GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

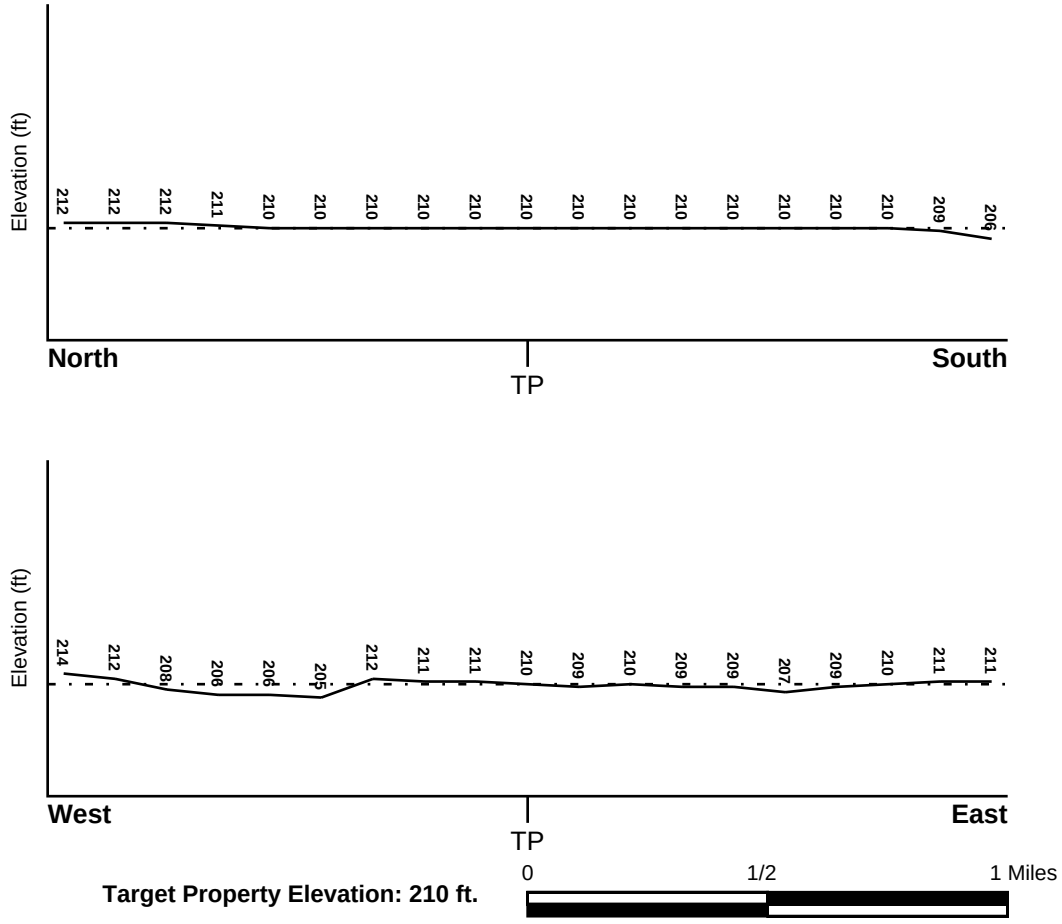
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General East

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
05035C0325E	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
Not Reported	

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
EDMONDSON	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

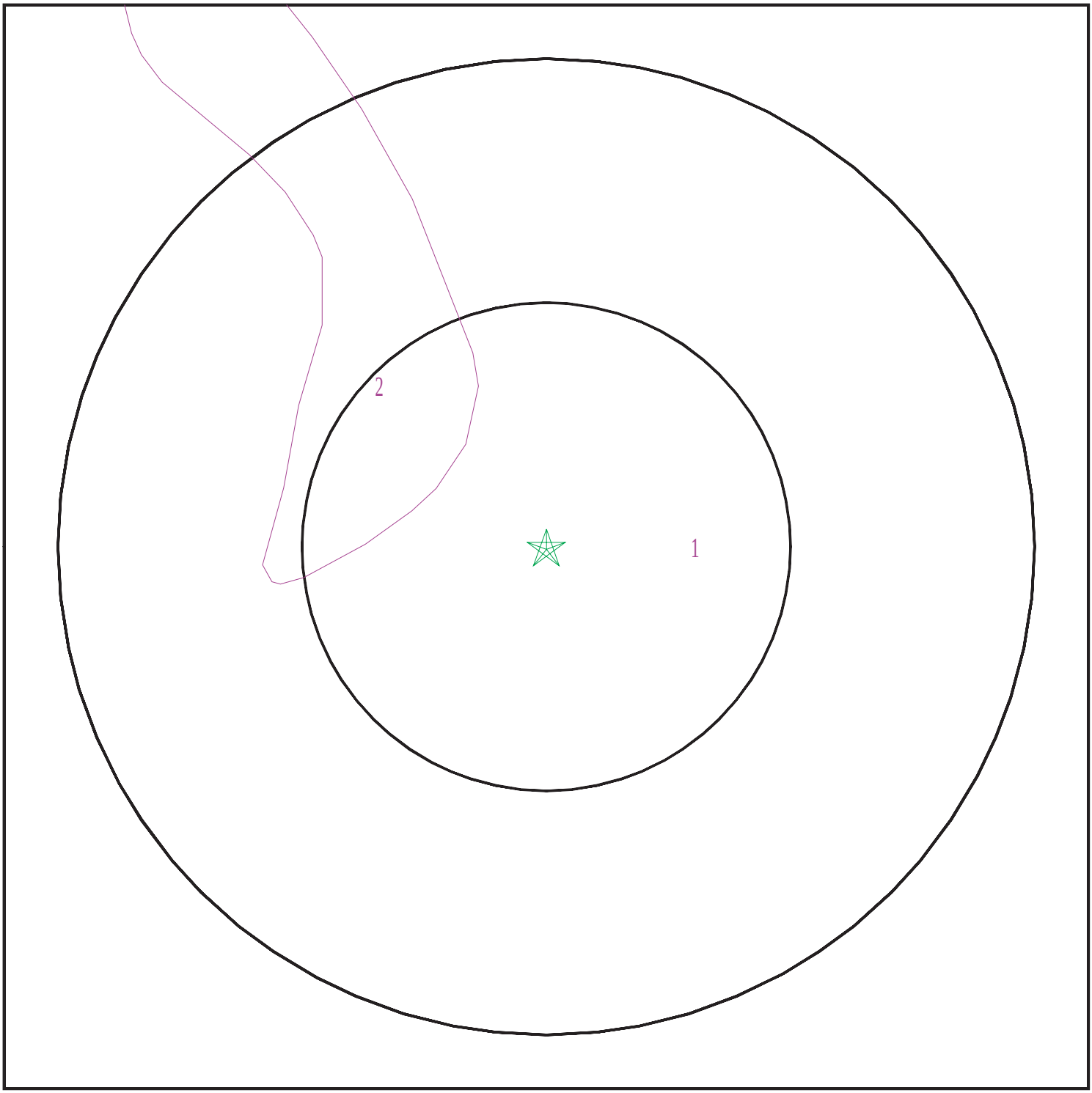
Era:	Cenozoic
System:	Quaternary
Series:	Holocene
Code:	Qh *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 5260370.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	I-40 Megasite	CLIENT:	AECOM
ADDRESS:	Interstate 40 and Arkansas State Highway 147 Marion AR 72364	CONTACT:	Jim Orr
LAT/LONG:	35.159719 / 90.273884	INQUIRY #:	5260370.2s
		DATE:	April 16, 2018 2:00 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Sharkey

Soil Surface Texture: silty clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Poorly drained

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 31 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	silty clay	Not reported	Not reported	Max: 0.42 Min: 0.01	Max: 8.4 Min: 5.1
2	7 inches	48 inches	clay	Not reported	Not reported	Max: 0.42 Min: 0.01	Max: 8.4 Min: 5.6
3	48 inches	72 inches	clay	Not reported	Not reported	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6

Soil Map ID: 2

Soil Component Name: Sharkey

Soil Surface Texture: silty clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Poorly drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 31 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	silty clay	Not reported	Not reported	Max: 0.42 Min: 0.01	Max: 8.4 Min: 5.1
2	7 inches	48 inches	clay	Not reported	Not reported	Max: 0.42 Min: 0.01	Max: 8.4 Min: 5.6
3	48 inches	72 inches	clay	Not reported	Not reported	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A2	USGS40000092262	1/8 - 1/4 Mile NNE
4	USGS40000092399	1/2 - 1 Mile NNE
9	USGS40000092219	1/2 - 1 Mile West
12	USGS40000092536	1/2 - 1 Mile North

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

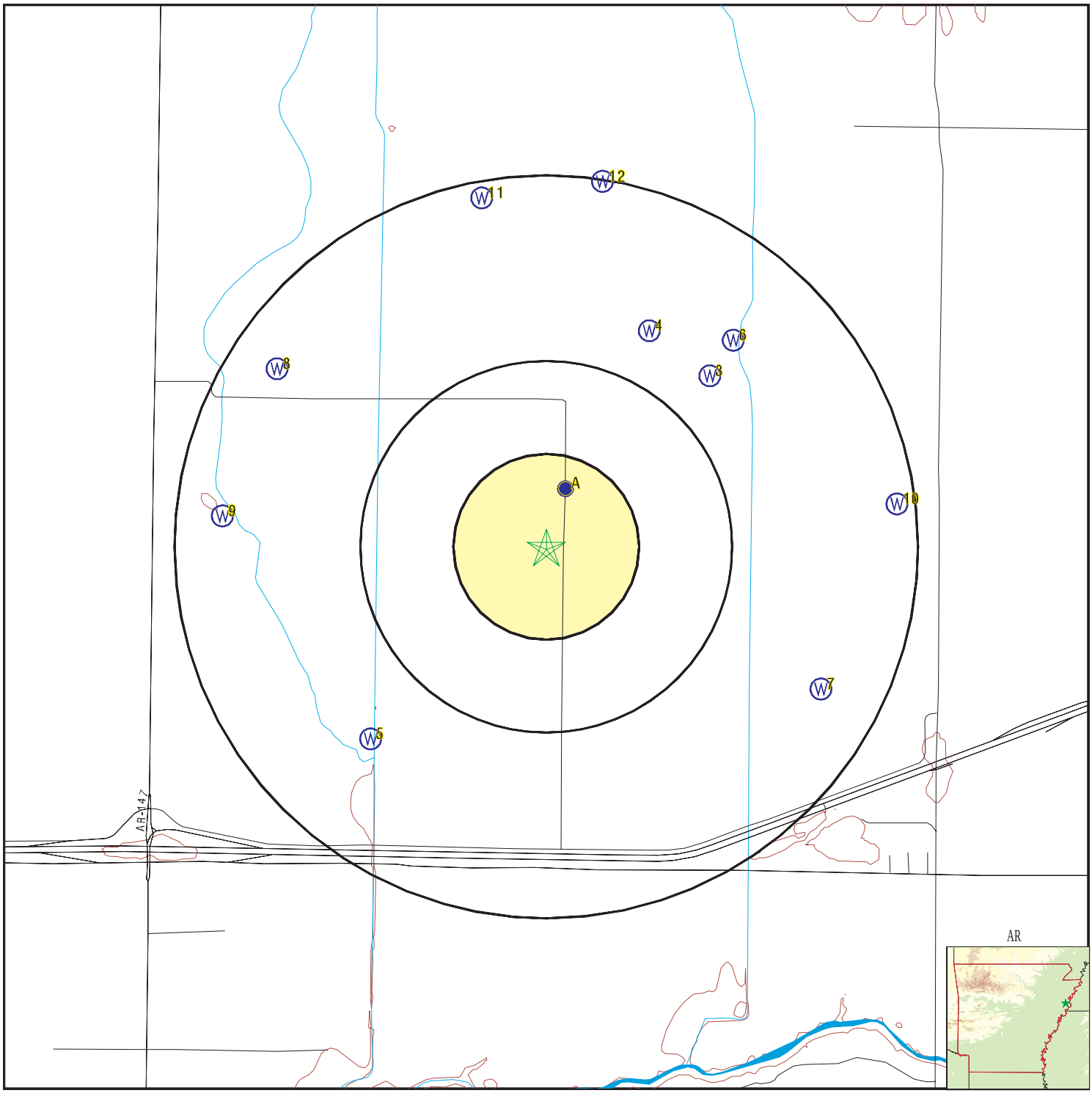
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	AR1000000001962	1/8 - 1/4 Mile NNE
3	AR1000000001884	1/2 - 1 Mile NE
5	AR1000000002059	1/2 - 1 Mile SW
6	AR1000000001869	1/2 - 1 Mile NE
7	AR1000000001831	1/2 - 1 Mile ESE
8	AR1000000050476	1/2 - 1 Mile WNW
10	AR1000000001802	1/2 - 1 Mile East
11	AR1000000002003	1/2 - 1 Mile North

PHYSICAL SETTING SOURCE MAP - 5260370.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	I-40 Megasite	CLIENT:	AECOM
ADDRESS:	Interstate 40 and Arkansas State Highway 147 Marion AR 72364	CONTACT:	Jim Orr
LAT/LONG:	35.159719 / 90.273884	INQUIRY #:	5260370.2s
		DATE:	April 16, 2018 2:00 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

A1
NNE **AR WELLS** **AR1000000001962**
1/8 - 1/4 Mile
Higher

Well id :	90162335094201	Original w:	901623350942
City and z:	WEST MEMPHIS, TN 72303	County nam:	CRITTENDEN
Latitude:	35-09-42	Longitude:	90-16-23
Well statu:	New Well	Depth:	128
Date well :	20061014	Use code:	Not Reported
Owner name:	BOB POLLARD	Driller na:	CHARLES REINHART
Remarks :	Not Reported	Site id:	AR1000000001962

A2
NNE **FED USGS** **USGS40000092262**
1/8 - 1/4 Mile
Higher

Org. Identifier:	USGS-AR		
Formal name:	USGS Arkansas Water Science Center		
Monloc Identifier:	AR008-350944090162201		
Monloc name:	06N08E08CB1		
Monloc type:	Well		
Monloc desc:	9832 DOROTHY FARR		
Huc code:	08020203	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	35.1623129
Longitude:	-90.2728744	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	Not Reported
Vert measure units:	Not Reported	Vertacc measure val:	Not Reported
Vert accmeasure units:	Not Reported		
Vertcollection method:	Not Reported		
Vert coord refsys:	Not Reported	Countrycode:	US
Aquifername:	Mississippi River Valley alluvial aquifer		
Formation type:	Quaternary Alluvium		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	115
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

3
NE **AR WELLS** **AR1000000001884**
1/2 - 1 Mile
Higher

Well id :	90155835098101	Original w:	901558350981
City and z:	MARION, AR 72364	County nam:	CRITTENDEN
Latitude:	35-09-59	Longitude:	90-15-58
Well statu:	New Well	Depth:	110
Date well :	20050427	Use code:	Not Reported
Owner name:	MARK BAIONI	Driller na:	CHARLIE AGEE
Remarks :	Not Reported	Site id:	AR1000000001884

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

4
NNE
1/2 - 1 Mile
Higher | **FED USGS** | **USGS40000092399**

Org. Identifier:	USGS-AR		
Formal name:	USGS Arkansas Water Science Center		
Monloc Identifier:	AR008-351005090160801		
Monloc name:	06N07E15BC1		
Monloc type:	Well		
Monloc desc:	9832 DOROTHY FARR		
Huc code:	08020203	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	35.1681461
Longitude:	-90.2689854	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	Not Reported
Vert measure units:	Not Reported	Vertacc measure val:	Not Reported
Vert accmeasure units:	Not Reported		
Vertcollection method:	Not Reported		
Vert coord refsys:	Not Reported	Countrycode:	US
Aquifername:	Mississippi River Valley alluvial aquifer		
Formation type:	Quaternary Alluvium		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	110
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

5
SW
1/2 - 1 Mile
Lower | **AR WELLS** | **AR1000000002059**

Well id :	90165635090801	Original w:	901656350908
City and z:	WEST MEMPHIS, AR 72301	County nam:	CRITTENDEN
Latitude:	35-09-08	Longitude:	90-16-56
Well statu:	New Well	Depth:	130
Date well :	20000501	Use code:	IR
Owner name:	KEN NADEAU	Driller na:	FRANK GOODMAN
Remarks :	Not Reported	Site id:	AR1000000002059

6
NE
1/2 - 1 Mile
Higher | **AR WELLS** | **AR1000000001869**

Well id :	90155435100401	Original w:	901554351004
City and z:	MARION, AR 72364	County nam:	CRITTENDEN
Latitude:	35-10-04	Longitude:	90-15-54
Well statu:	New Well	Depth:	140
Date well :	19990519	Use code:	IR
Owner name:	GINO BAIONI	Driller na:	CHARLIE AGEE
Remarks :	Not Reported	Site id:	AR1000000001869

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

7
ESE
1/2 - 1 Mile
Higher

AR WELLS **AR1000000001831**

Well id :	90153935091501	Original w:	901539350915
City and z:	MEMPHIS, TN 38173	County nam:	CRITTENDEN
Latitude:	35-09-15	Longitude:	90-15-39
Well statu:	New Well	Depth:	132
Date well :	19990517	Use code:	IR
Owner name:	BERT ROBINSON	Driller na:	ALFRED JACOBS
Remarks :	Not Reported	Site id:	AR1000000001831

8
WNW
1/2 - 1 Mile
Higher

AR WELLS **AR1000000050476**

Well id :	90171235100001	Original w:	901712351000
City and z:	CRAFORDSVILLE, AR 72327	County nam:	CRITTENDEN
Latitude:	35-10-00	Longitude:	90-17-12
Well statu:	New Well	Depth:	121
Date well :	20090408	Use code:	IR
Owner name:	DAVID WALLACE	Driller na:	CHARLES REINHART
Remarks :	Not Reported	Site id:	AR1000000050476

9
West
1/2 - 1 Mile
Higher

FED USGS **USGS40000092219**

Org. Identifier:	USGS-AR		
Formal name:	USGS Arkansas Water Science Center		
Monloc Identifier:	AR008-350939090172101		
Monloc name:	06N08E07BB1		
Monloc type:	Well		
Monloc desc:	771929 DR K NADEAU		
Huc code:	08020203	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	35.160924
Longitude:	-90.2892638	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	Not Reported
Vert measure units:	Not Reported	Vertacc measure val:	Not Reported
Vert accmeasure units:	Not Reported		
Vertcollection method:	Not Reported		
Vert coord refsys:	Not Reported	Countrycode:	US
Aquifername:	Mississippi River Valley alluvial aquifer		
Formation type:	Quaternary Alluvium		

Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	110
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

10
East
1/2 - 1 Mile
Higher

AR WELLS **AR1000000001802**

Well id :	90152635094101	Original w:	901526350941
City and z:	MARION, AR 72364	County nam:	CRITTENDEN
Latitude:	35-09-41	Longitude:	90-15-26
Well statu:	New Well	Depth:	116
Date well :	19980414	Use code:	IR
Owner name:	MARK BAIONI #2-98	Driller na:	CHARLIE AGEE
Remarks :	Not Reported	Site id:	AR1000000001802

11
North
1/2 - 1 Mile
Higher

AR WELLS **AR1000000002003**

Well id :	90163735102401	Original w:	901637351024
City and z:	CRAWFORDSVILLE, AR 72327	County nam:	CRITTENDEN
Latitude:	35-10-24	Longitude:	90-16-37
Well statu:	New Well	Depth:	130
Date well :	19991118	Use code:	IR
Owner name:	DAVID WALLACE	Driller na:	CHARLES REINHART
Remarks :	Not Reported	Site id:	AR1000000002003

12
North
1/2 - 1 Mile
Higher

FED USGS **USGS40000092536**

Org. Identifier:	USGS-AR		
Formal name:	USGS Arkansas Water Science Center		
Monloc Identifier:	AR008-351026090161601		
Monloc name:	06N07E13AB1		
Monloc type:	Well		
Monloc desc:	59001		
Huc code:	08020203	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	35.1739793
Longitude:	-90.2712077	Sourcemap scale:	24000
Horiz Acc measure:	10	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	Not Reported
Vert measure units:	Not Reported	Vertacc measure val:	Not Reported
Vert accmeasure units:	Not Reported		
Vertcollection method:	Not Reported		
Vert coord refsys:	Not Reported	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: AR Radon

Radon Test Results

Total Meas	Mean	Geom mean	Median	Std Dev	Max	% Sites>4 pCi/L	% Sites>20 pCi/L
18	0.5	0.4	0.4	0.4	1.5	0	0

Federal EPA Radon Zone for CRITTENDEN County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 72364

Number of sites tested: 4

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.550 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: US Fish & Wildlife Service
Telephone: 703-358-2171

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Arkansas Community Public Water Systems
Source: Health Department
Telephone: 501-661-2623

OTHER STATE DATABASE INFORMATION

Oil and Gas Well Database
Source: Arkansas Geographic Information Office
Telephone: 501-682-2929
Oil and gas well locations.

RADON

State Database: AR Radon
Source: Department of Health
Telephone: 501-661-2301
Radon Test Results

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

Appendix C

HISTORIC AERIAL PHOTOGRAPHS

I-40 Megasite

Interstate 40 and Arkansas State Highway 147

Marion, AR 72364

Inquiry Number: 5260370.9

April 17, 2018

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

04/17/18

Site Name:	Client Name:
I-40 Megasite	AECOM
Interstate 40 and Arkansas Sta	1000 Corporate Centre
Marion, AR 72364	Franklin, TN 37067
EDR Inquiry # 5260370.9	Contact: Jim Orr

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	Scale	Details	Source
2015	1"=875'	Flight Year: 2015	USDA/NAIP
2010	1"=875'	Flight Year: 2010	USDA/NAIP
2006	1"=875'	Flight Year: 2006	USDA/NAIP
1994	1"=875'	Acquisition Date: February 01, 1994	USGS/DOQQ
1985	1"=875'	Flight Date: April 02, 1985	USDA
1975	1"=1000'	Flight Date: February 21, 1975	USGS
1963	1"=875'	Flight Date: March 08, 1963	USGS

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.


INQUIRY #: 5260370.9
YEAR: 1985
= 875'
N
EDR

INQUIRY #: 5260370.9

YEAR: 1975

= 1000'

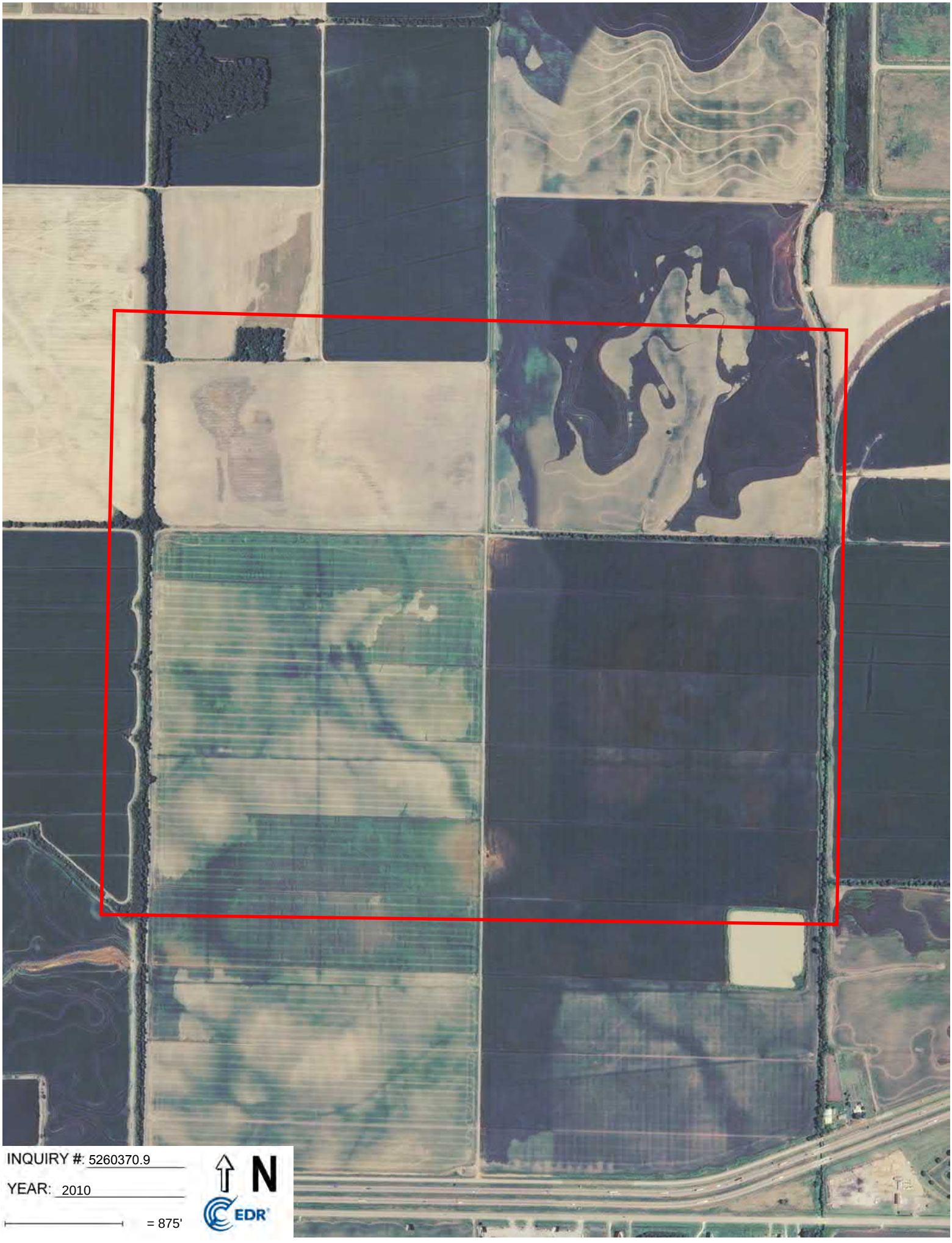
N

EDR

Subject boundary not shown because it exceeds image extent or image is not georeferenced.


INQUIRY #: 5260370.9
YEAR: 1963
= 875'
N
EDR
Subject boundary not shown because it exceeds image extent or image is not georeferenced.


INQUIRY #: 5260370.9
YEAR: 2015
= 875'
N
EDR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YEAR: 2010
= 875'
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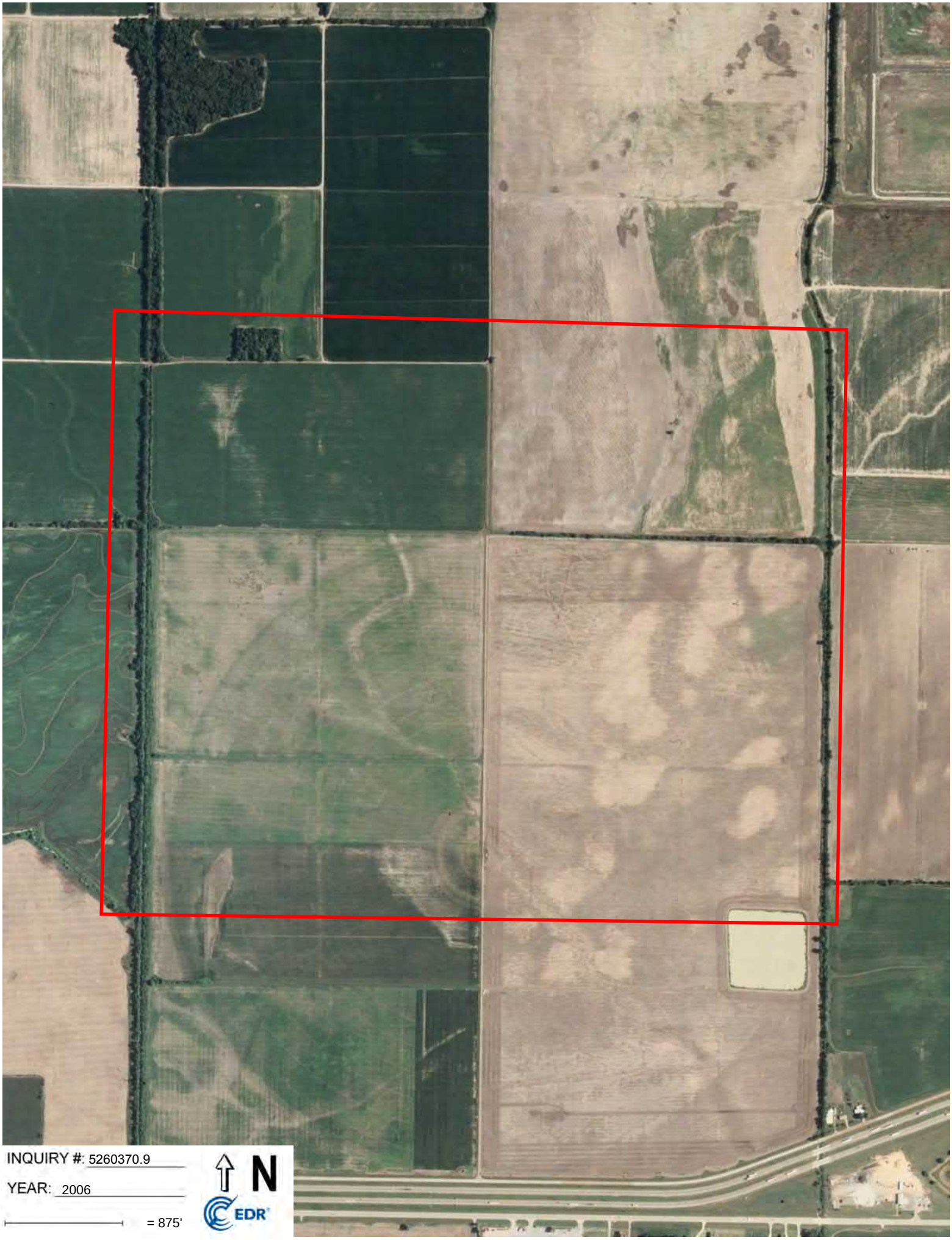
EDR


INQUIRY #: 5260370.9
YEAR: 2006
= 875'
N
EDR


INQUIRY #: 5260370.9
YEAR: 1994
= 875'
N
EDR

Appendix D

HISTORIC TOPOGRAPHIC MAPS

I-40 Megasite

Interstate 40 and Arkansas State Highway 147

Marion, AR 72364

Inquiry Number: 5260370.4

April 16, 2018

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

04/16/18

Site Name:	Client Name:
I-40 Megasite	AECOM
Interstate 40 and Arkansas Sta	1000 Corporate Centre
Marion, AR 72364	Franklin, TN 37067
EDR Inquiry # 5260370.4	Contact: Jim Orr

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by AECOM were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:		*Coordinates:*	
P.O.#	NA	**Latitude:**	35.159719 35° 9' 35" North
Project:	West Memphis I-40 Megasite	**Longitude:**	-90.273884 -90° 16' 26" West
		UTM Zone:	Zone 15 North
		UTM X Meters:	748310.06
		UTM Y Meters:	3894158.78
		Elevation:	210.00' above sea level

Maps Provided:

2014
1993
1981
1954, 1955
1939

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2014 Source Sheets

Crawfordsville
2014
7.5-minute, 24000

West Memphis
2014
7.5-minute, 24000

1993 Source Sheets

West Memphis
1993
7.5-minute, 24000
Aerial Photo Revised 1990

Crawfordsville
1993
7.5-minute, 24000
Aerial Photo Revised 1990

1981 Source Sheets

Crawfordsville
1981
7.5-minute, 24000
Aerial Photo Revised 1975

1954, 1955 Source Sheets

Edmondson
1954
15-minute, 62500
Aerial Photo Revised 1950

Memphis
1955
15-minute, 62500
Aerial Photo Revised 1952

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

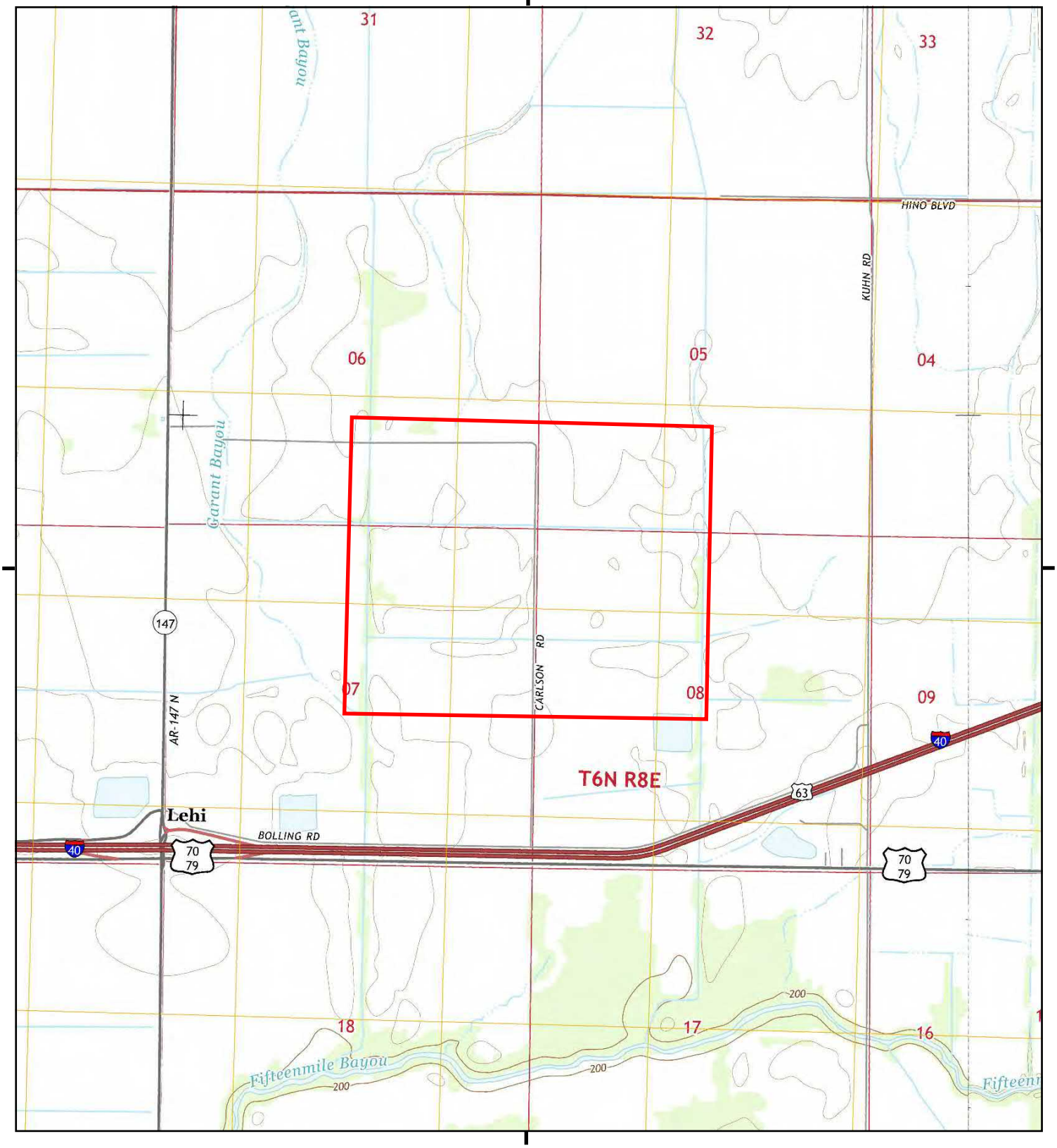
1939 Source Sheets

Edmondson
1939
15-minute, 62500

Memphis
1939
15-minute, 62500

Historical Topo Map

2014



This report includes information from the following map sheet(s).

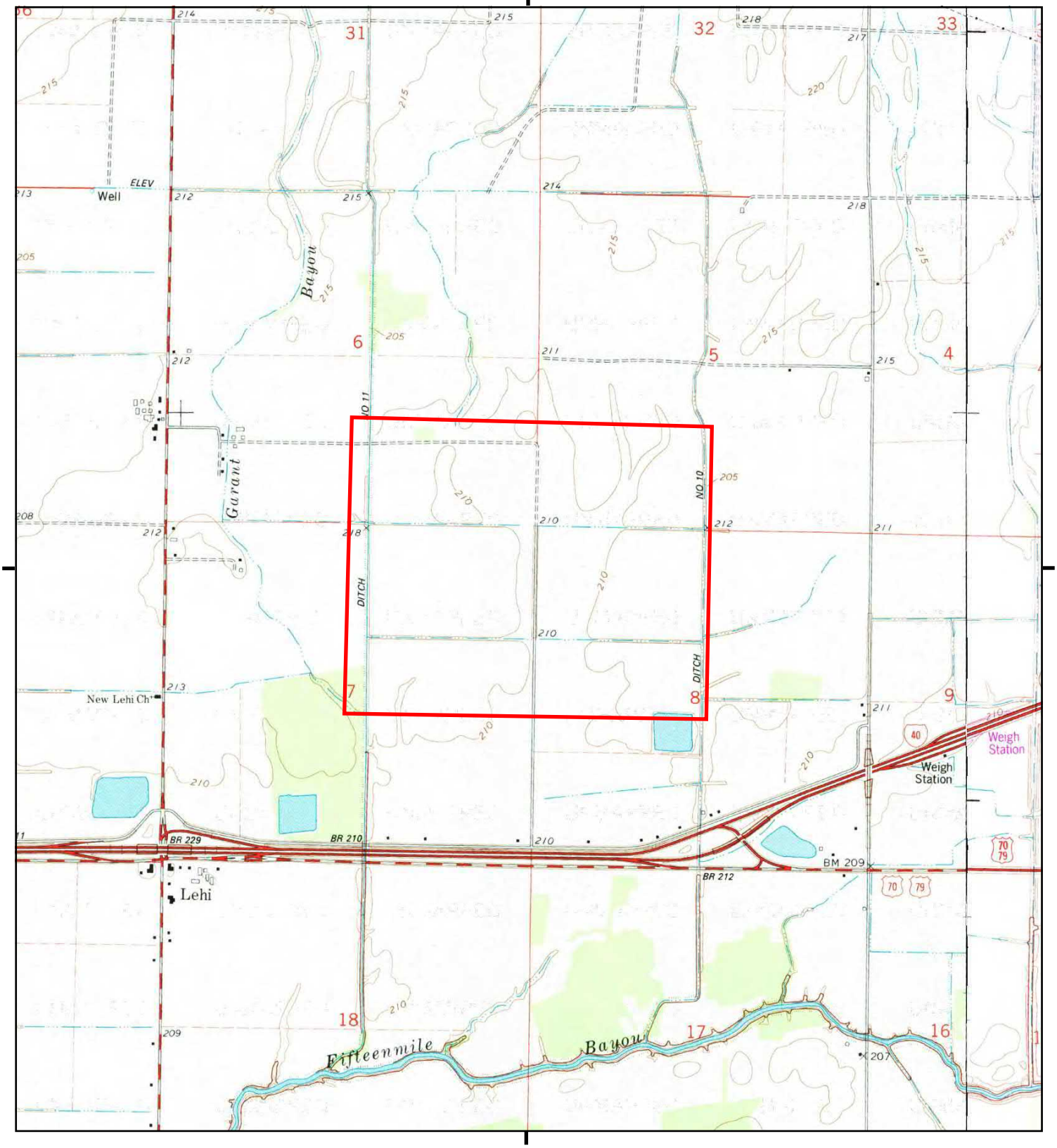
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Crawfordsville, 2014, 7.5-minute
E, West Memphis, 2014, 7.5-minute

SITE NAME: I-40 Megasite
ADDRESS: Interstate 40 and Arkansas State Highway
Marion, AR 72364
CLIENT: AECOM

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

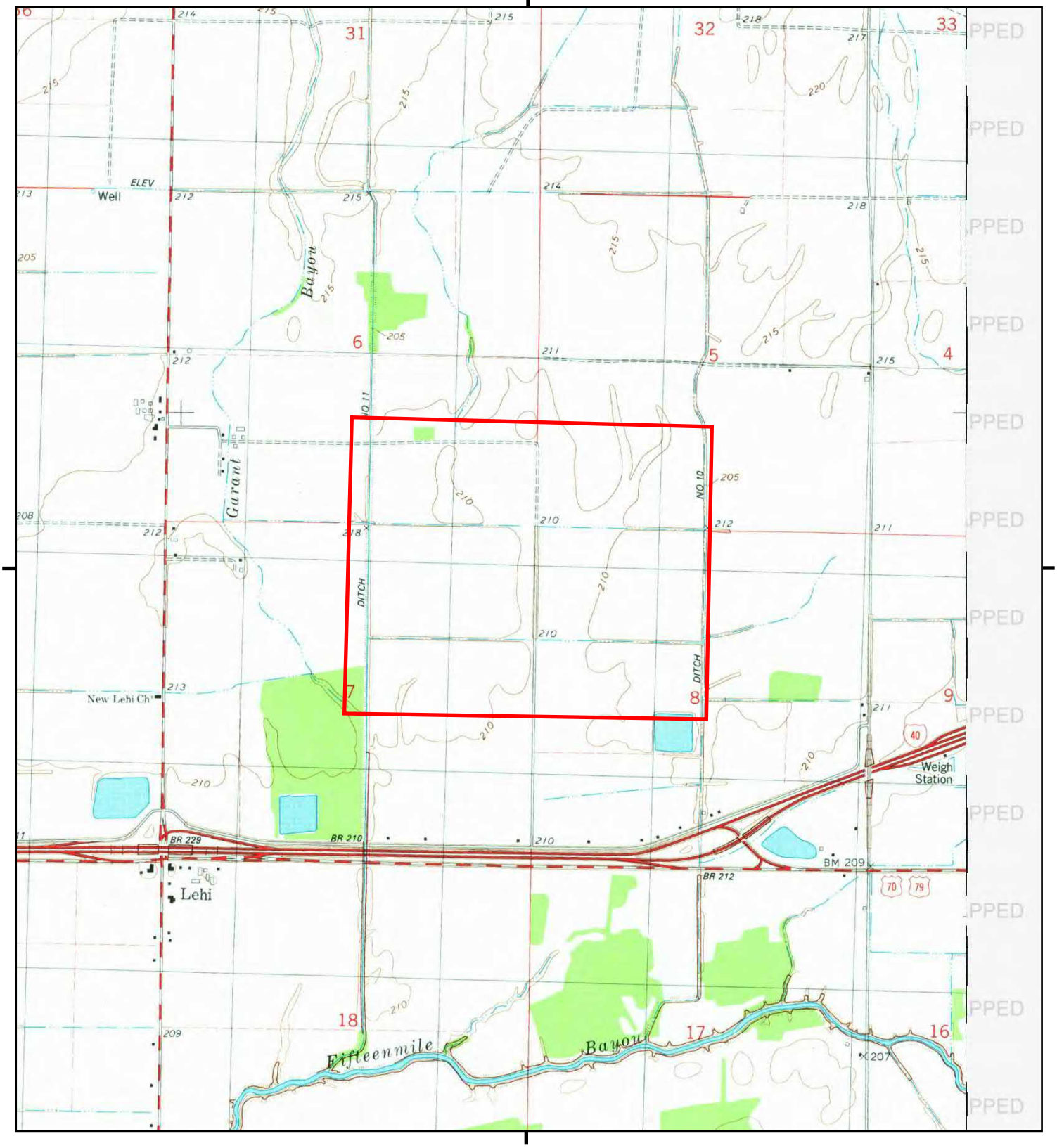
TP, Crawfordsville, 1993, 7.5-minute
E, West Memphis, 1993, 7.5-minute

SITE NAME: I-40 Megasite
ADDRESS: Interstate 40 and Arkansas State Highwa
Marion, AR 72364
CLIENT: AECOM

N

Historical Topo Map

1981



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

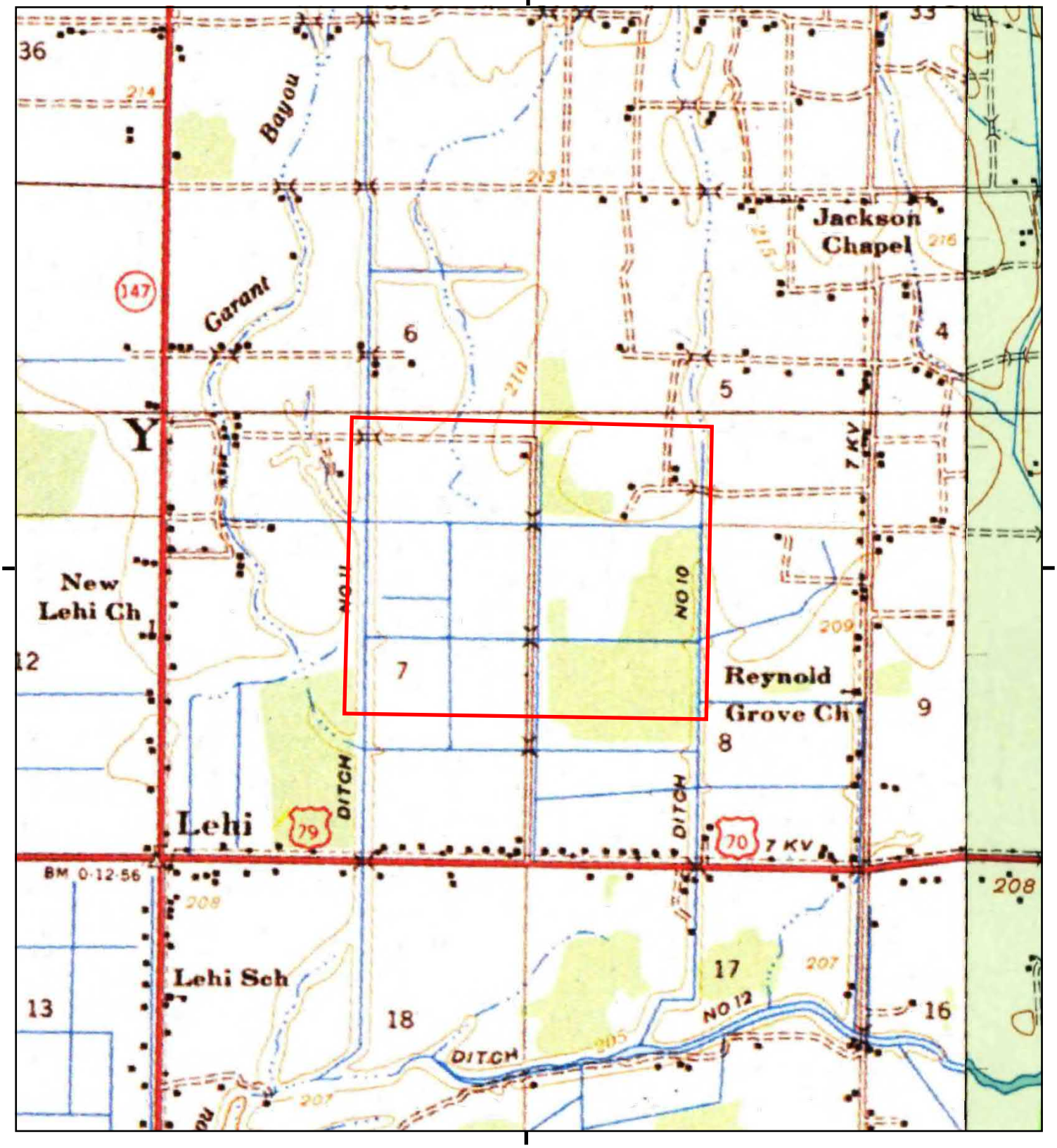
TP, Crawfordsville, 1981, 7.5-minute

SITE NAME: I-40 Megasite
ADDRESS: Interstate 40 and Arkansas State Highway
Marion, AR 72364
CLIENT: AECOM

N

Historical Topo Map

1954, 1955



This report includes information from the following map sheet(s).

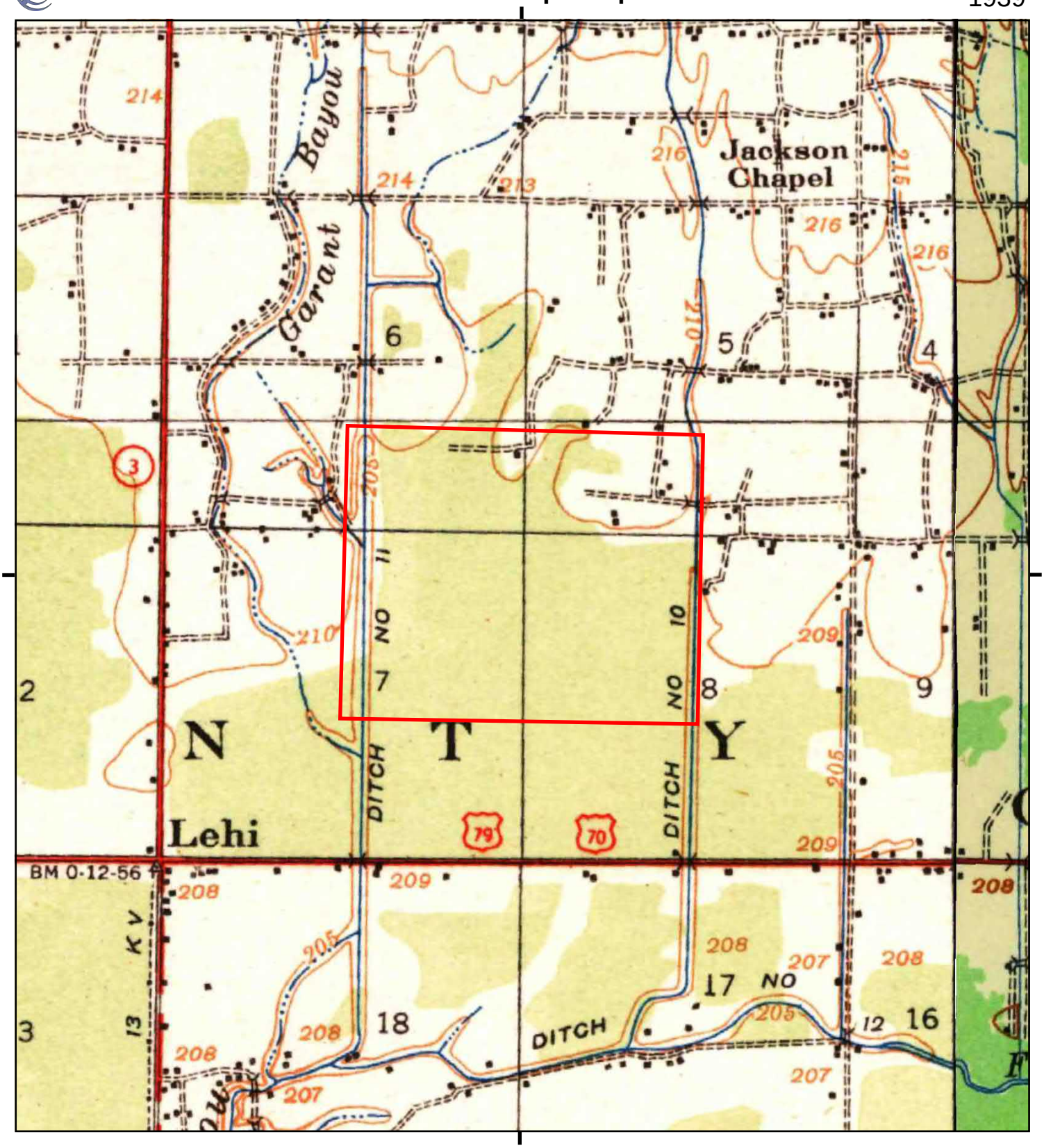
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Edmondson, 1954, 15-minute
E, Memphis, 1955, 15-minute

SITE NAME: I-40 Megasite
ADDRESS: Interstate 40 and Arkansas State Highway
Marion, AR 72364
CLIENT: AECOM

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Edmondson, 1939, 15-minute
E, Memphis, 1939, 15-minute

SITE NAME: I-40 Megasite
ADDRESS: Interstate 40 and Arkansas State Highway
Marion, AR 72364
CLIENT: AECOM

N

Appendix E

SITE PHOTOLOG

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
City of West Memphis	I-40 Mega-site	

Photo No. **001** 04/17/18

Description:

Light industrial facility to the southeast of Mega-site Hydroflo Pumps. Facing north.

Photo No. **002** 04/17/18

Description:

SE corner of the property facing north on Kuhn Road.

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.

Photo No. **003** 04/17/18

Description:

SE corner of property facing west. Wooded area on left is Wetland 1.

Photo No. **004** 04/17/18

Description:

NE corner of property facing NW. Hino Manufacturing Facility north of NE corner of property off of Kuhn Road.

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.

Photo No. 005 04/17/18

Description:

NE corner of property facing SW across ag fields.

Photo No. 006 04/17/18

Description:

North central part of property facing south along Ditch 10. HINO to the left out of picture.

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.

Photo No. **007** 04/17/18

Description:

North central part of property facing south adjacent to Ditch 10 with feul tank for irrigation pump next to access road. Petroleum stained soil next to tank.

Photo No. **008** 04/17/18

Description:

Residential property on southeast end of property off the frontage road. Facing west. Advertising Tomatoes for sale.

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.

Photo No. 009 04/17/18

Description:

Residential property on SE portion of site.

Photo No. 010 04/17/18

Description:

Ditch 11 on south side of property facing north.

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.

Photo No. 011 04/17/18

Description:

Bridge at Ditch 11 facing west along frontage road.

Photo No. 012 04/17/18

Description:

SW corner of property facing north along Highway 147.

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.

Photo No. 013 04/17/18

Description:

Drain 2 on SW corner of property facing east.

Photo No. 014 04/17/18

Description:

Farm house and barn on NW corner of property facing SE.

AECOM

Client Name:	Site Location:

Photo No. 015 04/17/18

Description:

Barn on NW corner of property facing ENE

Photo No. 016 04/17/18

Description:

Circular Irrigation rig with fuel tank and pump located on NW corner of property facing NW.

AECOM

Client Name:	Site Location:

Photo No. 017	04/17/18

Description:

Ditch 11 off of Carlson Road, facing north.

Photo No. 018	04/17/18

Description:

Ditch 11 at Carlson Road facing south.

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.

Photo No. 019 04/17/18

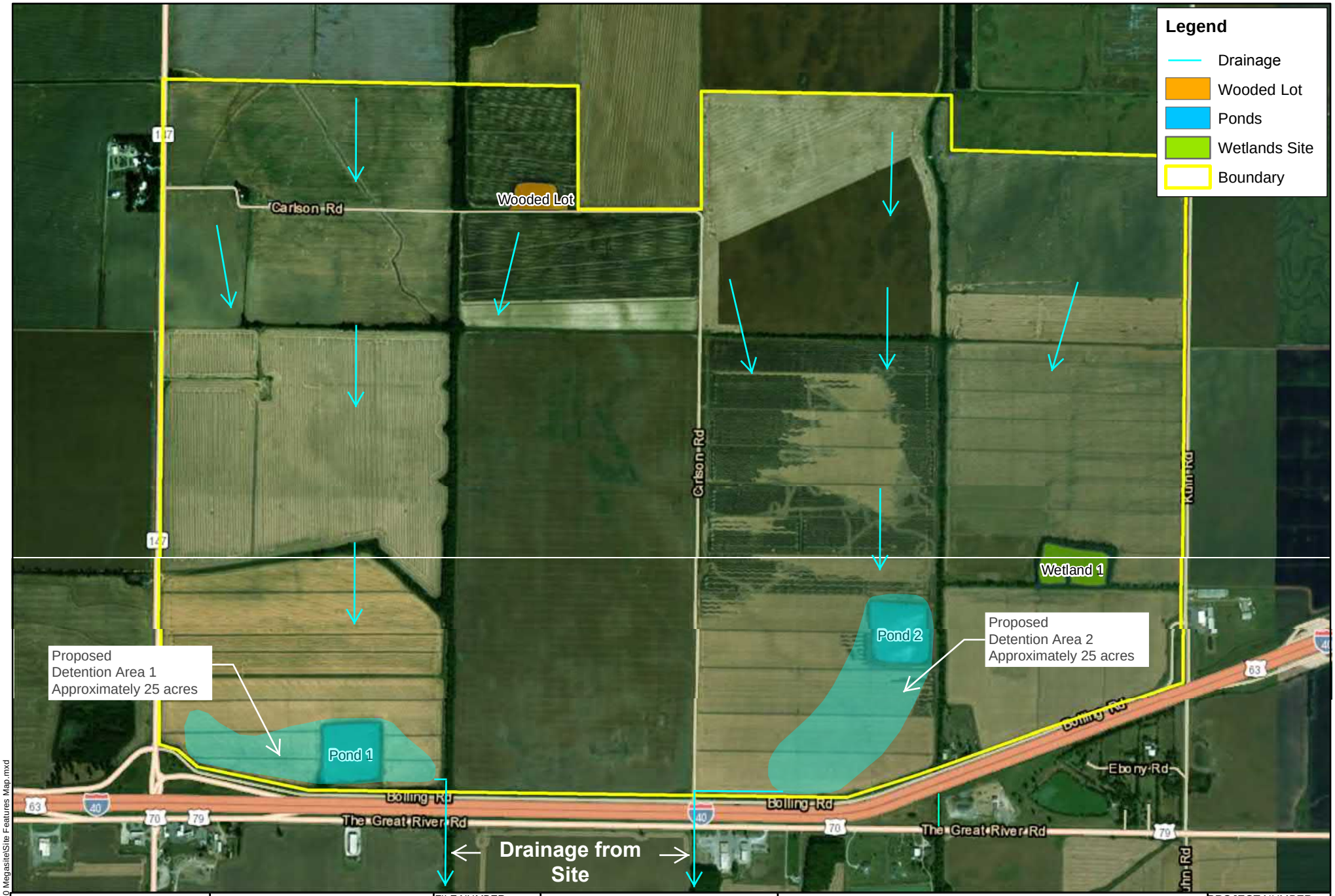
Description:

Old residential dump site where Drain 4 and Ditch meet.

Photo No. 020 04/17/18

Description:

Ditch 11 downstream from dump area. Debris in stream.



Service Layer Credits: Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

N

0 0.125 0.25 0.5
Miles

FILE NUMBER	
DESIGNED BY	MBE
DRAWN BY	MBE
CHECKED BY	

AECOM
1000 Corporate Centre Dr
Suite 250
Franklin, TN 37067

I-40 Mega Site
Drainage and Detention Map

PROJECT NUMBER	60572497
DATE	April, 2018
FIGURE NUMBER	5

T:\GIS\Franklin_Work\Ord\I-40 Megasite\Site Features Map.mxd

Crittenden County I-40 Megasite
Grading and Stormwater Detention Cost Estimate

Affected Area: 5,880' x 7,400' = 1,000 acres
Existing Site Slope – 0-1% (drain north to south)

Scope of Work:

1. Re-routing existing drainage ditches
2. Site grading
3. Stormwater detention basin

Development cost based on the following assumptions:

1.	Building area	2,000,000 sq/ft
2.	Pavement/parking/roads	5,000,000 sq/ft
3.	Detention area required (average depth 3')	2,000,000 sq/ft
4.	Ditch rerouting	8,000 L.F.
5.	Excavated material from detention area will be used for grading and fill material across the site	

Cost estimate:

1.	Detention Excavation and Grading ($220{,}000\ yd^3$ @ $\$6/y^3$)	$1,320,000
2.	Ditch Rerouting (8,000 L.F. @ $20/L.F)	$160,000
	Total	**$1,480,000**

Phillip Sorrell, PE
Director, Economic Development
City of West Memphis, AR
psorrell@citywm.com

Soils Report: **See attachment GT-1 for detail**.

Water Table Depth: Borings were drilled to depths of approximately 30 and 50 feet. Groundwater was encountered in Borings B-3 through B-6 and B-9 through B-13 at approximate depths ranging from 23-29 feet. Groundwater levels might not have stabilized and could vary substantially over time due to the effect of seasonal variation in precipitation, recharge or other factors not evident at the time of exploration.

Seismic Rating: The site lies within the influence of the New Madrid Seismic Zone (NMSZ). It is our understanding that the structure(s) will be designed in accordance with the International Building Code (IBC 2012). Based on the preliminary borings, and per the general procedures of Section 1613.3 of IBC 2012, the seismic site class could be defined· as Class F due to potentially liquefiable soil, as indicated in the following section. Spectral acceleration values must be determined by a site-specific seismic evaluation for Class F sites. However, if the proposed structure(s) will have a fundamental period of vibration equal to or less than 0.5 seconds, or if the estimated dynamic settlement within the upper 50 feet (see the next section) would not substantially destabilize the building to collapse, the site class may be defined as Class D, Stiff Soil, in accordance with IBC 2012.

PRELIMINARY SUBSURFACE EXPLORATION
I-40 MEGASITE
WEST MEMPHIS, ARKANSAS

Prepared for:

CITY OF WEST MEMPHIS
West Memphis, Arkansas

Prepared by:

GEOTECHNOLOGY, INC.
Memphis, Tennessee

Geotechnology Project No. J031019.01

June 1, 2018

GEOTECHNOLOGY INC
FROM THE GROUND UP

J031019.01

June 1, 2018

Mr. Phillip Sorrell, P.E.
City of West Memphis
205 South Redding
West Memphis, Arkansas 72301

PRELIMINARY SUBSURFACE EXPLORATION
I-40 MEGASITE
WEST MEMPHIS, ARKANSAS

Dear Mr. Sorrell:

Enclosed is the report of the preliminary subsurface exploration performed by Geotechnology, Inc. for the referenced project. The report includes our understanding of the project, observed site conditions, preliminary conclusions and/or recommendations, and support data as listed in the Table of Contents.

It has been our pleasure to provide these services to you, and we would welcome the opportunity to provide other services during the course of the project. Please contact us if you need further information or clarification about this document.

Very truly yours,

GEOTECHNOLOGY, INC.

Dale M. Smith, PE
Geotechnical Manager

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17917
Dale M. Smith
6/1/18

John K. Henson, PG
Project Manager

JDM/DMS/JKH:jdm

Copies submitted: (2) Hard copies
(1) PDF copy

PRELIMINARY SUBSURFACE EXPLORATION
I-40 MEGASITE
WEST MEMPHIS, ARKANSAS

TABLE OF CONTENTS

ILLUSTRATIONS

APPENDICES

PRELIMINARY SUBSURFACE EXPLORATION
I-40 MEGASITE
WEST MEMPHIS, ARKANSAS

SECTION I – PROJECT INFORMATION

AUTHORIZATION

The services documented in this report were provided in general accordance with the terms, conditions, and scope of services described in the Geotechnology's Proposal No. P031019.01, dated October 25, 2017. Our services were authorized by West Memphis Mayor William H. Johnson's signed acceptance of our proposal, dated April 6, 2018.

PURPOSE AND SCOPE OF SERVICES

The purpose of our services was to provide a preliminary evaluation of the subsurface conditions in the proposed construction area as defined in the scope of services of the referenced proposal. The services consisted of drilling 13 borings, laboratory testing, engineering analyses and preparation of this report. All recommendations presented within this report are preliminary in nature. An additional, design phase exploration is required to finalize geotechnical design parameters. Important Information prepared by The Geotechnical Business Council (GBC) of the Geoprofessional Business Association for studies of this type is presented in Appendix A for your review.

SITE AND PROJECT DESCRIPTION

The site is located in the northeast quadrant of the intersection of AR-147 and Interstate 40 in West Memphis, Arkansas as shown on Plate 1. The approximately 1,800 acre, rectangular site is relatively flat and currently used for agricultural purposes. Ponds are located beyond the southwest and eastern sides of the property boundary. It is our understanding this preliminary subsurface exploration is required for a due-diligence study for future development.

SECTION II - FIELD EXPLORATION AND LABORATORY TESTING

FIELD EXPLORATION

The field exploration consisted of drilling 13 borings, designated as Borings B-1 through B-13. The approximate locations of the borings are shown on Plate 2. The borings were located by personnel from Geotechnology by referencing existing site features. The client should retain a registered land surveyor to establish boring locations and elevations if more precise data are required.

The borings were drilled to depths of approximately 30 and 50 feet using a rotary drill rig (CME 550X and Diedrich D-50), $3^3/_4$-inch inner diameter hollow stem augers and wash rotary methods in select borings. Standard Penetration Tests (SPT's) were performed using an automatic

hammer. Blow counts, or 'N'-values, were recorded and are presented on the logs. Split-spoon samples and relatively undisturbed Shelby tube samples were obtained in general conformance with applicable ASTM standards at the depths indicated on the boring logs. The collected samples were visually reviewed by the drill crew and transported to the laboratory for further testing and for evaluation by a geotechnical professional from Geotechnology. The boring logs are presented in Appendix B. An explanation of the terms and symbols used on the boring logs is also provided in Appendix B.

The boring logs represent conditions observed at the time of exploration and have been edited to incorporate results of the laboratory test data, as appropriate. Unless noted on the logs, the lines designating the changes between various strata represent approximate boundaries. The transition between materials could be gradual or could occur between recovered samples. The stratification given on the logs, or described herein, is for use by Geotechnology in its analyses and should not be used as the basis of design or construction cost estimates without realizing that there can be variation from that shown or described.

The boring logs and related information depict subsurface conditions only at the specific locations and times where sampling was conducted. The passage of time could result in changes in conditions, interpreted to exist, at or between the locations where sampling was conducted.

LABORATORY TESTING

Soil samples collected from the borings were visually evaluated in the laboratory and subsequently classified in general accordance with the Unified Soil Classification System (USCS; ASTM D 2487 and D 2488).

Laboratory tests were performed on select soil samples to evaluate engineering and index properties. The testing consisted of moisture contents, Atterberg limits, grain size (sieve) analyses and unconsolidated-undrained triaxial compression (UU) tests. Most of the laboratory test results are presented on the boring logs in Appendix B. The Atterberg limits and UU test results are also included in Appendix C. The laboratory test and corresponding test method standard used are presented in the following table.

SUMMARY OF LABORATORY TESTS AND METHODS	
Laboratory Test	**Test Method**
Moisture Content	ASTM D 2216
Atterberg Limits	ASTM D 4318
Grain Size Analysis	ASTM D 422
Unconsolidated-Undrained Triaxial Compression	ASTM D 2850

SECTION III – GENERAL SUBSURFACE CONDITIONS

STRATIGRAPHY

The stratigraphy generally consisted of fine-grained soils that extend to approximate depths in the range of 28 to 33 feet or to the maximum depth of exploration (30 feet). The fine-grained soils in Borings B-2, B-7, B-8, B-10, and B-11 were underlain by coarse-grained soil to the depth of boring termination (30 to 50 feet).

The fine-grained strata were classified as lean clay, sandy lean clay (CL), silt, sandy silt (ML), and fat clay (CH). The sandy silt and sandy lean clay layers were predominantly encountered between approximate depths of 13 and 33 feet.

The coarse-grained soil was classified as sand (SP), silty sand (SM), and clayey sand (SC). The moisture contents of the tested samples ranged from approximately 15 to 55 percent. The liquid limits (LL) and plasticity indices (PI) of the tested samples ranged from 46 to 94 percent and 21 to 62 percent, respectively. The SPT N-values ranged from 2 blows per foot (bpf) to 13 bpf in the fine-grained soils and 6 bpf to 30 bpf in coarse-grained soils. The UU tests on relatively undisturbed samples yielded undrained shear strengths ranging from 900 to 1,880 pounds per square foot (psf). The results of the field and laboratory tests indicated soft to stiff consistencies in the fine-grained soils and loose to medium dense conditions in the coarse-grained soil.

GROUNDWATER

Groundwater was encountered in Borings B-3 through B-6 and B-9 through B-13 at approximate depths ranging from 23 to 29 feet. Groundwater levels might not have stabilized and could vary substantially over time due to the effects of seasonal variation in precipitation, recharge or other factors not evident at the time of exploration.

SECTION IV – PRELIMINARY DESIGN CONSIDERATIONS AND RECOMMENDATIONS

DESIGN SEISMIC INFORMATION

The site lies within the influence of the New Madrid Seismic Zone (NMSZ). It is our understanding that the structure(s) will be designed in accordance with the International Building Code (IBC 2012). Based on the preliminary borings, and per the general procedures of Section 1613.3 of IBC 2012, the seismic site class could be defined as Class F due to potentially liquefiable soil, as indicated in the following section. Spectral acceleration values must be determined by a site-specific seismic evaluation for Class F sites. However, if the proposed structure(s) will have a fundamental period of vibration equal to or less than 0.5 seconds, or if the estimated dynamic settlement within the upper 50 feet (see the next section) would not

substantially destabilize the building to collapse, the site class may be defined as Class D, Stiff Soil, in accordance with IBC 2012.

MAPPED DESIGN ACCELERATIONS			
EVENT	Peak Ground Acceleration	Short Period Acceleration (S_{DS})	1.0-Second Acceleration (S_{D1})
2% PE* in 50 Years	0.658g	0.827g	0.452g

*Probability of Exceedance

LIQUEFACTION AND DYNAMIC SETTLEMENT

A preliminary study was performed to determine the liquefaction and dynamic settlement potential at the site. Both field and laboratory data were used to perform the analysis. The field measurements include the depth of the water table and the SPT "N" values corrected for hammer efficiency. The laboratory data included USCS soil classification, soil unit weight and percent fines of soil samples obtained from various strata. An earthquake magnitude (M_w) of 7.7 (probability of exceedance of 2% in 50 years, or 2,500-year return interval) was considered. A corresponding peak ground acceleration of 0.658g was determined using information provided in IBC 2012 and ASCE 7-10. For this analysis, groundwater was assumed to be at a depth of approximately 28 feet.

Subsurface conditions (as characterized by the field and laboratory data) and earthquake characteristics were used to determine the safety factors against liquefaction in each soil layer, as well as the associated dynamic settlement during the design seismic event. The analysis results are presented in the following table. Please note that these settlement values are independent of and in addition to the static settlement resulting from structural loading.

Results of Liquefaction Analysis		
Boring	**Zones with Liquefaction Factor of Safety Less Than 1.0**	**Estimated Dynamic Settlement (in)**
B-7	33.5 to 50 feet	¼

Please note the presence of approximately 28 feet thick layer of fine-grained soil above the liquefiable soil may act as a cap and reduce the impact of the liquefiable soil. An additional, design-phase, subsurface exploration by means of deep borings or cone penetration soundings will be required to better define the liquefiable soil potential.

HIGH PLASTICITY CLAY

High plasticity soil was encountered near the ground surface to approximate depths ranging from 23 to 30 feet in Borings B-1 through B-2 and B-4 through B-13. High plasticity

clays are potentially expansive. Pavement, floor slabs, and lightly loaded structural features supported on high plasticity, potentially expansive clays can undergo heaving and distress unless these soils are mitigated. Removing and replacing the potentially expansive soil with a low plasticity material or other approved materials can be effective in reducing the swell potential by providing a buffer zone above the high plasticity clay. We recommend the following:

- 4 feet below foundation bearing level
- 3 feet below floor-slab subgrade
- 2 feet below pavement subgrade

The soil comprising the buffer zone should consist of natural soils classifying as lean clay, silty sand, or clayey sand (CL, SM, or SC), have a maximum LL of 45, and a PI of not more than 20.

PRELIMINARY FOUNDATION RECOMMENDATIONS

Shallow Foundations. Structures may be supported on a conventional shallow foundation system bearing on new, properly compacted fill or stable existing natural soils. Preliminary design of spread and strip footings can be based on net allowable bearing pressures of 2,500 and 2,000 pounds per square foot (psf), respectively. Settlement analyses can be provided once a design-phase subsurface exploration is performed.

Ground Improvement. Ground improvement techniques may be utilized to facilitate the use of shallow foundation systems bearing in existing soils, while limiting the settlement to tolerable values. Such techniques can generally be used to increase bearing capacities while controlling settlement. Specialty contractors can design and install these systems using the subsurface exploration data and specific details of column loads and layouts for the structures.

SECTION V – LIMITATIONS OF PRELIMINARY REPORT

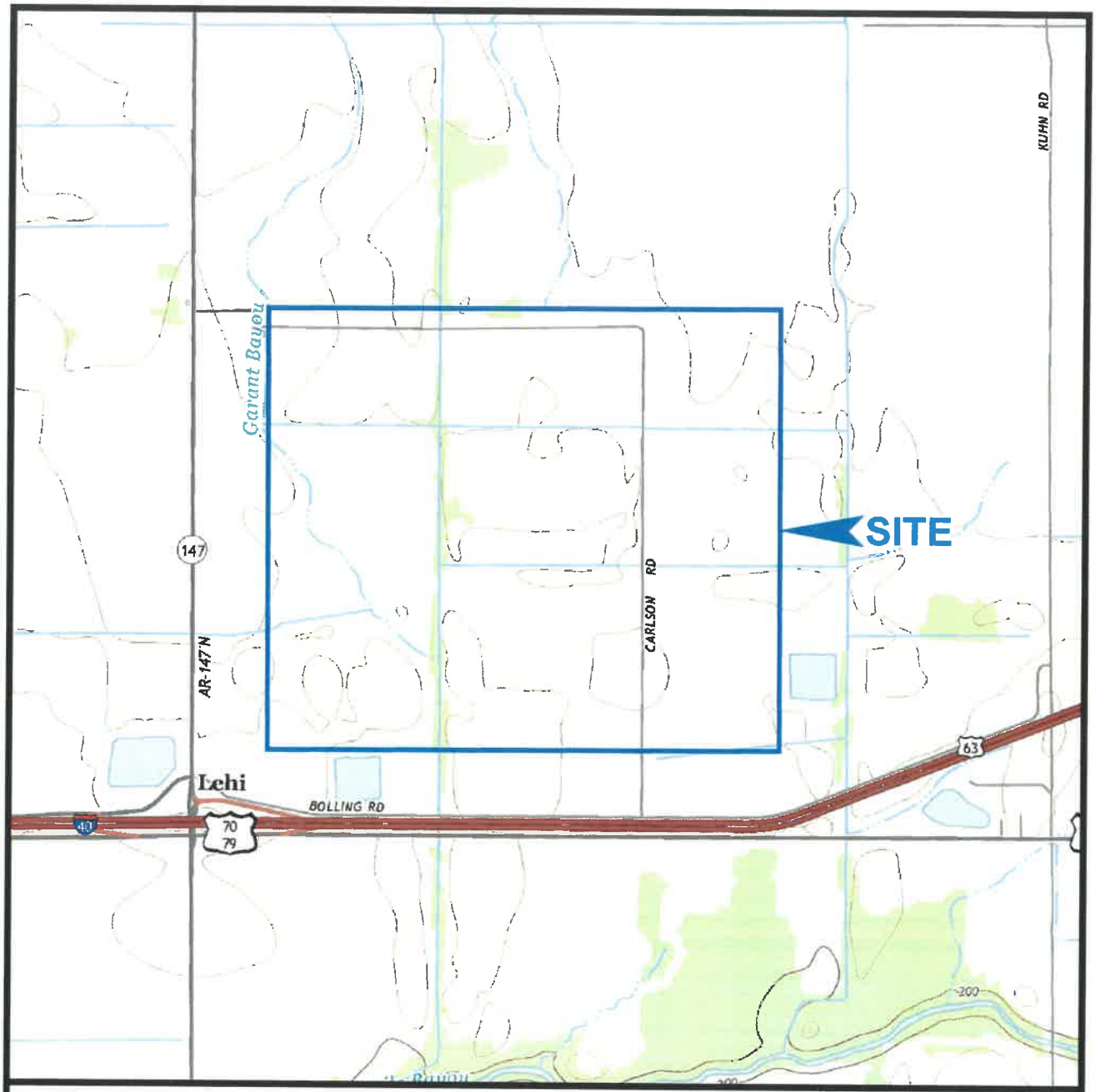
This preliminary report has been prepared on behalf of and for the exclusive use of the client for specific application to the named project as described herein. It is preliminary in nature and should not be used for purposes of design or construction.

Geotechnology has attempted to conduct the services reported herein in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality and under similar conditions. The preliminary recommendations and conclusions contained in this report are professional opinions.

Unless specifically stated in our proposal or this report, the scope of our services for this phase of the project did not include any environmental assessment or investigation for the presence

or absence of wetlands or hazardous or toxic material in the soil, surface water, groundwater, or air, on or below or around this site. Any statements in this report or on the boring logs regarding odors noted or unusual or suspicious items or conditions observed are strictly for the information of our client. Our scope did not include: any services to investigate or detect the presence of mold or any other biological contaminants (such as spores, fungus, bacteria, viruses, and the by-products of such organisms) on and around the site; or any services, designed or intended, to prevent or lower the risk of the occurrence of an infestation of mold or other biological contaminants.

The analyses, conclusions, and recommendations contained in this report are preliminary. Additional exploration is required to develop recommendations for specific types of structures and pavements.



NOTES

1. Plan adapted from a 7.5 minute U.S.G.S. map for Crawfordsville, Arkansas quadrangle last revised in 2014.

0 2,000 4,000

SCALE IN FEET

N

Drawn By: WAH	Ck'd By:	App'vd By:
Date: 6-1-18	Date:	Date:

GEOTECHNOLOGY INC
FROM THE GROUND UP

I-40 Megasite
West Memphis, Arkansas

SITE LOCATION AND TOPOGRAPHY

Project Number J031019.01

PLATE 1

NOTES

1. Plan adapted from a March 14, 2018 aerial photograph courtesy of Google Earth.
2. Borings were located in the field with reference to site features and are shown approximate only.

LEGEND

● Boring Location

0 400 800 1,600

SCALE IN FEET

N

Drawn By: WAH	Ck'd By:	App'vd By:
Date: 6-1-18	Date:	Date:

GEOTECHNOLOGY INC
FROM THE GROUND UP

I-40 Megasite
West Memphis, Arkansas

AERIAL PHOTOGRAPH OF SITE AND BORING LOCATIONS

Project Number J031019.01

PLATE 2

APPENDIX A

IMPORTANT INFORMATION ABOUT THIS GEOTECHNICAL-ENGINEERING REPORT

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical- engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply this report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by:* the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly

problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold- prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical- engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you GBC-Member geotechnical engineer for more information.

GEOTECHNICAL BUSINESS COUNCIL
of the Geoprofessional Business Association

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@geoprofessional.org www.geoprofessional.org

APPENDIX B

BORING LOGS: B-1 THROUGH B-13
BORING LOG: TERMS AND SYMBOLS

Surface Elevation: _____ Completion Date: 5/15/18

Datum MSL

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	SAMPLES
	TOPSOIL: 12 inches of brown silt.			
	Medium stiff, tan SILT, trace roots and organics - ML		3-3-4	SS1
5	Medium stiff to stiff, gray and tan to brown and gray, FAT CLAY - CH trace organics trace organics		2-3-4	SS2
			1-3-4	SS3
10			3-4-7	SS4
15	Medium stiff, brown and gray, sandy, LEAN CLAY - CLS		2-3-4	SS5
20	Soft, gray, LEAN CLAY - CL		2-1-1	SS6
25	Soft, gray, FAT CLAY - CH		1-1-2	SS7
30	Soft, gray, LEAN CLAY - CL		1-2-1	SS8
	Boring terminated at 30 feet.			
35				
40				
45				
50				

SHEAR STRENGTH, tsf

Δ - UU/2 O - QU/2 □ - SV

0.5 1.0 1.5 2.0 2.5

STANDARD PENETRATION RESISTANCE

(ASTM D 1586)

▲ N-VALUE (BLOWS PER FOOT)

WATER CONTENT, %

PL 10 20 30 40 50 LL

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

GROUNDWATER DATA

X FREE WATER NOT ENCOUNTERED DURING DRILLING

DRILLING DATA

___ AUGER 3 3/4 HOLLOW STEM

WASHBORING FROM ___ FEET

CAF DRILLER TJB LOGGER

CME 550X DRILL RIG

HAMMER TYPE Auto

HAMMER EFFICIENCY 90 %

REMARKS:

Drawn by: JDM	Checked by:	App'vd. by:
Date: 5/17/18	Date:	Date:

GEOTECHNOLOGY INC

FROM THE GROUND UP

I-40 Megasite
West Memphis, Arkansas

LOG OF BORING: B- 1

Project No. J031019.01

LOG OF BORING 2002 WL J031019.01.GPJ GTINC.0638301.GPJ 6/1/18

Surface Elevation: _____ Completion Date: 5/15/18

Datum MSL

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	SAMPLES
	TOPSOIL: 12 inches of brown silt.			
	Stiff to medium stiff, brown and gray to gray, FAT CLAY - (CH)		2-3-5	SS1
5			4-4-6	SS2
			95	ST3
10			3-3-4	SS4
			4-3-3	SS5
15			3-3-5	SS6
20			2-3-5	SS7
25			5-4-4	SS8
30	Loose, dark gray, silty SAND - SM Boring terminated at 30 feet.			
35				
40				
45				
50				

SHEAR STRENGTH, tsf

Δ - UU/2 O - QU/2 □ - SV

0.5 1.0 1.5 2.0 2.5

STANDARD PENETRATION RESISTANCE

(ASTM D 1586)

▲ N-VALUE (BLOWS PER FOOT)

WATER CONTENT, %

PL 10 20 30 40 50 LL

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

GROUNDWATER DATA

X FREE WATER NOT ENCOUNTERED DURING DRILLING

DRILLING DATA

___ AUGER 3 3/4 HOLLOW STEM

WASHBORING FROM ___ FEET

MMH DRILLER JAJ LOGGER

Diedrich D-50 DRILL RIG

HAMMER TYPE Auto

HAMMER EFFICIENCY 73 %

REMARKS:

Drawn by: JDM	Checked by:	App'vd. by:
Date: 5/17/18	Date:	Date:

GEOTECHNOLOGY INC
FROM THE GROUND UP

I-40 Megasite
West Memphis, Arkansas

LOG OF BORING: B- 2

Project No. J031019.01

LOG OF BORING 2002 WL J031019.01.GPJ GTINC 0638301.GPJ 6/1/18

Surface Elevation: _____ Completion Date: 5/15/18

Datum MSL

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	SAMPLES
	TOPSOIL: 12 inches of brown silt.			
	Stiff, brown and gray, FAT CLAY - CH		3-5-5	*SS1
5			5-4-5	*SS2
			4-4-6	SS3
	Stiff to medium stiff, brown to gray, LEAN CLAY - CL		5-5-5	SS4
10				
			3-3-5	SS5
15				
	Medium stiff to soft, brown to gray, sandy, LEAN CLAY - CL		5-4-4	SS6
20				
		▽	6-6-7	SS7
25				
			2-1-2	SS8
30	Boring terminated at 30 feet.			
35				
40				
45				
50				

SHEAR STRENGTH, tsf

Δ - UU/2 ○ - QU/2 □ - SV

0.5 1.0 1.5 2.0 2.5

STANDARD PENETRATION RESISTANCE

(ASTM D 1586)

▲ N-VALUE (BLOWS PER FOOT)

WATER CONTENT, %

PL 10 20 30 40 50 LL

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

GROUNDWATER DATA

ENCOUNTERED AT 25 FEET ▽

DRILLING DATA

__ AUGER 3 3/4 HOLLOW STEM

WASHBORING FROM __ FEET

MMH DRILLER JAJ LOGGER

Diedrich D-50 DRILL RIG

HAMMER TYPE Auto

HAMMER EFFICIENCY 73 %

REMARKS:

Drawn by: JDM	Checked by:	App'vd. by:
Date: 5/17/18	Date:	Date:

GEOTECHNOLOGY INC
FROM THE GROUND UP

I-40 Megasite
West Memphis, Arkansas

LOG OF BORING: B- 3

Project No. J031019.01

LOG OF BORING 2002 WL J031019.01.GPJ GTINC 0638301.GPJ 6/1/18

Surface Elevation: _____ Completion Date: 5/14/18

Datum MSL

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	SAMPLES
	TOPSOIL: 12 inches of brown silt.			
	Medium stiff, tan, LEAN CLAY, trace roots and organics - CL		2-2-3	SS1
5	Medium stiff, gray and brown, FAT CLAY - (CH)		1-2-3	SS2
			2-2-3	SS3
10			2-2-3	SS4
15	Soft, brown and gray, sandy, FAT CLAY - CH		2-2-2	SS5
20	Soft, gray, LEAN CLAY, trace organics - CL		1-1-1	SS6
25	Soft, gray, FAT CLAY - CH		1-2-2	SS7
30	Boring terminated at 30 feet.		2-2-2	SS8
35				
40				
45				
50				

SHEAR STRENGTH, tsf

Δ - UU/2 ○ - QU/2 □ - SV

0.5 1.0 1.5 2.0 2.5

STANDARD PENETRATION RESISTANCE

(ASTM D 1586)

▲ N-VALUE (BLOWS PER FOOT)

WATER CONTENT, %

PL 10 20 30 40 50 LL

94 >>

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

GROUNDWATER DATA

ENCOUNTERED AT 29 FEET ▽

DRILLING DATA

___ AUGER 3 3/4 HOLLOW STEM

WASHBORING FROM ___ FEET

CAF DRILLER TJB LOGGER

CME 550X DRILL RIG

HAMMER TYPE Auto

HAMMER EFFICIENCY 90 %

REMARKS:

Drawn by: JDM	Checked by:	App'vd. by:
Date: 5/17/18	Date:	Date:

GEOTECHNOLOGY INC
FROM THE GROUND UP

I-40 Megasite
West Memphis, Arkansas

LOG OF BORING: B- 4

Project No. J031019.01

LOG OF BORING 2002 WL J031019.01.GPJ GTINC 0638301.GPJ 6/1/18

Surface Elevation: _____ Completion Date: 5/14/18

Datum MSL

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	SAMPLES
	TOPSOIL: 12 inches of brown silt.			
	Soft to medium stiff, brown and gray, FAT CLAY - CH		2-2-2	SS1
5			3-2-3	SS2
	Medium stiff to stiff, brown and gray to gray, LEAN CLAY - CL		3-4-4	SS3
10			4-5-6	SS4
15			4-5-5	SS5
20	Medium stiff, gray, sandy, LEAN CLAY - CL		6-4-4	SS6
25	Medium stiff, dark gray, FAT CLAY, trace sand - CH ▽		3-3-3	SS7
30	Stiff, dark gray, sandy, FAT CLAY - CH		4-4-5	SS8
	Boring terminated at 30 feet.			
35				
40				
45				
50				

SHEAR STRENGTH, tsf

Δ - UU/2 ○ - QU/2 □ - SV

0.5 1.0 1.5 2.0 2.5

STANDARD PENETRATION RESISTANCE

(ASTM D 1586)

▲ N-VALUE (BLOWS PER FOOT)

WATER CONTENT, %

PL 10 20 30 40 50 LL

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

GROUNDWATER DATA

ENCOUNTERED AT 27 FEET ▽

DRILLING DATA

___ AUGER 3 3/4 HOLLOW STEM

WASHBORING FROM ___ FEET

HJW DRILLER JAJ LOGGER

Diedrich D-50 DRILL RIG

HAMMER TYPE Auto

HAMMER EFFICIENCY 73 %

REMARKS:

Drawn by: JDM	Checked by:	App'vd. by:
Date: 5/17/18	Date:	Date:

GEOTECHNOLOGY INC
FROM THE GROUND UP

I-40 Megasite
West Memphis, Arkansas

LOG OF BORING: B- 5

Project No. J031019.01

LOG OF BORING 2002 WL J031019.01.GPJ GTINC.0633301.GPJ 6/1/18

Surface Elevation: _____ Completion Date: 5/14/18

Datum MSL

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	SAMPLES
	TOPSOIL: 12 inches of brown silt.			
	Medium stiff, tan, LEAN CLAY, trace roots and organics - CL		1-2-3	SS1
	Stiff to soft, tan to brown and gray, FAT CLAY - CH		2-2-4	SS2
5			2-4-5	SS3
			2-3-4	SS4
10				
			2-2-2	SS5
15				
	trace organics		1-1-2	SS6
20				
			1-2-1	SS7
25		▽		
			1-1-1	SS8
30	Boring terminated at 30 feet.			
35				
40				
45				
50				

SHEAR STRENGTH, tsf

Δ - UU/2 O - QU/2 □ - SV

0.5 1.0 1.5 2.0 2.5

STANDARD PENETRATION RESISTANCE

(ASTM D 1586)

▲ N-VALUE (BLOWS PER FOOT)

WATER CONTENT, %

PL 10 20 30 40 50 LL

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

GROUNDWATER DATA

ENCOUNTERED AT 28.5 FEET ▽

DRILLING DATA

___ AUGER 3 3/4 HOLLOW STEM

WASHBORING FROM ___ FEET

CAF DRILLER TJB LOGGER

CME 550X DRILL RIG

HAMMER TYPE Auto

HAMMER EFFICIENCY 90 %

REMARKS:

Drawn by: JDM	Checked by:	App'vd. by:
Date: 5/17/18	Date:	Date:

GEOTECHNOLOGY INC
FROM THE GROUND UP

I-40 Megasite
West Memphis, Arkansas

LOG OF BORING: B- 6

Project No. J031019.01

LOG OF BORING 2002 WL J031019.01.GPJ GTINC 0638301.GPJ 6/1/18

Surface Elevation: _____ Completion Date: 5/15/18

Datum MSL

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	SAMPLES
	TOPSOIL: 12 inches of brown silt.			
	Medium stiff to stiff, brown to gray and brown, FAT CLAY - CH trace silt and organics trace sand		1-2-3	SS1
5			2-3-4	SS2
			2-3-5	SS3
10			3-5-6	SS4
	Medium stiff, gray and brown, sandy, FAT CLAY - CH		2-2-3	SS5
15				
	Soft to medium stiff, gray and brown, FAT CLAY - (CH) little sand		1-1-2	SS6
20				
	trace sand		1-2-3	SS7
25				
	Soft, gray, sandy, LEAN CLAY - CL		1-1-2	SS8
30				
	Medium dense, gray and white to gray and black, CLAYEY SAND - (SC)		7-10-10	SS9
35				
			7-14-16	SS10
40				
			10-13-17	SS11
45				
	Medium dense, gray SAND - (SP)		11-10-14	SS12
50	Boring terminated at 50 feet.			

SHEAR STRENGTH, tsf

Δ - UU/2 O - QU/2 □ - SV

0.5 1.0 1.5 2.0 2.5

STANDARD PENETRATION RESISTANCE

(ASTM D 1586)

▲ N-VALUE (BLOWS PER FOOT)

WATER CONTENT, %

PL 10 20 30 40 50 LL

60

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

GROUNDWATER DATA

X FREE WATER NOT ENCOUNTERED DURING DRILLING

DRILLING DATA

___ AUGER 3 3/4 HOLLOW STEM

WASHBORING FROM 10 FEET

HJW DRILLER TJB LOGGER

Diedrich D-50 DRILL RIG

HAMMER TYPE Auto

HAMMER EFFICIENCY 73 %

REMARKS:

Drawn by: JDM	Checked by:	App'vd. by:
Date: 5/17/18	Date:	Date:

GEOTECHNOLOGY INC
FROM THE GROUND UP

I-40 Megasite
West Memphis, Arkansas

LOG OF BORING: B- 7

Project No. J031019.01

LOG OF BORING 2002 WL J031019.01.GPJ GTINC 0638301.GPJ 6/1/18

Surface Elevation: _____ Completion Date: 5/14/18

Datum MSL

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	SAMPLES
	TOPSOIL: 12 inches of brown silt.			
	Stiff, brown to gray, FAT CLAY - (CH)		89	ST1
5			4-5-7	SS2
			4-6-6	SS3
	Stiff to soft, brown and gray to gray, LEAN CLAY - CL		3-4-5	SS4
10				
			2-3-4	SS5
15				
			2-2-1	SS6
20				
	Soft, gray, FAT CLAY - CH		3-2-2	SS7
25				
	Loose, dark gray SAND, trace clay - SP		3-4-3	SS8
30	Boring terminated at 30 feet.			
35				
40				
45				
50				

SHEAR STRENGTH, tsf

Δ - UU/2 O - QU/2 □ - SV

0.5 1.0 1.5 2.0 2.5

STANDARD PENETRATION RESISTANCE

(ASTM D 1586)

▲ N-VALUE (BLOWS PER FOOT)

WATER CONTENT, %

PL 10 20 30 40 50 LL

90 >>

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

GROUNDWATER DATA

X FREE WATER NOT ENCOUNTERED DURING DRILLING

DRILLING DATA

__ AUGER 3 3/4 HOLLOW STEM

WASHBORING FROM __ FEET

HJW DRILLER JAJ LOGGER

Diedrich D-50 DRILL RIG

HAMMER TYPE Auto

HAMMER EFFICIENCY 73 %

REMARKS:

Drawn by: JDM	Checked by:	App'vd. by:
Date: 5/17/18	Date:	Date:

GEOTECHNOLOGY INC
FROM THE GROUND UP

I-40 Megasite
West Memphis, Arkansas

LOG OF BORING: B- 8

Project No. J031019.01

LOG OF BORING 2002 WL J031019.01.GPJ GTINC.0638301.GPJ 6/1/18

Surface Elevation: _____ Completion Date: 5/12/18

Datum MSL

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	SAMPLES
	Medium stiff, brown and gray, FAT CLAY - CH			
	trace sand		3-3-4	SS1
	trace roots and sand		3-4-4	SS2
5				
	Medium stiff, brown and gray, LEAN CLAY - CL		2-2-3	SS3
	Medium stiff to soft, brown and gray, FAT CLAY - CH		3-3-3	SS4
10	little sand, trace organics			
				ST5
15				
	trace sand		0-1-1	SS6
20				
	Soft, gray SILT, little sand ▽		0-1-2	SS7
25				
	Medium stiff, gray, FAT CLAY - CH		1-2-3	SS8
30	Boring terminated at 30 feet.			
35				
40				
45				
50				

SHEAR STRENGTH, tsf

Δ - UU/2 O - QU/2 □ - SV

0.5 1.0 1.5 2.0 2.5

STANDARD PENETRATION RESISTANCE

(ASTM D 1586)

▲ N-VALUE (BLOWS PER FOOT)

WATER CONTENT, %

PL 10 20 30 40 50 LL

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

GROUNDWATER DATA

ENCOUNTERED AT 25 FEET ▽

DRILLING DATA

___ AUGER 3 3/4 HOLLOW STEM

WASHBORING FROM ___ FEET

MMH DRILLER JAJ LOGGER

Diedrich D-50 DRILL RIG

HAMMER TYPE Auto

HAMMER EFFICIENCY 73 %

REMARKS:

Drawn by: ABM	Checked by:	App'vd. by:
Date: 5/14/18	Date:	Date:

GEOTECHNOLOGY INC
FROM THE GROUND UP

I-40 Megasite
West Memphis, Arkansas

LOG OF BORING: B- 9

Project No. J031019.01

LOG OF BORING 2002 WL J031019.01.GPJ GTINC 0638301.GPJ 6/1/18

Surface Elevation: _____ Completion Date: 5/12/18

Datum MSL

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	SAMPLES
	Stiff to medium stiff, brown and gray, FAT CLAY - (CH)		3-4-5	SS1
5			2-4-5	SS2
			2-2-4	SS3
10	Medium stiff to soft, brown and gray, LEAN CLAY, little sand - CL		2-2-3	SS4
15			2-2-1	SS5
20	Soft, gray, sandy SILT, trace wood and gravel - ML ▽		2-2-1	SS6
25	Soft, gray, FAT CLAY - CH		2-2-2	SS7
30	Medium dense, gray, CLAYEY SAND - SC		1-5-6	SS8
	Boring terminated at 30 feet.			
35				
40				
45				
50				

SHEAR STRENGTH, tsf

Δ - UU/2 ○ - QU/2 □ - SV

0.5 1.0 1.5 2.0 2.5

STANDARD PENETRATION RESISTANCE

(ASTM D 1586)

▲ N-VALUE (BLOWS PER FOOT)

WATER CONTENT, %

PL 10 20 30 40 50 LL

88 >>

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

GROUNDWATER DATA

ENCOUNTERED AT 23 FEET ▽

DRILLING DATA

___ AUGER 3 3/4 HOLLOW STEM

WASHBORING FROM ___ FEET

MMH DRILLER JAJ LOGGER

Diedrich D-50 DRILL RIG

HAMMER TYPE Auto

HAMMER EFFICIENCY 73 %

REMARKS:

Drawn by: ABM	Checked by:	App'vd. by:
Date: 5/14/18	Date:	Date:

GEOTECHNOLOGY INC
FROM THE GROUND UP

I-40 Megasite
West Memphis, Arkansas

LOG OF BORING: B-10

Project No. J031019.01

LOG OF BORING 2002 WL J031019.01.GPJ GTINC 0638301.GPJ 6/1/18

Surface Elevation: _____ Completion Date: 5/15/18

Datum MSL

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	SAMPLES
	TOPSOIL: 12 inches of brown silt.			
	Stiff, brown, FAT CLAY, trace roots and organics - CH		2-5-8	SS1
5	Stiff, brown and gray, LEAN CLAY - CL		2-4-5	SS2
	Medium stiff to soft, brown and gray to gray, FAT CLAY - CH		2-3-4	SS3
10			1-3-3	SS4
15			1-2-1	SS5
20			1-2-2	SS6
25			2-2-3	SS7
30			1-2-2	SS8
	Boring terminated at 30 feet.			
35				
40				
45				
50				

SHEAR STRENGTH, tsf

Δ - UU/2 O - QU/2 □ - SV

0.5 1.0 1.5 2.0 2.5

STANDARD PENETRATION RESISTANCE

(ASTM D 1586)

▲ N-VALUE (BLOWS PER FOOT)

WATER CONTENT, %

PL 10 20 30 40 50 LL

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

GROUNDWATER DATA

ENCOUNTERED AT 29 FEET ▽

DRILLING DATA

___ AUGER 3 3/4 HOLLOW STEM

WASHBORING FROM ___ FEET

CAF DRILLER TJB LOGGER

CME 550X DRILL RIG

HAMMER TYPE Auto

HAMMER EFFICIENCY 90 %

REMARKS:

Drawn by: JDM	Checked by:	App'vd. by:
Date: 5/17/18	Date:	Date:

GEOTECHNOLOGY INC
FROM THE GROUND UP

I-40 Megasite
West Memphis, Arkansas

LOG OF BORING: B-11

Project No. J031019.01

LOG OF BORING 2002 WL J031019.01.GPJ GTINC 0638301.GPJ 6/1/18

Surface Elevation: _____ Completion Date: 5/12/18

Datum MSL

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	SAMPLES
	Medium stiff, brown and gray to gray, FAT CLAY - CH			
	trace roots		3-3-2	SS1
	trace roots		3-4-3	SS2
5	little sand		2-3-3	SS3
	Medium stiff, gray, LEAN CLAY - (CL)		93	ST4
10				
	Medium stiff to soft, brown to gray, FAT CLAY - CH		2-3-2	SS5
15				
	trace organics		1-1-2	SS6
20				
	trace organics		2-2-3	SS7
25	▽			
			1-1-1	SS8
30	Boring terminated at 30 feet.			
35				
40				
45				
50				

SHEAR STRENGTH, tsf

Δ - UU/2 O - QU/2 □ - SV

0.5 1.0 1.5 2.0 2.5

STANDARD PENETRATION RESISTANCE

(ASTM D 1586)

▲ N-VALUE (BLOWS PER FOOT)

WATER CONTENT, %

PL 10 20 30 40 50 LL

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

GROUNDWATER DATA

ENCOUNTERED AT 28 FEET ▽

DRILLING DATA

__ AUGER 3 3/4 HOLLOW STEM

WASHBORING FROM __ FEET

MMH DRILLER JAJ LOGGER

Diedrich D-50 DRILL RIG

HAMMER TYPE Auto

HAMMER EFFICIENCY 73 %

REMARKS:

Drawn by: ABM	Checked by:	App'vd. by:
Date: 5/14/18	Date:	Date:

GEOTECHNOLOGY INC
FROM THE GROUND UP

I-40 Megasite
West Memphis, Arkansas

LOG OF BORING: B-12

Project No. J031019.01

LOG OF BORING 2002 WL J031019.01.GPJ GTINC 0638301.GPJ 6/1/18

Surface Elevation: _____ Completion Date: 5/14/18

Datum MSL

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	SAMPLES
	TOPSOIL: 12 inches of brown silt.			
	Medium stiff, tan, LEAN CLAY - (CH)		1-2-3	SS1
5			83	ST2
	Medium stiff to soft, gray to gray and brown, FAT CLAY - CH		2-2-3	SS3
10			2-2-2	SS4
	Soft, gray and brown, LEAN CLAY - CL trace sand		1-1-2	SS5
15				
	trace organics		1-1-2	SS6
20				
	Medium stiff, gray, FAT CLAY, trace sand and organics - CH		1-2-3	SS7
25				
	Loose, dark gray, CLAYEY SAND - SC		2-1-5	SS8
30	Boring terminated at 30 feet.			
35				
40				
45				
50				

SHEAR STRENGTH, tsf

Δ - UU/2 O - QU/2 □ - SV

0.5 1.0 1.5 2.0 2.5

STANDARD PENETRATION RESISTANCE

(ASTM D 1586)

▲ N-VALUE (BLOWS PER FOOT)

WATER CONTENT, %

PL 10 20 30 40 50 LL

86 >>

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

GROUNDWATER DATA

ENCOUNTERED AT 28.5 FEET ▽

DRILLING DATA

__ AUGER 3 3/4 HOLLOW STEM

WASHBORING FROM __ FEET

CAF DRILLER TJB LOGGER

CME 550X DRILL RIG

HAMMER TYPE Auto

HAMMER EFFICIENCY 90 %

REMARKS:

Drawn by: JDM	Checked by:	App'vd. by:
Date: 5/17/18	Date:	Date:

GEOTECHNOLOGY INC
FROM THE GROUND UP

I-40 Megasite
West Memphis, Arkansas

LOG OF BORING: B-13

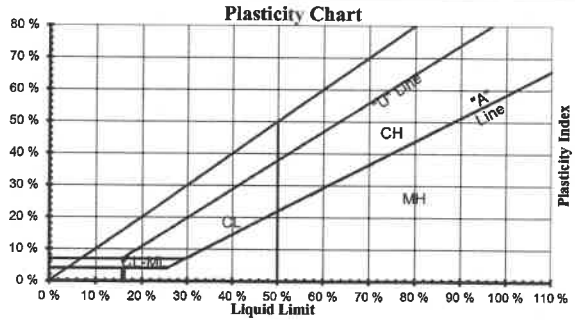
Project No. J031019.01

LOG OF BORING 2002 WL J031019.01.GPJ GTINC 0638301.GPJ 6/1/18

BORING LOG: TERMS AND SYMBOLS

LEGEND

CS	Continuous Sampler
GB	Grab Sample
NQ	NQ Rock Core
PST	Three-Inch Diameter Piston Tube Sample
SS	Split-Spoon Sample (Standard Penetration Test)
ST	Three-Inch Diameter Shelby Tube Sample
*	Sample Not Recovered
PL	Plastic Limit (ASTM D4318)
LL	Liquid Limit (ASTM D4318)
SV	Shear Strength from Field Vane (ASTM D2573)
UU	Shear Strength from Unconsolidated-Undrained Triaxial Compression Test (ASTM D2850)
QU	Shear Strength from Unconfined Compression Test (ASTM D2166)



SOIL GRAIN SIZE

US STANDARD SIEVE

12"	3"	3/4"	4	10	40	200		
BOULDERS	COBBLES	GRAVEL		SAND			SILT	CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE		
300	76.2	19.1	4.76	2.00	0.42	0.074	0.005	

SOIL GRAIN SIZE IN MILLIMETERS

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions			Symbol	Description
Coarse-Grained Soils (More than 50% Larger than No. 200 Sieve Size)	Gravel and Gravelly Soil	Clean Gravels Little or no Fines	GW	Well-Graded Gravel, Gravel- Sand Mixture
			GP	Poorly-Graded Gravel, Gravel-Sand Mixture
		Gravels with Appreciable Fines	GM	Silty Gravel, Gravel-Sand-Silt Mixture
			GC	Clayey-Gravel, Gravel-Sand-Clay Mixture
	Sand and Sandy Soils	Clean Sands Little or no Fines	SW	Well-Graded Sand, Gravelly Sand
			SP	Poorly-Graded Sand, Gravelly Sand
		Sands with Appreciable Fines	SM	Silty Sand, Sand-Silt Mixture
			SC	Clayey-Sand, Sand-Clay Mixture
Fine-Grained Soils (More than 50% Smaller than No. 200 Sieve Size)	Silts and Clays	Liquid Limit Less Than 50	ML	Silt, Sandy Silt, Clayey Silt, Slight Plasticity
			CL	Lean Clay, Sandy Clay, Silty Clay, Low to Medium Plasticity
			OL	Organic Silts or Lean Clays, Low Plasticity
	Silts and Clays	Liquid Limit Greater Than 50	MH	Silt, High Plasticity
			CH	Fat Clay, High Plasticity
			OH	Organic Clay, Medium to High Plasticity
	Highly Organic Soils		PT	Peat, Humus, Swamp Soil

STRENGTH OF COHESIVE SOILS

Consistency	Undrained Shear Strength (tsf)	Unconfined Comp. Strength (tsf)
Very Soft	less than 0.125	less then 0.25
Soft	0.125 to 0.25	0.25 to 0.5
Medium Stiff	0.25 to 0.5	0.5 to 1.0
Stiff	0.5 to 1.0	1.0 to 2.0
Very Stiff	1.0 to 2.0	2.0 to 3.0
Hard	greater than 2.0	greater than 4.0

DENSITY OF GRANULAR SOILS

Descriptive Term	Approximate N_{60}-Value Range
Very Loose	0 to 4
Loose	5 to 10
Medium Dense	11 to 30
Dense	31 to 50
Very Dense	>50

N-Value (Blow Count) is the last two, 6-inch drive increments (i.e. 4/7/9, N = 7 + 9 = 16). Values are shown as a summation on the grid plot and shown in the Unit Dry Weight/SPT column.

RELATIVE COMPOSITION

Trace	0 to 10%
Little	10 to 20%
Some	20 to 35%
And	35 to 50%

OTHER TERMS

Layer - Inclusion greater than 3 inches thick.

Seam - Inclusion 1/8-inch to 3 inches thick

Parting - Inclusion less than 1/8-inch thick

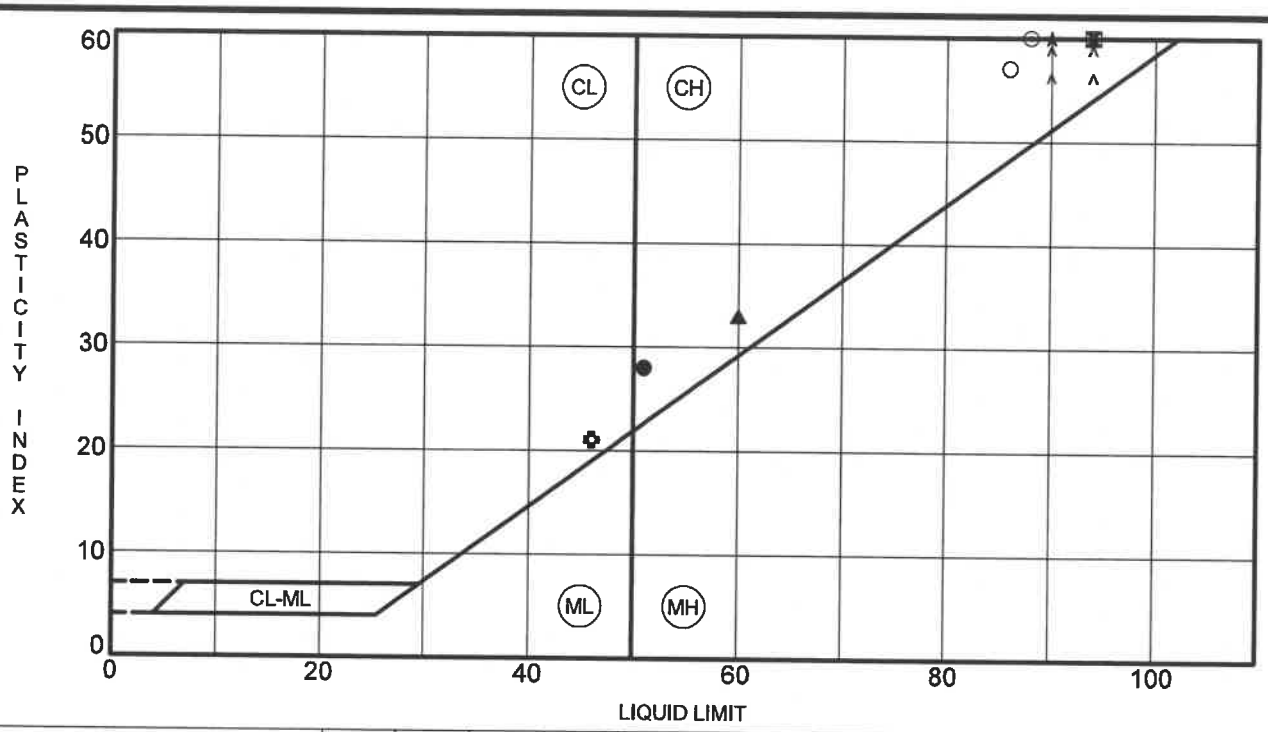
Pocket - Inclusion of material that is smaller than sample diameter

GEOTECHNOLOGY INC
FROM THE GROUND UP

Relative composition and Unified Soil Classification System (USCS) designations are based on visual descriptions and are approximate only. If laboratory tests were performed to classify the soil, the USCS designation is shown in parenthesis.

APPENDIX C

LABORATORY TEST RESULTS



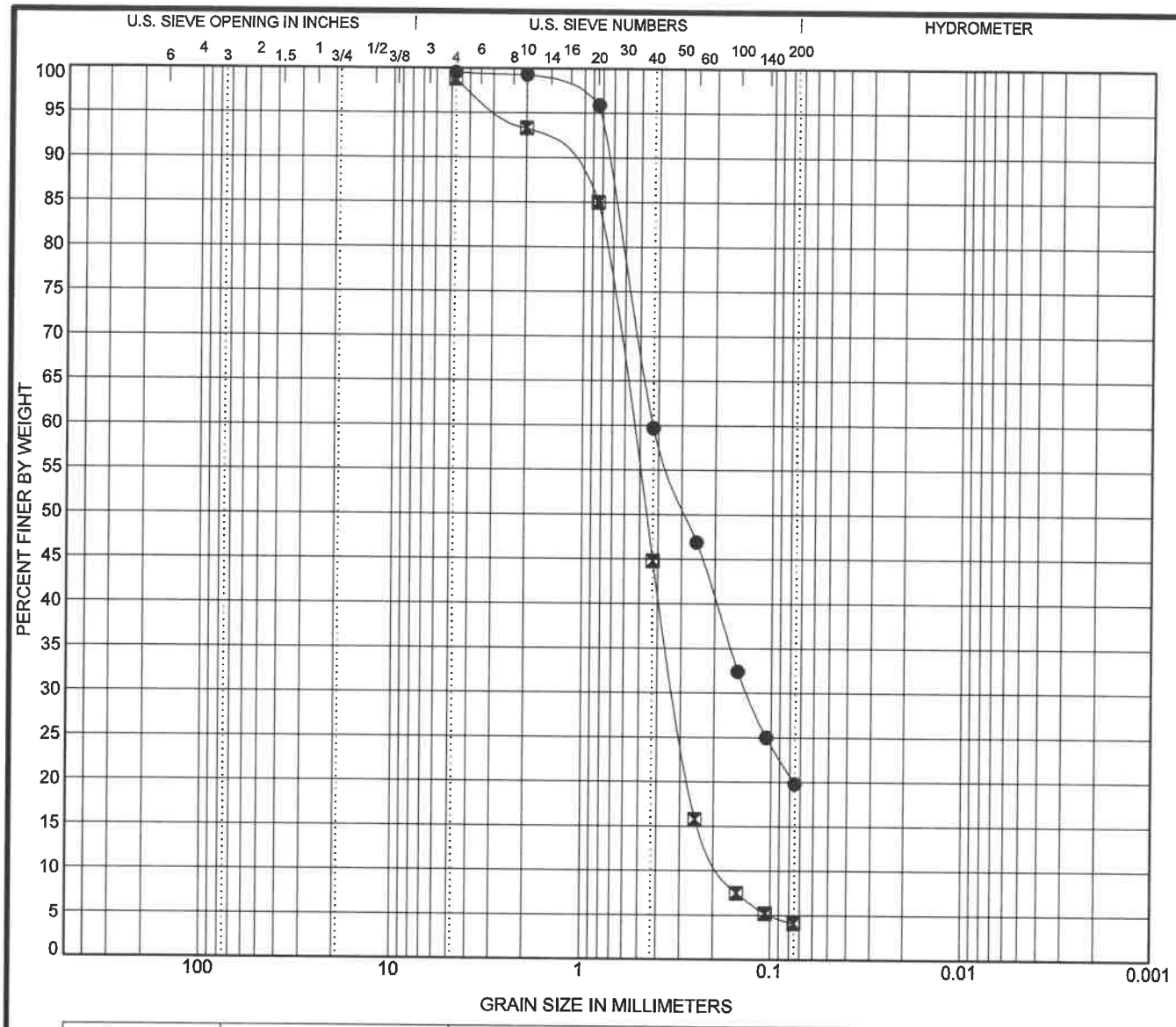
	Specimen Identification		LL	PL	PI	Fines	Classification
●	B- 2	6.0	51	23	28		FAT CLAY(CH)
⊠	B- 4	3.5	94	33	61		FAT CLAY(CH)
▲	B- 7	18.5	60	27	33		FAT CLAY(CH)
★	B- 8	1.0	90	28	62		FAT CLAY(CH)
⊙	B-10	1.0	88	28	60		FAT CLAY(CH)
✿	B-12	8.0	46	25	21		LEAN CLAY(CL)
○	B-13	3.0	86	29	57		FAT CLAY(CH)

GEOTECHNOLOGY INC
FROM THE GROUND UP

ATTERBERG LIMITS RESULTS

I-40 Megasite
West Memphis, Arkansas
J031019.01

US ATTERBERG LIMITS J031019.01.GPJ US LAB.GDT 6/1/18



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	B-7	33.5	CLAYEY SAND(SC)					
⊠	B-7	48.5	POORLY GRADED SAND(SP)				1.09	3.14

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-7	33.5	4.75	0.427	0.134		0.0	79.7	19.8	
⊠	B-7	48.5	4.75	0.55	0.324	0.175	0.0	94.7	4.1	

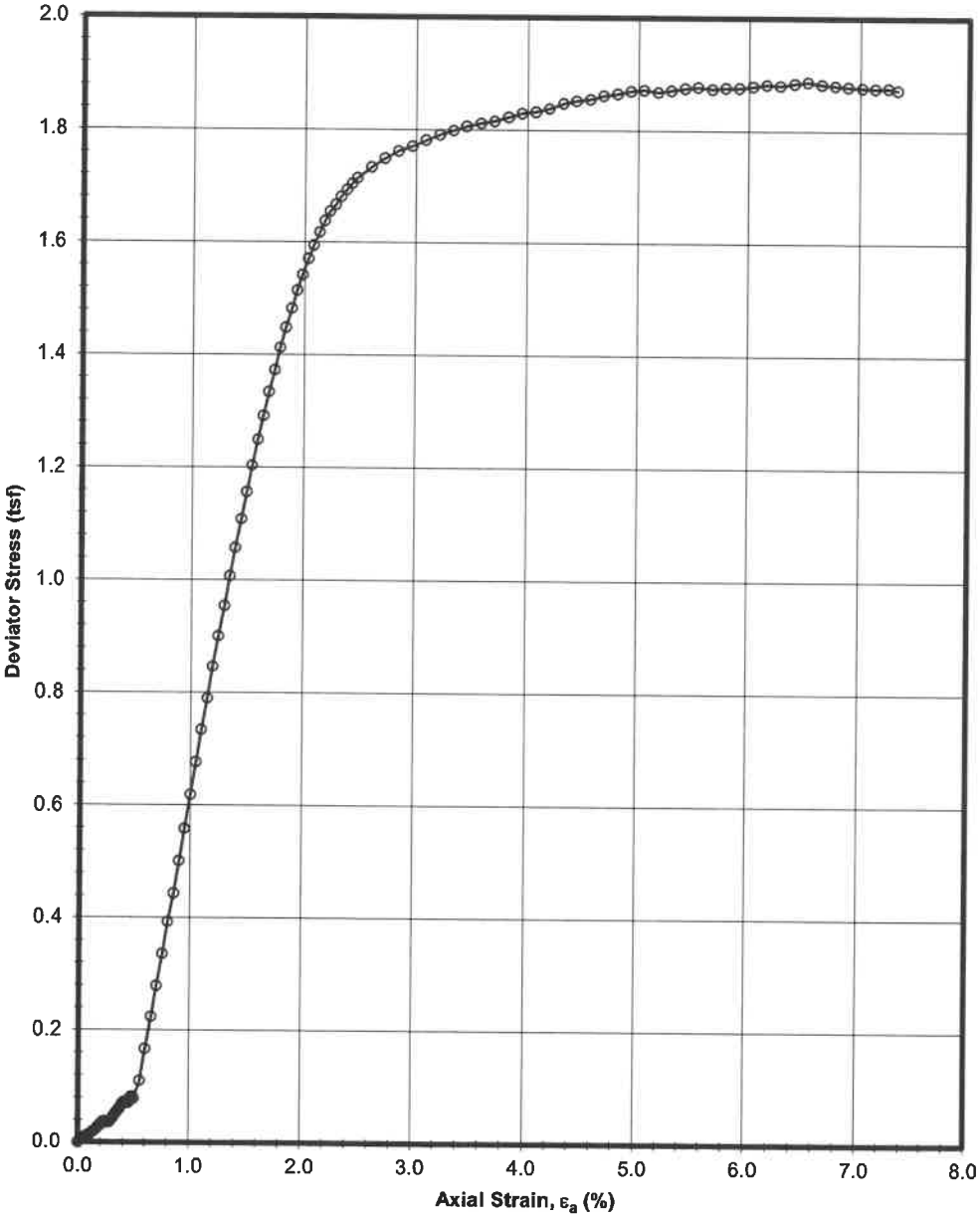
GEOTECHNOLOGY INC
FROM THE GROUND UP

GRAIN SIZE DISTRIBUTION

I-40 Megasite
West Memphis, Arkansas
J031019.01

US GRAIN SIZE J031019.01.GPJ US LAB.GDT 6/1/18

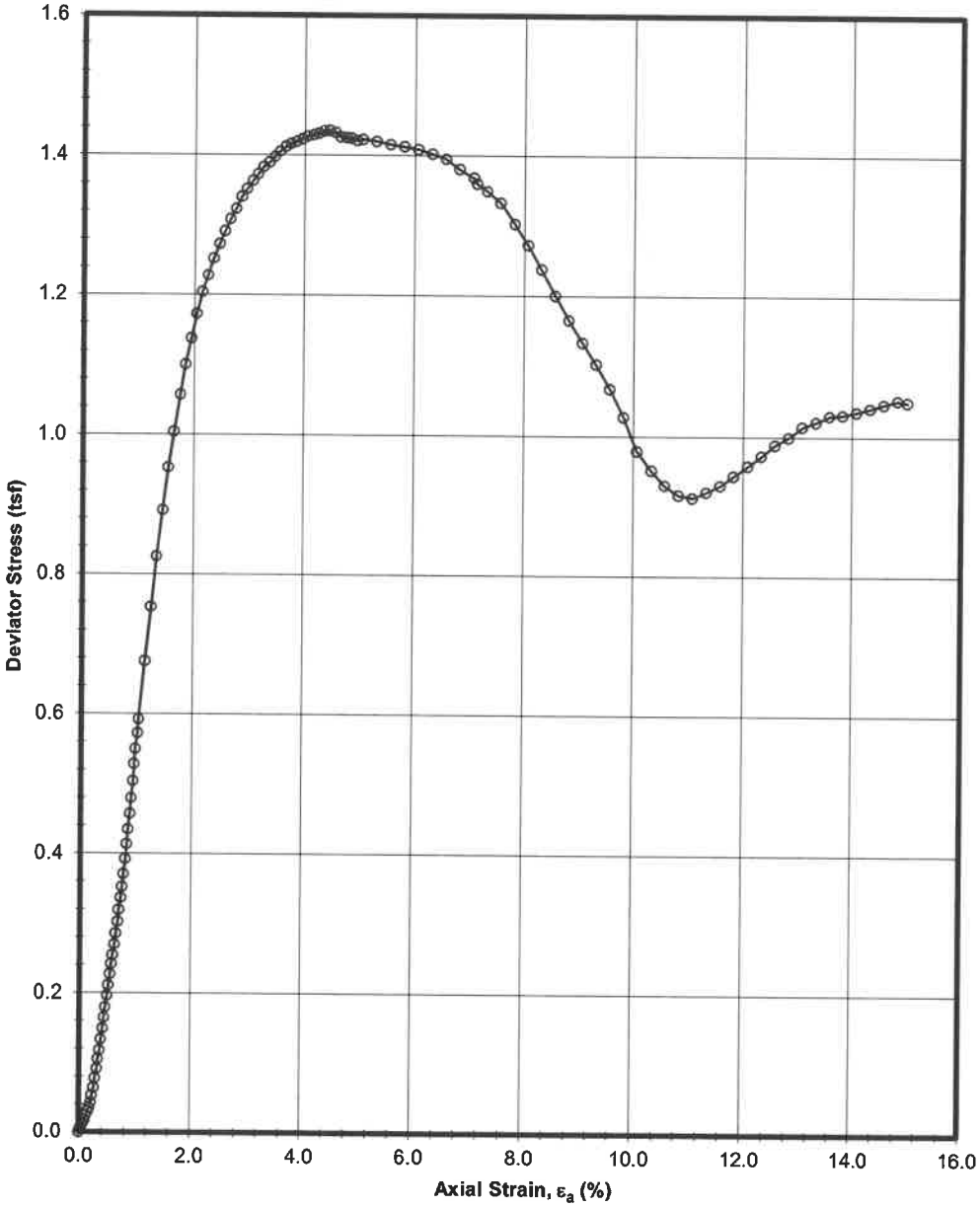
GEOTECHNOLOGY INC
FROM THE GROUND UP



UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST

ASTM D 2850
Project No.: J031019.01
Boring: B-2
Sample: ST-3 - Depth: 6 ft.

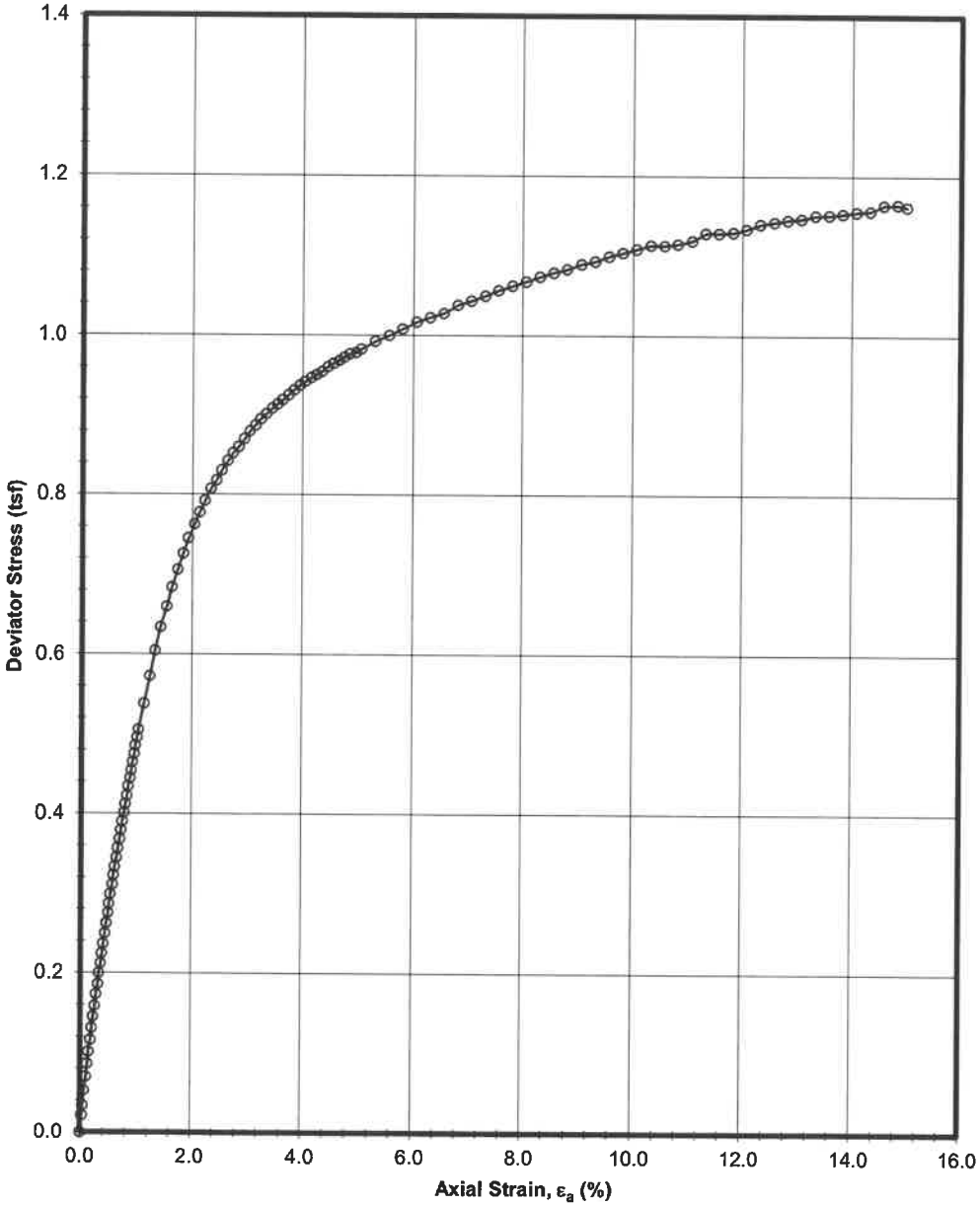
GEOTECHNOLOGY INC
FROM THE GROUND UP



UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST

ASTM D 2850
Project No.: J031019.01
Boring: B-8
Sample: ST-1 - Depth: 1 ft.

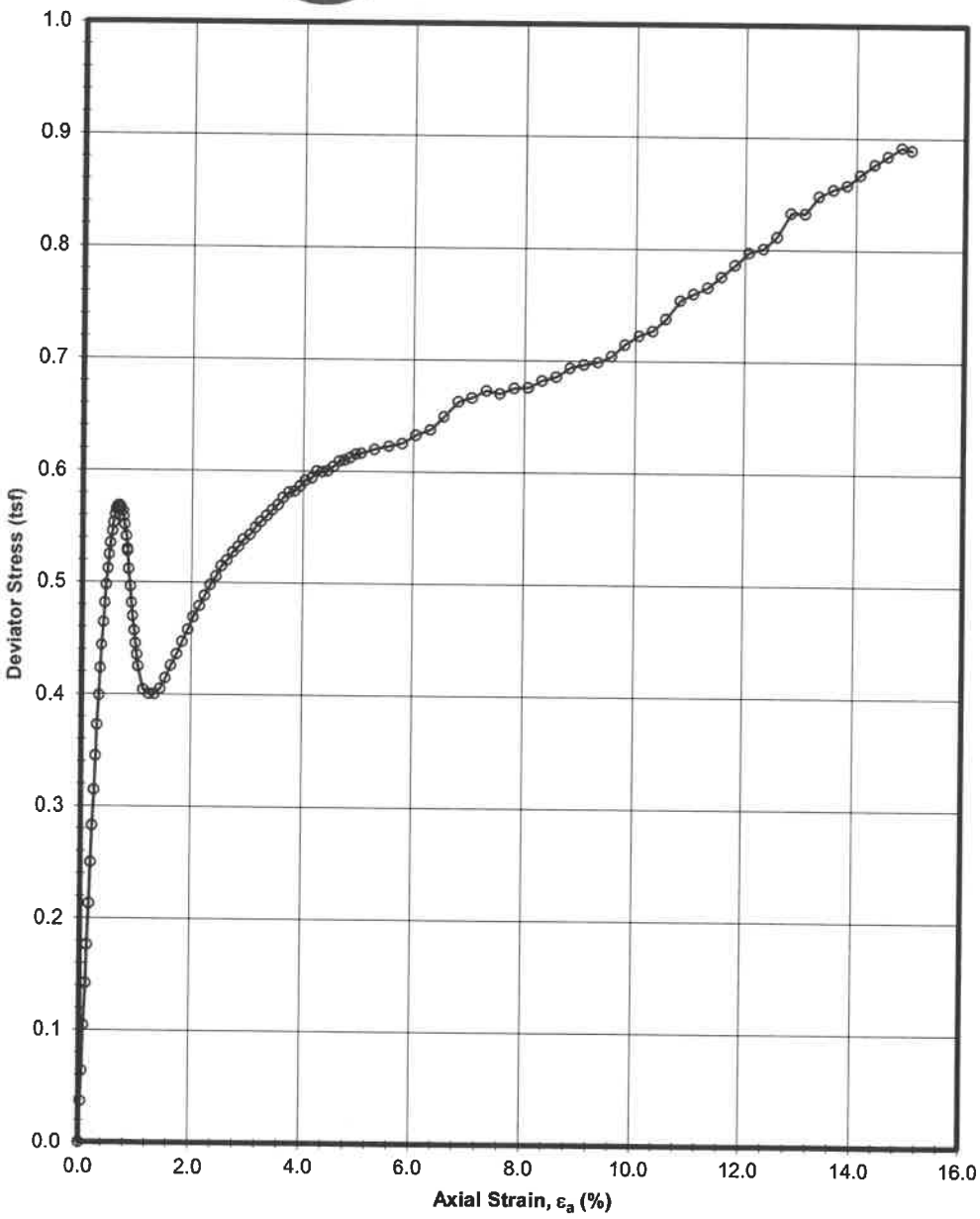
GEOTECHNOLOGY INC
FROM THE GROUND UP



UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST

ASTM D 2850
Project No.: J031019.01
Boring: B-12
Sample: ST-4 - Depth: 8 ft.

GEOTECHNOLOGY INC
FROM THE GROUND UP



UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST

ASTM D 2850
Project No.: J031019.01
Boring: B-13
Sample: ST-2 - Depth: 3 ft.

Copy of Restrictive Covenants:	There are no restrictive covenants. The site is not in an existing industrial park. The site is a stand-alone parcel that is currently used for crop cultivation. See the zoning ordinance (Attachment Z-1) for details on allowed uses.
Current Classification and Proposed Zoning (if different) to Conform with Intended Use:	The current zoning for the portion of the site that is in West Memphis city limits is I-1-M which is supportive of the intended use. The current zoning for the portion of the site that is in Marion city limits is I-1 which is supportive of the intended use.
Copy of Zoning Ordinance:	See attachment Z-1 for detail on zoning for the City of West Memphis and the City of Marion.
Explanation of Process to Change Zoning:	The current zoning is supportive of the intended use of the site and does not require a change.

ORDINANCE NO. 2474

AN ORDINANE TO AMEND THE WEST MEMPHIS ZONING MAP AND ZONING ORDINANCE 1988, AS AMENDED, ARTICLE II; SECTION 1 - ZONING DISTRICTS ESTABLISHED, ADDING I-1-M LIMITED INDUSTRIAL MANUFACTURING DISTRICT; ARTICLE III; SECTION 3 – INDUSTRIAL DISTRICTS; PARAGRAPH A – GENERAL DESCRIPTION, ADDING #1.B. I-1-M LIMITED INDUSTRIAL MANUFACTURING; PARAGRAPH B – PERMITTED USES, AND PARAGRAPH C - LOT, YARD AND HEIGHT REGULATIONS.

WHEREAS, application was made to the City Planning Commission to amend the West Memphis Zoning Map and Zoning Ordinance, and after notice having been published for the time and in the manner as provided by Ordinance No. 1988, as amended, the matter was heard by the City Planning Commission on Wednesday, May 30, 2018, and the Planning Commission recommended to amend the West Memphis Zoning Map and Zoning Ordinance 1988, as amended, Article II; Section 1 - Zoning Districts Established, adding I-1-M Limited Industrial Manufacturing District; Article III; Section 3 – Industrial Districts; Paragraph A – General Description, Adding #1.b. I-1-M Limited Industrial Manufacturing; Paragraph B – Permitted Uses, AND Paragraph C - Lot, Yard and Height Regulations

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF WEST MEMPHIS, ARKANSAS:

SECTION 1. That the West Memphis Zoning Map and Zoning Ordinance 1988, as amended be and the same, is hereby amended, as follows:

ZONING MAP (See attachment)

ARTICLE II- ESTABLISHMENT OF ZONING DISTRICTS AND BOUNDARIES
SECTION 1: ZONING DISTRICTS ESTABLISHED

I-1-M Limited Industrial Manufacturing District

ARTICLE III
SECTION 3: INDUSTRIAL DISTRICTS

A. General Description

The industrial zoning districts are intended to provide for the development of light to heavy industrial uses and their related facilities. Appropriate standards for the various districts are designed to assure compatibility with other similar uses and to ameliorate any conflicts with non-industrial uses located in close proximity to the industrial use. The Zoning Ordinance hereby establishes 5 industrial zoning districts to be known as the I-1, Industrial; I-1C, Container Storage Yard; I-1-M,

Limited Industrial, Manufacturing; I-2; I-2C, Container Storage Yard; and PBP, Planned Business Park.

1. **I-1, Limited Industrial** – As this industrial district is often located in proximity to residential districts, its principal purpose is to permit the operation of industries, trades, and services that can be operated in a relatively clean and quiet manner and which will not be obnoxious to adjacent residential or business districts. Thus, it is intended primarily for the conduct of light manufacturing, assembling, and fabrication and for warehousing, wholesaling, and service uses, conducted buy operations which are primarily carried on within enclosed buildings having adequate land area for parking and landscaping.

1.a. **I-1-C Limited Industrial, Intermodal Container Storage Yard** – This district is sized and located to limit such uses within the City and provide access via a principal and/or minor arterial or industrial collector street as classified by the West Memphis-Marion Area Transportation Plan and/or by the West Memphis Planning Commission and approved by the City as a designated truck route for a particular approved site. It is created for the purpose of allowing the storage of shipping containers that have the capability of being stacked. The location such district(s) shall be based on considerations of public health, safety and welfare and shall conform to all other applicable City ordinances and regulations.

1.b. **I-1-M Limited Industrial, Manufacturing**- This district is geographically located in an area that has access to an Interstate or dedicated truck route. It is created for the purpose of allowing for the manufacturing of automobiles as well as associated industries. The location such district(s) shall be based on considerations of public health, safety and welfare and shall conform to all other applicable City ordinances and regulations.

2. **I-2, General Industrial** – This district allows for heavier or more intense industrial uses than permitted in the I-1, Limited Industrial District. The regulations for the I-2 District are the minimum required for mutual protection of the industrial users and for the safety and general welfare of the citizens of West Memphis and of surrounding districts.

2.a. **I-2-C General Industrial District – Intermodal Container Storage Yard** – This district shall permit all land uses allowed in a I-2 General Industrial District and will be sized and located to limit such uses within the City and provide access via principal and/or minor arterial or industrial collector street as classified by the West Memphis – Marion area Transportation Plan and /or by the West Memphis Planning Commission and approved by the City as a designated truck route for a particular approved site. It is created for the purpose of allowing the storage of

shipping containers that have the capability of being stacked. The location of such district(s) shall be based on considerations of public health, safety and welfare and shall conform to all other applicable city ordinances and regulations.

3. **PBP Planned Business Park District** – The purpose of the Planned Business Park District is to foster stability and growth in light industry, research and development similar industries that are enhanced by access to transportation networks and that provide desirable employment opportunities for the general welfare of the community. The Planned Business Park District targets relatively large contiguous land areas that can be developed according to a unified plan in a high quality, campuslike setting rather than on a lot-by-lot basis. The uses and standards in this district are intended to promote flexibility and innovation in site design and enhance the environmental quality and attractiveness of business parks in the community, engage the natural or scenic qualities of the environment and protect the public health and safety. The minimum areas for a "PBP" Planned Business Park Designation shall be 25 acres. In calculating the minimum area for a PBP District, the measurements shall include the area of all dedicated streets entirely within the boundary of the proposed PBP and one-half of the area of all boundary or perimeter streets.

B. Permitted Uses

The permitted uses in the industrial districts are set for the below. Where the letter "X" appears opposite a permitted use and underneath an industrial zoning district, the use is permitted in that district subject to (1) the providing of off-street parking in the amount required, (2) conformance to the development criteria applying to uses as set forth in this section, and (3) the providing of off-street loading in accordance with Article VI. Where letters "SP" appear instead of "X", this use is permitted subject to acquiring a Special Use Permit as set forth in Article IV.

ZONING DISTRICT	**PERMITTED USES**					
1. INDUSTRIAL USES:	**I-1**	**1-1-C**	**I-1-M**	**I-2**	**I-2-C**	**PBP**
(a) MANUFACTURING USES						
Advertising Displays	X	X	X	X	X	X
Air Conditioning and Heating Equipment	X	X	X	X	X	X
Apparel or Other Textile Products Including Hats and Hosiery	X	X	X	X	X	X
Asphalt or Asphalt Products				X	X	
Automobiles, Trucks or Trailers, Mobile Homes			X	X	X	

Boats, Building or Repair			X	X	X	
Carpentry, Woodworking, or Furniture Working	X	X	X	X	X	X
Cement, Lime or Plaster-of-Paris				SP	SP	
Ceramic Products – Brick, Tile, Clay, Glass, Porcelain	SP	SP	SP	X	X	SP
Chemicals, Compounding or Packaging	SP	SP	SP	X	X	SP
Compounding or Packaging of Cosmetics, Toiletries, Drugs, and Pharmaceutical Products	X	X	X	X	X	X
Cotton Ginning or Processing				X	X	
Electrical Appliances, Equipment and Supplies	X	X	X	X	X	X
Fertilizers				SP	SP	
Food Products, including dairy products, bakery products, candy, fruit and vegetable processing and canning, packing and processing of meat and poultry, but not including and distilling of beverages, slaughtering of animals or poultry, or manufacture of vinegar or pickles	SP	SP	SP	X	X	
Food products, including slaughtering of animals and poultry or manufacture of vinegar or pickles				SP	SP	
Grain, Milling, or Processing				X	X	
Hair, Felt, Feather, or Leather Products				X	X	
Ice, Dry or Natural	X	X	X	X	X	X
Industrial Uses Not Listed	SP	SP	SP	SP	SP	SP
Jewelry	X	X	X	X	X	X
Machines, Machine Tools	X	X		X	X	SP
Mattresses, including rebuilding or renovating	X	X	X	X	X	X
Monument Works				X	X	
Orthopedic or Medical Supplies	X	X	X	X	X	X
Paint, Enamel, Lacquer, Turpentine, Varnish				X	X	
Paper Manufacturing or Processing	SP	SP	SP	X	X	SP
Plastic Products, including luggage, tableware, buttons, or similar products	X	X	X	X	X	SP

Printing and Publishing, including Engraving or Photoengraving	X	X	X	X	X	X
Rubber Products, Natural or Synthetic			X	X	X	
Steel Products, Fabrication and Assembly				X	X	
Stone and Gravel Processing or Products				X	X	
Tar or Tar Products, Creosoting, or Similar Processes				X	X	
Wood or Lumber Processing, including the manufacture of paper pulp, furniture, or similar products				X	X	
(2) NON-MANUFACTURING USES	**I-1**	**I-1-C**	**I-1-M**	**I-2**	**I-2-C**	**PBP**
Animal Hospital, Kennel, Pound or Shelter	SP	SP	SP	X	X	
Appliance Repair	X	X	X	X	X	X
Automobile Wrecking, Salvage, or Junkyard				SP	SP	
Auto Wrecker Service, subject to Article V	SP	SP	SP	SP	SP	
Batching or Mixing Plant, Asphalt or Portland Cement, Concrete, Mortar or Plaster				SP	SP	
Construction Sites Without Heavy Equipment or Material Storage	X	X	X	X	X	X
Construction Office/Building, Equipment Repair, Sales, or Contractor Storage Yard	X	X	X	X	X	
Extraction of Clay, Gravel, Quarrying of Rock				X	X	
Gases or Liquids, Flammable, Storage				X	X	
Grain Elevator				X	X	
Laboratory, Research or Testing	X	X	X	X	X	X
Light Fabrication and Assembly Process	X	X	X	X	X	X
(2) NON-MANFACTURING USES CONT'D	**I-1**	**I-1-C**	**I-1-M**	**I-2**	**I-2-C**	**PBP**

Livestock Auction Sales Barn and Pens				X	X	
Machine or Welding Shop	X	X	X	X	X	
Petroleum Products Storage				X	X	
Plumbing, Electrical, Air Conditioning and Heating Shop	X	X	X	X	X	X
School, Commercial or Trade	X	X	X	X	X	X
Sheet Metal Shop	X	X	X	X	X	
Truck Stop and Travel Center, or Truck Parking	SP	SP	SP	SP	SP	
(3) COMMERCIAL USES	**I-1**	**I-1-C**	**I-1-M**	**I-2**	**I-2-C**	**PBP**
Auction Room, Auctioneer	X	X	X	X	X	X
Automobile Accessory and Supply Store	X	X	X	X	X	X
Automobile Bus or Truck-Painting, Repair, Service or Body Shop	X	X	X	X	X	
Automobile Sales, New and Used	X	X	X	X	X	SP
Banks or Similar Financial Institutions	X	X	X	X	X	X
Beauty, or Barber Shop	X	X	X			
Building Materials and Supplies, Including Sales of Lumber	X	X	X	X	X	SP
Boats, Repair	X	X	X	X	X	
Cold Storage	X	X	X	X	X	X
Day Care Center, Subject to Article V, Section 5	X	X	X			X
Eating Place	X	X	X	X	X	X
Farm Equipment Sales, Service, Repairs	X	X	X	X	X	
Feed and Fertilizer Sales	X	X	X	X	X	X
Freight Depot, Railroad, Truck or Barge	X	X	X	X	X	X
Hardware						X
Hardware, Industrial Sales	X	X	X	X	X	SP
Hotel or Motel	X	X	X			SP
Laundry Plant	X	X	X	X	X	X
Offices, Medical and Professional	X	X	X			X
Office Warehouse	X	X	X	X	X	X
Mobile Homes, Sales and Service	X	X	X	X	X	X

Personal Service Establishments including Health and Fitness centers, primarily intended to serve businesses in the I-1 and PBP Districts	X	X	X			X
Race Track	SP	SP	SP	SP	SP	
Sexually Oriented Business/Adult Entertainment **(Footnotes)**				X		
(3) COMMERCIAL USES CONT'D	**I-1**	**I-1-C**	**I-1-M**	**I-2**	**I-2-C**	**PBP**
Small Tool and Equipment Rental	X	X	X	X	X	X
Tire Recapping Shop	X	X	X	X	X	
Tool and Equipment Rental	X	X	X	X	X	
Warehousing and Storage	X	X	X	X	X	
Wholesale Establishment	X	X	X	X	X	X
(4) COMMUNITY FACILITIES AND PUBLIC UTILITIES	**I-1**	**I-1-C**	**I-1-M**	**I-2**	**I-2-C**	**PBP**
Club or Lodge	X	X	X	X	X	X
Community Building	X	X	X	X	X	X
Electrical Substation	X	X	X	X	X	X
Gas Regulator Station	X	X	X	X	X	X
Golf Course, including commercially operated driving range or miniature golf course	X	X	X	X	X	X
Hospital, Health Center, Institution for Aged or Children, Assisted Care Facility	SP		SP			
Post Office	X	X	X			X
State Garage, Yard or Similar Facility	SP	SP	SP	X	X	
Telephone Exchange, Shop, or Garage	SP	SP	SP	X	X	SP
(5) AGRICULTURAL USES	**I-1**	**I-1-C**	**I-1-M**	**I-2**	**I-2-C**	**PBP**
Animal and Poultry Husbandry, Dairying or Pasturage	X	X	X	X	X	
Field Crops, Floriculture, Greenhouse, Horticulture, Nursery, Truck Gardening	X	X	X	X	X	X

(6). OTHER USES	I-1	I-1-C	I-1-M	I-2	I-2-C	PBP
All accessory uses as defined in Article X that are accessory to any permitted use in these districts	X	X	X	X	X	X
Dwelling for Resident Security Guard or Caretakers employed on the premises	X	X	X	X	X	X

FOOTNOTES: (1.) Sexually Oriented Business/Adult Entertainment enterprises shall be at least 1000 feet from any school, church, hospital, park, governmental building open to the public, or residence. The spacing requirement will be measured from the nearest part of the premises where a Sexually Oriented Business is conducted to:

(a.) The nearest property line of the premises of any school, church, hospital, park, or government building open to the public;

(b.) The nearest point of any residential structure.

C. Lot, Yard and Height Regulations

No lot or yard shall be established or reduced in dimension or area in any industrial district that does not meet the minimum requirements set forth in the following tables. No building or structure shall be erected or enlarged that will cause the maximum lot coverage to be exceeded for such district.

YARD REGULATIONS	ZONING DISTRICT					
	I-1	I-1-C	I-1-M	I-2	I-2-C	PBP
Minimum Lot Area (Square Feet)	10,000	10,000	10,000	10,000	10,000	1 acre
Minimum Lot Width at Building Line (Feet)	100	100	100	100	100	100
Maximum Lot Coverage (Percent)	50	50	50	50	50	50
YARD REGULATIONS (in Feet)						
Abutting a Street Right-of-Way	30	30	50	50	50	30
Across street from residential district	30	30	50	50	50	30
Across from nonresidential district	30	30	30	30	30	30
	1-1	1-1-C	I-1-M	1-2	I-2-C	PBP
Abutting Other Property Lines (1)						
Abutting a residential district	30	30	40	40	40	30
Abutting a nonresidential district	12	12	12	12	12	12
HEIGHT REGULATIONS (2)						
Maximum Number of Feet	36	36	75	75	75	36
Maximum Number of Stories	3	3	6 ½	6 ½	6 ½	3

(NOTE:)(a) Where property abuts a railroad where siding facilities are utilized, structures may be built up to railroad property lines.

(b) A building or structure may exceed the maximum heights shown provided each of its front, side, and rear yards are increased an addition foot for each foot such building exceeds the maximum height.

(c) Container Yards: Containers shall not be stacked in excess of 36 feet.

All I-1 and I-2 Districts

a. Any lighting visible from outside the site shall be designed to reflect away from adjacent residential districts. No noise, odor, or vibration shall be emitted so that it constitutes a nuisance which substantially exceeds the general level of noise, odor or vibration emitted by uses adjacent to or immediately surrounding the site. Such comparisons shall be made at the boundaries of the site.

b. Outdoor storage of trash receptacles shall be at the sides or rear of the site and shall be totally encircled or screened by a site-proof fence, planting or other suitable visual barrier.

c. A permanent opaque screening fence or wall shall be constructed along any side or rear property line which abuts property zoned for residential purposes. The height of this screen or wall shall be not less than 6 feet and

shall be constructed of wood, masonry or other durable opaque material, and finished in a manner appropriate to the appearance and use of the property.

d. No loading or storage of material shall be permitted in the required front yard.

2. Additional Criteria in I-1 Industrial District

a. Every use, or any part thereof, that is not conducted within a building completely enclosed on all sides shall be screened by a permanent opaque screening fence or wall so that it cannot be seen from an adjoining lot. The following screening and display criteria shall apply to uses located in the "I-1" Industrial District:

1) The height of any opaque screening fence or wall shall not be less than 6 feet.

2) Automobile, bus, truck, tractor, mobile home, boar or motorcycle, and wheeled and/or tracked industrial vehicle storage areas are not required to screen fully assembled merchandise which is ready for sale.

3) Other business uses shall be permitted open display of merchandise commonly sold by such operations as long as the area of said display is not larger than an area equal to one-half of the facade area of the front of the building.

PASSED AND APPROVED THIS 21 DAY OF June, 2018.

WILLIAM H. JOHNSON, MAYOR

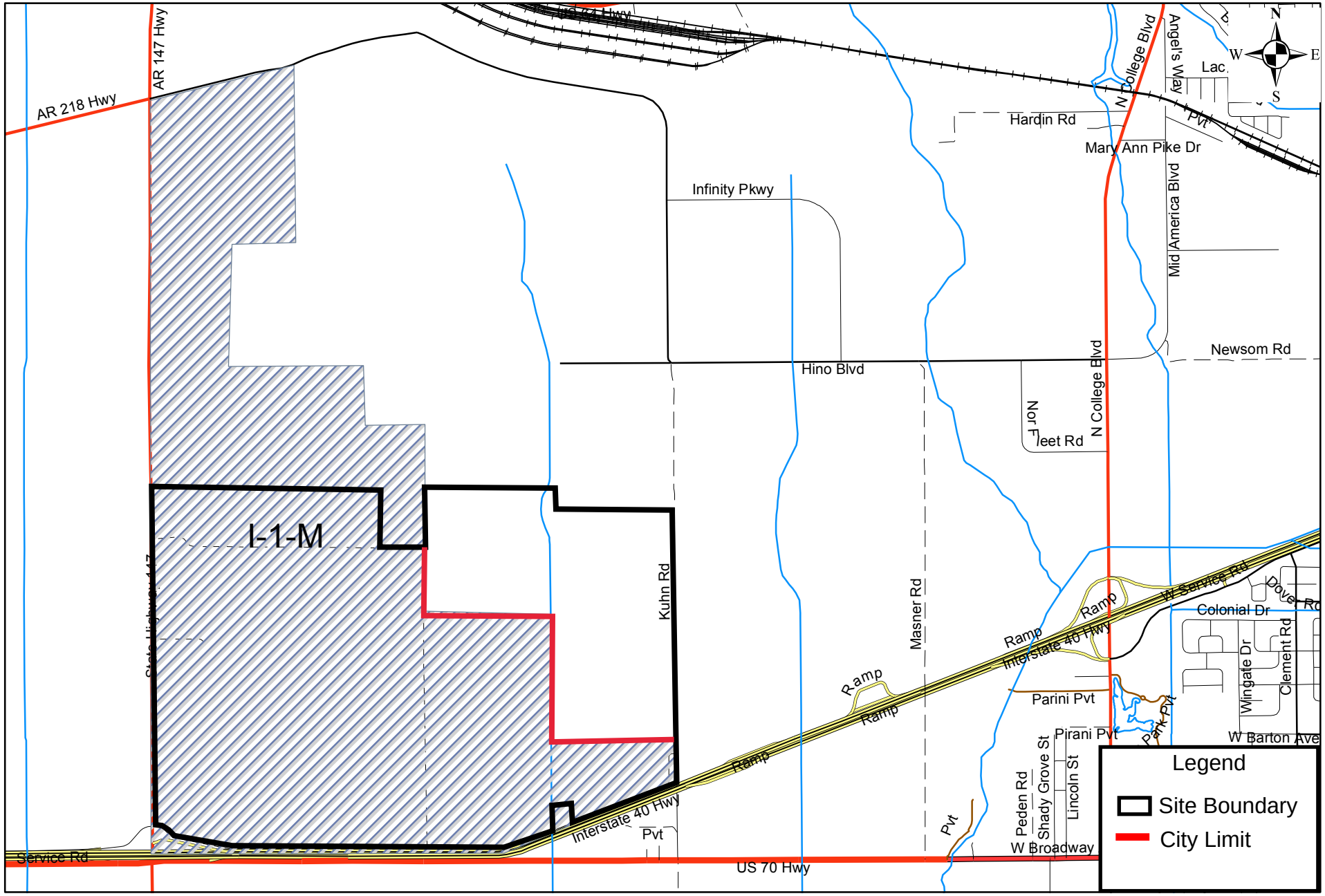
ATTEST:

Phillip Para, City Clerk

SPONSOR:

RECEIVED
City Clerk's Office
Date/Time 6-4-18
By cgreenwood

City of West Memphis Zoning Map: I-1-M District



MAP DATE 04/13/2018

PREPARED BY CITY OF WEST MEMPHIS PLANNING AND DEVELOPMENT DEPARTMENT

ZONING ORDINANCE

MARCH 26, 1974

MARION, ARKANSAS

Manes and Associates
Planning Consultants

THE PREPARATION OF THIS REPORT WAS FINANCED IN PART THROUGH AN URBAN PLANNING GRANT FROM THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT, UNDER THE PROVISIONS OF SECTION 701 OF THE HOUSING ACT OF 1954, AS AMENDED. PROJECT NO. HCPA-1025-7413.

TABLE OF CONTENTS

E. Height Regulations

No building shall be constructed with a height in excess of three stories or forty-five (45) feet.

F. Parking Regulations

Off-street parking shall be provided in accordance with the provisions of Article IV.

Section 8
I-1 INDUSTRIAL DISTRICT

A. General Description

This district is intended to provide space for manufacturing activities, wholesaling, warehousing, storage, assembling, packaging, and similar uses. It is an area where general manufacturing activities can take place.

B. Uses Permitted

Property and buildings in the I-1 District shall be used only for the following purposes.

(1) Any use permitted in the C-3 District except dwellings, hospitals, institutions, or other buildings used for permanent or temporary housing of persons except as described in Item 2 below.

(2) Dwellings for resident watchmen and caretakers employed on the premises.

(3) Any business, commercial or industrial uses which do not create hazards of fire, explosions, noise, vibration, dust, lint, or the emission of smoke, odor, or toxic gases.

C. Special Permit Uses

The following uses may be permitted on review in accordance with the provisions contained in Article VI.

(1) Automobile junk or salvage yards, in accordance with the provisions contained in Article III, Section 5.

(2) Sanitary fill for the disposal of garbage or trash.

(3) Industrial uses having accompanying hazards, such as fire, explosion, noise, vibration, dust or the emission of smoke, odor, or toxic gases may, if not in conflict with any law or ordinance in the

City or the State of Arkansas, be located in the I-1 Industrial District only after the location and nature of such use shall have been approved by the City Council after public hearing and report by the Commission as provided in Article VI. The Council shall review the plans and statements and shall not permit such buildings, structures or uses until it has been shown that the public health, safety, and general welfare will be properly protected, and that necessary safeguards will be provided for the protection of surrounding property and persons. The Council in reviewing the plans and statements shall consult with other agencies created for the promotion of public health and safety.

D. Area Regulations

1. All structures shall be built at least twenty-five (25) feet from all property lines.

2. Where property abuts a railroad where siding facilities are utilized, structures may be built up to the railroad property line.

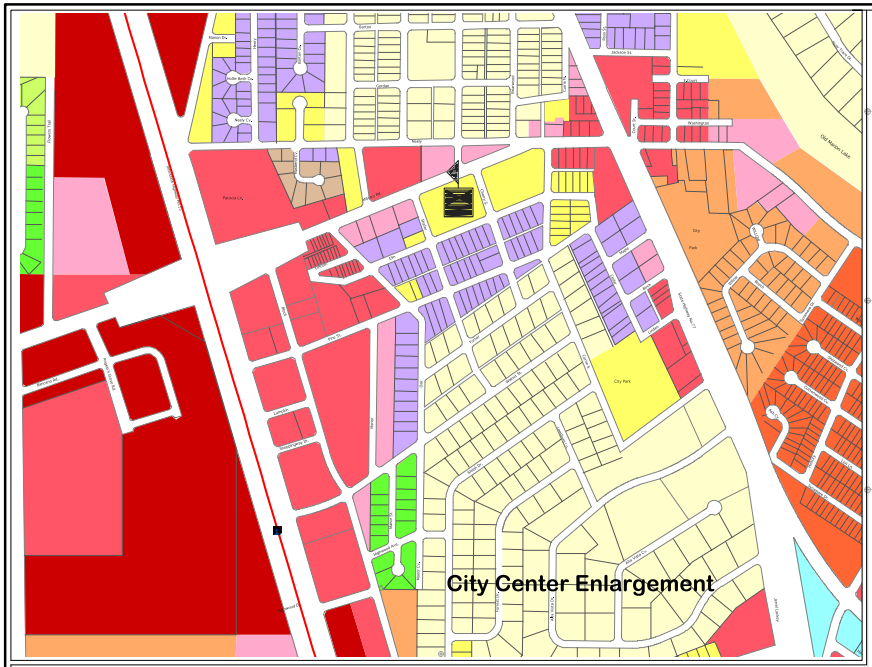
3. Maximum lot coverage shall not exceed thirty-three and one-third percent (33 1/3%) of the lot area.

E. Height Regulations

The maximum height of a structure shall be two (2) stories or thirty-five (35) feet.

F. Parking Regulations

Off-street parking shall be provided in accordance with the provisions of Article IV.



LEGEND

- SECTION CORNER
- CITY LIMITS
- Megasite Boundary
- AGRICULTURAL
- R-1 SINGLE-FAMILY RESIDENTIAL
- R-2 TWO-FAMILY RESIDENTIAL
- R-2-S SINGLE-FAMILY ONLY RESIDENTIAL
- R-3 LOW DENSITY MULTIPLE-FAMILY RESIDENTIAL
- R-3-S SINGLE-FAMILY ONLY RESIDENTIAL
- R-4 MEDIUM DENSITY MULTIPLE-FAMILY RESIDENTIAL
- R-4-S SINGLE-FAMILY ONLY RESIDENTIAL
- R-5 ZERO LOT LINE RESIDENTIAL
- C-1 NEIGHBORHOOD AND QUIET BUSINESS DISTRICT
- C-2 GENERAL COMMERCIAL DISTRICT
- C-3 HIGHWAY COMMERCIAL DISTRICT
- I-1 INDUSTRIAL DISTRICT

N W E S

0 1000 2000 3000 Feet

0 0.25 0.50 0.75 1 Mile

City of Marion, Arkansas

2016 Zoning Map

Revised August, 2016

marion ARKANSAS

Electric Utility:

Name of Utility:	Entergy Arkansas
Contact Person(s):	Joe Bailey or Chris Murphy
Address:	425 West Capitol Ave., Suite 2700
City, State, Zip:	Little Rock, AR 72201
Phone:	501-377-4089 or 501-377-4467
Fax:	501-377-4448
Email:	jbail12@entergy.com or cmurph4@entergy.com
Service and Proximity to Site:	Service is at the site with 15 MW of excess capacity.

Natural Gas Utility:

Name of Utility:	CenterPoint
Contact Person(s):	Chauncey Taylor
Address:	P.O. Box 751
City, State, Zip:	Little Rock, AR 72203
Phone:	501-377-4557
Fax:	501-377-4630
Email:	Chauncey.taylor@centerpointenergy.com
Service and Proximity to Site:	There is a 6” high pressure steel line with a minimum pressure of 100 PSI located 1 mile north of the site. The line has significant excess capacity and can operate at higher pressures if needed.

Water Utility:

Name of Utility:	West Memphis Utility Commission
Contact Person(s):	Todd Pedersen
Address:	604 E. Cooper Avenue
City, State, Zip:	West Memphis, AR 72301
Phone:	870-702-5110
Fax:	870-732-7623
Email:	tpedersen@citywm.com
Service and Proximity to Site:	There is a 12” water line that terminates at Hino Boulevard and Infinity Parkway, approximately 1.5 miles from the site with a static pressure of 55 psi.

Sewer:

Name of Utility:	West Memphis Utility Commission
Contact Person(s):	Todd Pedersen
Address:	604 E. Cooper Avenue
City, State, Zip:	West Memphis, AR 72301
Phone:	870-702-5110
Fax:	870-732-7623
Email:	tpedersen@citywm.com
Service and Proximity to Site:	A pump station will need to be built on site to handle the load of the facility. The nearest connection point is approximately 2.5 miles from the site.

Telecommunications:

Name of Utility:	AT&T
Contact Person(s):	Rhonda Cline
Address:	723 South Church, Room 120
City, State, Zip:	Jonesboro, AR 72401
Phone:	870-972-7851
Fax:	870-926-1646
Email:	Rk.cline@att.net
Service and Proximity to Site:	Telecommunication service is at the site.

Rail:

Name of Utility:	Union Pacific
Contact Person(s):	Eric Watkins
Address:	24125 Aldine-Westfield Road
City, State, Zip:	Spring, TX 77373
Phone:	281-350-7177
Fax:	402-233-3312
Email:	ewatkin@up.com
Service and Proximity to Site:	The nearest rail line is approximately 3 miles north of the site and is owned by Union Pacific.

Local Sales Tax Rates:

Crittenden County, AR – 2.75%
Marion, AR – 2%
West Memphis, AR – 1.5%

Property Tax Rates (Real, Personal) and Methods of Assessment:

The property is comprised of multiple jurisdictions and therefore there are a number of different millage rates. For demonstrative purposes, the highest millage rate was used below.

$	10,000,000.00	Building and Equipment Investment
	20.00%	Assessment Ratio
$	2,000,000.00	Taxable Amount
	49.5	Millage Rate
$	**99,000.00**	**Normal Tax Due (Millage Rate/1000)*(Taxable Amount)**

State Taxation Summary:

See attachment T-1 for detail.

as of August 2018

State of Arkansas Taxation Summary

Corporate Income Tax

Taxable income is apportioned according to a three-factor formula (property (25%), payrolls (25%) and sales (50%) attributed to Arkansas with a double-weighted sales factor. Corporate income tax is levied statewide only; not on the local level.

Taxable Income	Tax Rate
First $3,000	1%
Next $3,000	2%
Next $5,000	3%
Next $14,000	5%
Next $75,000	6%
Over $100,000	6.5%

Personal Income Tax

2018 (Personal income tax is levied statewide only; not on the local level)

For Incomes less than $21,000 per year

Taxable Income	Tax Rate
$0 - $4,299	0.9%
$4,300 – $8,399	2.4%
$8,400 - $ 12,599	3.4%
$12,600 - $20,999	4.4%

For incomes between $21,000 and $75,000

Taxable Income	Tax Rate
$0 - $4,299	0.9%
$4,300 - $8,399	2.5%

$8,400 - $12,599	3.5%
$12,600 - $20,999	4.5%
$21,000 - $35,099	5.0%
$35,100 - $75,000	6.0%

For incomes more than $75,000

Taxable Income	Tax Rate
$0 - $4,299	0.9%
$4,300 - $8,399	2.5%
$8,400 - $12,599	3.5%
$12,600 - $20,999	4.5%
$21,000 - $35,099	5.0%
$35,100 - $75,000	6.0%
$35,100 and above	6.9%

Incomes between $75,000 and $80,000 shall reduce the amount of income tax due by deducting bracket adjustment as set forth below

Taxable Income	Tax Rate
$75,001 - $76,000	$440
$76,001 - $77,000	$340
$77,001 - $78,000	$240
$78,001 - $79,000	$140
$79,001 - $80,000	$ 40
$80,001and above	$ 0

Federal Insurance Contributions Act (FICA)

The Federal Insurance Contributions Act (FICA) tax includes two separate taxes. One is social security tax and the other is Medicare tax. Different rates apply for each of these taxes.

The current tax rate for social security is 6.2% for the employer and 6.2% for the employee, or 12.4% total. The current rate for Medicare is 1.45% for the employer and 1.45% for the employee, or 2.9% total.

Only the social security tax has a wage base limit. The wage base limit is the maximum wage that is subject to the tax for that year. For earnings in 2018, this base is $128,400. There is no wage base limit for Medicare tax. All covered wages are subject to Medicare tax.

Additional Medicare Tax are applied to an individual's Medicare wages that exceed a threshold amount based on the taxpayer's filing status. Employers are responsible for withholding the 0.9% Additional Medicare Tax on an individual's wages paid in excess of $200,000 in a calendar year, without regard to filing status. An employer is required to begin withholding Additional Medicare Tax in the pay period in which it pays wages in excess of $200,000 to an employee and continue to withhold it each pay period until the end of the calendar year. There is no employer match for Additional Medicare Tax.

Corporate Franchise Tax

The chart below lists the franchise tax rates for various entities under Arkansas Code 26-54-104.

Franchise Tax Type	Current Rate
Corporation/Bank with Stock	0.3% of the outstanding capital stock; $150 minimum
Corporation/Bank without Stock	$300
Limited Liability Company	$150
Insurance Corporation Legal Reserve Mutual, Assets Less Than $100 million	$300
Insurance Corporation Legal Reserve Mutual, Assets Greater Than $100 million	$400
Insurance Company Outstanding Capital Stock Less Than $500,000	$300
Insurance Company Outstanding Capital Stock Greater Than $500,000	$400
Mortgage Loan Corporation	0.3% of the outstanding capital stock; $300 minimum
Mutual Assessment Insurance Corporation	$300

Sales Tax

The Arkansas sales tax is 6.5% of the gross receipts from the sales of tangible personal property and certain selected services. “Sale” includes the lease or rental of tangible personal property. In addition to the state sales and use tax, local sales and use taxes may be levied by each city or county. However, businesses may apply to the Arkansas Department of Finance and Administration for a refund of local taxes. “Single transaction” means any sale of tangible personal property or taxable service reflected in a single invoice, receipt or statement for which an aggregate sales or use tax amount has been reported or remitted to the state for a single, local taxing jurisdiction. These taxes are collected by the state and distributed to the cities and counties each month.

Sales Tax Exemptions – Sales Tax Savings

Exemptions from sales and use taxes for manufacturers are as follows:

- Property which becomes a recognizable, integral part of property manufactured, compounded, processed, or assembled for resale.
- Machinery and equipment used directly in manufacturing which are purchased for a new or expanding manufacturing facility or to replace existing machinery or equipment
- Machinery and equipment required by Arkansas law to be purchased for air or water pollution control

The value of this statutory exemption depends on the amount of eligible expenditures as determined by the Arkansas Department of Finance and Administration.

Sales and Use Tax Reduction on Electricity and Natural Gas

The State of Arkansas has a reduced 0.625% on electricity and natural gas used directly in the manufacturing process. For purposes of determining what utility usage is subject to this reduced rate, the manufacturing process includes processes beginning at the point where raw materials are first moved from raw material storage to the beginning of manufacturing or processing of those raw materials into items of tangible personal property and ends when the finished manufactured goods are packaged and ready for shipment or storage.

Sales and Use Tax Refund – Replacement and Repair

Effective July 1, 2014, state sales and use taxes relating to the partial replacement and repair of machinery and equipment used directly in manufacturing process may be refunded. Manufacturers may utilize one of two of the options presented below:

Option One:

- Provides a refund of one percent (1%) of the total sales and use taxes (5.875* percent) levied for the purchase and installation of machinery and equipment to modify, replace or repair, either in whole or part, existing machinery or equipment used directly in the manufacturing process.

Effective Date	Option 1 Percentage
July 1, 2014	1%
July 1, 2018	2%
July 1, 2019	3%
July 1, 2020	4%
July 1, 2021	5%
July 1, 2022	Full exemption of state sales and use taxes

Option Two:

- Provides for an increased refund of the total sales and use taxes (5.875* percent) levied. It is discretionary and may be offered by the Executive Director of AEDC to those manufacturers who have a major maintenance and improvement project totaling at least $3 million to purchase and install machinery or equipment used directly in the manufacturing process. The project is subject to approval and the Company must enter into a financial incentive agreement with AEDC for the project prior to incurring project expenditures.

*The excise tax of one-eighth of one percent (1/8 of 1%) levied in Arkansas Constitution, Amendment 75, and the temporary excise tax of one-half percent (0.5%) levied in Arkansas Constitution Amendment 91, are not subject to refund under this section.

Unemployment Insurance Tax

New Businesses

A business with no previous employment record in Arkansas is taxed at 3.2% on the first $10,000 of each employee's earnings until an employment record is established, usually within three years.

Existing Arkansas Businesses

2018 Experience-Based Rate range between 0.4% - 14.3% and averages 3.1%. Each business' employment record is determined primarily by its taxable payroll and history of employee voluntary termination. The tax is determined by past experience and the amount of the reserve-ratio. The reserve-ratio is the excess of contributions paid over benefits charged as related to payroll. The higher the reserve-ratio, the lower the tax rate. Currently, the maximum weekly benefit in Arkansas is $451.

Federal Unemployment Tax (FUTA)

Aside from state unemployment insurance taxes, employers pay a federal unemployment or FUTA tax. The FUTA tax rate is 6.0% with a taxable wage base of $7,000. However, if states operate their unemployment insurance programs in compliance with federal law then the FUTA tax is reduced (credit) by 5.4% to 0.6%.

Property Tax

The State of Arkansas does not have a property tax; however, Arkansas cities and counties do collect a property tax, which is the principal source of revenue for funding local public schools.

The tax is calculated based on 20 percent of the true market value of real and to the usual selling price of personal property (vehicles, boats, etc.) and the average annual value of merchants' stocks and/or manufacturers' inventories based on millage rates in individual school districts. Business firms and individuals are subject to annual property tax on all real and personal property.

Local county tax assessors and collectors calculate and collect all personal and real property taxes. Revenue derived from personal property taxes supports your local government agencies. Personal property must be assessed each year before May 31. Any personal property taxes assessed after the deadline will include a monetary penalty determined by the respective county. These taxes are due on or before October 15 of the following year.

Real Property Option (Using Arkansas Average Millage Rate as an Example):

Total Market Value		*Assessment Level*		*Assessed Value*
$4,000,000	x	20%	=	$800,000

Assessed Value		*Millage Rate*		*Annual Property Tax Due*
$800,000	x	.04748	=	$37,984

Please note: Corporate personal property taxes (equipment, office furniture, etc.) follow a depreciation schedule for each type of property. The schedule below (with exceptions dependent on the area) is issued by each County Assessor's Office in Arkansas.

COMMERCIAL PERSONAL PROPERTY
Depreciation Schedule

Remaining Life Percent

Schedule Age	3	5	6	8	10	12	16	20	25	30	Schedule Age
1	.55	.73	.78	.87	.89	.91	.93	.94	.96	.96	**1**
2	.30	.53	.60	.71	.82	.85	.88	.88	.91	.93	**2**
3	.10	.39	.48	.59	.75	.79	.84	.85	.87	.89	**3**
4		.24	.35	.50	.68	.73	.79	.81	.84	.87	**4**
5		.10	.23	.42	.61	.67	.75	.78	.81	.84	**5**
6			.10	.33	.53	.61	.70	.74	.79	.82	**6**
7				.24	.46	.55	.66	.71	.76	.80	**7**
8				.15	.39	.49	.61	.67	.73	.77	**8**
9					.32	.43	.57	.64	.70	.75	**9**
10					.25	.37	.52	.60	.67	.73	**10**
11						.31	.48	.57	.64	.70	**11**
12						.25	.43	.53	.62	.68	**12**
13							.39	.50	.59	.65	**13**
14							.34	.46	.56	.63	**14**
15							.30	.43	.53	.61	**15**
16							.25	.39	.50	.58	**16**
17								.36	.48	.56	**17**
18								.32	.45	.53	**18**
19								.29	.42	.51	**19**
20								.25	.39	.49	**20**
21									.36	.46	**21**
22									.33	.44	**22**
23									.31	.42	**23**
24									.28	.39	**24**
25									.25	.37	**25**
26										.34	**26**
27										.32	**27**
28										.30	**28**
29										.27	**29**
30										.25	**30**

Industrial revenue bond financing is available to a company in Arkansas for land acquisition, building acquisition, construction and equipment. Bonds can be issued either taxable or tax exempt, depending on certain IRS qualifications and restrictions.

The Arkansas Economic Development Commission Bond Guaranty Program was created to provide long-term, tax exempt and taxable financing for businesses expanding or locating in Arkansas. Although the city or county may issue the revenue bond, the company is still responsible for paying the principal and interest.

Under this program, the Commission can guarantee timely payment of principal and interest, up to $5,000,000 principal per bond issue, to the bondholders. This guaranty gives the bonds a better rating, thereby making the bond more attractive to investors and reducing the company's cost to borrow money.

An additional benefit of bond financing is:

Cities and counties are authorized to enter into a Payment in Lieu of Tax (PILOT) Agreement with industrial projects resulting in a reduction of property taxes that would otherwise be due. Industrial Revenue Bonds are issued by the city or county on behalf of the project. Under PILOT agreements, title to the property is held in name only by the public issuer for the term of the bond issue. At the end of the bond term, title will transfer to the company. The amount of the payment in lieu of taxes must not be not less than 35% of what normal taxes would have been. The PILOT Agreement may not last longer than the term of the bond.

Inventory Tax

All real estate and tangible personal property (inventory) shall be assessed for taxation in the taxing district in which the property is located and kept in use.

If destination of a company's tangible personal property (inventory) is within the state, taxes will be assessed at its prior year's value only in the county/city of its destination.

Freeport Law

If destination of a company's tangible personal property (inventory) is out of state, the following statement applies:

Arkansas' Freeport Law exempts from property tax those finished goods and raw materials in transit or awaiting shipment to out-of-state customers.

Workers' Compensation Rate for the Manufacturing Sector

2018

Type of Rate	Rate per $100 payroll
Assigned Risk	$2.06
Advisory Loss Cost	$1.02

Source: NCCI July 2018 Arkansas Manufacturing Rates

The assigned risk rate is based on the inability for companies to obtain their own insurance, while the loss cost is for companies which are self-insured.

Maps

The following maps are provided:

- Regional Map
- Transportation, Regional
- Transportation, Immediate
- Aerial
- Topographic
- Elevation Contours
- FEMA Flood Hazard
- National Wetlands Inventory
- Pipeline Infrastructure
- Entergy's Electrical Infrastructure
- Surrounding Use
- FEMA Flood Insurance Rate Map (2011)
- Zoning
  - City of West Memphis
  - City of Marion

BUSINESS DEVELOPMENT
ARKANSAS

WEST MEMPHIS I-40 MEGASITE

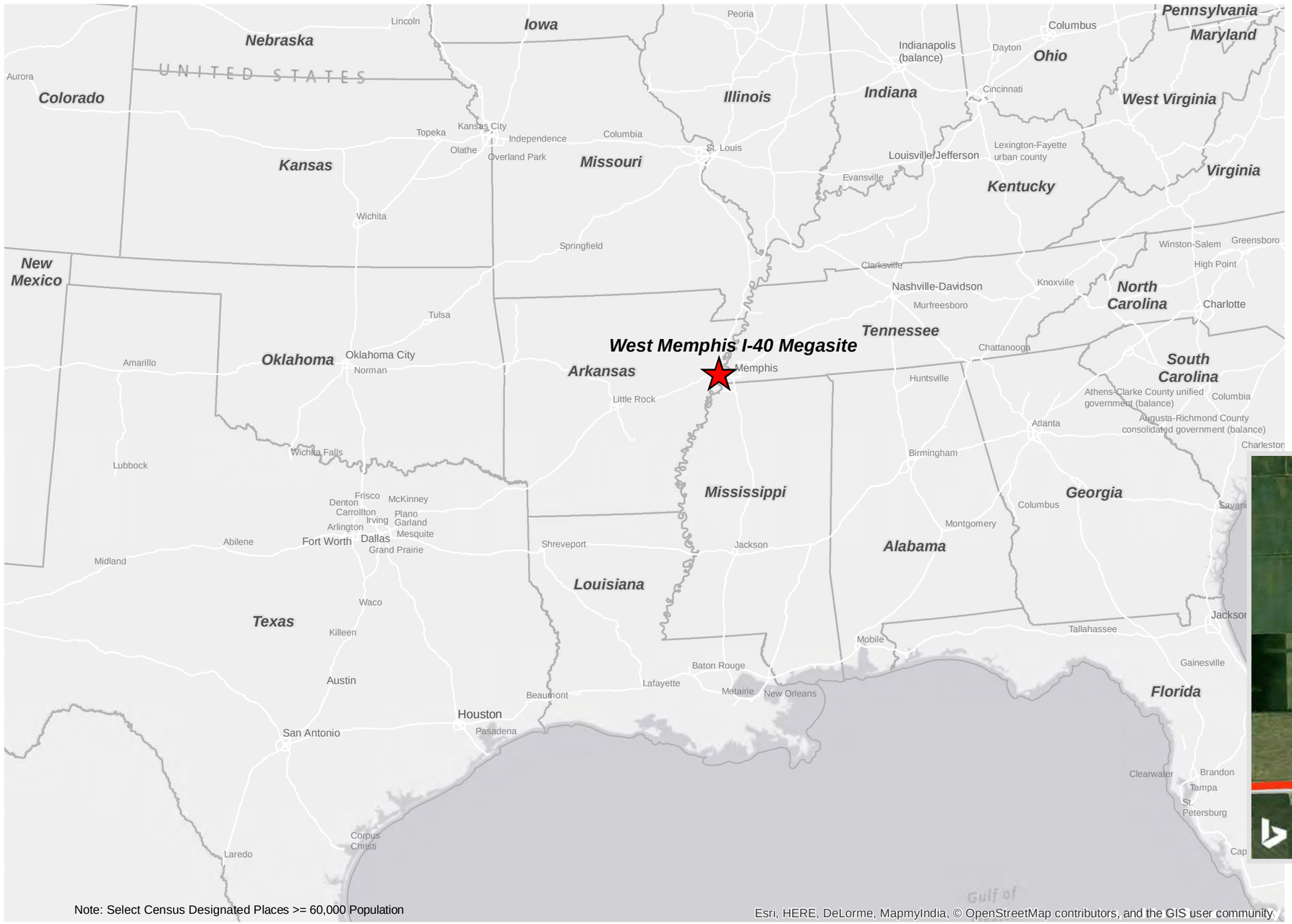
West Memphis, AR

425 West Capital Ave Suite 2700
Little Rock, AR 72201

Phone: 1-888-301-5861

goentergy.com/ar

Coordinates: -90.274643, 35.15857



Note: Select Census Designated Places >= 60,000 Population

Contents

Entergy BUSINESS DEVELOPMENT ARKANSAS

West Memphis I-40 Megasite

Transportation - Regional

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Little Rock, AR 72201

Phone: 1-888-301-5861

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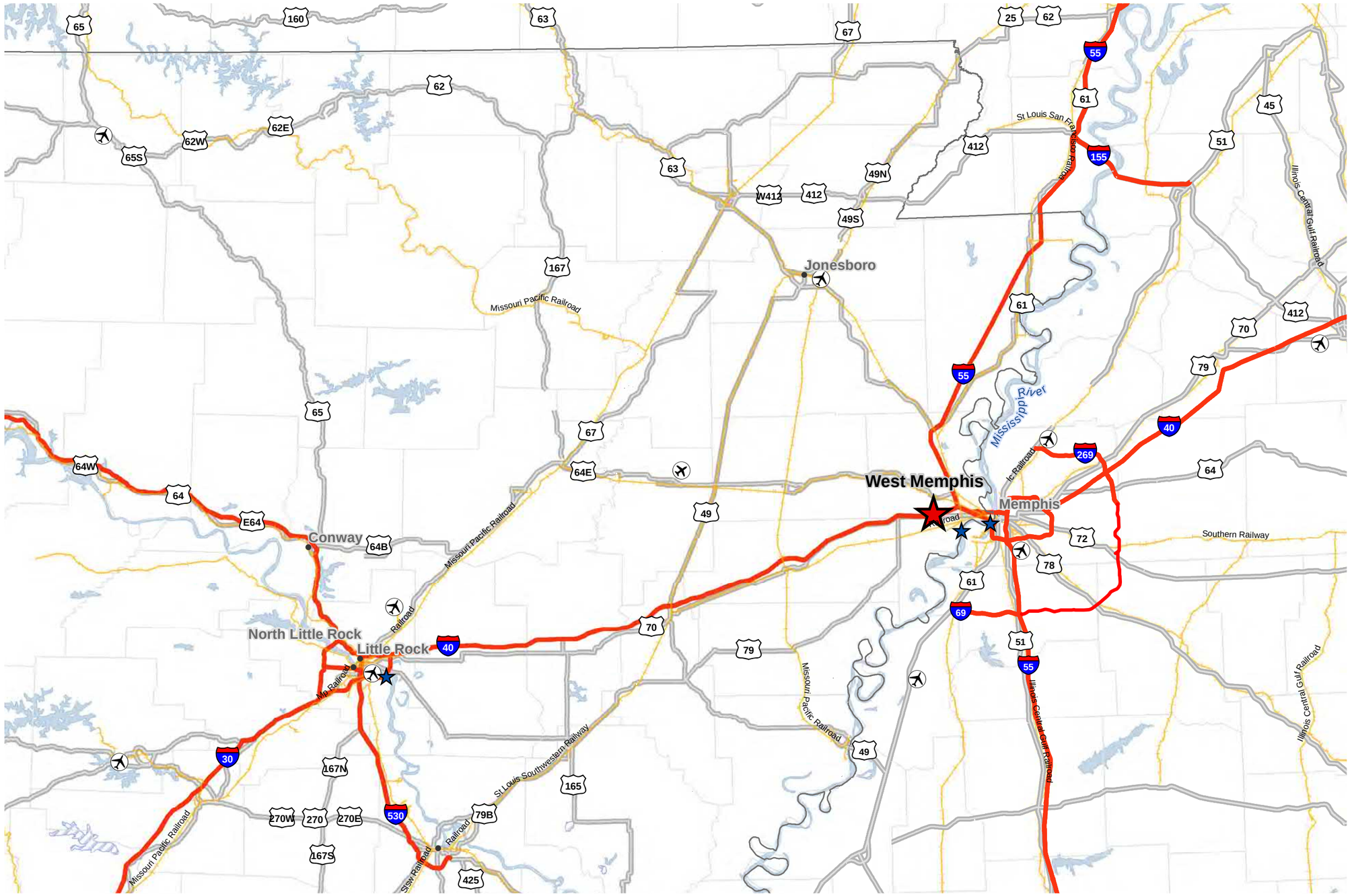
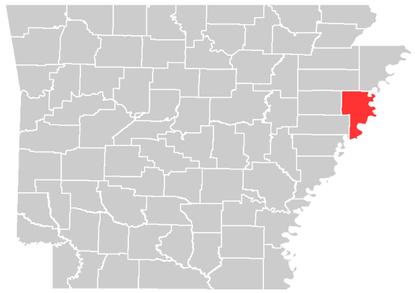


CRITTENDEN COUNTY



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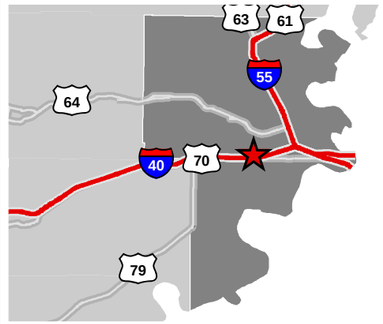

LEGEND

- Site Location
- Port
- Airports
- Railroads
- Interstate
- U.S.

NOTE

These drawings are provided merely to assist in economic development efforts. The Entergy Companies make no representations or warranties whatsoever regarding the accuracy or completeness of any information contained herein nor the condition or suitability of any properties. Users should direct inquiries about any property to the listing broker for that property.

SOURCE

Roads: Census/TIGER database, 2014
Railroads: Federal Railroad Administration, Bureau of Transportation Statistics, ESRI, 2014
ESRI Basemaps; ESRI Datamaps 10.2

N

Created by: RPG
Date: 8/2018

1:1,267,000

0 10 20 40 Miles

0 12.67 25.34 50.68 Kilometers

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West Memphis I-40 Megasite

Transportation - Immediate

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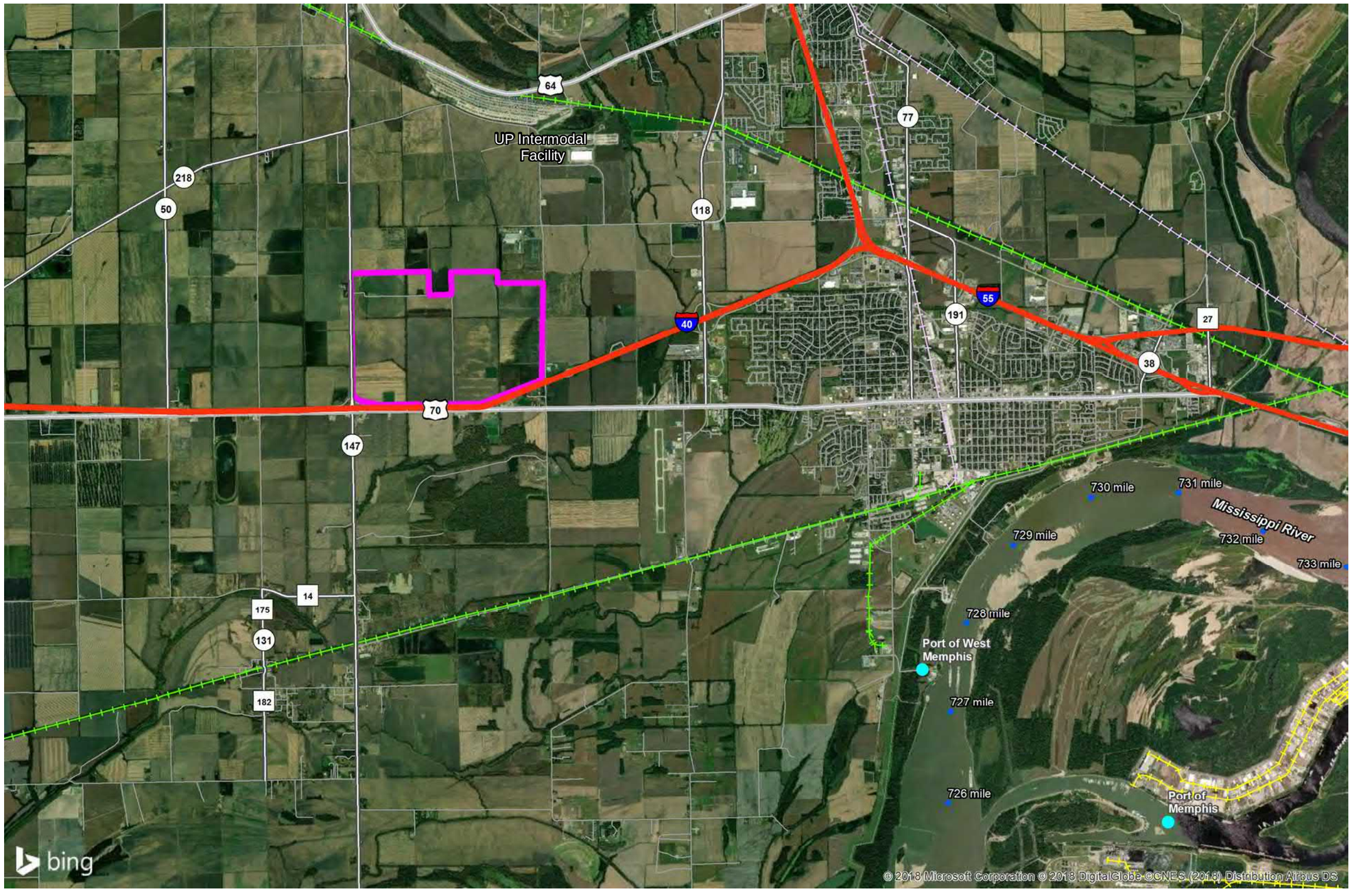

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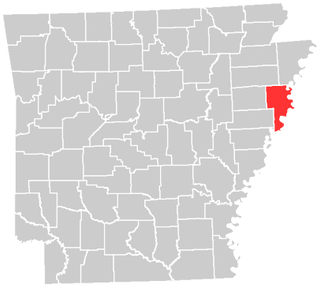
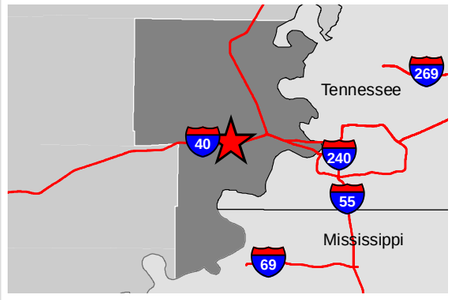


VICINITY MAP



LEGEND

- Property Boundary
- River Mile Markers
- **Rail**
- Ports
- Burlington Northern & Sante Fe - BNSF
- Canadian National Rwy (North America) - CN
- Union Pacific RR - UP

NOTE

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SOURCE

Source: Elevation contours derived from DEM data from USDA/NRCS - National Geospatial Center of Excellence

Created by: RPG
Date: 8/2018

0 6,000 12,000 Feet

0 1,440 2,880 Meters

N

BUSINESS DEVELOPMENT
ARKANSAS

West Memphis I-40 Megasite

Aerial

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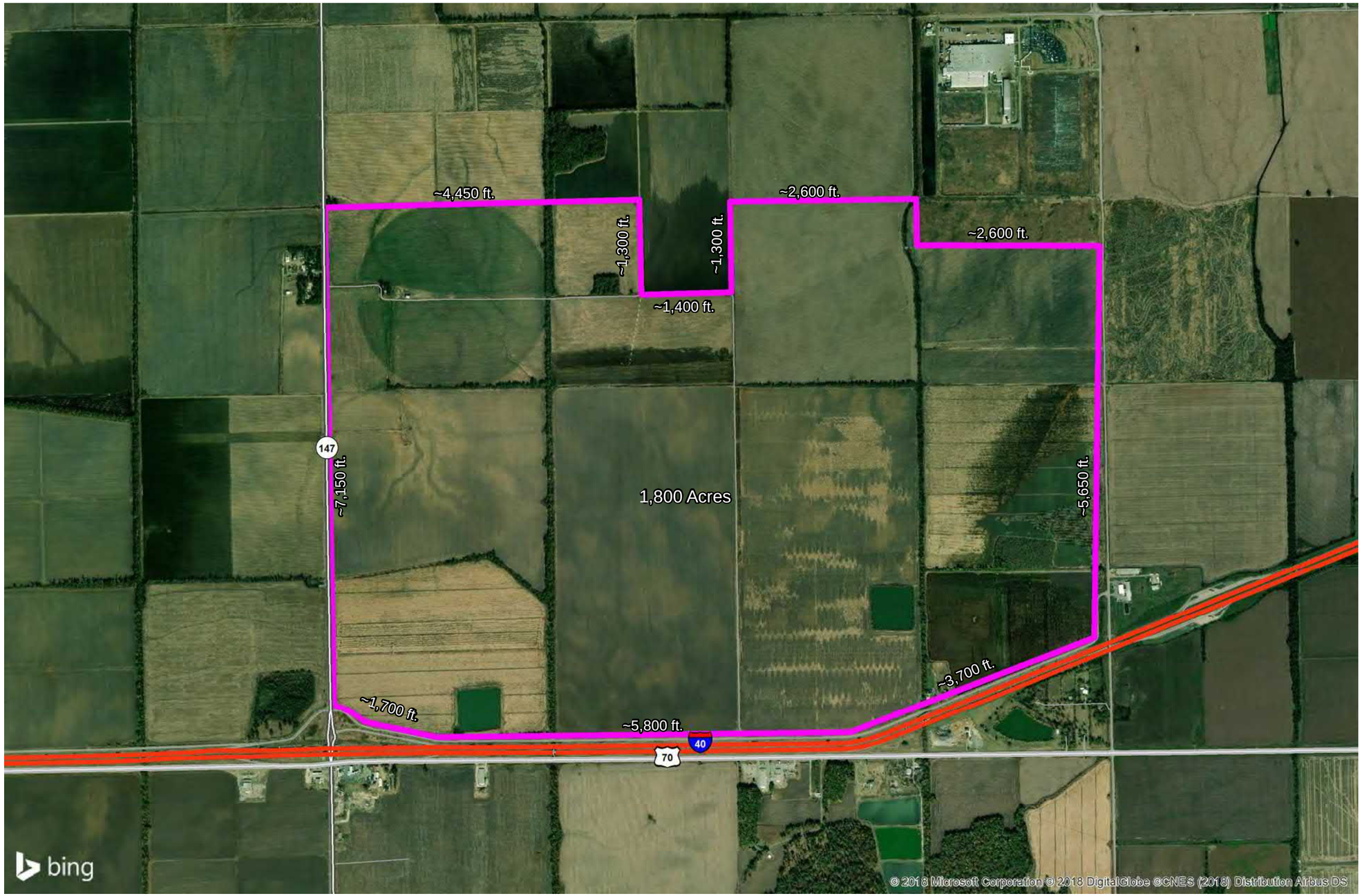
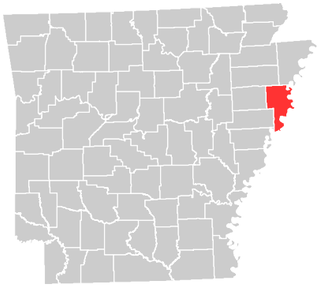


CRITTENDEN COUNTY



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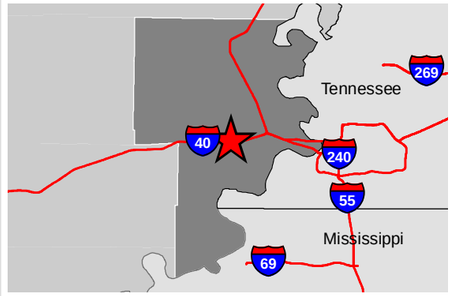

LEGEND

Property Boundary

NOTE

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SOURCE

Created by: RPG
Date: 8/2018

0 1,500 3,000 Feet

0 360 720 Meters

N

BUSINESS DEVELOPMENT
ARKANSAS

West Memphis I-40 Megasite

Topographic Map

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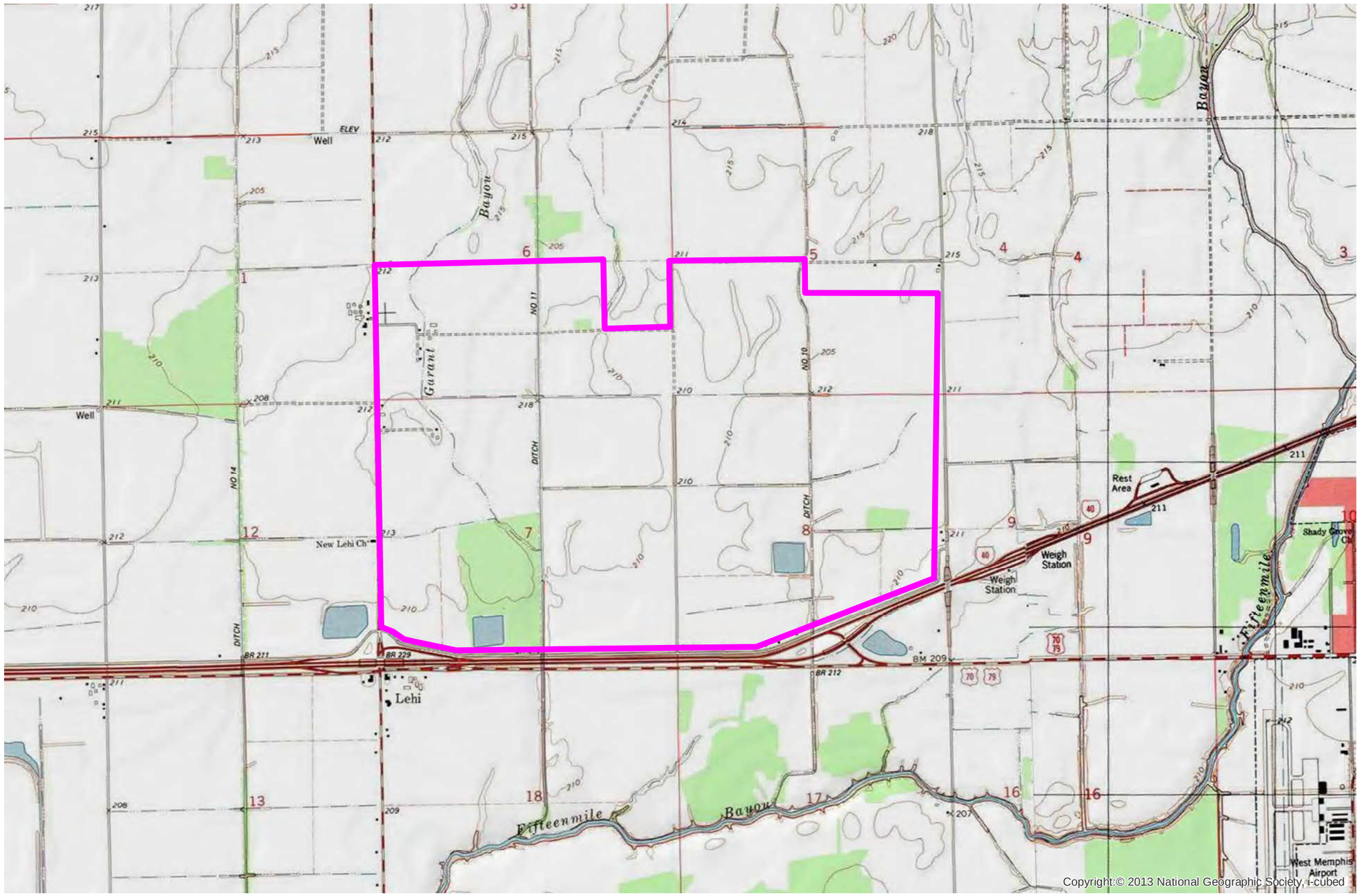
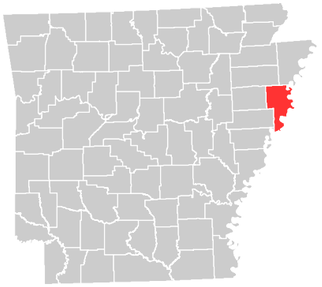


CRITTENDEN COUNTY



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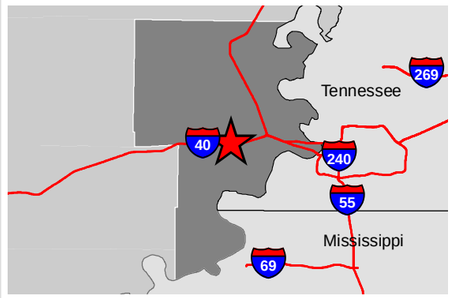

LEGEND

Property Boundary

NOTE

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SOURCE

Source: 2013 National Geographic Society, i-cubed

Created by: RPG
Date: 8/2018

0 2,000 4,000 Feet

0 480 960 Meters

N

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West Memphis I-40 Megasite

Elevation Contours

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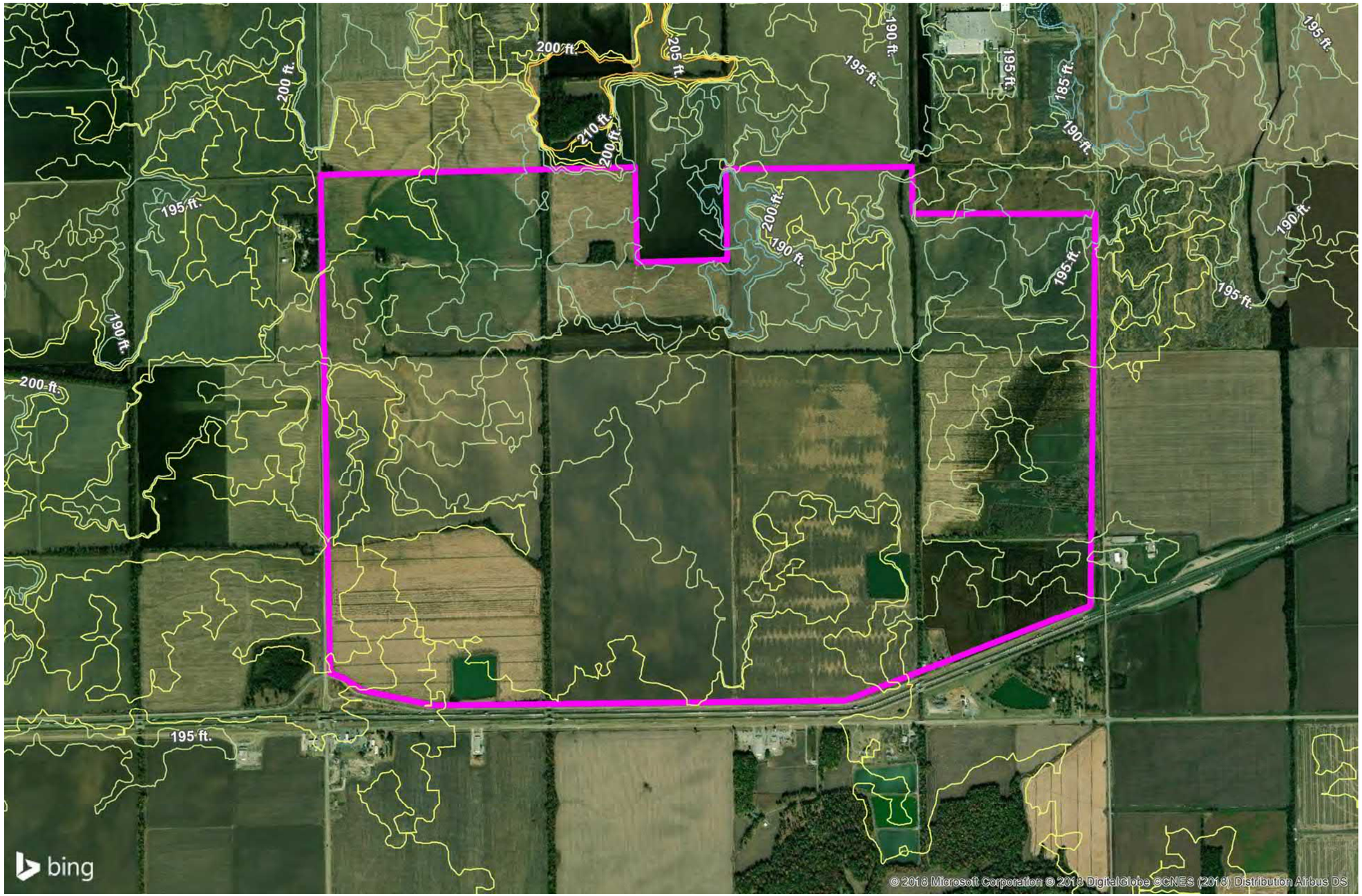

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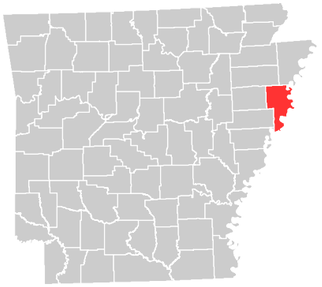

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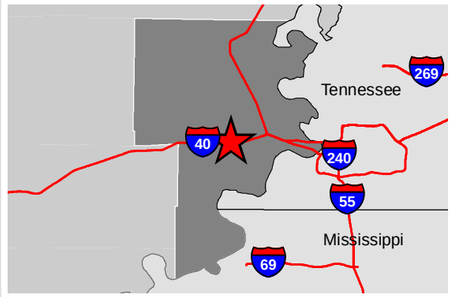

LEGEND

Property Boundary

Elevation Contours (ft.)

185 ft	200 ft
190 ft	205 ft
195 ft	210 ft

NOTE

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SOURCE

Source: Elevation contours derived from DEM data from USDA/NRCS - National Geospatial Center of Excellence

Created by: RPG
Date: 8/2018

0 1,500 3,000 Feet

0 360 720 Meters

N

BUSINESS DEVELOPMENT
ARKANSAS

West Memphis I-40 Megasite

FEMA Flood Map

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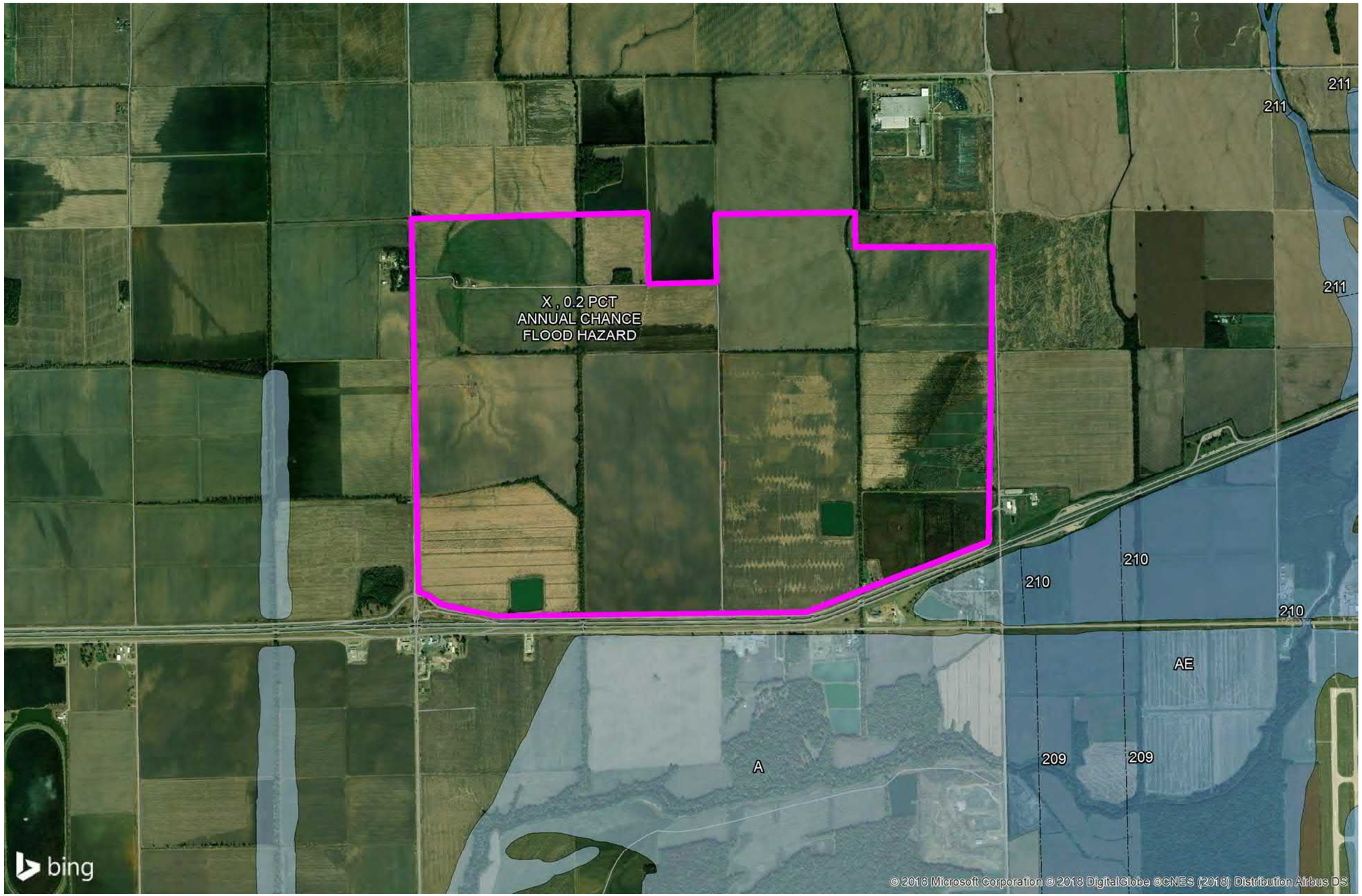
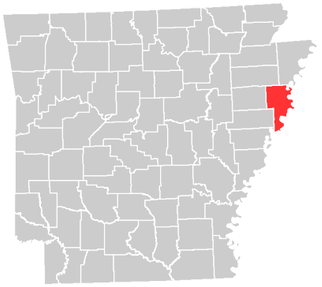


CRITTENDEN COUNTY



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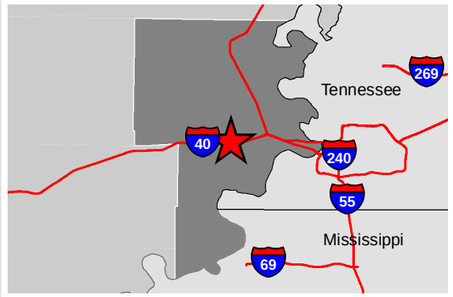

LEGEND

- Property Boundary
- Base Flood Elevation

Flood Hazards

- A,
- AE,
- X, 0.2 PCT ANNUAL CHANCE FLOOD

NOTE

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SOURCE

Source: Elevation contours derived from DEM data from USDA/NRCS - National Geospatial Center of Excellence

Created by: RPG
Date: 8/2018

0 2,000 4,000 Feet

0 480 960 Meters

N

Entergy® BUSINESS DEVELOPMENT ARKANSAS

West Memphis I-40 Megasite

National Wetland Inventory

425 West Capitol Ave, Suite 2700
Little Rock, AR 72201

Phone: 1-888-301-5861

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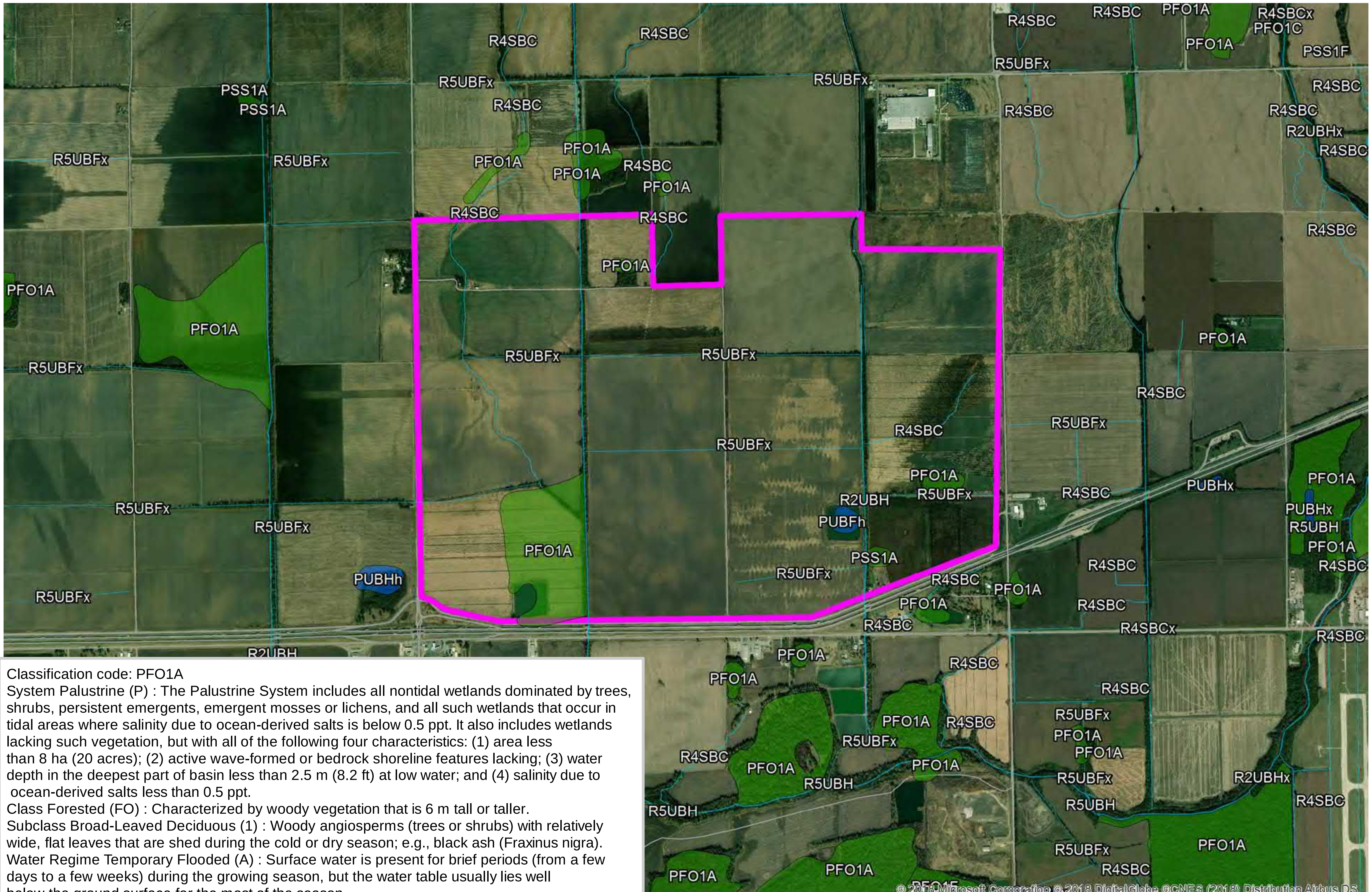
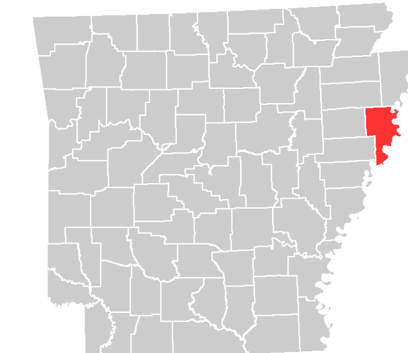


Classification code: PFO1A
System Palustrine (P) : The Palustrine System includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 ppt. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 8 ha (20 acres); (2) active wave-formed or bedrock shoreline features lacking; (3) water depth in the deepest part of basin less than 2.5 m (8.2 ft) at low water; and (4) salinity due to ocean-derived salts less than 0.5 ppt.
Class Forested (FO) : Characterized by woody vegetation that is 6 m tall or taller.
Subclass Broad-Leaved Deciduous (1) : Woody angiosperms (trees or shrubs) with relatively wide, flat leaves that are shed during the cold or dry season; e.g., black ash (Fraxinus nigra).
Water Regime Temporary Flooded (A) : Surface water is present for brief periods (from a few days to a few weeks) during the growing season, but the water table usually lies well below the ground surface for the most of the season.

CRITTENDEN COUNTY



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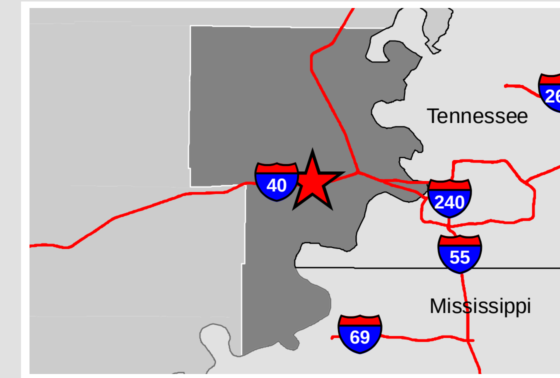

LEGEND

- Property Boundary
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

NOTE

SOURCE

Source: U.S. Fish and Wildlife Service, Title: HU8_08020203, Download Date: 8/13/2018.

Created by: RPG
Date: 8/2018

0 2,000 4,000 Feet

0 480 960 Meters

N

Entergy | BUSINESS DEVELOPMENT ARKANSAS

West Memphis I-40 Megasite

Pipeline Infrastructure

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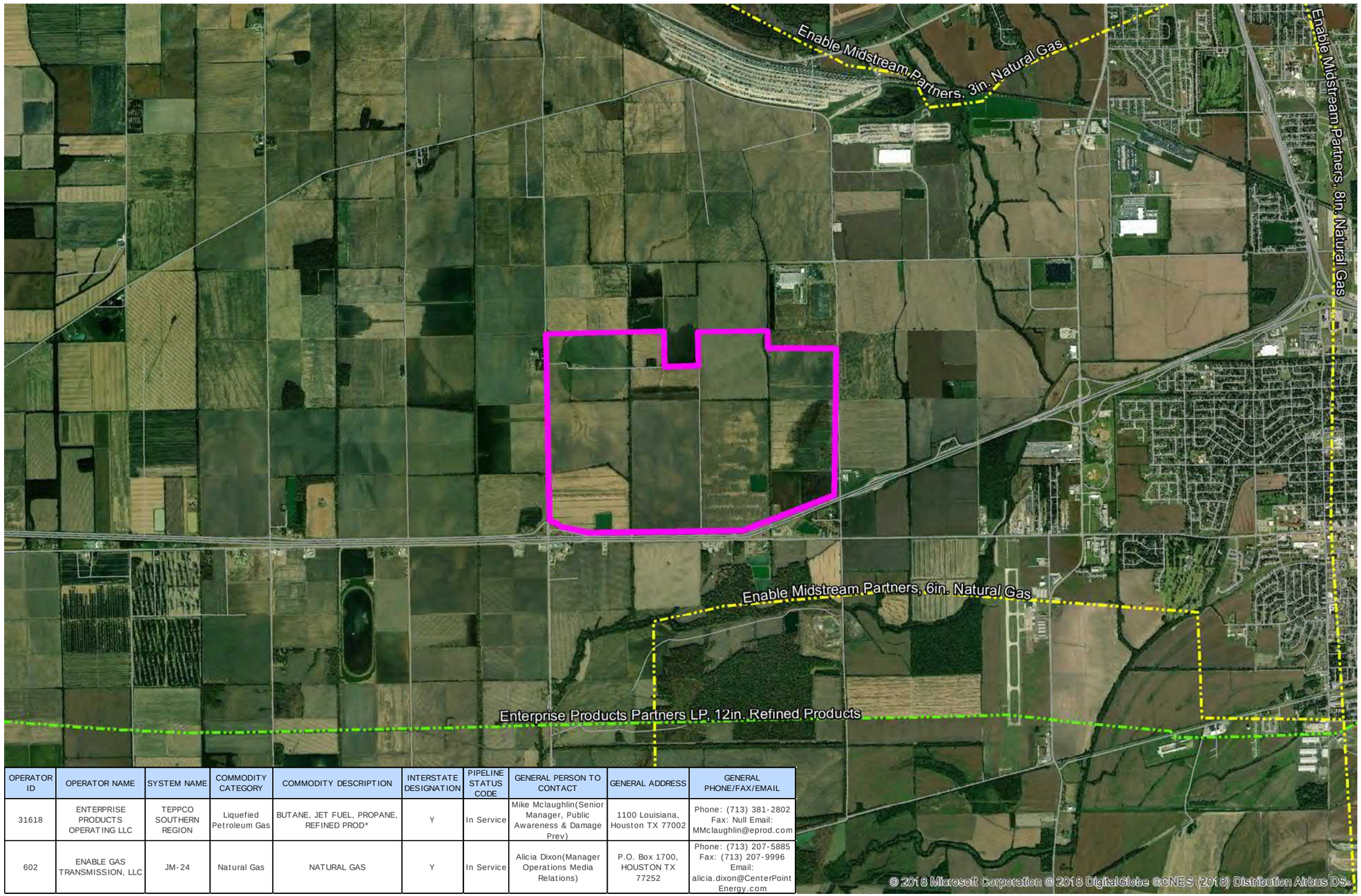
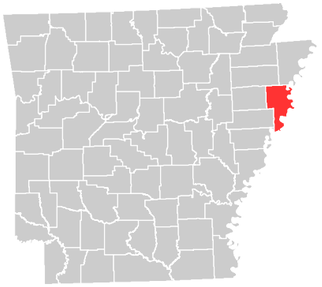


OPERATOR ID	OPERATOR NAME	SYSTEM NAME	COMMODITY CATEGORY	COMMODITY DESCRIPTION	INTERSTATE DESIGNATION	PIPELINE STATUS CODE	GENERAL PERSON TO CONTACT	GENERAL ADDRESS	GENERAL PHONE/FAX/EMAIL
31618	ENTERPRISE PRODUCTS OPERATING LLC	TEPPCO SOUTHERN REGION	Liquefied Petroleum Gas	BUTANE, JET FUEL, PROPANE, REFINED PROD*	Y	In Service	Mike Mclaughlin(Senior Manager, Public Awareness & Damage Prev)	1100 Louisiana, Houston TX 77002	Phone: (713) 381-2802 Fax: Null Email: MMclaughlin@eprod.com
602	ENABLE GAS TRANSMISSION, LLC	JM-24	Natural Gas	NATURAL GAS	Y	In Service	Alicia Dixon(Manager Operations Media Relations)	P.O. Box 1700, HOUSTON TX 77252	Phone: (713) 207-5885 Fax: (713) 207-9996 Email: alicia.dixon@CenterPointEnergy.com

CRITTENDEN COUNTY



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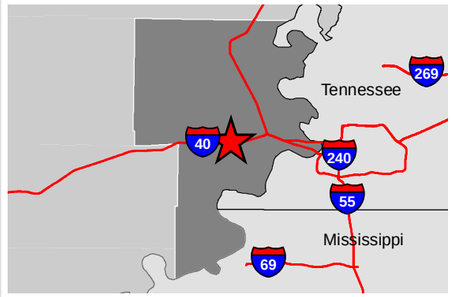

LEGEND

Property

COMMODITY

Natural Gas

Refined Products

NOTE

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SOURCE

Source:
Chart: National Pipeline Mapping System Online Publice Map Viewer,
Pipeline Location: Pennwel Pipeline Data, 2017

Created by: RPG
Date: 8/2018

0 4,000 8,000 Feet

0 960 1,920 Meters

N

Entergy | BUSINESS DEVELOPMENT ARKANSAS

West Memphis I-40 Megasite

Entergy's Electrical Infrastructure

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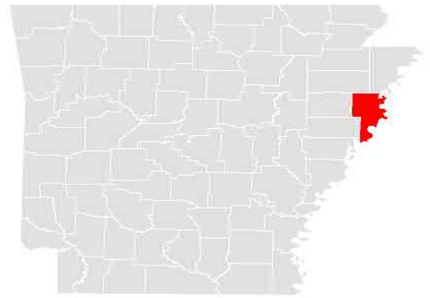
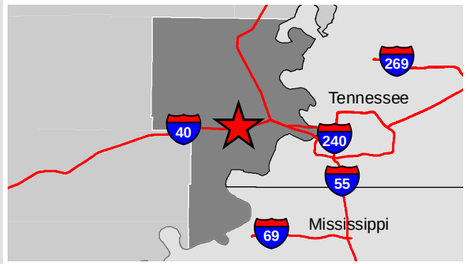
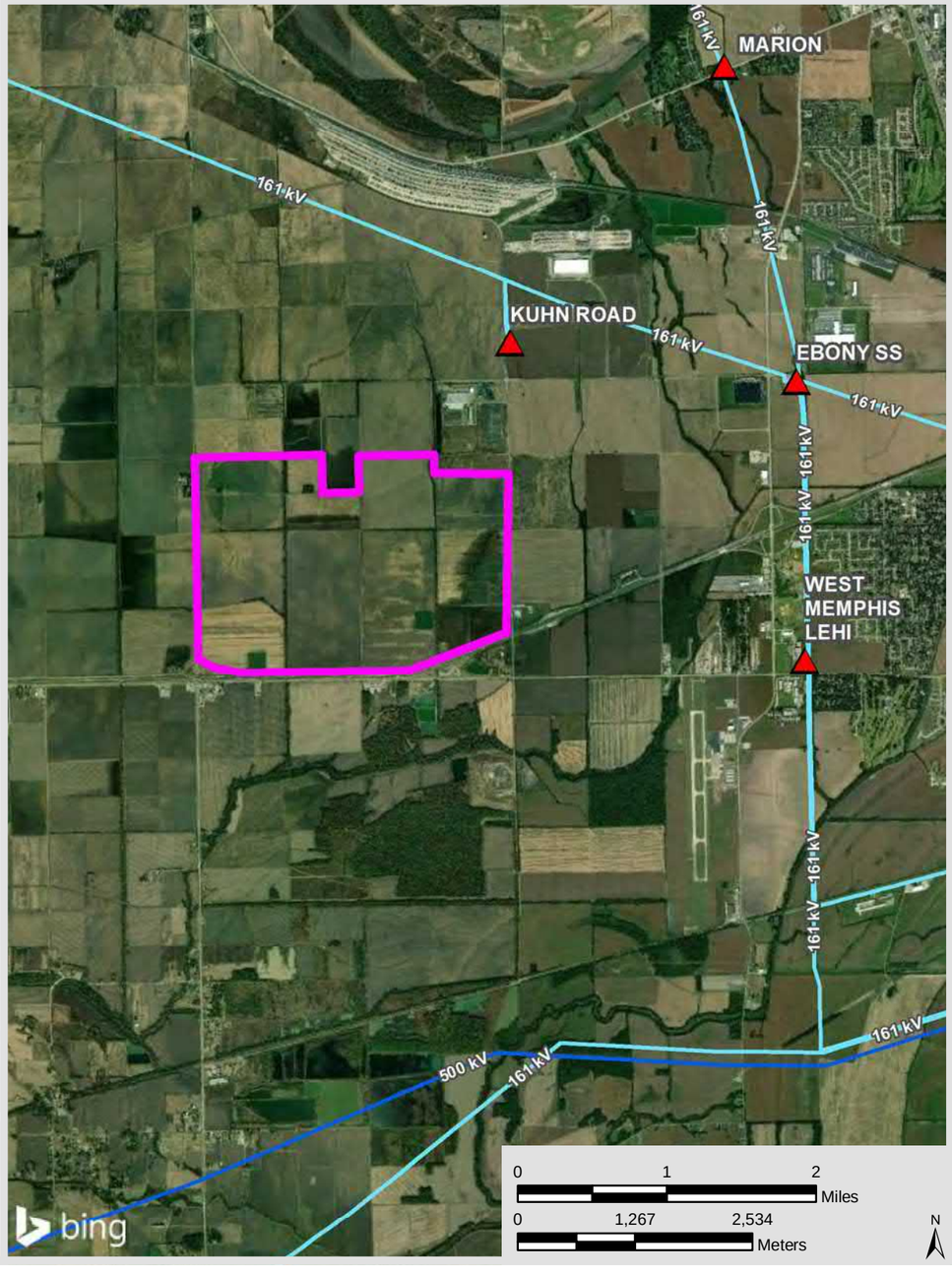
CRITTENDEN COUNTY



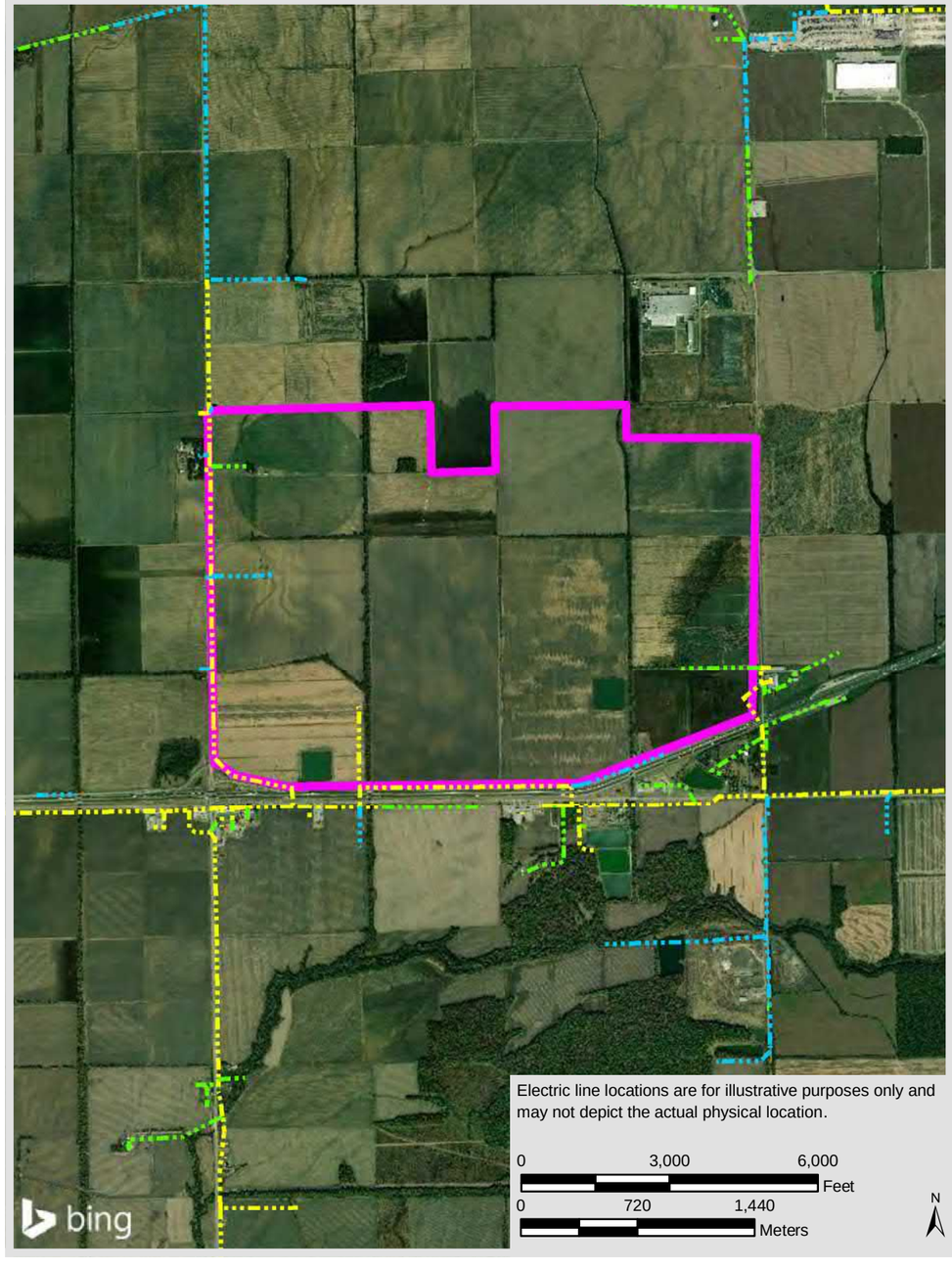
VICINITY



TRANSMISSION



DISTRIBUTION



LEGEND

Property Boundary

Transmission

Substations

500 kV

161 kV

Distribution

Phase, Voltage

Single Phase, 13.8 kV

Two Phase, 13.8 kV

Three Phase, 13.8 kV

NOTE

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SOURCE

Source: Transmission-Entergy, Distribution-Entergy, 2018

Created by: RPG
Date: 08/2018

BUSINESS DEVELOPMENT
ARKANSAS

West Memphis I-40 Megasite

Surrounding Use

425 West Capitol Ave, Suite 2700
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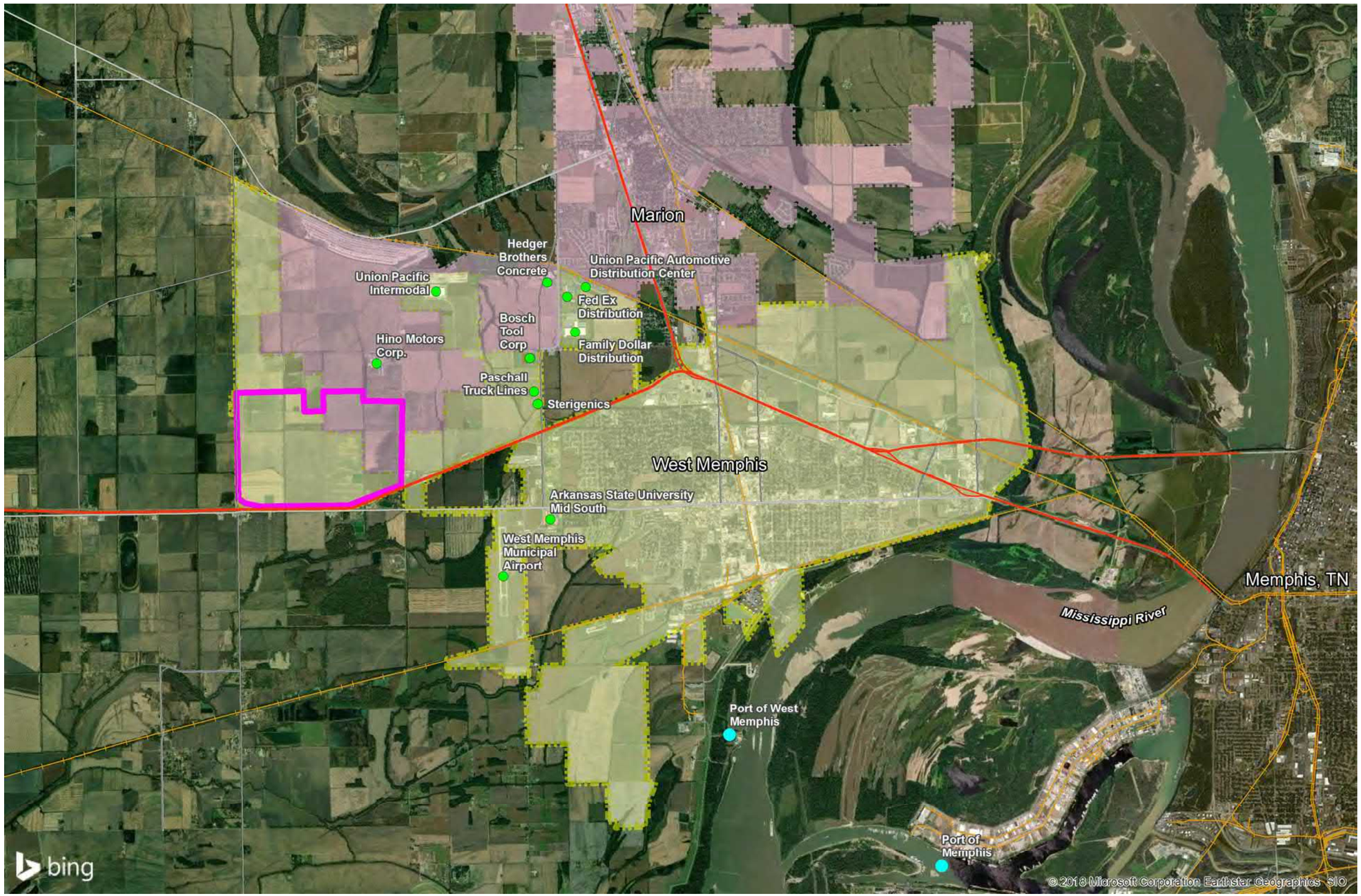
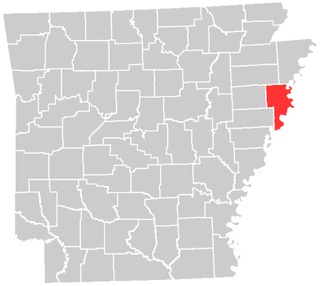


CRITTENDEN COUNTY



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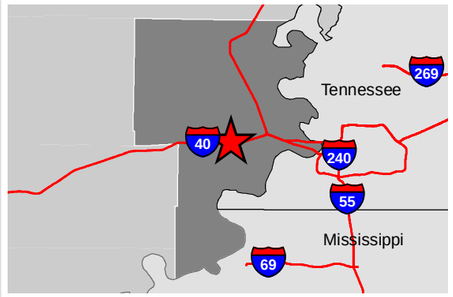

LEGEND

- Property Boundary
- City of Marion
- City of West Memphis
- Rail
- Sourrounding Use
- Ports

NOTE

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SOURCE

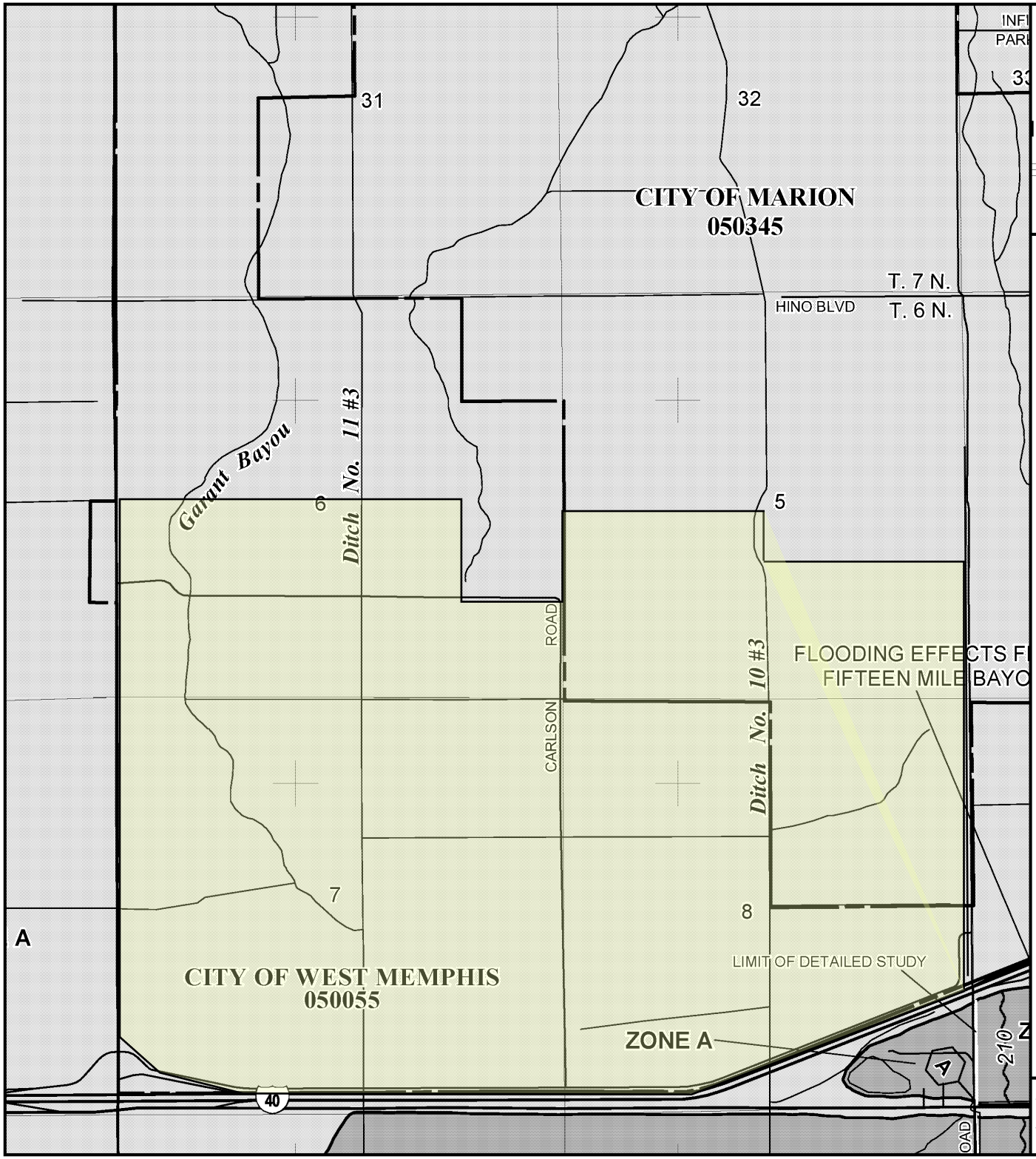
Source:
City Boundary, Tiger 2016
Ports: US Army Corps of Engineers and LOSCO
Rail: Rail_BureauOfTransportationStats_2014

Created by: RPG
Date: 10/2018

0 6,000 12,000 Feet

0 1,440 2,880 Meters

N



MAP SCALE 1" = 2000'

1000 0 2000 4000 FEET

METE

0 600 1200

NFIP

PANEL 0325E

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

CRITTENDEN COUNTY, ARKANSAS

AND INCORPORATED AREAS

PANEL 325 OF 600

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CRITTENDEN COUNTY	050429	0325	E
CRAWFORDSVILLE, TOWN OF	050317	0325	E
MARION, CITY OF	050345	0325	E
WEST MEMPHIS, CITY OF	050055	0325	E

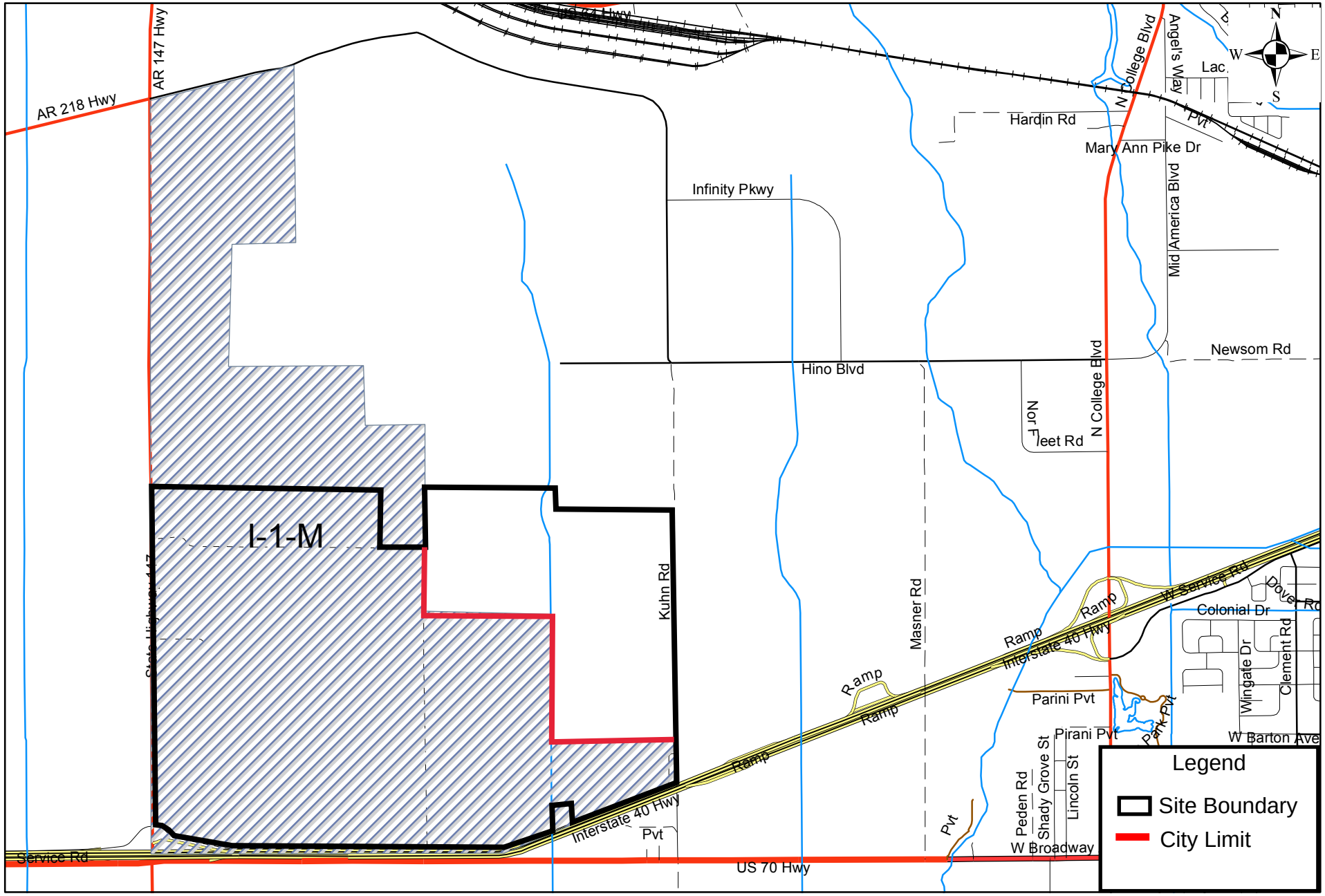
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
05035C0325E

EFFECTIVE DATE
MAY 3, 2011

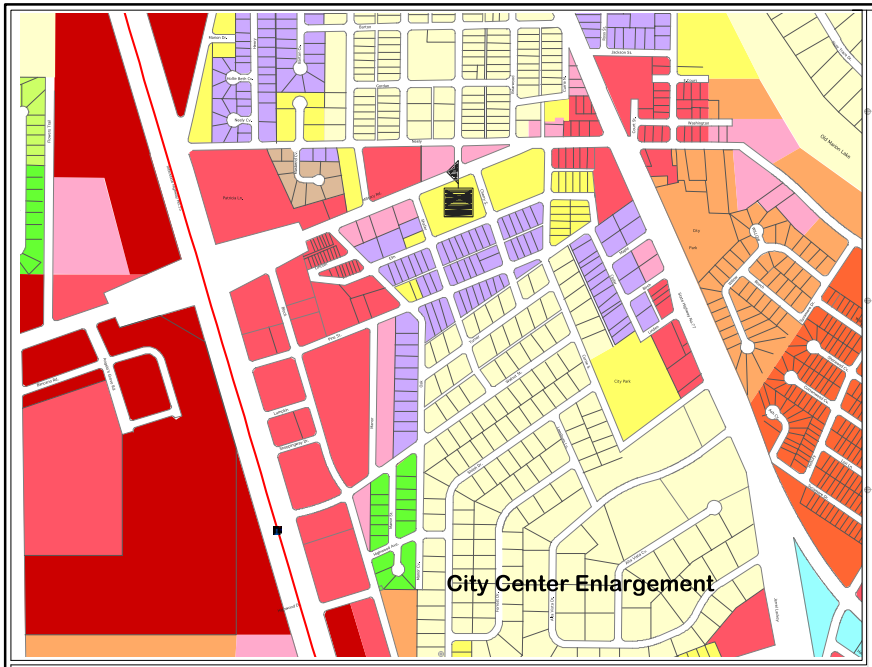
Federal Emergency Management Agency

City of West Memphis Zoning Map: I-1-M District



MAP DATE 04/13/2018

PREPARED BY CITY OF WEST MEMPHIS PLANNING AND DEVELOPMENT DEPARTMENT



LEGEND

- SECTION CORNER
- CITY LIMITS
- Megasite Boundary
- AGRICULTURAL
- R-1 SINGLE-FAMILY RESIDENTIAL
- R-2 TWO-FAMILY RESIDENTIAL
- R-2-S SINGLE-FAMILY ONLY RESIDENTIAL
- R-3 LOW DENSITY MULTIPLE-FAMILY RESIDENTIAL
- R-3-S SINGLE-FAMILY ONLY RESIDENTIAL
- R-4 MEDIUM DENSITY MULTIPLE-FAMILY RESIDENTIAL
- R-4-S SINGLE-FAMILY ONLY RESIDENTIAL
- R-5 ZERO LOT LINE RESIDENTIAL
- C-1 NEIGHBORHOOD AND QUIET BUSINESS DISTRICT
- C-2 GENERAL COMMERCIAL DISTRICT
- C-3 HIGHWAY COMMERCIAL DISTRICT
- I-1 INDUSTRIAL DISTRICT

N W E S

0 1000 2000 3000 Feet

0 0.25 0.50 0.75 1 Mile

City of Marion, Arkansas

2016 Zoning Map

Revised August, 2016

marion ARKANSAS

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