

**DAM, DIVERSION**

**Design Survey**

The following information shall be obtained and recorded in the field notes:

- a. Profile along thalweg (minimum length two meander bends) and cross-sections (pools, riffles, and runs) of the watercourse identifying channel bottom, bankfull flow, high terrace, and existing waterline elevations. Cross-sections must be long enough to identify flood prone width.
- b. Profile and cross-sections along centerline of the irrigation ditch or watercourse to receive the water identifying channel bottom, high waterline, and top of ditch bank elevations. Elevations and dimensions of irrigation ditch inlet structure, water measuring structures, etc. The survey must be at least long enough to compute limiting hydraulic factors of the irrigation ditch.
- c. Topographic survey (elevations).
- d. Foundation and soils investigation.
- e. Corrosion survey (if needed).

**Design Data**

The information will be recorded in the design notes and appropriate data will be transferred to the construction drawings. The following shall be considered minimum in the design of all diversion dams:

- a. Hydrology for the watercourse (for example, USGS gauge data analyzed with log-Pearson statistical methods and/or USGS hydrologic estimation equations - Lowham or Miller equations).
- b. Hydraulics of the structure(s) and related watercourse(s).
- c. Structural design computations.
- d. Related foundation and soil investigations.
- e. Material volume computations.
- f. Records indicating NRCS obligations regarding State and Federal regulations have been met including, but not limited to, the following: water rights, easements, US Army Corp of Engineer's 404 permits, NPDES storm water permits, cultural resources, etc.

**Drawings and Specifications**

The construction drawings and/or specifications shall include, but will not be limited to the following:

- a. Overall scaled plan view showing complete structure layout, stationing, and vertical and horizontal control.
- b. Location map with legal description and north arrow.
- c. Cross sections and profiles showing dimensions, quantities, and types of construction materials.
- d. Special requirements for diverting water, dewatering, and keeping the excavation area dry.

- e. Backfill requirements.
- f. Special foundation treatment, drainage requirements, rock riprap, etc.
- g. Special details such as walkways, grates, screens, flashboards, gates, and pipes.
- h. Reinforcing details and steel schedule.
- i. Hydraulic data.
- j. Construction notes.
- k. Engineering job classification is shown and proper engineering approval is obtained.
- l. Cooperator's signature of review and acceptance to construct the project according to the plans and specifications.

Practice specifications along with applicable "Items of Work and Construction Details" shall be provided for each item or phase of construction.

### **Layout Survey Notes**

The following information will be recorded in the field notes:

- a. Location alignment elevation and reference stakes for the structure as required.

### **Compliance Check**

The complexity of the structure will dictate the need for compliance checks during construction. All compliance checks shall be recorded in the field notes. Narratives of construction checks shall be recorded in the Job Diary or on a sheet in the field notes. Compliance checks shall include but will not be limited to the following:

- a. Measurements and elevations of the completed structure to show that the planned dimensions, elevations, and quantities were obtained.
- b. Steel placement (bar sizes, spacing, splice lengths, etc.)
- c. Material and compaction testing, as required (use standard forms for recording).
- d. Quality and quantity of materials.
- e. Statement of compliance signed by NRCS personnel with applicable job approval authority that the work meets the plans and specifications. (A NRCS employee, with proper job approval authority, shall certify on the as-built drawings whether the as-built practice does or does not meet the requirements of the standards and specifications.).
- f. Changes in design are documented.

### **As-Built Plans**

As-built drawings shall be prepared for all diversion dams. These drawings shall reflect all significant changes in linear measurements, quantities, alignment, or design changes. If there were no changes, the original drawings shall be marked "As-Built".

Refer to record requirements for Ponds, 378, in the event the diversion dam consists of earth fill.