

**NATURAL RESOURCES CONSERVATION SERVICE
DOCUMENTATION REQUIREMENTS FOR
WATER AND SEDIMENT CONTROL BASIN**

CODE 638

Design Criteria

Design in accordance with the criteria listed in [Conservation Practice Standard 638, Water and Sediment Control Basin](#) (WASCOB); [Chapter 8](#) and [Chapter 11 of National Engineering Handbook Part 650 \(NEH 650\), Engineering Field Handbook](#); and the [Kansas supplements to NEH 650, Chapter 8](#) and [Chapter 11](#). The WASCOB should be installed at the location as shown on the conservation plan map and location map.

Surveys

Record standard engineering notes on [Form KS-ENG-1, Terrace - 600](#); Form NRCS-ENG-28, Loose Leaf Field Sheet, and NRCS-ENG-29, Loose Leaf Field Sheet; or [Forms KS-ENG-37 and KS-ENG-37a, Field Notes](#) (or equivalent).

Take and record ground elevation shots at 100-foot intervals, at all significant breaks in grade that occur between the regular stations, and to locate blocks and outlets. Alternatively, a topographic survey may be conducted for this purpose. A topographic survey is required for all basins more than 4 feet high.

The proposed WASCOB alignment may be surveyed and marked with flags at the downstream edge of the channel; at the no-cut, no-fill line; or at the center of the channel. When connecting to an existing terrace, take ground elevation shots along the existing terrace to establish the proper grade rod to continue the terrace.

Determine the land slope in percent above each basin. Undulating topography may require multiple land slope determinations for each WASCOB to accurately compute the storage volume using the station and slope method.

A stake and/or flag should be set to locate the inlet structure (riser or hooded inlet). A rod

reading for both the WASCOB channel and the inlet should be recorded at this station.

It is recommended to set at least 1 temporary bench mark as needed.

Locate and identify special conditions that may affect the design and installation of the WASCOB. Safety procedures in [National Engineering Manual \(NEM\) Part 503](#) and [NEM Part KS503](#) should be strictly followed.

Layout

Sufficient stationing, alignment flags, and grade stakes will normally be set when the design survey is made to establish the location of the WASCOB. In some cases, it will be necessary to set special reference stakes along the line after design and prior to WASCOB installation. These should be described in the survey notes. Record information obtained from the surveys for design and layout on [Form KS-ENG-1](#) and/or attach the survey notes as appropriate.

Complete the "Layout by" block and enter the date.

Design and Plans

Develop the design in accordance with the Design Criteria section above.

Record design information on page 1 of [Form KS-ENG-1](#) including the following:

- Name of the owner and/or operator and location information.
- For multiple WASCOBs in series, give the X value and Y value as used in the vertical interval equation, average land slope, vertical interval or spacing (and circle respective description), and horizontal interval or spacing (and circle respective description).

- WASC OB design cross sections.
- The location map showing the plan view of the proposed WASC OB—Attach a map (as needed) for more details.
- Any special instructions needed for installation of the WASC OB.
- Sign the “Designed by,” “Checked by,” and “Approved by” blocks and enter the respective dates.

For the gradient portion of the WASC OB channel design, the design velocity should not exceed the maximum permissible velocity allowed for the soil classification (texture or Unified Soil Classification System [USCS]) of soils in the WASC OB channel.

The [Terrace \(Storage\) Spreadsheet](#) can be used to complete designs for WASC OBs with underground outlets. Use information in [Chapter 11 of NEH 650](#) to design auxiliary spillways as needed for each WASC OB. Spillways may be natural or excavated based on site conditions.

Use [Form KS-ENG-4a, Earthwork Computation Sheet—Fill](#), [Form KS-ENG-4b, Earthwork Computation Sheet—Fill \(Stake Out\)](#), or the [Earthwork Volume](#) spreadsheet to determine the design volume of earthfill.

Checkout

Use [Form KS-ENG-1](#) and the Checkout Sheet within the [Terrace \(Storage\) Spreadsheet](#) for recording the information below:

- Channel and Ridge Profiles with readings at 100-foot intervals or more frequently if necessary—Take at least 1 channel reading on the centerline of channels that are 15 feet wide or less. Take at least 2 readings near the outer edges of the bottom of channels from 15 to 30 feet wide. Take at least a centerline reading and readings near each of the outer edges of channels over 30 feet wide. Record the difference of the channel reading from the ridge reading in the height column.
- At least 1 cross section for each WASC OB design shown in the “Design Cross Sections” portion of [Form KS-ENG-1](#)—Show the WASC OB number and station for each cross section taken.
- Use [Form KS-ENG-4b](#) or the [Earthwork Volume](#) spreadsheet to determine the volume of earthfill. The volume of earthfill will be based on the staked location.
- Sign the “Checkout by” block and enter the date.