

Hydric Soil Indicators for All Soils:

These indicators are for all soils regardless of texture. All mineral layers above any of the layers meeting an A Indicator(s) have dominant chroma ≤ 2 or the layer(s) with dominant chroma of >2 is less than 15 cm (6 inches) thick.

A1. Histosol. *All LRRs.* Classifies as a Histosol, except Folists. All Histosol requirements contained in Soil Taxonomy must be met.

A2. Histic Epipedon. *All LRRs.* A histic epipedon underlain by mineral soil material with chroma ≤ 2 . All Histic Epipedon requirements contained in Soil Taxonomy must be met.

A3. Black Histic. *All LRRs.* A layer of peat, mucky peat, or muck ≥ 20 cm (8 inches) thick starting ≤ 15 cm (6 inches) from the soil surface; has hue of 10YR or yellower, value ≤ 3 , and chroma ≤ 1 underlain by mineral soil material with chroma ≤ 2 .

A4. Hydrogen Sulfide. *All LRRs.* A hydrogen sulfide odor starting at a depth ≤ 30 cm (12 inches) from the soil surface.

A5. Stratified Layers. *All LRRs.* Several (≥ 3) stratified layers starting at a depth ≤ 15 cm (6 inches) from the soil surface. At least one of the layers has value ≤ 3 and chroma ≤ 1 , or it is muck, mucky peat, peat or mucky modified mineral texture. The remaining layers have chroma ≤ 2 . For any sandy material that constitutes the layer with value ≤ 3 and chroma ≤ 1 , at least $\geq 70\%$ of the visible soil particles must be masked with organic material viewed through a 10X or 15X hand lens. Observed without a hand lens, the particles appear to be close to 100% masked.

A6. Organic Bodies. *All LRRs.* Presence of $\geq 2\%$ organic bodies of muck or a mucky

modified mineral texture starting ≤ 15 cm (6 inches) from the soil surface.

A7. 5 cm Mucky Mineral. *All LRRs.* A layer of mucky modified mineral soil material ≥ 5 cm (2 inches) thick starting at a depth ≤ 15 cm (6 inches) from the soil surface.

A8. Muck Presence. *LRR U.* A layer of muck with value ≤ 3 and chroma ≤ 1 starting at a depth ≤ 15 cm (6 inches) from the soil surface.

A9. 1 cm Muck. *LRRs P and T.* A layer of muck ≥ 1 cm thick with value ≤ 3 and chroma ≤ 1 starting at a depth ≤ 15 cm (6 inches) from the soil surface.

A11. Depleted Below Dark Surface. *All LRRs.* A layer with a depleted or gleyed matrix that has 60% or more chroma ≤ 2 starting at a depth ≤ 30 cm (12 inches) from the soil surface, and having a minimum thickness of either:

a. 6 inches (15 cm), or

b. 2 inches (5cm) if the 2 inches consists of fragmental soil material. Organic, loamy, or clayey layer (s) above the depleted or gleyed matrix must have a value of ≤ 3 and chroma ≤ 2 starting at a depth < 15 cm (6 inches) from the soil surface and extend to the depleted or gleyed matrix. Any sandy material above the depleted or gleyed matrix must have a value of ≤ 3 and chroma ≤ 1 starting at a depth ≤ 15 cm (6 inches) from the soil surface and extend to the depleted or gleyed matrix. Viewed through a 10x or 15x hand lens, ≥ 70 percent of the visible sand particles must be masked with organic material. Observed without a hand lens the sand particles appear to be close to 100 percent masked.

A12. Thick Dark Surface. *All LRRs.* A layer ≥ 15 cm (6 inches) thick with a depleted or gleyed matrix that has $\geq 60\%$ chroma ≤ 2 starting below 30 cm (12 inches) of the surface. The layer(s) above the depleted or gleyed matrix and starting at a depth of < 15 cm (6 inches) from the soil surface must have a value ≤ 2.5 and chroma ≤ 1 to a depth of at least 30cm (12 inches) and value ≤ 3 and chroma ≤ 1 in any remaining layers

above the depleted or gleyed matrix. In any sandy material above the depleted or gleyed matrix, ≥ 70 percent of the visible soil particles must be masked with organic material, viewed with a 10X or 15X hand lens. Observed without a hand lens, the particles appear to be close to 100 percent masked.

Hydric Soil Delineation Indicators for Sandy

Soils: These indicators are for soil materials with a USDA texture of loamy fine sand and coarser. All mineral layers above any of the S Indicators except for Indicator S6 have a dominant chroma of ≤ 2 , or the thickness of the layer(s) with dominant chroma of >2 is less than 15 cm (6 inches) thick.

S4. Sandy Gleyed Matrix. *All LRRs.* A gleyed matrix that occupies $\geq 60\%$ of a layer starting at a depth ≤ 15 cm (6 inches) from the soil surface. The definition of a Gleyed Matrix must be met; colors on the gleyed pages of color charts and value ≥ 4 .

S5. Sandy Redox. *All LRRs.* A layer starting ≤ 15 cm (6 inches) from the soil surface that is ≥ 10 cm (4 inches) thick and has a matrix with $\geq 60\%$ chroma ≤ 2 with $\geq 2\%$ distinct or prominent redox concentrations occurring as soft masses and/or pore linings.

S6. Stripped Matrix. *All LRRs.* A layer starting at a depth of ≤ 15 cm (6 inches) from the soil surface in which iron-manganese oxides and/or organic matter have been stripped from the matrix the primary base color of soil material has been exposed. The stripped areas and translocated oxides and/or organic matter form a faintly contrasting pattern of ≥ 2 colors with diffuse boundaries. The stripped zones are $\geq 10\%$ of the volume and are rounded.

S7. Dark Surface. *All LRRs.* A layer 10 cm (4 inches) thick starting at a depth ≤ 15 cm (6 inches) from the soil surface, with a matrix value ≤ 3 and chroma ≤ 1 . At least 70% of the visible soil particles must be masked with

organic material viewed through a 10X or 15X hand lens. Observed without a hand lens, the particles appear to be close to 100% 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 ≤ 2 .

S8. Polyvalue Below Surface. *LRRs T and U.* A layer with value ≤ 3 and chroma ≤ 1 starting at a depth ≤ 15 cm (6 inches) from the soil surface. $\geq 70\%$ of the visible soil particles must be masked with organic material, viewed through a 10X or 15X hand lens. Observed without a hand lens, the particles appear to be close to 100% masked. Directly below this layer, $\geq 5\%$ of the soil volume has value ≤ 3 and chroma ≤ 1 , and the remainder of the soil volume has value ≥ 4 and chroma ≤ 1 to a depth of 30 cm (12 inches) or to the spodic horizon, whichever is less.

S9. Thin Dark Surface. *LRRs T and U.* A layer ≥ 5 cm (2 inches) thick starting at a depth ≤ 15 cm (6 inches) from the surface, with value ≤ 3 and chroma ≤ 1 . $\geq 70\%$ of the visible soil particles must be masked with organic material, viewed through a 10X or 15X hand lens. Observed without a hand lens, the particles appear to be close to 100% masked. This layer is underlain by a layer or layers with value ≤ 4 and chroma ≤ 1 to a depth of 30 cm (12 inches) or to the spodic horizon, whichever is less.

S12. Barrier Islands 1 cm Muck. *Use in MLRA 153B, located in Nassau and Duval counties only.* In the swale portion of dune-and-swale complexes of barrier islands, a layer of muck 1 cm (0.5 inches) or more thick with value of ≤ 3 and chroma ≤ 2 and starting at a depth ≤ 15 cm (6 inches) from the soil surface. User notes: This indicator is similar to A9 but allows chroma of greater than 1, but not greater than 2. The indicator is limited to the dune-and-swale complex on barrier islands.

Hydric Soil Indicators for Loamy and

Clayey Soils: These soils have USDA textures of loamy very fine sand and finer. All mineral layers above any of the layers meeting any F Indicator(s), except for Indicators F8 and F12 have a dominant chroma ≤ 2 , or the thickness of the layer(s) with dominant chroma of ≥ 2 is < 15 cm (6 inches) thick.

F2. Loamy Gleyed Matrix. All LRRs. A gleyed matrix that occupies $\geq 60\%$ of a layer starting at a depth ≤ 30 cm (12 inches) from the soil surface. The definition of a Gleyed Matrix must be met; colors on the gleyed pages of color charts and value of ≥ 4 .

F3. Depleted Matrix. All LRRs. A layer that has a depleted matrix with $\geq 60\%$ chroma ≤ 2 and that has a minimum thickness of either:
a. 5 cm (2 inches) if the 5 cm starts at a depth ≤ 10 cm (4 inches) from the soil surface, **or**
b. 15 cm (6 inches), starting at a depth ≤ 25 cm (10 inches) from the soil surface. **See definition of Depleted Matrix below.**

Depleted Matrix Definition:

The following combinations of value and chroma identify a depleted matrix:

1. Matrix value ≥ 5 and chroma ≤ 1 with or without redox concentrations occurring as soft masses and/or pore linings; **or**
2. Matrix value ≥ 6 and chroma ≤ 2 with or without redox concentrations occurring as soft masses and/or pore linings; **or**
3. Matrix value of 4 or 5 and chroma 2 and $\geq 2\%$ distinct or prominent redox concentrations occurring as soft masses and/or pore linings; **or**
4. Matrix value of 4 and chroma 1 and 2 percent or more distinct or prominent redox concentrations occurring as soft masses and/or pore linings.

Any sandy material deemed a depleted matrix

must have redox concentrations regardless of value and chroma.
A, E and calcic horizons may have low chromas and high values and may therefore be mistaken for a depleted matrix; however, they are excluded from the concept of depleted matrix unless the soil has common or many distinct or prominent redox concentrations occurring as soft masses or pore linings. In some areas the depleted matrix may change color upon exposure to air (see Reduced matrix); this phenomenon is included in the concept of depleted matrix.

F6. Redox Dark Surface. All LRRs. A layer ≥ 10 cm (4 inches) thick starting at a depth ≤ 20 cm (8 inches) from the mineral soil and has:
a. Matrix value ≤ 3 and chroma ≤ 1 and $\geq 2\%$ distinct or prominent redox concentrations occurring as soft masses or pore linings, **or**
b. Matrix value ≤ 3 and chroma ≤ 2 and $\geq 5\%$ distinct or prominent redox concentrations occurring as soft masses or pore linings.

NOTE: Redox concentrations may be easier to see in a drier soil as masking may be reduced. Must use moist soil for actual color determination.

F7. Depleted Dark Surface. All LRRs. Redox depletions, with value ≥ 5 and chroma ≤ 2 , in a layer ≥ 10 cm (4 inches) thick, starting at a depth ≥ 20 cm (8 inches) from the mineral soil and has:
a. Matrix value ≤ 3 and chroma ≤ 1 and $\geq 10\%$ redox depletions, **or**
b. Matrix value ≤ 3 and chroma ≤ 2 and $\geq 20\%$ redox depletions.

F8. Redox Depressions. LRRs P and T. In closed depressions subject to ponding, $\geq 5\%$ distinct or prominent redox concentrations occurring as soft masses or pore linings in a layer ≥ 5 cm (2 inches) thick and starts at a depth ≤ 10 cm (4 inches) from the soil surface. User

Notes: This indicator occurs on landforms such as: "Grady" ponds, and potholes. It does not

occur in micro-depressions (approximately 1 m) on convex or plane landscapes.

F10. Marl. LRR U. A layer of marl with value ≥ 5 and chroma < 2 starting at a depth ≤ 10 cm (4 inches) from the soil surface.

F12. Iron/Manganese Masses. LRRs P and T. On flood plains, a layer ≥ 10 cm (4 inches) thick with $\geq 40\%$ chroma ≤ 2 , and $\geq 2\%$ distinct or prominent redox concentrations occurring as soft iron-manganese masses with diffuse boundaries. The layer starts at a depth ≤ 20 cm (8 inches) from the soil surface. Iron-manganese masses have value and chroma ≤ 3 . Most commonly, they are black. The thickness requirement is waived if the layer is the mineral surface layer.

F13. Umbria Surface. All LRRs. A layer ≥ 25 cm (10 inches) thick, starting at a depth ≤ 15 cm (6 inches) from the soil surface, in which the upper 15 cm (6 inches) has value ≤ 3 and chroma ≤ 1 and the lower 10 cm (4 inches) has the same colors as those described above or any other color that has chroma ≥ 2 .

F22. Very Shallow Dark Surface. Use in MLRA 138 in LRR P, West Florida portions of MLRA 152A in LRR T; and MLRA 154 of LRR U.

In depressions and flood plains subject to frequent ponding and/or flooding, one of the following must be observed:

- a) if bedrock occurs between 15 cm (6 inches) and 25 cm (10 inches), a layer at least 15 cm (6 inches) thick starting at a depth ≤ 10 cm (4 inches) from the soil surface with value ≤ 2.5 and chroma ≤ 1 , and the remaining soil to bedrock must have the same colors as above or any other color that has a chroma ≥ 2 , **or**

- b) if bedrock occurs at a depth ≤ 15 cm (6 inches), more than half of the soil thickness must have value ≤ 2.5 and chroma ≤ 1 , and the remaining soil to bedrock must have the same color as above or any other color that has a chroma ≤ 2 .

GENERAL NOTES FOR HSI USE:
Redoximorphic features for HSI must have distinct or prominent contrast with matrix, except as noted. Redox concentrations may have sharp boundaries where the matrix has value ≤ 3 and chroma ≤ 1 .

Mineral	Value/Chroma	Hue
Mn	$\leq 2/\leq 2$	2.5YR to 5Y
Fe/Mn	3/3	2.5YR to 5Y
Fe	$\geq 4/\geq 4$	2.5YR to 5Y
Hue 10R or redder indicates redox features		

MASKING: USE UNDISTURBED (UNTOUCHED) SAMPLES TO DETERMINE MASKING. HAND LENS MUST BE 10X OR 15X. OBSERVATION BY NAKED EYE APPEARS TO BE CLOSE TO 100% MASKED ($< 2\%$ UNMASKED).

USER NOTES: Where indicators have User Notes, they must be used in conjunction with the information on this sheet. See FDOH Soil Manual User Notes, or refer to the current USDA NRCS document entitled Field Indicators of Hydric Soils in the United States. This sheet was modified based on Version 8.2.