SITES
Water Resource Site Analysis Software

Agricultural Research Service

Kansas State University

USDA NRCS
Natural Resources Conservation Service

. **INFORMATION SHEET**

The SITES Water Resource Site Analysis software is a state-of-the-art tool for evaluation of watershed dams. The software is a product of cooperation between the Agricultural Research Service, the Natural Resources Conservation Service, and Kansas State University. A graphical user interface in the form of an Integrated Development Environment provides the user with the capability of evaluating alternative designs or conditions, and comparing results in tabular or graphical form.

SITES combines an updated version of the Soil Conservation Service DAMSx computational software with advanced technology for prediction of earth spillway performance in an Integrated Development Environment. The application is suited for use with a Windows® operating system on a desktop computer. The software development project is scheduled for completion in 2001, with a beta test version available in September, 2000. Beta test versions of partial packages applicable to simple watersheds have been available since 1996. The current version of the software is available through the NRCS Conservation Engineering Division or on the web at: *www.wcc.nrcs.usda.gov/water/quality/wst.html*.

The DAMSx software around which the SITES package is constructed evolved over a period of time. It was developed for use in designing watershed dams to SCS criteria. The original software had limited capability to compute runoff from watersheds containing reservoirs, channel reaches, and subwatersheds. The SITES package expands this capability substantially and provides a graphical user interface for guiding the user through the required input and interpretation of output information. In addition, the program has the unique capability to:

- Compute ratings for the principal spillway inlets commonly used on NRCS flood control dams,
- Compute ratings for vegetated earth auxiliary (emergency) spillways with variable roughness,
- Account for subcritical flow in the exit channel of vegetated earth auxiliary spillways,
- Compute erosionally effective tractive stresses for stability analysis of vegetated earth auxiliary spillways, and
- Predict the breach potential of vegetated earth spillways subjected to extreme flood events.

The breach potential of the earth spillways is evaluated using a three-phase erosion model based on laboratory experiments and calibrated using erosion data from actual spillways that experienced erosion damage.

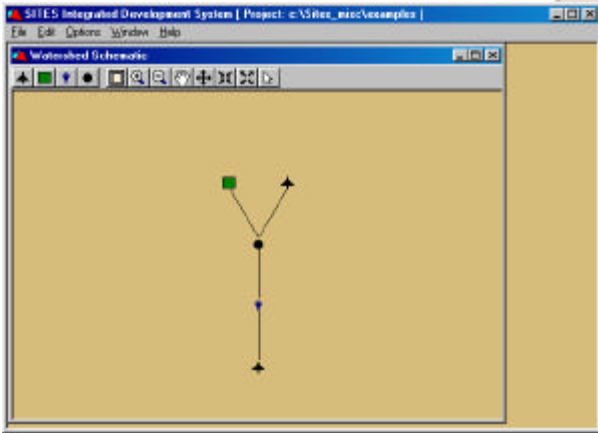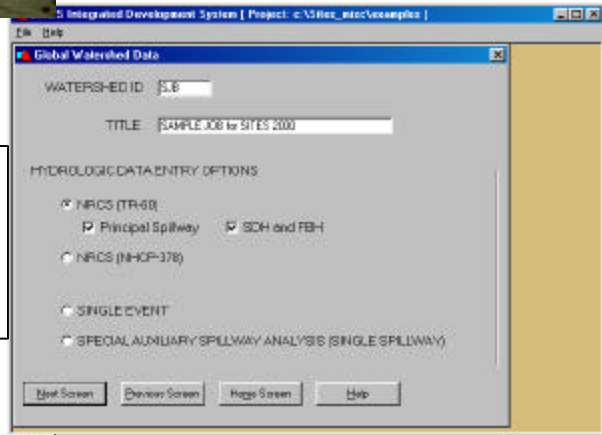*www.pswcrl.ars.usda.gov*   *www.cis.ksu.edu*   *www.wcc.nrcs.usda.gov*

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SITES evaluates the integrity of vegetated earth spillways using a three-phase model including analysis of headcut advance.

SITES Integrated Development Enironment provides flexibility while guiding the user through the inputs required for design or analysis.

A graphical user interface is used for development of a schematic defining components of complex watersheds.

Graphical output includes a plot of the original geology with an overlay of the auxiliary spillway and the extent of predicted erosion.