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Final Report of the
Archaeological Site Examination
of the Proposed Route of U.S. 31,
Matthew Road to I-94,
Berrien County, Michigan.

Phase I Completion Report
prepared and submitted by:  Dr. Elizabeth Garland
with the assistance of:  Mr. William Mangold

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May, 1980
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INTRODUCTION

Initial discussions with the Michigan Department of Transportation regarding archaeological survey of the proposed right of way of U.S. 31, Matthew Road to I-94, in Berrien County, took place in May of 1979. Contractual arrangements for the project were subsequently completed between Western Michigan University and the Department of Transportation, with Dr. Elizabeth Garland as Principal Investigator. Start up date for the project was June 18, 1979.

All project personnel are from the Department of Anthropology, Western Michigan University. A roster follows:

Principal Investigator: Elizabeth B. Garland, Ph.D. 
Professor of Anthropology

Field Supervisor: William Mangold, graduate student

Field Crew I: Kenneth Barr, graduate student
Karel Engstrom, graduate student
Thomas Drayton, graduate student
Brent Gevers, graduate student

Field Crew II: Deborah Rhead, graduate student
Paul McAllister, graduate student
Cheri Branch, undergraduate student
Robert O'Boyle, undergraduate student

All of the students had previous archaeological field experience including both site location survey and site excavation. Among them, these 9 students had a total of 35 "seasons" of prior archaeological work, including field schools and survey/excavation projects of 4 weeks duration or longer. Five of the group had held supervisory positions in previous archaeological projects.

Both the Principal Investigator and the Field Supervisor had first hand knowledge of the archaeology of Berrien County: Garland through long acquaintance with the late Amos R. Green of Eau Claire, an outstanding avocational archaeologist; and Mangold, a life-long resident of Three Oaks, has conducted extensive site survey in southwest Berrien County (Mangold, 1978).
Part I. 1. ENVIRONMENT OF THE PROJECT AREA.

The project Right of Way (ROW) extends from Matthew Road in Niles Township at the southern end northward for a distance of approximately 20 miles, terminating at the junction with I-94 in Benton Township (Figure 1). The proposed ROW will cross the St. Joseph River twice, and also crosses several tributary streams, the major one being Pipestone Creek in Sodus Township.

The dominant land form in central Berrien County is the Valparaiso glacial moraine (Martin 1955). The ROW is confined to these morainic uplands except at the northerly crossing of the St. Joseph River where extensive floodplain deposits are found.

Berrien County derives lake-effect climatic amelioration which, in combination with its location in southernmost Michigan, makes it prime orchard and vineyard area (Ellis 1880). Commercial truck gardening is widely practiced, in addition to corn, wheat and soybean agriculture.

The European settlement of Berrien County was highly influenced by the St. Joseph River. The earliest, and currently largest, population centers are located on the river. St. Joseph and Niles were established by the French in the 17th century. During the 18th century settlers sought areas along the river also. It was not until the early 1800's that settlements arose along the shores of Lake Michigan and, later, the interior of the county.

The major area of intensive early settlement is in the Niles-Buchanan-Bertrand area. Fort St. Joseph, the Carey Mission, the McCoy Mill and the Bertrand Trading Post are located in this region.

The interior traverse of Berrien County covered by this survey does not cross the areas of earliest settlement in the county. However we were cognizant of the possibility of encountering significant historic sites at the river crossings and in other areas as well.
<table>
<thead>
<tr>
<th>PROPERTY OWNER/SITE NAME</th>
<th>RIGHT-OF-WAY #</th>
<th>STATE NUMBER</th>
<th>TOWNSHIP-SECTION-1/4</th>
<th>SITE TYPE</th>
<th>CULTURAL PERIOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>20. Kraklau A</td>
<td>695 A</td>
<td>20 BE 325</td>
<td>Sodus 11 center NW-NW</td>
<td>Find spot</td>
<td>L. Archaic</td>
</tr>
<tr>
<td>22. Kraklau I</td>
<td>707</td>
<td>20 BE 312</td>
<td>Sodus 2 SE-SW-SW</td>
<td>Scatter</td>
<td>L. Archaic</td>
</tr>
<tr>
<td>23. Kraklau II</td>
<td>718</td>
<td>20 BE 313</td>
<td>Sodus 2 NW-SE-SW</td>
<td>Scatter</td>
<td>undetermined</td>
</tr>
<tr>
<td>24. Vasta</td>
<td>724</td>
<td>20 BE 314</td>
<td>Sodus 2 NW-NE-SW</td>
<td>Scatter</td>
<td>undetermined</td>
</tr>
<tr>
<td>25. Heritz</td>
<td>842</td>
<td>20 BE 327</td>
<td>Benton 26 SW-SE-NW</td>
<td>Find spot</td>
<td>undetermined</td>
</tr>
</tbody>
</table>
Part I. 2. Previous Archaeological Research in Berrien County

Berrien County has been a center of active amateur archaeological interest for many years. The Southwest Chapter of the Michigan Archaeological Society has found and test excavated a number of sites, and much of this information, at least into the early 1950's, has been incorporated into the State site files. The late Amos R. Green of Eau Claire in Pipestone Township was the catalyst for much of this activity, and it was principally he who reported site information to the University of Michigan.

In 1948 Hale Smith recorded a number of sites in central Berrien County during a survey conducted in conjunction with the University of Michigan's excavation of the Mocassin Bluff site in Buchanan Township (Bettarel and Smith 1973). Virtually all of Smith's information came from members of the Southwest Chapter, and his survey notes, on file in the Great Lakes Range at the Museum of Anthropology, University of Michigan, were an important resource in preparing for this project. Mr. Green's large collection of artifacts was donated after his death to the Department of Anthropology, Western Michigan University. Unfortunately there was no systematic location record accompanying the artifacts, but various notes and photographs have enabled us to establish provenience for a substantial part of the collection. This information, in conjunction with Hale Smith's survey notes and the sites registered by Amos Green himself provided us with considerable archaeological context for the U.S. 31 project.

Before field work began on July 30 archival research and site file checks were carried out at the Michigan History Division in Lansing and at the University of Michigan in Ann Arbor. Pertinent archaeological and historical data were sought at the Fort St. Joseph Museum in Niles, the Berrien County Courthouse Museum in Berrien Springs and the Eau Claire Public Library.
Part I. 3. Survey Methods

We used two field crews, each composed of 4 people. Our basic survey procedure was for a crew to walk parallel traverses along the ROW spaced at 25 yard intervals. The average width of the right-of-way is 416 feet; it is somewhat wider in certain areas where the median varies. Since the ROW was not staked and the entire 20 miles is cross-country, we had to allow for a margin of error. With a 25 yard interval we could survey the entire width of ROW in 2 passes and still obtain an extra 50 feet of coverage on each side. For example, 4 people could survey going north for one mile along the west half of the ROW, and return down the east side, obtaining a total E-W coverage of 525 feet. Interchanges were surveyed as separate units using the same basic spacing parameters.

In areas where surface visibility was less than 50% we shovel tested at 25 yard intervals. In every instance where a site was located, cultural material was first noted by visual examination of the surface in plowed or otherwise disturbed contexts. After a site was located, intensive surface examination and shovel probing as needed would be done in order to establish the size of the site.

The Department of Transportation furnished us with detailed sets of maps on a scale of 1" = 400', which had been made from aerial photos. Site locations and boundaries were marked on these maps. Our site location maps are drawn directly from these, using the same scale.

Each crew carried a set of detailed MDOT maps and a set of USGS topographic maps. The field supervisor (Mangold) would assign survey areas to each crew on a daily basis depending on "clearance" from property owners. The inability to contact land owners was a very difficult problem, often involving repeated phone calls, often long distance, as well as trying to make direct contact.
Testing was carried out using standard field procedures. The test units were placed where cultural material was present on the surface; usually fire-cracked rock and chippage. Wherever possible test pits were placed on a grid. Sometimes we were unable to establish reference points for test pits, for example in sites located in the middle of corn fields. Distances were always established with as much accuracy as possible relative to site boundaries and to each other, and pits were oriented with the cardinal directions. Excavation below plow zone was by 10 centimeter levels, with the plow zone usually treated as a unit. The floor of the pit was troweled at each level and examined for features. A square sheet record was kept by level, and a profile of the north wall of each pit was drawn. All soil was passed through 1/4 inch mesh, and artifacts were bagged separately by unit and level for subsequent laboratory analysis. Fire-cracked rock was counted in the field but not weighed.

Our procedure on surface survey was to do a total pick up of everything except FCR, which was recorded as light, medium or heavy. "Heavy" would be 2 or 3 pieces within a 2 pace radius of the observer; "medium" 2 or 3 pieces in a 5 pace radius; and "light" refers to a widely dispersed scatter.

There are two important exceptions to this total pick-up procedure. On the Wyner site we picked up very little surface material, and this was turned over to Andrews University. They were working on the site when we were in the field, and they maintain separate surface collections from the knoll and from the part of the site they are excavating. We did retain for study all materials from our test units on the site.

The other site where we did not do a total pick up was Stover. On the day the site was discovered the surveyors did walk every row of the vineyard and picked up all chippage (68 pieces). However, during site testing, when visibility had improved after several rains, we tended to leave chippage in place and to pick up only retouched pieces.
Since every one of our surveyors was thoroughly familiar with Michigan prehistoric ceramics in site contexts, we are confident that we did not miss sherds; they were not there. We have included a photograph of one sherd from the Amos Green collection (Plate 13) which may be from one of our Taylor sites. However this provenience is doubtful, as discussed below in the Taylor I site description.

Late Archaic cultural placement tends to be a catchall for aceramic sites when projectiles are not demonstrably earlier or later types. However the patterns of site distribution which emerged from the survey, in conjunction with the evidence of biface morphology, permits the cultural stage attributions in Table 1 to be made with some confidence.

Two sites discovered on this survey are significantly larger and more intensively occupied than any of the other sites encountered. The 10 acre Wymer site is multicomponent (Early and Late Archaic and Late Woodland), with a Late Woodland village occupation of major importance. The other large site is the Stover site, a Late Archaic camp which covers an area of about 7 acres.

Examining site distribution from south to north we find two isolated finds, the small Marschke site, and an informant site (Rudlaff - outside of ROW) in Section 31, Berrien Township. This is an area of rolling upland topography dotted with small ponds and some larger areas of marsh, probably the remnants of glacial kettles. The cultural evidence is inconclusive, and we were unable to examine the Rudlaff collection, but an Archaic temporal placement for these sites is likely.

The first crossing of the St. Joseph River extends from bluff to bluff and no cultural material was found on either side. The next 3 miles north along the ROW through Sections 23, 14 and 11 of Oronoko Township were likewise devoid of prehistoric remains. This stretch does
found for a mile and a half across terrain which was described by our surveyors as "low, wet and snake infested".

Sites are once again encountered as the 660-670' elevation is reached near Edwards Road in Section 11 of Sodus Township. From here north to Pipestone Creek is another cluster of Archaic sites of rather small size. None appear to have been intensively occupied.

North of Pipestone Creek we encountered almost no evidence of prehistoric activity over the last 5 miles of Right of Way. Elevations are comparable to those south of Pipestone Creek, but the general absence of small ponds and marshes in this region seem to have made it less favorable for even short term occupation or use.

B. Areas Not Surveyed

In general we received good cooperation from property owners, however access was denied in two instances which we believe may be significant.

Sodus Twp., Sec. 23, W\textsuperscript{2}-NW.

Vernon and Marvin Hetfield both denied permission to survey. The northernmost part of their property is below 650' and is probably devoid of sites. However Vernon Hetfield's grandson mentioned that they had found arrowheads "in the back". The back (east portion of the property) appears to be a sand ridge in grapes. This ridge would lie above 650' and should be surveyed.

Benton Twp., Sec. 23, NE-NW.

Permission was denied by Kenneth Higbee. This stretch of about 3/8 of a mile passes along the west side of a depression and it should be surveyed in future. The Clark site (20 BE 316) is an informant site nearby in the SW-SE of Sec. 14. The collection contains a dozen bifaces including a bifurcate stem point and a bannerstone fragment.
Grid distances on tested sites are in meters, because our equipment (tapes, stadia rod) and site recording forms are in metric. Our test pits are in all cases 1 x 1 meter units, and depths below surface are measured in centimeters. Our maps of sites which were test excavated are scaled in meters.

All sites are located on USGS topographic maps (Plate 19ff). Township and section locations of sites are given in Table 1.

The debitage was analyzed in a 6-fold classification:

1) core chunk - large blocky fragments with multiple flake scars.
2) decortication flakes - cortex present on the dorsal surface.
3) blocky flakes - thick flakes produced in further core reduction; little or no cortex present.
4) flat flakes - flakes with plano-convex cross section; platform angle higher than for bifacial thinning flakes.
5) bifacial thinning flakes - flakes with a low platform angle, prominent platform lip, concavo-convex cross section.
6) finishing flakes - very small flakes representing final stages of artifact finishing or resharpening.

We recognized almost no exotic cherts in the sites analyzed. There is one flake from the Stover site of "Indiana Green", a rather granular green and white banded chert which outcrops near Lafayette, Indiana. One of the projectile points from the King farm in the Amos Green collection is of Indiana Hornstone, as are the turkey-tail points in the Edison collection. A distinctive "purple chert", a lustrous purple with gray or bluish mottling, appears rather frequently in the collections. It does not occur in the Galien River Basin in southwest Berrien County, nor has it been noted in the Kalamazoo Basin. We assume it to be from a local glacial source, and it seems to be characteristic of the central Berrien County area. It is fairly common in the Amos Green collection, much of which comes from Pipe-
PART II. 2. SITE DESCRIPTIONS AND ARTIFACTS RECOVERED

Sites 83 and 85, Find Spots, and Rudlaff Site (20 BE 315), (Figure 2)

From ROW 75 north to 125 (Rangeline Road) the soils were sandy clay with minor amounts of gravel. An isolated find was made in a cucumber field at ROW 83; the artifact is a biface fragment made on grey-white chert which exhibits secondary use as a wedge (Plate 1). About 75 yards away another isolated find was made at ROW 85, a broken uniface with a denticulate working edge (Plate 1). Both these finds were in cultivated fields with surface visibility estimated at 80%. No fire cracked rock or chippage was noted. The nearest water source is a large marsh 300 yards to the southwest.

Arthur Rudlaff (N½, SE¼ of Section 31, Berrien Township) reports that he has found artifacts in his garden, about half a dozen "arrowheads" from a fairly small area. Unfortunately we were unable to see this collection. The Rudlaff site is south of the ROW and just west of our find spots #83 and 85 (Figure 2). It seems likely that our two "stray" artifacts are related to the Rudlaff site occupation, i.e. that they were discarded or accidently dropped by occupants of that site. The typology of the biface fragment suggests an Archaic temporal placement.

Site 122, Marschke Site (20 BE 305), (Figure 3).

This site is located in sandy clay soil on flat terrain. There is a small pond about 1/4 mile to the south, and small marshy area or spring is located 300 yards northwest of the site. A very light scatter of fire cracked rock (FCR) and one flake was found in a cucumber field in an area about 30 x 30 meters. The existence of a site here was corroborated by a migrant worker who told us that he had found 12 points from this area in the late 1960s. Since migrant farm workers sell artifacts, no further
to be his house.

We are uncertain as to the architectural or other kinds of historic interest which may be associated with this structure, but in view of its age we feel that its existence in the ROW should be noted. We might also mention that a very large beech tree stands in back of this house; one of our surveyors estimates that this tree may be more than 150 years old.

Site 391-405, Eidson Site (20 BE 122), (Figure 5).

The Eidson site is a previously recorded site which was identified as being in or near the ROW during the preliminary site file check of information held by Western Michigan University. The site file card identifies the site as an Adena-Hopewell village site, and indicates that it was excavated by the Southwest Chapter of the Michigan Archaeological Society. The collection is stated to include "firestone, flakes, hammers, spawls, 1 broken base, 1 scraper and 1 crinoid bead", and it is further noted that "Griffin and Spaulding have examined this material". The site location is correctly given as Oronoko Twp., Sec. 2, T.6S R. 18W., but no site name is given.

A subsequent site file check at the University of Michigan on July 26, 1979 indicated that this site is also recorded as 20 BE 147, the Edison (sic) Farm site, but the location is incorrectly given as Sodus Twp. The site was recorded as site # B-44 in Hale Smith's Survey made for the University of Michigan in 1948. Smith's notes state that the site covers 20 acres, and occupies a level meadow surrounded on the east, north and west by what he terms "kettle escarpments". This acreage would include the locales of what we termed Concentrations 1, 2 and 3 on the site. This approximately 20 acre area at ca. 650' elevation drops off on three sides to riverine deposits of the St. Joseph at 600 - 610'. The Smith survey records contained the notation that no pottery was found on the site by the Univer-
were the only artifacts recovered by us during two surface surveys. We find this difficult to reconcile with the collection from the site. There is no doubt about the general provenience of the collection; Dr. Eidson readily identifies one artifact (not photographed) as not coming from the farm, but told us that everything else did come from the property. Her late husband, Wade Eidson, did not permit people on his property, and reinforced his views with the aid of a shotgun. He died a few years ago, but at least one interested local person who knew about the site was unaware of his death, and expressed surprise that we had been able to see the property. It is our impression that over the years very few collectors have been on the site. The Michigan Archaeological Society excavation referred to on the site file card for 20 BE 122 was described by Hazel Eidson, who was present at the dig, as "one quick pit". She told us that the site of that dig was north of the abandoned railroad and above the oxbow, which would place it at our Concentration No. 3, or somewhere east of it, but probably in the right of way.

At the time of our survey the site area(s) were in fallow, with surface visibility about 10 to 20%. The surface was examined and shovel probing was carried out at 25 pace intervals, in the standard manner, followed by a second visit to the site after a very heavy rain. Visibility was somewhat better during the second visit. We again surface collected, focussing attention, we now think mistakenly, on Concentration No. 1, but were unable to delineate any areas which would suggest likely test pit locations. The sandy soil contains a lot of gravel which makes surface examination for cultural material difficult.

The Eidson site remains a frustration at the time of writing. It seems to us that there should be at least one intensively occupied site here, but we have simply been unable to locate it. Of course not all of the materials in the collection are contemporary; there are Paleo points, and also several bifurcate stem points (Plate 16, 2nd row from bottom; and Plate 16 top, bottom row) which may be Early Archaic. However the nature
Cultural Material from the Eidson Site

Pass No. 1, August 3, 1979. Shovel probing and surface examination.

<table>
<thead>
<tr>
<th>Provenience</th>
<th>Debitage</th>
<th>n</th>
<th>wt/g</th>
<th>FCR</th>
<th>Artifacts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conc. # I</td>
<td>decort.</td>
<td>2</td>
<td>54.8</td>
<td></td>
<td>light</td>
</tr>
<tr>
<td>(ROW # 400)</td>
<td>blocky</td>
<td>2</td>
<td>14.0</td>
<td>(1 util.)</td>
<td></td>
</tr>
<tr>
<td>Surface</td>
<td>flat</td>
<td>1</td>
<td>2.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>bif. thin.</td>
<td>1</td>
<td>0.4</td>
<td>(1 util.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>71.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conc. # II</td>
<td>blocky</td>
<td>4</td>
<td>22.5</td>
<td></td>
<td>light</td>
</tr>
</tbody>
</table>
| (ROW # 404) | flat         | 4  | 21.8 | (3 util.) | 1 unifacial retouched piece (31.7 g) on a deco.
| Surface     | bif. thin.   | 2  | 6.4  | (1 util.) | flake (not illus.)                            |
|             |              | 10 | 50.7 |     |                                              |

Pass No. 2, August 9, 1979. After heavy rain; surface examination only.

| Conc. # I   | decort.      | 1  | 42.3 |     | light                                       |
|             | blocky       | 9  | 28.4 | (1 quartzite) |                                      |
|             | flat         | 5  | 6.3  | (1 heat treated) |                                      |
|             | bif. thin.   | 1  | 0.9  |     |                                              |
|             |              | 16 | 77.9 |     |                                              |
| Conc. # II  | core         | 2  | 126.8|     | light                                       |
|             | blocky       | 1  | 4.7  | (1 util.) | 1 small side-notched point (Plate 3)       |
|             | flat         | 2  | 1.5  |     |                                              |
|             | bif. thin.   | 1  | 4.4  |     |                                              |
|             |              | 6  | 133.4|     |                                              |
work on the Wymer site is prompted primarily by its convenient location adjacent to the University. We would emphasize however that the entire project has been carried out by Andrews at a very high professional standard, from excavation techniques to artifact curation. The work has progressed slowly because it has been "weekend archaeology", and because the availability of student excavators varies widely. Mr. Little was trained in archaeology at Indiana University, where he earned an M.A. He worked at the Angel site with Glenn Black and has done field work with John Dorwin, in addition to excavation with Andrews University in Jordan. He is currently preparing a report on his work at Wymer.

The entire area from north of the Eidson site where the elevation drops to 605' all the way to the St. Joseph River is under cultivation. A corn crop 8 feet tall covered the Wymer and Rock Hearth sites at the time of our survey (Figure 5, Plate 11).

The soil types at Wymer are closely similar to the soil at the Moccasin Bluff site (Bettarel and Smith 1973), which is situated about 9 miles to the south, and also on the west side of the St. Joseph River. The soil type at Mocassin Bluff is Brady sandy loam (19A). The Wymer site is situated in Oshtemo sandy loam (11B) and Brady sandy loam (19A). The Soil Conservation District Office in St. Joseph informs us that where Oshtemo and Brady are associated, Oshtemo is usually higher in elevation, such as on the top of a knoll or ridge, with Brady adjacent at lower elevations. The high gravel content of the soil on the knoll may result from slope wash removing the finer material. Both these Oshtemo and Brady soils are rated as having good agricultural potential for grasses (USDA, Soil Survey of Berrien Co.). Maize was present at Mocassin Bluff and while none has been found at Wymer to date, the site may well be an agricultural village. It produces an excellent corn crop today.

Andrews placed their excavation units in 1975 in the area of greatest surface concentration of sherds and chippage. They have since regularly
We saw them in plan view and vertical section and they undoubtedly are post-molds. Mr. Little believed that a straight alignment was beginning to show up, perhaps a rectangular structure, but analysis of these data is incomplete.

It was apparent to us on July 31 that Wymer is a site of major archaeological interest and importance, but we were uncertain, standing in that sea of corn, whether the site would be directly impacted by U.S. 31. Mr. Little thought that his excavation might be in the ROW, or perhaps that the road would pass just to the east. DOT has placed two large yellow plastic crosses in the farm lane which passes through the northern edge of the site; they are about 600 feet apart, and we assumed that the road would pass between these but did not know the exact location. The westerly cross is shown on Figure 6 at an elevation of 605.4'. Unfortunately we did not obtain this elevation from DOT until after the survey. Andrews' datum is not yet tied into this elevation, nor are the WMU test pits.

On August 3, our survey crew approached the Wymer site from the south using our standard procedures. They reported that the knoll is in the ROW and that Andrews' excavation is definitely off to the west. Our crew was slightly off the correct alignment however, since we thought on the basis of our survey that the western edge of the ROW would include the test pits which we put in along the farm road (Figure 6). We learned in September when the DOT project engineer, Mr. Ron Roberts, visited the site with Bill Mangold that our test units lie some 50 meters west of the ROW. It required over two hours on the site to make this determination. In any case these test units provide valuable information about the site as will be discussed below.

A major concern was to determine the size of the site. We did this by a combination of techniques. Andrews has put in a concrete monument as a datum, and ideally we would have wished to use transit readings off
picked up near the Andrews units, and to some extent from more distant locations, and 3) lithic tools have been collected from a wide area of the site, but have been most intensively removed from near the Andrews units and from the knoll. Andrews has maintained a separate surface collection from the knoll.

It is probable that differing densities of FCR and debitage exist on the surface within the central area of this extensive site, but the corn crop made it impossible to make these observations in a reliable manner. The site should definitely be examined before spring planting, and surface distributions recorded in a systematic manner. Mapping the site with a 1 foot contour interval should also be done. We estimate that the knoll is at an elevation of about 609 feet. The soil here is very gravelly and corn does poorly on it, so they no longer bother to plant it. Our survey crew recorded heavy FCR and debitage on the knoll and somewhat less cultural material in the corn north of this topographic feature as they moved toward what we judge to be the northeast periphery of the site (Figure 5).

We put two 1 x 1 meter test pits on the knoll. Andrews had not previously excavated here. One pit was placed near the center, and one near the western edge (Figure 5). Neither produced significant amounts of cultural material or subsurface features.

A second area of the Wymer site which we tested is designated as "Wymer-Roadside" in our field notes, due to its location just south of the farm road (Figure 5). This area is also a clearing, not however due to poor soils, but because it is on a rise from east to west which is just steep enough that the corn planter gets stuck on it. We could see a lot of FCR and debitage on the surface here and (believing it to be in the ROW) thought it a good place to test; one which would not involve any destruction of the corn crop. The location of the units tied into Andrews datum.
which closely resembles Kanawha Stemmed and related bifurcate stemmed points which are well dated in the Middle South ca. 6-7000 B.C. (Broyles 1971:58, Chapman 1975).

Four people continued work on these units the following day. Two 1 x 1 m. units to the south were opened and taken down to the base of the second (north-south) plow zone. Relatively little cultural material was found in these two units and they were not taken down further due to time considerations and because we were able to get good information from the units to the north.

4S-78E.

In 4S-78E at 60 centimeters below surface the soil became lighter in color. A small ashy deposit was noted with some FCR along the north wall.

Level 6 (60-70 cm.) was sterile and the soil at 70 cm. was a mottled yellow. In level 7 the soil was mottled yellow with a lot of water staining. A small amount of FCR, small in size, and a few chips were recovered.

In level 8 to 90 cm. the soil was light yellow, "looked sterile", but was still producing small pieces of FCR and small amounts of chippage. Water staining was observed, perhaps relating to an earlier depositional episode of the river. This unit was not excavated deeper.

4S-79E.

In 4S-79E modern glass was found in level 4 (40-50 cm.), below plow zone. This could be accounted for by a tractor or a planter having become stuck here, something which we know to have occurred, probably more than once, at this location. In level 5 the soil was dark and fine with small bits of charcoal and 3 pieces of FCR. The excavators suggest this might represent slope wash after a burn off, possibly related to
WMU Feature 1.

We profiled the feature as shown in Figure 10 and Plate 10 B, and determined that these had been two periods of use, that is two episodes of burning, as represented by two thin (about 2 cm.) layers of fused and oxidized sand. The lower oxidized band is separated from the upper one by a brown layer (D) containing charcoal, overlain by mottled white sand (A). The brown layer evidently relates to primary cooking activity, while the white sand may have served to smother the fire during a low baking or roasting process, or it may have been placed there afterward. The upper oxidized band has a similar layer D above it and above this another "cap" of yellow sand was present above the feature, analogous to layer A below.

After the feature was profiled, drawn and photographed the entire remaining half was removed for flotation. For this purpose 3 natural stratigraphic units were defined; Soil Unit A (upper layer D), Soil Unit B (layer A), and Soil Unit C (lower layer D). Each unit was analyzed separately and the results are tabulated in Appendix 1.

To summarize the flotation results here, the only identifiable bone found in the feature itself was Lake Sturgeon (71 fragments weighing 7.45 grams). Sturgeon would most easily be taken during the spawning run in mid-May. In addition, 25 galium seeds were recovered. Galium would have been available from June-July. This combined evidence suggests late spring to early summer activity at the site.

A total of 11 flakes and 8 pieces of FCR can be associated with the feature; no lithic tools or sherds were found in direct association. Evidently refuse was dumped into this pit after its primary use; a metatarsal and a molar fragment of a white-tailed deer, along with several unidentified fragments of bone, were found about the feature at 70-80 cm. in 4S-80E. The feature was not discernible as such until a depth of 110 cm. was reached.
stratigraphy proper. While the excavators did not observe that the feature extended to this wall, the lower dark brown zone (B) overlain by light yellow sand (G) may in fact be related to the feature; this (B) zone may tie in with the upper D zone (second use) of the fire pit as drawn in Figure 10. Alternatively, the north wall profile may show the edge of a second pit which extends into the north wall.

The double plow zone, the evidence of recent disturbance below plow zone, possible historic burn off, evidence of extensive slope wash, possible flooding or redeposition at lower levels, feature building activity, the presence of sherds, chippage, and FCR well below plow zone (not in feature context), and the Early Archaic point in the plow zone serve to illustrate the kinds of complexities which may be anticipated in future work at this site.

ANDREWS UNIVERSITY FEATURES

Andrews University has not employed flotation as part of their data recovery techniques. We felt that information so derived would be very important in preliminary site evaluation. Therefore, by agreement with Mr. Little, two of our field crew members (Ken Barr and Karel Engstrom) excavated 3 features which had been delineated in plan view in the Andrews excavation area and did flotation analysis of them. These results are summarized in Appendix 1. The original square sheets with feature dimensions and profiles will be turned over to Andrews University with copies retained in our data file for the U.S. 31 project. The Andrews University procedure is to number features consecutively within each 3 x 3 meter unit, hence the repetition of feature numbers. Our methods for excavating features and obtaining flotation samples are described in Appendix 1.
Barr informed us that this was a shallow pit containing bone which had been very broken up, probably for extraction of marrow. They recovered a deer skull with antler attached, suggesting fall-winter seasonality. The bone of immature deer was also present and at least 1 sturgeon bone was recovered. A smoothed rim sherd with a 90° rim-shoulder profile was associated with this feature; also cord marked body sherds.

**SUMMARY OF THE WYMER SITE**

We estimate that as presently aligned U.S. 31 will directly impact the eastern part of the site, perhaps 20% of the site. If the alignment could be moved some 200' to the east the entire site as thus far delineated by surface scatter, could be avoided.

There can be no question that Wymer is an important site. We have noted evidence of spring-summer (sturgeon, galium) and fall-winter (deer skull with antler) seasonality. While there is no direct evidence of maize as yet, only a very small part of the site has been excavated, and feature analysis is in its early stages even from that point. It seems entirely possible that Wymer was an agricultural village with year-round occupation, rather than a seasonally visited site. The post-mold patterns, which appear to be house structures, suggest sedentary village life. Also the emphasis on sturgeon and deer observed in our admittedly scanty sample of fauna from the site, is suggestive of a rather focal adaptation like that of the agricultural Moccasin Bluff site. Finally, the near identity of soil types between Wymer and Mocassin Bluff also suggests that maize horticulture may have been practiced at Wymer.

Wymer has the potential for yielding important information on house structures, there may be burials at the site, and the Late Woodland occupation may be of shorter duration than the span of the Late Woodland at Moccasin Bluff. This last point is suggested by a brief and incomplete
TABLE 4.
Cultural Material from Test Excavation at the Wymer Site

Wymer Knoll - Debitage is "local" gray/brown or light gray/white chert, except as noted.
Test pit levels are measured in centimeters.

<table>
<thead>
<tr>
<th>Provenience</th>
<th>Debitage</th>
<th>n</th>
<th>wt/g</th>
<th>FCR</th>
<th>Artifacts/Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface</td>
<td>core chunk</td>
<td>3</td>
<td>64.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>blocky</td>
<td>10</td>
<td>39.5</td>
<td>(1</td>
<td>purple chert)</td>
</tr>
<tr>
<td></td>
<td>blocky</td>
<td>1</td>
<td>12.0</td>
<td>(quartzite)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>flat</td>
<td>3</td>
<td>3.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>bif. thin.</td>
<td>5</td>
<td>3.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>22</td>
<td>123.4 g</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* 2 similar Late Woodland sherds found in west edge of knoll are in A.U. collection.

Test Pit # 1
Level 1 (0-20)
| blocky    | 2  | 4.5 |
| flat      | 7  | 6.1 |
|           | 9  | 10.6 g |
Level 2 (20-36)
| flat      | 6  | 4.9 |
| bif. thin.| 1  | 0.4 |
| (from base of plow zone) | 7  | 5.3 g |
|           | 14 | 2   |

Test Pit # 2
Level 1 (0-20)
| blocky    | 2  | 4.5 |
| flat      | 6  | 6.0 |
| finish    | 3  | 0.6 |
|           | 11 | 11.1 g |

1 schist fragment, ret./utilized (not illus.)
### Cultural Material from Test Excavations at the Wymer Site (cont.)

<table>
<thead>
<tr>
<th>Provenience</th>
<th>Debitage</th>
<th>n</th>
<th>wt/g</th>
<th>FCR</th>
<th>Artifacts/Other</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 2 (20-30)</strong></td>
<td>blocky</td>
<td>4</td>
<td>2.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>bif. thin.</td>
<td>1</td>
<td>0.3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td><strong>Level 3 (30-40)</strong></td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td><strong>5S-79E</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 1 (0-20)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>(0-25 cm. datum depth)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 2 (20-30)</td>
<td>blocky</td>
<td>2</td>
<td>3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(25-35 d.d.)</td>
<td>flat</td>
<td>3</td>
<td>1.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>finish</td>
<td>2</td>
<td>0.4</td>
<td>4.5</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 3 (30-40)</td>
<td>blocky</td>
<td>1</td>
<td>5.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(35-40 d.d.)</td>
<td>flat</td>
<td>3</td>
<td>2.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>bif. thin.</td>
<td>1</td>
<td>0.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>finish</td>
<td>2</td>
<td>0.3</td>
<td>8.6</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4S-78E</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 1 (0-20)</td>
<td>flat</td>
<td>3</td>
<td>1.2</td>
<td></td>
<td>1 screw</td>
</tr>
<tr>
<td>(0-25 d.d.)</td>
<td>bif. thin.</td>
<td>3</td>
<td>1.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>finish</td>
<td>2</td>
<td>0.2</td>
<td>2.9</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provenience</td>
<td>Debitage</td>
<td>n</td>
<td>wt/g</td>
<td>FCR</td>
<td>Artifacts/Other</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------</td>
<td>----</td>
<td>------</td>
<td>-----</td>
<td>-----------------------------------------------------</td>
</tr>
<tr>
<td>Level 8 (80-90) (85-95 d.d.)</td>
<td>flat</td>
<td>4</td>
<td>3.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>finish</td>
<td>1</td>
<td>0.2</td>
<td>3.4</td>
<td>4</td>
</tr>
<tr>
<td>4S-79E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 1 (0-20) (0-30 d.d.)</td>
<td>blocky</td>
<td>2</td>
<td>2.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>bif. thin.</td>
<td>4</td>
<td>2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>finish</td>
<td>1</td>
<td>0.3</td>
<td>4.8</td>
<td>10</td>
</tr>
<tr>
<td>Level 2 (20-30) (30-40 d.d.)</td>
<td></td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 3 (30-40) (40-50 d.d.)</td>
<td>finish</td>
<td>1</td>
<td>0.2</td>
<td>3.8</td>
<td>8</td>
</tr>
<tr>
<td>Level 4 (40-50) (50-60 d.d.)</td>
<td>blocky</td>
<td>1</td>
<td>2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>flat</td>
<td>1</td>
<td>1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>bif. thin.</td>
<td>1</td>
<td>0.4</td>
<td>3.8</td>
<td>9</td>
</tr>
<tr>
<td>Level 5 (50-60) (60-70 d.d.)</td>
<td>flat</td>
<td>3</td>
<td>2.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>finish</td>
<td>1</td>
<td>0.4</td>
<td>3.1</td>
<td>3</td>
</tr>
<tr>
<td>Level 6 (60-70) (70-80 d.d.)</td>
<td>flat</td>
<td>2</td>
<td>2.9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Cultural Material from Test Excavation at the Wymer Site (cont.)

<table>
<thead>
<tr>
<th>Provenience</th>
<th>Debitage</th>
<th>n</th>
<th>wt/g</th>
<th>FCR</th>
<th>Artifacts/Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 80-90 cm. (95-105 d.d.)</td>
<td></td>
<td>--</td>
<td></td>
<td>6</td>
<td>charcoal frags.</td>
</tr>
<tr>
<td>Level 90-100 cm. (105-115 d.d.)</td>
<td></td>
<td>1</td>
<td>5.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>blocky</td>
<td>2</td>
<td>0.3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>finish</td>
<td>3</td>
<td>5.5 g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 100-110 cm. (115-125 d.d.)</td>
<td></td>
<td>1</td>
<td>0.3 g</td>
<td>FCR present-</td>
<td>charcoal frags.</td>
</tr>
<tr>
<td></td>
<td>finish</td>
<td></td>
<td></td>
<td>not counted.</td>
<td></td>
</tr>
<tr>
<td>Feature 1 - west 1/2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>charcoal sample</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2 Lake Sturgeon</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4 unid. frags. bone</td>
</tr>
</tbody>
</table>
to that site. Its elevation at 600', below the 605' Nipissing stage, would suggest that it post-dates this event, and the site would probably not have been attractive for even short term occupation until Lake Michigan reached essentially its modern elevation. The absence of ceramics suggests that cooking at Rock Hearth may not have involved use of pottery vessels or that the hearth functioned for some purpose other than cooking. Three small unidentifiable bone fragments (total weight 0.6 grams) were obtained from the plow zone above the feature; they might be feature-related, since one appears to be calcined. The other two fragments are not clearly calcined, but neither do they look recent. No other cultural material was found associated with this feature.

Rock Hearth possibly could be a Late Archaic locus related to the Knoll occupation at Wymer, but this seems to us less likely, principally because of the low elevation of Rock Hearth. At present, Rock Hearth remains an interesting but unexplained adjunct to the large site which lies to the south.
Site 435, Stover Site (20 BE 307), (Figure 13, 14)

The Stover site is located in a vineyard on the north side of the St. Joseph River in Sodus Twp. It is situated on a high bluff overlooking the river at an elevation of 660'. The soil type is 13B, Spinks loamy fine sand (USDA Soil Conservation Service map).

Our location map (Figure 13) is taken from the 1:400 map of the proposed ROW provided by the Department of Transportation, and it does not correspond exactly to the USGS topographic map which shows two closed 660' contours on this promontory. Our field observations were that the vineyard area is essentially flat and that the ground slopes away to the east at our T.P. 88N-38E, and 42N-30E. During a visit to the site on Sept. 21, 1979, Mr. Ron Roberts confirmed that the site does indeed extend into the right of way. He flagged vine row #8, and a point at the junction of the ROW with the slope down to the river (just off our detailed site map) as marking the west boundary of the ROW.

We found cultural material all over the vineyard. Individual rows of grapes are drawn and numbered on Figure 14, and the location of 9 surface artifacts for which we recorded provenience are indicated by black dots. These locations show a marked clustering along a low ridge, not more than one foot high, which extends east-west across the vineyard. FCR and chippage appeared to be concentrated on this ridge. The concentration lessens somewhat toward the north end of the grape rows, but remained fairly heavy between the ridge and the drop off to the St. Joseph River which marks the south boundary of the site. The site extends about 20 meters farther to the west than we were able to show on Figure 14. The grape rows continue west to number 56, and a point was found in row 55. Shovel testing in the orchard north of the farm lane in the highway ROW produced no cultural material. This fact, coupled with the observed downward slope of the terrain east of our two test pits in the highway
All stages of flint knapping are present, although primary decortication and core reduction stages seem to be underrepresented. No actual cores were found. In addition to the wedges illustrated, some of the core chunks and blocky flakes appear to have been utilized in wedge-like functions, and detailed analysis would probably show that cutting or splitting of bone (and wood?) using wedges was an important activity. Deep flake scars on some of these wedge tools suggest that they were used for heavy duty chopping or splitting.

Most of the unifaces have rather steep scraping edges, suggesting that fairly soft material such as skins may have been processed with these tools. They would not serve well in the planing or shaping of harder substances like wood.

Several of the bifaces may have served as knives, and some of the projectiles may have served secondarily as knives or possibly were intended to be hafted knives (e.g. Plate 4d, f, h). The biface fragment in Figure 15b has what appears to be a notch on the lower right corner, but the distal end was never a "point". Rather this tool shows rather heavy, rounded use wear around the distal margin.

We suggest that butchering and secondary meat processing, including hide dressing may have been important activities at Stover. The site was in all likelihood reoccupied seasonally, but perhaps by people who were culturally rather closely similar and perhaps not for an extended period of time; that is, perhaps for a hundred years, but not a thousand. Stover is as good a candidate for a "single component" Late Archaic site as any I have seen in Southwest Michigan, and I think that this is the real importance of the site. It has the potential to tell us a good deal about the Late Archaic lifeway in this region, and to refine our typologies for this period as well, particularly if the private collection from the site becomes accessible for study.
ARTIFACTS FROM STOVER SITE SURFACE

Bifaces - Projectile points (10) Plate 4; measurements in Table 2.

Ten projectile points were recovered from the Stover site, all of them from the surface. The most common type is a rather small side-notched point with a convex base. One point has a straight base. There are 4 good examples of this type (Plate 4d, e, g, h). Two of these (d, h) are not fully retouched on one side, and both are rather thick in cross section. A fifth point (c) is very similar; it is made of quartzite, and has shallow irregular side notches. A sixth point (k) may also be of this type, and may have broken when notching was attempted.

Points (j) and probably (a) are expanding stem points. Point (g) has a tapered stem and (f) has a long, squarish stem.

These points appear to be consistent with a Late Archaic placement of the site. Point (e) could as well be a Late Woodland point; the straight base and long narrow blade make it somewhat distinctive, however in the absence of any other Woodland material from the site we are inclined to place it with the Archaic.

Wedges - (4), Figure 15.

Specimens h, i and j are made on rather granular chert, probably cortex, k is a blocky flake or white chert.

Misc. Bifaces - (4)

A knife (Plate 4, 1) and two segments of bifacial tools were found (Plate 5 E and Figure 15 L) on the site surface.

The large tool illustrated in Plate 5 E shows heavy bifacial battering and is a unique artifact.

Unifaces - (9)

Seven unifaces are illustrated in the top two rows of Figure 15, the other two are shown in Plate 5 B, D.

Five unifaces are of the thumbnail variety, two have an ogival scraping edge (Figure 15 E, F), and one is concave (Figure 15 G). The last uniface
TABLE 7. Cultural Material from Test Pits at the Stover Site

<table>
<thead>
<tr>
<th>Test Pit (1 x 1 meter)</th>
<th>Debitage</th>
<th>FCR</th>
<th>Artifacts/Other</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>18S-41W</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 1 (0-20 cm.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>core chunk</td>
<td>1</td>
<td>34.7</td>
<td>15</td>
</tr>
<tr>
<td>decort.</td>
<td>2</td>
<td>21.7</td>
<td>1 misc. bifacially retouched (2.9 g)</td>
</tr>
<tr>
<td>blocky</td>
<td>2</td>
<td>5.3</td>
<td>1 frag. clear glass vessel</td>
</tr>
<tr>
<td>flat</td>
<td>4</td>
<td>2.7</td>
<td>1 heat treated</td>
</tr>
<tr>
<td>bif. thin.</td>
<td>3</td>
<td>1.7</td>
<td>1 heat treated</td>
</tr>
<tr>
<td>finish</td>
<td>3</td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td><strong>Level 2 (20-30)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1S-16.5W</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 1 (0-20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>flat</td>
<td>1</td>
<td>0.4</td>
<td>--</td>
</tr>
<tr>
<td>bif. thin.</td>
<td>2</td>
<td>1.0</td>
<td>1 piece of lead (amorphous)</td>
</tr>
<tr>
<td><strong>Level 2 (20-30)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>decort.</td>
<td>1</td>
<td>2.5</td>
<td>--</td>
</tr>
<tr>
<td>blocky</td>
<td>1</td>
<td>3.8</td>
<td>--</td>
</tr>
<tr>
<td>flat</td>
<td>1</td>
<td>1.9</td>
<td>--</td>
</tr>
<tr>
<td><strong>ON-5E</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 1 (0-10) sod</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>flat</td>
<td>2</td>
<td>1.4</td>
<td>8</td>
</tr>
<tr>
<td>bif. thin.</td>
<td>3</td>
<td>2.7</td>
<td>1 piece of wire</td>
</tr>
<tr>
<td>finish</td>
<td>1</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td><strong>Level 2 (10-20)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bif. thin.</td>
<td>2</td>
<td>0.6</td>
<td>6</td>
</tr>
<tr>
<td><strong>Level 3 (20-30)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--</td>
<td>8</td>
<td>5.0</td>
<td>1</td>
</tr>
<tr>
<td><strong>42N-30E</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 1 (0-20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bif. thin.</td>
<td>1</td>
<td>0.2</td>
<td>2 frags. shell (modern fertilizer)</td>
</tr>
<tr>
<td><strong>Level 2 (20-30)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bif. thin.</td>
<td>2</td>
<td>1.4</td>
<td>1 sherd flat clear glass</td>
</tr>
<tr>
<td><strong>Level 3 (30-40)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sterile</td>
<td></td>
<td></td>
<td>--</td>
</tr>
<tr>
<td>Level 3 (30-40)</td>
<td></td>
<td></td>
<td>--</td>
</tr>
<tr>
<td>Site</td>
<td>Plate illus.</td>
<td>Raw materials</td>
<td>Length</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------</td>
<td>---------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Eidson 3e</td>
<td>gray/white chert</td>
<td>3.20</td>
<td>1.6</td>
</tr>
<tr>
<td>Stover 4a</td>
<td>blue/gray chert</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Stover 4b</td>
<td>white chert</td>
<td>6.30 est.</td>
<td>--</td>
</tr>
<tr>
<td>Stover 4c</td>
<td>quartzite</td>
<td>3.90</td>
<td>2.12</td>
</tr>
<tr>
<td>Stover 4d</td>
<td>gray/white chert</td>
<td>4.10 est.</td>
<td>1.74</td>
</tr>
<tr>
<td>Stover 4e</td>
<td>gray chert</td>
<td>3.56</td>
<td>1.85</td>
</tr>
<tr>
<td>Stover 4f</td>
<td>lustrous gray/w blue inclusions</td>
<td>5.00 est.</td>
<td>--</td>
</tr>
<tr>
<td>Stover 4g</td>
<td>white chert</td>
<td>3.20 est.</td>
<td>1.88</td>
</tr>
<tr>
<td>Stover 4h</td>
<td>purple chert</td>
<td>3.89</td>
<td>2.39</td>
</tr>
<tr>
<td>Stover 4j</td>
<td>white/gray mottled chert</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Wymer 4S-79E p.z., Level 1</td>
<td>gray/white chert</td>
<td>4.10 est.</td>
<td>1.85 est.</td>
</tr>
<tr>
<td>Froehlich 3d</td>
<td>gray/white chert</td>
<td>3.25</td>
<td>1.80</td>
</tr>
<tr>
<td>Kraklau I 4b</td>
<td>white chert w gray banding</td>
<td>4.80 est.</td>
<td>2.29</td>
</tr>
</tbody>
</table>
Site 485, Froehlich Site (20 BE 308), (Figure 16)

The Froehlich site is a 20 x 30 meter lithic scatter with some fire cracked rock present. Five chips and a side-notched point, probably Late Archaic (Plate 3 D), were recovered from the surface. The site is in a cultivated field at an elevation of 660', on the edge of a swampy depression. It was considered to be worth testing and this was done in September, with negative results. Two 1 x 1 meter test pits were put in the site (Figure 17). Additional FCR was found, but no other cultural material was recovered in either unit.

The Froehlich site appears to be a temporary camp occupied by a small number of people. The recovery of blocky flakes, one heat treated, indicates that some basic tool manufacture was being carried out at the site. We are also aware of a small collection from the Froehlich property (158 acres) in the possession of the owner. We saw two bifaces, one a side-notched point, the other was a Hardin point, more common in areas to the south than in Michigan but we have identified 6 in the Amos Green collection. Four for which we have secure provenience came from central Berrien County. An Early Archaic temporal placement is suggested for Hardin points in Illinois (Luchterhard 1970). Also in the collection but not seen are two bannerstone fragments and a "skinning stone" (celt?). These ground stone objects were still not accessible when we returned to photograph the collection. We cannot be certain from information provided that any of this material comes from the small scatter we located.

Cultural Material from the Froehlich Site (20 BE 308) TABLE 9.

<table>
<thead>
<tr>
<th>Provenience</th>
<th>Debitage</th>
<th>FCR</th>
<th>Artifacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface</td>
<td>blocky</td>
<td>3</td>
<td>1 heat treated light 1 side-notched point (Plate 3 D)</td>
</tr>
<tr>
<td></td>
<td>flat</td>
<td>2</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Test Pit A
0-20 cm. -- 3
20-40 cm. -- --
(p.z. at 30-32 cm.)

Test Pit B
0-30 cm. -- 4
Site 530, Taylor I (20 BE 310), (Figure 19)

This site is located on the same ridge as Taylor II, overlooking a swamp at an elevation of about 660'. The two occupations are about 1000 feet apart and are probably related. Taylor I is estimated to cover an area of 30 x 50 meters. It is located on a sandy ridge in a cultivated field.

Our survey recovered a large Archaic biface which has been reworked into a scraper at the basal end, and a small, heavily worn drill made on purple chert (Plate 36 H). The biface is made of a good quality pinkish white chert which shows purple mottling, evidently heat treated. It exhibits heavy edge grinding, which may be intentional backing, along one lateral margin from the center to the tip. In addition to these artifacts our survey reported medium FCR, and six chips were found.

On the way into the site a local farmer told our crew that Amos Green "used to dig up lots of stuff" out there. This comment could have been in reference to Taylor II as well as to this site, and very possibly refers to both.

In September, we put in one test pit in this site, which is also in a soybean field (like Taylor II). Dense, clayey subsoil was encountered at 20 cm. below surface. The subsoil was dug down another 5 cm. but no cultural material was found below the plow zone, which yielded 9 pieces of debitage, from decortication flakes to very small finishing flakes, and 7 FCR. The subsoil was very difficult to dig. Ten shovel probes were put in over the area of the site. The plow zone varied from 20 to 30 cm. below surface. No further cultural material was found, and testing was ended.

In December 1979 we located some artifacts from the "King Farm Site" in the Amos Green collection at Western Michigan University. Harold King (deceased) formerly owned the Taylor property, and the information that
TABLE 11.  
Cultural Material from Taylor I

<table>
<thead>
<tr>
<th>Provenience</th>
<th>Debitage</th>
<th>n</th>
<th>wt/g</th>
<th>FCR</th>
<th>Artifacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Pit A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 1</td>
<td>decor.</td>
<td>1</td>
<td>15.3</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>blocky</td>
<td>4</td>
<td>10.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>flat</td>
<td>2</td>
<td>0.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>finish</td>
<td>2</td>
<td>0.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>9</td>
<td>27.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface</td>
<td>blocky</td>
<td>2</td>
<td>3.9</td>
<td></td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td>bif. thin.</td>
<td>4</td>
<td>2.6</td>
<td></td>
<td>1 large biface</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>6.5</td>
<td></td>
<td>1 small drill</td>
</tr>
</tbody>
</table>
Site 677, Find Spot, (Figure 23)

The tip of a large argillite biface suggesting "hand-axe" dimensions was found in a corn field at an elevation of 660'; a possible hammerstone was also recovered about 20 paces distant (Plate 1). The material was found in a low field, down slope from a sandy ridge which lies to the north. The ridge was covered with dense grass. It was shovel probed, but no cultural material was located.

Despite the isolated nature of these finds based on the preliminary survey, we decided that limited testing might be worthwhile. In September we did excavate a 1 x 1 meter unit to a depth of 20 cm. (plow scars were beginning to show up) where the argillite artifact was found. No cultural material was found and the testing was terminated. The soil was a dense clayey loam which was extremely difficult to shovel and screen. The area seems to have been a bog or swamp at one time, and we concluded that the locality is best designated as a find spot.

Site 685, Tidey Site (20 BE 311), (Figure 23)

This site was described as a sparse scatter over an area of approximately 100 x 100 meters. No FCR was observed, but surface visibility was poor, and the location of this scatter on a ridge looked promising for a site location.

In September we tested this site with three 1 x 1 meter test units (Figure 24). Results of testing did not demonstrate the existence of a significant site, although debitage was recovered from two of the three units. Only 1 piece of FCR was recovered.
Site 690-H, Rock Edwards House, (Figure 23)

This house is on a farm purchased by Rock S. Edwards in 1860. A biography of Mr. Edwards may be found in Portrait and Biographical Record of Berrien and Cass Counties (Anonymous 1893:557-558). A drawing of the house taken from this publication is included in this report, along with a photograph taken by our survey (Plate 17).

The house appears to be in very good condition. There is now another house between the barn and the road, but the only modification to the exterior of the original house is that the porch has been enclosed. The original barn is still standing.

Site 695-A, Find Spot, (Figure 23)

This is an isolated find in a bean field where surface visibility was very good. The topography is flat; no FCR or chippage was noted. The artifact is a well made side notched Archaic point with a broken tip (Plate 1).

Site 695-B, Find Spot, (Figure 23)

This find spot is a very slight sand ridge in a cultivated field. It is a preform, with edge damage along one margin suggesting that it may have functioned as a knife (Plate 1).

Surface visibility was good, and no other cultural material was found anywhere in the vicinity.
cultural material. Only three flakes and some FCR were recovered in testing, and we can only conclude on the basis of our field data that this site represents a very light occupation; the paucity of debitage suggests a short term extractive activity area of some kind, rather than a base camp.
Site 718, Kraklau II (20 BE 313), (Figure 25)

The Kraklau II site at ROW 718 is located on an east-west trending ridge or knoll just west of the dirt road that separates the Kraklau and Vasta properties. The soil is a gravelly sand in this field, which was overgrown with weeds at the time of survey. Surface visibility was judged to be poor. Fourteen flakes were recovered from the surface, and FCR was present.

The site was tested in August with five 1 x 1 meter units (Figure 26). Test pits were all dug into sandy subsoil beneath the plow zone, but no evidence of cultural material below the plow zone was found.

Test Pit A, the first one excavated, was particularly productive; 13 flakes, 10 FCR, and two unifacially retouched tools (not illustrated) were recovered. Both unifaces are made on blocky flakes; 1 has fine retouch on 3 sides, the other has retouch on 1 edge. The other four test pits were much less productive: Test Pit C yielded 6 flakes and 2 FCR; Test Pit B, 3 FCR only; and Test Pits D and E were completely sterile. The plow zone in Test Pit D was very shallow, evidently indicating some erosion off the top of the ridge. The prehistoric occupation appears not to have been intensive.
Site 724, Vasta (20 BE 314), (Figure 25)

The Vasta site at ROW 724 is located on the bluff on the south side of Pipestone Creek. Surface visibility was good in rows of evergreens coming up to the site, which is on a peninsula of land covering an area of approximately 20 x 40 meters. A broken biface (Plate 3) and 10 chips were found; FCR was noted.

The site was tested with two 1 x 1 meter units. One flake and small pieces of FCR were found in each test pit. The occupation appears to have been of a non-intensive nature.

TABLE 15.
Cultural Material from the Vasta Site

<table>
<thead>
<tr>
<th>Provenience</th>
<th>Debitage</th>
<th>n</th>
<th>wt/g</th>
<th>FCR</th>
<th>Artifacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface</td>
<td>decort.</td>
<td>3</td>
<td>8.0</td>
<td>present</td>
<td>1 biface (Plate 3)</td>
</tr>
<tr>
<td></td>
<td>blocky</td>
<td>2</td>
<td>24.7</td>
<td>(1 util.; purple chert)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>flat</td>
<td>4</td>
<td>6.0</td>
<td>(1 util.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>bif. ret.</td>
<td>1</td>
<td>1.0</td>
<td>(purple chert)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10</td>
<td></td>
<td>112.8 g</td>
<td></td>
</tr>
</tbody>
</table>

T.P. A
Level 1, 0-30
p.z. flat 1 7.0 g 9 (small) 1 shotgun shell

T.P. B
Level 1, 0-30
p.z. blocky 4 23.5 g 5 (small)
Part III. 1. EVALUATIONS and RECOMMENDATIONS

While certain large sites found during this survey are of obvious importance, it is particularly difficult to evaluate the significance of the small sites. Their material remains are scanty, yet they do permit us to make inferences about past aboriginal behavior. Even the isolated finds contribute toward building a picture of prehistoric lifeways in the region, i.e. the points and cutting tools suggesting individual hunting episodes.

In every case where a find spot was identified, the surrounding area was very carefully examined to determine if the find indeed was an isolated one. We are satisfied that our methods were thorough in this regard, and will not recommend any further exploration of these find spots. Some of the small sites we also feel do not warrant additional investigation, while others should, in our opinion, be investigated. Arabic numbers before sites coincide with the site listing in Table 1.

1. and 2. ROW 83, 85.

Find spots.

Recommendation: No impact.

3. Marschke Site (20 BE 306)

This is a small aceramic site, probably Archaic. Surface visibility was very good, but we recovered only 1 flake and light FCR.

Recommendation: No impact.

4. ROW 147.

Find Spot.

Recommendation: No impact.
these floodplain deposits raise the possibility of buried Archaic features also.

Whether the site is avoided entirely or some part of it mitigated, it is important that the remaining site area be protected. Construction machinery must not be permitted on the site, and the surface must not be graded or contoured in any way. A fence should be erected in order to clearly demarcate the west boundary of the ROW before construction begins.

Recommendations: 1) Avoid if possible. 2) If site can't be avoided, further Phase II testing should be done in the ROW in order to plan for mitigation.


Rock Hearth yielded neither ceramics nor lithic artifacts which would clearly link it to one or another of the Wymer components, but due to its low elevation (600') we think a Late Woodland date is more likely than Late Archaic. The recovery of any lithic tools or other kinds of cultural evidence which might yield information on site age or function would be an interesting addition to our knowledge of sites in this heavily occupied portion of the Survey ROW. It is possible, although we think it unlikely, that the site is unrelated to Wymer. Mitigation could take the form of plowing, gridding, compiling a controlled surface record, and excavating areas of significant concentration.

Recommendation: Avoid or mitigate.

9. Stover Site (20 BE 307)

This site is an important Late Archaic site which yielded thirty lithic tools not counting miscellaneous retouched and utilized pieces. We believe that there is at least one collection from the site and every effort should be made to gain access to this collection as part of any further work here. Stover has the potential to tell us much about the
11. Taylor II Site (20 BE 309).

This site has been partially bulldozed, and it is likely that some of the bifaces in the Amos Green collection which are illustrated as coming from the King Farm in fact came from this site, as well as from the nearby Taylor I site. The provenience of the King artifacts was not suspected as being a site from this project until winter of 1979.

Although the highest part of this site has been disturbed, there was debitage and FCR in both our test pits located down slope from the bulldozed area, and we are reluctant to write off this site as non-productive of useful information. Both this site and Taylor I are on the eastern margin of the ROW and could be avoided by a relatively small shift of the alignment to the west. However the topographic map indicates that other likely site locations are present along that western margin of the ROW and that little might be gained by such a shift. This however could be determined by additional survey.

Taylor II could be satisfactorily mitigated by plowing, gridding the surface, doing a controlled recording, and excavating those areas showing significant concentrations.

**Recommendation:** Avoid or mitigate.

12. Taylor I Site (20 BE 310).

Taylor I is a well situated Late Archaic camp on the edge of a swampy area. The two artifacts which we recovered during survey, a well made bifacial artifact which may have functioned as a backed knife and as a scraper, and a heavily worn drill, imply activities at a camp of some permanence. We think it likely that some of the King Farm bifaces came from Taylor I. This would mean that the site has been dug into in the past, and if mitigation is done, care must be taken to distinguish these modern sub-plow disturbances from aboriginal activity. This comment
   The house is more than 100 years old, and appears to us to have architectural merit.
   Recommendation: Request a historian to evaluate.

20. ROW 695-A.
   Find spot.
   Recommendation: No impact.

21. ROW 695-B.
   Find spot.
   Recommendation: No impact.

22. Kraklau I Site (20 BE 312).
   While the cultural evidence from three test pits on this site indicated a non-intensive occupation of the site, Kraklau I is a fairly large site, some 50 by 80 meters, and the surface of it has certainly not been sampled. The fact that there is a collection known to come from the site, including an undetermined number of bifaces (collection now dispersed), and a grooved axe, suggests that this was more than a single short term encampment. A nearby spring may have made this location a particularly attractive one, and the site may have been frequently revisited. The site in our view warrants mitigation which could be accomplished by the plowing, gridding, controlled surface recording and selected excavation procedures described for other sites. Approximately 3/4 of the site is in the ROW. The exit ramp could possibly be shifted south slightly but the site would still be significantly impacted. Any major shift in the ROW would seem to be difficult in this area of steeply dissected terrain cut by Pipestone Creek.
   Recommendation: Avoid or mitigate.
Figure 5. ROW location of Eidson Site # 391 - 405, Wymer Site # 410 - 415,
Figure 7. Wymer Site - Vessel rim profiles from Andrews University Collection.

Figure 8. Location of Feature 1 in WMU test units near farm road.
A. Plow zone
B. Dark brown sandy loam
C. Gray with some ash and charcoal flecks
D. Light brown sand
E. Yellow sand
F. Dark gray with charcoal flecks
G. Light yellow sand
Wymer Feature #1

A. Mottled white sand
B. Mottled fused sand
C. Gray-brown w/charcoal flecks
D. Brown w/charcoal flecks
E. Rodent disturbance
F. Yellow sand (sterile)

Figure 10. Wymer Site - Plan view and profile of fire pit. Feature 1.
Figure 12. Rock Hearth (20 BE 306), plan and profile of feature
Figure 24. Tidey Site (20 BE 311) showing location of test units.
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Green, Amos R. and J. Fitting

Larsen, Curtis
n.d. Some personal views on needed archaeological research in Michigan for the Conference on Michigan Archaeology.

Luchterhand, Kubet

Mangold, William

Martin, Helen M.
Plate 1: Artifacts from Find Spots identified by Right-of-way number.
Plate 22. Kraklau Site (20 BE 312) A - hammer; B, C - projectile points; D - grooved axe in possession of owner.
Plate 3. A - C, Wymer Site (20 BE 132); D, Froelich Site (20 BE 308); E, Eidson Site (20 BE 122); F, Vasta Site (20 BE 314); G, H (drill) Taylor # I (20 BE 310).
Plate 4. Bifaces from Stover Site (20 BE 307).

Scale 1:1
Plate 5. Ground and chipped stone artifacts from Stover Site (20 BE 307): A (top), anvil; A (bottom), hammerstones; B, uniface (scraper); C, biface fragment; D, uniface (scraper); E, large bifacial tool.
Plate 6. Wyner Site (20 BE 132); bifaces from Andrews University Collection.
Plate 9. Wymer Site (20 BE 132); various lithic artifacts from Andrews University Collection.
Plate 10-A Wymer Site: bone in fill above Feature 1.

Plate 10-B Wymer Site: profile of Feature 1 from 110 to 135 cm below surface (see also Figure 10).
Plate II. Aerial photographs of Eidson, Wymer and Rock Hearth sites.
Protoctite points and shell tempered corn.