

Prospecting, Siting, and Development

- I. Surveying
 1. Topographic Survey of the Project Site
 - A. Conduct Theodolite/GPS Survey
 - B. Place Geomarkers
 - C. Use Vehicles On-Road
 - D. Use Vehicles Off-Road
 - E. Survey by Air
 1. Fixed-Wing Use
 2. Helicopter Use
 - F. Survey by Water
 1. Boat Use
 - G. Survey on Foot
 1. Foot Traffic
 2. Surface Soil Testing
 - A. Soil Core Sampling
 1. Take Soil Cores
 - a. Use Hand Coring Tools
 - b. Use Vehicle-Mounted Coring Tools
 2. Backfill Soil Core Holes
 3. Use Vehicles On-Road
 4. Use Vehicles Off-Road
 3. Biological Surveys
 - A. Conduct Resource Surveys
 1. Use Vehicles On-Road
 2. Use Vehicles Off-Road
 3. Foot Traffic
 - B. Conduct Species Surveys
 1. Use Vehicles On-Road
 2. Use Vehicles Off-Road
 3. Foot Traffic
- II. Develop Staging Area (*Use S.A. Deconstruction from Transportation?*)
 1. **STRUCTURE: Staging Area**
- III. Erecting Temporary Meteorological –Towers (Met-Towers)
 1. Clearing the Site/Creating Access Roads
 - A. Vegetation Clearing
 1. Tree Clearing
 - a. Use Hand Tools
 - b. Use Heavy Equipment
 - c. Use Vehicles On-Road
 - d. Use Vehicles Off-Road
 2. Shrubs/Herbaceous Vegetation Clearing
 - a. Use Hand-held Equipment
 - b. Use Heavy Equipment
 - c. Use Vehicles On-Road
 - d. Use Vehicles Off-Road

- B. Vegetation Disposal
 - 1. Burn Vegetation On-Site
 - 2. Haul Vegetation Off-site
 - a. Use of a Disposal Site
 - b. Use Vehicles On-Road
 - c. Use Vehicles Off-Road
 - 3. Redistribute Vegetation On-Site (Mulch or Salvage)
 - a. Use Vehicles On-Road
 - b. Use Vehicles Off-Road
 - 4. **STRUCTURE: Vegetation Placed On-Site**
- C. Grubbing
 - 1. Use Hand-Held Equipment
 - 2. Use Heavy Equipment
 - 3. Use Vehicles On-Road
 - 4. Use Vehicles Off-Road
- D. Grading
 - 1. Rock Removal
 - a. Blasting
 - b. Use Heavy Equipment
 - c. Use Vehicles On-Road
 - d. Use Vehicles Off-Road
 - 2. Grading of Soils/Sediments
 - a. Use Hand Tools
 - b. Use Heavy Equipment
 - c. Use Vehicles On-Road
 - d. Use Vehicles Off-Road
 - 3. Water for Dust Abatement
 - a. Use Vehicles On-Road
 - b. Use Vehicles Off-Road
- E. Addition of Fill
 - 1. Deposit Imported Soil
 - 2. Redistribute Soils
 - 3. Use Heavy Equipment
 - 4. Use Offsite Borrow Areas
 - 5. Use Vehicles On-Road
 - 6. Use Vehicles Off-Road
 - 7. **STRUCTURE: New Fill Material**
- F. Gravel workspace
 - 1. Use Heavy Equipment
 - 2. Obtain Materials from Offsite Use Area
 - 3. Use Vehicles On-Road
 - 4. Use Vehicles Off-Road
 - 5. **STRUCTURE: Gravel Pad**
- G. Dispose of Rock/Soils/Sediments
 - 1. Dispose of Soils/Sediments
 - a. Haul Soils/Sediments Offsite
 - 1. Use of Offsite Disposal Areas (terrestrial)
 - 2. Use Heavy Equipment

3. Use Vehicles On-Road
4. Use Vehicles Off-Road
- b. Leave Soils/Sediments Onsite
 1. Redistribute Soils/Sediments
 - Use Heavy Equipment
 - Use Vehicles On-Road
 - Use Vehicles Off-Road
 2. STRUCTURE: Soils/Sediments Stockpile
- c. Crush Rock Onsite
 1. Redistribute Rock Onsite
 2. Use Heavy Equipment
 3. Use Vehicles On-Road
 4. Use Vehicles Off-Road
 5. STRUCTURE: Crushed Rock Stockpile
- H. STRUCTURE: New Access Road
2. Erecting Temporary Met-Towers
 - A. Use Heavy Equipment
 - B. Use Vehicles On-Road
 - C. Use Vehicles Off-Road
 - D. STRUCTURE: Met-Tower
 - E. STRUCTURE: Guy Wires
3. Temporary Met-Tower Use
 - A. Data Collection
 1. Use Vehicles On-Road
 2. Foot Traffic
 - B. Maintenance
 1. Use Vehicles On-Road
 2. Foot Traffic

Construction and Commissioning

- I. Construct Access Roads
 - 1. Clearing the Site
 - A. Vegetation Clearing
 - 1. Tree Clearing
 - a. Use Hand Tools
 - b. Use Heavy Equipment
 - c. Use Vehicles On-Road
 - d. Use Vehicles Off-Road
 - 2. Shrubs/Herbaceous Vegetation Clearing
 - a. Use Hand Tools
 - b. Use Heavy Equipment
 - c. Use Vehicles On-Road
 - d. Use Vehicles Off-Road
 - B. Vegetation Disposal
 - 1. Burn Vegetation On-Site
 - 2. Haul Vegetation Off-Site
 - a. Use Heavy Equipment
 - b. Use Vehicles On-Road
 - c. Use Vehicles Off-Road
 - d. Use of Disposal Site
 - 3. Redistribute Vegetation On-Site (Mulch or Salvage)
 - a. Use Heavy Equipment
 - b. Use Vehicles On-Road
 - c. Use Vehicles Off-Road
 - d. **STRUCTURE: Vegetation Placed On-Site**
 - C. Grubbing
 - 1. Use Hand Tools
 - 2. Use Heavy Equipment
 - 3. Use Vehicles On-Road
 - 4. Use Vehicles Off-Road
 - D. Grading
 - 1. Rock Removal
 - a. Blasting
 - b. Use Heavy Equipment
 - c. Use Vehicles On-Road
 - d. Use Vehicles Off-Road
 - 2. Grading of Soils/Sediments
 - a. Use Hand Tools
 - b. Use Heavy Equipment
 - c. Use Vehicles On-Road
 - d. Use Vehicles Off-Road
 - 3. Water for Dust Abatement
 - a. Use Heavy Equipment
 - b. Use Vehicles On-Road
 - 2. Addition of Fill
 - A. Deposit Imported Soil

- B. Redistribute Soils
 - C. Use Heavy Equipment
 - D. Use Vehicles On-Road
 - E. Use Vehicles Off-Road
 - F. Use Offsite Borrow Areas
 - G. **STRUCTURE: Fill Material**
3. Gravel workspace
- A. Use Heavy Equipment
 - B. Use Vehicles On-Road
 - C. Use Vehicles Off-Road
 - D. Obtain Materials from Offsite Use Area
 - E. **STRUCTURE: Gravel Pad**
4. Compact Earth
- A. Use Heavy Equipment
 - B. Use Vehicles On-Road
 - C. Use Vehicles Off-Road
 - D. Dispose of Rock/Soils/Sediments
5. Dispose of Soils/Sediments
- A. Haul Soils/Sediments Offsite
 - 1. Use of Offsite Disposal Areas (terrestrial)
 - 2. Use Heavy Equipment
 - 3. Use Vehicles On-Road
 - B. Leave Soils/Sediments Onsite
 - 1. Redistribute Soils/Sediments
 - a. Use Heavy Equipment
 - b. Use Vehicles On-Road
 - c. Use Vehicles Off-Road
 - d. **STRUCTURE: Redistributed Soils/Sediments**
 - 2. Crush Rock Onsite
 - a. Use Heavy Equipment
 - 3. Redistribute Rock Onsite
 - a. Use Heavy Equipment
 - b. Use Vehicles On-Road
 - c. Use Vehicles Off-Road
 - d. **STRUCTURE: Crushed Rock Stockpile**
6. **STRUCTURE: New Access Road**
- II. Install Erosion and Sediment Control Structures
- 1. Create Berms
 - A. **STRUCTURE: Berm**
 - B. Redistribute Soils
 - C. Use Heavy Equipment
 - 2. Create Drainage Ditches
 - A. Excavation of Soils/Sediments
 - 1. Dispose of Soils/Sediments
 - a. Haul Soils/Sediments Offsite
 - 1. Use Heavy Equipment
 - 2. Use of Offsite Disposal Areas

III. Bury Transmission Lines (from Turbines to Sub-Station)

1. Dig Trenches

A. Excavation of Soils/Sediments

1. Use Hand Tools
2. Use Heavy Equipment
3. **STRUCTURE: Temporary Trench**

B. Dispose of Soils/Sediments

1. Use Heavy Equipment
2. Haul Soils/Sediments Offsite
 - a. Use of Disposal Areas (terrestrial)
3. Leave Soils/Sediments Onsite
 - a. Redistribute Soils/Sediments
 - b. **STRUCTURE: Soils/Sediments Stockpile**

2. Lay Cables

A. Use Heavy Equipment

B. **STRUCTURE: Underground Cables**

3. Fill Trenches

A. Replacement of Soils/Sediments

1. Use Hand Tools
2. Use Heavy Equipment
3. Use Vehicles On-Road
4. Use Vehicles Off-Road

IV. Erect Turbines

1. Construct Footings and Crane Pad

A. Excavation of Soils/Sediments

1. Use Hand Tools
2. Use Heavy Equipment
3. Use Vehicles On-Road
4. Use Vehicles Off-Road

B. Dispose of Soils/Sediments

1. Use Heavy Equipment
2. Haul Soils/Sediments Offsite
 - a. Use of Disposal Areas (terrestrial)
3. Leave Soils/Sediments Onsite
 - a. Redistribute Soils/Sediments
 - b. **STRUCTURE: Soils/Sediments Stockpile**
4. Use Vehicles On-Road
5. Use Vehicles Off-Road

C. Compact Earth

1. Use Heavy Equipment

D. Cover Pad With Gravel

1. Use Heavy Equipment

E. Construct Frame With Rebar

1. Use Heavy Equipment

F. Pour Concrete

1. Use Heavy Equipment

- a. Use Hand-held Equipment
 - b. Use Heavy Equipment
 - c. Use Vehicles On-Road
 - d. Use Vehicles Off-Road
- B. Vegetation Disposal
- 1. Burn Vegetation On-Site
 - 2. Haul Vegetation Off-site
 - a. Use of a Disposal Site
 - b. Use Vehicles On-Road
 - c. Use Vehicles Off-Road
 - 3. Redistribute Vegetation On-Site (Mulch or Salvage)
 - a. Use Vehicles On-Road
 - b. Use Vehicles Off-Road
 - c. **STRUCTURE: Vegetation Placed On-Site**
- C. Grubbing
- 1. Use Hand-Held Equipment
 - 2. Use Heavy Equipment
 - 3. Use Vehicles On-Road
 - 4. Use Vehicles Off-Road
- D. STRUCTURE: Cleared Right of Way**
- VII. Constructing Permanent Met-Towers
- 1. Erecting Permanent Met-Towers
 - A. Use Heavy Equipment
 - B. Use Vehicles On-Road
 - C. Use Vehicles Off-Road
 - D. STRUCTURE: Met-Tower**
 - E. STRUCTURE: Guy Wires**
 - 2. Permanent Met-Tower Use
 - A. Data Collection
 - 1. Vehicle Use
 - 2. Foot Traffic
 - B. Maintenance
 - 1. Vehicle Use
 - 2. Foot Traffic

Operations and Maintenance

- I. Surveys
 1. Post-Construction Inspection
 - A. Ground
 1. Vehicle Use On-Road
 2. Foot Traffic
 - B. Survey by Air
 1. Fixed-Wing Use
 2. Helicopter Use
- II. Road and Right-of-Way Maintenance
 1. Upgrade Existing Road
 - A. Regrade Road
 - B. Add Gravel
 - C. Use Vehicles On-Road
 - D. Use Heavy Equipment
 2. Water for Dust Abatement
 - A. Use Vehicles On-Road
 - B. Use Heavy Equipment
 3. Vegetation Management
 - A. Herbicide Spraying (keyword = noxious)
 1. Use Vehicles On-Road
 2. Foot Traffic
 - B. Grubbing
 1. Use Vehicles On-Road
 2. Use Vehicles Off-Road
 3. Use Heavy Equipment
 - C. Tree-trimming
 1. Use Bucket Truck
 2. Helicopter
 - D. Mowing
 1. Use Vehicles On-Road
 2. Use Vehicles Off-Road
 3. Use Mowers
 4. Culvert Replacement
 - A. *DON'T WE HAVE THIS DONE FOR TRANSPORTATION ALREADY?*
 5. Erosion Control
 - A. Foot Traffic
 - B. Use Heavy Equipment
 - C. Use Vehicles On-Road
 - D. Use Vehicles Off-Road
- III. Permanent Structure Maintenance
 1. Replace/Repair Transmission Lines and Utilities
 1. Overhead
 - a. Use Heavy Equipment
 - b. Use Vehicles On-Road
 - c. Use Vehicles Off-Road
 2. Underground

- a. Use Heavy Equipment
 - b. Use Vehicles On-Road
 - c. Use Vehicles Off-Road
2. Turbine Maintenance
 3. Met-Tower Maintenance
 4. Sub-Station Maintenance
 5. Operations Headquarters Maintenance
 6. Restroom Maintenance? (not sure if these are independent of other structures/facilities)
 7. Staging Area Use
- IV. Repowering/Retrofitting
1. Disassemble Old Turbines
 - A. Material Storage and Transport
 1. Use Heavy Equipment
 2. Use Vehicles On-Road
 3. Use Vehicles Off-Road
 2. Assemble New Turbines
 - A. Material Storage and Transport
 1. Use Heavy Equipment
 2. Use Vehicles On-Road
 3. Use Vehicles Off-Road
- V. Waste Storage and Transport
1. Haul Waste Off-Site
 - A. Use Heavy Equipment
 - B. Use Vehicles On-Road
 - C. Use Vehicles Off-Road
 2. Store Waste On-Site
 - A. Use Heavy Equipment
 - B. Use Vehicles On-Road
 - C. Use Vehicles Off-Road

Decommissioning

- I. Permanent Structures
 1. Disassemble Buildings
 2. Disassemble Turbines, Met-Towers, H-Poles, and Mono Poles, Foundations
 3. Remove Overhead Utility Lines
 4. Remove Underground Utilities
- II. Remove Roads
- III. Restoration

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