PMBelCOL PEmails

From: Creek, Carolyn P [cpcreek@tva.gov]
Sent: Wednesday, May 07, 2008 1:51 PM
To: Mallecia Hood
Cc: neilhaggerty@comcast.net
Subject: Attachment C from Letter to NRC dated 5/2/08
Attachments: Response to Environ-Attch C.pdf

Four and Last Attachment to the Letter to NRC dated 5/2/08

Attachment C

<<Response to Environ-Attch C.pdf>>

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Hearing Identifier: Bellefonte_COL_Public_EX
Email Number: 811

Mail Envelope Properties (28921B76CDD05940A918AEEC9EBCA7C007B4BE4E)

Subject: Attachment C from Letter to NRC dated 5/2/08
Sent Date: 5/7/2008 1:50:48 PM
Received Date: 5/7/2008 1:51:15 PM
From: Creek, Carolyn P

Created By: cpcreek@tva.gov

Recipients:
"neilhaggerty@comcast.net" <neilhaggerty@comcast.net>
Tracking Status: None
"Mallecia Hood" <Mallecia.Hood@nrc.gov>
Tracking Status: None

Post Office: TVACOCXVS1.main.tva.gov

Files	**Size**	**Date & Time**
MESSAGE	330	5/7/2008 1:51:15 PM
Response to Environ-Attch C.pdf	2081668	

Options
Priority: Standard
Return Notification: No
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Expiration Date:
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Excerpts from: Bathymetry of Surface Waters in Proximity to Three Proposed Nuclear Power Facilities: William States Lee III (South Carolina) Bellefonte Nuclear Station (Alabama) Grand Gulf Nuclear Station (Mississippi)

(Pages 23 – 29 and Figures 1-1, 1-2 and 1-3)

Stephen K. Boss, Ph.D., P.G.
University of Arkansas
January 2, 2007

BELLEFONTE NUCLEAR STATION (ALABAMA)

The Bellefonte Nuclear Station (BI) is operated by the Tennessee Valley Authority (TVA) along the shore of Guntersville Reservoir, an impoundment of the Tennessee River near Scottsboro, Alabama (northeast Alabama). The station is named for Bellefonte Island, a prominent landmark within the Guntersville Reservoir adjacent to the nuclear facility (Fig. 20.).

Guntersville Reservoir (also known as Lake Guntersville) was completed in 1936 under direction of the TVA. The impoundment extends 76 miles up the Tennessee River and has a surface area of 67,900 acres at normal pool elevation of 595.44 ft above mean sea-level. The mapped portion of Guntersville Reservoir for this project was approximately 553 acres adjacent to the Bellefonte Nuclear Station and included the area surrounding Bellefonte Island (Figs. 20, 21, 22). Mapping was conducted from 25 – 27 Sep 2006.

Fig. 20. Mapped area and echo sounder tracklines of the Bellefonte Nuclear Station site along Guntersville Reservoir near Scottsboro, Alabama.. These data were acquired on 25 - 27 Sep 2006. Note that tracklines are restricted to those areas of the reservoir that were navigable on thes dates. Navigable waters are those with depths greater than approximately 3 feet. Hash marks on map border are 200 m.

The reservoir level on 25 - 27 Sep 2006 varied from 594.0 ft (25 Sep 2006) to 594.2 ft (26 Sep 2006) to 593.7 ft (27 Sep 2006), averaging 593.9 during the mapping interval (http://www.lakeguntersville.info/levelcal.asp?intMonth=12&intYear=2006).

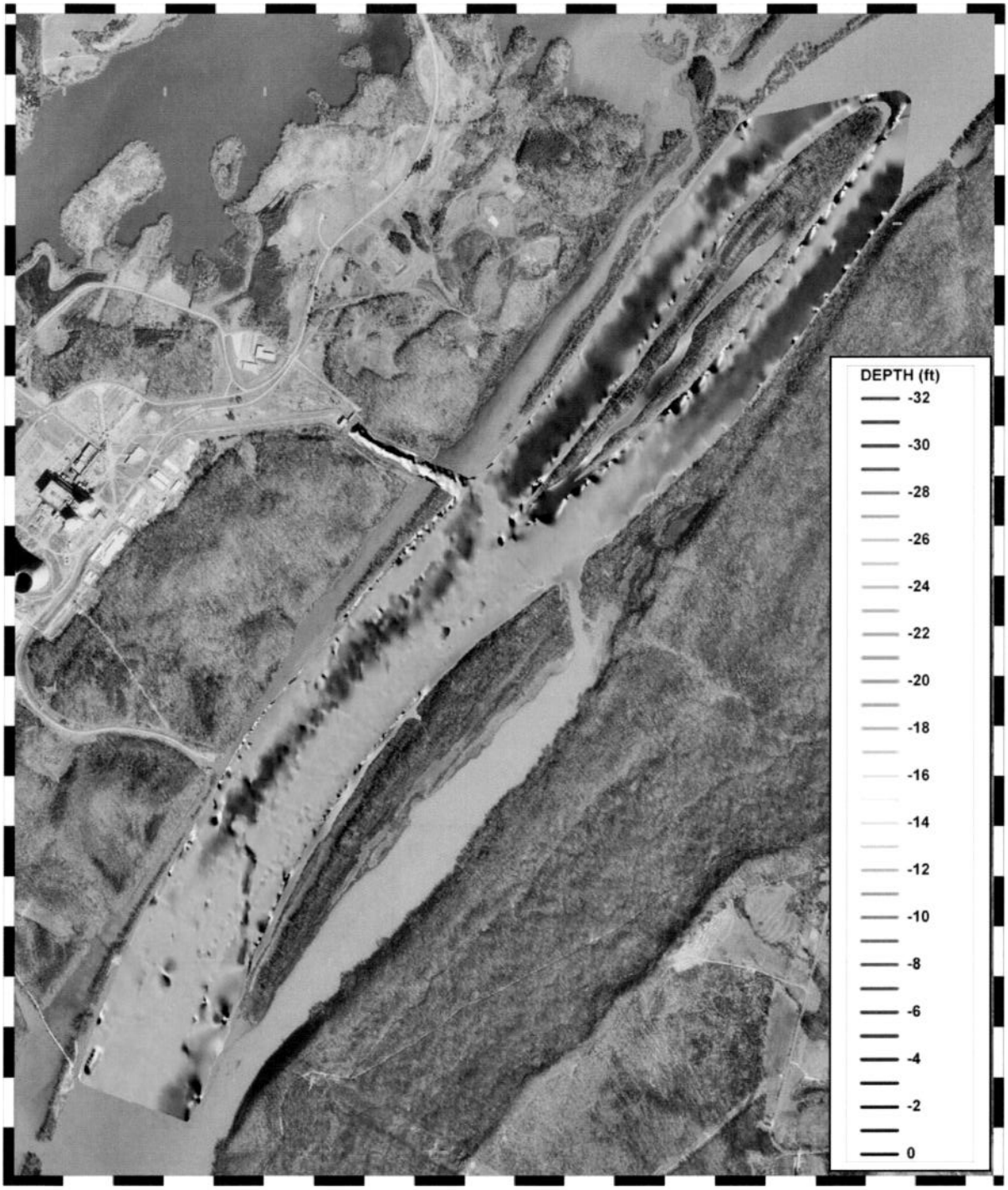


Fig. 21. Color shaded relief map of Bellefonte Island site mapped on 25 - 27 Sep 2006. Maximum depth of 36.3 ft. Mean depth throughout the impoundment was 23.7 ft (± 5.2 ft). Hash marks on map border are 200 m.

Processed and filtered echo sounder data for this portion of the BI yielded 408,798 soundings from which bathymetry was derived. Bathymetric data are represented by both a color shaded relief map (Fig. 21) and a contour map color coded to indicate depths (Fig. 22). Depths ranged from 0 ft to 36.3 ft with a mean depth 23.7 ft (± 5.2 ft). The deepest part of the mapped area was located within the northwest portion of the impoundment along the main dredged channel of the Tennessee River Figs. 21, 22).

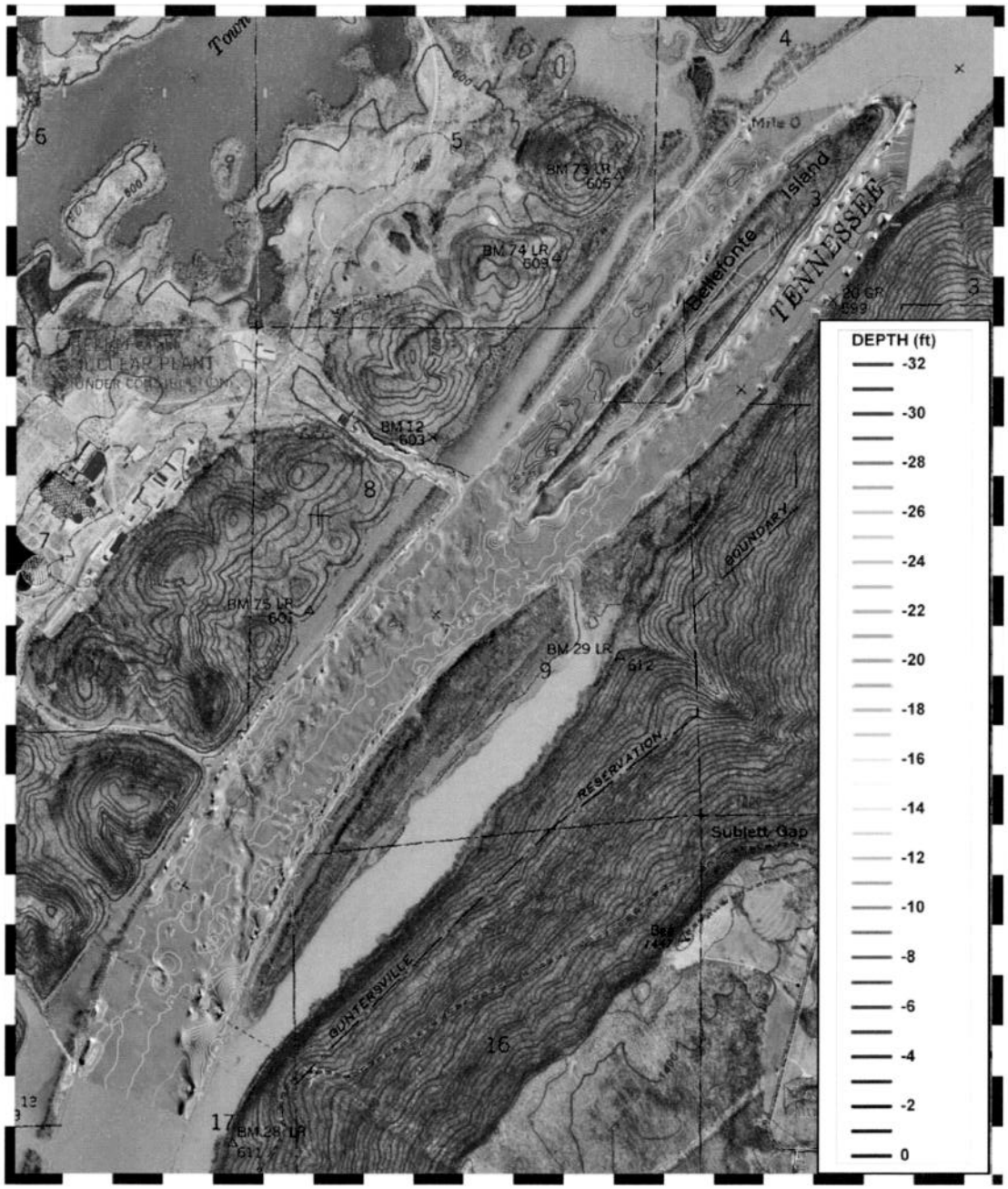


Fig. 22. Color coded contour map of BI area mapped on 25 - 27 Sep 2006 superimposed on USGS digital raster graphic taken from the Hollywood, AL 7.5' quadrangle map. Hash marks on map border are 200 m.

Contoured areas were summed to yield a total estimated volume storage within the mapped portion of BI of approximately 13,443 acre-feet. Graphics derived from bathymetric contours include area versus elevation (Fig. 23), area versus volume (Fig. 24), and elevation versus volume (Fig. 25). Though these curves are somewhat contrived given that they represent an arbitrary mapped area that is not physically bounded, the curves provide some reference and indication of volumetric changes that might be anticipated due to fluctuating reservoir levels. Note that active shipping along Guntersville Reservoir requires relatively stringent management of reservoir levels to ensure safe passage for barge traffic along the Tennessee River. As such, dramatic fluctuations of reservoir level are not common.

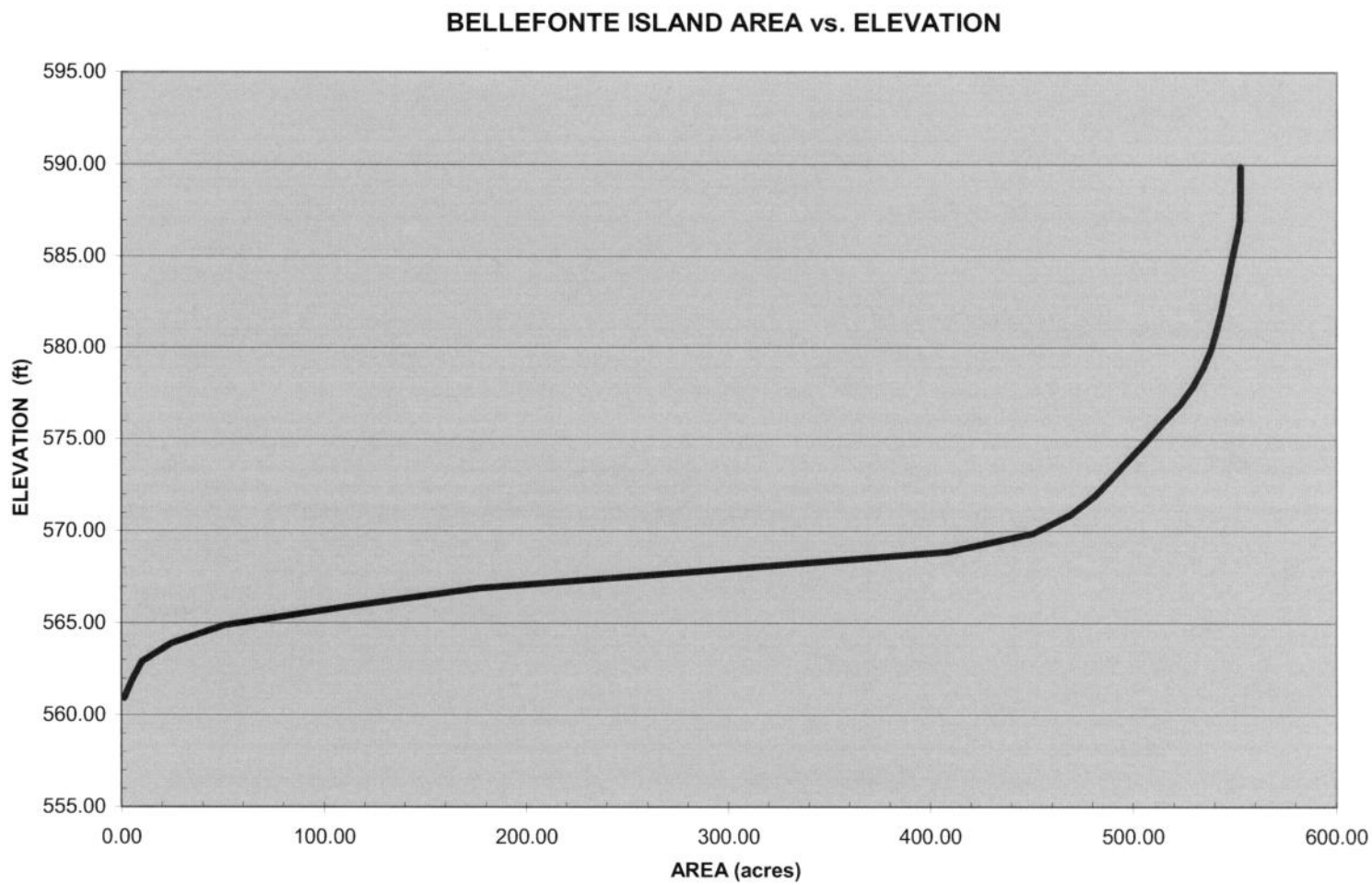


Fig. 23. Area versus elevation plot for BI mapped portion of Bellefonte Nuclear Station, Scottsboro, Alabama.

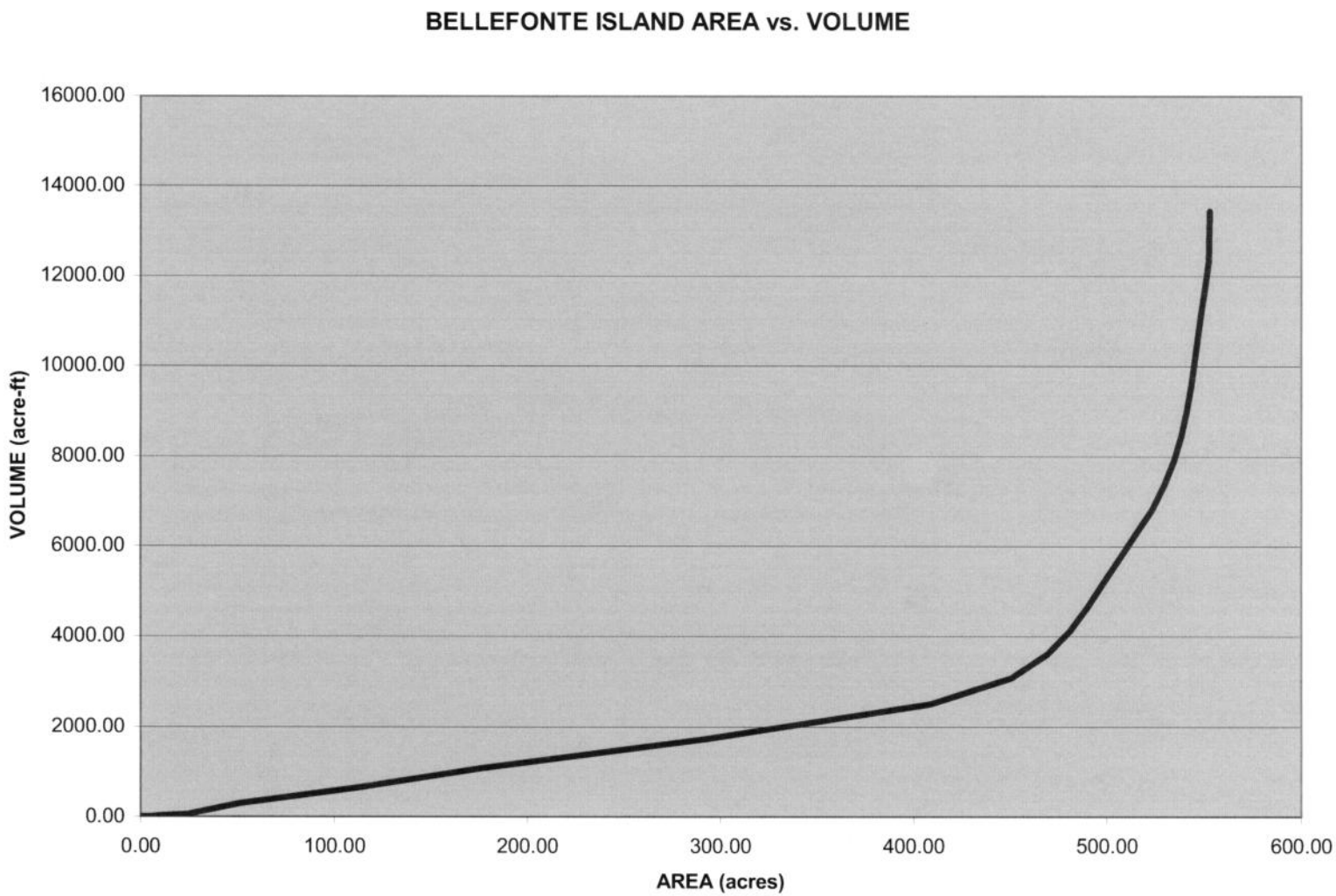


Fig. 24. Area versus volume plot for BI mapped portion of Bellefonte Nuclear Station, Scottsboro, Alabama.

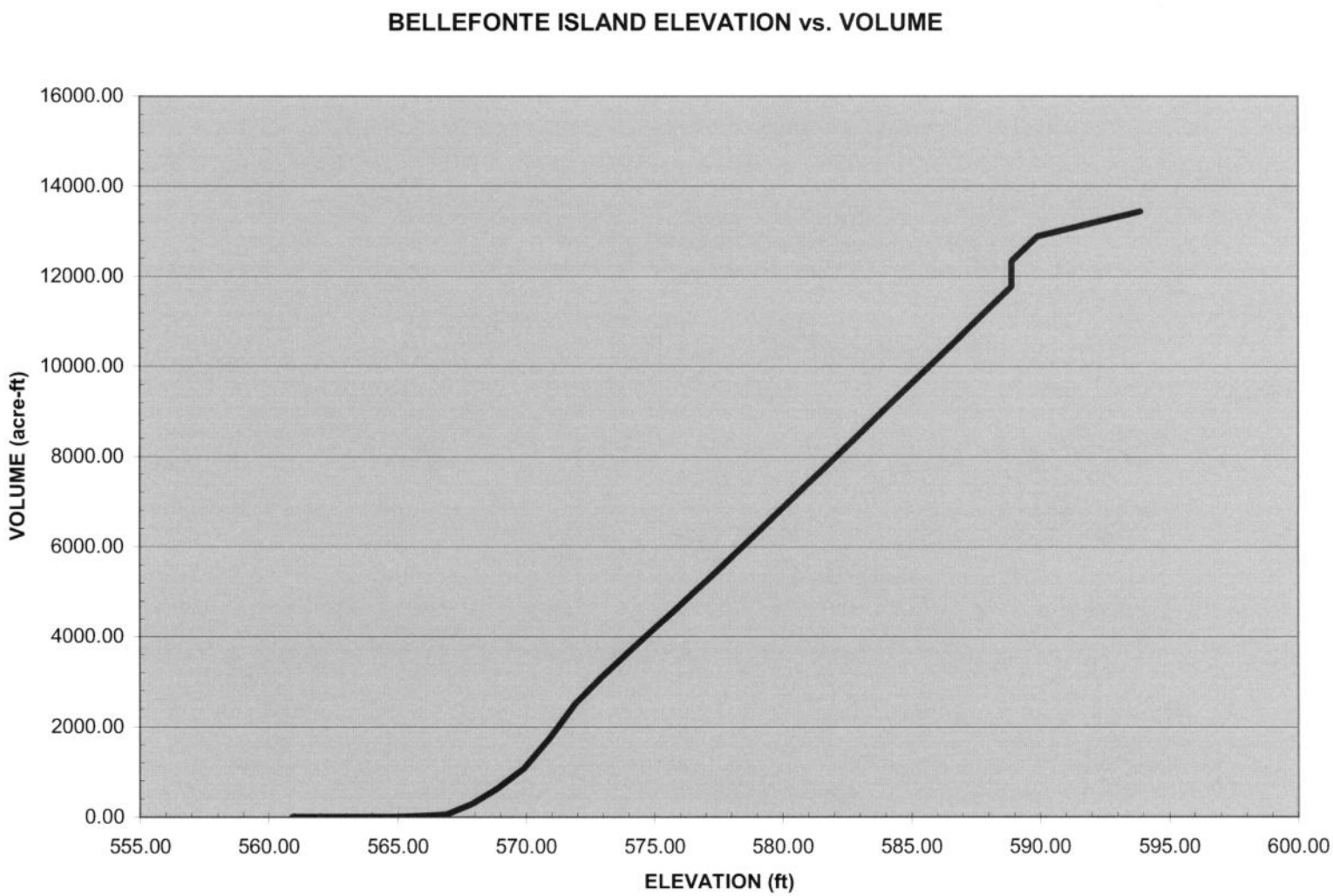
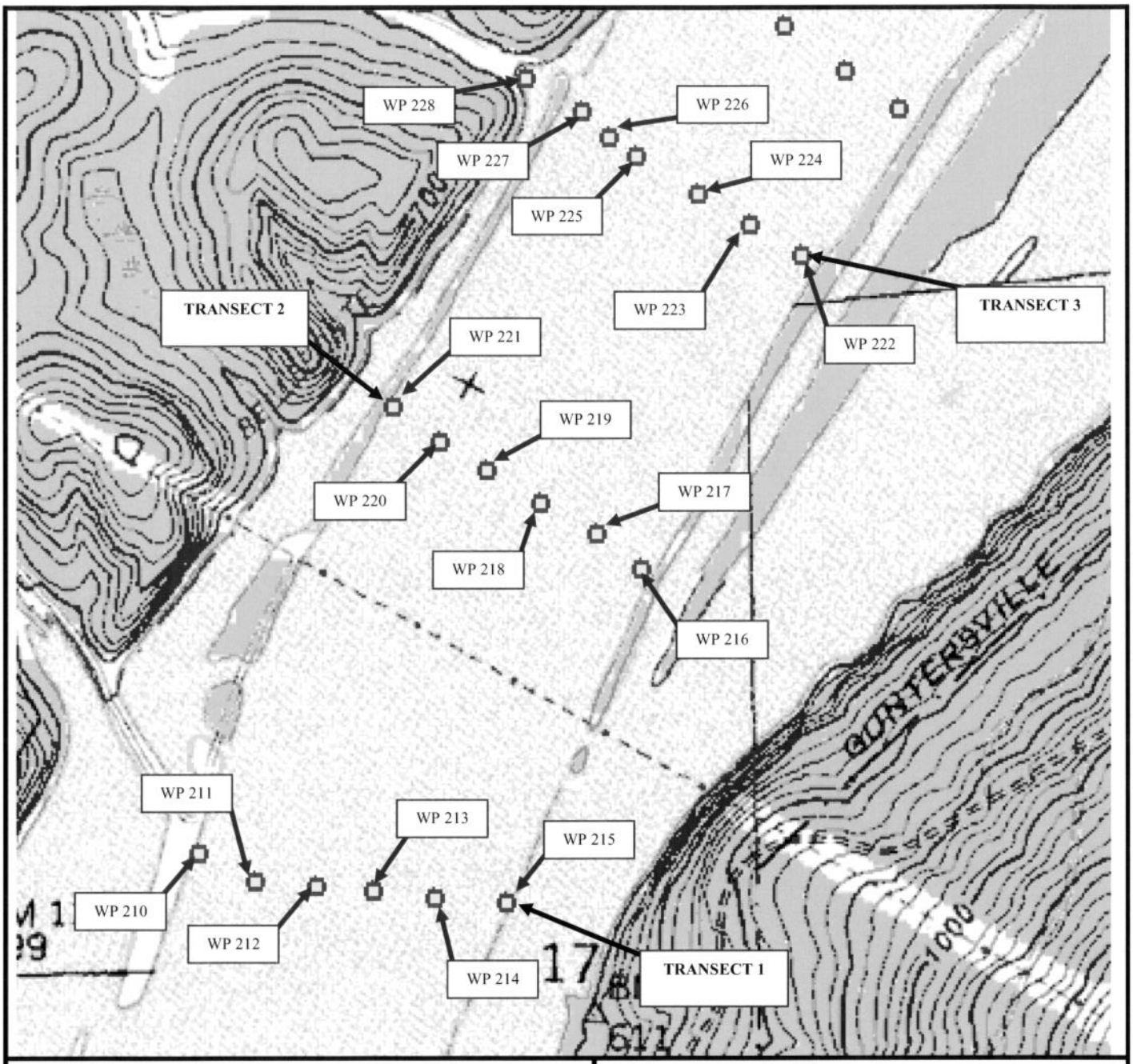


Fig. 25. Elevation versus volume plot for BI mapped portion of Bellefonte Nuclear Station, Scottsboro, Alabama.



Enercon Services, Inc.
6525 N. Meridian, Suite 503
Oklahoma City, OK 73116

Figure 1-1: Topographic Map
Scale: Not To Scale
Source: USGS 7.5 Minute Topographic Map
Hollywood, Alabama Qad

Subject Property
Sections 17 & 18, T4S, R7E
Jackson County, Alabama

Prepared for:
COLA

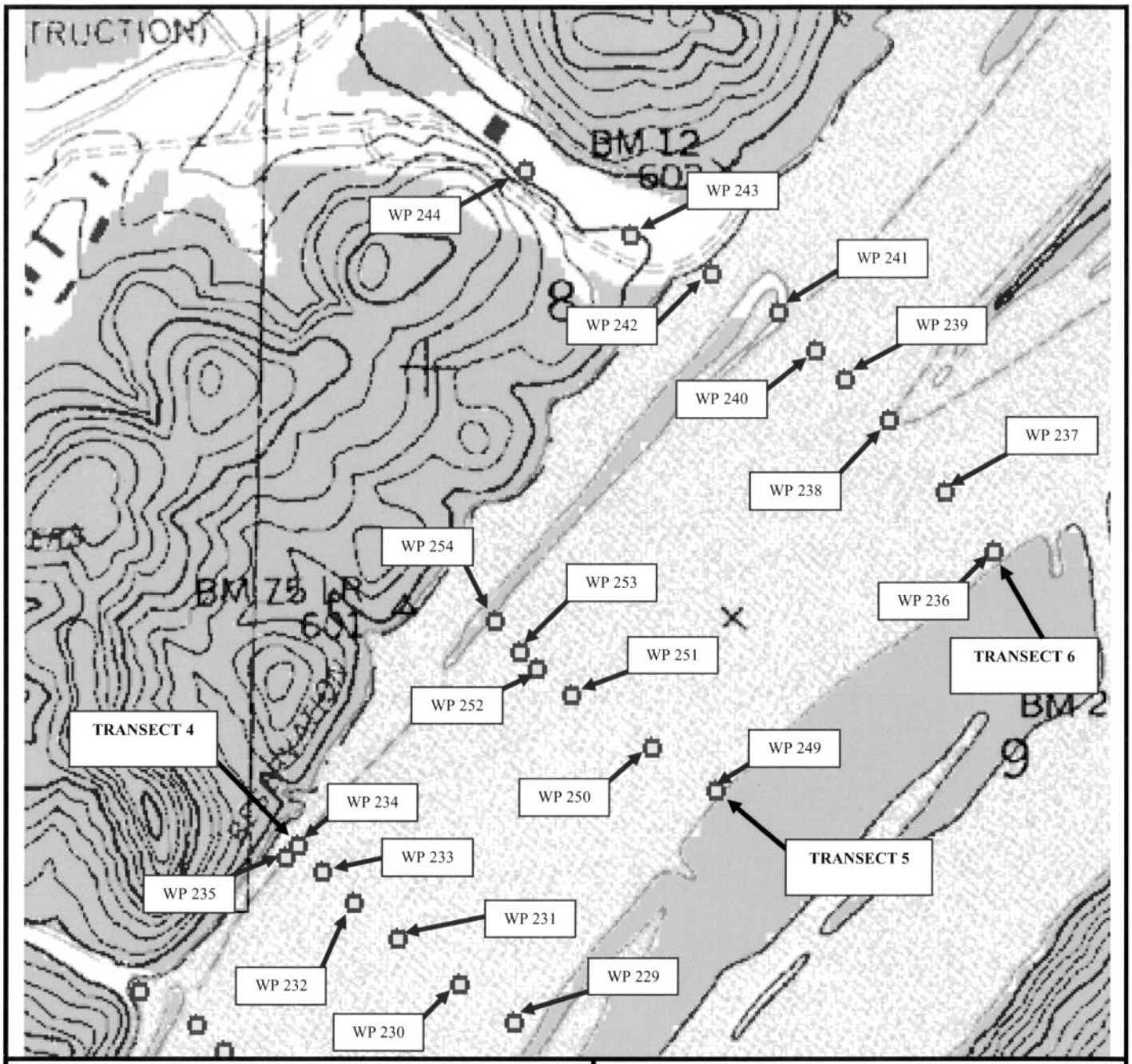


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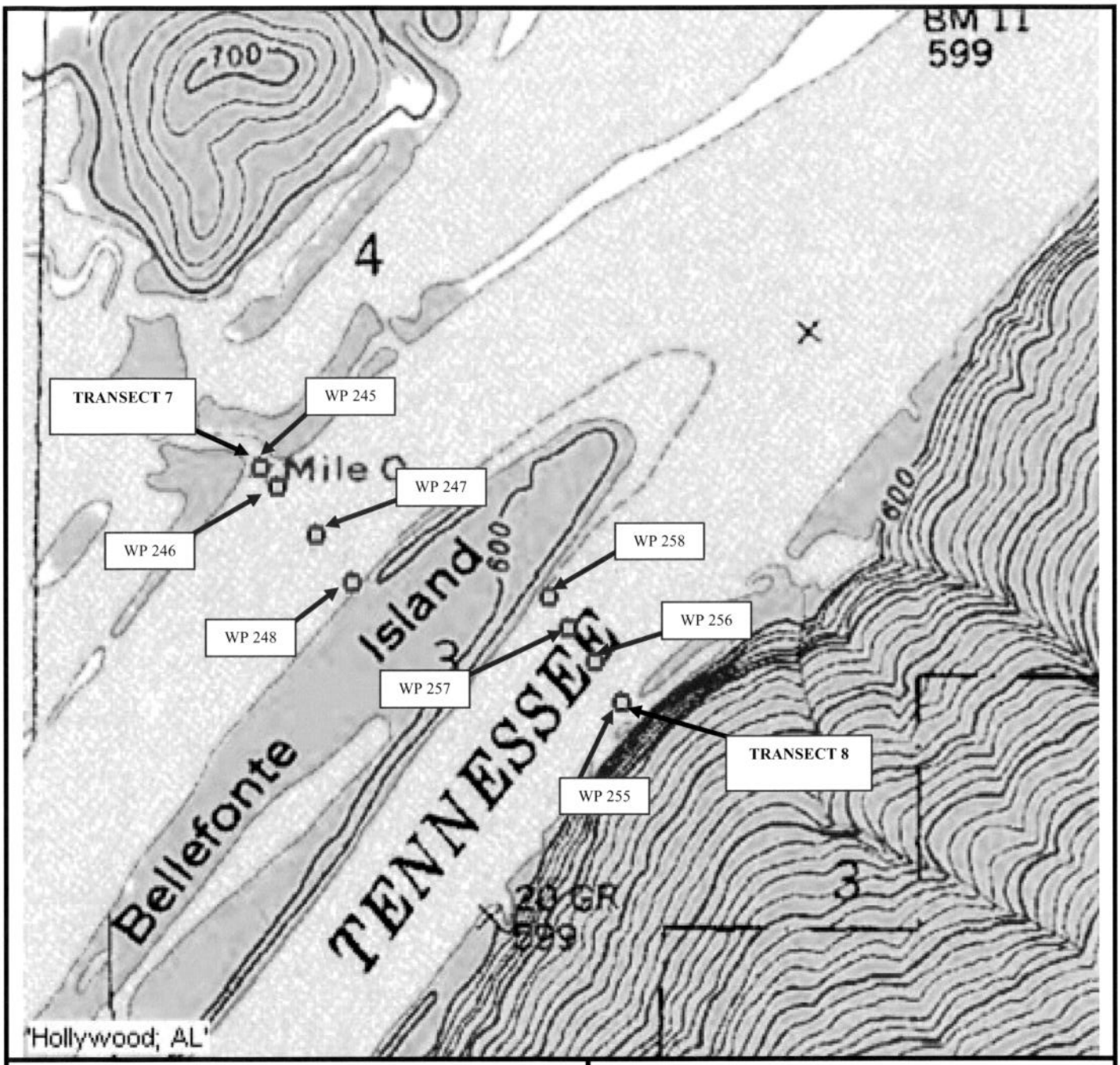
Figure 1-2: Topographic Map
Scale: Not To Scale
Source: USGS 7.5 Minute Topographic Map
Hollywood, Alabama Quad

Subject Property
Sections 8 & 9, T4S, R7E
Jackson County, Alabama

Prepared for:
COLA



Enercon Services, Inc. 6525 N. Meridian, Suite 503 Oklahoma City, OK 73116	**Figure 1-3: Topographic Map** Scale: Not To Scale Source: USGS 7.5 Minute Topographic Map Hollywood, Alabama Quad
Subject Property Sections 3 & 4, T4S, R7E Jackson County, Alabama	**Prepared for:** COLA