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Initial Soil Depth Tests and Oz-Post Options

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1. Overview

The LWA-MC site on Bar T Bar Ranch just north of Meteor Crater is characterized by shallow soil with light, low vegetation above a bedrock layer. Here we summarize initial soil depth measurements at several areas on the site. Measurements were acquired by pounding a 48" long, ½" diameter rebar rod into the ground until it met solid resistance (usually with an accompanying sound that suggested a hard surface had been contacted).

2. Measurements

Soil Depth Samples

	Depth (inch)	Lat, Lon	Photo filename	Notes
Depth #1	12	35.0603010997222, -111.023447	20250613_141350.jpg	Dark soil and plants
Depth #2	7	35.0601257, -111.023220499722	20250613_141758.jpg	Light soil, no plants
Depth #3	20	35.0602082997222, -111.0226291	20250613_142216.jpg	Light soil, no plants
Depth #4	21	35.0601624, -111.0223986	20250613_142835.jpg	Dark soil and plants

Rock Outcrops Along Perimeter (not a complete list of rocks in site)

	Lat, Lon	Photo filename
Rock #1	35.0592317997222, -111.021880999722	20250613_134630.jpg
Rock #2	35.0594995, -111.0215368	20250613_134752.jpg
Rock #3	35.0599417, -111.0210766	20250613_134850.jpg



Figure 1. Locations of soil depth tests. Rock outcrops along the perimeter of the site are also shown. Additional rocky areas in the site and not labeled.



Figure 2. Photo showing general soil and vegetation appearance of the site. The “light soil” areas are typically lacking plant cover and correlate with areas where the bedrock is closer to the surface. The “dark soil” areas have more plant cover and relatively deeper soil compared to surrounding light areas. The Depth #2 measurement was taken in the light soil area near the antenna.



Figure 3. Photo taken at location of Rock #1 marker and looking northeast.

3. Oz-Post Reference Information

The nominal plan is for the LWA-MC station antennas to be secured in the ground using OZ-Post anchors (see Figure 2). We have 64 x 24" (2-3/8" Dia.) IS-600 Post Anchors. Product links:

- <https://ozcobp.com/product/is-600-2-38-round-oz-post-anchor/>
- <https://ozcobp.com/product-category/post-anchors>

The length of Oz-Post anchors is longer than the soil depths measured at the site. Therefore, additional solutions are needed to ensure the antennas are securely mounted. Ideas include:

- Option 1: If antenna layout can accommodate areas where the soil depth is 18" or greater:
 - 1a) Let the anchors stick out of the ground an extra few inches
 - 1b) Cut the tips off of the anchors to shorten to the available soil depth
- Option 2: Jackhammer the Oz-Post anchors into the bedrock.
- Option 3: Oz-Post also sells compatible post bases that could be used to directly anchor to the bedrock (see Figure 3)

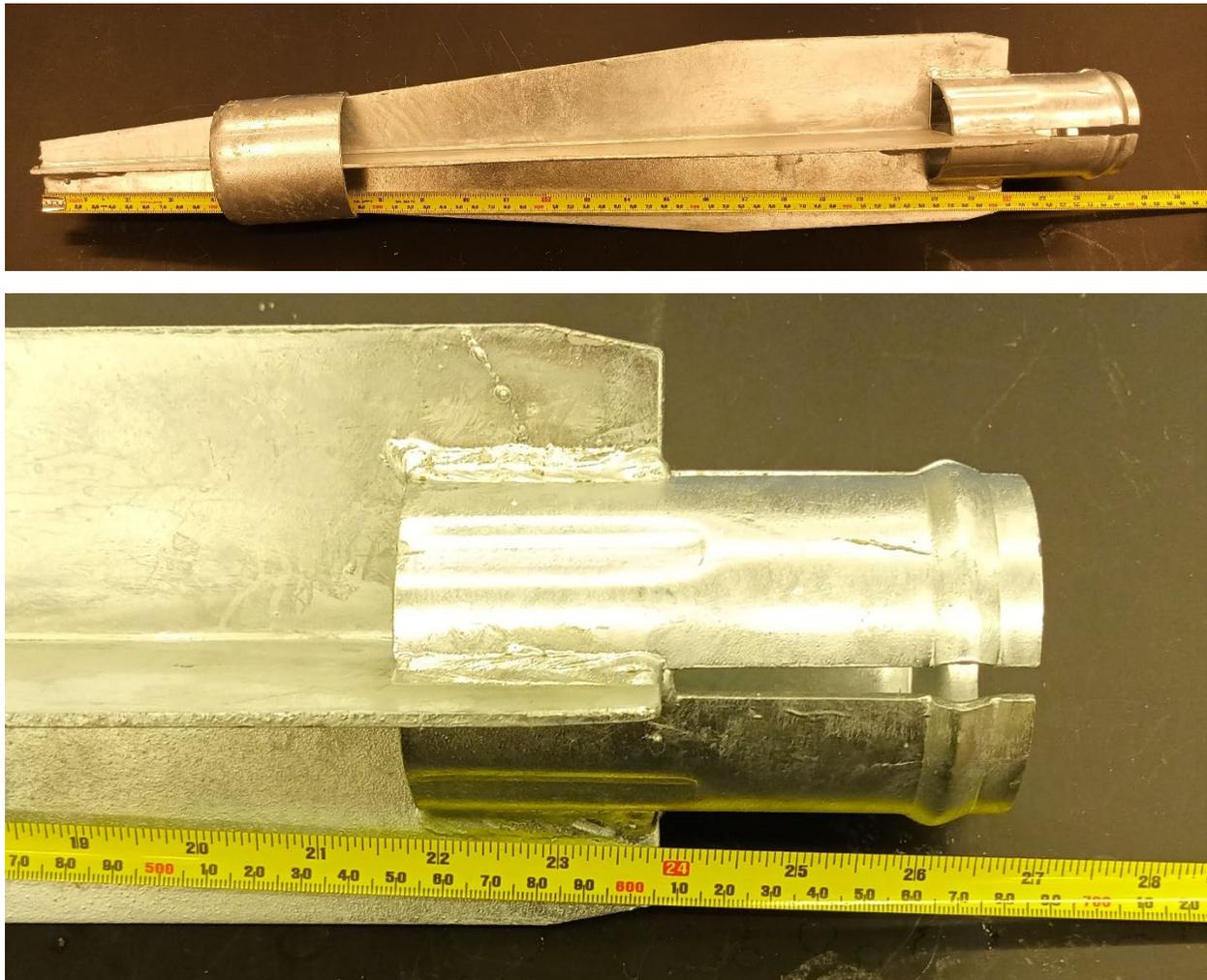


Figure 2. Length of the Oz-Post anchor is 24" to the top of the spike, but only 22" to the bottom of the post holder..



Figure 3. OZ-Post post bases from <https://ozcobp.com/product/isw-base-for-signsfences-2-38-round/>