

```

/** ----- Weights of Evidence: Applying the Weights -----
/** FILE NAME:    12_Wghts_of_Ev.txt
/** AUTHOR:      RENEE SCHICKER
/** CREATED:     05 AUGUST 2009
/** UPDATED:    07 DECEMBER 2009
/**
/** The scripts may be supplied in a more readily useable format if the work is acknowledged
/** CONTACT:     Renee_Schicker@hotmail.com
/**
/** SCRIPTS USED: D:\renee_gis\scripts\checkproggrid.txt
/**               D:\Renee_GIS\Scripts\29Sept\12a_Wf_Combos.txt
/**               D:\Renee_GIS\Scripts\29Sept\12b_Adjust_Wf.txt
/**
/** INPUT GRIDS:
/**      MyBnds      D:\Renee_GIS\Output_data\Organised\03_DEM\MyBnds
/**      Slopeclass  D:\Renee_GIS\Output_data\Organised\03_DEM\Slopeclass
/**      ElvtnClass  D:\Renee_GIS\Output_data\Organised\03_DEM\ElvtnClass
/**      AspectClass D:\Renee_GIS\Output_data\Organised\03_DEM\AspectClass
/**      GeolGrid    D:\Renee_GIS\Output_data\Organised\05_Geology\GeolGrid
/**      SoilsGrid   D:\Renee_GIS\Output_data\Organised\06_Soil\SoilsGrid
/**      LCDB2Grid   D:\Renee_GIS\Output_data\Organised\07_LandCover\LCDB2Grid
/**      RoadsGrid   D:\Renee_GIS\Output_data\Organised\08_Roads\RoadsGrid
/**      FaultGrid   D:\Renee_GIS\Output_data\Organised\09_Faults\FaultGrid
/**      RiverGrid   D:\Renee_GIS\Output_data\Organised\10_Rivers\RiverGrid
/**      mean98rain  D:\Renee_GIS\Output_data\Organised\11_Rain\mean98rain
/**      max98rain   D:\Renee_GIS\Output_data\Organised\11_Rain\max98rain
/**
/** OUTPUT GRIDS :   Slopewf      Elvtnwf      Aspectwf
/**                  MeanRwf      MaxRnwf      LandCwf
/**                  Geolwf      Soilwf      Faultwf
/**                  Roadswf      Riverswf     wfAll
/**
/** PURPOSE:         Using the weighted factors (determined through the weights of evidence
/**                  calculations carried out in Excel) and applying to each class of each
/**                  parameter accordingly. The parameters will be added together and the
/**                  output should give some form of susceptibility map. Will need to try
/**                  different combinations of parameters.
/**
/** ----- HISTORY -----
/** 05 AUGUST 2009      Created
/** 30 SEPTEMBER 2009   Added separate workspaces for each script, so have to add file path
/**                    to find input files, also corrected input and output sections.
/** 31 OCTOBER 2009     Fixed Geology layer, fixed sharp breaks between classes where
/**                    spatial layers join. Also reduced the number of classes from 17 to
/**                    14. So have had to modify the scripting pertaining to Geology in this
/**                    script, as well as updating the Wf values as these have changed also
/**                    as a result of modifying the geology parameter map.
/** 07 DECEMBER 2009    Changed the SETWIINDOW and SETMASK to MyBnds to clip Lake
/**                    Taupo out of it.
/** *****
/** Set wf values as Variables for each parameter class

```

```
/******
```

```
/* wf values determined following Access query for count for each class whether it has landslides or not
```

```
/* and calculations (for positive weight, negative weights, and a factor weight) in Excel
```

```
/* Slope wf values
```

&SETVAR .Slp_4_wf = -0.93	/* 0 - 4 degrees
&SETVAR .Slp_8_wf = 0.18	/* > 4 - 8 degrees
&SETVAR .Slp_14_wf = 0.55	/* > 8 - 14 degrees
&SETVAR .Slp_20_wf = 0.57	/* > 14 - 20 degrees
&SETVAR .Slp_30_wf = 0.43	/* > 20 - 30 degrees
&SETVAR .Slp_45_wf = 0.16	/* > 30 - 45 degrees
&SETVAR .Slp_90_wf = -0.18	/* > 45 degrees

```
/* Elevation wf values
```

&SETVAR .Elv_25_wf = 0.31	/* 0 - 25 m
&SETVAR .Elv_50_wf = -0.07	/* > 25 - 50 m
&SETVAR .Elv_100_wf = 0.55	/* > 50 - 100 m
&SETVAR .Elv_200_wf = 0.79	/* > 100 - 200 m
&SETVAR .Elv_300_wf = 0.03	/* > 200 - 300 m
&SETVAR .Elv_400_wf = -0.43	/* > 300 - 400 m
&SETVAR .Elv_550_wf = -1.09	/* > 400 - 550 m
&SETVAR .Elv_2800_wf = -3.71	/* > 550 m

```
/* Aspect wf values
```

&SETVAR .Asp_1_wf = 0.02	/* North
&SETVAR .Asp_2_wf = 0.05	/* Northeast
&SETVAR .Asp_3_wf = 0.22	/* East
&SETVAR .Asp_4_wf = 0.24	/* Southeast
&SETVAR .Asp_5_wf = 0.34	/* South
&SETVAR .Asp_6_wf = 0.22	/* Southwest
&SETVAR .Asp_7_wf = 0.13	/* West
&SETVAR .Asp_8_wf = 0.01	/* Northwest
&SETVAR .Asp_9_wf = -1.35	/* Flat

```
/* Mean Rainfall wf values
```

&SETVAR .AvR_100_wf = -1.30	/* 0 - 100 mm
&SETVAR .AvR_150_wf = -1.67	/* > 100 - 150 mm
&SETVAR .AvR_200_wf = 1.89	/* > 150 - 200 mm
&SETVAR .AvR_250_wf = -0.11	/* > 200 - 250 mm
&SETVAR .AvR_300_wf = 0	/* > 250 - 300 mm
&SETVAR .AvR_350_wf = 0	/* > 300 - 350 mm

```
/* Max Rainfall wf values
```

&SETVAR .MxR_150_wf = -2.03	/* 0 - 150 mm
&SETVAR .MxR_200_wf = -0.68	/* > 150 - 200 mm
&SETVAR .MxR_250_wf = 1.94	/* > 200 - 250 mm
&SETVAR .MxR_300_wf = 0.13	/* > 250 - 300 mm
&SETVAR .MxR_350_wf = 0	/* > 300 - 350 mm
&SETVAR .MxR_400_wf = 0	/* > 350 - 400 mm

```

/* Land cover wf values
&SETVAR .LC_0_wf = -1.08
&SETVAR .LC_1_wf = 1.17
&SETVAR .LC_2_wf = -2.03
&SETVAR .LC_3_wf = 0.97
&SETVAR .LC_4_wf = -0.04
&SETVAR .LC_5_wf = 0.41
&SETVAR .LC_6_wf = -0.38
&SETVAR .LC_7_wf = 0.87

```

```

/* Geology wf values
&SETVAR .Geol_0_wf = -1.18
&SETVAR .Geol_1_wf = -0.41
&SETVAR .Geol_2_wf = -1.28
&SETVAR .Geol_3_wf = 1.10
&SETVAR .Geol_4_wf = -0.04
&SETVAR .Geol_5_wf = -0.34
&SETVAR .Geol_6_wf = -0.32
&SETVAR .Geol_7_wf = -1.69
&SETVAR .Geol_8_wf = 0
#NUM!)
&SETVAR .Geol_9_wf = -2.51
&SETVAR .Geol_10_wf = 1.33
&SETVAR .Geol_11_wf = -7.57
&SETVAR .Geol_12_wf = 0.64
&SETVAR .Geol_13_wf = 0.82

```

```

/* Soil wf values
&SETVAR .Soil_0_wf = -0.13
&SETVAR .Soil_1_wf = -0.40
&SETVAR .Soil_2_wf = 1.53
&SETVAR .Soil_3_wf = 0.21
&SETVAR .Soil_4_wf = 0.30
&SETVAR .Soil_5_wf = -1.63
&SETVAR .Soil_6_wf = 0
&SETVAR .Soil_7_wf = 0.30
&SETVAR .Soil_8_wf = -2.87
&SETVAR .Soil_9_wf = -2.34
&SETVAR .Soil_10_wf = -0.35
&SETVAR .Soil_11_wf = 0.73
&SETVAR .Soil_12_wf = -3.79

```

```

/* Faults wf values
&SETVAR .Flt_100_wf = 0.69
&SETVAR .Flt_250_wf = 0.69
&SETVAR .Flt_500_wf = 0.74
&SETVAR .Flt_1k_wf = 0.74
&SETVAR .Flt_2k_wf = 0.73
&SETVAR .Flt_5k_wf = 0.20
&SETVAR .Flt_0_wf = -2.09

```

```

/* Water Bodies
/* Artificial Surfaces
/* Bare or Lightly Vegetated Surfaces
/* Cropland
/* Grassland
/* Sedgeland and Saltmarsh
/* Forest
/* Shrub and Shrubland

```

```

/* Water
/* Alluvium
/* Alternating sandstone/siltstone
/* Andesite, dacite and diorite
/* Basalt (includes scoria)
/* Engineering soils
/* Greywacke, argillite and chert
/* Ignimbrite and tuff
/* Laharic colluvium    (0 assigned as calc resulted in
#NUM!)
/* Limestone
/* Mudstone
/* Peat
/* Rhyolite
/* Sandstone

```

```

/* Non-soil features
/* Allophanic soils
/* Brown soils
/* Gley soils
/* Granular soils
/* Organic soils
/* Oxidic soils    (0 assigned as calc resulted in #NUM!)
/* Pallic soils
/* Podzols
/* Pumice soils
/* Raw soils
/* Recent soils
/* Ultic soils

```

```

/*    0 - 100 m
/* > 100 - 250 m
/* > 250 - 500 m
/* > 500 - 1000 m
/* > 1000 - 2000 m
/* > 2000 - 5000 m
/* > 5000 m

```

```

/* Roads wf values
&SETVAR .Rds_50_wf = 0.20      /* 0 - 50 m
&SETVAR .Rds_100_wf = 0.11     /* > 50 - 100 m
&SETVAR .Rds_250_wf = 0.09     /* > 100 - 250 m
&SETVAR .Rds_500_wf = 0.12     /* > 250 - 500 m
&SETVAR .Rds_1k_wf = 0.22      /* > 500 - 1000 m
&SETVAR .Rds_0_wf = -0.50      /* > 1000 m

```

```

/* Rivers wf values
&SETVAR .Riv_100_wf = 0.21     /* 0 - 100 m
&SETVAR .Riv_200_wf = 0.13     /* > 100 - 200 m
&SETVAR .Riv_300_wf = -0.01    /* > 200 - 300 m
&SETVAR .Riv_400_wf = -0.14    /* > 300 - 400 m
&SETVAR .Riv_0_wf = -0.66      /* > 400 m

```

```

/*****

```

```

/**      CALLS FOR RUNNING PROCESSES

```

```

/*****

```

```

WORKSPACE D:\Renee_GIS\Output_data\Organised\12_Wghts_of_Ev

```

```

/*&CALL Slope

```

```

/*&CALL Elevation

```

```

/*&CALL Aspect

```

```

/*&CALL AvRain

```

```

/*&CALL MaxRain

```

```

/*&CALL LandCover

```

```

/*&CALL Geology

```

```

/*&CALL Soils

```

```

/*&CALL Faults

```

```

/*&CALL Roads

```

```

/*&CALL Rivers

```

```

&CALL Combine_All

```

```

/* Run the script below to look at combinations with 1 or more parameter excluded

```

```

&RUN D:\Renee_GIS\Scripts\12a_Wf_Combos.txt

```

```

/*&RUN D:\Renee_GIS\Scripts\12b_Adjust_Wf.txt

```

```

&RETURN

```

```

/*****

```

```

&ROUTINE SetupGrid

```

```

&RUN d:\renee_gis\scripts\checkproggrid.txt

```

```

&TYPE set window to MyBnds...

```

```

SETWINDOW D:\Renee_GIS\Output_data\Organised\03_DEM\MyBnds

```

```

SETMASK D:\Renee_GIS\Output_data\Organised\03_DEM\MyBnds

```

```

&TYPE setmask complete

```

&RETURN

/\*\*\*\*\*

&ROUTINE Slope

&CALL SetupGrid

Slp4wf = con(D:\Renee\_GIS\Output\_data\Organised\03\_DEM\Slopeclass eq 4, %.Slp\_4\_wf%, 0)

Slp8wf = con(D:\Renee\_GIS\Output\_data\Organised\03\_DEM\Slopeclass eq 8, %.Slp\_8\_wf%, 0)

Slp14wf = con(D:\Renee\_GIS\Output\_data\Organised\03\_DEM\Slopeclass eq 14, %.Slp\_14\_wf%, 0)

Slp20wf = con(D:\Renee\_GIS\Output\_data\Organised\03\_DEM\Slopeclass eq 20, %.Slp\_20\_wf%, 0)

Slp30wf = con(D:\Renee\_GIS\Output\_data\Organised\03\_DEM\Slopeclass eq 30, %.Slp\_30\_wf%, 0)

Slp45wf = con(D:\Renee\_GIS\Output\_data\Organised\03\_DEM\Slopeclass eq 45, %.Slp\_45\_wf%, 0)

Slp90wf = con(D:\Renee\_GIS\Output\_data\Organised\03\_DEM\Slopeclass eq 90, %.Slp\_90\_wf%, 0)

&IF [EXIST Slopewf -GRID] &THEN KILL Slopewf ALL

Slopewf = (Slp4wf + Slp8wf + Slp14wf + Slp20wf + Slp30wf + Slp45wf + Slp90wf)

&TYPE Slope WF Grid Complete

SETMASK off

Q

&IF [EXIST Slp4wf -GRID] &THEN KILL Slp4wf ALL

&IF [EXIST Slp8wf -GRID] &THEN KILL Slp8wf ALL

&IF [EXIST Slp14wf -GRID] &THEN KILL Slp14wf ALL

&IF [EXIST Slp20wf -GRID] &THEN KILL Slp20wf ALL

&IF [EXIST Slp30wf -GRID] &THEN KILL Slp30wf ALL

&IF [EXIST Slp45wf -GRID] &THEN KILL Slp45wf ALL

&IF [EXIST Slp90wf -GRID] &THEN KILL Slp90wf ALL

&RETURN

/\*\*\*\*\*

&ROUTINE Elevation

&CALL SetupGrid

Elv25wf = con(D:\Renee\_GIS\Output\_data\Organised\03\_DEM\ElvtnClass eq 25, %.Elv\_25\_wf%, 0)

&TYPE 0 - 25 m Elevation wf grid done

Elv50wf = con(D:\Renee\_GIS\Output\_data\Organised\03\_DEM\ElvtnClass eq 50, %.Elv\_50\_wf%, 0)

&TYPE 25 - 50 m Elevation wf grid done

Elv100wf = con(D:\Renee\_GIS\Output\_data\Organised\03\_DEM\ElvtnClass eq 100, %.Elv\_100\_wf%, 0)

&TYPE 50 - 100 m Elevation wf grid done

Elv200wf = con(D:\Renee\_GIS\Output\_data\Organised\03\_DEM\ElvtnClass eq 200, %.Elv\_200\_wf%, 0)

&TYPE 100 - 200 m Elevation wf grid done

Elv300wf = con(D:\Renee\_GIS\Output\_data\Organised\03\_DEM\ElvtnClass eq 300, %.Elv\_300\_wf%, 0)

&TYPE 200 - 300 m Elevation wf grid done

Elv400wf = con(D:\Renee\_GIS\Output\_data\Organised\03\_DEM\ElvtnClass eq 400, %.Elv\_400\_wf%, 0)

&TYPE 300 - 400 m Elevation wf grid done

```
Elv550wf = con(D:\Renee_GIS\Output_data\Organised\03_DEM\ElvtnClass eq 550, %.Elv_550_wf%, 0)
```

```
&TYPE 400 - 550 m Elevation wf grid done
```

```
Elv2800wf = con(D:\Renee_GIS\Output_data\Organised\03_DEM\ElvtnClass eq 2800, %.Elv_2800_wf%, 0)
```

```
&TYPE > 550 m Elevation wf grid done
```

```
&IF [EXIST Elvtnwf -GRID] &THEN KILL Elvtnwf ALL
```

```
Elvtnwf = (Elv25wf + Elv50wf + Elv100wf + Elv200wf + Elv300wf + Elv400wf + Elv550wf + Elv2800wf)
```

```
&TYPE Elevation WF Grid Complete
```

```
SETMASK off
```

```
Q
```

```
&IF [EXIST Elv25wf -GRID] &THEN KILL Elv25wf ALL
```

```
&IF [EXIST Elv50wf -GRID] &THEN KILL Elv50wf ALL
```

```
&IF [EXIST Elv100wf -GRID] &THEN KILL Elv100wf ALL
```

```
&IF [EXIST Elv200wf -GRID] &THEN KILL Elv200wf ALL
```

```
&IF [EXIST Elv300wf -GRID] &THEN KILL Elv300wf ALL
```

```
&IF [EXIST Elv400wf -GRID] &THEN KILL Elv400wf ALL
```

```
&IF [EXIST Elv550wf -GRID] &THEN KILL Elv550wf ALL
```

```
&IF [EXIST Elv2800wf -GRID] &THEN KILL Elv2800wf ALL
```

```
&RETURN
```

```
/*****
```

```
&ROUTINE Aspect
```

```
&CALL SetupGrid
```

```
Asp1wf = con(D:\Renee_GIS\Output_data\Organised\03_DEM\AspectClass eq 1, %.Asp_1_wf%, 0)  
&TYPE North wf grid done
```

```
Asp2wf = con(D:\Renee_GIS\Output_data\Organised\03_DEM\AspectClass eq 2, %.Asp_2_wf%, 0)  
&TYPE Northeast wf grid done
```

```
Asp3wf = con(D:\Renee_GIS\Output_data\Organised\03_DEM\AspectClass eq 3, %.Asp_3_wf%, 0)  
&TYPE East wf grid done
```

```
Asp4wf = con(D:\Renee_GIS\Output_data\Organised\03_DEM\AspectClass eq 4, %.Asp_4_wf%, 0)  
&TYPE Southeast wf grid done
```

```
Asp5wf = con(D:\Renee_GIS\Output_data\Organised\03_DEM\AspectClass eq 5, %.Asp_5_wf%, 0)  
&TYPE South wf grid done
```

```
Asp6wf = con(D:\Renee_GIS\Output_data\Organised\03_DEM\AspectClass eq 6, %.Asp_6_wf%, 0)  
&TYPE Southwest wf grid done
```

```
Asp7wf = con(D:\Renee_GIS\Output_data\Organised\03_DEM\AspectClass eq 7, %.Asp_7_wf%, 0)  
&TYPE West wf grid done
```

```
Asp8wf = con(D:\Renee_GIS\Output_data\Organised\03_DEM\AspectClass eq 8, %.Asp_8_wf%, 0)  
&TYPE Northwest wf grid done
```

```
Asp9wf = con(D:\Renee_GIS\Output_data\Organised\03_DEM\AspectClass eq 9, %.Asp_9_wf%, 0)  
&TYPE Flat wf grid done
```

```
&IF [EXIST Aspectwf -GRID] &THEN KILL Aspectwf ALL
```

```
Aspectwf = (Asp1wf + Asp2wf + Asp3wf + Asp4wf + Asp5wf + Asp6wf + Asp7wf + Asp8wf + Asp9wf)
```

```
&TYPE Aspect WF Grid Complete
```

```
SETMASK off
```

Q

```
&IF [EXIST Asp1wf -GRID] &THEN KILL Asp1wf ALL
&IF [EXIST Asp2wf -GRID] &THEN KILL Asp2wf ALL
&IF [EXIST Asp3wf -GRID] &THEN KILL Asp3wf ALL
&IF [EXIST Asp4wf -GRID] &THEN KILL Asp4wf ALL
&IF [EXIST Asp5wf -GRID] &THEN KILL Asp5wf ALL
&IF [EXIST Asp6wf -GRID] &THEN KILL Asp6wf ALL
&IF [EXIST Asp7wf -GRID] &THEN KILL Asp7wf ALL
&IF [EXIST Asp8wf -GRID] &THEN KILL Asp8wf ALL
&IF [EXIST Asp9wf -GRID] &THEN KILL Asp9wf ALL
&RETURN
```

```
/*****
```

```
&ROUTINE AvRain
```

```
&CALL SetupGrid
```

```
AvR100wf = con(D:\Renee_GIS\Output_data\Organised\11_Rain\mean98rain eq 100,
%.AvR_100_wf%, 0)
```

```
&TYPE 0 - 100 mm Mean Rain wf grid done
```

```
AvR150wf = con(D:\Renee_GIS\Output_data\Organised\11_Rain\mean98rain eq 150,
%.AvR_150_wf%, 0)
```

```
&TYPE 100 - 150 mm Mean Rain wf grid done
```

```
AvR200wf = con(D:\Renee_GIS\Output_data\Organised\11_Rain\mean98rain eq 200,
%.AvR_200_wf%, 0)
```

```
&TYPE 150 - 200 mm Mean Rain wf grid done
```

```
AvR250wf = con(D:\Renee_GIS\Output_data\Organised\11_Rain\mean98rain eq 250,
%.AvR_250_wf%, 0)
```

```
&TYPE 200 - 250 mm Mean Rain wf grid done
```

```
AvR300wf = con(D:\Renee_GIS\Output_data\Organised\11_Rain\mean98rain eq 300,
%.AvR_300_wf%, 0)
```

```
&TYPE 250 - 300 mm Mean Rain wf grid done
```

```
AvR350wf = con(D:\Renee_GIS\Output_data\Organised\11_Rain\mean98rain eq 350,
%.AvR_350_wf%, 0)
```

```
&TYPE 300 - 350 mm Mean Rain wf grid done
```

```
&IF [EXIST MeanRwf -GRID] &THEN KILL MeanRwf ALL
```

```
MeanRwf = (AvR100wf + AvR150wf + AvR200wf + AvR250wf + AvR300wf + AvR350wf)
```

```
&TYPE Mean Rain WF Grid Complete
```

```
SETMASK off
```

Q

```
&IF [EXIST AvR100wf -GRID] &THEN KILL AvR100wf ALL
```

```
&IF [EXIST AvR150wf -GRID] &THEN KILL AvR150wf ALL
```

```
&IF [EXIST AvR200wf -GRID] &THEN KILL AvR200wf ALL
```

```
&IF [EXIST AvR250wf -GRID] &THEN KILL AvR250wf ALL
```

```
&IF [EXIST AvR300wf -GRID] &THEN KILL AvR300wf ALL
```

```
&IF [EXIST AvR350wf -GRID] &THEN KILL AvR350wf ALL
```

```
&RETURN
```

/\*\*\*\*\*

&ROUTINE MaxRain

&CALL SetupGrid

MaxR150wf = con(D:\Renee\_GIS\Output\_data\Organised\11\_Rain\max98rain eq 150,  
%.MxR\_150\_wf%, 0)

&TYPE 0 - 150 mm Max Rain wf grid done

MaxR200wf = con(D:\Renee\_GIS\Output\_data\Organised\11\_Rain\max98rain eq 200,  
%.MxR\_200\_wf%, 0)

&TYPE 150 - 200 mm Max Rain wf grid done

MaxR250wf = con(D:\Renee\_GIS\Output\_data\Organised\11\_Rain\max98rain eq 250,  
%.MxR\_250\_wf%, 0)

&TYPE 200 - 250 mm Max Rain wf grid done

MaxR300wf = con(D:\Renee\_GIS\Output\_data\Organised\11\_Rain\max98rain eq 300,  
%.MxR\_300\_wf%, 0)

&TYPE 250 - 300 mm Max Rain wf grid done

MaxR350wf = con(D:\Renee\_GIS\Output\_data\Organised\11\_Rain\max98rain eq 350,  
%.MxR\_350\_wf%, 0)

&TYPE 300 - 350 mm Max Rain wf grid done

MaxR400wf = con(D:\Renee\_GIS\Output\_data\Organised\11\_Rain\max98rain eq 400,  
%.MxR\_400\_wf%, 0)

&TYPE 350 - 400 mm Max Rain wf grid done

&IF [EXIST MaxRwf -GRID] &THEN KILL MaxRwf ALL

MaxRwf = (MaxR150wf + MaxR200wf + MaxR250wf + MaxR300wf + MaxR350wf + MaxR400wf)

&TYPE Max Rain WF Grid Complete

SETMASK off

Q

&IF [EXIST MaxR150wf -GRID] &THEN KILL MaxR150wf ALL

&IF [EXIST MaxR200wf -GRID] &THEN KILL MaxR200wf ALL

&IF [EXIST MaxR250wf -GRID] &THEN KILL MaxR250wf ALL

&IF [EXIST MaxR300wf -GRID] &THEN KILL MaxR300wf ALL

&IF [EXIST MaxR350wf -GRID] &THEN KILL MaxR350wf ALL

&IF [EXIST MaxR400wf -GRID] &THEN KILL MaxR400wf ALL

&RETURN

/\*\*\*\*\*

&ROUTINE LandCover

&CALL SetupGrid

LandC0wf = con(D:\Renee\_GIS\Output\_data\Organised\07\_LandCover\LCDB2Grid eq 0,  
%.LC\_0\_wf%, 0)

&TYPE Water Bodies Wf Grid done

LandC1wf = con(D:\Renee\_GIS\Output\_data\Organised\07\_LandCover\LCDB2Grid eq 1,  
%.LC\_1\_Wf%, 0)

&TYPE Artificial Surfaces wf Grid done

LandC2wf = con(D:\Renee\_GIS\Output\_data\Organised\07\_LandCover\LCDB2Grid eq 2,  
%.LC\_2\_Wf%, 0)

&TYPE Bare or Lightly Vegetated Surfaces Wf Grid done



```

LandC3wf = con(D:\Renee_GIS\Output_data\Organised\07_LandCover\LCDB2Grid eq 3,
%.LC_3_Wf%, 0)
    &TYPE Cropland Wf Grid done
LandC4wf = con(D:\Renee_GIS\Output_data\Organised\07_LandCover\LCDB2Grid eq 4,
%.LC_4_Wf%, 0)
    &TYPE Grassland Wf Grid done
LandC5wf = con(D:\Renee_GIS\Output_data\Organised\07_LandCover\LCDB2Grid eq 5,
%.LC_5_Wf%, 0)
    &TYPE Sedgeland and Saltmarsh Wf Grid done
LandC6wf = con(D:\Renee_GIS\Output_data\Organised\07_LandCover\LCDB2Grid eq 6,
%.LC_6_Wf%, 0)
    &TYPE Forest Wf Grid done
LandC7wf = con(D:\Renee_GIS\Output_data\Organised\07_LandCover\LCDB2Grid eq 7,
%.LC_7_Wf%, 0)
    &TYPE Shrub and Shrubland Wf Grid done

&IF [EXIST LandCwf -GRID] &THEN KILL LandCwf ALL
LandCwf = (LandC0wf + LandC1wf + LandC2wf + LandC3wf + LandC4wf + LandC5wf + LandC6wf +
LandC7wf)
    &TYPE Land cover WF Grid Complete

```

SETMASK off

Q

```

&IF [EXIST LandC0wf -GRID] &THEN KILL LandC0wf ALL
&IF [EXIST LandC1wf -GRID] &THEN KILL LandC1wf ALL
&IF [EXIST LandC2wf -GRID] &THEN KILL LandC2wf ALL
&IF [EXIST LandC3wf -GRID] &THEN KILL LandC3wf ALL
&IF [EXIST LandC4wf -GRID] &THEN KILL LandC4wf ALL
&IF [EXIST LandC5wf -GRID] &THEN KILL LandC5wf ALL
&IF [EXIST LandC6wf -GRID] &THEN KILL LandC6wf ALL
&IF [EXIST LandC7wf -GRID] &THEN KILL LandC7wf ALL
&RETURN

```

/\*\*\*\*\*

&ROUTINE Geology

&CALL SetupGrid

```

Geol0wf = con(D:\Renee_GIS\Output_data\Organised\05_Geology\GeolGrid eq 0, %.Geol_0_wf%, 0)
    &TYPE Water Wf Grid done
Geol1wf = con(D:\Renee_GIS\Output_data\Organised\05_Geology\GeolGrid eq 1, %.Geol_1_wf%, 0)
    &TYPE Alluvium Wf Grid done
Geol2wf = con(D:\Renee_GIS\Output_data\Organised\05_Geology\GeolGrid eq 2, %.Geol_2_wf%, 0)
    &TYPE Alternating sandstone/siltstone Wf Grid done
Geol3wf = con(D:\Renee_GIS\Output_data\Organised\05_Geology\GeolGrid eq 3, %.Geol_3_wf%, 0)
    &TYPE Andesite, dacite and diorite Wf Grid done
Geol4wf = con(D:\Renee_GIS\Output_data\Organised\05_Geology\GeolGrid eq 4, %.Geol_4_wf%, 0)
    &TYPE Basalt Wf Grid done
Geol5wf = con(D:\Renee_GIS\Output_data\Organised\05_Geology\GeolGrid eq 5, %.Geol_5_wf%, 0)
    &TYPE Engineering soils Wf Grid done
Geol6wf = con(D:\Renee_GIS\Output_data\Organised\05_Geology\GeolGrid eq 6, %.Geol_6_wf%, 0)

```

```

&TYPE Greywacke, argillite and chert Wf Grid done
Geol7wf = con(D:\Renee_GIS\Output_data\Organised\05_Geology\GeolGrid eq 7, %.Geol_7_wf%, 0)
&TYPE Ignimbrite and tuff Wf Grid done
Geol8wf = con(D:\Renee_GIS\Output_data\Organised\05_Geology\GeolGrid eq 8, %.Geol_8_wf%, 0)
&TYPE Laharic colluvium Wf Grid done
Geol9wf = con(D:\Renee_GIS\Output_data\Organised\05_Geology\GeolGrid eq 9, %.Geol_9_wf%, 0)
&TYPE Limestone Wf Grid done
Geol10wf = con(D:\Renee_GIS\Output_data\Organised\05_Geology\GeolGrid eq 10,
%.Geol_10_wf%, 0)
&TYPE Mudstone Wf Grid done
Geol11wf = con(D:\Renee_GIS\Output_data\Organised\05_Geology\GeolGrid eq 11,
%.Geol_11_wf%, 0)
&TYPE Peat Wf Grid done
Geol12wf = con(D:\Renee_GIS\Output_data\Organised\05_Geology\GeolGrid eq 12,
%.Geol_12_wf%, 0)
&TYPE Rhyolite Wf Grid done
Geol13wf = con(D:\Renee_GIS\Output_data\Organised\05_Geology\GeolGrid eq 13,
%.Geol_13_wf%, 0)
&TYPE Sandstone Wf Grid done

```

```

&IF [EXIST Geolwf -GRID] &THEN KILL Geolwf ALL
GeolAwf = (Geol0wf + Geol1wf + Geol2wf + Geol3wf + Geol4wf + Geol5wf + Geol6wf + Geol7wf)
Geolwf = (GeolAwf + Geol8wf + Geol9wf + Geol10wf + Geol11wf + Geol12wf + Geol13wf)
&TYPE Geolwf Grid Complete

```

```

SETMASK off
Q

```

```

&IF [EXIST Geol0wf -GRID] &THEN KILL Geol0wf ALL
&IF [EXIST Geol1wf -GRID] &THEN KILL Geol1wf ALL
&IF [EXIST Geol2wf -GRID] &THEN KILL Geol2wf ALL
&IF [EXIST Geol3wf -GRID] &THEN KILL Geol3wf ALL
&IF [EXIST Geol4wf -GRID] &THEN KILL Geol4wf ALL
&IF [EXIST Geol5wf -GRID] &THEN KILL Geol5wf ALL
&IF [EXIST Geol6wf -GRID] &THEN KILL Geol6wf ALL
&IF [EXIST Geol7wf -GRID] &THEN KILL Geol7wf ALL
&IF [EXIST Geol8wf -GRID] &THEN KILL Geol8wf ALL
&IF [EXIST Geol9wf -GRID] &THEN KILL Geol9wf ALL
&IF [EXIST Geol10wf -GRID] &THEN KILL Geol10wf ALL
&IF [EXIST Geol11wf -GRID] &THEN KILL Geol11wf ALL
&IF [EXIST Geol12wf -GRID] &THEN KILL Geol12wf ALL
&IF [EXIST Geol13wf -GRID] &THEN KILL Geol13wf ALL
&IF [EXIST GeolAwf -GRID] &THEN KILL GeolAwf ALL
&RETURN

```

```

/*****

```

```

&ROUTINE Soils

```

```

&CALL SetupGrid
Soil0wf = con(D:\Renee_GIS\Output_data\Organised\06_Soil\SoilsGrid eq 0, %.Soil_0_wf%, 0)
&TYPE Non-soil features Wf Grid done

```

```

Soil1wf = con(D:\Renee_GIS\Output_data\Organised\06_Soil\SoilsGrid eq 1, %.Soil_1_wf%, 0)
&TYPE Allophanic soil Wf Grid done
Soil2wf = con(D:\Renee_GIS\Output_data\Organised\06_Soil\SoilsGrid eq 2, %.Soil_2_wf%, 0)
&TYPE Brown soil Wf Grid done
Soil3wf = con(D:\Renee_GIS\Output_data\Organised\06_Soil\SoilsGrid eq 3, %.Soil_3_wf%, 0)
&TYPE Gley soil Wf Grid done
Soil4wf = con(D:\Renee_GIS\Output_data\Organised\06_Soil\SoilsGrid eq 4, %.Soil_4_wf%, 0)
&TYPE Granular soil Wf Grid done
Soil5wf = con(D:\Renee_GIS\Output_data\Organised\06_Soil\SoilsGrid eq 5, %.Soil_5_wf%, 0)
&TYPE Organic soil Wf Grid done
Soil6wf = con(D:\Renee_GIS\Output_data\Organised\06_Soil\SoilsGrid eq 6, %.Soil_6_wf%, 0)
&TYPE Oxidic soil Wf Grid done
Soil7wf = con(D:\Renee_GIS\Output_data\Organised\06_Soil\SoilsGrid eq 7, %.Soil_7_wf%, 0)
&TYPE Pallic soil Wf Grid done
Soil8wf = con(D:\Renee_GIS\Output_data\Organised\06_Soil\SoilsGrid eq 8, %.Soil_8_wf%, 0)
&TYPE Podzols Wf Grid done
Soil9wf = con(D:\Renee_GIS\Output_data\Organised\06_Soil\SoilsGrid eq 9, %.Soil_9_wf%, 0)
&TYPE Pumice soil Wf Grid done
Soil10wf = con(D:\Renee_GIS\Output_data\Organised\06_Soil\SoilsGrid eq 10, %.Soil_10_wf%, 0)
&TYPE Raw soil Wf Grid done
Soil11wf = con(D:\Renee_GIS\Output_data\Organised\06_Soil\SoilsGrid eq 11, %.Soil_11_wf%, 0)
&TYPE Recent soil Wf Grid done
Soil12wf = con(D:\Renee_GIS\Output_data\Organised\06_Soil\SoilsGrid eq 12, %.Soil_12_wf%, 0)
&TYPE Ultic soil Wf Grid done

```

```

&IF [EXIST Soilwf -GRID] &THEN KILL Soilwf ALL
SoilAwf = (Soil0wf + Soil1wf + Soil2wf + Soil3wf + Soil4wf)
SoilBwf = (SoilAwf + Soil5wf + Soil6wf + Soil7wf + Soil8wf)
Soilwf = (SoilBwf + Soil9wf + Soil10wf + Soil11wf + Soil12wf)
&TYPE Soil wf Grid Complete
SETMASK off
Q

```

```

&IF [EXIST Soil0wf -GRID] &THEN KILL Soil0wf ALL
&IF [EXIST Soil1wf -GRID] &THEN KILL Soil1wf ALL
&IF [EXIST Soil2wf -GRID] &THEN KILL Soil2wf ALL
&IF [EXIST Soil3wf -GRID] &THEN KILL Soil3wf ALL
&IF [EXIST Soil4wf -GRID] &THEN KILL Soil4wf ALL
&IF [EXIST Soil5wf -GRID] &THEN KILL Soil5wf ALL
&IF [EXIST Soil6wf -GRID] &THEN KILL Soil6wf ALL
&IF [EXIST Soil7wf -GRID] &THEN KILL Soil7wf ALL
&IF [EXIST Soil8wf -GRID] &THEN KILL Soil8wf ALL
&IF [EXIST Soil9wf -GRID] &THEN KILL Soil9wf ALL
&IF [EXIST Soil10wf -GRID] &THEN KILL Soil10wf ALL
&IF [EXIST Soil11wf -GRID] &THEN KILL Soil11wf ALL
&IF [EXIST Soil12wf -GRID] &THEN KILL Soil12wf ALL
&IF [EXIST SoilAwf -GRID] &THEN KILL SoilAwf ALL
&IF [EXIST SoilBwf -GRID] &THEN KILL SoilBwf ALL
&RETURN

```

```

/*****

```

## &ROUTINE Faults

### &CALL SetupGrid

Fault100wf = con(D:\Renee\_GIS\Output\_data\Organised\09\_Faults\FaultGrid eq 100,  
%.Flt\_100\_wf%,0)

&TYPE 0 - 250 m Wf Faults grid done

Fault250wf = con(D:\Renee\_GIS\Output\_data\Organised\09\_Faults\FaultGrid eq 250,  
%.Flt\_250\_wf%,0)

&TYPE > 100 - 250 m Wf Faults grid done

Fault500wf = con(D:\Renee\_GIS\Output\_data\Organised\09\_Faults\FaultGrid eq 500,  
%.Flt\_500\_wf%,0)

&TYPE > 250 - 500 m Wf Faults grid done

Fault1kwf = con(D:\Renee\_GIS\Output\_data\Organised\09\_Faults\FaultGrid eq 1000,  
%.Flt\_1k\_wf%,0)

&TYPE > 500 - 1000 m Wf Faults grid done

Fault2kwf = con(D:\Renee\_GIS\Output\_data\Organised\09\_Faults\FaultGrid eq 2000,  
%.Flt\_2k\_wf%,0)

&TYPE > 1000 - 2000 m Wf Faults grid done

Fault5kwf = con(D:\Renee\_GIS\Output\_data\Organised\09\_Faults\FaultGrid eq 5000,  
%.Flt\_5k\_wf%,0)

&TYPE > 2000 - 5000 m Wf Faults grid done

Faultxkwf = con(D:\Renee\_GIS\Output\_data\Organised\09\_Faults\FaultGrid eq 0, %.Flt\_0\_wf%,0)

&TYPE > 5000 m Wf grid Faults done

&IF [EXIST Faultwf -GRID] &THEN KILL Faultwf ALL

Faultwf = (Fault100wf + Fault250wf + Fault500wf + Fault1kwf + Fault2kwf + Fault5kwf + Faultxkwf)

&TYPE Fault WF Grid Complete

SETMASK off

Q

&IF [EXIST Fault100wf -GRID] &THEN KILL Fault100wf ALL

&IF [EXIST Fault250wf -GRID] &THEN KILL Fault250wf ALL

&IF [EXIST Fault500wf -GRID] &THEN KILL Fault500wf ALL

&IF [EXIST Fault1kwf -GRID] &THEN KILL Fault1kwf ALL

&IF [EXIST Fault2kwf -GRID] &THEN KILL Fault2kwf ALL

&IF [EXIST Fault5kwf -GRID] &THEN KILL Fault5kwf ALL

&IF [EXIST Faultxkwf -GRID] &THEN KILL Faultxkwf ALL

&RETURN

/\*\*\*\*\*

## &ROUTINE Roads

### &CALL SetupGrid

Road50wf = con(D:\Renee\_GIS\Output\_data\Organised\08\_Roads\RoadsGrid eq 50,  
%.Rds\_50\_wf%,0)

&TYPE 0 - 50 m Wf Roads grid done

Road100wf = con(D:\Renee\_GIS\Output\_data\Organised\08\_Roads\RoadsGrid eq 100,  
%.Rds\_100\_wf%,0)

&TYPE > 50 - 100 m Wf Roads grid done

Road250wf = con(D:\Renee\_GIS\Output\_data\Organised\08\_Roads\RoadsGrid eq 250,  
%.Rds\_250\_wf%,0)

```

&TYPE > 100 - 250 m Wf Roads grid done
Road500wf = con(D:\Renee_GIS\Output_data\Organised\08_Roads\RoadsGrid eq 500,
%.Rds_500_wf%,0)
&TYPE > 250 - 500 m Wf Roads grid done
Road1kwf = con(D:\Renee_GIS\Output_data\Organised\08_Roads\RoadsGrid eq 1000,
%.Rds_1k_wf%,0)
&TYPE > 500 - 1000 m Wf Roads grid done
Roadxkwf = con(D:\Renee_GIS\Output_data\Organised\08_Roads\RoadsGrid eq 0, %.Rds_0_wf%,0)
&TYPE > 5000 m Wf grid Roads done

```

```

&IF [EXIST Roadswf -GRID] &THEN KILL Roadswf ALL
Roadswf = (Road50wf + Road100wf + Road250wf + Road500wf + Road1kwf + Roadxkwf)
&TYPE Roads WF Grid Complete
SETMASK off
Q

```

```

&IF [EXIST Road50wf -GRID] &THEN KILL Road50wf ALL
&IF [EXIST Road100wf -GRID] &THEN KILL Road100wf ALL
&IF [EXIST Road250wf -GRID] &THEN KILL Road250wf ALL
&IF [EXIST Road500wf -GRID] &THEN KILL Road500wf ALL
&IF [EXIST Road1kwf -GRID] &THEN KILL Road1kwf ALL
&IF [EXIST Roadxkwf -GRID] &THEN KILL Roadxkwf ALL
&RETURN

```

```

/*****
&ROUTINE Rivers

```

```

&CALL SetupGrid

```

```

River100wf = con(D:\Renee_GIS\Output_data\Organised\10_Rivers\RiverGrid eq 100,
%.Riv_100_wf%,0)
&TYPE 0 - 100 m Wf Rivers grid done
River200wf = con(D:\Renee_GIS\Output_data\Organised\10_Rivers\RiverGrid eq 200,
%.Riv_200_wf%,0)
&TYPE 100 - 200 m Wf Rivers grid done
River300wf = con(D:\Renee_GIS\Output_data\Organised\10_Rivers\RiverGrid eq 300,
%.Riv_300_wf%,0)
&TYPE 200 - 300 m Wf Rivers grid done
River400wf = con(D:\Renee_GIS\Output_data\Organised\10_Rivers\RiverGrid eq 400,
%.Riv_400_wf%,0)
&TYPE 300 - 400 m Wf Rivers grid done
Riverxkwf = con(D:\Renee_GIS\Output_data\Organised\10_Rivers\RiverGrid eq 0, %.Riv_0_wf%,0)
&TYPE > 400 m Wf Rivers grid done

```

```

&IF [EXIST Riverswf -GRID] &THEN KILL Riverswf ALL
Riverswf = (River100wf + River200wf + River300wf + River400wf + Riverxkwf)
&TYPE Rivers WF Grid Complete
SETMASK off
Q

```

```

&IF [EXIST River100wf -GRID] &THEN KILL River100wf ALL

```

```
&IF [EXIST River200wf -GRID] &THEN KILL River200wf ALL
&IF [EXIST River300wf -GRID] &THEN KILL River300wf ALL
&IF [EXIST River400wf -GRID] &THEN KILL River400wf ALL
&IF [EXIST Riverxkwf -GRID] &THEN KILL Riverxkwf ALL
&RETURN
```

```
/*****
```

```
&ROUTINE Combine_All
```

```
&CALL SetupGrid
```

```
&IF [EXIST wfAll -GRID] &THEN KILL wfAll ALL
```

```
WfAll = (Slopewf + Elvtnwf + Aspectwf + MeanRwf + MaxRwf + LandCwf + Geolwf + Soilwf + Faultwf  
+ Roadswf + Riverswf)
```

```
SETMASK off
```

```
Q
```

```
&RETURN
```