[Depth to Water Table 1](#_Toc16080363)

[Seasonal High Water Table 1](#_Toc16080364)

[Description 1](#_Toc16080365)

[Objective 2](#_Toc16080366)

[Analysis within CART 2](#_Toc16080367)

[Script Breakdown 2](#_Toc16080368)

[Insert identifier(s) string and WKT geometry for each Area of Interest (AOI) polygon 2](#_Toc16080369)

[Create summary acres for each landunit 2](#_Toc16080370)

[Populate intersected soil polygon table with geometry 3](#_Toc16080371)

[Populate soil geometry with landunit attribute 3](#_Toc16080372)

[Populate soil map unit acres, aggregated by mukey (merges polygons together) 3](#_Toc16080373)

[Component level data and mapunit sum-of-comppct\_r (major components only) 4](#_Toc16080374)

[Flag any component with a water table depth less than 36 cm during the growing season 12](#_Toc16080375)

[Normalizing component percent 14](#_Toc16080376)

[Calculate component acres 15](#_Toc16080377)

[Water Table by Land Unit 15](#_Toc16080378)

# Depth to Water Table

Jason Nemecek

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**Water table** refers to a saturated zone in the soil and occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table. Water table is recorded as three separate values in the database. A low value and a high value indicate the range for the soil component. A “representative” value indicates the expected value for the component. Only the representative value is used for the CART calculation.

## Seasonal High Water Table

### Description

A seasonal high water table is a management concern if groundwater or a perched water table causing saturated conditions near the surface degrades water resources or restricts capability of land to support its intended use.

### Objective

The objective of management is to reduce a seasonally high water table.

### Analysis within CART

Each PLU, regardless of land use, defaults to a “not assessed” status for seasonal high water table. The planner identifies this resource concern based on site-specific conditions. If the planner identifies the resource concern, CART triggers a soil-data web-service to determine if the water table is within 18 inches of the surface. If a high water table is identified, a threshold of 50 is set.

## Script Breakdown

#### Insert identifier(s) string and WKT geometry for each area of interest (AOI) polygon

SELECT @aoiGeom = GEOMETRY::STGeomFromText('MULTIPOLYGON (((-102.12335160658608 45.959173206572416, -102.13402890980223 45.959218442561564, -102.13386921506947 45.944643788188387, -102.12327175652177 45.944703605814198, -102.12335160658608 45.959173206572416)))', 4326);

SELECT @aoiGeomFixed = @aoiGeom.MakeValid().STUnion(@aoiGeom.STStartPoint());

INSERT INTO #AoiTable ( landunit, aoigeom )

VALUES ('T9981 Fld3', @aoiGeomFixed);

SELECT @aoiGeom = GEOMETRY::STGeomFromText('MULTIPOLYGON (((-102.1130336443976 45.959162795100383, -102.12335160658608 45.959173206572416, -102.12327175652177 45.944703605814198, -102.1128892282776 45.944710506326032, -102.1130336443976 45.959162795100383)))', 4326);

SELECT @aoiGeomFixed = @aoiGeom.MakeValid().STUnion(@aoiGeom.STStartPoint());

INSERT INTO #AoiTable ( landunit, aoigeom )

VALUES ('T9981 Fld4', @aoiGeomFixed);

| **aoiid** | **landunit** | **aoigeom** |
| --- | --- | --- |
| 1 | T9981 Fld3 | POLYGON ((-102.13386921506947 45.944643788188387, -102.12327175652177 45.9447036058142, -102.12335160658608 45.959173206572416, -102.13402890980223 45.959218442561564, -102.13386921506947 45.944643788188387)) |
| 2 | T9981 Fld4 | POLYGON ((-102.12327175652177 45.9447036058142, -102.1128892282776 45.944710506326032, -102.1130336443976 45.959162795100383, -102.12335160658608 45.959173206572416, -102.12327175652177 45.9447036058142)) |

#### Create summary acres for each landunit

CREATE TABLE #AoiAcres

( aoiid INT,

landunit CHAR(20),

landunit\_acres FLOAT

);

INSERT INTO #AoiAcres (aoiid, landunit, landunit\_acres )\

SELECT aoiid, landunit,

SUM( ROUND( ( ( GEOGRAPHY::STGeomFromWKB(aoigeom.STAsBinary(), 4326 ).STArea() ) / 4046.8564224 ), 3 ) ) AS landunit\_acres

FROM #AoiTable

GROUP BY aoiid, landunit;

| **aoiid** | **landunit** | **landunit\_acres** |
| --- | --- | --- |
| 1 | T9981 Fld3 | 328.952 |
| 2 | T9981 Fld4 | 318.722 |

#### Populate intersected soil polygon table with geometry

-- Create intersected soil polygon table with geometry

CREATE TABLE #AoiSoils

( polyid INT IDENTITY (1,1),

aoiid INT,

landunit CHAR(20),

mukey INT,

soilgeom GEOMETRY

);

INSERT INTO #AoiSoils (aoiid, landunit, mukey, soilgeom)

SELECT A.aoiid, A.landunit, M.mukey, M.mupolygongeo.STIntersection(A.aoigeom ) AS soilgeom

FROM mupolygon M, #AoiTable A

WHERE mupolygongeo.STIntersects(A.aoigeom) = 1;

#### Populate soil geometry with landunit attribute

-- Soil geometry with landunits

CREATE TABLE #AoiSoils2

( aoiid INT,

polyid INT,

landunit CHAR(20),

mukey INT,

poly\_acres FLOAT,

soilgeog GEOGRAPHY

);

-- Populate Soil geometry with landunit attribute

INSERT INTO #AoiSoils2

SELECT aoiid, polyid, landunit, mukey, ROUND((( GEOGRAPHY::STGeomFromWKB(soilgeom.STAsBinary(), 4326 ).STArea() ) / 4046.8564224 ), 3 ) AS poly\_acres, GEOGRAPHY::STGeomFromWKB(soilgeom.STAsBinary(), 4326 ) AS soilgeog

FROM #AoiSoils;

#### Populate soil map unit acres, aggregated by mukey (merges polygons together)

INSERT INTO #M2

SELECT DISTINCT M1.aoiid, M1.landunit, M1.mukey,

ROUND (SUM (M1.poly\_acres) OVER(PARTITION BY M1.landunit, M1.mukey), 3) AS mapunit\_acres

FROM #AoiSoils2 AS M1

GROUP BY M1.aoiid, M1.landunit, M1.mukey, M1.poly\_acres;

#### Component level data and mapunit sum-of-comppct\_r (major components only)

CREATE TABLE #M4

( aoiid INT,

landunit CHAR(20),

mukey INT,

mapunit\_acres FLOAT,

cokey INT,

compname CHAR(60),

comppct\_r INT,

majcompflag CHAR(3),

mu\_pct\_sum INT,

major\_mu\_pct\_sum INT,

drainagecl CHAR(254)

);

---Populate component level data with cokey, comppct\_r and mapunit sum-of-comppct\_r

INSERT INTO #M4

SELECT M2.aoiid, M2.landunit, M2.mukey, mapunit\_acres, CO.cokey, CO.compname, CO.comppct\_r, CO.majcompflag, (SELECT SUM (CCO.comppct\_r)

FROM #M2 AS MM2

INNER JOIN component AS CCO ON CCO.mukey=MM2.mukey AND M2.mukey=MM2.mukey AND majcompflag = 'Yes' ) AS major\_mu\_pct\_sum,

SUM (CO.comppct\_r) OVER(PARTITION BY M2.landunit, M2.mukey) AS mu\_pct\_sum, drainagecl

FROM #M2 AS M2

INNER JOIN component AS CO ON CO.mukey = M2.mukey

| **aoiid** | **landunit** | **mukey** | **mapunit\_acres** | **cokey** | **compname** | **comppct\_r** | **majcompflag** | **mu\_pct\_sum** | **major\_mu\_pct\_sum** | **drainagecl** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | T9981 Fld3 | 354627 | 0.426 | 16464493 | Slickspots | 2 | No | 90 | 100 | Well drained |
| 1 | T9981 Fld3 | 354627 | 0.426 | 16464494 | Daglum | 25 | Yes | 90 | 100 | Well drained |
| 1 | T9981 Fld3 | 354627 | 0.426 | 16464495 | Farnuf | 65 | Yes | 90 | 100 | Well drained |
| 1 | T9981 Fld3 | 354627 | 0.426 | 16464496 | Grail | 3 | No | 90 | 100 | Moderately well drained |
| 1 | T9981 Fld3 | 354627 | 0.426 | 16464497 | Rhoades | 3 | No | 90 | 100 | Well drained |
| 1 | T9981 Fld3 | 354627 | 0.426 | 16464498 | Tally | 2 | No | 90 | 100 | Well drained |
| 1 | T9981 Fld3 | 354648 | 0.287 | 16464607 | Amor | 25 | Yes | 85 | 100 | Well drained |
| 1 | T9981 Fld3 | 354648 | 0.287 | 16464608 | Arnegard | 4 | No | 85 | 100 | Moderately well drained |
| 1 | T9981 Fld3 | 354648 | 0.287 | 16464609 | Belfield | 4 | No | 85 | 100 | Well drained |
| 1 | T9981 Fld3 | 354648 | 0.287 | 16464610 | Heil | 1 | No | 85 | 100 | Poorly drained |
| 1 | T9981 Fld3 | 354648 | 0.287 | 16464611 | Lantry | 3 | No | 85 | 100 | Well drained |
| 1 | T9981 Fld3 | 354648 | 0.287 | 16464612 | Reeder | 60 | Yes | 85 | 100 | Well drained |
| 1 | T9981 Fld3 | 354648 | 0.287 | 16464613 | Vebar | 3 | No | 85 | 100 | Well drained |
| 1 | T9981 Fld3 | 2494708 | 1.729 | 16663928 | Regent | 5 | No | 81 | 100 | Well drained |
| 1 | T9981 Fld3 | 2494708 | 1.729 | 16663929 | Chama | 5 | No | 81 | 100 | Well drained |
| 1 | T9981 Fld3 | 2494708 | 1.729 | 16663930 | Amor | 49 | Yes | 81 | 100 | Well drained |
| 1 | T9981 Fld3 | 2494708 | 1.729 | 16663931 | Cabba | 32 | Yes | 81 | 100 | Well drained |
| 1 | T9981 Fld3 | 2494708 | 1.729 | 16663932 | Shambo | 9 | No | 81 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525720 | 56.699 | 16663899 | Daglum | 33 | Yes | 176 | 100 | Moderately well drained |
| 1 | T9981 Fld3 | 2525720 | 56.699 | 16663900 | Savage | 3 | No | 176 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525720 | 56.699 | 16663901 | Barkof | 2 | No | 176 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525720 | 56.699 | 16663902 | Rhoades | 2 | No | 176 | 100 | Moderately well drained |
| 1 | T9981 Fld3 | 2525720 | 56.699 | 16663903 | Rhoades | 55 | Yes | 176 | 100 | Moderately well drained |
| 1 | T9981 Fld3 | 2525720 | 56.699 | 16663904 | Belfield | 5 | No | 176 | 100 | Moderately well drained |
| 1 | T9981 Fld3 | 2525732 | 1.35 | 16663795 | Lakota | 4 | No | 72 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525732 | 1.35 | 16663796 | Ekalaka | 55 | Yes | 72 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525732 | 1.35 | 16663797 | Yegen | 17 | Yes | 72 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525732 | 1.35 | 16663798 | Desart | 14 | No | 72 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525732 | 1.35 | 16663799 | Parshall | 6 | No | 72 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525732 | 1.35 | 16663800 | Rhoades | 2 | No | 72 | 100 | Moderately well drained |
| 1 | T9981 Fld3 | 2525732 | 1.35 | 16663801 | Vebar | 2 | No | 72 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525733 | 0.129 | 16663950 | Beisigl | 7 | No | 75 | 100 | Somewhat excessively drained |
| 1 | T9981 Fld3 | 2525733 | 0.129 | 16663951 | Vebar | 50 | Yes | 75 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525733 | 0.129 | 16663952 | Cohagen | 25 | Yes | 75 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525733 | 0.129 | 16663953 | Tally | 14 | No | 75 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525733 | 0.129 | 16663954 | Amor | 2 | No | 75 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525733 | 0.129 | 16663955 | Arnegard | 2 | No | 75 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525739 | 28.479 | 16663915 | Parshall | 20 | Yes | 78 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525739 | 28.479 | 16663916 | Tally | 12 | No | 78 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525739 | 28.479 | 16663917 | Vebar | 58 | Yes | 78 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525739 | 28.479 | 16663918 | Arnegard | 8 | No | 78 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525739 | 28.479 | 16663919 | Cohagen | 2 | No | 78 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525745 | 4.983 | 16663920 | Farnuf | 12 | No | 150 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525745 | 4.983 | 16663921 | Shambo | 75 | Yes | 150 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525745 | 4.983 | 16663922 | Arnegard | 10 | No | 150 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525745 | 4.983 | 16663923 | Amor | 3 | No | 150 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525746 | 16.106 | 16663924 | Arnegard | 10 | No | 156 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525746 | 16.106 | 16663925 | Farnuf | 8 | No | 156 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525746 | 16.106 | 16663926 | Amor | 4 | No | 156 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525746 | 16.106 | 16663927 | Shambo | 78 | Yes | 156 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525754 | 12.638 | 16663598 | Heil | 3 | No | 150 | 100 | Poorly drained |
| 1 | T9981 Fld3 | 2525754 | 12.638 | 16663599 | Rhoades | 4 | No | 150 | 100 | Moderately well drained |
| 1 | T9981 Fld3 | 2525754 | 12.638 | 16663600 | Daglum | 2 | No | 150 | 100 | Moderately well drained |
| 1 | T9981 Fld3 | 2525754 | 12.638 | 16663601 | Vanda | 5 | No | 150 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525754 | 12.638 | 16663602 | Harriet | 75 | Yes | 150 | 100 | Poorly drained |
| 1 | T9981 Fld3 | 2525754 | 12.638 | 16663603 | Regan | 6 | No | 150 | 100 | Poorly drained |
| 1 | T9981 Fld3 | 2525754 | 12.638 | 16663604 | Glenross | 5 | No | 150 | 100 | Poorly drained |
| 1 | T9981 Fld3 | 2525764 | 17.691 | 16663605 | Peta | 2 | No | 55 | 100 | Somewhat poorly drained |
| 1 | T9981 Fld3 | 2525764 | 17.691 | 16663606 | Dimmick | 6 | No | 55 | 100 | Very poorly drained |
| 1 | T9981 Fld3 | 2525764 | 17.691 | 16663607 | Arveson | 12 | No | 55 | 100 | Poorly drained |
| 1 | T9981 Fld3 | 2525764 | 17.691 | 16663608 | Regan | 10 | No | 55 | 100 | Poorly drained |
| 1 | T9981 Fld3 | 2525764 | 17.691 | 16663609 | Harriet | 7 | No | 55 | 100 | Poorly drained |
| 1 | T9981 Fld3 | 2525764 | 17.691 | 16663610 | Straw | 3 | No | 55 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525764 | 17.691 | 16663611 | Regan | 55 | Yes | 55 | 100 | Poorly drained |
| 1 | T9981 Fld3 | 2525764 | 17.691 | 16663612 | Marysland | 5 | No | 55 | 100 | Poorly drained |
| 1 | T9981 Fld3 | 2525766 | 0.032 | 16663539 | Water | 100 | Yes | 100 | 100 | NULL |
| 1 | T9981 Fld3 | 2525769 | 181.356 | 16663985 | Belfield | 48 | Yes | 176 | 100 | Moderately well drained |
| 1 | T9981 Fld3 | 2525769 | 181.356 | 16663986 | Grail | 5 | No | 176 | 100 | Moderately well drained |
| 1 | T9981 Fld3 | 2525769 | 181.356 | 16663987 | Daglum | 40 | Yes | 176 | 100 | Moderately well drained |
| 1 | T9981 Fld3 | 2525769 | 181.356 | 16663988 | Savage | 5 | No | 176 | 100 | Well drained |
| 1 | T9981 Fld3 | 2525769 | 181.356 | 16663989 | Rhoades | 2 | No | 176 | 100 | Moderately well drained |
| 1 | T9981 Fld3 | 2755648 | 2.449 | 16663766 | Reeder | 58 | Yes | 156 | 100 | Well drained |
| 1 | T9981 Fld3 | 2755648 | 2.449 | 16663767 | Janesburg | 20 | Yes | 156 | 100 | Well drained |
| 1 | T9981 Fld3 | 2755648 | 2.449 | 16663768 | Amor | 10 | No | 156 | 100 | Well drained |
| 1 | T9981 Fld3 | 2755648 | 2.449 | 16663769 | Dogtooth | 5 | No | 156 | 100 | Well drained |
| 1 | T9981 Fld3 | 2755648 | 2.449 | 16663770 | Regent | 3 | No | 156 | 100 | Well drained |
| 1 | T9981 Fld3 | 2755648 | 2.449 | 16663771 | Belfield | 2 | No | 156 | 100 | Moderately well drained |
| 1 | T9981 Fld3 | 2755648 | 2.449 | 16663772 | Barkof | 2 | No | 156 | 100 | Well drained |
| 1 | T9981 Fld3 | 2755654 | 4.599 | 16663846 | Reeder | 60 | Yes | 85 | 100 | Well drained |
| 1 | T9981 Fld3 | 2755654 | 4.599 | 16663847 | Amor | 25 | Yes | 85 | 100 | Well drained |
| 1 | T9981 Fld3 | 2755654 | 4.599 | 16663848 | Belfield | 4 | No | 85 | 100 | Moderately well drained |
| 1 | T9981 Fld3 | 2755654 | 4.599 | 16663849 | Regent | 3 | No | 85 | 100 | Well drained |
| 1 | T9981 Fld3 | 2755654 | 4.599 | 16663850 | Vebar | 3 | No | 85 | 100 | Well drained |
| 1 | T9981 Fld3 | 2755654 | 4.599 | 16663851 | Chama | 3 | No | 85 | 100 | Well drained |
| 1 | T9981 Fld3 | 2755654 | 4.599 | 16663852 | Arnegard | 2 | No | 85 | 100 | Well drained |
| 2 | T9981 Fld4 | 2525720 | 8.623 | 16663899 | Daglum | 33 | Yes | 176 | 100 | Moderately well drained |
| 2 | T9981 Fld4 | 2525720 | 8.623 | 16663900 | Savage | 3 | No | 176 | 100 | Well drained |
| 2 | T9981 Fld4 | 2525720 | 8.623 | 16663901 | Barkof | 2 | No | 176 | 100 | Well drained |
| 2 | T9981 Fld4 | 2525720 | 8.623 | 16663902 | Rhoades | 2 | No | 176 | 100 | Moderately well drained |
| 2 | T9981 Fld4 | 2525720 | 8.623 | 16663903 | Rhoades | 55 | Yes | 176 | 100 | Moderately well drained |
| 2 | T9981 Fld4 | 2525720 | 8.623 | 16663904 | Belfield | 5 | No | 176 | 100 | Moderately well drained |
| 2 | T9981 Fld4 | 2525724 | 0.458 | 16664017 | Savage | 30 | Yes | 85 | 100 | Well drained |
| 2 | T9981 Fld4 | 2525724 | 0.458 | 16664018 | Daglum | 20 | Yes | 85 | 100 | Moderately well drained |
| 2 | T9981 Fld4 | 2525724 | 0.458 | 16664019 | Grail | 8 | No | 85 | 100 | Moderately well drained |
| 2 | T9981 Fld4 | 2525724 | 0.458 | 16664020 | Regent | 5 | No | 85 | 100 | Well drained |
| 2 | T9981 Fld4 | 2525724 | 0.458 | 16664021 | Rhoades | 2 | No | 85 | 100 | Moderately well drained |
| 2 | T9981 Fld4 | 2525724 | 0.458 | 16664022 | Belfield | 35 | Yes | 85 | 100 | Moderately well drained |
| 2 | T9981 Fld4 | 2525730 | 31.514 | 16663990 | Daglum | 2 | No | 85 | 100 | Moderately well drained |
| 2 | T9981 Fld4 | 2525730 | 31.514 | 16663991 | Regent | 68 | Yes | 85 | 100 | Well drained |
| 2 | T9981 Fld4 | 2525730 | 31.514 | 16663992 | Savage | 17 | Yes | 85 | 100 | Well drained |
| 2 | T9981 Fld4 | 2525730 | 31.514 | 16663993 | Cabba | 2 | No | 85 | 100 | Well drained |
| 2 | T9981 Fld4 | 2525730 | 31.514 | 16663994 | Grail | 6 | No | 85 | 100 | Moderately well drained |
| 2 | T9981 Fld4 | 2525730 | 31.514 | 16663995 | Moreau | 5 | No | 85 | 100 | Well drained |
| 2 | T9981 Fld4 | 2525745 | 62.205 | 16663920 | Farnuf | 12 | No | 150 | 100 | Well drained |
| 2 | T9981 Fld4 | 2525745 | 62.205 | 16663921 | Shambo | 75 | Yes | 150 | 100 | Well drained |
| 2 | T9981 Fld4 | 2525745 | 62.205 | 16663922 | Arnegard | 10 | No | 150 | 100 | Well drained |
| 2 | T9981 Fld4 | 2525745 | 62.205 | 16663923 | Amor | 3 | No | 150 | 100 | Well drained |
| 2 | T9981 Fld4 | 2525746 | 63.55 | 16663924 | Arnegard | 10 | No | 156 | 100 | Well drained |
| 2 | T9981 Fld4 | 2525746 | 63.55 | 16663925 | Farnuf | 8 | No | 156 | 100 | Well drained |
| 2 | T9981 Fld4 | 2525746 | 63.55 | 16663926 | Amor | 4 | No | 156 | 100 | Well drained |
| 2 | T9981 Fld4 | 2525746 | 63.55 | 16663927 | Shambo | 78 | Yes | 156 | 100 | Well drained |
| 2 | T9981 Fld4 | 2525754 | 23.138 | 16663598 | Heil | 3 | No | 150 | 100 | Poorly drained |
| 2 | T9981 Fld4 | 2525754 | 23.138 | 16663599 | Rhoades | 4 | No | 150 | 100 | Moderately well drained |
| 2 | T9981 Fld4 | 2525754 | 23.138 | 16663600 | Daglum | 2 | No | 150 | 100 | Moderately well drained |
| 2 | T9981 Fld4 | 2525754 | 23.138 | 16663601 | Vanda | 5 | No | 150 | 100 | Well drained |
| 2 | T9981 Fld4 | 2525754 | 23.138 | 16663602 | Harriet | 75 | Yes | 150 | 100 | Poorly drained |
| 2 | T9981 Fld4 | 2525754 | 23.138 | 16663603 | Regan | 6 | No | 150 | 100 | Poorly drained |
| 2 | T9981 Fld4 | 2525754 | 23.138 | 16663604 | Glenross | 5 | No | 150 | 100 | Poorly drained |
| 2 | T9981 Fld4 | 2525767 | 3.86 | 16663540 | Water | 100 | Yes | 100 | 100 | NULL |
| 2 | T9981 Fld4 | 2525769 | 103.909 | 16663985 | Belfield | 48 | Yes | 176 | 100 | Moderately well drained |
| 2 | T9981 Fld4 | 2525769 | 103.909 | 16663986 | Grail | 5 | No | 176 | 100 | Moderately well drained |
| 2 | T9981 Fld4 | 2525769 | 103.909 | 16663987 | Daglum | 40 | Yes | 176 | 100 | Moderately well drained |
| 2 | T9981 Fld4 | 2525769 | 103.909 | 16663988 | Savage | 5 | No | 176 | 100 | Well drained |
| 2 | T9981 Fld4 | 2525769 | 103.909 | 16663989 | Rhoades | 2 | No | 176 | 100 | Moderately well drained |
| 2 | T9981 Fld4 | 2755639 | 0.443 | 16663552 | Regent | 3 | No | 80 | 100 | Well drained |
| 2 | T9981 Fld4 | 2755639 | 0.443 | 16663553 | Lawther | 2 | No | 80 | 100 | Well drained |
| 2 | T9981 Fld4 | 2755639 | 0.443 | 16663554 | Savage | 62 | Yes | 80 | 100 | Well drained |
| 2 | T9981 Fld4 | 2755639 | 0.443 | 16663555 | Grail | 18 | Yes | 80 | 100 | Moderately well drained |
| 2 | T9981 Fld4 | 2755639 | 0.443 | 16663556 | Belfield | 8 | No | 80 | 100 | Moderately well drained |
| 2 | T9981 Fld4 | 2755639 | 0.443 | 16663557 | Daglum | 2 | No | 80 | 100 | Moderately well drained |
| 2 | T9981 Fld4 | 2755639 | 0.443 | 16663558 | Farland | 5 | No | 80 | 100 | Well drained |
| 2 | T9981 Fld4 | 2755643 | 9.641 | 16663956 | Telfer | 3 | No | 88 | 100 | Somewhat excessively drained |
| 2 | T9981 Fld4 | 2755643 | 9.641 | 16663957 | Flasher | 30 | Yes | 88 | 100 | Somewhat excessively drained |
| 2 | T9981 Fld4 | 2755643 | 9.641 | 16663958 | Vebar | 40 | Yes | 88 | 100 | Well drained |
| 2 | T9981 Fld4 | 2755643 | 9.641 | 16663959 | Tally | 18 | Yes | 88 | 100 | Well drained |
| 2 | T9981 Fld4 | 2755643 | 9.641 | 16663960 | Parshall | 5 | No | 88 | 100 | Well drained |
| 2 | T9981 Fld4 | 2755643 | 9.641 | 16663961 | Amor | 4 | No | 88 | 100 | Well drained |
| 2 | T9981 Fld4 | 2755648 | 11.382 | 16663766 | Reeder | 58 | Yes | 156 | 100 | Well drained |
| 2 | T9981 Fld4 | 2755648 | 11.382 | 16663767 | Janesburg | 20 | Yes | 156 | 100 | Well drained |
| 2 | T9981 Fld4 | 2755648 | 11.382 | 16663768 | Amor | 10 | No | 156 | 100 | Well drained |
| 2 | T9981 Fld4 | 2755648 | 11.382 | 16663769 | Dogtooth | 5 | No | 156 | 100 | Well drained |
| 2 | T9981 Fld4 | 2755648 | 11.382 | 16663770 | Regent | 3 | No | 156 | 100 | Well drained |
| 2 | T9981 Fld4 | 2755648 | 11.382 | 16663771 | Belfield | 2 | No | 156 | 100 | Moderately well drained |
| 2 | T9981 Fld4 | 2755648 | 11.382 | 16663772 | Barkof | 2 | No | 156 | 100 | Well drained |

#### Flag any component with a water table depth less than 36 cm during the growing season

CREATE TABLE #wet

( aoiid INT,

landunit CHAR(20),

mukey INT,

mapunit\_acres FLOAT,

cokey INT ,

cname CHAR(60),

copct INT,

majcompflag CHAR(3),

soimoistdept\_l INT,

soimoistdept\_r INT,

soimoiststat CHAR(7),

MIN\_soimoistdept\_l INT,

MIN\_soimoistdept\_r INT,

major\_mu\_pct\_sum INT , mu\_pct\_sum INT

);

INSERT INTO #wet

SELECT

aoiid,

landunit,

M44.mukey,

mapunit\_acres,

M44.cokey AS cokey,

M44.compname AS cname,

M44.comppct\_r AS copct ,

M44.majcompflag AS majcompflag,

soimoistdept\_l,

soimoistdept\_r,

soimoiststat,

MIN (soimoistdept\_l) over(partition by M44.cokey) AS MIN\_soimoistdept\_l,

MIN (soimoistdept\_r) over(partition by M44.cokey) AS MIN\_soimoistdept\_r,

major\_mu\_pct\_sum, mu\_pct\_sum

FROM (#M4 AS M44 INNER JOIN (comonth AS CM INNER JOIN cosoilmoist AS COSM ON COSM.comonthkey=CM.comonthkey AND soimoiststat = 'Wet' AND CASE WHEN soimoistdept\_l < 46 THEN 1 WHEN soimoistdept\_r < 46 THEN 1 ELSE 2 END = 1

) ON M44.cokey = CM.cokey AND M44.majcompflag = 'Yes'

INNER JOIN component ON M44.cokey=component.cokey

AND (CASE WHEN soimoistdept\_l IS NULL THEN soimoistdept\_r ELSE soimoistdept\_l END) = (SELECT MIN (CASE WHEN soimoistdept\_l IS NULL THEN soimoistdept\_r ELSE soimoistdept\_l END)

FROM comonth AS CM2

INNER JOIN cosoilmoist AS COSM2 ON COSM2.comonthkey=CM2.comonthkey AND soimoiststat = 'Wet' AND CASE WHEN soimoistdept\_l < 46 THEN 1 WHEN soimoistdept\_r < 46 THEN 1 ELSE 2 END = 1 AND CM2.cokey=M44.cokey

))

WHERE CASE

WHEN (taxorder = 'gelisols' AND taxtempcl IN ('hypergelic', 'pergelic', 'subgelic') AND CM.month IN ('jul', 'aug')) THEN 1

WHEN (taxtempregime IN ('cryic', 'pergelic', 'isofrigid') AND CM.month IN ('jul', 'aug')) THEN 1

WHEN (taxtempregime IN ('frigid') AND CM.month IN ('may', 'jun', 'jul', 'aug', 'sep')) THEN 1

WHEN (taxtempregime IN ('mesic') AND CM.month IN ( 'apr','may', 'jun', 'jul', 'aug', 'sep', 'oct')) THEN 1

WHEN (taxtempregime IN ('thermic', 'hyperthermic') and CM.month IN ('mar', 'apr', 'may', 'jun', 'jul', 'aug', 'sep', 'oct'))THEN 1

WHEN (taxtempregime IN ('isothermic', 'isohyperthermic', 'isomesic') AND CM.month IN ('feb', 'mar', 'apr', 'may', 'jun', 'jul', 'aug', 'sep', 'oct', 'nov')) THEN 1

WHEN (CM.month IN ('jun', 'jul')) THEN 1

ELSE 2 END = 1

* Major Components
* Soil Moisture Status equals Wet and water table less than 46 cm (AND)
* Taxonomic Order is ‘gelisols’ AND Taxonomic Temperature Regime is either hypergelic, pergelic, subgelic’ and occurs in July or August (OR)
* Taxonomic Temperature Regime is either cryic, pergelic, isofrigid and occurs in either July or August (OR)
* Taxonomic Temperature Regime is frigid and occurs in either May to August (OR)
* Taxonomic Temperature Regime Mesic and water table is present from April to October (OR)
* Taxonomic Temperature Regime is either thermic or hyperthermic and water table present from May to October (OR)
* Taxonomic Temperature Regime is either isothermic, isohyperthermic, isomesic and water table is present from February to November (OR)
* Else-if conditions are met water table occurs in June or July.

| **aoiid** | **landunit** | **mukey** | **mapunit\_acres** | **cokey** | **cname** | **copct** | **majcompflag** | **soimoistdept\_l** | **soimoistdept\_r** | **soimoiststat** | **MIN\_soimoistdept\_l** | **MIN\_soimoistdept\_r** | **major\_mu\_pct\_sum** | **mu\_pct\_sum** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | T9981 Fld4 | 2525754 | 23.138 | 16663602 | Harriet | 75 | Yes | 0 | 23 | Wet | 0 | 23 | 75 | 100 |
| 1 | T9981 Fld3 | 2525754 | 12.638 | 16663602 | Harriet | 75 | Yes | 0 | 23 | Wet | 0 | 23 | 55 | 100 |
| 1 | T9981 Fld3 | 2525764 | 17.691 | 16663611 | Regan | 55 | Yes | 0 | 23 | Wet | 0 | 23 | 75 | 100 |

CREATE TABLE #wet1

( aoiid INT,

landunit CHAR(20),

landunit\_acres FLOAT,

mukey INT,

mapunit\_acres FLOAT,

cokey INT ,

cname CHAR(60),

copct INT,

majcompflag CHAR(3),

MIN\_soimoistdept\_l INT,

MIN\_soimoistdept\_r INT,

major\_mu\_pct\_sum INT, mu\_pct\_sum INT,

adj\_comp\_pct FLOAT

);

#### Normalizing component percent

INSERT INTO #wet1

SELECT DISTINCT #AoiAcres.aoiid, #AoiAcres.landunit, landunit\_acres, mukey, mapunit\_acres, cokey, cname, copct, majcompflag, MIN\_soimoistdept\_l, MIN\_soimoistdept\_r, major\_mu\_pct\_sum, mu\_pct\_sum,(1.0 \* copct / major\_mu\_pct\_sum) AS adj\_comp\_pct

FROM #AoiAcres

LEFT OUTER JOIN #wet AS wet ON wet.aoiid=#AoiAcres.aoiid

GROUP BY #AoiAcres.aoiid, #AoiAcres.landunit, landunit\_acres, mukey, mapunit\_acres, cokey, cname, copct, majcompflag, MIN\_soimoistdept\_r, MIN\_soimoistdept\_l, major\_mu\_pct\_sum, mu\_pct\_sum

* Adjust the component percent for the major components to sum up to 1 for the map unit.

| **aoiid** | **landunit** | **landunit\_acres** | **mukey** | **mapunit\_acres** | **cokey** | **cname** | **copct** | **majcompflag** | **MIN\_soimoistdept\_l** | **MIN\_soimoistdept\_r** | **major\_mu\_pct\_sum** | **mu\_pct\_sum** | **adj\_comp\_pct** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | T9981 Fld3 | 328.952 | 2525754 | 12.638 | 16663602 | Harriet | 75 | Yes | 0 | 23 | 75 | 100 | 1 |
| 1 | T9981 Fld3 | 328.952 | 2525764 | 17.691 | 16663611 | Regan | 55 | Yes | 0 | 23 | 55 | 100 | 1 |
| 2 | T9981 Fld4 | 318.722 | 2525754 | 23.138 | 16663602 | Harriet | 75 | Yes | 0 | 23 | 75 | 100 | 1 |

#### Calculate component acres

CREATE TABLE #wet2

( aoiid INT,

landunit CHAR(20),

landunit\_acres FLOAT,

mukey INT,

mapunit\_acres FLOAT,

cokey INT,

cname CHAR(60),

copct INT,

major\_MU\_pct\_sum INT,MU\_pct\_sum INT,

adj\_comp\_pct FLOAT,

co\_acres FLOAT

);

TRUNCATE TABLE #wet2

INSERT INTO #wet2

SELECT aoiid, landunit, landunit\_acres, mukey, mapunit\_acres, cokey, cname, copct, major\_MU\_pct\_sum, MU\_pct\_sum, adj\_comp\_pct, ROUND ( (adj\_comp\_pct \* mapunit\_acres), 4) AS co\_acres

FROM #wet1;

| **aoiid** | **landunit** | **landunit\_acres** | **mukey** | **mapunit\_acres** | **cokey** | **cname** | **copct** | **major\_MU\_pct\_sum** | **MU\_pct\_sum** | **adj\_comp\_pct** | **co\_acres** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | T9981 Fld3 | 328.952 | 2525754 | 12.638 | 16663602 | Harriet | 75 | 75 | 100 | 1 | 12.638 |
| 1 | T9981 Fld3 | 328.952 | 2525764 | 17.691 | 16663611 | Regan | 55 | 55 | 100 | 1 | 17.691 |
| 2 | T9981 Fld4 | 318.722 | 2525754 | 23.138 | 16663602 | Harriet | 75 | 75 | 100 | 1 | 23.138 |

### Water Table by Land Unit

SELECT landunit, ROUND (landunit\_acres,2) landunit\_acres, ROUND (SUM (co\_acres),2) AS water\_table\_acres,

CASE WHEN ROUND (SUM (co\_acres),2) IS NOT NULL THEN CONCAT ('Water Table' , ':' , 1)

WHEN ROUND (SUM (co\_acres),2) = 0 THEN CONCAT ('Water Table' , ':' , 0)

WHEN ROUND (SUM (co\_acres),2) IS NULL THEN CONCAT ('Water Table', ':' , 'Not Rated')

END AS rating\_key,

'Water Table' AS attributename

FROM #wet2

GROUP BY landunit, landunit\_acres

ORDER BY landunit;

\*Joins the water table acres to the landunit.

| **landunit** | **landunit\_acres** | **water\_table\_acres** | **rating\_key** | **attributename** |
| --- | --- | --- | --- | --- |
| T9981 Fld3 | 328.95 | 30.33 | Water Table:1 | Water Table |
| T9981 Fld4 | 318.72 | 23.14 | Water Table:1 | Water Table |