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 Engineers • Scientists • Architects
 Grand Rapids, Michigan



Allegan Conservation District
 Allegan County, Michigan
Gun River Watershed Management Plan

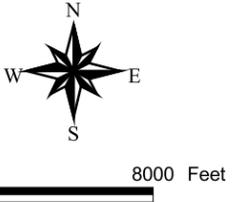
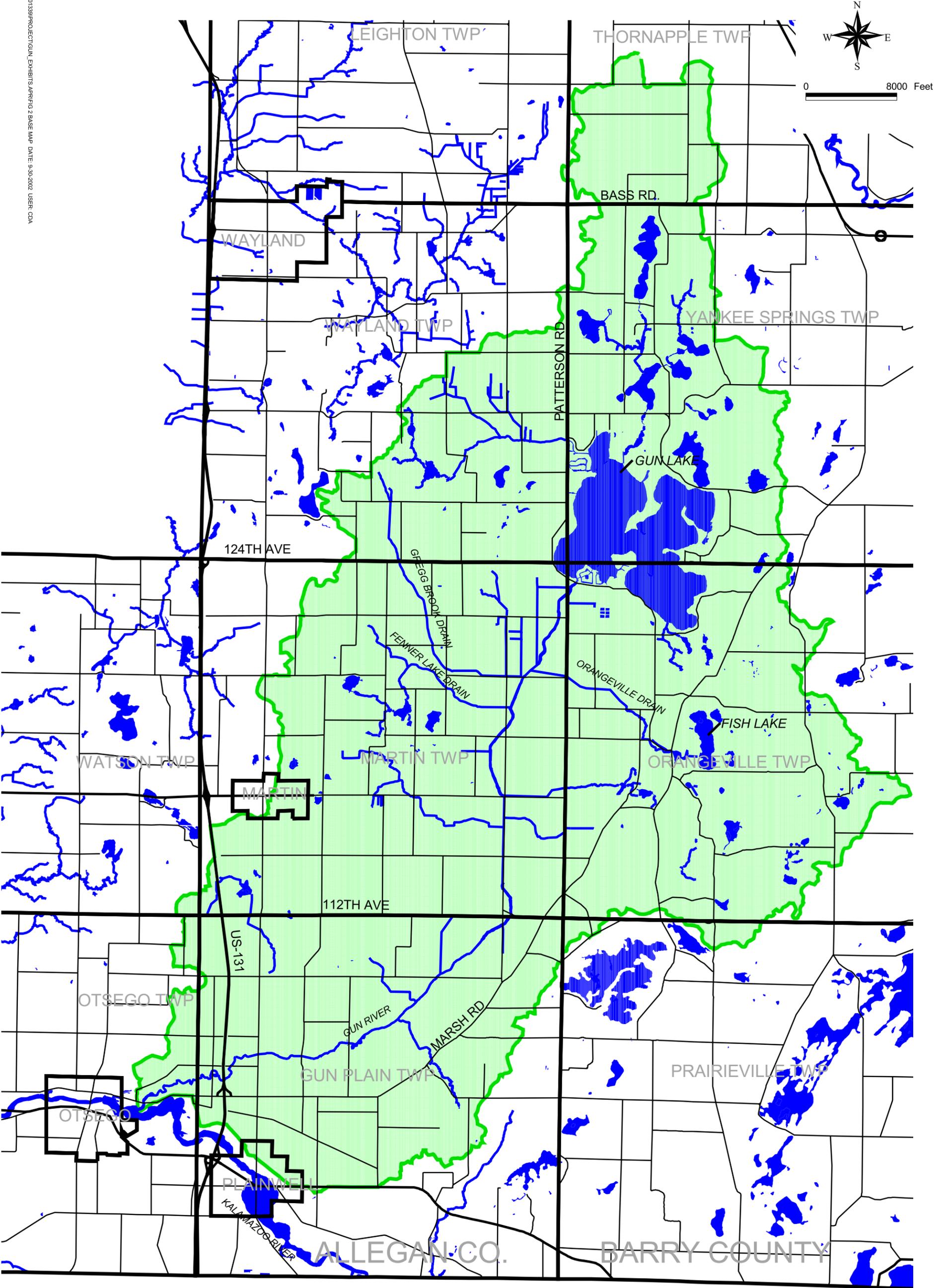
PROJECT NO.
 G01339

FIGURE NO.
1

DATA SOURCES: MICHIGAN FRAMEWORK
 VERSION 1B, PROJECTED TO MICHIGAN SPCS
 NAD 27, FEET.
 WATERSHED DELINEATION, MICHIGAN DEPARTMENT
 OF ENVIRONMENTAL QUALITY GIS,
 DIGITAL SHEDS, 2001.

LOCATION MAP

D:\WORK\01339\PROJECT\GUN_EXHIBITS\APR\FIG 2 BASE MAP DATE: 9-30-2002 USER: COA



DATA SOURCES: BASE MAP, KALAMAZOO RIVER WATERSHED GIS PROJECT, GIS RESEARCH CENTER WESTERN MICHIGAN UNIVERSITY 1996. MICHIGAN DEPARTMENT OF NATURAL RESOURCES MIRIS, 1978, SPCS NAD 27, US FEET. WATERSHED DELINEATION, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY GIS, DIGITAL SHEDS, 2001.

LEGEND

GUN RIVER WATERSHED BOUNDARY

BASE MAP

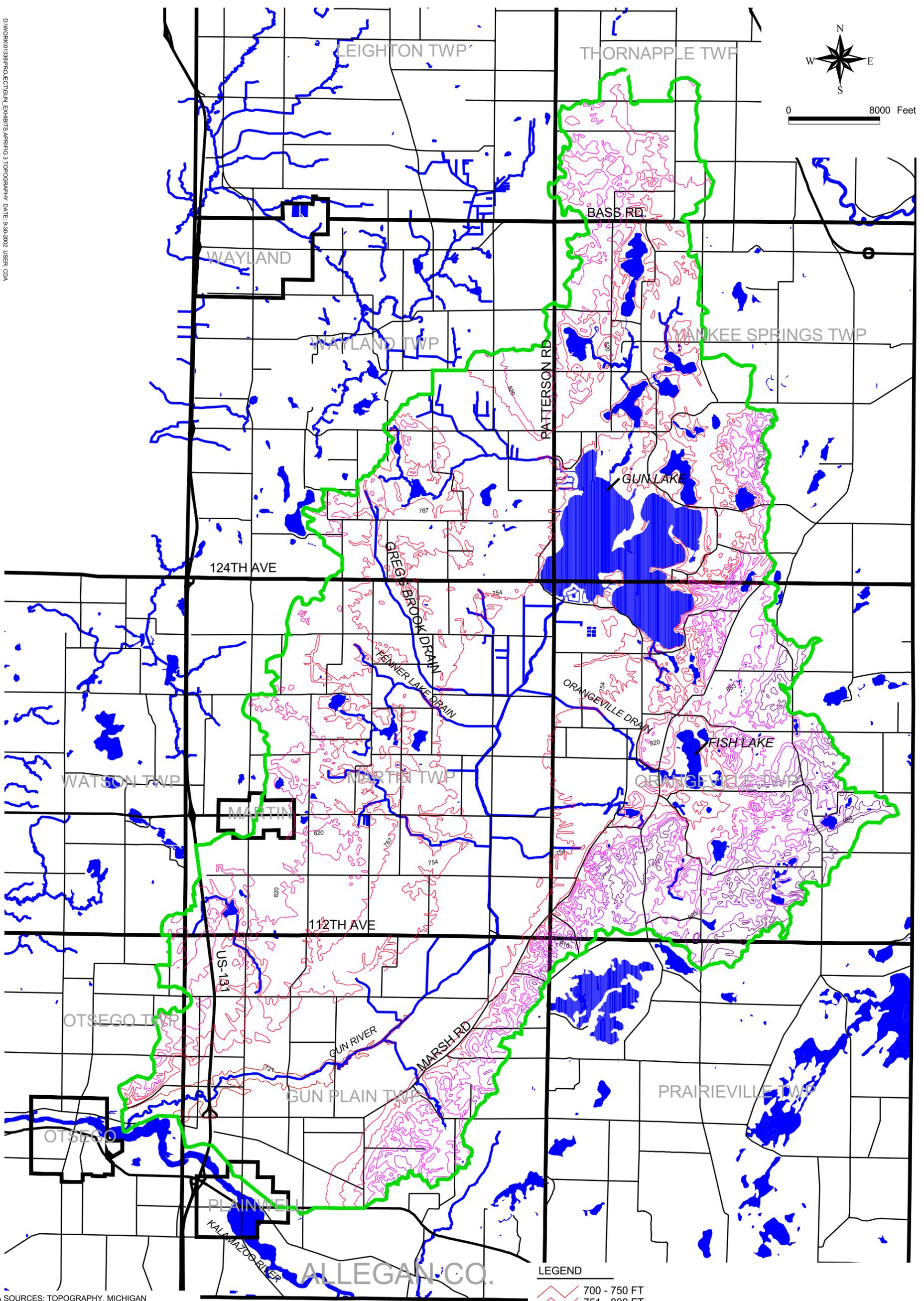
PROJECT NO.
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FIGURE NO.
2

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Gun River Watershed Management Plan

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D:\WORK\01339\PROJECT\GUN_EXHIBITS\APR\FIG 3 TOPOGRAPHY.DAT DATE: 9-30-2002 USER: CDA



DATA SOURCES: TOPOGRAPHY, MICHIGAN DEPARTMENT OF NATURAL RESOURCES SPATIAL DATA LIBRARY, USGS 1:100K 5-50 METER CONTOURS.
 BASE MAP, KALAMAZOO RIVER WATERSHED GIS PROJECT, GIS RESEARCH CENTER WESTERN MICHIGAN UNIVERSITY 1996.
 MICHIGAN DEPARTMENT OF NATURAL RESOURCES MIRIS, 1978, SPCS NAD 27, US FEET.
 WATERSHED DELINEATION, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY GIS, DIGITAL SHEDS, 2001.

LEGEND

- 700 - 750 FT
- 751 - 800 FT
- 801 - 850 FT
- 851 - 900 FT
- 901 - 950 FT
- 951 - 1000 FT
- 1001 - 1050 FT
- GUN RIVER WATERSHED BOUNDARY

TOPOGRAPHY

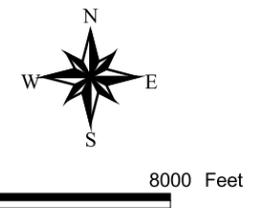
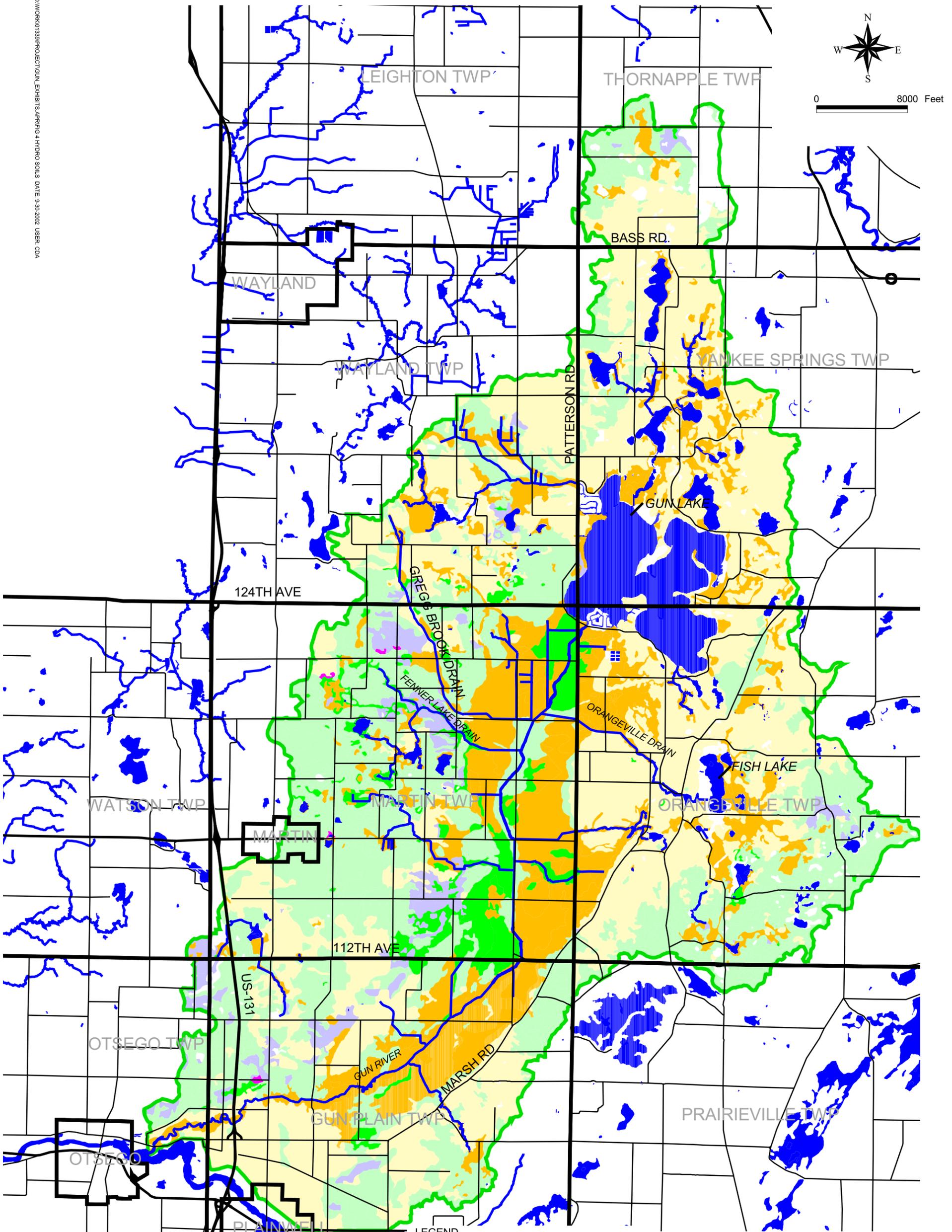
PROJECT NO.
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FIGURE NO.
3

Allegan Conservation District
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DATA SOURCES: SOIL TYPES, MICHIGAN DEPARTMENT OF NATURAL RESOURCES MIRIS, 1978, SPCS NAD27, CLASSIFIED FROM NRCS SOIL SURVEY FOR ALLEGAN AND BARRY COUNTIES.
 ■ BASE MAP, KALAMAZOO RIVER WATERSHED GIS PROJECT, GIS RESEARCH CENTER WESTERN MICHIGAN UNIVERSITY 1996
 ■ MICHIGAN DEPARTMENT OF NATURAL RESOURCES MIRIS, 1978, SPCS NAD 27, US FEET.
 ■ WATERSHED DELINEATION, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY GIS, DIGITAL SHEDS, 2001.

- LEGEND**
- HYDROLOGIC SOIL GROUPS
 - A-HIGH INFILTRATION, LOW RUNOFF POTENTIAL
 - A/D-(DRAINED/NATURAL CONDITION) *
 - B-MEDIUM INFILTRATION
 - B/D-(DRAINED/NATURAL CONDITION) *
 - C-LOW INFILTRATION
 - C/D-(DRAINED/NATURAL CONDITION) *
 - NO DATA-OPEN WATER/URBAN
 - * D- VERY LOW INFILTRATION, HIGH RUNOFF POTENTIAL
 - GUN RIVER WATERSHED BOUNDARY

HYDROLOGIC SOIL GROUPS

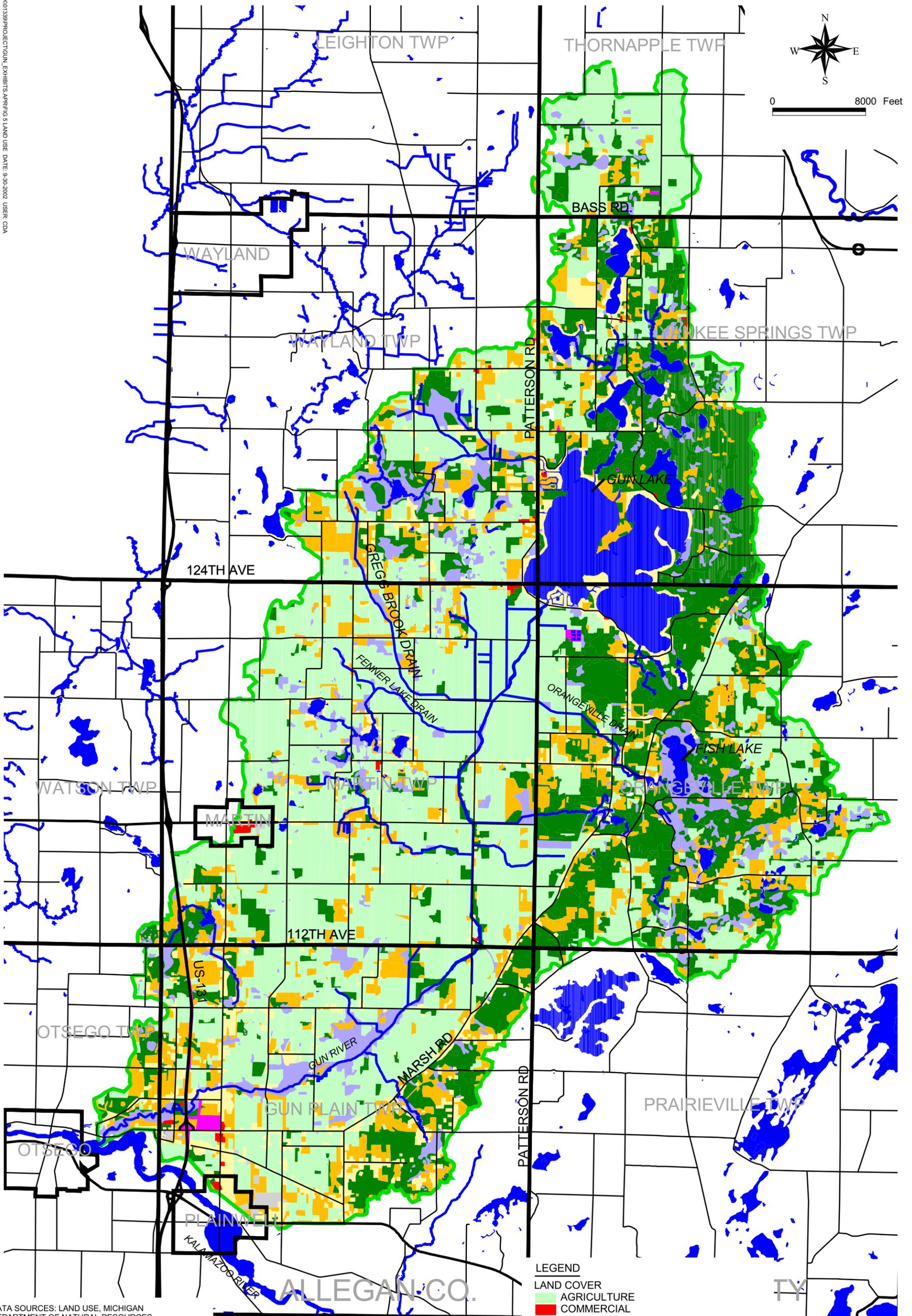
PROJECT NO.
G01339
FIGURE NO.
4

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D:\WORK\1339\PROJECT\GUN_EXHIBITS\APR\FIG 5 LAND USE DATE: 9-30-2002 USER: COA



DATA SOURCES: LAND USE, MICHIGAN DEPARTMENT OF NATURAL RESOURCES SPATIAL DATA LIBRARY, LAND USE/COVER MIRIS, 1978.
 BASE MAP, KALAMAZOO RIVER WATERSHED GIS PROJECT, GIS RESEARCH CENTER WESTERN MICHIGAN UNIVERSITY 1996.
 MICHIGAN DEPARTMENT OF NATURAL RESOURCES MIRIS, 1978, SPCS NAD 27, US FEET.
 WATERSHED DELINEATION, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY GIS, DIGITAL SHEDS, 2001.

- LEGEND**
- LAND COVER
 - AGRICULTURE
 - COMMERCIAL
 - FORESTLAND
 - INDUSTRIAL
 - OPEN LAND
 - RESIDENTIAL
 - TRANSPORTATION
 - WETLANDS
 - GUN RIVER WATERSHED BOUNDARY

LAND USE

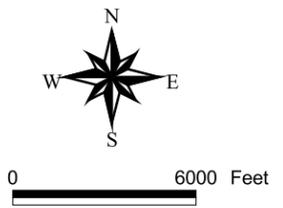
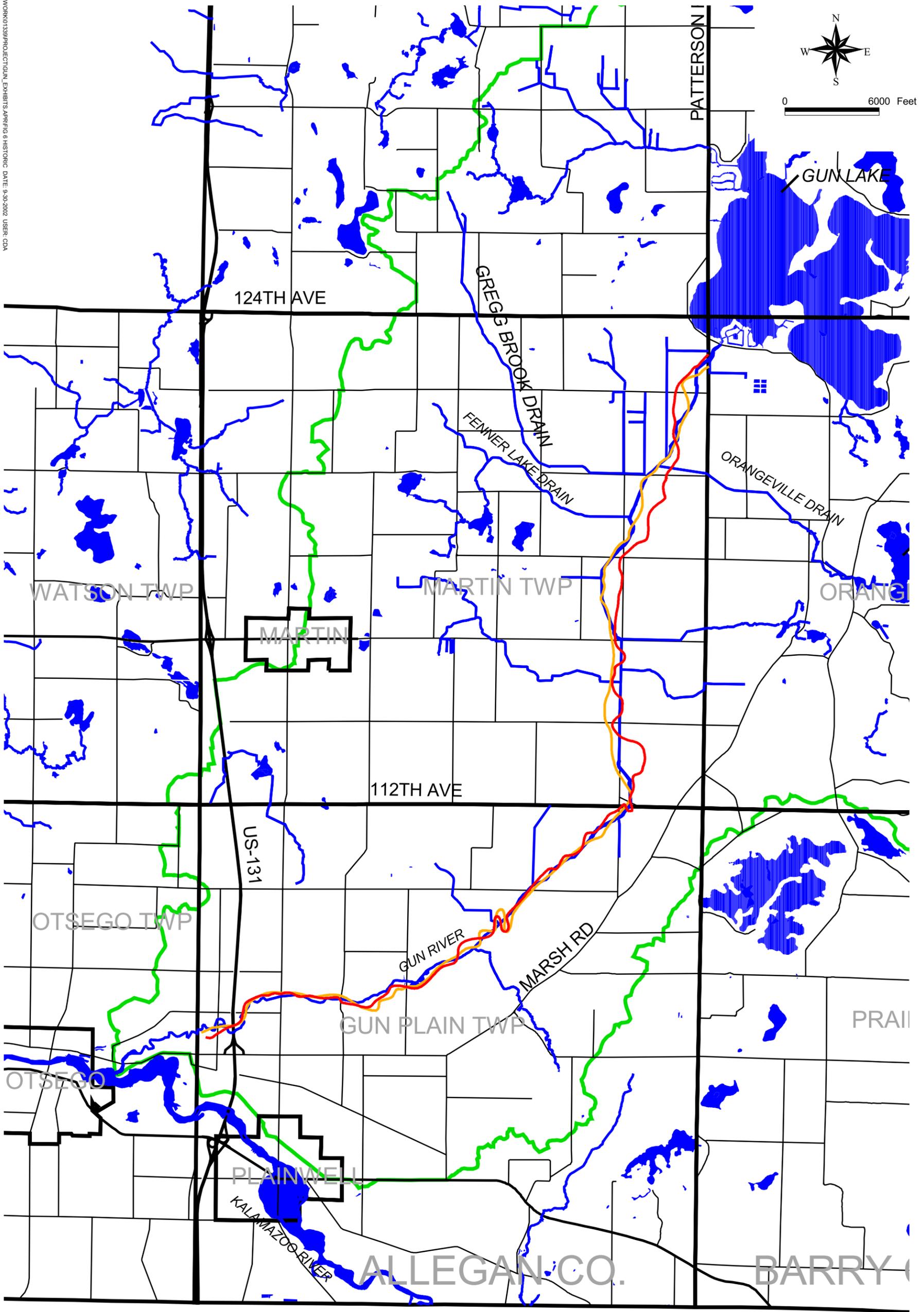
PROJECT NO.
G01339
FIGURE NO.
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D:\WORK\01339\PROJECT\GUN_EXHIBITS\APR\FIG 6 HISTORIC DATE: 9-30-2002 USER: CDA



DATA SOURCES: BASE MAP, KALAMAZOO RIVER WATERSHED GIS PROJECT, GIS RESEARCH CENTER WESTERN MICHIGAN UNIVERSITY 1996. MICHIGAN DEPARTMENT OF NATURAL RESOURCES MIRIS, 1978, SPCS NAD 27, US FEET. WATERSHED DELINEATION, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY GIS, DIGITAL SHEDS, 2001. GUN RIVER HISTORIC LOCATIONS, MARTIN TOWNSHIP PUBLISHED BY C.O.TITUS, PHILADELPHIA, PA, 1873 ALLEGAN COUNTY PLAT BOOK PUBLISHED BY W.W.HIXON, ROCKFORD,IL, 1930.

LEGEND

- GUN RIVER 1873
- GUN RIVER 1930
- GUN RIVER 1978
- GUN RIVER WATERSHED BOUNDARY

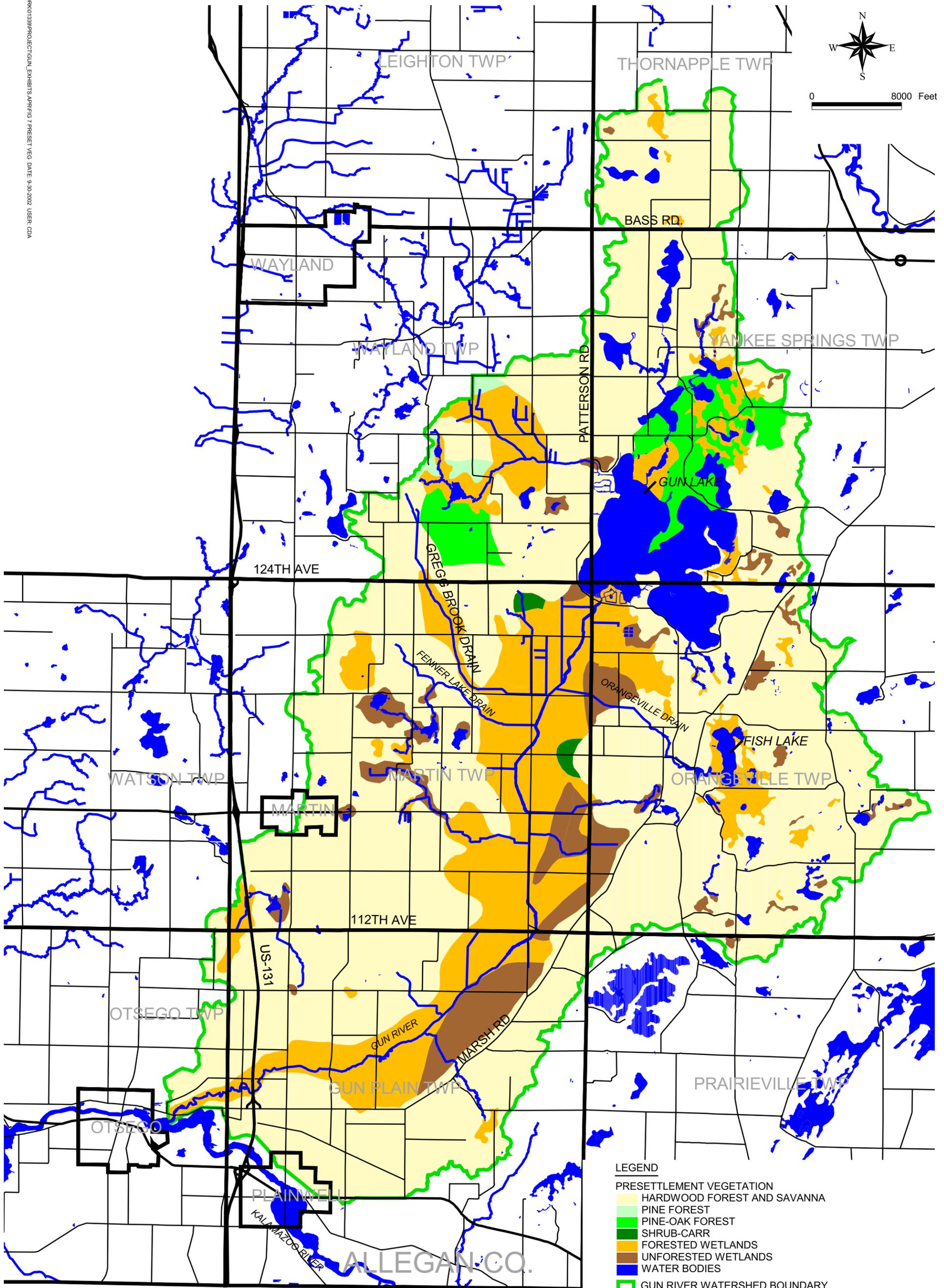
HISTORIC LOCATION OF THE GUN RIVER

PROJECT NO.
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FIGURE NO.
6

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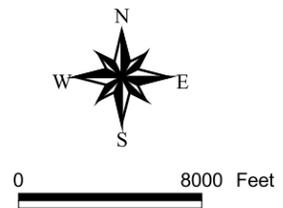
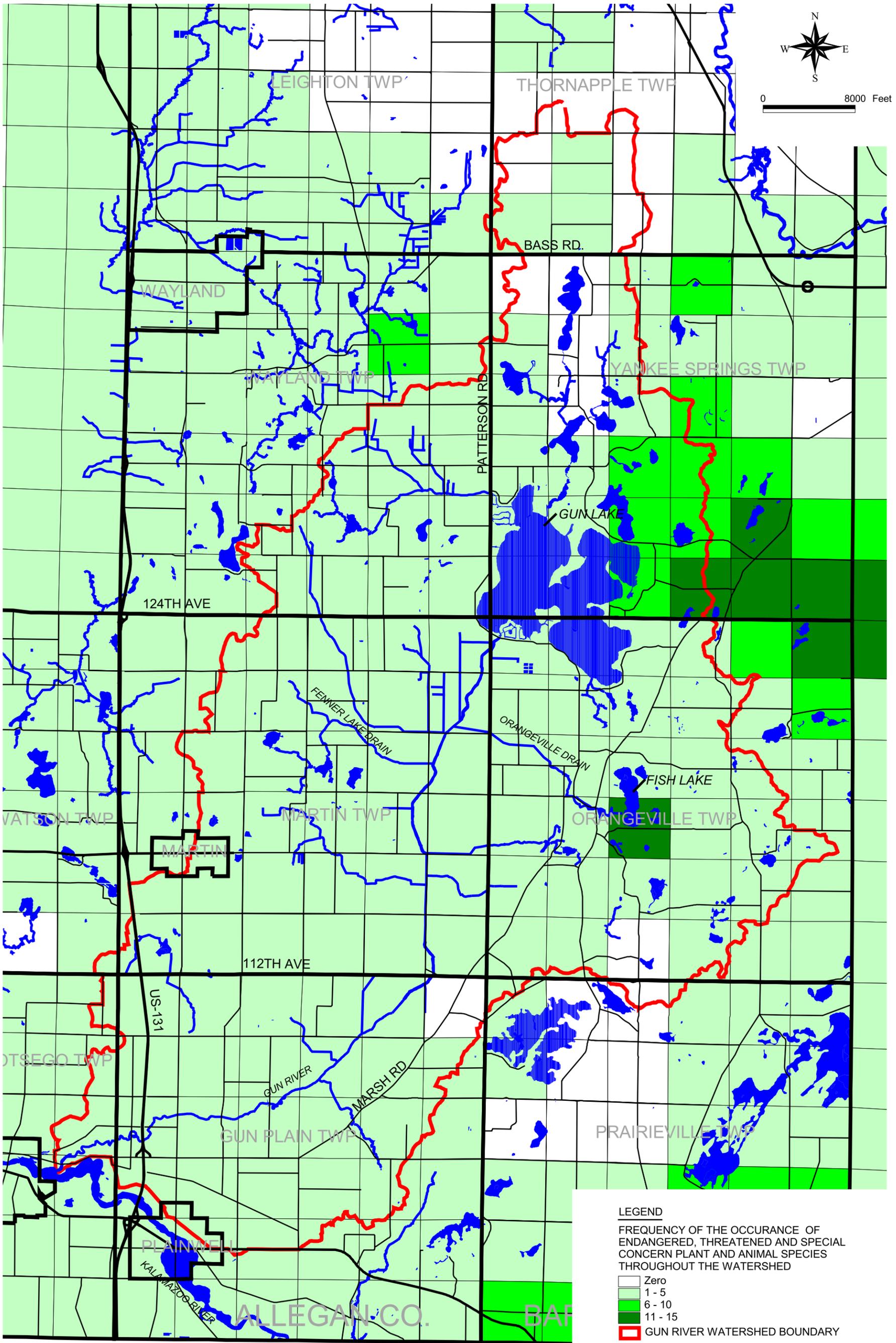



- LEGEND**
- PRESETTLEMENT VEGETATION
 - HARDWOOD FOREST AND SAVANNA
 - PINE FOREST
 - PINE-OAK FOREST
 - SHRUB-CARR
 - FORESTED WETLANDS
 - UNFORESTED WETLANDS
 - WATER BODIES
 - GUN RIVER WATERSHED BOUNDARY
- NOTE: UNFORESTED WETLANDS INCLUDE MARSHES, SHRUB SWAMP/EMERGENT MARSH, WET PRAIRIE, AND UNDIFFERENTIATED WETLANDS.

DATA SOURCES: BASE MAP AND PRESETTLEMENT VEGETATION, KALAMAZOO RIVER WATERSHED GIS PROJECT, GIS RESEARCH CENTER WESTERN MICHIGAN UNIVERSITY 1996.
 MICHIGAN DEPARTMENT OF NATURAL RESOURCES MIRIS, 1978, SPCS NAD 27, US FEET.
 WATERSHED DELINEATION, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY GIS, DIGITAL SHEDS, 2001.

PRESETTLEMENT VEGETATION MAP

PROJECT NO. G01339 FIGURE NO. 7	Allegan Conservation District Allegan County, Michigan Gun River Watershed Management Plan	Fishbeck, Thompson, Carr & Huber Engineers • Scientists • Architects Grand Rapids, Michigan	
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DATA SOURCES: BASE MAP, KALAMAZOO RIVER WATERSHED GIS PROJECT, GIS RESEARCH CENTER WESTERN MICHIGAN UNIVERSITY 1996. MICHIGAN DEPARTMENT OF NATURAL RESOURCES MIRIS, 1978, SPCS NAD 27, US FEET. WATERSHED DELINEATION, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY GIS, DIGITAL SHEDS, 2001. MICHIGAN NATURAL FEATURES INVENTORY, MICHIGAN STATE UNIVERSITY EXTENSION, 2001.

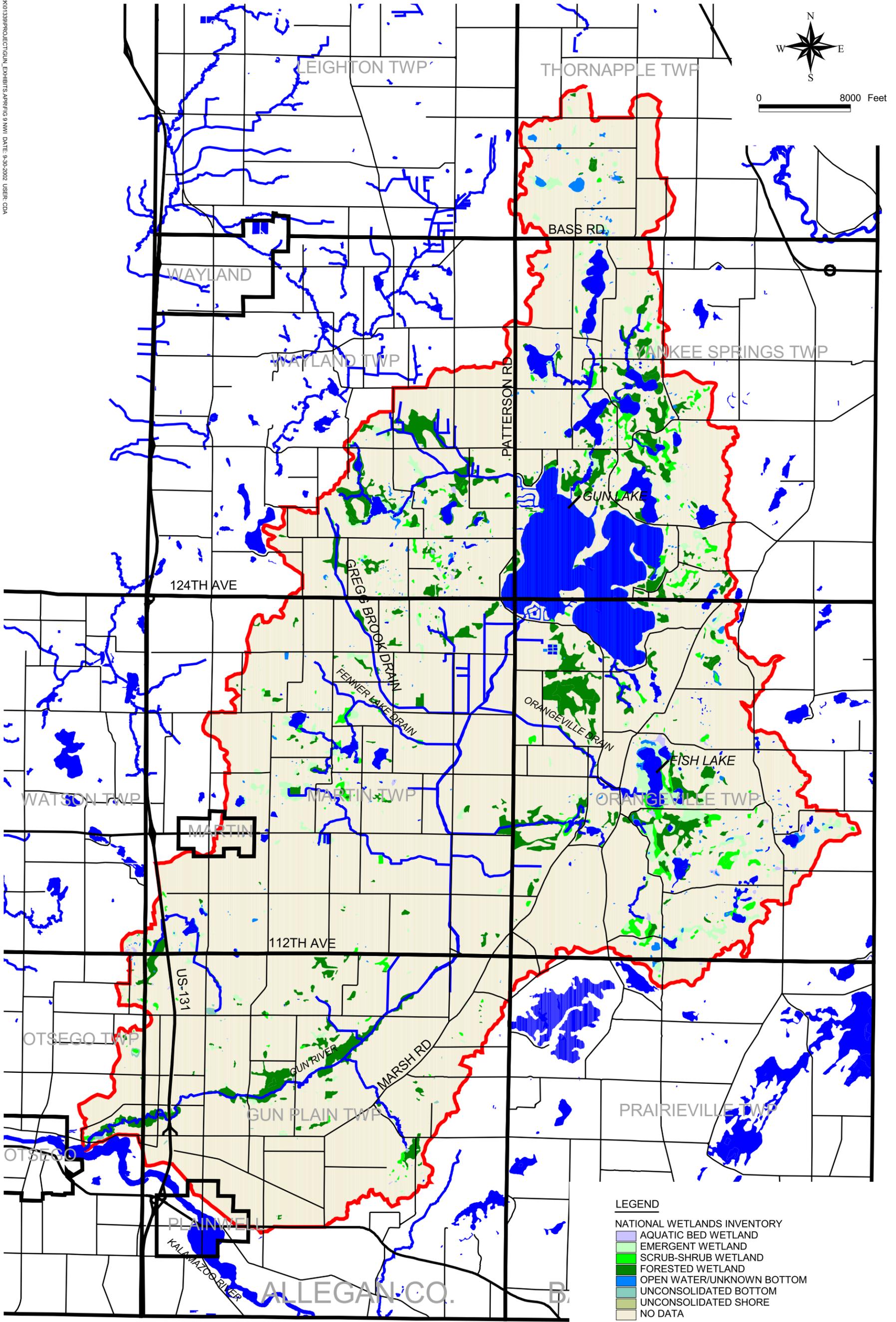
FREQUENCY OF ELEMENT OCCURANCE NATURAL FEATURES INVENTORY MAP

PROJECT NO.
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FIGURE NO.
8

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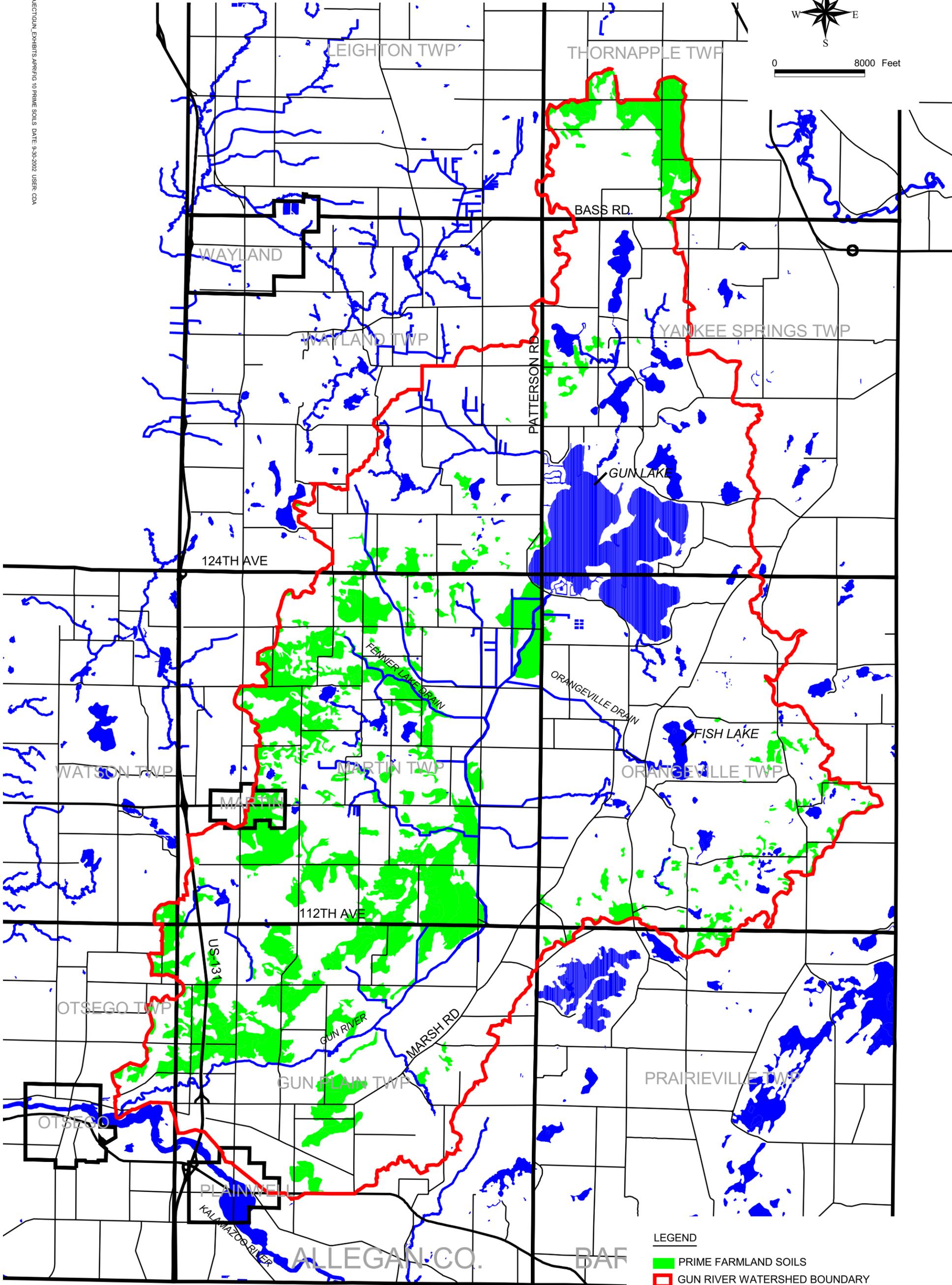
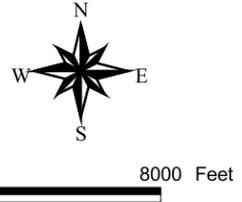




DATA SOURCES: BASE MAP AND NATIONAL WETLANDS INVENTORY, KALAMAZOO RIVER WATERSHED GIS PROJECT, GIS RESEARCH CENTER WESTERN MICHIGAN UNIVERSITY 1996. MICHIGAN DEPARTMENT OF NATURAL RESOURCES MIRIS, 1978, SPCS NAD 27, US FEET. WATERSHED DELINEATION, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY GIS, DIGITAL SHEDS, 2001.

NATIONAL WETLANDS INVENTORY MAP

PROJECT NO. G01339 FIGURE NO. 9	Allegan Conservation District Allegan County, Michigan <hr/> Gun River Watershed Management Plan	Fishbeck, Thompson, Carr & Huber Engineers • Scientists • Architects Grand Rapids, Michigan	
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LEGEND
 PRIME FARMLAND SOILS
 GUN RIVER WATERSHED BOUNDARY

DATA SOURCES: BASE MAP AND SOILS, KALAMAZOO RIVER WATERSHED GIS PROJECT, GIS RESEARCH CENTER WESTERN MICHIGAN UNIVERSITY 1996. MICHIGAN DEPARTMENT OF NATURAL RESOURCES MIRIS, 1978, SPCS NAD 27, US FEET. SOIL CLASSIFICATION BASED ON NRCS SOIL SURVEY FOR ALLEGAN AND BARRY COUNTIES. WATERSHED DELINEATION, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY GIS, DIGITAL SHEDS, 2001.

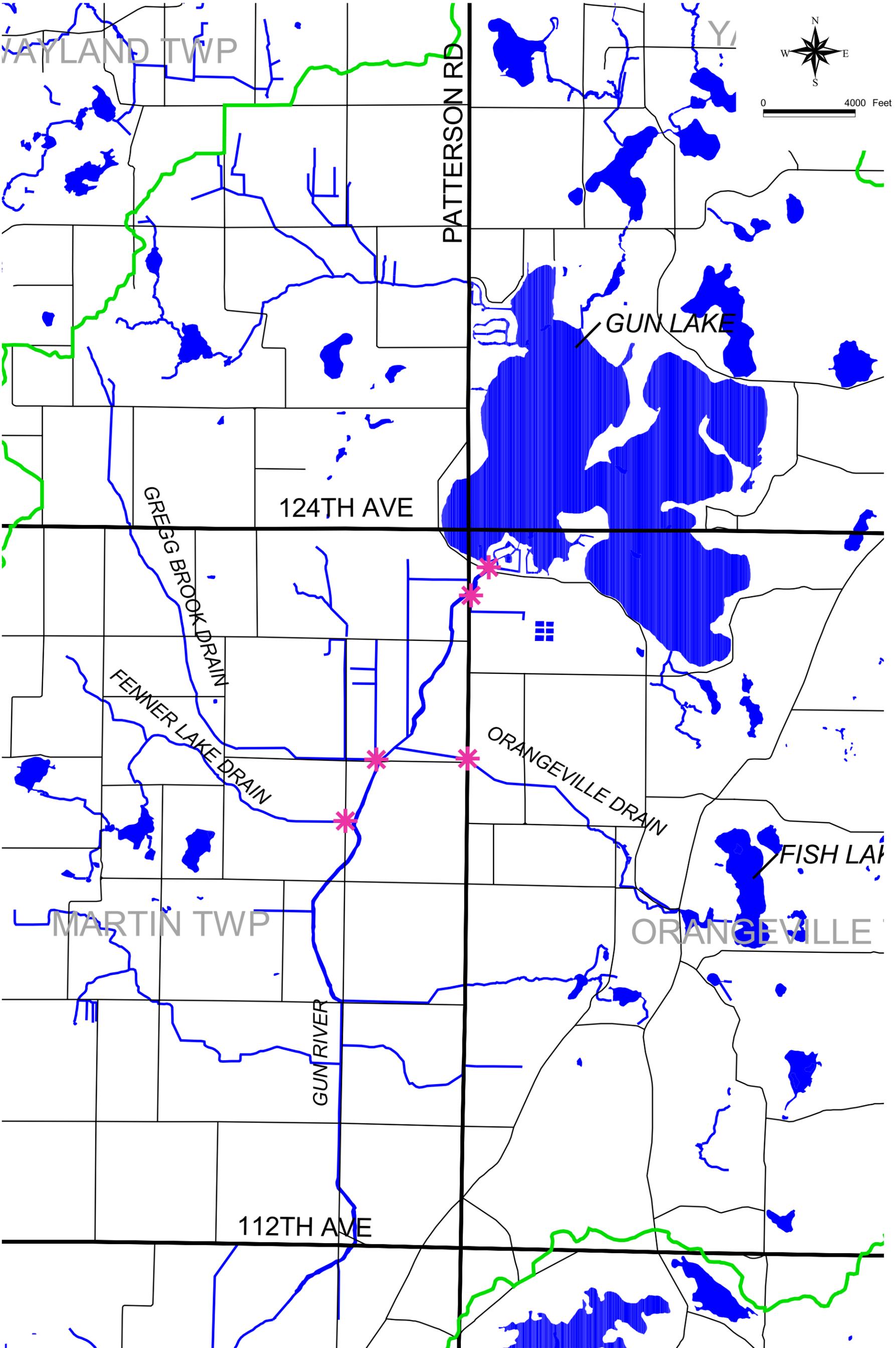
PRIME FARM LAND SOILS MAP

PROJECT NO.
G01339
FIGURE NO.
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D:\WORK\01339\PROJECT\GULN_EXHIBITS\APR\FIG 11 WATER QUALITY DATE: 9-30-2002 USER: CDA



DATA SOURCES: BASE MAP, KALAMAZOO RIVER WATERSHED GIS PROJECT, GIS RESEARCH CENTER WESTERN MICHIGAN UNIVERSITY 1996. MICHIGAN DEPARTMENT OF NATURAL RESOURCES MIRIS, 1978, SPCS NAD 27, US FEET. WATERSHED DELINEATION, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY GIS, DIGITAL SHEDS, 2001.

LEGEND

- █ GUN RIVER WATERSHED BOUNDARY
- ✱ WATER QUALITY SAMPLE SITES

WATER QUALITY SAMPLING SITES

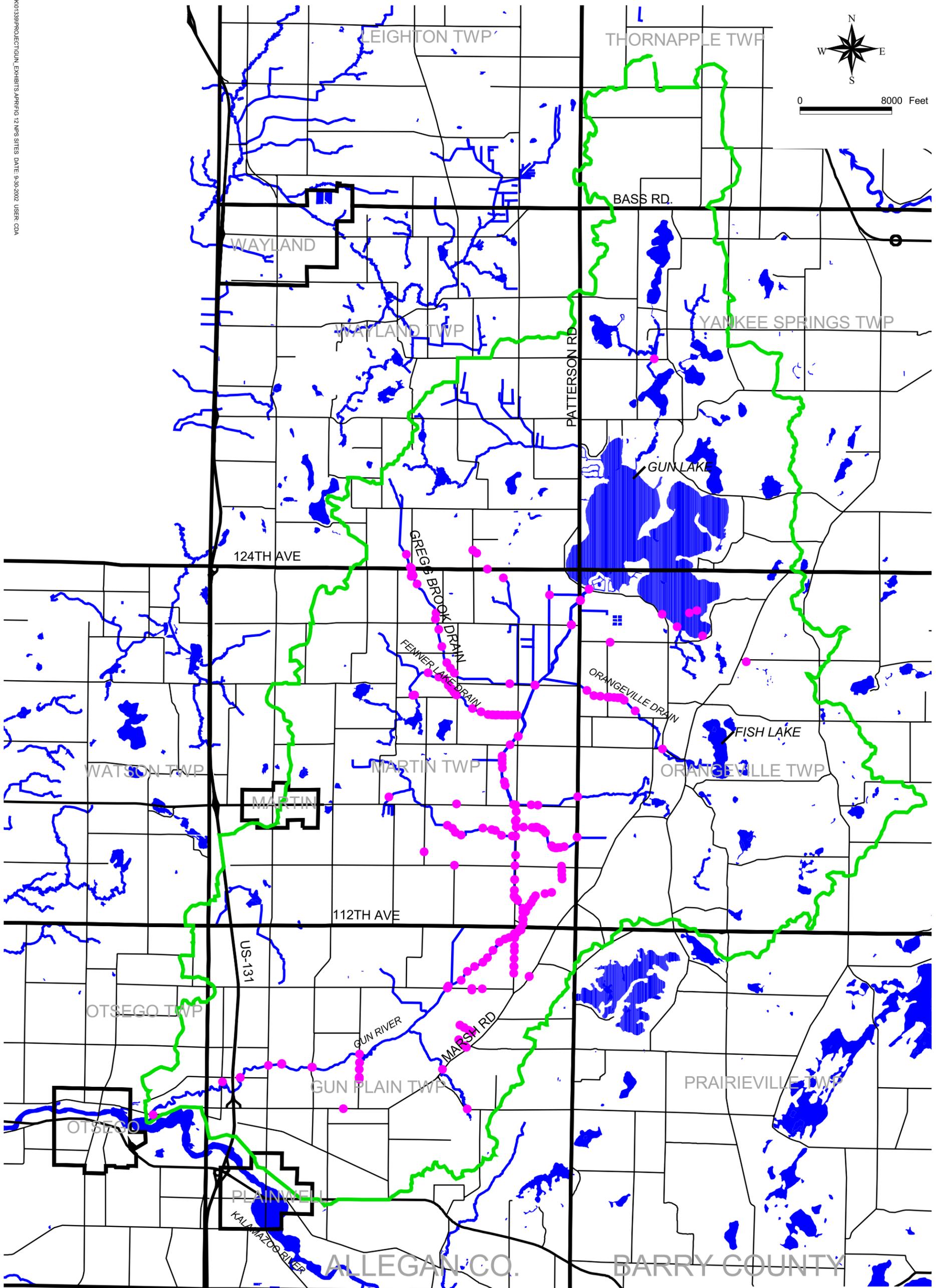
PROJECT NO.
G01339
FIGURE NO.
11

Allegan Conservation District
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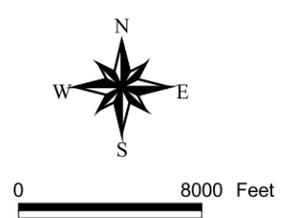
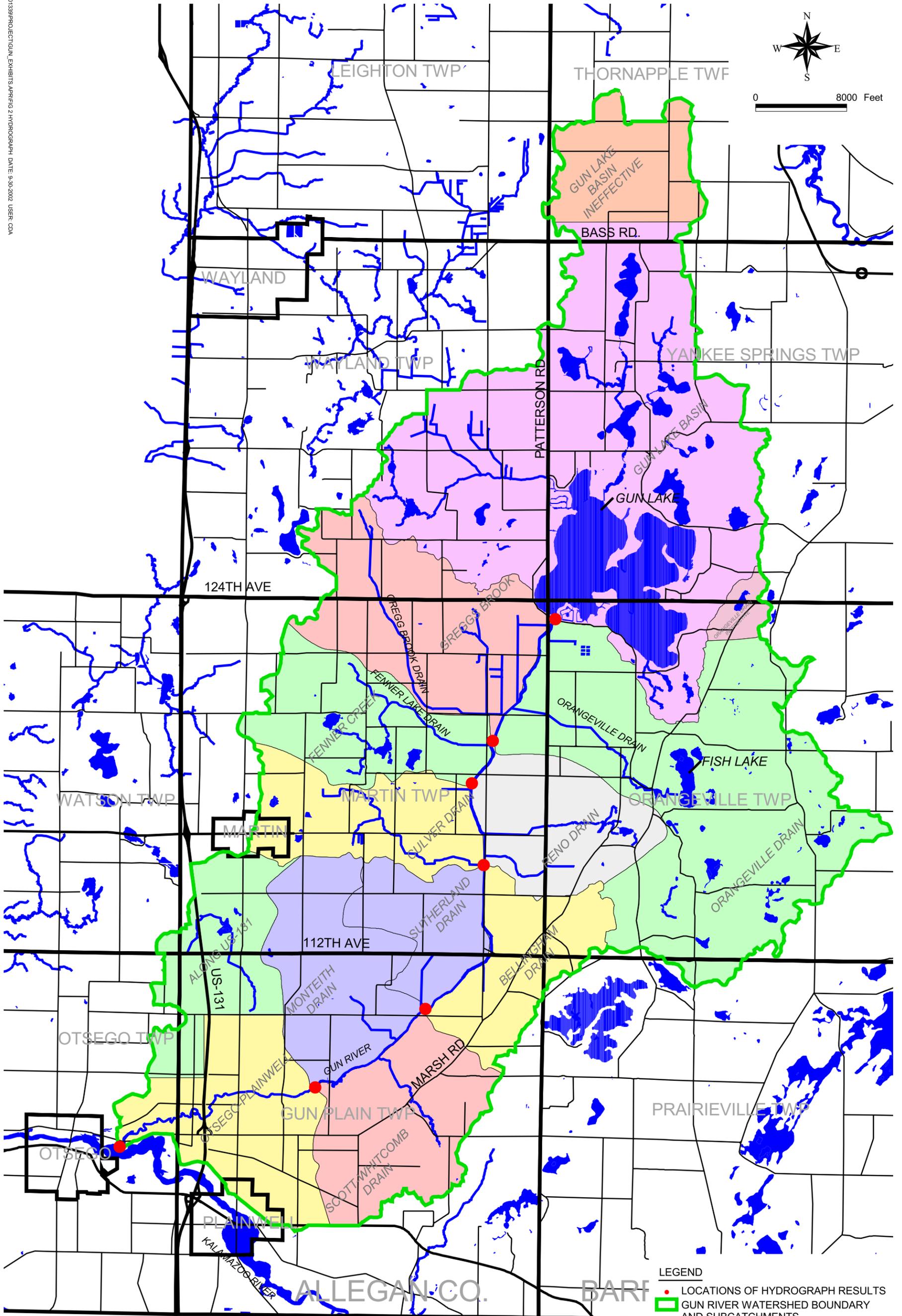



LEGEND

- ▭ GUN RIVER WATERSHED BOUNDARY
- IDENTIFIED INVENTORY PROBLEM AREAS

NONPOINT SOURCE POLLUTION SITES

DATA SOURCES: BASE MAP, KALAMAZOO RIVER WATERSHED GIS PROJECT, GIS RESEARCH CENTER WESTERN MICHIGAN UNIVERSITY 1996. MICHIGAN DEPARTMENT OF NATURAL RESOURCES MIRIS, 1978, SPCS NAD 27, US FEET. WATERSHED DELINEATION, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY GIS, DIGITAL SHEDS, 2001.



LEGEND
● LOCATIONS OF HYDROGRAPH RESULTS
 GUN RIVER WATERSHED BOUNDARY AND SUBCATCHMENTS

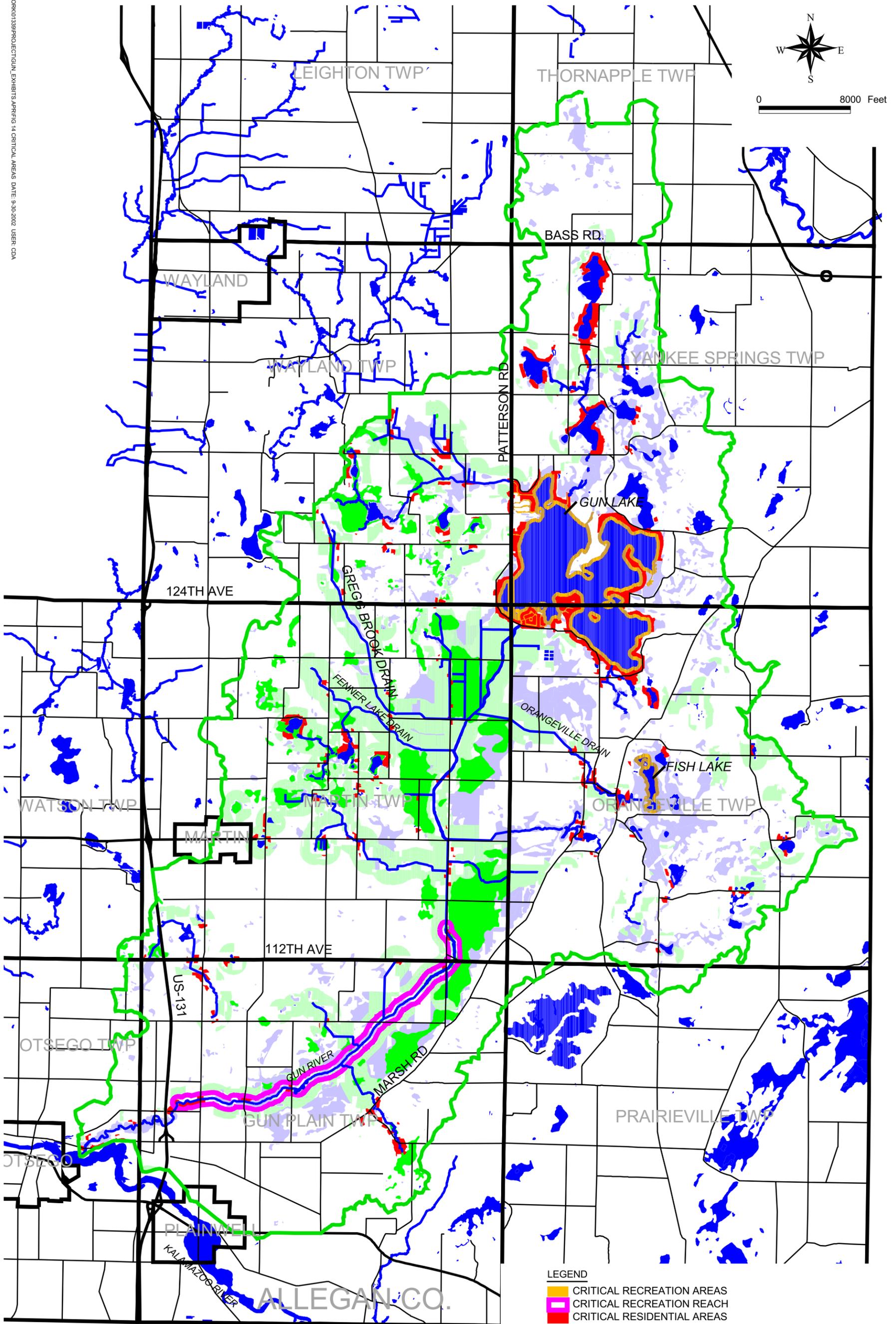
LOCATIONS OF HYDROGRAPH RESULTS

DATA SOURCES: BASE MAP, KALAMAZOO RIVER WATERSHED GIS PROJECT, GIS RESEARCH CENTER WESTERN MICHIGAN UNIVERSITY 1996. MICHIGAN DEPARTMENT OF NATURAL RESOURCES MIRIS, 1978, SPCS NAD 27, US FEET. WATERSHED DELINEATION, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY GIS, DIGITAL SHEDS, 2001.

PROJECT NO.
G01339
FIGURE NO.
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- LEGEND**
- CRITICAL RECREATION AREAS
 - CRITICAL RECREATION REACH
 - CRITICAL RESIDENTIAL AREAS
 - CRITICAL MUCK SOILS
 - CRITICAL AGRICULTURE AREAS
 - CRITICAL WETLAND AREAS
 - GUN RIVER WATERSHED BOUNDARY

CRITICAL AREAS

DATA SOURCES: BASE MAP, KALAMAZOO RIVER WATERSHED GIS PROJECT, GIS RESEARCH CENTER WESTERN MICHIGAN UNIVERSITY 1996. MICHIGAN DEPARTMENT OF NATURAL RESOURCES MIRIS, 1978, SPCS NAD 27, US FEET. WATERSHED DELINEATION, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY GIS, DIGITAL SHEDS, 2001.