

# BASIS OF SUB-BASIN & CREEK HYDROLOGY

## KEARSLEY CREEK WATERSHED

### HEC-HMS CREEK HYDROLOGY

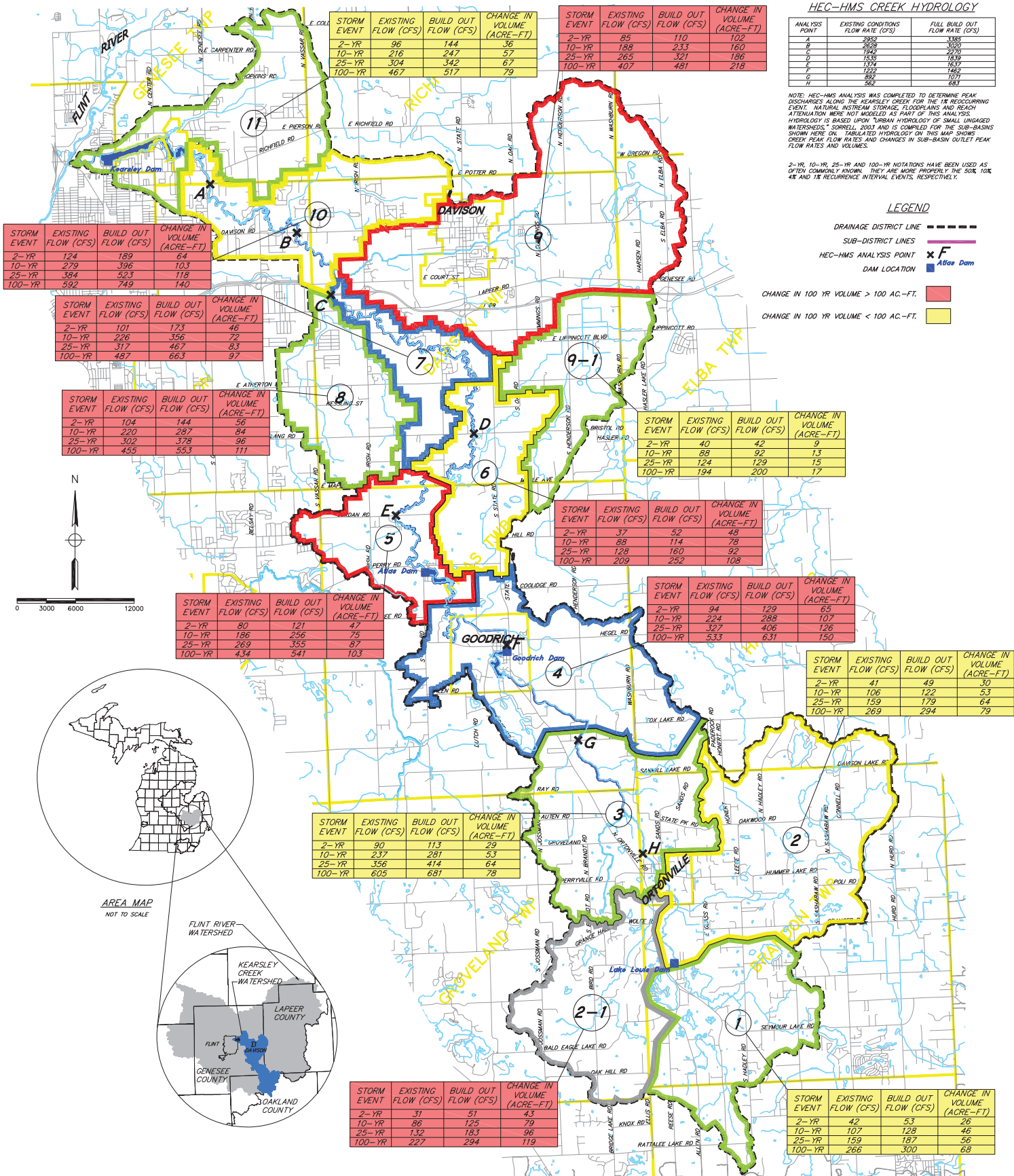
ANALYSIS POINT	EXISTING CONDITIONS FLOW RATE (CFS)	FULL BUILD OUT FLOW RATE (CFS)
A	355	355
B	2629	3020
C	144	273
D	1535	1630
E	127	163
F	152	166
G	89	101
H	26	61

NOTE: HEC-HMS ANALYSIS WAS COMPLETED TO DETERMINE PEAK DISCHARGES ALONG THE KEARSLEY CREEK FOR THE 1% RECURRING EVENT. NATURAL INSTREAM STORAGE, FLOODPLAINS AND REACH ATTENUATION WERE NOT MODELLED AS PART OF THIS ANALYSIS. HYDROLOGY IS BASED UPON URBAN HYDROLOGY OF SMALL UNGAGED WATERSHEDS. SOURCE: 2003 AND IS COMPILED FOR THE SUB-BASINS SHOWN HERE ON. TABULATED HYDROLOGY ON THIS MAP SHOWS CREEK PEAK FLOW RATES AND CHANGES IN SUB-BASIN OUTLET PEAK FLOW RATES AND VOLUMES.

2-YR, 10-YR, 25-YR AND 100-YR NOTATIONS HAVE BEEN USED AS OFTEN COMMONLY KNOWN. THEY ARE MORE PROPERLY THE 50%, 10%, 1% AND 0.1% RECURRENCE INTERVAL EVENTS, RESPECTIVELY.

**LEGEND**

- DRAINAGE DISTRICT LINE
- SUB-DISTRICT LINES
- x F HEC-HMS ANALYSIS POINT
- Dam Dam
- Change in 100 YR VOLUME > 100 AC.-FT. (Red)
- Change in 100 YR VOLUME < 100 AC.-FT. (Yellow)



STORM EVENT	EXISTING FLOW (CFS)	BUILD OUT FLOW (CFS)	CHANGE IN VOLUME (ACRE-FT)
2-YR	124	189	64
10-YR	279	396	103
25-YR	384	523	118
100-YR	592	749	140

STORM EVENT	EXISTING FLOW (CFS)	BUILD OUT FLOW (CFS)	CHANGE IN VOLUME (ACRE-FT)
2-YR	101	173	46
10-YR	226	356	72
25-YR	317	467	83
100-YR	487	663	97

STORM EVENT	EXISTING FLOW (CFS)	BUILD OUT FLOW (CFS)	CHANGE IN VOLUME (ACRE-FT)
2-YR	104	144	56
10-YR	220	287	84
25-YR	302	378	96
100-YR	455	553	111

STORM EVENT	EXISTING FLOW (CFS)	BUILD OUT FLOW (CFS)	CHANGE IN VOLUME (ACRE-FT)
2-YR	40	42	9
10-YR	88	92	13
25-YR	124	129	15
100-YR	194	200	17

STORM EVENT	EXISTING FLOW (CFS)	BUILD OUT FLOW (CFS)	CHANGE IN VOLUME (ACRE-FT)
2-YR	37	52	48
10-YR	88	114	78
25-YR	128	160	92
100-YR	209	252	108

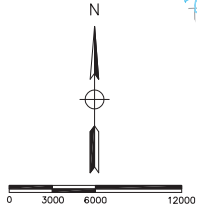
STORM EVENT	EXISTING FLOW (CFS)	BUILD OUT FLOW (CFS)	CHANGE IN VOLUME (ACRE-FT)
2-YR	94	129	65
10-YR	224	288	107
25-YR	327	406	126
100-YR	533	631	150

STORM EVENT	EXISTING FLOW (CFS)	BUILD OUT FLOW (CFS)	CHANGE IN VOLUME (ACRE-FT)
2-YR	41	49	30
10-YR	106	122	53
25-YR	159	179	64
100-YR	269	294	79

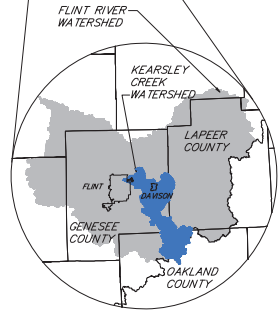
STORM EVENT	EXISTING FLOW (CFS)	BUILD OUT FLOW (CFS)	CHANGE IN VOLUME (ACRE-FT)
2-YR	90	113	29
10-YR	237	281	53
25-YR	356	414	64
100-YR	605	681	78

STORM EVENT	EXISTING FLOW (CFS)	BUILD OUT FLOW (CFS)	CHANGE IN VOLUME (ACRE-FT)
2-YR	31	51	43
10-YR	86	125	79
25-YR	132	183	96
100-YR	227	294	119

STORM EVENT	EXISTING FLOW (CFS)	BUILD OUT FLOW (CFS)	CHANGE IN VOLUME (ACRE-FT)
2-YR	42	53	26
10-YR	107	128	46
25-YR	159	187	56
100-YR	266	300	68



AREA MAP NOT TO SCALE



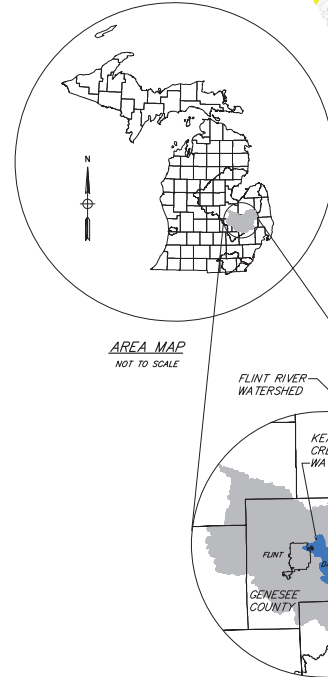
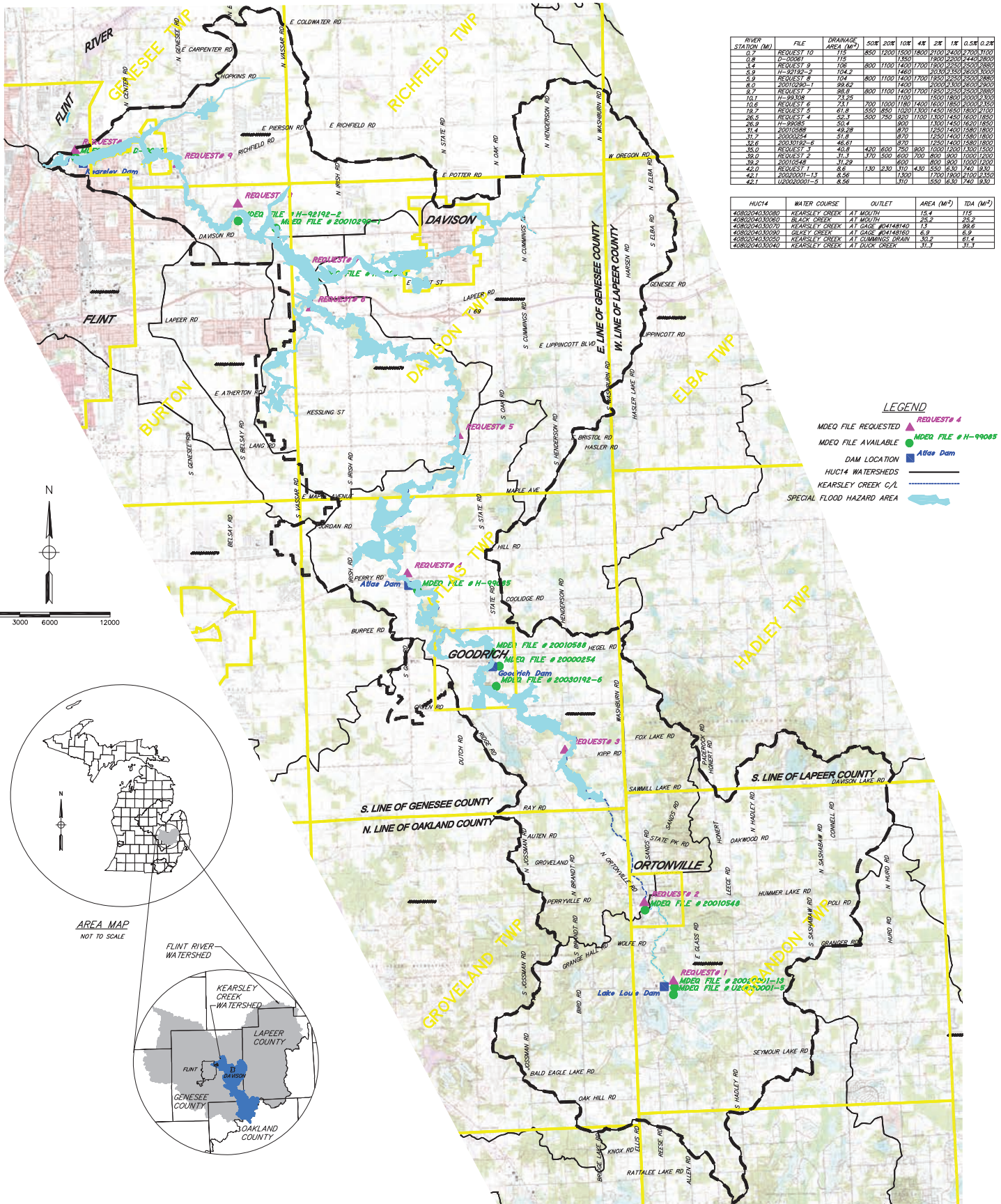
Spicer Group  
 230 S. Washington  
 Saginaw, Michigan 48605  
 Tel. 989-754-4717

Spicer Group  
 1400 Zeeb Drive  
 St. Johns, Michigan 48879  
 Tel. 989-224-2355

E-2520-05

# HYDROLOGY RESEARCH SUMMARY

## KEARSLEY CREEK WATERSHED



RIVER STATION (MI)	FILE	DRAINAGE AREA (M <sup>2</sup> )	50%R	20%R	10%R	4%R	2%R	1%R	0.5%R	0.2%R
0.0	REQUEST 10	175	850	1200	1500	1800	2100	2400	2700	3000
0.2	H-99085	175	850	1200	1500	1800	2100	2400	2700	3000
0.4	REQUEST 9	106	800	1100	1400	1700	2000	2300	2600	2900
0.6	H-99192-2	104.2	792	1080	1380	1680	1980	2280	2580	2880
0.8	REQUEST 8	104	800	1100	1400	1700	2000	2300	2600	2900
1.0	REQUEST 7	98.8	800	1100	1400	1700	2000	2300	2600	2900
1.2	H-99388	71.25	700	1000	1300	1600	1900	2200	2500	2800
1.4	REQUEST 6	71.25	700	1000	1300	1600	1900	2200	2500	2800
1.6	REQUEST 5	67.8	550	850	1050	1300	1550	1800	2100	2400
1.8	REQUEST 4	62.3	500	750	950	1150	1400	1650	1900	2150
2.0	H-99085	50.4	450	650	850	1050	1250	1450	1650	1850
2.2	REQUEST 3	49.28	450	650	850	1050	1250	1450	1650	1850
2.4	REQUEST 2	51.8	450	650	850	1050	1250	1450	1650	1850
2.6	REQUEST 1	46.67	420	600	800	1000	1200	1400	1600	1800
2.8	REQUEST 1	46.67	420	600	800	1000	1200	1400	1600	1800
3.0	REQUEST 2	31.3	370	500	600	700	800	900	1000	1100
3.2	REQUEST 1	31.32	370	500	600	700	800	900	1000	1100
3.4	REQUEST 1	26.6	180	230	370	430	550	630	740	830
3.6	REQUEST 1	18.56	1400	1700	2100	2500	2900	3300	3700	4100
3.8	REQUEST 1	18.56	1400	1700	2100	2500	2900	3300	3700	4100
4.0	REQUEST 1	18.56	1400	1700	2100	2500	2900	3300	3700	4100

HUC14	WATER COURSE	OUTLET	AREA (M <sup>2</sup> )	TDA (M <sup>2</sup> )
408020403000	KEARSLEY CREEK	AT MOUTH	18.4	118
408020403000	BLACK CREEK	AT MOUTH	25.2	28.2
408020403000	KEARSLEY CREEK	AT GAGE #04148140	1.3	99.6
408020403000	GILLEY CREEK	AT GAGE #04148180	6.8	6.8
408020403000	KEARSLEY CREEK	AT CUMMINGS DRAIN	30.2	61.4
4080204030040	KEARSLEY CREEK	AT DUCK CREEK	31.3	31.3

**LEGEND**

- MDEQ FILE REQUESTED ▲ REQUEST #
- MDEQ FILE AVAILABLE ● MDEQ FILE # H-99085
- DAM LOCATION ■ Alvas Dam
- HUC14 WATERSHEDS
- KEARSLEY CREEK C/L —
- SPECIAL FLOOD HAZARD AREA ■



Spicer Group  
230 S. Washington  
Saginaw, Michigan 48605  
Tel. 989-754-4717

Spicer Group  
1400 Zeeb Drive  
St. Johns, Michigan 48879  
Tel. 989-224-2355

E-2520-08