Aggregation of sites within 100m distance

Here, we assume that neighbouring sites within a distance of 100m and less are redundant. In order to avoid over-interpretation of such redundancies in the following workflow, it is advisable to aggregate sites that are less than 100 m apart.

Technically, site aggregation can be performed using a "buffer", a polygon that is created around each site with the shape of a circle and diameter of 50 metres. In case two buffers touch each other, they are dissolved to a single polygon feature with a maximum diameter of 100 metres. This processing step is computed using the tool /Analysis /Buffer:

<u>Input Features</u>: Sites_GK3

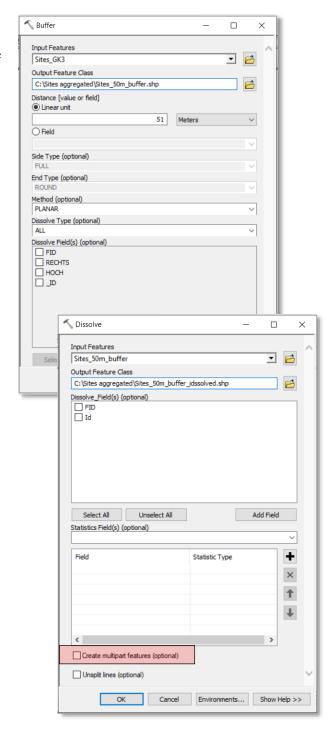
Linear Unit: "51" Meters

Dissolve type: "ALL"

To be sure buffers within 50 m touch each other properly we chose 51 metres here. Furthermore, we assume that Sites_50m_buffer is chosen as *Output Feature Class* name.

Since we let the tool dissolve overlapping buffers into one single feature, the resulting output is a multipart feature, whose attribute table lists only one single row. Now, the feature hidden behind this single line must be split into individual rows, which is done using the tool /Data Management /Dissolve. By deselecting/unticking Create Multipart features (optional), the resulting buffer layer yields one row per polygon, while several polygons touching each other are kept as one single feature. We assume here that Sites_50m_buffer_dissolved is chosen as Output Feature Class name.

The attribute table of the resulting polygon data set Sites_50m_buffer_dissolved should now list all the features. However, the number of polygons (n= 1869) should be less than the number of features in the site point layer Sites_GK3 (n = 2378 archaeological sites).



The resulting buffer polygons can be converted back to a point feature class by using the tool / Data Management / Feature To Point.

Point features in the resulting layer (here: Sites GK3 aggregated) should be located at the very same spot as the initial archaeological sites, with the exception of those sites that were

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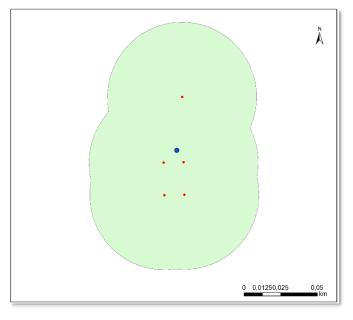
aggregated. The latter cases are located at the centre point of the buffers being merged.

During this process, the attribute table of the site point layer got lost, and it is not needed for the following LEC processing workflow. However, if you need the original table attached to Sites GK3 aggregated, you can hand it over using a spatial join:

Access Joins and Relates via a right mouse button click on the layer Sites_GK3_aggregated in the table contents and choose Join....

In the window now popping up choose Join data from another layer based on spatial location in the drop-down on top. Then choose Sites GK3 as "Join layer" (second drop down), and choose to hand over the full attribute table to (second bullet). Choose Sites GK3 aggregated joined table as output feature class and hit OK.

The resulting point feature should contain the full attribute table of Sites GK3 as well as an additional column named Distance that shows which of the joins are identical (distance = 0), and which are in fact centroids of merged buffer polygons (distance to the joined sites > 0).



Сору 配 □ ☑ Sites_100m. X Remove Open Attribute Table Joins and Relates Zoom To Laver Join Join data to this layer or standalone table based on a common attribute, spatial Visible Scale Range Use Symbol Levels location or existing relation class. Label Features **Edit Features** Convert Features to Graphics... Convert Symbology to Representation Join lets you append additional data to this layer's attribute table so you can, What do you want to join to this layer? Join data from another layer based on spatial location 1. Choose the layer to join to this layer, or load spatial data from disk: Sites_GK3 ▼ 🐸 2. You are joining: Points to Points Select a join feature class above. You will be given different options based on geometry types of the source feature class and the join feature class. Each point will be given a summary of the numeric attributes of the points in the layer being joined that are closest to it, and a count field showing how many points are closest to it. How do you want the attributes to be summarized? Average Minimum Standard Deviation Maximum Variance Each point will be given all the attributes of the point in the layer being joined that is closest to it, and a distance field showing how close that point is (in the units of the target layer). 3. The result of the join will be saved into a new layer Specify output shapefile or feature class for this new layer: C:\\Sites aggregated\Sites_GK3_aggregated_joined_table.shr About joining data

The polygon coloured in light green resembles a buffer (merged) drawn around archaeological sites (within 100m distance). The centroid of the polygon coloured in blue acts as the resulting "aggregated site". Original sites are coloured red.