

**NATURAL RESOURCES CONSERVATION SERVICE
DOCUMENTATION REQUIREMENTS**

**WASTE TREATMENT LAGOON
(No.)**

CODE 359

Reference Documents

The following is a list of reference materials useful in planning, design, and construction of a waste storage facility:

- Engineering Field Manual, Chapters 2 (Estimating Runoff), 3 (Hydraulics), 6 (Structures), 9 (Diversion)
- Supplement to Engineering Field Manual, Chapters 2 (Estimating Runoff), 3 (Hydraulics),
- Section IV Technical Guide, Louisiana NRCS Conservation Practice Standard (CPS) and General Specification (GS), code 359.
- NRCS – Agricultural Waste Management Field Handbook (NEH 210, Part 651)
- Louisiana Waste Management System Design Excel Spreadsheet
- Midwest Plan Service (MWPS) #18

Site Investigation/Data Collection

- Use the Louisiana Dairy Waste Facility Questionnaire, LA-ENG-359, and field notebooks for survey, layout, design and checking as applicable.
- The following is a list of items to be checked in the field:
 - Is there a suitable site for the proposed waste treatment lagoon?
 - Determine the drainage area(s), average watershed slope, and land use.
 - Is there a spring or base flow condition through the area that will need to be controlled?
 - Determine if some or all of the watershed can be controlled by diversions.
 - Log soils in the footprint of the proposed facility to determine if a liner will be needed according to Louisiana CPS 359.
 - Record logs of soil borings in the design file.
 - Check for buried utilities, Louisiana ONE-CALL (LA-ENG-54).
 - Determine engineering job class.

Design Survey

- Survey notes shall be kept in loose-leaf or bound field notebooks. The notes will be kept in a format similar to that shown in Technical Release 62 and Chapter I, Engineering Field Manual. Electronic survey notes will be documented in a format that allows complete checking by others.
- The surveyor will use sound professional judgement in gathering information for the design and construction of the waste facility. Information will be used to determine structure(s) locations, grades and estimated quantities.
- If performing a GPS-RTK survey, at a minimum a static survey will be performed on at least one bench mark.
- A minimum 50 ft. x 50 ft. grid survey will be performed within the footprint of the proposed facility.

Design Plans and Specifications

- The design of a waste facility will be in accordance with Louisiana Conservation Practice Standard 359, Waste Treatment Lagoon. Individual structures and components will be designed in accordance with the appropriate standard for that feature (e.g. Diversion CPS, 362).

- Determine facility size required from Louisiana Waste Management Design spreadsheet (or equivalent) and form LA-ENG-359.
- Conduct hydrologic investigations for the required event (25 year – 24 hour minimum),
- During this period the appropriate permit applications need to be completed by the cooperator.
- Other Federal, State, and Local laws - rules - regulations will apply depending on specific features (e.g. Cultural, Historical, Endangered Species, Wetlands).
- Determine configuration of lagoon based on topography, existing features, and landowner wishes.
- Compute quantities of excavation, fill, and appurtenances, as applicable.
- Use LA-ENG-359 and appropriate Louisiana standard drawings to document final design, design reviews, and Engineering Job Approval Authorities.
- Electronic survey and computer design of features, computer output, and hand or CAD drawings will include adequate information for checking by others (design, quantities, etc.)

Construction Requirements

- Site specific construction details will be included on the Louisiana General Specification 359, and given to and signed by the cooperator.
- The cooperator, contractor, and the NRCS cooperator's file will be provided a set of construction plans and specifications.
- The plans will contain, as a minimum, the following:
 - Location map
 - Overall plan map (showing all companion practices)
 - Individual plan map showing the planned lagoon
 - Cross section view of the lagoon showing dimensions, slopes, and elevations
 - Earthwork quantities
 - Engineering Job Approval Class and appropriate review signatures

Layout and Installation Procedures

- Layout surveys will be recorded in loose-leaf or bound survey books. Set necessary stakes for at alignment, depth, width, and side slopes. Set grade stakes as needed. Survey notes will be kept in the format as shown in Chapter I - Engineering Field Manual and/or Technical Release 62. Electronic survey notes will be recorded in a format to allow upload to CAD software.

Checkout

- Take a minimum of two cross sections (longitudinal and lateral) of the lagoon, including the embankment.
- Take a centerline profile of the center of the embankment, including the auxiliary spillway, with survey points taken at a maximum of 25ft spacing, at all changes in grade, and at all corners.
- Record sufficient elevations to verify design top and bottom elevations, side-slopes, widths, and depths.
- Record all sizes, lengths, elevations, and locations of appurtenances.
- Record checkout survey and construction certification on LA-ENG-359.