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Aquatic Ecology Survey Interim Report
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Prepared for:
Black & Veatch



Aquatic Ecology Survey

Detroit Edison Company Fermi 3

Project

Interim Report

AECOM Environment
January 2009

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AECOM Environment
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1.0 Introduction

This interim report summarizes current data collected as part of the Aquatic Ecology Survey for Detroit Edison Company's (DECo) proposed Fermi 3 Nuclear Generating Station to be located near Newport (Frenchtown Charter Township) in Monroe County, Michigan, Figure 1. Data collected in this study are being collected to support DECo's Combined Operating License Application (COLA) to the Nuclear Regulatory Commission (NRC).

The Fermi site is located on the Western Basin of Lake Erie between the Swan Creek and Stony Creek watersheds. The site consists of approximately 1,120 acres of developed and undeveloped land with approximately 650 acres of land being designated as part of the Detroit River International Wildlife Refuge (DRIWR), Figure 2. Aquatic resources associated with the site include: Lake Erie, Swan Creek, on-site waterbodies and waters within the DRIWR. The on-site waterbodies are comprised of the internal canal system, quarry lakes, and the cooling tower circulating water reservoir. Waterbodies in the DRIWR portion of the site include the south lagoon, north lagoon, and a small isolated pond. In addition to the waterbodies, there are wetlands associated with tributaries and low lying areas along many of the waterbodies.

The primary objective of the aquatic assessment is to collect current data over a one year period in the vicinity of the site to supplement the aquatic data included in the Environmental Report of the COLA. The assessment was designed in accordance with discussions with DECo and the NRC during the projects T-1 and T-2 meetings. The goals of the study are to:

- Determine current species richness and relative abundances for fishes and macroinvertebrates in the waterbodies located on-site, within the DRIWR, and adjacent to the site in Lake Erie and Swan Creek;
- Determine fish species impacted by impingement and entrainment as part of the current operation of the General Service Water Pump House (GSWPH) for Fermi 2;
- Compare current fish impingement (I) and entrainment (E) data to historical data to determine potential impingement and entrainment rates; and
- Identify potential impacts to aquatic resources associated with the proposed expansion project.

Due to naturally occurring environmental constraints, such as the icing of waterbodies and over growth of aquatic vegetation, biological surveys may be restricted to certain months of the year. Therefore, aquatic samples will be collected over a one year period during those months where sampling accessibility is not limited by icing of waterbodies or covered by aquatic vegetation. Data compiled during the available sample months will be analyzed and compared with relevant literature pertaining to waterbodies in the area in order to approximate the biological communities likely to be present during the remaining months.

Data summarized in this interim report covers the first 5 months, July 2008 through November 2008, of aquatic samples collected for the aquatic resources associated with the Fermi site.

2.0 Materials and Methods

The survey areas for the aquatic resources study included nine sample stations located within Swan Creek, Lake Erie, the quarry lakes, the internal canal system, the isolated pond, and I/E samples at the GSWPH, (Figure 2). These locations were selected based on being able to evaluate the aquatic resources adjacent to the site and those areas that are in proximity to proposed new facilities and construction areas. Samples for fish communities and benthic macroinvertebrates were sampled at random locations at each sample station.

The Great Lakes Environmental Center (GLEC) located in Traverse City, Michigan was contracted to complete all of the aquatic resource sampling. GLEC has extensive experience completing I/E studies on Lake Erie and Lake Michigan and has worked with the Michigan Department of Natural Resources (MDNR) and the Environmental Protection Agency (EPA) to develop sampling protocols for aquatic systems in Michigan and other states in the northeast.

A monthly sampling program was established to document species richness and diversity and to ensure that seasonal variation could be determined. Within each month, samples were collected over a four to five day period using a variety of gears that included: gill nets, seines, hoop nets, minnow traps, and electroshocking to determine fish populations, dip nets for sampling benthic communities, and dip nets and plankton nets for impingement and entrainment sampling. The following sections provide a detailed description of each of the sampling methodologies.

2.1 Impingement and Entrainment

Impingement and entrainment sampling for fish was completed once per month over a 24-hour period. Samples were collected from the existing Fermi 2 GSWPH located on Lake Erie. Impingement samples were collected from the trash/debris sluiceway using modified sampling dip nets fitted with ¼" mesh. Prior to the initial sample collection, the traveling screens were scheduled to run for 30 minutes to wash and clear the screens of all existing debris and organisms. The screens were then left idle over the next 12 hours for the first impingement period. At 12 hours, dip nets were placed in the sluiceway and the screens were run once more for 30 minutes to ensure more than one complete revolution and complete washing of organisms and debris. Samples collected during this time were to document impingement for the 12-hour period. This process was subsequently repeated for yielding a combined sample period of 24 hours for each sampling event. The impinged organisms from the screens were rinsed into collection dip nets and sorted by species, then measured to the nearest millimeter total length (TL).

Entrainment samples were collected at 6-hour intervals over a 24-hour period for a total of four samples for each event. To characterize diel variations, two of the samples represented day time and two represented night time collections. Samples were collected using a trash pump system located in front of the trash racks in the GSW. The pump system filters water through a plankton net (500µm mesh) fitted within a buffer chamber. A 6 horsepower pump fitted with a 3-inch hose was lowered into the water column to a depth of approximately 12 feet (middle of the water column). The pump was run for approximately 1 to 2 hours to collect a prescribed volume of water (6, 600 gal/sampling period) per each six hour sampling interval so that a total known volume of water was pumped over a 24-hour period.

Due to operational constraints at the GSWPH modifications to impingement samples were made during the September sample event to collect representative samples for each 12-hour period. For example, the intake screens had to be turned on manually prior to the end of each 12-hour period to accommodate vegetative build up on the screens. Samples were then collected at 1-hour intervals within each 12-hour period, when possible. A minimum of three 1-hour samples were collected to deem the sample a viable representation of the 12-hour period. Total numbers of fish were then extrapolated based on a rate of impinged organisms per hour to represent the entire 12-hour period.

The sampling schedule for the remainder of the program for I/E will include the following:

- Impingement - Samples collected once per month for the remainder of the sample program (December 2008 through June 2009);
- Entrainment – Samples will not be collected during the winter months from December 2008 through February 2009 due to freezing water conditions and limited number of fish egg and larval present during this time of year. In addition, discussions with the NRC suggested that sampling for entrainment would provide more beneficial information during the months when overall species reproduction takes place. Therefore, samples will be collected twice per month during the months of April, May, and June, with 1 sample being collected in July. Doubling the number of samples during these months will allow for a more thorough evaluation of entrainment during those months that are typically considered as highly productive fish reproduction.

2.2 Fish Community

The fish communities associated with Swan Creek, Lake Erie (Intake and south Lagoon), the internal canal system, the quarry lakes, and the isolated pond were sampled once per month at randomly selected locations within each station, Figure 2. Fish were collected using current fisheries techniques as described in Murphy and Willis (1996). These gears are routinely used in fisheries sampling programs throughout North America. Sampling gears, gill nets, hoop nets, minnow traps, and bag seines, as well as electroshocking were used to collect fish within the different habitats associated with each aquatic resource. Multiple sampling gears were selected to allow for thorough sampling coverage of the different life stages of fish. Due to the types of aquatic habitat sampled and the amount of vegetative cover within each aquatic resource some sample gears could not be used. Table 1 provides a summary of sample locations and the types of gears utilized for each. Electroshocking was employed at all locations except LE1-A (seines) and IP-A (minnow traps and hoop nets). Gill nets (NQ-A and SQ-A) and seines (LE1-A) were used to supplement the electrofishing effort at specified locations.

Upon retrieval of each sample gear, all fishes were identified to the lowest taxonomic level and enumerated. Up to 50 randomly selected individuals of each species were measured (total length) to the nearest millimeter. Fish total length was measured from the tip of the snout to the tip of the tail.

There are no samples scheduled to be collected during the winter months from December 2008 through March 2009 due to environmental constraints associated with icing of waterbodies.

2.3 Macroinvertebrate Community

Benthic macroinvertebrates were sampled monthly in principal habitat areas associated with each of the nine aquatic sampling locations. The principal habitats included areas with aquatic vegetation and areas where the benthic substrate consisted of soft silt and/or detritus materials. A dip net with a 12-inch D-frame opening and fitted with 500 μ m mesh was pulled for one linear meter at a depth of approximately 2 inches into the substrate. Samples were washed into a 500 μ m mesh sieve bucket, and subsequently rinsed into a one liter plastic jar and preserved with 95% ethanol. This method closely follows the methods outlined by the EPA Field Operations Manual (2007). Benthic invertebrates will be identified to the lowest taxon practicable and data will be used to evaluate species richness and aquatic biodiversity.

During the initial project planning benthic samples were designed to be collected using the grab technique which incorporated either an Ekman or Peterson Grab sampler. However, during site reconnaissance it was determined that using a dip net which incorporates a sweep approach would collect a higher diversity of organisms that occupy different areas of the benthic community. These would include those organisms that burrow, those that are on the substrate surface, and those organisms whose eggs and larvae are just above the

substrate. The Ekman and Peterson grab sample would only provide a very narrow profile of those organisms in the substrate and would not provide the breadth necessary to evaluate potential impacts.

No samples are scheduled to be collected during the winter months from December 2008 through March 2009 due to environmental constraints associated with the icing of waterbodies.

2.4 Threatened and Endangered Species

A review of Michigan state and federal listed threatened and/or endangered species located near the Fermi site was reviewed and provided in the Aquatic sections of the ER. None of the listed threatened and/or endangered species have been observed or recorded in samples collected to date.

3.0 Results

The following sections provide the results for each of the different sampling programs at the Fermi site. Table 2 provides a summary of all fish collected from July through November at the nine different locations.

3.1 Impingement and Entrainment

A total of five impingement and entrainment samples were collected during the period from July through November 2008. Table 3 provides a summary of fish species collected in the impingement samples at the Fermi GSW. Results from four of the five impingement samples (July, August, September, and October) are discussed. The November impingement sample had not been processed at the time of developing this report. Data pertaining to the entrainment samples are not presented at this time due to lab constraints and complexities of completing a thorough taxonomic identification for all samples.

Results of the four impingement samples indicated that no fish were impinged in the July sample, 6 fish were collected in August, and 7 fish were collected in September, and 6 fish were collected in October. Based on the numbers of fish impinged, this equates to an impingement rate of 0 organisms/hour in July, 0.25 organisms/hour in August, 0.29 organisms/hour in September, and 0.25 organisms/hour in October. No significant trends were documented.

Dominant species were not apparent due to the small number of organisms collected. Total number of species collected were 0, 6, 7, and 5 for each month, respectively. Sizes of organisms ranged from 26 mm up to 157 mm. The smallest individual species collected was the emerald shiner and the largest individual species was the gizzard shad.

3.2 Fish Community

The results of the aquatic study for fish communities are presented in Tables 4 through 11. A total of 12,488 fish comprising 46 species were captured at the nine sampling sites from July through October, Table 2. November samples were collected; however the data have not been analyzed and therefore are not included in this summary. The Lake Erie/south lagoon sample site had the greatest number of fish collected with 3,049 while the isolated pond had the fewest number of fish with only 8. The Lake Erie/south lagoon sample had the greatest number of fish species (32) and the isolated pond had the fewest number of fish species (4).

Swan Creek

The Swan Creek system, station SC-A, was sampled in the vicinity where the north canal enters Swan Creek using electroshocking and seines. Table 4 provides a summary for all monthly samples collected on Swan Creek. A total of 1,074 fish were collected from four seines and four electroshocking events during the months of

July through October. The July sample yielded the greatest total number of fish (422) while August represented the smallest sample (194). Composition of fish were dominated primarily by gizzard shad (54%), followed by bluegill (9%), brook silverside (7%), pumpkinseed sunfish (7%), and goldfish (6%), Figure 3.

A total of twenty-two species of fish were represented in the samples, indicating a relatively high level of species richness for Swan Creek. Monthly species richness ranged from 11 to 18 species with July exhibiting the highest number and October the lowest number.

Lake Erie

Two areas were sampled in Lake Erie including the beach area adjacent to the intake structure, station LE1-A, and the inlet between the south lagoon and Lake Erie, station LE2-A. The intake station yielded a total of 1,772 fish comprising 16 species. Table 5 provides a summary for all monthly samples collected using a seine at the intake structure from July through October. August samples contained the greatest total number of fish (1274) while September samples yielded the fewest number of fish (22). Species composition was dominated by gizzard shad (48%), followed by white perch (36%), spottail shiner (6%), goldfish (3%), and bigmouth buffalo (3%), Figure 4.

A total of sixteen species of fish were represented in the samples indicating a moderate to high level of species richness for the habitat. Monthly species richness ranged from a minimum of 4 species in September to a maximum of 12 species in July.

The Lake Erie/south lagoon station samples resulted in a total of 3,049 fish comprising 32 species. Table 6 provides a summary for all monthly samples collected from July through October using electroshocking gear. September sampling was not performed as a result of restricted boat access from increased wave heights. Of the samples collected, August exhibited the greatest total number of fish (1791) while the July sample comprised the fewest number of fish (485). Species composition was dominated by goldfish (36%) and gizzard shad (20%), followed by bigmouth buffalo (6%), and the bluntnose minnow (6%), Figure 5.

A total of thirty-two species of fish were represented in the samples indicating a high level of species richness for the habitat. Monthly species richness ranged from a minimum of 19 species in July to a maximum of 23 species in August and September.

Internal Canal System

Three sampling areas were associated with the internal canal at the Fermi site. These locations are the north canal (station CN-A), central canal (IC-A), and the south canal (CS-A). The north canal samples yielded a total of 1,622 fish comprising 28 species. Table 7 provides a summary for all monthly samples collected using electroshocking gear in the canal from July through October. The September sample contained the greatest total number of fish (572) while October exhibited the fewest (277). Species composition was dominated by bluegill sunfish (23%), followed by pumpkinseed sunfish (17%), gizzard shad (11%), and emerald shiner (9%), among others, Figure 6.

A total of 28 species of fish were represented in the samples indicating a high level of species richness for the habitat. Monthly species richness ranged from a minimum of 10 in October to a maximum of 19 species in July.

The central canal is an isolated component of the canal system. Although it appears to be part of the canal system there is no hydrological link between the north canal and the south canal. Results from the electroshocking samples indicated that a total of 860 fish comprising 12 species were collected. Table 8 provides a summary of the monthly samples collected. August yielded the greatest number of fish (316) while the July sample contained the fewest number of fish collected (118). Species composition was dominated by bluegill sunfish (57%), followed by gizzard shad (13%), largemouth bass (11%), and white crappie (6%), Figure 7.

A total of 12 species of fish were represented in the samples indicating a moderate level of species richness for the habitat. Monthly species richness ranged from a minimum of 7 in July to a maximum of 10 species in September.

The south canal samples yielded a total of 2,219 fish comprising 22 species. Table 9 provides a summary of the monthly samples collected. The October sample contained the greatest number of fish (1706), while the fewest were collected in the July sample (100). Species composition was dominated by goldfish (68%), followed by common carp (6%), pumpkinseed sunfish (6%), and golden shiner (6%) among others, Figure 8.

A total of 22 species of fish were represented in the samples indicating a high level of species richness for the habitat. Monthly species richness ranged from a minimum of 9 in July to a maximum of 17 species in August.

Isolated pond

The isolated pond is located within a large wetland forest community west of the south lagoon, and is approximately ½ acre in size. Because of its shallow depths and isolated location, hoop nets and minnow traps were utilized for the sampling effort. Results of the sampling indicated that a total of 8 fish representing 4 species were collected from July to October, Table 10. Due to the small sample size, statistical inferences were not performed for these data.

Quarry Lakes

The two quarry lakes are located on the west side of the site and are separated from one another by a thin strip of land, thus there is not a hydrological connection between them. The quarries were sampled using gill nets and electroshocking gear. Samples collected from the north quarry resulted in a total of 865 fish representing 7 species. Table 11 provides a summary for all monthly samples collected in the north quarry during July through October. The October sample contained the greatest total number of fish (270), while July yielded the fewest number of fish (135). Species composition was dominated by bluegill/green sunfish hybrids (34%), followed by goldfish (33%), green sunfish (14%), and gizzard shad (10%), Figure 9.

A total of seven species of fish were represented in the samples indicating a low level of species richness for the habitat. Monthly species diversity ranged between 6 and 7 species.

The south quarry samples resulted in a total of 1,019 fish representing 6 species. Table 12 provides a summary for all monthly samples collected from July through October using gill nets and electroshocking gear. Species composition was dominated by bluegill (73%) and gizzard shad (16%), Figure 10.

A total of six species of fish were represented in the samples indicating a low level of species richness for the habitat. Monthly species richness ranged between 5 and 6 species.

3.3 Macroinvertebrate Community

The results of the benthic macroinvertebrate sampling for each of the nine sampling locations are presented in Table 13. Samples were collected during the months from July through November; however, data presented here represent only the month of July. The remaining samples were not analyzed by the lab at the time of the preparation of this report. Results from the analyses of the samples collected during August through November will be provided prior to the spring entrainment collections.

A total of 877 individuals were captured representing 31 families and two unknown families. The greatest number of organisms (122) were collected from the isolated pond (IP-A) while the fewest number of organisms (37) were collected from the central canal (IC-A). Excluding the isolated central canal, all other sample locations had numbers that ranged between 98 and 122 organisms. The most abundant organisms by Class were insects

73%, followed by crustaceans (6%), gastropods (5%), and the remaining four Classes averaged approximately 4% each.

4.0 Discussion and Conclusions

The quantity and variety of fish species collected during this aquatic survey indicate that each of the nine areas of aquatic communities sampled supports a diverse assemblage of fauna. Sample locations such as Swan Creek, Lake Erie-Intake Area, Lake Erie-south lagoon, the north canal and south canal all have relatively high numbers of fish and species richness which is representative of a healthy ecosystem. All of these aquatic resources are hydrologically connected which allows for movement of fish species to and from each of these areas. Fish composition within these areas is highly diverse with no one species being dominant in all five locations. Gizzard shad was most prevalent in both Lake Erie stations and the Swan Creek station, moderately abundant in the north canal, and had low values in the south canal. This is consistent with their habitat requirements which suggest that they are more common in open water environments. Other species that were common among all five locations included goldfish, bluegills and other sunfish species, as well as several shiner species. White perch were only documented in the Lake Erie and Swan Lake stations. Comparisons between the three sample stations in the internal canal indicate that species compositions were very similar between the central canal and the north canal and that both of these aquatic systems had different compositions than the south canal. The north and central canals were dominated by bluegill, gizzard shad and other Centrarchid species. The south canal was dominated by goldfish, common carp, and other Centrarchid species. Although several different species dominated each of these aquatic resources, species within all three areas were very similar.

The central canal, and the north and south quarry lakes had high numbers of fish, but low to moderate numbers for species richness. These lower values may be attributed to the isolated nature of each system. All three systems do consist of aquatic habitat such as fringing wetland vegetation and prey organisms necessary for supporting fish populations; however, they are completely cut off from the adjacent aquatic resources that support more diverse fish assemblages which could add to the diversity of these aquatic systems. The isolated pond had the fewest number of fish, as well as the lowest species richness. This is not surprising given the isolated location of the pond and the shallow water habitat that would tend to restrict the level of fish reproduction.

Impingement sample collections indicated that both numbers and species of fish impinged were very low. Impingement rates ranged between 0.0 fish/hr to 0.29 fish/hr. Species impinged are common to the Lake Erie shoreline as demonstrated in the Lake Erie Intake Area seine samples. Twelve species were collected in the impingement samples and sixteen were collected in the Lake Erie Intake samples. Of these species, seven were common between the two sample locations. These species were banded killifish, bluntnose minnow, channel catfish, emerald shiner, gizzard shad, largemouth bass and white perch. Preliminary comparison of current impingement data to the DECo Fermi 2 study conducted from October 1991 to September 1992 indicates that impingement numbers per sampling event and rates are very similar for the months of July, August and September while the number and rates for October are substantially different. Impingement numbers for the 1991-1992 study indicated that a total of 8 fish were collected for these three months as compared to the current number of 13 for the same months. The number of organisms impinged for October 1991 was 72 fish compared to 6 for the current study. Entrainment samples were not analyzed at the time of completing this report. Results for entrainment samples will be provided prior to the spring entrainment collections.

Macroinvertebrate samples collected for the nine sample locations indicated that all nine locations supported benthic communities. The greatest number of organisms was collected from the isolated pond while the central canal had the lowest number of organisms. The north canal had the highest species richness while the Lake Erie-south lagoon station had the lowest species richness. Overall, both total number of organisms and species richness were very similar for all of the stations. Only the central canal had total numbers that were significantly lower than the rest of the sample stations. The low numbers reported in the central canal can be attributed to the steep banks, deep water, and rock substrate which typically do not support the types of benthic organisms identified in the other sample locations at the Fermi site.

5.0 Literature Cited

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TABLES

Table 1. Summary of sample locations and gear types used to sample each location at the FERMI site, July through November 2008.

Sample Location	Sample ID	Gear Type	Comments
Swan Creek	SC-A	Electroshocking and Seines	Gear selected will provide the best sampling coverage for those species occurring in the habitats associated with Swan Creek. Gears will allow for sampling of both adult and juvenile species.
Lake Erie - Intake Area	LE1-A	Seines	Gear was selected to evaluate those species and the size of individuals that would normally be associated with impingement.
Lake Erie - South Lagoon	LE2-A	Electroshocking	Gear selected due to increased vegetation which limited use by most other gears.
North Canal	CN-A	Electroshocking	Gear selected due to increased vegetation which limited use by most other gears. In addition, water depth and steep bank profile limited effectiveness of other types of gears.
Central Canal (Isolated)	IC-A	Electroshocking	Gear selected due to increased vegetation which limited use by most other gears. In addition, water depth and steep bank profile limited effectiveness of other types of gears.
South Canal	CS-A	Electroshocking	Gear selected due to increased vegetation which limited use by most other gears. In addition, water depth and steep bank profile limited effectiveness of other types of gears.
Quarry Lake North	NQ-A	Electroshocking and gill nets	Gears selected based on habitat areas supporting most species of fish being located around the shoreline and the depth profile limiting most other gears.
Quarry Lake South	SQ-A	Electroshocking and gill nets	Gears selected based on habitat areas supporting most species of fish being located around the shoreline and the depth profile limiting most other gears.
Isolated Pond	IP-A	Hoop nets and minnow traps	Pond is very shallow and surrounded by forested vegetation which limits access by boat and does not allow for efficient sampling by gill net.

Table 2. Summary of fish species collected from July through November at nine different sample locations at the FERMI site.

Common Name	Scientific Name	Sample Month					Total
		July	August	September	October	November*	
Alewife	<i>Alosa pseudoharengus</i>	5	2	3			10
Banded Killifish	<i>Fundulus diaphanus</i>	2	12	47	6		67
Bigmouth Buffalo	<i>Ictiobus cyprinellus</i>	233	1	2	1		237
Black Bullhead	<i>Ameiurus melas</i>	6	11	9	130		156
Black Crappie	<i>Pomoxis nigromaculatus</i>				1		1
Bluegill	<i>Lepomis macrochirus</i>	360	664	527	329		1880
Bluegill/Sunfish Hybrid	<i>Lepomis sp.</i>	45	76	63	161		345
Bluntnose Minnow	<i>Pimephales notatus</i>	3	59	61	165		288
Bowfin	<i>Amia calva</i>	4	3	14	12		33
Brook Silverside	<i>Labidesthes sicculus</i>	4	83	30	84		201
Channel Catfish	<i>Ictalurus punctatus</i>	7	1				8
Common Carp	<i>Cyprinus carpio</i>	81	51	36	233		401
Common Shiner	<i>Lixilus cornutus</i>				1		1
Emerald Shiner	<i>Notropis atherinoides</i>	110	28	5	99		242
Freshwater Drum	<i>Aplodinotus grunniens</i>	11	3				14
Gizzard Shad	<i>Dorosoma cepedianum</i>	335	1584	232	443		2594
Golden Redhorse	<i>Moxostoma erythrum</i>		3		1		4
Golden Shiner	<i>Notemigonus crysoleucas</i>	69	156	71	25		321
Goldfish	<i>Carassius auratus</i>	286	952	212	1648		3098
Grass Pickerel	<i>Esox americanus</i>		5				5
Green Sunfish	<i>Lepomis cyanellus</i>	33	46	58	71		208
Largemouth Bass	<i>Micropterus salmoides</i>	61	127	101	48		337
Logperch	<i>Percina caprodes</i>		2				2
Longear Sunfish	<i>Lepomis megalotis</i>	6					6
Longnose Gar	<i>Lepisosteus platostomus</i>	1	2				3
Mosquitofish	<i>Gambusia affinis</i>	1					1
Muskellunge	<i>Esox masquinongy</i>			1			1
Northern Pike	<i>Esox lucius</i>	2	4	2	9		17
Orangespotted Sunfish	<i>Lepomis humilis</i>	1					1
Pumpkinseed Sunfish	<i>Lepomis gibbosus</i>	47	187	275	81		590
Quillback Carpsucker	<i>Carpiodes cyprinus</i>		4				4
Rock Bass	<i>Ambloplites rupestris</i>	3	7				10
Round Goby	<i>Neogobius melanostomus</i>	4	9		2		15
Sand Shiner	<i>Notropis ludibundus</i>	62			9		71
Smallmouth Bass	<i>Micropterus dolomieu</i>		1				1
Spotfin Shiner	<i>Cyprinella spiloptera</i>	24	6	7	43		80
Spotted Gar	<i>Lepisosteus oculatus</i>	4					4
Spotted Sucker	<i>Minytrema melanops</i>	23	3	1	2		29
Spottail Shiner	<i>Notropis hudsonius</i>	65	9	4	113		191
Tadpole Madtom	<i>Noturus gyrinus</i>				2		2
White Bass	<i>Morone chrysops</i>	1					1
White Crappie	<i>Pomoxis annularis</i>	4	17	30	3		54
White Perch	<i>Morone americana</i>	263	471	2	4		740
White Sucker	<i>Catostomus commersoni</i>	7	4		1		12
Yellow Bullhead	<i>Ameiurus natalis</i>	13	11	17	13		54
Yellow Perch	<i>Perca flavescens</i>	9	45	34	60		148
Total		2195	4649	1844	3800		12488

*November data are not available for this report.

Table 3. Summary of fish species impinged during each sampling event at the FERMI site, July through November 2008.

Common Name	Scientific Name	July*	August	September	Ocotber	November**	Total Number	Minimum Total Length (mm)	Maximum Total Length (mm)	
Banded Killifish	<i>Fundulus diaphanus</i>				1		1	46	46	
Bluntnose minnow	<i>Pimephales notatus</i>			1			1	54	54	
Brook Silverside	<i>Labidesthes sicculus</i>		1				1	50	50	
Channel Catfish	<i>Ictalurus punctatus</i>			1			1	54	54	
Emerald Shiner	<i>Notropis atherinoides</i>		1	1	1		3	26	71	
Gizzard Shad	<i>Dorosoma cepedianum</i>				2		2	79	157	
Green Sunfish	<i>Lepomis cyanellus</i>			1			1	108	108	
Largemouth Bass	<i>Micropterus salmoides</i>				1		1	120	120	
Rock Bass	<i>Ambloplites rupestris</i>			1			1	108	108	
Round Goby	<i>Neogobius melanostomus</i>		1	1			2	38	94	
Smallmouth Bass	<i>Micropterus dolomieu</i>		1				1	75	75	
White Perch	<i>Morone americana</i>		2	1	1		4	44	113	
Total No. of Individuals		0	6	7	6		19	Average	66.8	87.5
Total No. of Species		0	6	7	5					

*No fish impinged in July

**November data are not available

Table 4. Summary of fish species collected using a seine net and electroshocking in Swan Creek (SC-A) at the FERMI site, July through November 2008.

Common Name	Scientific Name	July	August	September	October	November*	Total Number	Minimum Total Length (mm)	Maximum Total Length (mm)	
Alewife	<i>Alosa pseudoharengus</i>	5		3			8	27	37	
Banded Killifish	<i>Fundulus diaphanus</i>	1					1			
Black Bullhead	<i>Ameiurus melas</i>				2		2	259	281	
Bluegill	<i>Lepomis macrochirus</i>	40	29	30	5		104	29	176	
Bluntnose Minnow	<i>Pimephales notatus</i>		9	6			15	39	62	
Brook Silverside	<i>Labidesthes sicculus</i>	4	12	18	38		72	34	76	
Common Carp	<i>Cyprinus carpio</i>	4	1				5	293	293	
Emerald Shiner	<i>Notropis atherinoides</i>	4	12	1	15		32	37	103	
Freshwater Drum	<i>Aplodinotus grunniens</i>	5	3				8	353	434	
Gizzard Shad	<i>Dorosoma cepedianum</i>	311	27	65	180		583	42	409	
Golden Shiner	<i>Notemigonus crysoleucas</i>	4	18	13	2		37	44	124	
Goldfish	<i>Carassius auratus</i>	19	21	14	4		58	205	318	
Largemouth Bass	<i>Micropterus salmoides</i>	6	4	9			19	88	262	
Logperch	<i>Percina caprodes</i>		1				1	80	80	
Pumpkinseed Sunfish	<i>Lepomis gibbosus</i>	13	25	32			70	34	177	
Smallmouth Bass	<i>Micropterus dolomieu</i>		1				1	55	55	
Spotfin Shiner	<i>Cyprinella spiloptera</i>	2	1	2	2		7	32	57	
Spottail Shiner	<i>Notropis hudsonius</i>		2	1	2		5	51	78	
Spotted Sucker	<i>Minytrema melanops</i>		3	1	1		5	204	266	
White Bass	<i>Morone chrysops</i>	1					1			
White Perch	<i>Morone americana</i>		20	2			22	52	161	
Yellow Perch	<i>Perca flavescens</i>	3	5	5	5		18	63	202	
Total No. of Individuals		422	194	202	256		1074	Average	101.1	182.6
Total No. of Species		15	18	15	11					

*November data are not available

Table 5. Summary of fish species collected using a seine net in Lake Erie (LE1-A) at the FERMI site, July through November 2008.

Common Name	Scientific Name	July	August	September	October	November*	Total Number	Minimum Total Length (mm)	Maximum Total Length (mm)	
Alewife	<i>Alosa pseudoharengus</i>		2				2			
Banded Killifish	<i>Fundulus diaphanus</i>	1					1			
Bigmouth Buffalo	<i>Ictiobus cyprinellus</i>	52					52			
Bluegill	<i>Lepomis macrochirus</i>	12					12			
Bluntnose Minnow	<i>Pimephales notatus</i>				6		6	60	74	
Channel Catfish	<i>Ictalurus punctatus</i>	7					7			
Emerald Shiner	<i>Notropis atherinoides</i>	1		4	4		9	37	80	
Gizzard Shad	<i>Dorosoma cepedianum</i>	9	831	14			854	39	125	
Goldfish	<i>Carassius auratus</i>	54	4	1			59	95	95	
Largemouth Bass	<i>Micropterus salmoides</i>	2					2			
Longnose Gar	<i>Lepisosteus platostomus</i>		2				2			
Sand Shiner	<i>Notropis ludibundus</i>				4		4	60	62	
Spotfin Shiner	<i>Cyprinella spiloptera</i>	12			3		15	65	68	
Spottail Shiner	<i>Notropis hudsonius</i>	54	3	3	46		106	55	77	
White Perch	<i>Morone americana</i>	205	432				637			
White Sucker	<i>Catostomus commersoni</i>	4					4			
Total No. of Individuals		413	1274	22	63		1772	Average	58.7	83.0
Total No. of Species		12	6	4	5					

*November data are not available

Table 6. Summary of fish species collected using electroshocking in South Lagoon and Lake Erie (LE2-A) at the FERMI site, July through November 2008.

Common Name	Scientific Name	July	August	September*	October	November**	Total Number	Minimum Total Length (mm)	Maximum Total Length (mm)	
Banded Killifish	<i>Fundulus diaphanus</i>		12		4		16	35	55	
Bigmouth Buffalo	<i>Ictiobus cyprinellus</i>	181					181			
Black Bullhead	<i>Ameiurus melas</i>		2		106		108	75	285	
Bluegill	<i>Lepomis macrochirus</i>	1	28		2		31	32	127	
Bluntnose Minnow	<i>Pimephales notatus</i>		16		148		164	22	78	
Bowfin	<i>Amia calva</i>	1			2		3	116	127	
Brook Silverside	<i>Labidesthes sicculus</i>		66		6		72	32	88	
Common Carp	<i>Cyprinus carpio</i>	17	10		92		119	60	625	
Common Shiner	<i>Lixilus cornutus</i>				1		1	56	56	
Emerald Shiner	<i>Notropis atherinoides</i>		8		52		60	34	88	
Freshwater Drum	<i>Aplodinotus grunniens</i>	4					4			
Gizzard Shad	<i>Dorosoma cepedianum</i>		607		2		609	55	318	
Golden Redhorse	<i>Moxostoma erythrurum</i>		3		1		4	77	84	
Golden Shiner	<i>Notemigonus crysoleucas</i>	3	59		18		80	44	118	
Goldfish	<i>Carassius auratus</i>	158	743		173		1074	41	256	
Largemouth Bass	<i>Micropterus salmoides</i>	14	68		3		85	54	414	
Logperch	<i>Percina caprodes</i>		1				1	71	71	
Longear Sunfish	<i>Lepomis megalotis</i>	6					6			
Mosquitofish	<i>Gambusia affinis</i>	1					1			
Northern Pike	<i>Esox lucius</i>	2	3		8		13	253	394	
Pumpkinseed	<i>Lepomis gibbosus</i>									
Sunfish		11	104		7		122	33	165	
Quillback	<i>Carpiodes cyprinus</i>									
Carp sucker			4				4	59	90	
Rock Bass	<i>Ambloplites rupestris</i>		4				4	117	165	
Round Goby	<i>Neogobius melanostomus</i>	4	9				15	47	61	
Sand Shiner	<i>Notropis ludibundus</i>				5		5	50	62	
Spotfin Shiner	<i>Cyprinella spiloptera</i>	7	3		32		42	37	73	
Spottail Shiner	<i>Notropis hudsonius</i>	11	3		64		78	26	77	
Spotted Gar	<i>Lepisosteus oculatus</i>	1					1			
Tadpole Madtom	<i>Noturus gyrinus</i>				2		2	77	92	
White Perch	<i>Morone americana</i>	57	17				74	56	64	
White Sucker	<i>Catostomus commersoni</i>	3	4				7	73	79	
Yellow Perch	<i>Perca flavescens</i>	3	17		43		63	65	208	
Total No. of Individuals		485	1791	0	773		3049	Average	62.9	160.0
Total No. of Species		19	23	0	23					

*Unable to sample because of adverse weather conditions (wave heights)

**November data are not available

Table 7. Summary of fish species collected using electroshocking in North Canal (CN-A) at the FERMI site, July through November 2008.

Common Name	Scientific Name	July	August	September	October	November*	Total Number	Minimum Total Length (mm)	Maximum Total Length (mm)	
Banded Killifish	<i>Fundulus diaphanus</i>			47	2		49	37	57	
Bluegill	<i>Lepomis macrochirus</i>	73	169	139	2		383	27	194	
Bluntnose Minnow	<i>Pimephales notatus</i>	1	22	42	8		73	30	68	
Bowfin	<i>Amia calva</i>	3	3	5			11	198	519	
Brook Silverside	<i>Labidesthes sicculus</i>		3	12	40		55	47	75	
Channel Catfish	<i>Ictalurus punctatus</i>		1				1	422	422	
Common Carp	<i>Cyprinus carpio</i>	16	12	3			31	96	618	
Emerald Shiner	<i>Notropis atherinoides</i>	105	4		28		137	27	172	
Freshwater Drum	<i>Aplodinotus grunniens</i>	2					2			
Gizzard Shad	<i>Dorosoma cepedianum</i>				177		177	72	141	
Golden Shiner	<i>Notemigonus crysoleucas</i>	21	20	38	1		80	32	124	
Goldfish	<i>Carassius auratus</i>	5	41	49	2		97	33	346	
Grass Pickerel	<i>Esox americanus</i>		4				4	224	245	
Green Sunfish	<i>Lepomis cyanellus</i>	1					1			
Largemouth Bass	<i>Micropterus salmoides</i>	13	27	32			72	84	371	
Longnose Gar	<i>Lepisosteus platostomus</i>	1					1			
Muskellunge	<i>Esox masquinongy</i>			1			1	210	210	
Northern Pike	<i>Esox lucius</i>			1			1	249	249	
Pumpkinseed	<i>Lepomis gibbosus</i>									
Sunfish		10	42	217			269	29	160	
Rock Bass	<i>Ambloplites rupestris</i>	3	2				5	97	121	
Sand Shiner	<i>Notropis ludibundus</i>	62					62			
Spotfin Shiner	<i>Cyprinella spiloptera</i>	3	2	5	6		16	27	67	
Spottail Shiner	<i>Notropis hudsonius</i>		1		1		2	56	72	
Spotted Gar	<i>Lepisosteus oculatus</i>	3					3			
Spotted Sucker	<i>Minytrema melanops</i>	23					23			
White Crappie	<i>Pomoxis annularis</i>	1					1			
White Perch	<i>Morone americana</i>		2				2	52	74	
Yellow Perch	<i>Perca flavescens</i>	3	20	28	12		63	70	199	
Total No. of Individuals		349	375	572	277		1622	Average	100.9	214.5
Total No. of Species		19	17	13	10					

*November data are not available

Table 8. Summary of fish species collected using electroshocking in Central Canal (IC-A) at the FERMI site, July through November 2008.

Common Name	Scientific Name	July	August	September	October	November*	Total Number	Minimum Total Length (mm)	Maximum Total Length (mm)	
Bigmouth Buffalo	<i>Ictiobus cyprinellus</i>		1	2			3	641	724	
Black Crappie	<i>Pomoxis nigromaculatus</i>				1		1	250	250	
Bluegill	<i>Lepomis macrochirus</i>	77	200	117	104		498	30	165	
Bluegill/Green Sunfish Hybrid	<i>Lepomis sp.</i>		2	2	3		7	107	225	
Bluntnose Minnow	<i>Pimephales notatus</i>	2	12	13	3		30	37	89	
Common Carp	<i>Cyprinus carpio</i>	8	5	5			18	484	633	
Gizzard Shad	<i>Dorosoma cepedianum</i>	3	40	15	50		108	61	332	
Green Sunfish	<i>Lepomis cyanellus</i>		14	7	13		34	34	173	
Largemouth Bass	<i>Micropterus salmoides</i>	24	25	28	17		94	59	467	
Oragnespotted Sunfish	<i>Lepomis humilis</i>	1					1			
White Crappie	<i>Pomoxis annularis</i>	3	17	30	3		53	46	326	
Yellow Bullhead	Yellow Bullhead			3	10		13	62	563	
Total No. of Individuals		118	316	222	204		860	Average	164.6	358.8
Total No. of Species		7	9	10	9					

*November data are not available

Table 9. Summary of fish species collected using electroshocking in South Canal (CS-A) at the FERMI site, July through November 2008.

Common Name	Scientific Name	July	August	September	October	November*	Total Number	Minimum Total Length (mm)	Maximum Total Length (mm)
Bigmouth Buffalo	<i>Ictiobus cyprinellus</i>				1		1	173	173
Black Bullhead	<i>Ameiurus melas</i>	6	9	9	22		46	61	253
Bluegill	<i>Lepomis macrochirus</i>	13	22	32	38		105	27	168
Bluegill/Green Sunfish Hybrid	<i>Lepomis sp.</i>								
Bowfin	<i>Amia calva</i>		1	9	10		20	90	90
Brook Silverside	<i>Labidesthes sicculus</i>		2				2	243	312
Common Carp	<i>Cyprinus carpio</i>	2	10	13	118		143	53	57
Emerald Shiner	<i>Notropis atherinoides</i>		4				4	67	73
Gizzard Shad	<i>Dorosoma cepedianum</i>		4		18		22	61	139
Golden Shiner	<i>Notemigonus crysoleucas</i>	41	59	20	4		124	34	124
Goldfish	<i>Carassius auratus</i>	13	27	96	1380		1516	48	223
Grass Pickerel	<i>Esox americanus</i>		1				1	191	191
Green Sunfish	<i>Lepomis cyanellus</i>		4	5	6		15	52	131
Largemouth Bass	<i>Micropterus salmoides</i>	2	3	32	28		65	80	173
Northern Pike	<i>Esox lucius</i>		1	1	1		3	273	336
Pumpkinseed Sunfish	<i>Lepomis gibbosus</i>	10	16	26	74		126	28	171
Rock Bass	<i>Ambloplites rupestris</i>		1				1	192	192
Spotted Sucker	<i>Minytrema melanops</i>				1		1	182	182
White Perch	<i>Morone americana</i>	1			4		5	85	118
White Sucker	<i>Catostomus commersoni</i>				1		1	138	138
Yellow Bullhead	<i>Ameiurus natalis</i>	12	1				13	173	173
Yellow Perch	<i>Perca flavescens</i>		3	1			4	142	188
Total No. of Individuals		100	168	244	1706		2219	Average 111.3	173.7
Total No. of Species		9	17	11	15				

*November data are not available

Table 10. Summary of fish species collected using hoopnet and minnow traps in Isolated Pond (IP-A) at the FERMI site, July through November 2008.

Common Name	Scientific Name	July	August	September*	October	November**	Total Number	Minimum Total Length (mm)	Maximum Total Length (mm)
Bluegill	<i>Lepomis macrochirus</i>	1			2		3	39	52
Green Sunfish	<i>Lepomis cyanellus</i>		1				1	41	41
Pumpkinsed Sunfish	<i>Lepomis gibbosus</i>	3					3		
Bluegill/Green Sunfish Hybrid	<i>Lepomis sp.</i>				1		1	60	60
Total No. of Individuals		4	1	0	3		8	Average 46.7	51.0
Total No. of Species		2	1	0	1				

*No fish collected after 24 hour exposure (FYKE/HOOPE NETS)

**November data are not available

Table 11. Summary of fish species collected using gill nets and electroshocking in the North Quarry (NQ-A) at the FERMI site, July through November 2008.

Common Name	Scientific Name	July	August	September	October	November*	Total Number	Minimum Total Length (mm)	Maximum Total Length (mm)	
Bluegill	<i>Lepomis macrochirus</i>	3		1			4			
Bluegill/Green Sunfish Hybrid	<i>Lepomis sp.</i>	34	65	56	136		291	52	184	
Common Carp	<i>Cyprinus carpio</i>	26	7	11	5		49	356	587	
Gizzard Shad	<i>Dorosoma cepedianum</i>	5	9	66	2		82	158	428	
Goldfish	<i>Carassius auratus</i>	37	114	51	88		290	58	418	
Green Sunfish	<i>Lepomis cyanellus</i>	29	17	39	36		121	34	128	
Yellow Bullhead	<i>Ameiurus natalis</i>	1	10	14	3		28	98	258	
Total No. of Individuals		135	222	238	270		865	Average	126.0	333.8
Total No. of Species		7	6	7	7					

*November data are not available

Table 12. Summary of fish species collected using gill nets and electroshocking in the South Quarry (SQ-A) at the FERMI site, July through November 2008.

Common Name	Scientific Name	July	August	September	October	November*	Total Number	Minimum Total Length (mm)	Maximum Total Length (mm)	
Bluegill	<i>Lepomis macrochirus</i>	140	216	208	176		740	28	157	
Bluegill/Green	<i>Lepomis sp.</i>									
Sunfish Hybrid		11	9	5	20		45	47	183	
Common Carp	<i>Cyprinus carpio</i>	8	5	4	18		35	103	578	
Gizzard Shad	<i>Dorosoma cepedianum</i>	7	66	72	14		159	61	363	
Goldfish	<i>Carassius auratus</i>		2	1	1		4	168	184	
Green Sunfish	<i>Lepomis cyanellus</i>	3	10	7	16		36	34	163	
	Total No. of Individuals	169	308	297	245		1019	Average	73.5	271.3
	Total No. of Species	5	6	6	6					

*November data are not available

Table 13. Summary of benthic organisms collected at the nine sample location at the FERMI site, July 2008.

Phylum	Class	Order	Family	Genus/Species	Lake									Total		
					Swan Creek (CS-A)	Isolated Pond (IP-A)	Erie/South Lagoon (LE2-A)	Lake Erie/Intake Area (LE1-A)	South Quarry (SQ-A)	North Quarry (NQ-A)	North Canal (CN-A)	Central Canal (IC-A)	South Canal (SC-A)			
Platyhelminthes	Turbellaria	unknown	unknown	unknown		27										27
Annelida	Oligochaeta	Tubificida	Naididae	Tubificinae (unknown genus)		1	1	1	4		2			2		11
Annelida	Oligochaeta	Tubificida	Naididae	Naidinae (unknown genus)	1	43	7	11		3	21	7		46		139
Annelida	Oligochaeta	Tubificida	Enchytraeidae	unknown genus				1								1
Annelida	Hirudinea	Rhynchobdellida	Glossiphoniidae	Helobdella triserialis							1					1
Annelida	Hirudinea	Rhynchobdellida	Glossiphoniidae	Helobdella stagnalis											4	4
Annelida	Hirudinea	Rhynchobdellida	Glossiphoniidae	Placobdella ornata							1					1
Mollusca	Pelecypoda	Veneroidea	Pisidiidae	Pisidium sp.	1											1
Mollusca	Pelecypoda	Veneroidea	Dreissenidae	Dreissena sp.			1		3	5				6		15
Mollusca	Gastropoda	Basommatophora	Lymnaeidae	Fossaria sp.							1					1
Mollusca	Gastropoda	Basommatophora	Physidae	Physa sp.							9			5		14
Mollusca	Gastropoda	Basommatophora	Planorbidae	unknown genus (immature)							13			1		14
Mollusca	Gastropoda	Basommatophora	Viviparidae	Cipangopaludina chinensis	1									1		1
Arthropoda	Crustacea	Amphipoda	Gammaridae	Gammarus fasciatus			3	46						9		58
Arthropoda	Crustacea	Amphipoda	Gammaridae	Gammarus sp.	1					1						2
Arthropoda	Crustacea	Amphipoda	Hyalellidae	Hyalella azteca	50	2					2		15	2		71
Arthropoda	Crustacea	Isopoda	Asellidae	Caecidotea sp.	1	2					1					4
Arthropoda	Crustacea	Mysidacea	Mysidae	Mysis relicta							2		2			4
Arthropoda	Hydrachnidia	Acariformes	unknown	unknown (damaged)									1			1
Arthropoda	Hydrachnidia	Acariformes	Limnesiidae	Limnesia sp.				6			1			3		10
Arthropoda	Hydrachnidia	Acariformes	Pionidae	Piona sp.				2						4		6
Arthropoda	Insecta	Ephemeroptera	Baetidae	unknown early instar		1					1					2
Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis sp.	11	2	80	4	43	37	7	3		1		188
Arthropoda	Insecta	Ephemeroptera	Ephemeridae	Hexagenia limbata					2							2
Arthropoda	Insecta	Odonata	Coenagrionidae	Argia sp.		2							1			3
Arthropoda	Insecta	Odonata	Coenagrionidae	Enallagma sp.	6					1	3					10
Arthropoda	Insecta	Odonata	Coenagrionidae	unknown early instar	24	20			1	3	4		1			53
Arthropoda	Insecta	Odonata	Libellulidae	unknown early instar		1							1			2
Arthropoda	Insecta	Hemiptera	Corixidae	Trichocorixa sp.										3		3
Arthropoda	Insecta	Hemiptera	Corixidae	unknown early instar	4	1								5		10
Arthropoda	Insecta	Hemiptera	Naucoridae	Pelocaris femoratus	2											2
Arthropoda	Insecta	Hemiptera	Pleidae	Neoplea striola	3											3
Arthropoda	Insecta	Trichoptera	Hydroptilidae	Orthotrichia sp.	1	4										5
Arthropoda	Insecta	Trichoptera	Hydroptilidae	Oxyethira sp.						1						1
Arthropoda	Insecta	Trichoptera	Leptoceridae	Oecetis sp.						1						1
Arthropoda	Insecta	Coleoptera	Dytiscidae	Laccophilus sp.										1		1
Arthropoda	Insecta	Coleoptera	Elmidae	Dupiraphia sp. (larva)		3										3
Arthropoda	Insecta	Diptera	Culicidae	unknown genus (damaged)							1					1
Arthropoda	Insecta	Diptera	Ceratopogonidae	Bezzia/Palpomylia sp.						1						1
Arthropoda	Insecta	Diptera	Ceratopogonidae	Dasyhelea sp. (larva)					14	27						41
Arthropoda	Insecta	Diptera	Ceratopogonidae	Dasyhelea sp. (pupa)					3	6						9
Arthropoda	Insecta	Diptera	Ephydriidae	unknown genus							1					1
Arthropoda	Insecta	Diptera	Chironomidae	Ablabesmyia mallochi					3							3
Arthropoda	Insecta	Diptera	Chironomidae	Ablabesmyia cf. monilis				1								1
Arthropoda	Insecta	Diptera	Chironomidae	Cryptochironomus sp.			1									1
Arthropoda	Insecta	Diptera	Chironomidae	Cladotanytarsus sp.			1	7		1						9

Table 13. Continued

Phylum	Class	Order	Family	Genus/Species	Lake									Total	
					Swan Creek (CS- A)	Isolated Pond (IP- A)	Erie/South Lagoon (LE2-A)	Lake Erie/Intake Area (LE1-A)	South Quarry (SQ-A)	North Quarry (NQ-A)	North Canal (CN- A)	Central Canal (IC- A)	South Canal (SC- A)		
Arthropoda	Insecta	Diptera	Chironomidae	Cricotopus bicinctus				2							2
Arthropoda	Insecta	Diptera	Chironomidae	Cricotopus trifascia			1								1
Arthropoda	Insecta	Diptera	Chironomidae	Cricotopus trifasciatus						1			2		3
Arthropoda	Insecta	Diptera	Chironomidae	Cricotopus sp.				1							1
Arthropoda	Insecta	Diptera	Chironomidae	Dicrotendipes modestum				4						1	5
Arthropoda	Insecta	Diptera	Chironomidae	Dicrotendipes sp. (larva)				1							1
Arthropoda	Insecta	Diptera	Chironomidae	Endochironomus nigricans.				1			22			2	25
Arthropoda	Insecta	Diptera	Chironomidae	Glyptotendipes sp.							4				4
Arthropoda	Insecta	Diptera	Chironomidae	Larsia sp. (larva)							1		1		2
Arthropoda	Insecta	Diptera	Chironomidae	Larsia sp. (pupa)	1										1
Arthropoda	Insecta	Diptera	Chironomidae	Orthoclaadiinae (unknown early instar)						1					1
Arthropoda	Insecta	Diptera	Chironomidae	Parachironomus sp.						1					1
Arthropoda	Insecta	Diptera	Chironomidae	Parachironomus frequens										1	1
Arthropoda	Insecta	Diptera	Chironomidae	Paratanytarsus cf. dissimilis										1	1
Arthropoda	Insecta	Diptera	Chironomidae	Polypedilum illinoense gr.				1					1		2
Arthropoda	Insecta	Diptera	Chironomidae	Polypedilum halterale gr.				2		1					3
Arthropoda	Insecta	Diptera	Chironomidae	Polypedilum sp. (larva)		3			1						4
Arthropoda	Insecta	Diptera	Chironomidae	Polypedilum sp. (pupa)	1										1
Arthropoda	Insecta	Diptera	Chironomidae	Procladius sp.				1	3	2					6
Arthropoda	Insecta	Diptera	Chironomidae	Rheotanytarsus exiguus gr.			10	5							15
Arthropoda	Insecta	Diptera	Chironomidae	Stempellina sp.					3						3
Arthropoda	Insecta	Diptera	Chironomidae	Stictochironomus sp.					2						2
Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae (unknown early instar)					1						1
Arthropoda	Insecta	Diptera	Chironomidae	Tanytus sp.		5									5
Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsus sp.		3	5		20	9			4		41
Arthropoda	Insecta	Diptera	Chironomidae	Thienemanniella sp.				1							1
Arthropoda	Insecta	Diptera	Chironomidae	Tribelos atrum		2									2
Total					108	122	110	98	103	101	99	37	99		877

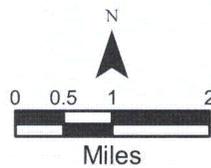
FIGURES



DECo Fermi 3 Project Site Location Map

Legend

-  Project Area
-  FERMI Site (Developed Areas)



Projection: Michigan South State Plain, NAD 83
Background: ESRI Resource Center
Source: <http://resources.esri.com>

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FIGURE 1

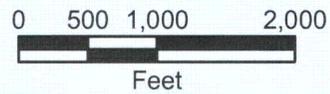
Date: Dec 4, 2008

Project No.: 00940-040



DECo Fermi 3 Biological Survey 2008 Aquatic Sample Station Locations

Legend
● Sample Stations



Projection: Michigan South State Plain, NAD 83
Background: ESRI Resource Center
Source: <http://resources.esri.com>

Black & Veatch

ENSR | AECOM

FIGURE 2

Date: Dec 4, 2008

Project No.: 00940-040

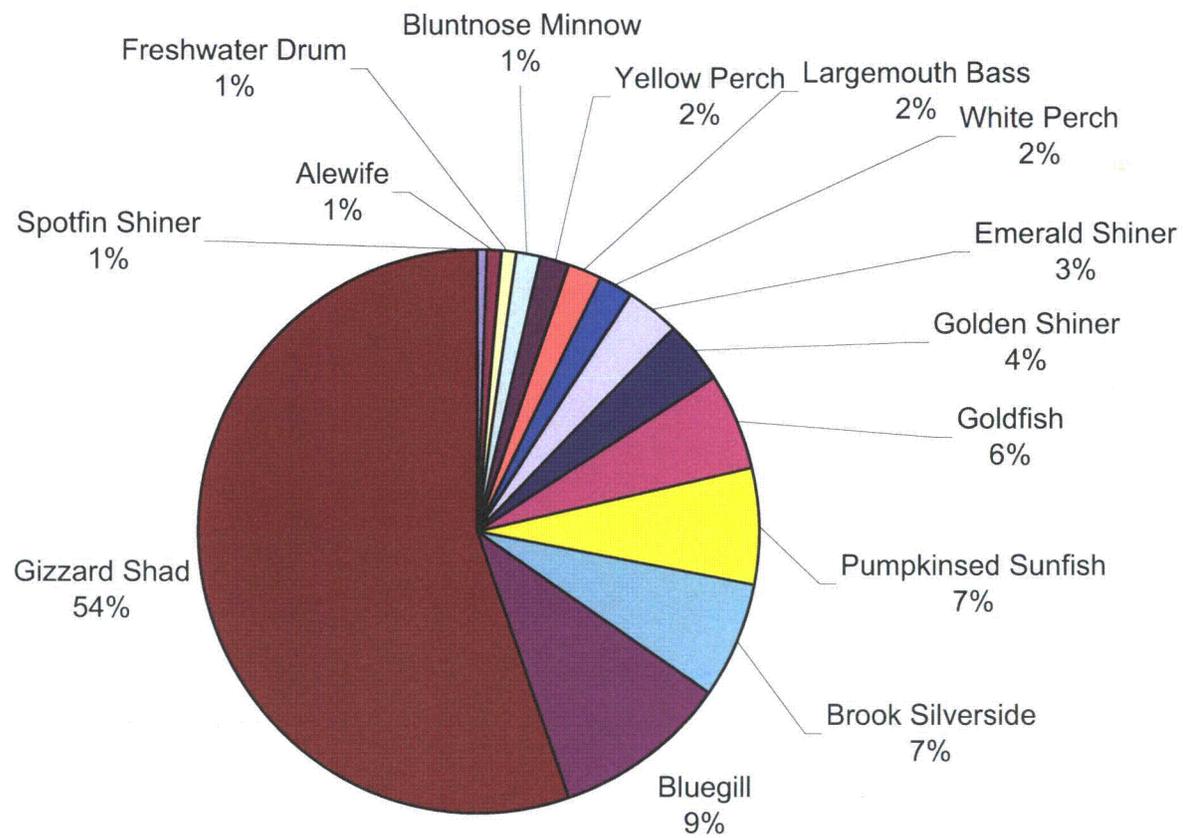


Figure 3. Composition of fish species collected in samples from Swan Creek at the FERMI site, July through October 2008.

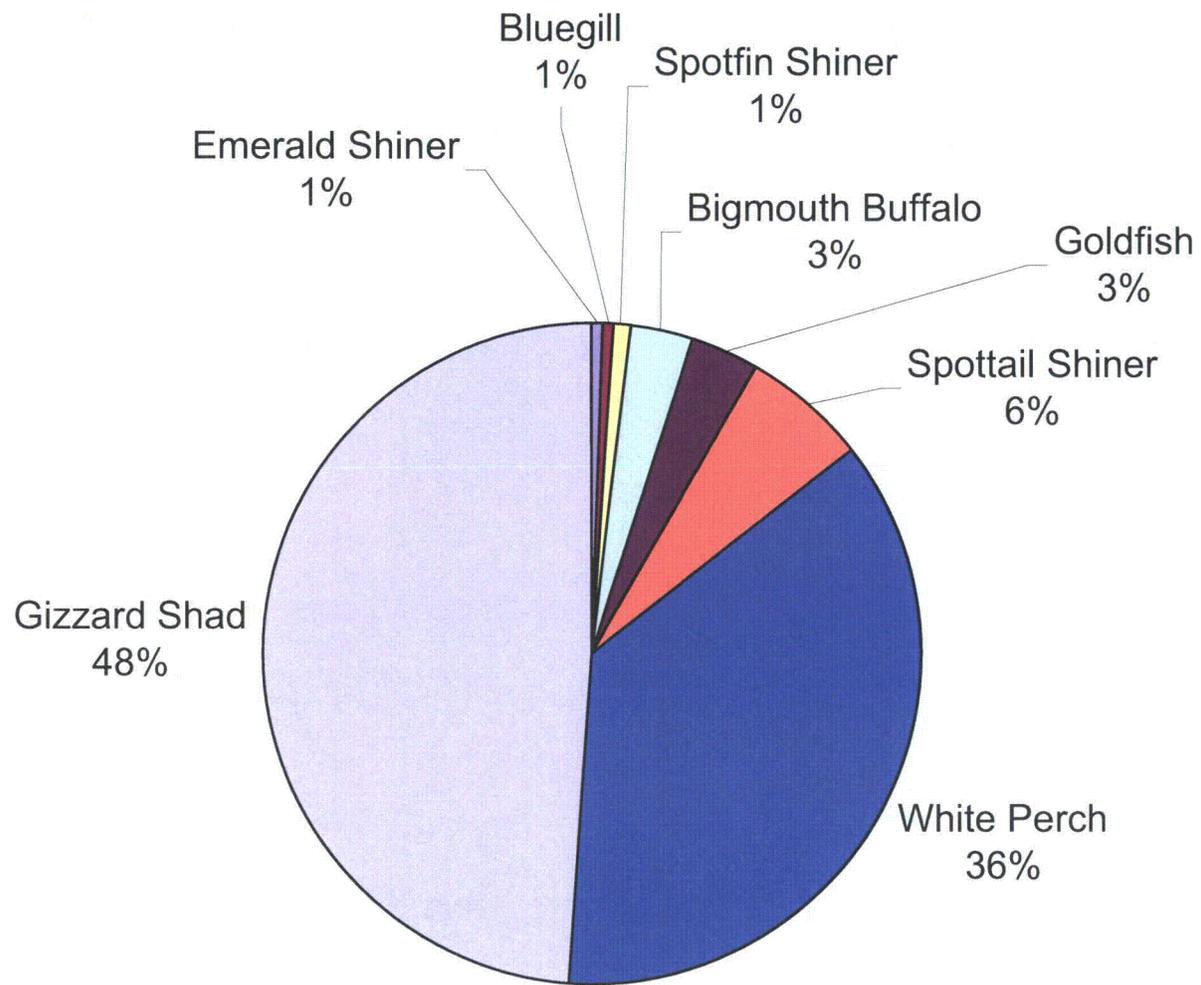


Figure 4. Composition of fish species collected in samples from the Lake Erie Intake area at the FERMI site, July through October 2008.

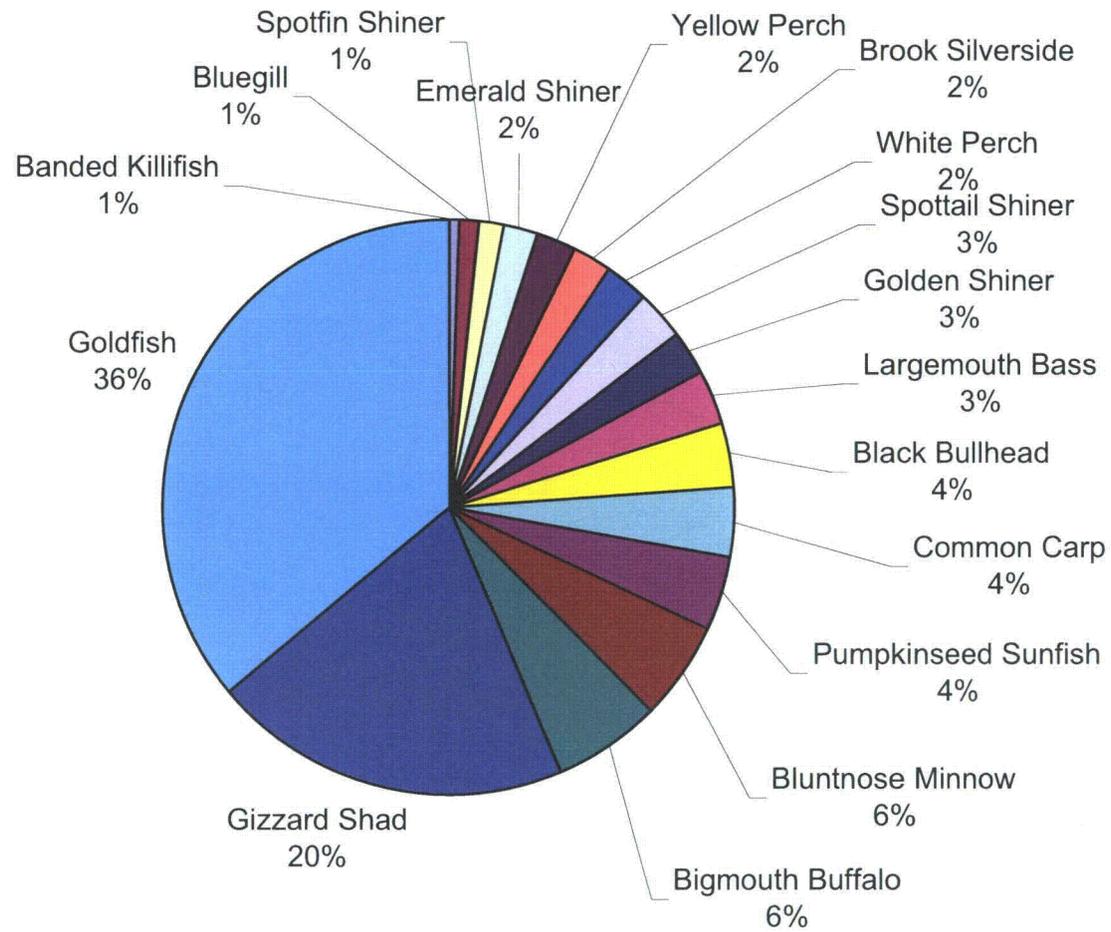


Figure 5. Composition of fish species collected in samples from the Lake Erie/South Lagoon station at the FERMI site, July through October 2008.

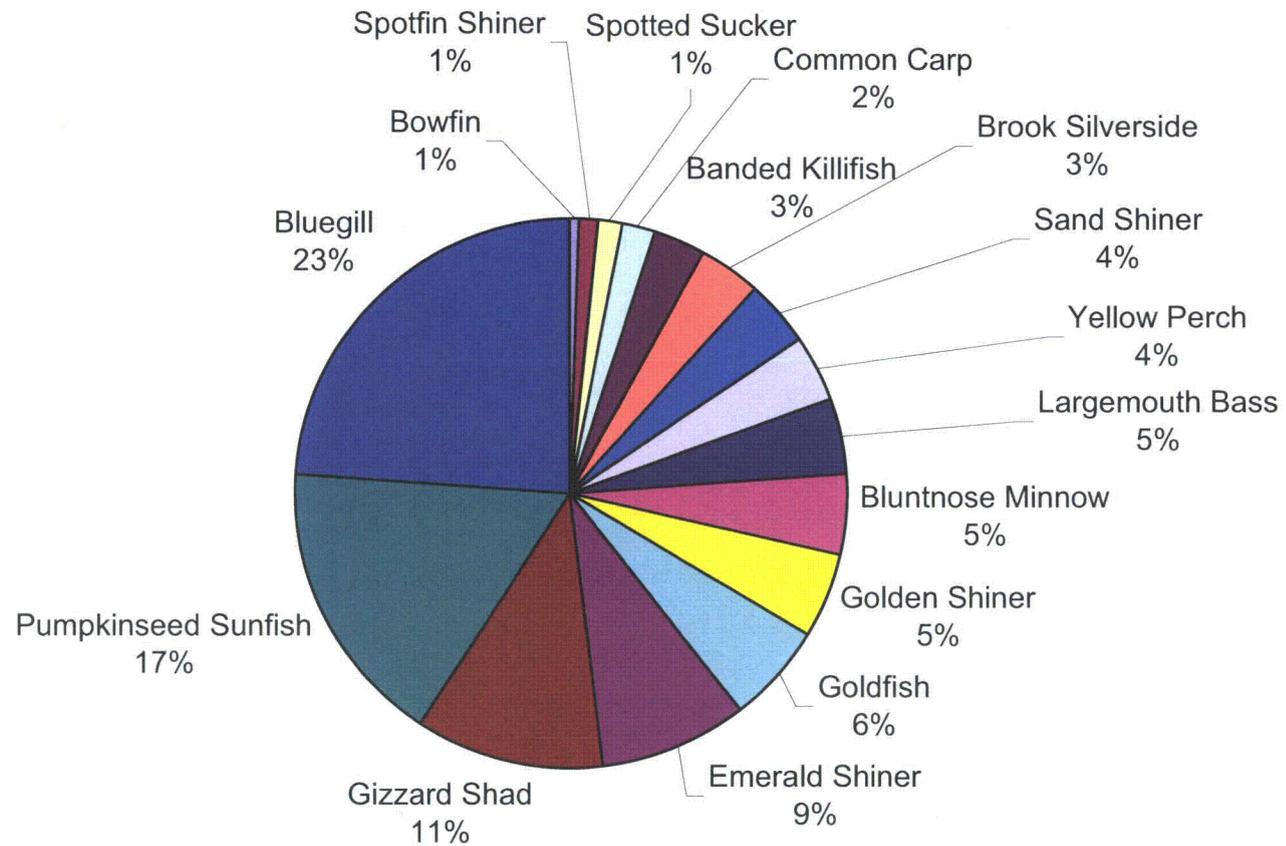


Figure 6. Composition of fish species collected in samples from the North Canal at the FERMI site, July through October 2008.

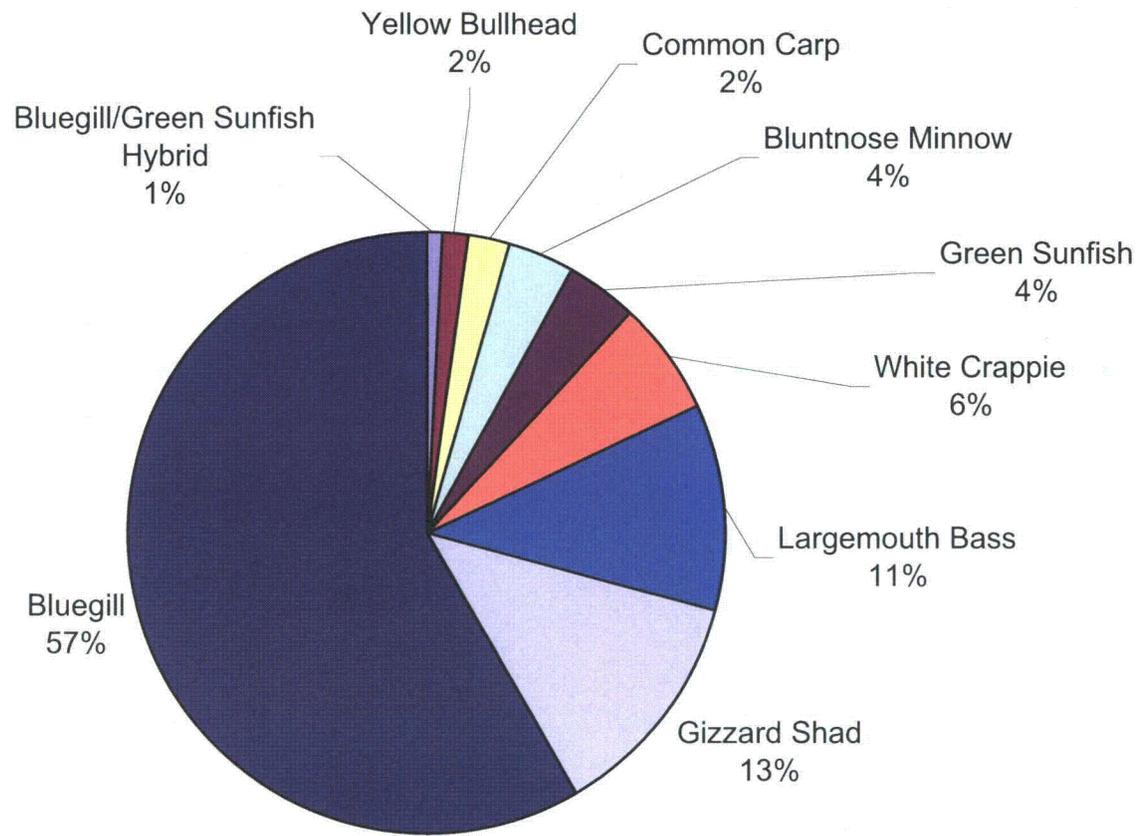


Figure 7. Composition of fish species collected in samples from the Central Canal at the FERMI site, July through October 2008.

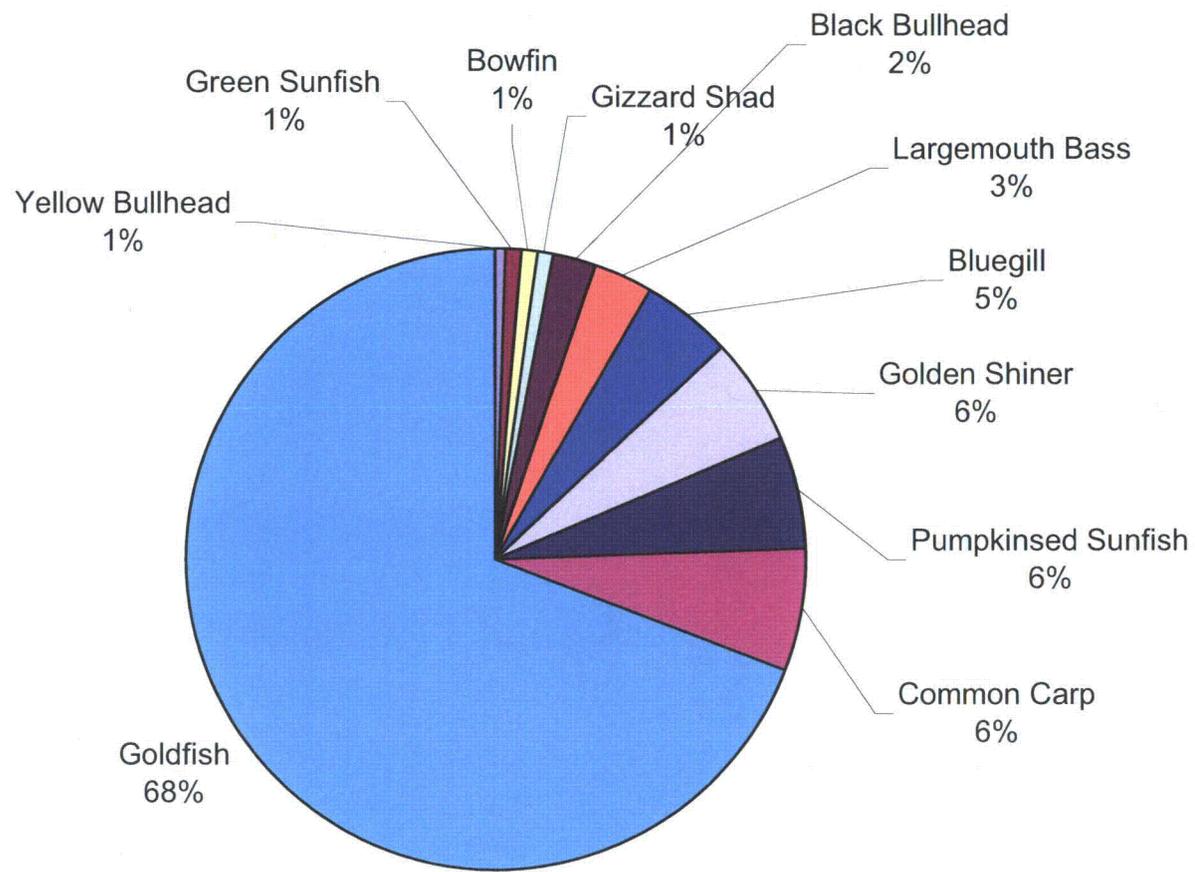


Figure 8. Composition of fish species collected in samples from the South Canal at the FERMI site, July through October 2008.

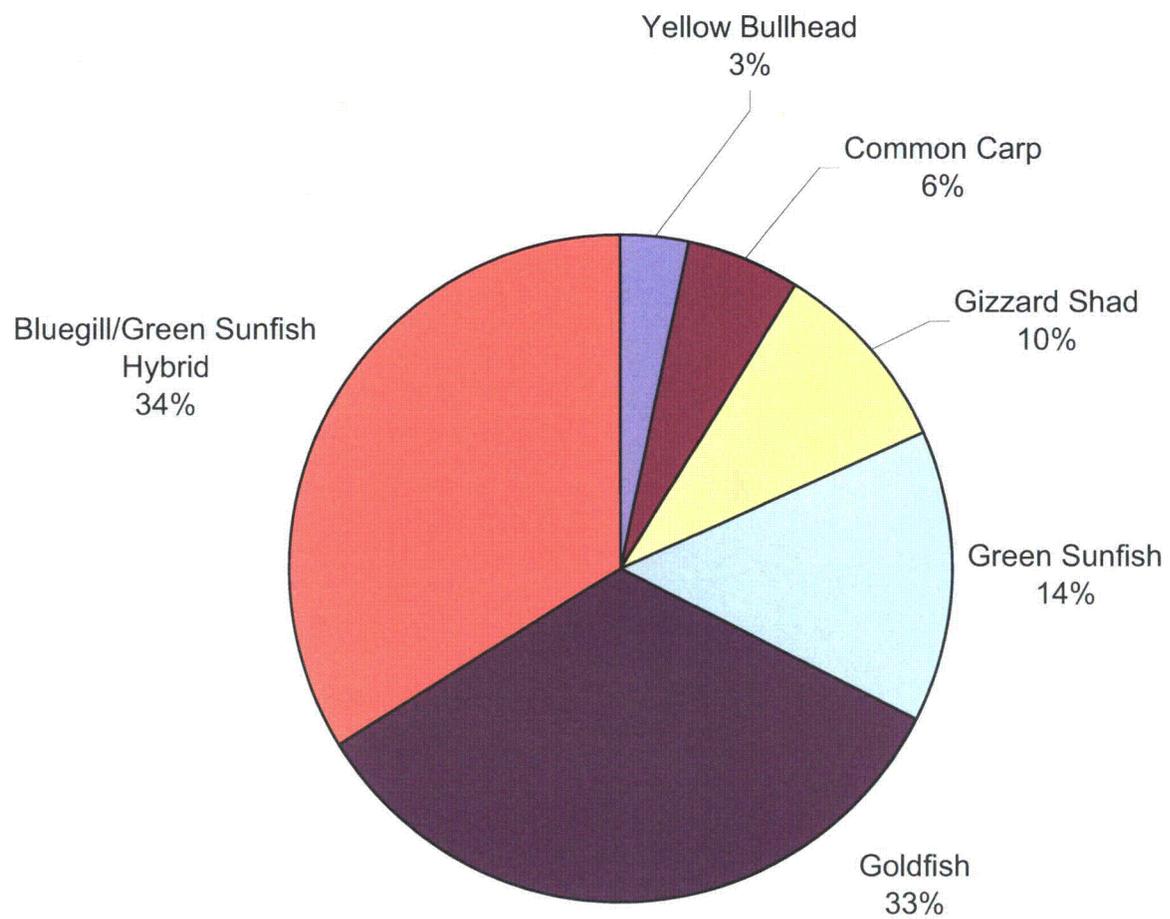


Figure 9. Composition of fish species collected in samples from the North Quarry at the FERMI site, July through October 2008.

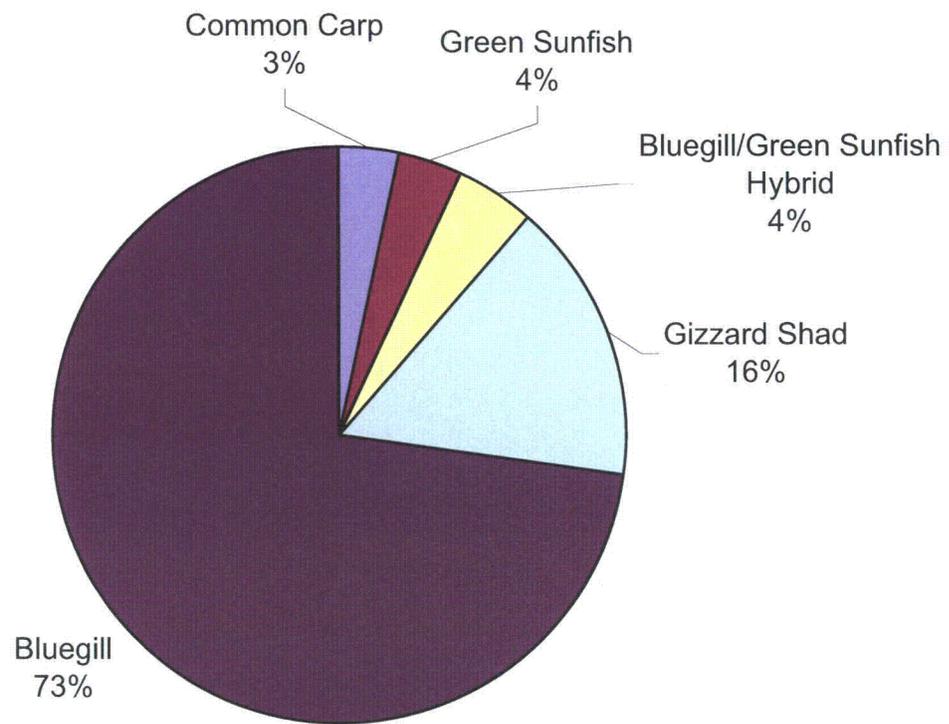


Figure 10. Composition of fish species collected in samples from the South Quarry at the FERMI site, July through October 2008.

**Attachment 2
NRC3-09-0010**

Response to RAI letter related to Fermi 3 ER

RAI Question AE2.4.2-4

NRC RAI AE2.4.2-4

Provide a copy of the interim monitoring report "Water Quality Survey Detroit Edison Company Fermi 3 Project, Interim Report," prepared by AECOM Environment, and dated December 2008. Provide a more recent version and the final report when available.

Response

The requested Water Quality Survey interim report is attached. Final report will be submitted upon completion of the studies, in accordance with the commitments COM ER-2.3-001 and COM ER-2.3-002 made by Detroit Edison in the Fermi 3 COLA ER Rev 0, both due November 25, 2009.

Proposed COLA Revision

None

NRC3-09-0010
RAI Question AE2.4.2-4

Enclosure 1

Water Quality Survey Interim Report
(following 17 pages)

Prepared for:
Black & Veatch



Water Quality Survey

Detroit Edison Company Fermi 3

Project

Interim Report

AECOM Environment
January 2009

Prepared for:
Black & Veatch

Water Quality Survey

Detroit Edison Company Fermi 3

Project

Interim Report



Prepared By Libby Dunbar



Reviewed By Kurtis Schlicht

AECOM Environment
January 2009

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Figure 1. Fermi 3 Project Site Location Map

Figure 2. Water Quality Sample Station Locations Fermi 3 Water Quality Survey 2008

List of Attachments

MDEQ Procedure for Mercury and Trace Metals Sample Collection

1.0 Introduction

This interim report summarizes water quality data recently collected in the vicinity of the Detroit Edison Company (DECo) Nuclear Fermi 2 Power Plant (Fermi Site) located near Newport (Frenchtown Charter Township) in Monroe County, Michigan (Figure 1). Data are being collected as part of a water quality survey to support DECo's Combined Operating License Application (COLA) to the Nuclear Regulatory Commission (NRC).

The Fermi site is located on the Western Basin of Lake Erie between the Swan Creek and Stony Creek watersheds. The site consists of approximately 1,120 acres of developed and undeveloped land with approximately 650 acres of land being designated as part of the Detroit River International Wildlife Refuge (DRIWR). Waterbodies within the site include: Lake Erie, Swan Creek, on-site waterbodies and waters within the DRIWR. The on-site waterbodies are comprised of the overflow canal, quarry lakes, and the cooling tower make-up reservoir. Waterbodies in the DRIWR portion of the site include the south lagoon, north lagoon, and a small pond. In addition to the waterbodies there are wetlands associated with tributaries and low lying areas along many of the waterbodies.

The primary objective of the water quality data is to collect current data on a quarterly basis over a one year period in the vicinity of the site to supplement the water quality data included in the Environmental Report (ER) of the COLA. The survey was developed based on discussions with DECo. The goals of the study were to:

- Present data representing the mean, range, and spatial variations of the surface water and groundwater quality characteristics
 - For surface waters: alkalinity, ammonia-nitrogen, antimony, arsenic, beryllium, bicarbonate, biological oxygen demand, cadmium, calcium, carbon dioxide, chemical oxygen demand, chloride, chlorophyll *a*, chromium, color, copper, dissolved oxygen, fecal coliform, hardness, iron, lead, magnesium, mercury, nickel, nitrate-nitrogen, nitrite-nitrogen, orthophosphorus, pH, potassium, selenium, silica, silver, sodium, specific conductance, sulfate, suspended solids, temperature, thallium, total dissolved solids, total Kjeldahl nitrogen, total phosphorus, turbidity, zinc
 - For groundwater: alkalinity, ammonia-nitrogen, antimony, arsenic, beryllium, bicarbonate, biological oxygen demand, cadmium, calcium, carbon dioxide, chemical oxygen demand, chloride, chlorophyll *a*, chromium, color, copper, dissolved oxygen, fecal coliform, hardness, iron, lead, magnesium, mercury, nickel, nitrate-nitrogen, nitrite-nitrogen, orthophosphorus, pH, potassium, selenium, silica, silver, sodium, specific conductance, sulfate, suspended solids, temperature, thallium, total dissolved solids, total Kjeldahl nitrogen, total phosphorus, turbidity, zinc
- Show site specific water quality characteristics

The list of parameters analyzed during this study was derived from NUREG 1555. Data summarized in the interim report cover the first two quarters of water quality samples collected for the FERMI site. These data included water quality samples collected in July and October 2008.

2.0 Materials and Methods

Water chemistry samples were collected quarterly (i.e. July and October 2008) at each of the six surface water and four groundwater quality sampling locations (Figure 2). Locations included Lake Erie near the plant intake, at the outlet to Swan Creek, the South Quarry, the outfall at the south lagoon, and two outfalls near the plant.

All surface water samples (except chlorophyll *a*, mercury and trace metals) were collected with a Kemmerer sample bottle at the water's surface (0.3 m). In order to collect chlorophyll *a* samples, the secchi disk transparency depth was measured in each of the water bodies. This depth was multiplied by two to estimate the photic zone. A depth integrated sampler was then lowered through the photic zone at a constant rate to capture the chlorophyll *a* sample. Mercury and trace metals samples were collected via a grab at the water's surface (i.e. 0.3 m) using modified Michigan Department of Environmental Quality (MDEQ) clean sampling technique procedures (see Attachments).

In situ measurements of pH, water temperature, dissolved oxygen and specific conductance were made with a calibrated Hydrolab Quanta multi-parameter probe. Calibration of the probe prior to measurement was performed according to the manufacturer's guidelines.

Groundwater samples were collected according to the procedures outlined in Puls and Marcelona (1996).

All samples were suitably preserved and placed on wet ice for shipment via overnight courier to the analytical chemistry laboratories. The Great Lakes Environmental Center (GLEC) analytical chemistry laboratory analyzed samples for the following parameters: alkalinity, ammonia-nitrogen, biological oxygen demand, chloride, chlorophyll *a*, color, fecal coliform, hardness, nitrate-nitrogen, orthophosphorus, total suspended solids, total dissolved solids, total Kjeldahl nitrogen and total phosphorus. The TestAmerica analytical chemistry laboratory analyzed groundwater samples for bicarbonates and carbon dioxide. The White Water Associates (WWA) analytical chemistry laboratory analyzed the samples for all other parameters, including trace metals (antimony, arsenic, beryllium, cadmium, chromium, copper, lead, magnesium, nickel, selenium, silver, thallium and zinc), mercury, calcium, chemical oxygen demand, iron, nitrite-nitrogen, potassium, silica, sodium, sulfate and turbidity. All sample analyses were performed using Environmental Protection Agency (EPA)-approved methods or Standard Methods (APHA 1998).

2.1 Surface Water Sampling

Surface water samples were collected at six locations. Locations were chosen to create a baseline of new site-specific data for the plant vicinity. Location LE1-W, in Lake Erie, was chosen to represent water quality at the plant intake. QU-W, in the South Quarry, was sampled to establish baseline water quality data in the event the waterbody is used for dewatering. LE2-W, at the south lagoon, and SC-W at the outlet to Swan Creek correspond with aquatic sampling locations and represent on-site waterbodies. Location SC-W was also chosen to represent a mixing point for plant discharges to Swan Creek. Locations LA-W and IP-W are near existing plant outfalls in an area that may be used for excavation or dewatering. The data acquired from the locations provide a baseline for assessing if plant construction or operations have impacts to water bodies, aquatic ecosystems, and water use.

2.2 Groundwater Sampling

Locations chosen for groundwater monitoring were existing groundwater wells and areas likely to be used for dewatering. The locations were chosen based on site topography and movement of groundwater in the vicinity of the site. The data acquired provide the basis to characterize the groundwater and serve as a baseline for assessing if plant construction or operations have impacted aquifers or water use.

3.0 Results and Discussion

Tables 1 and 2 provide the results of sampling in July and October 2008 at the six surface water sampling locations and Tables 3 and 4 provide the results of the groundwater sampling taken from the four designated groundwater sampling locations.

Surface water data from the July 2008 sampling event were compared with the regional and site specific data included in the Fermi 3 Environmental Report, Section 2.3.3 (Section 2.3.3). Water quality data from Section 2.3.3 of the ER included data for Lake Erie from U.S. EPA's Great Lakes National Program Office, the River Raisin, Huron River, and Rouge River USGS monitoring stations, and previous samples from the site. No noticeable variations were observed in the site specific data when compared to the data collected and included in Section 2.3.3. The July 2008 data represent the high end of the range of seasonal variations in temperature.

Surface water data from the October 2008 sampling event were compared with the regional data from Section 2.3.3. No noticeable variations were observed in the site specific data when compared to the data collected and included in Section 2.3.3. The October 2008 data represent the average range of seasonal variations in temperature. Surface water data from the dates and locations selected for the 2008 study provide a baseline of site-specific data and represent seasonal and temporal variations of the surface water quality characteristics

Groundwater data from section 2.3.3 included data from nine USGS wells within 10 miles of the Fermi site sampled one time by USGS from 1991 to 1992, groundwater samples from private wells collected by the Michigan Department of Agriculture in 1990 and 1991, county-specific data covering the time period from 1983 to 2007 for arsenic, nitrates, and volatile organic compounds (VOCs) provided by MDEQ, data from onsite monitoring wells sampled in August 2007, and samples collected in the Fermi site vicinity by the Detroit Edison Company in 1969 and 1970.

Groundwater data from the July 2008 sampling event were compared with the data reported in Section 2.3.3. No noticeable variations were observed in the site specific data when compared to the data collected and included in Section 2.3.3. The July 2008 data represent the high end of the range of seasonal variations in temperature.

Data from the October 2008 groundwater sampling event were compared with the data reported in Section 2.3.3. No noticeable variations were observed in the site specific data when compared to the data collected and included in Section 2.3.3. The October 2008 data represent the average range of seasonal variations.

Groundwater data from the dates and locations selected for the 2008 study provide a baseline of site-specific data and represent seasonal and temporal variations of the groundwater quality characteristics.

4.0 Literature Cited

American Public Health Association (APHA), American Water Works Association and Water Environment Foundation. 1998. Standard Methods for the Examination of Water and Wastewater, 20th Edition. American Public Health Association, Washington, DC.

Puls, R.W. and M.J. Barcelona. 1996. Ground Water Issues: Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures. United States Environmental Protection Agency, Office of Research and Development and Office of Solid Waste and Emergency Responses. EPA/540/S-95/504.12 pp.

U.S. Nuclear Regulatory Commission, Environmental Review Standard Plan, NUREG 1555, October 1999

TABLES

Table 1. Summary of surface water quality data collected at the FERMI site, July 2008

Parameter	Unit	SC-W	LE1-W	LE2-W	QU-W	IP-W	LA-W
alkalinity	mg/L	124	96	98	98	132	134
ammonia-nitrogen	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
antimony	mg/L	ND	0.001	ND	ND	ND	0.001
arsenic	mg/L	0.002	0.001	0.002	0.001	0.003	0.003
beryllium	mg/L	0.0001	ND	ND	0.0002	ND	0.0001
bicarbonate	mg/L	NS	NS	NS	NS	NS	NS
biological oxygen demand	mg/L	2.6	0.8	1.2	1	1.6	11.7
cadmium	mg/L	ND	ND	ND	ND	ND	ND
calcium	mg/L	45.6	33.9	35	124	39.6	70.7
carbon dioxide	ug/L	NS	NS	NS	NS	NS	NS
chemical oxygen demand	mg/L	21	22	15	191	37	38
chloride	mg/L	42	26	23.3	199.8	49.2	122.6
chlorophyll a	ug/L	17.4	1.9	3	0.7	2.9	30.4
chromium	mg/L	0.0028	0.0016	0.0012	0.002	0.0019	0.0028
color	mg/L	189	28	39	21	53	81
copper	mg/L	0.0034	0.0023	0.0019	0.0009	0.0008	0.002
dissolved oxygen	mg/L	6.52	5.35	6.79	7.62	6.4	11.07
fecal coliform	colonies/100mL	0	4	87	0	26	8
hardness	mg/L	148	136	124	512	136	268
iron	mg/L	NS	NS	NS	NS	NS	NS
lead	mg/L	ND	ND	0	ND	ND	0.0009
magnesium	mg/L	11.8	10.1	10	42.5	9.66	21.4
mercury	ng/L	2.4	1	0.8	<0.5	0.9	1
nickel	mg/L	0	ND	ND	ND	ND	0.003
nitrate-nitrogen	mg/L	0.347	0.92	0.745	0.044	<0.002	0.011
nitrite-nitrogen	mg/L	0.0242	0.023	0.0293	<0.0011	<0.0011	0.004
orthophosphorus	mg/L	<0.0005	0.01	0.01	<0.0005	0.0223	0.0034
pH	s.u.	7.93	7.57	8.17	8.13	7.55	8.35
potassium	mg/L	3.38	2.34	2.19	3.1	1.04	3.05
selenium	mg/L	ND	ND	0	0.001	ND	0.001
silica	mg/L	NS	NS	NS	NS	NS	NS
silver	mg/L	ND	0.0005	ND	ND	ND	ND
sodium	mg/L	17.3	11.4	11	98.7	24.2	59.5
specific conductance	m s/cm	420	322	312	1,384	418	831
sulfate	mg/L	31.7	30.3	28.3	424	12.4	152
suspended solids	mg/L	29.8	5.6	2.3	1.4	5	24.1
temperature	°C	26.14	24.61	25.28	27.07	26.37	25.4
thallium	mg/L	ND	ND	ND	ND	ND	ND
total dissolved solids	mg/L	260	194	177	959	241	506
total Kjeldahl nitrogen	mg/L	0.906	0.416	0.526	0.224	0.79	2.006
total phosphorus	mg/L	0.0735	0.0456	0.0362	0.0032	0.0785	0.106
turbidity	NTU	0.908	0.781	0.21	0.278	0.279	0.258
zinc	mg/L	0.013	0.005	0.006	0.009	0.004	0.012

Table 2. Summary of surface water quality data collected at the FERMI site, October 2008

Parameter	Unit	SC-W	LE1-W	LE2-W	QU-W	IP-W	LA-W
alkalinity	mg/L	120	88	94	102	140	154
ammonia-nitrogen	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
antimony	mg/L						
arsenic	mg/L						
beryllium	mg/L						
bicarbonate	mg/L	NS	NS	NS	NS	NS	NS
biological oxygen demand	mg/L	5.2	1.8	1.7	1.1	9	6.9
cadmium	mg/L						
calcium	mg/L						
carbon dioxide	ug/L	NS	NS	NS	NS	NS	NS
chemical oxygen demand	mg/L						
chloride	mg/L	50.6	18.1	44.3	123.6	29.9	149.3
chlorophyll a	ug/L	16.7	4.8	3.3	0.6	20.6	22.2
chromium	mg/L						
color	mg/L	93	9	27	70	215	82
copper	mg/L	10.11	9.43	10.3	8.95	12.4	12.13
dissolved oxygen	mg/L	4	5	10	0	72	34
fecal coliform	colonies/100mL	188	112	120	548	128	336
hardness	mg/L	NS	NS	NS	NS	NS	NS
iron	mg/L						
lead	mg/L						
magnesium	mg/L						
mercury	ng/L						
nickel	mg/L						
nitrate-nitrogen	mg/L	<0.002	0.447	0.471	<0.002	0.017	0.31
nitrite-nitrogen	mg/L						
orthophosphorus	mg/L	0.0058	0.0059	0.0073	0.002	0.0073	0.0057
pH	s.u.	8.71	8.2	8.23	8.18	7.85	8.38
potassium	mg/L						
selenium	mg/L						
silica	mg/L	NS	NS	NS	NS	NS	NS
silver	mg/L						
sodium	mg/L						
specific conductance	m s/cm	413	276	294	1,392	385	1,036
sulfate	mg/L						
suspended solids	mg/L	20.7	2.9	7.3	0.6	29.4	11.8
temperature	°C	11.06	14.17	14.3	15.48	14.35	14.12
thallium	mg/L						
total dissolved solids	mg/L	275	165	162	939	225	643
total Kjeldahl nitrogen	mg/L	0.665	0.226	1.005	0.226	1.379	0.584
total phosphorus	mg/L	0.046	0.0189	0.028	0.0024	0.0678	0.0353
turbidity	NTU						
zinc	mg/L						

Table 3. Summary of groundwater quality data collected at the FERMI site, July 2008

Parameter	Unit	MW-393	MW-391	MW-384	MW-381
alkalinity	mg/L	436	356	382	276
ammonia-nitrogen	mg/L	<0.5	<0.5	<0.5	<0.5
antimony	mg/L	ND	ND	ND	0.002
arsenic	mg/L	0.002	0.001	0.002	0.001
beryllium	mg/L	0.0001	0.0001	0.0002	ND
bicarbonate	mg/L	542	191	413	291
biological oxygen demand	mg/L	0.8	0.5	1.2	0.6
cadmium	mg/L	ND	ND	ND	0.0001
calcium	mg/L	587	89.9	572	162
carbon dioxide	ug/L	2,800	2,300	2,800	2,600
chemical oxygen demand	mg/L	13	ND	6	11
chloride	mg/L	113.1	52.5	44.1	95.2
chlorophyll a	ug/L	NS	NS	NS	NS
chromium	mg/L	0.0061	0.0015	0.0059	0.002
color	mg/L	74	7	23	7
copper	mg/L	0.0032	0.001	ND	0.0119
dissolved oxygen	mg/L	1.64	2.45	3.89	6.77
fecal coliform	colonies/100mL	0	1	0	0
hardness	mg/L	2,330	368	2,200	656
iron	mg/L	0.04	0.04	3.4	0.04
lead	mg/L	ND	ND	ND	ND
magnesium	mg/L	353	27.3	162	52.6
mercury	ng/L	<0.5	<0.5	<0.5	<0.5
nickel	mg/L	0.007	ND	ND	0.006
nitrate-nitrogen	mg/L	0.025	0.197	0.955	0.046
nitrite-nitrogen	mg/L	0.0046	0.0086	<0.0011	<0.0011
orthophosphorus	mg/L	<0.0005	<0.0005	<0.0005	0.0368
pH	s.u.	6.91	7.46	6.28	7.66
potassium	mg/L	9.02	3.47	4.52	2.85
selenium	mg/L	0.004	ND	0.005	ND
silica	mg/L	11	2.8	6.3	2.7
silver	mg/L	ND	ND	ND	ND
sodium	mg/L	96.4	23.6	38.8	38.6
specific conductance	m s/cm	2,780	307	1,032	454
sulfate	mg/L	2570	206	1840	369
suspended solids	mg/L	24.5	8.2	13.6	1.6
temperature	°C	17.92	18.81	13.57	12.78
thallium	mg/L	ND	ND	ND	ND
total dissolved solids	mg/L	3,277	516	3,015	978
total Kjeldahl nitrogen	mg/L	0.357	0.253	0.407	0.154
total phosphorus	mg/L	0.0484	0.0046	0.0029	0.0851
turbidity	NTU	0.099	0.256	0.571	0.143
zinc	mg/L	0.031	0.008	0.029	0.031

Table 4. Summary of groundwater quality data collected at the FERMI site, October 2008

Parameter	Unit	MW-393	MW-391	MW-384	MW-381
alkalinity	mg/L	306	168	432	254
ammonia-nitrogen	mg/L	<0.5	<0.5	<0.5	<0.5
antimony	mg/L				
arsenic	mg/L				
beryllium	mg/L				
bicarbonate	mg/L				
biological oxygen demand	mg/L	1.2	0.8	2.2	1
cadmium	mg/L				
calcium	mg/L				
carbon dioxide	ug/L				
chemical oxygen demand	mg/L				
chloride	mg/L	40.6	37.3	39.4	83.4
chlorophyll a	ug/L	NS	NS	NS	NS
chromium	mg/L				
color	mg/L	18	14	130	7
copper	mg/L				
dissolved oxygen	mg/L	203	1.91	1.91	3.3
fecal coliform	colonies/100mL	0	0	0	2
hardness	mg/L	1,180	352	2,168	620
iron	mg/L				
lead	mg/L				
magnesium	mg/L				
mercury	ng/L				
nickel	mg/L				
nitrate-nitrogen	mg/L	<0.0020	0.06	<0.002	<0.002
nitrite-nitrogen	mg/L				
orthophosphorus	mg/L	0.002	0.0011	0.001	0.0016
pH	s.u.	6.92	7.39	6.66	7.08
potassium	mg/L				
selenium	mg/L				
silica	mg/L				
silver	mg/L				
sodium	mg/L				
specific conductance	m s/cm	1,880	741	963	1,266
sulfate	mg/L				
suspended solids	mg/L	3.8	2.9	7.4	1.7
temperature	°C	12.03	18.87	13.54	11.09
thallium	mg/L				
total dissolved solids	mg/L	1,620	499	2,787	918
total Kjeldahl nitrogen	mg/L	1.327	0.061	0.576	0.106
total phosphorus	mg/L	0.0114	0.0011	0.0025	0.0028
turbidity	NTU				
zinc	mg/L				

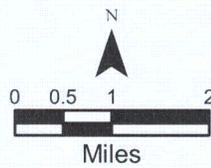
FIGURES



DECo Fermi 3 Project Site Location Map

Legend

-  Project Area
-  FERMI Site (Developed Areas)



Projection: Michigan South State Plain, NAD 83
Background: ESRI Resource Center
Source: <http://resources.esri.com>

Black & Veatch

ENSR | AECOM

FIGURE 1

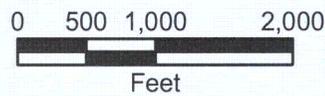
Date: Dec 4, 2008

Project No.: 00940-040



DECo Fermi 3 Water Quality Survey 2008 Water Quality Sample Station Locations

- Legend**
- Water Quality Surface
 - Water Quality Ground



Projection: Michigan South State Plain, NAD 83
Background: ESRI Resource Center
Source: <http://resources.esri.com>

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ENSR | AECOM

FIGURE 2

Date: Dec 4, 2008

Project No.: 00940-040

ATTACHMENTS

MDEQ Procedure for Mercury and Trace Metals Sample Collection

WATER CHEMISTRY MONITORING PROJECT SAMPLE COLLECTION AND HANDLING PROCEDURES FOR SELECTED PARAMETERS

REVISED January 2008

Proposed modifications to sampling equipment or procedures must receive prior approval from the appropriate laboratory and the MDEQ Project Manager.

PART I. MERCURY AND TRACE METALS

Modified clean techniques will be employed for collection of all metals samples using either the grab method or the peristaltic pump collection method, as outlined below. See the "Water Chemistry Monitoring Project Equipment and Supplies Checklist" for a list of materials needed:

A. Sample Collection Via Grab Method

1. Designate clean hands/dirty hands for collection procedure;
2. Suit up in Tyvek low particle coveralls and waders;
3. Clean hands wears shoulder-length polyethylene gloves and wrist-length latex gloves;
4. Dirty hands:
 - a. wears wrist-length latex gloves;
 - b. removes double-bagged sample bottle from storage tub;
 - c. records STORET#, sampling location and date on outer bag of sample bottle using permanent marker;
 - d. opens outer bag;
5. Clean hands:
 - a. reaches into outer bag, removes inner bag, opens it, removes sample bottle, and replaces inner bag;
 - b. removes bottle seal, empties HCl into waste acid container, and reseals bottle;
 - c. wades into stream and while facing upstream: submerges sealed bottle approximately 2-3 feet below surface, removes seal, partially fills and seals bottle, brings bottle to surface, shakes bottle, removes seal and empties bottle to **rinse**, seals bottle, submerges sealed bottle approximately 2-3 feet below surface, removes seal, fills bottle completely leaving no air space, and reseals bottle by hand very tightly before bringing to surface;
 - d. wipes bottle off w/ low particle Kim wipes;
 - e. removes inner bag from outer bag, places bottle inside inner bag, seals bag leaving no trapped air, and replaces within outer bag;
6. Dirty hands seals outer bag leaving no trapped air, and stores in ice-filled cooler. Repeat as needed. End clean hands/dirty hands roles.
7. Fill out analysis request form(s) and/or chain-of-custody.
8. Ship samples to analytical laboratory via overnight courier on wet ice.

**Attachment 3
NRC3-09-0010**

Response to RAI letter related to Fermi 3 ER

RAI Question AE5.3.1.2-1

NRC RAI AE5.3.1.2-1

Provide information pertinent to the evaluation of the cumulative impacts of impingement and entrainment on aquatic resources in the Western Basin of Lake Erie by providing copies of recent 316(b) evaluation reports from the Detroit Edison Monroe Plant and from other power plants (e.g., Bayshore in Ohio) within the Western Basin of Lake Erie.

Response

A document titled "Bay Shore Power Plant Cooling Water Intake Structure Information and I&E Sampling Data," dated January 2008, will be available on or before June 26th, 2009 for review by NRC staff and their contractors at several Detroit Edison locations. This document was prepared as part of a study to analyze the impacts of 316(b) compliance at the First Energy Bay Shore Power Plant located near Oregon, Ohio.

A document titled "Report On Source Water and Cooling Water Data and Impingement Mortality and Entrainment Characterization for Monroe Power Plant," dated July 2008, will be available on or before June 26th, 2009 for review by NRC staff and their contractors at several Detroit Edison locations. This document was prepared as part of a study to analyze the impacts of 316(b) compliance at the Detroit Edison Monroe Power Plant located in Monroe, Michigan.

Proposed COLA Revision

None

Attachment 4
NRC3-09-0010

Response to RAI letter related to Fermi 3 ER

RAI Question AL9.3-2

NRC RAI AL9.3-2

Provide copies of the Alternative Site Selection Reports (both the original site selection study completed in 2006 and the 2008 update on which the alternative sites discussion in ER Section 9.3 is based).

Response

Section 9.3 and Appendix 9A of the Environmental Report (ER) contain the alternative site selection process. A separate 2008 alternate site selection report update does not exist.

The original site selection study completed in 2006 is available for review by NRC staff and their contractors at several Detroit Edison locations.

Proposed COLA Revision

None

**Attachment 5
NRC3-09-0010**

Response to RAI letter related to Fermi 3 ER

RAI Question CR4.1.3-6

NRC RAI CR4.1.3-6

Provide copies of current Phase I Cultural Resources reports prepared for the Fermi 3 project and copies of forthcoming Phase I reports that have been revised per SHPO comments. The reports should be in color and include all figures, photos, and appendices.

Response

A document titled "Phase I Cultural Resources Evaluation of the Fermi Atomic Power Plant Unit 3 (Fermi 3) Projects, Frenchtown and Berlin Townships, Monroe County, Michigan" is attached. Any potential future impacts to this document as a result of the Michigan State Historic Preservation Office's review will be communicated to the NRC as they develop.

Proposed COLA Revision

None

NRC3-09-0010
RAI Question CR4.1.3-6

Enclosure 1

Fermi 3 Phase 1 Cultural Resources Report
(following 255 pages)

**PHASE I CULTURAL RESOURCES EVALUATION OF THE
FERMI ATOMIC POWER PLANT UNIT 3 (FERMI 3) PROJECT, FRENCHTOWN
AND BERLIN TOWNSHIPS,
MONROE COUNTY, MICHIGAN**

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R-0715

July 2008

MANAGEMENT SUMMARY

Detroit Edison (DTE) proposes to construct and operate a new nuclear power plant, Fermi 3, at the existing Fermi site in the northeastern corner of Monroe County in southern Michigan. The purpose of the proposed new nuclear power plant is to generate electricity for sale. The Fermi Project site is located about 20 mi (32 km) north of the Michigan/Ohio border and 30 mi (48 km) southwest of Detroit, Michigan. The U.S./Canada international border runs through Lake Erie about 7 mi (11 km) east of the site. The project site lies within Private Claim 528 and encompasses portions of Sections 16, 17, 20, and 21, T6S/R10E, Frenchtown Township, Monroe County, Michigan. The location of project site was historically known as Lagoon Beach.

In support of the Fermi 3 Project, Commonwealth Cultural Resources Group, Inc. (CCRG), contracted by Black & Veatch Corporation of Overland Park, Kansas, conducted surveys of cultural resources (above-ground and archaeological) to identify historic resources in and near the Project site and to assess possible impacts to these resources. The report of investigations focuses on the Fermi 3 Project area and does not include offsite areas involved with transmission line construction or operation.

The cultural resources investigations for the Fermi 3 Project began November 2007 and continued into April 2008. Additional archaeological survey was conducted on one small parcel on July 15, 2008. Cultural resources investigations were carried out pursuant to Section 106 of the National Historic Preservation Act (NHPA) (P.L. 89-665, October 15, 1966; 16 U.S.C. 470) and its implementing regulations (36 CFR 800), which require federal agencies to take into account their activities on historic resources that may be impacted as a result of project activities. In addition, the cultural resources surveys conform to the regulations contained in the Nuclear Regulatory Commission Office of Nuclear Reactor Regulation Environmental Standard Review Plan (NUREG-1555), and the requirements of the Michigan State Historic Preservation Office (SHPO).

Agency consultation conducted before and during the archaeological surveys included discussions with the Michigan Office of the State Archaeologist (OSA) to determine the level of survey effort required for archaeological survey and to delineate the archaeological area of potential effect (APE). The APE is defined as that the geographic area that could experience direct and indirect impacts as a result of project activities. For archaeological resources, the APE for the Fermi 3 Project is limited to the construction footprint of the Fermi 3 Project area, as well as ancillary construction areas offsite (e.g., access roads). Consultation before and during the above-ground resources survey consisted of discussions with the Michigan SHPO to determine the level of survey effort required for above-ground resources survey and to delineate the above-ground resources APE. The APE for above-ground resources, as determined by the SHPO, consists of the immediate Fermi 3 Project area and offsite areas that could experience direct or indirect impacts from construction and operation. DTE is conducting additional consultation with Native American tribes and other federal, state, and local agencies.

One prehistoric archaeological site was previously recorded in the Michigan archaeological site files on the Lake Erie shore within the Fermi 3 Project area. Field examinations of the Lake Erie

beachfront in the area of the reported site did not yield any evidence of archaeological material. Six archaeological sites were discovered as a result of the archaeological surveys. Four of these sites are isolated flakes created from prehistoric tool making. One site is a historic (1920-1960) site identified through the discovery of five building foundations and a scatter of historic debris. One site is a multi-component historic (ca. 1870s to 1920s) and prehistoric site consisting of a surface scatter of domestic artifacts (primarily ceramics and container/vessel glass) and a single prehistoric isolated flake. Only the historic site is located on the Fermi site. None of the six archaeological sites are considered significant.

One above-ground resource, a nineteenth-century farmhouse situated within the Fermi 3 Project APE; was previously determined by the Michigan SHPO in 1995 as eligible for listing in the National Register of Historic Places (NRHP). This house is not, however, located on DTE-owned property associated with the Fermi 3 Project. The above-ground resources survey conducted for the Fermi 3 Project identified 83 properties within the above-ground resources APE that meet the minimum criteria for listing in the National Register of Historic Places (NRHP). Of those 83 properties, 19 are recommended eligible for listing. None of the 19 properties recommended eligible for listing are located within the Fermi 3 Project site.

Prior to the Fermi 3 Project cultural resources surveys, few formal cultural resources investigations had occurred in the Fermi 3 Project area and near vicinity. The only investigation of the Fermi Project site for archaeological investigations was conducted by Dr. James B. Griffin in 1972 following site preparation for the Fermi 2 complex. No archaeological materials were found. No other examinations of the project site for archaeological resources are known to have taken place either before or after Dr. Griffin's field view.

Prior to the current study, neither the Fermi Project site nor the near vicinity was previously systematically investigated for above-ground resources. The Monroe County Historic Building Survey, which exists as a collection of cards at the Monroe County Historical Museum., was conducted in 1973. Although the title identifies the survey as encompassing Monroe County, the survey focuses on the resources located within and immediately near the City of Monroe.

On the basis of field evaluations it is CCRG's opinion that the Fermi 3 Project APE holds little potential to contain significant prehistoric or historic archaeological resources. Prior to construction at the Fermi site, much of the area was wet and inhospitable to human habitation. Historically, construction of Fermi 1 and Fermi 2 involved extensive quarrying and land-building extending to the Lake Erie shore and near-shore areas, which would have impacted archaeological sites that might have existed on the site. Based on the Fermi site pre-construction environmental conditions, prior construction impacts, and lack of significant archaeological sites discovered during the Fermi 3 Project survey, Impacts to archaeological resources resulting from the Fermi 3 Project construction and operations are SMALL.

At the time of the above-ground resources survey, only one NRHP-eligible above-ground resource was known in the Project area; this farmhouse is not located on DTE-owned property associated with the Fermi site. Survey of the Fermi 3 Project APE resulted in the identification of 19 buildings and one four-building district that are recommended eligible for listing in the

NRHP. None of the 19 properties recommended eligible for listing in the NRHP are located within the DTE-owned Fermi site and none are likely to experience direct impacts resulting from construction activities. Indirect impacts resulting from the project construction and operation are limited to viewshed intrusions from an additional cooling tower. Such visual intrusions would, however, be considered minimal, as two cooling towers and a water tower currently extend into the viewshed. The introduction of another visual element would not constitute a significant impact. Based on the results of the pre-field and field investigations conducted for the Fermi 3 Project, the Project will have no significant impact on cultural resources previously listed in or determined eligible for listing in the NRHP. Construction and operation impacts are SMALL.

Further cultural resources activities associated with the Fermi 3 Project include submission of the within report to the Michigan SHPO for review and ultimate project clearance with regard to cultural resources. DTE is currently undertaking NRHP evaluation of the Enrico Fermi Atomic Power Plant, Unit 1 (Fermi 1), and the results of the investigations will be reported and submitted to the Michigan SHPO separately at a later date.

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1.0 INTRODUCTION

1.1 PROJECT OVERVIEW

Detroit Edison (DTE) proposes to construct and operate a new nuclear power plant at the existing Fermi site. The proposed unit is to be designated as Fermi 3. The purpose of the proposed new nuclear power plant is to generate electricity for sale. In support of the Fermi 3 Project, Commonwealth Cultural Resources Group, Inc. (CCRG), contracted by Black & Veatch Corporation of Overland Park, Kansas, conducted surveys of cultural resources (above-ground and archaeological) to identify historic resources in and near the Project site area and to assess possible impacts to these resources. The cultural resources investigations for the Fermi 3 Project began November 2007 and continued into April 2008. Additional archaeological survey was conducted on one small parcel on July 15, 2008. Cultural resources investigations were carried out pursuant to Section 106 of the National Historic Preservation Act (NHPA) (P.L. 89-665, October 15, 1966; 16 U.S.C. 470) and its implementing regulations (36 CFR 800), which require federal agencies to take into account their activities on historic resources that may be impacted as a result of project activities. The work reported herein conforms to the requirements of the NHPA, as well as the regulations contained in the Nuclear Regulatory Commission Office of Nuclear Reactor Regulation Environmental Standard Review Plan (NUREG-1555), and the requirements of the Michigan State Historic Preservation Office (SHPO).

The Fermi 3 Project site is located in the northeastern corner of Monroe County in southern Michigan, near the northern border of Ohio and about 20 mi (32 km) north of the Michigan/Ohio border (Figure 1.1-1). The site is on the west bank of Lake Erie, approximately 24 mi (39 km) northeast of Toledo, Ohio, and 30 mi (48 km) southwest of Detroit, Michigan. The U.S./Canada international border runs through Lake Erie about 7 mi (11 km) east of the site, and the River Raisin is located about 6 mi (10 km) southwest of the site. The project site lies within Private Claim 528 and encompasses portions of Sections 16, 17, 20, and 21, T6S/R10E, Frenchtown

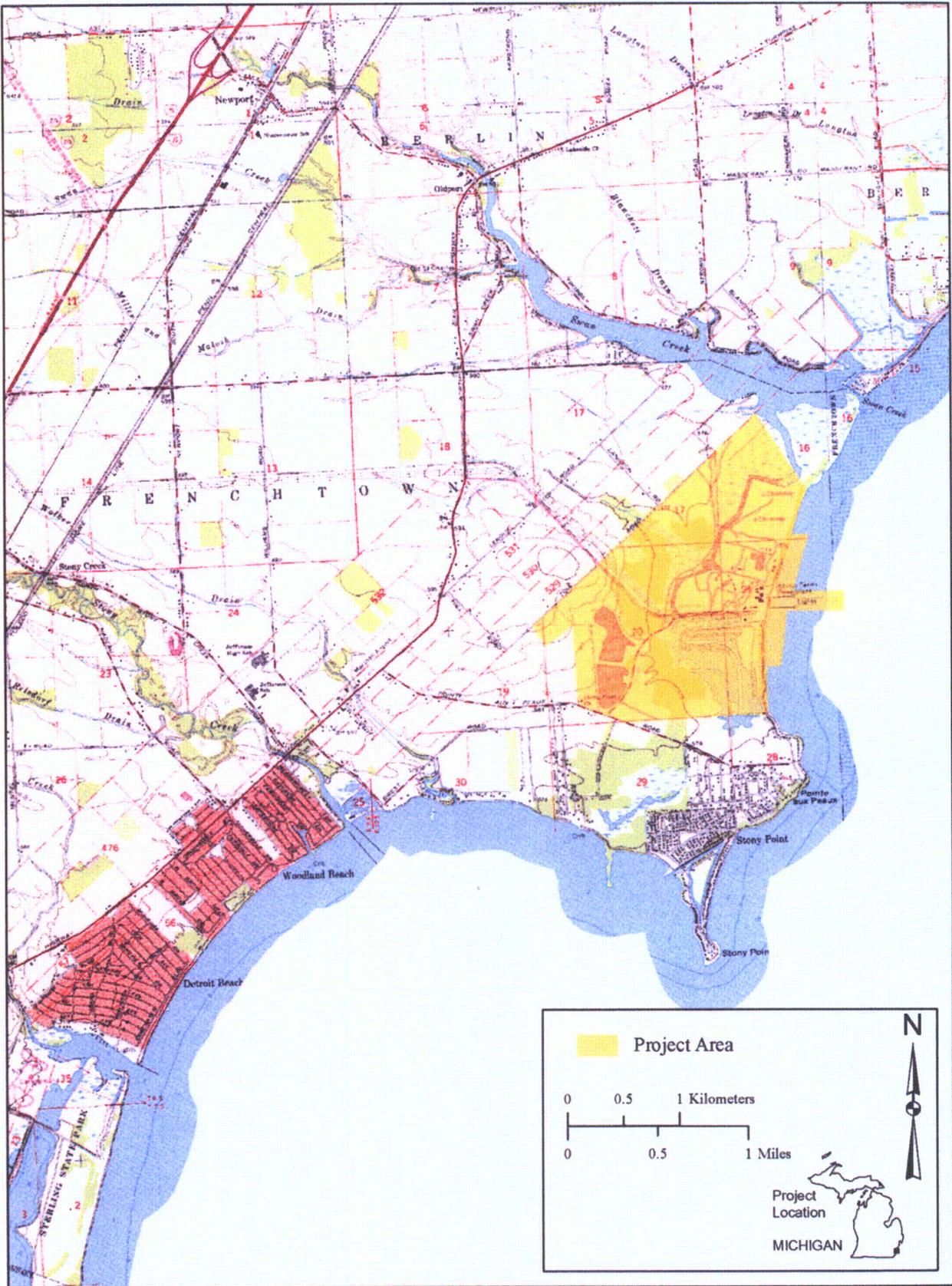


Figure 1.1-1. Fermi 3 Project Area Location

Township, Monroe County, Michigan. The town of Stony Point, Michigan, is about 2 mi (3 km) south of the Fermi 3 site, and the town of Monroe, Michigan, is approximately 7 mi (11 km) southwest. The location of project site was historically known as Lagoon Beach.

1.2 PREVIOUS CULTURAL RESOURCES INVESTIGATIONS

The Fermi 3 Project area and near vicinity have been the subject of few formal cultural resources investigations. Only one previous investigation was conducted in the Project area for archaeological resources, a drive-through field view conducted by Dr. James B. Griffin in May 1972 following site preparation for the construction of the expanded Fermi 2 complex. As a result of this field view, he concluded that, "...any Indian remains which might have been there have either been removed or covered up" (letter from James B. Griffin to Samuel Milstein, dated May 25, 1972). No other examinations of the project site for archaeological resources are known to have taken place either before or after Dr. Griffin's field view.

Prior to the current study, neither the Fermi Project site nor the near vicinity was previously systematically investigated for above-ground resources. CCRG researchers located the 1973 Monroe County Historic Building Survey, which exists as a collection of cards at the Monroe County Historical Museum. Although the title identifies the survey as encompassing Monroe County, in fact the survey focuses on the resources located within and immediately near the City of Monroe.

1.3 AGENCY CONSULTATION

For this effort, CCRG completed the following consultation (see also Appendix A):

- Initial consultation with the Michigan Office of the State Archaeologist (OSA) to determine the level of survey effort required for archaeological survey and to delineate the archaeological area of potential effect (APE), and

- Initial consultation with the Michigan SHPO to determine the level of survey effort required for above-ground resources survey and to delineate the above-ground resources APE.

DTE is conducting additional consultation with Native American tribes and other federal, state, and local agencies.

1.4 SUMMARY SURVEY RESULTS

One previously recorded prehistoric archaeological site is located within the project APE, site 20MR702 (Figure 1.4-1). This site is described in the site files as a “lithic scatter on beach.” Survey of the site area did not reveal evidence of prehistoric or historic cultural activities. During the archaeological survey, five prehistoric findspots represented by five isolated chert waste flakes and an early twentieth-century habitation site were identified within the archaeological APE on an agricultural parcel bordering the fenced margin of the DTE property (Figure 1.4-1). None of these sites is archaeologically significant and are, therefore, not eligible for inclusion in the National Register of Historic Places (NRHP). No prehistoric or historic archaeological sites were identified on the DTE-owned Fermi Project property.

One previously determined NRHP-eligible above-ground resource, a nineteenth-century farmhouse, is situated within the Fermi 3 APE; however, it is not located on DTE-owned property associated with the Fermi 3 Project. This resource was determined eligible for listing in the NRHP by the Michigan SHPO in 1995. During the survey conducted for the Fermi 3 Project cultural resources investigations, the project architectural historians recorded 83 previously unsurveyed above-ground sites within the above-ground APE. Of these, one four-building district and 19 individual sites are recommended eligible for listing in the NRHP. DTE is currently undertaking NRHP evaluation of the Enrico Fermi Atomic Power Plant, Unit 1 (Fermi 1), and the results of the investigations will be reported separately later.

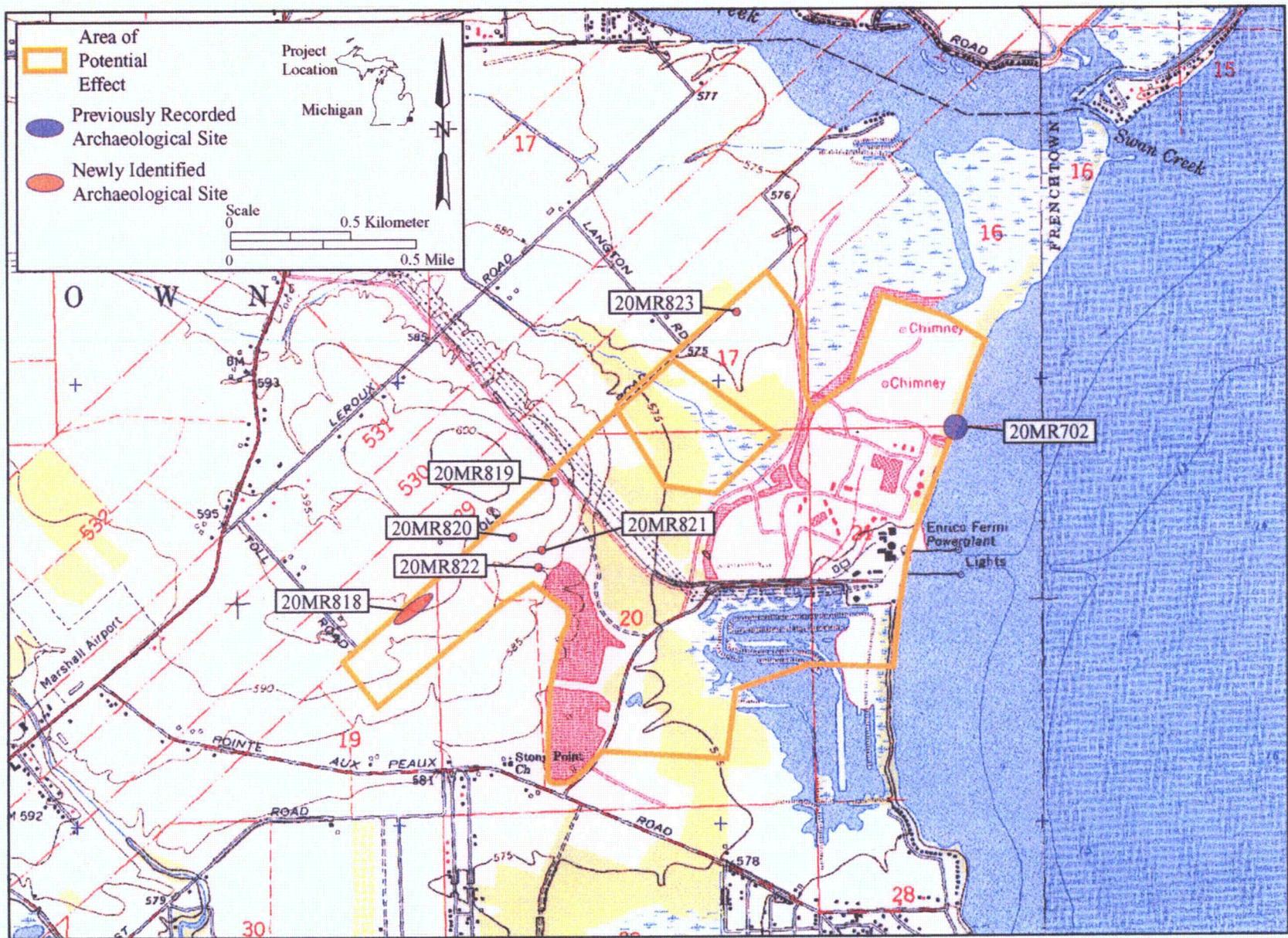


Figure 1.4-1. Previously Recorded and Newly Identified Archaeological Sites within the Fernald 3 Project Archaeological APE

1.5 PROJECT STAFF

Principal Investigator C. Stephan Demeter conducted the archaeological investigations. Mr. Demeter was assisted in the field by archaeologists Kent C. Taylor, David Carr, and Mary Swarthout. Elaine H. Robinson was responsible for the above-ground resources survey and was assisted by architectural historians Cheryl Chidester and Rachel Bankowitz. CCRG's president, Donald J. Weir, served as overall project manager. Mr. Demeter, Mr. Taylor, Ms. Robinson, and Ms. Chidester are the primary authors of this report. Nancy F. Demeter is the overall report compiler and editor. James B. Montney prepared the graphics, and Ms. Cynthia White served as production coordinator.

1.6 REPORT CONTENTS

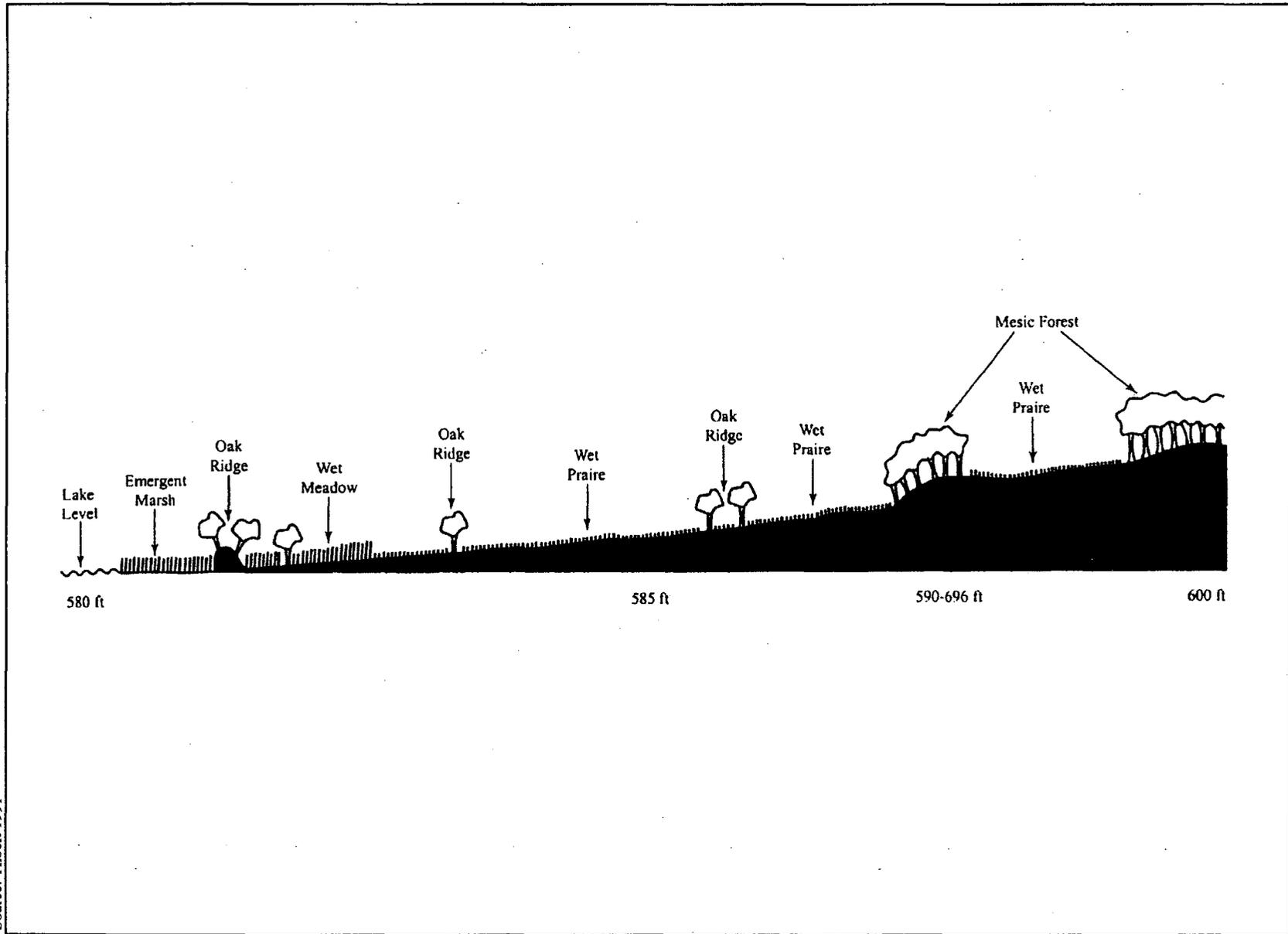
This report contains the background, methods, and results for the archaeological and above-ground resources surveys conducted for the Fermi 3 Project. Following this introduction, Sections 2 and 3 respectively present the environmental and historic backgrounds of the project area. The results of the archaeological survey are contained in Section 4, and the results of the above-ground resources survey are presented in Section 5. Section 6 proves the conclusions and recommendations resulting from both the archaeological survey and the above-ground resources survey. Section 7 contains a comprehensive list of references cited throughout the report text. The body of the report is supplemented by copies of consultation between CCRG and the State Historic Preservation Office (Appendix A), town plats of Newport and Brest (Appendix B), copies of subdivision plats for Berlin and Frenchtown townships (Appendix C), a complete inventory of all artifacts recovered during the archaeological survey (Appendix D), photographs of all above-ground resources recommended as eligible for listing in the NRHP (Appendix E), and a photo-illustrated table of all above-ground resources surveyed (Appendix F). The body of the report is supported by maps and illustrations, as appropriate.

2.0 PHYSIOGRAPHIC OVERVIEW

The Pointe aux Peaux/Stony Point (also Stoney, also Pointe) vicinity is part of the Maumee Subdistrict, which is dominated by an extensive lake plain running along the eastern shore of the Lower Peninsula from the western end of Lake Erie to Mackinac (Albert et al. 1986:8, 14, 17, 18, 19, 23). This undulating clay plain is dissected by sandy glacial drainage ways and narrow fossil beach ridges. Vegetation cover ranges from mesic to swamp forest species along with oak savannah, oak-hickory forest, and both wet and dry prairie plant groups (Albert et al. 1986:14; Albert 1991).

Prior to development of the Fermi complex, the project site exhibited the standard profile of this subdistrict in its succession from low lakeside emergent marsh to wet meadow/wet prairie habitat, succeeded by elevated and better drained mesic forest (Figure 2.0-1). Within the Fermi Project site, the marsh frontage originally dominated an approximate 0.5 mi (0.8 km)-wide band extending inland from Lake Erie with elevations ranging from about 573 ft (174.7 m) above mean sea level (amsl) to 575 ft (175.3 m) amsl. Toward the west, the ground surface rises quickly, forming a pronounced dome that exhibits a 603 ft (183.8 m) elevational high (Figure 2.0-2).

Natural soils comprising the eastern margin of the Project are dominated by Lenawee silty clay loams. These are nearly level in profile and range from ponded to frequently ponded lands (Bowman 1981:9, 17). Minor sand beach deposits occur along the lakefront, with the western uplands consisting of Blount loams and Milton clay loams. Blount loams are nearly level poorly drained soils. Milton clay loams are characterized by slopes of upwards of 6 percent slopes and well-drained knolls (Bowman 1981:11, 20). The existing DTE-owned Fermi property consists largely of paved and graveled urban lands with much of the surrounding district designated as cut and fill pits and aquents (Bowman 1981:23, 24, 35).



Source: Albert 1991

Figure 2.0-1. Pre-Settlement Lakeplain Habitat

Source: U.S.G.S. 7.5' Stony Point Quadrangle, Michigan 1942

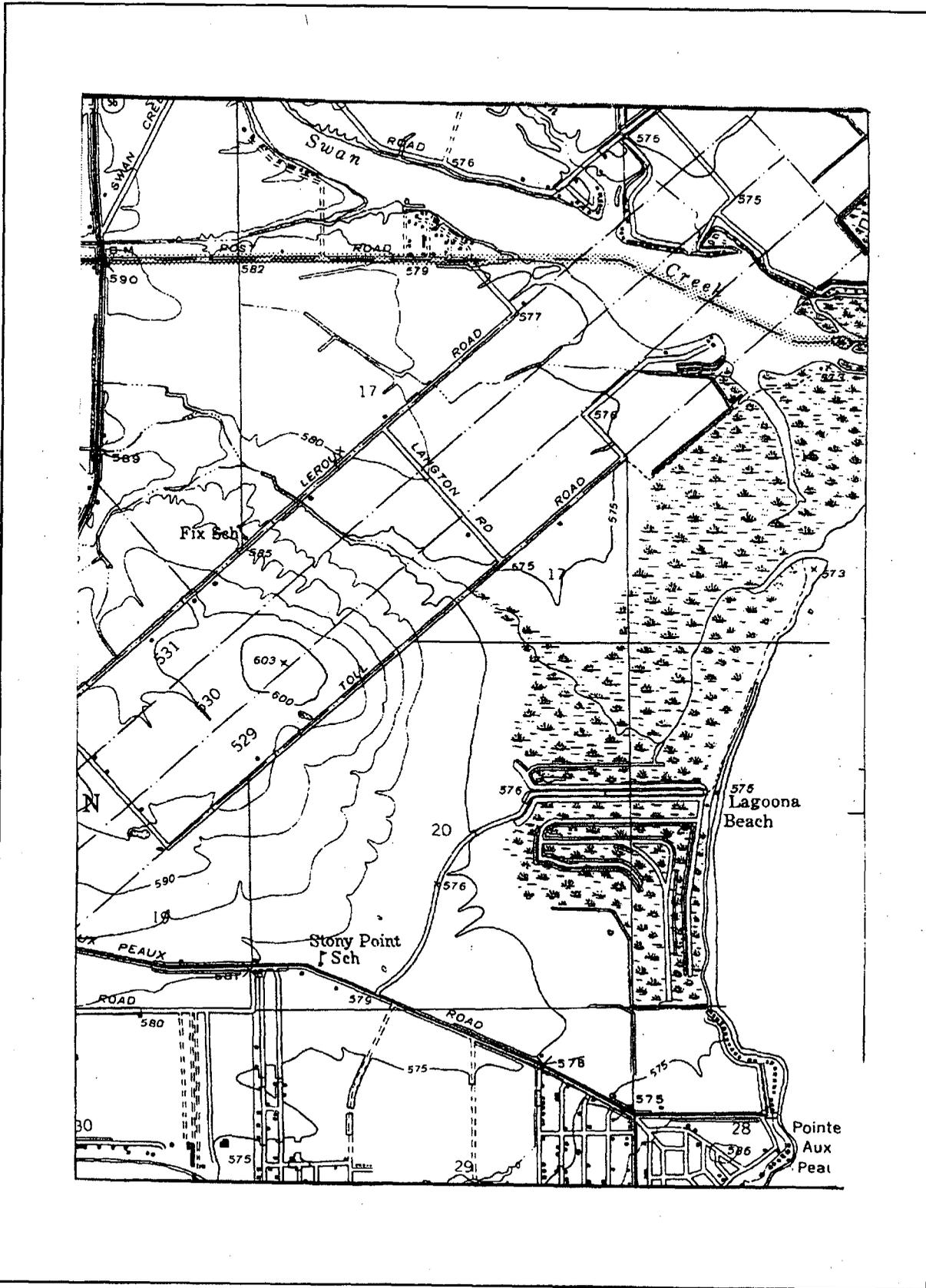


Figure 2.0-2. Fermi Site, 1940

Extensive modification of the marsh margin along the lakefront took place during the first half of the twentieth century with the dredging of a series of interconnected canals that likely served as fish ponds (Figure 2.0-2). Erosional impact to the location significantly altered its appearance to that of an open water pond habitat by the early 1950s (Figure 2.0-3). It was within this setting that the Fermi 1 complex was erected during the following decade (Figure 2.0-4). Landfill alterations implemented at that time were minimal compared to the extensive impacts of Fermi 2 construction (Figure 2.0-5).

Source: U.S.G.S. 7.5' Stony Point Quadrangle, Michigan 1952

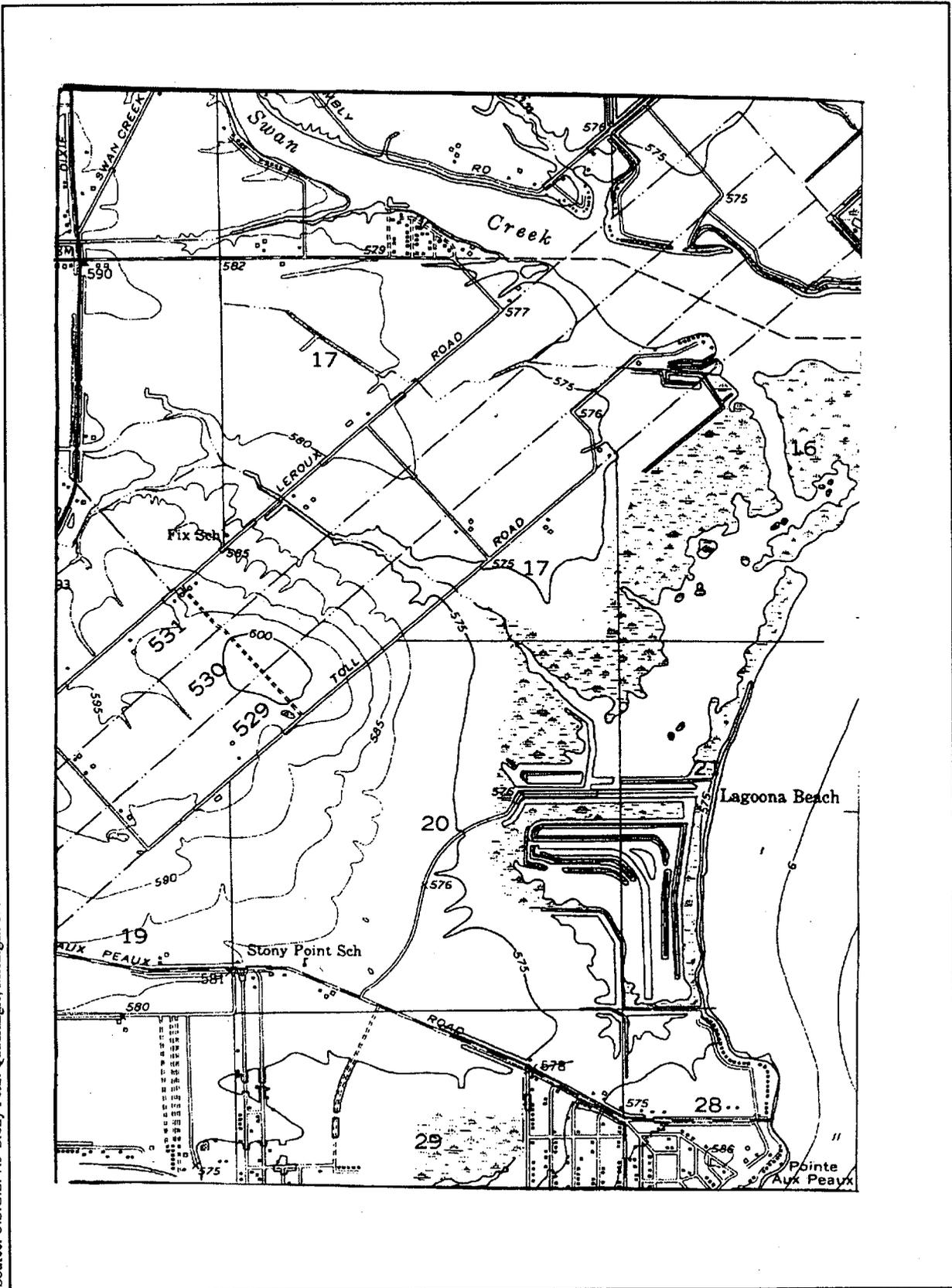


Figure 2.0-3. Fermi Site, 1952

Source: U.S.G.S. 7.5' Stony Point Quadrangle, Michigan 1967

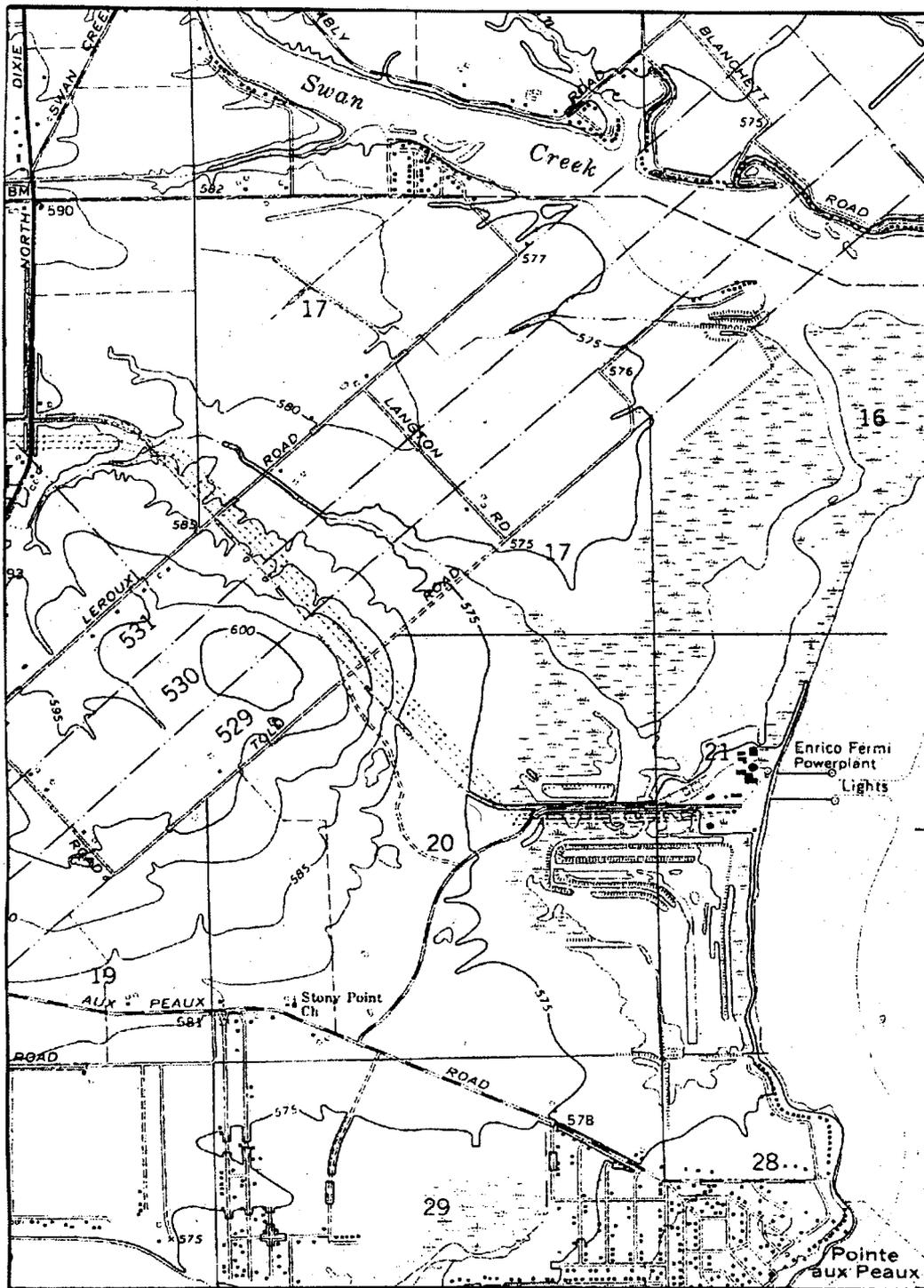
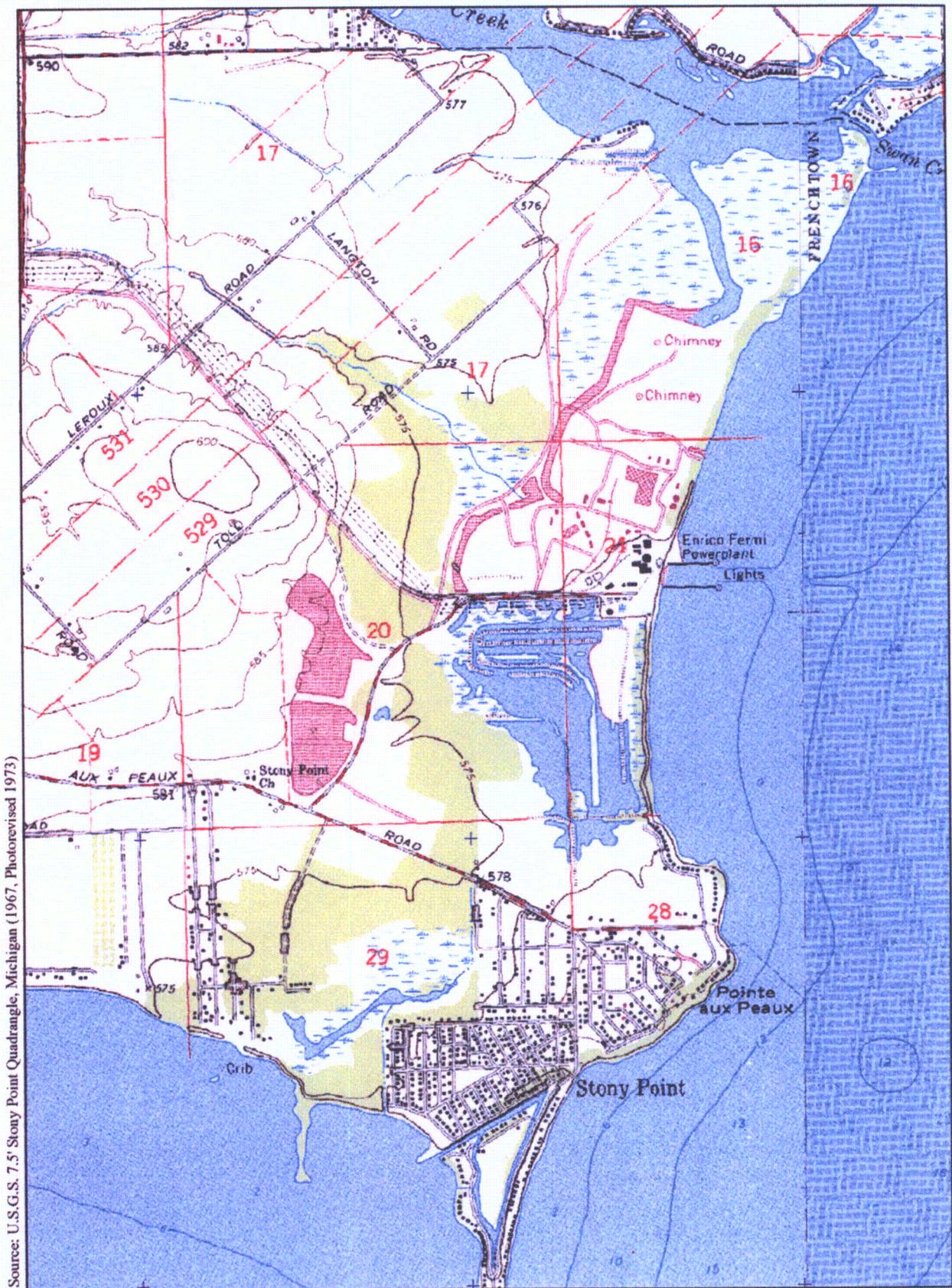


Figure 2.0-4. Fermi Site, 1967



Source: U.S.G.S. 7.5' Stony Point Quadrangle, Michigan (1967, Photorevised 1973)

Figure 2.0-5. Fermi Site, 1973

3.0 CULTURAL OVERVIEW

3.1 PREHISTORIC BACKGROUND

3.1.1 Paleoindian (10,000 B.C. to 8000 B.C.)

Paleoindian groups are the earliest known inhabitants of North America. Paleoindian occupation of the area probably began as early as 10,000 B.C. These populations expanded into the Great Lakes region following the retreat of the Wisconsin glaciers and the drop in glacial lake levels. By about 10,500 B.C. in the Lake Erie basin, the retreat of glacial ice from the isostatically depressed Niagara peninsula opened an outlet for Lake Erie below the elevation of the present lake level, which resulted in the draining of the entire lake basin east of Sandusky Bay (Coakley and Lewis 1985). Lake levels remained low until approximately 5050 B.C., and the Maumee Bay remained a dry plain traversed by the rivers and creeks that currently flow through the region (Brose and Essenpreis 1973:71; Coakley and Lewis 1985; Forsyth 1973). This drop in the elevation of Lake Erie provided a variety of shoreline environments that were progressively colonized by new plants. The changing environmental conditions also resulted in an increase in plant and animal diversity along river valleys and inland lakes as well as the lake margins (Fitting 1975:37). Though it is likely that some Paleoindian sites are now underwater, several major sites in Michigan and Ontario are located away from relict shorelines (Ellis and Deller 1990:50).

Although Paleoindian populations are traditionally viewed as possessing a focal subsistence pattern based on the exploitation of Pleistocene megafauna, other resources were also exploited. A review of Paleoindian hunting and land-use practices characterized these early groups as generalists in relation to large terrestrial faunal resources (including caribou and elk), and opportunists in relation to all other food resources (Kelly and Todd 1988:223).

Two adaptations are recognized for this period. The early Paleoindian hunters exploited the recently deglaciated environment that has been characterized as spruce parkland and/or a mosaic

of diverse microhabitats (Brown and Cleland 1969). Large fluted, lanceolate projectile points, often with concave bases, as well as large chopping implements, graters, and unifacial scrapers represent the material culture of the period prior to 8500 B.C.

Late Paleoindian hunters expanded across frontiers that opened as the glacial fronts retreated northward. Fluctuations in the Great Lakes water levels provided a variety of shoreline environments progressively colonized by new plants exploited by a variety of faunal communities. In response to changes in the faunal and floral composition of the region, further adaptational shifts were necessary. Projectile points such as Hi-Lo and unfluted lanceolate styles appear at this time, and prehistoric tool assemblages reflect a regional subsistence orientation based on local resource availability and scheduling.

Paleoindian sites are sparse in the immediate vicinity of the project area and in southeast Michigan in general. The nearest well-documented Paleoindian occupation in southeast Michigan is the Holcombe Beach complex of Paleoindian occupations. These are located just south of the Thumb in Macomb County (Fitting et al. 1966). The Holcombe Beach site probably dates to the beginning of the Late Paleoindian period.

3.1.2 Archaic (8000 B.C. to 550 B.C.)

Early Archaic (8000 B.C. to 6000 B.C.)

An apparent transition in artifact assemblages that defines the Early Archaic period takes place ca. 8000 B.C. The actual timing of this change is still poorly understood, with some late Paleoindian point styles persisting in certain areas to ca. 7500 B.C. A direct transition is suggested by some side-notched points in Ontario, which, except for the notches, are identical to Hi-Lo points (Ellis et al. 1990:71). The most recognizable artifacts, however, are projectile points of the Kirk, MacCorkle, LeCroy, St. Albans, Kanawha Stemmed, St. Charles, Thebes, and Decatur types. Other artifacts from the period include groundstone implements, choppers, knives, and scrapers.

This diversity of projectile point forms hints at increased regional population segmentation and/or modifications in subsistence activities. A more generalized form of subsistence involving a greater balance of hunting, fishing, and gathering of plant foods appears to be established. Sites tend to be small and ephemeral, although some rather extensive sites, such as Nettling in southern Ontario, are known (Ellis et al. 1990:70).

Although reference is oftentimes made to the hypsithermal warming (also altithermal and xerothermic) as the primary environmental variable driving Archaic shifts in subsistence (see e.g., Branstner 1990), the exact nature, timing, and duration of climatic shifts is a matter of debate (see e.g., Cavallo 1987). Assuming that such shifts in the biotic regime and climate were periodic rather than singular, Arnold's (1977) view of Early Archaic adaptations in the River Raisin drainage basin, south of the project area, is most appropriate. Arnold's analysis suggests that Early Archaic foragers exploited a wide area in small groups and utilized a variety of resources. Although this model is somewhat general, it underscores an adaptation that anticipated spatial and temporal variability in resource distribution.

Middle Archaic (6000 B.C. to 3000 B.C.)

Middle Archaic site densities in southeastern Michigan and throughout the state would appear to diminish. The paucity of Middle Archaic sites between about 6000 B.C. and 3000 B.C. is in part due to a lack of sites producing Stanly Stemmed, Eva, and Morrow Mountain projectile points, which are diagnostic of this period. It should be pointed out, however, that the geographic distribution of these points is primarily south and east of Michigan and that, with one exception (see below), diagnostic artifacts are poorly known for this time period.

In 1981, Michigan State University excavated the Weber I (20SA581) site in Saginaw County. The site dates as early as 4280 B.C. (Lovis 1989). Large side-notched points with ground haft elements were recovered. These points are comparable to variously named side-notched types that date to between 2500 B.C. and 5000 B.C. throughout the Northeast and Midcontinent (Lovis

and Robertson 1989). Other excavated Middle Archaic sites like Weber I are lacking in southeastern Michigan.

In southwestern Ontario, broad-bladed side- and corner-notched points are assumed to date to the same period as those from Weber I and are not associated with "Laurentian assemblages" like those in southeastern Ontario (Ellis et al. 1990:92). Towards the end of the Middle Archaic period, Brewerton points begin to appear. Recent dates suggest that such points may date to as early as 3000 B.C. to 4000 B.C. (George and Davis 1986).

If Weber I can be used as an example of the Middle Archaic adaptation in southeastern Michigan, then a continuation of the diffuse subsistence pattern of the Early Archaic may be suggested. Weber I yielded artifactual and subsistence remains suggestive of a small, late summer/fall campsite indicative of continued high residential mobility at this time (Robertson 1987). Subsistence remains from the site include wapiti, deer, goose, raccoon, turtle, fish, walnut, acorn, blackberry, grape, elderberry, and mustard seed (Egan 1988:92; Smith and Egan 1990).

Late Archaic (3000 B.C. to 550 B.C.)

In contrast to earlier Archaic periods, Late Archaic period adaptations have received considerable attention. Although most research has centered on Saginaw Valley sites, inferences regarding typology, subsistence, and settlement can generally be applied in establishing the cultural context for southeastern Michigan.

The chronology for the Late Archaic was synthesized by Lovis and Robertson (1989). In their synthesis, a gap in projectile point types exists between 3000 B.C. and 2500 B.C. Based on research in New York (Ritchie and Funk 1973:50) and Ontario (Ellis et al. 1990:86), Brewerton points appear to persist to at least 2500 B.C. Subsequently, Brewerton points are replaced by a broad-bladed point phase termed Satchell, which dates to ca. 2500 B.C. to 1550 B.C. A terminal Late Archaic small point phase follows, lasting some 1,000 years. Point styles include small

notched forms, small expanding stemmed forms, and narrow-point forms (Lovis and Robertson 1989:236-237). In contrast, a chronology for southern Ontario places narrow-point forms before broad-point styles (Ellis et al. 1990:93), which is more consistent with Mid-Atlantic and New England chronologies.

By the Late Archaic period, modern forest communities were well established (Holman 1990; Lovis 1989), and the elevation of Lake Erie and Lake Huron had stabilized at their present elevation (Brose and Essenpreis 1973:71; Coakley and Lewis 1985; Forsyth 1973). Within this dynamic environmental context, Archaic populations continued to develop an increasingly "diffuse" subsistence pattern (Cleland 1976) and a larger and more varied tool kit. Groundstone tools are a common element of Late Archaic artifact assemblages. As with the Middle Archaic, grooved axes were still present; however, chisel-shaped celts of similar rock types are also found. Slate was also a common raw material. A variety of abstract forms, termed bannerstones and birdstones, are often found in conjunction with these sites. Fabrication of copper tools first appears during the Late Archaic.

Development of ceremonial burial complexes also occurs during the Late Archaic period (Fitting 1975:81-90; Mason 1981:181-235). Subsumed under archaeological constructs such as Glacial Kame, Red Ocher, and Old Copper, formal burials of these "cultures" are associated with exotic grave goods including Turkey-tail points, red ochre, copper and shell artifacts, and/or elaborate groundstone forms.

The Late Archaic period is also characterized by an increase in site frequency and, in turn, a seeming increase in population size, compared with the previous periods. In southeast Michigan, these sites are found in both the lake plain and interior uplands (Brose and Essenpreis 1973; Peebles et al. 1979).

3.1.3 Woodland (600 B.C. to A.D. 1600)

Early Woodland (600 B.C. to 200 B.C.)

The Woodland period in Michigan is distinguished from the Archaic period by several traits, including ceramics, burial mounds, new artifact types, and stylistic shifts (Mason 1981:202). Pottery first appears between about 600 B.C. and 500 B.C. in southern Michigan (e.g., Garland 1986), northern Ohio (Shane 1967) and southern Ontario (Spence and Fox 1986).

The early ceramics are crude, thick-walled, poorly fired, with massive temper. The interior and exterior surfaces are often cordmarked. Early ceramic types in southern Michigan and northern Ohio include Marion Thick, Schultz Thick, Leimbach Thick, and Leimbach Cordmarked (Fischer 1972:142-147; Garland 1986:62; Mason 1981:201-235; Shane 1967:105-113). The Leimbach ceramic types are particularly noteworthy because they include traits characteristic of forms found in the northeastern Great Lakes. Shane (1967:112) suggests that the Leimbach assemblage and the lacustrine orientation of the site, “undoubtedly reflects its position at the periphery of the western Great Lakes area, adjacent to the Ohio Valley and the Northeast.” Ties to the Adena phase of the Scioto tradition, however, are also seen (Shane 1967:117).

The Early Woodland period is also characterized by a shift in lithic technology. Projectile points of this period are most commonly stemmed forms such as Schultz Stemmed (Kramer pointed) and Adena Stemmed points (Fitting 1975:92-93; Justice 1987). These attributes suggest influence from Illinois coming into western Michigan and extending eastward into southeastern Michigan and northwestern Ohio. Influences from the Ohio Valley can also be seen, as suggested by the Robbins Stemmed point from the Stone School site (20WA18) (Wobst 1965:63).

To the east, in Ontario, Early Woodland ceramics are more closely related to the Vinette ceramics of New York and southern Quebec, and Meadowood points predominate (Spence and Fox 1986). Interaction is clearly with eastern manifestations (Spence and Fox 1986; Spence et al. 1990:131) and is suggestive of a sociopolitical boundary falling along the St. Clair River.

Kramer points are rare in Ontario, although some do appear in the southwestern portions of the province (Spence et al. 1990:131). Conversely, Meadowood components are not widely distributed in Michigan, although they do occur in Monroe County (Brose and Essenpreis 1973) and may be associated with the slightly earlier (terminal Late Archaic) and/or aceramic Meadowood occupations (Lovis and Robertson 1989). Interaction and/or movement between Michigan and Ontario is suggested by the Conservation Park site, where Meadowood points are often made on Onondaga chert (Beld 1991).

Interpretations of Early Woodland settlement/subsistence patterns are variable and daunted by the limited number of well-documented sites. The Schultz site (20SA2) in the Saginaw Valley and the Wymer (20BE132) and Eidson (20BE122) sites in southwestern Michigan are among the few sites for which there are detailed subsistence data. These sites reflect persistence of a hunting and gathering adaptation. Cultigens (squash [*Cucurbita pepo*] and sunflower [*Helianthus annuus*]) first appear during the terminal Archaic and Early Woodland (Garland and Clark 1990; Ozker 1982), although their importance in the local economy is debatable.

Middle Woodland (200 B.C. to A.D. 500)

The Middle Woodland period in Michigan is often defined as exhibiting a definite Hopewell cultural influence through ceramic stylistic elements and elaborate burial procedures. Large conical burial mounds are associated with the Middle Woodland period. These structures are often located adjacent to villages and may reflect territorial markers.

Middle Woodland artifact assemblages include ceramics exhibiting dentate and rocker stamping, incising, trailing, punctating, and zonation (Fischer 1972:152-179; Mason 1981:248). A wide variety of expanding stemmed and corner-notched projectile point forms, exotic grave goods, copper tools, marine shell artifacts, and specialized tools such as bladelettes made from nonlocal cherts, are also found at Middle Woodland sites. Although Hopewellian artifacts have been found at several Middle Woodland sites in southern Michigan and northern Ohio, it is noteworthy that they are not found in the same quantities and contexts as they are at sites in the

Hopewellian heartlands of Ohio and Illinois. This suggests interaction and trade rather than a direct socio-economic relationship.

Subsistence and settlement changes are also characteristic of the Middle Woodland period. Recent analyses of Middle Woodland subsistence assemblages from the Saginaw Valley suggest that there was an increasing reliance on wetland and aquatic resources and potential use of native cultigens (Egan 1990, 1993). In addition, maize appears for the first time in the Great Lakes at the Eidson site, in a feature dating to A.D. 300 (Garland and Clark 1990:415). Associated with these shifts in the subsistence pattern is a shift in the settlement pattern toward the use of base camps (e.g., Schultz site [20SA2], Fletcher site [20BY29], and Dodge site [Ohio]), which were occupied for multiple seasons and supported by satellite extractive camps from which seasonally available resources were exploited.

In southwestern Ontario, Middle Woodland manifestations at this time have been designated as the Couture complex. The complex extends over an area defined by the drainages for the St. Clair River and the northwest shore of Lake Erie. This area corresponds roughly to the northern limits of the Carolinian biotic province (Spence et al. 1990:144). Thus, similar environments were being exploited, and interaction with groups in both Ohio and Michigan probably occurred on a regular basis (Spence et al. 1990:147). Spence et al. (1990:168-169), suggest continuity between the Couture complex and the Late Woodland Western Basin materials of Michigan, Ohio, and southwestern Ontario, whereas relationships with the Saugeen complex to the north and east are less than clear.

Late Woodland (A.D. 500 to A.D. 1600)

The Late Woodland period is characterized by an increase in population as well as in the size and number of aboriginal sites. The assumption is that agriculture facilitated a shift to permanent village life, with task-specific camps established outside of the main village sites. Evidence suggests that the introduction of more productive, tropical cultigens played an important role in

the evolution of the Late Woodland settlement system and social organization (Brashler and Holman 1985; Fitting 1975:144; Krakker 1983).

The Late Woodland cultural sequence in southeastern Michigan, northwestern Ohio, and southwestern Ontario centering around the drainages of western Lake Erie, the Detroit River, Lake St. Clair, the St. Clair River, and lower Lake Huron can be collectively referred to as the Western Basin tradition (Stothers 1975). Although there is disagreement over precise terminology, classifications, and distinctions, the basic Late Woodland cultural sequence, particularly as it applies to Michigan, ultimately rests on Fitting's (1965, 1975) distinctions between the Wayne and Younge traditions.

The Wayne tradition is defined ceramically by Wayne ware, a transitional Middle to early-Late Woodland pottery style that is globular in form. The bodies of these vessels are cordmarked and the rims are plain. Current debate centers on whether Wayne wares represent a distinct cultural manifestation (Brashler 1981; Halsey 1976) or if they are simply a common Woodland ceramic type used by several groups throughout the region (Krakker 1983; Lovis 1990).

Projectile points at this time are predominantly notched forms, such as Jack's Reef corner-notched. Small pentagonal bifaces also occur. Other artifacts characteristic of the early-Late Woodland period are rolled copper beads, copper awls, small celts, and marine shell beads. Most Wayne tradition sites in southeast Michigan are burial sites, indicative of the Wayne mortuary tradition, dating to ca. A.D. 500 to A.D. 1000 (Fitting 1965; Halsey 1976, 1981).

Settlement and subsistence adaptations during the Wayne tradition in southeastern Michigan (Krakker 1983), northwestern Ohio (Stothers and Yarnell 1977), the Saginaw Valley (Brashler and Holman 1985:145), and Ontario were probably broadly similar to those of the preceding periods, although there is some evidence for maize horticulture as early as the Riviere au Vase phase (Krakker 1983; Schurr and Redmond 1991). Analysis of osteological collections from the Gard Island 2 site (20MR161), indicates that early-Late Woodland, Riviere au Vase populations were involved in incipient maize horticulture (Schurr and Redmond 1991). Krakker's (1983)

analysis of Late Woodland settlement and subsistence data from southeastern Michigan indicates, however, that there is little direct (archaeobotanical) evidence for maize agriculture before A.D. 1000, nor is there any indication of an obvious shift in settlement location toward sites with greater access to arable land until after A.D. 1300.

A cultural shift approximately 1,000 years ago is indicated when Younger tradition ceramics begin to replace Wayne tradition ceramic styles. Younger tradition ceramics are characteristically large, globular to elongated vessel forms that are usually collared and often castellated, exhibiting complex rim and shoulder designs. Triangular Levanna points also appear and are subsequently replaced by Madison projectile points.

Far-reaching changes in diet and settlement, attributable to the use of corn and other domesticates, occurred at this time. In southeastern Michigan, populations gradually shifted towards locations where soil conditions were more suited to agricultural production. In addition, late Younger tradition villages are significantly larger sites than those of the preceding phases, suggesting shifts in social organization to accommodate these subsistence changes (Krakker 1983). Camps were also occupied to facilitate exploitation of seasonally available natural resources that were not available within the immediate vicinity of the villages. Thus, while villages were located in close proximity to easily tilled soils, seasonal camps were located along headwaters of river systems in upland areas (Stamps and Zurel 1980:139). These upland settlements were strategically located to take advantage of habitats that included starchy roots and tubers, deer, small mammals, and waterfowl.

During the Wolf phase of the Younger tradition, Upper Mississippian influence, if not its presence, was felt in this region. Parker Festooned ceramics reflect an abrupt shift in style (Fitting 1975:159) that may be the result of Upper Mississippian influence (Mason 1981:346-350). Stothers and Pratt (1981:99), in fact, contend that the Wolf phase should be considered a separate and intrusive Upper Mississippian-influenced phase unrelated to the Younger tradition. Regardless, the effects of this influence on settlement and subsistence are unknown because very

little research has been conducted for this portion of the Late Woodland period (Krakker 1983; Mason 1981:246-350).

3.2 HISTORIC BACKGROUND

3.2.1 Native American Settlement

Information relative to Native American land use in the Detroit region prior to the establishment of Fort Pontchartrain is conjectural. Incessant warfare between the Iroquois and the western tribes over control of the regional fur trade resulted in large-scale displacement of Native peoples throughout the last half of the seventeenth century. With the implementation of a French-negotiated peace between the warring factions in 1701, a degree of stability was achieved. Iroquois acquiescence to the French occupation of the Straits (of Detroit) also opened the region to settlement by other Native groups such as the Wendat/Huron, Ottawa, and Miami. These movements into new territories and the opening of alternative economic opportunities tended, however, to create their own sets of problems as traditional boundary networks were reshaped or discarded in order to take advantage of new situations.

The intrusion of allied Fox and Mascouten into the region at the invitation of the French in 1712 threatened to set aside one such priority arrangement with regard to the position of the lower lakes groups as middlemen in the interior trade. The fact that these new settlers also reportedly aimed at bypassing the French supply monopoly, by dealing directly through the Iroquois for English goods, soon led to open warfare. The destruction of the Fox-Mascouten at Detroit set the stage for a long period of intermittent, and sometimes concerted, hostilities between the French and Fox-Mascouten groups in the Wisconsin region. The threat of reprisal led to a certain amount of shifting in settlement among native peoples involved in the conflict.

It was at this time that the Potawatomi from the southeast of Lake Michigan began to appear in increasing numbers around Detroit. As of 1714, they were reported to be residing in a village between the fortified French and Wendat/Huron settlements having "not as yet had time to erect

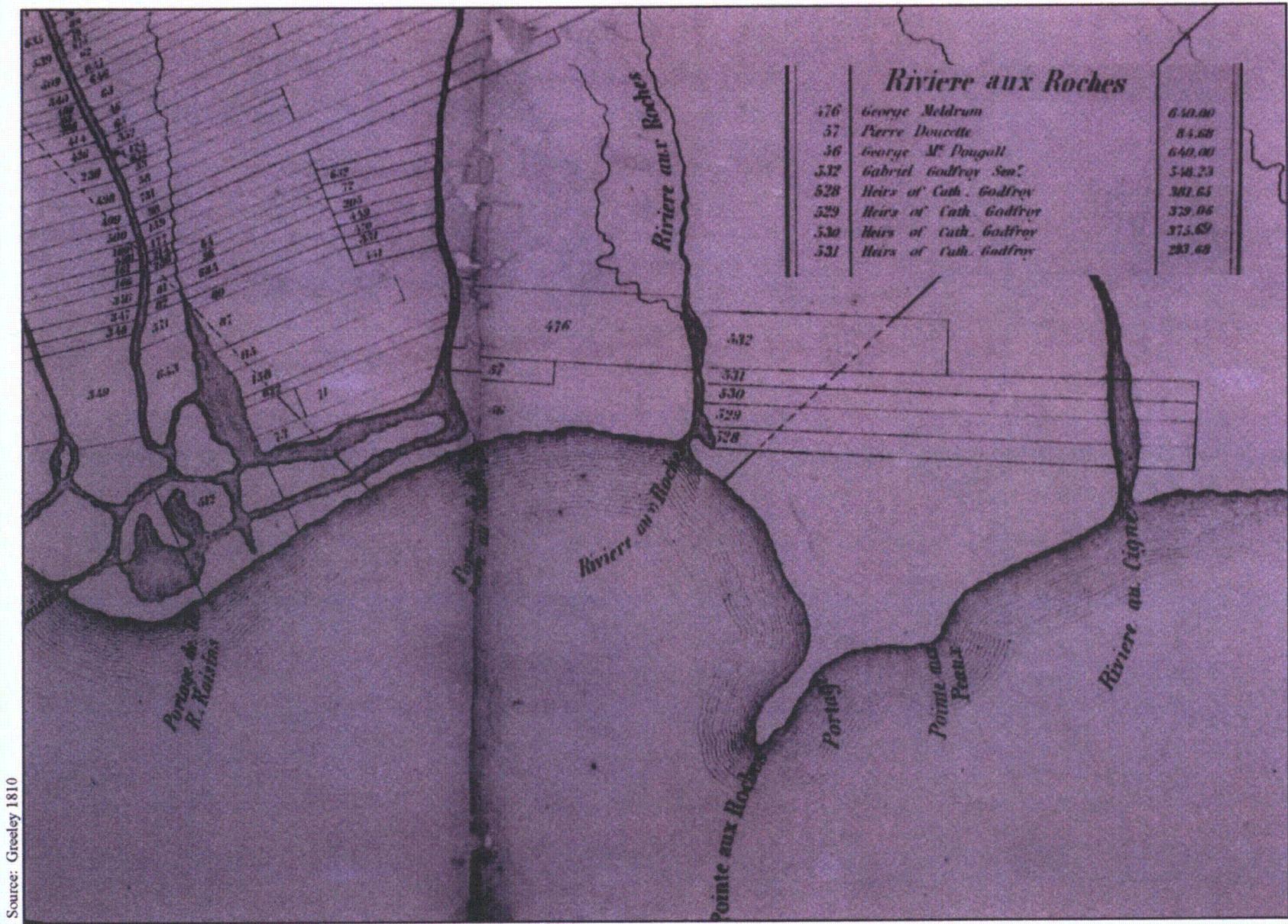
one” (Thwaites 1902:309). Four years later, the number of Potawatomi warriors at Detroit was estimated at 180 (Thwaites 1902:370).

Over the next several decades, elements of the tribe moved southwards along the Detroit River and Lake Erie, establishing villages near the Rouge and Raisin rivers and Ecorse Creek. Subsequent to the British capture of Detroit in 1760 and the abortive attempt on the part of the tribes to drive them out three years later, the Potawatomi began to move inland away from areas of more intensive European settlement. In doing so, their leaders often sold or gifted the tribe’s riverside holdings to both the British Crown and private individuals. During the mid-1770s, the Macomb and Comb purchases accounted for lands claimed by the tribe on Ecorse Creek and the islands in the Detroit River (Lowrie and Clarke 1832:191). In 1780, the lands along the Rouge River were acquired by the British Crown. At about the same time an approximate 1,500-acre tract on the Raisin River was secured by Francois Navarre. This purchase served as the basis of the Frenchtown settlement, which by 1784 reportedly consisted of upwards of 100 families (Fuller 1916:117; Wing 1890:45).

3.2.2 Euroamerican Settlement

European habitation in the Pointe aux Peaux/Stony Point area was likely initiated with the 1786 Francois Pepin and 1788 Gabriel Godfroy purchases of two extensive tracts from the Potawatomi extending from Sandy Creek to Swan Creek (Lowrie and Clarke 1832:190). The former tract was purchased in 1797 by George McDougall and George Meldrum. In partnership with William Park and Godfroy, McDougall and Meldrum developed a four-acre mill and still house lot on Stony Creek (MPHS 1886:524; Wing 1890:124) (Figure 3.2.2-1). Both this and the remaining properties were eventually awarded to the partners and their assignees under eight Private Claim (PC) patent deeds from the federal government (Lowrie and Clarke 1832:318, 431, 432, 455) (Figure 3.2.2-2).

The Stony Creek mill complex represented an important component of the regional economy, allowing Frenchtown-produced grains to be processed as either flour or distilled spirits for the



Source: Greeley 1810

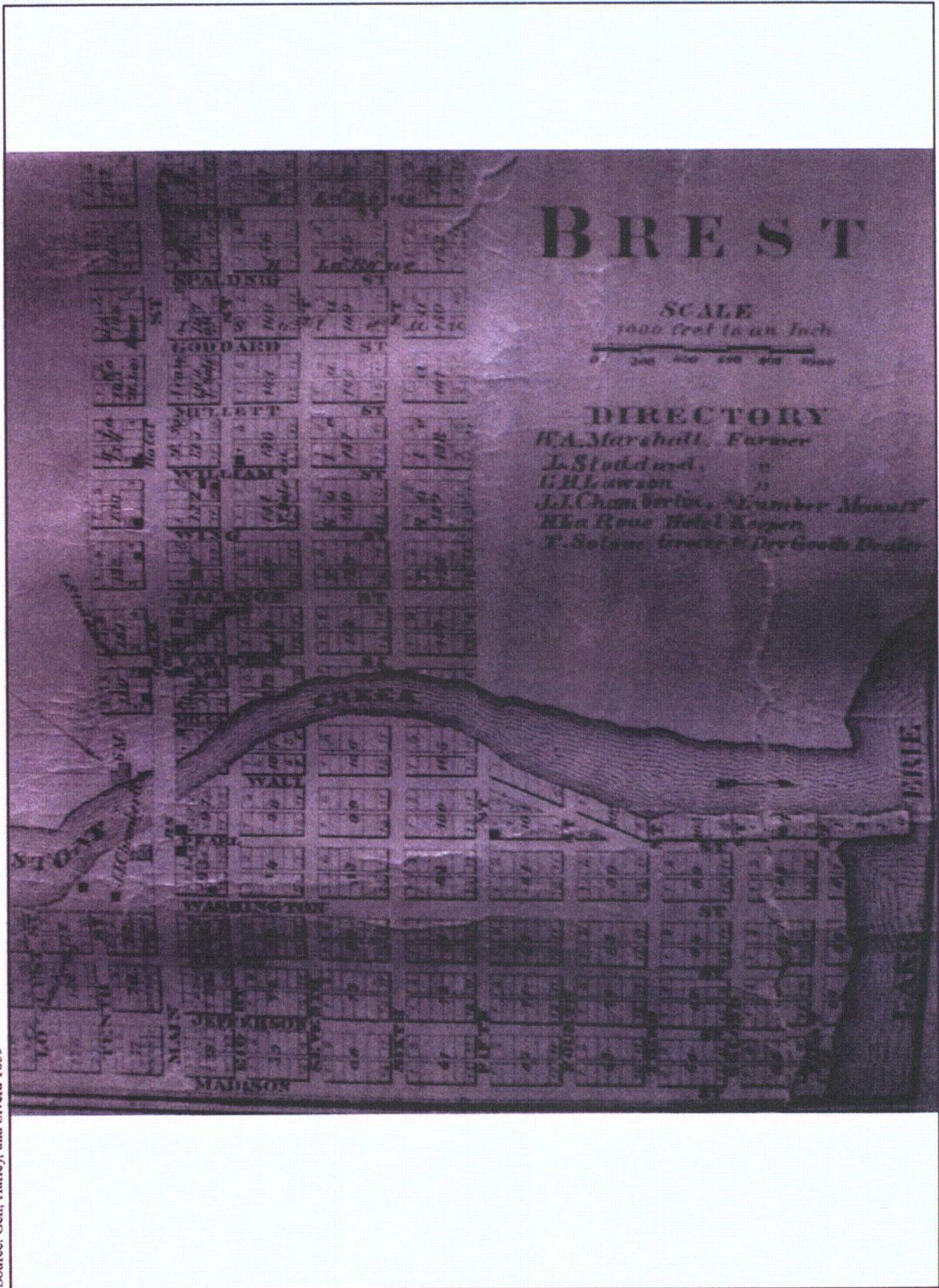
Figure 3.2.2-2. Fermi 3 Project Area Private Claims, 1810

upper Great Lakes trade. Its operations, however, proved to be short lived. As with other improvements in the Detroit and Raisin settlements, the Stony Creek mill was leveled by fire during the War of 1812.

The reorganization of the Michigan Territory at the close of the war ushered in a number of administrative changes. These included the establishment of Monroe County and the platting of the town of Monroe in 1817. Several years later, in 1824, the opening of the Federal Land Office in the community commenced a period of slow but steady growth. As of 1827, the settlement was incorporated as a village, based on its 62 residential voters. In 1830, the federal census placed the county population at 3,187, with the village enumerated at 478 inhabitants. During this period, in 1826, fourteen families settled about 4 mi (6 km) up Stony Creek in the vicinity of a new mill erected by Alexis Soleau (Solo), the same individual who had earlier been the builder of the Meldrum and Park mill (Wing 1890:124, 137).

The area of Stony Point existed mainly as unsold wetland during this period. Exceptions to this pattern included the sale of a 100.19 ac (41 ha) tract in 1834 to William McFitridge in Section 17 and a 351.82 ac (142 ha) parcel acquired that same year by Lennox Brickhead in Section 20. McFitridge was a Monroe County resident at the time of his purchase. Brickhead, an Eastern speculator who lived in Baltimore, likely never set foot on his property (Williams and Williams 1968:70). Other large real estate investments in the area were Lewis Goddard's Brest community at the mouth of Stony Creek and William White's Newport settlement on Swan Creek (Palmer 1906:268, 450, 846) (Appendix B).

In 1837, Goddard's partners were actively constructing piers for a proposed harbor with hopes that the community would eventually become "the great commercial center of the West" (Fuller 1916:157). The banking collapse of that year quickly destroyed any aspirations in this direction. As late as 1860, the population at Brest (Appendix B) stood at no more than 100. At that time, the community was developing into one of the region's more important fishing centers (Figure 3.2.2-3).



Source: Geil, Hartley, and Sivert 1859

Figure 3.2.2-3. Brest Settlement, 1859

Commercial fishing operations were begun at Brest Bay in 1857 by the firm of Chittenden and Company, which soon sold out to the Detroit-based shipbuilder and fishing fleet owner John P. Clark (Wing 1890:466). Clark's interest in the area continued through 1887. Two of his employees, Joseph B. Dewey and Jessee N. Dewey, began their own independent operations at the location in 1860. While the Dewey brothers eventually expanded their business interests into Lakes Huron and Michigan, Brest remained their center of operations. With the construction of a freezer and packing plant at this location, their trade was eventually extended westward as far as Denver. By the 1890s, much of their harvest of sturgeon caviar was reportedly shipped to Europe (Dewey 1885:548; Wing 1890:467).

The commercial outlets that became available to the local fishing industry during the closing decades of the nineteenth century were primarily the direct result of ongoing railroad development initiated with the 1856 completion of the Detroit, Toledo & Monroe Railroad (DTM). In 1873, transportation potential was further augmented by the construction of the adjacent routing of the Toledo, Canada Southern & Detroit Railroad (TCSD). The DTM had early been absorbed as a division of the Michigan Southern Railroad. In 1883, the TCSD was acquired as a Vanderbilt interest, rendering it an integrated component of the Michigan Central and New York Central railroads.

One immediate result of railroad development in the area between the Huron River and Stony Creek was the logging of what had existed as a, "level heavily timbered country" (Polk 1875:584). It was at this time that the Newport community on Swan Creek began to figure as an important milling and marketing center (Figure 3.2.2-4). Its location was of particular significance in that it was early reported to "receive goods by the Det. & Toledo Railroad, and by Steamers in the lake" (Clark 1863:418). With a population ranging from 500 to 550 inhabitants, Newport figured as an important forwarding center for grain, produce, and lumber well into the 1890s (Polk 1875:584, 1895:1301). Its growth had, by 1867, contributed to the creation of Berlin Township as an independent administrative unit separate from Ash Township. According to the 1870 federal census, Berlin was the third most populous township in the county with 1,844 inhabitants residing in 350 dwellings (Detroit Tribune 1872:62).

Source: Geil, Harley, and Sivert 1859

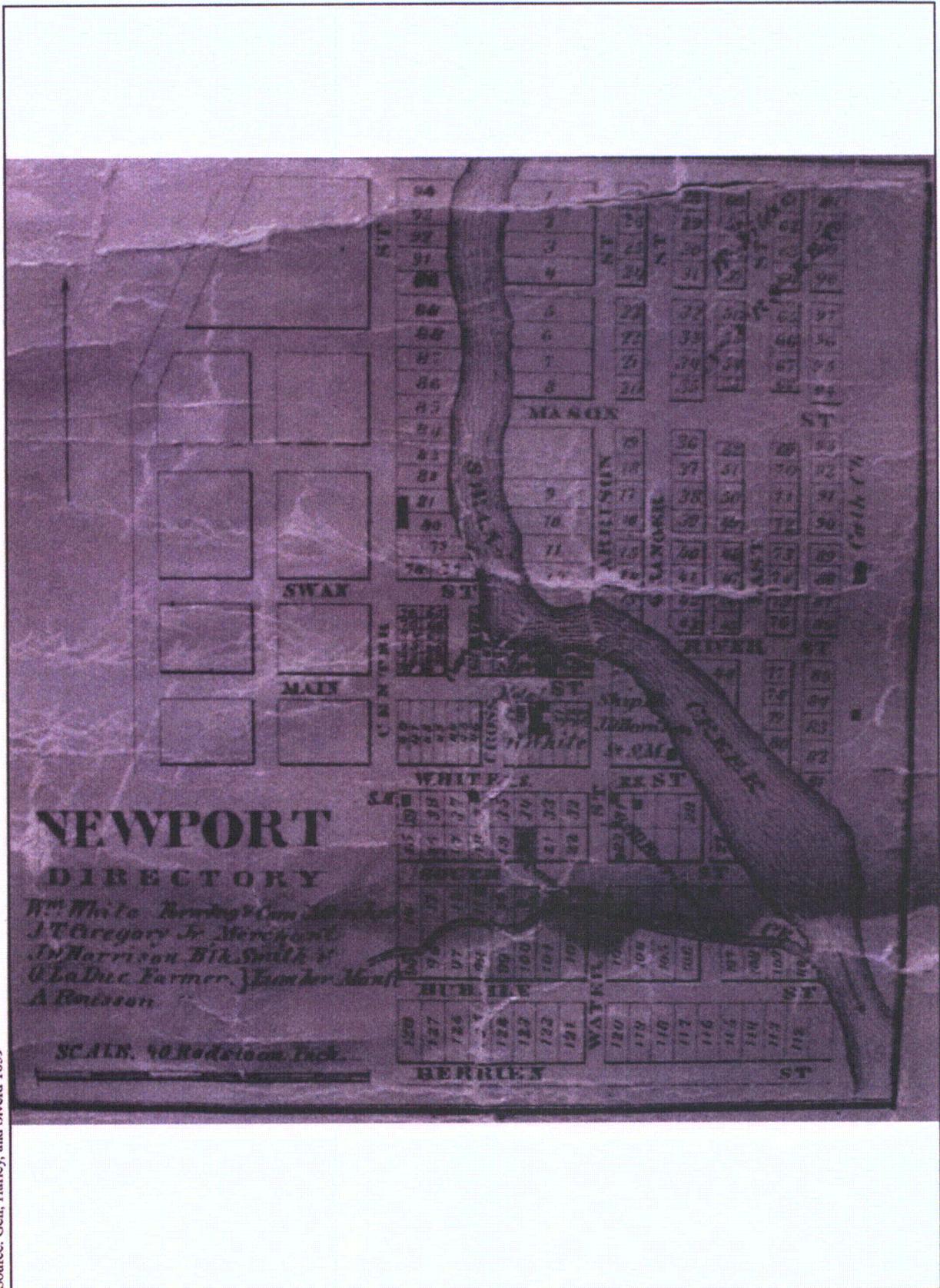


Figure 3.2.2-4. Newport Settlement, 1859

Settlement on Stony Point/Pointe aux Peaux had been minimal up through the 1850s, with much of the promontory consisting of either state-owned or county-owned swamp lands. Members of the Nadeau, Reaume, and Sonkrie (i.e., Sanscrainte) families are identified as tract holders on the point in 1859 (Figure 3.2.2-5). The 25 ac (10 ha) parcel held by Sonkrie at the foot of Pointe aux Peau Road, in Section 28, was purchased in 1865 by the Pointe aux Peaux Company (Wing 1890:426). The tract was quickly planted as vineyard, and wine production began in 1868. The company produced upwards of 5,000 gal (18,927 liters) of wine in 1871 and 15,000 gal (56,781 liters) the following year. The price per gallon of Monroe County grown wines at that time ranged from \$0.80 to \$1.25 (Wing 1890:426). As of 1870, the company also erected a two-story masonry wine cellar with limestone blocks imported from Sandusky (Figure 3.2.2-6). The chief investors in the project, Joseph M. Sterling and William A. Noble, had for years dominated the forwarding trade out of Monroe and were early shareholders in the Michigan Southern Railroad. Under the corporate names of Noble and Company and J.M. Sterling and Son they also played a further role in the local lumber and coal trades (Polk 1875:558; Polk 1877:636; Wing 1890:167, 230). As of 1876, Pointe aux Peaux Company lands were held under the individual corporate designations of the J.M. Sterling Company and Noble and Sterling (Figure 3.2.2-5).

Another large landowner on the Pointe at the time was the partnership of Charles Toll and Alfred I. Sawyer (Figure 3.2.2-7). Toll was variously described in directories of the period as the proprietor of “glass sand mill” on the Canada Southern Railroad or as “a paint and glass sand manufacturer” located on Front Street in the City of Monroe (Polk 1875:558; Polk 1877:637). Sawyer was a physician in the city and had served as mayor in 1869 and 1878 (Wing 1890:350).

Silica sands mined from Raisinville Township had early been shipped to Pittsburgh for glass manufacture (Rominger 1876:27). The association of this sand rock was invariably noted as a bedded component of the Helderberg limestones encountered throughout much of western and southern Monroe County. Winchell (1861:62) linked the deposit with the Oriskany sandstones of New York but indicated that it was, “...much broken up...[and]...not distinctly identifiable...at Pt. aux Peaux and Stony Pt.” Quite possibly Toll and Sawyer saw a hidden opportunity in this

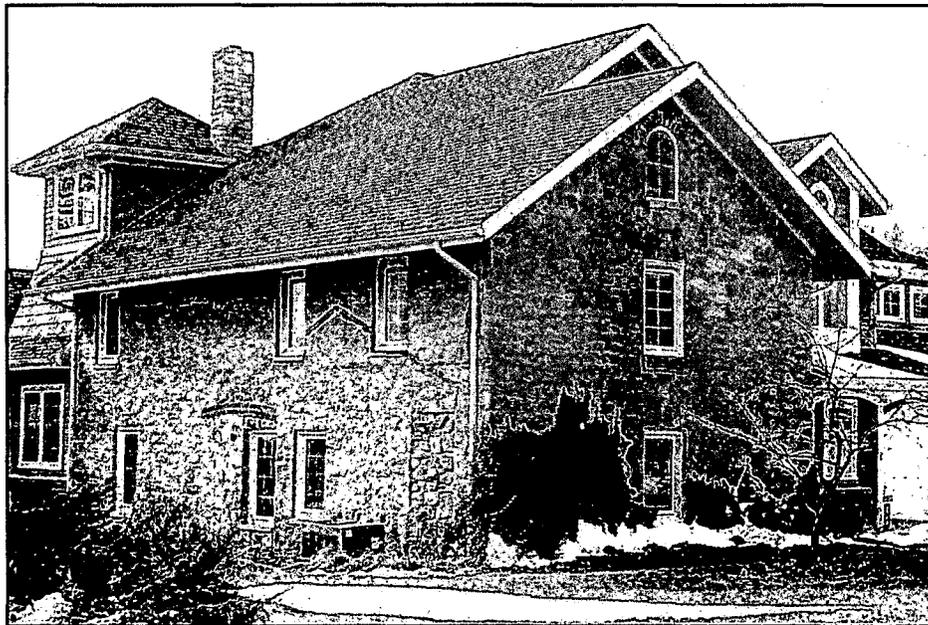


Figure 3.2.2-6. Former Point aux Peaux Company Wine Cellar, 6360
Sterling

Charles B. Rose

Real Estate

Subdivisions:

Shadowlawn Heights

Stony Pointe Beach

Woodland Beach

Detroit Beach

Phone 1447

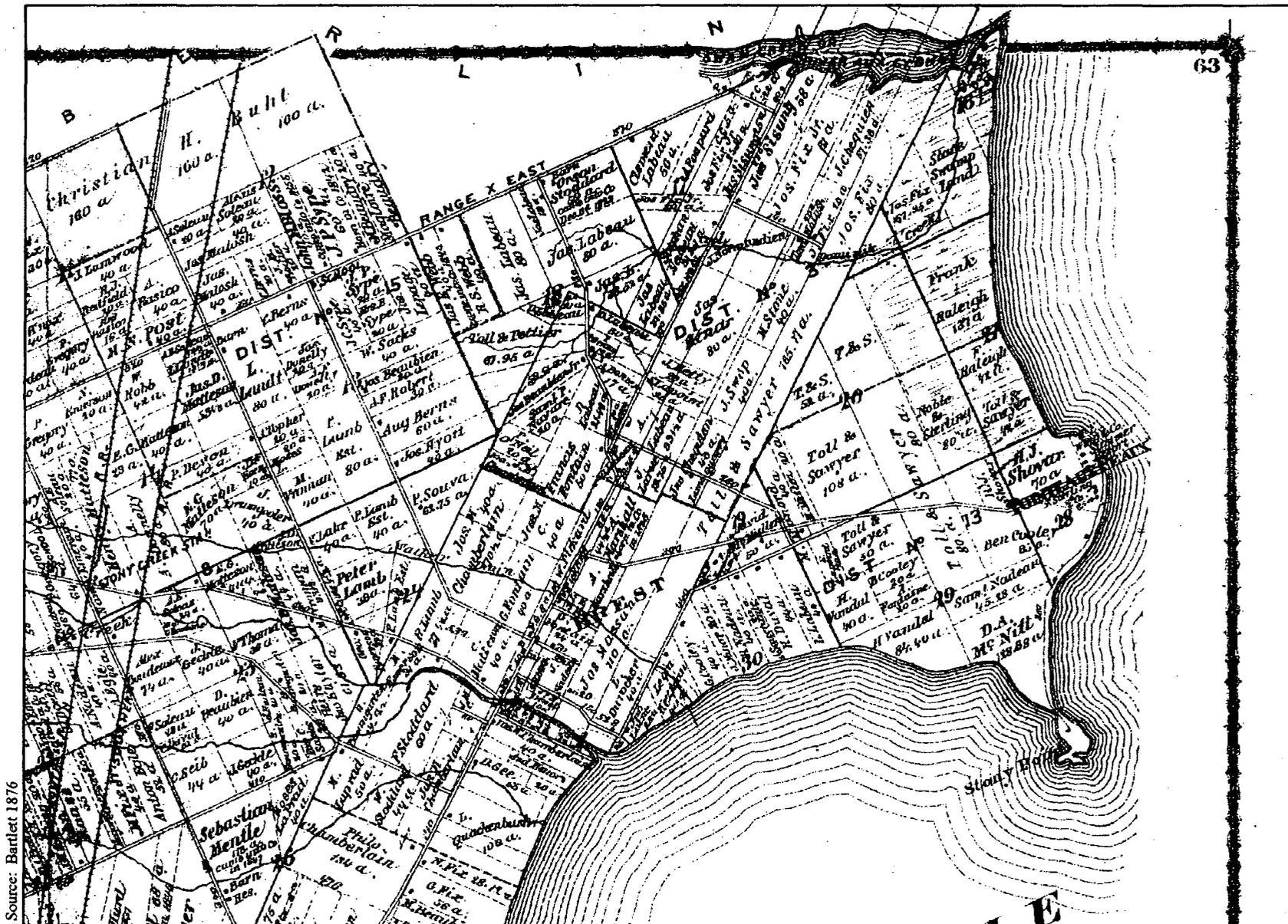
36-38 South Monroe

direction when they began acquiring lands in the project vicinity. Regardless, as of 1876 a lime quarry had been opened on their lands bordering PCs 528 and 529 along Toll Road (Figure 3.2.2-7).

Alternative activities on the part of Sterling may also be suggested in an early business investment of his sons, William C. and Frank S., who under the corporate designation of Sterling Brothers were listed as “telephone pole manufacturers” in 1887 (Polk 1887:1258). A little over 30 years later, William C. Sterling figured prominently among the Sterling heirs in the 1919 platting of the Sterling Williams Subdivision (Appendix C). This move was quickly followed by the subdivision of the multiple Dewey-owned parcels along with those of virtually every significant shoreline landowner from Sandy Creek to Stony Creek (Figure 3.2.2-7). The area’s noted reputation as a fishery, coupled with its extensive sand beaches, served as a ready attraction for those seeking summer recreational properties. The attraction of Pointe aux Peaux as a resort area was foreshadowed decades prior when local historian Talcott E. Wing had, by 1876, secured an interest at Pointe aux Peaux and, under the name of T.E. Wing and Company, created the area’s first “Summer Resort” (Figure 3.2.2-8).

The new wealth of Detroit’s growing working classes that emerged out of the region’s industrial expansion during World War I created a new potential in real estate marketing. The premium placed on rural lakefront properties in Monroe County during the 1920s drew heavily upon the new transportation technologies of the automobile and the removable “Rowboat Engine” or outboard motor (Mirken 1970:1045). The boom era in vacation property investments was short-lived, however, and was obliterated by the financial collapse of the Great Depression. During the 1930s, only two new subdivisions were recorded, with a similar number recorded in the 1940s (Appendix C). Other properties north and south of the project vicinity were acquired as state-owned parklands during this period, including the Pointe Mouillee State Game Area and Wildlife Refuge at the mouth of the Huron River and Sterling State Park at the mouth of Sandy Creek.

Harvest excesses and pollution had taken a toll upon the local fishing industry by the opening of the twentieth century. Species replacement in the reeded shallows along the shorefront was



Source: Bartlett 1876

Figure 3.2.2-8. Fermi 3 Project Area Vicinity, 1876

common after the introduction of the German Carp during the 1880s (Bulkley 1913:393). By the opening of the century, some enterprising investors had begun to develop dredged carp ponds along the margins of the Huron and Raisin rivers and Swan Creek. Catering to consumers in urban centers, stocks of carp sold at a rate of 1.5¢ to 2.5¢ per pound. As of 1926, the local commercial fishery was described as, “now confined to carp which are shipped alive to eastern markets” (Hanley 1926:n.p.). The network of multiple canals appearing on the former Dewey-owned parcel in Section 21 and extending into the adjoining Section 20 is likely associated with one such enterprise (see Figures 2.0-2 and 2.0-3).

Work on the Fermi 1 site was begun by Detroit Edison in 1956. During the early 1960s the reactor was tested at low power ranges and received a high-power operating license in 1965. Coolant problems forced its shutdown in 1966. Although placed on line in 1970, it was again shut down in 1972 and partially disassembled (U.S.N.R.C. 2007). Construction efforts for Fermi 2 were initiated in 1970 (DTE Energy n.d.) (see Figures 2.0-4 and 2.0-5).

4.0 ARCHAEOLOGICAL INVESTIGATIONS

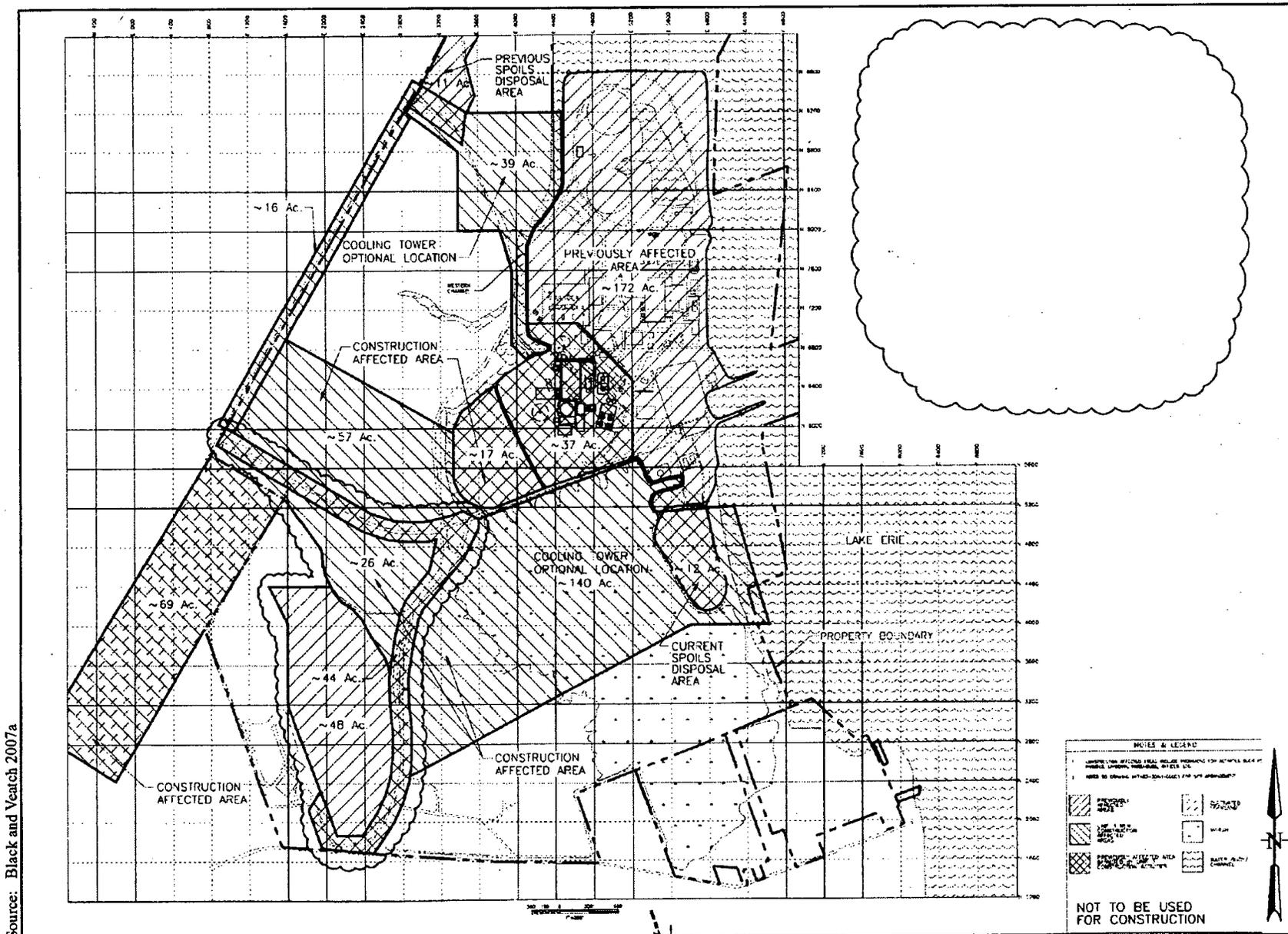
4.1 METHODS

4.1.1 Archaeological Area of Potential Effect (APE)

The map of the proposed Fermi 3 study location initially provided to CCRG depicted the overall study area as encompassing an approximate 520 ac (230.8 ha) area. Much of the project site consists of cut and fill parcels impacted by the earlier phases of Fermi 1 and Fermi 2 plant site development. These tracts include a series of interconnected roadway grades, a stone quarry, two spoil disposal zones, and the two previously affected plant site locations. Also included in the study location are possible construction-impacted areas, such as cooling tower locations, laydown areas, and an access road along the current Toll Road (adjacent to the northeast boundary of the Fermi Project) (Figure 4.1.1-1). In total, approximately 364 acres of obviously undisturbed property were identified for survey.

Prior to the field investigations, it was assumed that the bulk of the study parcels would require the use of shovel test sampling techniques, with the single exception of a 69 ac (28.3 ha) cultivated field. At a standard rate of 16 shovel test units (STU) per acre, CCRG archaeologists estimated that as many as 4,464 STUs could be required in the examination of the remaining 279 ac (114.4 ha) of the project. Upon field inspection, however, this estimate was reduced by half, to about 2,232 STUs, as much of the APE was characterized by extensive areas of land impacted by previous construction of the existing Fermi 1 and Fermi 2 facilities, including quarrying activities. Much of the remaining undisturbed land was found to be either covered in standing water or too saturated for shovel testing.

Roughly 77 percent, or 268 ac (109.9 ha), of the 348 ac (142.7 ha) study component was examined by CCRG field personnel during the two work-weeks of November 25 through December 7, 2007. Inclement winter weather in December forced the suspension of



Source: Black and Veatch 2007a

Figure 4.1.1-1. Fermi 3 Project Archaeological Survey, Original Site Impact Plan

field studies. It was also at this time (December 7) that an alternate construction plan for the project was issued (Figure 4.1.1-2). This new design reconfigured certain of the study tract locations under new land use headings. It also eliminated one of the original tracts while adding another. The tract deleted from the study was the 39 ac (16 ha) "Cooling Tower Optional Location, and the single new addition to the plant site redesign consisted of the 53 ac (21.7 ha) "EF2 Parking Warehouse, etc" tract on the northwest margin of the project (Figures 4.1.1-1 and 4.1.1-2). The new design reduced the archaeological APE from a total of 563 ac (230.8 ha) to approximately 520 ac (213.1 ha).

On July 15, 2008, CCRG completed the archaeological survey with shovel testing the vegetative margin along Toll Road from the Fermi entrance northeast to the gate across Toll Road (approximately 350 ft [107 m]).

4.1.2 Field Methods

Survey methods employed in this study entailed a combination of pedestrian surface inspections and shovel testing. Walk over surface examinations were limited to areas exhibiting surface visibility of greater than 50 percent. Both procedures were carried out along 50 ft (15 m) transects, with shovel tests spaced at 50 ft (15 m) intervals. This approach was modified in areas where access was hampered by saturated soils or area flooding. As such occurred commonly throughout the undeveloped portions of the property, opportunistic testing of randomly placed drier elevations was routinely carried out. Similarly, the extensive made lands and spoil deposits comprising much of the property were avoided when their areal extent could be determined based on walk-over observations.

All shovel test soils were screened through ¼-inch metal hardware cloth and were trowel sorted. Each unit was backfilled upon the completion of field examination. In compliance with unwritten plant site protocol, shovel test excavations were restricted to a maximum depth of 1 ft (0.3 m) below the existing ground surface.

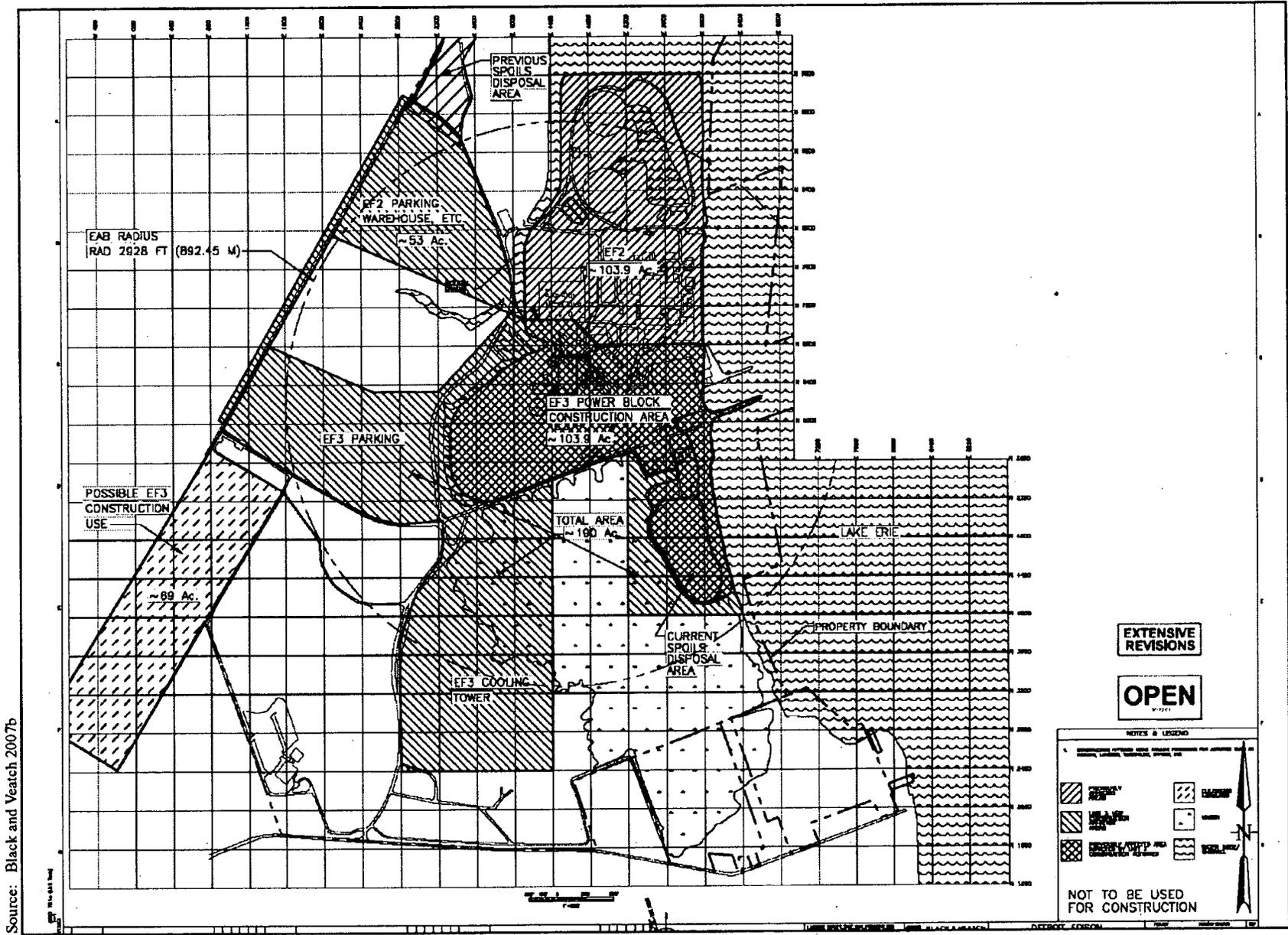


Figure 4.1.1-2. Fermi 3 Project Archaeological Survey, Revised Site Impact Plan

All recovered artifacts were sorted according to provenience related to quarter-section location, UTM, or PC association. Artifacts were stored in plastic bags, which were assigned provisional archaeological site numbers. State of Michigan archaeological site numbers were later obtained from the OSA.

4.2 PREVIOUSLY IDENTIFIED ARCHAEOLOGICAL SITES

A search of the files maintain by the Michigan OSA indicated the existence of four previously recorded archaeological sites located within 2 mi (3 km) of the Fermi property (Figure 4.2-1) (Table 4.2-1). Two of the sites, 20MR207 and 20MR702, are located within the plant property along the Lake Erie shoreline. Prior to fieldwork for the Fermi 3 Project, none of the site locations had been evaluated for possible listing in the National Register of Historic Places (NRHP).

Table 4.2-1 Previously Recorded Archaeological Sites

Site Number	Name	Location	Period	NRHP Status
20MR207	Holmquist M-33	NW SE Section T6S/R9E	Prehistoric	Unevaluated
20MR702	Fermi II	S1/2 S1/2 SE SW Section 16 and N1/2 N1/2 NE NW Section 21 T6S/R9E	Prehistoric	Unevaluated
20MR703	Gustafson	W1/2 NW NE Section 30 T6S/R10E	Archaic Period	Unevaluated
20MR746	Webb	NE NW NW Section 18 T6S/R10E	Nineteenth Century	Unevaluated

4.3 ARCHAEOLOGICAL SURVEY RESULTS

4.3.1 Survey Descriptions

69-Acre Parcel

The 69 ac (28 ha) parcel forms a portion of PC 528 at 585 ft to 595 ft (178 m to 181 m) amsl. It is located outside of the existing DTE-owned Fermi property perimeter fence line. Toll Road forms its northwest boundary, the perimeter fence line creates the southeast boundary, and the

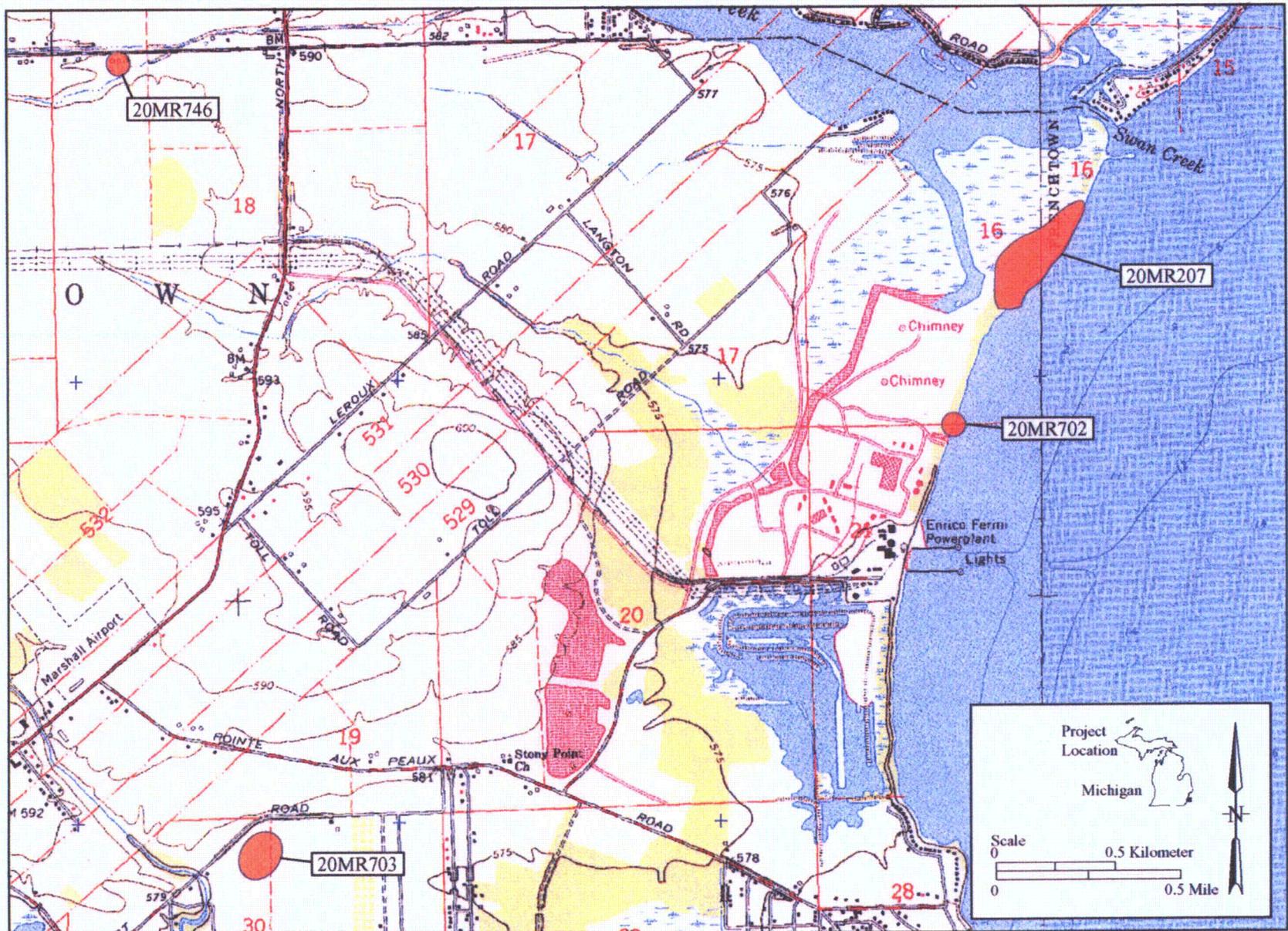


Figure 4.2-1. Fermi 3 Project Area Previously Recorded Archaeological Sites

guard house and parking lot are situated on the northeast side (see Figures 4.1.1-1 and 4.1.1-2). The property is a rectangular, flat, cultivated field that was newly planted in winter wheat at the time of survey. The area exhibited 60 to 80 percent surface visibility; therefore, it was subjected to pedestrian survey along 59 ft (15 m) transects. This procedure resulted in the identification of one historic artifact scatter (20MR818), which also included one prehistoric lithic waste flake, and four prehistoric find spots (20MR819, 20MR820, 20MR821 and 20MR822) (see Figure 1.4-1 and Section 4.3.2).

26-Acre Parcel

The 26 ac (11 ha) parcel is basically a triangular-shaped tract located along the south side of Enrico Fermi Drive (see Figure 4.1.1-1) at 570 ft to 580 ft (174 m to 177 m) amsl. The property consists entirely of woodlot and low-lying wet and saturated areas, especially toward the western end of the parcel. Pockets of poorly drained soil occur throughout the property. The east side of the parcel is bounded by Lagoon Boulevard, and the man-made quarry lake forms the southern boundary. A gravel road and an artificial berm divide the parcel from the quarry lake (see Figure 4.1.1-2).

Shovel testing of the parcel was undertaken because surface visibility was less than adequate for a walkover inspection. Topsoil in the shovel tests extended from 2.0 in to 12 in (5 cm to 30 cm) below the surface, with some of the probes filling with water. In several cases, the bottom of this horizon was not attained within the mandated 12 in (30 cm) excavation limit. Surface soils consisted of dark grayish brown 10YR 4/2 to dark yellowish brown 10YR 3/4 Lenawee silty clay loam (Bowman 1981:17) with and without gravel inclusions. The subsoil layer, when encountered, consisted of light yellowish brown 10YR 6/4 to dark yellowish brown 10YR 4/6 culturally sterile clays, although there were a few examples of mottled subsoil comprised of both dark yellowish brown 10YR 4/6 and dark grayish brown 10YR 4/2 culturally sterile clay.

None of the 208 shovel tests contained archaeological material. The survey did, however, identify three late-dating surface structures along the northwest-southeast running gravel road

that forms the south boundary of the parcel. This feature consisted of a series of *in situ* rectilinear concrete slabs and at least one wooden beam set 33 ft (10 m) to 59 ft (18 m) off of the road inside the wood line (see Figures 4.1.1-1). The three rebar reinforced concrete slabs measured 16 ft to 19.7 ft (5 m to 6 m) long by 16 in (41 cm) wide each and were spaced 6.5 ft to 20 ft (2 m to 6 m) apart. The wood beam or sill was situated at the southeast end of the row and measured 39 ft (12 m) long and 9 in (23 cm) wide. The total length of the structure was 121 ft (37 m). A buried bed of gravels indicates it likely represents the curbing of a parking lot. In all likelihood, the area was used between the construction dates of Fermi 1 in 1963 and Fermi 2 in 1985.

140-Acre Parcel (West)

This parcel is situated east of Lagoon Boulevard, south of Enrico Fermi Road, and west of Lake Erie (see Figure 4.1.1-1). The central part of the 140 ac (57 ha) tract was comprised of saturated soils and/or open water and was therefore not surveyed. This area was subsequently eliminated from the project design received by CCRG in December 2007 (see Figure 4.1.1-2). The western 40 ac (17 ha) was subjected to archaeological survey beginning at about the 575 ft (175 m) amsl contour line and working to the west across slightly higher ground. This area comprised a woodlot with numerous deadfalls and intermittent wet, saturated, and generally poorly drained grounds. Open excavations and borrow pits (defined as the Pits-Aquents complex [Bowman 1981:24]) were common throughout this tract. Since surface visibility was poor, the woodlot was shovel tested to determine the presence or absence of archaeological material.

Surface soils typically ranged in thickness from 5.5 in to 12 in (14 cm to 30 cm) of brown to very dark grayish brown 10YR 4/3 to 10YR 3/2 Lenawee silty clay loam (Bowman 1981:17). In several instances, surface soils extended deeper than the 12 in (30 cm) excavation limit. The subsoil, when encountered, generally consisted of light yellowish brown 10YR 6/4 to dark yellowish brown 10YR 4/6 culturally sterile clays. None of the 320 shovel tests dug across this parcel contained any cultural material, nor were there any historic archaeological features or artifact scatters identified on the surface.

140-Acre Parcel (East)

This approximate 20 ac (8 ha) eastern component of the 140 ac (57 ha) parcel is located at an approximate elevation of 570 ft (174 m) amsl along the edge of Lake Erie and consisted of a barrier beach ridge (see Figure 4.1.1-1). Due to the disturbance associated with a nearby spoil disposal area, only the eastern portion of the tract was surveyed.

The beach ridge is defined by a long, narrow strip of land running north-south along the shoreline and is covered with brush and trees; modern trash washed up from the lake was also present across this parcel, sometimes in great quantities. Although surface visibility exceeded 50 percent across a good portion of this ridge, shovel testing was conducted since shoreline locations potentially offer a high degree of archaeological sensitivity. All of the shovel tests consisted of pale brown 10YR 6/3 to grayish brown 10YR 5/2 lake beach sands (Bowman 1981:9) with a moderate to dense zebra mussel shell content. In some cases, the shovel tests contained only mussel shell with little or no sand. Shovel tests were kept within the 12 in (30 cm) excavation limit, and in no instance was a distinct subsoil stratum reached. None of the 160 shovel tests excavated along the beach ridge yielded archaeological material. Since the lake level was at a low stage during the survey, a surface inspection of the lake bottom adjacent to the beach ridge was carried out utilizing walkover transects spaced at 16 ft (5 m) to 33 ft (10 m) intervals. Neither historic nor prehistoric archaeological material was identified as a result of this procedure.

57-Acre Parcel

The 57 ac (23 ha) parcel is located on the north side of the main entry drive into the Fermi plant site (see Figure 4.1.1-1). On the December project plan received by CCRG, this parcel is depicted as the proposed "EF3 Parking" tract (see Figure 4.1.1-2). This tract sits at an elevation ranging between 575 ft to 590 ft (175 m to 180 m) amsl and was comprised of two zones. The south half of the parcel consisted of marshy high-grass-covered transmission line right-of-way. A woodlot formed the north margin of the property. Conditions in the transmission line

right-of-way were predominantly wet with wetland type vegetation. Hummocky and disturbed areas with push piles were also prevalent.

Due to the very wet conditions encountered throughout this parcel, opportunistic shovel testing was conducted and implemented at 50 ft (15 m) intervals where possible. Soils mostly consisted of 10 in to 12 in (25 cm to 30 m) of very dark gray brown 10YR 3/2 Fulton and Lenawee silty clay loams (Bowman 1981:12, 17) with and without gravels. Subsoil consisted of a light, yellowish brown, 10YR 4/6 culturally sterile clay. These same soil groups continued northwards into the poorly drained woodlot as noted during CCRG's follow up examinations conducted in April 2008. No archaeological materials were recovered from any of the 272 shovel tests opened in either the north or south half of the parcel.

17-Acre Parcel

This parcel is located on the north side of Enrico Fermi Drive between an artificial canal on the west and buildings to the east. This property had been heavily impacted by canal development during the early part of the twentieth century and had been redeveloped as made land during the construction of the Fermi 2 power plant (see Figures 2.0-1 through 2.0-5). This parcel forms a part of the "EF3 Power Block Construction Area" in the project design received by CCRG in December 2007 (see Figure 4.1.1-2).

An old parking lot, now covered with a large spoil berm, forms the boundary immediately east of the parcel (see Figure 4.1.1-1). The 17 ac (7 ha) property is located at an elevation of about 570 ft to 575 ft (173.8 m to 175.3 m) amsl and contained an open, moderately rolling and hummocky surface covered with tall grass and weeds and crossed by east-west and north-south gravel roads; a meteorological tower inside a fence line was situated on the highest ground in the approximate center of the parcel.

Shovel testing at 50 ft (15 m) intervals was implemented across this property due to the lack of adequate surface visibility. The probes contained 6.3 in to 12 in (16 cm to 30 cm) of surface soils that consisted of gray brown 10YR 3/4 Lenawee silty clay loam (Bowman 1981:17) to very dark gray brown 10YR 3/2 Lenawee silty clay loam (Bowman 1981:17). Subsoils consisted of light yellowish brown 10YR 6/4 to dark yellowish brown 10YR 4/6 culturally sterile clays. A majority of the shovel tests exhibited mixed soils with chunks of concrete and gravel that in some cases was sufficiently dense to limit the depth of excavation. In other areas, shovel testing was not conducted due to saturated sedge/wetland conditions. The presence of push piles also precluded shovel testing in some areas of the property. None of the 80 excavated shovel tests yielded any sort of archaeological evidence, and there was no trace of historic surface features or surface cultural material associated with this parcel.

53-Acre Parcel

This parcel forms the northwest component of the alternate archaeological APE received by CCRG in December 2007, being described as “EF2 parking Warehouse, etc.” tract (see Figure 4.1.1-2). The parcel is bounded by Bullit Road on the northwest within the north and northeastern margins extending to Doxy Road (see Figures 1.4-1 and 4.1.1-2). The entirety of the tract consists of scrub woodlot and a low growth of tangled brush. Lenawee silty clay loams dominate this tract. This is a level and poorly drained soil which, at the time of CCRG’s April 2008 field survey, ranged from ponded with standing surface water to saturated. The only departures from this environment were a landfill zone extending approximately 50 ft (15 m) in from Doxy Road and a relatively minor intrusion of slightly elevated Del Rey silt loams (Bowman 1981:12, 16). The better drainage regimen provided by this latter soil type had allowed for farmstead development. Six closely spaced masonry (concrete and brick) footings were observed in association with this formation along Bullit Road. The farmstead, designated as 20MR823, is by artifact content generally assignable to a ca. 1920 through 1960 setting (see Figures 1.4-1, 2.0-2, and 2.0-3).

172-Acre Parcel

This parcel represents the bulk of the actual Fermi plant site. The ground surface of this zone has been almost entirely altered through cut and fill activities as a result of site development over the past five decades. Originally designated as the "Previously Affected Area," it was excluded from the original archaeological sampling plan as a zone of likely low potential (see Figure 4.1.1-1). The tract was redrawn in the December 2007 archaeological APE site plan. The southern third was at that time incorporated with two abutting tracts, partially surveyed by CCRG, forming the newly defined 103.9 ac (42 ha) "EF3 Power Block Construction Area" (see Figure 4.1.1-2). The northern two thirds of the 172 ac (70 ha) tract, encompassing the two existing cooling towers and pond, was redesignated as the 103.9 ac (42 ha) "EF2" tract (see Figure 4.1.1-2). Although altered by quarried rock landfill, the beachfront of this latter tract was identified in the archaeological files as the location of a previously listed prehistoric site designated as 20MR702 (Table 4.2-1) (see Figures 1.4-1 and 4.2-1). Field survey of this location was carried out in May 2008. The entirety of the beach along the south half of this tract exists as either rip rap boulder fill or as a naturally occurring cobble beach (Figures 4.3.1-1 and 4.3.1-2). Freshly exposed cobbles farther to the north, towards Swan Creek, appear where the soils have been heavily eroded (Figures 4.3.1-3 and 4.3.1-4). No evidence of 20MR702 was encountered, nor was there evidence of archaeological remains in any other area along the beach.

16-Acre Parcel (Toll Road/Proposed Access Road)

Examination of the proposed construction access road (currently designated Toll Road) were conducted on July 15, 2008. The survey area extended from the entry gate of the Fermi property to where Toll Road was blocked by a padlocked gate, approximately 350 ft (107 m) northeast of the intersection with Langton Road. The existing gravel roadbed is formed by a raised berm with an approximate 6 ft to 10 ft (2 m to 3 m)-wide bounded by a vegetative margin between the roadway and the Fermi property security. The ground surface of this zone is formed by the slope of the road berm, a shallow drainage ditch paralleling the road, and a berm likely created with ditch spoil from the paralleling Toll and Bullit roads. Visual examination noted contemporary



Figure 4.3.1-1. Site 20MR702, Reported Site Location, Rip Rap on Lake Erie Shore, View North



Figure 4.3.1-2. Site 20MR702, Reported Site Location, Cobble Beach on Lake Erie Shore, View South



Figure 4.3.1-3. Site 20MR702, Reported Site Location, Eroded Lake Erie Shore, View North

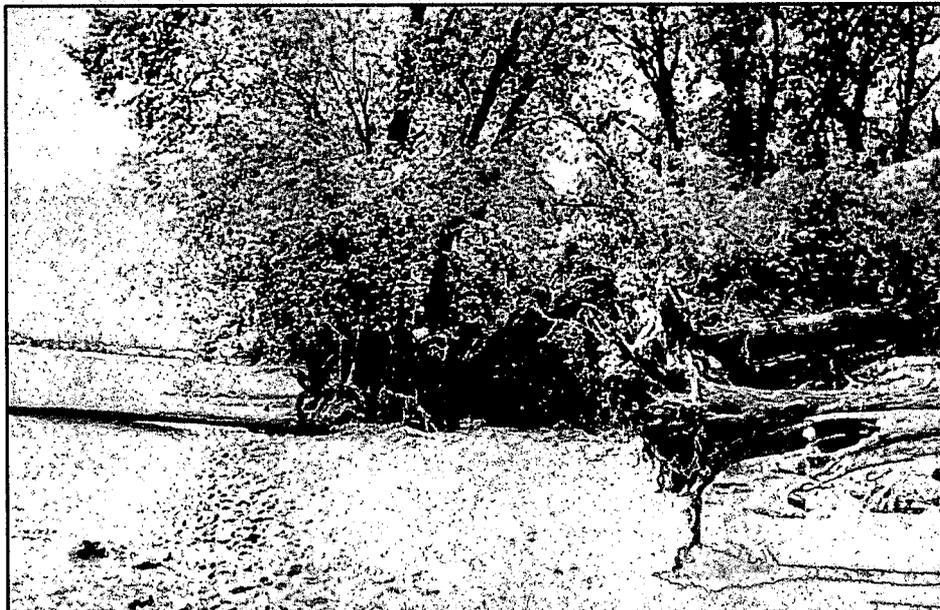


Figure 4.3.1-4. Site 20MR702, Reported Site Location, Eroded Lake Erie Shore, View South

demolition debris (shingles, concrete, lumber waste) at the intersection with Langton Road, and construction debris and litter extended along Toll Road northward to the padlocked gate. The debris and litter were noted in the field but not collected. Ten shovel tests excavated along the vegetative margin exhibited mixed clay loam with gravel inclusions overlying dense brown to yellow clay. Except for the contemporary surface debris, no archaeological sites were encountered either on the surface or in any of the ten shovel tests.

4.3.2 Archaeological Site and Artifact Descriptions

20MR818

20MR818 constitutes an approximately 410 ft (125 m) north-south by 164 ft (50 m) east-west surface scatter of historic debris, located in the southwest corner of the field with UTM datum coordinates of 310858 Easting and 4647647 Northing, Zone 17 (NAD83) at an elevation of about 595 ft (181 m) amsl (see Figure 1.4-1). Archaeological material recovered from the site includes undecorated white soft paste (whiteware) ceramics, semi-vitreous colored paste stonewares, container glass and miscellaneous glass, window glass, and brick fragments and brickbats (Appendix D). The earliest evidence of development in the area of the site occurred on PC 528 on the Charles Toll property, indicated with the 1901 publication of Lang's *Map of Monroe County* (Figure 4.3.2-1). No maps of the property from the last half of the nineteenth century provide any indication of direct site habitation and development at this location.

20MR819, 20MR820, 20MR821, 20MR822

The four additional prehistoric archaeological findspots from the 69-acre parcel all consisted of isolated chert debitage (Appendix D). These include 20MR819, a single tertiary Bayport flake fragment located at the 595 ft (181 m) amsl elevation mark, about 50 ft (15 m) south of the perimeter fence line near the guard house (UTM 311474 Easting, 4648083 Northing, Zone 17 [NAD83]) (see Figure 1.4-1). Site 20MR820 also is a prehistoric tertiary Bayport chert flake fragment located at an elevation of about 590 ft to 595 ft (180 m to 181 m) amsl, about 140 m



Source: Lang 1901

Figure 4.3.2-1. Fermi 3 Project Area Vicinity, 1901

(460 ft) south of 20MR819 (UTM 311309 Easting, 4647946 Northing, Zone 17 [NAD83]) (see Figure 1.4-1). Site 20MR821 is a tertiary flake made of fossiliferous pale tan chert located between 585 ft and 590 ft (178 m to 180 m) amsl, near the eastern perimeter fence line (UTM 311381 Easting, 4647850 Northing, Zone 17 [NAD83]) (see Figure 1.4-1). Site 20MR822 also constitutes a single tertiary flake made of heat-altered Bayport chert located at about the 585 ft to 590 ft (178 m to 180 m) amsl contour, approximately 112 ft (34 m) south of 20MR821 (UTM 311347 Easting, 4647820 Northing, Zone 17 [NAD83]) (see Figure 1.4-1). None of this material could be assigned to a specific prehistoric cultural period, although their presence indicates that lithic tool manufacture and/or repair was occurring in the area.

20MR823

Historic cultural material was identified in association with the structural elements at this location in the wooded tract adjacent to the east side of North Bullit Road and about 130 m (426 ft) south of the Doxy Road-North Bullit Road intersection in the northwest portion of the Fermi property. The site was discovered at an elevation of approximately 575 ft (175 m) amsl (UTM 312290 Easting, 4648870 Northing, Zone 17 [NAD83]) (Figure 4.3.2-2; see also Figures 1.4-1, 2.0-2, and 2.0-3). This property is located within the far northeastern end of PC 528, and in 1901 the subject property was in the joint possession of Henry Oliver and Columbus Fix. It remained undeveloped as of that period.

The overall site encompasses an area extending some 200 ft (61 m) north-south by 250 ft (76 m) east-west as evidenced by the presence of six concrete block and poured concrete and clay brick footings (Figure 4.3.2-3). The likely dwelling (Structure A) measured approximately 25 ft (9 m) by 33 ft (10 m), exhibiting a poured concrete box cistern lined with exterior brick. A nearby concrete block-footed structure (B), approximately 20 ft (6 m) east of Structure A, consisted of an 11 ft (3 m) by 12 ft (4 m) concrete block footing with a concrete floor measuring approximately 20 ft (6 m) by 26 ft (8 m). Structure C, located about 45 ft (14 m) east of Structure A, consisted of an 11 ft (3 m) by 12 ft (4 m) concrete block footing with a concrete



Figure 4.3.2-2. Site 20MR823, View East

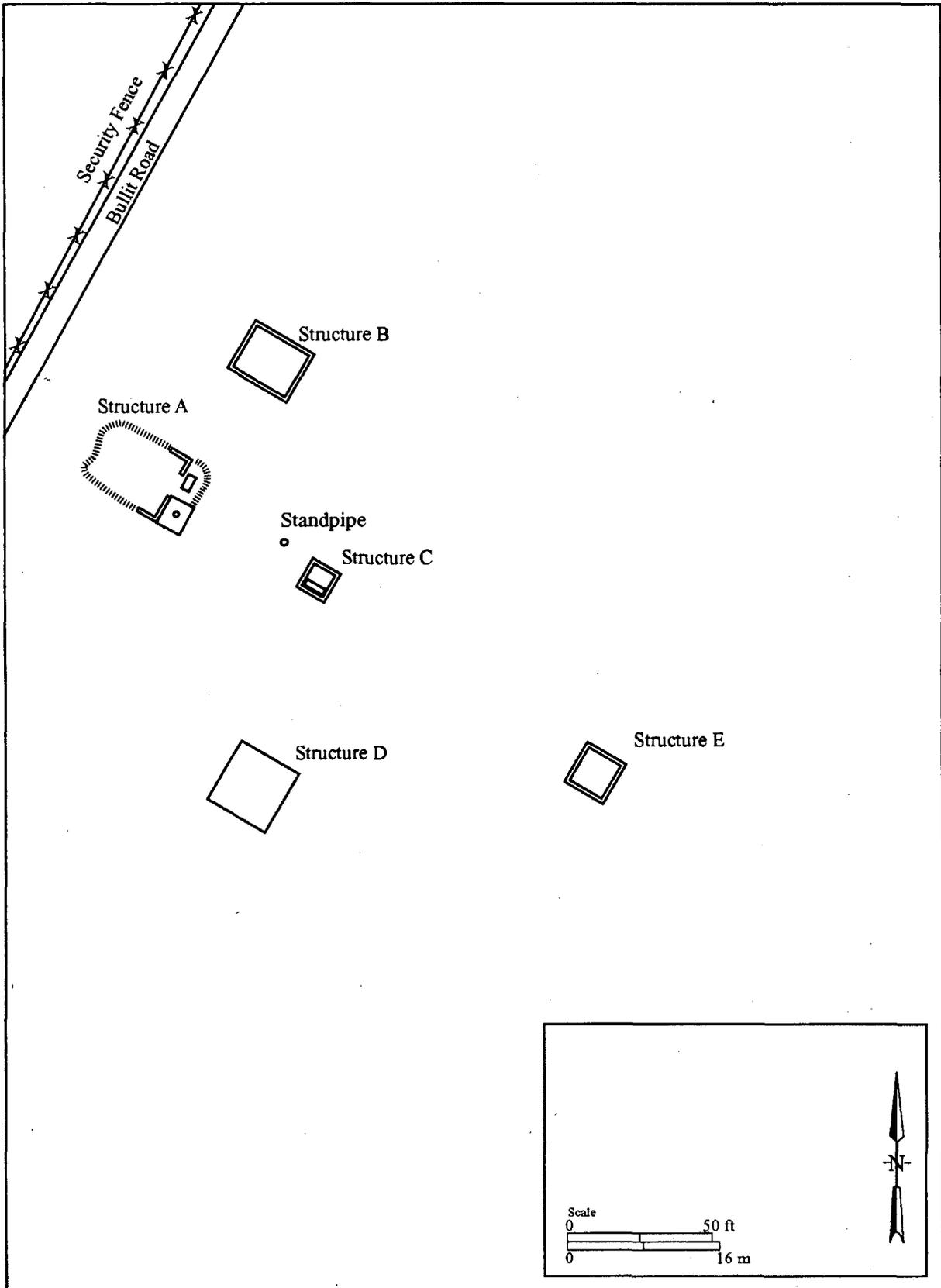


Figure 4.3.2-3. Site 20MR823, Sketch Map

water trough. Outlying Structures D and E, respectively measured 26 ft (8 m) by 23 ft (7 m) and 15 ft (5 m) by 16 ft (5 m). Structure D consisted of a poured concrete pad. Structure E was represented by a concrete block footing.

4.3.3 Artifact Analysis

20MR818

Nearly all of the recovered artifacts from 20MR818 are household related and consist of ceramics ($n=26$), container glass ($n=6$), one fragment of lamp chimney glass, and a jar lid liner fragment. Structural debris recovered from the site included two window glass fragments and two brick fragments. Only a small sample of the available brick debris was collected. A single prehistoric tertiary Bayport chert flake was also collected at 20MR818, though neither its age nor its function could be determined (Appendix D)

Ceramic debris included 12 undecorated whiteware tableware sherds representing plates, saucers, and other vessel forms. One of the basal sherds displayed a partial printed maker's mark: ROYA.../S... "Royal" is typically found on English-made pottery of the last half of the nineteenth century and well into the twentieth century. Other whiteware ceramics in the assemblage included two undecorated ironstone bowl sherds. The site also yielded 12 utilitarian stoneware sherds (related to food preparation and storage vessels) that exhibited Albany and/or Bristol slipped glaze surface treatments. The presence of Albany (brown) slip on some of the sherds indicates that they were made after about 1865 (Demeter and Weir 1987:434-435; Mansberger 1986:160). Bristol (white) slip glaze stonewares (also represented in the assemblage) were a variety that come into more widespread use as of about 1890/1900 (Demeter and Weir 1987:434-435). Raycraft and Raycraft (1985:6) assign the greatest use of Bristol slip glazed stonewares to the ca. 1885-1917 period.

Glass artifacts from 20MR818 included two bottle base fragments made either by mold or handblown techniques. Glassware that was manufactured by hand or by semi-automatic methods

in this way occurred between approximately the 1850s and 1900 (Fike 1987:3). On the other hand, the single fragment of jar basal glass from the site was machine made by the automatic bottling machine (ABM) process. Container glass made by this method dates to the post-1903 period and generally replaced glass that had been made by mold or blown processes (Baugher-Perlin 1982:265).

The jar lid liner in the inventory is indicative of twentieth-century usage. Lid liners, as they relate to fruit or canning jars, are most frequently synonymous with sites of the 1910-1940 period. Home canning and the use of glass fruit jars was probably not common prior to about 1910. Preserving food at home in this manner was a popular innovation common in more settled areas such as New England around 1880; however, home canning probably was not commonly practiced within the Michigan lower socioeconomic classes until the early twentieth century. Prior to that time, rural families tended to rely on traditional methods for processing and storing foods, such as smoking, drying, salting, and curing (Moir 1982:151). In fact, the earliest USDA publication dealing specifically with home canning was issued in 1909 (Breazeale 1909).

Other glass from the site, including a pressed bowl or vase fragment, two miscellaneous vessel fragments, and a fragment from an oil lamp chimney, all exhibited solarized amethyst discoloration. Glass that has been discolored by the sun in this manner brackets the 1870s-1920 period (Lockhart 2006:54; Miller and McNichol 2002:5).

Based on the diagnostic data in the assemblage, the use dates of the historic material recovered from the site may span the 1870s to 1920. Maps of the location date the site to the post-1900 period for time of initial settlement.

20MR819, 20MR820, 20MR821, 20MR822

Four tertiary waste flakes represent the four findspots that define these four prehistoric archaeological sites. None of these offer any diagnostic information relative to culture phase or

tool categories. Only one flake, from 20MR822, exhibits any evidence of heat-treatment. Three of the four finds have been identified as Bayport chert (Appendix D).

20MR823

Due to the relatively late-dating and cumbersome nature the artifacts associated with this site (e.g., automobile tires, galvanized buckets, metal fragments) the items noted on site were not collected. Those artifacts believed to offer a diagnostic potential for dating were, however, recorded on-site for further evaluation. Although the almost total lack of ceramic tablewares or storage vessels stood out as an unusual feature of disposal, the occurrence of other temporally diagnostic forms represented an important component of the overall artifact grouping.

A significant proportion of the cultural debris from this site consisted of container glass, with a substantial quantity of marked glassware that provided diagnostic information for the period of deposition. Datable glass consisted of colorless, screw cap bottle and jar examples with the Owens-Illinois diamond superimposed over an oval and I-mark, which was used between 1929 and about 1954 (Whitten n.d.; Toulouse 1971:420). Some of these types also exhibited the Duraglas trademark indicative of an Owens-Illinois brand of glass introduced in about 1940 (Toulouse 1971:191).

Bottles and jars featuring the Hazel Atlas bottom mark were also common in the assemblage and were produced from about 1902 to 1964 (Toulouse 1971:270). Another common container glass mark was that of the Anchor Hocking Glass Corporation, which began producing glassware in 1937 (Toulouse 1971:41). One of the light green (Jadeite) glass coffee cups identified at the site was marked OVEN/FIRE KING/WARE, which was introduced by Anchor Hocking during the early 1940s (Angus 1992). Several other maker's marks appear on the site's glassware, including a colorless whiskey bottle with a B-in-circle mark belonging to the Brickway Glass company of the 1925-1988 period (Whitten n.d.; Toulouse 1971:67). One of the more ornamentally styled colorless screw-capped bottles in the deposit was marked on its base with DES. PAT

NO./155134. This refers to a design patent filed by Jacob Dykstra on July 27, 1948, and registered on September 13, 1949, with the United States Patent and Trademark Office (USPTO 2008).

Other container glass with identifiable maker's marks included a six-faceted, light green, screw-top condiment bottle with a P-in-circle mark, which was used by the Pierce Glass Company from about 1905 to the 1980s (Whitten n.d.; Toulouse 1971:427). Another colorless condiment bottle bore a stylized TMC bottom mark used by the Thather Manufacturing Company from about 1923 to the early 1950s (Whitten n.d.; Toulouse 1971:530). In addition, the site yielded a soda bottle fragment with a partial decal featuring sunburst and the word BEV... on the side. It probably represents a Sun Rise soda bottle, a brand that was in production no earlier than 1930 and up through the 1950s and possibly into the early 1960s (Lee 2008).

Other container glass exhibiting brand names included a colorless Log Cabin syrup bottle with a screw cap and a cobalt blue cold cream jar marked NOXZEMA in a stylistic manner on the base; the Noxzema brand was first introduced in 1914 (Procter & Gamble 2008). Additional glassware marks consisted of an M-in-hexagon on a colorless screw-top jar, which was manufactured by the Metro Glass Company from ca. 1949 to 1981 (Whitten n.d.; Toulouse 1971:360). In addition to the glassware, the site yielded a small quantity of undecorated refined whiteware sherds, a Dodge hubcap or wheel cover, and a number of bricks marked HAGGERTY and JSH. The John S. Haggerty brick company operated out of the Springwells area of Detroit from about 1905 through the 1930s.

A related refuse scatter is located to the south of the farmstead adjacent to Dominion Creek at an elevation of about 575 ft (175 m) amsl (UTM 312214 Easting, 4648419 Northing, Zone 17 [NAD83]) (Figures 4.3.2-2; see also 4.3.1-1). The surface scatter is an approximately 10 m (33 ft) north-south by 7 m (23 ft) east-west surface scatter of historic artifacts located in a wooded parcel in the northwest portion of the Fermi property, just north of an east-west running creek. The scatter contained an array of household, personal, and miscellaneous artifacts, most notably the remains of various forms of glassware made with the automatic bottling machine

(ABM) method of the post-1903 period (Baugher-Perlin 1982:265; Miller and McNichol 2002), including bottles, jars, tumblers, ink wells, and coffee cups. Other material in the assemblage consisted of vehicle tires marked Goodrich Silvertown, a brand that was introduced in 1965 (Thomson 2001), vehicle seat springs, a galvanized bucket, an ice skate, a barrel hoop, and various plastic items.

The glassware inventory included a colorless Log Cabin maple syrup bottle, a screw-top liquor bottle, and a variety of marked and identifiable bottles. Diagnostic glassware from Surface Scatter 1 consisted of an amber beer bottle with an N-in-square bottom mark that was used by the Ober-Nester Glass Company of East St. Louis, Illinois, from 1915 to 1980 (Whitten n.d.; Toulouse 1971:391). Another larger brown or amber bottle with a screw-cap finish was marked ROMAN CLEANSER, a brand that began in 1919 and is still being produced (Odell 2007). Various other bottles and jars from the assemblage exhibited common maker's marks including the Owens-Illinois mark assigned to the ca. 1929-1954+ period (Whitten n.d.; Toulouse 1971:420), Hazel Atlas-marked glassware that spans the ca. 1902-1964 period (Whitten n.d.; Toulouse 1971:270), and Duraglas glassware manufactured by Owens-Illinois beginning in 1940 (Whitten n.d.; Toulouse 1971:191). One of the glass coffee cups recovered from the scatter bears the brand name FIRE KING, which was made by the Anchor Hocking Glass Corporation starting in the early 1940s (Angus 1992).

The artifact varieties associated directly with the farmstead and refuse disposal zones of 20MR823 suggest a relatively short-term twentieth-century habitation whose primary utilization phase likely dates to the ca. 1920 through 1960 period.

4.4 ARCHAEOLOGICAL CONCLUSIONS AND RECOMMENDATIONS

The evaluation of archaeological sites for National Register of Historic Places (NRHP) normally rests on Criterion D, the potential information a site may yield, or has yielded, important to either prehistory or history. In the case of the four prehistoric isolated findspots defining 20MR819, 20MR820, 20MR821, and 20MR822, the absence of any other associated materials precludes

this potential. The same assessment can also be assigned to the prehistoric findspot component of 20MR818. None of these sites can contribute information beyond what is already known for the area. The lack of either diagnostic tools or other diagnostic artifacts or features renders these sites as minimally important for their research value. Sites 20MR819, 20MR820, 20MR821, and 20MR822, and the prehistoric component of site 20MR818 do not meet the requirements of Criterion D and, therefore, are not recommended eligible for listing in the National Register.

The two twentieth-century farmsteads designated as 20MR823 and the historic component of 20MR818 also possess limited interpretative value. Neither is likely to contribute significant information relative to past regional land use patterns and, therefore, neither is recommended for listing in the National Register.

Field examinations of the Lake Erie beachfront did not yield any evidence of previously identified prehistoric site location 20MR702. This resource has in all probability been destroyed by either landfilling, wave erosion, or a combination of both activities.

On the basis of field evaluations and literature reviews, it is CCRG's opinion that none of the archaeological resources identified during this study are eligible for nomination to the NRHP. Impacts to these sites do not constitute adverse effects to area cultural resources.

5.0 ABOVE-GROUND RESOURCES SURVEY

5.1 METHODS

5.1.1 Above-Ground Resources Area of Potential Effect (APE)

At the determination of the Michigan SHPO, the APE for above-ground resources was reduced from the 10 mi (16 km) radius set out in Nuclear Regulatory Commission Office of Nuclear Reactor Regulation Environmental Standard Review Plan (NUREG-1555) to an area encompassing the DTE-owned Fermi property and the communities of Estral Beach, Stony Point, and Woodland Beach (Figure 5.1.1-1). A copy of the SHPO's determination is contained in Appendix A. The boundary is described as:

Beginning at the approximate intersection of Masserant Road with the Lake Erie shoreline, due southwest to the approximate intersection of Sandy Creek Road with the Lake Erie shoreline; north to North Dixie Highway; due northeast along North Dixie Highway to Port Sunlight Road; south on Port Sunlight Road to Masserant Road; east on Masserant Road to the point of beginning.

5.1.2 Field Methods

In consultation with the Michigan SHPO, CCRG's field methods included photography and mapping of all resources within the APE that were at least 50 years old and "...possess a degree of integrity above the norm for the area..." (Brian D. Conway, letter to Don Weir dated March 24, 2008). Using an Olympus digital camera, CCRG's field team photographed all resources that met those criteria. For all resources, every attempt was made to depict the façade and one other elevation in the same image. Where this was not possible, resources were photographed to obtain the view that would best allow for assessment of age and integrity. For complexes containing more than one building, such as farmsteads, streetscape views of the overall property were obtained to illustrate the buildings' relationship to each other. The location of each resource was plotted on a U.S.G.S. quadrangle map; all photographs were entered on CCRG's standard photography log.



Figure 5.1.1-1. Fermi 3 Project Area Above-Ground Resources Area of Potential Effect, NRHP-Listed, and NRHP-Eligible Above-Ground Resources

5.2 PREVIOUSLY IDENTIFIED ABOVE-GROUND RESOURCES

The files maintained at the Michigan SHPO record 22 above-ground resources within a 10 mi (16 km) radius of Fermi property that are listed in the National Register of Historic Places (NRHP) or have been determined eligible for listing in the NRHP. Table 5.2-1 summarizes these resources, and Figure 5.1.1-1 illustrates their locations. Twelve of the previously recorded resources are located within the City of Monroe and were identified through the Buildings Survey conducted in 1973 (Monroe County Historic Building Survey 1973). Of the remaining NRHP-listed or NRHP-eligible above-ground resources, four were determined NRHP-eligible through SHPO staff determinations, and six were identified as a result of environmental review documents completed to fulfill Section 106 requirements.

Table 5.2-1 NRHP-Listed or NRHP-Eligible Properties within 10 Miles of the Fermi 3 Project Area

Name	Address	City/Township/ County	Date Listed in or Determined Eligible for Listing in the NRHP
Custer, George Armstrong Equestrian Monument	SW corner of Elm and North Monroe (M-125) streets	Monroe/Monroe	12/9/1994 (L) ¹
Detroit River Light Station	Lake Erie, 3.75 mi SE of Millerville Beach Roughly bounded by the River Raisin,	Rockwood vicinity/Monroe	8/4/1983 (L)
East Elm – North Macomb Street Historic District	Lorain, Monroe and Macomb Streets	Monroe/Monroe	5/6/1982 (L)
Jefferson Avenue Bridge	Jefferson Avenue over Huron River	Brownstown Township/Wayne Monroe	2/10/2000 (L)
Loranger, Edward, House McClelland, Governor Robert House	7211 S Stony Creek Rd	vicinity/Monroe	5/31/1984 (L)
Navarre-Anderson Trading Post	47 E Elm St West of Monroe at North Custer (M-130) and Raisinville Roads	Monroe/Monroe	9/3/1971 (L)
Nims, Rudolph House	206 W. Noble Ave Roughly bounded by the River Raisin, Navarre, Wedsworth, LaPlaisance, Seventh, Washington, Monroe, and Third Sts.	Monroe/Monroe	7/31/1972 (L)
Old Village Historic District	Elm Ave and M-125 (N. Monroe Avenue)	Monroe/Monroe	10/18/1972 (L)
Saint Mary's Church Complex		Monroe/Monroe	5/6/1982 (L)

Name	Address	City/Township/ County	Date Listed in or Determined Eligible for Listing in the NRHP
Sawyer House	320 E. Front St	Monroe/Monroe	11/23/1977 (L)
South Pointe Drive Bridge	Pointe Drive over Swan Island Canal	Grosse Ile/Wayne	3/15/2000 (L)
Weis Manufacturing Company	Union and Seventh Streets	Monroe/Monroe Frenchtown	10/26/1981 (L)
---	5046 Williams Road	Twp/Monroe Frenchtown	11/09/1995 (E) ²
2187 Hurd Road	2187 E Hurd Road Gibraltar Road over	Twp/Monroe	11/18/1998 (E)
Gibraltar Road Bridge	Waterway Canal Over Horse Island	Gibraltar/Wayne	09/29/1995 (E)
Horse Island Drive Bridge	Bayou	Gibraltar/Wayne	1992 (E)
Horse Island Drive Bridge	Over Adams Bayou	Gibraltar/Wayne	07/01/1992 (E)
Horse Island Drive Bridge	Over Adams Bayou	Gibraltar/Wayne	07/01/1992 (E)
Monroe Armory	15483 S Dixie Highway Over Conrail and	Monroe/Monroe	11/07/2002 (E)
I-75 Bridge	Raisin River	Monroe/Monroe	04/12/2004 (E)
St. Mary's Academy Historic District	610 W. Elm	Monroe/Monroe	1981 (E)

¹L – Listed in the NRHP

E – Determined Eligible for listing in the NRHP

²Located within the Fermi 3 Project above-ground resources APE

A search of the information housed at the Monroe County Historical Museum and the Monroe County Library System's Ellis Reference and Information Center did not reveal any other previously recorded NRHP-listed or NRHP-eligible above-ground resources within a 10 mi (16 km) radius of the Fermi property.

5.3 HISTORIC AND ARCHITECTURAL CONTEXTS

5.3.1 Historic Contexts

Pertinent regional information can provide a framework for addressing site significance and suggests research questions about the historic cultural resources in the study area. Within the

Fermi 3 Project area, eight contexts are relevant: Settlement History/Town Building, Agriculture, Transportation, Ethnicity, Religion, Education, Resort Communities, Recreation, Power Generation, and Architecture.

The project area's natural and man-made environments all play significant roles in the area's identification. Geographically, the project area is comprised of portions of Berlin Township in the northern section of the area and Frenchtown Township in the southern section. A broad expanse of agricultural fields defines large portions of the area, particularly in those portions of the project area at some distance from the shores of Lake Erie. In recent years, a number of the once open fields have become the site of newly erected houses and subdivisions. Remnants of historic communities, such as Newport (now Oldport) and Brest are evident, although by far, the dominating presence in the area remains the beach front resort communities. These communities have their roots in the late nineteenth century, but were greatly expanded during the first decades of the twentieth century.

Many of the working farms and agricultural structures are located in the northern portion of the project area in Berlin Township and northern section of Frenchtown Township. Vernacular residences, including Gabled-Ell, Gable-Front, and T-Plan homes are common. Side-gabled and Greek Revival structures are also present. Several red brick farmhouses with stone name/date plates that exist in the area suggest the influence of German settlers. Silos, gambrel-roofed barns, and milk houses indicate that dairy farming was once a common pursuit.

North Dixie Highway, a two-lane major traffic artery for the area, is significant nationally as the first highway to link the rural American South to the urban North (Ecker 2008). As a major transportation through-fare Dixie Highway is frequently the first location where changes in land use have occurred. Dotting the roadway are a number of farmhouses that are no longer part of a farmstead complex, scattered commercial buildings varying in age and style, and the often unique entry signage enumerating adjacent neighborhoods.

The majority of the resort communities were platted in the 1920s. All are oriented to the water whether it be Lake Erie, Brest Bay, Swan Creek, Stony Creek, or one of several man-made canals in the region. Peninsulas, small islands, inlets, and rocky and marshy shores are natural features along the coastlines. Most resort communities have their own neighborhood associations and are usually isolated from adjacent communities, so return to Dixie Highway is often required when traveling between communities.

The beach resort communities vary greatly in size. While Detroit Beach is 0.7 sq mi (2 sq km), others are a single street. Public parks are prominent features for all but the very smallest neighborhoods. The larger communities are home to a waterfront park and at least one other public park centered in the development. A boathouse/clubhouse is often owned by the association and is always located in a prominent waterfront location. The style, form, and size of the homes in the communities are quite eclectic. Often, the older structures are along the waterfront, but homes that date from the early resort days are scattered throughout the neighborhoods.

Early Settlement/Town Building

In 1786 Francois Pepin and 1788 Gabriel Godfroy purchased extensive tracts from the Potawatomi extending from Sandy Creek to Swan Creek (Lowrie and Clarke 1832:190). The land held by Pepin was purchased in 1797 by George McDougall and George Meldrum. In partnership with William Park and Godfroy, McDougall, and Meldrum developed a 4 ac (2 ha) mill and still house lot on Stony Creek (MPHS 1886:524; Wing 1890:124). The Stony Creek mill complex played an important role in the regional economy allowing Frenchtown produced grains to be processed as either flour or distilled spirits for the upper Great lakes trade; however, its operations proved to be short lived. The Stony Creek Mill was destroyed by fire, as was many buildings, during the War of 1812 (Wing 1890:124, 127).

Early settlement of the area was dominated by the French who built log cabins and cleared small places for gardens along the creek. Much of the township was heavily timbered; other portions

were “low and broken” (Ellis 1876:1834). The waterfront on Lake Erie and the creeks provided opportunity for hunting and fishing (*Monroe Evening News* [MEN] 1963).

Among the area’s first land owners was Colonel Francis Navarre who came from Detroit in 1780 and founded Frenchtown. Frenchtown came to be the name of the village that later became Monroe, and was originally called River Raisin. In later years, the name Frenchtown was given to the township. In 1817, with the reorganization of the Michigan Territory at the close of the War of 1812, Monroe County was established and the town of Monroe was platted (Wing 1890:124). In 1827, Frenchtown Township was established as one of the five original townships founded in Monroe County (*The Observer* 1944; Menard 1995:8).

In 1816, a number of French Canadian families obtained land grants from the government. This led to the settlement of Monroe County. Early settlers began clearing the forests and converting the wilderness into a habitable place. North Dixie Drive (then known as the United States Turnpike), served as the main road of the area. The road was laid out by General Hull during the War of 1812 (Menard 1995:32).

By 1826, 14 families settled about 4 mi (6 km) up Stony Creek in the vicinity of a new mill erected by Alexis Soleau (Solo); the same individual who had earlier been the builder of the Meldrum and Park Mill. The settlers thought the bay was very similar to the coast of France, and named their settlement and the bay after Brest, a French seaport. They laid out long, narrow farms along both sides of the creek as they did along the River Raisin and as they had in France and Quebec. The pioneers farmed just enough to furnish their families with food, but because the land was heavy timbered, farms were small; however, the soil bordering the stream was particularly high and dry and the soil was viewed as good for cultivation (*The Observer* 1944; *Monroe Commercial* 1876:1). The 1827 opening of the Federal Land Office in the community commenced a period of slow but steady growth (Wing 1890:124, 137). These newcomers sought rich land to develop towns and shipping on the lake. Among these men were Thomas Whelpley, Gouverneur Morris, William White, and H.S. Platt (*The Observer* 1944).

The settlements along Swan and Stony Creeks attracted new development. The communities of Brest, located along Stony Creek, and Newport, situated on Swan Creek, had similarities and differences, and were rivals. Both locations were navigable by light draught boats and both had visionary entrepreneurs as residents: H. S. Platt as the financial manager of Brest's bank and an agent of a land company, along with Lewis Goddard, who had a "chain" of financial institutions, and William White, who founded the village in 1835 named after his hometown, and was the proprietor of Newport's hotel and the variety store. White acted as postmaster, justice of the peace, notary public, pound master, and utility man (Menard 18-19, 24; *The Observer* 1944).

Brest

Goddard and his partners had high hopes for Brest. In 1837, Goddard's partners were actively constructing piers for a proposed harbor with the hope that the community would eventually become "the great commercial center of the West" (Fuller 1916:157). In its heyday, Brest was home to a sawmill, a tobacco factory, a grist mill (both of which were located at Stony Creek and North Dixie Highway), and a large 15-room tavern (which was situated at Williams and North Dixie Highway), a hotel, a store, the Bank of Brest, and a post office (see Figure 3.2.2-3). Although the town did prosper for a while, the crash in 1838 proved fatal (*MEN* 1991; *The Observer* 1944). As late as 1860, the population at Brest stood at no more than 100.

Brest is often viewed as a 1830s "wildcat banking" paper town. H. M. Utley, a Michigan newspaperman and historian wrote: "An excellently lithographed and beautifully colored map of the city represented it with broad avenues, lined with palatial residence and handsome grounds. The extended river front of the city had continuous line of docks, above which towered on either hand, lofty warehouses, filled with the merchandise of the world. The largest steamers were represented as sailing up past the city..." (Menard 1995:20)

Still, Brest was home to real commerce that including fishing, and was developing into one of the regions more important fishing centers. The Dewey brothers' business holdings included several fishing sailboats, a 100-ton passenger steamer the *L. Brickhead*, and 10 to 12 large

buildings, including a large refrigerator house. At the height of the industry, the brothers employed a large number of men whose catch was three to four tons a day, mostly herring and a few sturgeon. In the winter months, whitefish were harvested. Some actual improvements to Brest were realized. F. A. Dewey, brother of the Dewey fishermen, noted "the improvement of the Indian trail" (Menard 1995:21). Today, there is little left on Brest. Houses constructed during its heyday, a schoolhouse, and a corner store are remnants of a town that no longer exists.

Oldport/Newport (Swan Creek)

The original plat of Newport (now Oldport), located on Swan Creek with William Tandy White as owner, was surveyed by Nathan Hubble in 1835 (Menard 1995:11). By 1860, Newport was producing and shipping large quantities of oak staves and boasted two churches, a general store, two steam saw mills, various mechanical trades, a post office (established in 1837), and a township population of 2,550 (Menard 1995:24). The community grew, with White providing much of the services, until the mid 1850s when businesses moved to take advantage of the newly established railroad lines a mile and a half to the west. With a population ranging from 500 to 550 inhabitants, Newport figured as an important forwarding center for grain, produce, and lumber well into the 1890s (Polk 1875:584, 1895:1301).

By 1867, the growth of Newport and its surrounding area contributed to the creation of Berlin Township as an independent administrative unit separate from Ash Township. According to the 1870 Federal census, Berlin was the third most populous township in the county with 1,844 inhabitants residing in 350 dwellings (*Detroit Tribune* 1872:62). The name *Berlin* was chosen by Fred Niedermeier, the acting supervisor of the yet unnamed township in honor of his birthplace: Berlin, Germany (Menard 1995:8, 11).

Eventually, however, most of the buildings associated with Newport were moved to a more convenient location for railroad transportation (*The Observer* 1944). White's Newport became known as Old Newport, and then, Oldport (Menard 1995:163). Businesses that survived included two saloons, one of which was owned by Peter Beaubien, whose complex included a saloon, a

hardware store, and a family residence. It was located at North Dixie Highway and Swan Creek Roads (the current public access site) and operated until the 1930s. The other was owned and operated by Charlie Cusino (Menard 1995:163).

Today, the heart of the community is defined by St. Charles (Borromeo) Catholic Church at the southwest corner of Swan Creek Road and North Dixie Highway. The poly-chromed brick, Gothic Revival church, with a cornerstone dated 1882, is the central focus point of a complex of buildings including an active elementary school. Located nearby are Old St. Charles Cemetery (established in 1851), the current St. Charles Cemetery (established in the 1880s), a number of older homes, and several small commercial buildings, including a small rusticated concrete block structure located on North Dixie Highway.

Stony Point/Pointe aux Peaux

The name Point aux Peaux is derived from the fact that the Native Americans sought it as the most desirable place for drying their pelts and skins. The name is French for the “point of skins” (Ainslie 1955). Settlement on Stony Point/Pointe aux Peaux had been minimal up through the 1850s with much of the land consisting of either state or county owned swamp lands. The Nadeau, Reaume and Sonkrie (i.e., Sanscrainte) families are identified as tract holders on the point in 1859 (see Figure 3.2.2-5). The 25 ac (10 ha) parcel held by Sonkrie at the foot of Pointe aux Peaux Road, in Section 28, was purchased in 1865 by the Pointe aux Peaux Company, vineyards were soon established, and, in 1868, wine production had begun (Wing 1890:426). The company produced upwards of 5,000 gal (591 liters) of wine in 1871 and 15,000 gal (1,774 liters) the following year (Wing 1890:426). As of 1870, the company also erected a two-story masonry wine cellar with limestone blocks imported from Sandusky. The chief investors in the project, Joseph M. Sterling and William A. Noble, had for years dominated the forwarding trade out of Monroe and were early shareholders in the Michigan Southern Railroad. Under the corporate names of Noble and Company and J.M. Sterling and Son, they also played a role in the local lumber and coal trade (Polk 1875:558; Polk 1877:636; Wing 1890:167, 230).

Another large land owner on the Pointe was the partnership of Charles Toll and Alfred I. Sawyer (see Figure 3.2.2-6). Toll was a paint and glass sand manufacturer, and Sawyer was a physician in the city and had served as mayor in 1869 and 1878 (Polk 1877:637; Wing 1890:350). Local historian Talcott E. Wing had, by 1876, also secured an interest at Pointe aux Peaux. The T.E. Wing and Company went on to create the area's first "Summer Resort."

Agriculture

Farming has played a major role in the establishment and perpetuation of the community of Newport and the township of Berlin. Growers and processors have helped to maintain a strong agricultural base since the mid-1800s. Early farmers raised fruit crops, particularly cherries and apples. Tomatoes were commonly grown in the area and were canned in Newport (Oldport). Most farms owned livestock including cows, chickens and pigs (Childs and DeVries 1956-2002). Farm families have maintained long-time operations and have provided a farm lore to the region's cultural history. According to the Michigan State Extension Office, crops currently produced in Frenchtown and Berlin townships include apples, corn, soybeans, wheat, alfalfa, hay, herbs, and vegetables such as cabbage and broccoli. Livestock is also present on most farms.

Industry and Businesses

Several industries were significant to the growth and development of the area. Logging, distilleries and mills were among the area's early businesses (Polk 1875:584; MPHS 1886:524; Wing 1890:124). The Francisco-Flint Hoop and Stave Mill and the Francisco-Flint Canning Factory were two viable businesses in the early 1900s. Mining was conducted in the area, particularly just south of the village of Newport (Menard 1995:176). In 1880, William Clark Sterling founded W. C. Sterling & Sons, dealers in poles for telegraph, electric light and street railway lines. The firm became the largest business of its kind in the state (Citizens Historical Association 1941; Polk 1887:1258). Several commercial fishing companies and a winemaking industry were also present.

Fishing Industry

Recreational fishing in Lake Erie continues as a popular pastime, while commercial fishing experienced its heyday during the late 1800s. Newport and its neighboring lake communities were home to thriving fisheries. The first settlers were not slow to discover the fact that the waters surrounding the area were alive with many species of fresh water game (Menard 1995:141). Commercial fishing operations were begun at Brest Bay in 1857 by the firm of Chittenden and Company which soon sold out to the Detroit based shipbuilder and fishing fleet owner, John P. Clark. Clark's interest in the area continued through 1887 (Wing 1890:466, 247). It was not long before the news of the thousands of available fish reached others and soon the area was known for its fish. Whitefish, black and white bass, and other species were abundant (Menard 1995:141). One of the most important fish caught during the commercial era was the sturgeon. Sturgeon-produced eggs were used for caviar, thus making the fish a highly coveted catch (Menard 1995:144).

Two of Clark's employees, Joseph B. Dewey and Jessee N. Dewey, began their own independent operations at the location in 1860 (Dewey 1885:548; Wing 1890:467). The Deweys became one of the most successful fisherman families of the area. The family extended their lake frontage and fishing grounds until they controlled most of the coastline of Monroe County. Although their Monroe County grounds eventually extended from Toledo to Port Huron, they had established fisheries in Lake Erie, Huron and Michigan. The eventual expansion of the fishing industry attracted many to the area (Menard 1995:142, 143) and lakefront property became very valuable (Menard 1995:143).

With the construction of a freezer and packing plant at this location, their trade was eventually extended westward as far as Denver. By the 1890s, much of their harvest of Sturgeon caviar was reportedly shipped to Europe (Dewey 1885:548; Wing 1890:467); however, harvest excesses, disease, storm-damaged equipment, and pollution took a toll on the local fishing industry by the beginning of the twentieth century. Species replacement in the reeded shallows along the shorefront was common after the introduction of the German Carp during the 1880s (Menard

1995:143; Bulkley 1913:393). By the opening of the century, some enterprising investors had begun to develop dredged carp ponds along the margins of the Huron and Raisin rivers and Swan Creek and catered to consumers in urban centers. As of 1926, the local commercial fishery was noted as being “now confined to carp which are shipped alive to eastern markets” (Hanley 1926:n.p.). The network of multiple canals appearing on the former Dewey-owned parcel in Section 21 and extending into the adjoining Section 20 is likely associated with one such enterprise (see Figures 2.0-2 and 2.0-3). The Dewey family’s D & B Fish Company was dissolved in 1939 by owners Walker, Anna, and John M. Dewey (State of Michigan 1939).

Wine Industry

The Point aux Peaux Company was organized by four men, William A. Noble, Caleb Ives, J.H. Sterling, and Samuel P. Williams, all of whom were entrepreneurs and, at one time or another, involved in a variety of businesses (Wing 1890: passim). The endeavor was likely the introduction of field planting in the area. The Point was the selected location because of its extensive projection into the lake and because the soil was like that of the islands of Put-In-Bay, which were already used for the cultivation of the grapes for wine (Ainslie 1955).

Planting of grape vines began around 1865 and wine production in 1868 (Ainslie 1955; Wing 1890:426). In 1870, a substantial two-story wine cellar of limestone, brought by vessels from Sandusky, was completed (see Figure 3.2.2-6). In 1871, the vintage reached 67,000 pounds of grapes, from which 5,000 gallons of wine were manufactured. The Point aux Peaux wines attained a very fine reputation for their purity, and were extensively used for medicinal purposes as well. In 1872, Monroe County fields yielded 420,000 lbs (19,051 kg) of grapes and 40,000 gal (4,732 liters) of wine, of which Point aux Peaux Wine Company produced 15,000 gal (1,774 liters) (Ainslie 1955). By 1873, the company was producing seven kinds of wine and 17 varieties of grapes (*Monroe Commercial* 1876). As of 1876, Pointe aux Peaux Company lands were held under the individual corporate designations of the J.M. Sterling Company and Noble and Sterling (see Figure 3.2.2-8).

As previously mentioned, the Point aux Peaux Company completed construction of a wine cellar in 1870. The original dates are carved in stone of the wine cellar. Near the foundation is the date of 1867 and at the peak near the roof is 1870. The limestone for the two-story cellar was brought by boat from Kelley's-Island (*MEN* 1963). Surviving accounts are unclear as to whether the building took three years to construct or a second store was added later. The building utilized the stone walls to keep temperatures between 60°F and 65°F (16°C and 18°C) year round.

The winery was originally surrounded by three cottages built in 1865 by Mr. Sterling, in addition to summer homes for his four daughters, dating in the 1870s and 1880s. A map drawn by Fred G. Bulkley in 1877 shows the shape of the property, with the cottages and winery, and a Baptist church. The church may have been a site for a future church that never developed (Bulkley 1913). Several cottages were eventually built on this tract and became a summer resort (Ainslie 1955).

Transportation

The area has offered public transportation since the stagecoach days of the 1830s. The first major advance in transportation was offered by the interurban, the Detroit, Monroe & Toledo Short Line Railway (DMT) which was completed in 1856 (Menard 1995). In 1873, the railroad system was expanded by the construction of the adjacent routing of the Toledo, Canada Southern & Detroit Railroad (TCSD). The DTM had earlier been absorbed as a division of the Michigan Southern Railroad. In 1883, the TCSD came under the ownership of the Michigan Central and New York Central railroads.

The development of the railroad lines facilitated the expansion of the local fishing industry's market and encouraged milling and marketing of the area's timber (DTM; Polk 1875:584). The Newport community on Swan Creek became an important milling and marketing center as well as a forwarding center for grain, produce and lumber well into the 1890s (Polk 1875:584; 1895:1301) (see Figure 3.2.2-4).

Steamers that transported goods also contributed to the area's transportation advantages (Clark 1863:418). Steamers docked at the Stage House and Steamboat Hotel that was located in Newport (Oldport). At that time, Swan Creek was much deeper and wider than it is presently (Childs and DeVries 1956-2002).

Dixie Highway also played a significant role in the development of the project area. During the first World War, the Dixie Highway was constructed along a route that had been originally used by the Native Americans as a path along the lake and later was laid out as a military road in 1826 by General William's Hull's army (*The Observer* 1944; *MEN* 1963). This interstate highway was the first to link the rural American South to the urban north and is associated with the modernization of the American South, as well as the growth of transportation and automobile tourism in the first half of the twentieth century. As a result of the "Good Roads Movement" that encouraged the development of local paths into progressive "tourist highways," roadside businesses thrived (Ecker 2008). As a major transportation thoroughfare, Dixie Highway has frequently been the first location where changes in land use have occurred. Dotting the roadway are a number of farmhouses that are no longer part of a farmstead complex, scattered commercial buildings varying in age and style, and the often unique entry signage enumerating adjacent neighborhoods.

Buses were another mode of transportation available in the area. Prior to 1920, the Blue Goose Bus line offered service for Oldport (formerly Newport) and Brest. The line was sold to the Greyhound Company ca. 1929 (Menard 1995:87).

Ethnicity

French

The French and French Canadians were among the earliest European peoples to explore and settle in Michigan. Some came to assist the missionaries; however, most came as part of the fur

trade and arrived in the region between 1660 and 1796. The second wave of immigration occurred between 1840 and 1930.

The first European settlements in Michigan were either missions or military posts that became centers of the fur trade industry. Small communities grew around these outposts (Dulong 2001:3-5). The first settlements near the project area were on the River Raisin; 100 families of French descent had settled there by 1784. Settlements soon spread to Stony and Swan Creeks (Wing 1890:45). These first pioneers settled near the water to be near their sole means of traveling and near their principle foods: fish and waterfowl. They also hunted the abundance of wildlife for both food and clothing (Menard 1995:1). The Masserant, Masson, Navarre, LaFontain, and Fix Families were among those French and French Canadians established in the area (Menard 1995: passim).

German

Although a few Germans, mostly Hessians, settled in Michigan in the late 1700s, it was not until the completion of the Erie Canal in 1825 and the Michigan land rush of 1834 that a significant number of German immigrants came into the state, many via New York City (Kilar 2002:7). Germans immigrated to the region and settled in rural areas, sometimes in rural ethnic isolation. Because Germany did not exist as a unified country until 1871, immigrants to Michigan listed their place of birth not as "Germany," but as Bavaria, Westphalia, Baden, Prussia, Mecklenburg, and Wurttemberg. By 1820, 18.3 percent of Michigan's population claimed German birth or ancestry (Kilar 2002:1-3). By the time that Berlin Township was formed in 1867, a growing number of settlers had relocated from Germany such as the Niedermeier and Krieger families (Menard 1995:11).

Hungarian

Although most of the resort communities were not settled by any particular ethnic group, Estral Beach is an exception. Hungarian-Americans, mostly from the Delray area of Detroit, had

acquired and set up cottages in Estral Beach, including the Soveys, owners and operators of the Estral Beach Hotel from 1922 through the mid 1980s (Menard 1995:167; *Monroe Guardian* 1987). Ethnic festivals and ceremonies were among the common summer activities celebrated in the Estral Beach community (Menard 1995:167).

Religion

Religion was an important aspect of early settlement and continues to play an important role in the community. Among the churches in the area, two Catholic churches are significant. One has roots early in the area's history; the other was founded to serve the later-established resort communities.

St. Charles (Borromeo) Catholic Church

In the early years of settlement (1800-1830) many pioneers were of the Catholic faith. With no extant churches, Catholics were served by the missionary efforts of the Redemptorist Fathers. The Redemptorists are a society of missionary priests founded by St. Alphonsus Maria Liguori in 1732 in Scala, Italy. The order established foundations, in varying degrees of success, in Southern Germany, Poland, Austria, and Holland. In 1832, a small number of Redemptorists arrived in New York, and around 1835, they arrived in Michigan and northern Ohio. The Redemptorists soon had established a presence in Detroit (Wuest 2008). The Redemptorist Fathers from St. Anne's Church in Detroit visited the Swan Creek settlement en route to Monroe's St. Mary's Church (St. Charles Church [SCC] 1932:15).

Around 1838, a modest log home was erected on the farm of Peter Allore, near the site of the present church but north of Swan Creek. Services were held here by the Missionary Fathers as they journeyed to and from Detroit and Monroe until 1856 when the first St. Charles (Borromeo) Church was constructed. From 1856 until 1880 the church grew as a country parish. Around 1880, the small church became insufficient for the growing parish. Members began pushing for a

larger church to meet the demands of the parish for generations to come. On April 15, 1882, the cornerstone of the new brick church was laid (Menard 1995:36).

The community desired a formal church building. Jeremias Beuabien donated two acres of farmland for that purpose. The 1847 log church was located south of the present church, on the west side of North Dixie Highway with the church's cemetery situated directly behind the church. A year later, when Beuabien died and no deed had been given to the church, the building had to be abandoned. In 1851, with the promise of a resident pastor for Swan Creek, John B. Trombley, with a clear title, donated 4 ac (2 ha), east of North Dixie Highway on the "road paralleling the north bank of Swan Creek" (Trombley) for the site of the proposed church. Louis Laduke provided land for a cemetery (now the Old St. Charles Cemetery). In 1853, Father John Van Gennip became the first resident pastor of Swan Creek's wood-framed church and the missions of Rockwood and Brest (SCC 1932:17-18).

Following a succession of pastors, in 1880 Father H. Kemper came to St. Charles (Borromeo) Catholic Church. By this time, the congregation had outgrown the wood-framed church and the building had been neglected. Father Kemper campaigned for a new church and hired a St. Louis architect to design the plans. Jacob and Frank F. Masserant Sr. donated the land for the new structure. On April 15, 1882, the cornerstone was laid by Bishop Borgess and the building was completed in 1886 (SCC 1932:22, 23.)

The congregation and its holdings grew and the grounds surrounding the church were altered. A rectory was built in 1871 (Saint Charles Parish 1932:18). In 1897, John B. Anteau donated land for the current cemetery which is located on North Dixie Highway, just north of the church (SCC 1982:85). In 1913, the plans and specifications for the proposed school and sisters' cottage were drawn up by Architect William Lamphere of Monroe. The cottage was needed to house the Sisters, Servants of the Immaculate Heart of Mary (established in Monroe in 1845 by Redemptorist Reverend Louis Florent Gillet), who were assigned to teach at the school (SCC 1932:34). The school held a grand opening in February, 1914. On January 9, 1923, fire destroyed the school; however the convent and the church were saved. Plans to replace the school included

a new Sister's Convent and auditorium (SCC 1982:95-96). In 1923, the iron fences that surrounded the church were removed and relocated to both cemeteries (SCC1932:28). Additions to the church included the 1931 installations of the statues of the Secret Heart and the Blessed Virgin and a new communion railing.

St. Anne's Catholic Church

St. Anne's Catholic Church was established as a parish to serve the resort communities. The church's first Sunday services were held in the summer months, from 1944 through 1946, at the Detroit Beach clubhouse ballroom; wartime restrictions prohibited services at the clubhouse in 1947. The services were attended by Catholic residents and Lutheran and Protestant families, as well. The community supported the efforts to build a permanent mission chapel or church and the Archdiocese of Detroit was persuaded to approve the proposal contingent upon the donation of land for the site of the new building. Oliver Fix, John L. Bronson and his wife, Francis I. Navarre, and the National Utilities Company agreed to do so. Also, because of wartime restrictions, the request for the necessary Government building permit was at first refused. Only after considerable correspondence and discussions, was the building permit granted. The contract was awarded to Hale & Emerick (Saint Anne Parish [SAP] 1997). The building has been expanded several times to accommodate the needs of the community. On July 8, 1962, the cornerstone was laid for the new St. Anne's grade school (*MEN* 1962). The multi-purpose building at the church was constructed in 1989 (*MEN* 1989).

The first Mass in the church was held on Sunday, August 10, 1947. Donations by the community continued. Among the donated items were altars, the church bell, statues, the baptismal font, and the Stations of the Cross (SAP 2003). During the early years of St. Anne's, it was not a fully independent parish but rather a mission of nearby St. John Church in Monroe (Godzak 2000:66)

A grotto dedicated to Saint Anne is located on the church grounds. The Midwest is home to the largest concentration of grottos in the world. Traditionally, grottos were erected as an expression of thanks for good fortune, as an offering following the favorable outcome of misfortune, or as a

shrine to a patron saint. Generally, the structures were constructed using available and inexpensive materials and by those who had no formal architectural training. The grottos tradition as seen in the Midwest was initially brought to America by German Catholic priests (Smith 2003). In 1957, a donation was given for the construction of St. Anne's Shrine. Rocks, gathered from around the country and donated by parishioners, were used by the shrine's creator, Alex Mata who was assisted by Clem Roberts. The shrine was completed in 1958. The Italian statue was donated by the Jankowski a family from Stony Point (SAP 1997).

Education

Throughout Michigan's history, public schools were often one of the first institutions established in a newly settled community and were important symbols of progress and stature. School buildings often reflect the values, concerns and goals of the time they were constructed (State Historic Preservation Office [SHPO] 2003:1); therefore, they were, and are, significant icons of a community.

A Brest school first appears on the 1895 map slightly north and west of its current location. In the late 1870s, the school was moved to its second location, directly in front of the current school building. The later school building was converted to a grocery store after the third school building was completed in 1927 (Hartline 2003:18).

The 1926-1927 construction of the Frenchtown Township District No. 13 School was influenced in part by the distribution of the *Standard School Program of the 1910s-1920s*, a guide by the Michigan State Superintendent of Public Schools which provided free plans and options for the construction of new educational buildings. These plans outlined specific building details, like footprints. These building footprints often resembled letters in the alphabet, including the letters E, H, T, U, or I. Fire safety concerns were also addressed with easier exits and fireproof construction (SHPO 2003:25).

A major goal of the program was to improve rural schools, which were often drastically lacking compared to urban areas. The program presented a series of general and specific standards that when implemented would improve the building and equipment conditions as well as educational standards. If the requirements were met, the school received a metal plate with the words, "Standard School," which was to be placed above the front door (SHPO 2003:38-39).

The 1927 Brest School originally accommodated "all eight grades" (Childs and DeVries 1956-2002). After consolidation into the Jefferson school district, the school housed several kindergarten and first-grade classes until the building was sold (Hartline 2003:18). Currently, the Christian Baptist Church occupies the building.

The Brest School building is reminiscent of the Prairie style that was popular in the Midwest. Architecturally, the building is clearly identifiable as an example of the Standardized School Plan, particularly of Lansing architect Earl H. Mead, whose designs featured prominent hip roofs and towers with a projecting front entrance vestibule and were prevalent from 1890 to 1910 (SHPO 2003:3).

Resort Communities

Beginning in late 1880s, the area has also been valued for water sports (*MEN* 1963). People began seeking summer places along the lake in the 1920s (*The Observer* 1944) (see Figure 3.2.2-7). The new wealth of Detroit's growing working classes that emerged out of the regions industrial expansion during World War I created a whole new potential in real estate marketing. The new transportation technologies of the automobile and the removable "Rowboat Engine" or outboard motor offered convenient transportation to, and recreation of, the lake front properties in Monroe County (Mirken 1970:1045). This was also the time of Prohibition and, perhaps because of the area's close proximity to Canada, the area's bootlegging business was well-known and was referred to in several oral histories in Marion Child's *Recollections of Life in Monroe County*. Estral Beach and Stony Point were frequently sited as drop-off locations. This industry added to the flavor of the resort atmosphere.

The resort communities of Estral Beach, the Stony Point and the Point aux Peaux area, as well as those located along Swan Creek, in the Brest vicinity and those adjacent to North Dixie Highway, originated as summer cottage developments of the 1920s (*The Observer* 1944; *MEN* 1981). The boom era in vacation property investments was short lived being obliterated by the financial collapse of the Great Depression. During the 1930s, only two new subdivisions were recorded, with a similar number being recorded in the 1940s (Appendix C). Other properties north and south of the project vicinity were acquired as state-owned parklands during this period. These include the Pointe Mouillee State Game Area and Wildlife Refuge at the mouth of the Huron River and Sterling State Park at the mouth of Sandy Creek.

The communities began to evolve into year-round dwellings in the 1940s, when the post war housing shortage led many ex-servicemen and their families to seek out beach areas for permanent homes. Since then the pleasures of privacy and the year-round access to lake activities have been mingled with problems of poor water and sewage facilities, severe lake flooding and poorly maintained neighborhoods (*The Observer* 1944; *MEN* 1981). By 1981, some 70 percent of Frenchtown Township's 18,200 residents lived in one of a dozen private beach communities clustered along the shores of Lake Erie. The private beach associations are governed by boards whose members are annually elected by the associations' property owners (*MEN* 1981).

Estral Beach (Incorporated Community)

The Estral Beach community originated as a resort area shortly after the turn of the twentieth century, eventually incorporating as village in 1925. Only a few summer cottages existed in the area when August Heide purchased several lakefront lots in 1919. Two years later, Heide, along with Pete Sovey (both carpenters by trade), constructed a hotel on land west of the beach canal. The three-story building was completed in 1922 and, at the time, was reputedly the only lodging available between Estral Beach and the Downriver area of Detroit (*MEN* 1981). The Estral Beach Hotel became a popular waterfront establishment that attracted crowds during the summer months. The overflow crowds hosted by the community of Estral Beach spilled into the hotel for overnight lodging. The accommodations, which housed hundreds of vacationers from the region,

boasted 22 rooms, a dance floor, and gourmet foods prepared by members of the owners' families (August Doc Heide and Peter E. Sovey). At one time there may have been a bathhouse associated with the hotel. Peter Sovey and his wife Hazel purchased August Heide's interest in the business. After that, they lived in the wood frame facility. The hotel flourished in the late 1930s and early 1940s. The business remained under family ownership until the mid 1980s (Menard 1995:167; *Monroe Guardian* 1987).

Generally, the resort beach communities of the study area lacked specific ethnic ties, but Estral Beach was the exception. Hungarian-Americans, mostly from the Delray area of Detroit, had acquired and set up cottages in Estral Beach, including the Soveys, owners and operators of the Estral Beach Hotel from 1922 through the mid 1980s (Menard 1995:167; *Monroe Guardian* 1987). A sizeable portion of the beach was known as Hungarian Park. According to the same history, there was a clubhouse (no longer extant) at the Hungarian Park that was the scene of regular ethnic festivals (Menard 1995:167). During the Big Band era, well-known performers, such as the Tommy Dorsey Band and Louis Armstrong played at the clubhouse (*Monroe Guardian* 1981; Menard 1995:167). The season concluded with winemaking ceremonies where barefooted dancers in colorful costumes stomped on the grapes. This picturesque pageant is no longer practiced since the subsequent generations do not have such close ties to Hungary as did their parents.

Stony Point (Unincorporated Community) and the Stony Point/Point aux Peaux Area

The area, which became known for its fishing and extensive sand beaches, served as a ready attraction for those seeking summer residences. The Sterling Williams Subdivision was platted in 1919 by the Sterling family, and Point aux Peaux Farms in 1923.

The Stony Point Beach Association was incorporated in 1939 and the Stony Point Peninsula Association in 1943 (Articles of Incorporation 1939; Articles of Incorporation 1943). Also, located on a narrow strip of land and platted in 1939 is the small association of Long's Point aux Peaux Plat (Appendix C). In its heyday, the community sponsored children's programs as well as

baseball competitions and block parties for adults. The community often congregated on the beach to socialize (*MEN* 1981).

Stony Point

The area of Stony Point was, at one time, used by the Dewey family for commercial fishing. The only cottages there in the 1880s belonged to the Deweys, the Stoners, and the Nadeaus (the Nadeaus lived at the entrance and acted as a gatekeeper) (Childs and DeVries 1956-2002). To picnic on the grounds owned by the Dewey Fish Company, a fee was paid at the gate. A concession stand was located near the end of the point (Childs and DeVries 1956-2002).

In the 1930s, cottages in the community lacked plumbing and were often heated by pot-bellied stoves. Fishing, swimming, picnicking, and card playing were some of the recreation activities that residents enjoyed. Men enjoyed hunting and held wood-cutting bees, while women often embroidered (Childs and DeVries 1956-2002).

Dewey Summer Homes

The Dewey family subdivided parcels of their land which included Stony Point Peninsula, platted in 1922 and Dewey Summer Homes, platted in 1923. Virtually every significant shoreline owner from Sandy Creek to Stony Creek followed this trend. The Dewey Summer Homes subdivision was designed with long, narrow public spaces so that each home was adjacent to open space (Appendix C).

Point Aux Peaux

This area was home to the Monroe March Club. Members hired punters, men who propelled boats with a pole, who were often French, to assist in hunting activities. These assistants worked long hours, from around 7 a.m. until dark, and were paid by the day (Childs and DeVries 1956-2002).

Lagoona Beach

Lagoona Beach was located near Stony Point. It encompassed a large area, extending from Stony Point to Swan Creek and property westward. Beginning in the 1920s, Detroit's wealthy class frequented the area. Investors in the community included Ford Motor Company and the Fisher Body executives. A shooting club was located on a large tract of land owned by the Fisher family. This land is now part of the Fermi complex. Game hunting was a favorite pastime. Families were housed on the property to clean and cook the owner's game. Although plans were initiated to develop mostly lakefront lots, because of the Great Depression these plans were never realized (Childs and DeVries 1956-2002). In the Late 1920s and early 1930s, there was also a quarry located in the Lagoona Beach area.

Swan Creek Area Communities

At one time, boats could be rented on Swan Creek to be enjoyed by residents and visitors alike (Childs and DeVries 1956-2002). There are several small resort communities situated along Swan Creek that were platted in the early 1920s. Ben Fix Swan Creek Subdivision (1921 by Ben and Clare Fix), Swan Creek Heights (1922 by the members of the Beaubien family), Swan River Highlands (1922 by William Buchan and George Trump), and Weldon Stauffer's Subdivision (1922 by members of the Stauffer and Lockman families) are among them (Appendix C).

Brest

A number of summer resort subdivisions, with many cottages, grew during the prosperous days of the 1920s, being occupied only during the summer months. These same cottages have been converted to permanent residences when the area began to grow again during World War II, due to the housing shortage in the City of Monroe (Ainslie 1955). Located in the Brest vicinity are the communities of Brest Bay Grove subdivision (platted in 1923 by several families and individuals) and, the single-street Joel A. Labo subdivision located on Lake Erie, which was

platted in 1916 by the Labo family. The Bay West Estates, platted in 1994, is among the newer developments (Appendix C).

Resort Communities Accessed from North Dixie Highway

Detroit Beach

Platted in section in 1927, 1933, and 1944, Detroit Beach is, at 0.7 sq mi (10 sq km), the largest resort community in the area. The community is located at the southern portion of the Fermi 3 Project area (Appendix C) (MEN 1979). The Detroit Beach Lot Owners Association was incorporated in 1937 (Articles of Incorporation 1937). A 1961 article in the *Monroe Evening News* indicated that the community was a private association lacking needed water and sewage systems. At this time, the beach had a population of 1,571, more than twice the amount of 750 needed to qualify as a fifth-class city. The article also mentions that the beach was once a community of summer cottages but recently a year-round residential area (MEN 1961). In 1979, the population had reached 4,000 (MEN 1979).

The community's original clubhouse was demolished in 1979 after 60 years of use. As with many of the resort communities of the area, the clubhouse had been the focal point of the community and played host to a number of wedding receptions (MEN 1979). At that time, the clubhouse hadn't been regularly used for about 20 years. A large addition to the current clubhouse was then constructed with most of the labor donated by club members. The two-story concrete block building was erected over the then-existing single-story wooden structure which was demolished piece by piece. The current clubhouse has hosted steak roasts, adult and teen dances, and pancake Sunday breakfasts (MEN n.d.).

In the summer of 1978, a pair of illuminating lighthouses were constructed flanking the main entrance to the community. Still extant, they were patterned after those at Cedar Point and resemble a former dry-land lighthouse that had been at the beach in the 1950s, but had been

destroyed by a tornado years later (*MEN* 1979). These wooden structures are partially clad in random rubble stone.

Woodland Beach

Woodland Beach was platted in 1923 and incorporated in 1929 (Articles of Incorporation 1923) (Appendix C). The property was at one time owned by Moses and George Jr., sons of George Fix, one of the area's early settlers. The brothers lived in a house they built on the grounds until Moses married (Childs and DeVries 1956-2002).

Aime Philippart Subdivision

Also in the area is the single-street Aime Philippart Brest Subdivision. The land, located between Pearl Drive and Stony Creek, was formerly owned by Joseph Chamberlain and was used by J. P. Dewey for a fishery. The property was purchased by Aime (Arvin) I. Philippart in about 1913 (*MEN* 1963). Philippart was a doctor who was known in the community as a one who healed by "the laying on of hands" and was called the "Human X-ray" (Childs and DeVries 1956-2002). Philippart resided at 3605 Pearl Drive from 1918 until his death in 1959 (*MEN* 1959). Also known as a contractor and cabinet worker, Philippart may be responsible for the construction of the four residences located on Pearl Street that may be eligible for listing in the NRHP as a historic district.

Erie Shores, Morona, Baycrest, Indian Trails, Grand Beach

Located in the vicinity is the Erie Shores Subdivision, which was platted in 1925 by William and Jeanette Wandersen and incorporated in 1938, the single-street development of Monrona that was platted in 1922 by J. L. Navarre and Alex J. Bronson, and Baycrest, which was platted in 1923 by Sophia L. Webber and incorporated in 1940 (Articles of Incorporation 1940) (Appendix C). Platted in 1923, Indian Trails' winding streets bear names of Native American tribes. A sizeable Native American village was located, as late as 1886, where the subdivision

now stands (Childs and DeVries 1956-2002) (Appendix C). Grand Beach, which once was home to a dance hall, was platted in 1923 by the Kreuger and Shorlitz families (Articles of Incorporation) (Childs and DeVries 1956-2002).

Recreation

Dixie Skateland

Recreation is an important aspect of resort community life. Hunting, fishing, and other outdoor activities as well as dances and card playing were, and are, enjoyed by residents. As the communities developed into a year-round population, the need for recreation activities grew.

Dixie Skateland, located at 5179 North Dixie Highway, opened in 1958 through the efforts of members of the Berns family (Menard 1995:217). The family constructed the cinder-block and brick building as a means to provide a recreational and social environment for the families living in the vicinity. The popularity of the establishment made it necessary to further expand the building in 1964 and 1976. The 1964 expansion added a snack bar concession and the 1976 alteration enlarged the skating floor. Family Fun Day, Teen Night, and Sunday afternoon matinees were all ways the rink reached out to the surrounding community (Menard 1995:218).

Power Generation

Power generation also has a presence in the area. The Fermi facility is currently located on grounds where muskrats were, at one time, trapped in the winter months and where commercial fishing for walleye, pickerel, perch, lake bass, sheepshead and carp was conducted (Childs and DeVries 1956-2002). A small inland lake formed by a ridge of stones existed on the property. Former property owners include Canadian Vic Meloche and the Fisher family (Childs and DeVries 1956-2002).

Detroit Edison was involved with Dow Chemical in designing the world's first commercial liquid-metal cooled fast-breeder reactor, Fermi 1. It was one of the first power reactors of its type that demonstrated the feasibility of the fast breeder design on a commercial scale.

(Historicmonroe. n.d.). Work on the Fermi site was begun by Detroit Edison in 1956, and the plant began operation in 1963. Coolant problems forced its shutdown in 1966. Although placed online once again in 1970, it was shut down in 1972 and partially disassembled (U.S.N.R.C. 2007). Construction efforts for the current Fermi 2 facility were initiated in 1970 (DTE Energy n.d.).

5.3.2 Architectural Contexts

The buildings of the project area feature a wide range of styles and dates and materials of construction. Buildings constructed during the early settlement period, including early farmhouses and outbuildings, and those built during the development of the area's resort communities are of particular significance. Buildings and structures that are associated with religion, education, industry, and recreation are also of interest.

Early settlement buildings existing in the project area include several Gabled-Ell, T-Plan, and Cross-Gabled farmsteads. Random rubble stone foundations are common; a good number are constructed of red brick. Also in the area, but less common are Upright and Wings and Greek Revival houses, as well as a New England One and a Half. Some of these early houses that stand today are testaments to early settlement families. Families association with early settlement houses in the project area included the Fixes, the Freys, the Masserants, the Massons, the Nieders/Niedermeiers, and the Deweys (Childs and DeVries 1956-2002).

A majority of the earliest resort homes were simple residences, often without indoor plumbing and were heated by pot-bellied stoves (Childs and DeVries 1956-2002). The communities, and often the houses, are orientated to the water whether it be a lake, bay, creek or canal. Almost all incorporated public parts and most built clubhouses. As the communities developed into year-round residences, large homes were sometimes constructed. An assortment of materials was used

in the construction of the resort community homes. Brick was sometimes used as a structural material or as cladding. Clapboards can be seen on some of the earlier homes and stucco treatments on the Mediterranean-influenced residences. Panelized homes, including those with stucco panels can be found in the communities as well as log cladding. A variety of siding and a mixture of materials are common.

Architectural Forms

Hall and Parlor (ca. 1800-1870)

The Hall and Parlor house is a simple rectangular plan, usually three-bayed, with a side-gabled roof and is one or one and one-half stories in height. The plan consists of a hall, or general eating and living space, and a more formal parlor that may also have been used as a bedroom. Hall and Parlor houses were often built with shed rooms or small ells to the rear (Gordon 1992:125).

An example of this early building type is located at 6344 Trombley Road, Newport in Berlin Township and is part of a large farmstead complex (Appendices E and F). The house is one-story and side-gabled with an open porch extending across the width of the building and a one-story addition with a projecting entry way extending from the rear of the structure.

New England One and a Half (ca. 1830-1865)

The New England One and a Half is a side-gabled building, often with a rear ell or wing. The façade is three to five bays wide and the side elevations are at least two bays wide. Occasionally, a service door is located on one of the side elevations. The façade may have a blind half story under the eaves or small rectangular frieze windows. Although generally modest, this style sometimes features Greek Revival elements as pilasters, architraves, cornice returns, or wide entablature panels (Gordon 1992:131).

The house located at 2381 Hurd in Frenchtown Township was constructed in the New England One and a Half style (Appendices E and F). The three-bay wide and two-bay deep configuration of the building is typical. The small rectangular windows under the eaves are also features of a New England One and a Half.

Upright and Wing (ca. 1830-1890)

A form within the Greek Revival style, Upright and Wing houses were originally inspired by the archaeological excavation and measured drawings of the ancient Greek temples. The style was spread across the country by pattern books such as Minard Lafever's *Modern Builder's Guide* (1833) (Gordon 1992:79). The representation of the building style in pattern books permitted traveling carpenter/builders to spread the form from the East coast to the West (McAlester and McAlester 1989:182). Adopted as a manifestation of the democratic ideals of ancient Greece, the Greek Revival style spread across the country from 1825 to 1860. The Upright and Wing house was constructed into the twentieth century in a modified form (McAlester and McAlester 1989:179).

Many of the early Upright and Wing buildings were constructed in phases. Most often the uprights came first with the wing being added at a later date as additional space was needed and money became available. The earliest examples have a door in the upright, as well as doors in the wing, often off a porch along the length of the wing. As the form evolved, both the upright and wing were constructed simultaneously, the main door moving to the wing. Often, with the move of the door, the upright was reduced in size from three bays of fenestration to two (Gordon 1992:132). Virginia and Lee McAlester (1989:179), who refer to this form as a gable front and wing, maintain that it was considered a popular folk housing type until the 1930s.

An Upright and Wings house is located within the project area at 8563 North Dixie Highway in Berlin Township (Appendix F). The house features entrances in both the upright and the wing and a full-length porch on the wing. Additional features include two multi-paned windows flanking the upright entrance and a metal-seamed roof.

Octagon (ca. 1850-1870)

A distinctive polygonal building type, often designed in the Italianate style, the Octagon House owes its popularity to Orson Squire Fowler who, in 1854, published, *The Octagon House, A home For All, or the Gravel Wall and Octagon Mode of Building*. It was innovation in American domestic architecture with the concept of a centrally planned home that incorporated economy of materials, a functional interior, and views and exposure to light in all rooms (Blumenson 1981:49). A central chimney stack or cupola, decorative porches, and wide eaves are common elements of the eight-sided and low-pitched roof type (Gordon 1992:134).

The Octagon house at 3143 Cloverdale in Frenchtown Township is modest in terms of size and architectural detail, and is likely constructed in the 1920s-1940s (Appendix F). In place of a central chimney or cupola, there appears to be a ceiling skylight window. The overhanging eaves are unadorned and the random rubble chimney is located along one of the eight sides.

Gabled-Ell, T-Plan, and Cross-Gabled (ca. 1865-1885)

Related to the Upright and Wing, the Gabled-Ell incorporates the wing into the main body of the building, creating an L-shaped footprint. The house is oriented to the road similar to the Upright and Wing, with the side wing paralleling the road. The major difference between the two forms is that the side wing is an integral part of the building core. The Gabled Ell was a popular post-Civil war house type that was generally constructed with balloon framing or brick-bearing walls and is named so because of its intersecting gable roof. The T-Plan and Cross-Gabled house is very similar, but both gables extend on a right-angle intersection of its main section and wings. The Gabled Ell, T-Plan, and Cross-Gabled houses' roof line is at the same level. Common in rural areas and small towns, this house type often displays one or more decorative porches and, sometimes, a bay window, attic vents, decorative shingles, bracing, and variegated wall treatments (Gordon 1992:136).

Several Gabled-Ell, T-Plan, and Cross-Gabled houses with stone foundations and clapboard-clad or brick farmhouses with stone foundations and name/date plates set near the gable are located in the area. Many of these were constructed in the 1870s and 1880s. Several early-constructed farmstead houses are associated with prominent pioneer families of the project area.

The Fix farmhouse is an example of this house type. The farmstead complex is located at 6511 Leroux in Frenchtown Township (Appendices E and F). The property includes a one and one-half story brick Gabled-Ell residence which rests on a coursed stone foundation with a one-story open front porch extending across the entire width of the house. The gable front element of the house features a small name/date plaque near the peak which reads: "Joseph Fix 1878." Fenestration on the house includes front entry doors into both the gable front portion of the house and the wing element. Windows and doors each feature a segmental brick arch above the flat opening lintel.

American Foursquare (ca. 1900-1925)

The American Foursquare house was the most popular new house type from the end of the nineteenth century into the early years of the twentieth century (Gordon 1992:137). A building form, rather than style, it could be easily adapted to most owners' tastes, by changing the construction materials or adding ornamental details. Almost as a rebellion against the overly decorated Victorian era, Foursquares shied away from the ornamentation of the previous generation (Massey and Maxwell 1995:31).

By definition, the Foursquare stands from two to two and one-half stories, exhibits a nearly square floor plan and block-like shape, with a hipped roof (Gordon 1992:137). Additional elements associated with the form include dormers and a one story porch, often stretching across the entire front facade (Massey and Maxwell 1995:31). Modern building materials, as well as more traditional, were well suited to the Foursquare. Houses were clad with everything from wood clapboards, shingles, and brick veneer, or cast-concrete blocks. With the improvements

made in the modern concrete industry, this too became an accepted building material, providing the smooth stucco finish popular with many Foursquare builders (Massey and Maxwell 1995:31).

There are several American Foursquare houses located in the project area, many of which are part of a farm complex. Several were constructed using brick, and most are clad with a variety of material. Concrete block, sometimes rusticated, was often used as the foundation material. A typical example is located at 2112 Grand Boulevard, in Frenchtown Township (Appendix F). The house is located within the Detroit Beach community. A centered dormer, a full-length one story porch, and a hipped roof are elements of the residence that are common features of Foursquares.

Three-bay Threshing Barns (ca. 1880-1920)

Outbuildings are present on all of the working farms and on many of the farmstead property of former farms. These include chicken coops, smoke houses, silos, outhouses, and quonset huts. Three-bay threshing barns are also part of several farmstead complexes in the project area. This type of barn enabled hand threshing to be conducted in the central bay with a haymow stored on one side and oxen or horse stalls on the other (Gordon 1992:143).

A three-bay threshing barn is part of the farmstead complex located at 6068 North Dixie Highway in Frenchtown Township (Appendices E and F). The barn is connected to a silo house, a glazed tile silo, and a gabled roof structure. The metal clad barn roof was originally pieced by a pair of cross-gable roof ventilators, although only one remains extant.

Architectural Styles

Vernacular (Folk) (to c. 1940)

Early vernacular buildings were constructed of local materials without stylistic embellishment. Before the railroads, the only means of efficiently transporting building materials was by water. This restricted all but the most affluent, and those living on waterways, to folk dwellings built using materials found on, or very near, the construction site (McAlester and McAlester 1989:75).

The nature of folk housing changed dramatically as the railroad system was established and expanded from 1850-1890. Builders were no longer restricted to local materials, and building techniques changed in response. Although traditional shapes were often retained, these mass-planned houses are relatively simple. (McAlester and McAlester 2003:89-90).

While having interesting features, many of the buildings in the project area are vernacular in nature. This includes a number of side-gabled houses. Houses that are rectangular in shape with a side-gabled roof are often referred to as side-gabled folk houses (McAlester and McAlester 2003:90). The two-story house located at 8527 North Dixie Highway in Berlin Township is such an example (Appendix F).

Contemporary Vernacular (Folk) (ca. 1940-present)

Contemporary Folk (Vernacular) houses, like those of the past, reflect the continuing need for basic, economical shelter without concern for fashionable stylistic design or detailing. Like earlier vernacular buildings, they are often linear in form. Types of vernacular buildings that have developed since the 1940s include the quonset hut, the A-frame, the geodome, the mobile home, and other prefabricated buildings (McAlester and McAlester 2003:497).

The concrete block commercial buildings, the barrel-vaulted Skateland, several of the resort communities' clubhouses, St. Anne's grotto and the panelized and other pre-fabricated houses,

can be considered examples of Contemporary Folk or vernacular architecture (McAlester and McAlester 2003:497).

Indian Trail's community clubhouse located on the waterfront at 3518 Nippising Street, in Frenchtown Township, Monroe is an interesting example of vernacular architecture (Appendices E and F). Constructed in the 1930s or 1940s, the exterior walls of the entire building are clad with concrete "logs." Each "log" is slightly rounded, embossed with a wood grain, and painted brown. A large stone chimney adds to the rustic appearance of this gabled-roof clubhouse.

Greek Revival (ca. 1840-1880)

Characteristic elements associated with the Greek Revival form include large scale ornamentation in comparison to the entire house; columns or pilasters, often Doric or Ionic Orders, 9/6 or 6/6 windows, cornice returns, and heavy entablatures (Gordon 1992:79). As the Greek Revival style filtered down from high style, to popular architecture and into vernacular use, the ornamentation took on a less prominent position. Instead the form became the diagnostic element. Ornamental features of the vernacular Greek Revival buildings are present, however, they are much less exuberant than the high style and popular architecture examples.

Two examples of Greek Revival architecture are buildings located in the project area at 3738 Brest Road in Frenchtown Township and another on North Dixie Highway (near 4971) in Newport (Oldport) (Appendices E and F). The former building is a one and one-half-story, front-gabled house with a stone foundation. The latter building is also front-gabled with a one-story entry porch and exhibits a stone foundation and clapboard siding. A wide frieze and cornice returns, and a trabeated entrance complete with sidelights and a transom light are Greek Revival elements that are intact.

Victorian Gothic (ca. 1870-1885)

Although Victorian Gothic buildings employ many of the standard elements of Gothic Revival, they are more eclectic in appearance and often display contrasting textures and variegation through the use of stone and patterned brickwork. Windows, doors, and gables are generally larger in scale and details, such as moldings, tracery, and carved ornament tended to be heavier and more exaggerated than earlier Gothic Revival forms. Architects used High Victorian Gothic style mainly for churches and public buildings such as schools and libraries (Gordon 1992:88).

St. Charles (Borromeo) Catholic Church, located at 8109 Swan Creek Road, Newport in Berlin Township, is an excellent example of the High Victorian Gothic style (Appendices E and F). Constructed 1882-1886, the well-maintained poly-chromed brick building features walls of red brick with details in yellow brick (Hebert 1932:22-3). Prominent elements of the building include stained glass windows, which appear to be original, statuary, and a dominant steeple.

Queen Anne (ca. 1880-1905)

Popular from 1880 through 1910, the Queen Anne style included such features as asymmetrical massing, irregular floor plans, variety of exterior finishes, bay and oriel windows, and wrap around porches (McAlester and McAlester 1984:263; Gordon 1992:91). Inspired by the British buildings for the Centennial Exposition of 1876 in Philadelphia, the Queen Anne style was featured in designs and plans of carpenter-builder manuals such as *Palliser's Model Homes* (1878) and *Comstock's Modern Architectural Designs and Details* (1881) (Gordon 1992:91).

Queen Anne style homes located in the area range from the high-style ornate to those with modest embellishments. Located on Lake Erie, in the Woodland Beach community at 3390 Lawndale in Frenchtown Township, Monroe is an example of a modest Queen Anne style house (Appendices E and F). Although essentially rectilinear in form, the house features projecting bay windows and recessed doors resulting in an irregular footprint. The one and one-half story

gable-front residence boasts a string of four second-story windows with a glazing configuration of multi-lights over a single light. Based on its architectural style, the house was constructed ca. 1910.

Neo-Classical Revival (ca. 1895-1950)

The most recognizable of commercial architectural styles, the Neoclassical Revival, resulted from the incredible popularity of the 1893 World's Colombian Exposition in Chicago and the 1901 Pan-American Exhibition in San Francisco (Gordon 1992:99). The style, similar to the Beaux-arts style, relies heavily on the post and lintel elements of Grecian architecture, rather than the arch or barrel vaulting. Typically found on public buildings, examples of the form usually feature stone construction and a full portico with either Ionic or Corinthian columns. Symmetrically constructed, these buildings utilized pilasters and pedimented doorways to create a form reminiscent of ancient Greece (Gordon 1992:99).

The Estral Beach Hotel, located at 7497 Lakeshore Drive in Berlin Township is an example of a modest Neo-Classical Revival style building (Appendix F). Completed in 1922 by August Heide and Pete Sovey, the wood-constructed building boasts a full-height entry porch (*Monroe Guardian* 1981). A center pediment window and second-story windows have retained multi-paned lights.

Colonial Revival (ca. 1895-present)

The name Colonial actually encompasses several styles, all of which are loosely associated with the revival of American and Old World building traditions; however, traditional proportions were often ignored and contemporary elements are often integrated in the design; the style's features are free interpretations of Colonial elements, often with an emphasis on doorways (Gordon 1992:100; Blumenson 1981:25). Common features include gable roofs with dormers, columns of fluted pilasters, balustrades on roofs or porches, Palladian and bay windows, and fanlights (Gordon 1992:100). Windows with double-hung sashes, usually with multi-pane

glazing in one or both sashes, and oftentimes in adjacent pairs, and symmetrical façade are also elements of this style (McAlester and McAlester 2003:321). Professional Journals published measured drawings and photographs of this style while national magazines popularized it, as did Hollywood films such as *Gone With the Wind*. Many of the public building constructed by the Public Works Administration (PWA), a New Deal program, were Colonial Revival in style. This also had a profound impact on the style's acceptance (Gordon 1992:100).

The residence at 3421 Chippewa is one of several Colonial Revival houses in the project area (Appendix F). Situated near the center of Indian Trails in Frenchtown Township, the house features a gable roof with dormers and 6/6 double hung sash windows. A balustraded front porch entrance and sidelights on both the façade entrances are also Colonial Revival elements that remain intact.

Tudor/English Revival (ca. 1910-1940)

Although technically not a revival of an American architectural style, the Tudor Revival is based on the revived interest in the sixteenth-century English vernacular architecture associated with the reign of the Tudor family and other late Medieval English prototypes (Gordon 1992:109; McAlester and McAlester 1984:358). Promoted in England by Richard Norman Shaw beginning in the 1880s, the earliest examples of the style in the United States were architect designed buildings, often closely copying British prototypes. In the early years of the twentieth century, a more modest Tudor style made its way onto the landscape, often featuring clapboard or stucco clad walls, but avoiding expensive brick sheathing until after World War I (McAlester and McAlester 1984:358). The popularity of the Tudor Revival style exploded in the 1920s and 1930s, having made its way into house plan books and ready-made catalogs (Gordon 1992:109). The popularity of the style faded by the end of the 1930s.

Typically, the Tudor Revival home featured an asymmetrical plan, a steeply pitched roof, prominent chimneys, and casement windows placed in groups. The roof often featured front facing gables, frequently overlapping each other to create additional visual interest (Gordon

1992:109). Chimneys tended to be large, and on higher style examples were often highly ornamented with patterned brickwork, stone and the use of multiple shafts (McAlester and McAlester 1984:357). Wall cladding materials included stucco, brick, stone, or the use of half-timbering, using either stucco or brick as infill between the timbers. Tudor Revival house roof cladding on higher styles often utilized slate, or featured false-thatching with rolled eaves (Gordon 1992:109).

The house located in the Detroit Beach community at 2983 Third Street house in Frenchtown Township is a one-story example of the style, often considered a sub-category of Cotswold Cottage or Storybook Tudor (Appendices E and F). Like the larger examples, the house features a steeply sloped side gable roof and a series of gable front projections on the façade which incorporate a front entry. Additional Tudor Revival elements include the large chimney, exaggerated rustic appearance of the exterior walls due to the combination of brick and stone, stucco upper walls with half-timbering, and the use of casement windows.

Prairie (ca. 1905-1930)

The Prairie architectural style, attributed to Frank Lloyd Wright, was designed to complement the gentle, rolling terrain around Chicago and southern Wisconsin (Gordon 1992:107). Strongly influenced by Japanese and Native American architecture, the style sought honest forms which blended with the surrounding landscape (Gordon 1992:107). The house type was popular during the 1905 through 1930 period.

Common features associated with Prairie style homes are horizontal, asymmetrical massing, low-pitched or flat roofs, extended eaves, banded casement windows, and stucco or Roman brick wall surfaces set against dark wood trim (Gordon 1992:107). These simple forms were adopted into a wide variety of houses which were popularized in magazines and plan books and constructed by local builders.

Although the houses located at 3535, 3555, 3575, and 3595 Pearl Street in the Aime Philippart subdivision are somewhat eclectic in style, Prairie and Colonial Revival influences are evident. Prairie style elements of the residences include low-pitched roofs, broad, overhanging eaves, exterior stucco walls and window strings (Appendices E and F). The more apparent differences are in the Colonial Revival detailing.

Bungalow (ca. 1905-1930)

Beginning with the advent of the Craftsman Movement led by Gustave Stickley in the United States, the bungalow house was felt to express convenience, thrift, and practicality (Duchscherer and Keister 1995:15). The bungalow was one of the most popular house styles constructed in the early years of the twentieth century. Typical Bungalows range from one, one and one-half, or two stories and feature long, sweeping side-gable roofs with overhanging eaves (Gordon 1992:138). There is often a centered shed or gable dormer on the front roof slope. The unbraced porches are the full width of the house and are often supported by massive tapered piers. Wall surfaces tend to include a variety of textures and colors (McAlester and McAlester 1984:453).

In the areas of the resort communities and along sections of North Dixie Highway there appears to be a concentration of this type of house. There are also a number of front-gabled Bungalows in the area, specifically on Easy Street off North Dixie Highway. The house located at 3372 Elmwood in the Woodland Beach community and Frenchtown Township is an example of a Dormer Front Bungalow (Appendix F). The long gable roof with its overhanging eaves, tapered porch piers, a gabled dormer, and cladding executed with a variety of materials and colors are all common elements of the style.

Minimal Traditional (ca. 1935-1950)

Constructed in the years following the Depression, Minimal Traditional homes combine the traditional eclectic house form with a limited amount of decorative detailing (McAlester and McAlester 1984:478). The steeply pitched roof of the Tudor Revival period was replaced by low

to intermediate pitched side or cross gable forms. There is also a conservation of materials with eaves and rake constructed close, distinguishing the style from the later Ranch house with its broad overhanging roof. The Minimal Traditional house often boasts a large chimney and usually one front-facing gable. Built in large quantities in the years preceding and following World War II, Minimal Traditional houses dominate tract housing developments of the era (McAlester and McAlester 1984:478).

The residence located in the Erie Shores subdivision at 3595 Erie Shore Drive, in Frenchtown Township, is an example of a Minimal Traditional building (Appendix F). The intermediate pitched roof and dominant chimney of the house are common features of this style. As it is with the majority of Minimal Traditional houses, it is one story (McAlester and McAlester 2003:478).

Mediterranean (ca. 1915-1940)

The term Mediterranean was “applied to styles having their origin in southwestern Europe—Spain, Italy, southern France, with an occasional example of Egyptian or Moorish extraction” (Gordon 1992:111). The style, which is sometimes referred to as Spanish Eclectic, was popularized by the 1915 Pan-American Exhibition in San Diego. The style was particularly popular in California, the Southwest, and Florida during the 1920s and early 1930s (Gordon 1992:111; McAlester and McAlester 2003:418).

An example of this style is located at 3606 Lakeshore Drive, Newport, in the Stony Point Peninsula neighborhood; the house overlooks Lake Erie (Appendices E and F). The exterior walls of the two-story house are sheathed with stucco and each of the sloped roof forms is topped with clay tiles. Typical of the style, the house includes hanging balconies, casement windows, and on the front elevation, ornate brickwork framing each of the three French doors on the sun porch (Gordon 1992:111).

Art Deco (ca. 1927-1940)

The *Exposition des Arts Decoratifs*, a 1925 exhibition held in Paris and the streamlining design influences of the Depression era gave rise to Art Deco's international popularity. The style is characterized by rectilinear massing, stylized ornamentation, and polychromatic details. Terra cotta, brick, stucco, or smooth limestone which was relieved by fluting zigzags, chevrons, or fret work were common surface treatments (Gordon 1992:112; McAlester and McAlester 2003:465).

The building located at the northeast corner of Point aux Peaux and Sterling roads in Frenchtown Township, Newport, exhibits Art Deco characteristics in its smaller, early constructed unit (Appendix F). The string of glass block windows and the multi-paned double doors suggest a geometric style as does the limestone decorative door surround. The yellow brick building's basement level and roof line is also accented by limestone as well as a string course between the first and second stories.

Art Moderne (ca. 1935-1950)

The Art Moderne style is also known as streamlined architecture. Influenced by industrial aerodynamic designs, the style placed emphasis on streamlined forms. Common materials used to achieve the style's desired smooth surface included ceramic tile blocks, smooth limestone, stucco, and porcelain enameled steel (Gordon 1992:114; McAlester and McAlester 2003:465). Rooflines are often flat and frequently incorporated coping. Buildings in this style have a horizontal emphasis and are usually asymmetrical. (McAlester and McAlester 2003:465). Residences in this style are rare (Gordon 1992:114).

The residence located on Lakeshore Drive in Estral Beach, Berlin Township displays features of a modest Art Modern house (Appendix F). The flat roof house's large horizontal window configuration emphasizes the horizontal aspect of the style. The coping and the curved corners of the building are also Art Moderne elements (Gordon 1992:114).

5.4 NATIONAL REGISTER OF HISTORIC PLACES CRITERIA OF EVALUATION

The above-ground resources within the Fermi 3 Project area were evaluated to determine their eligibility for listing in the NRHP. Properties typically must be at least 50 years old and maintain a moderate to high level of integrity. According to the NRHP, integrity is the ability of a property to convey its significance as evaluated for seven attributes: location, design, setting, materials, workmanship, feeling and association. If a property exhibits sufficient integrity and meets the minimum age requirement, it must also meet one or more of the following criteria for evaluation:

- a) associated with events that have made a contribution to the broad patterns of history,
- b) associated with the lives of persons significant in our past,
- c) embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant or distinguishable entity whose components may lack individual distinction, and
- d) have yielded, or may be likely to yield, information important in prehistory or history.

As part of the evaluation process, above-ground resources were also evaluated under seven exceptions (Criteria Considerations) as specified in 36 CFR 60.4. Ordinarily, cemeteries, birthplaces, or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years are not eligible for listing in the NRHP.

5.5 ABOVE-GROUND RESOURCES SURVEY RESULTS

CCRG's above-ground resources survey began in December 2007 with an initial visual assessment of the project area vicinity and continued through April 3, 2008. Field investigations and archival and literature research were accomplished during the week of March 26 through March 29, 2008. At that time, CCRG surveyors photographed and mapped a total of 83 properties (Appendix F). One four-building district and 19 individual properties appear to meet one or more National Register criteria for listing and are, therefore, recommended possibly eligible for listing in the NRHP.

5.5.1 Previously Recorded NRHP-Eligible or NRHP-Listed Above-Ground Resources in the Fermi 3 Project APE

One previously recorded above-ground resource, the house at 5046 Williams Road, Frenchtown Township, a two-story gable front residence, was determined eligible for listing in the NRHP in 1995 by the Michigan SHPO. This building is located within the Fermi 3 Project APE; however, it is not located within the DTE-owned Fermi property (Figure 5.1.1-1).

5.5.2 Above-Ground Resources in the Fermi 3 Project APE Recommended Eligible for Listing in the NRHP

Survey of the Fermi 3 Project APE resulted in the identification of 19 buildings and one four-building district that are recommended eligible for listing in the NRHP (Table 5.5.2-1; Figure 5.5.2-1)¹.

¹DTE is currently undertaking NRHP evaluation of the Enrico Fermi Atomic Power Plant, Unit 1 (Fermi 1), and the results of the investigations will be reported separately at a later date.

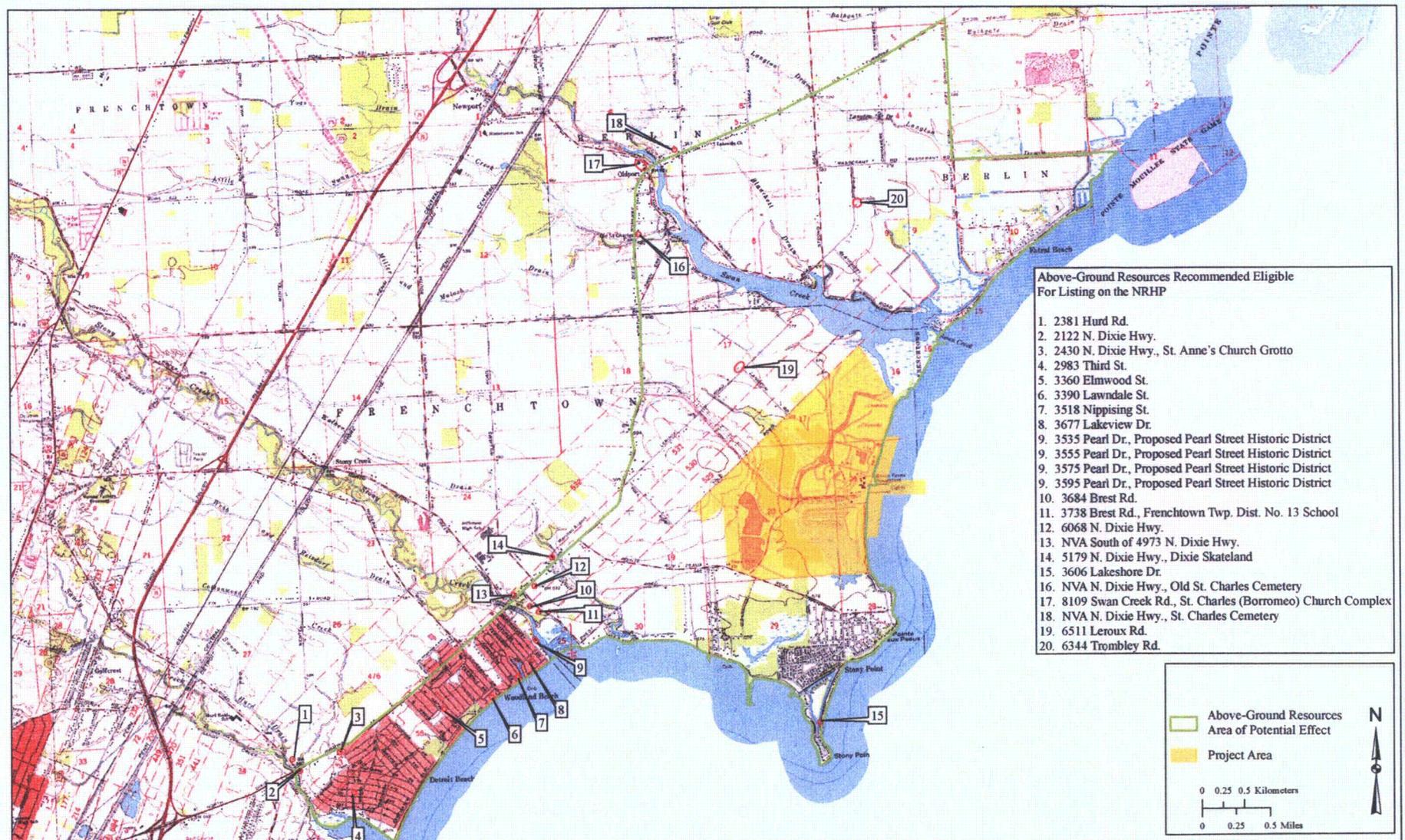


Figure 5.5.2-1. Fermi 3 Project Area Above-Ground Resources Area of Potential Effect and Recommended NRHP-Eligible Above-Ground Resources

Table 5.5.2-1 Above-Ground Resources in the Fermi 3 Project APE Recommended Eligible for Listing in the NRHP

Address	Township	Name	District	NRHP Criterion
2381 Hurd Rd	Frenchtown			C
2122 N. Dixie Hwy.	Frenchtown			A, C
2430 N. Dixie Hwy.	Frenchtown	St. Anne's Catholic Church Grotto		C, Exception A
2983 Third St.	Frenchtown			C
3360 Elmwood St.	Frenchtown			C
3390 Lawndale St.	Frenchtown			A
3518 Nippising St.	Frenchtown			A, C
3677 Lakeview Dr.	Frenchtown			C
3535 Pearl Dr.	Frenchtown		Pearl Drive Historic District	A, C
3555 Pearl Dr.	Frenchtown		Pearl Drive Historic District	A, C
3575 Pearl Dr.	Frenchtown		Pearl Drive Historic District	A, C
3595 Pearl Dr.	Frenchtown		Pearl Drive Historic District	A, C
3684 Brest Rd.	Frenchtown	Frenchtown Township District No. 13 School		A, C
3738 Brest Rd.	Frenchtown			A, B, C
6068 N. Dixie Hwy	Frenchtown			A
NVA ¹ South of 4973 N. Dixie Hwy.	Frenchtown			A
5179 N. Dixie Hwy.	Frenchtown	Dixie Skateland		A
3606 Lakeshore Dr.	Frenchtown			C
NVA N. Dixie Highway	Berlin	Old St. Charles Cemetery		A, Exception D
8109 Swan Creek Rd.	Berlin	St. Charles (Borromeo) Church and Complex		C, Exception A
NVA N. Dixie Highway	Berlin	St. Charles Cemetery		A, Exception D
6511 Leroux Rd.	Frenchtown			A, C
6344 Trombley Rd	Berlin			A, C

¹NVA=No Visible Address

2381 Hurd Road, Frenchtown Township (Appendix E, Photograph 1)

Published plat maps from 1876 indicate that the Frenchtown Township house at 2381 Hurd Road was associated with a 55-acre parcel of land under the ownership of Joseph Fix (Bartlett 1876: 63). Twenty years later, the property, including the house, was held by Joseph Fix, Sr. (Ogle 1896:37). The Fix family was prominent in Frenchtown and Berlin townships. Several male members of the Fix family are recorded with the given name Joseph. Based in part on 1896 plat

map information, it appears that the Joseph Fix who resided at the Hurd Road house was married to Sophia Lateur and was the father of eight children, including six sons and two daughters. Fix resided on the farm until his death in 1897 (*Monroe Democrat* 1897; Ogle 1896). Joseph immigrated to Monroe County, Michigan, with his parents from Sennheim, France, in 1815 (*Monroe Democrat* 1897). As a young man, Fix was the first man to cast a vote in the inaugural election held in Frenchtown Township, which led to a life of community service, including holding many of the offices in the township. Fix married in 1843, with his first son born that same year (*Monroe Democrat* 1897; *MEN* 1930). The date of Joseph and Sophia's marriage suggests the house may have been constructed ca. 1850.

The one and one-half story brick farmhouse is the only surviving historic resource on the farmstead. The exterior walls of the house are entirely constructed of red brick and the roof with standing-seam metal panels. A chimney stack is situated near each end of the roof ridge, although only the west elevation retains the exterior expression of the stack. Fenestration on the façade defines the building's three bays, including a center entry and flanking double-hung windows.

The house on Hurd Road is possibly eligible for inclusion in the NRHP under Criterion A based on its association with one of the earliest settlers in the region, Joseph Fix. Although slightly altered since its construction, the house is also a regional expression of the mid- to late nineteenth-century brick farmhouses constructed in the area. Based on its historic integrity and representation of a French-influenced farmhouse, the building is possibly eligible for the NRHP under Criterion C, which requires the property embody the characteristics of a type, period, or method of construction.

2122 North Dixie Highway, Frenchtown Township (Appendix E, Photograph 2)

The only surviving historic portion of this former farmstead, which is situated on the south side of North Dixie Highway just east of Sandy Creek, is the Gabled-Ell residence. A residence is located at the approximate site of the house as early as 1876 (Bartlett 1876:63), at which time the

property was owned by L. Durocher who held 80 acres extending from Sandy Creek. The published plat map indicates that there was a roadway crossing the Durocher property, and at least three additional residences were indicated near the northern edge of the property. By 1896, the parcel had been slightly reconfigured, with the triangular section containing multiple residences removed from the primary holdings (Ogle 1896:37). The ownership of the 80-acre parcel was then under Columbus, Henry, and Oliver Fix, three of the sons of Joseph Fix who resided at 2381 Hurd Road.

The original portion of the house is a one and one-half-story brick structure constructed on a coursed stone foundation. The house was greatly expanded in size by the construction of a one and one-half-story rear ell situated on the south elevation of the original house wing. The final major building component is a one-story enclosed porch on the south face of the rear wing. Fenestration on the house features a pair of doors on the front porch, one providing access to the façade of the side wing and the second accessing the south elevation of the gable front wing. Windows are predominately double hung and placed in openings topped by segmental arches. Additional resources on the property include a storage building and garage, each clad with modern metal sheathing.

The house is considered possibly eligible for inclusion in the NRHP under Criteria A and C. It was most likely constructed by early French settlers in the region and thus is associated with the settlement and town-building period in Frenchtown Township. Additionally, the house is an excellent example of a brick Gabled-Ell residence and therefore embodies the distinctive characteristics of a type, period, or method of construction

**2430 North Dixie Highway, Frenchtown Township; St. Anne Catholic Church Grotto
(Appendix E, Photograph 3)**

In 1957, while participating in the first Novena to St. Anne, three parishioners from the St. Anne Catholic Church congregation were inspired to construct a shrine to St. Anne, and they formally began the effort by making the initial donation to offset building costs (Saint Anne Parish

1997:6). With the donation of rocks from around the region by local parishioners and approximately 500 hours of labor by Alex A. Mata, the grotto was completed in 1958, in time to be blessed at the second Novena to St. Anne (*MEN* 1958:16). Approximately 10 years earlier, on August 10, 1947, the first Mass was celebrated at the church constructed to serve the summer residents who had been meeting in the Detroit Beach Clubhouse since 1944 (Saint Anne Parish 1997:2).

Below the 10-foot-tall rounded peak of the 40-foot-long grotto stands a statue of St. Anne and the Blessed Virgin imported from Italy specifically for the grotto (*MEN* 1958:16). Each of the individual rocks comprising the wall and a small bronze dedication plaque were mortared in place by Mata.

The grotto is considered eligible for inclusion in the NRHP based on Criterion C, which requires a property to embody the distinctive characteristics of a type, period, or method of construction. The Grotto is a religious property that gains its significance from architectural or artistic distinction; therefore, the determination of eligibility is in compliance with NRHP Criterion Exception A.

2983 Third Street, Frenchtown Township (Appendix E, Photograph 4)

The tiny Tudor Revival style residence is located in the Detroit Beach neighborhood. Constructed ca. 1930, the house stands one story and is capped with a steeply pitched side gable roof. Tudor Revival is one of the period styles prevalent during the first three decades of the twentieth century (Poppeliers, et al. 1981:39). Based on the houses of sixteenth-century English vernacular architecture, the style is generally associated with steeply pitched roofs, prominent chimneys, half-timbering, and a combination of brick and stone exterior walls (Gordon 1992: 109). The Third Street house is a one-story example of the style, often considered a sub-category of Cotswold Cottage or Storybook Tudor. Like the larger examples, the house features a steeply sloped side gable roof and a series of gable front projections on the façade, which incorporate a front entry. Additional Tudor Revival elements include a large chimney, a combination of brick

and stone exterior walls resulting in an exaggerated rustic appearance, stucco upper walls with half-timbering, and the use of casement windows.

As a well-maintained example of the Cotswold Cottage or Storybook Tudor style house, the building at 2983 Third Street is considered possibly eligible for listing in the NRHP under Criterion C. Criterion C requires the building to embody the distinctive characteristics of a type, period, or method of construction.

3360 Elmwood Street, Frenchtown Township (Appendix E, Photograph 5)

Located on the west side of Elmwood Street in the Woodland Beach neighborhood, this house is situated approximately one block from the shores of Lake Erie. It was constructed in the Mediterranean style, although it is not stuccoed, as most examples of the Mediterranean style are. The one and one-half-story building features a low-pitched hipped roof and a side porch (in this case extending from the second story) with a porte cochere below (Gordon 1992:111). In contrast to most of the brick houses in the region, this house is constructed of yellow brick, perhaps as an attempt to gain a stucco-like color. Windows are placed in strings of three to provide the maximum amount of light into the interior.

The well-maintained residence was constructed ca. 1940, near the end of the popularity of the Mediterranean style (Gordon 1992:111). Although little is known about the history of the building, it is possibly eligible for inclusion in the NRHP under on Criterion C, which requires the building to embody the distinctive characteristics of a type, period, or method of construction.

3390 Lawndale Street, Frenchtown Township (Appendix E, Photographs 6 and 7)

Located on the south side of Lawndale, the house is placed well away from the roadway and overlooks Lake Erie. While the house is a modest building, it has features associated with the Queen Anne style, including a projecting bay window on the north elevation and a variety of

wall cladding materials (Gordon 1992:91). Most of the house has been sheathed with coursed imitation wood siding, although the lower portion of the front elevation is clad with wood shingles. The majority of the windows on the house are singly placed double-hung windows with one-over-one sashes.

Little is known about the history of this house; however, based on its architectural style it was constructed ca. 1910 and is perhaps one of the earliest surviving buildings of the early beach resort community development. As such, the property is possibly eligible for inclusion in the NRHP based on Criterion A. Criterion A requires a property be associated with the events that have made a significant contribution to the broad patterns of our history.

3518 Nippising Street, Frenchtown Township (Appendix E, Photograph 8)

Located on the waterfront in the Indian Trails subdivision, the clubhouse appears to have been constructed in the 1930s or 1940s, with only modest changes to the building occurring over the years. Most of the neighborhoods within the beach resort communities have private clubhouses for their residents and members. Some of these gathering spots are quite small, not much larger than a house in many cases. In other instances, the clubhouse is large and rambling. The building at 3518 Nippising Road is just such a clubhouse.

The main portion of the clubhouse is a two-story side-gabled building, with a one-story wing. The exterior walls of the entire building are clad with concrete "logs." Each "log" is slightly rounded, embossed with a wood grain, and painted brown. At each of the exterior corners of the main structure there are large vertical logs forming corner boards. Similarly, vertical logs with a branch extending at an angle flank the doors and form the supporting braces for a small shed roof above the entry. To further the rustic appearance of the building, a large stone chimney stack extends up the center of the south elevation of the main building, and a tapered concrete chimney stack boasting metal straps rises above the shed roof portion of the building.

The clubhouse in the Indian Trails neighborhood is possibly eligible for inclusion in the NRHP based on both Criteria A and C. Criterion A requires the eligible resource to be associated with the events that have made a significant contribution to the broad patterns of our history. In the case of the Clubhouse, it represents both the development of the beach resort communities and the social environment that resulted from the gathering of individuals as a close-knit community. Criterion C requires that properties embody the distinctive characteristics of a type, period, or method of construction. The well-maintained building retains a high degree of its historic integrity, particularly evident in the unique building materials and design.

3677 Lakeview Drive, Frenchtown Township (Appendix E, Photograph 9)

Although little is known about this house, it appears to be one of the portable homes promoted by firms such as Mershon & Morley of Saginaw, Michigan (Schweitzer and Davis 1990:72). Merson & Morely (M&M) specialized in panelized construction, which was ordered and delivered like the pre-cut homes of other catalog companies. Panelized structures arrived at the construction site as a series of pre-constructed sections and could be assembled by a couple of “common laborers” instead of carpenters, with the entire job completed in a matter of hours (Schweitzer and Davis 1990:72-73, 106-108). An M&M catalog published in 1909 offered 13 houses, six garages, two play houses, two “hunters’ cabins,” four store buildings, and a “portable pen air cottage for tuberculosis patients.” A similar firm specializing in panelized construction, the Hodgson Company, marketed buildings in 1937 that offered a 10 ft by 10 ft (3 m by 3 m) Camp House that could “easily be erected in one hour” (Schweitzer and Davis 1990:108).

The exterior walls of this tiny house are clad with stucco panels, and defined by false half-timbering. Fenestration includes a center front door and flanking double-hung windows. Most of the windows in the house are placed singly, although a pair of windows fills the bay south of the door. A low wall of vertical wood boards defines a small porch area extending from the driveway to just beyond the front door.

The building at 3677 Lakeview Drive is possibly eligible for inclusion in the NRHP under Criterion C, which requires the building embody distinctive characteristics of a type, period, or method of construction. Although hundreds of panelized buildings were sold across the country, this house retains a high level of historic integrity, particularly with regard to construction materials, workmanship, and setting.

Pearl Drive Historic District

Pearl Drive is located in the Aimee Phillipart Brest Subdivision, which was platted for development by Aime Phillipart in 1923 (State of Michigan n.d.). Phillipart was a contractor and cabinet worker by trade, and may be responsible for the construction of the four contributing residences (*MEN* 1959). Five houses located on the east side of Pearl Drive bear a striking resemblance to each other; four retain a high level of historic integrity and are considered possibly eligible for inclusion in the NRHP as the Pearl Drive Historic District. Each is situated on the east side of Pearl Street and backs onto Stony Creek. The houses are two stories or two and one-half stories in height, rectilinear in form, and topped with a low-pitched hipped roof. All four share a similar fenestration pattern, giving a uniformity of appearance.

The Pearl Drive Historic District is eligible for inclusion in the NRHP based on Criteria A and C. Eligibility based on Criterion A requires the property be associated with the events that have made a significant contribution to the broad patterns of our history. In the case of the Pearl Drive Historic District, the houses were constructed during the period when the beachfront communities were expanding in the region as part of the extensive town building efforts in Frenchtown Township during the first half of the twentieth century. Criterion C requires the eligible properties to embody the distinctive characteristics of a type, period, or method of construction.

3535 Pearl Drive, Frenchtown Township (Appendix E, Photograph 10)

The exterior walls of this two and one-half-story house feature a smooth stucco finish, with the exception of the natural brick chimney stack on the south elevation. Asphalt shingles clad the hipped roof of the house and the half-hipped roofs over the center front entry and a porte cochere on the south elevation. Like its neighbors, the house features a center front entry and paired double-hung windows at both the first and second floor levels on either side of the three-bay façade. A single double-hung window is situated above the door, possibly indicating the location of a stair landing. In addition to the residence, the property includes a more recently erected garage near the north corner of the façade.

3555 Pearl Drive, Frenchtown Township (Appendix E, Photograph 11)

The exterior walls of this two and one-half-story house have a smooth stucco finish. Both the hipped roof of the main building and the half-hipped roof of the open entry porch are sheathed with asphalt shingles. Like its neighbors, the house features a center front entry, and paired double-hung windows at both the first and second floor levels on either side of the three-bay façade. A single double-hung window is situated at the second story above the door.

3575 Pearl Drive, Frenchtown Township (Appendix E, Photograph 12)

Exterior walls of this two-story house feature a smooth stucco finish; the shallow-pitch hipped roof is clad with asphalt shingles. An eyebrow dormer directly over the center front door adds visual interest to the front roof slope. The door is situated on an open front porch which is topped by a rounded flat roof that is in turn supported by a pair of Doric columns. The door surround features glazed sidelights and an elliptical transom window. Like its neighbors, the front façade features three fenestration bays, with the side bays each comprised of strings of three double-hung windows. A single double-hung window with a segmental arched upper sash is situated above the door. A one-story flat-roof garage has been added to the north elevation of the house.

3595 Pearl Drive, Frenchtown Township (Appendix E, Photograph 13)

The two-story house is topped by a shallow-pitched hipped roof with broad overhanging eaves. Extending from the main portion of the house is a one-story open porch on the façade, an enclosed sun porch on the south elevation, and a one-story garage on the north elevation. A parapet wall with crenellations hides the flat roof atop the garage. Like the other three homes in the proposed historic district, the house at 3595 Pearl Drive was constructed with smooth-finish stucco, and each of the sloped roof elements is clad with asphalt shingles. The fenestration is marked by a center front entry and double-hung windows at both the first and second floor levels on either side of the three bay façade.

3684 Brest Road, Frenchtown Township; Frenchtown Township District No. 13 School (Appendix E, Photograph 14)

Constructed in 1926-1927, and open to students in 1927, the schoolhouse is the third building to serve children in the area (Hartline, et al. 2002). The building was constructed using one of the standardized designs for school buildings published by the Michigan Superintendent of Public Instruction annual reports. These standardized plans were available as early as 1835 and continued to be developed and distributed into the twentieth century (SHPO 2003:20).

The single-story brick school house rests on a slightly raised basement, and is topped by a hipped roof, surmounted by a hipped-roof cupola. A gable roof is situated above the protruding front entry pavilion. Strings of three long narrow double-hung windows are situated on either side of the center front door. Additional banks of windows fill most of the north and south elevations, although these have been subsequently clad with vertical wood siding. A one-story vinyl sided addition has been added to the rear of the building.

The former Frenchtown Township District No. 13 Schoolhouse is eligible for inclusion in the NRHP under Criteria A and C. Under Criterion A, the schoolhouse is a well-maintained example of the final generation of schoolhouses before district consolidation occurred in Monroe County

in the late 1940s. Architecturally, the building is clearly identifiable as an example of the Standardized School Plan, particularly of Lansing architect Earl H. Mead, whose designs featured prominent hip roofs and towers with a projecting front entrance vestibule and were prevalent from 1890 to 1910 (SHPO 2003:3).

3738 Brest Road, Frenchtown Township (Appendix E, Photograph 15)

Located on the east side of Brest Road, the house is reputed to have been the “old Dewey Home” (Monroe County Historical Commission 1976:15), the residence of the Dewey family, owners of a nineteenth-century commercial fishing enterprise. During the last decades of the century, J. N. Dewey & Co. purchased the Pointe Mouillé (Bulkley 1913:390). At the time of the purchase, the Deweys were the oldest established fishermen connected with the business on the western end of Lake Erie, having been continuously engaged in it since 1860, when Joseph B. and Jessen N. Dewey were in the employ of John P. Clarke at Stony Point (Bulkley 1913:390).

Currently, the house and a low stone wall with two sets of gate piers are the only extant cultural resources on the property. In spite of the application of vinyl siding and a replacement front entry, many of the original Greek Revival style elements survive intact. Among these features are the wide frieze band and cornice, the cornice returns, the trabeated entrance complete with sidelights and a transom light.

As a surviving building from the settlement and town building period of development in the area, the house and associated wall/gate are eligible for listing in the NRHP based on Criterion A. In addition, the building and associated stone wall/gate, are well-preserved examples of a distinctive architectural type, period, and method of construction, as is required under Criterion C. Further research on the property may also determine which member of the Dewey family is associated with the house and therefore eligibility may also be possible under Criterion B, and its association with the lives of persons significant in our past.

6068 North Dixie Highway, Frenchtown Township (Appendix E, Photographs 16 and 17)

This property currently consists of an altered Side-Gabled residence and a large number of associated farm buildings. Among the extant outbuildings is a large gambrel roofed three-bay threshing barn with a connected silo house and glazed tile silo. The metal-clad barn roof was originally pierced by a pair of cross-gable roof ventilators, although only one is extant. The conical hipped metal clad roof of the silo is pierced by a gable roofed dormer on the north side of the structure. Completing the barn complex is an attached gable-roofed structure oriented perpendicular to the main barn and roadway. Completing the farmstead complex are several smaller structures, including a second small barn and a shed.

The 1896 maps (Ogle 1896) indicate a residence at the site, although the name is not clearly written. It appears that the property was held by a Louis Mority, although a search of the 1900 Frenchtown Township census did not reveal anyone with a name with similar spelling. Little else has been found about the early history of this property.

Although constructed well after the original settlement period of Frenchtown Township, the farm represents the continuing agricultural practices of the area, particularly the move into dairy farming. Because of the highly intact nature of the complex and the presence of a number of well-maintained outbuildings associated with the former agrarian practices of the property holders, the complex is considered possibly eligible for inclusion in the NRHP under Criterion A and its association with the broad patterns of history in the community.

**(No Visible Address) South of 4973 North Dixie Highway, Frenchtown Township
(Appendix E, Photograph 18)**

This building is located on the north side of North Dixie Highway between Williams and Stony Creek roads. Records indicate that the two-story structure at this location was the "oldest building in Brest," having served from 1851 to 1872 as the Redemptorist Mission (Monroe County Historic Building Survey 1973). Buildings at the approximate location are indicated on

published plat maps as early as 1876 (Bartlett 1876:63); however, the small lot size did not allow the map makers to label the plot with any information, including the owner's name. By 1896, the property lies within the former community of Brest (Ogle 1896:37).

The former Redemptorist Mission house is a simple rectilinear plan building. The entire house originally rested on a stone foundation that has subsequently been parged. The exterior walls of both the main house and rear addition are clad with clapboard siding. The very modestly styled residence includes simply the wide raking cornice board and frieze associated with the Greek Revival Style (Gordon 1992:79).

Reputed to be one of the earliest houses in the community of Brest, the building is possibly eligible for inclusion in the NRHP under Criterion A. As one of the early buildings within an extinct village, and as one associated with the early religious activities of the area, the building clearly has made a significant contribution to the broad patterns of our history;

5179 North Dixie Highway, Frenchtown Township; Dixie Skateland (Appendix E, Photograph 19)

Situated on the north side of Dixie Highway, the large rectilinear structure was constructed in 1958 to house a roller skating rink (RinkTime 2008), and it remains a popular gathering place for the community.

Roller skating enjoys a long history, having been introduced along with the roller skate, in 1760 by Belgian inventor Joseph Merlin (Roller Skating Association International 2003a). By the end of the nineteenth century, both men and women made roller skating a popular pastime. Roller polo (a roller skate version of hockey), dance and figure skating contests, and speed racing each developed devotees, and the industry prospered (Roller Skating Association International 2003b). Through the efforts of the Roller Skating Association International, roller skating gained steadily in popularity through the 1940s, 1950s, and 1960s.

The indoor roller rink has very specific needs. Most of the buildings constructed for this purpose are single-story structures that feature barrel vaults or other rooflines that provide large open space inside the building. Following this standard, the Dixie Skateland exhibits a large rectilinear footprint topped by a shallow-pitched barrel vaulted roof. A one-story structure extends across the width of the building façade and houses the building entries. The exterior walls of the entire skating rink are clad with yellow brick, and a similar color paint adorns the end walls of the roof structure.

The Dixieland Skateland rink is a modest building architecturally; however, it has played an important role in the recreational activities of the residents of the area for a number of decades. Skating rinks were developed to provide healthy activity for the entire family—something that would have been even more popular in the nearby beach resort communities; therefore, the Dixieland Skating Rink is possibly eligible for inclusion in the NRHP under Criterion A, and its role in the development and continued recreational activity of the region.

3606 Lakeshore Drive, Frenchtown Township (Appendix E, Photographs 20 and 21)

Located on the east side of Lakeshore Drive in the Stony Point Peninsula neighborhood, this house overlooks Lake Erie. The two-story structure has an irregular footprint, the exterior walls of the house are sheathed with stucco, and each of the sloped roof forms is topped with clay tiles. Typical of the Mediterranean style (Gordon 1992:111), the house includes hanging balconies, casement windows, and on the front elevation, ornate brickwork framing each of the three French doors on the sun porch.

The well-maintained residence was constructed ca. 1940, near the end of the popularity of the Mediterranean style (Gordon 1992:111). Although little is known about the history of the building, it is possibly eligible for inclusion in the NRHP based on Criterion C, which requires the building to embody the distinctive characteristics of a type, period, or method of construction.

**(No Visible Address) North Dixie Highway, Berlin Township; Old St. Charles Cemetery
(Appendix E, Photograph 22)**

The Old St. Charles Cemetery, also known as the White Cemetery or LaDuc Cemetery, was the third burial grounds associated with the St. Charles (Borromeo) Catholic Church in Newport (now Oldport) (Monroe County Historical Commission 2003:15, 17). The land was donated by Louis LaDuc for the establishment of cemetery next to the site of the new St. Charles Catholic Church in 1853. It appears that this cemetery stopped receiving burials when the church once again relocated to its present site at the corner of North Dixie Highway and Swan Creek Road.

The cemetery is located on the south side of North Dixie Highway marked with contemporary wood sign painted with the cemetery name and “Est. 1851,” and enclosed with a modern chain-link fence. A large evergreen tree dominates the natural landscape; little other formal landscaping is present on the property. Interments, marked with surviving gravestones, are scattered across the approximate one acre of land. Tablet-shaped and obelisk grave markers all appear to be made of stone, including marble and granite. Several of the markers feature a triangular or pedimented top. Many markers feature standard Victorian-era iconography, such as a botonée cross, images of hands pointing upward, anchors, and a stylized weeping willow. Names of early settlers in the region are present, including Masserant and Jarva.

Although not the first cemetery in the area, it is associated with the early settlement and town-building that occurred in the region in the mid-nineteenth century. The cemetery is considered possibly eligible for inclusion in the NRHP under Criterion A based on its association with the early, predominately French, settlers of the region, as well as its role in the growth of the community. As a cemetery, it is also required that the property meet Criteria Exception D, which states that a cemetery may be eligible if it “...derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events.” Because the cemetery is associated with the settlement and growth of the area, it complies with the Criterion Exception.

8109 Swan Creek Road, Berlin Township; St. Charles (Borromeo) Catholic Church and Complex (Appendix E, Photographs 23 and 24)

In the heart of the community is St. Charles (Borromeo) Catholic Church, which is located at the southwest corner of Swan Creek Road and North Dixie Highway. The polychromed brick, Gothic Revival church dominates the built environment. Exhibiting elaborate stained glass, a central jamb figure of St. Charles Borromeo, and a spiral, the church is visible throughout the town. The church's complex is home to several historic and modern structures, including school buildings. A cornerstone dates the building to 1882.

The present St. Charles (Borromeo) Catholic Church is the fourth edifice constructed to serve the local community. Like many rural areas, the first services were celebrated in the homes of local residents, with the home of Peter Branceau, Sr., serving as the first site for Mass to be celebrated in the community. The first log church was erected in March 1847 (Lowrie and Clarke 1832:17). No formal deed passing the land from the original owner to the church had been made, and therefore, when the previous owner died, the church was lost. A frame church was constructed on a different to replace the first church in 1853, and in 1880 the congregation hired an architect from St. Louis to design the present church (Hebert 1932:22). The resulting church was one of the largest churches in the county.

The cornerstone was laid for the church on April 15, 1882, but due to a variety of delays, the church was not completed until 1886, as was the rectory (Hebert 1932:22-23). The complex at St. Charles (Borromeo) Catholic Church continued to grow in the early years of the twentieth century. A contract for the St. Charles (Borromeo) School at Newport was awarded to A. A. Schmidt in March 1913 (*Monroe Democrat* 1913:7), and in the 1930s, the building program continued with the construction of a convent, auditorium, and garages.

The St. Charles (Borromeo) Catholic Church is eligible for inclusion in the NRHP under Criterion C, for its embodiment of the distinctive characteristics of a type, period, or method of construction. The well-maintained polychromed brick building features walls of red brick with

details in yellow brick. Stained glass windows and statuary all appear to be original to the time of construction between 1882 and 1886. The property also meets Criterion Exception A as a religious property deriving primary significance from architectural or artistic distinction or historical importance.

**(No Visible Address) North Dixie Highway, Berlin Township; St. Charles Cemetery
(Appendix E, Photographs 25 and 26)**

Established in 1882, these burial grounds are the fourth associated with the St. Charles (Borromeo) Catholic Church complex, and it continues to serve the church today (Monroe County Historical Commission 2003:16). The monuments in this cemetery contain a number of familiar surnames, among them being Masserant, Fix, and LaDuc.

Located at the junction of North Dixie Highway and Armstrong Road, the current St. Charles Cemetery is marked by a wrought iron fence and stone piers. Rising above a pair of the stone piers is an arched metal sign reading "St. Charles Cemetery," which is, in turn, surmounted by ornate scroll work and a metal cross. Several unpaved roads allow vehicular access through the grounds. The main entry road leads toward a large landscaped circle that serves as the resting place of several markers for local clergy members. A second road leads north from the main circle to a smaller landscaped circle featuring a statue of Jesus and bearing the inscription "The Lord is My Shepard." In addition to the landscaped circles, the cemetery features a number of large trees (both deciduous and evergreen) and shrubs. Grave markers are made from a variety of stone, including marble and granite in several different colors. A wide variety of markers are present, including modest tablets and ornate obelisks, and funerary symbols include iconography commonly found in cemeteries, such as a carved lamb atop one head stone, crosses, and angles.

Based on the distinctive landscaping and design features of the cemetery, it is considered possibly eligible for inclusion in the NRHP under Criterion A, as a representation of late nineteenth-century cemetery design. As a cemetery, it is also required that the property meet Criteria Exception D, which states that a cemetery may be eligible if it "...derives its primary

significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events.” Because the cemetery is significant for its design features and landscaping, it complies with the Criterion Exception.

6511 Leroux Road, Frenchtown Township (Appendix E, Photographs 27 and 28)

The farmstead complex is located near the junction of Leroux and Langton roads. The property includes a one and one-half story brick Gabled-Ell residence, and a large Three-Bay Threshing barn with an adjoining second barn and silo. Several modern structures are present on the property, including a livestock shelter, garage, and shed.

The house is constructed on a coursed stone foundation and is oriented parallel to the road by the side gable roof of the wing portion of the house. A one-story open front porch extends across the entire width of the house. The gable front element of the house features a small name/date plaque near the peak which reads: “Joseph Fix 1878.” Fenestration on the house includes front entry doors into both the gable front portion of the house and the wing element, although the arrangement is slightly unusual since both doors are placed on the front façade instead of having both doors placed at the corner of the two building elements. Windows and doors each feature a segmental brick arch above the flat opening lintel.

As the name/date plate in the gable peak of the house indicates, the property is associated with Joseph Fix. There were a large number of Fix families in Frenchtown Township, and many with members who carry the first name Joseph. It is likely that this property was held by the Joseph Fix who was the son of Joseph and Sophia who are associated with the property at 2381 Hurd Road, Frenchtown Township. This determination is based on several obituaries, including one for Joseph Fix, dated July 30, 1930 (*MEN* 1930). This document indicates that the decedent was born at Sandy Creek, in 1843, the same location and year that Joseph and Sophia’s eldest child, Joseph, was born.

Plat maps published in 1876 indicate that the location of the residence was held by J. Fix (Bartlett 1876:63). Surrounding the 10 acres of land where the residence was located were a number of additional parcels noting the owner as Jos. Fix or Jos. Fix Jr. and totaling approximately 180 acres. Joseph was known as a successful farmer, and continued to work until the age of 70 (*MEN* 1930). Although it is unclear precisely who was responsible for the masonry work on the house and associated barn, it may have been completed by a distant family member, Leander Fix, who at the age of 26 took up the trade of contractor for mason and carpenter work (Bulkley 1913:986).

The Joseph Fix farmstead complex is eligible for inclusion in the NRHP under both Criteria A and C. Criterion A requires that a property have significance under the broad patterns of our history. As a farm owned and operated by one of the members of the early French community, and representing a successful agricultural practice, the complex clearly demonstrates eligibility under Criterion A. Additionally, both the house and barn are well-maintained examples of the masonry work that marks the region. As such, the property meets the requirement of Criterion C as the embodiment of the distinctive characteristics of a type, period, or method of construction.

6344 Trombley Road, Berlin Township (Appendix E, Photograph 29)

Located on the east side of Trombley Road, south of Masserant Road, is a large farmstead complex consisting of a large number of buildings, including both an original and modern house, a Three-Bay Threshing barn, machine shed, Quonset hut, pole barn, and several smaller sheds or storage buildings. The original house is a single story. The most unusual feature on the property is a large wooden structure appended to the south elevation of the house. Although currently partially clad with metal sheathing, CCRG's surveyors noted evidence of a notched log structure underneath.

The earliest published records available for the property indicate that the house is associated with a 78-acre parcel once held by Jacob Masserant (Bartlett 1876), and 20 years later the property is under the ownership of J. Masserant (Ogle 1896). The Masserant family is among the early

settlers in the township, with census records indicating that Jacob arrived from France in 1853 (Ancestry.com 2008). Due to its association with a member of a prominent early family in the community, and its embodiment of the distinctive characteristics of a type, period, or method of construction, the property is possibility eligible under both NRHP Criteria A and C.

6.0 SUMMARY AND RECOMMENDATIONS

6.1 ARCHAEOLOGICAL RESOURCES

The archaeological survey of the Fermi 3 Project area resulted in the identification of six archaeological sites (see Figure 1.4-1). Four sites (20MR819, 20MR820, 20MR821, 20MR822) are prehistoric isolated findspots, one (20MR818) is a multicomponent (prehistoric and historic) site consisting of a single prehistoric chert flake and a surface scatter of historic artifacts, and one (20MR823) composed of the remnants of five structures and associated historic artifacts.

None of the sites identified during the archaeological survey are recommended eligible for listing in the NRHP. The prehistoric sites and the prehistoric component of multicomponent site 20MR818 each consist of a single chert flake. Investigations in the area near these findspots did not reveal any other associated prehistoric cultural material. The lack of diagnostic artifacts or features renders these sites as minimally important for their research value and, therefore, unlikely to contribute information about the prehistoric use of the area beyond what is already known.

The twentieth-century sites 20MR823 and the historic component of 20MR818 also possess limited interpretative value. Although both contain a variety of diagnostic artifacts, neither possesses sufficient integrity to contribute significant information relative to past regional land use patterns. Neither site 20MR823 nor the historic component of 20MR818 is recommended for listing in the National Register.

Field examinations of the Lake Erie beachfront did not yield any evidence of previously identified prehistoric site location 20MR702. This resource has in all probability been destroyed by either landfilling, wave erosion, or a combination of both activities.

On the basis of field evaluations it is CCRG's opinion that the Fermi 3 Project APE holds little potential to contain significant prehistoric or historic resources. The Project site has been

impacted by extensive quarrying and construction activities associated with Fermi 1 and Fermi 2 beginning in the 1960s. These impacts extend to the Lake Erie shore and near-shore areas, which exhibit extensive erosion and rip-rap cover. CCRG recommends that the Fermi 3 Project will have no impact on significant archaeological resources and no further work is required.

6.2 ABOVE-GROUND RESOURCES

Seven areas contribute to the historic integrity of a resource (location, design, setting, materials, workmanship, feeling, and association), and any activity that changes any one or combination of these areas alters the historic integrity of a resource and is classified as an impact. At the time of survey, the Fermi 3 Project area contained only one above-ground resource that was determined eligible for NRHP listing by the SHPO in 1995. This two-story gable-front residence, located at 5046 Williams Road, Frenchtown Township, is not located on DTE-owned property associated with the Fermi site.

Survey of the Fermi 3 Project APE resulted in the identification of 19 buildings and one four-building district that are recommended eligible for listing on the NRHP.² None of these properties are located within the DTE-owned Fermi site and none are likely to experience direct impacts resulting from construction activities.

The Fermi 3 Project has the potential to create indirect impacts from construction and operations if additional structures such as cooling towers are constructed. Such visual intrusions would, however, be considered minimal, as two cooling towers and a water tower currently extend into the viewshed. The introduction of another visual element would not constitute a significant impact.

CCRG recommends that the Fermi 3 Project would have no significant impact on resources previously listed in or determined eligible for listing in the NRHP. Further, the project would not have a significant impact on above-ground resources identified during the Fermi 3 Project

² DTE is currently undertaking NRHP evaluation of the Enrico Fermi Atomic Power Plant, Unit 1 (Fermi 1), and the results of the investigations will be reported separately at a later date.

survey. With the exception of Fermi 1, CCRG recommends that no further work is necessary. With regard to Fermi 1, CCRG recommends that an evaluation of NRHP eligibility be completed prior to any activities that would directly or indirectly impact the resource.

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APPENDIX A

**MICHIGAN STATE HISTORIC PRESERVATION OFFICE
CONSULTATION CORRESPONDENCE**



September 10, 2007
J-0584/R-0693

Mr. Brian Conway
State Historic Preservation Office
Michigan Historical Center
Department of History, Arts and Libraries
P.O. Box 30740
702 W. Kalamazoo St.
Lansing, MI 48909-8240

RE: Request for Project Consultation

Dear Mr. Conway:

Commonwealth Cultural Resources Group, Inc. (CCRG) was retained by Black & Veatch, Overland Park, Kansas, to undertake cultural resource investigations in support of a possible licensing submittal to the Nuclear Regulatory Commission (NRC) on behalf of Detroit Edison (DTE). Detroit Edison has not made a commitment to construct or locate a new nuclear power plant at the Enrico Fermi Nuclear Generating Station. DTE has only requested the performance of the necessary studies and investigations to support possible future decisions, including the potential submittal of a Combined Operating License Application to the NRC.

Based on the following information, CCRG is seeking comment from the Michigan State Historic Preservation Office (SHPO) on the potential effects on cultural resources by the proposed project for purposes of compliance with Section 106 of the National Historic Preservation Act, guidance within the NRC's NUREG-1555 Environmental Standard Review Plan for Historic Properties, and other federal legislation. It is the intention of the project team to complete a full Section 106 review for the project, following the advice and recommendations of the SHPO.

The potential site of a new facility is the existing Enrico Fermi Nuclear Generating Station site located in Monroe County, Michigan (Figure 1). The potential project site incorporates the existing power plant facility and land currently owned by DTE. If constructed, the new facility would be located within this project area. For archaeological resources, the project area is limited to within the footprint of the project site (Figure 2). Following the NRC's Environmental Standard Review Plan, the project area for the historic above-ground resources has been

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New York Office: 2495 Main Street Room 448 Buffalo, New York 14214 • (716) 831-9003/Fax (716) 831-9003

Wisconsin Office: P.O. Box 1081 Minocqua, Wisconsin 54548 • (715) 358-5686/Fax (715) 358-6656

www.ccrainc.com

Mr. Brian Conway
 September 26, 2007
 Page 2

determined to be 10 miles (mi) (16 kilometers [km]) beyond the location of the project site (Figure 3 and Appendix A).

A search of the Michigan Office of the State Archaeologist records revealed that there are four sites recorded within the archaeology Area of Potential Effects (APE) (see Figure 2), although none are recorded in the National Register of Historic Places (NRHP). These sites are enumerated in Table 1.

Table 1. Previously Documented Archaeological Sites within the Project APE

Site Number	Name	Location	Period	NRHP Status
20MR207	Holmquist M-33	NW SE Section 16 T6S/R9E	Prehistoric	More information needed
20MR702	Fermi II	S1/2 S/12 SE SW Section 16 and N1/2 N1/2 NE NW Section 21 T6S/R9E	Prehistoric	More information needed
20MR703	Gustafson	W1/2 NW NE Section 30 T6S/R10E	Archaic period	More information needed
20MR746	Webb	NE NW NW Section 18 T6S/R10E	Nineteenth Century	More information needed

In addition to the sites noted above, CCRG also identified a letter report regarding the project area prepared in 1972. This letter, written by James B. Griffin, Director of the University of Michigan, Museum of Anthropology, indicated that a visit was made to the site of the Enrico Fermi Atomic Power Plant Unit 2. As the result of this investigation, Griffin noted that the area had been altered and, "any Indian remains which might have been there have either been removed or covered up" (J. B. Griffin to Dr. S. A. Milstein, letter dated 25 May 1972, Office of the State Archaeologist, State Historic Preservation Office, Lansing, Michigan).

A preliminary investigation has revealed that there are no previously recorded above-ground historic properties within the footprint in which the proposed project will be constructed. There are 13 properties within a 10 mi (16 km) radius of the project location that have been previously recorded on the NRHP. Table 2 enumerates these resources and their locations. Also appended to this document is a series of topographic maps illustrating the entire 10 mi (16 km) APE and noting the location of each of the listed properties.

Mr. Brian Conway
 September 26, 2007
 Page 3

Table 2. NRHP Listed Properties within the Project APE

Name	Address	City/Township/ County	Listed NRHP	ID Number/ Map Location
Custer, George Armstrong Equestrian Monument	SW corner of Elm and North Monroe (M-125) streets	Monroe/Monroe	12/9/1994	1/26
Detroit River Light Station	Lake Erie, 3.75 miles SE of Millerville Beach	Rockwood vicinity/Monroe	8/4/1983	2/19
East Elm – North Macomb Street Historic District	Roughly bounded by the River Raisin, Lorain, Monroe and Macomb Streets	Monroe/Monroe	5/6/1982	3/26
Jefferson Avenue Bridge	Jefferson Avenue over Huron River	Brownstown Township/Wayne	2/10/2000	4/12
Loranger, Edward, House	7211 S Stoney Creek Rd	Monroe vicinity/Monroe	5/31/1984	5/15
McClelland, Governor Robert House	47 E Elm St	Monroe/Monroe	9/3/1971	6/26
Navarre-Anderson Trading Post	West of Monroe at North Custer (M-130) and Raisinville Roads	Monroe/Monroe	7/31/1972	7/20
Nims, Rudolph House	206 W. Noble Ave	Monroe/Monroe	10/18/1972	8/26
Old Village Historic District	Roughly bounded by the River Raisin, Navarre, Wedsworth, LaPlaisance, Seventh, Washington, Monroe, and Third Sts.	Monroe/Monroe	5/6/1982	9/26
Saint Mary's Church Complex	Elm Ave and M-125 (N. Monroe Avenue)	Monroe/Monroe	5/6/1982	10/26
Sawyer House	320 E. Front St	Monroe/Monroe	11/23/1977	11/26
South Pointe Drive Bridge	Pointe Drive over Swan Island Canal	Grosse Ile/Wayne	3/15/2000	12/6
Weis Manufacturing Company	Union and Seventh Streets	Monroe/Monroe	10/26/1981	13/26

An additional nine properties have been determined eligible within this area, but not formally listed on the NRHP. Presented in Table 3 is a complete list of the identified, but not listed

Mr. Brian Conway
 September 26, 2007
 Page 4

resources. These properties are also noted on the appended topographic maps, using alphabetical designations to distinguish them from those properties listed on the NRHP.

Table 3. Properties Determined Eligible for Listing on the NRHP within the Project APE

Name	Address	City/County	Date Determined Eligible	ID Number/Map Location
--	5046 Williams Road	Frenchtown Twp/Monroe	11/09/1995	A/23
2187 Hurd Road	2187 E Hurd Road	Frenchtown Twp/Monroe	11/18/1998	B/22
Gibraltar Road Bridge	Gibraltar Road over Waterway Canal	Gibraltar/Wayne	09/29/1995	C/5
Horse Island Drive Bridge	Over Horse Island Bayou	Gibraltar/Wayne	1992	D/5
Horse Island Drive Bridge	Over Adams Bayou	Gibraltar/Wayne	07/01/1992	E/5
Horse Island Drive Bridge	Over Adams Bayou	Gibraltar/Wayne	07/01/1992	F/5
Monroe Armory	15483 S Dixie Highway	Monroe/Monroe	11/07/2002	G/26
I-75 Bridge	Over Conrail and Raisin River	Monroe/Monroe	04/12/2004	H/27
St. Mary's Academy Historic District	610 W. Elm	Monroe/Monroe	1981	I/21 & 26

If you have any additional questions or comments on this project, please feel free to contact either me or Elaine Robinson at CCRG. The CCRG telephone number is 800-731-3550. Elaine Robinson's extension is 23 and mine is 12.

Sincerely,



Donald J. Weir, RPA
 President



RECEIVED NOV 13 2007

JENNIFER GRANHOLM
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF HISTORY, ARTS AND LIBRARIES
LANSING

DR. WILLIAM ANDERSON
DIRECTOR

November 7, 2007

DON WEIR
COMMONWEALTH CULTURAL RESOURCES GROUP
2530 SPRING ARBOR ROAD
JACKSON MI 49203

RE: ER06-683 Enrico Fermi Atomic Power Plant - Potential New Facility, Monroe County (NRC)

Dear Mr. Weir:

The State Historic Preservation Officer (SHPO) received your request for preliminary consultation for the Enrico Fermi Atomic Power Plant. Based on the information provided for our review, we have the following comments:

- The State Archaeologist, Dr. John Halsey, notes that the Lake Erie shoreline is very sensitive archaeologically, and this area has never been systematically examined. Therefore, the possibility exists that archaeological resources may be affected at the project site.
- In addition, the proposed twenty-mile-diameter APE for above-ground resources seems excessive. We suggest a smaller APE that includes the nearest shoreline settlements, from Estral Beach on the northeast to Woodland Beach and Detroit Beach on the southwest. The north boundary for this APE could correspond to Masserant Road and a westerly extension west to North Dixie Highway, the west boundary the North Dixie Highway between Masserant on the north and Sandy Creek on the south, and the south boundary Sandy Creek. In addition, the APE should include the properties fronting on North Dixie Highway's north side and the settlement of Oldport. This area is shown on maps 16, 17, 18, 22, 23, and 24 provided with your letter of September 10.

Section 106 of the National Historic Preservation Act of 1966, as amended requires federal agencies to take into account the effect of their undertakings on historic properties. It is the responsibility of the federal agency to fulfill the requirements of Section 106. In some instances, the federal agency may delegate legal responsibility to a state, local, or tribal government. Consultants or designees contracted to prepare information, analyses, or recommendations, are *not* recognized as federally-delegated authorities. For your reference, a complete version of the Section 106 regulations can be found at www.achp.gov/regs.html.

The Section 106 regulations specify what is required for a Section 106 review [36 CFR § 800.11]. The SHPO receives approximately 3,500 projects for review annually. Consistency and accuracy in the information submitted is necessary to facilitate the timely review of these projects. For this reason, we cannot review projects that do not meet this standard and that do not provide us with adequate information in the required format. Please ensure that the project is submitted utilizing the mandatory Section 106 application form, which may be downloaded in MS Word format from our website at <http://www.michigan.gov/shposection106>. Please read each requirement carefully in its respective field, and respond in full. Incomplete applications and projects not submitted on the application forms will be sent back to the applicant without comment.

Thank you for your cooperation.

Sincerely,

Brian D. Conway
State Historic Preservation Officer

BDC:JRH:ROC:bgg



January 11, 2008
J-0584 BC1

Mr. Robert O. Christensen
State Historic Preservation Office
Michigan Historical Center
Department of History, Arts and Libraries
P.O. Box 30740
702 W. Kalamazoo St.
Lansing, MI 48909-8240

RE: ER06-683, Enrico Fermi Atomic Power Plant Project Area Clarification

Dear Mr. Christensen:

Thank you for your preliminary consultation for the Enrico Fermi Atomic Power Plant project. In Brian Conway's November 7, 2007, letter, he provides a suggested reduced project area of potential effect (APE) for the investigations required in support of the planned work at Fermi II. As you recall, you suggested a much reduced APE from the originally utilized 20-mile diameter APE. Your suggested project area included the nearest shoreline settlements from Estral Beach on the northeast to Woodland Beach and Detroit Beach on the southwest.

In December 2007, CCRG's architectural historians Rachel Bankowitz and Elaine Robinson visited the proposed project area. Like you, the historians assumed they would find lakeshore communities consisting largely of seasonal residences or seasonal residences converted into year-round dwellings. For the most part, this was not what was found. The communities appear to be much like many suburban areas, with predominately year-round residences that happen to have been constructed near the waterfront, possibly the result of extensive infill construction during the last few decades, which dramatically alters the perception of the area.

CCRG historians identified approximately 500 resources within the smaller APE which appeared to be at least 50 years old. The majority of these buildings have been extensively altered, including multiple large additions, application of modern siding, and replacement windows. This may have been the result of converting the originally seasonal buildings into year-round use, but it has resulted in an extensive loss in the historic integrity of the building fabric. About 20 percent of the buildings viewed appeared to retain some level of historic integrity, while only about 10 buildings/complexes were among those initially considered possibly eligible for inclusion on the National Register of Historic Places (NRHP).

We would like to propose that, in support of the planned work at the Fermi II site, CCRG carry out a reconnaissance level survey on only those buildings that retain a high level of architectural

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Mr. Robert O. Christensen
Fermi Atomic Power Plant Project Area Clarification
January 11, 2008

Page 2

and historic integrity. Additionally, we would prepare a series of streetscapes to illustrate the character of those areas within your suggest APE that have undergone extensive loss of integrity. Of course, among those resources surveyed will be those we identified as possibly eligible for the NRHP in our initial field visit, as well as any others that become evident during survey of the area. This effort will also include the resurvey of the one property that was recorded as possibly eligible for the NRHP in 1999.

We look forward to your comments on this proposed work plan. If you have any additional questions or comments on this project, please feel free to contact either me or Elaine Robinson at CCRG. You can reach me at 1-800-731-3550, extension 12. Elaine can be reached at the same telephone number, extension 23.

Sincerely,

Donald J. Weir, RPA
President



JENNIFER GRANHOLM
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF HISTORY, ARTS AND LIBRARIES
LANSING

DR. WILLIAM ANDERSON
DIRECTOR

March 24, 2008

DON WEIR
COMMONWEALTH CULTURAL RESOURCES GROUP
2530 SPRING ARBOR ROAD
JACKSON MI 49203

RE: ER06-683 Enrico Fermi Atomic Power Plant - Potential New Facility, Monroe County (NRC)

Dear Mr. Weir:

This is a response to your letter dated January 11 to Robert Christensen of our office, and follows up on the site visit to the project area on March 19 that included Mr. Christensen along with Cheryl Chidester and Elaine Robinson of Commonwealth Cultural Resources Group (CCRG). That visit confirmed CCRG's opinion; stated in the January 11 letter; that the project area seems to contain a relatively small number of properties that have the potential to meet the national register criteria.

It was agreed that for this project, only those properties of obvious historic significance would be surveyed, with photography, mapping, and research being performed and inventory forms created. Other properties that appeared to be fifty or more year old that possess a degree of integrity above the norm for the area would be photographed, their sites mapped, and listed by street address in the project report. The properties to be inventoried include the St. Charles Boromeo Church Complex, the two church cemeteries, and a few other houses at Oldport; several of the houses/cottages (including the outdoor fireplace at one) at the tip of Stony Point; selected individual properties at Detroit Beach, Woodland Beach, Stony Point, and Estral Beach, including two of the subdivision entrance portals; and various other houses, farm complexes, the Ste. Anne's Church and Grotto, one school building, and a roller skating rink. The work should include inspecting the interiors of St. Charles Boromeo Church and the roller rink as part of evaluations of national register eligibility for those properties. Streetscape views may be provided as appropriate to illustrate the general character of the platted areas for purposes of the report.

The project work will include research on the history of the study area in general and on the Oldport settlement and the communities of Estral Beach, Stony Point, and Woodland Beach, including such aspects as the platting and developmental history, ethnic history, and social and recreational history. If the research suggests additional properties, including districts, may be eligible for the national register based on historical considerations not evident from visual inspection of the project area, the project team and national register coordinator will consult on what further steps need to be taken to complete the project. The project report will include recommendations concerning national register eligibility with the rationale, in terms of the national register criteria, for each property or district evaluated as eligible specifically defined.

Thank you for your cooperation.

Sincerely,

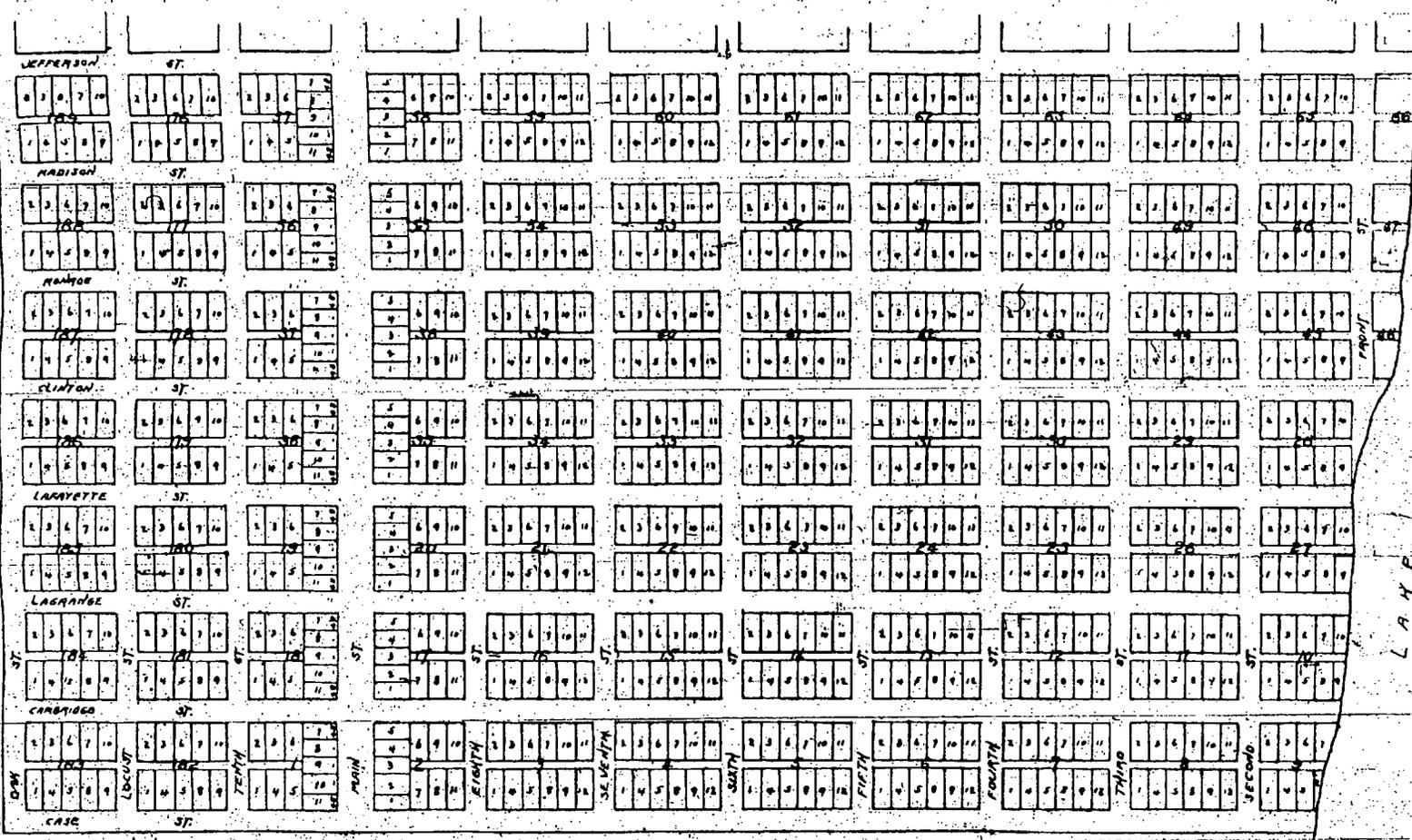
Brian D. Conway
State Historic Preservation Officer

BDC:JRH:ROC:bgg

APPENDIX B

NEWPORT AND BREST TOWN PLATS

PIRECE
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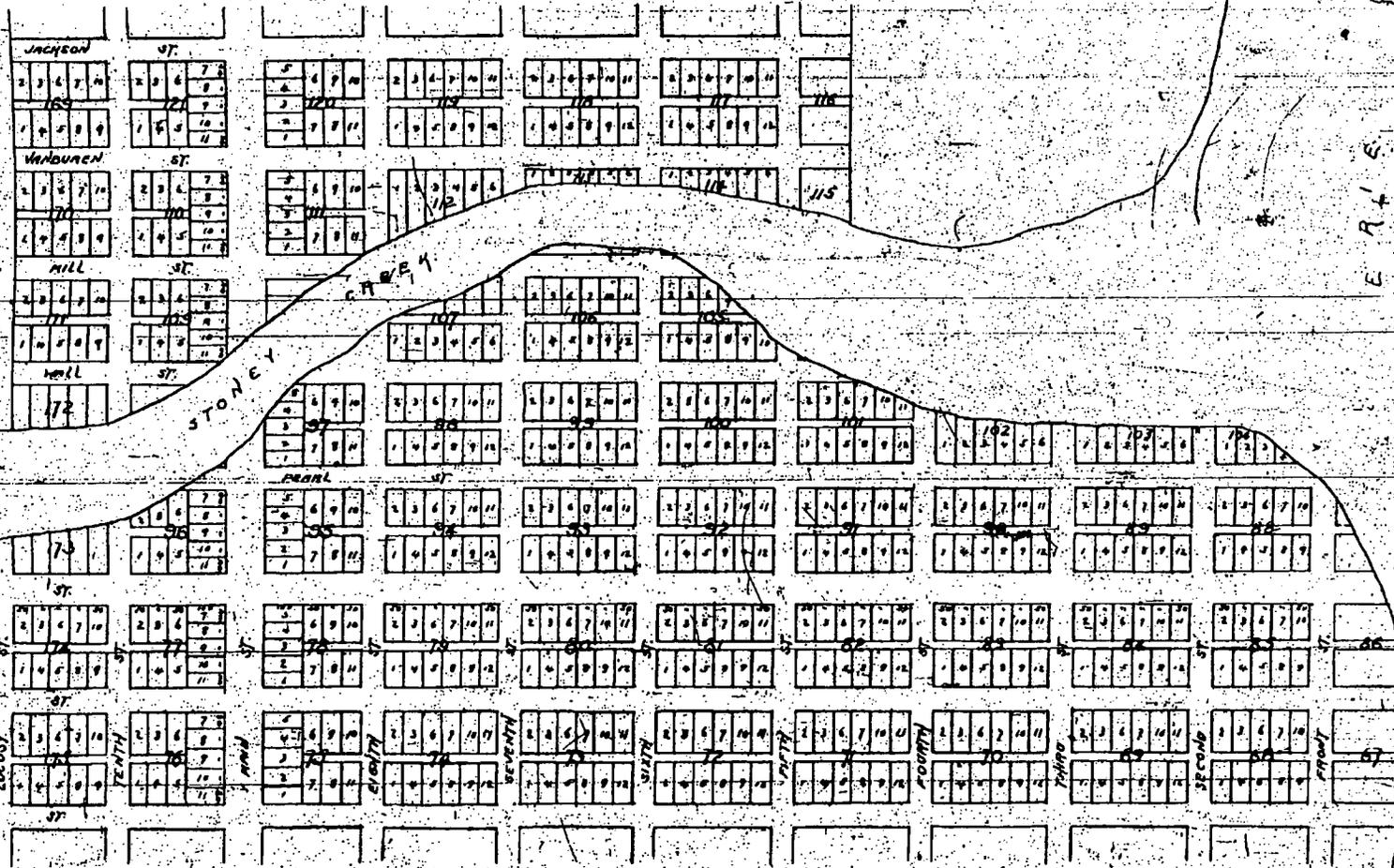
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Page 7



BREST
SCALE 200 FEET TO AN INCH



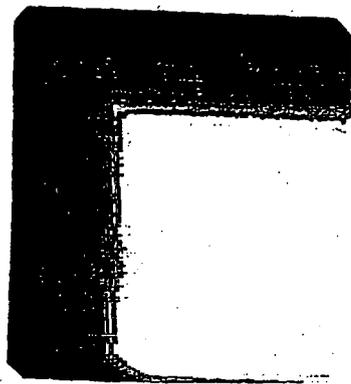
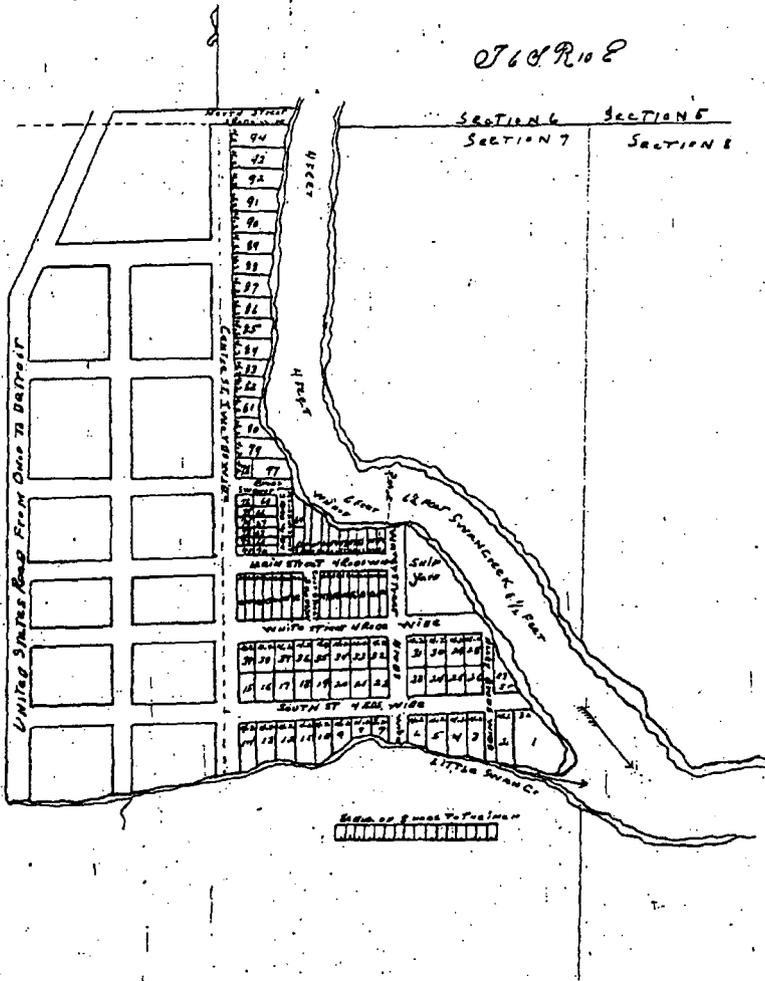
E R T S

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Handwritten notes in the bottom left corner, partially obscured by a redaction mark.

7097

Keoport



Plan of The Town Keoport Iowa White Concession
 The town of Keoport is situated in the township of Frenchtown in the county of
 Howard and Territory of Michigan and in the first half of the T. 6. Quarter of
 Section 7, in Township 7 N. 63 Range 10 East bounded as follows: Beginning at the N.W.
 corner of the foregoing described tract thence north, thence, to the N.W. corner of the
 Little Sioux and Wisconsin section the plan and Township Section farm where the same
 meets to the bank of Little Sioux Creek, thence westerly following the channel of Little Sioux Creek
 to its mouth, thence westerly up the bank of Brown Creek to section line between sections
 22 & 23, thence west on section line 14 rods to the place of beginning. The corner
 of the tract are North & South in east and west. Lots 16 to 20 inclusive are nine rods in depth
 by two rods in width. Lot 21 is 10 rods in depth by two rods in width. Lot 22 & 23 and 6
 rods in depth in set apart and given to the first school district established in the
 township of Frenchtown to be by the trustees of said district used for a school house
 lot house. Lot 24 is set apart and given for a Church lot given - All streets
 and alleys are given as public highways. By the lot from No. 1 to 14 inclusive
 are bounded on the north by the channel of Little Sioux Creek.
 July 5, 1835

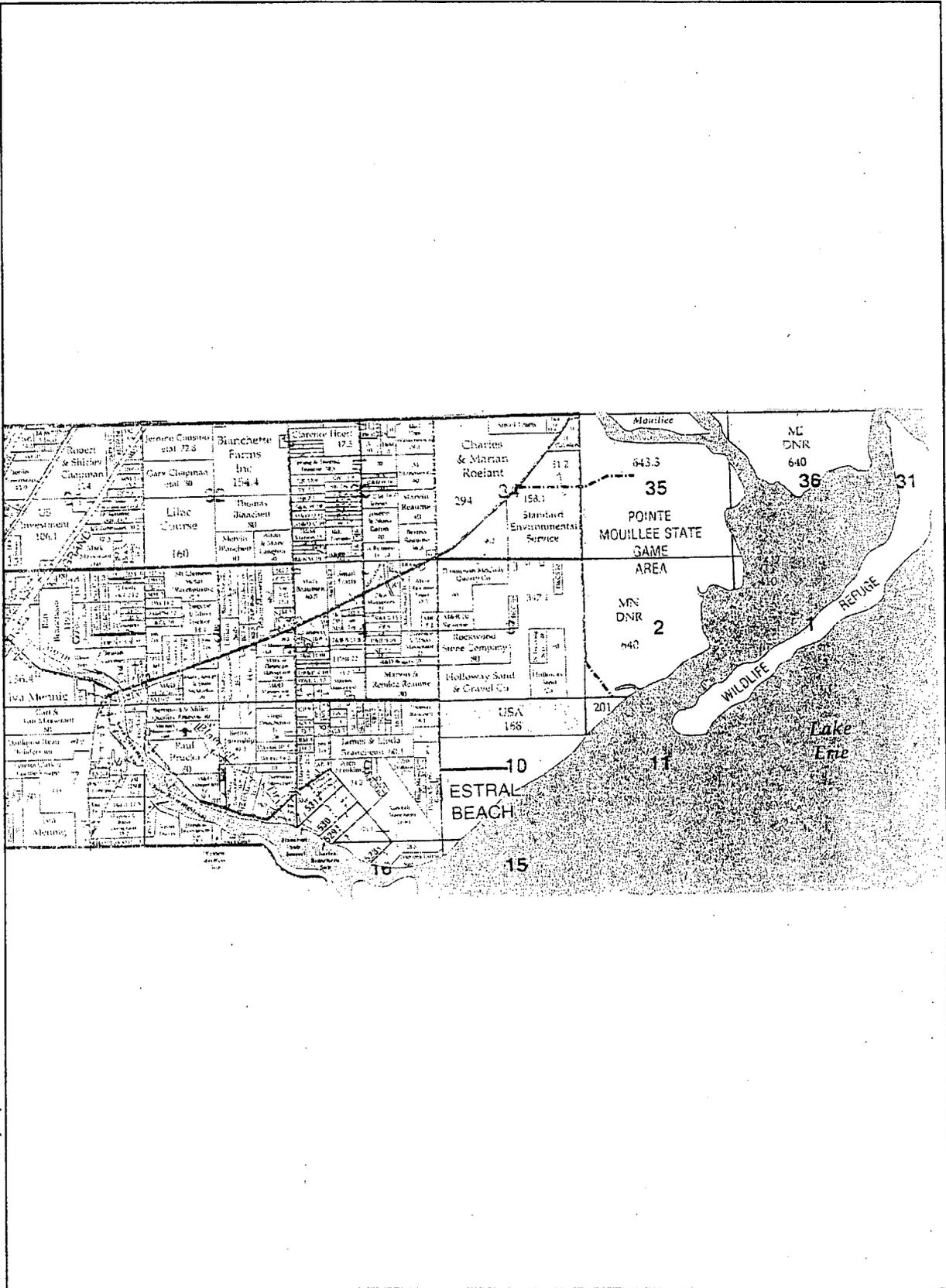
Jonathan Venable
 Surveyor

*I do certify that the above foregoing
 is a true and accurate copy of the original plat as delivered to me for
 record the 7th of Aug 1835 at 9 o'c. a.m.*
J.P. Skinner, Rep.

*I hereby certify that this plat is
 a correct copy of the plat now on
 record in the Register of Deeds
 Office, being made under the
 supervision of the Auditor General
 by tracing the plat on record
 and affixing thereto a carefully
 compared copy of the certificate
 Dated this 23 day of April 1910
 Wm. L. Warren
 Chief Clerk, Auditor General*

APPENDIX C

BERLIN TOWNSHIP AND FRENCHTOWN TOWNSHIP SUBDIVISION PLATS



Source: Monroe County Equalization Board

Berlin Township (T5-6S R10E) Project Vicinity

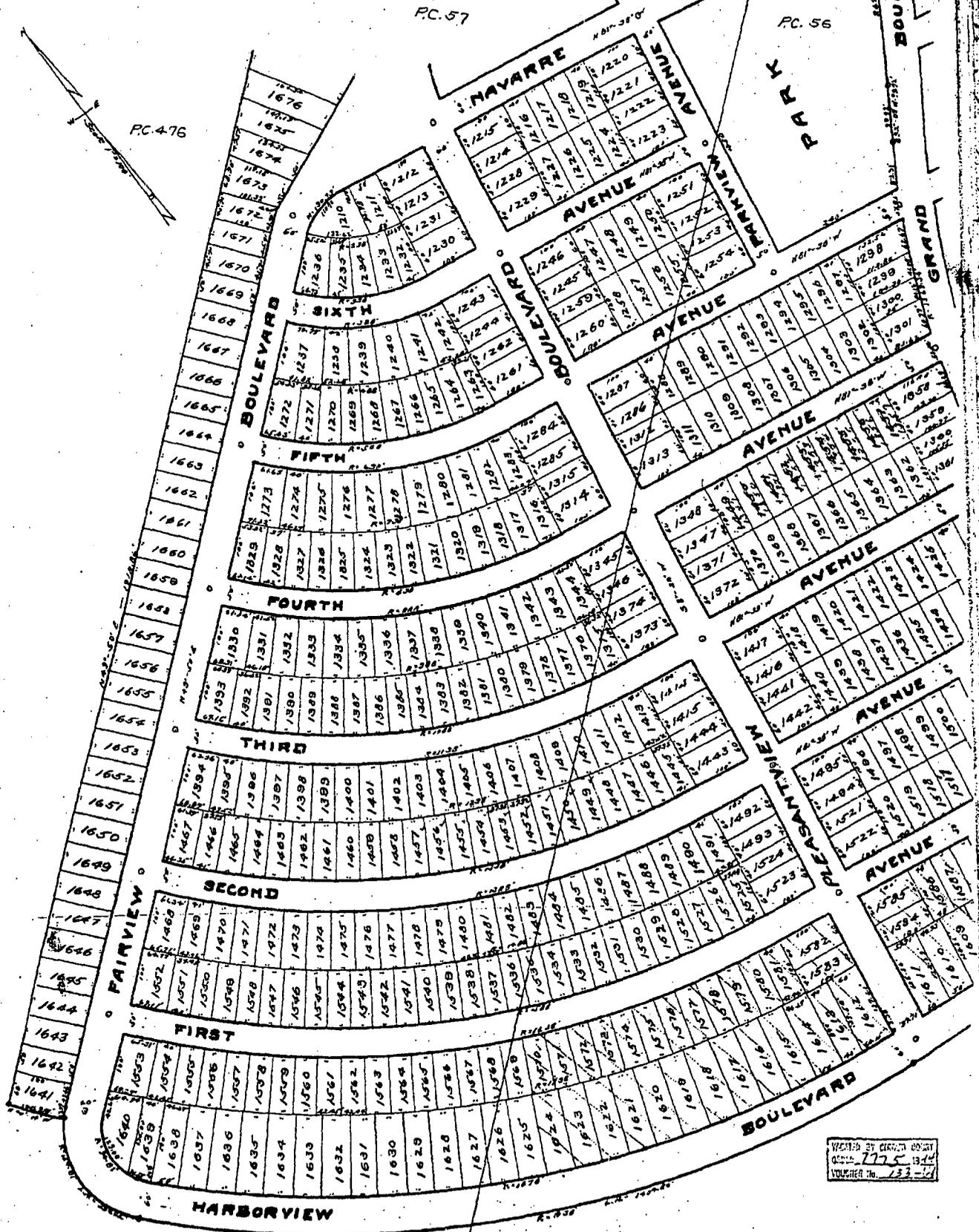
Section/Private Claim	Subdivision Name	Year Recorded
P.C. 56	Detroit Beach No. 1 Sub	1927
P.C. 56	Detroit Beach No. 2 Sub	1933
P.C. 56	Detroit Beach No. 3 Sub	1944
P.C. 57	Detroit Beach Estates Sub	1941
P.C. 56	Monrona Beach Sub	1922
P.C. 56	Grand Beach Sub	1923
P.C. 56	Woodland Beach Sub	1923
P.C. 56	Erie Shores Sub	1925
P.C. 56	Indian Trails Sub	1923
P.C. 56	Baycrest Sub	1923
P.C. 56	Aime Philippart Brest Sub	1923
Stoney Creek		
P.C. 528	Bay West Estates Plat 1	1992
P.C. 528	Bay West Estates Plat 2	1994
Sec. 30	Joel A. Laboe Lakeside Sub	1916
Sec. 30	Louis Park Beach Sub	1924
Sec. 29	Brest Bay Grove Sub	1923
Sec. 29	Brest Bay Grove Sub No. 1	1925
Sec. 29	Stoney Point Beach	1922
Sec. 29	Stoney Point Beach ReSub of Outlots A & B and Lots 1-2-3-4	1925
Sec. 29	Stoney Point Peninsula	1924
Sec. 28	Point Aux Peaux Farms	1923
Sec. 28	Highland Pointe	1952
Sec. 28	Sterling Williams Sub	1919
Sec. 28	Long's Pointe Aux peaux Plat	1939
Sec. 29	Dewey's Summer Homes	1923
Sec. 29	Pointe Aux Peaux Woods	1929
Sec. 20/29	Lagoona Beach	1925

DETROIT BEACH NO 1

BEING A PART OF PRIVATE CLAIMS 56, 57 & 476.
FRENCHTOWN TWP, MONROE CO, MICH.

23809

Sheet No. 2.



WRITTEN BY CHAS. COOK
DATE 1175 1924
VOLUME No. 23809

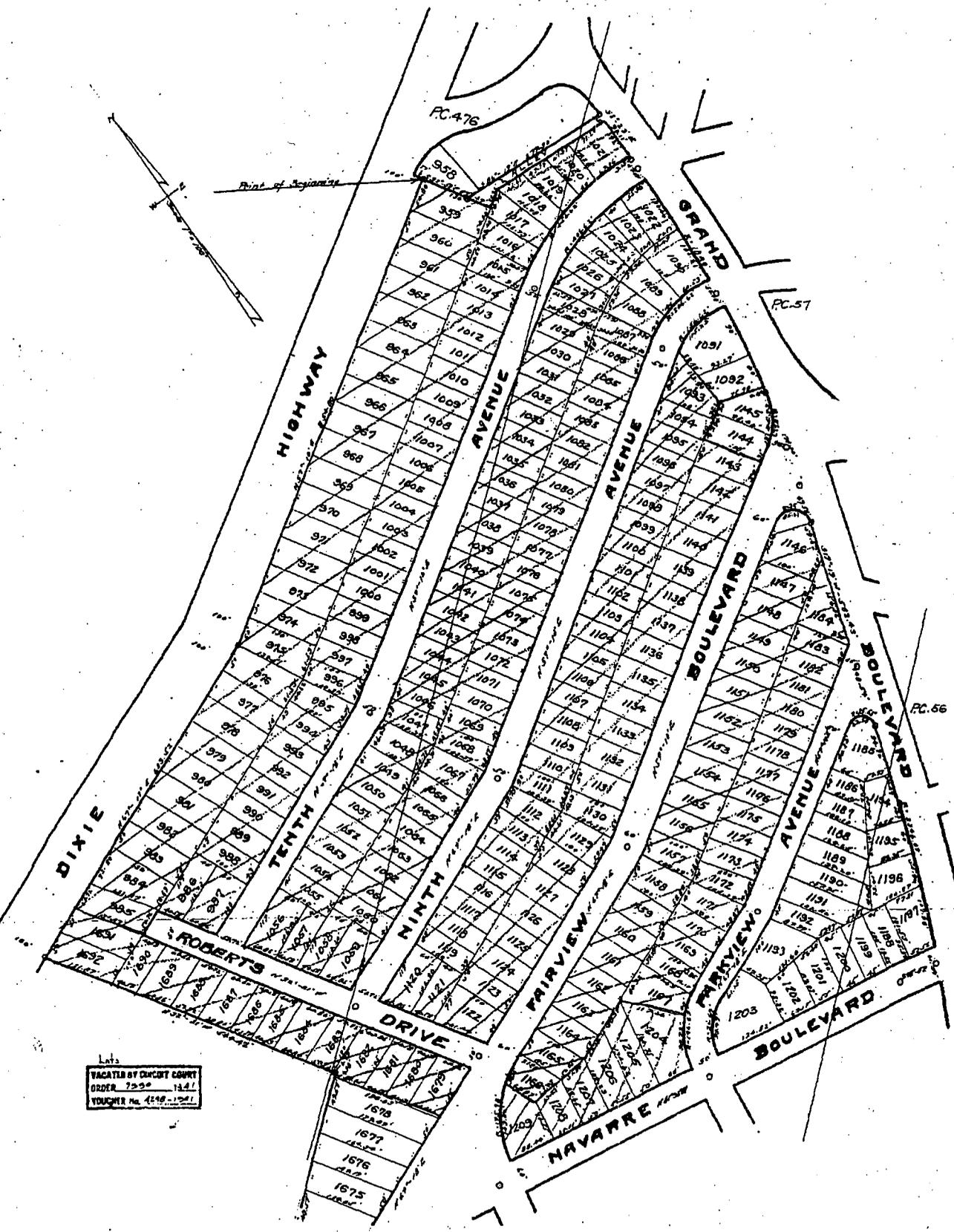
8/2/17

23809

DETROIT BEACH NO 1

BEING A PART OF PRIVATE CLAIMS 56, 57, & 476.
FRENCHTOWN TWP, MONROE CO, MICH.

Sheet No. 1



Lots
 VACATED BY CIRCUIT COURT
 ORDER 7222 1221
 VOUCHER No. 4198-1221

1678
 1677
 1676
 1675

April 24-1933
J. Morgan

25862

SUPERVISORS PLAT OF DETROIT BEACH N^o2

Being a part of P.C. 56, Frenctown Twp, Monroe Co., Mich.

Know all men by these presents, that I, John G. Hoff, Supervisor, of the County of Monroe, State of Michigan, do hereby certify that the lands embraced in the annexed plat to be surveyed, laid out and platted to be known as, Supervisors Plat of Detroit Beach No. 2, being a part of P.C. 56, Frenctown Twp., Monroe Co., Mich. and that the Streets and Alleys as shown on said plat are hereby dedicated to the use of the public.

I hereby certify that the plat hereon delineated is a correct one and that permanent monuments consisting of 1" iron pipe 50" long set in a concrete base 4"x4"x30" have been placed at all points marked "0" as thereon shown, at all angles in the boundaries of the land platted and at all intersections of Streets and Alleys.

J. Morgan Registered Surveyor.

Signed and sealed in presence of

Edmond C. Weimer
John G. Hoff

State of Michigan
County of Monroe

On this 24th day of April

before me a Notary Public, in and for said County appeared John G. Hoff, Frenctown Twp. Supervisor known to me to be the person who executed the above dedication and acknowledged the same to be their free act and deed.

Joseph P. ... Notary Public, Monroe, Mich.
My commission expires 12-22-31

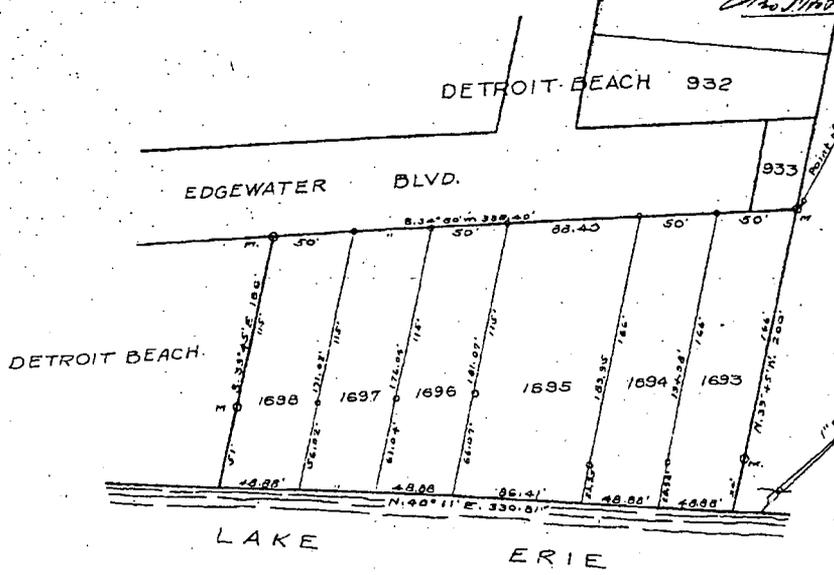
DESCRIPTION.

Commencing at the S.E. corner of lot No. 932, Detroit Beach, thence S. 34°30' E. 238.40', thence S. 29°45' E. 166', thence S. 40°21' E. 230.81', thence N. 29°45' W. 200' to place of beginning.

This plat was approved by the Frenctown Board at a meeting held Nov. 27th 1933.
Edmond C. Weimer Clerk.

This plat was approved by the Monroe County platting board at a meeting held April 11, 1933.

William C. ... Probate Judge.
W. R. ... County Treasurer.
Edmond C. Weimer County Clerk.



Monroe County
Supervisors
Plat of Detroit Beach No. 2
April 24-1933
J. Morgan

April 24-1933
J. Morgan
May 2-1933
J. Morgan

29167

S.W. Corner of Private Claim No. 57

DETROIT BEACH NO.3

BEING A PART OF PRIVATE CLAIM 56

FRENCHTOWN TWP, MONROE CO, MICH.

All measurements shown on this plat are in feet and decimals thereof.

Examined and Approved

Det. 22, 1944
County Auditor General

MAVRE JOSEPH PURDY

FILED IN AUDITOR GENERAL'S DEPT.

November 2, 1944
DEPUTY AUDITOR GENERAL

COPY
Recorder's Office
Monroe County
of Detroit Beach No. 3
Frenchtown Twp.
Recorded this 1st day of
Jan. 10, 1944 at 11 O'clock
A.M. in Lib. 9
Clinton M. Stahl
ORIGINAL ON FILE

HEREBY CERTIFY THAT THIS COPY IS A TRUE COPY OF THE MAP OR PLAT FORWARDED TO THE REGISTER OF DEEDS FOR RECORDING.

COMPARED
Det. 22, 1944
DEPUTY AUDITOR GENERAL
MAVRE JOSEPH PURDY

DEDICATION

KNOW ALL MEN BY THESE PRESENTS, That we, Wm. J. Braunlich as preparer, and Florentine H. Braunlich his wife, have caused the land embraced in the annexed plat to be surveyed, laid out and platted, to be known as "Detroit Beach No. 3, Being a part of Private Claim 56, Frenchtown Twp., Monroe Co., Michigan,"

and that the streets and alleys as shown on said plat are hereby dedicated to the use of the lot owners only.

Signed and sealed in the presence of
L. Sohlsein (Witness) Wm. J. Braunlich (as)
O.A. Case (Witness) Florentine H. Braunlich (as)

ACKNOWLEDGMENT

STATE OF MICHIGAN
County of Monroe

Do hereby certify that on the 27th day of October, 1944, before me, a Notary Public in and for said county, personally came the above named

Wm. J. Braunlich and Florentine H. Braunlich

known to me to be the persons who executed the above declaration, and acknowledged the same to be their free act and deed.

Lella Sohlsein
Notary Public
Monroe County
My Commission expires Feb. 24, 1948

MUNICIPAL APPROVAL

This plat was approved by the Township Board of the Township of Frenchtown at a meeting held on October 13, 1944
Robert A. Vivian (Clerk)

APPROVAL BY COUNTY BOARD

This plat was approved on the 27th day of October, 1944
Clinton M. Stahl (County Register of Deeds)
Charlotte Manley (County Clerk)
Anton W. Munch (County Treasurer)

DESCRIPTION OF LAND PLATED

The land embraced in the annexed plat of "Detroit Beach No. 3, Being a part of Private Claim 56, Frenchtown Twp., Monroe Co., Michigan,"

Commencing at a point S. 23° 54' 18.86" E. 943.57 feet from the South West corner of Private Claim No. 57, thence on a 3° 29' 54.48" Curve to the left a distance of 480 feet, thence S. 81° 38' E. 711 feet, thence S. 8° 21' 58.76" W. 80 feet, thence S. 81° 38' E. 120.85 feet, thence S. 4° 03' E. 141.93 feet, thence N. 64° 48' W. 761.54 feet, thence N. 81° 38' W. 102.38 feet, thence on a 3° 03' 04.32" Curve to the right a distance of 500 feet, thence S. 22° 41' 30" W. 60 feet, thence N. 65° 32.43' W. 52.58 feet, thence N. 25° 08.80' E. 200 feet, thence N 64° 30.82' W. 0.31 feet, thence N. 25° 08.28' E. 100 feet to the place of beginning.

SURVEYOR'S CERTIFICATE

I hereby certify that the plat hereto delineated is a correct one and that permanent metal monuments resulting of bars not less than one-half inch in diameter and all inches in length, or shorter bars of not less than one-half inch in diameter equipped with one or more of least 8 inches with an approved length of not less than 4 inches, inserted in a concrete cylinder of least 4 inches in diameter and 48 inches in depth have been placed at points marked hereon as shown shown at all angles in the boundaries of the land platted, or at the intersections of streets, intersections of alleys, or of streets and alleys, and at the intersections of streets and alleys with the boundaries of the plat as shown on said plat.

O. A. Case
Registered Land Surveyor and Professional Engineer

APPROVAL BY BOARD OF COUNTY ROAD COMMISSIONERS

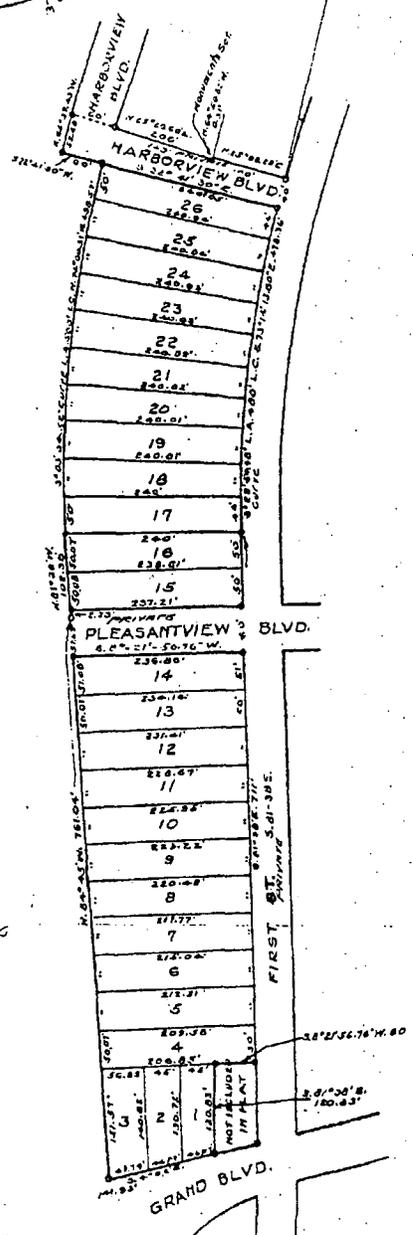
This plat has been examined and was approved on the 27th day of October, 1944 by the Monroe County Board of Road Commissioners

Edward J. Vagt (Chairman)
Clarence J. Williams (Member)

COUNTY TREASURER'S CERTIFICATE

Office of County Treasurer, Monroe County.
I hereby certify that there are no tax liens or other claims held by individuals or said land in said town, and that there are no tax liens or other claims held by individuals or said land in said town for the five years preceding the 27th day of October, 1944 based that the taxes for said period of five years are all paid, as shown by the records of this office.

This certificate does not apply to taxes, if any, now in process of collection by the city or village collecting office.
Anton W. Munch (County Treasurer)



DETROIT BEACH ESTATES

BEING A PART OF PRIVATE CLAIMS 57 & 476, FRENCHTOWN TWP, MONROE CO, MICH.

Whereas the undersigned, Clerk of the Court, do hereby certify that the following is a true and correct copy of the original of the same as the same is on file in the office of the Clerk of the Court, to-wit:

Notary Public for the State of Michigan
Joseph A. Novare Jr.
 State of Michigan
 County of Monroe

Witness my hand and seal in presence of the undersigned, Clerk of the Court, at Detroit, Michigan, this 17th day of May, 1941.

William C. Cook Notary Public, Monroe Co., Mich.
Edward C. Weiss Notary Public, Monroe Co., Mich.

On this 17th day of May 1941, before me, a Notary Public, in and for said County of Monroe, Michigan, personally appeared *Joseph A. Novare Jr.*, who being sworn by me duly administered to me the oath and being duly sworn, he declared that he is the owner of the premises described in the foregoing plat and that the same are being dedicated to the use of the public.

Witness my hand and seal in presence of the undersigned, Clerk of the Court, at Detroit, Michigan, this 17th day of May, 1941.

DESCRIPTION
 Detroit Beach Estates, being a part of Private Claims 57 & 476, T53.256, Frenchtown Twp., Monroe Co., Mich., described as follows:
 Commencing at the NW corner of Private Claim 57, thence S. 22° 50' E. 73', thence S. 68° 10' E. 299.30', thence S. 87° 23' E. 90.11', thence on a curve to the left (R. 180°) a distance of 277.84', thence on a curve to the left (L. 180°) a distance of 11.25', thence S. 57° 10' E. 118.00', thence S. 57° 10' E. 169.04', thence S. 57° 10' E. 170.30', thence S. 17° 18' E. 895.98', thence S. 57° 10' E. 493.17', thence S. 67° 18' E. 156.72', thence on a curve to the left (L. 166.60') a distance of 253.37', thence S. 11° 34' E. 330', thence S. 25° 27' E. 382.21', thence S. 25° 27' E. 534.28', thence S. 67° 18' E. 522.71', thence S. 57° 10' E. 852.49' to the place of beginning.

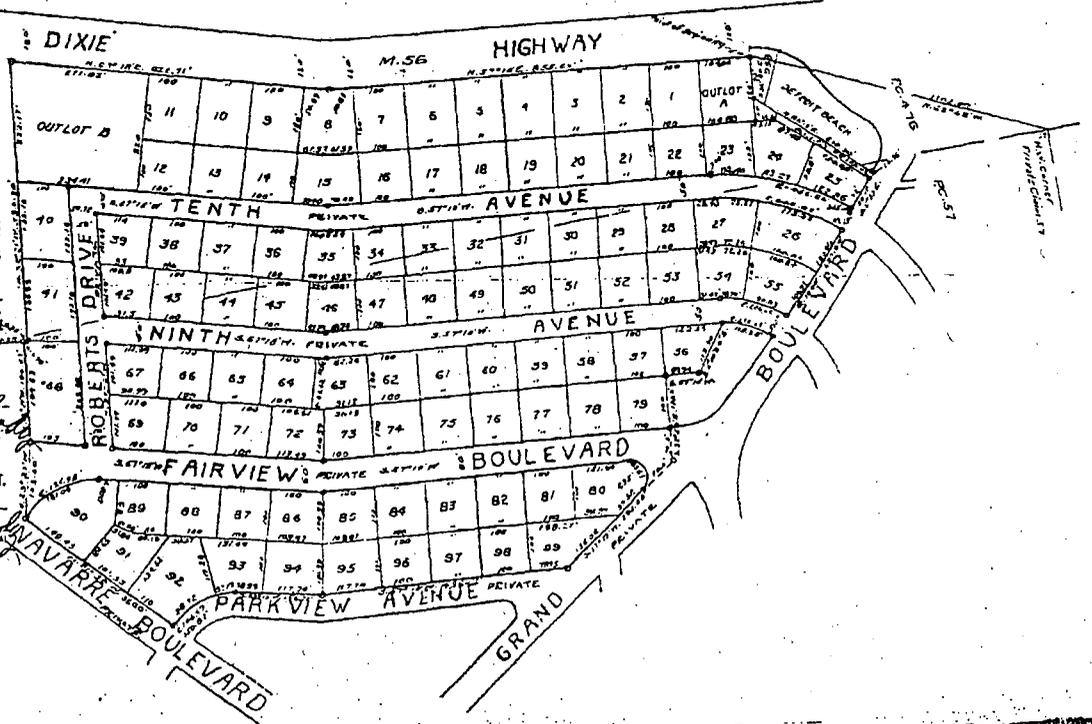
Examined and approved by the Monroe County Road Commissioners August 28 1941
Edmund J. Vest
 Chairman
William W. Koop
 Edward J. Vest

Notary Public for the State of Michigan
William C. Cook
 State of Michigan
 County of Monroe

Notary Public for the State of Michigan
Edward C. Weiss
 State of Michigan
 County of Monroe

Notary Public for the State of Michigan
William C. Cook
 State of Michigan
 County of Monroe

Notary Public for the State of Michigan
Edward C. Weiss
 State of Michigan
 County of Monroe



I hereby certify that the plat herein filed is a correct and true copy of the original of the same as the same is on file in the office of the Clerk of the Court, to-wit:

William C. Cook Notary Public, Monroe Co., Mich.
Edward C. Weiss Notary Public, Monroe Co., Mich.

On this 17th day of May 1941, before me, a Notary Public, in and for said County of Monroe, Michigan, personally appeared *Joseph A. Novare Jr.*, who being sworn by me duly administered to me the oath and being duly sworn, he declared that he is the owner of the premises described in the foregoing plat and that the same are being dedicated to the use of the public.

Witness my hand and seal in presence of the undersigned, Clerk of the Court, at Detroit, Michigan, this 17th day of May, 1941.

William C. Cook Notary Public, Monroe Co., Mich.
Edward C. Weiss Notary Public, Monroe Co., Mich.

On this 17th day of May 1941, before me, a Notary Public, in and for said County of Monroe, Michigan, personally appeared *Joseph A. Novare Jr.*, who being sworn by me duly administered to me the oath and being duly sworn, he declared that he is the owner of the premises described in the foregoing plat and that the same are being dedicated to the use of the public.

Witness my hand and seal in presence of the undersigned, Clerk of the Court, at Detroit, Michigan, this 17th day of May, 1941.

William C. Cook Notary Public, Monroe Co., Mich.
Edward C. Weiss Notary Public, Monroe Co., Mich.

On this 17th day of May 1941, before me, a Notary Public, in and for said County of Monroe, Michigan, personally appeared *Joseph A. Novare Jr.*, who being sworn by me duly administered to me the oath and being duly sworn, he declared that he is the owner of the premises described in the foregoing plat and that the same are being dedicated to the use of the public.

Witness my hand and seal in presence of the undersigned, Clerk of the Court, at Detroit, Michigan, this 17th day of May, 1941.

William C. Cook Notary Public, Monroe Co., Mich.
Edward C. Weiss Notary Public, Monroe Co., Mich.

On this 17th day of May 1941, before me, a Notary Public, in and for said County of Monroe, Michigan, personally appeared *Joseph A. Novare Jr.*, who being sworn by me duly administered to me the oath and being duly sworn, he declared that he is the owner of the premises described in the foregoing plat and that the same are being dedicated to the use of the public.

Witness my hand and seal in presence of the undersigned, Clerk of the Court, at Detroit, Michigan, this 17th day of May, 1941.

William C. Cook Notary Public, Monroe Co., Mich.
Edward C. Weiss Notary Public, Monroe Co., Mich.

On this 17th day of May 1941, before me, a Notary Public, in and for said County of Monroe, Michigan, personally appeared *Joseph A. Novare Jr.*, who being sworn by me duly administered to me the oath and being duly sworn, he declared that he is the owner of the premises described in the foregoing plat and that the same are being dedicated to the use of the public.

MONRONA BEACH

Being a part of Private Claims 56-57-476

Frenchtown Twp, Monroe Co, Mich

Examined and Approved

Oct 13-1922

Chas. S. Hammett

Deputy Auditor General

18104

Order of Vacation

By Order of Circuit Court

October 21, 1933.

Monrona Drive between Bronson Boulevard and the Dixie Highway, and all lands included within the area covered by Monrona Beach between Bronson Boulevard and the Dixie Highway.

665-1937

KNOW ALL MEN BY THESE PRESENTS, THAT WE, THE INDUSTRIAL DEVELOPMENT OF MONROE, A MICHIGAN CORPORATION, BY J. ALEX. NAVARRE, PRESIDENT, AND J. L. BROHSON, SECRETARY AS PROPRIETOR HAVE CAUSED THE LAND EMBRACED IN THE ANNEXED PLAT TO BE SURVEYED, LAID OUT AND PLATTED TO BE KNOWN AS "MONRONA BEACH," BEING A PART OF PRIVATE CLAIMS 56-57-476, FRENCHTOWN TWP., MONROE CO., MICH., AND THAT THE STREETS AS SHOWN ON SAID PLAT ARE HEREBY DEDICATED TO THE USE OF THE PUBLIC, THE PARK BEING DEDICATED TO THE USE OF THE PROPERTY OWNERS ONLY.

SIGNED AND SEALED THE INDUSTRIAL DEVELOPMENT CO. OF MONROE, BY

IN PRESENCE OF *Charles J. Hammett* PRESIDENT,

James L. Brohson SECRETARY.

STATE OF MICHIGAN
COUNTY OF MONROE

ON THIS 3rd DAY OF Oct 1922, BEFORE ME, A NOTARY PUBLIC, IN AND FOR SAID COUNTY APPEARED J. ALEX. NAVARRE AND J. L. BROHSON TO ME PERSONALLY KNOWN, WHO BEING EACH BY ME DULY SWORN ULD SAY THAT THEY ARE THE PRESIDENT AND SECRETARY RESPECTIVELY OF THE INDUSTRIAL DEVELOPMENT CO. OF MONROE, A MICHIGAN CORPORATION, AND THAT THE SEAL AFFIXED TO SAID INSTRUMENT IS THE CORPORATE SEAL OF SAID CORPORATION AND THAT SAID INSTRUMENT WAS SIGNED AND SEALED IN REPLY OF SAID CORPORATION BY AUTHORITY OF ITS BOARD OF DIRECTORS AND THAT THE SAID J. ALEX. NAVARRE AND J. L. BROHSON ACKNOWLEDGED SAID INSTRUMENT TO BE THE FREE ACT AND DEED OF SAID CORPORATION.

Charles S. Hammett NOTARY PUBLIC, MONROE CO.

MY COMMISSION EXPIRES July 5, 1925

DESCRIPTION

COMMENCING AT A POINT 55.1'S. 50°15'W. AND 125.9' N. 39°45'W. FROM THE NORTH WEST CORNER OF PRIVATE CLAIM 57, THENCE S. 33°45' W. 224.18' (CHECK S. 34°30' W. 178.4' BEING 20' 22.18' LESS) S. 28°15' W. 200.00' S. 27°45' W. 209.52' S. 27°15' W. 178.71' S. 27°15' W. 202.51' TO THE PLACE OF BEGINNING.

TREASURERS CERTIFICATE

MONROE COUNTY MICH.

I HEREBY CERTIFY THAT ACCORDING TO THE RECORDS OF THIS OFFICE ALL TAXES PRIOR TO THIS 21st DAY OF October 1922, ARE PAID AND THAT THERE ARE NO TAX LISTS OR LISTS HELD BY THE STATE OR ANY INDIVIDUAL AGAINST THE PROPERTY HEREON DESCRIBED FOR FIVE YEARS PRECEDING THIS DATE

Lucas S. Knapp COUNTY TREASURER

SURVEYORS CERTIFICATE

I HEREBY CERTIFY THAT THE PLAT HEREON DELINEATED IS A CORRECT ONE AND PERMANENT MONUMENTS CONSISTING OF 2 INCH IRON PIPE 30 INCHES LONG HAVE BEEN PLACED AT ALL POINTS MARKED "P" AS THEREON SHOWN, AT ALL ANGLES IN THE BOUNDARIES OF THE LAND PLATTED AND AT ALL INTERSECTIONS OF STREETS.

James L. Brohson REGISTERED CIVIL ENGINEER.

CERTIFICATE OF APPROVAL BY COUNTY BOARD.

THIS PLAT WAS APPROVED AT A MEETING HELD October 7th 1922.

Carl Orville PROBATE JUDGE.

Lucas S. Knapp COUNTY TREASURER.

Ray Dull COUNTY CLERK.

CERTIFICATE OF APPROVAL BY TWP. BOARD.

THIS PLAT WAS APPROVED AT A MEETING HELD September 12 1922.

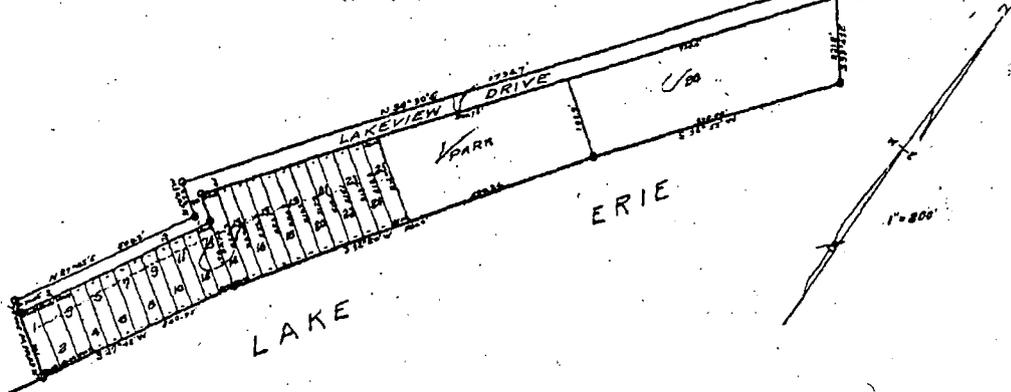
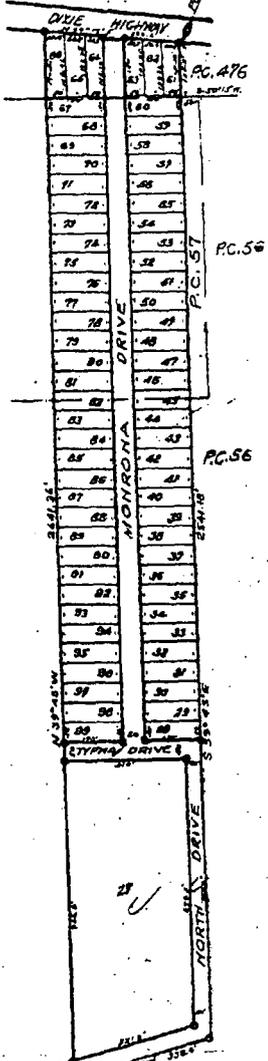
Charles P. Hill SUPERVISOR.

J. J. Hammett CLERK.

ORDER OF VACATION

ALL EASEMENTS, RIGHTS OF WAY, AND OTHER INTERESTS IN THE LANDS SHOWN ON THE PLAT OF MONRONA BEACH, BEING A PART OF PRIVATE CLAIMS 56-57-476, FRENCHTOWN TWP., MONROE CO., MICH., ARE HEREBY VACATED BY ORDER OF THE CIRCUIT COURT FOR MONROE COUNTY, MICH., MADE AND ENTERED ON OCTOBER 21, 1933.

View: 767-1925



Register's Office
Edward C. Hill
Deputy Auditor General

FILED FOR RECORDING
Oct 13-1922
Chas. S. Hammett
DEPUTY AUDITOR GENERAL

FILED FOR RECORDING
Oct 13-1922
Chas. S. Hammett
DEPUTY AUDITOR GENERAL

GRAND BEACH SUBDIVISION

PART OF PRIVATE CLAIM 56
FRENCHTOWN TOWNSHIP

T.6 S.R.9.E.
MONROE CO. MICH.

June 6-1923
No. 1
18628

All dimensions shown on this plat are in feet or decimals thereof.

I hereby certify that the plat herein delineated is a correct one and that permanent monuments consisting of iron stakes 1/2" x 12" have been planted at all points marked thus "M" as shown at all angles in the boundaries of the land platted and at all intersections of streets or alleys and alleys.

Wm. H. Langford
Registered Surveyor

KNOW ALL MEN BY THESE PRESENTS, That we Frederick J. H. Krueger and Henrietta E. Krueger his wife, Otto H. Sherlitz and Margaret H. Sherlitz his wife, as proprietors have caused the land embraced in the annexed plat to be surveyed, laid out, and platted to be known as GRAND BEACH SUBDIVISION No. 1 of part of P.O. 56, T.6 S.R.9.E. Frenchtown Township, Monroe County, Michigan, and that the streets and alleys as shown on said plat are hereby dedicated to the use of the property owners.

Signed and Sealed in the presence of

William H. Langford
Charles M. Deffler

Frederick J. H. Krueger (L.S.)
Otto H. Sherlitz (L.S.)
Henrietta E. Krueger (L.S.)
Margaret H. Sherlitz (L.S.)

STATE OF MICHIGAN
COUNTY OF MONROE

On this 29th day of May A.D. 1923, before me a Notary Public in and for said County, personally came the above named, Frederick J. H. Krueger and Henrietta E. Krueger his wife, Otto H. Sherlitz and Margaret H. Sherlitz his wife, known to me to be the persons who executed the above dedication and acknowledged the same to be their free act and deed.

My commission expires July 6th 1924

William H. Langford
Notary Public, Monroe Co., Mich.

This plat was approved on the 31 day of May A.D. 1923

Carl Marvick Jorgensen
William C. Clark
Otto C. Kuntz
Treasurers Office, Monroe County, Mich.

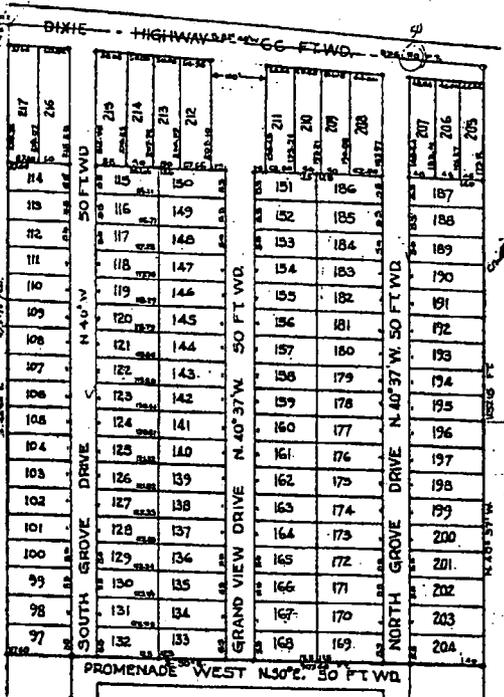
STATE OF MICHIGAN
COUNTY OF MONROE

I, Otto C. Kuntz, County Treasurer of said County, do hereby certify that I have examined the Tax Records in my office, and find that the taxes assessed upon the lands described in the annexed deed have been paid, and that it does not appear from the said records that either the State of Michigan or any individual, holds any tax, deed, or lien upon said premises for the five years preceding the date.

Otto C. Kuntz
County Treasurer.

This is to certify that the above plat was approved by the Township Board of Frenchtown Township, County of Monroe, Michigan, this 29 day of May A.D. 1923.

J. J. Starnhill
Chairman



SCALE ONE INCH = 150 FEET

Description.
The land embraced in the annexed plat of "Grand Beach Subdivision No. 1" of part of P.O. 56, T.6 S.R.9.E. Frenchtown Township, Monroe County, Michigan, is described as, beginning at a point in the center of Dixie Highway, said point being 8.49° 37' W. 56.18 feet, and N. 60° 03' W. 189.13 feet, and S. 55° 28' E. 708.40 feet, and S. 23° 40' E. 1185 feet to the northeast corner of P.O. 56, thence S. 60° 03' E. 1176.76 feet to a point, thence S. 50° E 907.60 feet to a point, thence N. 40° 37' W. 1127.15 feet to a point, thence S. 55° 40' W. 876.85 feet to the place of beginning.

Register's Office
Monroe County, Mich.
George S. Heckel
June 6-1923
Deputy Auditor General

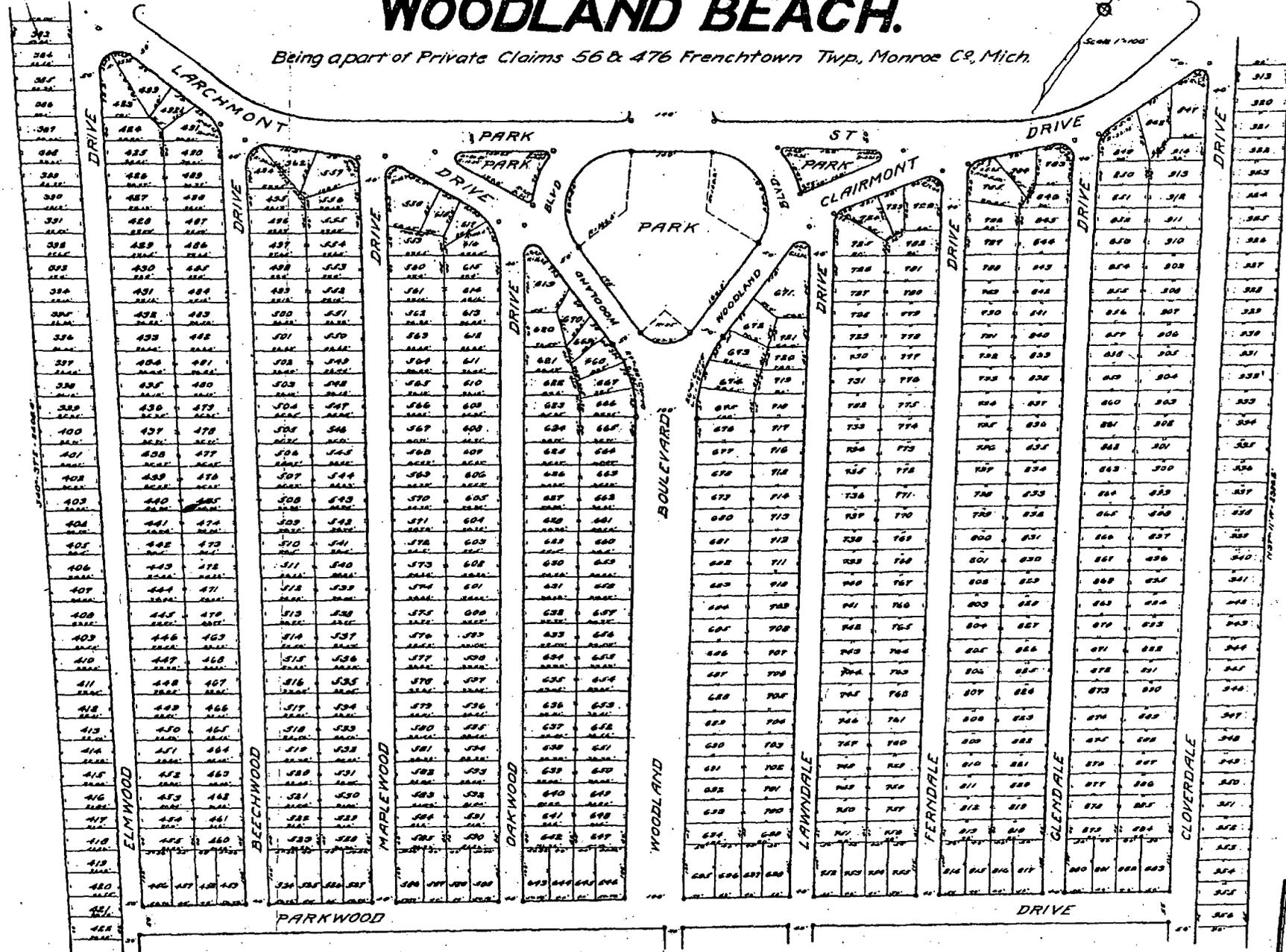
I HEREBY CERTIFY THAT THIS COPY IS A TRUE COPY OF THE MAP OR PLAT AS DRAWN BY THE REGISTER OF DEEDS FOR RECORD.
June 6-1923
Deputy Auditor General

FILED IN AUDITOR GENERAL'S OFFICE
June 9-1923
Deputy Auditor General

WOODLAND BEACH.

Being a part of Private Claims 56 & 476 Frenchtown Twp., Monroe Co., Mich.

Scale 1/4" = 100'

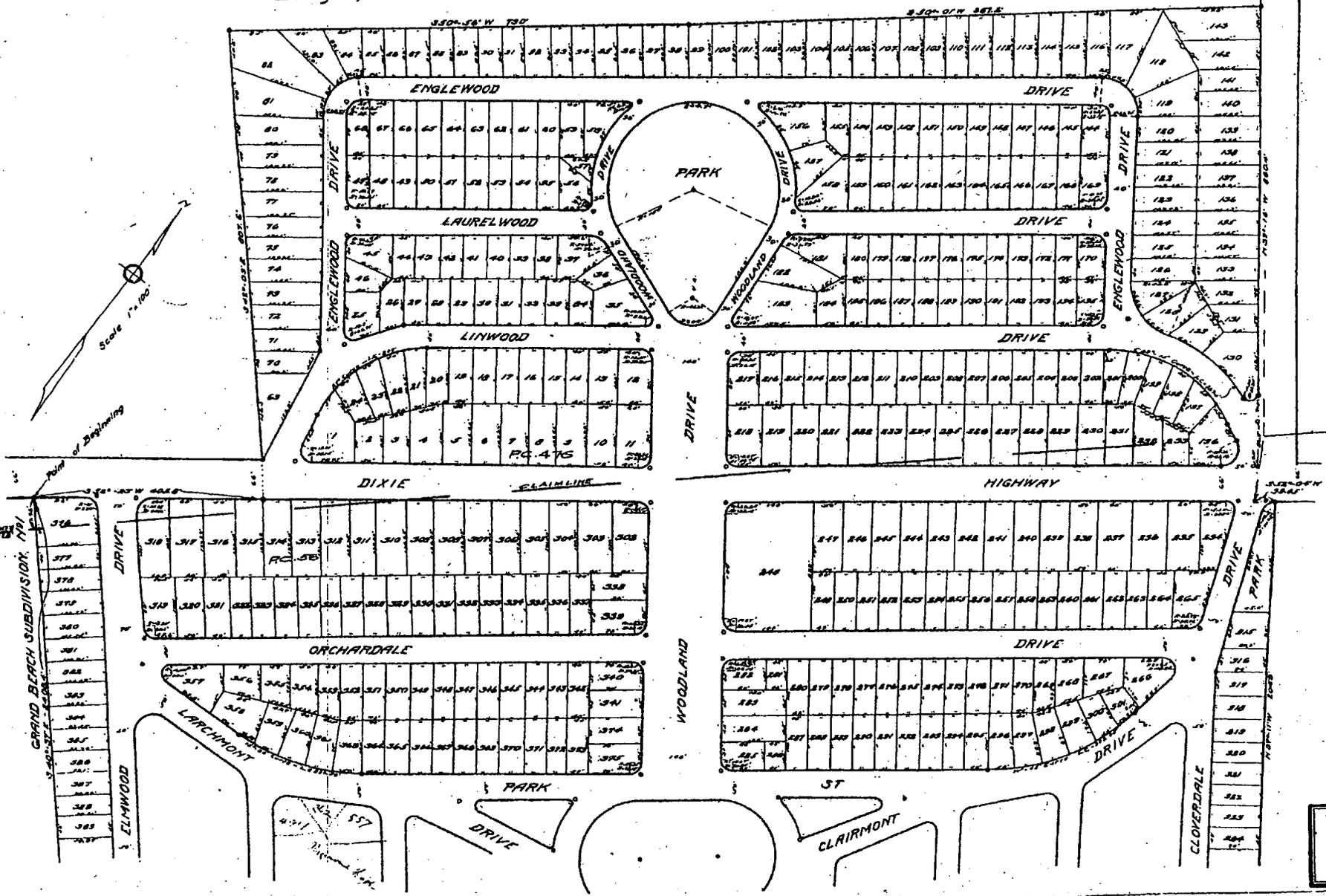


12061

WOODLAND BEACH.

Being a part of Private Claims 56 & 476, Frenchtown Twp, Monroe Co, Mich.

10/1/22



"ERIE SHORES SUBDIVISION"

OF PART OF P. C. 56,
FRENCHTOWN TOWNSHIP, MONROE COUNTY,
MICHIGAN.

Dec 30-1925
L. H. Hume

12/12/25
L. H. Hume
at 9
4 Plate
George Heckel

SCALE - 1" = 100'

Note - All dimensions herein shown are in feet and in decimals of a foot.

W. E. ALDINGER
REGISTERED SURVEYOR
1231 FRANK AVE.
DETROIT, MICH.

Dec 30-1925
L. H. Hume

I hereby certify that the plat herein delineated is a correct one, and that permanent monuments, consisting of 1" by 2 1/2" inch iron pipe have been planted at all points marked thus "o" as shown shown at all angles in the boundaries of the land platted, and at all intersections of streets.

Jan 4-1926
L. H. Hume

Clayton Chalden
Registered Surveyor.

KNOW ALL MEN BY THESE PRESENTS, That William F. Henderson and Joseph Henderson, himself as co-surveyor have caused the land embraced in the annexed plat to be surveyed, laid out and platted, to be known as "ERIE SHORES SUBDIVISION" OF PART OF P. C. 56, FRENCHTOWN TOWNSHIP, MONROE COUNTY, MICHIGAN, and that the streets, roads and highways as shown on said plat are hereby dedicated to the use of the property owners of this plat.

Signed and Sealed in the presence of
Clayton Chalden (William E. Aldinger, S.S.)
Robert P. Faucher (George W. Hume, S.S.)

STATE OF MICHIGAN
COUNTY OF MONROE, S.S. On this 16th day of June, 1925 before me a Notary Public in and for said County, personally appeared the above named William F. Henderson and Joseph Henderson known to me to be the persons who executed the above dedication, and acknowledged the same to be their free act and deed.

My commission expires December 15, 1928
Clayton Chalden
Notary Public Monroe Co., Mich.

The land embraced in the annexed plat of "ERIE SHORES SUBDIVISION" OF PART OF P. C. 56, FRENCHTOWN TOWNSHIP, MONROE COUNTY, MICHIGAN, is described as follows: - Beginning at a point in the center of Dixie Highway, so called, said point being the North West corner of "INDIAN TRAILS" a subdivision now recorded; thence, along the West line of "INDIAN TRAILS" subdivision now recorded; thence, along the shore of Lake Erie S. 34°-11' E., 2403.0 feet to the shore of Lake Erie; thence, along the shore of Lake Erie S. 53°-59' W., 323.5 feet; thence, N. 53°-54' W. 2457.0 feet, to the center of Dixie Highway; thence along the center of Dixie Highway N. 51°-45' E., 398.78 feet to the point of Beginning.

MONROE COUNTY TREASURER'S OFFICE, MONROE, MICH. July 20 1925

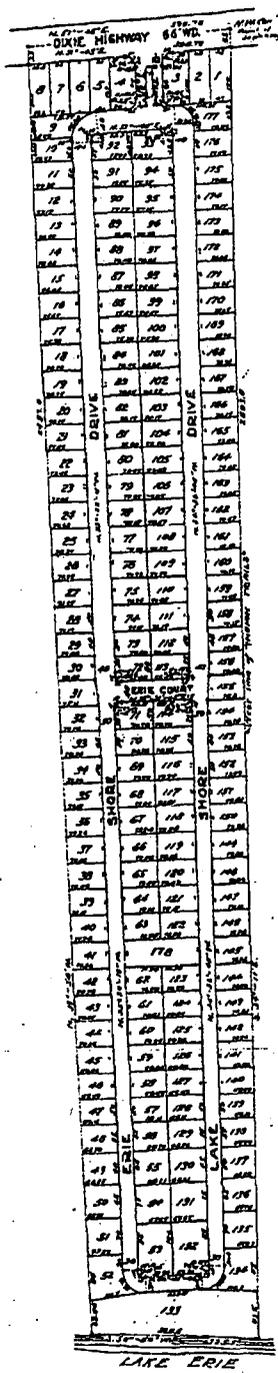
I hereby certify that according to the records of this office all taxes prior to this date have been paid and that there are no tax liens or titles held by the state or any individual against the property herein described for five years preceding this date.

Cliff C. Kueh
County Treasurer

This plat was approved by the Township Board of the Township of Frenchtown at a meeting held July 25, 1925

This plat was approved by the County Board of Plets of the County of Monroe at a meeting held July 25, 1925

Earl Hawks Probate Judge.
Cliff C. Kueh County Treasurer.
William C. Brown County Clerk.



INDIAN TRAILS.

Being a part of Private Claim 56 Frenchtown Twp, Monroe Co, Mich.

Examined and Approved

Sept 26-1923

J. L. Hunter
Deputy Auditor General

MONROE COUNTY TREASURERS OFFICE, MONROE, MICH. Aug 27 1923.

I HEREBY CERTIFY THAT ACCORDING TO THE RECORDS OF THIS OFFICE ALL TAXES DUE TO THIS DATE HAVE BEEN PAID AND THAT THERE ARE NO TAX LIENS OR TITLES HELD BY THE STATE OR ANY INDIVIDUAL AGAINST THE PROPERTY HEREIN DESCRIBED FOR FIVE YEARS PRECEDING THIS DATE.

Alb. C. Huntz COUNTY TREASURER.

KNOW ALL MEN BY THESE PRESENTS THAT W. C. ELLSWORTH SURVAYOR AND GEORGE G. ELLSWORTH PROPRIETORS, HAVE CAUSED THE FOLLO WING MAPPER IN THE ABOVE PLAT TO BE SURVEYED, LAIN OUT AND PLATTED, TO BE FROM AN INDIAN TRAILS, BEING A PART OF PRIVATE CLAIM 56, TO BE FRENCHTOWN TWP., MONROE CO., MICH., AND THAT THE STREETS AND PARKS AS SHOWN ON SAID PLAT ARE HEREBY DEDICATED TO THE USE OF THE PROPERTY OWNERS ONLY.

WITNESSED AND SEALED IN PRESENCE OF *Edw. W. Brown* J. S.

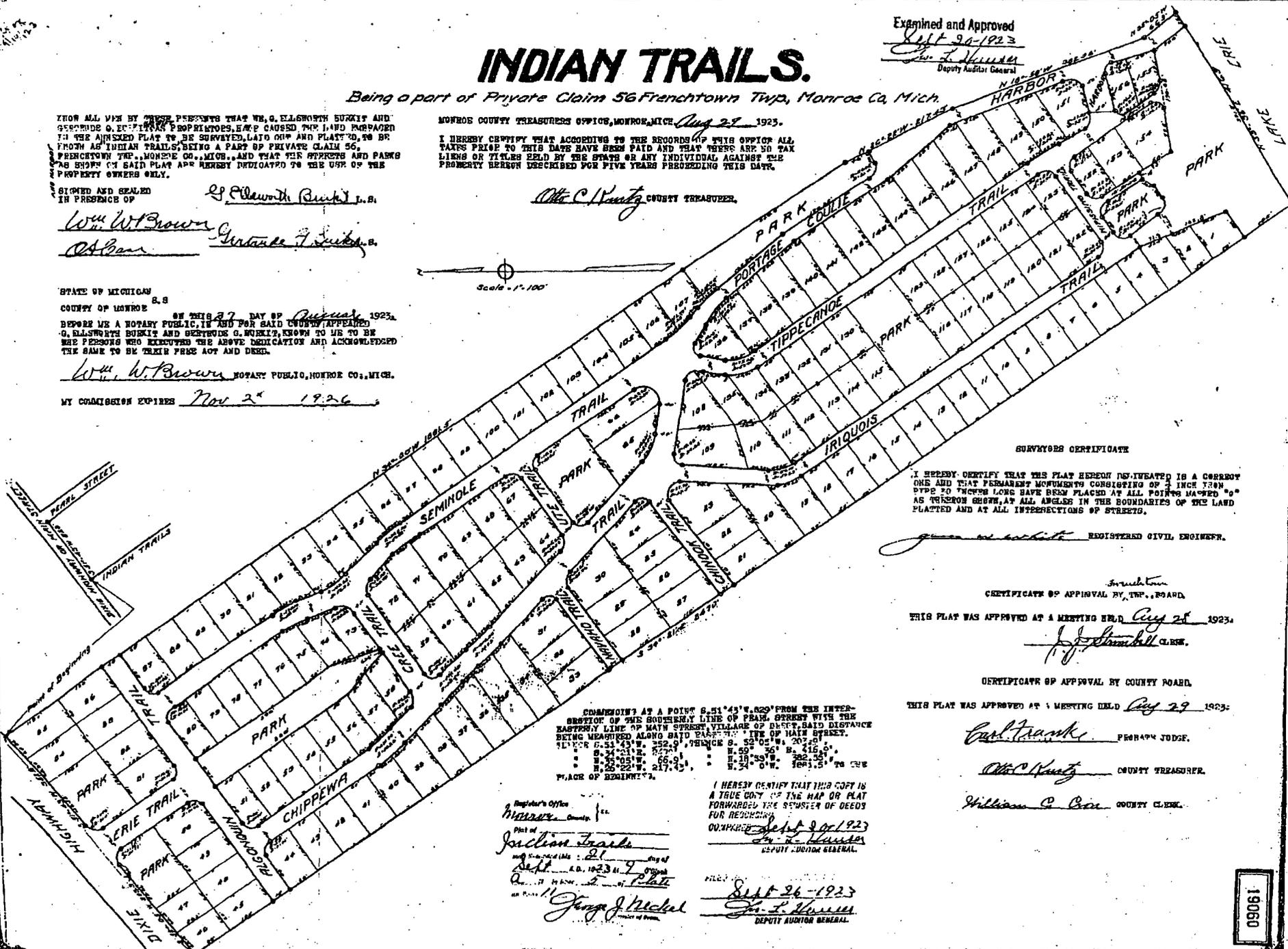
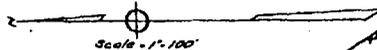
Wm. W. Brown
Edw. W. Brown Notary Public

STATE OF MICHIGAN
COUNTY OF MONROE

ON THIS 27 DAY OF August, 1923,
BEFORE ME A NOTARY PUBLIC, IN AND FOR SAID COUNTY APPEARED GEORGE G. ELLSWORTH SURVAYOR AND GEORGE G. ELLSWORTH PROPRIETORS TO ME TO BE THE PERSONS WHO EXECUTED THE ABOVE DEDICATION AND ACKNOWLEDGED THE SAME TO BE THEIR FREE ACT AND DEED.

Wm. W. Brown NOTARY PUBLIC, MONROE CO., MICH.

MY COMMISSION EXPIRES Nov 2nd 1926



SURVAYORS CERTIFICATE

I HEREBY CERTIFY THAT THE PLAT HEREON DEWEATED IS A CORRECT ONE AND THAT PERMANENT MONUMENTS CONSISTING OF 1 INCH IRON PIPES 20 INCHES LONG HAVE BEEN PLACED AT ALL POINTS MARKED "0" AS THEREON SHOWN, AT ALL ANGLES IN THE BOUNDARIES OF THE LAND PLATTED AND AT ALL INTERSECTIONS OF STREETS.

George G. Ellsworth REGISTERED CIVIL ENGINEER.

CERTIFICATE OF APPROVAL BY THE BOARD

THIS PLAT WAS APPROVED AT A MEETING HELD Aug 28 1923.

J. J. Stumhill CLERK.

CERTIFICATE OF APPROVAL BY COUNTY BOARD

THIS PLAT WAS APPROVED AT A MEETING HELD Aug 29 1923.

Carl Frank PROBATE JUDGE.

Alb. C. Huntz COUNTY TREASURER.

William C. Cox COUNTY CLERK.

COMMENCE AT A POINT S. 51° 45' W. 820' FROM THE INTERSECTION OF THE SOUTHERLY LINE OF PEARL STREET WITH THE EASTERN LINE OF MAYN STREET, VILLAGE OF EAST, SAID DISTANCE BEING MEASURED ALONG SAID EASTERN LINE OF MAYN STREET.
 1. S. 24° 12' W. 87.5' to B. 50° 36' N. 415.5'
 2. S. 20° 05' W. 65.3' to B. 20° 05' W. 182.5'
 3. S. 24° 12' W. 217.5' to B. 24° 01' W. 182.5' TO THE PLACE OF BEGINNING.

Register's Office
Monroe County
Plat of
Indian Trails
Map recorded this 21 day of
Sept. A.D. 1923 at 9 o'clock
A.M. in Book 11 of Plats
at Page 11
George J. Medel Register of Deeds

I HEREBY CERTIFY THAT THIS COPY IS A TRUE COPY OF THE MAP OR PLAT FORWARDED THE REGISTER OF DEEDS FOR RECORDING.
 DATED Sept 26 1923
J. L. Hunter
DEPUTY AUDITOR GENERAL

FILED
 Sept 26-1923
J. L. Hunter
DEPUTY AUDITOR GENERAL

19061

June 18 1923
Chas. L. Williams
DEPUTY AUDITOR GENERAL

DEPUTY AUDITOR GENERAL

AIME PHILIPPART BREST SUBDIVISION

Being a part of private claim No. 56.

Frenchtown Twp., Monroe Co., Mich.

Know all men

by these presents, that I, Aime Philippart, a widower, as proprietor, have caused the land embraced in the annexed plat to be surveyed, laid out and platted, to be known as "Aime Philippart Brest Subdivision," being a part of private claims No. 56, being of Frenchtown Twp., Monroe Co., Mich. and that the streets shown on said plat are hereby dedicated to the use of the public.

Signed and sealed

In presence of

Claude Schertz
Henry J. ...

Aime Philippart L.S.

State of Michigan
County of Monroe ss

On this 24th day of March 1923, before me, a Notary Public, in and for said County appeared Aime Philippart known to me to be the person who executed the above dedication and acknowledged the same to be his free act and deed.

Charles J. Philippart Notary Public
My commission expires March 12 - 1927

Description.

Commencing at a point in the easterly line of highway at the SW corner of land owned by Columbus Monroe, and 905' from Center Line of Dixie Highway; thence running N 52° 43' E to Stony Creek 523'-6"; thence southerly along Stony Creek to Lake Erie to East line of highway 2122.97'; thence along the East line of highway N 37° 37' W 219'-6" to the place of beginning.

Treasurers Certificate.

Monroe County Treasurers Office, Monroe, Mich.
I hereby certify that according to the records of this office all taxes prior to this 4th day of May 1923, are paid and that there are no tax liens or titles held by the state or any individual against the property hereon described for five years preceding this date.

Oliver C. Neatby County Treasurer

Surveyors Certificate.

I hereby certify that the plat hereon delineated is a correct one and that permanent monuments consisting of 3/4 inch iron pipe 30 inches long have been placed at all points marked "o" as thereon shown, at all angles in the boundaries of the land platted and at all intersections of streets.

Wm. H. ... Registered Civil Engineer

Certificate of approval by Township Board.

This plat was approved at a meeting held

April 30th 1923

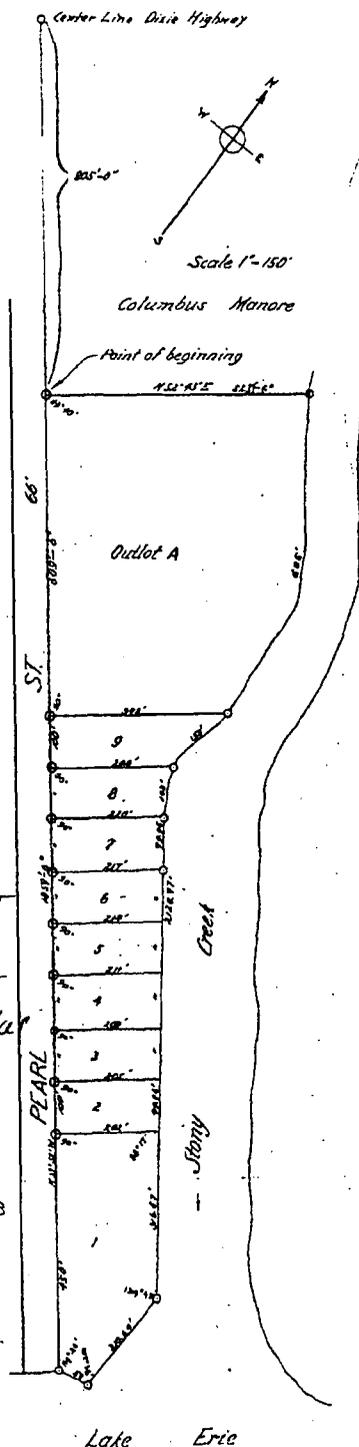
Charles P. Hall Supervisor
J. J. ... Clerk

Certificate of approval by County Board.

This plat was approved at a meeting held

May 4th 1923

Carl ... Probate Judge
Oliver C. Neatby County Treasurer
William C. ... County Clerk



Witness my hand and seal this 18th day of June 1923.
Chas. L. Williams
DEPUTY AUDITOR GENERAL

I HEREBY CERTIFY THAT THIS IS A TRUE COPY OF THE ORIGINAL FORWARDED TO THE OFFICE OF THE DEPUTY AUDITOR GENERAL.
June 18-1923
Chas. L. Williams
DEPUTY AUDITOR GENERAL

FILED IN AUDITOR GENERAL'S DEPT.
June 22-1923
Chas. L. Williams
DEPUTY AUDITOR GENERAL

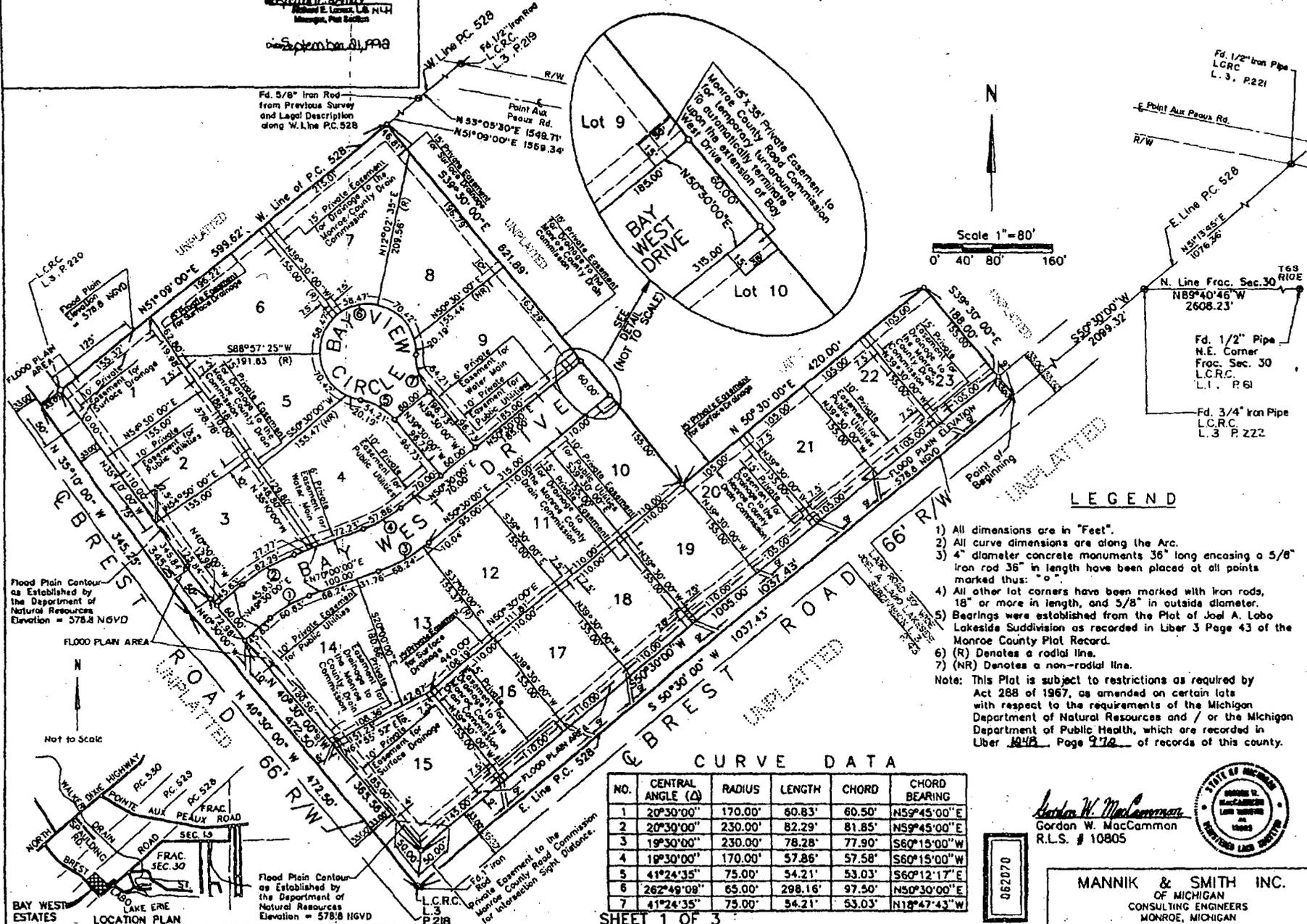
BAY WEST ESTATES PLAT 1

BEING PART OF PRIVATE CLAIM 528
FRENCHTOWN TOWNSHIP, MONROE COUNTY, MICHIGAN

CERTIFIED TRUE COPY OF
RECORDED PLAT
BY DEPARTMENT OF COMMERCE

Richard W. MacCammon
Surveyor, License No. 1144
Michigan, Exp. 12/31/2018

September 21, 1998



Scale 1"=80'
0' 40' 80' 160'

LEGEND

- 1) All dimensions are in "Feet".
 - 2) All curve dimensions are along the Arc.
 - 3) 4" diameter concrete monuments 36" long encasing a 5/8" iron rod 36" in length have been placed at all points marked thus: "o".
 - 4) All other lot corners have been marked with iron rods, 18" or more in length, and 5/8" in outside diameter.
 - 5) Bearings were established from the Plot of Joel A. Lobo Lakeside Subdivision as recorded in Liber 3 Page 43 of the Monroe County Plat Record.
 - 6) (R) Denotes a radial line.
 - 7) (NR) Denotes a non-radial line.
- Note: This Plat is subject to restrictions as required by Act 288 of 1967, as amended on certain lots with respect to the requirements of the Michigan Department of Natural Resources and / or the Michigan Department of Public Health, which are recorded in Liber 1042, Page 276 of records of this county.

CURVE DATA

NO.	CENTRAL ANGLE (Δ)	RADIUS	LENGTH	CHORD	CHORD BEARING
1	20°30'00"	170.00'	60.83'	60.50'	N59°45'00"E
2	20°30'00"	230.00'	82.29'	81.85'	N59°45'00"E
3	19°30'00"	230.00'	78.28'	77.90'	S60°19'00"W
4	19°30'00"	170.00'	57.86'	57.58'	S60°19'00"W
5	41°24'35"	75.00'	54.21'	53.03'	S60°12'17"E
6	262°49'09"	65.00'	298.16'	97.50'	N50°30'00"E
7	41°24'35"	75.00'	54.21'	53.03'	N18°47'43"W

Gordon W. MacCammon
Gordon W. MacCammon
R.L.S. # 10805

MANNIK & SMITH INC.
OF MICHIGAN
CONSULTING ENGINEERS
MONROE, MICHIGAN



BAY WEST ESTATES PLAT 1

BEING PART OF PRIVATE CLAIM 528
FRENCHTOWN TOWNSHIP, MONROE COUNTY, MICHIGAN

I, GORDON W. MACCAMMON, SURVEYOR, CERTIFY:
THAT I HAVE SURVEYED, DIVIDED AND MAPPED THE LAND SHOWN ON THIS
PLAT, DESCRIBED AS FOLLOWS:

BAY WEST ESTATES PLAT 1, WHICH IS PART OF PRIVATE CLAIM 528,
FRENCHTOWN TOWNSHIP, MONROE COUNTY, MICHIGAN, AND BEGINS AT A POINT
THAT IS NORTH 89°40'46" WEST 2608.23 FEET AND SOUTH 30°30'00" WEST
2099.32 FEET FROM THE NORTHEAST CORNER OF FRACTIONAL SECTION 30,
TOWN 5 SOUTH, RANGE 10 EAST, FRENCHTOWN TOWNSHIP, MONROE COUNTY,
MICHIGAN:

THENCE SOUTH 30°30'00" WEST ALONG THE SOUTHEASTERLY LINE OF PRIVATE
CLAIM 528 1031.43 FEET; THENCE NORTH 40°30'00" WEST 472.50 FEET;
THENCE NORTH 35°10'00" WEST 345.25 FEET; THENCE ALONG THE NORTHWEST-
ERLY LINE OF P.C. 828 NORTH 87°00'00" EAST 999.92 FEET; THENCE SOUTH
39°30'00" EAST 621.89 FEET; THENCE NORTH 50°30'00" EAST 420.00; THENCE
SOUTH 39°30'00" EAST 189.00 FEET TO THE POINT OF BEGINNING; CONTAINING
13.449 ACRES OF LAND, TWENTY-THREE LOTS NUMBERED 1 THROUGH 23
INCLUSIVE.

THAT I HAVE MADE SUCH SURVEY, LAND DIVISION AND PLAT BY THE
DIRECTION OF THE OWNERS OF SUCH LAND. THAT SUCH PLAT IS A CORRECT
REPRESENTATION OF ALL THE EXTERIOR BOUNDARIES OF THE LAND SURVEYED
AND THE SUBDIVISION OF IT.

THAT THE REQUIRED MONUMENTS AND LOT CORNERS HAVE BEEN LOCATED IN
THE GROUND OR THAT SURETY HAS BEEN DEPOSITED WITH THE MUNICIPALITY
AS REQUIRED BY SECTION 125 OF THE ACT.

THAT THE ACCURACY OF SURVEY IS WITHIN THE LIMITS REQUIRED BY
SECTION 126 OF THE ACT. THAT THE BEARINGS SHOWN ON THE PLAT ARE
EXPRESSED AS REQUIRED BY SECTION 126 (3) OF THE ACT AND AS
EXPLAINED IN THE LEGEND.

DATE: February 27, 1992.

MANNIK & SMITH OF MICHIGAN, INC.
1070 S. TELEGRAPH ROAD
MONROE, MICHIGAN 48161

Barry A. Buschmann
BARRY A. BUSCHMANN, PRESIDENT
P.E. NO. 28746

Gordon W. MacCammmon
GORDON W. MACCAMMON
R.L.S. NO. 10805



PROPRIETOR'S CERTIFICATE

BAY WEST DEVELOPMENT CO., A CORPORATION DULY ORGANIZED AND EXISTING
UNDER THE LAWS OF THE STATE OF MICHIGAN, BY THOMAS J. BESTE, ITS
PRESIDENT, AS PROPRIETOR, HAS CAUSED THE LAND ENBRACED IN THIS PLAT
TO BE SURVEYED, DIVIDED, MAPPED AND DEDICATED AS REPRESENTED ON
THIS PLAT; THAT THE STREETS ARE FOR THE USE OF THE PUBLIC; THAT
LOTS 16 AND 17 ARE SUBJECT TO SPECIAL FLOOD HAZARD RESTRICTIONS
RECORDED WITH THIS PLAT; THAT THE MONROE COUNTY ROAD COMMISSION FOR
"TEMPORARY TURNAROUND" WILL CEASE TO EXIST AT SUCH TIME AS THE
PUBLIC STREET IS EXTENDED BEYOND THE LIMITS OF THIS PLAT; THAT THE
PUBLIC UTILITY EASEMENTS ARE PRIVATE EASEMENTS; AND THAT ALL OTHER
EASEMENTS ARE FOR THE USES SHOWN ON THIS PLAT.

BAY WEST DEVELOPMENT CO.
1070 S. STONEY CREEK ROAD
CARLETON, MI 48117

WITNESS:

Lori K. Kleimow
LORI K. KLEIMOW

BY: Thomas J. Beste
THOMAS J. BESTE, PRESIDENT

Richard V. Rosenlund
RICHARD V. ROSENLUND

ACKNOWLEDGEMENT

STATE OF MICHIGAN)
COUNTY OF MONROE) ss

PERSONALLY CAME BEFORE ME THIS 28 DAY OF February,
1992, THOMAS J. BESTE, PRESIDENT OF THE ABOVE NAMED CORPORATION,
TO ME KNOWN TO BE THE PERSON WHO EXECUTED THE FOREGOING INSTRUMENT,
AND TO ME KNOWN TO BE SUCH PRESIDENT OF SAID CORPORATION, AND
ACKNOWLEDGED THAT HE EXECUTED THE FOREGOING INSTRUMENT AS SUCH
OFFICER AS THE FREE ACT AND DEED OF SAID CORPORATION, BY ITS
AUTHORITY.

NOTARY PUBLIC Lori K. Kleimow, Monroe COUNTY, MICHIGAN
LORI K. KLEIMOW, MONROE COUNTY

MY COMMISSION EXPIRES AUGUST 14, 1995.

PROPRIETOR'S CERTIFICATE

WE AS PROPRIETOR'S CERTIFY THAT WE CAUSED THE LAND ENBRACED IN THIS
PLAT TO BE SURVEYED, DIVIDED, MAPPED AND DEDICATED AS REPRESENTED
ON THIS PLAT; THAT THE STREETS ARE FOR THE USE OF THE PUBLIC; THAT
LOTS 16 AND 17 ARE SUBJECT TO SPECIAL FLOOD HAZARD RESTRICTIONS
RECORDED WITH THIS PLAT; THAT THE MONROE COUNTY ROAD COMMISSION FOR
"TEMPORARY TURNAROUND" WILL CEASE TO EXIST AT SUCH TIME AS THE
PUBLIC STREET IS EXTENDED BEYOND THE LIMITS OF THIS PLAT; THAT THE
PUBLIC UTILITY EASEMENTS ARE PRIVATE EASEMENTS; AND THAT ALL OTHER
EASEMENTS ARE FOR THE USES SHOWN ON THIS PLAT.

RICHARD J. LANGTON MARRIED MAN
KATHLEEN A. LANGTON WIFE
1507 BAZAROW DRIVE
MONROE, MICHIGAN 48161
AS TO LOT 16

WITNESS:

Lori K. Kleimow
LORI K. KLEIMOW

Richard V. Rosenlund
RICHARD V. ROSENLUND

Richard J. Langton
RICHARD J. LANGTON
Kathleen A. Langton
KATHLEEN A. LANGTON

ACKNOWLEDGEMENT

STATE OF MICHIGAN)
MONROE COUNTY) ss

PERSONALLY CAME BEFORE ME THIS 28 DAY OF March,
1992, THE ABOVE NAMED RICHARD JAMES LANGTON AND KATHLEEN ANN
LANGTON, TO ME KNOWN TO BE THE PERSONS WHO EXECUTED THE FOREGOING
INSTRUMENT AND ACKNOWLEDGED THAT THEY EXECUTED THE SAME AS THEIR
FREE ACT AND DEED.

NOTARY PUBLIC Lori K. Kleimow, Monroe COUNTY, MICHIGAN
LORI K. KLEIMOW, MONROE COUNTY

MY COMMISSION EXPIRES AUGUST 14, 1995.

BAY WEST ESTATES PLAT 1

BEING PART OF PRIVATE CLAIM 528
FRENCHTOWN TOWNSHIP, MONROE COUNTY, MICHIGAN

PROPRIETOR'S CERTIFICATE

MONROE BANK & TRUST, A BANKING CORPORATION DULY ORGANIZED AND EXISTING UNDER THE LAWS OF THE STATE OF MICHIGAN, BY ROBERT C. NEELY, ITS SENIOR VICE-PRESIDENT, AS PROPRIETOR, HAS CAUSED THE LAND ENBRACED IN THIS PLAT TO BE SURVEYED, DIVIDED, MAPPED AND DEDICATED AS REPRESENTED ON THIS PLAT; THAT THE STREETS ARE FOR THE USE OF THE PUBLIC; THAT LOTS 16 AND 17 ARE SUBJECT TO SPECIAL FLOOD HAZARD RESTRICTIONS RECORDED WITH THIS PLAT; THAT THE "TEMPORARY EASEMENT TO THE MONROE COUNTY ROAD COMMISSION FOR TEMPORARY TURNAROUND" WILL CEASE TO EXIST AT SUCH TIME AS THE PUBLIC STREET IS EXTENDED BEYOND THE LIMITS OF THIS PLAT; THAT THE PUBLIC UTILITY EASEMENTS ARE PRIVATE EASEMENTS; AND THAT ALL OTHER EASEMENTS ARE FOR THE USES SHOWN ON THIS PLAT.

MONROE BANK & TRUST
102 EAST FRONT STREET
MONROE, MI 48161

WITNESS:

Virginia L. Kroegers
VIRGINIA L. KROEGERS
Chris A. Timko
CHRIS A. TIMKO

BY: Robert C. Neely
ROBERT C. NEELY
SENIOR VICE-PRESIDENT

ACKNOWLEDGMENT

STATE OF MICHIGAN)
MONROE COUNTY) 1SS

PERSONALLY CAME BEFORE ME THIS 5th DAY OF March, 1992, ROBERT C. NEELY, SENIOR VICE-PRESIDENT OF THE ABOVE NAMED BANKING CORPORATION, TO ME KNOWN TO BE THE PERSON WHO EXECUTED THE FOREGOING INSTRUMENT, AND TO ME KNOWN TO BE SUCH SENIOR VICE PRESIDENT OF SAID BANKING CORPORATION, AND ACKNOWLEDGED THAT HE EXECUTED THE FOREGOING INSTRUMENT, AS SUCH OFFICER, AS THE FREE ACT AND DEED OF SAID BANKING CORPORATION, BY ITS AUTHORITY.

NOTARY PUBLIC, Chris A. Timko, MONROE COUNTY
CHRIS A. TIMKO MONROE, MICHIGAN

MY COMMISSION EXPIRES MARCH 15, 1994.

COUNTY TREASURER'S CERTIFICATE

THE RECORDS IN MY OFFICE SHOW NO UNPAID TAXES, OR SPECIAL ASSESSMENTS, FOR THE FIVE YEARS PRECEDING March 13, 1992 INVOLVING THE LANDS INCLUDED IN THIS PLAT.

Norman J. Blanchett
NORMAN J. BLANCHETT, COUNTY TREASURER
MONROE COUNTY

MONROE COUNTY DRAIN COMMISSIONER'S CERTIFICATE

APPROVED ON March 31, 1992, AS COMPLYING WITH SECTION 192 OF ACT 288, P.A. 1987 AND THE APPLICABLE RULES AND REGULATIONS PUBLISHED BY MY OFFICE IN THE COUNTY OF MONROE.

Donald W. Burton
DONALD W. BURTON, DRAIN COMMISSIONER

CERTIFICATE OF COUNTY ROAD COMMISSIONERS

APPROVED ON April 9, 1992, AS COMPLYING WITH SECTION 183 OF ACT 288, P.A. 1987 AND THE APPLICABLE PUBLISHED RULES AND REGULATIONS OF THE BOARD OF ROAD COMMISSIONERS OF MONROE COUNTY.

Doyle Williams
DOYLE WILLIAMS, MEMBER

Leroy Tyler
LEROY TYLER, MEMBER

Harry K. Benson
HARRY K. BENSON, CHAIRMAN

CERTIFICATE OF MUNICIPAL APPROVAL

I CERTIFY THAT THIS PLAT WAS APPROVED BY THE TOWNSHIP BOARD, OF FRENCHTOWN CHARTER TOWNSHIP AT A MEETING HELD April 14, 1992 AND WAS REVIEWED AND FOUND TO BE IN COMPLIANCE WITH ACT 288, P.A. OF 1987; THAT SURETY HAS BEEN POSTED FOR THE INSTALLATION OF PUBLIC SEWER AND PUBLIC WATER SERVICES; AND THAT SURETY HAS BEEN POSTED FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL APPROVAL OF THE PLAT FOR THE PLACEMENT OF MONUMENTS.

Bernard J. Felder
BERNARD J. FELDER, CLERK

COUNTY PLAT BOARD CERTIFICATE

THIS PLAT HAS BEEN REVIEWED AND IS APPROVED BY THE MONROE COUNTY PLAT BOARD ON June 25, 1992 AS BEING IN COMPLIANCE WITH ALL OF THE PROVISIONS OF ACT 288, P.A. 1987, AND THE PLAT BOARD'S APPLICABLE RULES AND REGULATIONS.

Carol Miletti
CAROL MILETTI, REGISTER OF DEEDS
CHAIRMAN OF PLAT BOARD

Gert K. Allen
GERT K. ALLEN, COUNTY CLERK

Norman J. Blanchett
NORMAN J. BLANCHETT, COUNTY TREASURER

RECORDING CERTIFICATE

STATE OF MICHIGAN)
MONROE COUNTY)

THIS PLAT WAS RECEIVED FOR RECORD ON THE 8th DAY OF September, 1992, AT 12:50 PM AND RECORDED IN LIBER 116 OF PLATS ON PAGE(S) 8, 9, 10

Carol Miletti
CAROL MILETTI, REGISTER OF DEEDS

Gordon W. MacCammon
Gordon W. MacCammon
R.L.S. # 10805



SHEET 3 OF 3

MANNIK & SMITH INC.
OF MICHIGAN
CONSULTING ENGINEERS
MONROE, MICHIGAN

062070

BAY WEST ESTATES PLAT 2

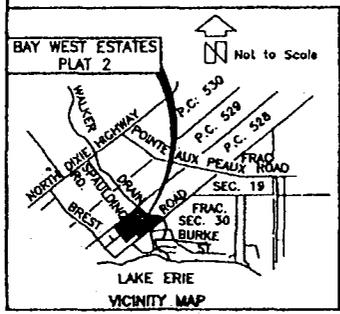
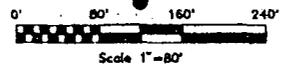
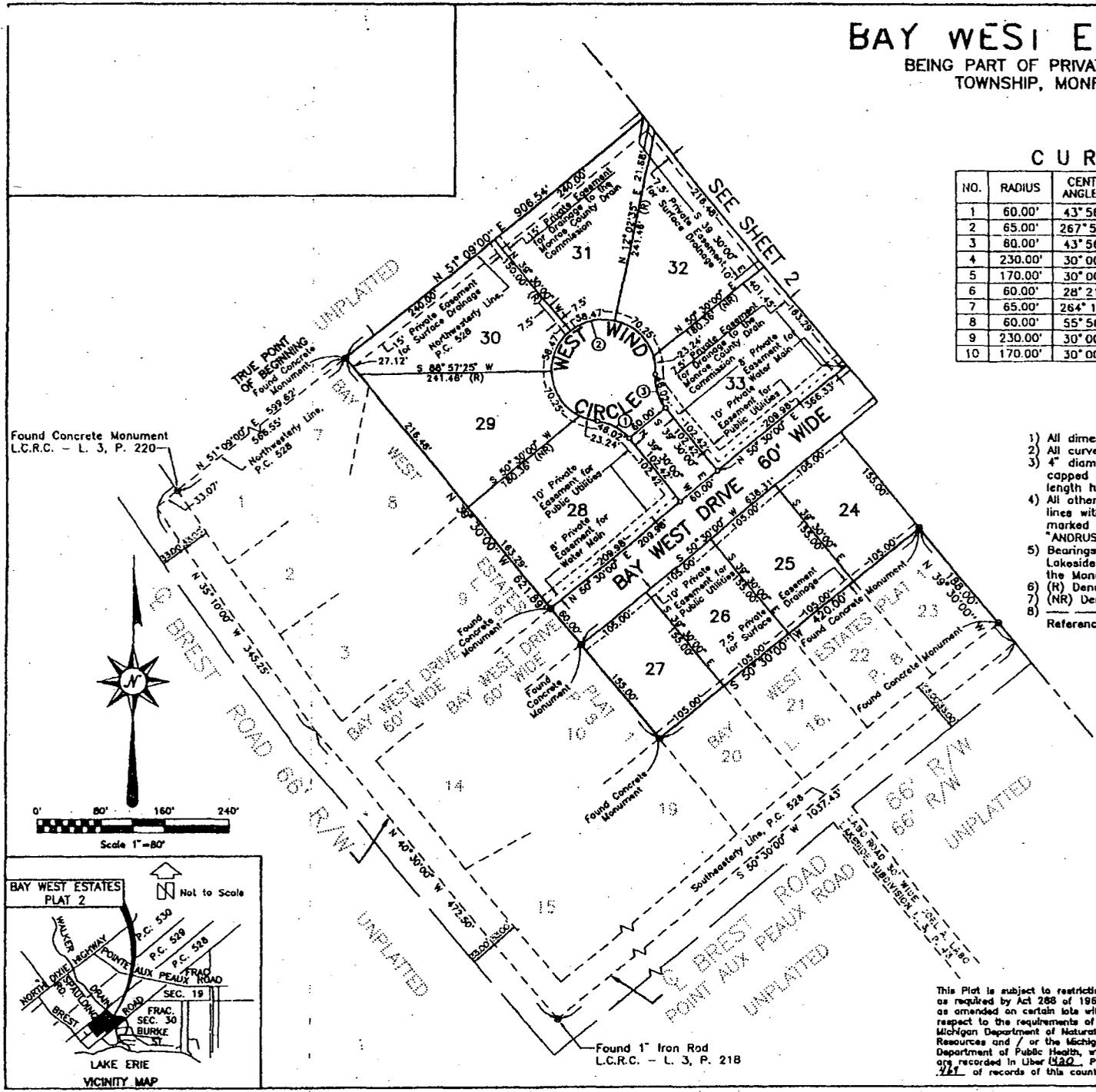
BEING PART OF PRIVATE CLAIM 528, FRENCHTOWN TOWNSHIP, MONROE COUNTY, MICHIGAN

CURVE DATA

NO.	RADIUS	CENTRAL ANGLE (Δ)	ARC LENGTH	CHORD BEARING	CHORD LENGTH
1	60.00'	43° 56' 44"	46.02'	N61° 28' 22" W	44.90'
2	65.00'	267° 53' 28"	303.92'	N50° 30' 00" E	93.60'
3	80.00'	43° 56' 44"	46.02'	S17° 31' 38" E	44.90'
4	230.00'	30° 00' 00"	120.43'	S35° 30' 00" W	119.06'
5	170.00'	30° 00' 00"	89.01'	N35° 30' 00" E	88.00'
6	60.00'	28° 21' 27"	29.70'	N83° 40' 44" W	29.39'
7	65.00'	264° 18' 07"	299.84'	N34° 17' 36" E	96.38'
8	60.00'	55° 56' 39"	58.58'	S41° 31' 40" E	56.28'
9	230.00'	30° 00' 00"	120.43'	S54° 30' 00" E	119.06'
10	170.00'	30° 00' 00"	89.01'	N54° 30' 00" W	88.00'

LEGEND

- 1) All dimensions are in "Feet".
- 2) All curve dimensions are along the Arc.
- 3) 4" diameter concrete monuments 36" long encasing a capped 5/8" iron pin reading "ANDRUS 16031" 36" in length have been placed at all points marked thus "o".
- 4) All other lot corners and points of intersection of lot lines with the intermediate traverse line have been marked with 5/8" capped iron pins reading "ANDRUS 16031" 30" in length.
- 5) Bearings were established from the Plat of Joel A. Labo Lakeside Subdivision as recorded in Liber 3, Page 43 of the Monroe County Plat Record.
- 6) (R) Denotes a radial line.
- 7) (NR) Denotes a non-radial line.
- 8) ——— Denotes limits of flood plain area. Reference measurements indicated thus (00')



James C. Andrus
James C. Andrus
R.L.S. # 16031

This Plat is subject to restrictions as required by Act 288 of 1967, as amended on certain lots with respect to the requirements of the Michigan Department of Natural Resources and / or the Michigan Department of Public Health, which are recorded in Liber 1220, Page 267 of records of this county.

SHEET 1 OF 3

J.C. ANDRUS & ASSOCIATES, INC
ENGINEERS - SURVEYORS - PLANNERS

062982

CURVE DATA

NO.	RADIUS	CENTRAL ANGLE (Δ)	ARC LENGTH	CHORD BEARING	CHORD LENGTH
1	60.00'	43° 56' 44"	48.02'	N61° 28' 22" W	44.90'
2	65.00'	267° 53' 28"	303.92'	N50° 30' 00" E	93.60'
3	60.00'	43° 56' 44"	48.02'	S17° 31' 38" E	44.90'
4	230.00'	30° 00' 00"	120.43'	S35° 30' 00" W	119.06'
5	170.00'	30° 00' 00"	89.01'	N35° 30' 00" E	88.00'
6	60.00'	28° 21' 27"	29.70'	N83° 40' 44" W	29.39'
7	65.00'	264° 18' 07"	299.84'	N34° 17' 36" E	96.38'
8	60.00'	55° 56' 39"	58.58'	S41° 31' 40" E	56.28'
9	230.00'	30° 00' 00"	120.43'	S54° 30' 00" E	119.06'
10	170.00'	30° 00' 00"	89.01'	N54° 30' 00" W	88.00'

Found 1/2" Iron Rod
L.C.R.C. - L. 3, P. 219

BAY WEST ESTATES PLAT 2

BEING PART OF PRIVATE CLAIM 528, FRENCHTOWN TOWNSHIP, MONROE COUNTY, MICHIGAN

CERTIFIED TRUE COPY OF
RECORDED PLAT
BY DEPARTMENT OF COMMERCE

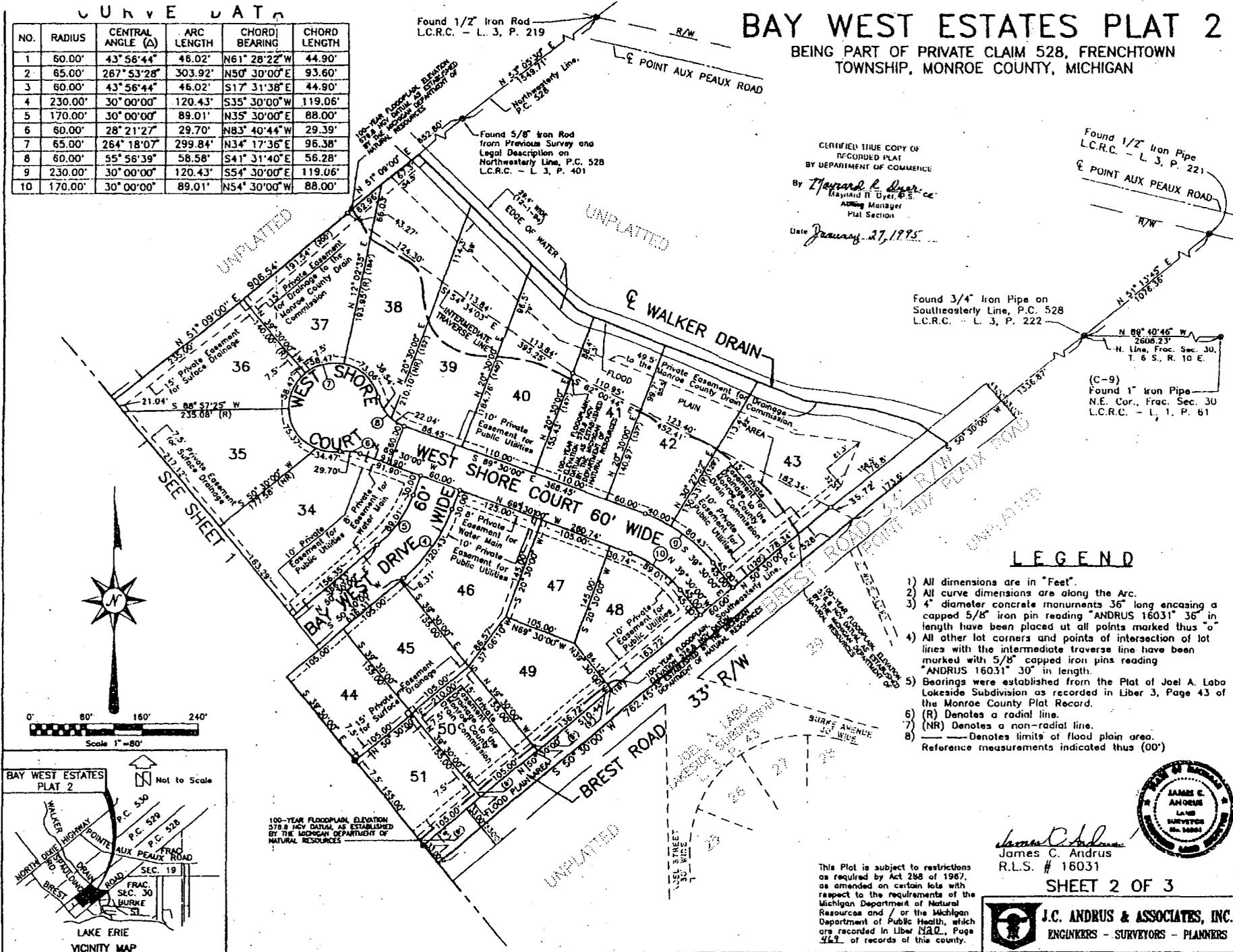
By *James C. Andrus*
Raymond H. Dyer, P.S.
Asst. Manager
Plat Section

Date *January 27, 1995*

Found 1/2" Iron Pipe
L.C.R.C. - L. 3, P. 221

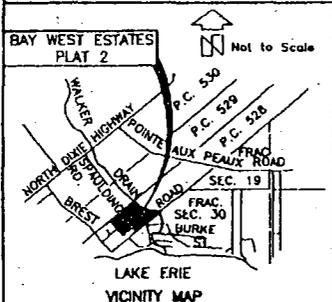
Found 3/4" Iron Pipe on
Southeasterly Line, P.C. 528
L.C.R.C. - L. 3, P. 222

(C-9)
Found 1" Iron Pipe
N.E. Cor., Frac. Sec. 30
L.C.R.C. - L. 1, P. 61



LEGEND

- 1) All dimensions are in "Feet".
- 2) All curve dimensions are along the Arc.
- 3) 4" diameter concrete monuments 36" long encasing a capped 5/8" iron pin reading "ANDRUS 16031" 36" in length have been placed at all points marked thus "o".
- 4) All other lot corners and points of intersection of lot lines with the intermediate traverse line have been marked with 5/8" capped iron pins reading "ANDRUS 16031" 30" in length.
- 5) Bearings were established from the Plat of Joel A. Labo Lakeside Subdivision as recorded in Liber 3, Page 43 of the Monroe County Plat Record.
- 6) (R) Denotes a radial line.
- 7) (NR) Denotes a non-radial line.
- 8) --- Denotes limits of flood plain area. Reference measurements indicated thus (00')



100-YEAR FLOODPLAIN, ELEVATION 578.9 NAV DATUM, AS ESTABLISHED BY THE MICHIGAN DEPARTMENT OF NATURAL RESOURCES



James C. Andrus
James C. Andrus
R.L.S. # 16031

SHEET 2 OF 3

This Plat is subject to restrictions as required by Act 298 of 1967, as amended on certain lots with respect to the requirements of the Michigan Department of Natural Resources and / or the Michigan Department of Public Health, which are recorded in Liber 442, Page 422 of records of this county.

J.C. ANDRUS & ASSOCIATES, INC.
ENGINEERS - SURVEYORS - PLANNERS

BAY WEST ESTATES PLAT 2

BEING PART OF PRIVATE CLAIM 528, FRENCHTOWN TOWNSHIP, MONROE COUNTY, MICHIGAN

SURVEYOR'S CERTIFICATE

I, James C. Andrus, Surveyor, Certify:
That I have surveyed, divided and mopped the land shown on this plat, described as follows:

Bay West Estates Plat 2, being a part of Private Claim 528, Frenchtown Township, Monroe County, Michigan, and being more particularly described as follows:

Commencing at an existing concrete monument located at the point of intersection of the Northeastery right of way line of Brest Road with the Northwestery line of Private Claim 528, said concrete monument referenced in the L.C.R.C. Records, Liber 3, Page 220 of the Monroe County Recorder;

thence North 51° 09' 00" East, on the Northwestery line of Private Claim 528, and on the Northwestery line of Bay West Estates Plat 1, as recorded in Liber 18, Pages 8 through 10 of the Monroe County Plat Records, a distance of 566.55 feet to an existing concrete monument at the Northwestery corner of Bay West Estates Plat 1, said concrete monument being the TRUE POINT OF BEGINNING of the parcel herein described; thence continuing North 51° 09' 00" East, on the Northwestery line of Private Claim 528, a distance of 906.54 feet to a point of intersection with the intermediate traverse line;

thence South 54° 34' 03" East, on the intermediate traverse line, a distance of 395.25 feet to a point of deflection in said intermediate traverse line;

thence South 62° 00' 44" East, continuing on the intermediate traverse line, a distance of 452.41 feet to a point of intersection with the centerline of Brest Road and the Southeastery line of Private Claim 528;

thence South 50° 30' 00" West, on the centerline of Brest Road and on the Southeastery line of Private Claim 528, a distance of 762.45 feet to a point, said point being the Northeastery corner of Bay West Estates Plat 1;

thence North 39° 30' 00" West, on the Northeastery line of Bay West Estates Plat 1, a distance of 188.00 feet to an existing concrete monument;

thence South 50° 30' 00" West, on the Northwestery line of Bay West Estates Plat 1, a distance of 420.00 feet to an existing concrete monument;

thence North 39° 30' 00" West, on the Northeastery line of Bay West Estates Plat 1, a distance of 821.89 feet to the TRUE POINT OF BEGINNING of the parcel herein described, containing 17.201 acres of land, subdivided into twenty eight lots numbered 24 through 51 inclusive. The area situated Northeastery of the intermediate traverse line, Southeastery of the centerline of Walker Drain, Southeastery of the Northwestery line of Private Claim 528 and Northwestery of the centerline of Brest Road (Southeastery line of Private Claim 528) containing 2.2 acres is included in this plat.

That I have made such survey, land division and plat by the direction of the owners of such land. That such plat is a correct representation of all the exterior boundaries of the land surveyed and the subdivision of it.

That the required monuments and lot corners have been located in the ground or that survey had been deposited with the municipality as required by Section 125 of the act.

That the accuracy of survey is within the limits required by Section 126 of the act. That the bearings shown on the plat are expressed as required by Section 126 (3) of the act and as explained in the legend.

Date: July 13, 1994

J. C. Andrus & Associates, Inc.
445 10th Street
Toledo, Ohio 43624

James C. Andrus
James C. Andrus, President
Registered Land Surveyor #18031



PROPRIETOR'S CERTIFICATE

Premier Homes, A Corporation duly organized and existing under the laws of the State of Michigan, by Thomas J. Besta, its president, as proprietor, has caused the land embraced in this plat to be surveyed, divided, mapped and dedicated as represented on this plat; that the streets are for the use of the public; that the public utility easements are private easements; and that all other easements are for the uses shown on this plat; that lots embracing waters of the Walker Drain are subject to the correlative rights of other riparian owners and the public trust in these waters; that all lots extend to the centerline of Walker Drain.

Premier Homes
P.O. Box 132
Newport, Michigan 48166

Witnesses:

Larry E. Slagomirski
Larry E. Slagomirski

Barbara J. Ott
Barbara J. Ott

By: Thomas J. Besta
Thomas J. Besta, President

ACKNOWLEDGEMENT

State of Michigan } S.S.
Monroe County }

Personally came before me this 13 day of July, 1994.
Thomas J. Besta, President of the above named corporation, to me known to be the person who executed the foregoing instrument, and to me known to be such president of said corporation, and acknowledge that he executed the foregoing instrument, as such officer, as the free act and deed of said corporation, by its authority.

Notary Public Larry E. Slagomirski, Monroe County, Michigan

My commission expires September 20, 1995.

PROPRIETOR'S CERTIFICATE

Monroe Bank & Trust, a banking corporation duly organized and existing under the laws of the State of Michigan, by Robert C. Neely, its Senior Vice President, as proprietor, has caused the land embraced in this plat to be surveyed, divided, mapped and dedicated as represented on this plat; that the streets are for the use of the public; that the public utility easements are private easements; and that all other easements are for the uses shown on this plat; that lots embracing waters of the Walker Drain are subject to the correlative rights of other riparian owners and the public trust in these waters; that all lots extend to the centerline of Walker Drain.

Monroe Bank & Trust
102 East Front Street
Monroe, MI 48161

Witnesses:

Larry E. Slagomirski
Larry E. Slagomirski

Barbara J. Ott
Barbara J. Ott

By: Robert C. Neely
Robert C. Neely
Senior Vice President

ACKNOWLEDGEMENT

State of Michigan } S.S.
Monroe County }

Personally came before me this 13 day of July, 1994.
Robert C. Neely, Senior Vice President of the above named banking corporation, to me known to be the person who executed the foregoing instrument, and to me known to be such Senior Vice President of said banking corporation, and acknowledged that he executed the foregoing instrument, as such officer, as the free act and deed of said banking corporation, by its authority.

Notary Public Larry E. Slagomirski, Monroe County, Michigan

My commission expires September 20, 1995.

COUNTY TREASURER'S CERTIFICATE

The records in my office show no unpaid taxes, or special assessments, for the five years preceding July 29, 1994, involving the lands included in this plat.

Norman J. Blanchett
Norman J. Blanchett, County Treasurer
Monroe County

MONROE COUNTY DRAIN COMMISSIONER'S CERTIFICATE

Approved on Aug. 17, 1994 as complying with Section 192 of Act 288, P.A. 1967 and the applicable rules and regulations published by my office in the County of Monroe.

Rolitz L. Webb
Rolitz L. Webb, Drain Commissioner

CERTIFICATE OF COUNTY ROAD COMMISSIONERS

Approved on August 17, 1994 as complying with Section 183 of Act 288 P.A. 1967 and the applicable Published rules and regulations of the Board of Road Commissioners of Monroe County.

Herbert W. Turner
Herbert W. Turner, P.E.

Richard W. Turner
Richard W. Turner, Vice Chairman

Lloyd D. Manor
Lloyd D. Manor, Chairman

CERTIFICATE OF MUNICIPAL APPROVAL

I certify that this plat was approved by the Township Board of Frenchtown Charter Township at a meeting held September 22, 1994 and was reviewed and found to be in compliance with Act 288, P.A. of 1967; that survey has been posted for the installation of public sewer and public water services; and that survey has been posted for a period of one year from the date of final approval of the plat for the placement of monuments.

William H. Lerner
William H. Lerner, Clerk

COUNTY PLAT BOARD CERTIFICATE

This plat has been reviewed and is approved by the Monroe County Plat Board on October 12, 1994 as being in compliance with all of the provisions of Act 288, P.A. 1967, and the Plat Board's applicable rules and regulations.

Raymond L. Noble
Raymond L. Noble,
Chairman of Plat Board

Cert K. Allen
Cert K. Allen, Clerk/Registrar of Deeds

Norman J. Blanchett
Norman J. Blanchett, County Treasurer

RECORDING CERTIFICATE

State of Michigan }
Monroe County }

This plat was received for record on the 4th day of January, 1995, at 1:12 PM and recorded in Liber 112 of Plats on Page(s) 26-27.

Cert K. Allen
Cert K. Allen, Clerk/Registrar of Deeds

SHEET 3 OF 3



J.C. ANDRUS & ASSOCIATES, INC.
ENGINEERS - SURVEYORS - PLANNERS

06292

574
12/1/24

Examined and Approved
DEC 10 1924
The L. H. ...
19994

LOUIS PARK BEACH SUBDIVISION

Being a part of the East 1/2 of Fractional Section 30
Frenchtown Twp., Monroe Co., Mich.

- 123
- 124
- 30
- 49
- 124.97
- 48
- 124.96
- 47
- 124.95
- 46
- 124.94
- 45
- 124.93
- 44
- 124.92
- 43
- 124.91
- 42
- 124.90
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- 124.89
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- 124.58
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- 124.57
- 8
- 124.56
- 7
- 124.55
- 6
- 124.54
- 5
- 124.53
- 4
- 124.52
- 3
- 124.51
- 2
- 124.50
- 1
- 124.49
- 0

BOULEVARD
S. 0° 08' E. 2143.9'

HAZEL

PARK

LAKE ERIE

KNOW ALL MEN BY THESE PRESENTS, THAT WE, LOUIS KATZ AND HAZEL KATZ, HIS WIFE, AS PROPRIETORS, HAVE CAUSED THE LAND EMPHASED IN THE ATTACHED PLAT TO BE SURVEYED, LAID OUT AND PLATTED, TO BE KNOWN AS LOUIS PARK BEACH SUBDIVISION, BEING A PART OF THE EAST 1/2 OF FRACTIONAL SECTION 30, FRENCHTOWN TWP., MONROE CO., MICH., AND THAT THE STREET, AS SHOWN ON SAID PLAT IS HEREBY DEDICATED TO THE USE OF THE PROPERTY OWNERS ONLY.

SIGNED AND SEALED IN PRESENCE OF
Louis Katz J. S.
Hazel Katz J. S.
Edgar

STATE OF MICHIGAN S. S.
COUNTY OF MONROE
ON THIS 10th DAY OF December 1924, BEFORE ME, A NOTARY PUBLIC IN AND FOR SAID COUNTY APPEARED LOUIS KATZ AND HAZEL KATZ, KNOWN TO ME TO BE THE PERSONS WHO REQUESTED THE ABOVE DEDICATION AND ACKNOWLEDGED THE SAME TO BE THEIR FREE ACT AND DEED.

Louis Katz NOTARY PUBLIC,
MY COMMISSION EXPIRES Jan 24 1926

MONROE COUNTY TREASURERS OFFICE,
MONROE MICH. DEC 5 1924.

I HEREBY CERTIFY THAT ACCORDING TO THE RECORDS OF THIS OFFICE ALL TAXES PRIOR TO THIS DATE HAVE BEEN PAID AND THAT THERE ARE NO TAX LIENS OR TITLES HELD BY THE STATE OR ANY INDIVIDUAL AGAINST THE PROPERTY HEREIN DESCRIBED FOR FIVE YEARS PRECEDING THIS DATE.

Oliver C. Nantz COUNTY TREASURER.

I HEREBY CERTIFY THAT THE PLAT HEREIN DELINEATED IS A CORRECT ONE AND THAT PERMANENT MONUMENTS CONSISTING OF 2 INCH IRON PIPE 10 INCHES LONG HAVE BEEN PLACED AT ALL POINTS MARKED "O" AS THEREON SHOWN, AT ALL ANGLES IN THE BOUNDARIES OF THE LAND PLATTED AND AT ALL INTERSECTIONS OF STREETS.

James M. White REGISTERED CIVIL ENGINEER.

THIS PLAT WAS APPROVED AT A MEETING OF THE FRENCHTOWN TWP. BOARD HELD
December 4 1924.

J. J. ... CLERK.

THIS PLAT WAS APPROVED AT A MEETING OF THE MONROE COUNTY PLATTING BOARD HELD
DEC 5 1924.

Carl Franke FEEBATE JUDGE.

Oliver C. Nantz COUNTY TREASURER.

William C. ... COUNTY CLERK.

DESCRIPTION.

COMMENCING AT A POINT 824.5' S. 20° 10' W. AND 13' S. 0° 00' E. FROM THE S.W. CORNER OF P.A.C. SEC. 30.
THENCE S. 0° 00' E. 2143.9', THENCE N. 61° 47' E. 86.8'
THENCE S. 0° 00' E. 370.41', THENCE S. 0° 00' E. 30'
THENCE S. 0° 00' E. 1790.75', THENCE S. 0° 10' E. 1.15'
TO THE PLACE OF BEGINNING.

Monroe
Louis Park Beach Land
DEC 24 9
5
Plat
George J. ...

Dec 10 1924
J. E. ...

Dec 16 1924
The L. H. ...

1"=100'

BREST BAY GROVE SUBDIVISION

19055

Being a part of the W. 1/2 of Fractional Section 29, and a part of the S.W. 1/4 of Fractional Section 20, T. 65. R. 02 E., Frenchtown Twp, Monroe Co., Mich.

Twp, Monroe Co., Mich.

Oct 19 1923
J. L. Hauwer

KNOW ALL MEN BY THESE PRESENTS, THAT WE, W. M. BOSTON AND LYDIA F. BOSTON, HIS WIFE, W. P. HUBNER AND ANNA F. HUBNER, HIS WIFE, AND FREDERICK A. BROWNE AND CLARE BROWNE, HIS WIFE, AS PROPRIETORS, HAVE CAUSED THE LAND ENCLOSED IN THE ANNEXED PLAT TO BE SURVEYED LAID OUT AND PLATTED TO BE KNOWN AS BREST BAY GROVE SUBDIVISION, BEING A PART OF THE W. 1/2 OF FRACTIONAL SECTION 29 AND A PART OF THE S.W. 1/4 OF FRACTIONAL SECTION 20, T. 65. R. 02 E., FRENCHTOWN TWP., MONROE CO., MICH., AND THAT THE STREETS AND PARKS SHOWN ON SAID PLAT ARE HEREBY DEDICATED TO THE USE OF THE PROPERTY OWNERS ONLY.

SIGNED AND SEALED IN PRESENCE OF
 W. M. Boston, Lydia F. Boston, s.
 Marie G. Bennett, William F. Hubner, s.
 Anna F. Hubner, s.
 Frederick A. Browne, s.
 Clare Browne, s.

STATE OF MICHIGAN
 COUNTY OF MONROE

ON THIS 19th DAY OF OCTOBER 1923, BEFORE ME, A NOTARY PUBLIC, IN AND FOR SAID COUNTY APPEARED W. M. BOSTON, LYDIA F. BOSTON, W. P. HUBNER, ANNA F. HUBNER, FREDERICK A. BROWNE, AND CLARE BROWNE, KNOWN TO ME TO BE THE PERSONS WHO EXECUTED THE ABOVE DEDICATION AND ACKNOWLEDGED THE SAME TO BE THEIR FREE ACT AND DEED.

John E. Smith NOTARY PUBLIC, MONROE CO., MICH. MY COMMISSION EXPIRES July 9th 1927

MONROE COUNTY TREASURERS OFFICE Oct 5 1923.

I HEREBY CERTIFY THAT ACCORDING TO THE RECORDS OF THIS OFFICE ALL TAXES PRIOR TO THIS DATE HAVE BEEN PAID AND THAT THERE ARE NO TAX LIENS OR TITLES HELD BY THE STATE OR ANY INDIVIDUAL AGAINST THE PROPERTY HEREON DESCRIBED FOR FIVE YEARS PRECEDING THIS DATE.

Chas. C. Hunt COUNTY TREASURER

SURVEYORS CERTIFICATE

I HEREBY CERTIFY THAT THE PLAT HEREON DELIVERED IS A CORRECT ONE AND THAT PERMANENT MONUMENTS CONSISTING OF 2 INCH IRON PIPE 30 INCHES LONG HAVE BEEN PLACED AT ALL POINTS MARKED ON SAID PLAT GROUPS AT ALL ANGLES IN THE BOUNDARIES OF THE LAND PLATTED AND AT ALL INTERSECTIONS OF STREETS.

James A. White REGISTERED CIVIL ENGINEER

THIS PLAT WAS APPROVED AT A MEETING OF THE TWP. BOARD OF THE TWP. OF FRENCHTOWN October 6 1923.

J. J. Stubbins CLERK

THIS PLAT WAS APPROVED AT A MEETING OF THE MONROE COUNTY PLATTING BOARD October 8th 1923.

Carl F. Thacker PROBATE JUDGE

Chas. C. Hunt COUNTY TREASURER

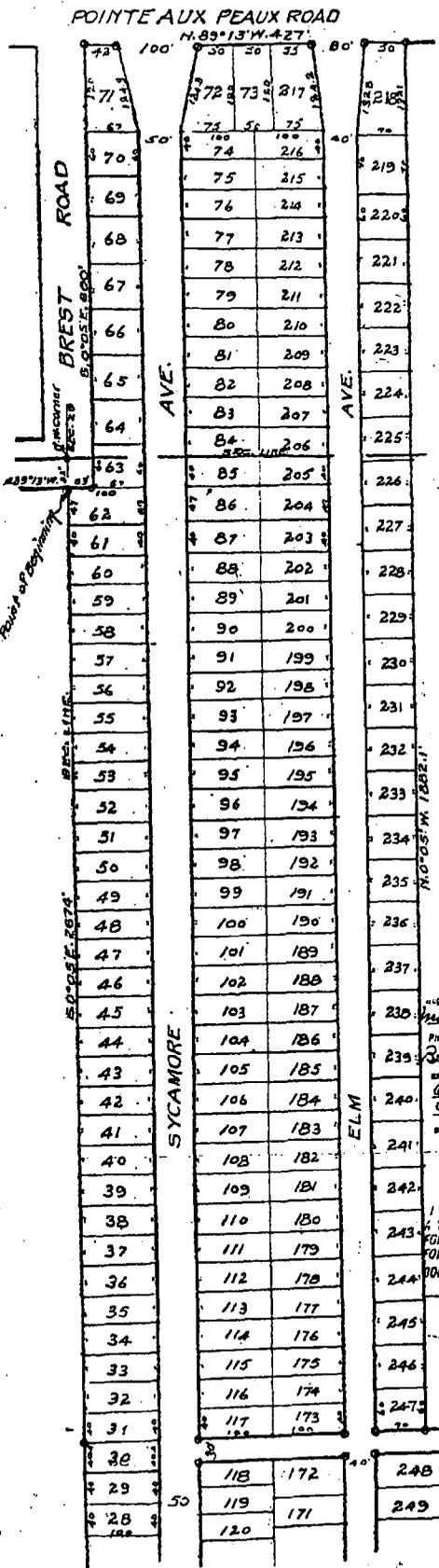
William C. Cox COUNTY CLERK

COMMENCING AT A POINT 33' S. 0° 05' E. FROM THE N.W. CORNER OF SECTION 29.
 THENCE S. 0° 05' E. 267.4', THENCE S. 71° 22' E. 448', THENCE S. 37° 46' E. 154.1'
 THENCE S. 61° 46' E. 157', THENCE S. 75° 11' E. 125', THENCE S. 54° 47' E. 176.45'
 THENCE S. 0° 17' W. 290', THENCE W. 89° 55' E. 50', THENCE N. 0° 17' W. 1082.22'
 THENCE S. 89° 19' W. 30.1', THENCE N. 0° 02' W. 659.42', THENCE S. 89° 28' W. 864.11'
 THENCE S. 0° 05' W. 1882.1', THENCE N. 89° 12' W. 427', THENCE S. 0° 05' E. 600',
 THENCE N. 89° 12' W. 33' TO THE PLACE OF BEGINNING.

Plat of Brest Bay Grove
 was recorded this 12th day of Oct A.D. 1923 at 9 o'clock A.M. in Liberty Plat
 on Page 27 of Book
John E. Smith
 Surveyor

I HEREBY CERTIFY THAT THIS COPY IS A TRUE COPY OF THE ORIGINAL PLAT FORWARDED THE NOTARY OF RECORDS FOR RECORDING.
 COMPARED Oct 19, 1923
J. L. Hauwer
 DEPUTY AUDITOR GENERAL

FILED IN AUDITOR GENERAL'S DEPT. 19100
Oct 23-19 23
J. L. Hauwer
 DEPUTY AUDITOR GENERAL



NORTH		ST.	
248	305	306	365
249	304	307	368
		370	437
		371	436
		438	509
		439	504

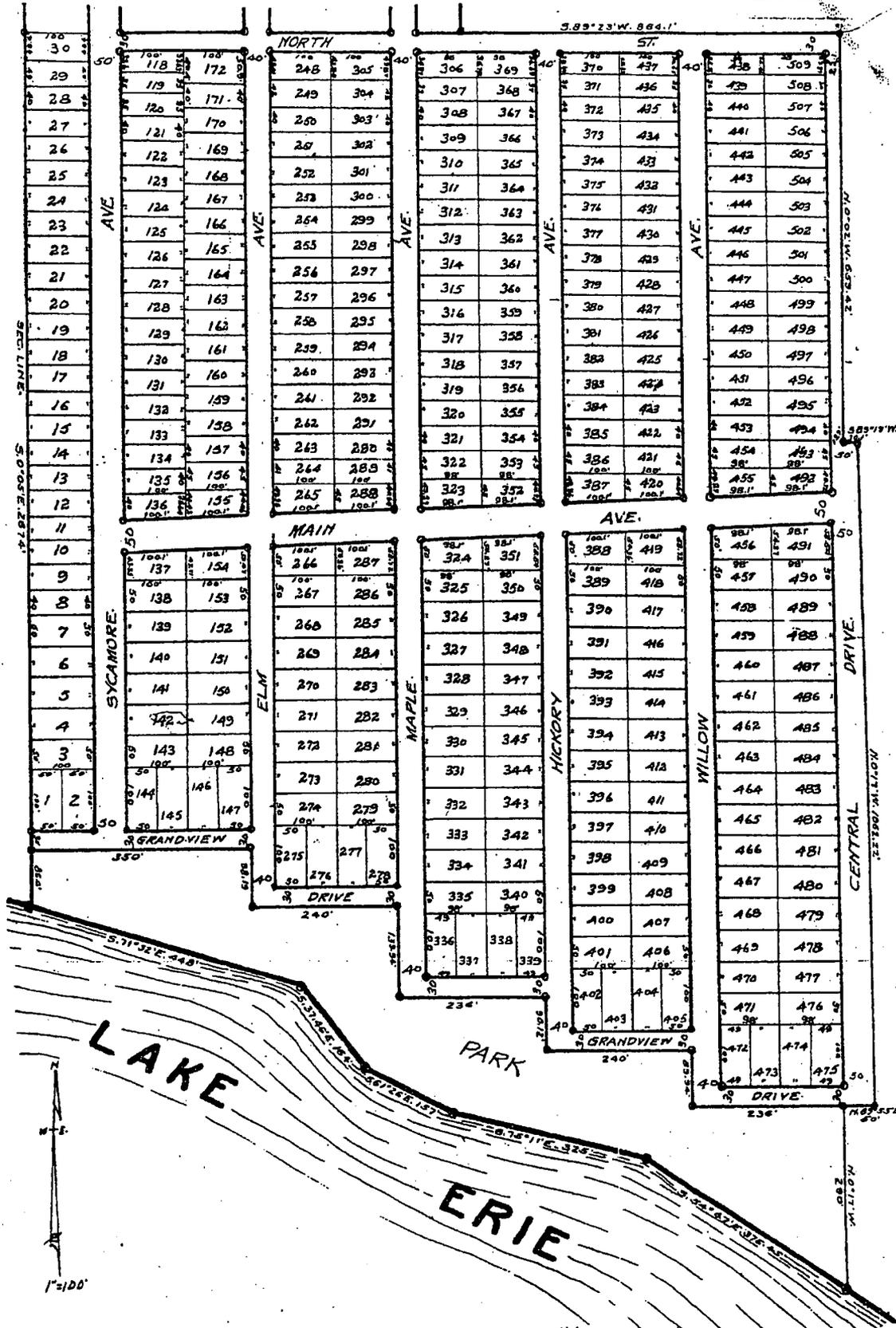
BREST BAY GROVE SUBDIVISION

SHEET 2
of 2 sheets

19055

Being a part of the W. 1/2 of Fractional Section 29, and a part of the S.W. 1/4 of Fractional Section 20, T. 6 S. R. 10 E.,

Frenchtown Twp, Monroe Co., Mich.



Aug 26 1925
J. F. Wheeler

BREST BAY GROVE SUBDIVISION No 1.

Being a part of the West 1/2 of Fractional Section 29,

Frenchtown Twp., Monroe Co., Mich.

Income
Brest Bay
Sept 15 1921
Sept 25 1921
Sept 6 1921
9-10
George J. Necker

Aug 26-1925
Geo. J. Necker

Sept 16-1925
J. F. Wheeler

FROM ALL MEN BY THESE PRESENTS, THAT WE, W.M. HUSTON AND LYDIA F. HUSTON, HIS WIFE, WILLIAM F. HUBBARD AND ANNA F. HUBBARD, HIS WIFE AND FREDERICK A. BRUCE AND CLATPE BRUCE, HIS WIFE, AS PROPRIETORS, HAVE CAUSED THE LAND EMPACED IN THE ANNEXED PLAT TO BE SURVEYED Laid out and PLATTED, TO BE KNOWN AS "BREST BAY GROVE SUBDIVISION NO. 1, BEING A PART OF THE WEST 1/2 OF FRACTIONAL SECTION 29, FRENCHTOWN TWP., MONROE CO., MICH., AND THAT THE STRIPES AS SHOWN ON SAID PLAT ARE HEREBY DEDICATED TO THE USE OF THE PROPERTY OWNERS ONLY.

SIGNED AND SEALED IN PRESENCE OF

W. M. Huston
L. S. Huston
Lydia F. Huston
William F. Hubbard
Anna F. Hubbard
Fredrick A. Bruce
Clatpe Bruce

THIS PLAT WAS APPROVED BY THE MONROE COUNTY BOARD AS A RECORDING FIELD

August 21-1925

J. F. Wheeler

THIS PLAT WAS APPROVED BY THE MONROE COUNTY PLATTING BOARD AS A RECORDING FIELD

August 26, 1925

Carl Clarke PROBATE JUDGE.
Edna C. Kuntz COUNTY TREASURER.
William C. Carr COUNTY CLERK.

NAME OF INSTRUMENT

S. D.

COUNTY OF MONROE
ON THIS 26th day of August 1925, BEFORE ME, A NOTARY PUBLIC, IN AND FOR SAID COUNTY APPEARED WILLIAM F. HUBBARD, LYDIA F. HUBBARD, WILLIAM F. HUBBARD, ANNA F. HUBBARD, FREDERICK A. BRUCE, AND CLATPE BRUCE, WHO TO ME, AS NOTARY PUBLIC, SHOWED THE ABOVE DEDICATION AND ACKNOWLEDGED THE SAME TO BE THEIR FREE AND VOLUNTARY ACT AND DEED.

Edna C. Kuntz NOTARY PUBLIC.
MY COMMISSION EXPIRES Sept 14 1927.

DESCRIPTION

CONTAINING IN THE CORNER OF FRACTIONAL SECTION 29.

BEING 8. 0' 08" W. 1311.46, BEING 8. 21' 40" E. 551.
BEING 11. 73' 19" E. 192, BEING 11. 60' 45" E. 200.
BEING 11. 07' 23" W. 239.6, BEING 11. 07' 43" W. 230.
BEING 11. 0' 17" W. 306.8, BEING 11. 60' 43" W. 157.4.
BEING 11. 0' 17" W. 390, BEING 11. 09' 55" E. 60.
BEING 11. 0' 17" W. 1089.29, BEING 11. 09' 13" E. 1988.8.
BEING 11. 0' 09" W. 656.6 TO THE EAST OF BEGINNING.

MONROE COUNTY TREASURERS OFFICE, MONROE MICH.

AUG 25 1925

I HEREBY CERTIFY THAT ACCORDING TO THE RECORDS OF THIS OFFICE AND SAID PLAT THE DATES HAVE BEEN Laid out and PLATTED AND TO SAY THESE THINGS WERE BY AN INSTRUMENT INDIVIDUAL AGAINST THE PROPERTY WHICH DESCRIBED FOR FIVE YEARS PRECEDING THIS DATE.

Edna C. Kuntz COUNTY TREASURER.

I HEREBY CERTIFY THAT THE PLAT HEREBY DEDICATED IS A CORRECT ONE AND THAT THE SAME IS A CORRECT COPY OF THE ORIGINAL RECORDS OF THE MONROE COUNTY PLATTING BOARD AND THAT THE STRIPES AS SHOWN ON SAID PLAT ARE HEREBY DEDICATED TO THE USE OF THE PROPERTY OWNERS AND AT ALL INTERSECTIONS OF STREETS.

James M. White REGISTERED CIVIL ENGINEER.

Examined and Approved
 18261
 1922
 18198

STONY POINTE BEACH

Being a part of the S.E. 1/4 of Fractional Section 29, T.6S.R.10E,
 Frenchtown Twp., Monroe Co., Mich.

18198

KNOW ALL MEN BY THESE PRESENTS, THAT WE, THORNTON DIXON AND BELLIE S. DIXON, HIS WIFE AS PROPRIETORS HAVE CAUSED THE LANDS EMBRACED IN THE ADJACENT PLAT TO BE SURVEYED, LAID OUT AND PLATTED TO BE KNOWN AS "STONY POINTE BEACH", BEING A PART OF THE S.E. 1/4 OF FRACTIONAL SECTION 29, T.6 S.R.10 E., FRENCHTOWN TWP., MONROE CO., MICH., AND THAT ALL STREETS AND PARKS ARE HEREBY DEDICATED TO THE USE OF THE PROPERTY OWNERS ONLY, EXCEPTING THAT THE PLATTORES RESERVE THE RIGHT TO GRANT THE RIGHT TO USE THE STREETS AND PARKS TO OTHER LAND OWNERS IN SAID FRACTIONAL SECTION 29, OR TO THE OWNERS OF THE SOUTHERLY 3/4 ACRES OF THE S.W. 1/4 FRACTIONAL SECTION 22, T.6 S.R.10 E.

DESCRIPTION

COMMENCING AT THE CENTER OF FRACTIONAL SECTION 29, T.6 S.R.10 E. 1/4

THENCE N. 89° 25' 13" E. 1205' ALONG E. & W. 1/4 LINE

" S. 0° 08' 10" W. 2'

" N. 89° 25' 13" E. 1288.5' ALONG A LINE 2' SOUTH OF AND PARALLEL TO 1/4 LINE

" S. 0° 17' 10" W. 945.2' ALONG A LINE 33' WEST OF AND PARALLEL TO THE SECTION LINE.

" S. 66° 45' 10" W. 127.8'

" N. 82° 15' 10" W. 1941.5'

" N. 82° 15' 10" W. 166.3'

" N. 82° 15' 10" W. 365.5'

" N. 82° 15' 10" W. 196'

" N. 77° 30' 10" E. 357.68' TO THE NORTH AND SOUTH 1/2 LINE

" N. 0° 08' 10" E. 1311.46' TO THE PLACE OF BEGINNING.

TREASURERS CERTIFICATE

MONROE COUNTY TREASURERS OFFICE.

I HEREBY CERTIFY THAT ACCORDING TO THE RECORDS OF THIS OFFICE ALL TAXES PRIOR TO THIS 27th DAY OF OCTOBER 1922, ARE PAID AND THAT THERE ARE NO TAX LISTS OR LISTS READ BY THE STATE OR ANY INDIVIDUAL AGAINST THE PROPERTY HEREON DESCRIBED FOR FIVE YEARS PRECEDING THIS DATE.

SIGNED AND SEALED IN PRESENCE OF

Thornton Dixon L.S.

Bellie S. Dixon L.S.

Eppie Wagner

W. H. ... COUNTY TREASURER

CERTIFICATE OF APPROVAL BY COUNTY BOARD

THIS PLAT WAS APPROVED AT A MEETING HELD October 26th 1922.

Carl ... PROBATE JUDGE

... COUNTY TREASURER

... COUNTY CLERK

SURVEYORS CERTIFICATE

I HEREBY CERTIFY THAT THE PLAT HEREON DELINEATED IS A CORRECT ONE AND THAT PERMANENT MONUMENTS CONSISTING OF 2 INCH IRON PIPS 30 INCHES LONG HAVE BEEN PLACED AT ALL INTERSECTIONS OF STREETS AND AT ALL ANGLES IN THE BOUNDARIES OF THE LAND PLATTED. ALL POINTS MARKED "O" AS THEREON SHOWN.

... REGISTERED CIVIL ENGINEER.

CERTIFICATE OF APPROVAL BY TWP. BOARD

THIS PLAT WAS APPROVED AT A MEETING HELD October 26th 1922.

... SUPERVISOR

... CLERK

STATE OF MICHIGAN

COUNTY OF MONROE S.S.

ON THIS 25th DAY OF October 1922, BEFORE ME, A NOTARY PUBLIC, IN AND FOR SAID COUNTY APPEARED THORNTON DIXON AND BELLIE S. DIXON KNOWN TO ME TO BE THE PERSONS WHO PERFORMED THE ABOVE DESIGNATION AND ACKNOWLEDGED THE SAME TO BE THEIR FREE ACT AND DEED.

Olga A. ... NOTARY PUBLIC.

MY COMMISSION EXPIRES March 19th 1924.

Register's Office
Monroe
Stony Pointe Beach
Vol. 13-1922
Plat
42-42-45
Edmund C. ...

I HEREBY CERTIFY THAT THIS COPY IS A TRUE COPY OF THE ORIGINAL PLAT FORWARDED TO THE REGISTER'S OFFICE FOR RECORD.

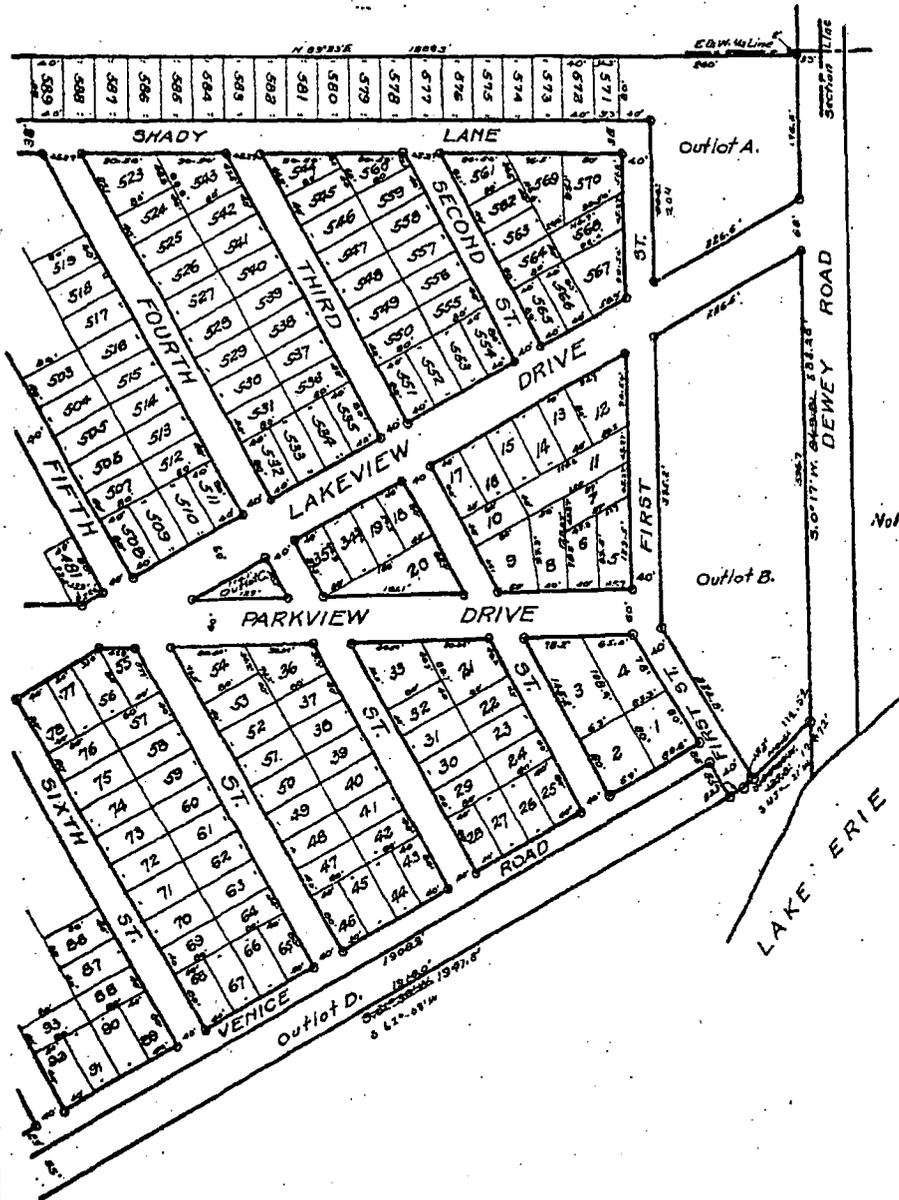
... 13-1922
...

NOTE - for authority to change bearings see Register's Office Letter - 20507/23 correction made 7/19/23

FILED IN AUDITOR GENERAL'S OFFICE
Nov 20 - 1922
...
 DEPUTY AUDITOR GENERAL

STONY POINTE BEACH

Being a part of the S.E. 1/4 of Fractional Section 29, T.69.R.10E,
Frenchtown Twp., Monroe Co., Mich.



Note - For accuracy to correct dimensions
See Vol. 1159-1925

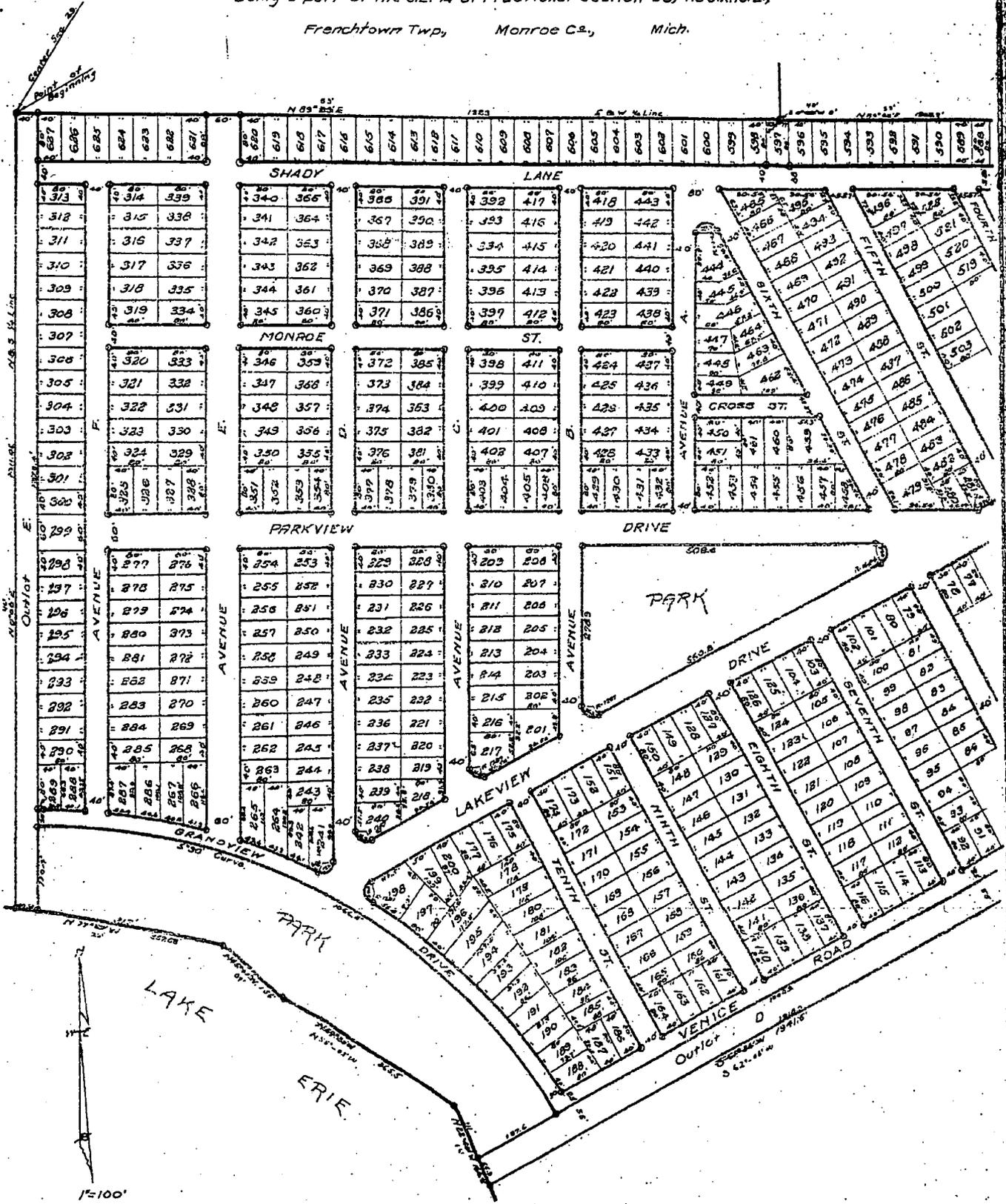


1"=100'

STONY POINTE BEACH

Being a part of the S.E. 1/4 of Fractional Section 29, T.65.R.10.E.,

Frenchtown Twp., Monroe Co., Mich.

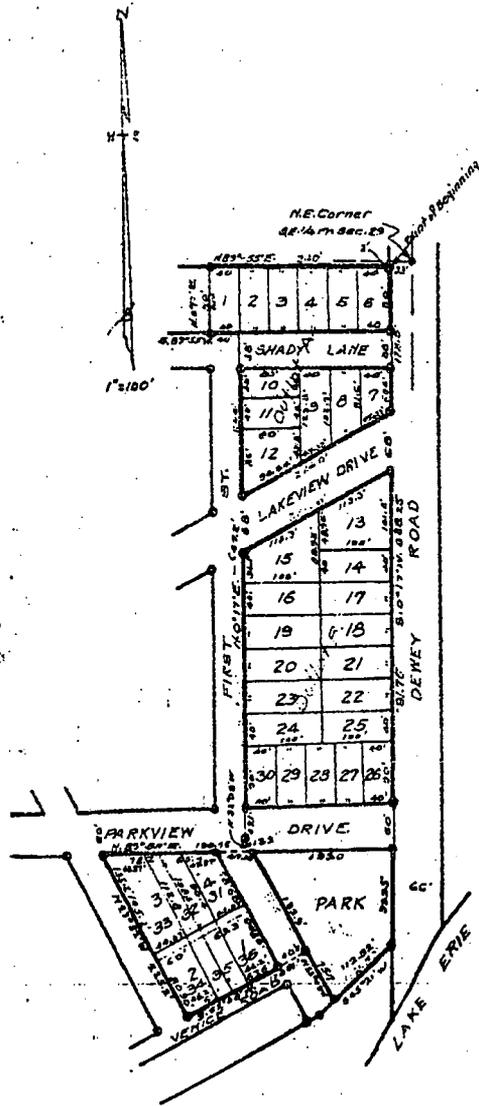


Aug 26-1925
Ed. J. Haines

21019

RE-SUBDIVISION OF OUTLOTS A & B OF LOTS 1-2-3-4 STONY POINTE BEACH

Being a part of the SE 1/4 of Fractional Section 29, T6SR10E, Frenchtown Twp, Monroe Co, Mich.



KNOW ALL MEN BY THESE PRESENTS, THAT SE THORNTON DIXON AND HELEN B. DIXON HIS WIFE AS PROPRIORESSES, HAVE CAUSED THE LAND DESCRIBED IN THE UNDERSIGNED TO BE SURVEYED, Laid out and divided to be shown as a RE-SUBDIVISION OF OUTLOTS A & B AND LOTS 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, BEING A PART OF THE SE 1/4 OF FRACTIONAL SECTION 29, T. 6 S., R. 10 E., TOWNSHIP 6 N., MONROE CO., MICH., AND BEING ALL ACRES, BEING THE SAME AND BEING DEDICATED TO THE USE OF THE PROPERTY OWNERS HERETOFORE SAID AND BEING HERETOFORE BEING THE SAME TO GRANT THE RIGHT TO USE THE STREETS AND LANS TO OTHER LAND OWNERS IN SAID FRACTIONAL SECTION 29, TO THE OWNER OF THE SEVERAL 1/4 ACRES OF THE S. 1/4 OF FRACTIONAL SECTION 29, T. 6 S., R. 10 E.

SIGNED AND SEALED IN PRESENCE OF
 H. B. Dix
 Ed. J. Haines
 J. L. Dixon
 Nellie P. Thompson

STATE OF MICHIGAN
 COUNTY OF MONROE J.S.
 ON THIS 26 DAY OF Aug 1925, BEFORE ME, A NOTARY PUBLIC, IN AND FOR SAID COUNTY APPEARED SE THORNTON DIXON AND HELEN B. DIXON HIS WIFE TO ME TO BE THE PERSONS WHO CAUSED THE ABOVE DESCRIPTION AND ACKNOWLEDGED THE SAME TO BE THEIR FREE ACT AND DEED.
 W. W. W. Notary Public, Monroe Co., Mich., BY COMMISSION EXPIRES Nov. 2, 1926.

MICHIGAN COUNTY TREASURER'S OFFICE, MONROE MICH., AUG 17 1925
 I HEREBY CERTIFY THAT ACCORDING TO THE RECORDS OF THIS OFFICE ALL TAXES DUE ON THIS DATE HAVE BEEN PAID AND THAT THERE ARE NO TAX LIENS OR OTHER LIENS ON THE TRACT OR ANY INDIVIDUAL AGAINST THE LAND HEREBY DESCRIBED FOR FIVE YEARS PRECEDING THIS DATE.
 Chas. C. Hunt COUNTY TREASURER.

I HEREBY CERTIFY THAT THE PLAN HEREBY REFERRED TO IS A CORRECT ONE AND CONTAINING LIENS CONSISTING OF 4 DICK LICK RITE TO WHICH LOTS HAVE BEEN PLACED AS ALL POINTS MARKED "O" AS BEING WITHIN AN ALL ANGLES IN THE BOUNDARIES OF THE LAND HEREBY AND AT ALL INTERSECTIONS OF STREETS.
 J. J. Haines REGISTERED CIVIL ENGINEER.

THIS PLAN WAS APPROVED AS A MEETING OF THE TOWNSHIP BOARD HELD August 15 - 1925
 J. J. Haines

THIS PLAN WAS APPROVED AS A MEETING OF THE MONROE COUNTY READING ROAD HELD August 29, 1925
 Carl Hanks, CLERK JUDGE.
 Chas. C. Hunt COUNTY TREASURER
 William R. Cox COUNTY CLERK.

DESCRIPTION.
 COMMENCING AT A POINT 35' S 65° 55' W AND 0' S 0° 17' W FROM THE N.E. CORNER OF FRACTIONAL SEC. 29, THENCE S 0° 17' W 808.95', THENCE S 45° 11' E 119.50', THENCE N 2° 09' W 75.71', THENCE S 6° 08' W 178.71', THENCE N 27° 55' W 225.51', THENCE S 65° 55' E 190.75', THENCE N 5° 09' E 13.21', THENCE N 0° 17' E 647.21', THENCE S 0° 58' E 40.01', THENCE N 0° 17' E 80.01', THENCE N 0° 55' E 40.01' TO THE PLACE OF BEGINNING.

Monroe
 J. J. Haines
 Ed. J. Haines
 Sept 15 1925
 6 Plate
 George J. Haines
 FILED IN ARCHIVE DEPARTMENT
 Sept 16 1925
 Ed. J. Haines
 COUNTY CLERK

STONY POINT PENINSULA

Being a part of the S.E. 1/4 of Fractional Section 29, and all of Fractional Section 32, T.65, R.10E.
Frenchtown Twp., Monroe Co., Michigan

Examined and Approved

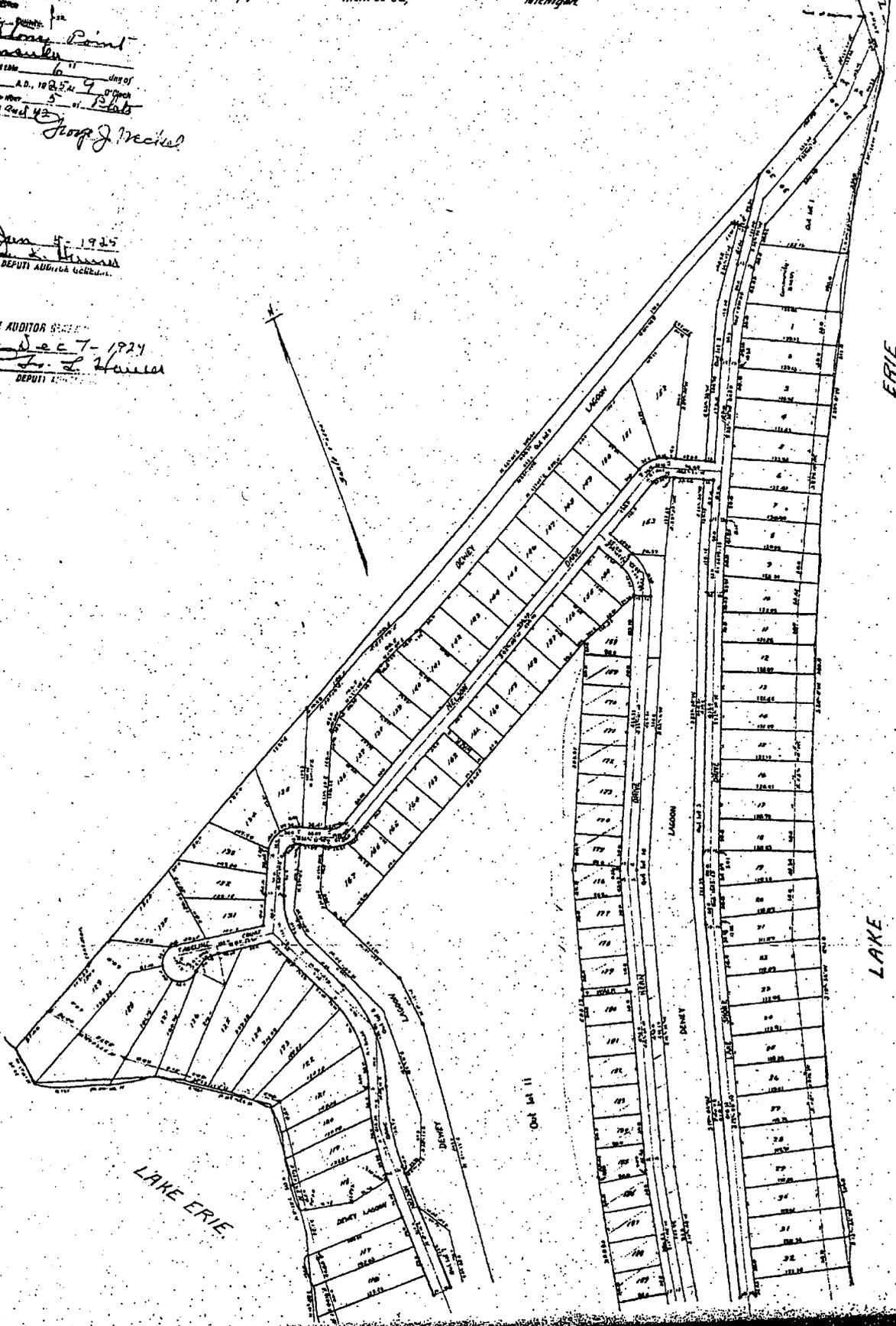
Jan 6 - 1925
F. L. Haines
Deputy Auditor General

SHEET 1
19998

115 2-4
COPY
Auditor's Office
Monroe County
Stony Point
Peninsula
No. 1
A.D. 1882
5-11-1882
J. J. McNeil

Jan 4 - 1925
F. L. Haines
DEPUTY AUDITOR GENERAL

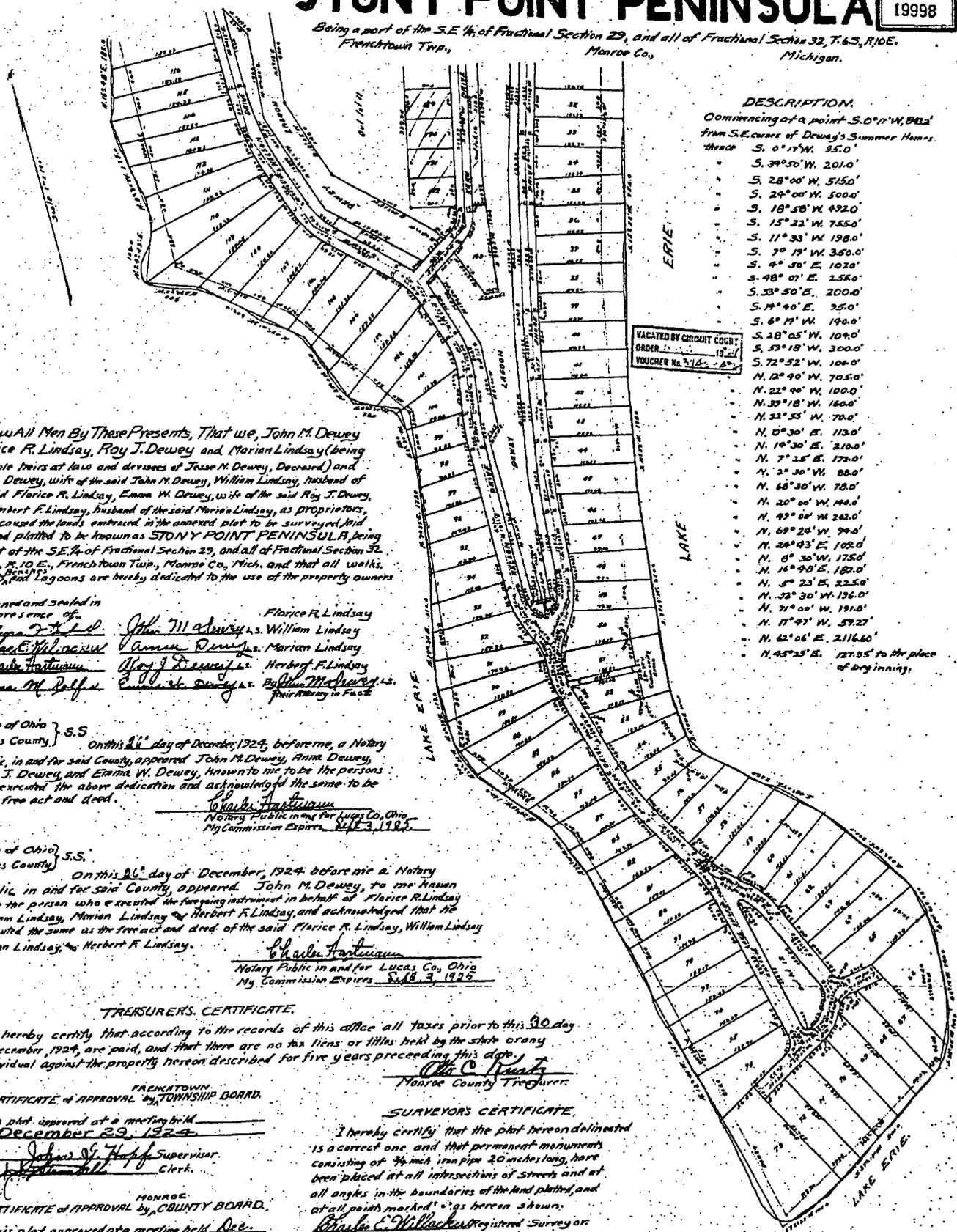
FILED IN AUDITOR GENERAL'S OFFICE
Dec 7 - 1924
F. L. Haines
DEPUTY AUDITOR GENERAL



STONY POINT PENINSULA

SHEET 2
1999B

Being a part of the S.E. 1/4 of Fractional Section 29, and all of Fractional Sections 32, T.6.S., R.10E.,
Frenchtown Twp., Monroe Co., Michigan.



DESCRIPTION.
Commencing at a point S. 0° 17' W. 800' from S.E. corner of Dewey's Summer Home, thence

- S. 0° 17' W. 35.0'
- S. 39° 50' W. 201.0'
- S. 28° 00' W. 515.0'
- S. 24° 00' W. 500.0'
- S. 18° 30' W. 492.0'
- S. 15° 22' W. 755.0'
- S. 11° 33' W. 198.0'
- S. 7° 19' W. 350.0'
- S. 4° 50' E. 102.0'
- S. 48° 01' E. 250.0'
- S. 33° 50' E. 200.0'
- S. 4° 40' E. 35.0'
- S. 6° 19' W. 190.0'
- S. 18° 05' W. 109.0'
- S. 59° 18' W. 300.0'
- S. 72° 52' W. 100.0'
- N. 12° 40' W. 705.0'
- N. 22° 40' W. 100.0'
- N. 35° 18' W. 160.0'
- N. 23° 35' W. 70.0'
- N. 0° 30' E. 113.0'
- N. 16° 30' E. 210.0'
- N. 7° 25' E. 172.0'
- N. 3° 30' W. 88.0'
- N. 68° 30' W. 78.0'
- N. 20° 00' W. 140.0'
- N. 43° 00' W. 242.0'
- N. 69° 24' W. 99.0'
- N. 24° 43' E. 102.0'
- N. 8° 30' W. 175.0'
- N. 16° 48' E. 182.0'
- N. 5° 23' E. 225.0'
- N. 33° 30' W. 196.0'
- N. 71° 00' W. 191.0'
- N. 17° 47' W. 59.27'
- N. 62° 06' E. 211.60'
- N. 45° 23' E. 227.85' to the place of beginning.

Know All Men By These Presents, That we, John M. Dewey, Florice R. Lindsay, Roy J. Dewey and Marian Lindsay (being the sole heirs at law and devisees of Jesse M. Dewey, Deceased) and Anna Dewey, wife of the said John M. Dewey, William Lindsay, husband of the said Florice R. Lindsay, Emma W. Dewey, wife of the said Roy J. Dewey, and Herbert F. Lindsay, husband of the said Marian Lindsay, as proprietors, have caused the lands embraced in the annexed plat to be surveyed and out and platted to be known as STONY POINT PENINSULA, being a part of the S.E. 1/4 of Fractional Section 29, and all of Fractional Sections 32, T.6.S., R.10E., Frenchtown Twp., Monroe Co., Mich. and that all walks, streets, and Lagoons are hereby dedicated to the use of the property owners only.

Signed and sealed in the presence of:

John M. Dewey Florice R. Lindsay
Anna Dewey William Lindsay
William Lindsay Marian Lindsay
Herbert F. Lindsay Herbert F. Lindsay
Emma W. Dewey Emma W. Dewey
Charles Hartmann Notary Public in and for Lucas Co., Ohio

State of Ohio } S.S.
 Lucas County }
 On this 21st day of December, 1924, before me, a Notary Public, in and for said County, appeared John M. Dewey, Anna Dewey, Roy J. Dewey, and Emma W. Dewey, known to me to be the persons who executed the above dedication and acknowledged the same to be their free act and deed.

Charles Hartmann
 Notary Public in and for Lucas Co., Ohio
 My Commission Expires 24th 3, 1925

State of Ohio } S.S.
 Lucas County }
 On this 26th day of December, 1924 before me a Notary Public, in and for said County, appeared John M. Dewey, to me known to be the person who executed the foregoing instrument in behalf of Florice R. Lindsay, William Lindsay, Marian Lindsay and Herbert F. Lindsay, and acknowledged that he executed the same as the free act and deed of the said Florice R. Lindsay, William Lindsay, Marian Lindsay, and Herbert F. Lindsay.

Charles Hartmann
 Notary Public in and for Lucas Co., Ohio
 My Commission Expires 24th 3, 1925

TREASURER'S CERTIFICATE.

I hereby certify that according to the records of this office all taxes prior to this 30 day of December, 1924, are paid, and that there are no tax liens or titles held by the state or any individual against the property hereon described for five years preceeding this date.

Chas. C. Keady
 Monroe County Treasurer.

CERTIFICATE of APPROVAL by TOWNSHIP BOARD.

This plat approved at a meeting held
 December 23, 1924.

John J. Hoff Supervisor.
John J. Hoff Clerk.

CERTIFICATE of APPROVAL by COUNTY BOARD.

This plat approved at a meeting held Dec.
 30th A.D. 1924

Carl M. Wolfe Probate Judge
Chas. C. Keady County Treasurer
William C. Bell County Clerk

SURVEYOR'S CERTIFICATE.

I hereby certify that the plat hereon delineated is a correct one and that permanent monuments consisting of 3/4 inch iron pipe 20 inches long, have been placed at all intersections of streets and at all angles in the boundaries of the land platted, and at all points marked "as herein shown."

Charles E. Willckus Registered Surveyor

Note: - Out lot 1, Community Beaches, lots 1 to 50, inclusive and lots 53 to 129, inclusive, extend to waters edge of Lake Erie, but distances are given to survey line, shown by red line, on this plat.

15196

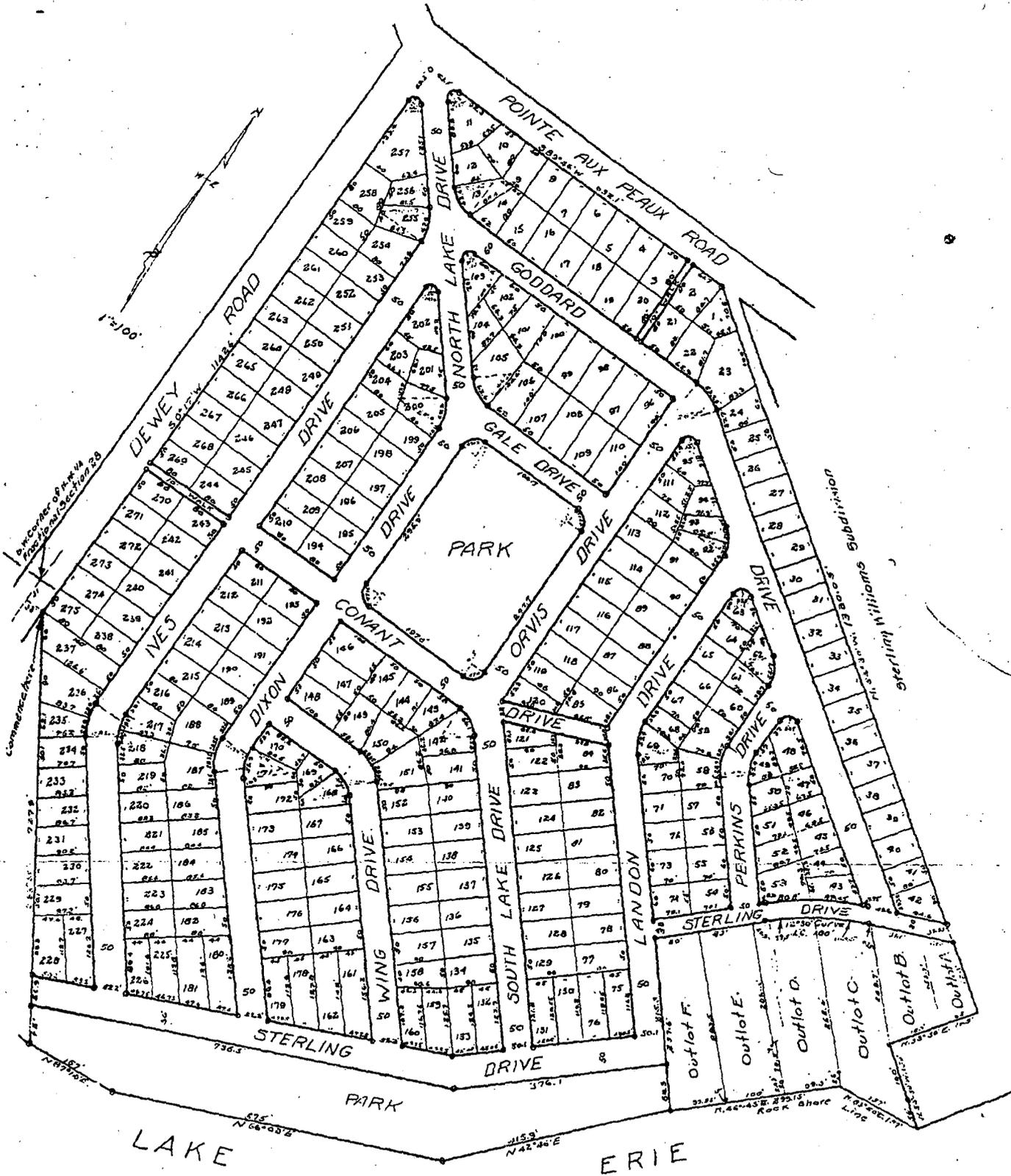
POINTE AUX PEAUX FARMS

Being a part of the W 1/2 of Fractional Section 28, T. 6 S. R. 10 E.,

Frenchtown Twp,

Monroe Co.,

Mich.



Register's Office
 Monroe County, Mich.
 Plat of Conrad's Acre
Conrad's Acre
 was Granted to 1611 by
 Order No. 102319 Dated
April 17 1923 of Clubs
 at 290 + 81
Joseph J. Hatched
 Register of Deeds

Examined and Approved
April 17-1923
John L. Haver
 Deputy Auditor General
 18190

POINTE AUX PEAUX FARMS

Being a part of the W. 1/2 of Fractional Section 28, T. 65. R. 10E.,
 Frenchtown Twp., Monroe Co., Mich.

I HEREBY CERTIFY THAT THE ABOVE IS A TRUE COPY OF THE MAP OR PLAN FORWARDED THE REGISTER OF DEEDS FOR RECORDING
April 17 1923
John L. Haver
 DEPUTY AUDITOR GENERAL

FILED IN AUDITOR GENERAL'S OFFICE
April 17-1923
John L. Haver
 DEPUTY AUDITOR GENERAL

KNOW ALL MEN BY THESE PRESENTS, THAT W. W. C. STERLING, A SINGLE MAN, AND W. C. STERLING JR. AND EMMA S. STERLING, HIS WIFE, AS PROPRIETORS, HAVE CAUSED THE LAND DESCRIBED IN THE ANNEXED PLAT TO BE SURVEYED, LAID OUT AND PLATTED TO BE KNOWN AS "POINTE AUX PEAUX FARMS," BEING A PART OF THE W. 1/2 OF FRACTIONAL SECTION 28, T. 65. R. 10E., FRENCHTOWN TWP., MONROE CO., MICH., AND THAT THE STREETS AND PASSES ARE DEDICATED TO THE USE OF THE PROPERTY OWNERS ONLY.

SIGNED AND SEALED IN PRESENCE OF

Abby Landon
Miss S. D. ...

William C. Sterling Jr.
Emma S. Sterling

STATE OF MICHIGAN
 COUNTY OF MONROE S.S.

ON THIS 17th DAY OF MARCH, 1923, BEFORE ME A NOTARY PUBLIC, IN AND FOR SAID COUNTY APPEARED THE ABOVE MENTIONED W. W. C. STERLING, W. C. STERLING JR. AND EMMA S. STERLING, KNOWN TO ME TO BE THE PERSONS WHO EXECUTED THE ABOVE DEDICATION AND ACKNOWLEDGED THE SAME TO BE THEIR FREE ACT AND DEED.

Joseph W. ... NOTARY PUBLIC.

MY COMMISSION EXPIRES April 9-1924

TREASURER'S CERTIFICATE

I HEREBY CERTIFY THAT ALL TAXES DUE TO THIS 2nd DAY OF APRIL, 1923, ARE PAID AND THAT THERE ARE NO TAX LIENS OR ENCUMBRANCES HELD BY THE STATE OR ANY INDIVIDUAL AGAINST THE PROPERTY HEREON DESCRIBED FOR FIVE YEARS PRECEDING THIS DATE.

W. Grace ... COUNTY TREASURER.

DESCRIPTION

COMMENCING AT A POINT 41' 8.0" 17" W. AND 33' E. OF THE S.W. CORNER OF THE NW 1/4 OF FRACTIONAL SECTION 28, THENCE RUNNING AS FOLLOWS: S. 77° 30' E. 727.00' THENCE N. 87° 12' 15" E. 157' THENCE S. 66° 02' E. 575' THENCE S. 42° 46' E. 415.9' THENCE N. 46° 45' E. 299.15' THENCE N. 83° 30' E. 157' THENCE N. 54° 30' W. 156' THENCE N. 31° 30' E. 155' THENCE N. 54° 30' W. 1330.05' THENCE S. 89° 46' W. 632.1' THENCE S. 8° 17' W. 1142.6' TO THE PLACE OF BEGINNING.

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE PLAT HEREON DEDICATED IS A CORRECT ONE AND THAT PERMANENT MONUMENTS CONSISTING OF 2 INCH IRON PIPE POINTS LONG HAVE BEEN PLACED AT ALL POINTS MARKED "0" AS HEREON SHOWN, AS ALL ANGLES IN THE BOUNDARIES OF THE LANDS PLATTED AND AT ALL INTERSECTIONS OF STREETS.

James ... REGISTERED CIVIL ENGINEER.

CERTIFICATE OF APPROVAL BY TWP. BOARD.

THIS PLAT WAS APPROVED AT A MEETING HELD JULY 11 1923
 and signed April 24 1923
Charles C. Kull SUPERVISOR.

Joseph ... CLERK.

CERTIFICATE OF APPROVAL BY COUNTY BOARD.

THIS PLAT WAS APPROVED AT A MEETING HELD APRIL 30th 1923.

Carl ... PROBATE JUDGE.

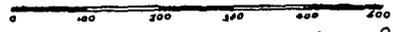
Otto C. ... COUNTY TREASURER.

William C. ... COUNTY CLERK.

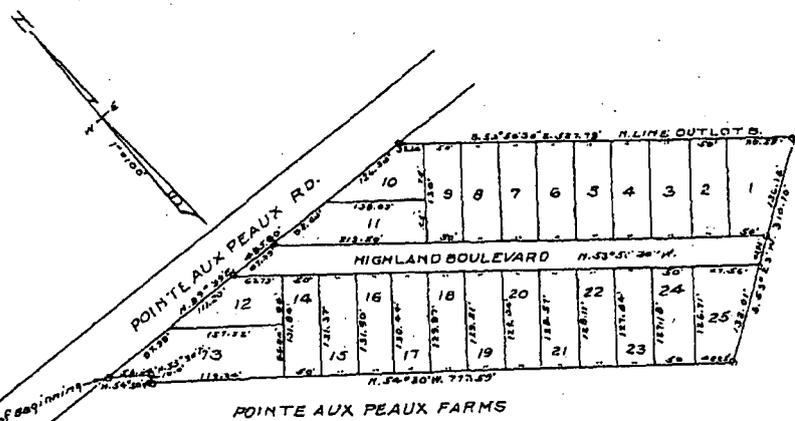
22-16

HIGHLAND POINTE

BEING A PART OF OUTLOT B, STERLING-WILLIAMS SUBDIVISION
OF A PART OF THE S 1/2 OF THE N.W. 1/4, SECTION 28, T. 6 S. R. 10 E.,
FRENCHTOWN TWP, MONROE CO, MICH.



All dimensions are in feet and decimals thereof.



POINTE AUX PEAUX FARMS

DEDICATION

KNOW ALL MEN BY THESE PRESENTS, that we Wm. J. Dravulich and
Florentine H. Dravulich, his wife,
as proprietors, have caused the land embraced in the annexed plat to be surveyed,
said land and plat, to be known as Highland Pointe, Being a part
of Outlot B, Sterling-Williams Subdivision, of a part of
the S. 1/2 of the N. W. 1/4 Section 28, T. 6 S. R. 10 E.,
Frenchtown Twp., Monroe Co., Mich.
and that the same
is shown on said plat and
is hereby dedicated to the use of property owners only.

Signed and Sealed in
the presence of
Eugene E. Pappasch Wm. J. Dravulich
O. A. Case Florentine H. Dravulich

ACKNOWLEDGMENT

STATE OF MICHIGAN
County of ... MONROE ...
On this ... day of ... 1952, before me,
a Notary Public in and for said County, personally came the above named
Wm. J. Dravulich and Florentine H. Dravulich, his wife,
known to me to be the persons who executed the above dedication, and acknowledged
the same to be their free act and deed.
Notary Public, ...
My Commission expires, Feb. 28, 1956

COUNTY TREASURER'S CERTIFICATE

Office of County Treasurer, ...
I hereby certify that there are no tax liens or other liens on this land by individuals on said land,
for the five years preceding the ... day of
... and that the taxes for said period of
five years are all paid, as shown by the records of this office.
This certificate does not apply to taxes, if any, now in process of collection by township,
city or village collecting officers.
Anton W. Munch (County Treasurer)

DESCRIPTION OF LAND PLATTED

The land embraced in the annexed plat of Highland Pointe being a part
of Outlot B, Sterling-Williams Subdivision, of a part of
the S. 1/2 of the N. W. 1/4 Section 28, T. 6 S. R. 10 E.,
Frenchtown Twp., Monroe Co., Mich.
is described as follows
Commencing 33' East and 1142.6' N. 0° 17' E. and
849.19' N. 89° 40' E. from the S. W. Corner of the N.
W. 1/4, Section 28, thence N. 82° 39' E. 495.00' thence
S. 53° 50' 30" E. 527.79' thence S. 53° 25' W. 310.10',
thence N. 54° 30' W. 777.50', thence N. 35° 30' E. 10',
thence N. 54° 30' W. 56.64' to the place of beginning.

SURVEYOR'S CERTIFICATE

I hereby certify that the plat herein delineated is a correct one and that permanent
wood monuments consisting of four iron pins were set in diameter and all holes
in length, or shorter bars of not less than one-half inch in diameter tapped near each
other at least 6 inches with an overall length of not less than 48 inches, secured in a
suitable cylinder or block of lumber in diameter and all holes in depth have been placed
in plain number that (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25)
as shown above at all angles in the boundaries of the
land platted, at all the intersections of streets, intersections of alleys, or of streets and
alleys, and at the intersections of streets and alleys with the boundaries of the plat as
shown on said plat.

APPROVAL BY COUNTY PLAT BOARD

This plat was approved on the ... day of ...
by the ...
Roy Moore (County Register of Deeds)
J. Golden Zabel (County Clerk)
Anton W. Munch (County Treasurer)
Worth W. Easton (County Drain Commissioner)

MUNICIPAL APPROVAL

This plat was approved by the ... Township Board
of the ... Township
of a standing lot.
Robert A. Vivian (Chair)

S.W. Corner of the
N.W. 1/4, Section 28

Notary Public
Eugene E. Pappasch
My Commission Expires Feb. 28, 1956

Notary Public
Eugene E. Pappasch
My Commission Expires Feb. 28, 1956

Original and Approved
Sept 13-1919
John P. Hillier
Deputy Register

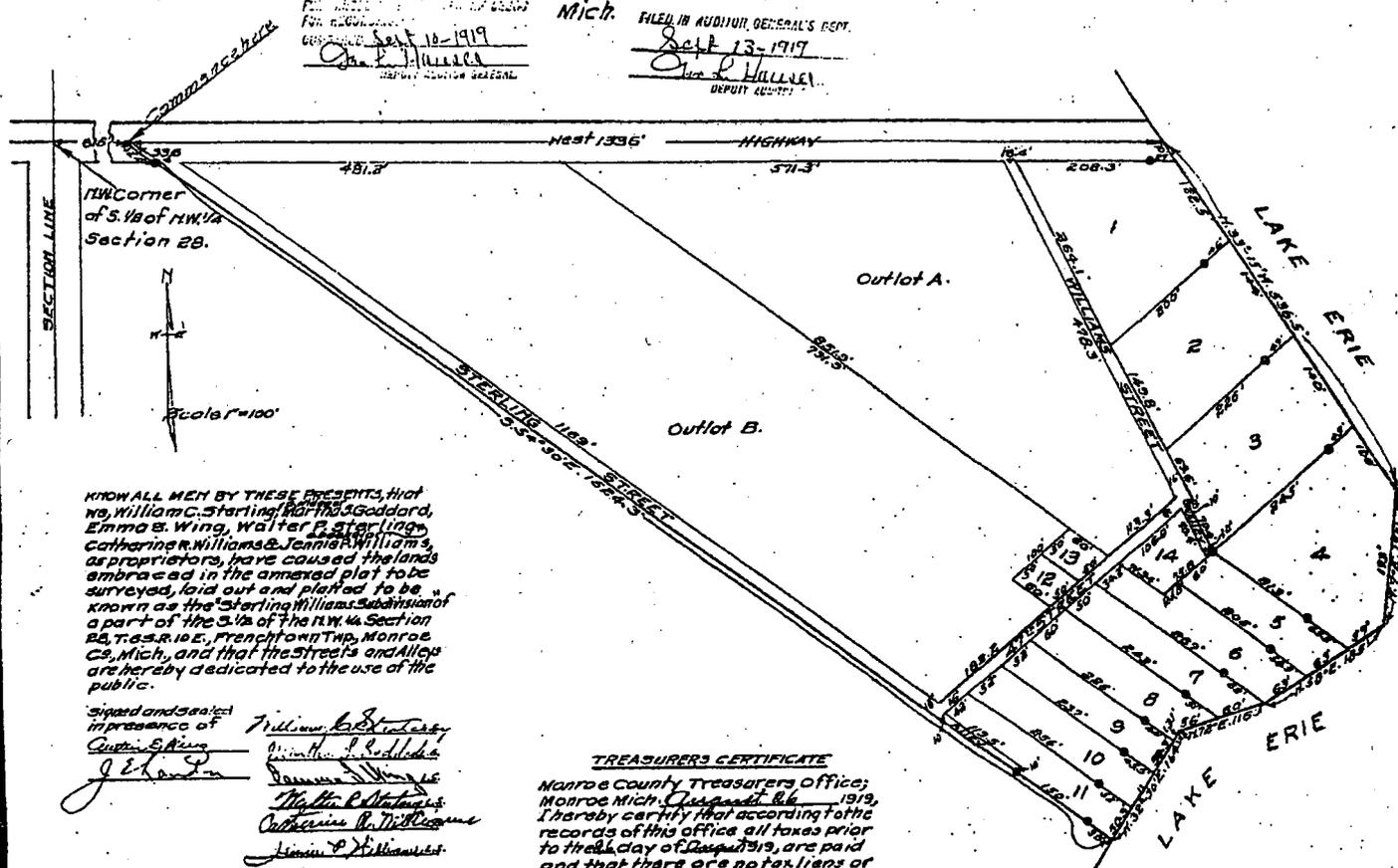
STERLING - WILLIAMS SUBDIVISION

of a part of the S 1/2 of the NW 1/4 Section 28, T.65.R.10E,

Frenchtown Twp, Monroe Co.,

9/19/19
Edward C. Ueber
Notary Public

Mich. FILED IN AUDITOR GENERAL'S OFFICE
Sept 13-1919
John P. Hillier
DEPUTY REGISTER



KNOW ALL MEN BY THESE PRESENTS, that
we, William C. Sterling, Martha Goddard,
Emma S. Wing, Walter F. Sterling,
Catherine R. Williams & Jennie R. Williams,
as proprietors, have caused the lands
embraced in the annexed plat to be
surveyed, laid out and plotted to be
known as the Sterling Williams Subdivision of
a part of the S 1/2 of the NW 1/4 Section
28, T.65.R.10E, Frenchtown Twp, Monroe
Co., Mich., and that the streets and alleys
are hereby dedicated to the use of the
public.

Signed and sealed
in presence of
Curtis S. King
J. E. Ueber
Notary Public

William C. Sterling
Martha Goddard
Emma S. Wing
Walter F. Sterling
Catherine R. Williams
Jennie R. Williams

TREASURERS CERTIFICATE
Monroe County Treasurers Office;
Monroe Mich. August 26 1919,
I hereby certify that according to the
records of this office all taxes prior
to the day of August 19, are paid
and that there are no tax liens or
titles held by the state or any
individual against the property
hereon described.
Fred E. Joseph County Treasurer.

SURVEYORS CERTIFICATE
I hereby certify that the plat hereon
delineated is a correct one and that
permanent monuments consisting of
6 vitrified pipe filled with concrete
shown thus 'o', and 3/4 Iron Pipe 30" long
shown thus 'o', are at all angles in the
boundaries of the lands plotted
excepting on the beach line, where the
monuments are set on each lot line
back from the beach due to solid rock
formation, and at all intersections
of streets and alleys

**CERTIFICATE OF APPROVAL
By County Board**
This plat was approved by the County
Planning Board at a meeting held
August 26th 1919.

Paul Krause Probate Judge
Fred E. Joseph County Treasurer
Ray Cobble County Clerk

**CERTIFICATE OF APPROVAL
By Township Board**
This plat was approved by the Township
Board of the Township of Frenchtown
at a meeting held August 26th 1919.

John P. Hillier Township Clerk
Alfred Zeman Supervisor

State of Michigan s.s.
County of Monroe
On this 27 day of August
1919, before me, a Notary Public, in and
for said County, appeared the above
mentioned, William C. Sterling, Martha
S. Goddard, Emma S. Wing, Walter F.
Sterling, Catherine R. Williams &
Jennie R. Williams, known to me to be
the persons who executed the above
dedication and acknowledged the
same to be their free act and deed.
John E. Ueber Notary Public.
My Commission Expires Dec 17 1922

DESCRIPTION
Commencing at a point 15' East of
the NW corner of the S 1/2 of the NW 1/4
of Section 28, T.65.R.10E, Frenchtown
Twp, Monroe Co., Mich.
Thence S. 84° 30' E. 152.45 to shore of Lake
Erie;
" N. 36° 30' E. 164' on shore of Lake Erie;
" N. 72° 0' E. 116' "
" N. 58° 0' E. 185' "
" N. 7° 0' E. 173' "
" N. 10° 15' E. 330.5 "
to center line Highway
" West 1336 to place of beginning.

Examined and Approved

FILED IN AUDITOR GENERAL'S DEPT.

I HEREBY CERTIFY THAT THIS COPY IS A TRUE COPY OF THE MAP OR PLAT FORWARDED THE REGISTER OF DEEDS FOR RECORDING.

27487

"LONG'S POINTE AUX PEAUX PLAT"

BEING A PART OF THE N. W. 1/4 FRACTIONAL SECTION 28, T. 6 S. R. 10 E., FRENCHTOWN TOWNSHIP, MONROE COUNTY, MICHIGAN.

We approve the within plat under provisions of Section 13230 S. L. 1929.

BOARD OF COUNTY ROAD COMMISSIONERS

Edith Long Henderson Chairman
Edith Long Henderson
Irving W. Knapp Secretary

KNOW ALL MEN BY THESE PRESENTS, that we, Long Estate Summer Resort Association, a Michigan corporation, by Edith Long Henderson, President, and Irvin Long, Secretary, as proprietors, have caused the land embraced in the annexed plat to be surveyed, laid out and platted, to be known as "Long's Pointe Aux Peaux Plat", being a part of the Northeast one-quarter (1/4) Fractional Section twenty-eight (28), Town six (6) South, Range ten (10) East, Frenchtown Township, Monroe County, Michigan, and that the streets and alleys as shown on said plat are hereby dedicated to the common use of the owners of the lots shown thereon.

Signed and Sealed in the Presence of
David Winkworth
David Winkworth

LONG ESTATE SUMMER RESORT ASSOCIATION
Edith Long Henderson (L.S.)
Edith Long Henderson, President
Irvin Long (L.S.)
Irvin Long, Secretary

STATE OF MICHIGAN 1938

COUNTY OF MONROE
On this 30 day of June 1938 before me *Betty Taylor* Betty Taylor Notary Public in and for said County, appeared Edith Long Henderson and Irvin Long to me personally known, who being each by me duly sworn did say that they are the President and Secretary respectively of the LONG ESTATE SUMMER RESORT ASSOCIATION, a Michigan corporation, and that the seal affixed to said instrument is the corporate seal of said corporation and that said instrument was signed and sealed in behalf of said corporation by authority of its Board of Directors and the said Edith Long Henderson, President, and Irvin Long, Secretary acknowledged said instrument to be the free act and deed of said corporation.

Betty Taylor
Betty Taylor
Notary Public
My Commission expires *May 14 1940*

I hereby certify that the plat herein delineated is a correct one and that permanent metal markers of not less than one inch in diameter and fifteen inches in length set in a concrete base at least four inches in diameter and forty-eight inches in depth have been placed at points marked thus (o) as thereon shown at all angles in the boundaries of the land platted, at all the intersections of streets, intersections of alleys, or of streets and alleys, and at the intersections of streets and alleys with the boundaries of the plat as shown on said plat.

CERTIFICATE OF APPROVAL BY COUNTY BOARD

This plat was approved by the Monroe County Platting Board at a meeting held *July 20 1938* 1938.

William C. Clegg Probate Judge
Edith Long Henderson County Treasurer
Norman H. Riedersmeyer County Clerk
Norman H. Riedersmeyer

The land embraced in the annexed plat of "LONG'S POINTE AUX PEAUX PLAT" being a part of the N. W. 1/4 of Fractional Section 28 T. 6 S. R. 10 E. is described as follows: Commencing 1483' S. 4°51' W. and 1507' S. 25°09' E. from the S. W. corner of Fractional Section 28 T. 6 S. R. 10 E.; thence North 122'; thence S. 25°09' E. 225.09'; thence North 694.19'; thence S. 87°05' E. 207.70'; thence S. 34°46' E. 290.60'; thence S. 4°05' W. 225.60'; thence S. 29°09' W. 323'; thence North 88°03' W. 171'; thence South 91.49'; thence North 85°09' W. 225.09' to the point of beginning, being a part of the N. W. 1/4 Fractional Section 28 T. 6 S. R. 10 E. Frenchtown Township, Monroe County, Michigan.

CERTIFICATE OF APPROVAL BY TOWNSHIP BOARD

This plat was approved by the Frenchtown Township Board at a meeting held *July 20 1938* 1938.

Edward C. Weiss Clerk
Edward C. Weiss

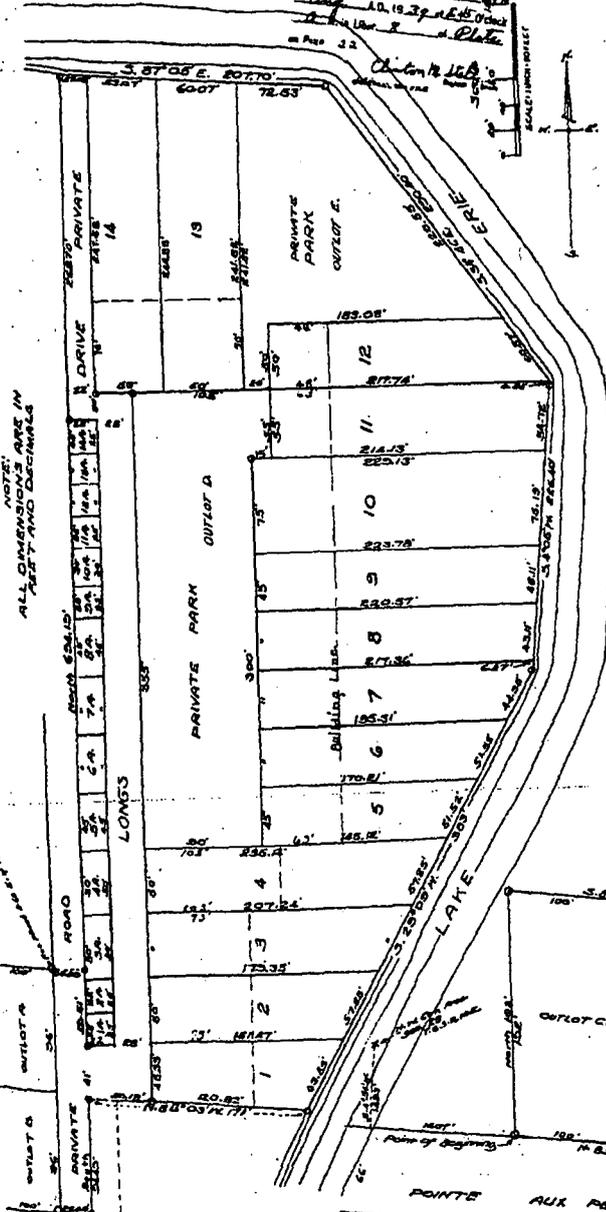
COUNTY TREASURER'S CERTIFICATE

Office of County Treasurer, Monroe County, Michigan.

I hereby certify that there are no tax liens or titles held by the State on the lands described below and that there are no tax liens or titles held by individuals on said lands for the five years preceding the 20th day of July 1938 and that the taxes for said period of five years are paid, as shown by the records of this office on the following described property: Commencing 1483' S. 4°51' W. and 1507' S. 25°09' E. from the S. W. corner of Fractional Section 28 T. 6 S. R. 10 E.; thence North 122'; thence S. 25°09' E. 225.09'; thence North 694.19'; thence S. 87°05' E. 207.70'; thence S. 34°46' E. 290.60'; thence S. 4°05' W. 225.60'; thence S. 29°09' W. 323'; thence North 88°03' W. 171'; thence South 91.49'; thence North 85°09' W. 225.09' to the point of beginning, being a part of the N. W. 1/4 Fractional Section 28 T. 6 S. R. 10 E. Frenchtown Township, Monroe County, Michigan.

We hereby certify that said plat appears to include lands located on County Road.

William C. Clegg Probate Judge
Edith Long Henderson County Treasurer
Norman H. Riedersmeyer County Clerk
Norman H. Riedersmeyer



18026

I HEREBY CERTIFY THAT THIS IS IN A TRUE COPY OF THE MAP AS FILED FOR RECORDING COMPARED JULY 31-1923

DEPUTY AUDITOR GENERAL

DESCRIPTION.

Commencing at a point 3.85555 W. 33.0' from the SE corner of the NE 1/4 of fractional section 23, T. 6 S., R. 16 E. Thence S. 83° 55' 30" W. 128.83' along the E. & M. to line; N. 61° 28' E. 123.91' along the West line of the E. & M. to line; S. 33° 45' E. 145.23' along the S.W. 1/4 line of Point Aux Proux Road; S. 83° 12' E. 26.2' along the S. line of a 0'-17" W. 110.4' along a line 33' W. of and parallel to the E. line of fractional section 23, to the place of beginning.

FILED IN AUDITOR GENERAL'S DEPT. JULY 4-1923

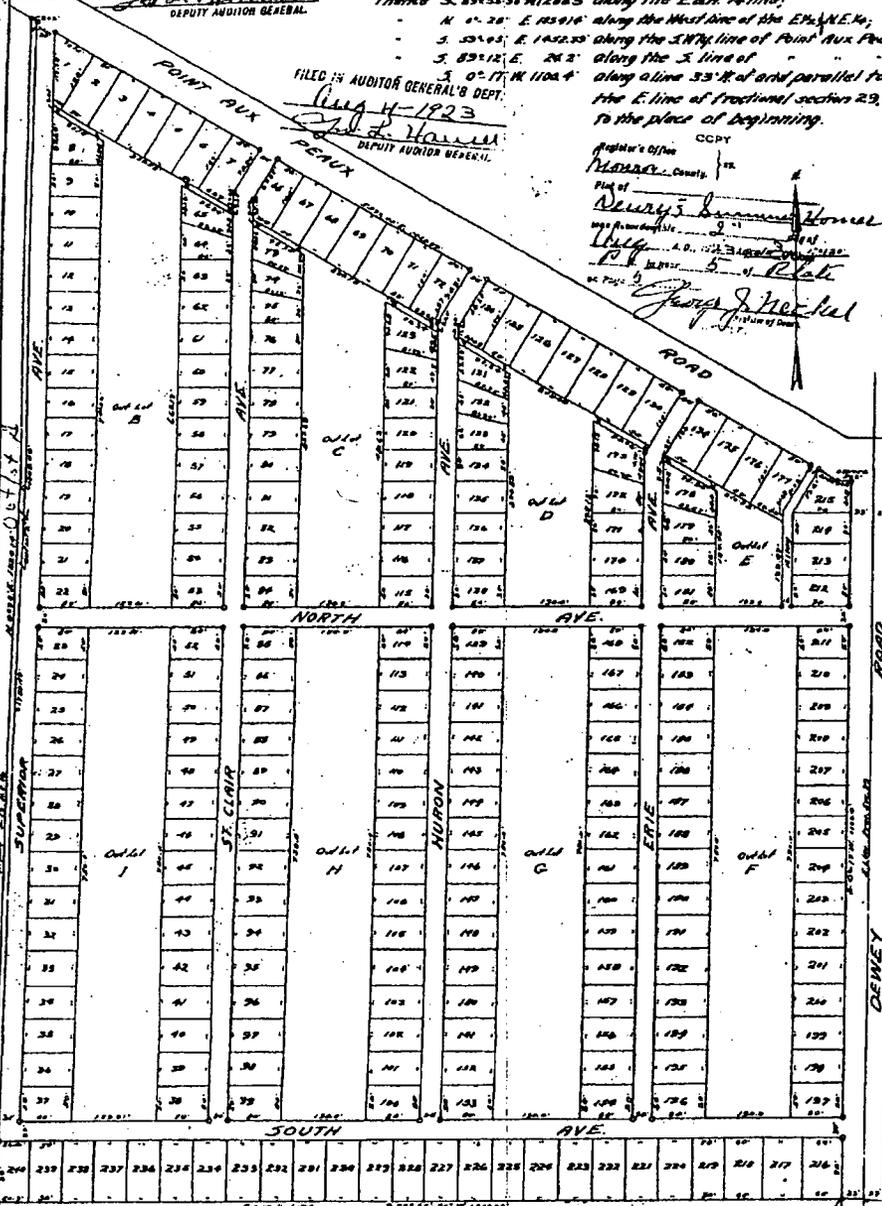
DEPUTY AUDITOR GENERAL

Notary's Office Lucas County, Ohio

Notary Public

Notary Public

Notary Public



DEWEY'S SUMMER HOMES

Being a part of the E. 1/2 of the NE 1/4 of fractional section 23, T. 6 S., R. 16 E., Frenchtown Twp., Monroe Co., Michigan.

JULY 31-1923

Know All Men By These Presents, That we, John M. Dewey, Florica R. Lindsay, Roy J. Dewey and Marion Lindsay (being the survivors at law and devisees of Jesse M. Dewey, deceased) and Anna Dewey, wife of the said John M. Dewey, William Lindsay, husband of said Florica R. Lindsay, Emma M. Dewey, wife of the said Roy J. Dewey, and Herbert Lindsay, husband of the said Marion Lindsay, as proprietors, have caused the Lands embraced in the annexed plat to be surveyed, laid out and platted to be known as DEWEY'S SUMMER HOMES, being a part of the E. 1/2 of the NE 1/4 of fractional section 23, T. 6 S., R. 16 E., Frenchtown Twp., Monroe Co., Mich., and that all streets, are hereby dedicated to the use of the property owners only.

Signed and sealed in presence of
Joseph F. Hartmann
Charles Hartmann
Robert B. Lindsay
Benjamin B. Lindsay
John M. Dewey s.
Roy J. Dewey s.
Florica R. Lindsay s.
Marion Lindsay s.
Anna Dewey s.
Emma M. Dewey s.
William Lindsay s.
Herbert Lindsay s.

State of Ohio } s.
Lucas County } s.
On this 30th day of June, 1923, before me a Notary Public, in and for said County, appeared, John M. Dewey, Anna Dewey, Roy J. Dewey, and Emma M. Dewey, known to me to be the persons who executed the above dedication and acknowledged the same to be their free act and deed.

State of Wisconsin } s.
On this 5th day of July, 1923, before me a Notary Public, in and for said County, appeared, Florica R. Lindsay, William Lindsay, Marion Lindsay and Herbert R. Lindsay, known to me to be the persons who executed the above dedication and acknowledged the same to be their free act and deed.

State of Michigan } s.
On this 5th day of July, 1923, before me a Notary Public, in and for said County, appeared, Florica R. Lindsay, William Lindsay, Marion Lindsay and Herbert R. Lindsay, known to me to be the persons who executed the above dedication and acknowledged the same to be their free act and deed.

Frank A. Lamborn Notary Public.
My commission expires August 21-1924.

TREASURER'S CERTIFICATE.
I hereby certify that according to the records of this office, all taxes prior to this 12th day of July, 1923 are paid and that there are no tax liens or titles held by the state or any individual against the property hereinafter described for five years, preceding this date.
Otto C. Putsy Monroe County Treasurer.

SURVEYOR'S CERTIFICATE.
I hereby certify that the plat heron delineated is a correct one, and that permanent monuments, consisting of 1/2 inch iron pipe, 22 inches long, have been placed at all intersections of streets and at all angles in the boundaries of the land plat and at all points marked 'o' as hereon shown.
Joseph F. Hartmann Registered Surveyor

CERTIFICATE OF APPROVAL BY TOWNSHIP BOARD.
This plat approved at a meeting held July 16, 1923
Otto C. Putsy Supervisor
Frank A. Lamborn Clerk

CERTIFICATE OF APPROVAL BY COUNTY BOARD
This plat approved at a meeting held July 19, 1923.
Frank A. Lamborn Proprietor
Otto C. Putsy County Treasurer
William C. Dean County Clerk

LAGOONA BEACH

SUBDIVISION OF PART OF SECTIONS
20 & 29 T.6.S. R.10.E. FRENCHTOWN TWP
MONROE COUNTY - MICHIGAN.

Examined and approved
James L. 1925
W. L. Cull
Deputy Auditor General

I HEREBY CERTIFY THAT THIS COPY IS
A TRUE COPY OF THE MAP OR PLAN
FORWARDED THE REGISTER OF DEEDS
FOR RECORDING.
Witnessed James L. 1925
W. L. Cull
DEPUTY AUDITOR GENERAL

All dimensions shown on plat are
in feet or decimals thereof.

I hereby certify that the plat hereto delineated is a
correct one and that permanent measurements consisting
of 1/2" x 18" gas pipes have been placed in the ground
at all points marked thus (*) as shown thereon at all
angles in the boundary of the land platted and at all
intersections of streets or streets and alleys.

Raymond J. Kowalski Registered Civil Engineer
COPY

State Office
Raymond J. Kowalski
Laguna Beach
June 10, 1925
A. B. 1925 P. 80
P. U. in book 9 Plat
Page 47
Joseph J. Kowalski
Notary Public

KNOW ALL MEN BY THESE PRESENTS
that we John M. Reed
John T. Reed wife

as proprietors, have caused the land embraced in the an-
nounced plat to be surveyed, laid out and platted, to be
known as the "LAGOONA BEACH"
Subdivision of Part of Sections
20 & 29 T.6.S. R.10.E. Frenchtown
Twp., Monroe County, Michigan
and that the streets easements and alleys shown on
said plat are hereby dedicated to the use of in perpetuity
SIGNED AND SEALED IN THE PRESENCE OF
WITNESS:

STATE OF MICHIGAN S. S.
COUNTY OF WAYNE
On this 20th day of April 1925 before me,
a Notary Public, personally came the above named

John M. Reed
and
John T. Reed
known to me to be the person who executed the above
dedication and acknowledged the same to be their
free act and deed. Raymond J. Kowalski
Notary Public; in and for Wayne Co., Mich.
My Commission expires Dec 25 1927.

STATE OF MICHIGAN S. S.
COUNTY OF WAYNE
On this 20 day of April 1925 before me,
a Notary Public in and for said county, personally came
the above named

James I. Ellmann
M. KLAUS
to me personally known who being each by me duly sworn
did say that they are the President and Secretary-
Treasurer respectively of the LAKE Erie
Land Co.
a Corporation and that the seal affixed to said
instrument is the corporate seal of said corporation and
the said instrument was signed and sealed in behalf of
said corporation by authority of its Board of Directors
and the said James I. Ellmann acknowledged
said instrument to be the free act and deed of said
corporation. James I. Ellmann
Notary Public, in and for Wayne County, Mich.
My Commission expires Aug 21 1925

FILED IN AUDITOR GENERAL'S DEPT.
June 12 - 1925
W. L. Cull
DEPUTY AUDITOR GENERAL

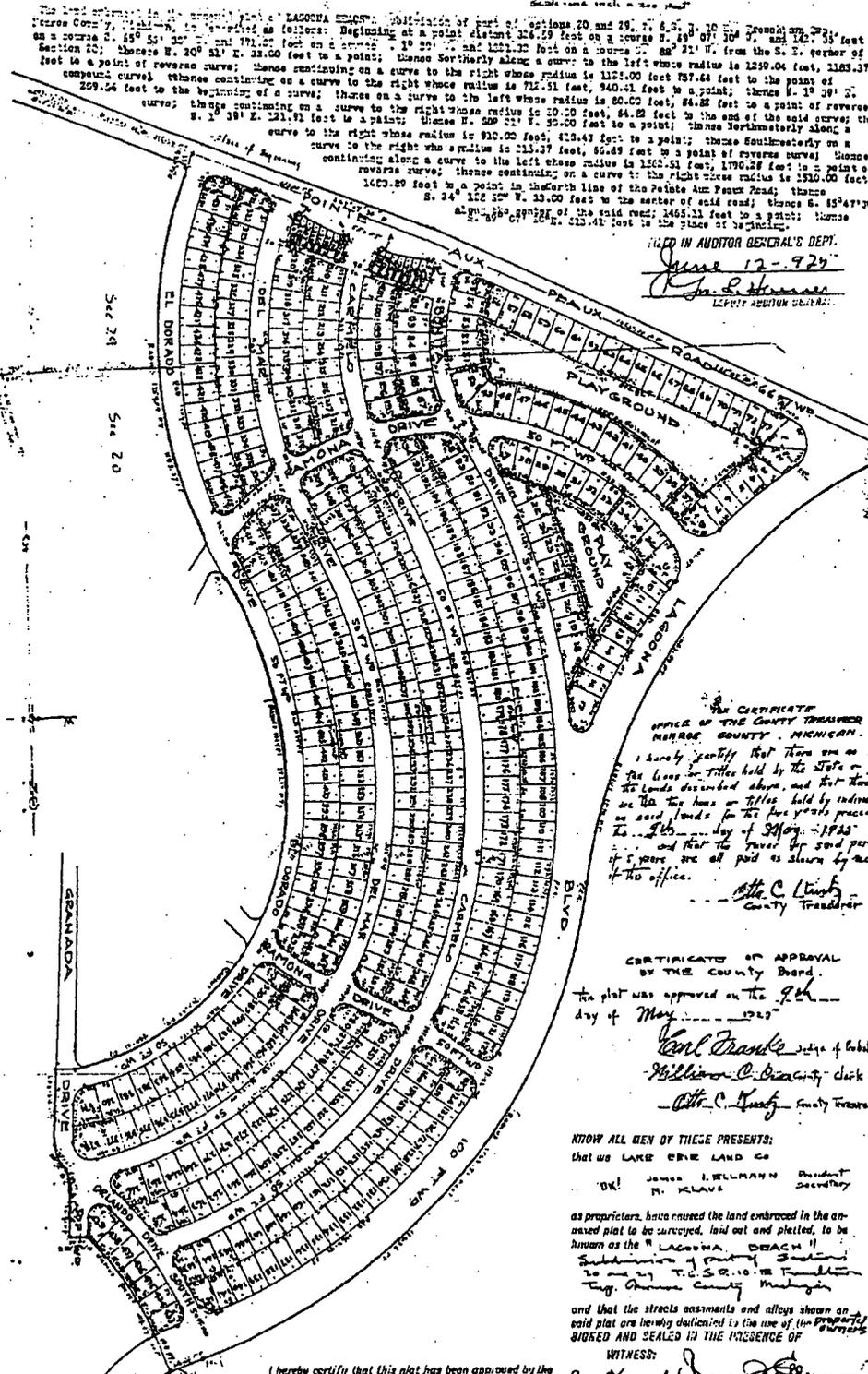
CERTIFICATE
OFFICE OF THE COUNTY TREASURER
MONROE COUNTY, MICHIGAN.
I hereby certify that there are no
tax liens or titles held by the State
on the lands described above, and that
no taxes are held by individuals
on said lands for the five years preceding
the 1st day of July 1925
and that the taxes for said period
if any, are all paid as shown by records
in this office.
Alfred C. Quay
County Treasurer

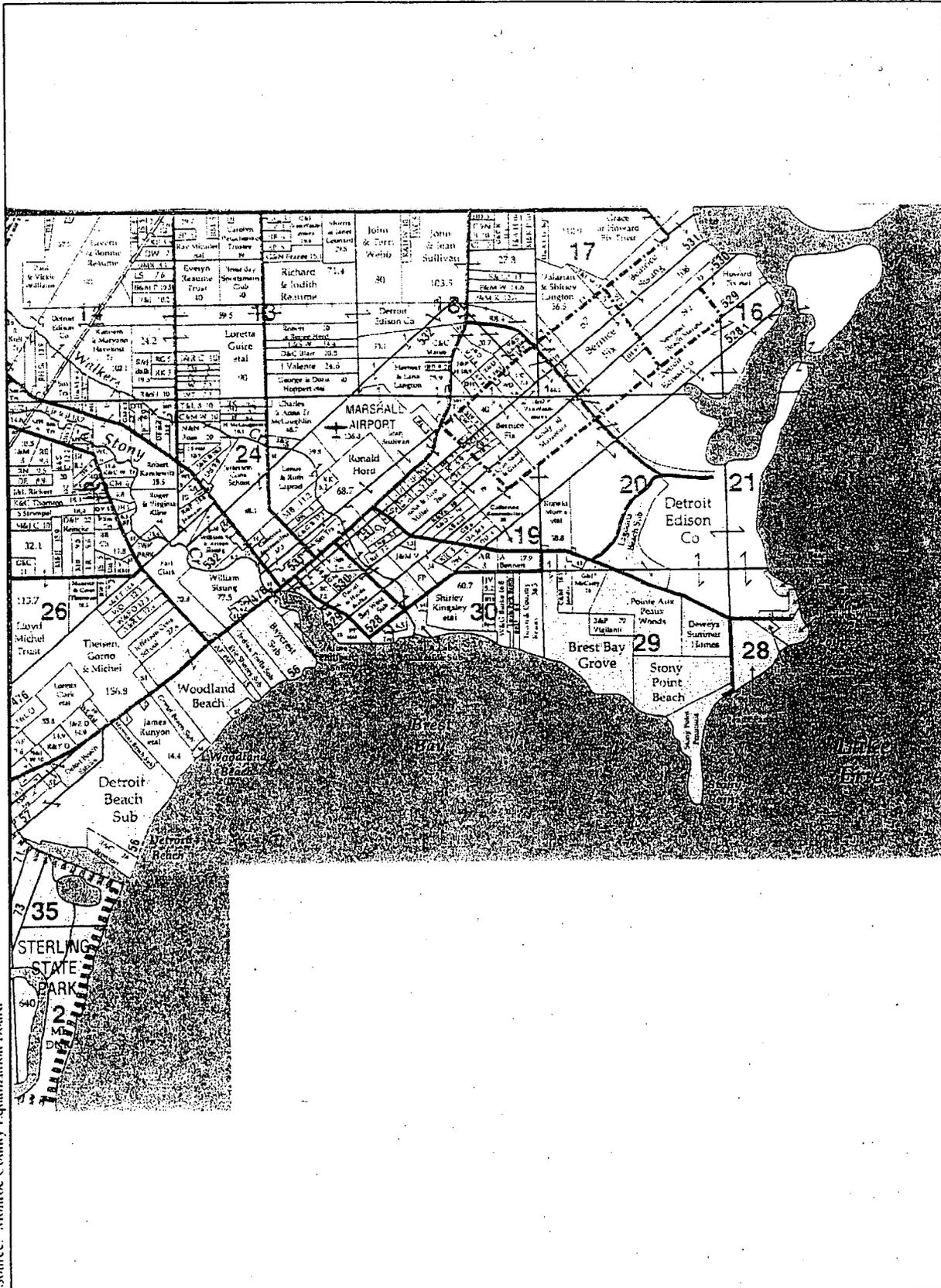
CERTIFICATE OF APPROVAL
BY THE COUNTY BOARD.
The plat was approved on the 9th
day of May 1925
Carl Frankle Secy of Public
William C. Bracey Clerk
Alfred C. Quay County Treasurer

KNOW ALL MEN BY THESE PRESENTS:
that we LAKE ERIE LAND CO
BY: James I. Ellmann President
M. Klaus Secretary
as proprietors, have caused the land embraced in the an-
nounced plat to be surveyed, laid out and platted, to be
known as the "LAGOONA BEACH"
Subdivision of Part of Sections
20 & 29 T.6.S. R.10.E. Frenchtown
Twp., Monroe County Michigan
and that the streets easements and alleys shown on
said plat are hereby dedicated to the use of in perpetuity
SIGNED AND SEALED IN THE PRESENCE OF
WITNESS:

James I. Ellmann
M. Klaus
Notary Public, in and for Wayne County, Mich.
My Commission expires Aug 21 1925

I hereby certify that this plat has been approved by the
Township Board of the Township of Frenchtown
at a session held April 20 1925
W. L. Cull CLERK





Source: Monroe County Equalization Board

Frenchtown Township (T6S R9-10E) Project Vicinity

Section	Subdivision Name	Year Recorded
7	Swan Creek Heights	1921
8	Swan River Highlands	1922
8	Weldon Stauffers Sub	1922
8	Ben Fix Swan Creek Sub	1921
16	Steven's Estral Sub	1920
10	Estral Beach Sub	1924

17967
 Examined and Approved
 Feb 7-1922
 J. S. Hunsley
 Deputy Auditor General

17967

SWAN CREEK HEIGHTS

Being a part of the NE 1/4 of Section 7, T. 6 S. R. 10 E., Berlin Twp.

Monroe Co., Mich.

KNOW ALL MEN BY THESE PRESENTS, THAT WE, ANNA LORENZ, JESSE BEAUBIEN, AND BOLAR BEAUBIEN, HIS WIFE, OLIVER BEAUBIEN AND OLLIE BEAUBIEN, HIS WIFE, ELMER BEAUBIEN AND GRACE BEAUBIEN, HIS WIFE, BENJAMIN BEAUBIEN, A SINGLE MAN, BESSIE BEAUBIEN AND HAZEL BEAUBIEN, (MINORS), BY ANNA LORENZ, STANLEY AS PROPRIETORS, HAVE CAUSED THE LANDS EMBRACED IN THE ANNEXED PLAN TO BE SURVEYED LAID OUT AND PLATTED TO BE KNOWN AS "SWAN CREEK HEIGHTS" BEING A PART OF THE N.E. 1/4 OF SECTION 7, T. 6 S. R. 10 E., BERLIN TWP., MONROE CO., MICH. AND THAT THE STREETS AS SHOWN ON SAID PLAN ARE HEREBY DEDICATED TO THE USE OF THE PUBLIC.

Signed and sealed in presence of
 Anna Lorenz
 Jesse Beaubien
 Bolar Beaubien

Anna Lorenz L.S.
 Jesse Beaubien L.S.
 Bolar Beaubien L.S.

DESCRIPTION

COMMENCING AT A POINT 1356' EAST AND 364' SOUTH OF THE N.W. CORNER OF THE N.E. 1/4 OF SECTION 7, THENCE S. 6°15'E. 90', THENCE S. 43°30' E. 340', THENCE SOUTH 283.3', THENCE S. 56°30' E. 120.9', THENCE S. 36°30' E. 283.5', THENCE N. 29° 30' W. 359', THENCE N. 24° W. 240', THENCE N. 43° W. 255.5', THENCE N. 74° 15' W. 234', THENCE N. 60° W. 126.2', THENCE N. 23° 15' W. 243', THENCE N. 89° W. 114.5' TO THE PLACE OF BEGINNING.

CERTIFICATE OF APPROVAL BY TWP. BOARD.

THIS PLAN WAS APPROVED AT A MEETING HELD Oct 14 1921.

Frank W. White SUPERVISOR.
 Chas. Yarnall CLERK.

STATE OF MICHIGAN
 COUNTY OF MONROE



ON THIS 14th DAY OF October 1921, BEFORE ME A NOTARY PUBLIC, IN AND FOR SAID COUNTY APPEARED THE ABOVE MENTIONED ANNA LORENZ, JESSE BEAUBIEN, BOLAR BEAUBIEN, OLIVER BEAUBIEN, OLLIE BEAUBIEN, ELMER BEAUBIEN, GRACE BEAUBIEN, AND ANNA LORENZ, AS GUARDIAN FOR BESSIE BEAUBIEN AND HAZEL BEAUBIEN, KNOWN TO ME TO BE THE PERSONS WHO EXECUTED THE ABOVE DEDICATION AND ACKNOWLEDGED THE SAME TO BE THEIR FREE ACT AND DEED.

My Commission Expires 10-9-22
 Geo. W. Francis NOTARY PUBLIC.

CERTIFICATE OF APPROVAL BY COUNTY BOARD.

THIS PLAN WAS APPROVED AT A MEETING HELD Jan 21 1921.

Carl Franke PROBATE JUDGE.
 Fred Schaeff COUNTY TREASURER.
 Ray Duce COUNTY CLERK.

TREASURERS CERTIFICATE

MONROE COUNTY TREASURERS OFFICE, MONROE MICH November 26th 1921.
 I HEREBY CERTIFY THAT ACCORDING TO THE RECORDS OF THIS OFFICE ALL TAXES DUE TO THIS 6 DAY OF November 1921, ARE PAID AND THAT THERE ARE NO TAX LIENS OR TITLES HELD BY THE STATE OR ANY INDIVIDUAL AGAINST THE PROPERTY HEREOF DESCRIBED FOR FIVE YEARS PRECEDING THIS DATE.

Frank Schaeff COUNTY TREASURER.

SURVEYORS CERTIFICATE

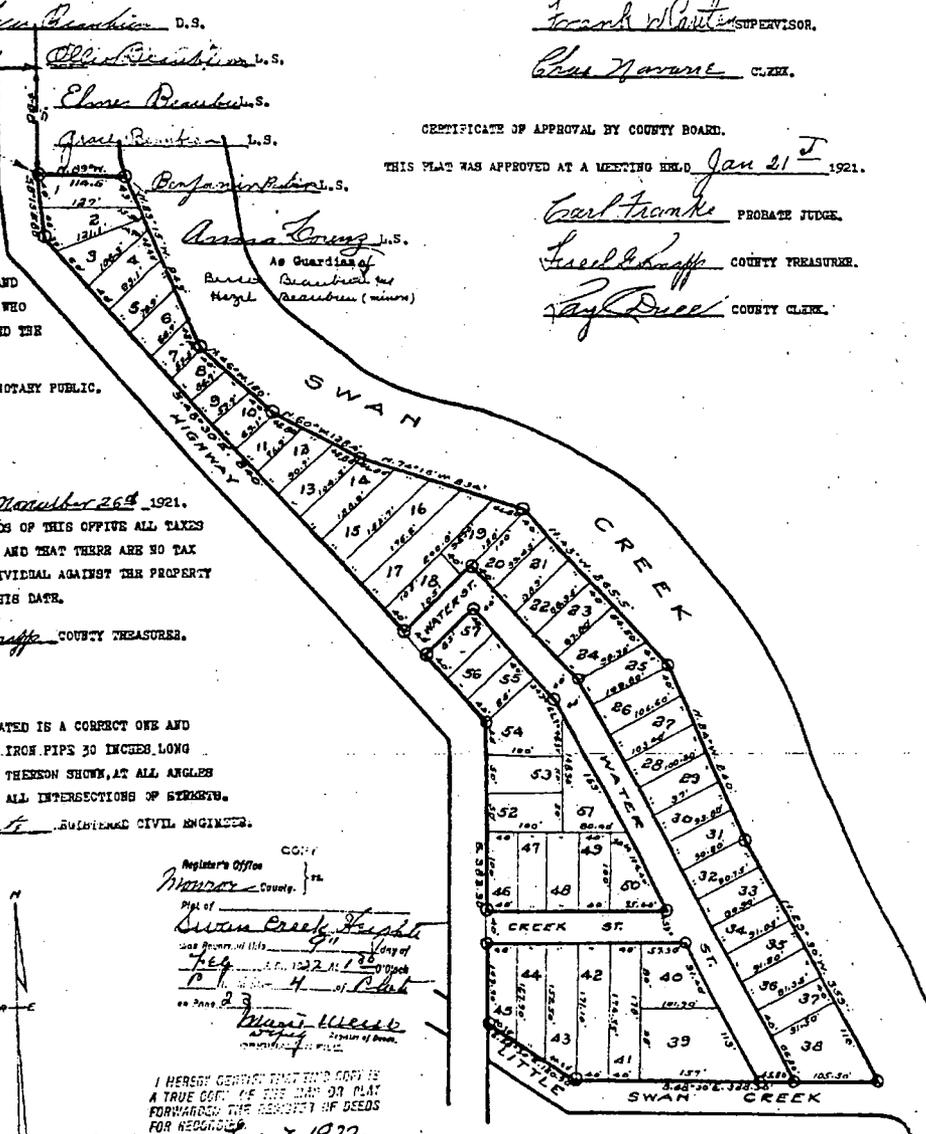
I HEREBY CERTIFY THAT THE PLAN HEREOF DELINEATED IS A CORRECT ONE AND THAT PERMANENT MONUMENTS CONSISTING OF IRON PIPES 30 INCHES LONG HAVE BEEN PLACED AT ALL POINTS MARKED "O" AS THEREON SHOWN, AT ALL ANGLES IN THE BOUNDARIES OF THE LAND PLATTED AND AT ALL INTERSECTIONS OF STREETS.

Geo. W. Francis SURVEYOR & CIVIL ENGINEER.

FILED IN AUDITOR GENERAL'S OFFICE
 Feb 11-1922
 J. S. Hunsley
 DEPUTY AUDITOR GENERAL

Register's Office
 Monroe County
 Plat of Swan Creek Heights
 Made Pursuant to Act of Feb 11 1922
 1922
 Geo. W. Francis
 Surveyor & Civil Engineer

I HEREBY CERTIFY THAT THIS COPY IS A TRUE COPY OF THE ORIGINAL PLAN FORWARDED THE DEPUTY OF DEEDS FOR RECORD.
 Feb 7 1922
 J. S. Hunsley
 DEPUTY AUDITOR GENERAL



Scale 1"=100'

SWAN RIVER HIGHLANDS

April 22-1922
J. H. Hamner

Being a part of the S.W. 1/4 of Section 8, T.6S. R.10E, Berlin TWP, Monroe Co., Mich.

KNOW ALL MEN BY THESE PRESENTS, THAT WE, THE SWAN RIVER LAND COMPANY, A MICHIGAN CORPORATION BY WM. G. BUCHAN PRES. AND GEO. P. TRUMP, SEC. AS PROPRIETORS HAVE CAUSED THE LAND EMBRACED IN THE ANNEXED PLAT TO BE SURVEYED LAID OUT AND PLATTED TO BE KNOWN AS "SWAN RIVER HIGHLANDS", BEING A PART OF THE S.W. 1/4 OF SECTIONS, T.6 S. R. 10 E., BERLIN TWP, MONROE CO. MICH. AND THAT THE STREETS AS SHOWN ON SAID PLAT ARE HEREBY DEDICATED TO THE USE OF THE PUBLIC.

SIGNED AND SEALED
IN PRESENCE OF
Wm. A. Bush PRES.
Forest Lohas
Levin S. Schmitt Secy

STATE OF MICHIGAN
S.S.
COUNTY OF MONROE

ON THIS 20th DAY
OF March 1922, BEFORE ME A NOTARY PUBLIC IN AND FOR SAID COUNTY APPEARED WM. G. BUCHAN AND GEO. P. TRUMP TO ME PERSONALLY KNOWN, WHO BEING SEEN BY ME DULY SWORN DID SAY THAT THEY ARE THE PRES. AND SEC. OF THE SWAN RIVER LAND COMPANY, A MICHIGAN CORPORATION, AND THAT THE SEAL APPLIED TO SAID INSTRUMENT IS THE CORPORATE SEAL OF SAID CORPORATION AND THAT SAID INSTRUMENT WAS SIGNED AND SEALED IN BEHALF OF SAID CORPORATION BY AUTHORITY OF ITS BOARD OF DIRECTORS AND THE SAID WM. G. BUCHAN AND GEO. P. TRUMP ACKNOWLEDGED THE SAME TO BE THE FREE ACT AND DEED OF SAID CORPORATION.

NOTARY PUBLIC
MY COMMISSION EXPIRES 10-9-22

April 28, 1922
J. H. Hamner

Corrected per letter of Register of Deeds. Volume 683-4441

TREASURER CERTIFICATE
MONROE COUNTY TREASURER OFFICE,
MONROE MICH. December 13 1921.
I HEREBY CERTIFY THAT ACCORDING TO THE RECORDS OF THIS OFFICE ALL TAXES DUE TO THIS 13 DAY OF December 1921 ARE PAID AND THAT THERE ARE NO TAX LIENS OR TAXES HELD BY THE STATE OR ANY INDIVIDUAL AGAINST THE LANDS HEREBY DESCRIBED FOR FIVE YEARS PRECEDING THIS DATE.

J. D. Knapp COUNTY TREASURER.
SURVEYOR CERTIFICATE
I HEREBY CERTIFY THAT THE PLAT HEREBY DELINEATED IS A CORRECT ONE AND THAT PERMANENT MONUMENTS CONSISTING OF 2" IRON PIPE 30" LONG HAVE BEEN PLACED AT ALL POINTS MARKED "O" AS THEREON SHOWN AT ALL ANGLES IN THE BOUNDARIES OF THE LANDS PLATTED AND AT ALL INTERSECTIONS OF STREETS.

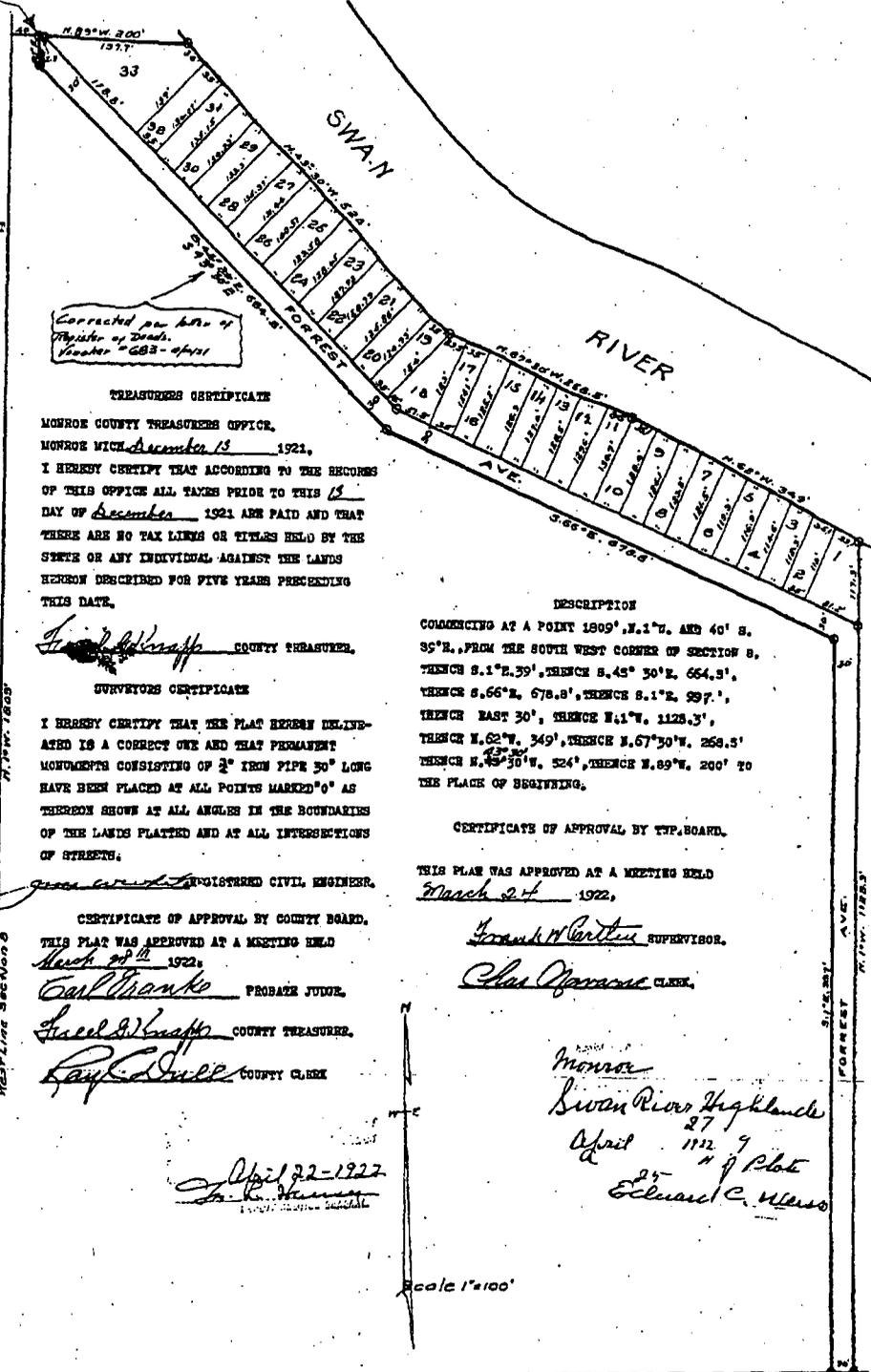
James W. Curtis REGISTERED CIVIL ENGINEER.
CERTIFICATE OF APPROVAL BY COUNTY BOARD.
THIS PLAT WAS APPROVED AT A MEETING HELD March 27th 1922.
Carl Franko PROBATE JUDGE.
Lucas D. Knapp COUNTY TREASURER.
Raymond J. Dyer COUNTY CLERK.

DESCRIPTION
COMMENCING AT A POINT 1809' N. 1 1/2" W. AND 40' S. 35" E., FROM THE SOUTH WEST CORNER OF SECTION 8, THENCE S. 1 1/2" E. 39', THENCE S. 45' 30" E. 664.3', THENCE S. 66' E. 678.8', THENCE S. 1 1/2" E. 897', THENCE EAST 30', THENCE N. 1 1/2" W. 1123.3', THENCE N. 62' W. 349', THENCE S. 67' 30" W. 258.5', THENCE N. 45' 30" W. 324', THENCE N. 89' W. 200' TO THE PLACE OF BEGINNING.

CERTIFICATE OF APPROVAL BY TWP. BOARD.
THIS PLAT WAS APPROVED AT A MEETING HELD March 24th 1922.
Frank W. Curtis SUPERVISOR.
Chas. J. J. J. CLERK.

Monroe
Swan River Highlands
April 11 1922
E. C. M. M.
E. C. M. M.

Scale 1"=100'



Sw. Corner Section 8 South Line Section 8

6/23/21

Engineered and Platted
 June 27-1921
 J. C. Conway
 Registered Engineer

'BEN FIX SWAN CREEK SUBDIVISION'

OF PART OF THE SOUTHWEST QUARTER OF SEC. 8 OF THE TWP. OF BERLIN, MONROE COUNTY, MICH.
 DESCRIPTION: the property herein platted is Ben Fix Swan Creek Subdivision of Part of Southeast Quarter of Sec. 8, of the Twp. of Berlin, Monroe County, Mich., and described as follows: East easterly of the intersection of the North and South Quarter line of said section with the center line of town line road, said center line of said road is also the boundary line between Twp. of Berlin and Frenchtown, Monroe Co., Mich. at the border of Swan Creek, thence, S 82° 20' E, 261.17 ft. thence, S 32° 15' W, 109.61 ft. thence, South, 129.82 ft. to the center line of said town line road; thence N 75° 25' W, 55.00 ft. along said center line of said town line road to point of beginning.

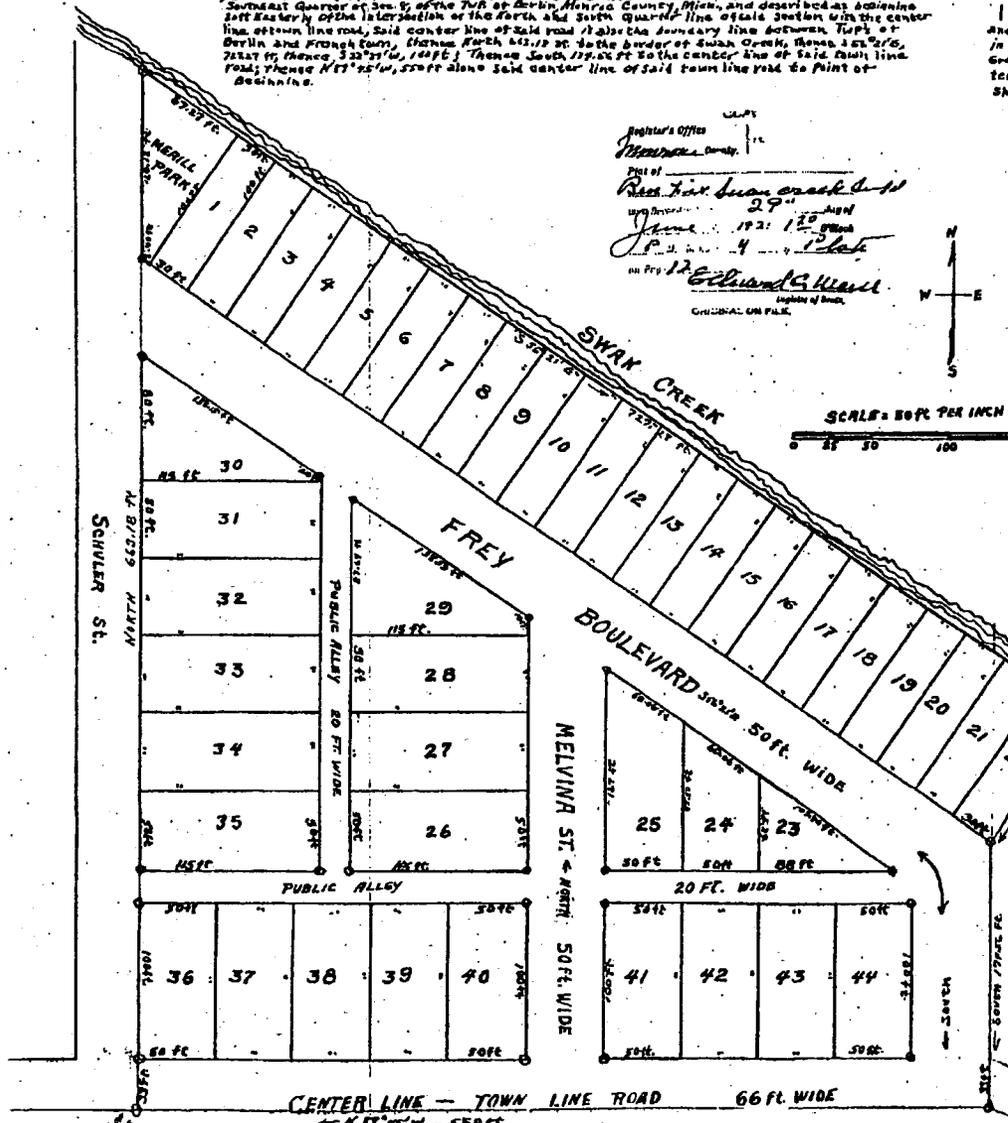
I hereby certify that the above Plat is correct, and that monuments, consisting of Iron Stakes 1/4 in dia. and 15 inches long, have been placed in the corners at 20 foot angles in the boundaries and the intersection of all streets or streets and alleys as shown on plat by o

I HEREBY CERTIFY THAT THIS COPY IS A TRUE COPY OF THE MAP OR PLAT FORWARDED THE REGISTER OF DEEDS FOR RECORDS.
 J. C. Conway
 DEPUTY AUDITOR GENERAL.

Register's Office
 Plat of
 Ben Fix Swan Creek Subd.
 June 27 1921
 J. C. Conway
 Registered Engineer

KNOW ALL MEN BY THESE PRESENTS, that we, Ben Fix and Clara Fix his wife, of the County of Monroe, Michigan, do hereby certify that we have caused the land embraced in the above plat to be surveyed, laid out, and platted, to be known as the 'Ben Fix Swan Creek Subdivision', of Part of the Southeast Quarter of Section 8 of Berlin Twp., Monroe Co., Michigan, and that the streets, Paris, and alleys shown on said Plat are hereby dedicated to the use of the Public.
 Witness our hands and seals this 11 day of June 1921.
 In presence of:
 Malvina Fix [L.S.]
 Merrill Fix [L.S.]
 Clara Fix [L.S.]

FILED IN AUDITOR GENERAL'S DEPT.
 June 30-1921
 J. S. Kinnear
 DEPUTY AUDITOR GENERAL.



SCALE = 80 FT PER INCH

STATE OF MICHIGAN
 County of Wayne
 On this 11th day of June 1921, before me, the undersigned, a Notary Public in and for said County, personally appeared Ben Fix and Clara Fix his wife, known to me to be the same persons described in and who executed the within instrument, and acknowledged the same to be their free act and deed.
 J. S. Kinnear
 Notary Public, Wayne County, Michigan.
 My commission expires 26th, 27th, 1922.

This Plat was approved by the Board of the Twp. of Berlin, Monroe Co., Mich., at a meeting held June 17, 1921.
 Charles H. Kinnear, Twp. Clerk
 J. S. Kinnear, Notary Public
 Charles H. Kinnear, Notary Public

Approved By the Board of County Auditors of Monroe County, Mich., this 17th day of June 1921.
 Carl O. French, Chairman
 J. C. Conway, Notary Public
 J. S. Kinnear, Notary Public

Monroe County Treasurer's Office
 Monroe Mich., 1921
 I hereby certify that according to the records of this office all taxes for five years prior to the 1st day of June 1921 are paid, and that there are no tax liens or titles held by the State or any individual against the above described property.
 Fred H. Knapp
 Monroe County Treasurer.

This Plat Laid out by J. C. Conway
 Drawn by Arthur J. Lago
 RIVER ROUGE, MICH.

17128

Examined and approved
Oct 15-1924
W.E. Aldinger
Deputy Auditor General

ESTRAL BEACH SUBDIVISION

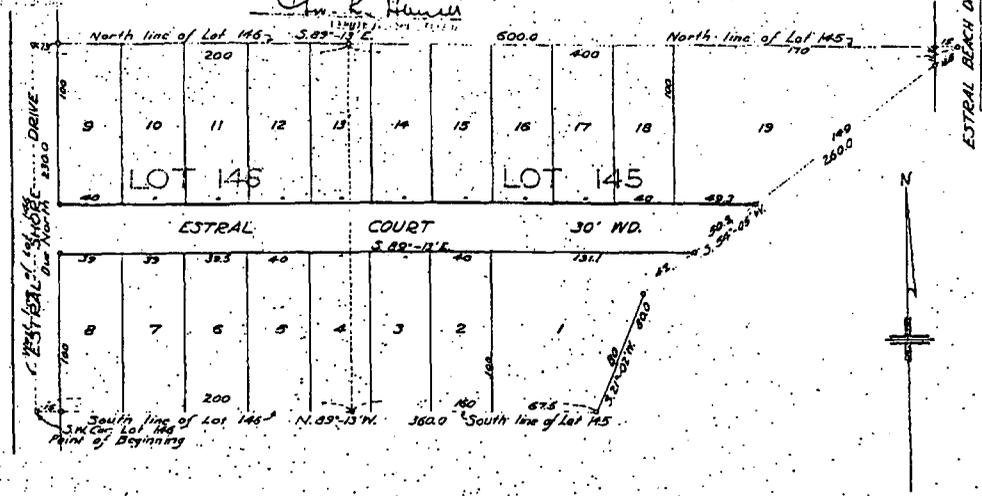
OF LOTS 145 & 146 OF STEVENS ESTRAL SUBDIVISION

OF PARTS OF SECTRS 10-15-16, T. 6 S., R. 10 E.,
BERLIN TWP., MONROE COUNTY, MICHIGAN.

Scale - 1 in. = 50 ft

Note - All dimensions hereon shown are in feet and in decimals of a foot.

FILED IN AUDITOR GENERAL'S OFFICE
Oct 20-1924
W.E. Aldinger
REGISTERED SURVEYOR
221 BARRAGE AVENUE
DETROIT, MICH.



I hereby certify that the plat hereon delineated is a correct one, and that permanent monuments, consisting of 3/4 by 1 1/2 inch iron pipes have been placed at all points marked thus "P" as thereon shown at all angles in the boundaries of the land platted, and at all intersections of streets.

The land embraced in the annexed plat of "ESTRAL BEACH SUBDIVISION OF LOTS 145 & 146 OF STEVENS ESTRAL SUBDIVISION" OF PARTS OF SECTS. 10-15-16, T. 6 S., R. 10 E., BERLIN TWP., MONROE COUNTY, MICHIGAN, is described as follows: Beginning at the S.W. corner of Lot 146 of "STEVENS ESTRAL SUBDIVISION" OF PARTS OF SECTS. 10-15-16, T. 6 S., R. 10 E., BERLIN TWP., MONROE COUNTY, MICHIGAN; thence, along the West line of said Lot 146, due North, 230.0 feet; thence, along the North line of Lots 146 & 145, S. 89°-13' E., 600.0 feet; thence, along the Southeastern side of Lot 145, S. 45°-02' W., 260.0 feet; thence, along the Eastern side of Lots 145 & 146, N. 89°-13' W., 360.0 feet to the point of Beginning.

KNOW ALL MEN BY THESE PRESENTS, That Walter Frazum and Gertrude Frazum, his wife have caused the land embraced in the annexed plat to be surveyed, laid out and platted, to be known as "ESTRAL BEACH SUBDIVISION" OF PARTS OF SECTS. 10-15-16, T. 6 S., R. 10 E., BERLIN TWP., MONROE COUNTY, MICHIGAN, and that the streets as shown on said plat are hereby dedicated to the use of the property owners of this plat.

MONROE COUNTY TREASURER'S OFFICE, MONROE COUNTY, MICH., Sept 21 1924
I hereby certify that according to the records of this office all taxes prior to this date have been paid and that there are no tax liens or titles held by the state or any individual against the property hereon described for five years preceding this date.

Signed and Sealed in presence of
Charlotte Frazum Gertrude Frazum
Walter Frazum Gertrude Frazum

This plat was approved by the Board of Supervisors
of the County of Monroe, Michigan
at a meeting held 13th of September 1924
W. A. Frazum Clerk.

STATE OF MICHIGAN
COUNTY OF MONROE) S. S. On this 2nd day of July 1924,
before me a Notary Public in and for said County, personally
appeared the above named
Walter Frazum and Gertrude Frazum, his wife,
known to me to be the persons who executed the above dedication,
and acknowledged the same to be their free act and deed.
My commission expires 10-4-1926
W. A. Frazum
Notary Public Monroe Co., Mich.

This plat was approved by the County Board
of the County of Monroe, Michigan
at a meeting held Sept. 23 1924 at Monroe, Mich.
Carl Frazum Probate Judge.
W. A. Frazum County Treasurer.
William C. Frazum County Clerk.

APPENDIX D
ARTIFACT INVENTORY

Appendix D. Fermi 3 Project Artifact Inventory

Provenience				Artifacts				
State Site Number	Field Site Number	Coordinates	Level	Cnt	Class	Artifact Types	Artifact Description	Lithic Raw Material
20MR818	CCRG-1	Agricultural Field	Surface	1	HCer	Whiteware Plate	Undecorated Basal/Body Sherd w/Partial Makers Mark, "ROYA.../S..."	
20MR818	CCRG-1	Agricultural Field	Surface	1	HCer	Whiteware Plate or Platter	Undecorated Basal Sherd	
20MR818	CCRG-1	Agricultural Field	Surface	4	HCer	Whiteware Plate	Undecorated Rim Sherds	
20MR818	CCRG-1	Agricultural Field	Surface	4	HCer	Whiteware Plate or Saucer	Undecorated Body Sherds	
20MR818	CCRG-1	Agricultural Field	Surface	1	HCer	Whiteware Vessel	Undecorated Spall	
20MR818	CCRG-1	Agricultural Field	Surface	1	HCer	Whiteware Vessel	Undecorated Spall w/ Gray Cast Glaze	
20MR818	CCRG-1	Agricultural Field	Surface	1	HCer	Ironstone Bowl	Undecorated Rim Sherd	
20MR818	CCRG-1	Agricultural Field	Surface	1	HCer	Ironstone Bowl	Undecorated Basal/Body Sherd	
20MR818	CCRG-1	Agricultural Field	Surface	1	HCer	Stoneware Vessel, Buff Paste	Bristol-Slip Ext/Albany-Slip Int Rim Sherd	
20MR818	CCRG-1	Agricultural Field	Surface	2	HCer	Stoneware Vessel, Buff Paste	Tan Ext/Albany-Slip Int Rim Sherds	
20MR818	CCRG-1	Agricultural Field	Surface	2	HCer	Stoneware Vessel, Buff Paste	Light Gray Ext/Albany-Slip Int Rim Sherds	
20MR818	CCRG-1	Agricultural Field	Surface	1	HCer	Stoneware Vessel, Buff Paste	Bristol-Slip Ext/Albany-Slip Int Body Sherd	
20MR818	CCRG-1	Agricultural Field	Surface	2	HCer	Stoneware Vessel, Buff Paste	Albany-Slip Ext/Int Body Sherds	
20MR818	CCRG-1	Agricultural Field	Surface	4	HCer	Stoneware Vessel, Buff Paste	Gray Ext/Albany-Slip Int Body Sherds	
20MR818	CCRG-1	Agricultural Field	Surface	1	HGlass	Jar Lid Liner	Opaque White Lid Liner Fragment	
20MR818	CCRG-1	Agricultural Field	Surface	1	HGlass	Bottle Glass	Aquamarine, Molded or Blown Basal Fragment w/"X" in Center	
20MR818	CCRG-1	Agricultural Field	Surface	1	HGlass	Bottle Glass	Aquamarine, Molded or Blown Basal Fragment	
20MR818	CCRG-1	Agricultural Field	Surface	1	HGlass	Jar Glass	Aquamarine, Machine-Made (ABM) Basal Fragment	
20MR818	CCRG-1	Agricultural Field	Surface	1	HGlass	Bowl or Vase Glass	Pressed, Solarized Amethyst Body Fragment	
20MR818	CCRG-1	Agricultural Field	Surface	1	HGlass	Vessel Glass	Solarized Amethyst Body Fragment	
20MR818	CCRG-1	Agricultural Field	Surface	1	HGlass	Vessel Glass	Solarized Amethyst Rim/Body Fragment	

