

**DESIGN AND CONSTRUCTION CHECKLIST
IRRIGATION SYSTEM, SPRINKLER (442)
NRCS, GA**

DESIGN

1. Design documentation that will demonstrate that the criteria in NRCS practice standard have been met and are compatible with other planned and applied practices.
 - a. Determine suitability of site for irrigation, considering field dimensions, soils, topography, high and low elevations, pumping plant capacity, quality and quantity of water, etc. Select the type of sprinkler system that is adapted to the site, crop(s) to be grown, and the farmer's needs and desires.
 - b. Gather sufficient survey data to plan the location and size of sprinkler system.
 - c. Practice purpose(s) as identified in the conservation plan
 - d. List of required permits to be obtained by the client
 - e. Compliance with NRCS national and state utility safety policy (NEM Part 503-Safety, Subpart A - Engineering Activities Affecting Utilities 503.00 through 503.06)
 - f. List of facilitating/component practices
 - g. Practice standard criteria related computations and analyses to develop plans and specifications including but not limited to:
 - i. System Capacity
 - ii. Depth of Application, Rate, Frequency, Pressure and Uniformity
 - iii. Hydraulics
2. Written plans and specifications including sketches and drawings shall be provided to the client that adequately describes the requirements to install the practice and obtain necessary permits. Plans and specifications to include:
 - System layout.
 - Pipe size, type, pressure class by reach for mainline and laterals.
 - Lateral spacing, nozzle spacing, pressure and flow requirements.
 - Requirements for pump and motor.
 - Requirements for system appurtenances.
3. Calculate quantities and prepare cost estimates.
4. Operation and Maintenance Plan
5. Certification that the design meets practice standard criteria and complies with applicable laws and regulations (NEM Subpart A, 505.03 (a) (3)).
6. Design modifications during installation as required.

INSTALLATION

1. Pre Installation conference with client and contractor.
2. Verification that client has obtained required permits.
3. Staking and layout according to plans and specifications including applicable layout notes.
4. Installation inspection (according to inspection plan as appropriate).
 - a. Actual materials used (Part 512, Subpart D Quality Assurance Activities, 512.33)
 - Record kind, type, class, sizes, spacing, pressure, and capacity of sprinklers.
 - Record type, size, etc., of all appurtenances.
 - b. Inspection records
5. Facilitate and implement required design modifications with client and original designer
6. Advise client/NRCS on compliance issues with all federal, state, tribal, and local laws, regulations and NRCS policies during installation.
7. Certification that the installation process and materials meets design and permit requirements.

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CHECK OUT

1. As-Built documentation.
 - a. Extent of practice units applied
 - b. Drawings
 - c. Final quantities
 - d. The construction check shall include a system evaluation to determine if the system meets the minimum coefficient of uniformity.
 - e. Final notes and measurement shall include:
 - Spacing of laterals and nozzles.
 - Size of nozzles, laterals, and mainline.
 - Location, type and size of filters and other appurtenances.
 - Applicable supporting data documentation items for mainline pipe and pump.
2. Certification that the installation meets NRCS standards and specifications and is in compliance with permits (NEM Subpart A, 505.03 (c) (1)).

REFERENCES

- NRCS Field Office Technical Guide (eFOTG), Section IV, Conservation Practice Standard - Irrigation System-Sprinkler, 442
- NRCS National Engineering Manual (NEM).
- NRCS National Environmental Compliance Handbook
- NRCS Cultural Resources Handbook