

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE GENERAL SPECIFICATIONS
Texas**

**PUMPING PLANT
LIVESTOCK WATER SYSTEM – WINDMILL PUMPING UNITS
(No.)
Code 533A**

1. SCOPE

These construction specifications cover the materials and installation of the windmill pumping unit and windmill tower with a maximum 16' diameter wheel. They **do not** include the installation of the well.

2. PUBLIC AND PRIVATE UTILITIES

Utilities are defined to be public or private, overhead and underground power or communication lines, and any pipelines. The landowner\operator\contractor shall conduct their own search and discovery for utilities in order to lessen or avoid potential damages, injuries or loss of life. During planning, the owner\operator should complete a TX-ENG-80A UTILITIES INVENTORY to document known utilities. The owner\operator or their representative shall complete TX-ENG-80B, COOPERATOR CONFIRMATION OF THE ONE-CALL UTILITY SAFETY SYSTEM to comply with State law prior to any ground disturbance and return it to a USDA-NRCS representative.

3. QUALITY CONTROL

Quality control of all materials and construction procedures is the responsibility of the landowner and contractor. NRCS will make periodic review(s) of the work for the benefit of the agency which will include the final construction check.

4. EQUIPMENT

- a. Windmill Unit: The mill shall be complete (including oil) with sail wheel and tail assembly having automatic and hand-operated furl capacity. The mill shall be self-oiling, with replaceable bearings and parts. The mill shall be capable of delivering the required capacity at the total head shown in the construction details. The mill shall have minimum 2 year warranty.
- b. Drop Pipe: The drop pipe shall consist of joints of reamed galvanized steel pipe, threaded and complete, with long couplings having a quality equal to the pipe. The pipe shall be Schedule 40 and meet ASTM-A-53. All drop pipe shall meet NSF requirements.
- c. Windmill Tower: The tower shall be a new Aeromotor, American West, Dempster, or Fiasa tower; or a tower constructed according to USDA-NRCS [Standard Drawing No. TX-EN-0497, TX-EN-0498 or TX-EN-0499](#); or a tower design certified, signed, and sealed by an engineer licensed to practice engineering in the State of Texas. Tower designs from engineers licensed to practice engineering in the State of Texas shall be submitted to USDA-NRCS for approval prior to installation. All towers shall be installed and anchored in accordance with the manufacturer's instructions and these specifications.

5. *INSTALLATION*

- a. Windmills: The installation of the cylinder, mill, drop pipe and other accessories shall conform to [Texas Administrative Code; Title 16 Economic Regulation; Part 4 Texas Department of Licensing and Regulation \(TDLR\); Chapter 76 Water Well Drillers and Water Well Pump Installers Administrative Rules, <http://www.license.state.tx.us/wwd/wwdrules.htm>](#).
- b. Alignment of Tower and Mill: Each tower and mill shall be set in a plumbed vertical line over the centerline of the well casing. The Installer shall test the plumb of the installation by hanging a plumb bob from the pump rod connection of the windmill. When the tower is in acceptable alignment, the plumb bob will fall within the well casing, without touching it.
- c. Drop Pipe: The drop pipe shall be installed to the depth specified in the construction details and shall have the pipe ends reamed to remove burrs prior to installation. An automatic bleeder orifice valve will be installed in the drop pipe a minimum of 3-feet below the ground surface to drain that portion of the drop pipe to prevent damage by freezing.
- d. Testing: After the windmill and well equipment are installed, the Installer shall use the windmill to pump a minimum of 24-hours. The Installer shall check the windmill to see if the cylinder is functioning and not bottoming out, and that the windmill brake and other appurtenances are functioning properly. Problems shall be corrected by the Installer. The Installer shall provide water storage facilities, if none are present at the site, to collect the pumped water.

6. *CERTIFICATION*

The Installer shall furnish the owner/operator a written certification (with a copy provided to USDA-NRCS) that the installed windmill unit, windmill tower, appurtenances, and groundwater protection, conform to the requirements of this specification and to the Texas Administrative Code; Title 16 Economic Regulation; Part 4 Texas Department of Licensing and Regulation (TDLR); Chapter 76 Water Well Drillers and Water Well Pump Installers Administrative Rules, <http://www.license.state.tx.us/wwd/wwdrules.htm>.

The certification shall also provide the name of the windmill unit manufacturer, its model and serial number, and the name of the windmill tower manufacturer. The Installer shall also certify that they are licensed by the State of Texas as a windmill installer unless exempted by TAC 16, Chapter 76, Section 76.300.

7. *GUARANTEE*

The Installer shall provide the owner/operator a guarantee (with a copy provided to USDA-NRCS) that covers all equipment, materials and installation against any defective materials or workmanship, for a period of one year from the date of completion.

8. *MEASUREMENT*

Measurement of each windmill installation will be on a completed job basis. An onsite check of the completed installation with windmill operating will be performed by a USDA-NRCS representative.

9. CONSTRUCTION DETAILS

- a. The average hourly pumping capacity shall be _____ gph at a total head of _____ft.
- b. The windmill installer shall provide a manufacturer’s head-capacity table or chart certifying that the installed windmill will provide the required gph.
- c. Other specific items to job installation:

Attachments:
 Certification sheet
 TX-ENG-80B
 O&M Plan

<u><i>This construction specification, attached construction details and the requirement for completion of a TX-ENG-80A and TX-ENG-80B have been reviewed with me and I agree to install my windmill pumping unit according to these construction specifications.</i></u>	
<i>Owner/Operator</i>	<i>Date</i>