

ACPF Saturated Buffer Identification Criteria

Saturated Buffers employ a lateral distribution line within a riparian buffer that intercepts a tile's flow above its outlet to a stream. The lateral line has control structures that divert outflow along the buffer, raise the water table, and enhance the buffers ability to naturally remove nutrients. Subsurface tile drainage conveys water directly to streams, bypassing natural opportunities in streamside settings with organic-rich soils and moist conditions conducive to denitrification. This practice has shown to be inexpensive and efficient for nitrate removal (may be > 50%).

A riparian analysis polygon (RAP) MUST MEET ALL criteria to be considered suitable for saturated buffers:

1. **SOILS**; the area meeting all 3 conditions must exceed 35% of the near-stream area in the RAP:

- Soil Organic Carbon > 1% (at a 0 – 100 cm depth)
- Maximum Coarse Material < 50% (at a 50 – 150 cm depth)
- Water Table Depth (April – June) < 1 meter

** Near-stream area is defined as the area within 20 meters of the stream channel within each RAP. The stream channel is defined by merging the digitized stream centerline with the gSSURGO water classification, to account for areas of wide rivers.

2. **BANK HEIGHT**;

- Estimated bank height must be < 8 feet

** Bank height is estimated by the 75th percentile value of all elevations within 20 meters of the near-stream area. See above definition of near-stream area.

3. **TOPOGRAPHY**;

- > 35% of the area in each RAP must be 2 – 8% slopes

4. **LAND USE**; derived from 2015 NASS CDL

- Agricultural land use (either cropland or pasture) must exist within the RAP

CAVEATS:

- Tile-drainage estimates are not included in this analysis, although a tile outlet is required for this practice. Field validation and local knowledge must therefore be used to determine where outlets may exist. The Named Drained Soils can be included in the view by using the toggle at the bottom of the Viewing Instructions tab.
- The stream centerlines used for the state-wide assessment likely extend beyond the perennial stream locations that would typically accommodate saturated buffers. Thus, some of the upper locations may not be appropriate opportunities for these practices.
- Bank height may be underestimated in riparian areas which contain a spoil pile immediately adjacent to the stream, as lower elevation values on the opposite side of the spoil pile will be included in the calculation.
- Topographic information is determined from a LiDAR-derived DEM, which does not collect data over open water. Channel elevation values are therefore generated through an interpolation of neighboring elevation values. This may impact bank height, primarily resulting in an underestimation of values for bank height.
- LiDAR data represents a snapshot in time; as such, topographic characteristics within each RAP may have changed since the time the data was collected.
- The gSSURGO soils database is updated on a countywide basis by local soil technicians, then extrapolated to a larger area. There may be differences in the way soil attributes are recorded from one county to the next.