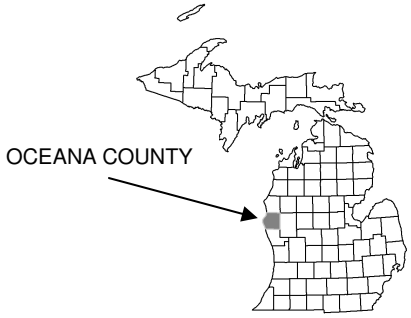
FLOOD INSURANCE STUDY

OCEANA COUNTY, MICHIGAN
(ALL JURISDICTIONS)



COMMUNITY NAME	COMMUNITY NUMBER
BENONA, TOWNSHIP OF	260481
CLAYBANKS, TOWNSHIP OF	260482
*COLFAX, TOWNSHIP OF	261797
*CRYSTAL, TOWNSHIP OF	261869
*ELBRIDGE, TOWNSHIP OF	261801
FERRY, TOWNSHIP OF	261799
GOLDEN, TOWNSHIP OF	260301
*GRANT, TOWNSHIP OF	261800
GREENWOOD, TOWNSHIP OF	260483
HART, CITY OF	260484
HART, TOWNSHIP OF	260777
HESPERIA, VILLAGE OF	260485
*LEAVITT, TOWNSHIP OF	261798
*NEW ERA, VILLAGE OF	261875
NEWFIELD, TOWNSHIP OF	260697
OTTO, TOWNSHIP OF	261873
PENTWATER, TOWNSHIP OF	260183
PENTWATER, VILLAGE OF	260277
*ROTHBURY, VILLAGE OF	261874
*SHELBY, TOWNSHIP OF	261871
*SHELBY, VILLAGE OF	261872
*WALKERVILLE, VILLAGE OF	261870
WEARE, TOWNSHIP OF	261868

*No Special Flood Hazard Areas Identified

Effective: August 4, 2014

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
26127CV000A

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) report may not contain all data available within the Community Map Repository. Please contact the Community Map Repository for any additional data.

The Federal Emergency Management Agency (FEMA) may revise and republish part or all of this FIS report at any time. In addition, FEMA may revise part of this FIS report by the Letter of Map Revision process, which does not involve republication or redistribution of the FIS report. Therefore, users should consult with community officials and check the Community Map Repository to obtain the most current FIS report components.

Selected Flood Insurance Rate Map panels for this community contain information that was previously shown separately on the corresponding Flood Boundary and Floodway Map panels (e.g., floodways, cross sections). In addition, former flood hazard zone designations have been changed as follows:

Old Zone(s)	New Zone
Al through A30	AE
B	X
C	X

Initial Countywide FIS Effective Date: August 4, 2014

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EXHIBITS

FLOOD INSURANCE STUDY
OCEANA COUNTY, MICHIGAN (ALL JURISDICTIONS)

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study (FIS) revises and updates information on the existence and severity of flood hazards in the geographic area of Oceana County, including the City of Hart; the Townships of Benona, Claybanks, Colfax, Crystal, Elbridge, Ferry, Golden, Grant, Greenwood, Hart, Leavitt, Newfield, Otto, Pentwater, Shelby, and Weare; and the Villages of Hesperia, New Era, Pentwater, Rothbury, Shelby, and Walkerville (referred to collectively herein as Oceana County), aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood-risk data for various areas of the community that will be used to establish actuarial flood insurance rates and to assist the community in its efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program (NFIP) are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

Please note that the Village of Hesperia is geographically located in Oceana and Newaygo Counties. The Village of Hesperia is included in its entirety in this FIS report.

Please note that on the effective date of this study, the Townships of Colfax, Crystal, Elbridge, Grant, Leavitt, and Shelby, and the Villages of New Era, Rothbury, Shelby, and Walkerville have no mapped special flood hazard areas. This does not preclude future determinations of Special Flood Hazard Areas (SFHAs) that could be necessitated by changed conditions affecting the community (i.e., annexation of new lands) or the availability of new scientific or technical data about flood hazards.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the State (or other jurisdictional agency) will be able to explain them.

The Digital Flood Insurance Rate Map (DFIRM) and FIS report for this countywide study have been produced in digital format. Flood hazard information was converted to meet the Federal Emergency Management Agency (FEMA) DFIRM database specifications and Geographic Information System (GIS) format requirements. The flood hazard information was created and is

provided in a digital format so that it can be incorporated into a local GIS and be accessed more easily by the community.

1.2 Authority and Acknowledgments

The sources of authority for this FIS are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

Precountywide Analyses

Information on the authority and acknowledgements for each jurisdiction included in this countywide FIS, as compiled from their previously printed FIS reports, is shown below:

Pentwater, Township of:	The hydrologic and hydraulic analyses for Lake Michigan and Pentwater Lake, for the May 1977 FIS report (Federal Insurance Administration (FIA), 1977a) were performed by Johnson & Anderson, Inc., for the FIA, under Contract No. H-3816. The work was completed in April 1977.
Pentwater, Village of:	The hydrologic and hydraulic analyses for Lake Michigan for the November 1977 FIS report (FIA, 1977b) were performed by Johnson & Anderson, Inc., for the FIA, under Contract No H-3816. The work was completed in April 1977.

The City of Hart; Townships of Benona, Claybanks, Colfax, Crystal, Elbridge, Ferry, Golden, Grant, Greenwood, Hart, Leavitt, Newfield, Otto, Shelby, and Weare; and the Villages of Hesperia, New Era, Rothbury, Shelby, and Walkerville have no previously printed FIS reports.

This Countywide FIS Report

The hydrologic and hydraulic analyses for the streams studied by approximate analysis for this study were performed by Atkins, for FEMA, under Contract No. HSFE05-05-D-0023. Flooding effects from Lake Michigan were redelineated by Atkins, using the U.S. Army Corp of Engineers (USACE) Revised Report on Great Lakes Open-Coast Flood Levels (USACE, 1988).

Base Map information on the FIRM was provided in digital format by the Farm Services Administration (FSA), National Aerial Imagery Program (NAIP). The data was photogrammetrically compiled at a scale of 1:40,000 from aerial imagery dated 2005 or later. The projection used in the preparation of the map

was Universal Transverse Mercator (UTM) Zone 16 North. The horizontal datum was North American Datum 1983 (NAD83), Geodetic Reference System 1980 spheroid.

1.3 Coordination

An initial meeting is held with representatives from FEMA, the community, and the study contractor to explain the nature and purpose of a FIS, and to identify the streams to be studied or restudied. A final meeting is held with representatives from FEMA, the community, and the study contractor to review the results of the study.

Precountywide FIS Analysis

The initial and final meeting dates for previous FIS reports for Oceana County and its communities are listed in the following table:

Community	FIS Date	Initial Meeting	Final Meeting
Pentwater, Township of	May 1977	*	February 28, 1977
Pentwater, Village of	November 1977	*	June 23, 1977

*Data Not Available

This Countywide FIS Report

The initial meeting was held on May 23, 2007, and attended by representatives of FEMA, the State of Michigan Department of Environmental Quality (MDEQ), Atkins, and the communities.

The results of the study were reviewed at the final meeting held on June 9, 2011, and attended by representatives of the MDEQ, Atkins, Oceana County, the Townships of Elbridge, Ferry, and Grant; and the Village of Walkerville. All issues and/or concerns raised at that meeting have been addressed.

2.0 AREA STUDIED

2.1 Scope of Study

This FIS covers the geographic area of Oceana County, Michigan, including the incorporated communities listed in Section 1.1. The areas studied by detailed methods were selected with priority given to all known flood hazards and areas of projected development or proposed construction.

The lakes studied by detailed methods in this FIS report are listed in Table 1.

Table 1 – Lakes Studied by Detailed Methods

Lake Michigan	Pentwater Lake

The limits of detailed study are indicated on the on the FIRM (Exhibit 1).

This Countywide FIS Report

For this countywide FIS, the FIS report and FIRM were converted to countywide format, and the flooding information for the entire county, including both incorporated and unincorporated areas, is shown. Also, the vertical datum was converted from the National Geodetic Vertical Datum of 1929 (NGVD) to the North American Vertical Datum of 1988 (NAVD). In addition, the UTM coordinates, previously referenced to the North American Datum of 1927, are now referenced to the NAD83.

Approximate analyses were used to study those areas having low development potential or minimal flood hazards. The scope and methods of study were proposed to and agreed upon by FEMA and the communities.

2.2 Community Description

Oceana County is located in the center of Michigan's Lower Peninsula along the Eastern Shore of Lake Michigan. It is bordered by the Mason County on the North, Newaygo County on the East, and Muskegon County on the South. Oceana County covers 540 square miles, including 27 miles of Lake Michigan shoreline, and at the 2010 census had a population of 26,570 (U.S. Census Bureau, 2010).

Oceana County consists of residential and rural communities. The proximity to lakes and beaches makes Oceana County an attraction for tourists giving it a reputation for being a leading resort and recreation area.

Lake Michigan affects the climate of Oceana County. The lake, paired with the prevailing westerly winds, gives Oceana County relatively mild summer and winter temperatures. The average temperature in Hart, a city close to the center of the county, is 46.5 degrees Fahrenheit, and the local average precipitation is 32.9 inches a year, which includes 79.5 inches of snow (Weatherbase, 2013).

The terrain is gently rolling with sand dunes along the Lake Michigan Shore. The soils are composed of sand and loamy sand. Vegetation consists of grasses, hardwoods, and pine stands. Floodplain development is limited to areas along the Lake Michigan shore as well as Pentwater Lake.

2.3 Principal Flood Problems

The two main flooding sources in Oceana County are Lake Michigan and Pentwater Lake. Flooding on Lake Michigan is caused by two types of events, long-term and short-term. Long-term water-surface elevation fluctuations are caused by normal runoff throughout the Great Lakes Basin. In general, the time it takes for lakes to be affected by this runoff is approximately 2 years. Wind tides, storm surges, barometric changes, and seiching are common short-term flooding causes on the Great Lakes. Short-term water-surface elevation fluctuations, on the other hand, can cause flooding with-in a few hours.

In September 1986, a large storm event flooded parts of Oceana County causing the Hart Dam to burst.

2.4 Flood Protection Measures

There are no known flood protection measures located in Oceana County at this time. However, some individuals in the county have taken action to protect their property against flood damage.

3.0 ENGINEERING METHODS

For the flooding sources studied by detailed methods in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 1-percent-annual-chance (100-year) flood in any 50-year period is approximately 40 percent (4 floods in 10 years); for any 90-year period, the risk increases to approximately 60 percent (6 floods in 10 years). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish peak discharge-frequency relationships for each flooding source studied by detailed methods affecting the community.

Precountywide Analysis

The method used to predict flood elevations along the Lake Michigan shoreline in the Township and Village of Pentwater analyzed Lake Michigan open-coast flood levels as established by the USACE (USACE, 1975). Taking the 100-year and mean-year open-coast flood elevations established for Lake Michigan's gage site at Ludington, Michigan, the open-coast lake elevation curve was reconstructed. A zero skew or normal distribution was assumed. The gage site was selected on the basis of its geographic location with respect to the study area. The analysis for Pentwater is based on 24 years of record at Ludington.

Approximately 8 feet may be added to Lake Michigan flood levels to account for wave runup. This value assumed uniformly sloped beaches subject to direct wave attack. Factors such as location and shoreline configuration could alter the estimated wave runup value.

This Countywide Analysis

Peak discharges for the approximate study streams in Oceana County were derived using either the published USGS regional regression equations, the MDEQ Soil Conservation Service procedures, or the Natural Resource Conservation Service (NRCS) Technical Release 55 methodology (NRCS, 1986).

For the majority of the approximate analyses, peak discharges were estimated using the published U.S. Geological Survey (USGS) regional regression equations (USGS, 1984). Regression equations estimate peak discharges for ungaged streams based on characteristics of nearby gaged streams.

Flood elevations for Lake Michigan along Oceana County were obtained from the Revised Report on Great Lakes Open-Coast Flood Levels (USACE, 1988). Previous analyses of the connecting channel between Lake Michigan and Pentwater Lake indicate that the flood elevations for Pentwater Lake are equal to the flood elevations of Lake Michigan.

Stillwater elevations for Oceana County, Michigan are shown in Table 2.

Table 2 - Summary of Stillwater Elevations

Flooding Source	Water Surface Elevations (Feet NAVD[1]) 10-Percent-Annual-Chance	2-Percent-Annual-Chance	1-Percent-Annual-Chance	0.2-Percent-Annual-Chance
Lake Michigan (Township of Golden, Township of Pentwater, Village of Pentwater)	582.8	583.9	584.3	585.2
Lake Michigan (Township of Benona and Township of Claybanks)	583.0	584.1	584.5	585.4
Pentwater Lake	582.8	583.9	584.3	585.2

[1] North American Vertical Datum of 1988

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Users should be aware that flood elevations shown on the FIRM represent rounded whole-foot elevations. Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS report in conjunction with the data shown on the FIRM.

Precountywide Analysis

Analyses of the hydraulic characteristics of Lake Michigan and Pentwater Lake were carried out to provide estimates of the elevations of floods of selected recurrence intervals along each water body studied in detail.

The connecting channel between Lake Michigan and Pentwater Lake was analyzed hydraulically to determine flow-carrying capacity. Analysis was performed using the USACE Hydraulic Engineering Center (HEC) HEC-2 step-back-water computer program (HEC, 1973). Data for the channel was obtained by field survey in 1976. This analysis indicated that all gradual variations in the Lake Michigan water-surface elevation would be transmitted to Pentwater Lake. Gradual variations are those events that reach a peak in 6 hours or more. Flood elevations in this report are considered valid only if hydraulic structures, in general, remain unobstructed and do not fail.

An analysis of the flooding in Pentwater Lake due to the runoff in the Pentwater River, southeast of the village, and other tributaries was also performed. It was found that the flood levels of the lake obtained from the riverine analysis were

several feet below those determined by considering lakeshore effects alone. Therefore, the results of this analysis show that Lake Michigan flooding predominates in this area.

An unnamed stream that flows southwesterly through the village to Pentwater Lake was studied by approximate methods. In September 1976, a field visit was made to Pentwater to assess the flow-carrying capacity of the channel and roadway crossings. The size and shape of the drainage basin were obtained from existing topographic information and recent aerial photography (USGS, 1959 and Abrams Aerial Survey Corporation, 1976). This information was then compared with other basins having similar characteristics. From the comparison, a depth of flow for this stream was determined. This flood depth was then used to outline the 1-percent-annual-chance flood boundary on the map.

This Countywide Analysis

Hydraulic analyses for the streams studied by approximate analyzes were completed using the computer program, HEC-RAS, version 3.1.3 (HEC, 2005). Structures were modeled as bridge openings, with the weir elevations approximated from the topographic data, bridge elevations from the USGS 7.5-minute series topographic quadrangle maps, or county provided structure data.

A composite Manning's "n" value of 0.05 was used for all approximately studied streams in the county.

The hydraulic analyses for this study were based on unobstructed flow and are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

3.3 Vertical Datum

All FIS reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum in use for newly created or revised FIS reports and FIRMs was NGVD. With the finalization of NAVD, many FIS reports and FIRMs are being prepared using NAVD as the referenced vertical datum.

All flood elevations shown in this FIS report and on the FIRM are referenced to NAVD. Structure and ground elevations in the community must, therefore, be referenced to NAVD. It is important to note that adjacent communities may be referenced to NGVD. This may result in differences in Base Flood Elevations (BFEs) across the corporate limits between the communities. Some of the data used in this study were taken from the prior effective FIS reports and adjusted to

NAVD. The average conversion factor that was used to convert the data in this FIS report to NAVD was calculated using the National Geodetic Survey's (NGS) VERTCON online utility (NGS, 2009). The data points used to determine the conversion are listed in Table 3.

Table 3 – Vertical Datum Conversion

Quad Name	Corner	Latitude	Longitude	Conversion from NGVD29 to NAVD88
Mears	SE	43.625	-86.375	-0.292
Hart NE	SE	43.625	-86.250	-0.299
Walkerville West	SE	43.625	-86.125	-0.308
Little Point Sable	SE	43.625	-86.500	-0.312
Twin Corners	SE	43.500	-86.375	-0.341
Shelby	SE	43.500	-86.250	-0.348
Ferry	SE	43.500	-86.125	-0.361
Bigsbie Lake	SE	43.500	-86.500	-0.358
Pentwater	SE	43.750	-86.375	-0.318
Wiley	SE	43.750	-86.250	-0.308
Custer SW	SE	43.750	-86.125	-0.285
			Average:	**-0.321**

For additional information regarding conversion between NGVD and NAVD, visit the NGS website at www.ngs.noaa.gov, or contact the NGS at the following address:

Vertical Network Branch, N/CG13
National Geodetic Survey, NOAA
Silver Spring Metro Center 3
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

Temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, interested individuals may contact FEMA to access these data.

To obtain current elevation, description, and/or location information for benchmarks shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov.

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. Therefore, each FIS provides 1-percent-annual-chance (100-year) flood elevations and delineations of the 1- and 0.2-percent-annual-chance (500-year) floodplain boundaries and 1-percent-annual-chance floodway to assist communities in developing floodplain management measures. This information is presented on the FIRM and in many components of the FIS report, including Flood Profiles, Floodway Data Table, and Summary of Stillwater Elevations Table. Users should reference the data presented in the FIS report as well as additional information that may be available at the local map repository before making flood elevation and/or floodplain boundary determinations.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent-annual-chance flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent-annual-chance flood is employed to indicate additional areas of flood risk in the community.

For the streams studied by approximate methods, between modeled cross sections, the boundaries were interpolated using contour data from USGS quadrangle maps.

For the Lake Michigan coastline, the floodplain boundaries were delineated using coastal Light Detection and Ranging (LiDAR) data. The coastal LiDAR was developed and managed by the Joint Airborne LiDAR Bathymetry Technical Center of Expertise (JALBTCX), and the data has a horizontal accuracy of +/- 0.75 meters and a vertical accuracy of +/- 0.20 meters.

The 1- and 0.2-percent-annual-chance floodplain boundaries are shown on the FIRM (Exhibit 1). On this map, the 1-percent-annual-chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE), and the 0.2-percent-annual-chance floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 1- and 0.2-percent-annual-chance floodplain boundaries are close together, only the 1-percent-annual-chance floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For the streams studied by approximate methods, only the 1-percent-annual-chance floodplain boundary is shown on the FIRM (Exhibit 1).

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the NFIP, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 1-percent-annual-chance floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 1-percent-annual-chance flood can be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1 foot, provided that hazardous velocities are not produced. In Michigan, however, under Michigan Act 245, Public Acts of 1929, as amended by Act 167, Public Acts of 1968 (State of Michigan, 1968), encroachment in the floodplain is limited to that which will cause only an insignificant increase in flood heights. Thus, at the recommendation of the Bureau of the Water Management, a floodway having no more than a 0.1 foot surcharge has been delineated for this study. The floodways in this study are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway studies.

No floodways were computed for Oceana County.

5.0 INSURANCE APPLICATIONS

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

Zone A

Zone A is the flood insurance risk zone that corresponds to the 1-percent-annual-chance floodplains that are determined in the FIS by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no BFEs or base flood depths are shown within this zone.

Zone AE

Zone AE is the flood insurance risk zone that corresponds to the 1-percent-annual-chance floodplains that are determined in the FIS by detailed methods. In most instances, whole-foot BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance risk zone that corresponds to areas outside the 0.2-percent-annual-chance floodplain, areas within the 0.2-percent-annual-chance floodplain, areas of 1-percent-annual-chance flooding where average depths are less than 1 foot, areas of 1-percent-annual-chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1-percent-annual-chance flood by levees. No BFEs or base flood depths are shown within this zone.

6.0 FLOOD INSURANCE RATE MAP

The FIRM is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance risk zones as described in Section 5.0 and, in the 1-percent-annual-chance floodplains that were studied by detailed methods, shows selected whole-foot BFEs or average depths. Insurance agents use the zones and BFEs in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 1- and 0.2-percent-annual-chance floodplains, floodways, and the locations of selected cross sections used in the hydraulic analyses and floodway computations.

The countywide FIRM presents flooding information for the entire geographic area of Oceana County. Previously, FIRMs were prepared for each incorporated community and the unincorporated areas of the County identified as flood-prone. Historical data relating to the maps prepared for each community are presented in Table 4.

7.0 OTHER STUDIES

A FIRM was published for the Township of Logan (FEMA, 1998) in Mason County, Michigan. A FIS report was published for the Township of Summit (FEMA, 1987) in Mason County, Michigan.

No previous studies have been prepared for the Townships of Eden and Riverton in Mason County, the Township of Lake in Lake County, and the Townships of Beaver, Dayton, Denver, Sheridan, and Troy in Newaygo County.

This report either supersedes or is compatible with all previous studies on streams studied in this report and should be considered authoritative for purposes of the NFIP.

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISION DATE	FIRM EFFECTIVE DATE	FIRM REVISION DATE
Benona, Township of	October 15, 1976	N/A	August 1, 1986	
Claybanks, Township of	**N/A	N/A	N/A	
*Colfax, Township of	**N/A	N/A	N/A	
*Crystal, Township of	**N/A	N/A	N/A	
*Elbridge, Township of	**N/A	N/A	N/A	
Ferry, Township of	**N/A	N/A	N/A	
Golden, Township of	January 17, 1975	N/A	September 1, 1986	
*Grant, Township of	**N/A	N/A	N/A	
Greenwood, Township of	October 22, 1976	N/A	August 1, 1986	
Hart, City of	April 11, 1975	N/A	September 1, 1986	
Hart, Township of	**N/A	N/A	N/A	
Hesperia, Village of	July 11, 1975	N/A	August 1, 1986	
*Leavitt, Township of	**N/A	N/A	N/A	

*No special flood hazard areas identified

**This community did not have a FIRM prior to the first countywide FIRM for Oceana County

TABLE 4

FEDERAL EMERGENCY MANAGEMENT AGENCY

OCEANA COUNTY, MI
(ALL JURISDICTIONS)

COMMUNITY MAP HISTORY

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISION DATE	FIRM EFFECTIVE DATE	FIRM REVISION DATE
*New Era, Village of	**N/A	N/A	N/A	
Newfield, Township of	December 23, 1977	N/A	September 1, 1986	
Otto, Township of	**N/A	N/A	N/A	
Pentwater, Township of	June 21, 1974	July 2, 1976	March 1, 1978	
Pentwater, Village of	September 13, 1974	June 11, 1976	May 15, 1978	
*Rothbury, Village of	**N/A	N/A	N/A	
*Shelby, Township of	**N/A	N/A	N/A	
*Shelby, Village of	**N/A	N/A	N/A	
*Walkerville, Village of	**N/A	N/A	N/A	
Weare, Township of	**N/A	N/A	N/A	

*No special flood hazard areas identified

**This community did not have a FIRM prior to the first countywide FIRM for Oceana County

TABLE 4

FEDERAL EMERGENCY MANAGEMENT AGENCY

OCEANA COUNTY, MI
(ALL JURISDICTIONS)

COMMUNITY MAP HISTORY

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting FEMA, Federal Insurance and Mitigation Division, 536 South Clark Street, Sixth Floor, Chicago, Illinois 60605.

9.0 BIBLIOGRAPHY AND REFERENCES

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