

```

/** ----- 05a JOIN QMAPs -----
/**
/** FILE NAME:          05a_Join_QMAPs.txt
/** AUTHOR:            RENEE SCHICKER
/** DATE CREATED:      16 MARCH 2009
/** UPDATED/MODIFIED:  29 OCTOBER 2009
/**
/** The scripts may be supplied in a more readily useable format if the work is acknowledged
/** CONTACT:          Renee_Schicker@hotmail.com
/**
/** STARTS IN:         ARC
/** SCRIPT USED BY:    05_Geology.txt
/** USES THE SCRIPT:    CheckProgEdit.txt
/**
/** COVERAGES USED:    QMAP_W_geol_u          QMAP_A_geol_u
/** COVERAGES MADE:    QMAP_Geol
/**
/** FUNCTIONS USED:    &CALL          &ROUTINE      &RETURN
/**                   &TYPE          &RUN          &IF &THEN
/**                   [EXIST]        KILL          COPY
/**                   ADDITEM        EDITCOVER (EC)  EDITFEATURE (EF)
/**                   SELECT         CALCULATE      SAVE
/**                   QUIT (Q)       UNION
/**
/** PURPOSE:           Join the two QMAP covers to make one coverage for my study area
/**                   only carries across the Main_Rock attribute column of interest.
/**                   to get the rest would have to either make a join or do a similar process.
/**
/** ..... HISTORY.....
/** 16 MARCH 2009      Created Join_QMAPs.txt (just a union process).
/** 17 MARCH 2009      Added attribute column to each Auckland and Waikato QMAPs and
/**                   transferred MAIN_ROCK classification over, and added Water
/**                   classification (not specified in MAIN_ROCK but is in UNIT_CODE).
/** 25 MARCH 2009      Modified compiled QMAP_Geol classifications - Grouped Andesites,
/**                   basalts and diorites as Andesite, Basalt and Diorite; and clay, debris,
/**                   fill, mud, and sand as Engineering soils. Have separated ignimbrite,
/**                   peat and water as they are unlikely to be changed; the others are
/**                   still up for consideration. Updated Functions used.
/** 29 MARCH 2009      The QMAP_W_geol and QMAP_A_geol are copies of geol_unit for
/**                   Auckland and Waikato are clipped copies made through 04_Clip.txt
/**                   which also enable them to be identified as being different (cannot
/**                   have two different covers with the same name in your work folder).
/**                   Added Routines ROCK_GROUP_W, ROCK_GROUP_A, COMPILE_R_G
/**                   Renamed Routine COMPILE as COMPILE_M_R. So now have GNS
/**                   QMAP Rock Group classes.
/** 30 MARCH 2009      Had to remove ROCK_GROUP = agglomerate, conglomerate and tuff
/**                   from wai_gmap_geol and agglomerate, breccia and dacite from
/**                   auk_qmap_geol as all fell outside the regional boundary. Added
/**                   Rock_GROUP = Water. This script is now run through
/**                   05_Simpl_Geol.txt
/** 27 APRIL 2009      Check script is consistent with others, update script information.

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/**      This script is now run through 05_geology.txt. Removed some
/**      CALCULATE commands that are no longer used.
/**      12 MAY 2009      Added KILL_TEMP ROUTINE. granodiorite commented out as it is no
/**                      longer included when the islands are excluded.
/**      10 JUNE 2009     Renamed JOIN_QMAPs.txt to 05a_JOIN_QMAPs.txt
/**      28 OCTOBER 2009  Fixed a few classes. Had some problems with QMap Rock_Group
/**                      and Main_Rock classifications not really matching up. Led to some
/**                      odd susceptibility in Hauraki plains with mud being classed as
/**                      Mudstone (for example). Have gone through all geology classes and
/**                      have made the appropriate changes. Debris, and Tephra (formerly
/**                      Rock_GROUP = Unknown) are now Engineering Soils, so are Sand,
/**                      Clay, Mud, and Gravel (formerly Rock_GROUP = Conglomerate).
/**                      Sinter (formerly Rock_GROUP = Unknown) and Scoria are now
/**                      Basalt. Pumiceous pyroclastics have now been lumped in with
/**                      Ignimbrite and tuff. Peat (formerly Rock_GROUP = Mudstone) is
/**                      now Alluvium.
/**      29 OCTOBER 2009  Added some special edits based on DESCRIPTION to distinguish
/**                      between some Alluvium and Engineering Soils classes and
/**                      STRAT_UNIT (= Newcastle Group) to separate older "siltstone" from
/**                      "mudstone" by classifying as "Argillite". Peat is now in its own class.
/*****
/*****

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```

&CALL SET_UP
&CALL MAIN_ROCK_W      /* Waikato MAIN_ROCK in Main_Rock_W
&CALL ROCK_GROUP_W    /* Waikato ROCK_GROUP in Rock_Group_W
&CALL MAIN_ROCK_A      /* Auckland MAIN_ROCK in Main_Rock_A
&CALL ROCK_GROUP_A     /* Auckland ROCK_GROUP in Rock_Group_A
&CALL UNION_QMAPS
&CALL COMPILE_M_R      /* Compile Main Rock into 1 column
&CALL COMPILE_R_G      /* Compile Rock Group into 1 column
&CALL KILL_TEMP        /* Kill temporary covers no longer needed.
&RETURN

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/*****
&ROUTINE SET_UP

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```

&TYPE Setting up Wai_QMAP_Geol...
&IF [EXIST Wai_QMAP_Geol -COVER] &THEN KILL Wai_QMAP_Geol
COPY QMAP_W_geol_u Wai_QMAP_geol
ADDITEM Wai_QMAP_geol.pat Wai_QMAP_geol.pat Main_Rock_W 32 32 C
ADDITEM Wai_QMAP_geol.pat Wai_QMAP_geol.pat Rock_Group_W 32 32 C

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&TYPE Setting up Auk_QMAP_Geol...
&IF [EXIST Auk_QMAP_Geol -COVER] &THEN KILL Auk_QMAP_Geol
COPY QMAP_A_geol_u Auk_QMAP_Geol
ADDITEM Auk_QMAP_Geol.pat Auk_QMAP_Geol.pat Main_Rock_A 32 32 C
ADDITEM Auk_QMAP_Geol.pat Auk_QMAP_Geol.pat Rock_Group_A 32 32 C
&TYPE Setup complete.

```

```

&RETURN
/*****

```

&ROUTINE MAIN_ROCK_W

&TYPE WAIKATO MAIN_ROCK TRANSFER TO MAIN_ROCK_W COLUMN PROCESS...

/* Need to use ArcEdit so run the associated script to do this

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

EC Wai_QMAP_geol

EF polygon

SELECT for MAIN_ROCK = 'andesite'

CALCULATE Main_Rock_W = 'Andesite'

&TYPE Andesite done

SELECT for MAIN_ROCK = 'basalt'

CALCULATE Main_Rock_W = 'Basalt'

&TYPE Basalt done

SELECT for MAIN_ROCK = 'basaltic andesite'

CALCULATE Main_Rock_W = 'Basaltic Andesite'

&TYPE Basaltic Andesite done

SELECT for MAIN_ROCK = 'clay'

CALCULATE Main_Rock_W = 'Clay'

&TYPE Clay done

SELECT for MAIN_ROCK = 'debris'

CALCULATE Main_Rock_W = 'Debris'

&TYPE Debris done

SELECT for MAIN_ROCK = 'harzburgite'

CALCULATE Main_Rock_W = 'Harzburgite'

&TYPE Harzburgite done

SELECT for MAIN_ROCK = 'ignimbrite'

CALCULATE Main_Rock_W = 'Ignimbrite'

&TYPE Ignimbrite done

SELECT for MAIN_ROCK = 'limestone'

CALCULATE Main_Rock_W = 'Limestone'

&TYPE Limestone done

SELECT for MAIN_ROCK = 'mud'

CALCULATE Main_Rock_W = 'Mud'

&TYPE Mud done

SELECT for MAIN_ROCK = 'mudstone'

CALCULATE Main_Rock_W = 'Mudstone'

&TYPE Mudstone done

SELECT for MAIN_ROCK = 'olivine basalt'

CALCULATE Main_Rock_W = 'Olivine Basalt'

&TYPE Olivine Basalt done

SELECT for MAIN_ROCK = 'peat'

CALCULATE Main_Rock_W = 'Peat'

CALCULATE ROCK_GROUP = 'Peat'

&TYPE Peat done

SELECT for MAIN_ROCK = 'pumice'

CALCULATE Main_Rock_W = 'Pumice'

&TYPE Pumice done

SELECT for MAIN_ROCK = 'sand'

CALCULATE Main_Rock_W = 'Sand'

```

&TYPE Sand done
SELECT for MAIN_ROCK = 'sandstone'
CALCULATE Main_Rock_W = 'Sandstone'
&TYPE Sandstone done
SELECT for MAIN_ROCK = 'siltstone'
CALCULATE Main_Rock_W = 'Siltstone'
&TYPE Siltstone done
SELECT for MAIN_ROCK = 'tephra'
CALCULATE Main_Rock_W = 'Tephra'
&TYPE Tephra done
SELECT for MAIN_ROCK = 'volcanic sandstone'
CALCULATE Main_Rock_W = 'Volcanic Sandstone'
&TYPE Volcanic Sandstone done
SAVE

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```

SELECT for UNIT_CODE = 'water'
CALCULATE Main_Rock_W = 'Water'
&TYPE Water done
SAVE
Q
&RETURN

```

```

/*****
&ROUTINE ROCK_GROUP_W

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```

&TYPE WAIKATO ROCK_GROUP TRANSFER TO Rock_Group_W COLUMN PROCESS...
/* Need to use ArcEdit so run the associated script to do this
&RUN d:\renee_gis\scripts\CheckProgEdit.txt

```

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EC Wai_QMAP_geol
EF polygon

```

```

SELECT for ROCK_GROUP = 'andesite'
CALCULATE Rock_Group_W = 'Andesite'
&TYPE Andesite done
SELECT for ROCK_GROUP = 'basalt'
CALCULATE Rock_Group_W = 'Basalt'
&TYPE Basalt done
SELECT for ROCK_GROUP = 'breccia'
CALCULATE Rock_Group_W = 'Breccia'
&TYPE Breccia done
SELECT for ROCK_GROUP = 'greywacke'
CALCULATE Rock_Group_W = 'Greywacke'
&TYPE Greywacke done
SELECT for ROCK_GROUP = 'ignimbrite'
CALCULATE Rock_Group_W = 'Ignimbrite'
&TYPE Ignimbrite done
SELECT for ROCK_GROUP = 'limestone'
CALCULATE Rock_Group_W = 'Limestone'
&TYPE Limestone done
SELECT for ROCK_GROUP = 'mudstone'

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CALCULATE Rock_Group_W = 'Mudstone'
&TYPE Mudstone done
SELECT for ROCK_GROUP = 'Peat'
CALCULATE Rock_Group_W = 'Peat'
&TYPE Peat done
SELECT for ROCK_GROUP = 'peridotite'
CALCULATE Rock_Group_W = 'Peridotite'
&TYPE Peridotite done
SELECT for ROCK_GROUP = 'rhyolite'
CALCULATE Rock_Group_W = 'Rhyolite'
&TYPE Rhyolite done
SELECT for ROCK_GROUP = 'sandstone'
CALCULATE Rock_Group_W = 'Sandstone'
&TYPE Sandstone done
SELECT for ROCK_GROUP = 'unknown'
CALCULATE Rock_Group_W = 'Unknown'
&TYPE Unknown done
SELECT for ROCK_GROUP = ''
CALCULATE Rock_Group_W = 'Water'
&TYPE Water done
SAVE
Q

```

```

/** Special Edits as of 29 October 2009 ***
&RUN d:\renee_gis\scripts\CheckProgEdit.txt
EC Wai_QMAP_geol
EF polygon

```

```

&TYPE Waikatospecial edits beginning...
/* formerly Main_ROCK = Mud:
SELECT for DESCRIPTION = 'Locally derived lacustrine mud, silt, gravel and peat.'
CALCULATE Rock_Group_W = 'Alluvium'
CALCULATE Main_Rock_W = 'Alluvium'
&TYPE selected Mud classes converted to Alluvium
/* formerly Main_ROCK = Sand:
SELECT for DESCRIPTION = 'Alluvium as above, but dominated by primary and reworked, non-welded
ignimbrite.'
CALCULATE Rock_Group_W = 'Alluvium'
CALCULATE Main_Rock_W = 'Alluvium'
SELECT for DESCRIPTION = 'Cross-bedded pumice sand, silt and gravel with interbedded peat.'
CALCULATE Rock_Group_W = 'Alluvium'
CALCULATE Main_Rock_W = 'Alluvium'
SELECT for DESCRIPTION = 'Pumiceous mud, silt, sand and gravel with muddy peat beds; rhyolite
pumice, including non-welded ignimbrite, tephra and alluvial'
CALCULATE Rock_Group_W = 'Alluvium'
CALCULATE Main_Rock_W = 'Alluvium'
SELECT for DESCRIPTION = 'Predominantly pumice sand, silt and gravel alluvium with charcoal
fragments.'
CALCULATE Rock_Group_W = 'Alluvium'
CALCULATE Main_Rock_W = 'Alluvium'
&TYPE selected Sand classes converted to Alluvium

```

&TYPE Special Alluvium edits done!

/* formerly Main_ROCK = Mud:

SELECT for DESCRIPTION = 'Alluvial and colluvial sand, silt, mud and clay with local gravel and peat beds.'

CALCULATE Rock_Group_W = 'Engineering Soils'

CALCULATE Main_Rock_W = 'Engineering Soils'

&TYPE selected Mud classes converted to Engineering Soils

/* formerly Main_ROCK = Sand:

SELECT for DESCRIPTION = 'Consolidated quartzofeldspathic and mafic-rich sands in fixed dunes, with thin sandy clay beds (paleosols).'

CALCULATE Rock_Group_W = 'Engineering Soils'

CALCULATE Main_Rock_W = 'Engineering Soils'

SELECT for DESCRIPTION = 'Loose sand in active unvegetated or sparsely vegetated dune fields and deflation zones.'

CALCULATE Rock_Group_W = 'Engineering Soils'

CALCULATE Main_Rock_W = 'Engineering Soils'

SELECT for DESCRIPTION = 'Loose to poorly consolidated, quartzofeldspathic and mafic-rich sands in fixed parabolic dunes and local, small transverse dunes'

CALCULATE Rock_Group_W = 'Engineering Soils'

CALCULATE Main_Rock_W = 'Engineering Soils'

SELECT for DESCRIPTION = 'Pumiceous mud, silt, sand, and gravel with muddy peat beds'

CALCULATE Rock_Group_W = 'Engineering Soils'

CALCULATE Main_Rock_W = 'Engineering Soils'

SELECT for DESCRIPTION = 'Rapanui (NT2) terrace coverbeds comprising a range of shallow marine to paralic sediments.'

CALCULATE Rock_Group_W = 'Engineering Soils'

CALCULATE Main_Rock_W = 'Engineering Soils'

SELECT for DESCRIPTION = 'Undifferentiated dunes and associated facies'

CALCULATE Rock_Group_W = 'Engineering Soils'

CALCULATE Main_Rock_W = 'Engineering Soils'

SELECT for DESCRIPTION = 'Weakly cemented and uncemented quartzofeldspathic to mafic-rich, dune-bedded sand and clay-rich sandy paleosols, with lenses of'

CALCULATE Rock_Group_W = 'Engineering Soils'

CALCULATE Main_Rock_W = 'Engineering Soils'

&TYPE selected Sand classes converted to Engineering Soils

&TYPE Special Engineering Soils edits done!

SAVE

Q

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

EC Wai_QMAP_geol

EF polygon

SELECT for STRAT_UNIT = 'Newcastle Group (Early Jurassic)'

CALCULATE Rock_Group_W = 'Argillite'

SELECT for STRAT_UNIT = 'Newcastle Group (Late Triassic)'

CALCULATE Rock_Group_W = 'Argillite'

SAVE

Q

&RETURN

/*****

&ROUTINE MAIN_ROCK_A

&TYPE AUCKLAND MAIN_ROCK TRANSFER TO MAIN_ROCK_A COLUMN PROCESS...

/* Need to use ArcEdit so run the associated script to do this

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

EC Auk_QMAP_Geol

EF polygon

SELECT for MAIN_ROCK = 'andesite'

CALCULATE Main_Rock_A = 'Andesite'

&TYPE Andesite done

SELECT for MAIN_ROCK = 'basalt'

CALCULATE Main_Rock_A = 'Basalt'

&TYPE Basalt done

SELECT for MAIN_ROCK = 'basaltic andesite'

CALCULATE Main_Rock_A = 'Basaltic Andesite'

&TYPE Basaltic Andesite done

SELECT for MAIN_ROCK = 'chert'

CALCULATE Main_Rock_A = 'Chert'

&TYPE Chert done

SELECT for MAIN_ROCK = 'clay'

CALCULATE Main_Rock_A = 'Clay'

&TYPE Clay done

SELECT for MAIN_ROCK = 'conglomerate'

CALCULATE Main_Rock_A = 'Conglomerate'

&TYPE Conglomerate done

SELECT for MAIN_ROCK = 'debris'

CALCULATE Main_Rock_A = 'Debris'

&TYPE Debris done

SELECT for MAIN_ROCK = 'fill'

CALCULATE Main_Rock_A = 'Fill'

&TYPE Fill done

/*SELECT for MAIN_ROCK = 'granodiorite'
excluded

/* No longer included when Islands

/*CALCULATE Main_Rock_A = 'Granodiorite'

/*&TYPE Granodiorite done

SELECT for MAIN_ROCK = 'gravel'

CALCULATE Main_Rock_A = 'Gravel'

&TYPE Gravel done

SELECT for MAIN_ROCK = 'greywacke'

CALCULATE Main_Rock_A = 'Greywacke'

&TYPE Greywacke done

SELECT for MAIN_ROCK = 'ignimbrite'

CALCULATE Main_Rock_A = 'Ignimbrite'

&TYPE Ignimbrite done

SELECT for MAIN_ROCK = 'limestone'

CALCULATE Main_Rock_A = 'Limestone'

&TYPE Limestone done

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SELECT for MAIN_ROCK = 'mud'
CALCULATE Main_Rock_A = 'Mud'
&TYPE Mud done
SELECT for MAIN_ROCK = 'mudstone'
CALCULATE Main_Rock_A = 'Mudstone'
&TYPE Mudstone done
SELECT for MAIN_ROCK = 'peat'
CALCULATE Main_Rock_A = 'Peat'
CALCULATE ROCK_GROUP = 'Peat'
&TYPE Peat done
SELECT for MAIN_ROCK = 'quartz diorite'
CALCULATE Main_Rock_A = 'Quartz Diorite'
&TYPE Quartz Diorite done
SELECT for MAIN_ROCK = 'rhyolite'
CALCULATE Main_Rock_A = 'Rhyolite'
&TYPE Rhyolite done
SELECT for MAIN_ROCK = 'sand'
CALCULATE Main_Rock_A = 'Sand'
&TYPE Sand done
SELECT for MAIN_ROCK = 'sandstone'
CALCULATE Main_Rock_A = 'Sandstone'
&TYPE Sandstone done
SELECT for MAIN_ROCK = 'siltstone'
CALCULATE Main_Rock_A = 'Siltstone'
&TYPE Siltstone done
SELECT for MAIN_ROCK = 'sinter'
CALCULATE Main_Rock_A = 'Sinter'
&TYPE Sinter done
SELECT for MAIN_ROCK = 'tuff'
CALCULATE Main_Rock_A = 'Tuff'
&TYPE Tuff done
SELECT for MAIN_ROCK = 'turbidite'
CALCULATE Main_Rock_A = 'Turbidite'
&TYPE Turbidite done
SAVE

```

```

SELECT for UNIT_CODE = 'water'
CALCULATE Main_Rock_A = 'Water'
&TYPE
&TYPE Water done
&TYPE
SAVE
Q
&RETURN

```

```

/*****
&ROUTINE ROCK_GROUP_A

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```

&TYPE Auckland ROCK_GROUP transfer to Rock_Group_W column proces...
/* Need to use ArcEdit so run the associated script to do this
&RUN d:\renee_gis\scripts\CheckProgEdit.txt

```


EC Auk_QMAP_geol
EF polygon

```
SELECT for ROCK_GROUP = 'alternating sandstone/siltstone'
CALCULATE Rock_Group_A = 'Alternating sandstone/siltstone'
&TYPE Alternating sandstone/siltstone done
SELECT for ROCK_GROUP = 'andesite'
CALCULATE Rock_Group_A = 'Andesite'
&TYPE Andesite done
SELECT for ROCK_GROUP = 'argillite'
CALCULATE Rock_Group_A = 'Argillite'
&TYPE Argillite done
SELECT for ROCK_GROUP = 'basalt'
CALCULATE Rock_Group_A = 'Basalt'
&TYPE Basalt done
SELECT for ROCK_GROUP = 'chert'
CALCULATE Rock_Group_A = 'Chert'
&TYPE Chert done
SELECT for ROCK_GROUP = 'conglomerate'
CALCULATE Rock_Group_A = 'Conglomerate'
&TYPE Conglomerate done
SELECT for ROCK_GROUP = 'diorite'
CALCULATE Rock_Group_A = 'Diorite'
&TYPE Diorite done
SELECT for ROCK_GROUP = 'fill'
CALCULATE Rock_Group_A = 'Fill'
&TYPE Fill done
SELECT for ROCK_GROUP = 'greywacke'
CALCULATE Rock_Group_A = 'Greywacke'
&TYPE Greywacke done
SELECT for ROCK_GROUP = 'ignimbrite'
CALCULATE Rock_Group_A = 'Ignimbrite'
&TYPE Ignimbrite done
SELECT for ROCK_GROUP = 'limestone'
CALCULATE Rock_Group_A = 'Limestone'
&TYPE Limestone done
SELECT for ROCK_GROUP = 'mudstone'
CALCULATE Rock_Group_A = 'Mudstone'
&TYPE Mudstone done
SELECT for ROCK_GROUP = 'Peat'
CALCULATE Rock_Group_A = 'Peat'
&TYPE Peat done
SELECT for ROCK_GROUP = 'rhyolite'
CALCULATE Rock_Group_A = 'Rhyolite'
&TYPE Rhyolite done
SELECT for ROCK_GROUP = 'sand'
CALCULATE Rock_Group_A = 'Sand'
&TYPE Sand done
SELECT for ROCK_GROUP = 'sandstone'
CALCULATE Rock_Group_A = 'Sandstone'
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```

&TYPE Sandstone done
SELECT for ROCK_GROUP = 'scoria'
CALCULATE Rock_Group_A = 'Scoria'
&TYPE Scoria done
SELECT for ROCK_GROUP = 'tuff'
CALCULATE Rock_Group_A = 'Tuff'
&TYPE Tuff done
SELECT for ROCK_GROUP = 'unknown'
CALCULATE Rock_Group_A = 'Unknown'
&TYPE Unknown done
SELECT for ROCK_GROUP = ''
CALCULATE Rock_Group_A = 'Water'
&TYPE Water done
&TYPE
SAVE
Q

```

```

/** Special Edits as of 29 October 2009 ***
&RUN d:\renee_gis\scripts\CheckProgEdit.txt

```

```

EC Auk_QMAP_geol
EF polygon
&TYPE Auckland special edits beginning...
/* formerly Main_ROCK = Mud:
SELECT for DESCRIPTION = 'Predominantly pumiceous sand, silt, mud and clay, with interbedded
gravel and peat.'
CALCULATE Rock_Group_A = 'Alluvium'
CALCULATE Main_Rock_A = 'Alluvium'
SELECT for DESCRIPTION = 'Sand, silt mud and clay with local gravel and peat beds.'
CALCULATE Rock_Group_A = 'Alluvium'
CALCULATE Main_Rock_A = 'Alluvium'
&TYPE Selected Mud classes converted to Alluvium
/* formerly Main_ROCK = Sand
SELECT for DESCRIPTION = 'Cross-bedded pumice sand, silt and gravel with interbedded peat.'
CALCULATE Rock_Group_A = 'Alluvium'
CALCULATE Main_Rock_A = 'Alluvium'
SELECT for DESCRIPTION = 'Highly weathered, coarse pumiceous and rhyolitic sands and current-
bedded grits, with interbedded peat and local gravels.'
CALCULATE Rock_Group_A = 'Alluvium'
CALCULATE Main_Rock_A = 'Alluvium'
SELECT for DESCRIPTION = 'Mainly pumiceous alluvium and colluvium with interbedded peat'
CALCULATE Rock_Group_A = 'Alluvium'
CALCULATE Main_Rock_A = 'Alluvium'
SELECT for DESCRIPTION = 'Pumice sand, silt and gravel with charcoal fragments.'
CALCULATE Rock_Group_A = 'Alluvium'
CALCULATE Main_Rock_A = 'Alluvium'
SELECT for DESCRIPTION = 'Pumiceous mud, sand and gravel with muddy peat and lignite: rhyolite
pumice, including non-welded ignimbrite, tephra and alluvia'
CALCULATE Rock_Group_A = 'Alluvium'
CALCULATE Main_Rock_A = 'Alluvium'

```

```

SELECT for DESCRIPTION = 'Pumiceous, alluvial gravel, sand and mud with peat. Estuarine silt and
mud, and minor beach sand interbedded with ignimbrite and'
CALCULATE Rock_Group_A = 'Alluvium'
CALCULATE Main_Rock_A = 'Alluvium'
&TYPE Selected Sand classes converted to Alluvium
&TYPE Special Alluvium edits done!

```

```

/* formerly Main_ROCK = Sand
SELECT for DESCRIPTION = 'Loose sand in active, unvegetated or sparsely vegetated dune fields and
deflation zones.'
CALCULATE Rock_Group_A = 'Engineering Soils'
CALCULATE Main_Rock_A = 'Engineering Soils'
SELECT for DESCRIPTION = 'Loose sand in arcuate, subparallel sand ridges, with rare, weakly
developed covering paleosols.'
CALCULATE Rock_Group_A = 'Engineering Soils'
CALCULATE Main_Rock_A = 'Engineering Soils'
SELECT for DESCRIPTION = 'Loose to poorly consolidated, quartzofeldspathic and mafic-rich dune
sands and associated facies.'
CALCULATE Rock_Group_A = 'Engineering Soils'
CALCULATE Main_Rock_A = 'Engineering Soils'
SELECT for DESCRIPTION = 'Loose to poorly consolidated, quartzofeldspathic and mafic-rich sands in
fixed parabolic dunes and local, small transverse dunes'
CALCULATE Rock_Group_A = 'Engineering Soils'
CALCULATE Main_Rock_A = 'Engineering Soils'
SELECT for DESCRIPTION = 'Weakly cemented and uncemented quartzofeldspathic to mafic-rich,
dune-bedded sand and clay-rich sandy paleosols, with lenses of'
CALCULATE Rock_Group_A = 'Engineering Soils'
CALCULATE Main_Rock_A = 'Engineering Soils'
&TYPE Selected Sand classes converted to Engineering Soils
&TYPE Special Engineering Soils edits done!
&TYPE
SAVE
Q

```

```

&RUN d:\renee_gis\scripts\CheckProgEdit.txt
EC Auk_QMAP_geol
EF polygon
SELECT for STRAT_UNIT = 'Newcastle Group'
CALCULATE Rock_Group_A = 'Argillite'
&TYPE
&TYPE Special Argillite edit complete!
&TYPE
SAVE
Q
&RETURN

```

```

/*****
&ROUTINE UNION_QMAPS
&IF [EXIST QMAP_Geol -COVER] &THEN KILL QMAP_Geol
UNION Wai_QMAP_Geol Auk_QMAP_Geol QMAP_Geol
&RETURN

```

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/******  
&ROUTINE COMPILE_M_R
```

```
/* Need to use ArcEdit so run the associated script to do this  
&RUN d:\renee_gis\scripts\CheckProgEdit.txt
```

```
EC QMAP_Geol  
EF Polygon
```

```
/* ----- Andesite, Basalt and Diorite -----
```

```
&TYPE Compiling MAIN_ROCK as Andesite, Basalt and Diorite
```

```
&TYPE up to Andesite
```

```
SELECT for Main_Rock_A = 'Andesite'
```

```
CALCULATE MAIN_ROCK = 'Andesite, Basalt and Diorite'
```

```
SELECT for Main_Rock_W = 'Andesite'
```

```
CALCULATE MAIN_ROCK = 'Andesite, Basalt and Diorite'
```

```
&TYPE up to Basalt
```

```
SELECT for Main_Rock_A = 'Basalt'
```

```
CALCULATE MAIN_ROCK = 'Andesite, Basalt and Diorite'
```

```
SELECT for Main_Rock_W = 'Basalt'
```

```
CALCULATE MAIN_ROCK = 'Andesite, Basalt and Diorite'
```

```
&TYPE up to Basaltic Andesite
```

```
SELECT for Main_Rock_A = 'Basaltic Andesite'
```

```
CALCULATE MAIN_ROCK = 'Andesite, Basalt and Diorite'
```

```
SELECT for Main_Rock_W = 'Basaltic Andesite'
```

```
CALCULATE MAIN_ROCK = 'Andesite, Basalt and Diorite'
```

```
&TYPE up to Olivine Basalt
```

```
SELECT for Main_Rock_W = 'Olivine Basalt'
```

```
CALCULATE MAIN_ROCK = 'Andesite, Basalt and Diorite'
```

```
/*&TYPE up to Granodiorite
```

```
when Island_mask used
```

```
/*SELECT for Main_Rock_A = 'Granodiorite'
```

```
/*CALCULATE MAIN_ROCK = 'Andesite, Basalt and Diorite'
```

```
/* Granodiorite no longer there
```

```
/* to exclude islands off shore.
```

```
&TYPE up to Quartz Diorite
```

```
SELECT for Main_Rock_A = 'Quartz Diorite'
```

```
CALCULATE MAIN_ROCK = 'Andesite, Basalt and Diorite'
```

```
/* ----- Engineering Soils -----
```

```
&TYPE Compiling MAIN_ROCK as Engineering Soils
```

```
&TYPE up to Clay
```

```
SELECT for Main_Rock_A = 'Clay'
```

```
CALCULATE MAIN_ROCK = 'Engineering Soils'
```

```
CALCULATE Rock_Group_A = 'Engineering Soils'
```

```
SELECT for Main_Rock_W = 'Clay'
```

```
CALCULATE MAIN_ROCK = 'Engineering Soils'
```

```
CALCULATE Rock_Group_W = 'Engineering Soils'
```

```

&TYPE up to Debris
SELECT for Main_Rock_A = 'Debris'
CALCULATE MAIN_ROCK = 'Engineering Soils'
CALCULATE Rock_Group_A = 'Engineering Soils'
SELECT for Main_Rock_W = 'Debris'
CALCULATE MAIN_ROCK = 'Engineering Soils'
CALCULATE Rock_Group_W = 'Engineering Soils'

```

```

&TYPE up to Engineering Soils
SELECT for Main_Rock_A = 'Engineering Soils'
CALCULATE MAIN_ROCK = 'Engineering Soils'
SELECT for Main_Rock_W = 'Engineering Soils'
CALCULATE MAIN_ROCK = 'Engineering Soils'

```

```

&TYPE up to Fill
SELECT for Main_Rock_A = 'Fill'
CALCULATE MAIN_ROCK = 'Engineering Soils'
CALCULATE Rock_Group_A = 'Engineering Soils'

```

```

/*&TYPE up to Mud
/*SELECT for Main_Rock_A = 'Mud'
both
/*CALCULATE MAIN_ROCK = 'Engineering Soils'
/*CALCULATE Rock_Group_A = 'Engineering Soils'
/*SELECT for Main_Rock_W = 'Mud'
/*CALCULATE MAIN_ROCK = 'Engineering Soils'
/*CALCULATE Rock_Group_W = 'Engineering Soils'

```

```

/** No longer appears due to special edits
/** which have changed it to Alluvium in

```

```

/** Auckland and Waikato layers

```

```

&TYPE up to Sand
/*SELECT for Main_Rock_A = 'Sand'
/*CALCULATE MAIN_ROCK = 'Engineering Soils'
Engineering Soils
/*CALCULATE Rock_Group_A = 'Engineering Soils'
layers
/*SELECT for Main_Rock_W = 'Sand'
/*CALCULATE MAIN_ROCK = 'Engineering Soils'
/*CALCULATE Rock_Group_W = 'Engineering Soils'

```

```

/** No longer appears due to special edits
/** which have changed it to Alluvium or

```

```

/** Applies to both Auckland and Waikato

```

```

/* ----- Not likely to change -----

```

```

&TYPE Compiling MAIN_ROCK as Ignimbrite
SELECT for Main_Rock_A = 'Ignimbrite'
CALCULATE MAIN_ROCK = 'Ignimbrite'
SELECT for Main_Rock_W = 'Ignimbrite'
CALCULATE MAIN_ROCK = 'Ignimbrite'

```

```

&TYPE Compiling MAIN_ROCK as Peat
SELECT for Main_Rock_A = 'Peat'
CALCULATE Rock_Group_A = 'Peat'
CALCULATE MAIN_ROCK = 'Peat'
SELECT for Main_Rock_W = 'Peat'

```

```
CALCULATE MAIN_ROCK = 'Peat'
CALCULATE Rock_Group_W = 'Peat'
```

```
&TYPE Compiling MAIN_ROCK as Water
SELECT for Main_Rock_A = 'Water'
CALCULATE MAIN_ROCK = 'Water'
SELECT for Main_Rock_W = 'Water'
CALCULATE MAIN_ROCK = 'Water'
```

```
/* ----- Unchanged for the moment -----
```

```
&TYPE Compiling as Chert
SELECT for Main_Rock_A = 'Chert'
CALCULATE MAIN_ROCK = 'Chert'
```

```
&TYPE Compiling MAIN_ROCK as Conglomerate
SELECT for Main_Rock_A = 'Conglomerate'
CALCULATE MAIN_ROCK = 'Conglomerate'
```

```
&TYPE Compiling MAIN_ROCK as Gravel
SELECT for Main_Rock_A = 'Gravel'
CALCULATE MAIN_ROCK = 'Gravel'
CALCULATE Rock_Group_A = 'Engineering Soils'
```

```
&TYPE Compiling MAIN_ROCK as Greywacke
SELECT for Main_Rock_A = 'Greywacke'
CALCULATE MAIN_ROCK = 'Greywacke'
```

```
&TYPE Compiling MAIN_ROCK as Harzburgite
SELECT for Main_Rock_W = 'Harzburgite'
CALCULATE MAIN_ROCK = 'Harzburgite'
```

```
&TYPE Compiling MAIN_ROCK as Limestone
SELECT for Main_Rock_A = 'Limestone'
CALCULATE MAIN_ROCK = 'Limestone'
SELECT for Main_Rock_W = 'Limestone'
CALCULATE MAIN_ROCK = 'Limestone'
```

```
&TYPE Compiling MAIN_ROCK as Mudstone
SELECT for Main_Rock_A = 'Mudstone'
CALCULATE MAIN_ROCK = 'Mudstone'
SELECT for Main_Rock_W = 'Mudstone'
CALCULATE MAIN_ROCK = 'Mudstone'
```

```
/*&TYPE Compiling MAIN_ROCK as Pumice
Main_Rock_W as Alluvium
/*SELECT for Main_Rock_W = 'Pumice'
/*CALCULATE MAIN_ROCK = 'Pumice'
```

```
/* Now made redundant by setting
```

```
&TYPE Compiling MAIN_ROCK as Rhyolite
SELECT for Main_Rock_A = 'Rhyolite'
CALCULATE MAIN_ROCK = 'Rhyolite'
```

```
&TYPE Compiling MAIN_ROCK as Sandstone
SELECT for Main_Rock_A = 'Sandstone'
CALCULATE MAIN_ROCK = 'Sandstone'
SELECT for Main_Rock_W = 'Sandstone'
CALCULATE MAIN_ROCK = 'Sandstone'
```

```
&TYPE Compiling MAIN_ROCK as Siltstone
SELECT for Main_Rock_A = 'Siltstone'
CALCULATE MAIN_ROCK = 'Siltstone'
SELECT for Main_Rock_W = 'Siltstone'
CALCULATE MAIN_ROCK = 'Siltstone'
```

```
&TYPE Compiling MAIN_ROCK as Sinter
SELECT for Main_Rock_A = 'Sinter'
CALCULATE MAIN_ROCK = 'Sinter'
CALCULATE Rock_Group_A = 'Basalt'
```

```
&TYPE Compiling MAIN_ROCK as Tephra
SELECT for Main_Rock_W = 'Tephra'
CALCULATE MAIN_ROCK = 'Tephra'
CALCULATE Rock_Group_W = 'Engineering Soils'
```

```
&TYPE Compiling MAIN_ROCK as Tuff
SELECT for Main_Rock_A = 'Tuff'
CALCULATE MAIN_ROCK = 'Tuff'
```

```
&TYPE Compiling MAIN_ROCK as Turbidite
SELECT for Main_Rock_A = 'Turbidite'
CALCULATE MAIN_ROCK = 'Turbidite'
```

```
&TYPE Compiling MAIN_ROCK as Volcanic Sandstone
SELECT for Main_Rock_W = 'Volcanic Sandstone'
CALCULATE MAIN_ROCK = 'Volcanic Sandstone'
```

```
&TYPE Compiling MAIN_ROCK as Alluvium
SELECT for Main_Rock_A = 'Alluvium'
CALCULATE MAIN_ROCK = 'Alluvium'
SELECT for Main_Rock_W = 'Alluvium'
CALCULATE MAIN_ROCK = 'Alluvium'
```

```
SAVE
Q
&RETURN
```

```
/*****
&ROUTINE COMPILE_R_G
```

```
/* Need to use ArcEdit so run the associated script to do this
&RUN d:\renee_gis\scripts\CheckProgEdit.txt
```

EC QMAP_Geol
EF Polygon

&TYPE Compiling ROCK_GROUP as Alluvium
SELECT for Rock_Group_A = 'Alluvium'
CALCULATE ROCK_GROUP = 'Alluvium'
SELECT for Rock_Group_W = 'Alluvium'
CALCULATE ROCK_GROUP = 'Alluvium'

&TYPE Compiling ROCK_GROUP as 'Alternating sandstone/siltstone'
SELECT for Rock_Group_A = 'Alternating sandstone/siltstone'
CALCULATE ROCK_GROUP = 'Alternating sandstone/siltstone'

&TYPE Compiling ROCK_GROUP as Andesite
SELECT for Rock_Group_A = 'Andesite'
CALCULATE ROCK_GROUP = 'Andesite'
SELECT for Rock_Group_W = 'Andesite'
CALCULATE ROCK_GROUP = 'Andesite'

&TYPE Compiling ROCK_GROUP as Argillite
SELECT for Rock_Group_A = 'Argillite'
CALCULATE ROCK_GROUP = 'Argillite'
SELECT for Rock_Group_W = 'Argillite'
CALCULATE ROCK_GROUP = 'Argillite'

&TYPE Compiling ROCK_GROUP as Basalt
SELECT for Rock_Group_A = 'Basalt'
CALCULATE ROCK_GROUP = 'Basalt'
SELECT for Rock_Group_W = 'Basalt'
CALCULATE ROCK_GROUP = 'Basalt'

&TYPE Compiling ROCK_GROUP as Scoria
SELECT for Rock_Group_A = 'Scoria'
CALCULATE ROCK_GROUP = 'Basalt'

&TYPE Compiling ROCK_GROUP as Engineering Soils
SELECT for Rock_Group_A = 'Engineering Soils'
CALCULATE ROCK_GROUP = 'Engineering Soils'
SELECT for Rock_Group_W = 'Engineering Soils'
CALCULATE ROCK_GROUP = 'Engineering Soils'

&TYPE Compiling ROCK_GROUP as Chert
SELECT for Rock_Group_A = 'Chert'
CALCULATE ROCK_GROUP = 'Chert'

&TYPE Compiling ROCK_GROUP as Diorite
SELECT for Rock_Group_A = 'Diorite'
CALCULATE ROCK_GROUP = 'Diorite'

&TYPE Compiling ROCK_GROUP as Greywacke
SELECT for Rock_Group_A = 'Greywacke'


```
CALCULATE ROCK_GROUP = 'Greywacke'  
SELECT for Rock_Group_W = 'Greywacke'  
CALCULATE ROCK_GROUP = 'Greywacke'
```

```
&TYPE Compiling ROCK_GROUP as Ignimbrite  
SELECT for Rock_Group_A = 'Ignimbrite'  
CALCULATE ROCK_GROUP = 'Ignimbrite'  
SELECT for Rock_Group_W = 'Ignimbrite'  
CALCULATE ROCK_GROUP = 'Ignimbrite'
```

```
&TYPE Compiling ROCK_GROUP as Limestone  
SELECT for Rock_Group_A = 'Limestone'  
CALCULATE ROCK_GROUP = 'Limestone'  
SELECT for Rock_Group_W = 'Limestone'  
CALCULATE ROCK_GROUP = 'Limestone'
```

```
&TYPE Compiling ROCK_GROUP as Mudstone  
SELECT for Rock_Group_A = 'Mudstone'  
CALCULATE ROCK_GROUP = 'Mudstone'  
SELECT for Rock_Group_W = 'Mudstone'  
CALCULATE ROCK_GROUP = 'Mudstone'
```

```
&TYPE Compiling ROCK_GROUP as Peridotite  
SELECT for Rock_Group_W = 'Peridotite'  
CALCULATE ROCK_GROUP = 'Peridotite'
```

```
&TYPE Compiling ROCK_GROUP as Peat  
SELECT Rock_Group_A = 'Peat'  
CALCULATE ROCK_GROUP = 'Peat'  
SELECT Rock_Group_W = 'Peat'  
CALCULATE ROCK_GROUP = 'Peat'
```

```
&TYPE Compiling ROCK_GROUP as Rhyolite  
SELECT for Rock_Group_A = 'Rhyolite'  
CALCULATE ROCK_GROUP = 'Rhyolite'  
/*SELECT for Rock_Group_W = 'Rhyolite'      /* No longer exists as its Main Rock is Tephra  
/*CALCULATE ROCK_GROUP = 'Rhyolite'        /* which has been classed as Engineering soil
```

```
&TYPE Compiling ROCK_GROUP as Sandstone  
SELECT for Rock_Group_A = 'Sandstone'  
CALCULATE ROCK_GROUP = 'Sandstone'  
SELECT for Rock_Group_W = 'Sandstone'  
CALCULATE ROCK_GROUP = 'Sandstone'
```

```
&TYPE Compiling ROCK_GROUP as Tuff  
SELECT for Rock_Group_A = 'Tuff'  
CALCULATE ROCK_GROUP = 'Tuff'
```

```
&TYPE Compiling ROCK_GROUP as Water  
SELECT for Rock_Group_A = 'Water'  
CALCULATE ROCK_GROUP = 'Water'
```

```
SELECT for Rock_Group_W = 'Water'
CALCULATE ROCK_GROUP = 'Water'
SAVE
Q
&RETURN
/*****

&ROUTINE KILL_TEMP

/** MADE IN THIS SCRIPT
&IF [EXIST Wai_QMAP_Geol -COVER] &THEN KILL Wai_QMAP_Geol
&IF [EXIST Auk_QMAP_Geol -COVER] &THEN KILL Auk_QMAP_Geol

/** MADE IN 05_Geology.txt
&IF [EXIST QMAP_W_geol_u -COVER] &THEN KILL QMAP_W_geol_u
&IF [EXIST QMAP_A_geol_u -COVER] &THEN KILL QMAP_A_geol_u

&RETURN
/*****
```