



**S7. Dark Surface.** A layer 10 centimeter (cm) (4 inches) thick, starting within the upper 15 cm (6 inches) of the soil surface, with a matrix value of 3 or less and a chroma of 1 or less. At least 70 percent of the visible soil particles must be masked with organic material, view through a10x or 15x hand lens. Observed without a hand lens, the particles appear to be close to 100 percent masked. The matrix color of the layer directly below the dark layer must have the same colors as those described above or any color that has chroma of 2 or less.

**User Notes:** For this indicator, the content of organic carbon is slightly less than is required for “mucky.” An undisturbed sample must be observed. Many wet soils have a ratio of about 50 percent soil particles that are masked with organic matter and about 50 percent unmasked soil particles, giving the soils a salt-and-pepper appearance. Where the coverage is less than 70 percent, a Dark Surface indicator does not occur.

**Additional User Notes:** The dark layer specified in the description of the field indicator refers to the 4-inch dark layer. If the dark layer is thicker than 4 inches (e.g. 6 or 8 inches), it will meet the requirement that the layer directly below the 4-inch thick dark layer must have the same color as the 4-inch thick dark layer. The color of the layer beneath the dark layer may be either gray (low chroma) or orange (high chroma). S7. Dark Surface, is a common and reliable hydric soil indicator in sandy soils in Michigan. It occurs near the wetland/upland boundary. This indicator can be found in a wide range of wetland types including wetlands dominated by herbaceous vegetation and forested wetlands.



Dark Surface, Saginaw Bay

**S11. High Chroma Sands.** For use along shorelines and near shore regions of the Great Lakes in LRRs K and L. In coastal zones and dune-and-swale complexes, a layer 2 inches (5 cm) or more thick starting within 4 inches (10 cm) of the surface with chroma 4 or less and 2 percent or more distinct or prominent redox concentrations.

**User Notes:** Along the shorelines of the Great Lakes within LRRs L and K, some wetlands exhibit the presence of high chroma sands (often a chroma of 3 or more). These high-chroma, sandy soils occur at the landward edge of coastal marshes, in interdunal landscape positions, and dune-and-swale complexes. These soils exhibit redox concentrations as pore linings and/or soft masses starting within 4 inches. (10 cm) of the surface. In adjacent upland areas, redox concentrations are absent or are only observed below 6 inches. (15 cm). It may be helpful to involve a soil scientist or wetland scientist familiar with these soils.



Dark Surface, Pine Island Marsh



High Chroma Sands, Pt. Aux Chenes



High Chroma Sands, Tawas State Park

required Munsell value. These soils are hydric if the required value is present within 10 cm (4 inches) of the soil surface. Normally, this indicator occurs at the soil surface.

Additional User Notes: Marl is found in prairie fen wetlands in southern Michigan and northern fen wetlands and coastal fen wetlands in northern lower Michigan and the Upper Peninsula.



Marl, Little Portage Lake



Marl, Sand Lake

**F10. Marl.** For use in LRRs K, L and U. A layer of marl with value of 5 or more and chroma less than 2 starting within 10 cm (4 inches) of the soil surface.

**User Notes:** Marl is a limnic material deposited in water by precipitation of  $\text{CaCO}_3$  by algae as defined in Soil Taxonomy (Soil Survey Staff, 1999). It has a Munsell value of 5 or more and reacts with dilute HCl to evolve  $\text{CO}_2$ . Marl is not the carbonatic substrate material associated with limestone bedrock. Some soils have materials with all of the properties of marl, except for the