

## GUIDANCE DOCUMENT

### Pumping Plant, Code 533

#### I. References

##### A. Design Criteria

1. Georgia FOTG Section IV, conservation practice standard, Pumping Plant, Code 533.

##### B. Design Procedures

1. NEH, Part 624, Drainage, Chapter 7, Drainage Pumping.
2. NEH, Part 623, Irrigation, Chapter 8, Irrigation Pumping Plants

##### C. Design/Layout Surveys

1. TR-62 Engineering Layout, Notes, Staking & Calculations.
2. NEFH Part 650, Chapter 1, Engineering Surveys.

#### II. Documentation

A. Preliminary Investigation Make a preliminary investigation of the need and feasibility of the pumping plant. Determine type of pumps (axial flow, centrifugal, etc.) that would be applicable to the proposed project.

##### B. Engineering Surveys

1. The engineering survey will consist of the location of the proposed pumping plant and any structures that may interfere with its installation. The proposed location of the pumping plant shall be referenced so that it can be staked in the field.
2. Note the location of any utilities or utility markers.

##### C. Design

1. Determine the capacity (gpm) and total dynamic head (feet) required or pump discharge pressure when the pumping lift is not readily available. Record design data on NRCS-ENG-523A (or equivalent). Include manufacturer's pump curve if available.
2. Determine power requirements and availability of power. Where electricity is unavailable design alternative power sources such as photovoltaic panels or wind powered turbines.
3. Develop engineering plans and specifications. As a minimum the plans and specifications shall include:
  - a. Pump location.
  - b. Size and type of pump and associated equipment.
  - c. Pump discharge capacity (gpm) and required head at pump discharge.
  - d. Details for mounting pump (may be left up to the manufacturer).
  - e. Details for pump pad including dimensions, type of material, etc.
  - f. Details of appurtenances.
  - g. Location of utilities and notification requirements.
4. Develop a site specific O&M Plan for the practice.

#### D. Construction Layout

Review the plans and specifications with the landowner and contractor prior to the start of construction. Ensure the landowner/contractor thoroughly understand their responsibilities including obtaining all permits, easements, etc.

Record layout data in the engineering field book.

1. Stake the location and critical elevations of the proposed pumping plant.
2. Stake pump intake location and dimensions when required.

#### E. Construction

Adequate site visits and checks shall be made during construction to verify that the plans and specifications are followed. Any changes in the design must be reviewed and concurred by the landowner and shall be approved by the designer and person with appropriate engineering design job approval authority.

F. Construction Checkout Record the following information on the plans, in the engineering field book and NRCS-ENG-523A (or equivalent).

1. Size, type of pump, model, manufacturer, rated RPM, and required appurtenances.
2. Pump discharge capacity.
3. Gear head if applicable (i.e. HP, RPM, Ratio).
4. Power unit: type, manufacturer, rpm, HP. Note safety of unit (i.e. power shaft covered, etc.).
5. Intake elevation of suction line.
6. Pump elevation.
7. Operational check.
8. Dimensions and type of pump pad.
9. Compute earth work quantities where required.
10. Prepare as-built drawings showing final construction dimensions, details, etc.
11. If the practice meets NRCS standards and specifications, then the statement "This practice meets NRCS practice standards and specifications" shall be placed on the checkout document and signed and dated by the responsible person with appropriate level of engineering job approval authority.

#### G. Reporting and/or Certifying

After it has been determined and documented that the practice meets NRCS plans and specifications, it can be reported and certified. The extent of the practice to be reported is the number of pumping plants installed. The extent of the practice to be certified is the quantities used as the basis of payment.