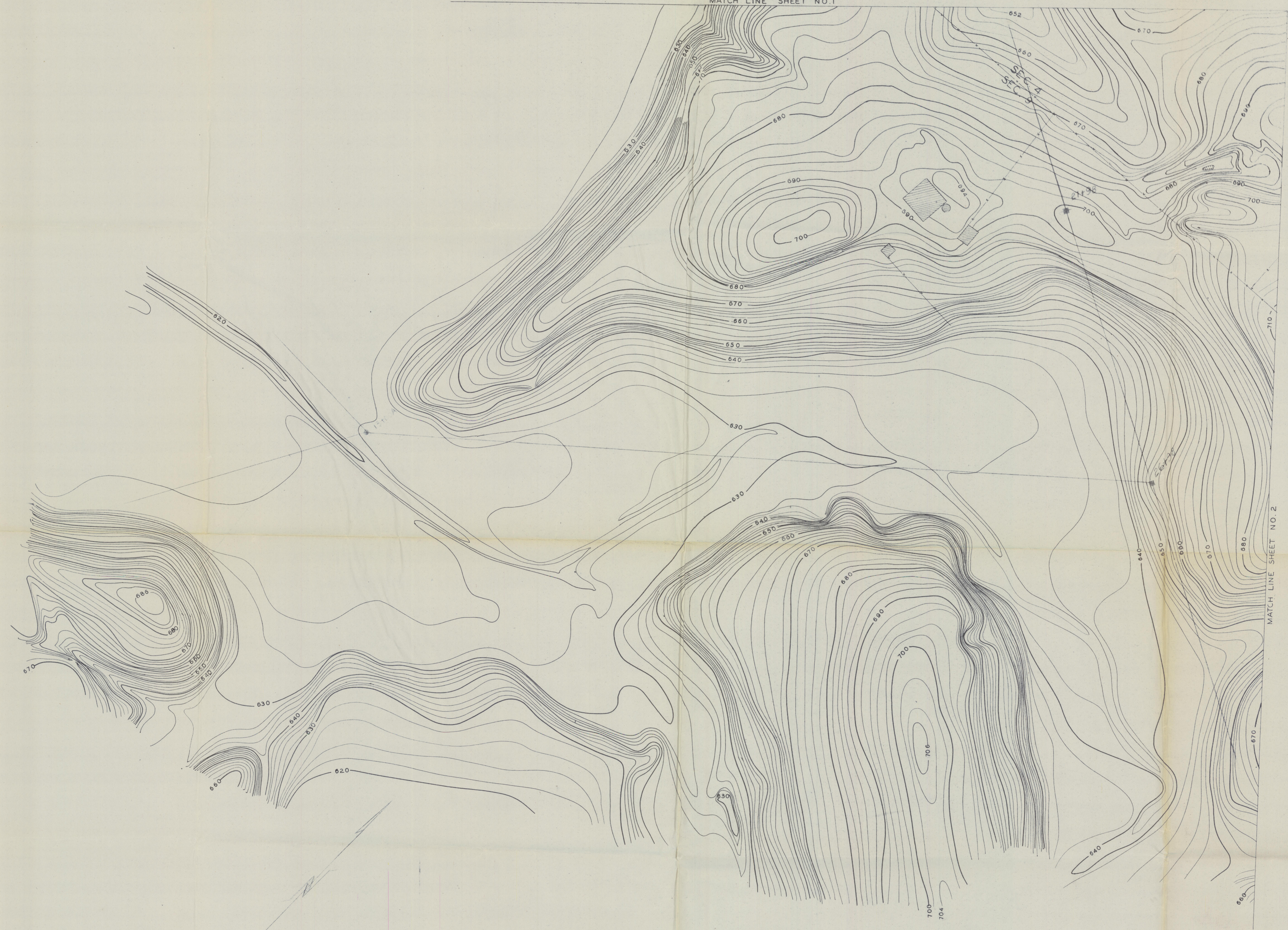
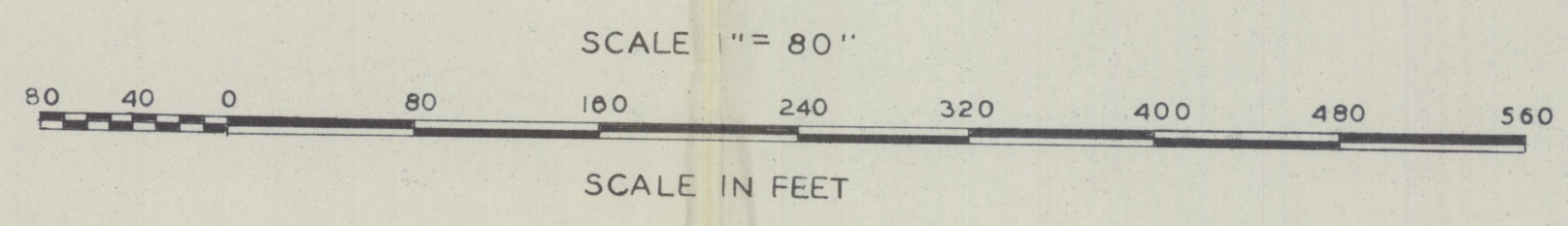


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MATCH LINE SHEET NO. 1



MATCH LINE SHEET NO. 2



WOODFORD COUNTY

T. 25 N. - R. 1 W. - 3RD. P.M.

MACKINAW RIVER
MACKINAW BELLS DAM
FOOTING H
SHEET NO. 3



WOODFORD COUNTY

T. 25 N. - R. 1 W. - 3RD P.M.

MACINAW RIVER
MACINAW DELLS DAM SITE
REFERENCE 17
IN 3 SHEETS - SHEET NO. 1

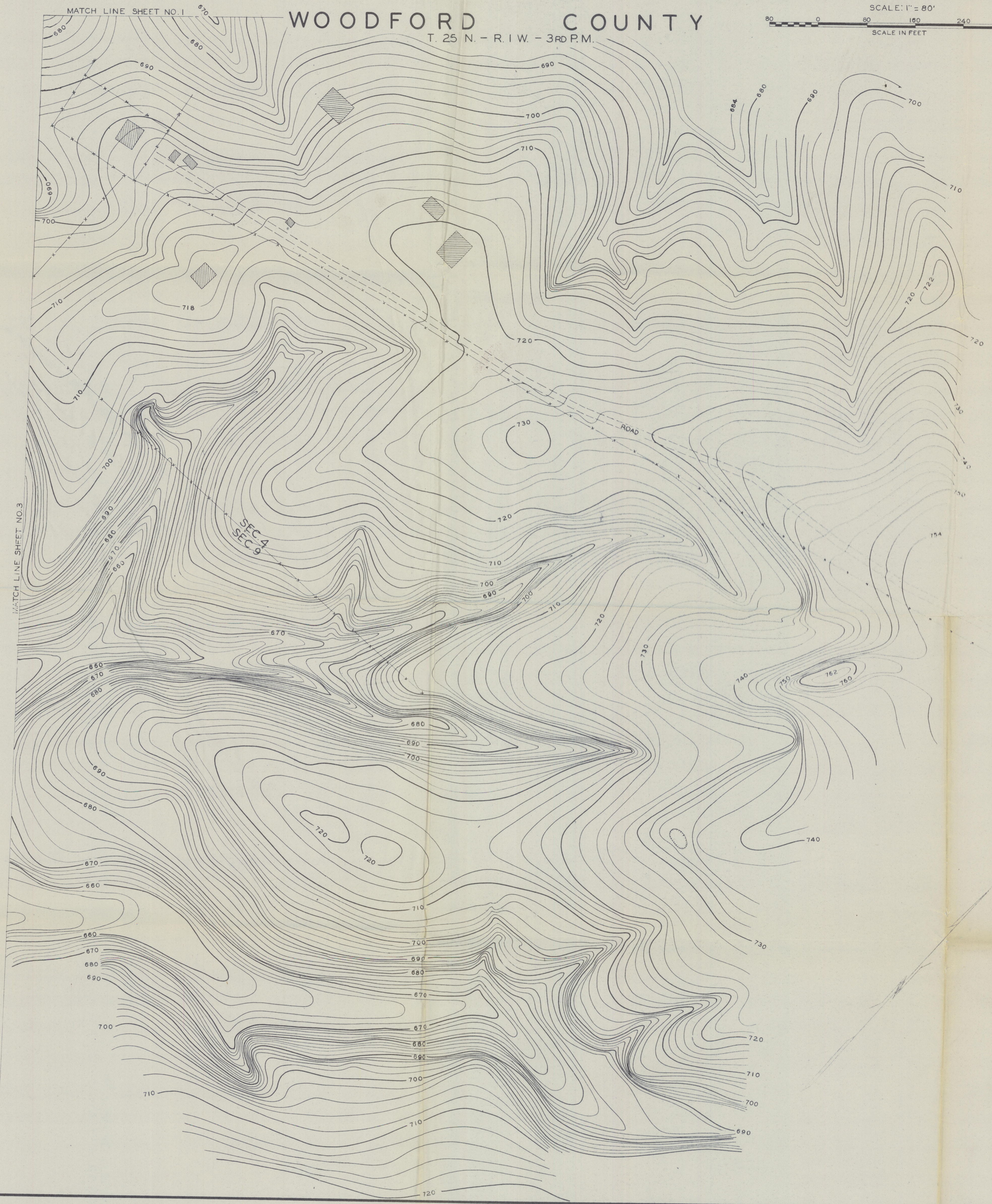
MATCH LINE SHEET NO. 1

WOODFORD COUNTY

T. 25 N. - R. 1 W. - 3RD P.M.

SCALE: 1" = 80'
SCALE IN FEET

MATCH LINE SHEET NO. 3



WACKINAW RIVER
WACKINAW BELLS DAM SITE
REFERENCE H
IN 2 SHEETS - SHEET NO. 2

Sub files
208

Illinois State Geological Survey
Urbana, Illinois

MINERAL RESOURCE
RECORDS DIVISION
Ekblaw, G. E.
Ms. 208
ILLINOIS STATE
GEOLOGICAL SURVEY

Geological Resources Section

Report on
General Geology along Mackinaw River
as related to proposed damsite

September 20, 1944

Approved:

M. M. Leighton
M. M. Leighton, Chief

Signed:

George E. Ekblaw
George E. Ekblaw
Geologist and Head
Areal and Engineering Geology Division

Purpose. This report is a brief discussion of the general geology along Mackinaw River, as related to a proposed damsite for a detention flood-control reservoir along the river. It was requested by Mr. C. R. Andrew, River and Harbor Branch, U. S. District Engineer's office, Chicago.

Geologic Situation. The proposed damsite is located across the river at the line between secs. 4 and 9, T. 25 N., R. 1 W., Woodford County, and the estimated crest of the proposed earth-fill dam will be 690 feet above sea-level, or about 80 feet above the bed of the river.

The damsite is situated approximately at the outer margin of the Normal glacial moraine, through which the river has carved a steep-walled valley about a quarter of a mile wide and more than a hundred feet deep. Nothing but glacial drift of Illinoian and Wisconsin ages is exposed along the valley. A detailed section of the drift, measured in 1930, in the northwest corner of sec. 3, along the west valley-wall about a mile above the damsite, is as follows:

	Thickness in feet
Wisconsin	
Normal	
Soil, sandy	2
Till, sandy, buff-gray	4
Bloomington	
Sand, oxidized red	
Gravel and coarse sand, oxidized at top; contains many balls of red till	6
Shelbyville ?	
Silt with bands of fine sand, irregularly bedded, contorted, oxidized	4
Illinoian	
Till, sandy, very stony, hard, blue-gray, with a weathered zone 8 feet thick at top	40
Concealed, to river bed	20

The same succession occurs along the south valley-wall in the northeast quarter of sec. 3, and it seems to be representative of what occurs along the valley and

may be expected at the damsite. Well-records in the vicinity of the damsite indicate that the Sangamon soil zone at the top of the Illinoian till occurs regularly at an elevation of about 700 feet above sea-level; the overlying Wisconsin drift thickens rapidly away from the valley to comprise the material above that elevation.

The narrow flat-topped strip of land forming the divide between Mackinaw River and Walnut Creek from about the center of sec. 9 across the SE. 1/4 of sec. 8 and the terrace on the south side of the river near the center of sec. 3, both of which are at an elevation of about 660 feet above sea-level, are remnants of a valley-fill of gravelly outwash derived from a post-Normal glacier. Although similar terrace remnants of the valley-fill are not apparent at the damsite, narrow ones may be present a short distance both upstream and downstream, and the bottom of the deposit may underlie the present stream alluvium.

Years ago it was reported that limestone quarries were operated in secs. 23 and 24 and in sec. 33, T. 26 N., R. 1 W., respectively about 4 miles northeast and 1 1/2 miles north of the dam. The existence of rock outcrops at these localities has not been verified in recent years and is somewhat questionable, because if they do exist they must lie at elevations not less than 700 feet above sea-level, which is much higher than occurs in any well in the vicinity for which records are available. It is possible that the reported quarries were pioneer workings in large glacial-transported masses of limestone. However, numerous large blocks of limestone have been observed near the base of the west valley-wall along Walnut Creek, just above its junction with Mackinaw River in sec. 17, T. 25 N., R. 1 W., and they may be indicative also of the presence of bedrock near the surface along the valley.

River alluvium forms the bottom of the valley, but there is no information concerning its thickness or character or the character of the underlying material, which may be glacial outwash of Wisconsin age, till of Illinoian age, or bedrock.

Opinion. From the available information it appears that the material under the dam, whether it be Wisconsin outwash, Illinoian till, or bedrock should be competent foundation material. However, if the alluvium is of considerable thickness and consists partly or mainly of silt and clay, it would not be competent or desirable material under the dam. Also, if the material below the dam is glacial outwash, or badly fractured bedrock, it will be relatively permeable and may allow considerable seepage, although this may not be a serious factor in view of the fact that the reservoir will be used only to detain flood water.

It appears that for the most part the dam will abut against Illinoian till, which is dense and relatively impervious, so that no serious leakage should occur around the ends of the dam. However, outwash of Wisconsin age may occur near the top of the dam, in which case shallow cut-off walls may be necessary.

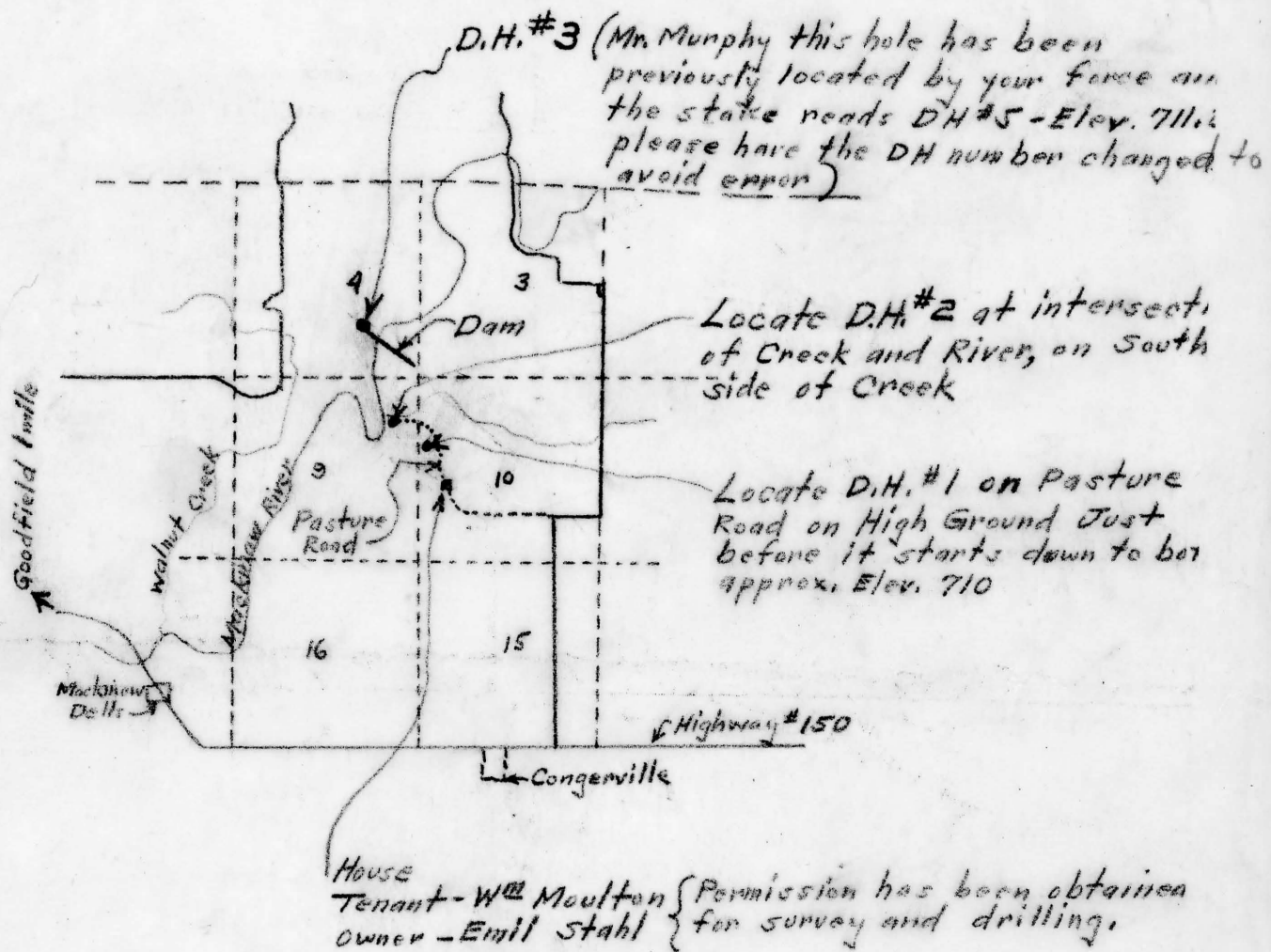
Adequate amounts of suitable material for an earth dam can doubtless be obtained in the vicinity of the dam, but probably only at distances of half a mile to a mile. There does not appear to be a good source of selected material for an impervious earth-core for the dam.

Recommendations. An adequate number of test-borings and test-pits should be made to determine the character and thickness of material in the valley-bottom. The borings should be deep enough to penetrate the alluvium and the outwash if any is found, and if till underlies the outwash, they should go deep enough to determine whether or not bedrock lies below the till at depths that will affect the design of the dam. Test-borings should also be made to ascertain the location and character of available material for the dam.

The State Geological Survey will be glad to examine, identify, and interpret geologically the samples that may be obtained from such test-borings and test-pits, and to advise as to the significance of the materials with reference to construction of the dam.

Bibliography for geologic report on Mackinaw Dells damsite
on Mackinaw River

Green, H. A., Geology of Woodford County: Geology and Paleontology,
vol. IV; Geological Survey of Illinois, 1870, pp. 334-342.
(For reported occurrence of limestone in the vicinity,
only).



MACKINAW DELLS
 DAM SITE N^o 8
 Drill Hole Location

(Metamore)
89° 15' 40' 45"
PEORIA 20 MI.
EUREKA 1 MI.
EUREKA 1 MI.
T. 26 N.
40'
F-5
MORTON 13 MI.
GOODFIELD 1 MI.
(Mackinaw)

DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

STATE OF ILLINOIS
DEPARTMENT OF REGISTRATION AND EDUCATION
M.F. WALSH, DIRECTOR
GEOLOGICAL SURVEY DIVISION, M.M. LEIGHTON, CHIEF, URBANA, ILLINOIS

ILLINOIS
DANVERS QUADRANGLE
LA SALLE 40 MI.
R. 2 E.
89° 00' 40' 45"



15 Miles
14
13
12
11
10
9
8
7
(Normal)