

Johnson County Poor Farm

Continuing Ground Penetrating Radar Investigations: The search for the original building

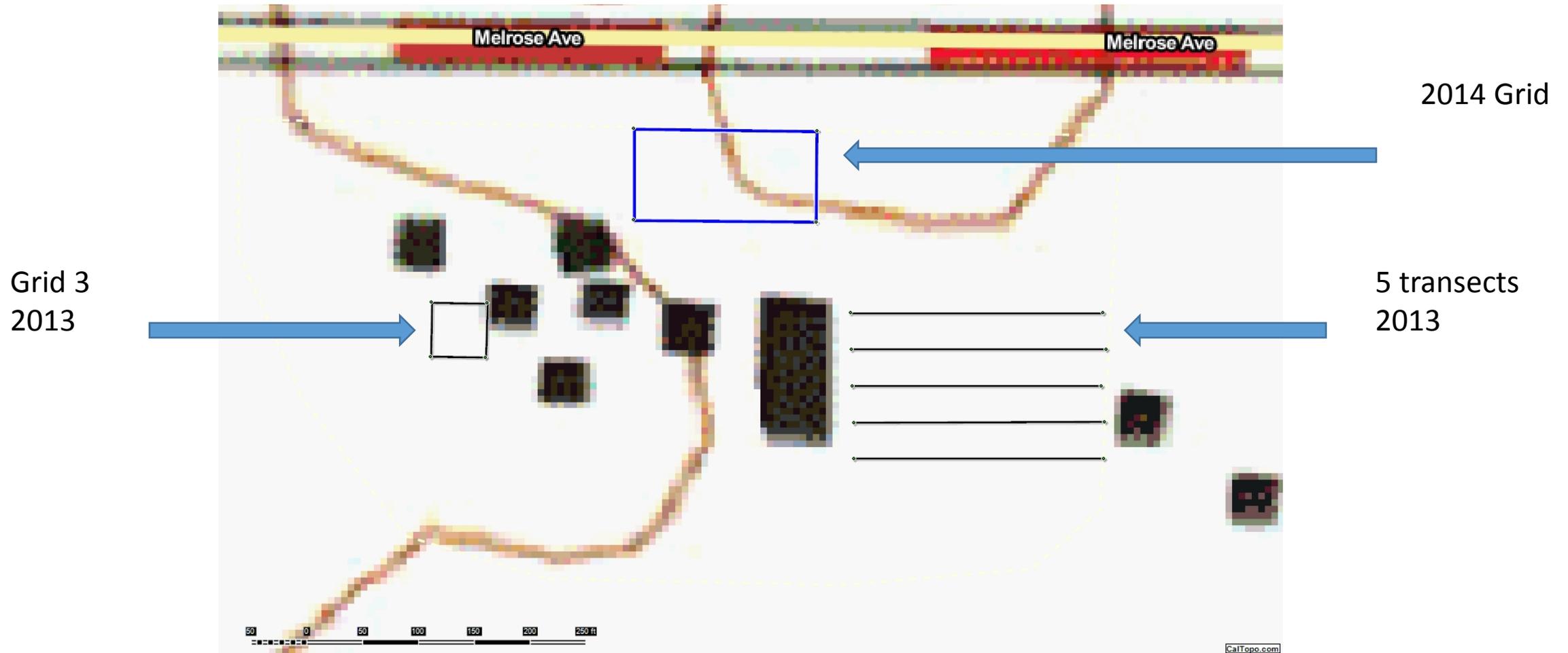
Ground penetrating radar project 2014

- After successfully locating the main interment zone of the cemetery in 2013, the 2014 project aimed to locate the remains of the original Poor Farm building.
- One grid was collected in 2014 with kind permission of the Board of Supervisors, Johnson County Historical Society, and with 17 University of Iowa Honors Program freshmen, assisted by Leah Rogers, Tallgrass Historians, Mickey , representing the Johnson County Historical Society, Jim Enloe and James McGrath, Department of Anthropology, University of Iowa.
- Grid was 50 m (e-w) x 24.5 m (n-s); 40 nanoseconds depth, 400 MHz antenna.

Honors Primetime 2014 Project; top, map with the original structure;
bottom, aerial photo with Leah Rogers' determination of the first area to
search

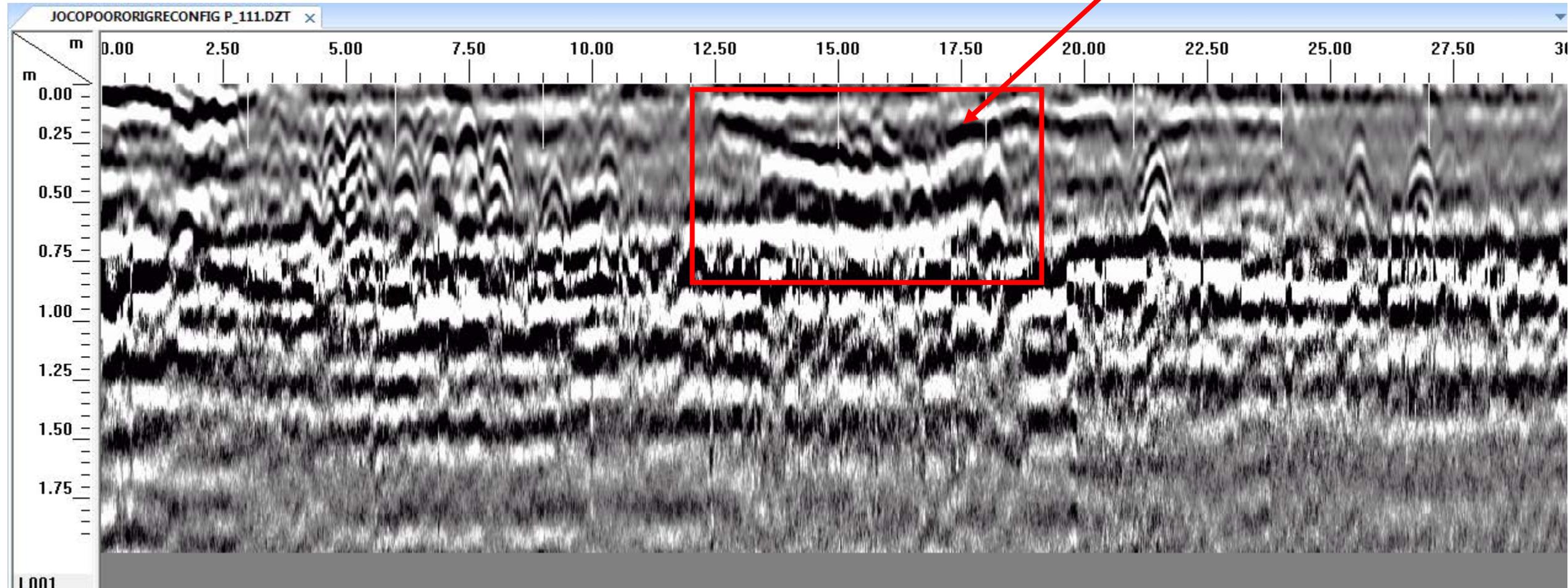


Rogers' Map of the radar investigations 2013-2014



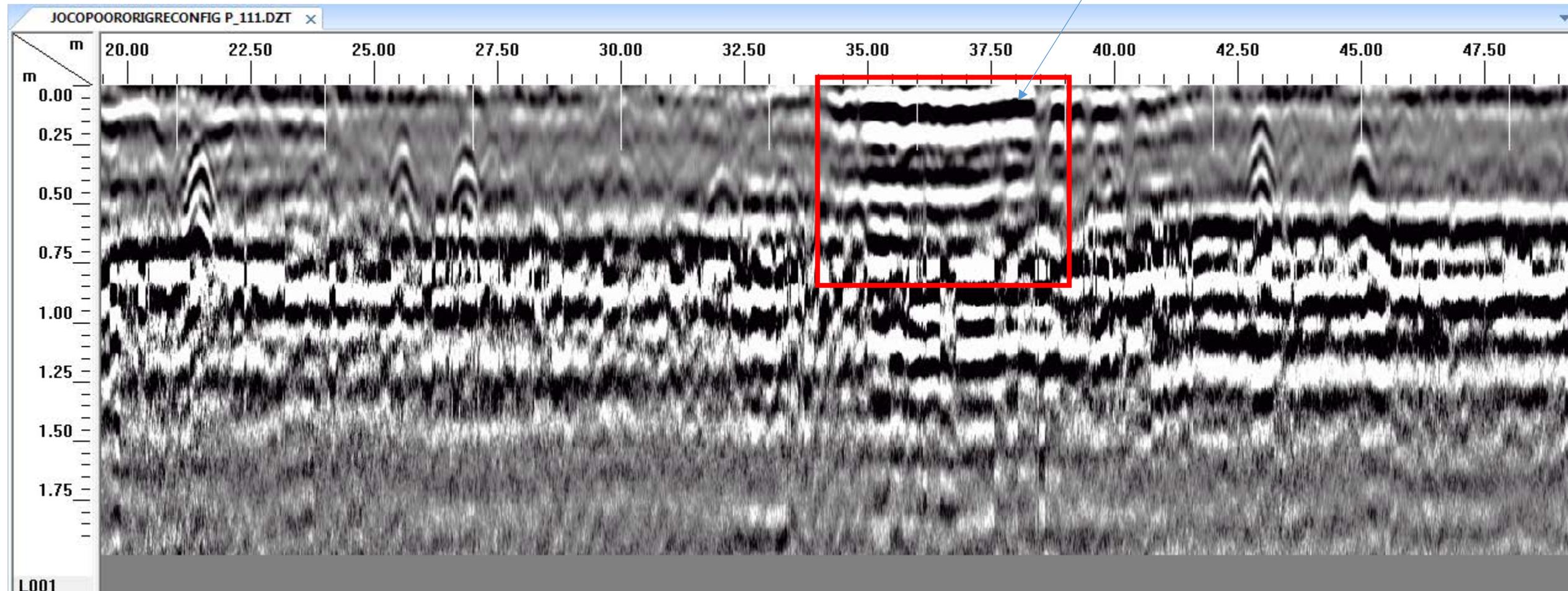
Richness of the 2-D data, first profile, processed

Possible floor slump?

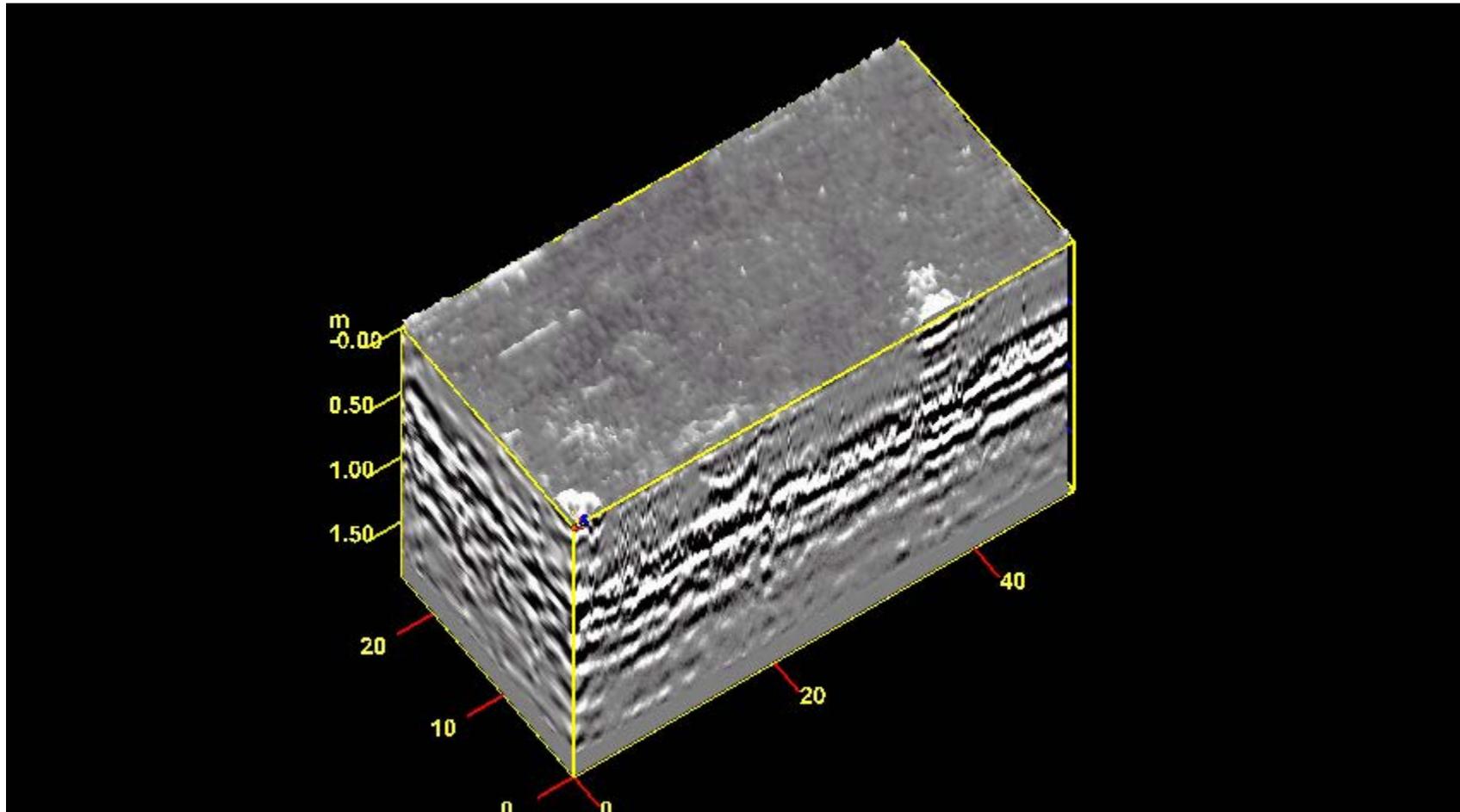


Continuation of first 2-D profile

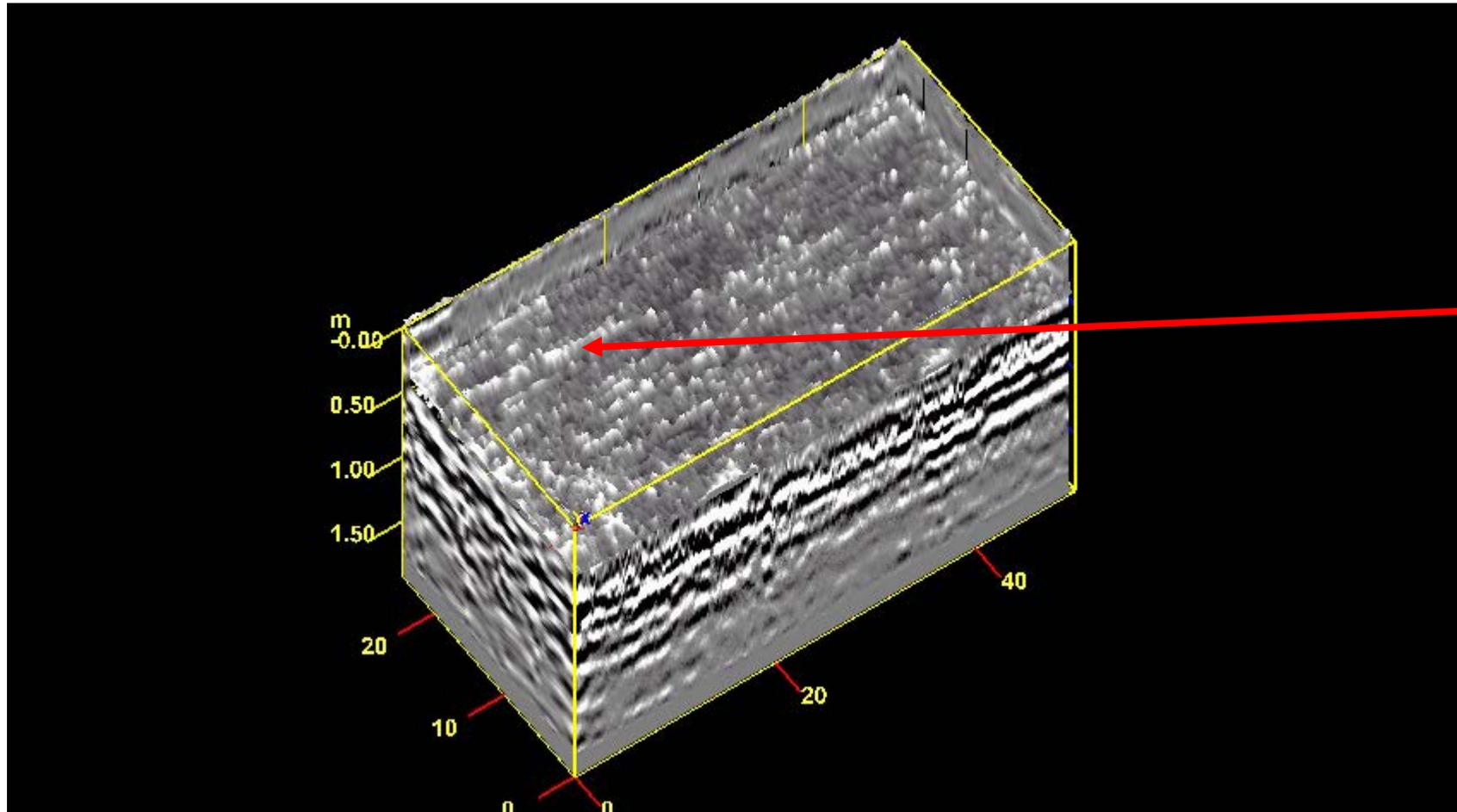
Possible floor slump?



3-D view of grid, sectioned, depth, surface

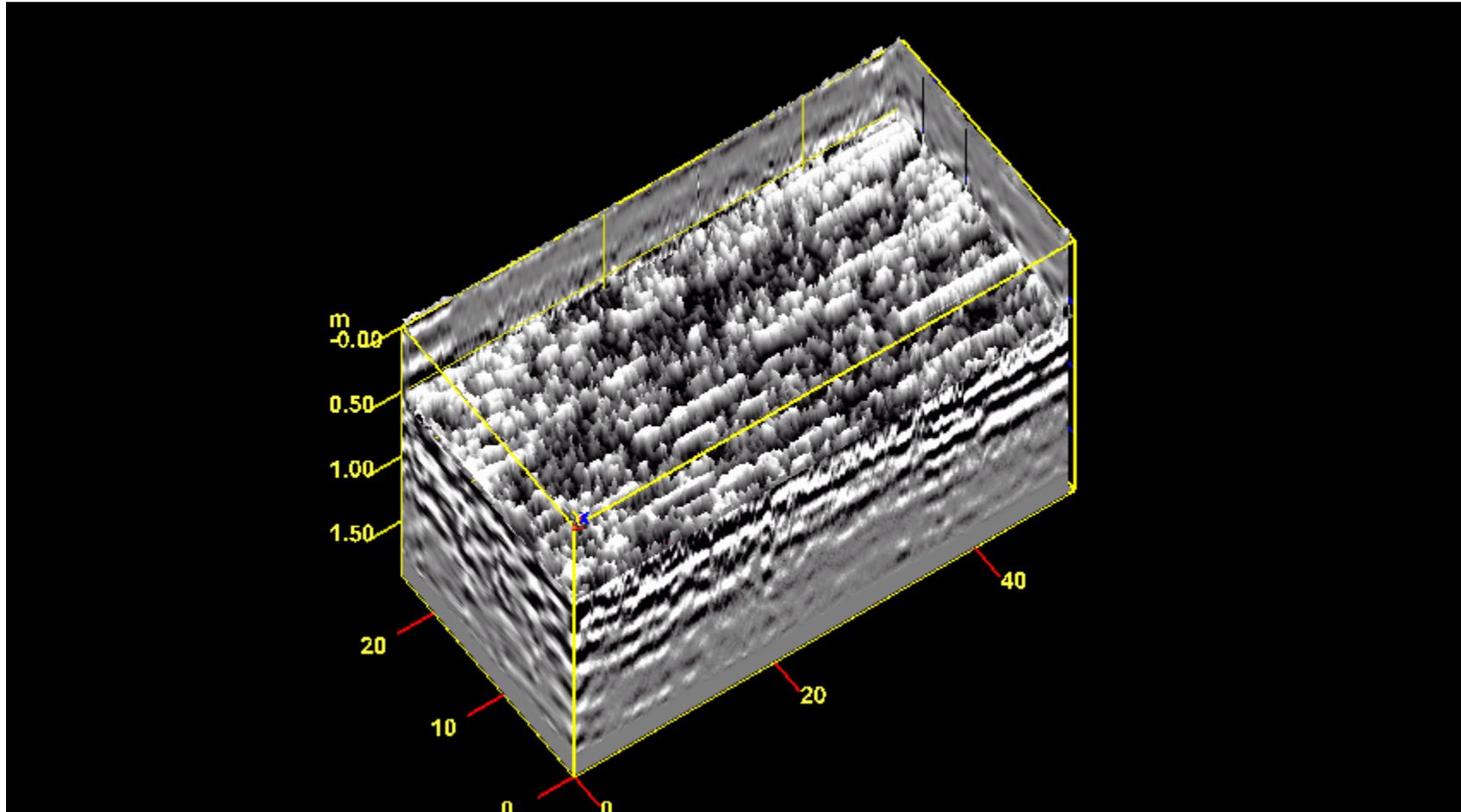


Depth, 39 cm, note curving linear feature,
NW quadrant of the grid

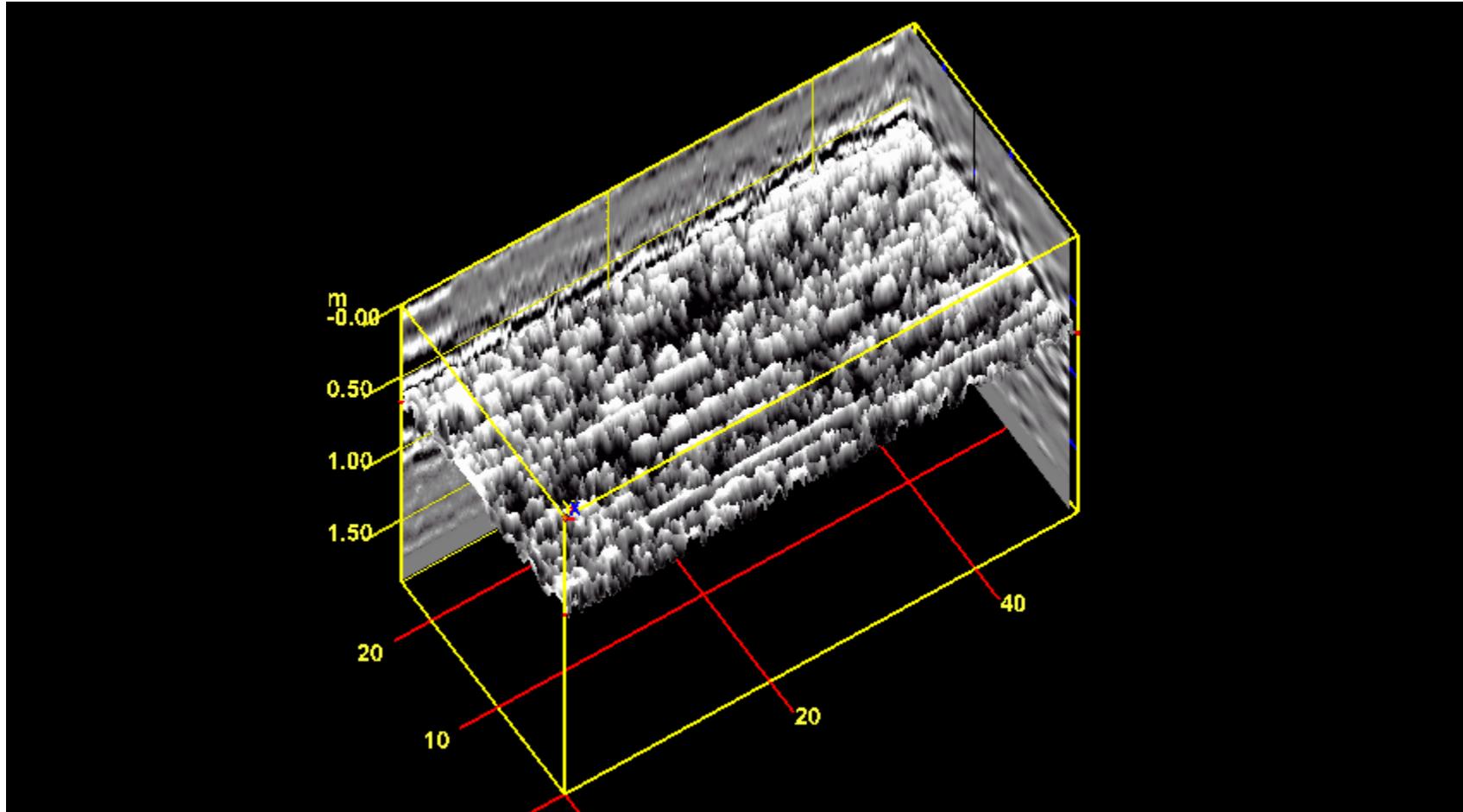


Possibly the
same feature
seen at 29 cm
depth in a later
slide

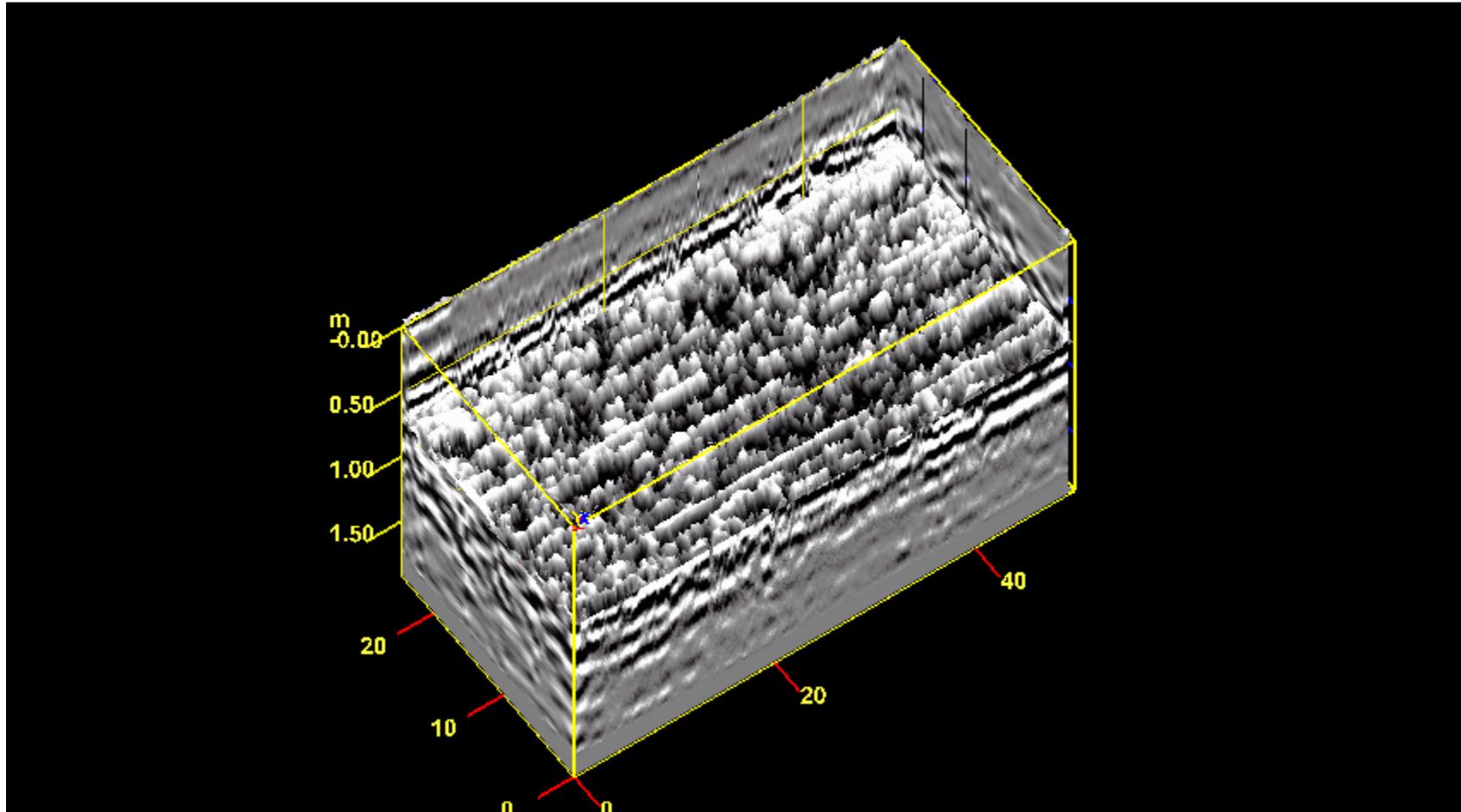
Depth, 58 cm: note the two concentrations of high amplitude reflections, the largest in the NE quadrant, the other in the NW quadrant



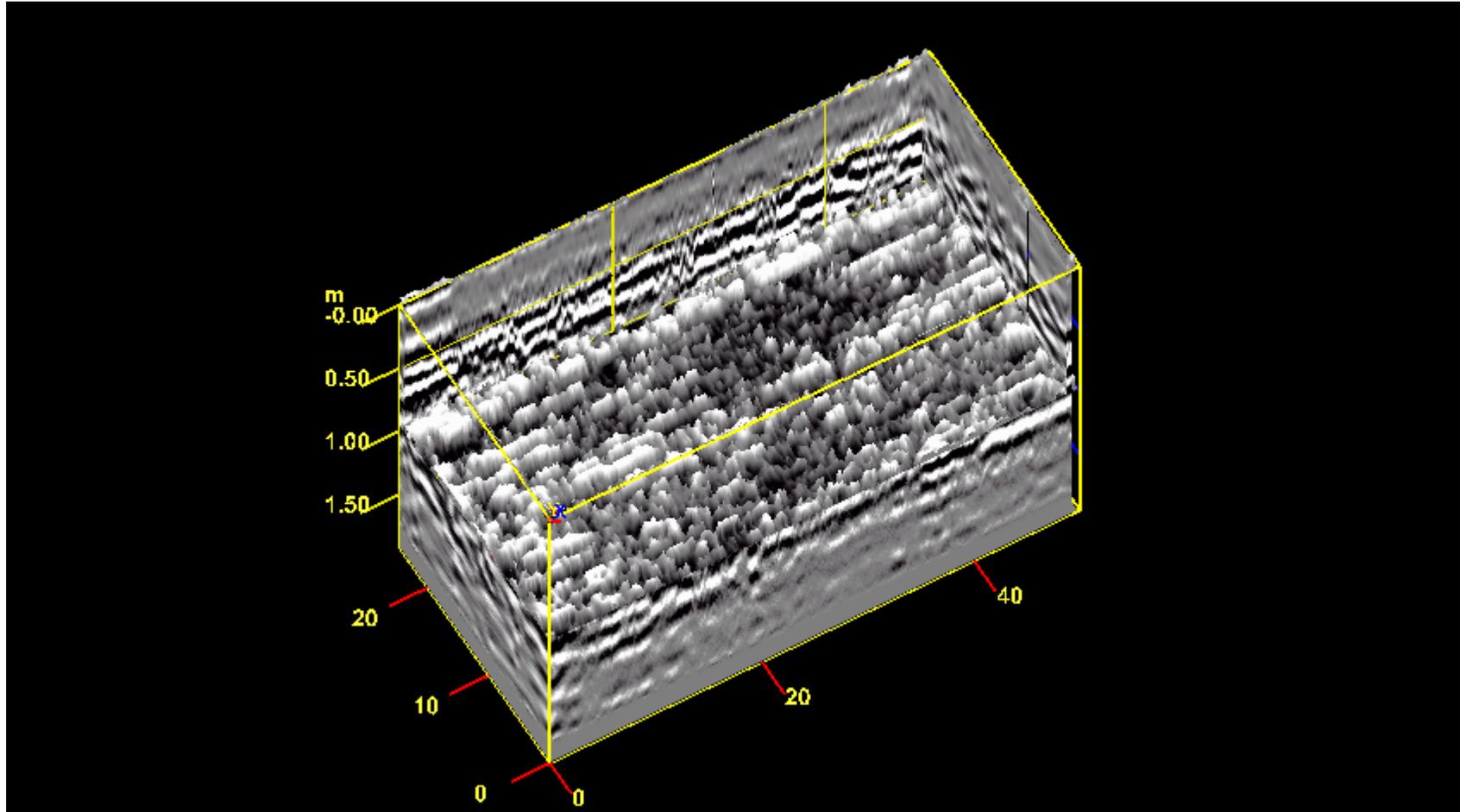
Depth 67 cm, persistence of high amplitude masses in upper left and upper right



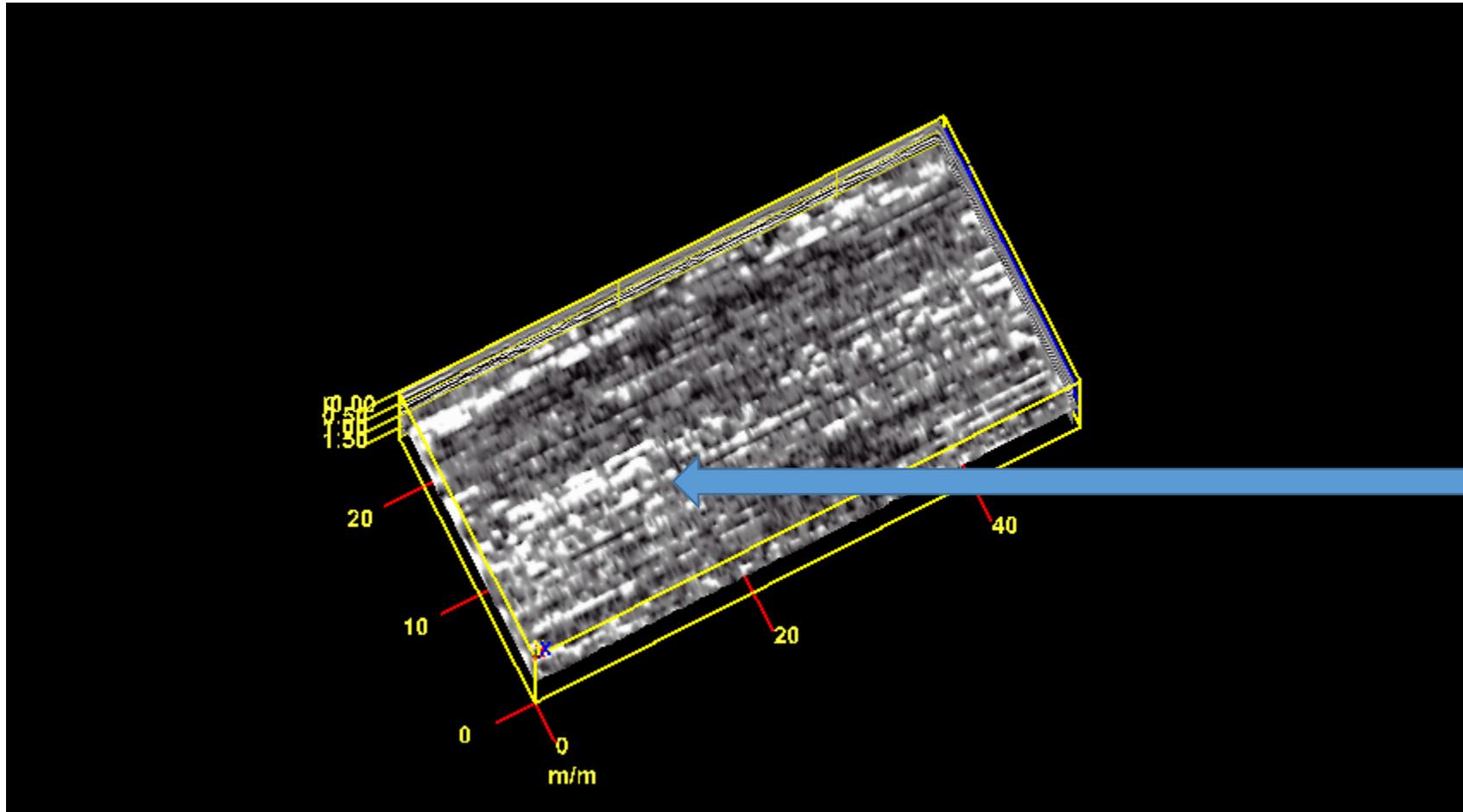
Depth, 77 cm; high amplitude concentrations remain visible



Depth, 96 cm: note the linear feature along the top (n) of the grid (walkway or old road bed?)

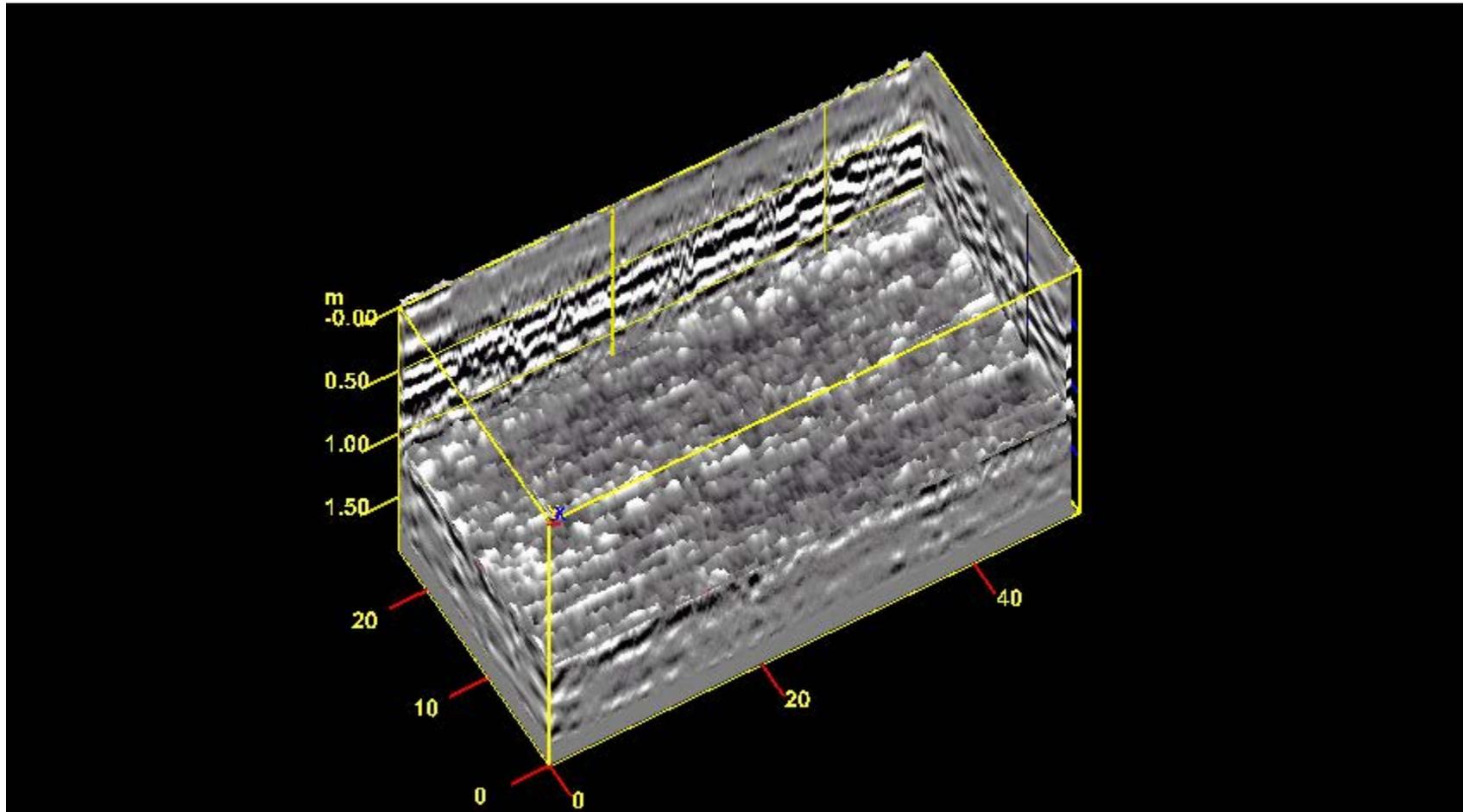


Depth 1.06 m, note the rectangular configuration in the upper left

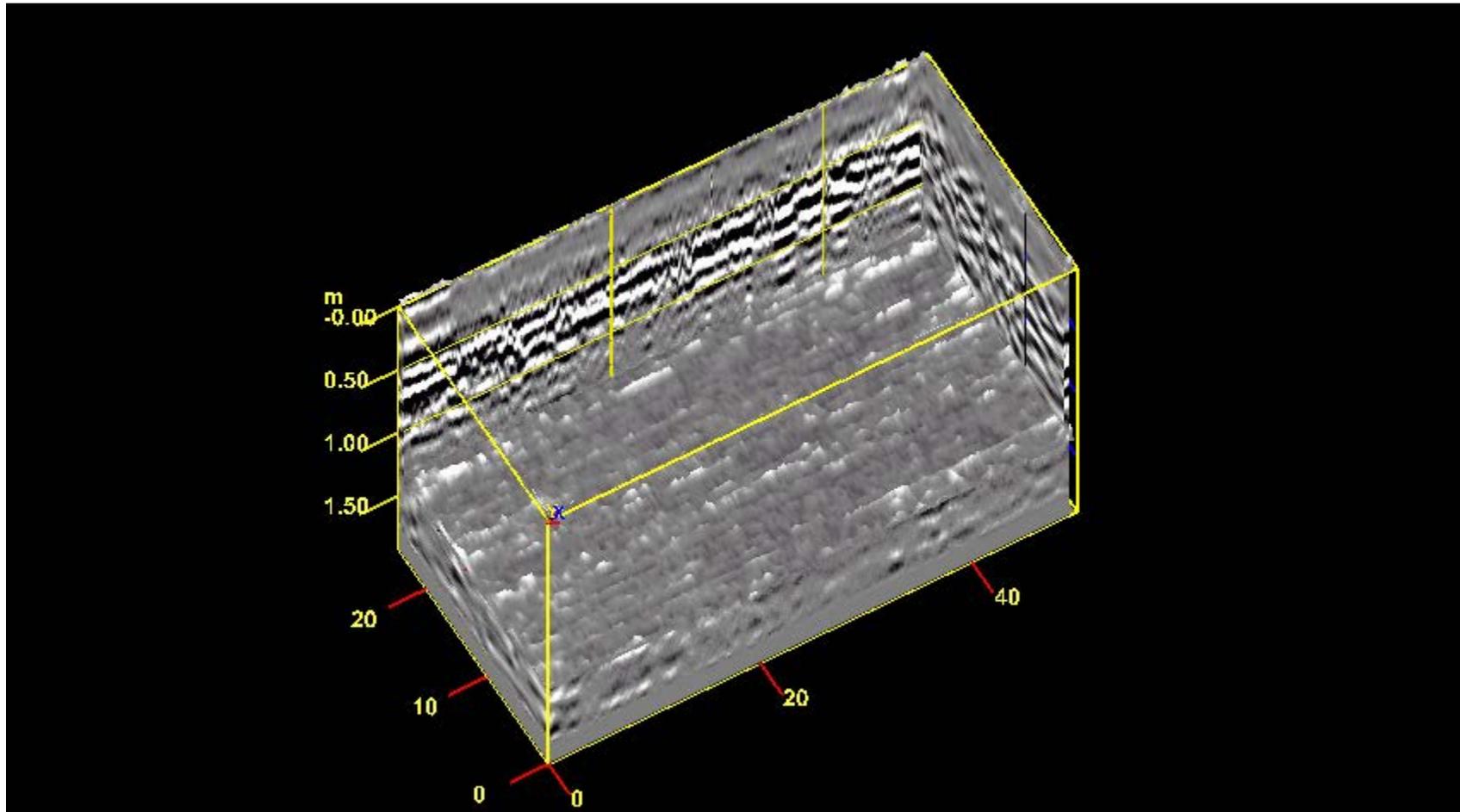


Highest amplitude
Linear feature in
the grid; possibly
a structural
remnant

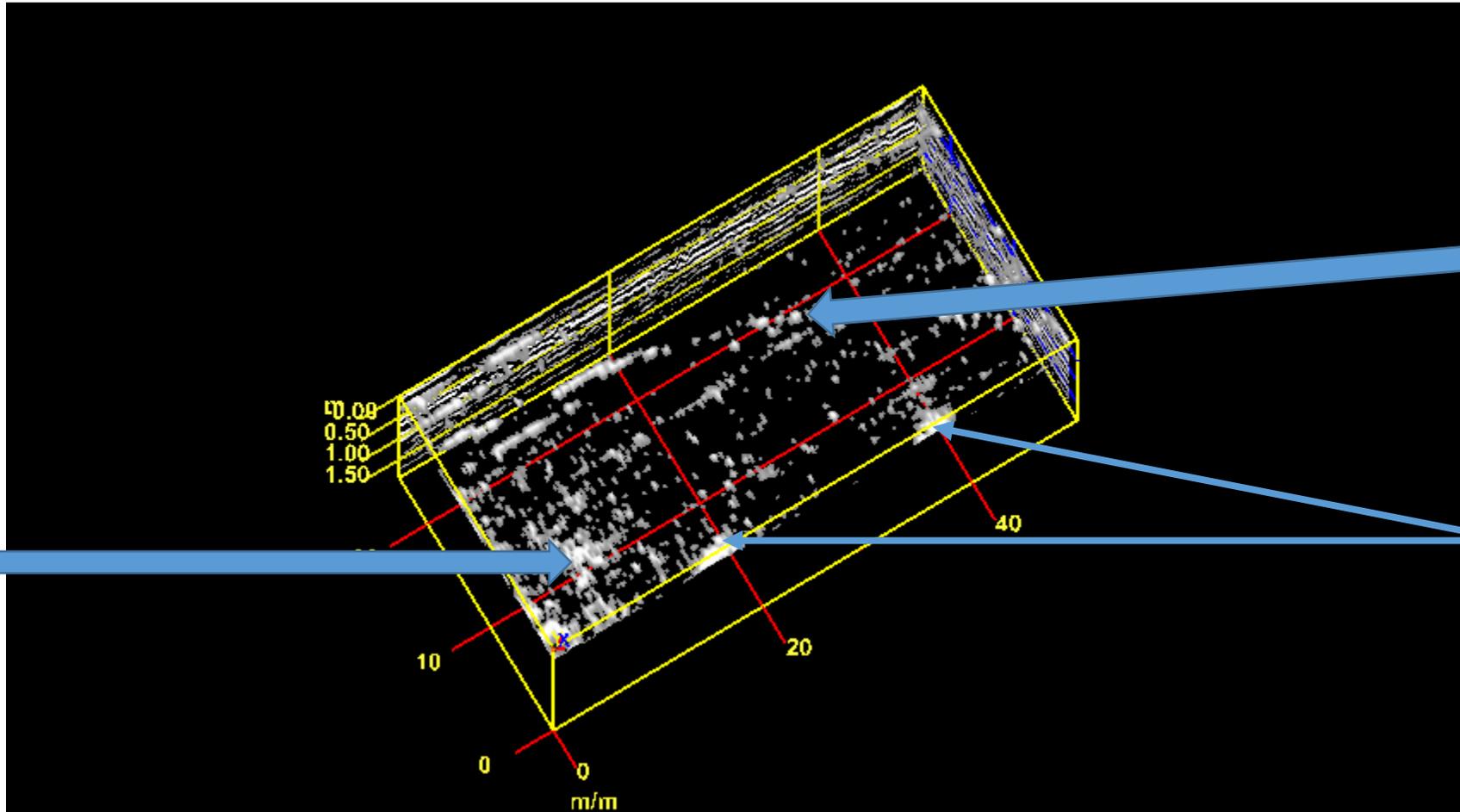
Depth 1.16 m: note the roughly rectangular configuration which would be too big for the original building



Depth 1.35 m: bottoming out of high amplitude reflections



See Through at 29 cm depth; note curving configuration across from upper left to lower right

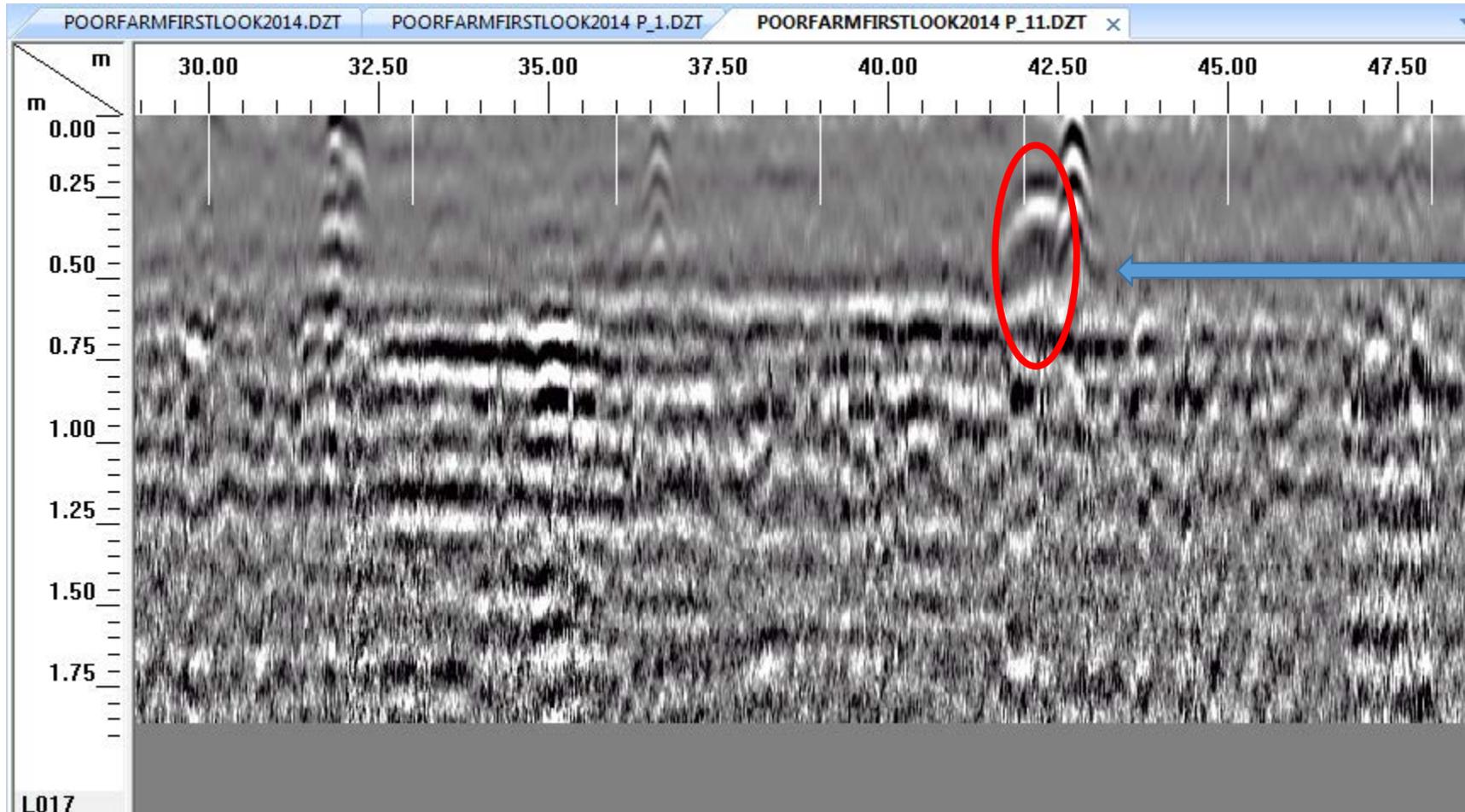


High amplitude concentration; structural elements?

Possibly a path?

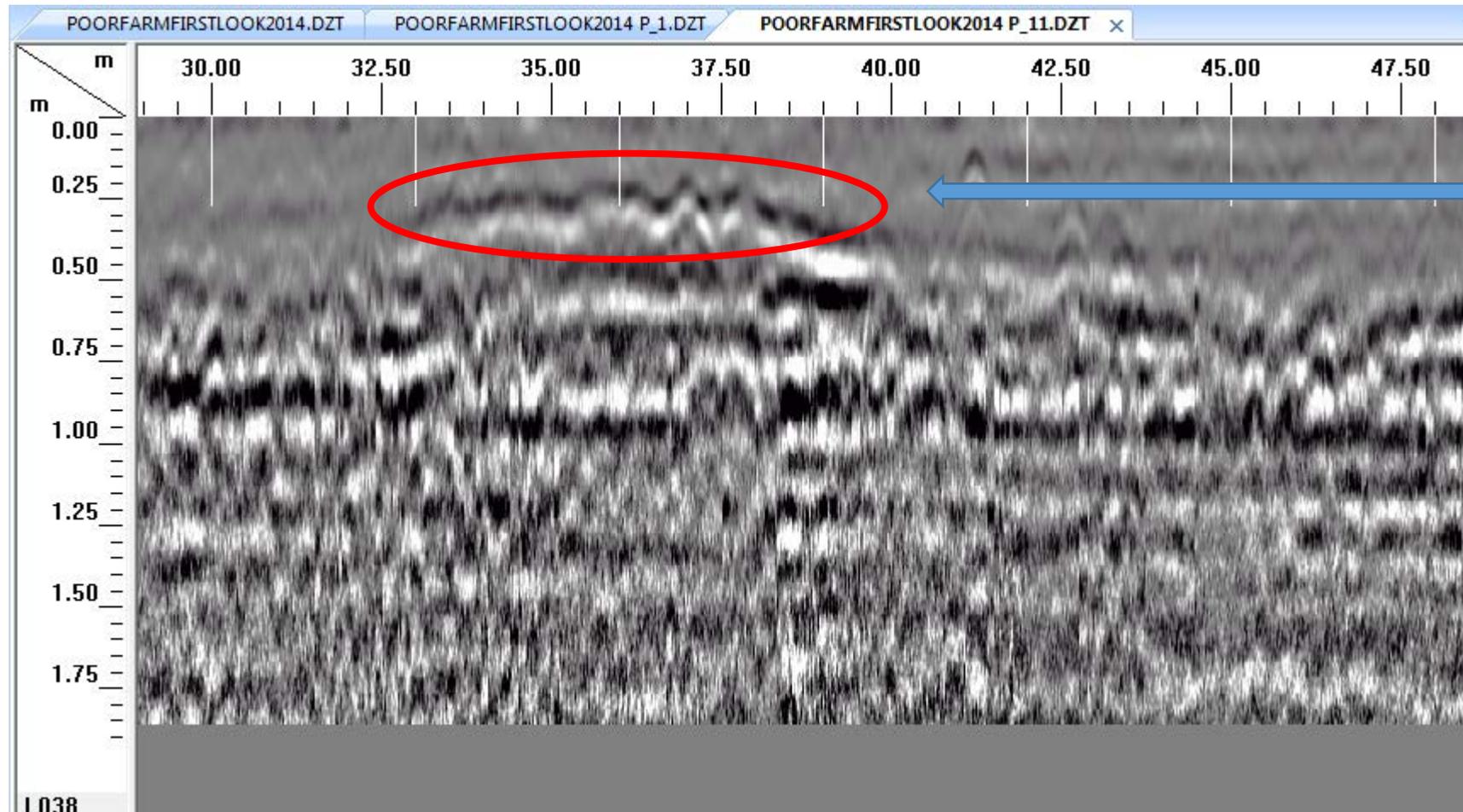
Possible floor slump seen in first profile

8.5 m line on east side of grid



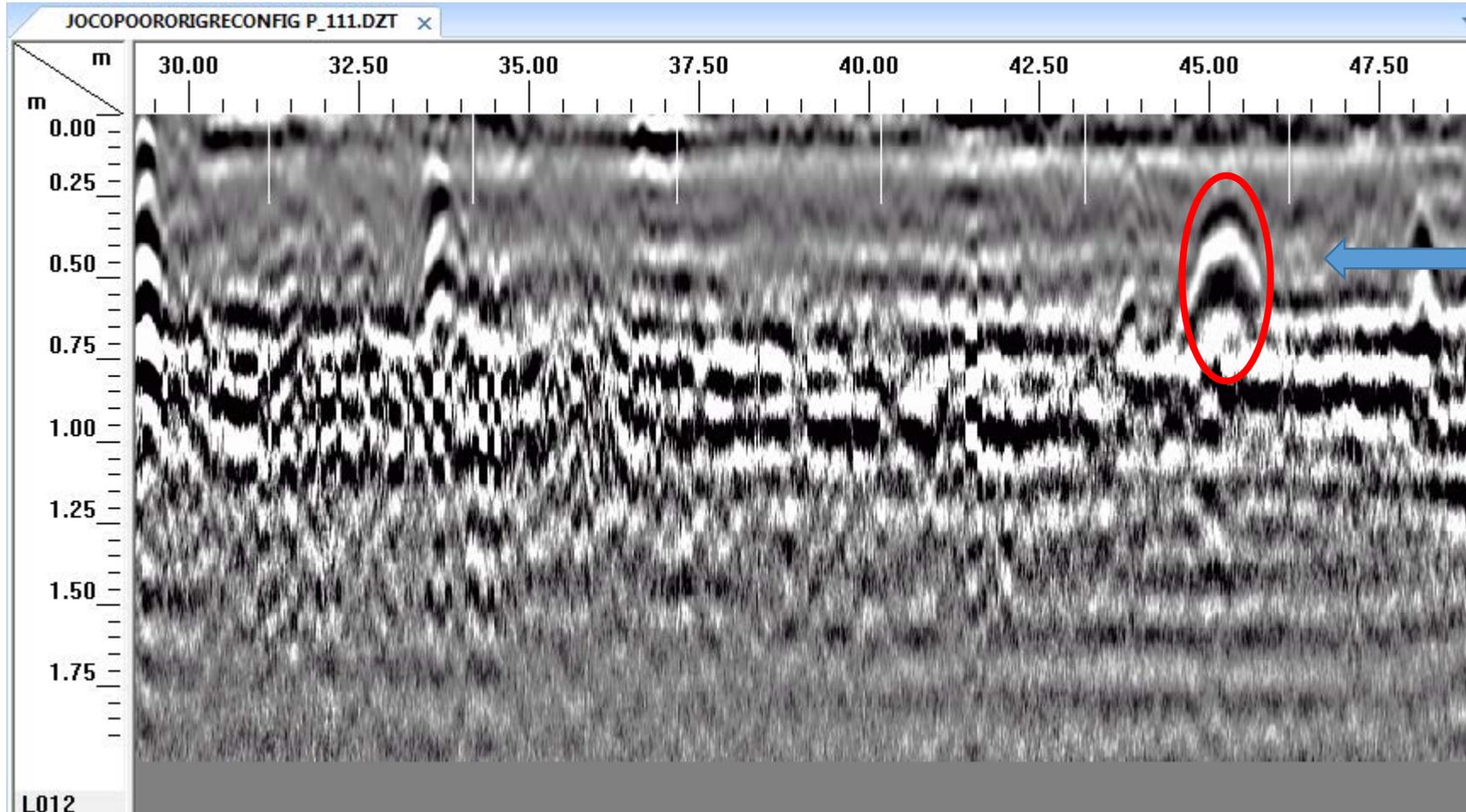
Void, looks like a concrete pipe with a metal pipe attached

19 m line close to the west end of the grid



Planar feature with concave shape, 5 m long, possibly a floor or subfloor

6 meter line, east half



Second void
2 ½ m east
of previous
void

4.5 meter line, east half

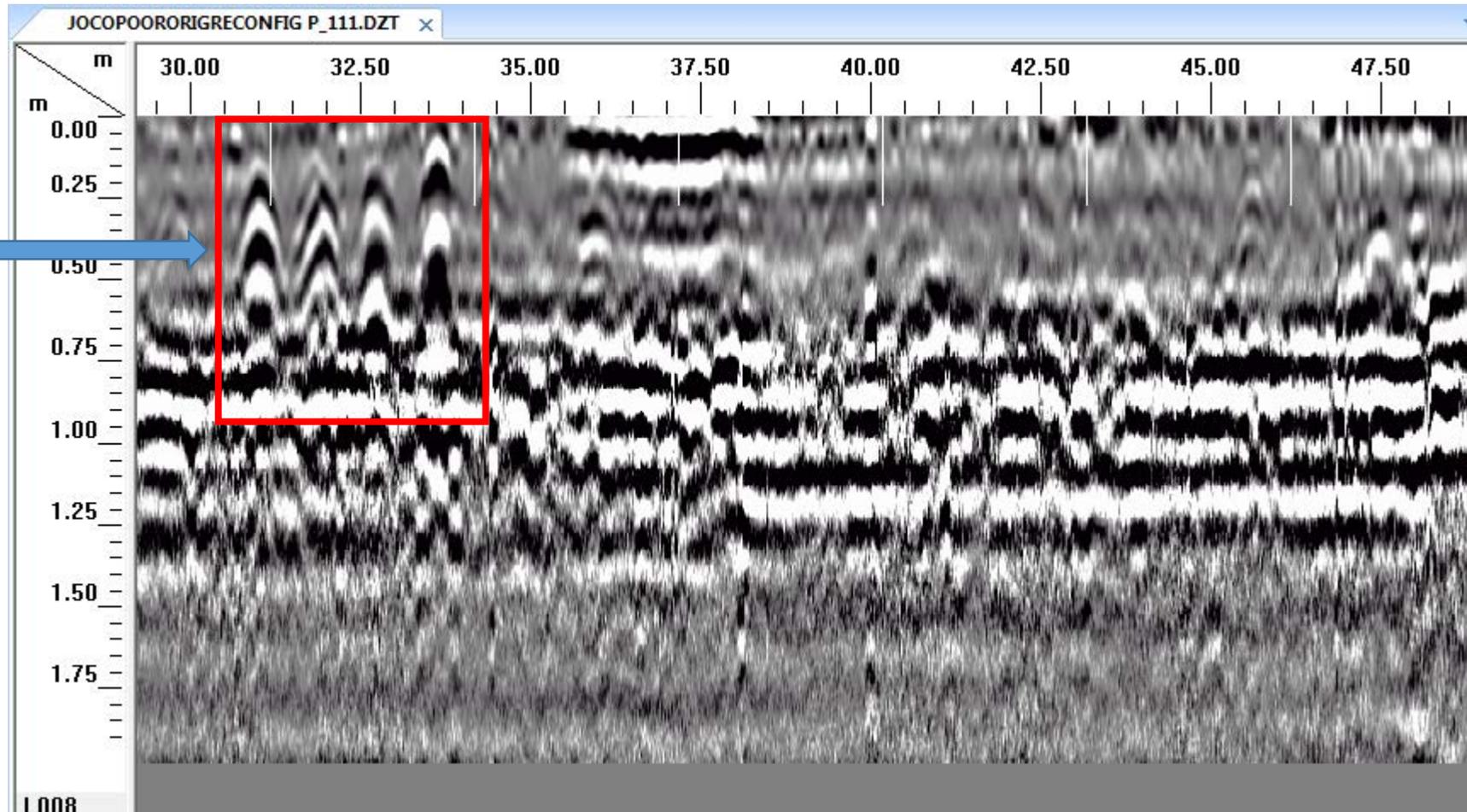
High amplitude planar reflection with two high amplitude columns; possibly a room with walls?



Third void, 2 m east of previous

4 meter line, east half

4 high
amplitude
hyperbolic
reflections,
possibly large
stones



Tentative Conclusions 1

- 2-D profiles are extremely busy with many high amplitude hyperbolic point source reflections and many high amplitude planar reflections, plus some negative polarity hyperbolic point source reflections indicating voids.
- 3-D profiles do not show any coherent and continuous configurations that define anything that convincingly looks like the foundation of a structure.
- The previous slides point out interesting high amplitude reflections and suggest some possibilities as to what they might represent; however, none of the suggestions is particularly compelling and the results here are not strongly conclusive.

Tentative Conclusions 2

- Where structure foundations have been disturbed, radar tends to show a jumbled mass of point source reflections; so, it is possible that the concentrations in the NW and NE quadrants of the grid could be structural remnants; however, the mapped structure does not appear large and so the question would be what TWO concentrations mean – has the rubble from the original building simply been spread out in plowing or the landscaping of the current field?
- The 2-D signature of the voids looks like a large pipe; however, there is no continuous pipe linear feature visible in the 3-D cube; this suggests the existence of a possible tunnel (possibly broken into portions) running for some extent in the eastern half of the grid roughly from SW to NE with recorded reflections about 2-2.5 m apart.

Recommendations

- The highest amplitude and most linearly suggestive reflections come from the east side of the grid and are seen to be maintained at several depths; alternatively the SW quadrant of the grid also has a possible linear configuration, indicated at two depths, and some dipping or planar reflections that could be floors or very level concentrations of building materials.
- I conclude that the radar has found scattered rubble from the foundation spread widely across the grid, or that the original building was not located in this area, although this portion of the field has seen some activity of an unspecified nature.
- Recommend more research via grids to the north of the standing equipment shed, or in the prairie grass closer to Melrose Avenue; or to the east of the current grid covering the dip and swale in the topography; note that on the aerial photo, the dip shows as a faint whitish spot; which could indicate structural elements. The fact that the NE quadrant of the grid had the highest amplitude reflections may back up this suggestion that the structure may have sat where there is now a dip and swale.

Acknowledgments

- Thanks to the Board of Supervisors, Johnson County, Andy Johnson, executive assistant, and Mickey Miller, Grants and Communications.
- Thanks also to the Johnson County Historical Society, Alexandra Drehman, Director and Curator.
- Thanks to Leah Rogers of Tallgrass Historians for suggesting the project and providing the maps, aerial photos and the idea of where to use the radar.
- Thanks to the Honors Program, University College, University of Iowa for allowing the Honors Primetime students to participate.
- Thanks to the 17 students who participated, plus James Enloe and James McGrath of the Department of Anthropology, University of Iowa.