

TECHNICAL NOTE

SOIL TECHNICAL NOTE NO. 3

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GUIDELINES FOR LIGHT DETECTION AND RANGING (LIDAR) – CONTOUR INTERVALS

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The creation and use of LIDAR digital elevation model (DEM) derived contour data by South Dakota (SD) Natural Resources Conservation Service (NRCS) Geographic Information System (GIS) users should not exceed (be smaller than) a seven inch contour interval, unless the contours are for internal (NRCS) use only. **The LIDAR DEM data should never be used to determine absolute elevations to an accuracy of less than six inches.**

The use of LIDAR derived contours with a **contour interval tighter** than these specifications **will be allowed with these caveats**:

- The derived contours are for **NRCS internal** use only. In SD NRCS, we do not want to distribute information that does not meet our own levels of accuracy. If we do, it might be misconstrued as being official.
- **Maps** generated for use or **viewing outside of the NRCS will not include these contours** for the same reason as above.
- The **contours will not** be used as a **sole source** for **boundary** digitization.

The ongoing acquisition and distribution of LIDAR digital elevation datasets, in SD, including DEMs, allows GIS users to generate a variety of derivative products, including slope, aspect, hill shades and contours. There is apt to be some confusion as to how tight of a contour interval is feasible when deriving contours from LIDAR DEMs.

Specifications provided by the United States Geological Survey (USGS) Eros Data Center include the following:

LIDAR can produce accurate contours down to 18.5 cm (7.2") on bare earth and 37 cm (14.5") in obscured vegetative areas. This can be done with a 95 percent confidence level.

LIDAR derived contours with a contour interval tighter than these specifications is a generalization and interpretation of the data made by the computer. Therefore, they are not necessarily accurate. The contour values may not coincide with measurements made with more accurate data or instruments.

An example of the proper use of LIDAR derived contours with an interval of less than seven inches would be to determine the landform of an area, e.g., the overall shape of a wetland. Using a contour interval less than seven inches to delineate a boundary, would be misuse of the LIDAR data.