

*KARS 2025
Repeater Site
Update at Tower Road*

Marsh Pronneke

WA5UBO

February 2025



Agenda

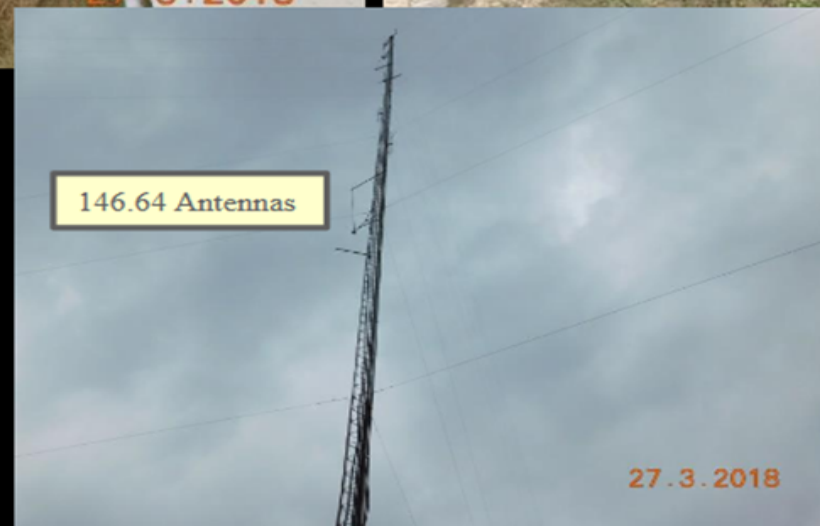
- What were our goals in 2017 when we acquired the site from the county.
- Where are we now in the project?
- Where do we want to go from here?

A Little History of the Sites



146.64 Repeater Shack

27.3.2018



146.64 Antennas

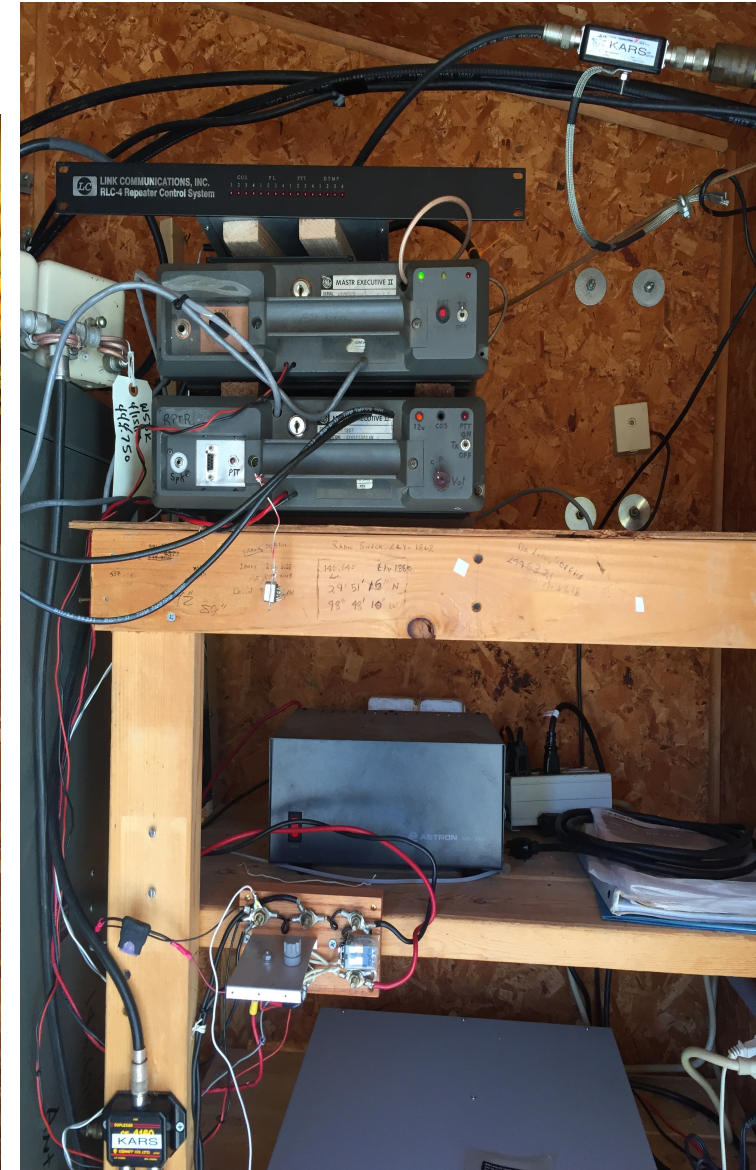
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The Jennifer Road Site



Jennifer Road Building and Equipment



Little Bit of History

- Since I have been a member of KARS they have had a couple Repeaters in some fashion and location. The 146.64 repeater was the prominent machine and still is today. It was originally built from an old Motorola mobile radio with a homebrew controller.
- The radios and locations have been switched between locations a few times in past years. Tower Road, Jennifer Road, the old Road & Bridge building.
- When Tower Road facility was shut down by the County after their equipment was moved to Jennifer road EMS tower and the Mono-Pole was going to be taken down. Ken KD3VK & Rodney K9ROD were instrumental in acquiring the Tower Road site for the club.

Tower Road Site

- Although having the site Leased to KARS for our use, the commercial communications building onsite was almost 50years old at that time. The county had never really “maintained the site” and installations of equipment was done substandard throughout the years. Think a lot of it was done as a favor to the county from a couple of the club members for our use of the tower in previous years? As the years went by with the lack of upkeep and shotty work being done the building was in very bad condition from water ingress damage.
- The building was in terrible shape and needed much rework to become a watertight environment for our repeater. When the officers and board met to decide the fate of the building & tower it was claimed that just sealing the seams with silicone and installing a sheet of ½” plywood on the wall would get the building back into condition to use again.

During the rebuild



The Resurrection of the Communications Building

- I had gone out the week before the Board members meeting to do a thorough inspection of the building inside & out. Removing wall paneling to investigate what needed to be done and produce a written plan what needed replacing and a true cost for materials. This would be for a professional done job keeping in mind our small budget.
- I presented my results of the inspection and the estimated cost using a lot of my own left-over materials from building my home. My estimate was \$540. for the materials that I needed to complete the job. At that time the officers and directors appointed me as the Repeater Chairman with 3 other members in my committee. And approved my estimate for the rebuild.

Communications Building Refresh



Refresh of the Building



Refresh of the building



The Mono-Pole Tower

- At that time in 2017, we still had 3 antennas on the side of the tower that were at least 15+ years old. One was broken and the other two seemed to be usable? Through the years many antennas had been installed on the mono pole tower for the county with very poor installation jobs. As well as adding extra wind load on the tower. Looking for a tower climber since I didn't climb Mono-Poles I was quoted \$1100 just to climb the tower and each piece of equipment used increased the price. The club didn't even have that much money in the treasury let alone money to buy the new antennas and install them on the tower.
- When the Ice storm came in 2023 and bent the county's old DB-224 over at about 30deg and becoming a safety hazard. I talked to the county commissioner & the county EMS director, and we decided to file a claim into their insurance company. They paid the claim, and we were on our way to getting the old antennas removed but it would take a crane to do the work because it was totally impossible to remove the antenna safely. And not knowing the condition of the top 30' of the tower no one would climb it either.

175' Mono Pole



Mono Pole Tower Needs Stripped

- First thing the tower needs is stripped of all the county's old antennas, mounts and a visual inspection done of the tower.
- Looked into having a **Structural Analysis** done on the tower and the price came in at \$7,750.00 with out a crane! All antennas and cables would have to be removed from the tower to do the work.
- Painting the tower was a thought that I also got bids on as well. The tower companies would charge about \$8000.00 to paint the tower with a mitt while doing the other work and would require the crane as well and add 1.5 days extra crane rental. Went to an actual tower painting contractor and that price up to \$30,000. just for prep & painting.

Site Issues & W/ Neighbor & County

- Throwing more delays into the project was a crazy neighbor providing plenty of verbal abuse & harassment for six months. Requiring the Sheriff & County intervention as well as deputy escorts to the site to do any work.
- Finally, after 5 months the county surveyed the property & it was quiet a bit larger than we thought & we were **NOT** parking on his property as he stated we were.
- The county then cleared the cedars to get a crane in next to the tower & fenced the tower road property. I also dug the grounding system off his property. That has seemed to cure the issue with him for the time & wasted 10 months of time. I'm sure the 120 ton Crane will draw his attention when done as well as the red flashing beacon!

Plenty of Parking Now

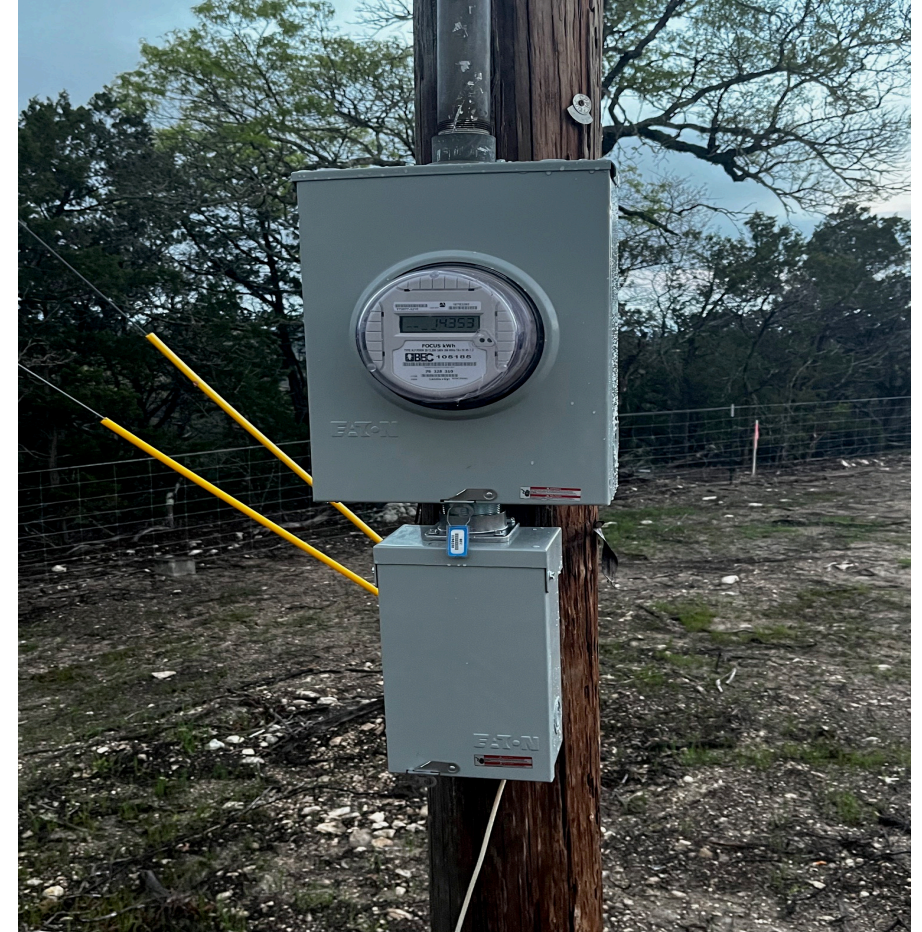


Cleaned up & dirty Locks

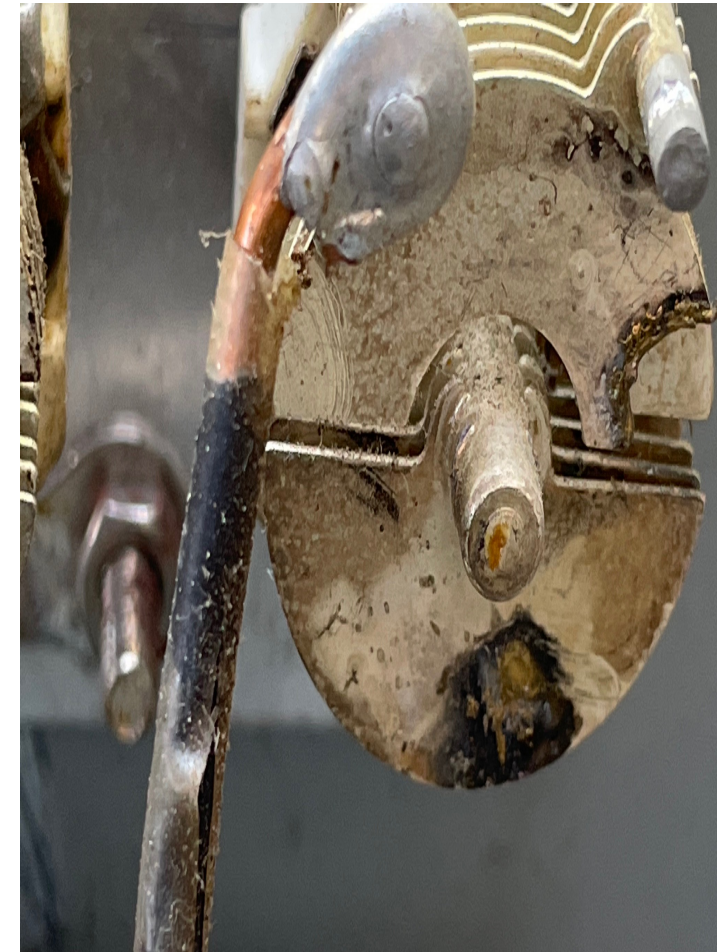
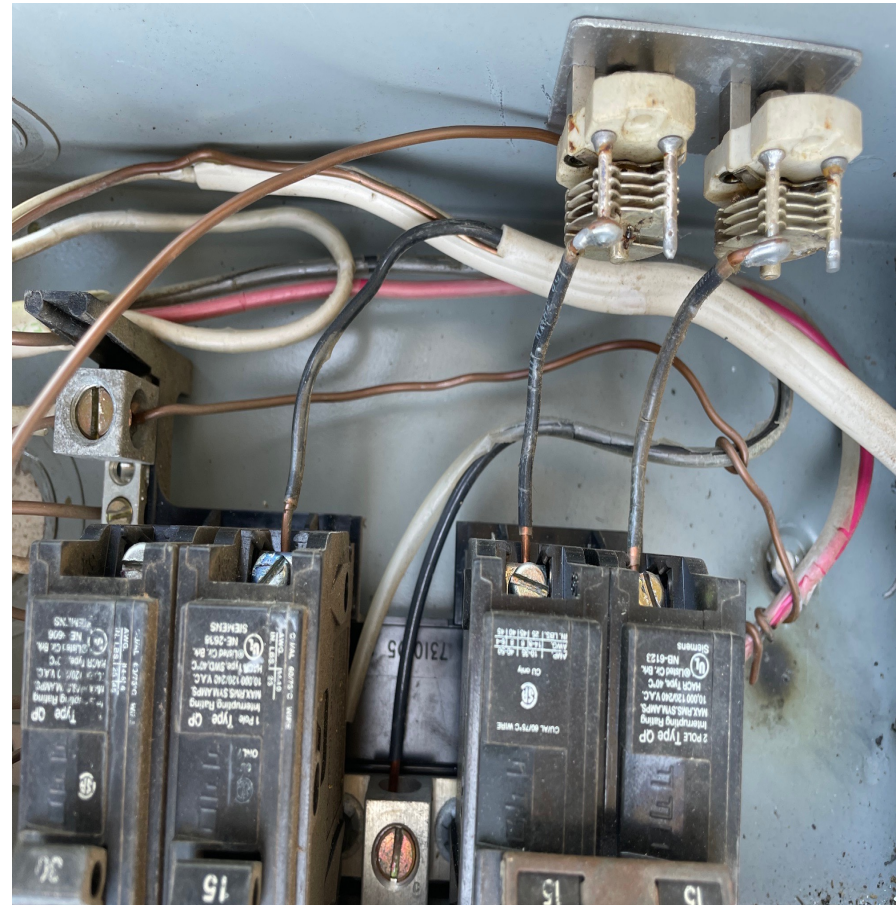


Getting a new Meter box

- During the removal of Cader trees the meter box, Main breaker assembly was damaged by road & bridge equipment. Took a couple months to get replaced but they finally hired an electrician to do the work



Just some great work Removed



New Grounds ran on the East side

- When they were about done with the fence I had them bring their rock saw out and cut me 2 30' trenches and 3 10' to burry the new grounds in. "Copper" the County Electrical Inspector checked the trenches!



Let there Be Light

- It used to be a tower didn't need lights if it was under 200' tall, this one just made it at 175' and a 21' antenna on top of it at 196'. I have found now at 150' they require a top beacon and over 150' they require side markers as well. I have found a beacon kit for the tower at approximately \$2201.25 This would bring the tower up to FAA standards. As well the county may chip in on that expense since it's a safety standard for their tower.
- The next page shows the Towers new configuration with the new mounts I built and the antennas. I will be hiring most of the work done by a communications company for 3 days using a 120 Ton Crane to get them up to work safely.

FAA Tower Standards

PAINT AND RED LIGHTING - AC 70/7460-1L
 TOWERS MARKED WITH PAINT FOR DAY AND RED LIGHTS AT NIGHT.

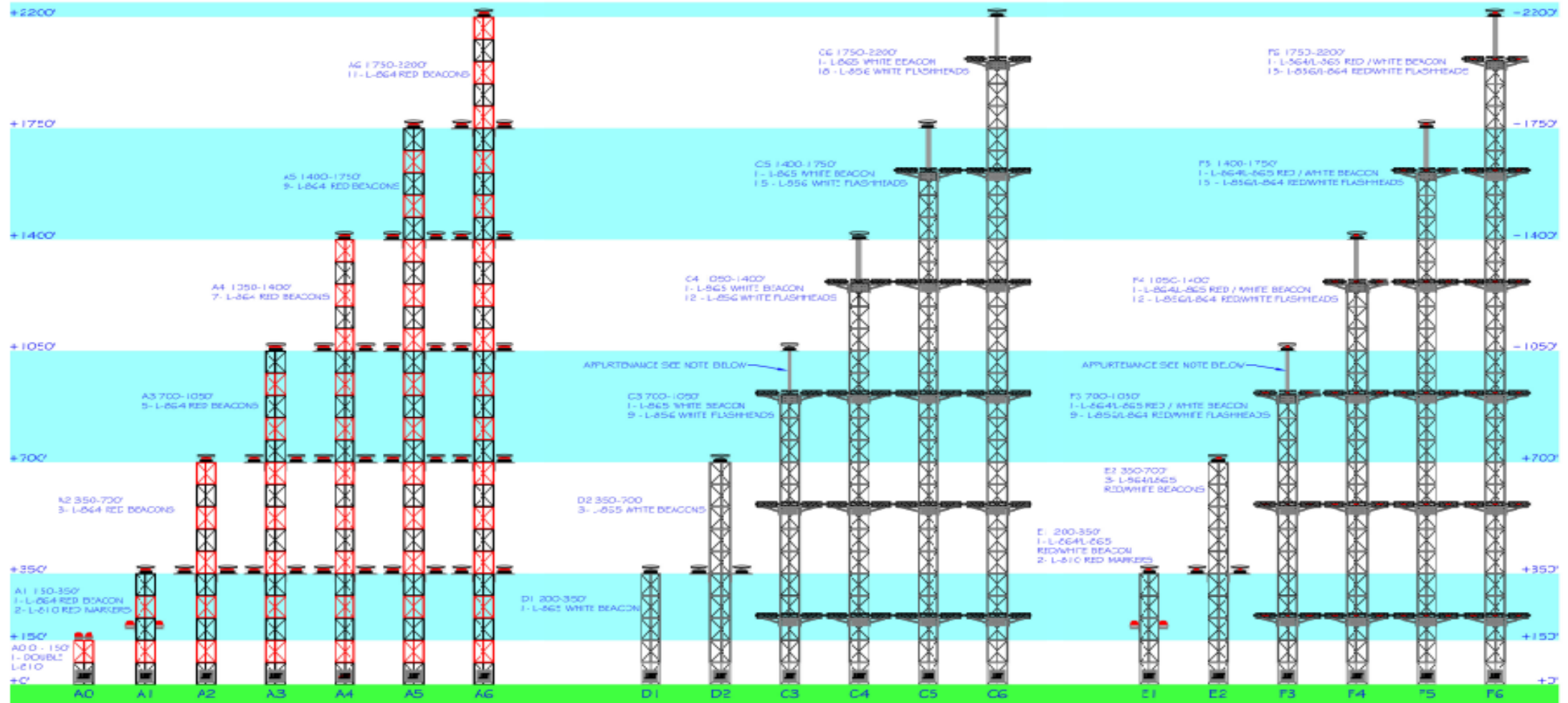
 - L-864 RED MEDIUM INTENSITY BEACON
 - L-810 RED MARKER LIGHT

WHITE LIGHTING - AC 70/7460-1L
 TOWERS MARKED WITH WHITE LIGHTS DAY AND NIGHT

 - L-865 WHITE MEDIUM INTENSITY BEACON
 - L-856 WHITE HIGH INTENSITY FLASHHEAD

RED / WHITE LIGHTING - AC 70/7460-1L
 TOWERS MARKED WITH WHITE LIGHTS FOR DAY AND RED LIGHTS AT NIGHT

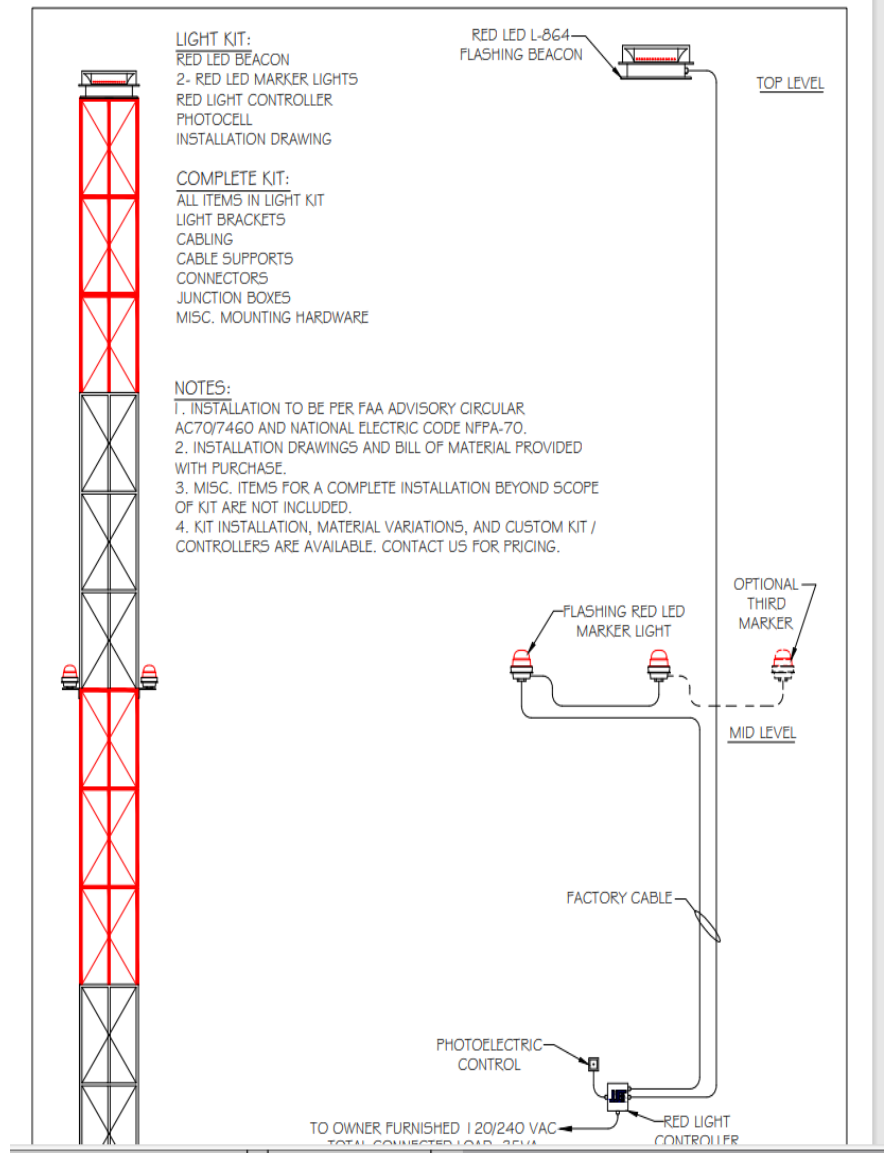
 - L-864 / -865 RED / WHITE MEDIUM INTENSITY BEACON
 - L-856 / -864 RED / WHITE HIGH INTENSITY FLASHHEAD
 - L-810 RED MARKER LIGHT



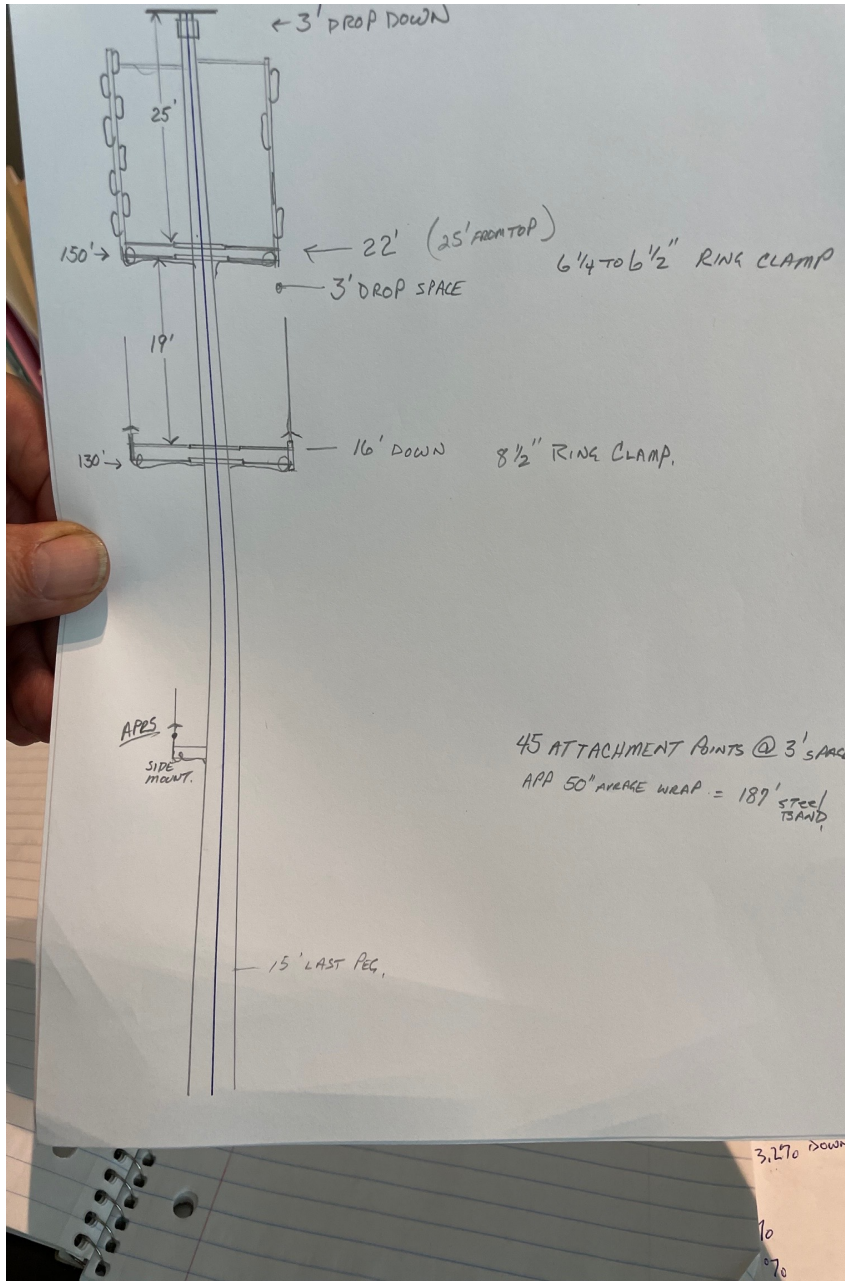
B TOWERS HAVE NO APERTURANCES GREATER THAN 40'.
 F FOLLOW C TOWER LAYOUT OMITTING TOP ADL BEACON.

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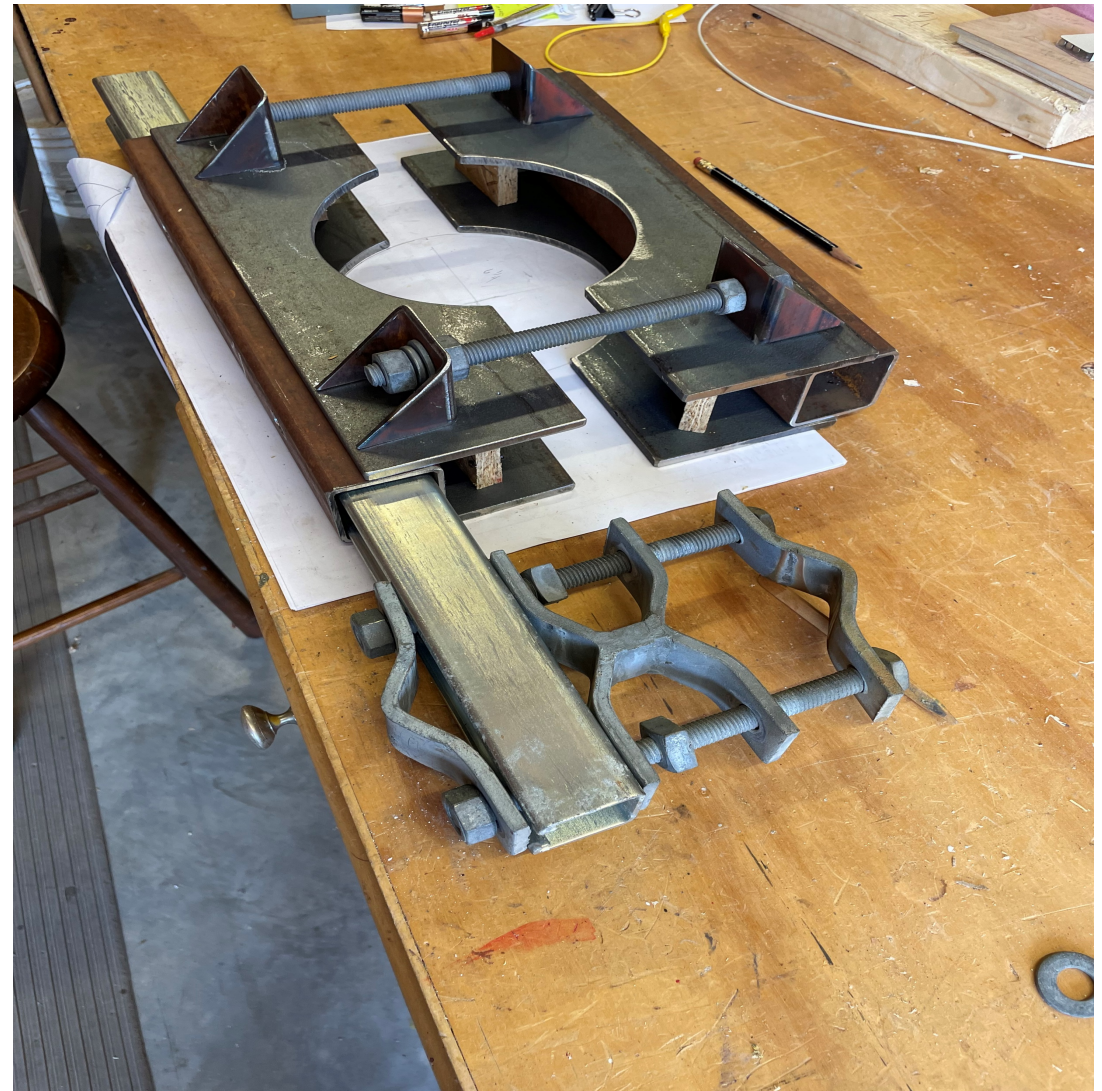
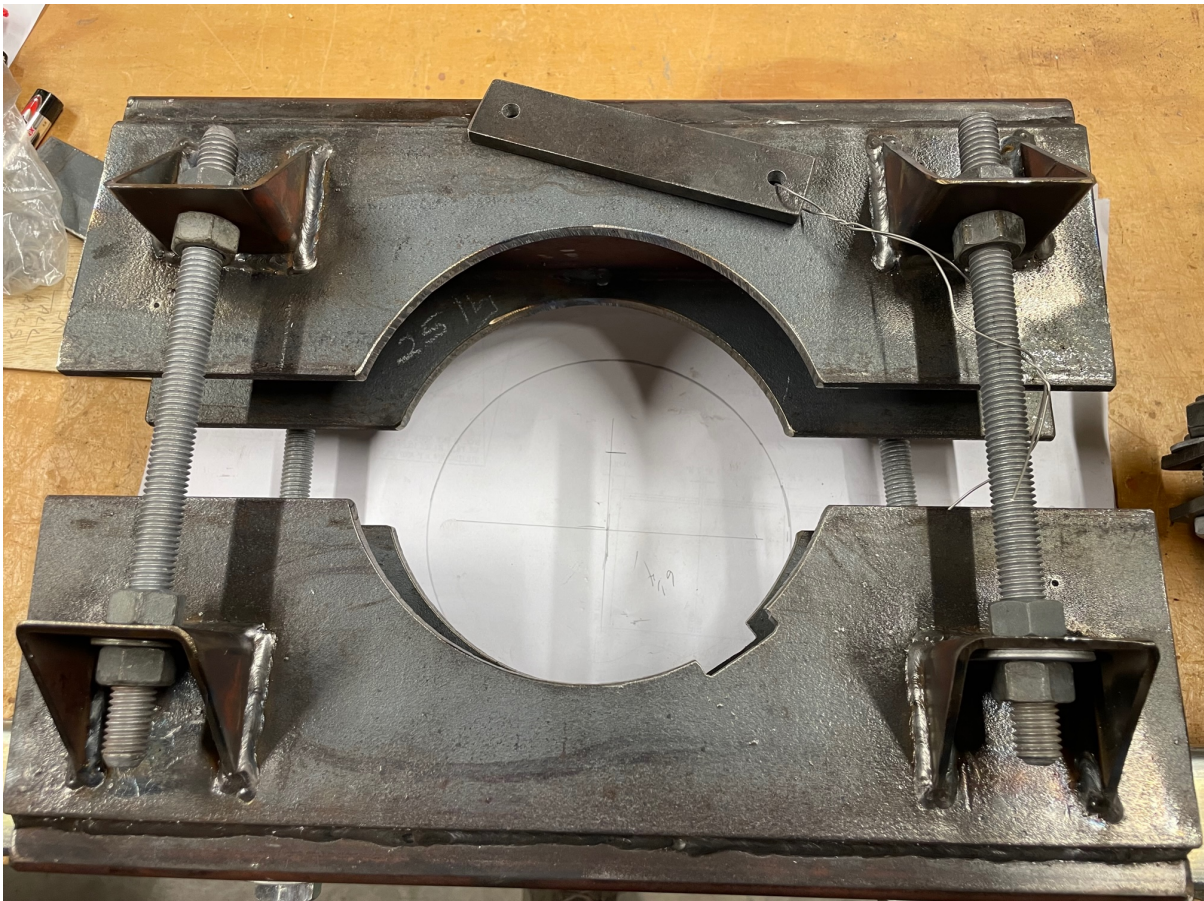
Beacon Lighting



Tower Config & DB-224E Antenna



Compression Antenna Mounts



Mounts, Brackets, Heliax Ladder Shield. All Galvanized now



Project Budget & Getting It Done

- The Project is costly because of the price of the Crane rental!
- Cost of Crane & Crew for 3 days \$16,083.00
- Cost of Telcom Crew 3 men for 3 days \$8,100.00
- Parts and Hardware, I have bought & built for project \$7,633.98
- Some assorted Hardware still needed approx. \$450.00
- Tower Lighting Kit \$2201.25
- Total parts still needed \$2593.25
- Project Grand total needed \$34,468.23
- Grant Applied for at **\$5936.00**
- Insurance **\$13,898.00** we have now & Club treasury \$7000.00

Where We Want To Be

- Main goal is to raise the \$5936 needed to get this tower project finished.
- I wrote and applied for a Grant for the \$5936 needed and should have an answer by the end of Feb.
- This should give our Repeaters a wide area coverage, “head & Shoulders” above the existing machines in the area that was our original goal.
- Once linked to the Sisterdale machine it will give us more and greater coverage.
- Having the “Commercial Antennas” they should last us some 30+ years!
- The sad thing about the Repeaters.....

The Answer:

- ***They Don't Get Used Enough!***