HUDGINS DRAINAGE BASIN
SAPULPA, OKLAHOMA

CITYWIDE MASTER DRAINAGE PLAN

JUNE 2010

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MESHEK & ASSOCIATES, PLC
CIVIL & WATER RESOURCE ENGINEERING
GEOGRAPHIC INFORMATION SYSTEMS

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SECTION 11. HUDGINS DRAINAGE BASIN

11.1. EXISTING CONDITIONS HYDROLOGY

The Hudgins Drainage Basin generally lies east of Polecat Creek, south of Frontier Road, west of S. 49th West Avenue and north of W. 131st Street. It drains northwesterly into Polecat Creek. The basin and its location are depicted in **FIGURE 11-1**.

The hydrologic soil groups and existing land use for this basin are shown in **FIGURE 11-2** and **FIGURE 11-3** respectively. More information on the hydrologic soil groups can be found in **SECTION 2.1 HYDROLOGIC ANALYSIS**. Currently, this basin is relatively undeveloped and is used as pastureland or forest land or is sparsely developed with large lot residential acreages.

The hydrologic coefficients used for input in the HEC-HMS model include the drainage area, the lag time and the soil complex curve number (CN). A summary of hydrologic coefficients is tabulated in **TABLE 11-1** with more detailed data found in **APPENDIX 11-A**.

The drainage basin was modeled using HEC-HMS. The HEC-HMS schematic used to develop the flow rates for the Hudgins Drainage Basin is located in **APPENDIX 11-B**, and a complete list of the flow rates for the existing conditions is listed in **APPENDIX 11-C**. **TABLE 11-2** shows the resulting flow rates at major junctions for this basin.

11.2. EXISTING CONDITIONS HYDRAULICS

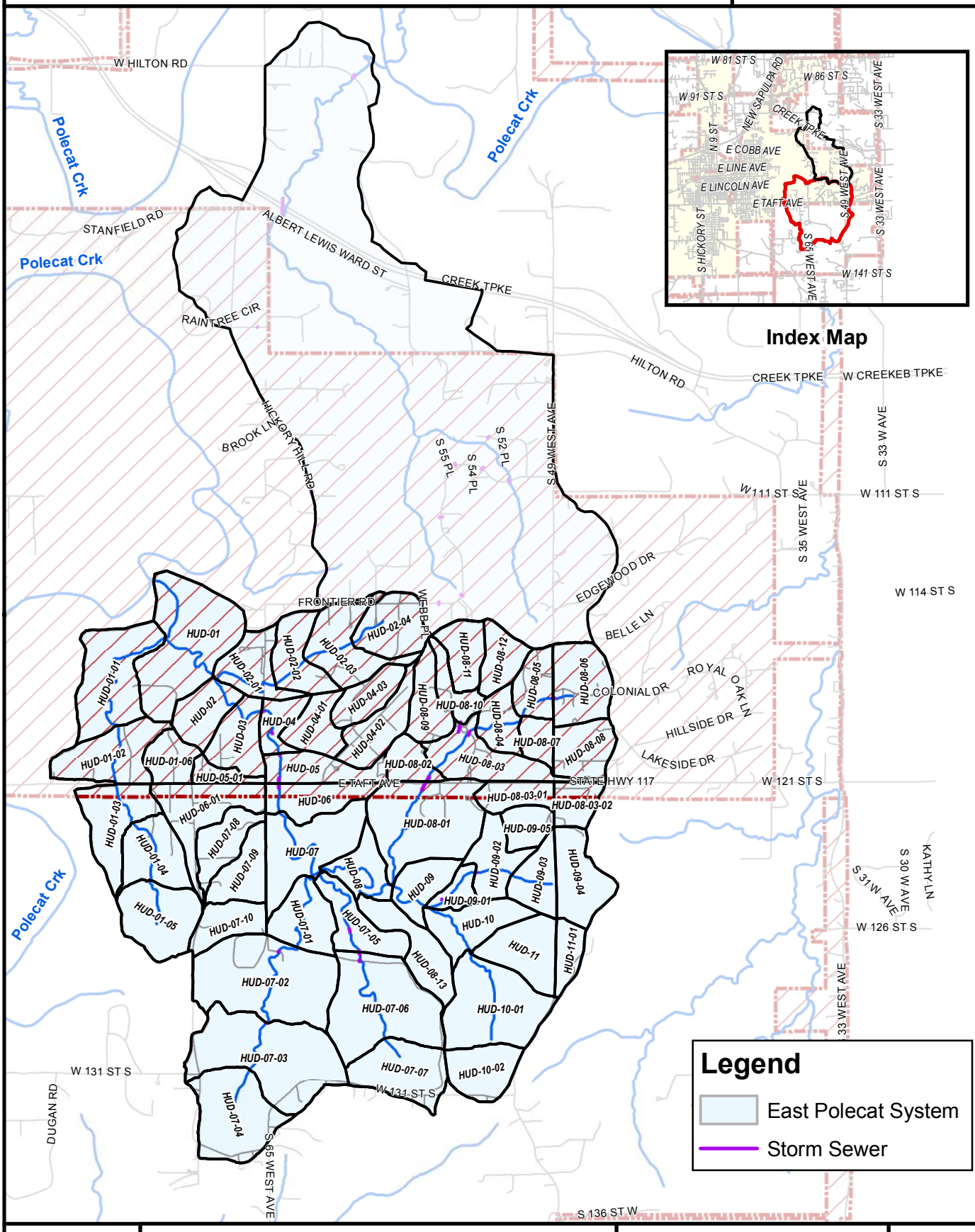
Floodplains were mapped in the Hudgins Drainage Basin using the 2-, 10, 100- and 500-year frequencies and stream locations are generally shown in **FIGURE 11-4** with more detailed maps found in **APPENDIX 11-D.** The resulting water surface profiles for each frequency are presented in **APPENDIX 11-E**.

Finally, bridges and culverts were studied to determine the likelihood of being overtopped during certain storm frequencies. Eight structures would be overtopped during storm events ranging in frequency from a 4% annual chance to that of a 100% annual chance (or more frequent). The locations of these can be viewed in **FIGURE 11-5**.

City of Sapulpa Master Drainage Plan

STORMWATER UTILITIES & MASTER DRAINAGE PLAN

Feet
0 1,250 2,500
N



East Polecat Systems
Hudgins Drainage Basin

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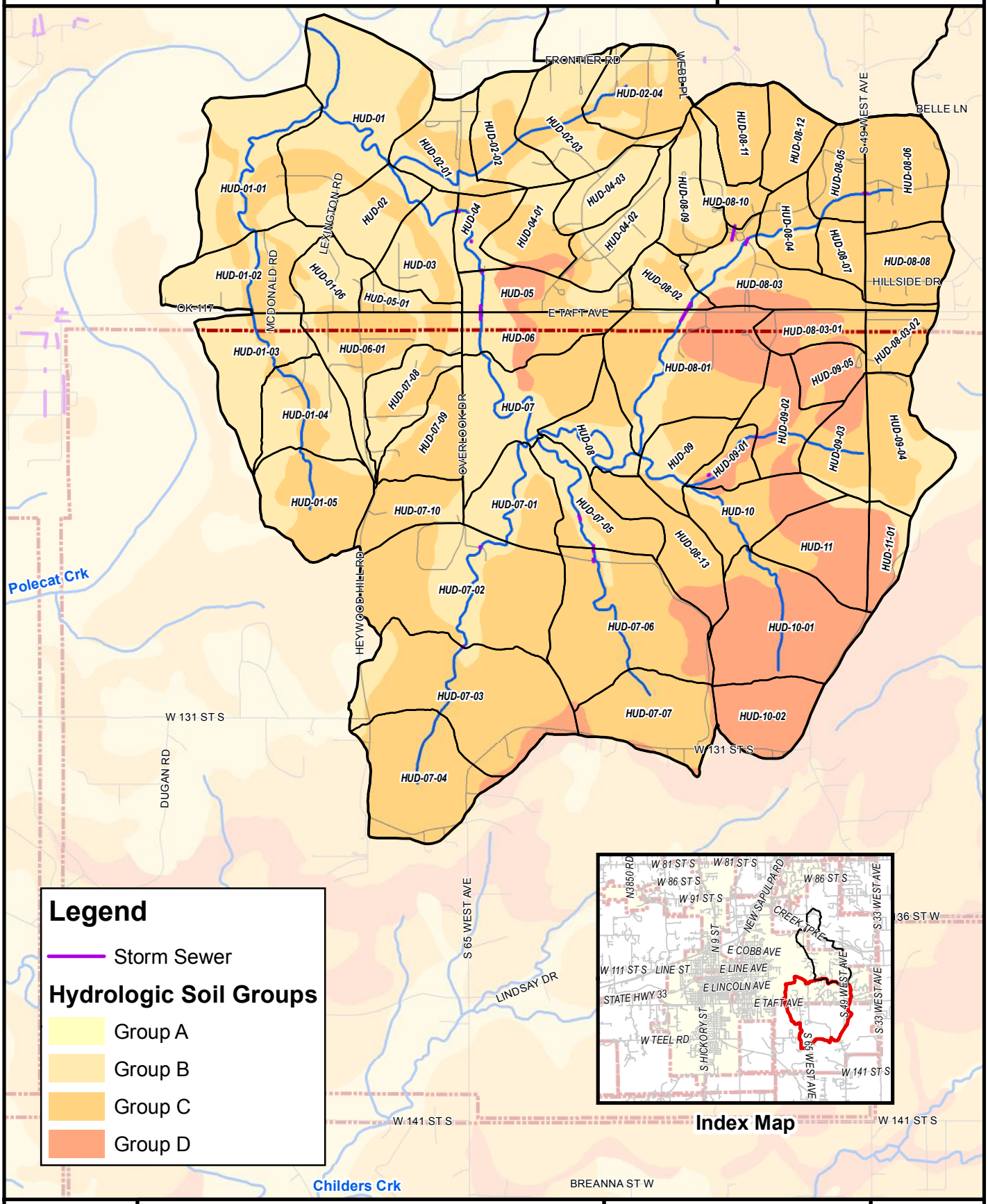
Figure 11-1

City of Sapulpa Master Drainage Plan

STORMWATER UTILITIES & MASTER DRAINAGE PLAN

Feet
0 900 1,800
N



Index Map

Legend

- Storm Sewer

Hydrologic Soil Groups

- Group A
- Group B
- Group C
- Group D

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Hudgins Drainage Basin Hydrologic Soil Groups

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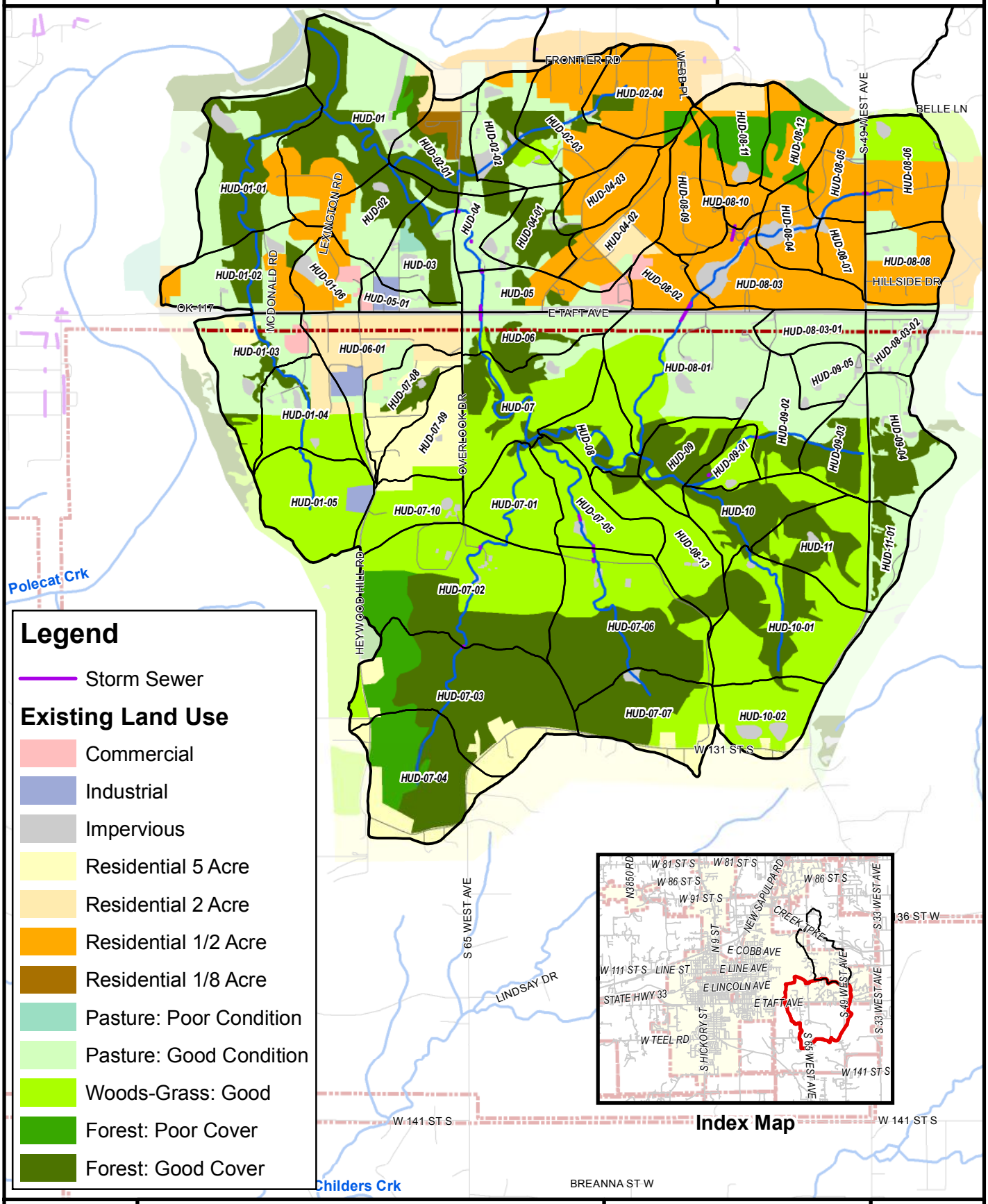
Figure 11-2

City of Sapulpa Master Drainage Plan

STORMWATER UTILITIES & MASTER DRAINAGE PLAN

Feet
0 900 1,800
N



Legend

- Storm Sewer

Existing Land Use

- Commercial
- Industrial
- Impervious
- Residential 5 Acre
- Residential 2 Acre
- Residential 1/2 Acre
- Residential 1/8 Acre
- Pasture: Poor Condition
- Pasture: Good Condition
- Woods-Grass: Good
- Forest: Poor Cover
- Forest: Good Cover

Index Map

Hudgins Drainage Basin Existing Land Use

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Figure 11-3

TABLE 11-1. EAST POLECAT SYSTEMS – HUDGINS DRAINAGE BASIN
SUMMARY OF HYDROLOGIC COEFFICIENTS FOR EXISTING CONDITIONS

Sub-Area	Drainage Area, Acres	Lag Time, Minutes	Composite CN
HUD-01	74.5	10.1	64
HUD-01-01	51.6	9.6	63
HUD-01-02	36.7	6.1	69
HUD-01-03	34.6	7.4	65
HUD-01-04	30.5	6.6	65
HUD-01-05	38.6	5.0	70
HUD-01-06	17.2	2.8	74
HUD-02	22.6	5.2	63
HUD-02-01	25.8	5.7	69
HUD-02-02	25.6	4.1	69
HUD-02-03	35.1	6.2	70
HUD-02-04	30.0	4.5	76
HUD-03	25.5	7.6	68
HUD-04	14.3	4.0	67
HUD-04-01	20.3	6.2	72
HUD-04-02	26.0	6.9	70
HUD-04-03	19.1	6.3	70
HUD-05	24.0	8.5	77
HUD-05-01	8.4	7.9	81
HUD-06	24.4	7.6	70
HUD-06-01	37.0	15.3	74
HUD-07	47.8	11.1	64
HUD-07-01	28.0	9.5	63
HUD-07-02	80.4	7.6	68
HUD-07-03	77.8	6.3	71
HUD-07-04	49.8	6.2	74
HUD-07-05	26.5	14.7	66
HUD-07-06	70.9	7.9	72
HUD-07-07	37.2	4.8	73
HUD-07-08	21.9	7.9	67
HUD-07-09	23.2	6.2	75
HUD-07-10	20.5	5.7	73
HUD-08	20.7	7.5	62
HUD-08-01	67.2	10.1	75
HUD-08-02	14.4	4.0	76

HUD-08-03	35.9	7.4	82
HUD-08-03-01	15.7	4.3	81
HUD-08-03-02	14.9	3.1	80
HUD-08-04	17.3	3.5	83
HUD-08-05	19.0	4.5	81
HUD-08-06	34.0	3.5	78
HUD-08-07	11.3	4.3	81
HUD-08-08	24.5	4.5	79
HUD-08-09	21.2	4.1	73
HUD-08-10	13.7	5.4	74
HUD-08-11	19.9	3.8	79
HUD-08-12	18.6	4.3	79
HUD-08-13	29.2	9.2	73
HUD-09	20.8	8.4	66
HUD-09-01	10.3	4.3	75
HUD-09-02	24.0	3.9	76
HUD-09-03	20.8	3.2	73
HUD-09-04	31.6	4.3	69
HUD-09-05	14.7	2.1	81
HUD-10	28.4	7.4	71
HUD-10-01	57.8	8.4	78
HUD-10-02	26.0	3.5	81
HUD-11	31.5	6.6	77
HUD-11-01	13.0	3.0	75

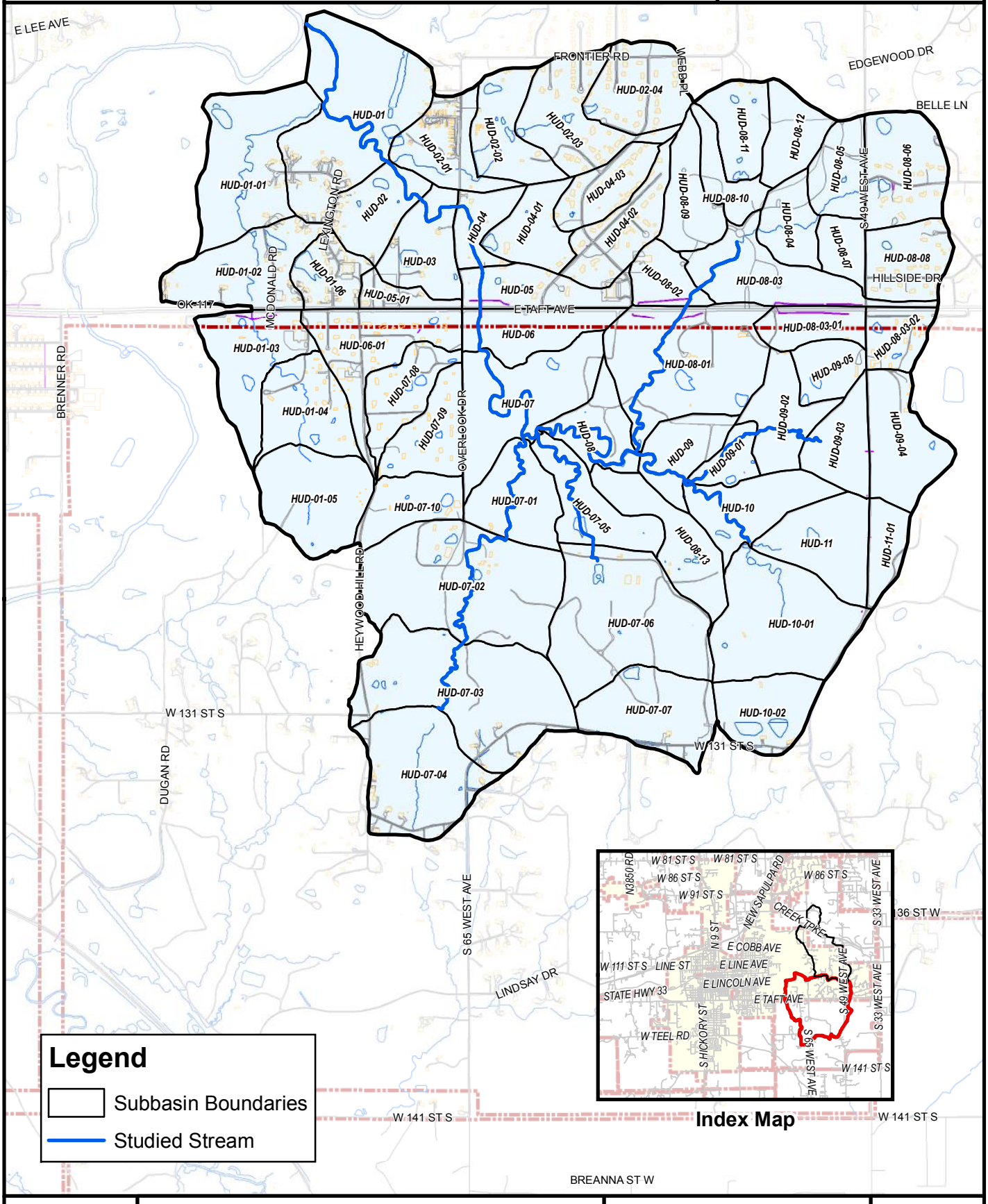
TABLE 11-2. EAST POLECAT CREEK SYSTEMS – HUDGINS DRAINAGE BASIN
EXISTING FLOW RATES AT MAJOR JUNCTIONS (CFS)

HMS Junction	Street Intersection	1-Year	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	500-Year
J_HUD-04	Overlook Drive	502	909	1813	2420	3256	3698	3937	4233
J_HUD-04-02	Countrywoodway & Pioneer Rd	14	27	57	76	102	122	143	184
J_HUD-06	Taft Avenue & Overlook Drive	504	903	1778	2369	3178	3648	3863	3992
J_HUD-08-02	East of Pioneer Road & Taft Avenue	62	105	185	239	324	396	605	1296

City of Sapulpa Master Drainage Plan

STORMWATER UTILITIES & MASTER DRAINAGE PLAN

Feet
0 870 1,740
N



Legend

- Subbasin Boundaries
- Studied Stream

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Hudgins Drainage Basin Studied Streams

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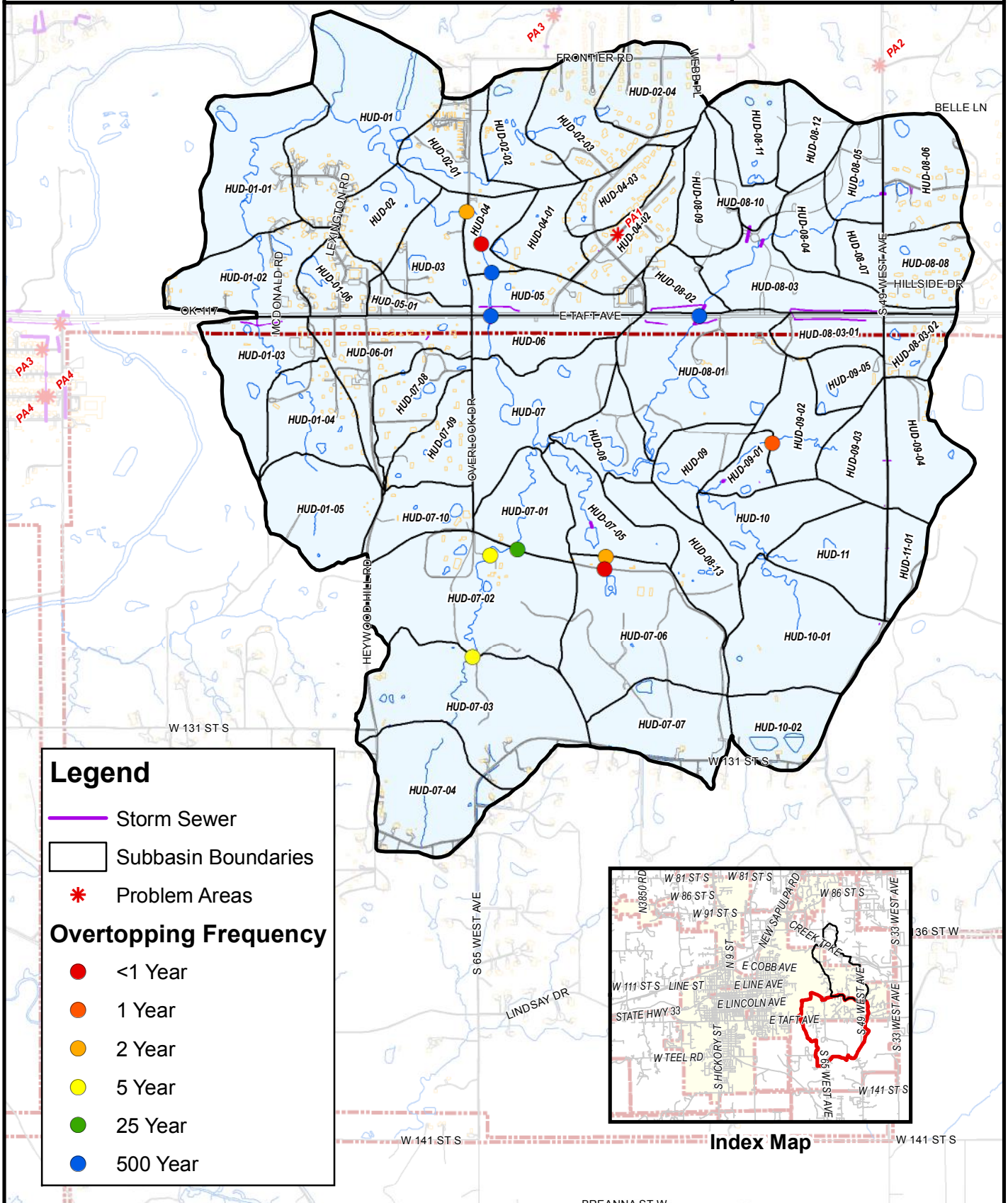
Figure 11-4

STORMWATER UTILITIES & MASTER DRAINAGE PLAN

City of Sapulpa Master Drainage Plan

Feet
0 870 1,740
N



Legend

- Storm Sewer
- Subbasin Boundaries
- Problem Areas

Overtopping Frequency

- <1 Year
- 1 Year
- 2 Year
- 5 Year
- 25 Year
- 500 Year

Index Map

Hudgins Drainage Basin Problem Areas and Road Overtopping Frequency

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Figure 11-5

11.3. PROBLEM AREAS

Only one drainage problem was identified in the Hudgins Drainage Basin. A discussion of it follows and its locations is shown in **FIGURE 11-5**.

A. Problem Area 1: Countrywood Way

Drainage is poor in this area.

B. Problem Area 2: Overtopped Structures

In this basin, eight structures would be overtopped during storm events ranging in frequency from a 4% annual chance to that of a 100% annual chance (or more frequent). The locations of these can be viewed in **FIGURE 11-5**.

11.4 EVALUATION OF ALTERNATIVES

The following alternative was developed for the only Problem Area, other than the Overtopped Structures, identified in this basin. It is described below.

A. Problem Area 1: Countrywood Way

Alternative 1 – Construct new storm sewer with inlets at Pioneer Road and Countrywide Way. This alternative calls for the construction of a new 36-inch RCP starting from the area north and west of the intersection at Pioneer Road and Countrywood Way and would continue southeasterly to the intersection.

At the intersection, two new 8 X 4-foot recessed curb inlets with steel inserts would be installed and connected by a 30-inch RCP, one on the northeast corner of Countrywood Way and one on the southwest corner. Two more recessed curb inlets with steel inserts, 4 X 4 –foot, would be constructed on both sides of Pioneer Road south of the intersection; these would be connected by an 18-inch RCP. A new manhole would be installed near the beginning of the 36-inch RCP and as it started southeasterly toward Pioneer Road. A second manhole would be constructed at the northwest corner of the intersection. To drain water from Pioneer Road into the new 36-inch pipe, an 8 X 5.5-foot recessed curb inlet with a steel insert would also be constructed at that point at which the 36-inch RCP started south along Pioneer Road.

The cost for this alternative is $209,000 and is presented in detail in **FIGURE 11-6**.

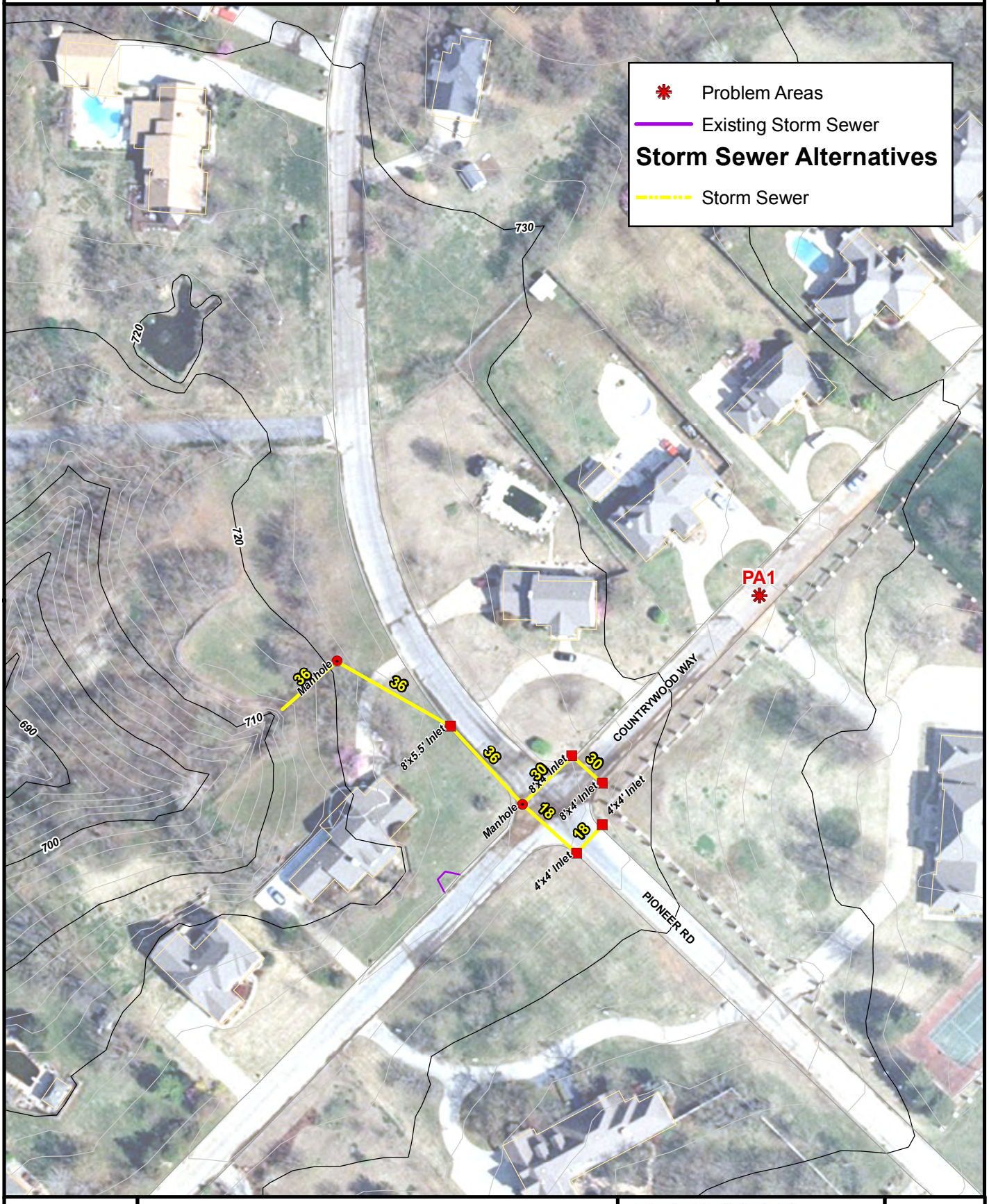
B. Problem Area 2: Overtopped Structures

Based on direction from the City, no alternatives were considered for overtopped structures in this area.

STORMWATER
UTILITIES & MASTER DRAINAGE PLAN

City of Sapulpa Master Drainage Plan

Feet
0 50 100
N



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Hudgins Drainage Basin
Problem Area 1 - Alternative 1

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Figure 11-6

11.5. RECOMMENDED PLAN

Using the prioritization criteria from the **INTRODUCTION SECTION 1** and discussions with City staff, Alternative 1 was the selected alternative for Problem Area 1 in the Hudgins Basin. In the case of Overtopped Structures, "No Action" was recommended at this time. For more details, please refer to **SECTION 11-4**, **FIGURE 11-6** and **APPENDIX 11-F**.

The Recommended Plan for the Hudgins Drainage Basin is:

PROBLEM AREA	RECOMMENDED ALTERNATIVE	RATIONALE FOR SELECTION	ESTIMATED COST
Problem Area 1	Alternative 1	This project provides protection for storms with a moderate frequency and eliminates flooding from buildings for storm events with a 10% annual chance frequency. It has a positive effect on health and safety, reduces hazards from overtopped bridges and structures, improves emergency access routes, and is a long-term problem which is the City's responsibility.	$209,000
Problem Area 2	No Action	No solution was recommended for Overtopped Structures at direction from City staff.	-0-
		TOTAL COST	**$209,000**

Appendix 11-A. East Polecat Systems - Hudgins Drainage Basin - Hydrologic Coefficients for Existing Conditions

Tributary Subarea	Flow Type	Length (ft)	Weighted Slope (%)	Velocity (ft./sec.)	Tc (min.)	Lag (min.)	Lag (hr.)	Land Use:	% of Use	CN value for each Hydrologic Soil Group				Hydrologic Soil Groups and %				Composite CN	Drainage Area (acres)	Drainage Area (sq. mi.)
									5900	A	B	C	D	A	B	C	D		1762.7	
		3352																		
HUD-01	Overland	181	3.31	1.28	2.37			Impervious	3	98	98	98	98	0.0	3.2	0.0	0.0	63.8	74.5	0.11645
	Channel (ditch)	1557	4.90	3.33	7.80			Pasture: Good Condition	32	39	61	74	80	0.0	30.9	1.0	0.0			
	Paved			0.00	0.00			Residential 2 acre	3	46	65	77	82	0.0	2.1	0.8	0.0			
	Pipe			0.00	0.00			Forest (good cover)	42	25	55	70	77	0.0	35.3	7.1	0.0			
	Stream	1613	0.40	4.00	6.72	10.1	0.17	Forest (poor cover)	2	45	66	77	83	0.0	0.9	1.1	0.0			
								Residential 1/2 acre	17	54	70	80	85	0.0	8.1	9.2	0.0			
								Residential 1/8 acre	0	77	85	90	92	0.0	0.3	0.1	0.0			
		3499																		
HUD-01-01	Overland	222	4.20	1.44	2.58			Forest (good cover)	59	25	55	70	77	0.0	39.0	19.8	0.0	62.9	51.6	0.08062
	Channel (ditch)	516	8.91	4.52	1.90			Residential 1/2 acre	6	54	70	80	85	0.0	0.6	5.7	0.0			
	Paved			0.00	0.00			Impervious	3	98	98	98	98	0.0	3.0	0.0	0.0			
	Pipe			0.00	0.00			Pasture: Good Condition	32	39	61	74	80	0.0	29.9	2.0	0.0			
	Stream	2760	0.88	4.00	11.50	9.6	0.16													
		1827																		
HUD-01-02	Overland	186	5.39	1.63	1.89			Forest (good cover)	25	25	55	70	77	0.0	10.9	14.1	0.0	68.5	36.7	0.05741
	Channel (ditch)	1098	4.09	3.03	6.03			Residential 1/2 acre	27	54	70	80	85	0.0	14.0	13.1	0.0			
	Paved			0.00	0.00			Impervious	6	98	98	98	98	0.0	3.9	1.8	0.0			
	Pipe			0.00	0.00			Pasture: Good Condition	42	39	61	74	80	0.0	34.4	7.8	0.0			
	Stream	544	3.27	4.00	2.26	6.1	0.10	Residential 5 acre	0	46	65	77	82	0.0	0.0	0.0	0.0			
		2399																		
HUD-01-03	Overland	178	4.19	1.44	2.07			Commercial	6	89	92	94	95	0.0	6.0	0.0	0.0	65.1	34.6	0.05414
	Channel (ditch)	1205	4.98	3.36	5.98			Impervious	3	98	98	98	98	0.0	2.8	0.4	0.0			
	Paved			0.00	0.00			Pasture: Good Condition	57	39	61	74	80	0.0	50.3	6.8	0.0			
	Pipe			0.00	0.00			Woods-Grass: Good	11	32	58	72	79	0.0	11.4	0.0	0.0			
	Stream	1016	1.67	4.00	4.23	7.4	0.12	Forest (good cover)	12	25	55	70	77	0.0	7.8	4.2	0.0			
								Residential 2 acre	1	46	65	77	82	0.0	1.0	0.0	0.0			
								Residential 5 acre	9	46	65	77	82	0.0	8.0	1.3	0.0			
		2300																		
HUD-01-04	Overland	164	4.30	1.46	1.88			Forest (good cover)	6	25	55	70	77	0.0	1.1	4.8	0.0	65.2	30.5	0.04769
	Channel (ditch)	778	6.17	3.74	3.46			Impervious	4	98	98	98	98	0.0	2.3	1.6	0.0			
	Paved			0.00	0.00			Pasture: Good Condition	23	39	61	74	80	0.0	17.9	5.0	0.0			
	Pipe			0.00	0.00			Residential 2 acre	16	46	65	77	82	0.0	13.4	3.0	0.0			
	Stream	1358	1.80	4.00	5.66	6.6	0.11	Woods-Grass: Good	49	32	58	72	79	0.0	37.0	11.7	0.0			
								Industrial	2	81	88	91	93	0.0	2.2	0.0	0.0			

Appendix 11-A. East Polecat Systems - Hudgins Drainage Basin - Hydrologic Coefficients for Existing Conditions

Tributary Subarea	Flow Type	Length (ft)	Weighted Slope (%)	Velocity (ft./sec.)	Tc (min.)	Lag (min.)	Lag (hr.)	Land Use:	% of Use	CN value for each Hydrologic Soil Group				Hydrologic Soil Groups and %				Composite CN	Drainage Area (acres)	Drainage Area (sq. mi.)
									5900	A	B	C	D	A	B	C	D		1762.7	
		1639																		
HUD-01-05	Overland	138	4.25	1.45	1.59			Forest (good cover)	0	25	55	70	77	0.0	0.0	0.0	0.0	69.7	38.6	0.06024
	Channel (ditch)	493	4.74	3.27	2.51			Impervious	0	98	98	98	98	0.0	0.0	0.0	0.0			
	Paved			0.00	0.00			Industrial	7	81	88	91	93	0.0	0.0	6.7	0.0			
	Pipe			0.00	0.00			Residential 1 acre	0	51	68	79	84	0.0	0.0	0.0	0.0			
	Stream	1009	3.02	4.00	4.20	5.0	0.08	Woods-Grass: Good	93	32	58	72	79	0.0	25.7	67.5	0.0			
		637																		
HUD-01-06	Overland	113	2.72	1.16	1.63			Forest (good cover)	0	25	55	70	77	0.0	0.0	0.1	0.0	74.1	17.2	0.02682
	Channel (ditch)	524	3.49	2.80	3.12			Impervious	13	98	98	98	98	0.0	7.5	5.2	0.0			
	Paved			0.00	0.00			Pasture: Good Condition	24	39	61	74	80	0.0	22.8	0.9	0.0			
	Pipe			0.00	0.00			Commercial	9	89	92	94	95	0.0	9.1	0.1	0.0			
	Stream			0.00	0.00	2.8	0.05	Residential 1/2 acre	54	54	70	80	85	0.0	49.0	5.3	0.0			
		1711																		
HUD-02	Overland	110	1.57	0.88	2.09			Impervious	3	98	98	98	98	0.0	0.8	1.9	0.0	63.2	22.6	0.03538
	Channel (ditch)	1241	7.18	4.04	5.11			Pasture: Good Condition	41	39	61	74	80	0.0	41.1	0.2	0.0			
	Paved			0.00	0.00			Residential 1/2 acre	12	54	70	80	85	0.0	12.4	0.0	0.0			
	Pipe			0.00	0.00			Forest (good cover)	43	25	55	70	77	0.0	25.7	17.8	0.0			
	Stream	360	0.69	4.00	1.50	5.2	0.09	Pasture: Poor Condition	0	68	79	86	89	0.0	0.0	0.0	0.0			
		1749																		
HUD-02-01	Overland	184	2.17	1.03	2.98			Forest (good cover)	47	25	55	70	77	0.0	22.6	24.5	0.0	69.4	25.8	0.04028
	Channel (ditch)	1085	6.98	3.99	4.54			Impervious	3	98	98	98	98	0.0	2.2	0.7	0.0			
	Paved			0.00	0.00			Pasture: Good Condition	25	39	61	74	80	0.0	14.6	10.9	0.0			
	Pipe			0.00	0.00			Residential 1/8 acre	19	77	85	90	92	0.0	11.6	7.1	0.0			
	Stream	479	0.88	4.00	2.00	5.7	0.10	Residential 2 acre	6	46	65	77	82	0.0	5.8	0.0	0.0			
		1081																		
HUD-02-02	Overland	153	1.40	0.83	3.07			Forest (good cover)	26	25	55	70	77	0.0	4.8	20.9	0.0	69.4	25.6	0.04002
	Channel (ditch)	928	7.47	4.13	3.75			Impervious	13	98	98	98	98	0.0	5.3	7.8	0.0			
	Paved			0.00	0.00			Pasture: Good Condition	49	39	61	74	80	0.0	38.4	10.3	0.0			
	Pipe			0.00	0.00			Residential 1/2 acre	6	54	70	80	85	0.0	5.8	0.0	0.0			
	Stream			0.00	0.00	4.1	0.07	Woods-Grass: Good	7	32	58	72	79	0.0	4.4	2.3	0.0			
		2403																		
HUD-02-03	Overland	125	6.40	1.78	1.17			Impervious	1	98	98	98	98	0.0	0.2	0.7	0.0	69.8	35.1	0.05482
	Channel (ditch)	1048	5.34	3.48	5.02			Pasture: Good Condition	14	39	61	74	80	0.0	10.8	2.8	0.0			
	Paved			0.00	0.00			Forest (good cover)	18	25	55	70	77	0.0	4.3	13.3	0.0			
	Pipe			0.00	0.00			Forest (poor cover)	2	45	66	77	83	0.0	0.2	1.5	0.0			
	Stream	1230	4.30	4.00	5.12	6.8	0.11	Residential 1/2 acre	63	54	70	80	85	0.0	51.2	12.1	0.0			
								Woods-Grass: Good	3	32	58	72	79	0.0	2.0	0.9	0.0			

Appendix 11-A. East Polecat Systems - Hudgins Drainage Basin - Hydrologic Coefficients for Existing Conditions

Tributary Subarea	Flow Type	Length (ft)	Weighted Slope (%)	Velocity (ft./sec.)	Tc (min.)	Lag (min.)	Lag (hr.)	Land Use:	% of Use	CN value for each Hydrologic Soil Group				Hydrologic Soil Groups and %				Composite CN	Drainage Area (acres)	Drainage Area (sq. mi.)
									5900	A	B	C	D	A	B	C	D		1762.7	
		1591																		
HUD-02-04	Overland	83	3.71	1.35	1.02			Forest (good cover)	9	25	55	70	77	0.0	1.2	7.8	0.0	75.6	30.0	0.04687
	Channel (ditch)	430	5.28	3.46	2.07			Impervious	1	98	98	98	98	0.0	0.0	1.0	0.0			
	Paved	189	5.41	4.66	0.67			Pasture: Good Condition	1	39	61	74	80	0.0	0.6	0.5	0.0			
	Pipe			0.00	0.00			Forest (poor cover)	5	45	66	77	83	0.0	0.0	5.5	0.0			
	Stream	890	3.46	4.00	3.71	4.5	0.07	Residential 1/2 acre	83	54	70	80	85	0.0	32.4	51.1	0.0			
		2058																		
HUD-03	Overland	123	2.17	1.03	1.98			Forest (good cover)	45	25	55	70	77	0.0	18.5	26.4	0.0	67.6	25.5	0.03991
	Channel (ditch)	1422	3.45	2.78	8.52			Impervious	8	98	98	98	98	0.0	7.5	0.2	0.0			
	Paved			0.00	0.00			Industrial	3	81	88	91	93	0.0	3.0	0.0	0.0			
	Pipe			0.00	0.00			Pasture: Good Condition	37	39	61	74	80	0.0	35.3	1.9	0.0			
	Stream	513	0.43	4.00	2.14	7.6	0.13	Pasture: Poor Condition	7	68	79	86	89	0.0	5.2	2.0	0.0			
		1398																		
HUD-04	Overland	124	16.39	2.85	0.72			Forest (good cover)	17	25	55	70	77	0.0	1.1	16.0	0.0	67.4	14.3	0.02229
	Channel (ditch)	389	3.84	2.94	2.21			Impervious	5	98	98	98	98	0.0	2.3	1.8	0.4			
	Paved			0.00	0.00			Pasture: Good Condition	78	39	61	74	80	0.0	53.1	24.7	0.6			
	Pipe			0.00	0.00			Residential 1 acre	0	51	68	79	84	0.0	0.0	0.0	0.0			
	Stream	885	0.68	4.00	3.69	4.0	0.07													
		1843																		
HUD-04-01	Overland	191	2.58	1.13	2.83			Impervious	6	98	98	98	98	0.0	5.0	0.8	0.0	71.7	20.3	0.03170
	Channel (ditch)	615	4.47	3.17	3.23			Pasture: Good Condition	33	39	61	74	80	0.0	17.1	11.8	3.7			
	Paved			0.00	0.00			Forest (good cover)	48	25	55	70	77	0.0	6.3	39.4	2.1			
	Pipe			0.00	0.00			Residential 1/2 acre	14	54	70	80	85	0.0	1.8	5.3	6.7			
	Stream	1036	4.44	4.00	4.32	6.2	0.10													
		2272																		
HUD-04-02	Overland	118	7.09	1.87	1.05			Forest (good cover)	1	25	55	70	77	0.0	0.2	0.8	0.0	70.2	26.0	0.04065
	Channel (ditch)	490	4.16	3.06	2.67			Commercial	3	89	92	94	95	0.0	2.7	0.0	0.0			
	Paved	1373	3.06	3.49	6.55			Pasture: Good Condition	5	39	61	74	80	0.0	5.3	0.0	0.0			
	Pipe			0.00	0.00			Residential 2 acre	23	46	65	77	82	0.0	23.3	0.0	0.0			
	Stream	290	9.84	4.00	1.21	6.9	0.11	Residential 1/2 acre	68	54	70	80	85	0.0	55.4	10.9	1.3			
		2016																		
HUD-04-03	Overland	126	4.77	1.53	1.37			Forest (good cover)	6	25	55	70	77	0.0	4.2	2.3	0.0	69.5	19.1	0.02988
	Channel (ditch)	458	4.08	3.03	2.52			Impervious	1	98	98	98	98	0.0	1.2	0.1	0.0			
	Paved	1206	3.08	3.51	5.73			Pasture: Good Condition	4	39	61	74	80	0.0	4.0	0.3	0.0			
	Pipe			0.00	0.00			Residential 1/2 acre	88	54	70	80	85	0.0	86.9	1.1	0.0			
	Stream	226	10.64	4.00	0.94	6.3	0.11													

Appendix 11-A. East Polecat Systems - Hudgins Drainage Basin - Hydrologic Coefficients for Existing Conditions

Tributary Subarea	Flow Type	Length (ft)	Weighted Slope (%)	Velocity (ft./sec.)	Tc (min.)	Lag (min.)	Lag (hr.)	Land Use:	% of Use	CN value for each Hydrologic Soil Group				Hydrologic Soil Groups and %				Composite CN	Drainage Area (acres)	Drainage Area (sq. mi.)
									5900	A	B	C	D	A	B	C	D		1762.7	
		2976																		
HUD-05	Overland	152	2.02	1.00	2.54			Forest (good cover)	12	25	55	70	77	0.0	0.1	3.9	7.9	77.3	24.0	0.03755
	Channel (ditch)			0.00	0.00			Impervious	14	98	98	98	98	0.0	3.7	8.9	1.3			
	Paved	2392	4.11	4.06	9.83			Pasture: Good Condition	44	39	61	74	80	0.0	30.3	3.4	10.5			
	Pipe			0.00	0.00			Commercial	11	89	92	94	95	0.0	7.8	3.1	0.0			
	Stream	432	0.23	4.00	1.80	8.5	0.14	Residential 1/2 acre	19	54	70	80	85	0.0	3.0	9.0	7.2			
		1802																		
HUD-05-01	Overland	99	2.70	1.15	1.43			Forest (good cover)	4	25	55	70	77	0.0	1.0	2.9	0.0	81.3	8.4	0.01315
	Channel (ditch)	496	0.73	1.25	6.60			Impervious	22	98	98	98	98	0.0	8.3	13.3	0.0			
	Paved	1207	3.94	3.97	5.07			Pasture: Good Condition	36	39	61	74	80	0.0	29.7	5.8	0.0			
	Pipe			0.00	0.00			Industrial	30	81	88	91	93	0.0	19.3	10.5	0.0			
	Stream			0.00	0.00	7.9	0.13	Commercial	9	89	92	94	95	0.0	0.7	8.5	0.0			
		2151																		
HUD-06	Overland	170	1.65	0.90	3.14			Forest (good cover)	32	25	55	70	77	0.0	16.7	4.1	11.7	70.4	24.4	0.03812
	Channel (ditch)	202	2.84	2.52	1.34			Impervious	7	98	98	98	98	0.0	2.4	4.5	0.5			
	Paved	908	2.86	3.38	4.48			Pasture: Good Condition	56	39	61	74	80	0.0	16.5	34.2	5.6			
	Pipe			0.00	0.00			Woods-Grass: Good	4	32	58	72	79	0.0	3.7	0.0	0.0			
	Stream	871	4.53	4.00	3.63	7.6	0.13	Residential 5 acre	0	46	65	77	82	0.0	0.0	0.0	0.0			
		3645																		
HUD-06-01	Overland	100	2.67	1.15	1.45			Commercial	1	89	92	94	95	0.0	0.8	0.0	0.0	74.4	37.0	0.05776
	Channel (ditch)	3545	2.72	2.46	24.01			Pasture: Good Condition	11	39	61	74	80	0.0	6.1	5.1	0.0			
	Paved			0.00	0.00			Residential 2 acre	67	46	65	77	82	0.0	20.3	46.6	0.0			
	Pipe			0.00	0.00			Residential 5 acre	3	46	65	77	82	0.0	2.4	0.2	0.0			
	Stream			0.00	0.00	15.3	0.25	Impervious	6	98	98	98	98	0.0	2.7	3.2	0.0			
								Industrial	8	81	88	91	93	0.0	6.9	0.8	0.0			
								Woods-Grass: Good	5	32	58	72	79	0.0	4.9	0.0	0.0			
		3572																		
HUD-07	Overland	162	3.96	1.40	1.93			Forest (good cover)	27	25	55	70	77	0.0	21.6	2.8	2.5	63.5	47.8	0.07476
	Channel (ditch)	1083	3.05	2.61	6.91			Impervious	2	98	98	98	98	0.0	0.8	1.1	0.0			
	Paved			0.00	0.00			Pasture: Good Condition	9	39	61	74	80	0.0	0.5	8.9	0.0			
	Pipe			0.00	0.00			Woods-Grass: Good	62	32	58	72	79	0.0	39.3	22.4	0.2			
	Stream	2326	1.38	4.00	9.69	11.1	0.19													

Appendix 11-A. East Polecat Systems - Hudgins Drainage Basin - Hydrologic Coefficients for Existing Conditions

Tributary Subarea	Flow Type	Length (ft)	Weighted Slope (%)	Velocity (ft./sec.)	Tc (min.)	Lag (min.)	Lag (hr.)	Land Use:	% of Use	CN value for each Hydrologic Soil Group				Hydrologic Soil Groups and %				Composite CN	Drainage Area (acres)	Drainage Area (sq. mi.)
									5900	A	B	C	D	A	B	C	D		1762.7	
		2581																		
HUD-07-01	Overland	173	1.16	0.75	3.82			Forest (good cover)	3	25	55	70	77	0.0	2.6	0.0	0.0	63.1	28.0	0.04378
	Channel (ditch)	576	2.22	2.22	4.32			Impervious	0	98	98	98	98	0.0	0.1	0.0	0.0			
	Paved			0.00	0.00			Woods-Grass: Good	97	32	58	72	79	0.0	60.5	36.8	0.0			
	Pipe			0.00	0.00															
	Stream	1832	0.75	4.00	7.63	9.5	0.16													
		2947																		
HUD-07-02	Overland	169	5.69	1.68	1.68			Impervious	1	98	98	98	98	0.0	1.0	0.4	0.0	68.3	80.4	0.12570
	Channel (ditch)	1194	8.96	4.53	4.39			Forest (good cover)	32	25	55	70	77	0.0	10.1	21.5	0.0			
	Paved			0.00	0.00			Forest (poor cover)	13	45	66	77	83	0.0	0.0	12.7	0.0			
	Pipe			0.00	0.00			Woods-Grass: Good	54	32	58	72	79	0.0	17.9	36.4	0.0			
	Stream	1585	0.88	4.00	6.60	7.6	0.13													
		2356																		
HUD-07-03	Overland	177	2.78	1.17	2.53			Forest (good cover)	65	25	55	70	77	0.0	1.9	60.6	2.6	71.4	77.8	0.12164
	Channel (ditch)	1217	10.96	5.02	4.04			Forest (poor cover)	14	45	66	77	83	0.0	3.7	10.7	0.0			
	Paved			0.00	0.00			Woods-Grass: Good	2	32	58	72	79	0.0	2.0	0.2	0.0			
	Pipe			0.00	0.00			Residential 5 acre	18	46	65	77	82	0.0	3.6	10.3	4.6			
	Stream	962	1.12	4.00	4.01	6.3	0.11													
		2099																		
HUD-07-04	Overland	181	3.46	1.31	2.31			Forest (poor cover)	31	45	66	77	83	0.0	0.0	30.9	0.0	74.0	49.8	0.07781
	Channel (ditch)	592	7.21	4.05	2.43			Pasture: Good Condition	0	39	61	74	80	0.0	0.0	0.0	0.0			
	Paved			0.00	0.00			Residential 5 acre	27	46	65	77	82	0.0	0.9	24.3	1.8			
	Pipe			0.00	0.00			Residential 1/2 acre	0	54	70	80	85	0.0	0.0	0.0	0.0			
	Stream	1326	3.33	4.00	5.52	6.2	0.10	Forest (good cover)	42	25	55	70	77	0.0	0.0	42.2	0.0			
		3373																		
HUD-07-05	Overland	190	4.56	1.50	2.11			Impervious	2	98	98	98	98	0.0	2.1	0.4	0.0	66.3	26.5	0.04143
	Channel (ditch)	1299	1.03	1.50	14.46			Pasture: Good Condition	0	39	61	74	80	0.0	0.0	0.0	0.0			
	Paved			0.00	0.00			Forest (good cover)	2	25	55	70	77	0.0	2.2	0.0	0.0			
	Pipe			0.00	0.00			Woods-Grass: Good	95	32	58	72	79	0.0	42.9	52.4	0.0			
	Stream	1884	1.38	4.00	7.85	14.7	0.24	Residential 2 acre	0	46	65	77	82	0.0	0.0	0.0	0.0			
		3168																		
HUD-07-06	Overland	150	4.01	1.41	1.77			Impervious	1	98	98	98	98	0.0	0.0	0.9	0.0	71.6	70.9	0.11072
	Channel (ditch)	1437	10.57	4.93	4.86			Forest (good cover)	59	25	55	70	77	0.0	0.0	52.1	7.3			
	Paved			0.00	0.00			Residential 2 acre	0	46	65	77	82	0.0	0.0	0.0	0.0			
	Pipe			0.00	0.00			Woods-Grass: Good	40	32	58	72	79	0.0	2.1	32.4	5.1			
	Stream	1581	1.26	4.00	6.59	7.9	0.13													

Appendix 11-A. East Polecat Systems - Hudgins Drainage Basin - Hydrologic Coefficients for Existing Conditions

Tributary Subarea	Flow Type	Length (ft)	Weighted Slope (%)	Velocity (ft./sec.)	Tc (min.)	Lag (min.)	Lag (hr.)	Land Use:	% of Use	CN value for each Hydrologic Soil Group				Hydrologic Soil Groups and %				Composite CN	Drainage Area (acres)	Drainage Area (sq. mi.)
									5900	A	B	C	D	A	B	C	D		1762.7	
		1540																		
HUD-07-07	Overland	195	2.05	1.00	3.24			Impervious	2	98	98	98	98	0.0	0.0	2.0	0.0	72.8	37.2	0.05815
	Channel (ditch)	1345	9.60	4.69	4.78			Residential 5 acre	17	46	65	77	82	0.0	0.0	13.9	3.4			
	Paved			0.00	0.00			Woods-Grass: Good	25	32	58	72	79	0.0	0.0	22.7	2.3			
	Pipe			0.00	0.00			Forest (good cover)	56	25	55	70	77	0.0	0.0	52.3	3.4			
	Stream			0.00	0.00	4.8	0.08													
		2434																		
HUD-07-08	Overland	173	2.54	1.12	2.59			Impervious	2	98	98	98	98	0.0	1.2	1.3	0.0	67.4	21.9	0.03422
	Channel (ditch)	2261	5.51	3.53	10.66			Pasture: Good Condition	20	39	61	74	80	0.0	19.1	0.6	0.0			
	Paved			0.00	0.00			Residential 2 acre	13	46	65	77	82	0.0	9.4	3.4	0.0			
	Pipe			0.00	0.00			Residential 5 acre	48	46	65	77	82	0.0	37.6	10.3	0.0			
	Stream			0.00	0.00	7.9	0.13	Forest (good cover)	17	25	55	70	77	0.0	1.1	16.0	0.0			
		2238																		
HUD-07-09	Overland	124	4.29	1.45	1.43			Impervious	2	98	98	98	98	0.0	1.1	1.4	0.0	75.3	23.2	0.03622
	Channel (ditch)	608	6.49	3.84	2.64			Forest (good cover)	0	25	55	70	77	0.0	0.0	0.0	0.0			
	Paved			0.00	0.00			Residential 5 acre	88	46	65	77	82	0.0	14.4	73.2	0.0			
	Pipe			0.00	0.00			Woods-Grass: Good	10	32	58	72	79	0.0	0.0	9.9	0.0			
	Stream	1505	4.72	4.00	6.27	6.2	0.10													
		1961																		
HUD-07-10	Overland	113	3.91	1.39	1.35			Impervious	7	98	98	98	98	0.0	3.6	3.2	0.0	73.0	20.5	0.03202
	Channel (ditch)	1848	6.25	3.77	8.17			Industrial	1	81	88	91	93	0.0	0.0	0.6	0.0			
	Paved			0.00	0.00			Residential 5 acre	7	46	65	77	82	0.0	0.0	6.9	0.0			
	Pipe			0.00	0.00			Woods-Grass: Good	86	32	58	72	79	0.0	8.7	77.0	0.0			
	Stream			0.00	0.00	5.7	0.10													
		2053																		
HUD-08	Overland	154	4.16	1.43	1.79			Forest (good cover)	28	25	55	70	77	0.0	27.0	0.8	0.0	61.7	20.7	0.03233
	Channel (ditch)	961	2.53	2.37	6.75			Impervious	0	98	98	98	98	0.0	0.0	0.0	0.0			
	Paved			0.00	0.00			Woods-Grass: Good	72	32	58	72	79	0.0	40.5	31.8	0.0			
	Pipe			0.00	0.00			Residential 1/2 acre	0	54	70	80	85	0.0	0.0	0.0	0.0			
	Stream	939	1.49	4.00	3.91	7.5	0.12	Residential 2 acre	0	46	65	77	82	0.0	0.0	0.0	0.0			
		3753																		
HUD-08-01	Overland	118	1.92	0.97	2.02			Forest (good cover)	3	25	55	70	77	0.0	2.4	0.2	0.0	74.7	67.2	0.10497
	Channel (ditch)			0.00	0.00			Impervious	9	98	98	98	98	0.0	1.3	3.5	3.7			
	Paved	1135	4.71	4.34	4.36			Residential 1/2 acre	1	54	70	80	85	0.0	0.0	0.0	0.8			
	Pipe			0.00	0.00			Pasture: Good Condition	61	39	61	74	80	0.0	5.1	30.2	25.6			
	Stream	2500	0.66	4.00	10.42	10.1	0.17	Woods-Grass: Good	27	32	58	72	79	0.0	9.5	17.7	0.0			

Appendix 11-A. East Polecat Systems - Hudgins Drainage Basin - Hydrologic Coefficients for Existing Conditions

Tributary Subarea	Flow Type	Length (ft)	Weighted Slope (%)	Velocity (ft./sec.)	Tc (min.)	Lag (min.)	Lag (hr.)	Land Use:	% of Use	CN value for each Hydrologic Soil Group				Hydrologic Soil Groups and %				Composite CN	Drainage Area (acres)	Drainage Area (sq. mi.)
									5900	A	B	C	D	A	B	C	D		1762.7	
		1087																		
HUD-08-02	Overland	151	1.94	0.98	2.57			Commercial	9	89	92	94	95	0.0	7.1	2.2	0.0	76.4	14.4	0.02257
	Channel (ditch)	773	7.20	4.05	3.18			Impervious	0	98	98	98	98	0.0	0.2	0.0	0.0			
	Paved	164	2.57	3.20	0.85			Residential 1/2 acre	87	54	70	80	85	0.0	44.9	38.5	3.7			
	Pipe			0.00	0.00			Residential 2 acre	3	46	65	77	82	0.0	3.5	0.0	0.0			
	Stream			0.00	0.00	4.0	0.07													
		2936																		
HUD-08-03	Overland	57	33.58	4.09	0.23			Impervious	14	98	98	98	98	0.0	9.9	2.8	1.0	81.6	35.9	0.05605
	Channel (ditch)			0.00	0.00			Residential 1/2 acre	83	54	70	80	85	0.0	15.7	49.0	18.2			
	Paved	2133	3.94	3.97	8.96			Pasture: Good Condition	3	39	61	74	80	0.0	0.0	3.2	0.0			
	Pipe			0.00	0.00															
	Stream	747	3.51	4.00	3.11	7.4	0.12													
		1539																		
HUD-08-03-01	Overland	90	5.02	1.57	0.96			Impervious	14	98	98	98	98	0.0	0.0	5.5	8.2	80.6	15.7	0.02455
	Channel (ditch)	537	7.19	4.05	2.21			Pasture: Good Condition	86	39	61	74	80	0.0	0.0	30.8	55.6			
	Paved	911	3.51	3.75	4.06			Residential 2 acre	0	46	65	77	82	0.0	0.0	0.0	0.0			
	Pipe			0.00	0.00															
	Stream			0.00	0.00	4.3	0.07													
		957																		
HUD-08-03-02	Overland	116	6.08	1.73	1.12			Impervious	25	98	98	98	98	0.0	0.0	24.8	0.0	79.9	14.9	0.02335
	Channel (ditch)	841	5.27	3.45	4.06			Pasture: Good Condition	75	39	61	74	80	0.0	0.0	75.2	0.0			
	Paved			0.00	0.00			Residential 5 acre	0	46	65	77	82	0.0	0.0	0.0	0.0			
	Pipe			0.00	0.00			Woods-Grass: Good	0	32	58	72	79	0.0	0.0	0.0	0.0			
	Stream			0.00	0.00	3.1	0.05													
		853																		
HUD-08-04	Overland	167	3.35	1.28	2.17			Impervious	19	98	98	98	98	0.0	9.6	9.8	0.0	83.1	17.3	0.02700
	Channel (ditch)	685	4.34	3.13	3.65			Residential 1/2 acre	77	54	70	80	85	0.0	3.2	73.7	0.0			
	Paved			0.00	0.00			Forest (poor cover)	4	45	66	77	83	0.0	0.0	3.7	0.0			
	Pipe			0.00	0.00															
	Stream			0.00	0.00	3.5	0.06													
		1641																		
HUD-08-05	Overland	62	14.51	2.68	0.39			Forest (poor cover)	0	45	66	77	83	0.0	0.0	0.5	0.0	80.5	19.0	0.02973
	Channel (ditch)	737	5.10	3.40	3.62			Impervious	5	98	98	98	98	0.0	0.0	5.5	0.0			
	Paved			0.00	0.00			Pasture: Good Condition	8	39	61	74	80	0.0	0.0	8.3	0.0			
	Pipe			0.00	0.00			Residential 1/2 acre	86	54	70	80	85	0.0	0.0	85.8	0.0			
	Stream	842	3.39	4.00	3.51	4.5	0.08													

Appendix 11-A. East Polecat Systems - Hudgins Drainage Basin - Hydrologic Coefficients for Existing Conditions

Tributary Subarea	Flow Type	Length (ft)	Weighted Slope (%)	Velocity (ft./sec.)	Tc (min.)	Lag (min.)	Lag (hr.)	Land Use:	% of Use	CN value for each Hydrologic Soil Group				Hydrologic Soil Groups and %				Composite CN	Drainage Area (acres)	Drainage Area (sq. mi.)
									5900	A	B	C	D	A	B	C	D		1762.7	
		1376																		
HUD-08-06	Overland	108	6.15	1.74	1.04			Impervious	4	98	98	98	98	0.0	0.0	4.5	0.0	77.7	34.0	0.05315
	Channel (ditch)	753	9.21	4.59	2.73			Residential 1/2 acre	54	54	70	80	85	0.0	0.0	54.4	0.0			
	Paved			0.00	0.00			Pasture: Good Condition	7	39	61	74	80	0.0	0.0	6.9	0.0			
	Pipe			0.00	0.00			Woods-Grass: Good	34	32	58	72	79	0.0	0.0	34.2	0.0			
	Stream	515	3.21	4.00	2.14	3.5	0.06													
		1340																		
HUD-08-07	Overland	95	2.24	1.05	1.51			Forest (good cover)	0	25	55	70	77	0.0	0.0	0.0	0.0	81.3	11.3	0.01768
	Channel (ditch)	575	5.10	3.40	2.82			Impervious	7	98	98	98	98	0.0	0.8	6.7	0.0			
	Paved			0.00	0.00			Residential 1/2 acre	93	54	70	80	85	0.0	0.0	92.5	0.0			
	Pipe			0.00	0.00															
	Stream	670	4.03	4.00	2.79	4.3	0.07													
		1363																		
HUD-08-08	Overland	129	5.68	1.68	1.28			Pasture: Good Condition	23	39	61	74	80	0.0	0.0	23.3	0.0	79.0	24.5	0.03829
	Channel (ditch)	1234	4.75	3.28	6.28			Impervious	2	98	98	98	98	0.0	0.0	2.1	0.0			
	Paved			0.00	0.00			Residential 1/2 acre	75	54	70	80	85	0.0	0.0	74.6	0.0			
	Pipe			0.00	0.00															
	Stream			0.00	0.00	4.5	0.08													
		1349																		
HUD-08-09	Overland	140	7.93	1.98	1.17			Residential 1/2 acre	95	54	70	80	85	0.0	68.4	27.0	0.0	72.7	21.2	0.03315
	Channel (ditch)			0.00	0.00			Forest (poor cover)	5	45	66	77	83	0.0	3.1	1.5	0.0			
	Paved	1209	3.23	3.59	5.62			Impervious	0	98	98	98	98	0.0	0.0	0.0	0.0			
	Pipe			0.00	0.00															
	Stream			0.00	0.00	4.1	0.07													
		1820																		
HUD-08-10	Overland	103	9.02	2.11	0.82			Forest (poor cover)	13	45	66	77	83	0.0	12.5	0.9	0.0	74.3	13.7	0.02142
	Channel (ditch)	1251	4.90	3.33	6.27			Impervious	0	98	98	98	98	0.0	0.0	0.0	0.0			
	Paved			0.00	0.00			Pasture: Good Condition	0	39	61	74	80	0.0	0.0	0.0	0.0			
	Pipe			0.00	0.00			Residential 1/2 acre	87	54	70	80	85	0.0	38.8	47.8	0.0			
	Stream	465	4.30	4.00	1.94	5.4	0.09													
		1366																		
HUD-08-11	Overland	147	11.63	2.40	1.02			Forest (poor cover)	48	45	66	77	83	0.0	1.5	46.8	0.0	78.5	19.9	0.03112
	Channel (ditch)	660	6.06	3.71	2.96			Residential 1/2 acre	19	54	70	80	85	0.0	0.1	18.5	0.0			
	Paved			0.00	0.00			Impervious	5	98	98	98	98	0.0	0.0	5.5	0.0			
	Pipe			0.00	0.00			Residential 2 acre	28	46	65	77	82	0.0	0.0	27.6	0.0			
	Stream	560	3.39	4.00	2.33	3.8	0.06													

Appendix 11-A. East Polecat Systems - Hudgins Drainage Basin - Hydrologic Coefficients for Existing Conditions

Tributary Subarea	Flow Type	Length (ft)	Weighted Slope (%)	Velocity (ft./sec.)	Tc (min.)	Lag (min.)	Lag (hr.)	Land Use:	% of Use	CN value for each Hydrologic Soil Group				Hydrologic Soil Groups and %				Composite CN	Drainage Area (acres)	Drainage Area (sq. mi.)
									5900	A	B	C	D	A	B	C	D		1762.7	
		1566																		
HUD-08-12	Overland	141	12.03	2.44	0.96			Forest (poor cover)	41	45	66	77	83	0.0	0.0	40.7	0.0	78.8	18.6	0.02907
	Channel (ditch)	837	6.02	3.70	3.78			Impervious	0	98	98	98	98	0.0	0.0	0.0	0.0			
	Paved			0.00	0.00			Residential 1/2 acre	59	54	70	80	85	0.0	0.0	59.3	0.0			
	Pipe			0.00	0.00															
	Stream	588	3.57	4.00	2.45	4.3	0.07													
		3456																		
HUD-08-13	Overland	91	5.29	1.62	0.94			Forest (good cover)	20	25	55	70	77	0.0	0.2	7.4	12.1	73.1	29.2	0.04570
	Channel (ditch)	2135	6.51	3.85	9.25			Impervious	1	98	98	98	98	0.0	0.0	1.3	0.0			
	Paved			0.00	0.00			Woods-Grass: Good	79	32	58	72	79	0.0	0.3	73.6	5.2			
	Pipe			0.00	0.00															
	Stream	1230	1.53	4.00	5.12	9.2	0.15													
		1599																		
HUD-09	Overland	135	3.65	1.34	1.68			Forest (good cover)	69	25	55	70	77	0.0	28.6	40.3	0.0	65.9	20.8	0.03253
	Channel (ditch)	1187	1.43	1.77	11.16			Pasture: Good Condition	0	39	61	74	80	0.0	0.0	0.0	0.0			
	Paved			0.00	0.00			Woods-Grass: Good	31	32	58	72	79	0.0	2.8	28.3	0.0			
	Pipe			0.00	0.00															
	Stream	277	2.24	4.00	1.15	8.4	0.14													
		1402																		
HUD-09-01	Overland	94	3.53	1.32	1.19			Forest (good cover)	22	25	55	70	77	0.0	2.4	14.8	4.4	75.2	10.3	0.01606
	Channel (ditch)	144	2.32	2.27	1.05			Impervious	3	98	98	98	98	0.0	0.0	0.3	2.6			
	Paved			0.00	0.00			Woods-Grass: Good	75	32	58	72	79	0.0	0.2	32.7	42.5			
	Pipe			0.00	0.00			Residential 1/2 acre	0	54	70	80	85	0.0	0.0	0.0	0.0			
	Stream	1164	1.42	4.00	4.85	4.3	0.07													
		1366																		
HUD-09-02	Overland	123	6.52	1.80	1.14			Forest (good cover)	22	25	55	70	77	0.0	0.0	12.7	8.9	76.2	24.0	0.03750
	Channel (ditch)	1002	6.32	3.79	4.40			Impervious	1	98	98	98	98	0.0	0.0	0.0	0.8			
	Paved			0.00	0.00			Pasture: Good Condition	64	39	61	74	80	0.0	0.0	27.6	36.1			
	Pipe			0.00	0.00			Woods-Grass: Good	14	32	58	72	79	0.0	0.0	8.3	5.6			
	Stream	241	1.99	4.00	1.01	3.9	0.07													
		1513																		
HUD-09-03	Overland	83	2.90	1.19	1.16			Forest (good cover)	55	25	55	70	77	0.0	2.2	45.5	7.3	72.5	20.8	0.03249
	Channel (ditch)	227	13.79	5.65	0.67			Impervious	4	98	98	98	98	0.0	0.5	2.4	0.7			
	Paved	350		0.00	0.00			Pasture: Good Condition	22	39	61	74	80	0.0	0.0	6.9	15.1			
	Pipe			0.00	0.00			Woods-Grass: Good	19	32	58	72	79	0.0	6.3	13.0	0.2			
	Stream	853	4.28	4.00	3.56	3.2	0.05													

Appendix 11-A. East Polecat Systems - Hudgins Drainage Basin - Hydrologic Coefficients for Existing Conditions

Tributary Subarea	Flow Type	Length (ft)	Weighted Slope (%)	Velocity (ft./sec.)	Tc (min.)	Lag (min.)	Lag (hr.)	Land Use:	% of Use	CN value for each Hydrologic Soil Group				Hydrologic Soil Groups and %				Composite CN	Drainage Area (acres)	Drainage Area (sq. mi.)
									5900	A	B	C	D	A	B	C	D		1762.7	
		1384																		
HUD-09-04	Overland	117	3.75	1.36	1.44			Forest (good cover)	38	25	55	70	77	0.0	8.6	29.0	0.0	69.3	31.6	0.04942
	Channel (ditch)	1267	5.86	3.65	5.79			Impervious	5	98	98	98	98	0.0	0.8	4.0	0.0			
	Paved			0.00	0.00			Pasture: Good Condition	58	39	61	74	80	0.0	23.1	34.4	0.0			
	Pipe			0.00	0.00															
	Stream			0.00	0.00	4.3	0.07													
		1324																		
HUD-09-05	Overland	124	5.04	1.58	1.31			Forest (good cover)	0	25	55	70	77	0.0	0.0	0.0	0.0	81.2	14.7	0.02302
	Channel (ditch)	705	12.40	5.35	2.20			Impervious	11	98	98	98	98	0.0	0.0	6.2	4.8			
	Paved			0.00	0.00			Pasture: Good Condition	89	39	61	74	80	0.0	0.0	13.0	76.0			
	Pipe			0.00	0.00			Residential 1/2 acre	0	54	70	80	85	0.0	0.0	0.0	0.0			
	Stream	495	3.03	4.00	2.06	3.3	0.06													
		2830																		
HUD-10	Overland	145	5.52	1.65	1.46			Forest (good cover)	60	25	55	70	77	0.0	7.2	40.2	12.6	70.6	28.4	0.04441
	Channel (ditch)	1431	7.94	4.26	5.60			Woods-Grass: Good	40	32	58	72	79	0.0	7.0	19.3	13.6			
	Paved			0.00	0.00															
	Pipe			0.00	0.00															
	Stream	1254	1.28	4.00	5.22	7.4	0.12													
		3272																		
HUD-10-01	Overland	116	4.01	1.41	1.38			Forest (good cover)	33	25	55	70	77	0.0	0.0	2.5	30.6	78.0	57.8	0.09036
	Channel (ditch)	772	10.45	4.90	2.62			Impervious	1	98	98	98	98	0.0	0.0	0.3	1.1			
	Paved			0.00	0.00			Pasture: Good Condition	1	39	61	74	80	0.0	0.0	0.0	1.2			
	Pipe			0.00	0.00			Woods-Grass: Good	64	32	58	72	79	0.0	0.0	6.3	58.0			
	Stream	2384	2.61	4.00	9.93	8.4	0.14													
		1176																		
HUD-10-02	Overland	148	4.69	1.52	1.62			Forest (good cover)	2	25	55	70	77	0.0	0.0	0.0	1.9	80.9	26.0	0.04058
	Channel (ditch)	700	7.71	4.20	2.78			Impervious	9	98	98	98	98	0.0	0.0	0.0	8.6			
	Paved			0.00	0.00			Residential 5 acre	9	46	65	77	82	0.0	0.0	0.0	9.4			
	Pipe			0.00	0.00			Woods-Grass: Good	80	32	58	72	79	0.0	0.0	0.0	80.1			
	Stream	329	7.00	4.00	1.37	3.5	0.06													
		2385																		
HUD-11	Overland	87	10.26	2.26	0.64			Forest (good cover)	40	25	55	70	77	0.0	0.0	11.4	28.4	76.6	31.5	0.04918
	Channel (ditch)	1847	5.81	3.63	8.48			Impervious	4	98	98	98	98	0.0	0.1	0.0	3.6			
	Paved			0.00	0.00			Woods-Grass: Good	56	32	58	72	79	0.0	4.6	7.4	44.5			
	Pipe			0.00	0.00			Residential 1/2 acre	0	54	70	80	85	0.0	0.0	0.0	0.0			
	Stream	451	2.77	4.00	1.88	6.6	0.11													

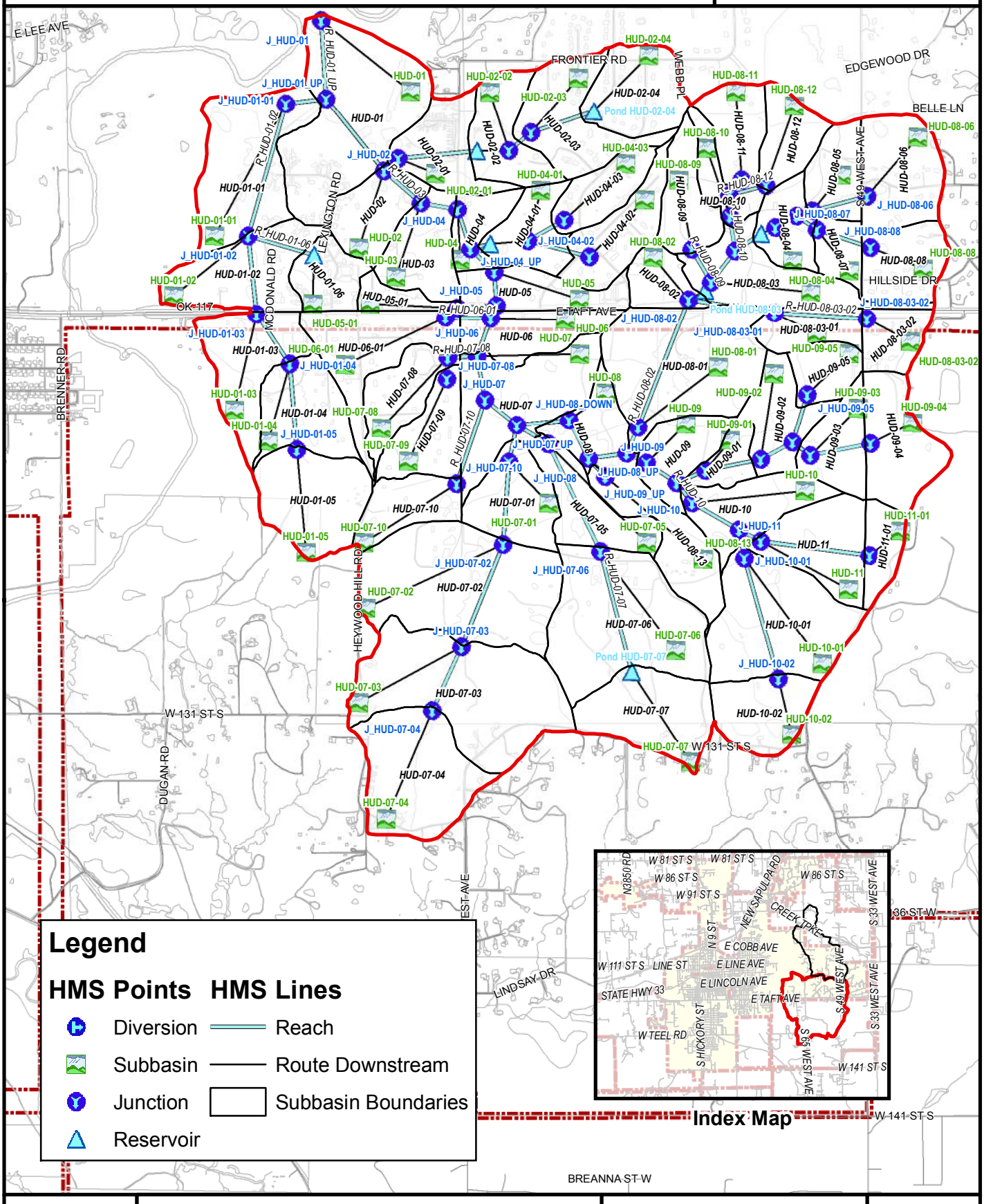
Appendix 11-A. East Polecat Systems - Hudgins Drainage Basin - Hydrologic Coefficients for Existing Conditions

Tributary Subarea	Flow Type	Length (ft)	Weighted Slope (%)	Velocity (ft./sec.)	Tc (min.)	Lag (min.)	Lag (hr.)	Land Use:	% of Use	CN value for each Hydrologic Soil Group				Hydrologic Soil Groups and %				Composite CN	Drainage Area (acres)	Drainage Area (sq. mi.)
									5900	A	B	C	D	A	B	C	D		1762.7	
		957																		
HUD-11-01	Overland	80	7.54	1.93	0.69			Forest (good cover)	36	25	55	70	77	0.0	3.7	0.0	32.7	74.9	13.0	0.02033
	Channel (ditch)	877	5.14	3.41	4.29			Impervious	6	98	98	98	98	0.0	1.8	0.0	3.9			
	Paved			0.00	0.00			Pasture: Good Condition	58	39	61	74	80	0.0	22.0	0.0	35.8			
	Pipe			0.00	0.00															
	Stream			0.00	0.00	3.0	0.05													

STORMWATER
UTILITIES & MASTER DRAINAGE PLAN

City of Sapulpa Master Drainage Plan

Feet
0 875 1,750
N



Legend

HMS Points	HMS Lines
Diversion	Reach
Subbasin	Route Downstream
Junction	Subbasin Boundaries
Reservoir	

Index Map

Hudgins Drainage Basin HMS Schematic

The City of Sapulpa
Oklahoma's Most Connected City

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Appendix 11-B

Appendix 11-C. East Polecat Systems - Hudgins Drainage Basin Existing Flow Rates (CFS)									
HMS Junction	1-Year	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	500-Year	Drainage Area, mi^2
HUD-01	15	37	100	144	202	253	304	406	0.116
HUD-01-01	9	23	66	97	137	173	208	279	0.081
HUD-01-02	17	35	77	105	141	171	201	259	0.057
HUD-01-03	10	22	56	80	110	137	163	215	0.054
HUD-01-04	9	21	52	73	101	125	149	196	0.048
HUD-01-05	22	43	91	122	163	196	229	294	0.060
HUD-01-06	16	30	56	72	93	110	126	157	0.027
HUD-02	5	13	37	53	75	93	111	148	0.035
HUD-02-01	14	27	57	78	104	126	147	189	0.040
HUD-02-02	15	30	63	84	112	135	158	202	0.040
HUD-02-03	18	36	75	102	136	164	192	247	0.055
HUD-02-04	29	52	94	121	155	182	208	260	0.047
HUD-03	10	21	47	65	88	108	128	167	0.040
HUD-04	7	14	32	43	59	71	84	109	0.022
HUD-04-01	13	25	49	65	86	103	119	152	0.032
HUD-04-02	14	27	57	76	102	122	143	184	0.041
HUD-04-03	10	20	42	56	75	91	106	137	0.030
HUD-05	22	37	66	84	108	126	144	181	0.038
HUD-05-01	10	17	27	34	43	49	56	68	0.013
HUD-06	13	25	52	70	93	112	131	169	0.038
HUD-06-01	21	36	71	93	122	146	170	217	0.058
HUD-07	9	22	60	88	124	155	187	251	0.075
HUD-07-01	5	13	37	53	76	95	114	153	0.044
HUD-07-02	34	69	154	211	285	348	410	532	0.126
HUD-07-03	49	92	185	246	325	389	453	577	0.122
HUD-07-04	40	70	133	174	226	267	308	388	0.078
HUD-07-05	6	14	35	50	69	85	101	135	0.041
HUD-07-06	42	78	157	209	277	331	386	495	0.111
HUD-07-07	29	53	102	134	175	208	241	304	0.058
HUD-07-08	8	17	40	55	74	91	108	140	0.034
HUD-07-09	20	36	65	84	109	128	147	185	0.036
HUD-07-10	15	28	54	71	93	110	127	161	0.032
HUD-08	3	9	27	40	57	72	87	117	0.032
HUD-08-01	48	82	155	203	264	313	361	458	0.105
HUD-08-02	15	27	48	61	78	92	105	130	0.023
HUD-08-03	46	73	120	149	186	215	242	298	0.056
HUD-08-03-01	22	36	59	74	92	106	120	147	0.025
HUD-08-03-02	21	36	59	73	92	106	120	147	0.023
HUD-08-04	28	47	74	91	112	128	143	173	0.027
HUD-08-05	26	43	71	89	111	128	144	177	0.030
HUD-08-06	40	71	122	154	196	228	258	318	0.053
HUD-08-07	16	27	44	54	68	78	88	107	0.018

Appendix 11-C. East Polecat Systems - Hudgins Drainage Basin Existing Flow Rates (CFS)									
HMS Junction	1-Year	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	500-Year	Drainage Area, mi^2
HUD-08-08	30	51	87	109	138	160	181	223	0.038
HUD-08-09	17	31	60	79	103	122	141	178	0.033
HUD-08-10	12	21	39	50	65	77	89	111	0.021
HUD-08-11	24	42	72	91	115	134	151	186	0.031
HUD-08-12	23	39	66	83	105	122	138	170	0.029
HUD-08-13	19	34	65	86	113	135	157	200	0.046
HUD-09	6	14	34	48	65	81	96	127	0.033
HUD-09-01	10	18	32	41	53	62	71	89	0.016
HUD-09-02	25	45	79	101	130	152	174	216	0.038
HUD-09-03	17	32	62	81	106	125	144	181	0.032
HUD-09-04	18	36	76	102	137	165	193	247	0.049
HUD-09-05	22	37	60	74	93	106	119	145	0.023
HUD-10	16	30	62	83	110	132	155	199	0.044
HUD-10-01	56	93	163	208	265	309	353	441	0.090
HUD-10-02	37	64	104	129	161	185	208	253	0.041
HUD-11	30	51	91	117	151	176	202	252	0.049
HUD-11-01	13	24	43	55	71	84	96	119	0.020
J_HUD-01	530	1004	2031	2737	3581	4180	4554	5550	2.754
J_HUD-01_UP	540	1009	2020	2728	3590	4156	4511	5451	2.638
J_HUD-01-01	50	108	253	356	493	607	727	973	0.327
J_HUD-01-02	45	96	223	312	430	529	632	839	0.246
J_HUD-01-03	37	78	177	244	332	406	480	628	0.162
J_HUD-01-04	30	62	137	188	253	307	361	468	0.108
J_HUD-01-05	22	43	91	122	163	196	229	294	0.060
J_HUD-02	522	954	1893	2571	3447	3899	4140	4693	2.311
J_HUD-02-01	17	42	119	184	270	346	427	592	0.182
J_HUD-02-03	41	76	159	211	278	336	390	495	0.102
J_HUD-03	504	912	1789	2430	3267	3713	3953	4285	2.093
J_HUD-04	502	909	1813	2420	3256	3698	3937	4233	2.054
J_HUD-04_UP	508	919	1814	2417	3254	3692	3929	4214	2.031
J_HUD-04-02	14	27	57	76	102	122	143	184	0.041
J_HUD-04-03	10	20	42	56	75	91	106	137	0.030
J_HUD-05	517	922	1812	2402	3219	3682	3898	4075	1.929
J_HUD-05_UP	508	908	1786	2377	3189	3655	3872	4013	1.891
J_HUD-05-01	10	17	27	34	43	49	56	68	0.013
J_HUD-06	504	903	1778	2369	3178	3648	3863	3992	1.878
J_HUD-06-01	21	36	71	93	122	146	170	217	0.058
J_HUD-07	471	842	1653	2384	3115	3731	4205	4762	1.637
J_HUD-07_DOWN	484	870	1727	2400	3166	3620	3790	3940	1.782
J_HUD-07_UP	464	828	1622	2331	3060	3668	4159	4722	1.605
J_HUD-07-01	100	182	416	561	748	905	1128	1276	0.369
J_HUD-07-02	97	174	391	527	722	891	1050	1354	0.325

Appendix 11-C. East Polecat Systems - Hudgins Drainage Basin Existing Flow Rates (CFS)									
HMS Junction	1-Year	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	500-Year	Drainage Area, mi^2
J_HUD-07-03	83	151	296	391	513	613	711	906	0.199
J_HUD-07-04	40	70	133	174	226	267	308	388	0.078
J_HUD-07-05	44	70	189	310	431	530	626	719	0.210
J_HUD-07-06	44	84	191	267	366	449	531	695	0.169
J_HUD-07-08	28	52	103	137	181	217	252	322	0.070
J_HUD-07-09	20	36	65	84	109	128	147	185	0.036
J_HUD-07-10	15	28	54	71	93	110	127	161	0.032
J_HUD-08	336	592	1118	1453	1890	2242	2588	3266	0.994
J_HUD-08_DOWN	331	583	1117	1459	1890	2254	2513	2835	1.026
J_HUD-08_UP	322	566	1063	1380	1794	2127	2454	3094	0.948
J_HUD-08-01	98	170	318	419	554	666	770	1392	0.512
J_HUD-08-02	62	105	185	239	324	396	605	1296	0.407
J_HUD-08-03_UP	73	125	247	334	540	734	910	1204	0.247
J_HUD-08-03-01	41	71	116	145	181	209	236	288	0.048
J_HUD-08-03-02	21	36	59	73	92	106	120	147	0.023
J_HUD-08-04_UP	111	191	321	402	508	588	667	820	0.139
J_HUD-08-05	65	113	191	241	304	352	400	491	0.083
J_HUD-08-06	40	71	122	154	196	228	258	318	0.053
J_HUD-08-07	46	78	129	162	204	236	267	328	0.056
J_HUD-08-08	30	51	87	109	138	160	181	223	0.038
J_HUD-08-09	17	31	60	79	103	122	141	178	0.033
J_HUD-08-10	59	102	176	223	284	331	378	467	0.082
J_HUD-08-10_UP	47	81	138	174	220	255	289	356	0.060
J_HUD-08-11	24	42	72	91	115	134	151	186	0.031
J_HUD-08-12	23	39	66	83	105	122	138	170	0.029
J_HUD-08-13	19	34	65	86	113	135	157	200	0.046
J_HUD-09	226	401	751	966	1244	1464	1690	2131	0.436
J_HUD-09_UP	221	388	720	923	1185	1392	1601	2014	0.403
J_HUD-09-01	75	137	272	351	464	549	635	782	0.159
J_HUD-09-02	74	133	252	331	430	512	587	740	0.142
J_HUD-09-02_UP	53	98	186	243	317	376	434	547	0.105
J_HUD-09-03	33	63	129	172	229	275	320	408	0.082
J_HUD-09-04	18	36	76	102	137	165	193	247	0.049
J_HUD-09-05	22	37	60	74	93	106	119	145	0.023
J_HUD-10	148	254	451	575	731	854	982	1236	0.245
J_HUD-10_UP	135	229	397	504	641	747	851	1055	0.200
J_HUD-10-01	93	157	266	335	424	492	559	692	0.131
J_HUD-10-02	37	64	104	129	161	185	208	253	0.041
J_HUD-11	42	74	134	172	220	258	295	368	0.070
J_HUD-11-01	13	24	43	55	71	84	96	119	0.020
J_Pond HUD-02-02 IN	52	100	210	281	372	452	527	672	0.142
J_Pond HUD-04-01 IN	37	71	147	197	263	316	369	473	0.102

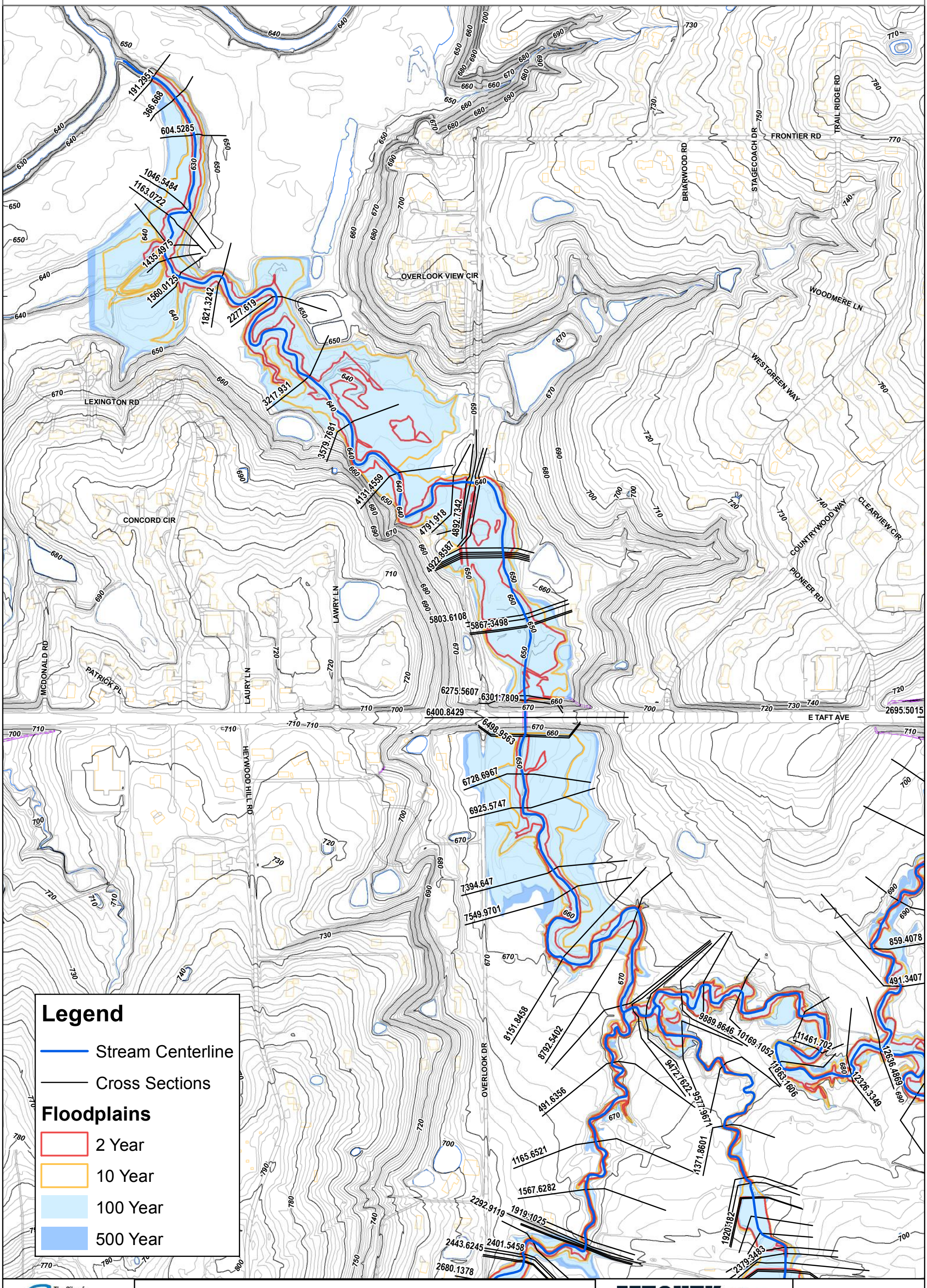
Appendix 11-C. East Polecat Systems - Hudgins Drainage Basin Existing Flow Rates (CFS)									
HMS Junction	1-Year	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	500-Year	Drainage Area, mi^2
J_Pond HUD-08-03 IN	132	224	414	544	727	979	1210	1605	0.337
J_Pond HUD-08-04 IN	131	223	374	468	590	681	771	947	0.166
Pond HUD-01-06	2	3	11	17	28	37	49	70	0.027
Pond HUD-02-02	14	35	100	155	228	291	356	490	0.142
Pond HUD-02-04	23	42	85	111	145	172	199	249	0.047
Pond HUD-04-01	34	66	143	192	256	310	363	467	0.102
Pond HUD-07-07	10	23	64	94	132	163	195	256	0.058
Pond HUD-08-03	26	41	105	156	211	276	510	1092	0.337
Pond HUD-08-04	35	66	150	210	379	520	646	848	0.166
R_HUD-01_UP	525	994	2011	2709	3550	4141	4497	5420	2.638
R_HUD-01-01	50	108	253	356	493	607	727	973	0.327
R_HUD-01-02	45	96	223	312	430	529	632	839	0.246
R_HUD-01-03	37	78	177	244	332	406	480	628	0.162
R_HUD-01-04	30	62	137	188	253	307	361	468	0.108
R_HUD-01-05	22	43	91	122	163	196	229	294	0.060
R_HUD-01-06	2	3	11	17	28	37	49	70	0.027
R_HUD-02	510	940	1870	2536	3361	3887	4136	4667	2.311
R_HUD-02-01	17	42	119	184	270	346	427	592	0.182
R_HUD-02-02	14	35	100	155	228	291	356	490	0.142
R_HUD-02-03	41	76	159	211	278	336	390	495	0.102
R_HUD-02-04	23	42	85	111	145	172	199	249	0.047
R_HUD-03	504	912	1789	2430	3267	3713	3953	4285	2.093
R_HUD-04	501	905	1776	2413	3247	3696	3936	4231	2.054
R_HUD-04_UP	500	907	1807	2413	3249	3691	3929	4213	2.031
R_HUD-04-01	34	66	143	192	256	310	363	467	0.102
R_HUD-04-02	14	27	57	76	102	122	143	184	0.041
R_HUD-04-03	10	20	42	56	75	91	106	137	0.030
R_HUD-05	496	896	1767	2364	3193	3640	3881	4070	1.929
R_HUD-05_UP	509	909	1785	2375	3189	3656	3872	4014	1.891
R_HUD-05-01	10	17	27	34	43	49	56	68	0.013
R_HUD-06	505	902	1776	2367	3178	3646	3863	3991	1.878
R_HUD-06-01	21	36	71	93	122	146	170	217	0.058
R_HUD-07	468	835	1639	2297	3035	3503	3676	3884	1.637
R_HUD-07_DOWN	485	867	1704	2290	3081	3556	3777	3847	1.782
R_HUD-07_UP	464	828	1621	2341	3058	3663	4126	4703	1.605
R_HUD-07-01	100	182	416	561	748	905	1128	1276	0.369
R_HUD-07-02	96	172	386	519	690	835	1030	1187	0.325
R_HUD-07-03	75	133	278	369	494	597	696	888	0.199
R_HUD-07-04	40	70	133	174	226	267	308	388	0.078
R_HUD-07-05	44	70	189	310	431	530	626	719	0.210
R_HUD-07-06	39	65	161	262	363	446	525	610	0.169
R_HUD-07-07	10	23	64	94	132	163	195	256	0.058

Appendix 11-C. East Polecat Systems - Hudgins Drainage Basin Existing Flow Rates (CFS)									
HMS Junction	1-Year	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	500-Year	Drainage Area, mi^2
R_HUD-07-08	28	52	103	137	181	217	252	322	0.070
R_HUD-07-09	20	36	65	84	109	128	147	185	0.036
R_HUD-07-10	15	28	54	71	93	110	127	161	0.032
R_HUD-08	328	577	1099	1433	1853	2207	2465	2816	0.994
R_HUD-08_DOWN	331	583	1117	1459	1890	2254	2513	2835	1.026
R_HUD-08_UP	322	566	1063	1380	1794	2127	2454	3094	0.948
R_HUD-08-01	98	170	318	419	554	666	770	1392	0.512
R_HUD-08-02	58	96	175	230	311	383	592	1174	0.407
R_HUD-08-03_UP	73	125	247	334	540	734	910	1204	0.247
R_HUD-08-03-01	41	71	116	145	181	209	236	288	0.048
R_HUD-08-03-02	21	36	59	73	92	106	120	147	0.023
R_HUD-08-04	35	66	150	210	379	520	646	848	0.166
R_HUD-08-04_UP	111	191	321	402	508	588	667	820	0.139
R_HUD-08-05	65	113	191	241	304	352	400	491	0.083
R_HUD-08-06	40	71	122	154	196	228	258	318	0.053
R_HUD-08-07	46	78	129	162	204	236	267	328	0.056
R_HUD-08-08	30	51	87	109	138	160	181	223	0.038
R_HUD-08-09	17	31	60	79	103	122	141	178	0.033
R_HUD-08-10	59	102	176	223	284	331	378	467	0.082
R_HUD-08-10_UP	47	81	138	174	220	255	289	356	0.060
R_HUD-08-11	24	42	72	91	115	134	151	186	0.031
R_HUD-08-12	23	39	66	83	105	122	138	170	0.029
R_HUD-08-13	19	34	65	86	113	135	157	200	0.046
R_HUD-09	224	396	745	961	1240	1462	1687	2126	0.436
R_HUD-09_UP	221	388	720	923	1185	1392	1601	2014	0.403
R_HUD-09-01	74	134	269	349	460	545	630	779	0.159
R_HUD-09-02	69	125	247	319	420	496	575	713	0.142
R_HUD-09-02_UP	52	95	182	240	314	373	430	543	0.105
R_HUD-09-03	33	63	129	172	229	275	320	408	0.082
R_HUD-09-04	18	36	76	102	137	165	193	247	0.049
R_HUD-09-05	22	37	60	74	93	106	119	145	0.023
R_HUD-10	148	254	451	575	731	854	982	1236	0.245
R_HUD-10_UP	132	225	391	494	624	726	833	1045	0.200
R_HUD-10-01	93	157	266	335	424	492	559	692	0.131
R_HUD-10-02	37	64	104	129	161	185	208	253	0.041
R_HUD-11	42	74	133	171	218	257	295	368	0.070
R_HUD-11-01	13	24	43	55	71	84	96	119	0.020
R_HUD-11-01	13	24	43	55	71	84	96	119	0.020

STORMWATER
UTILITIES & MASTER DRAINAGE PLAN

City of Sapulpa Master Drainage Plan

Feet
0 250 500
N



Legend

- Stream Centerline
- Cross Sections

Floodplains

- 2 Year
- 10 Year
- 100 Year
- 500 Year

The City of Sapulpa
Oklahoma's Most Connected City

Luker and Valley Ridge Drainage Basin Floodplains

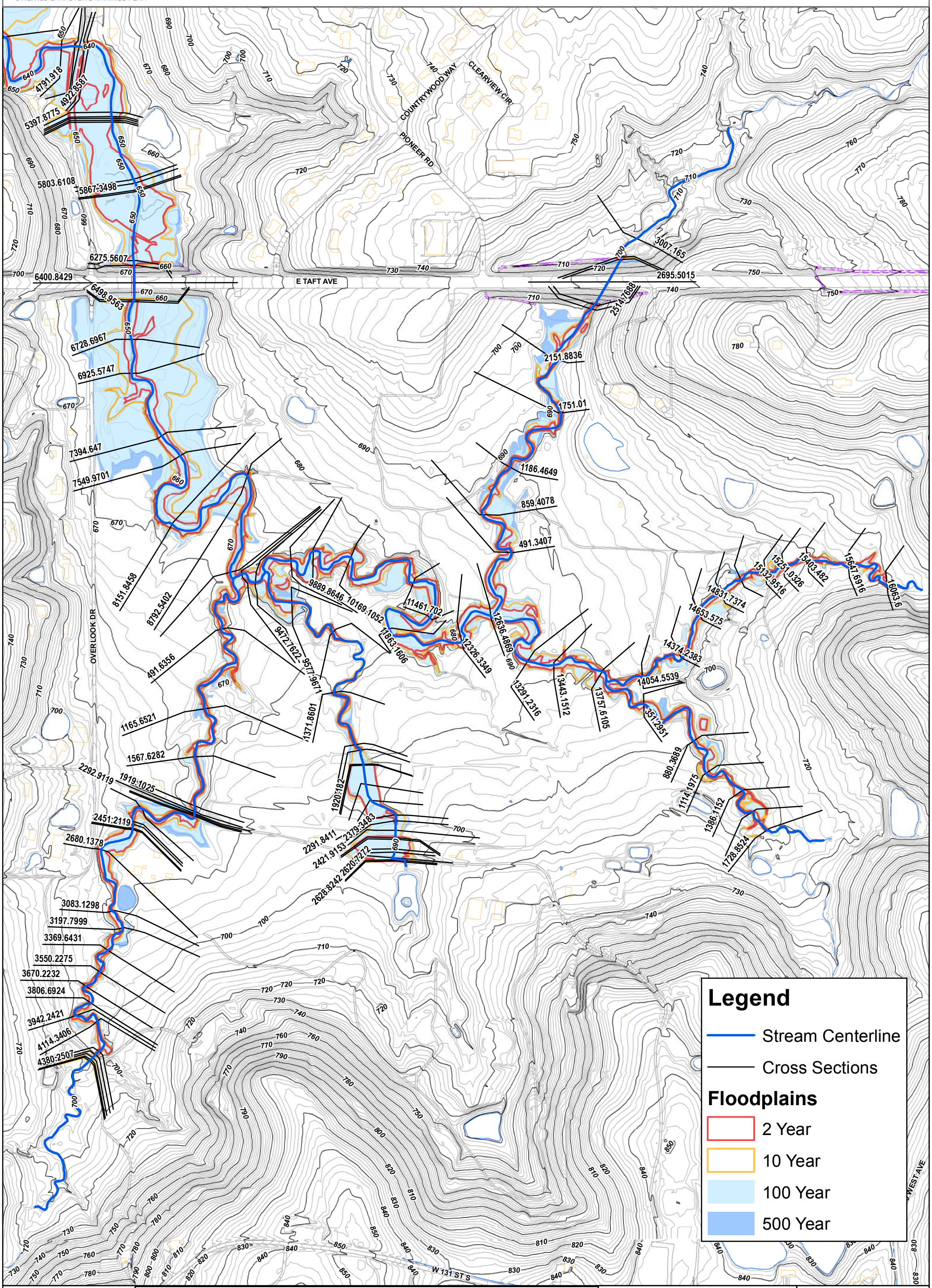
MESHEK & ASSOCIATES, PLC
1437 S Boulder Ave, Suite 1080 Tulsa, OK 74119
Ph:(918) 392-5620 www.meshekengr.com

Appendix 11-D-1

STORMWATER
UTILITIES & MASTER DRAINAGE PLAN

City of Sapulpa Master Drainage Plan

Feet
0 250 500
N



Legend

- Stream Centerline
- Cross Sections

Floodplains

- 2 Year
- 10 Year
- 100 Year
- 500 Year

The City of Sapulpa
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Luker and Valley Ridge Drainage Basin Floodplains

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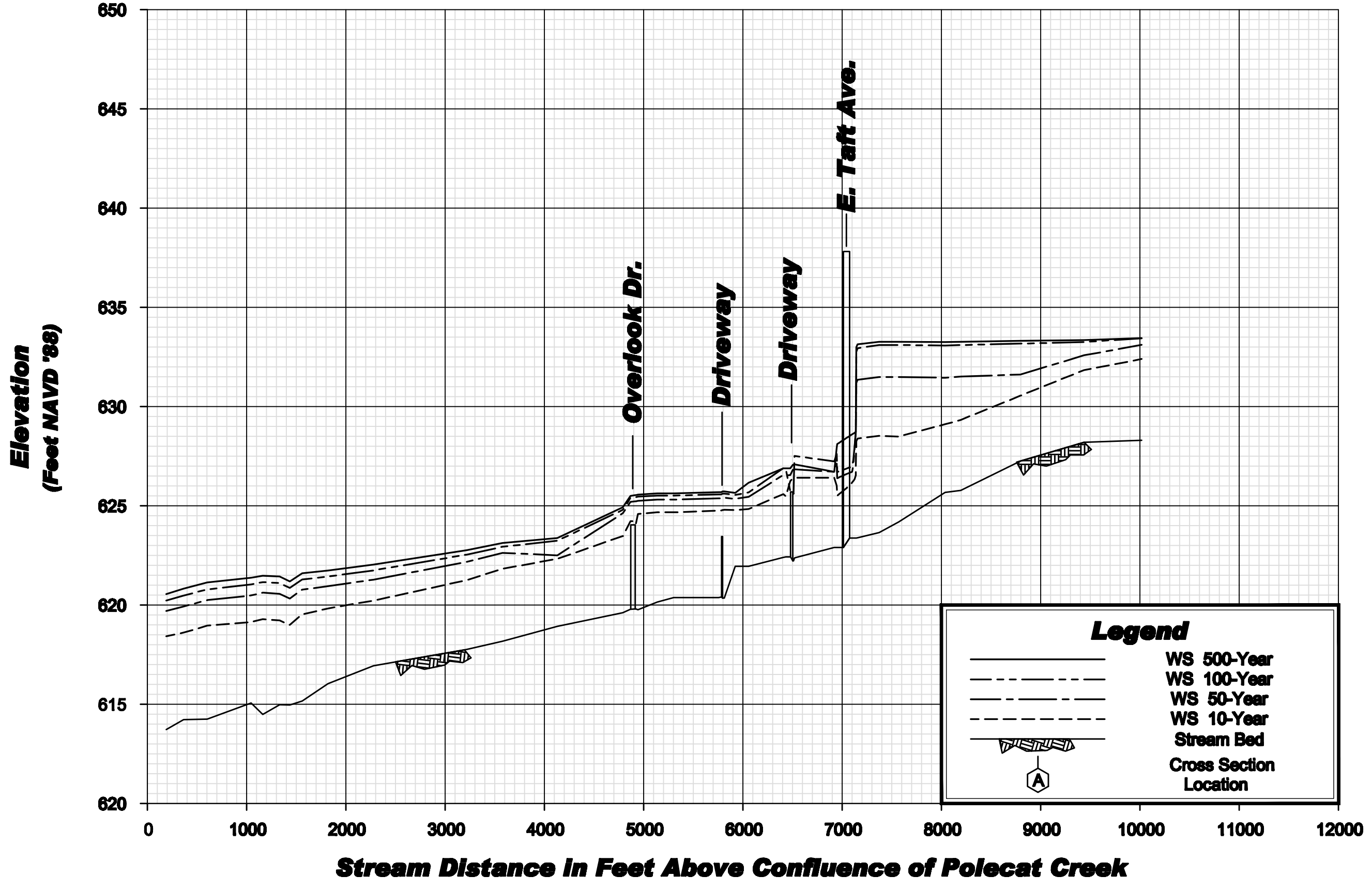
Appendix 11-D-2



Appendix 11-E-1
Existing Flood Profiles
East Polecat
Hudgins Creek Reach 1

City of Sapulpa, OK

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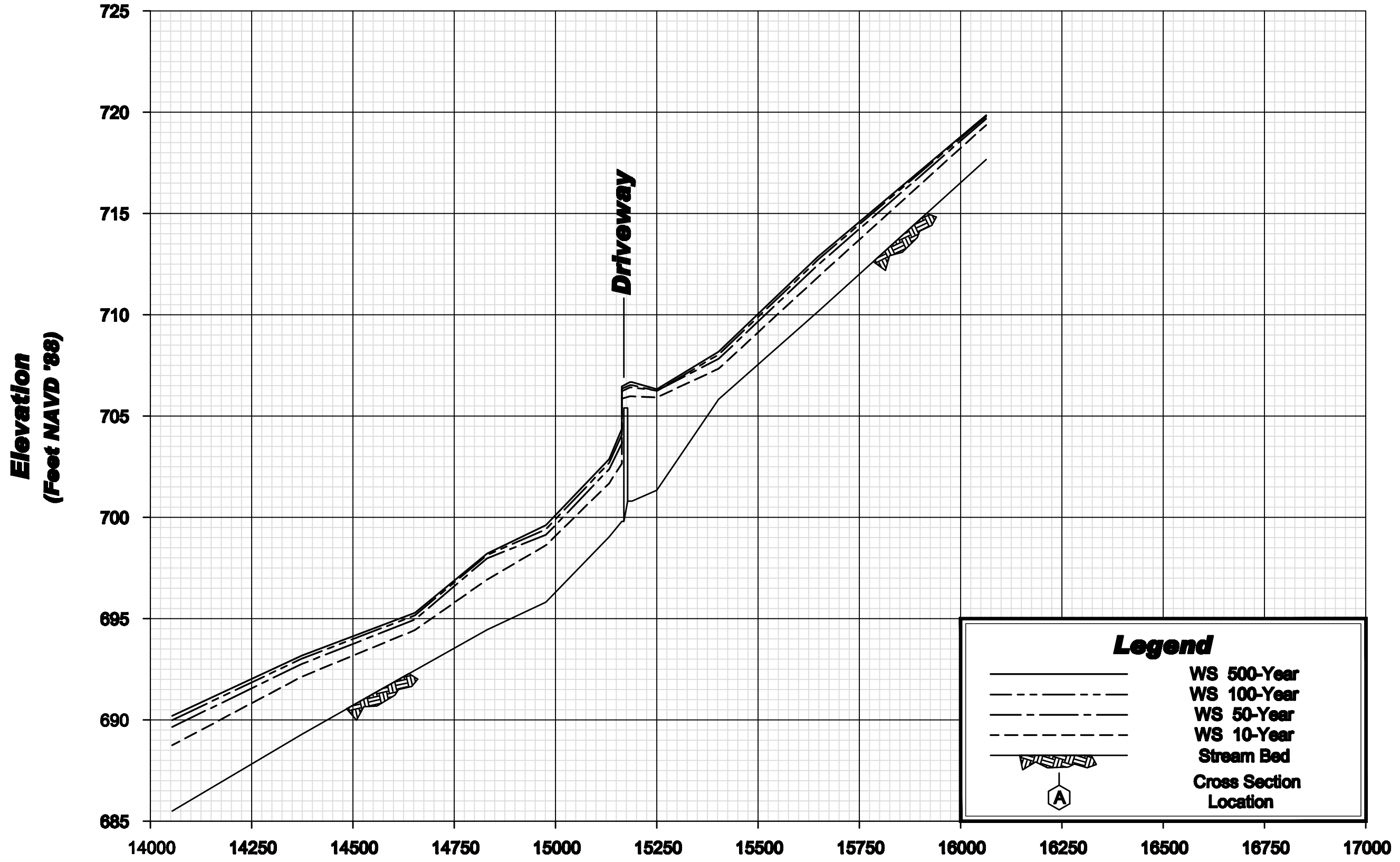

Appendix 11-E-2
Existing Flood Profiles
East Polecat
Hudgins Creek Reach 5

City of Sapulpa, OK

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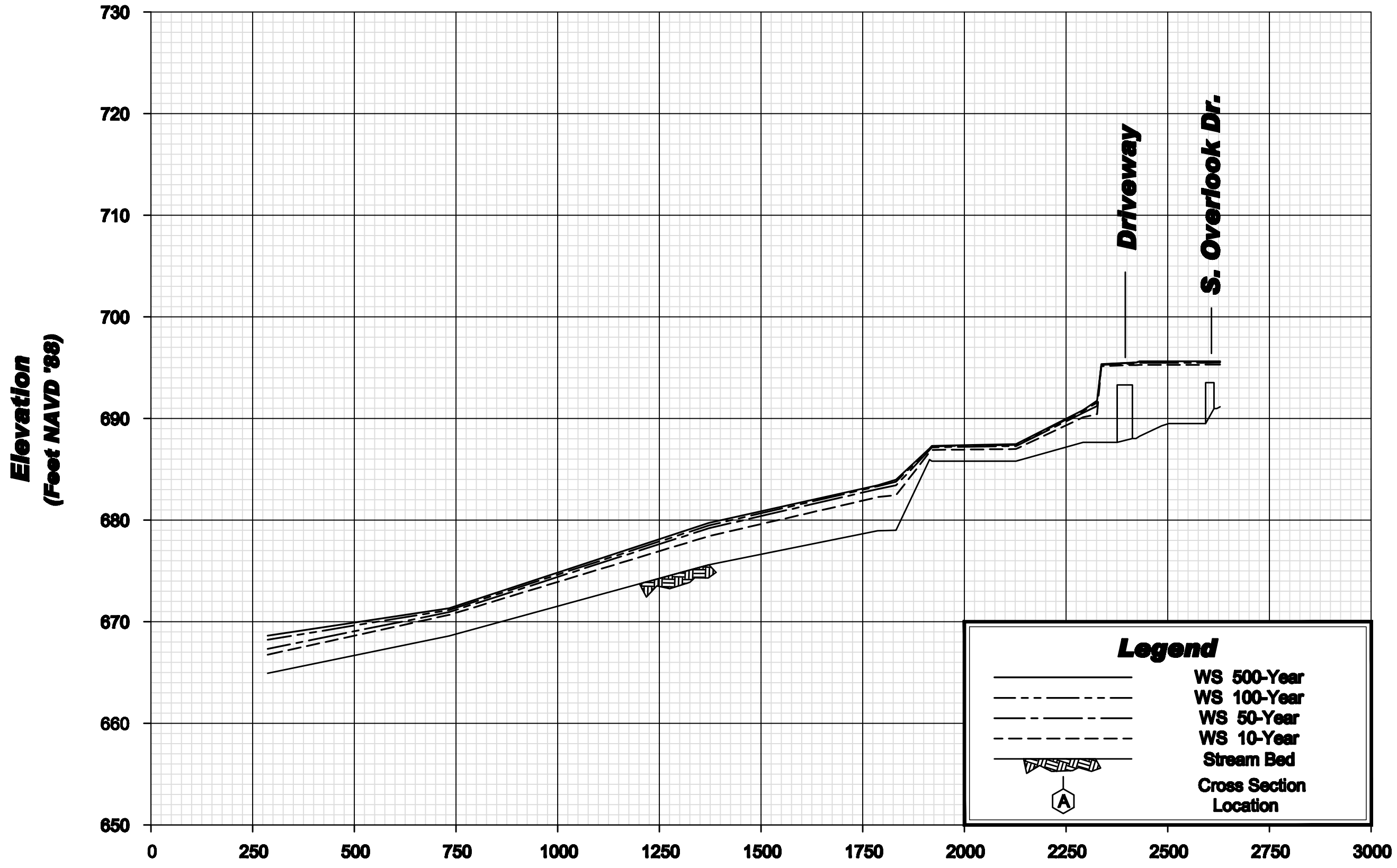
Appendix 11-E-3
Existing Flood Profiles
East Polecat
Hudgins Creek South Trib.



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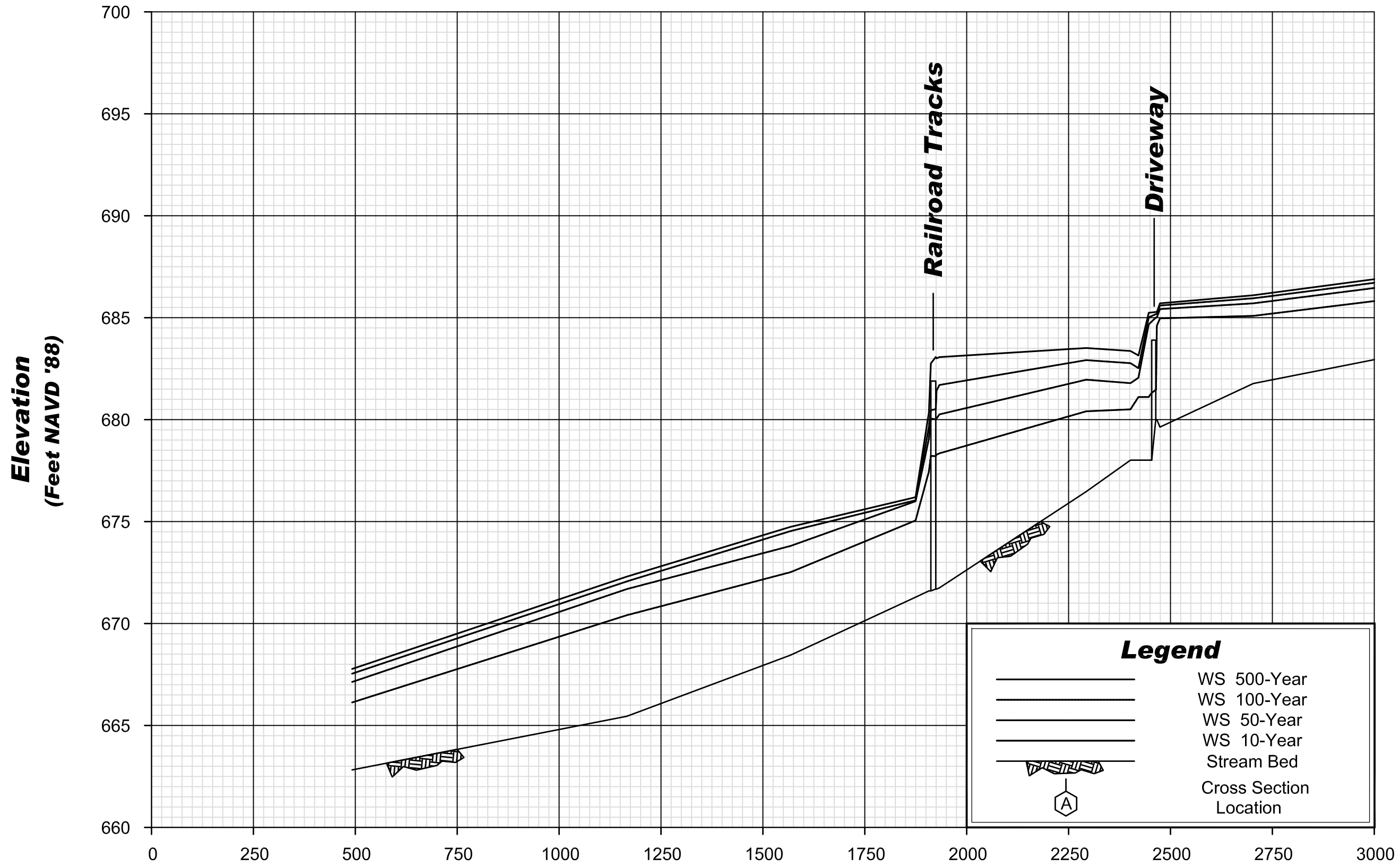

Appendix 11-E-4
Existing Flood Profiles
East Polecat
Hudgins Creek SW Trib.

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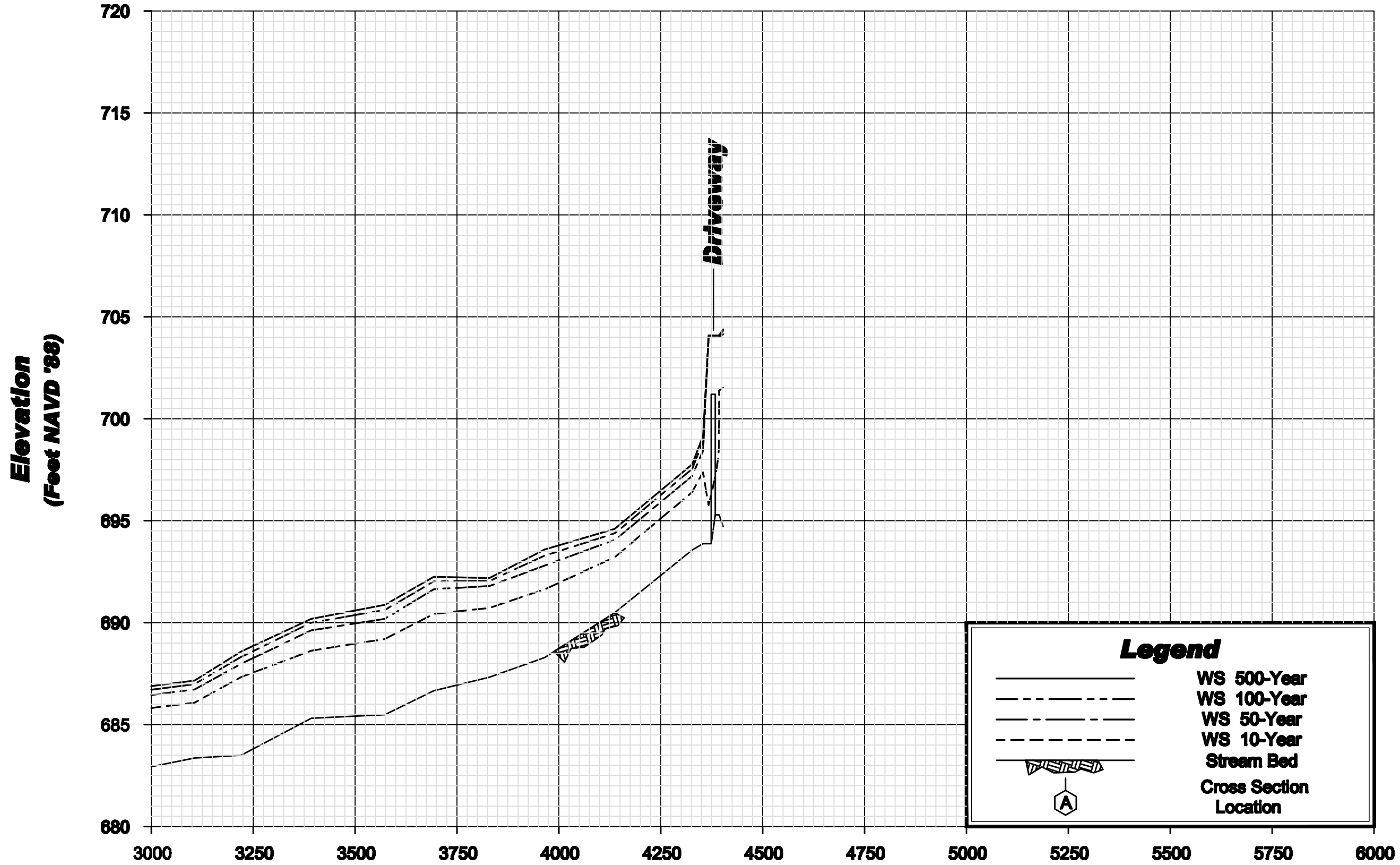

Appendix 11-E-5
Existing Flood Profiles
East Polecat
Hudgins Creek SW Trib.

City of Sapulpa, OK

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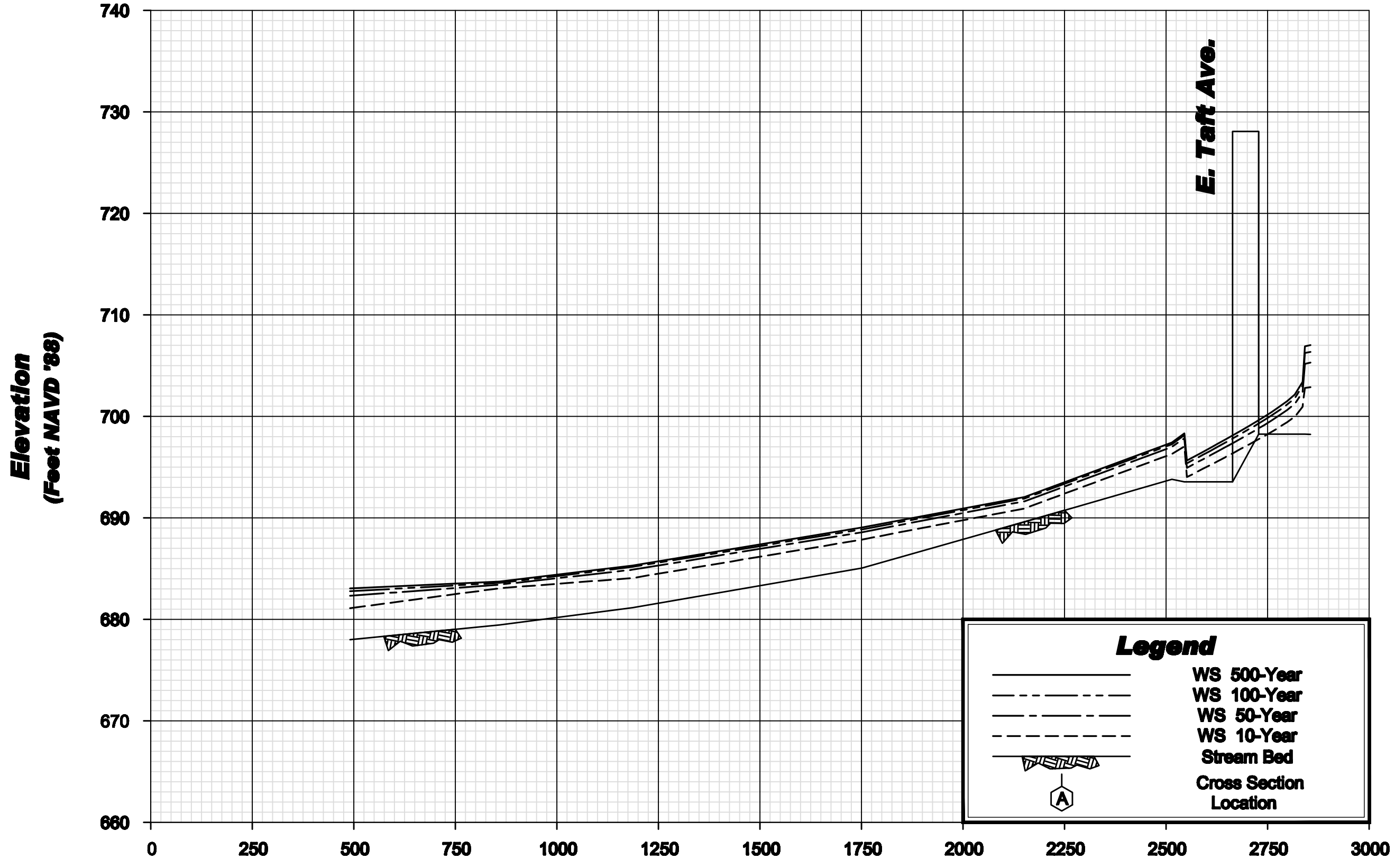
Appendix 11-E-6
Existing Flood Profiles
East Polecat
Hudgins Creek North Trib.



City of Sapulpa, OK

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City of Sapulpa						
Appendix 11-F. Hudgins Drainage Basin - Problem Area 1 Alternate 1						
ITEM	ITEM NO.	DESCRIPTION	UNIT	TOTAL	UNIT PRICE	TOTAL COST
1	202.03	RIGHT-OF-WAY CLEARING AND GRUBBING	LS	1	$ 10,000.00	$ 10,000.00
2	223.06	TEMPORARY SILT FENCE	LF	876	$ 2.00	$ 1,752.00
3	230.06(A)	SOLID SLAB BERMUDA SODDING	SY	708	$ 2.50	$ 1,770.14
4	411.06(A)	PAVEMENT REPLACEMENT	SY	584	$ 50.00	$ 29,200.00
5	611.06(A)	6' I.D. MANHOLE W/FRAME AND LID	EA	2	$ 5,000.00	$ 10,000.00
6	611.06(K)	4'x4' RECESSED CURB INLET	EA	2	$ 3,500.00	$ 7,000.00
7	611.06(K)	8'x4' RECESSED CURB INLET	EA	3	$ 5,000.00	$ 15,000.00
8	613.06(B)	18" C76 CL IV RCP W/ OMNIFLEX GASKETS	LF	100	$ 48.00	$ 4,800.00
9	613.06(B)	30" C76 CL IV RCP W/ OMNIFLEX GASKETS	LF	95	$ 92.00	$ 8,740.00
10	613.06(B)	36" C76 CL IV RCP W/ OMNIFLEX GASKETS	LF	243	$ 120.00	$ 29,160.00
11	613.06(S)	TRENCH EXCAVATION	CY	475	$ 8.00	$ 3,797.16
12	613.06(T)	STANDARD BEDDING MATERIAL	CY	255	$ 20.00	$ 5,098.46
13	619.06(B)	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LS	1	$ 15,000.00	$ 15,000.00
14	619.06(B)	PAVEMENT REMOVAL	SY	584	$ 7.00	$ 4,088.00
					Subtotal	**$ 145,405.76**
					15% Contingency	**$ 21,810.86**
					Subtotal	**$ 167,216.62**
					25% Utility Relocation Contingency	**$ 41,804.16**
					Total	***$ 209,020.78***