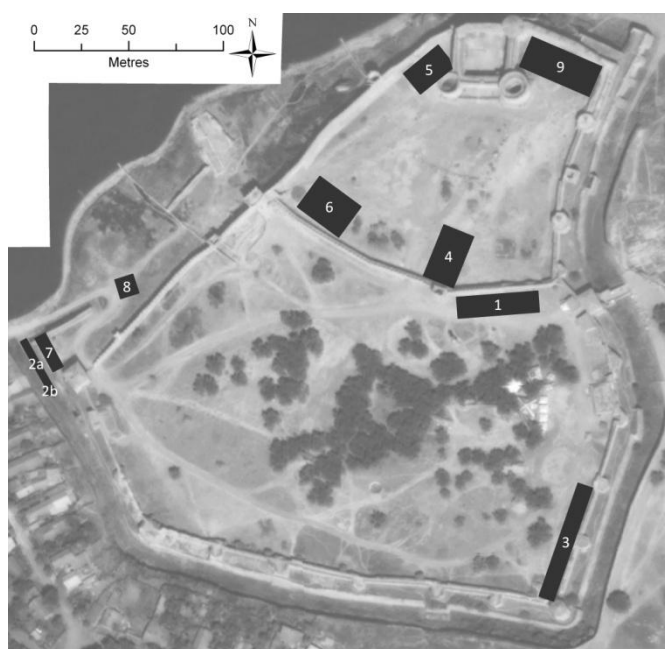


# GROUND PENETRATING RADAR (GPR) SURVEY – AKKERMAN FORTRESS 2010

The geophysics team returned to Bilhorod-Dnistrovsky in July to continue the geophysical exploration of Akkerman Fortress with the intention of extending the Ground Penetrating Radar (GPR) survey begun in 2008. The survey team Alex Turner (Newcastle University), Richard Haddlesey (Winchester University) and Volodymyr Ivashchuck (Transient Technologies, Kyiv) completed 9 areas of survey (Figure 1).



*Figure 1 – Location of GPR surveys 2010*

The GPR equipment used for the surveys was a Transient Technologies VIY2-300 GPR and Synchro2 software. Subsequent processing and the production of vertical data slices were achieved with a combination of Synchro2, ReflexW, a custom written program and ArcGIS.

Survey areas 4,5,6 and 9 were concentrated within the Garrison Yard where significant areas of cobbling meant that GPR was the only realistic geophysical method that could be used. Preliminary processing of the data shows that some linear anomalies were revealed in areas 4,5 and 6 and these corroborate the results from the surveys in 2007 and 2008. Area 9 produced the most interesting anomaly with what appears to be the remains of a rectangular feature within the north east corner of the Garrison Yard to the east of the Citadel (Figure 2).

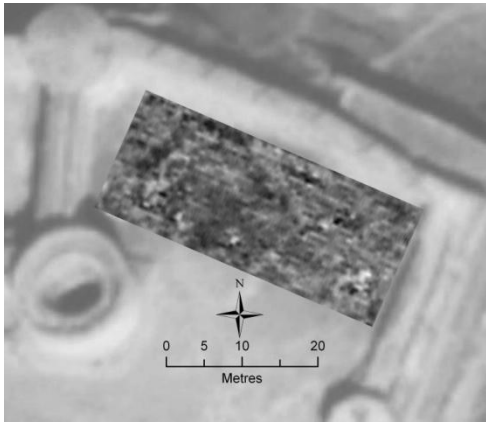


Figure 2 – Survey 9 GPR (depth c.1.0m)

Two surveys were also undertaken in the Civil Yard, Area 1 close to the minaret and Area 3 in the south east corner north of the Storeyed Tower. Survey 1, unsurprisingly, detected the remains of walls associated with the minaret but little else. Survey 3 revealed the wall first detected during the 2007 season as a partial linear feature but this time was able to show that it made a return, albeit at an obtuse angle, eastward, south of Tower 10 (Figure 3).

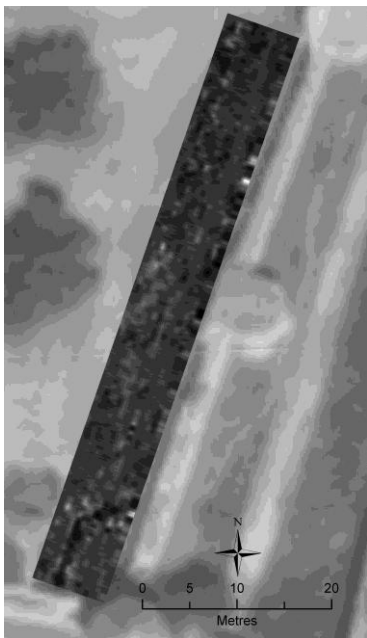


Figure 3 – Survey 3 GPR (depth c.1.0m)

Four other areas were surveyed outside the fortress. Areas 2a and 2b were surveyed to the south of the 2010 excavation trench at the south western end of the ditch and area 7 to the north east of the Terraced Tower. Although they did reveal some evidence for structural remains this was, from a geophysical survey perspective, patchy and inconclusive. The restricted area and the limited number of transects made interpretation of the data difficult. Area 8, a survey within the Port Yard, confirmed the continuance of the, now missing, section of wall to the north east of the Princes Tower. Further processing and enhancement of the data and its integration with the resistance and magnetic data from previous survey has still to be undertaken and it is more than likely that the nature of some of the more elusive features detected in the 2010 survey will be clarified.