Supplement to Permit Application: Wonderwerk Cave—Excavation 1 and 2

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Request to Renew Permit 80/12/05/017/51

Excavation Methods and Materials

Excavations at Wonderwerk Cave, beginning with Malan and continuing with Beaumont used a grid systems based on yards square. For the new excavations a new grid was needed based on a number of considerations. The first was the difficulty of working in Yards as a basic unit of measurement using modern survey equipment. Note that Beaumont used a metric system for measuring depth. A second problem was the difficulty of reestablishing the Beaumont grid with the necessary degree of precision.

The new grid is based on quarter meter square (50 cm. on each side) units. Figure 1 shows the new grid (indicated by white boxes running north-south and east-west along with the Beaumont grid indicated in orange).

Excavation tools are trowels, small spatula, dust pans, brushes, and buckets. The spatial coordinates of all finds and samples are plotted with a total station and recorded in the site database. Sediments are collected by bucket, with each bucket given an unique number associated with top and bottom heights measured with the total station. These uniquely numbered buckets with associated spatial data allows us greater spatial control over the context of the sediments removed from the cave than would be possible with a traditional spit system. Sediments are removed by bucket with bucket context recorded in the database. All sediments are sieved through a Flote-Tech flotation machine which separates out a heavy fraction and botanical material. Botanicals are dried and bagged for future study. Heavy fraction is sorted to remove any archaeological or paleontological material. A 50 g. sediment sample is removed from each bucket before sieving and saved for future research. Large stones are kept separate from the sediment bucket and then weighed before examination to be sure they are not artifactual before discard. The weight of the rock buckets is recorded in the database along with the weight of the sediment bucket before sieving. For all samples derived from flotation the bucket context is recorded on the associated tag (see below sample bucket tag). A laboratory facility has been organized on site with capacity to run FTIR analysis on sediment and bone and limited capacity for preparing micromorphology thin section. The lab is also equipped with a standard microscope and a dinolite digital microscope. At the end of each season all sensitive profiles and surfaces are protected with loosely filled sandbags.

LAB PROCEDURES:

AFTER THE CAVE:

1. Weigh bucket with contents on hanging scale and note weight on Bucket Form.
2. Add weight of bucket without sediment to form
3. Take subsample of 200g from bucket (deduct 2g for bag weight for each sample), weighed on the flat scale. Pack subsample in plastic bag and pack a 'Sediment subsample tag' with it (in extra small bag). Add subsample weight to form. Write tag information on bag with Sharpie.
4. Calculate Sediment weight (Full bucket – Empty bucket) and note on form.
5. Put subsample in crate and write ID number on list on crate.
6. Bucket is ready for flotation.
7. If the bucket contains a second 'rock bucket': Weigh the rock bucket with the hanging scale. Subtract bucket weight and enter onto form. Wet material??, then place the material, with its tag, onto tarp for inspection. Keep separate from different rock buckets contents.

After Flotation:

1. Note Date of Flotation on form. Enter any comments (e.g. if not used standard procedure and why), and circle Y/N if botanical fraction was stored.
2. Dry according to drying system, separated by botanical and bulk sediment. The small original find tag stays with the botanical remains. The form stays with the bulk material.

2.1Botanical material:

2.1.1 Should be on the tray trolley drying in mesh with original find tag.

2.1.2 Once dried, place contents into tinfoil and into bag with its tag and then into box marked "WW 2017 Botanical".

2.2 Bulk material: Store according to system until sorting.

- **Sorted material:**
  1. After sorting, circle Y on the bucket form and note date.
  2. Write individual tags for all material types and the sorted bulk material (junk).
  3. Submit form for data entry (see below).
  4. Sorted material (little bottles) go with individual small ID tags in bags and are packed into museum boxes by 1) by Operation Area and then 2) material (lithic, microfauna, macrofaunal, other).
  5. Sorted Bulk material (Junk) is put in crate by Operation area. The ID number is added to crate number list (should be kept with the box).
- **Unsorted material:**
  1. Leave unsorted material on the tray for the afternoon shift.
  2. Once completely dry, bag unsorted material in plastic bags and include the bucket tag in the bag.
  3. Whomever does data entry for the day (Sara) will also enter the bucket tag data from the unsorted/unpicked sediment
  4. Once the bucket tag data is entered, place the bag of unsorted/unpicked sediment in the black plastic tub. Add a level of bubble wrap between each layer of bags for cushioning. Add the ID number onto inventory list of box.

AT THE END OF THE DAY:

1. Type all finished bucket forms into WW database. Check the Y/N box for database entry.
2. If a sorted bulk material (Junk) crate is full, enter the ID's from the handwritten lost into an excel list, backup, print and put on crate. Give the crate the next Crate number.

WW 2017 Bucket ID _____ Operation # _____ Date ___/___/ 2017

Square _____ Feature_____ Excavator _____

☐ Picture taken ☐ Micromorph pedestal

Color: Red/Yellow/Brown/Grey/White/Black

Concretions: Frequent/Occasional/Absent

Samples _____ _____ _____ _____ _____

Discarded slabs:

Comment:

Reason Closed:

Lab

Full bucket _____g

Empty bucket _____g

Sediment sample (-2g) _____ g

Sediment weight _____ _g

Rock bucket weight _____g

Flotation

Date_____

Comment:

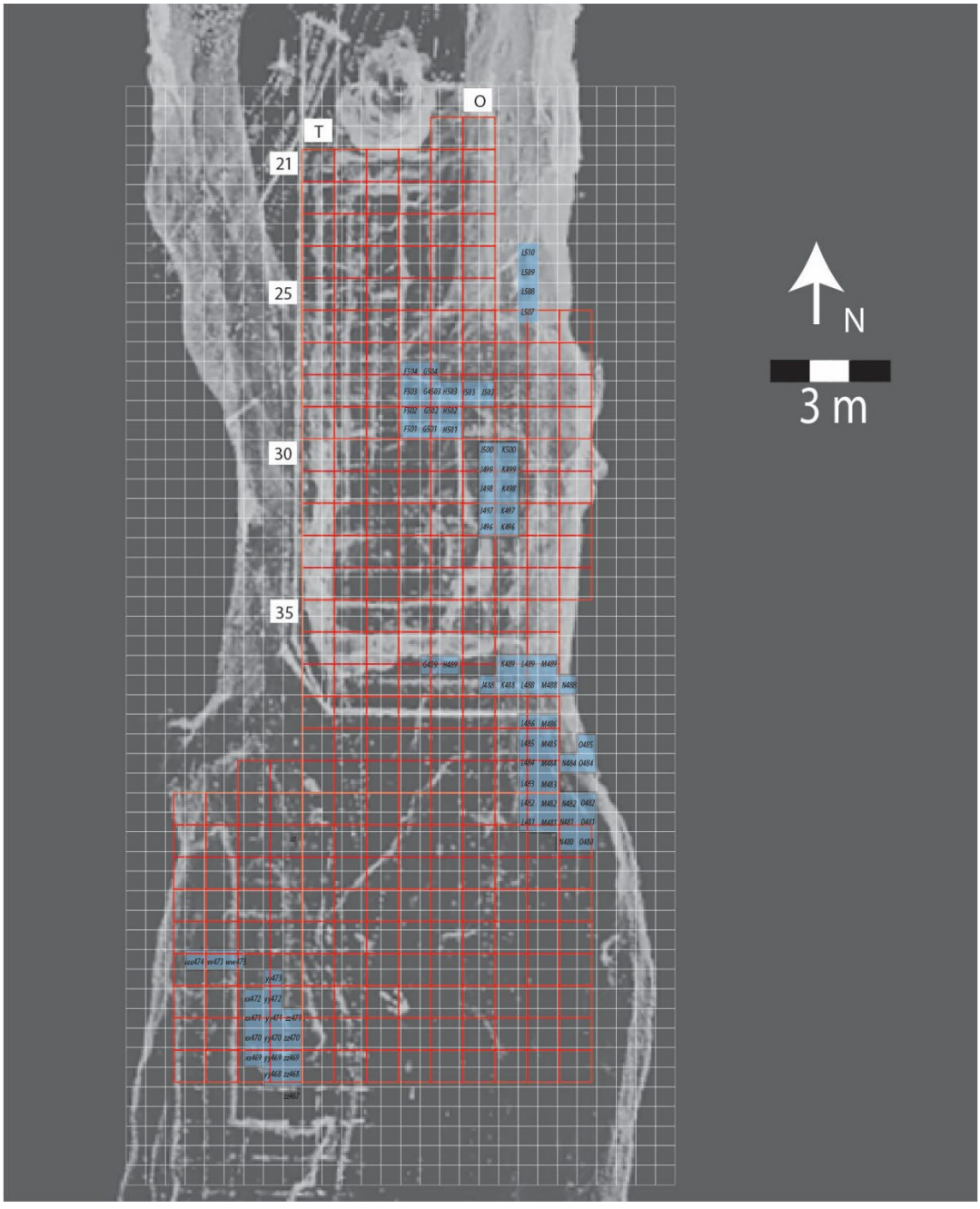
Botanical Material Stored: Y/N

Heavy Fraction

Sorted: Y/N Date_____

Entered into Database
Y/N

Sample bucket tag



Plan of Excavtion Grids for the front of Wonderwerk Cave (overlain on plan view of the cave based on 3D model created by the Zamani Project). Orange grid lines—Beaumont and Malan Yard Square Grid, number (East West) and letter (North South) designation in White boxes. White grid lines—Renewed excavation Grid (established 2013) in 0.25 square meter units. Areas excavated to date by the Wonderwerk Cave Research Project indicated in light blue with square numbers indicated. Note that each of these excavations by the Woderwerk Cave

Research Project began at different point in the sequence depending on where this area was left by Beaumont.