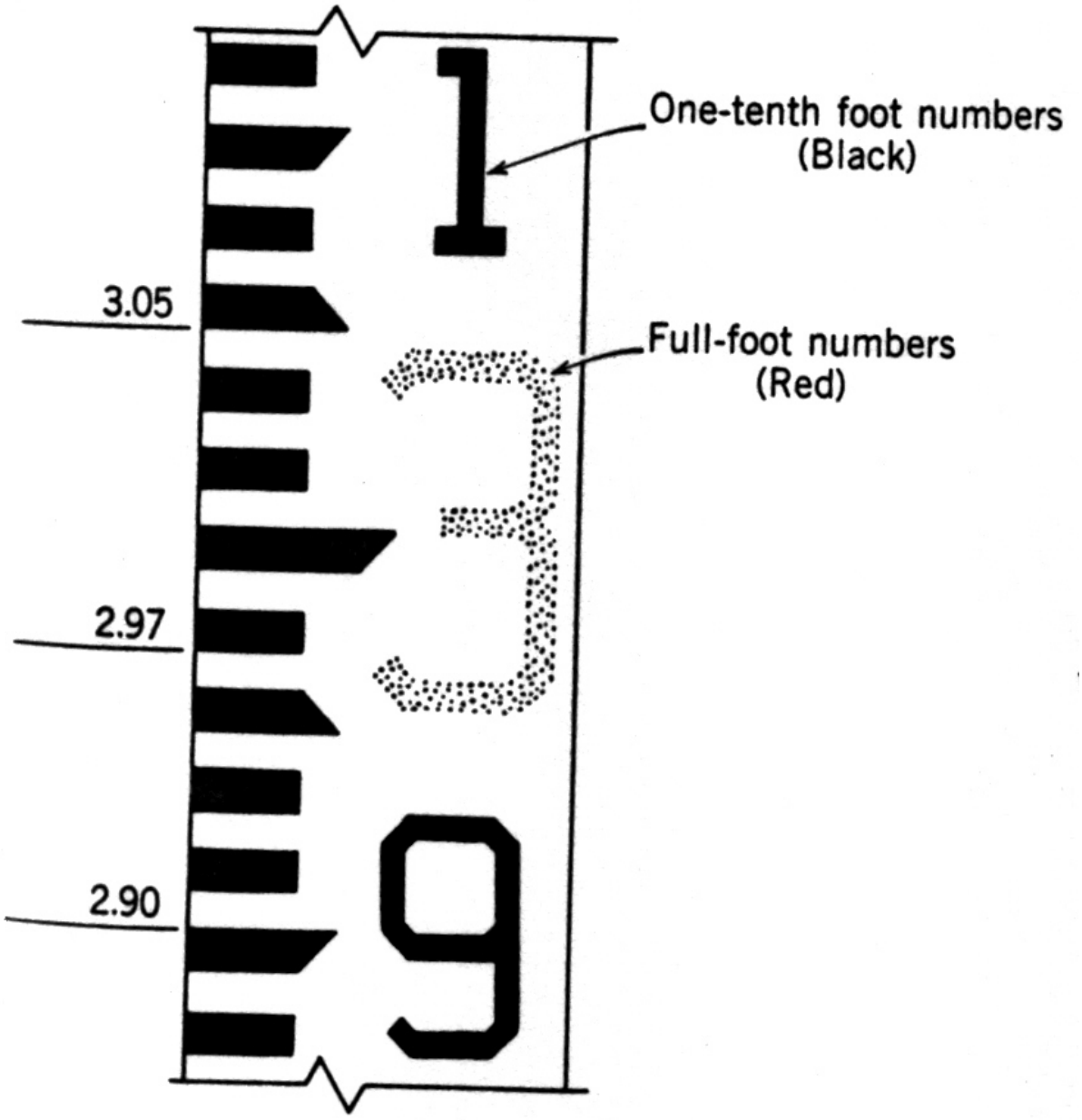


1. Put in the column titles: Sta., BS, HI, FS, Elev., Dist.
2. Always start at a BM = Bench Mark = point of known elevation
3. Explain how to fill out field notes:

Elevation BM-1	100.0	(either given or assumed)
BS on BM-1	+5.62	(we will only be reporting in 10ths because not using stakes for rod readings; describe sources of error -- taken on grass = mashing down when turn rod for turning point; could put stake into ground, use rock, curb, sidewalk, etc. to improve readings)
HI	105.62	
FS on TP-1	-3.21	
Elevation TP-1	102.41	

4. How get the distance? Use pacing.

Reading a Rod



Remember to wave rod forward and backward to obtain lowest reading = reading when rod is plumb.

Field Notes for **Profile Leveling**

Sta.	BS	HI	FS	Elev.

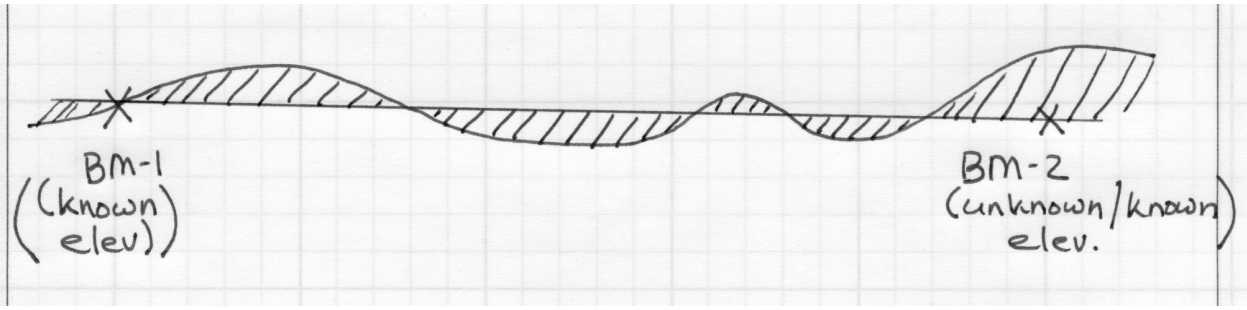
1. Q: What changes in the field notes when you perform a profile leveling?

   A: Station descriptions along a line are generally designated as 0 + 00, 3 + 50, etc., in which the starting point and the two numerals following the plus sign represent the additional number of feet (which must be less than a hundred). Thus, 3 + 50 station means that it is 350 ft from the *initial point* designated as 0 +00.

Surveying Lab

Activity 1: Determining Cut & Fill Areas for Proposed Ditch

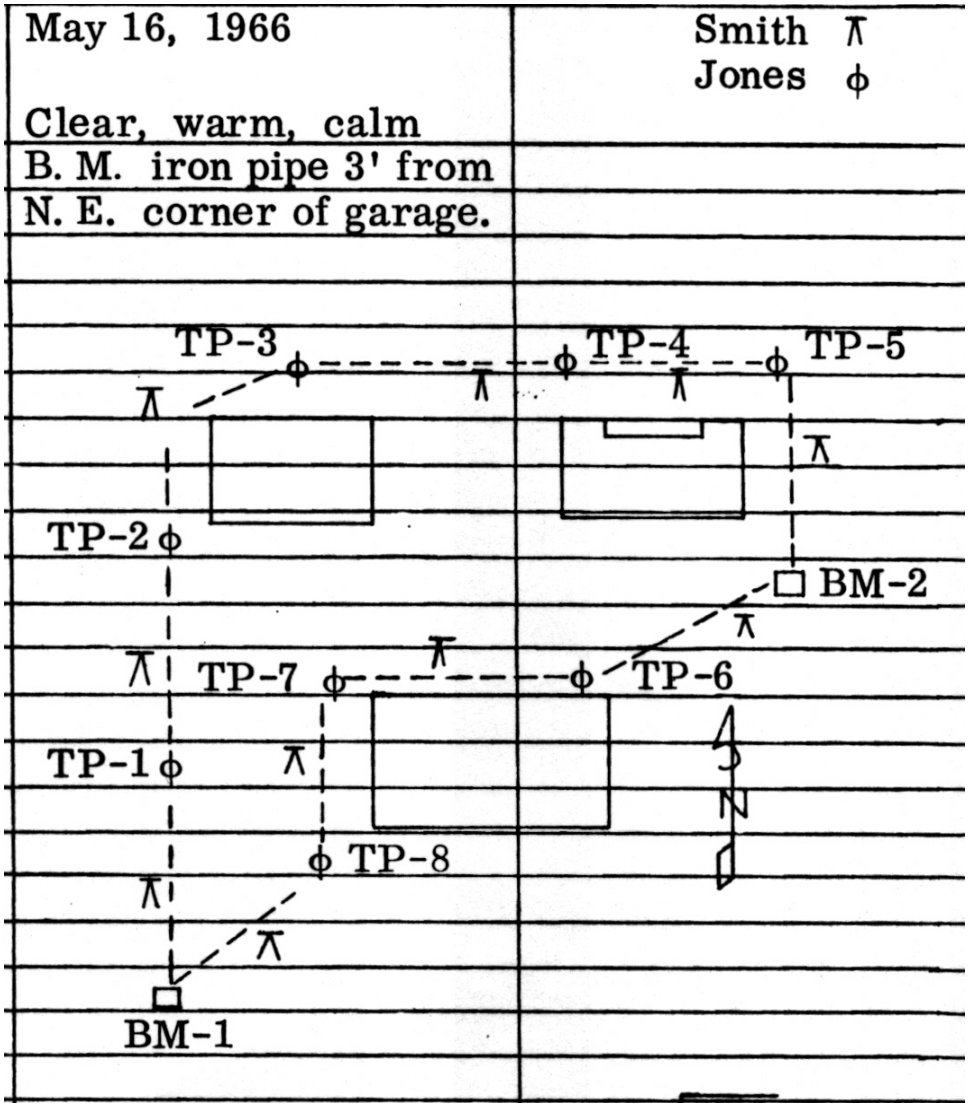
1. Using a regular transit, determine the cut and fill requirements to put in a ditch that is designed to have a 2% slope.
2. You must decide how many elevation points to use and distance between flags (bench marks).
3. Use one page of the field notes; please indicate who did what; *please rotate tasks*.
4. I'm only interested in knowing where the cuts and fill are located and through schematic drawing how much soil needs to be added or removed to obtain the design slope.
5. You will have 30 minutes to complete this task.



Surveying Lab

Activity 2: Performing a Closed-Circuit Differential Leveling

1. Using a laser level, perform a closed-circuit differential leveling of XXX.
2. You need to determine BM-2 and have at least one turning point.
3. Use one page of the field notes; please indicate who did what; *please rotate tasks*.
4. I'm interested in knowing the amount of error in your survey and the allowable error.
5. You will have 30 minutes to complete this task.



Surveying Lab

Activity 3: Determining Contour Lines for Grassed Waterway

1. Using a laser level, determine the elevations of 16 points.
2. Use one page of the field notes; please indicate who did what; *please rotate tasks*.
3. After determining the elevations of the 16 points, draw on your map the contour lines and indicate the drainage direction. Can you determine the slope of the drainage?
4. You will have 30 minutes to complete this task.