



7E-8 Sodding



<u>BENEFITS</u>			
	L	M	H
Flow Control	█	█	█
Erosion Control	█	█	█
Sediment Control	█	█	█
Runoff Reduction	█	█	█
Flow Diversion	█	█	█

Description: A section of grass-covered surface soil held together by matted roots that is cut in pre-determined sections, transported and delivered directly to the job site ready to install.

Typical Uses: Sod is placed to prevent erosion and damage from sediment and water by stabilizing the soil surface and to improve the visual quality and utility of the area quickly. Sod is typically used in residential or commercial areas where prompt use or aesthetics are important such as building entrance zones or high activity areas. Sod is also used in areas of intermittent concentrated flow such as waterways and channels. Sod may also be utilized in critical areas such as storm drain inlets, steep slopes, and any area where conditions make seeding impractical or impossible.

Advantages:

- Provides immediate erosion and dust control.
- Provides finished landscape appearance at time of installation.
- Reduces likelihood of weed growth.
- Placement can occur any time soil moisture is adequate and ground is not frozen.
- Rapid stabilization of surfaces for traffic areas, channel linings, or critical areas.

Limitations:

- More costly when compared to seeding and mulching.
- Vegetation selection is limited (typically a cool-season bluegrass based mix).
- Time is necessary for root establishment.
- Watering is required to ensure establishment.

Longevity: Permanent.

SUDAS Specifications: Refer to Section 9020 (Sodding)

A. Description/uses

Sodding consists of transplanting turf-type vegetation to promptly stabilize areas that are subject to erosion. Sod may be field sod or commercial sod, a cultured product utilizing specific grass species. A sodded area provides one of the best methods for preventing soil particles from leaving the site, providing immediate protection against soil erosion from water and wind.

B. Design considerations

The following should be considered for all sites stabilized with sod.

1. **Fertilization.** Test soil to determine the exact requirements for lime and fertilizer. Soil tests should be conducted by the state soil testing lab or a reputable commercial laboratory. Information on soil testing and testing services is available from the Iowa State University Extension (<http://www.extension.iastate.edu/>).
2. **Site preparation.** In areas where topsoil has been stripped, a sodbed should be constructed by spreading a minimum of 6 inches of topsoil prior to sodding. Deeper topsoil depths (8-12 inches or greater) are desirable as they increase the organic matter available for use by the plants, allow for deeper root penetration and increase the moisture holding ability of the soil. These benefits will increase the drought tolerance and long-term health of the vegetation. Where sufficient topsoil is not available, composted material may be incorporated at the rate of 1 inch of compost for every 3 inches of deficient topsoil.

The top of the completed sodbed should contain a minimum soil organic matter content of 5%. In areas where topsoil has not been stripped, and the soil organic content is low, compost may be placed, as required, to increase the soil organic matter content.

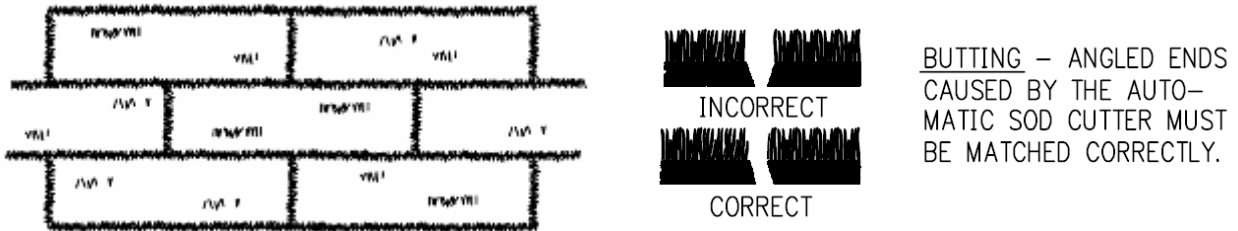
The top 3 inches of the sodbed should be prepared by tilling, and the surface cleared of any trash, debris, roots, branches, and stones or clods larger than $\frac{3}{4}$ inch in diameter. Any low spots should be filled or leveled to avoid standing water. The fertilizer and any other soil amendments should be uniformly applied and incorporated into the top $1\frac{1}{2}$ inches of the soil by tilling or disking. Complete soil preparation by rolling or cultipacking to firm the soil. Avoid using heavy equipment on the area, particularly when the soil is wet, as this may cause excessive compaction and make it difficult for the sod to take root.

Newly graded areas may be severely compacted by the weight of heavy earth moving and construction equipment. Disking or tilling reduces compaction in the uppermost layer of the soil, providing an adequate growing bed for the sod; however the soil below this level may remain severely compacted. This compacted layer acts as an impermeable barrier, slowing or preventing the infiltration of water into the ground. Infiltration of precipitation reduces runoff and recharges groundwater supplies. Techniques for reducing ground compaction, such as deep tillage, are described in the soil quality restoration guidelines in Chapter 2. While these techniques are not necessary for establishing sod, they are an effective means of improving overall water quality, and the period prior to final stabilization is considered the ideal time to implement them.

3. **Installation techniques.** Sod should be placed as soon as possible after the ground surface has been graded, to take advantage of the ground moisture, and installed within 36 hours of cutting. The soil should be slightly moist, but firm enough not to leave depressions if walked on. Install sod in a straight line at right angles to the direction of the slope, starting at the base of the area to be sodded and working uphill. Sodding operations should be planned so that sloped areas can be completely protected, from bottom to top, prior to halting operations for the day, or before

significant precipitation is expected. The angled ends caused by the automatic sod-cutting machine must be matched correctly.

Figure 1: Proper sod installation



Source: Kansas City APWA, 2003

Place the strips together tightly so that no open joints are left between strips or between the ends of strips. Lateral joints shall be staggered in a brickwork-type pattern to promote uniform growth and strength. Sod should not be overlapped or stretched, and all joints should be butted tightly to prevent voids. Sod should be laid perpendicular to the flow of water on slopes and in waterways. The edges of the sod at the top of the slopes should be slightly tucked under. A layer of soil should be compacted over the edge to conduct surface water over and onto the top of the sod. Fill any spaces between the joints and all sod edges with at least 2 inches of topsoil.

Care shall be taken to prevent voids or over-exposure of the roots, which would cause drying. As sodding of defined areas is completed, sod shall be rolled or tamped to provide firm contact between roots and soil. Seam openings between the mats are a sign the turf is shrinking and that the sod requires more water. Gaps between edges or ends of sod mats should be filled with topsoil and roll. If sod placement is delayed, it should be kept cool and moist. When placed on slopes steeper than 3:1, or in areas subject to concentrated flow, the sod should be anchored with pins, staples, or other approved methods at the ends and center, or every 3 to 4 feet for longer strips, to prevent movement. Sod should be kept moist until it is firmly rooted which typically takes a minimum of two weeks (see supplemental watering).

4. **Sod properties.** Sod should be of high quality, which the genetic origin is known, free of noxious weeds, disease, and insect problems consisting of a $\frac{3}{4}$ inch mat of vigorous turf. It should appear healthy and vigorous, and conform to the following specifications:
 - a. Sod should be live grass, machine cut at a uniform depth of 1/2 - 2 inches (excluding shoot growth and thatch).
 - b. Sod strips should be cut with smooth, clean edges and square ends to facilitate laying and fitting.
 - c. Sod should not be cut in excessively wet or dry weather.
 - d. Frozen sod should never be placed.
 - e. Sod should not be permitted to dry out.

- f. Harvested sod pieces can vary from widths of 12 to 48 inches and lengths of two to 100 feet, but should be in sections strong enough to support their own weight and retain their size and shape when lifted by one end.
 - g. As noted in the installation considerations, harvest, delivery, and installation of sod should take place within a period of 36 hours.
 - h. Sod should be moistened after it is unrolled, which helps to maintain its viability, and stored in the shade if possible, during installation.
5. **Supplemental water.** After placement is complete, the sod should be irrigated to a depth sufficient that the underside of the sod mat and 4 inches of soil below sod is thoroughly wet. Irrigate at a rate that does not result in runoff. The moisture level can be checked by lifting a corner of a sod roll, and verifying that water is penetrating well into the subsoil.

As a rule of thumb, watering should be scheduled as follows:

- a. **First week.** The sod soil should be kept moist at all times. During dry spells, the sod should be watered daily, or as often as necessary to maintain moist soil. The sod should be watered during the heat of the day to prevent wilting.
- b. **Second and subsequent weeks.** Water sod to maintain adequate moisture in the soil until the grass takes root. This can be determined by gently tugging on the sod. Resistance indicates that rooting has occurred.
- c. **Summer installations (June – August).** Summer installations require high levels of attention to water application needs, as newly installed sod will dry out rapidly, suffering significant setback or total loss.

C. Application

The NPDES General Permit No. 2 requires that all disturbed areas, where no construction activities are scheduled for a period of 21 calendar days or more, be stabilized within 14 days of the final construction activity. Sodding is one way to meet this requirement.

D. Maintenance

The sodded area should be inspected daily for at least two weeks, or until the sod is established, to ensure that the moisture content is sufficient and that root establishment is proceeding. The sod should not be mowed regularly until it is well-established, and the roots have knitted down. The turf should never be mowed shorter than 2 ½ inches and no shorter than 3 inches during June, July, and August, in order to increase drought tolerance.

E. Time of year

Sod availability is seasonal, although it can be laid in nearly all weather conditions. Sod laid during the middle of the summer will require significantly more maintenance and watering. If the ground is frozen, sod cannot be cut and should not be laid; however, if it is available, unfrozen, dormant sod can be laid on unfrozen ground, provided there is not a significant layer of snow.