BAND DEM cut/fill work

-Made CON of significant positive and negative changes in Frijoles

-Converted to Polygon and filtered out clusters that were smaller than 100 m^2

-Merged features and performed cut/fill operation with Mask of significant change areas

Procedure for determining Drainsheds:

1. “Fill” “DEM2016num”
2. Calculate Flow Direction on “DEM2016num”
3. Calculate Flow Accumulation on the Flow Direction raster
4. Run “Con” of values greater than or equal to 100,000
5. Run “Stream to Feature”
6. Find intersections of the 100,000 flow accumulation streams with the FrijolesBottom layer
7. Manually delete points where streams intersect FrijolesBottom that do not flow outwards from the canyon (generally meandering channel crossing boundary of bottomland)
8. Snap Pour Points using to FlowAcc\_DEM2016Filled
9. Run “Watershed” tool to find the “DrainShedsFrijoles”

Project: BANDDrainages

Procedure for subdrainage cut/fill calcs:

1. CON significant positive and negative changes in Frijoles

Gdb BANDrasters

* DoD\_2016\_2010 – This is “DEM2016num” – “DEM2010msingle”

Gdb BANDDrainages:

* Con\_DoD\_sigChanges – this raster is the DoD\_2016\_2010 with a Con tool run to eliminate values between -0.4688 and +0.4688

1. Convert to Polygon using “Raster to Polygon” – uncheck “Simplify Polygons” and “Create multipart polygon”. Leave blank “Maximum vertices per polygon feature”

Gdb BANDDrainages:

* Con\_DoD\_sigChanges\_polygon – this is the Con\_DoD\_sigChanges raster converted to polygon

1. delete any areas smaller than 100 m2. This is intended to remove anomalous changes in areas including steep slopes where a horizontal offset may complicate the data. Inaccurate changes detected on steep slopes may consist of enough volumetric changes to offset the actual change detected. The product will not represent a reliable estimation of total volumetric change, but will provide will provide figures to compare large changes between subdrainages.

Gdb BANDDrainages:

* Con\_DoD\_sigChanges\_polygon\_large – this is the Con\_DoD\_sigChanges\_polygon with polygons smaller than 100 m2 eliminated.

1. Split “Con\_DoD\_sigChanges\_polygon\_large” by “DrainShedsFrijoles”

Gdb DrainageShedsSplit:

* Has independent polygon feature class for each Drainageshed. “T10,” for example, is a polygon set that includes only the “Con\_DoD\_sigChanges\_polygon\_large” polygons that exist within DrainShed 6. These will be used to Mask the Cut/Fill operations

Not every DrainShed intersects with “Con\_DoD\_sigChanges\_polygon\_large.” The highest elevation DrainSheds have the least large changes which is expected.

1. Perform “Cut Fill” with following parameters:

* Input before raster surface: “DEM2010msingle”
* Input after raster surface: “DEM2016num”
* Output raster: “CutFill\_” + DrainShed (T10, T12, T14, etc.)

1. Compile statistics for each DrainShed:

* Select attributes by Volume (greater than 0)
* “Statistics” Volume
* Record the sum as “Volume eroded” (reverse sign of Volume)
* “Statistics” Area
* Record the sum as “Area eroded” (as a negative value)
* Select attributes by Volume (less than 0)
* “Statistics” Volume
* Record the sum as “Volume accreted” (reverse sign of Volume)
* “Statistics” Area
* Record the sum as “Area accreted” (as a negative value)