**Justification for assigning chronology**

This document provides a guidance for reading spreadsheets. The purpose is to provide details to justify our methods used for assigning three phases: pre-European period, post-European, and Chinese period. We have uploaded four spreadsheets that include detailed information about the stratigraphic data, soil color, layer depth, diagnostic artifacts, radiocarbon dates, descriptive observations for artifacts in general, judgements for assigning, and the final decision for chronology. The information all collected from the original field notes and excavation report.

**KWL\_excavation\_depth.xlsx** provides the depth in centimeter for each layer. L1 means first layer and so forth. The depth was recorded based on the sea level. Some unit are recorded based on section A, B, C, D, that are subunit in each unit.

**KWL\_soil\_color.xls provides. xlsx** provides the soil color we identified from original field note for each layer. L1 means first layer and so forth. The color was recorded according to Mansell color chart. Some unit are recorded based on section A, B, C, D, that are subunit in each unit.

**KWL\_layer\_assign\_details.xlsx** provides detailed information that we used for assigning chronology. L1 means first layer and so forth. We listed the diagnostic items, including pipes, jars (An-ping jar), stonewares for European period, and tiles, bricks for Chinese periods for the layer with it. The amount of European time indicators was indicated with number after \* to present their frequency.

The column, “radiocarbon dates (tree rings)”, includes the layers where charcoals were collected for radiocarbon dating. The original radiocarbon dates were corrected by tree rings data represented in the parenthesis.

The column, “stratigraphic analysis based on field note”, describes the changes in color and distribution of potsherds. Those two variables are highly correlated to the depth between 20 cm to -20 cm that is around 17th century.

The column, “assessment (1: excellent, 2: good, 3: fair)”, is our assessment for the condition of unit.

The column, “observations on artifacts & features based on field note”, presents our judgment of the possible postdepositional issue based on the description in the original field note.

The column, “previous studies indicating 17th layer” and “previous studies indicating 19th layer” are based on the chronology used by previous studies on Kiwulan site, Hsieh 2009 and Wang 2011.

The column, “assigning the layer indicating the start of European phase” is our judgment for the European period. First, we determined the layer based on the presence or the higher frequency of time indicators. Second, we examined whether there are radiocarbon dates from the layer. Third, we examined the color changes and the distribution of potsherds. Fourth, we checked if there is any postdepositional issue. Fifth, we compared the stratigraphic context between adjacent units. Sixth, we refer to previous studies.

The column, “assigning the layer indicating the start of Chinese phase” is our judgment for the Chinese period. First, we determined the layer based on the presence of time indicators. Second, we examined whether there are radiocarbon dates from the layer. Third, we examine the soil color. Fourth, we checked if there is any postdepositional issue. Fifth, we compared the stratigraphic context between adjacent units. Sixth, we refer to previous studies.

The columns, “The start of European phase (17th)” and “The start of Chinese phase (19th)”, are our final decision for the start of each contact period.

**KWL\_reassigned\_chronology.xlsx** provides our final assignment of three phases. L1 means first layer and so forth. Some unit are recorded based on section A, B, C, D, that are subunit in each unit.