DSES Site and Building Project/Task List

If you are looking for something to do and contribute time to the DSES, here is a list of tasks. For more information or to volunteer send an email to information@dses.science

2026-05-25 DSES Site and Building To-Do List **Compiled by Bill Miller**

60 foot Dish and Pedestal

- ~~Design and build new quick Feed Antenna Mount for Dish Hub. Done Roger~~ ☑
- Clean out, organize, and dispose of unused items in the pedestal.
- Clean floor and area inside the pedestal.
- Rebuild the wire and cable spool rack.
- Devise a better materials lift system for the pedestal 3rd control deck.
- Pack copper or steel cleaning pads in the dish-to-building conduits to prevent rodents from entering the conduits and building.
- Seal Holes
- ~~Replace worn Azimuth drive sprocket on the Azimuth gearbox. with a new sprocket. Done Tony, Bill, and Tom~~ ☑
- Determine the source of the Elevation Inverter noise coupling to the cables and into the control system. Fix this.
- Find and purchase a spare Copley Azimuth inverter drive.
- Download and clone the installed Copley Azimuth inverter drive to the spare Copley inverter drive replicating the programing/settings.
- ~~Check the spare Allen Bradley Elevation Inverter Drive. Done Ray~~ ☑

- Download and clone the installed Allen Bradley inverter drive to the spare Allen Bradley inverter drive replicating the programing/settings.
- Purchase a spare #40 Azimuth drive chain. Suggest NAPA in Eads.
- Determine how the Azimuth bearing system works. Inspect and clean out dirt and lubricate bearings on rollers.
- Install a fiber terminator box in the control deck of the pedestal and install the corning fiber coupler box we have in it.
- Add the fiber cables running to the Dish Hub to this interface and properly route and dress cables up the pedestal into this box.
- Run fiber cables from the pedestal to the building to replace the Ethernet cables.
- Add a fiber-to-Ethernet Cat6 converter or switch in the pedestal for system network communication.

30-foot dish and interferometer 12-foot dishes

- Design a foundation for the 30 ft dish and get a civil engineering evaluation for weight and wind load.
- Design a foundation for the two 12-foot interferometer dishes.
- Calculate the concrete needed for the 30 ft dish, two 12-foot dishes, and other projects around the site.
- Get a quote on groundwork and materials needed for these projects.
- Get a quote on concrete for these projects.
- Find funding for these concrete projects.
- Hire a contractor for the groundwork and concrete projects.
- Trench in 2-3 conduits from the building to the 30 foot dish foundation
- Erect the 30 foot dish tower.
- Rebuild the 30 ft dish AZ/EL drive mechanisms,
- Refurbished the 30 foot dish control electronics or design and fabricate and new control system and control system.
- Reassemble the dish on the ground.
- Hire a crane and operator and install the 30 foot dish on the mount.
- Install all needed wiring and coax for the 30 foot dish.
- Set up dish controls in one of the building's consols.

Building Infrastructure:

Replace the west-facing broken window.

- ~~Temporarily replace the window with a Plexiglas or acrylic sheet to keep the weather out. Done Bill~~ ☑
- ~~Call Silverline Buildings for a quote or instructions on a replacement window. Done Bill~~ ☑
- Remove the broken window sub-frame and take it to a glass shop for replacement.

Cistern work

- ~~Wack the weeds around the west and east side of the building. Done Bill~~ ☑
- ~~Dig out the silt dunes on and around the cistern Done Bill~~ ☑
- ~~Open the cistern, check the water level Done Bill~~ ☑
- Check and recalibrate the electronic water level sensor.
- Place rodent traps or poison to get rid of burrowing critters near cistern.
- Replace the wooden spacers with plastic spacers in the sensor head holding clamp in the cistern.
- ~~Order new water level Ultrasonic Sensor Done Bill~~ ☑
- ~~Replace the water level sensor. Done Bill~~ ☑
- Evaluate and determine why the Ultrasonic Sensor stops working. Line Length?
- ~~Devise a foolproof method of checking the water level while filling, i.e., check the level. with a dipstick in the fill port. Done Paul~~ ☑
- ~~Add an audible alarm to prevent overfill.~~

- ~~Fill Cistern, Donation by Megan Herron from Eads Done Paul~~ ☑

Heat Pumps

- ~~Purchase coolant line set covers for Mr. Cool Heat pump. Done Bill~~ ☑
- Install the last coolant line set covers on the west side Mr. Cool Heat pump.
- Add additional PVC Pipe and fabric covers to external heat pump pipes to prevent weathering.
- Add heat pump condensation line extenders to prevent insect infestation. and clogging.
- Blow out the dirt in the heat pump compressor coils with a leaf blower. from the front to the back.
- Check, clean and maintain all heat pump registers. Clean filters Blow dirt out of registers.
- Check and record the electrical current and power usage on each unit with a clamp-on meter.

Building Sealant and Flood Mitigation

- ~~Caulk seal around north-facing windows and doors. The metal building contractor insufficiently sealed this. During the heavy rain and windstorms, the north side of the building leaked water in several spots. Done Bill~~ ☑
- ~~Tuck in compliant butylene tape or putty between the underside of the rat flashing and the concrete slab all along the north side of the building. Done Bill~~ ☑
- Do the same for the East and West sides of the building.
- Seal the bottom of the doors near the corners of the threshold. Create a gasket using rubbery Flex Seal and plastic wrap.
- Install a French drain close to the slab along the entire North side of the slab. Determine how to drain the center segment between door pads away from the building.
- Improve the grade and slope from the north side of the building to the lower driveway or road to drain water away from the building in heavy rain. Dig the driveway on the north side 9 inches deeper.

Site Infrastructure

Outhouse

- ~~Purchase PVC Pipe fittings for the outhouse pipe repair. Done Bill~~ ☑
  ~~Repair the sewage pit PVC Pipe fittings that were broken with the tractor. when cutting weeds. Done Bill~~ ☑
- ~~Empty and clean out the outhouse portable toilets. Done Bill~~ ☑
- ~~Remove everything in the outhouse and blow out all the dirt.~~
- ~~Refill the portable toilets with antifreeze in winter and water in summer. Done Bill~~ ☑
- ~~Provision the outhouse with TP and water. Done Bill~~ ☑
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Auxiliary/Storage Shed

- Drag the small RR Shed over from bunker antenna location to the side or back of the building at least 10 ft from the building for Mower, Weed Wacker, and Fuel Storage for fire protection.
- Install shed on RR Ties similar to generator shack.
- Move maintenance tools such as Weed Wacker and lawn mower and all fuels and volatile chemicals and materials to this shed.
- ~~Purchase and install locks on battery shack, storage shack, and gate. Done Bill~~ ☑

Electrical

- Get the final electrical inspection certificate from Cory Miller and Chad from H & H Electrical.
- Add a 30 Amp 120-volt outlet to the generator shack for trailer and utility plug.
- Get an electrical estimate to add wiring and 30 Amp outlets to RV connect stands and wired to the comm trailer electrical box.

Network

- Install all the remaining wired Ethernet Cat6 outlet receptacles around the building 70% Done Bill
- ~~Set up Ethernet Switches on private network with static and dynamic addresses and resolve conflicts that could cause errors, and network drops and pauses Done Roger& Paul~~ ☑
- ~~Trace all Ethernet Cat 6 wires back to the home run position and label. Done Bill~~ ☑
- Terminate the Cat 6 wires in the patch panel box on the center wall and attach each with a 2-foot patch cable to the Ethernet switch. 70% Done Bill
- ~~Trench in and install the extra Fiber Optic cable into the bunker Done ESTech~~ ☑
- ~~Terminate and connect the Fiber Optic cable to the bunker to the optical port on the switch. Done ESTech~~ ☑
- ~~Terminate and connect the Fiber Optic cable from the bunker to the gate and install an electronics box at the gate.~~
- ~~Install WAP, Wireless Access Points, in bunker and building Done Roger~~ ☑
- ~~Reassign SSIDs and address's to WAPs Done Roger~~ ☑
- ~~Insall fiberoptic link cable between the building and the pedestal tower control deck and add fiber to Cat 6 converter in the tower. Done Roger~~ ☑

Grounding and Bonding

- ~~Get electrical quotation for the grounding system for the building and Radio Towers Done Bill~~ ☑

- Board to evaluate the building grounding rod and bonding wiring quotes from H&H electrical and determine how to proceed.

- Drive ground rods every 15-30 ft around the building next to the slab. Tie the ground rods together with large gauge cable and to the building baseplate tubular girder at each rod. Do the same for each antenna base with 3 ground rods tied to the building ground cable and antenna towers. Make a board decision on self-install or contractor to quote.
- ~~Copper Grounding and bonding strap purchase. Done, Purchased by Rob McMasters~~ ☑
- ~~Bond all conductive elements of the Dish Console rack and work surface together with copper strap and bond to the building and earth. Main Console Done Ray and Bill~~ ☑
- Bond all conductive elements of the Radio Console rack and work surface together with copper strap and bond to the building and the earthing rods.

HF and VHF Antenna Towers at the Building

- Install an overhead 3-inch PVC conduit from the radio console out of the eaves of the building toward the west radio tower as was done for the east tower. Seal hole and paint the conduit.
- Erect East and West Rohm 45 radio towers with 4 sections each.
- Install HF Antennas on East tower.
- Install 6 Meter, VHF and UHF antennas on West tower.
- Install LMR600 or better Coax through the conduits to all antennas and terminate in rack patch panel with labels.

Security

- Add as many POE IP cameras as we can get.
- ~~Get PC for recording and accessing video remotely. Done-Provided by Vladimir Boyko~~ ☑
- Get a DVR program for cameras and a recording PC.
- Purchase and install blinds on all windows.
- Find a vendor for window security guards, purchase and install on all 12 windows.
- Add a movable farm gate to replace the chain for main entry access.

Bunker:

Fiber Cable Access

- Build a 20x20 inch by 6 inch extender for one roof access hatch, to accommodating the Fiber cables entry into the bunker.

Battery Room:

- Calculate the required battery capacity for the sump pump batteries in the bunker during severe weather events.
- ~~Get a best price quote on replacement LiPo or Pb Batteries at capacity. Done Bill~~ ☑
- Find Funding for the batteries and inverters.
- Replacement of batteries and inverters to have emergency power for sump pumps

Bunker Ramp:

- ~~Clean Out the tumble weeds from the bunker ramp Done Megan, Tony, and Paul~~ ☑
- Dig out and remove all the sediment that has deposited in the bunker ramp.

- Add more concrete blocks to the southern ramp wall to keep dirt and other debris from flowing down to the sump and entry door area.
- ~~Repair and replace the fence on the north side of ramp area to keep debris and tumble weeds from blowing into ramp area. Done Tony and Paul ☑~~
- Find and purchase about 300 ft of 8ft hurricane or chain link fence to surround ramp.
- Bunker escape stairway: Install an emergency exit door at top of spiral staircase to allow personnel to egress from underground bunker in emergency situations.
- Purchase a 30 or 32-inch-wide steel and steel-framed emergency exit door for bunker.
- Bunker Hallway: Repair the ceiling support joists that are cracked.
- ~~Bunker Entry door: Repair holes in the wooden box surrounding upper area of entry door area. Done Roger and Bill ☑~~
- Bunker Hallway: Repair the wooden door and hinge located in the access hallway.
- Bunker Entry door area: Organize storage area immediately inside the entry door on left side of the hallway.
- Bunker Battery and Sump room. Remove all non-essential material and clean out.
- Bunker Rohn Tower: Lower Rohn 25 tip-down tower and remove 6-meter Yagi. Add other uhf/vhf antennas as necessary and reinstall HF wire antennas. Install turn buckles on all guy wires.
- Bunker interior: Refill empty 300-gallon water storage tank.
- Bunker area: Identify surplus equipment and prepare items for sale.
- Bunker interior: Inventory all items in the bunker for insurance and tax purposes.
- Bunker Bunk Room: Clean and reorganize.
- Repair/replace water-damaged drywall on interior room walls.
- Bunker Battery Room: Clean and Reorganize, Inventory cable and wire.
- Get a wall rack for the parts bins donated by Bob Hagart.

Generator Shack:

- Clean & Organize
- Install solar panels on foundations.
- Close up radiator, west end, of shed to keep dirt out.
- Wack all the weeds around the generator shack and travel trailer.

Communications Trailer:

- Inventory all equipment.
- Check Railroad batteries.
- Clean out materials and clean trailer.

Battery Shed:

- Clean and remove old batteries for recycling.
- Clean up inside of the shed.
- Inventory & place excess hardline coax in shed.