J·R ENGINEERING

June 26, 2026

Keith Curtis, PE, CFM
Floodplain Administrator, PPRBD
2880 International Circle
Colorado Springs, CO 80910

Re: Engineer's Certification of No Impact
Case No. :
EDARP Project No.: SF2440

Dear Mr. Curtis,

This letter serves as Certification of No Impact to the Floodplain for the project entitled "Canyon Creek Ranch" The project is located in the unincorporated El Paso County and involves three proposed rural large single-family lots and two no-build tracts. The project includes improvements to existing private driveway to make access meet all relevant criteria.

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) shows the project area located on Panel No. 08041C0507G for El Paso County, Colorado dated December 7, 2018. The project area is located along Kettle Creek MS2213 and is within a designated Zone AE Special Flood Hazard Area (SFHA).

JR Engineering has evaluated the effects of the proposed development on the Kettle Creek floodplain using the existing condition modeling as a baseline. The HEC-RAS models were created using the flows presented in the "Drainage Basin Planning Study for Kettle Creek Basin" by JR Engineering dated May 2015. The exising and proposed models were compared to the FEMA FIRM BFEs as well.

The Kettle Creek DBPS provided existing design information for the MS2213 portion of the drainageway, which was used in the HEC-RAS models created. Junction 12 (Q_5=1,445 cfs, Q_{100}=3,218 cfs) is located just upstream of the property, Junction 12 (Q_5=1,475 cfs, Q_{100}=3,283 cfs) is located near the center of the site and Junction 14 (Q_5=1473 cfs, Q_{100}=3,281 cfs) is located just downstream of the property. In accordance with the Kettle Creek DBPS, the main channel was modeled with a Manning's n value of 0.100 and the over bank with a value of 0.030. Kettle Creek was modeled along the Canyon Creek Ranch property from the eastern property line to the western property line.

JR Engineering utilized the calculated 100-year water surface from the aforementioned model to establish the existing 100-year floodplain. The proposed driveway improvements to the dirt drive were modeled utilizing a separate HEC-RAS model. The proposed computed water surface elevation at each cross section was compared to the effective FEMA BFEs as well as the existing model to ensure a no rise scenario.

Select results of the analysis are presented in Table 1, on the following page:

Table 1: Base Flood Elevation Comparison

Station	Base Flood Elevation (ft)		
	FEMA 100-Year (approx.)	Existing 100-Year	Proposed 100-Year
115+00	6922.9	6919.8	6919.8
116+00	6924.4	6920.9	6920.9
117+00	6925.7	6923.3	6923.3
118+00	6927.1	6924.6	6924.6
119+00	6928.3	6925.3	6925.3
120+00	6929.9	6926.1	6926.1
121+00	6931.3	6927.4	6927.4
122+00	6932.7	6928.3	6928.3
123+00	6934.4	6930.4	6930.4
124+00	6935.3	6930.8	6930.7
125+00	6936.9	6933.0	6932.9

Based on the results of the proposed HEC-RAS modeling, no increase to either the floodplain width or water surface elevation will result from the proposed Canyon Creek Ranch development.

Sincerely,

Bryan Law, PE
Colorado P.E. #25043

No Rise Certification

I certify that I am a duly qualified registered Professional Engineer in the State of Colorado.

I certify the proposed project, Canyon Creek Ranch, as detailed on the following sheets and calculations will result in zero rise in the FEMA designated 100 year flood heights, and no increase in the 100-year discharge and no increase in the 100-year floodplain width, at published and unpublished cross sections of the current FEMA floodplain of Kettle Creek MS2213 as shown on FEMA map 08041C0507G. This certification is intended as proof of meeting the requirements set forth in the Pikes Peak Regional Building Code RBC313.20.1.

I further certify that the design conditions needed to meet the zero rise, box culvert and wing walls, are detailed in sufficient nature to allow for field confirmation and included among the supporting documentation.

I further certify that the structure in question will be securely anchored to prevent flotation, collapse or lateral movement in order to withstand the velocity of floodwaters as required by RCB313.18.1 and RBC313.21.2.

_____

Bryan Law, PE
Colorado P.E. #25043

Drainage Basin Planning Study
For
Kettle Creek Basin

Prepared for:

High Valley Land Company, Inc.
1755 Telestar Drive, Suite 211
Colorado Springs, CO 80920
Contact: Tom Taylor

Prepared by:

JR Engineering LLC
3730 Sinton Road, Suite
Colorado Springs, CO 80903
(719) 593-2593
Contact: Steve Rossoll

JR Project Number: 25100.00
May 5, 2015
X:\2510000.all\2510000\Word\Reports\Kettle Creek DBPS

4 HYDRAULIC ANALYSIS

4.1 Major Drainageways

A hydraulic analysis was undertaken to evaluate the distribution of flow, determine areas covered by water during flooding events, and related characteristics of the water flow in the channel and overbank areas along Kettle Creek. While the hydrologic computations define the rate of flow for floods of selected frequencies at various points within the drainage basin, the hydraulic computations reflect dynamic conditions of the water flowing downstream as affected by the channel size, subsurface roughness, structures along the channel, channel vegetation, and similar physical characteristics. The physical characteristics of Kettle Creek and its tributaries in combination with the peak flood discharge rates described in Section 3 of this report provide the primary input characteristics to the hydraulic analysis, and the basis for evaluating the hydraulic adequacy of the outfall system.

Kettle Creek and its tributaries in the Black Forest area are defined in many places by deep channels with steep side slopes. A field investigation was conducted throughout the lower portion of the drainage basin, which will be the segment primarily affected by future development. It is understood that little future development is expected to occur in the Black Forest.

A field investigation was conducted from Powers Boulevard to I-25 in August 2014. The site investigation established a basis to define any areas in need of improvements, and determine the adequacy of the assumed channel characteristics and existing structures in this area. The visit also identified some areas where stream bank and bed erosion exists in the lower portion of the basin, and where other physical problems have resulted due to the stream hydraulics. Some of these areas are presented in **Appendix D** with photos taken in August 2014.

4.2 Methodology

Hydraulic calculations were performed on Kettle Creek to determine the existing and future floodplain limits. This was accomplished by utilizing the U.S. Army Corps of Engineer's HEC-RAS River Analysis System program (version 4.1.0, January 2010). For this study, Kettle Creek was divided into separate reaches corresponding to the designations as shown on **Figure 3-2**, and described in Section 3 of this report. The delineated historic, existing and future floodplain boundaries can be seen on the work maps, **Figures 4-1** and **4-2**, and the depths are depicted on the profile sheets included as **Figure 4-3** through **Figure 4-7**.

4.2.1 Parameters

Hydraulic analyses for existing and future hydrologic conditions were completed for the main stem of Kettle Creek from Howells Road to I-25. These analyses were completed to represent peak flows for the flood events with 2-, 5-, 10-, 25-, 50- and 100-year recurrence intervals. Cross-section topography data was obtained from a triangulated irregular network (TIN) in AutoCAD that was created from the contour information obtained from City of Colorado Springs FIMS topographic data.

4.2.2 Structures

Bridges and ineffective flow areas were added to the HEC-RAS model. Physical parameters for measured structures were incorporated into the hydraulic model using HEC-RAS bridge and cross-section data editors. All of the drainageway crossings from Powers Boulevard to I-25 were modeled to represent existing conditions which consist of bridges over Kettle Creek. These crossings are located at Powers Boulevard (bridge), Old Ranch Road (bridge), Otero Avenue (bridge), and Voyager Parkway (State Highway 83) (bridge).

4.2.3 Reaches

The reach analyzed consists of the Kettle Creek main stem from Howells Road (approximate, Howells Road does not cross Kettle Creek) to the Kettle Creek Detention Facility just east of I-25, approximately 24,850 linear feet or 4.7 miles of channel. This downstream limit extends 3,000 feet past the FIS and FEMA FIRM maps. The upstream limit of model was taken to be the approximate limit of significant planned future development at the east city limits. Upstream of Howells Road is the Black Forest (El Paso County jurisdiction), where land use is expected to remain unchanged in the future. The downstream limit was taken to be the embankment of the regional detention pond at I-25. Information from the U.S. Air Force Academy Kettle Creek Watershed Hydrology Study (April 2002) was used to determine the water surface elevations of the Kettle Creek detention facility for each respective storm recurrence interval.

The main stem of Kettle Creek in the subject reach is defined by a deeply incised main channel with heavy brush and wetland-type vegetation. Above the banks of the main channel, overbanks exist within the Kettle Creek drainageway with steep side slopes and natural grasses and sparse scrub vegetation.

4.2.4 Manning's *n* Values

The Manning's n values were applied across the channel cross-section to reflect changes in vegetative cover between the main channel and overbank areas. Manning's n values were obtained from the Major Drainage chapter of the UDFCD Drainage Criteria Manual. The Manning's *n* values for the channels and floodplains are summarized in Table 4-1.

Table 4-1
Manning's *n* Values

Parameter	Historic Conditions	Existing Conditions	Future Conditions
Main Channel *n*	0.100	0.100	0.100
Overbank *n*	0.030	0.030	0.030

The Manning's *n* for the main channel was selected for "very weedy reaches, deep pools, or floodways with heavy stand of timber and underbrush". Manning's *n* values for the overbank areas reflect conditions of

LEGEND

- SUBBASIN ID
- 100-YEAR 24-HOUR FLOWS (CFS)
- 5-YEAR 24-HOUR FLOWS (CFS)
- BASIN BOUNDARY
- SUBBASIN BOUNDARY
- MAJOR TRIBUTARY
- JUNCTION

CO-83

INTERQUEST PKY

VOYAGER PKY

I-25

POWERS BLVD.

Approx. Site

1	315 / 735	2	173 / 403
3	56 / 122	4	56 / 135
5	134 / 308	6	240 / 588
7	51 / 125	8	117 / 273
9	223 / 520	10	62 / 152
11	322 / 720	12	144 / 338
13	212 / 505	14	138 / 337
15	143 / 342	16	193 / 449
17	184 / 447	18	55 / 134
19	101 / 248	20	134 / 343
21	100 / 264	22	36 / 109
23	42 / 121	24	24 / 93
28	38 / 120	29	37 / 102
30	116 / 279	31	217 / 490
32	124 / 289	33	24 / 93
S1	109 / 576		

J1, J2, J3, J4, J5, J6, J7, J8, J9, J10, J11, J12, J13, J14, J15, J16, J17, J18, J19, J20, J23, J24, J25, J26

3000 1500 0 3000

ORIGINAL SCALE: 1" = 3000'

FIGURE 3-13 HYDROLOGY MAP (EXISTING)
KETTLE CREEK DBPS
JOB NO. 25100.00
MAY 2015

NOTE

1. SUBBASIN 24-27 DATA IS REPLACED WITH DATA FROM THE KETTLE CREEK DRAINAGE BASIN OLD RANCH ROAD TRIBUTARY MASTER DEVELOPMENT DRAINAGE PLAN AND LABELED AS SOURCE-1 (S1).

J·R ENGINEERING
A Westrian Company
Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

EXISTING CONDITIONS
MODEL RESULTS
(5-YEAR)

5-Year, 2-Hour Storm			
Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (CFS)	Volume (in)
Subbasin-1	1.263	286	0.51
Subbasin-2	0.586	160	0.52
Subbasin-3	0.180	56	0.65
Junction-1	2.029	492	0.52
Reach-1	2.029	490	0.52
Subbasin-4	0.195	50	0.45
Junction-2	2.224	536	0.52
Reach-2	2.224	536	0.52
Subbasin-5	0.625	119	0.56
Junction-3	2.849	644	0.53
Reach-3	2.849	644	0.53
Subbasin-6	1.333	203	0.43
Junction-4	4.182	846	0.5
Reach-4	4.182	846	0.5
Subbasin-7	0.183	45	0.44
Junction-5	4.365	865	0.49
Reach-5	4.365	862	0.49
Subbasin-8	0.288	104	0.52
Junction-6	4.653	885	0.49
Reach-6	4.653	883	0.49
Subbasin-9	1.177	195	0.51
Subbasin-10	0.222	55	0.43
Junction-7	1.399	217	0.49
Reach-7	1.399	217	0.49
Subbasin-11	0.880	302	0.61
Junction-8	2.279	437	0.54
Reach-8	2.279	434	0.54
Subbasin-12	0.552	127	0.5
Junction-9	2.831	546	0.53
Reach-9	2.831	545	0.53
Junction-10	7.484	1,305	0.51
Reach-10	7.484	1,305	0.51
Subbasin-13	1.156	183	0.47
Subbasin-14	0.516	122	0.44
Junction-11	9.156	1,437	0.5
Reach-11	9.156	1,435	0.5
Subbasin-15	0.498	127	0.47
Junction-12	9.654	1,445	0.5
Reach-12	9.654	1,442	0.5
Subbasin-16	0.819	175	0.51
Subbasin-17	0.788	164	0.44
Junction-13	11.261	1,475	0.49

5-Year, 2-Hour Storm			
Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (CFS)	Volume (in)
Reach-13	11.261	1,473	0.49
Subbasin-18	0.192	50	0.44
Junction-14	11.453	1,473	0.49
Reach-14	11.453	1,473	0.49
Subbasin-19	0.552	86	0.44
Junction-15	12.005	1,488	0.49
Reach-15	12.005	1,485	0.49
Subbasin-20	0.594	113	0.38
Junction-16	12.599	1,487	0.49
Reach-16	12.599	1,487	0.49
Subbasin-21	0.417	82	0.33
Junction-17	13.016	1,487	0.48
Reach-17	13.016	1,486	0.48
Subbasin-22	0.200	24	0.21
Junction-18	13.216	1,486	0.48
Reach-18	13.216	1,484	0.48
Subbasin-23	0.123	30	0.25
Junction-19	13.339	1,484	0.47
Reach-19	13.339	1,482	0.47
Subbasin-24	0.453	81	0.45
Subbasin-25	0.169	206	1.12
Subbasin-26	0.480	111	0.51
Junction-21	1.102	250	0.58
Reach-21	1.102	245	0.58
Subbasin-27	0.294	139	0.75
Junction-22	1.396	346	0.61
Reach-22	1.396	344	0.61
Subbasin-28	0.264	25	0.19
Subbasin-29	0.172	28	0.27
Junction-20	0.436	50	0.22
Reach-20	0.436	50	0.22
Subbasin-30	0.364	107	0.47
Junction-23	15.535	1,484	0.48
Reach-23	15.535	1,482	0.48
Subbasin-31	0.377	219	0.55
Subbasin-32	0.316	137	0.5
Junction-24	16.228	1,482	0.48
Reach-24	16.228	1,481	0.48
Subbasin-33	0.184	13	0.1
Junction-25	16.412	1481.1	0.48
Reach-25	16.412	1481.1	0.48
Junction-26	16.412	1481.1	0.48

5-Year, 24-Hour Storm			
Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (CFS)	Volume (in)
Subbasin-1	1.263	315	1.06
Subbasin-2	0.586	173	1.06
Subbasin-3	0.180	56	1.27
Junction-1	2.029	527	1.08
Reach-1	2.029	526	1.08
Subbasin-4	0.195	56	0.97
Junction-2	2.224	572	1.07
Reach-2	2.224	568	1.07
Subbasin-5	0.625	134	1.14
Junction-3	2.849	689	1.08
Reach-3	2.849	689	1.08
Subbasin-6	1.333	240	0.94
Junction-4	4.182	928	1.04
Reach-4	4.182	917	1.04
Subbasin-7	0.183	51	0.97
Junction-5	4.365	940	1.03
Reach-5	4.365	929	1.03
Subbasin-8	0.288	117	1.1
Junction-6	4.653	959	1.04
Reach-6	4.653	944	1.04
Subbasin-9	1.177	223	1.05
Subbasin-10	0.222	62	0.93
Junction-7	1.399	252	1.03
Reach-7	1.399	250	1.03
Subbasin-11	0.880	322	1.23
Junction-8	2.279	484	1.11
Reach-8	2.279	484	1.11
Subbasin-12	0.552	144	1.06
Junction-9	2.831	609	1.1
Reach-9	2.831	594	1.1
Junction-10	7.484	1,444	1.06
Reach-10	7.484	1,428	1.06
Subbasin-13	1.156	212	1
Subbasin-14	0.516	138	0.95
Junction-11	9.156	1,605	1.05
Reach-11	9.156	1,604	1.05
Subbasin-15	0.498	143	1
Junction-12	9.654	1,636	1.05
Reach-12	9.654	1,634	1.05

5-Year, 24-Hour Storm			
Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (CFS)	Volume (in)
Subbasin-16	0.819	193	1.06
Subbasin-17	0.788	184	0.95
Junction-13	11.261	1,730	1.04
Reach-13	11.261	1,705	1.04
Subbasin-18	0.192	55	0.95
Junction-14	11.453	1,711	1.04
Reach-14	11.453	1,710	1.04
Subbasin-19	0.552	101	0.95
Junction-15	12.005	1,745	1.03
Reach-15	12.005	1,741	1.03
Subbasin-20	0.594	134	0.86
Junction-16	12.599	1,760	1.03
Reach-16	12.599	1,741	1.03
Subbasin-21	0.417	100	0.79
Junction-17	13.016	1,752	1.02
Reach-17	13.016	1,752	1.02
Subbasin-22	0.200	36	0.59
Junction-18	13.216	1,756	1.01
Reach-18	13.216	1,746	1.01
Subbasin-23	0.123	42	0.66
Junction-19	13.339	1,748	1.01
Reach-19	13.339	1,747	1.01
Source-1	1.396	109	0.58
Subbasin-28	0.264	38	0.57
Subbasin-29	0.172	37	0.7
Junction-20	0.436	75	0.62
Reach-20	0.436	70	0.62
Subbasin-30	0.364	116	1
Junction-23	15.535	1,764	0.96
Reach-23	15.535	1,751	0.96
Subbasin-31	0.377	217	1.05
Subbasin-32	0.316	124	1.01
Junction-24	16.228	1,766	0.96
Reach-24	16.228	1,754	0.96
Subbasin-33	0.184	24	0.37
Junction-25	16.412	1,756	0.96
Reach-25	16.412	1,750	0.96
Junction-26	16.412	1,750	0.96

NOTE:

1. SOURCE-1 IS THE 24 HOUR FLOW DATA FOR SUBBASINS 24-27, JUNCTION 22, AND REACHES 21-22. SUBBASINS 24-27 DATA HAS BEEN REPLACED WITH KETTLE CREEK DRAINAGE BASIN OLD RANCH ROAD TRIBUTARY MASTER DEVELOPMENT PLAN FLOW DATA (JR ENG. 2001).

J·R ENGINEERING
A Westrian Company
Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

EXISTING CONDITIONS
MODEL RESULTS
(100-YEAR)

100-Year, 2-Hour Storm			
Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (CFS)	Volume (in)
Subbasin-1	1.263	634	1.12
Subbasin-2	0.586	355	1.13
Subbasin-3	0.180	115	1.33
Junction-1	2.029	1,082	1.14
Reach-1	2.029	1,080	1.14
Subbasin-4	0.195	117	1.03
Junction-2	2.224	1,184	1.13
Reach-2	2.224	1,184	1.13
Subbasin-5	0.625	262	1.21
Junction-3	2.849	1,423	1.15
Reach-3	2.849	1,423	1.15
Subbasin-6	1.333	474	0.99
Junction-4	4.182	1,895	1.10
Reach-4	4.182	1,894	1.10
Subbasin-7	0.183	106	1.03
Junction-5	4.365	1,938	1.10
Reach-5	4.365	1,931	1.10
Subbasin-8	0.288	242	1.17
Junction-6	4.653	1,980	1.10
Reach-6	4.653	1,977	1.10
Subbasin-9	1.177	433	1.11
Subbasin-10	0.222	132	0.99
Junction-7	1.399	483	1.09
Reach-7	1.399	483	1.09
Subbasin-11	0.880	657	1.30
Junction-8	2.279	959	1.17
Reach-8	2.279	953	1.17
Subbasin-12	0.552	291	1.12
Junction-9	2.831	1,208	1.16
Reach-9	2.831	1,205	1.16
Junction-10	7.484	2,905	1.12
Reach-10	7.484	2,903	1.12
Subbasin-13	1.156	418	1.06
Subbasin-14	0.516	285	1.01
Junction-11	9.156	3,198	1.11
Reach-11	9.156	3,195	1.11
Subbasin-15	0.498	293	1.06
Junction-12	9.654	3,218	1.11
Reach-12	9.654	3,213	1.11
Subbasin-16	0.819	387	1.12
Subbasin-17	0.788	382	1.01
Junction-13	11.261	3,283	1.10

100-Year, 2-Hour Storm			
Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (CFS)	Volume (in)
Reach-13	11.261	3,280	1.10
Subbasin-18	0.192	118	1.01
Junction-14	11.453	3,281	1.10
Reach-14	11.453	3,279	1.10
Subbasin-19	0.552	201	1.00
Junction-15	12.005	3,314	1.09
Reach-15	12.005	3,309	1.09
Subbasin-20	0.594	279	0.91
Junction-16	12.599	3,313	1.09
Reach-16	12.599	3,312	1.09
Subbasin-21	0.417	217	0.84
Junction-17	13.016	3,312	1.08
Reach-17	13.016	3,308	1.08
Subbasin-22	0.200	81	0.64
Junction-18	13.216	3,308	1.07
Reach-18	13.216	3,305	1.07
Subbasin-23	0.123	93	0.71
Junction-19	13.339	3,305	1.07
Reach-19	13.339	3,302	1.07
Subbasin-24	0.453	188	1.03
Subbasin-25	0.169	374	2.01
Subbasin-26	0.480	247	1.12
Junction-21	1.102	463	1.22
Reach-21	1.102	463	1.22
Subbasin-27	0.294	279	1.49
Junction-22	1.396	689	1.28
Reach-22	1.396	687	1.28
Subbasin-28	0.264	83	0.62
Subbasin-29	0.172	80	0.75
Junction-20	0.436	157	0.67
Reach-20	0.436	156	0.67
Subbasin-30	0.364	250	1.06
Junction-23	15.535	3,305	1.08
Reach-23	15.535	3,298	1.08
Subbasin-31	0.377	458	1.11
Subbasin-32	0.316	298	1.06
Junction-24	16.228	3,298	1.08
Reach-24	16.228	3,297	1.08
Subbasin-33	0.184	57	0.41
Junction-25	16.412	3297.4	1.07
Reach-25	16.412	3297.4	1.07
Junction-26	16.412	3297.4	1.07

100-Year, 24-Hour Storm			
Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (CFS)	Volume (in)
Subbasin-1	1.263	735	2.36
Subbasin-2	0.586	403	2.37
Subbasin-3	0.180	122	2.67
Junction-1	2.029	1,217	2.39
Reach-1	2.029	1,216	2.39
Subbasin-4	0.195	135	2.22
Junction-2	2.224	1,325	2.38
Reach-2	2.224	1,322	2.38
Subbasin-5	0.625	308	2.52
Junction-3	2.849	1,602	2.41
Reach-3	2.849	1,602	2.41
Subbasin-6	1.333	588	2.18
Junction-4	4.182	2,190	2.34
Reach-4	4.182	2,153	2.34
Subbasin-7	0.183	125	2.24
Junction-5	4.365	2,208	2.33
Reach-5	4.365	2,186	2.33
Subbasin-8	0.288	273.3	2.48
Junction-6	4.653	2253.3	2.34
Reach-6	4.653	2,213	2.34
Subbasin-9	1.177	520	2.35
Subbasin-10	0.222	152	2.17
Junction-7	1.399	593	2.32
Reach-7	1.399	588	2.32
Subbasin-11	0.880	720	2.66
Junction-8	2.279	1,114	2.45
Reach-8	2.279	1,112	2.45
Subbasin-12	0.552	338	2.39
Junction-9	2.831	1,403	2.44
Reach-9	2.831	1,368	2.44
Junction-10	7.484	3,375	2.38
Reach-10	7.484	3,329	2.38
Subbasin-13	1.156	505	2.28
Subbasin-14	0.516	337	2.20
Junction-11	9.156	3,761	2.36
Reach-11	9.156	3,756	2.36
Subbasin-15	0.498	342	2.28
Junction-12	9.654	3,828	2.35
Reach-12	9.654	3,823	2.35

100-Year, 24-Hour Storm			
Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (CFS)	Volume (in)
Subbasin-16	0.819	449	2.37
Subbasin-17	0.788	447	2.20
Junction-13	11.261	4,038	2.34
Reach-13	11.261	3,975	2.34
Subbasin-18	0.192	134.1	2.2
Junction-14	11.453	3,992	2.34
Reach-14	11.453	3,987	2.34
Subbasin-19	0.552	248	2.19
Junction-15	12.005	4,069	2.33
Reach-15	12.005	4,058	2.33
Subbasin-20	0.594	343	2.06
Junction-16	12.599	4,103	2.32
Reach-16	12.599	4,064	2.32
Subbasin-21	0.417	264	1.96
Junction-17	13.016	4,091	2.31
Reach-17	13.016	4,081	2.31
Subbasin-22	0.200	109	1.66
Junction-18	13.216	4,091	2.30
Reach-18	13.216	4,080	2.30
Subbasin-23	0.123	121	1.75
Junction-19	13.339	4,086	2.29
Reach-19	13.339	4,081	2.29
Source-1	1.396	576	1.58
Subbasin-28	0.264	120	1.63
Subbasin-29	0.172	102	1.83
Junction-20	0.436	222	1.71
Reach-20	0.436	207	1.71
Subbasin-30	0.364	279	2.28
Junction-23	15.535	4,121	2.21
Reach-23	15.535	4,081	2.21
Subbasin-31	0.377	490	2.26
Subbasin-32	0.316	289	2.22
Junction-24	16.228	4,114	2.22
Reach-24	16.228	4,096	2.22
Subbasin-33	0.184	93	1.21
Junction-25	16.412	4,102	2.20
Reach-25	16.412	4,084	2.20
Junction-26	16.412	4,084	2.20

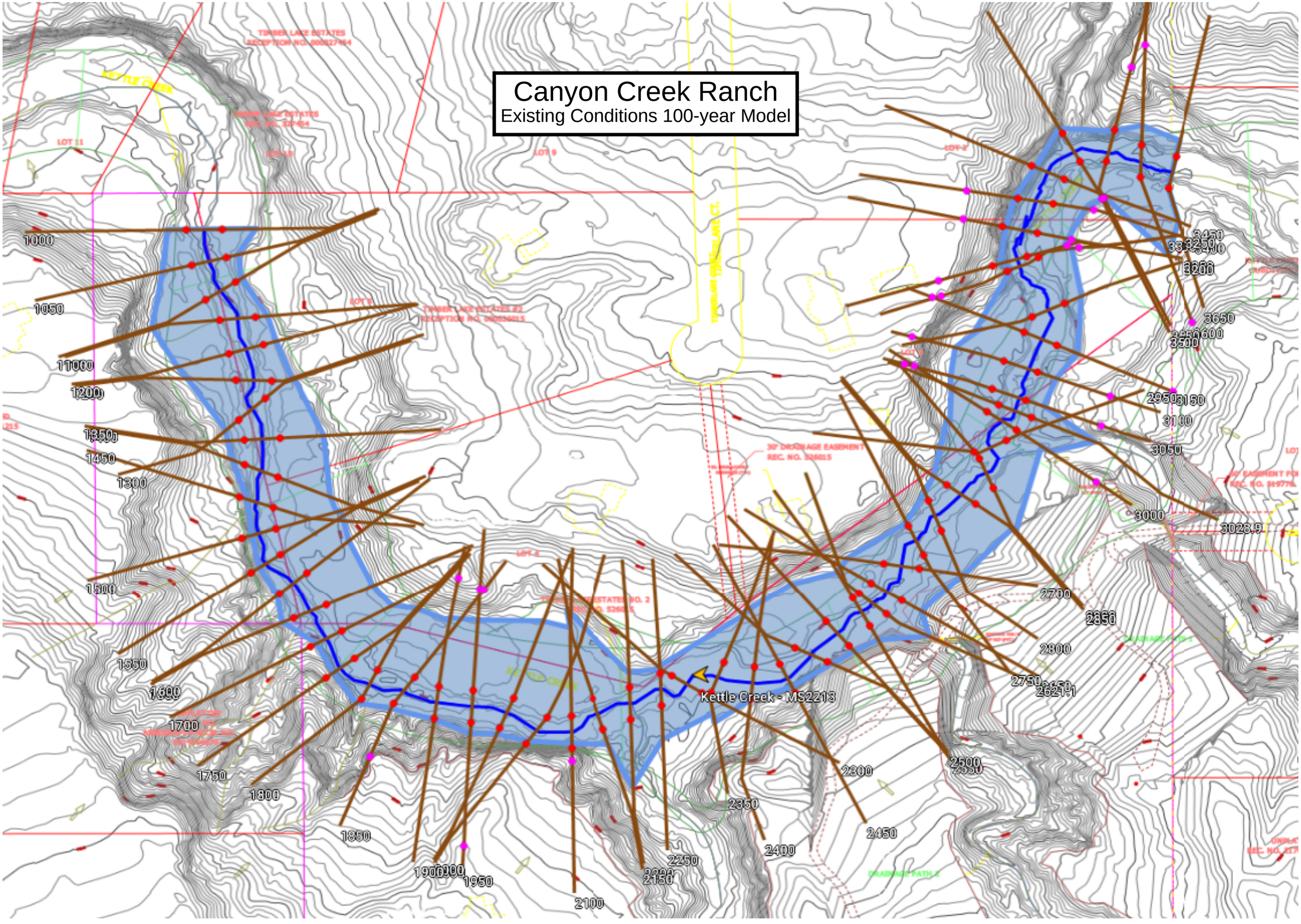
NOTE:

1. SOURCE–1 IS THE 24 HOUR FLOW DATA FOR SUBBASINS 24–27, JUNCTION 22, AND REACHES 21–22. SUBBASINS 24–27 DATA HAS BEEN REPLACED WITH KETTLE CREEK DRAINAGE BASIN OLD RANCH ROAD TRIBUTARY MASTER DEVELOPMENT PLAN FLOW DATA (JR ENG. 2001).

J·R ENGINEERING
A Westrian Company
Centennial 303–740–9393 • Colorado Springs 719–593–2593
Fort Collins 970–491–9888 • www.jrengineering.com

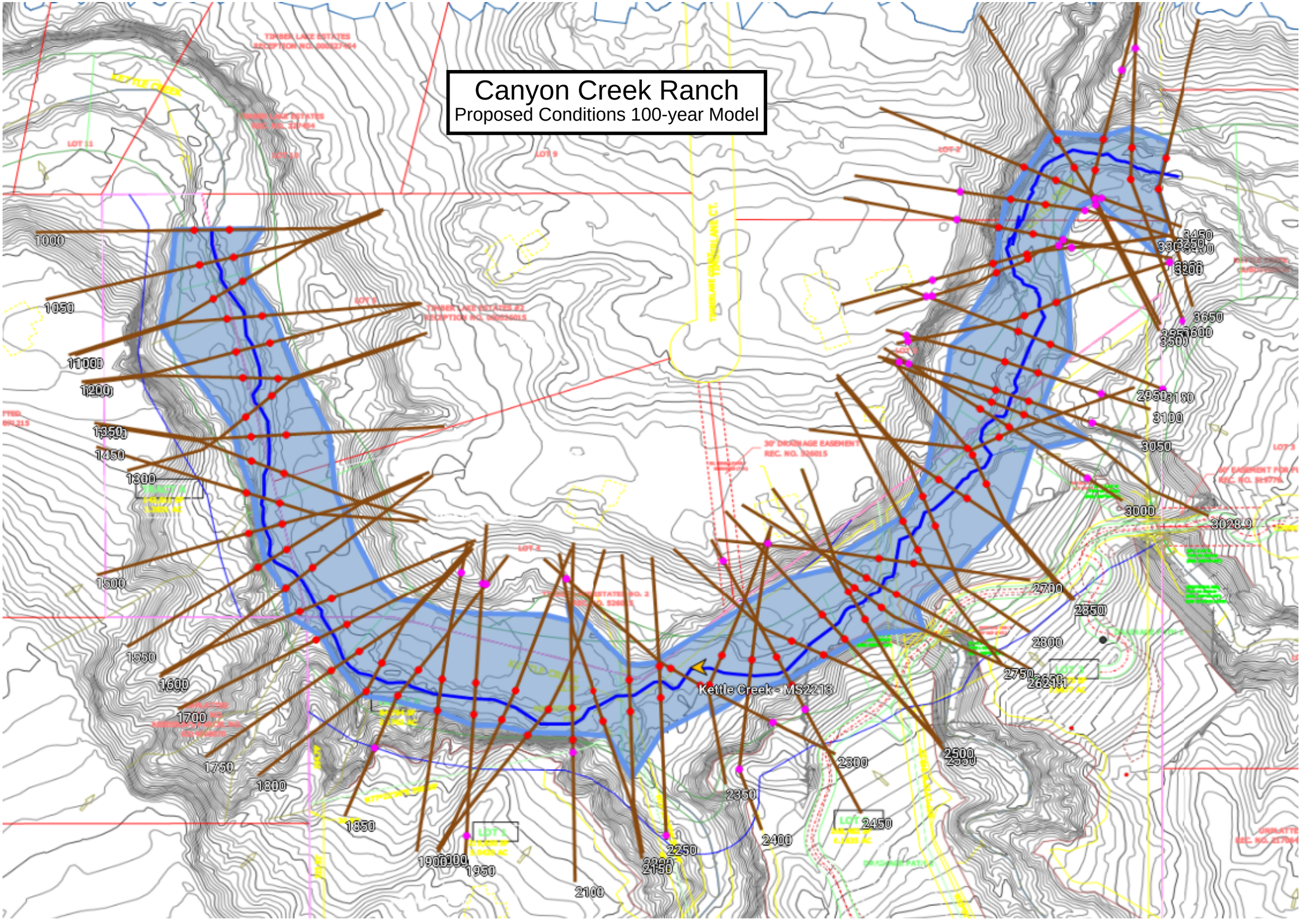
Canyon Creek Ranch

Existing Conditions 100-year Model



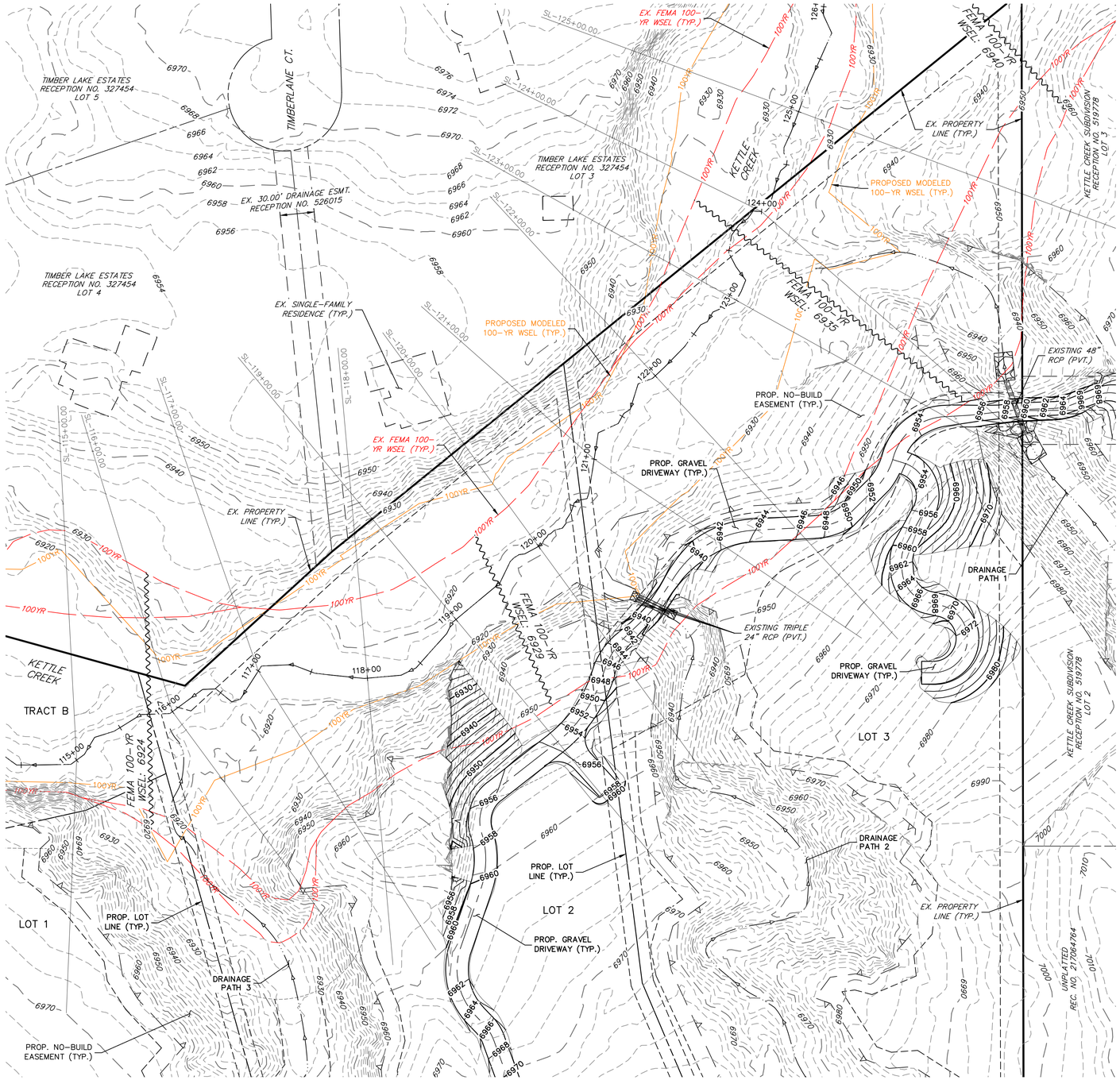
Canyon Creek Ranch

Proposed Conditions 100-year Model



CANYON CREEK RANCH

NO RISE CERTIFICATION: KETTLE CREEK-MS2213



NOTES

1. KETTLE CREEK STUDIED IN THE "DRAINAGE BASIN PLANNING STUDY FOR KETTLE CREEK BASIN" BY JR ENGINEERING DATED MAY 2015.
   - A. JUNCTION 12 (Q_5=1,445 CFS, Q_{100}=3,218 CFS) IS JUST UPSTREAM OF THE SITE
   - B. JUNCTION 13 (Q_5=1,475 CFS, Q_{100}=3,283 CFS) IS LOCATED NEAR THE CENTER OF THE SITE
   - C. JUNCTION 15 (Q_5=1,473 CFS, Q_{100}=3,281 CFS) IS JUST DOWNSTREAM OF THE SITE
   - D. MANNING'S N FOR MODELING MAIN CHANNEL = 0.100
   - E. MANNING'S N FOR MODELING OVER BANK = 0.030
2. SEE SHEETS 2-4 FOR SECTIONS OF KETTLE CREEK-MS2213 ADJACENT TO THE PROPOSED CANYON CREEK RANCH SITE IMPROVEMENTS

Station	Base Flood Elevation (ft)		
	FEMA 100-Year (approx.)	Existing 100-Year	Proposed 100-Year
115+00	6922.9	6919.8	6919.8
116+00	6924.4	6920.9	6920.9
117+00	6925.7	6923.3	6923.3
118+00	6927.1	6924.6	6924.6
119+00	6928.3	6925.3	6925.3
120+00	6929.9	6926.1	6926.1
121+00	6931.3	6927.4	6927.4
122+00	6932.7	6928.3	6928.3
123+00	6934.4	6930.4	6930.4
124+00	6935.3	6930.8	6930.7
125+00	6936.9	6933.0	6932.9

N

50 25 0 50 100

ORIGINAL SCALE: 1" = 50'

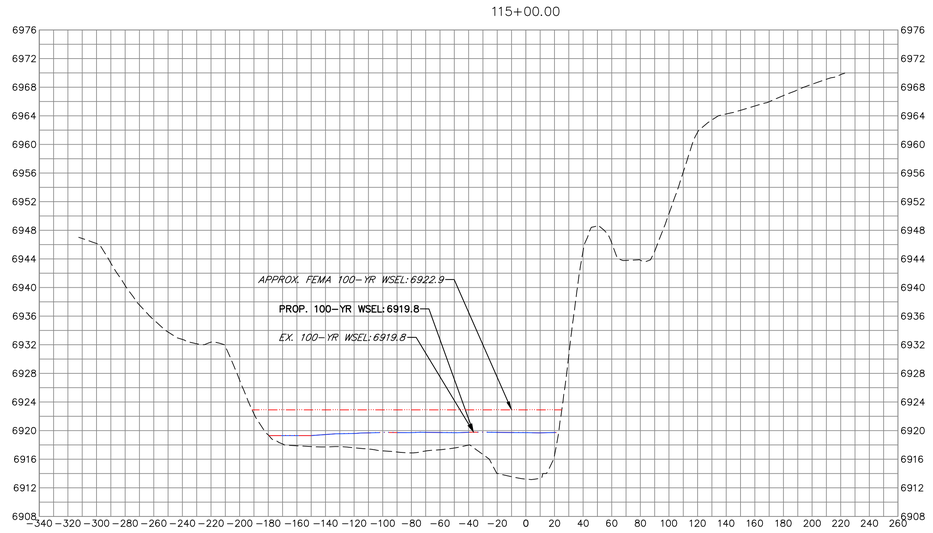
NO RISE CERTIFICATION:
KETTLE CREEK-MS2213
CANYON CREEK RANCH
JOB NO. 25322.00
06/24/2026
SHEET 1 OF 4

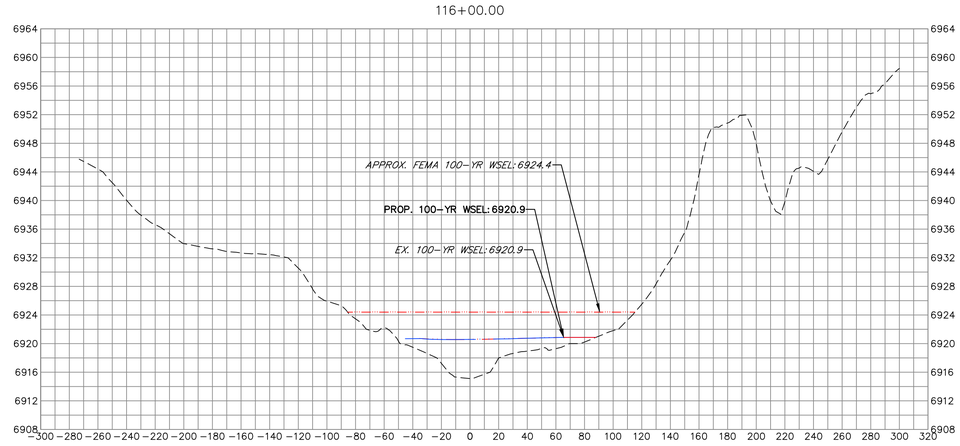
J·R ENGINEERING
A Westrian Company

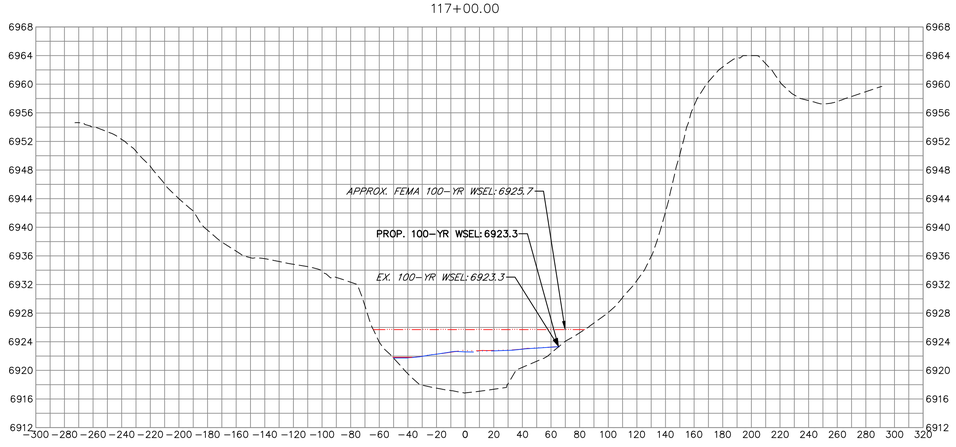
Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

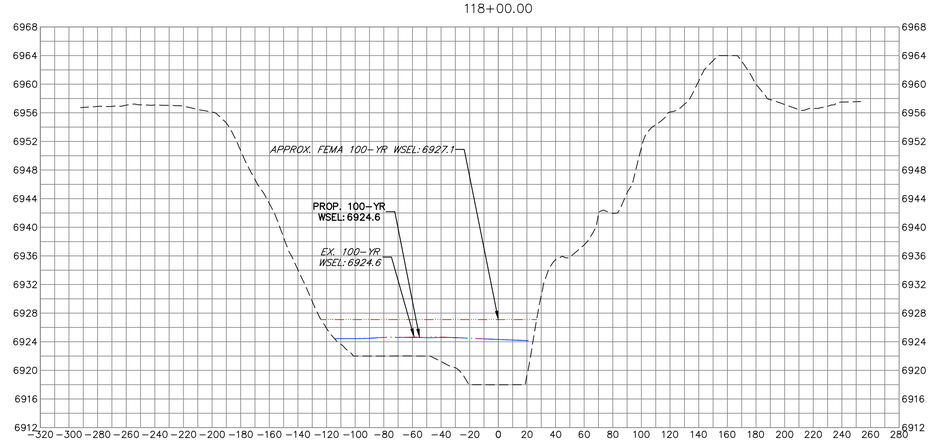
CANYON CREEK RANCH

NO RISE CERTIFICATION: KETTLE CREEK-MS2213









LEGEND

- EXISTING GRADE
- PROPOSED GRADE
- APPROXIMATE FEMA 100-YEAR WSEL
- EXISTING MODELED 100-YEAR WSEL
- PROPOSED MODELED 100-YEAR WSEL

N

50 25 0 50 100

HORIZONTAL
ORIGINAL SCALE: 1" = 50'
VERTICAL
ORIGINAL SCALE: 1" = 5'

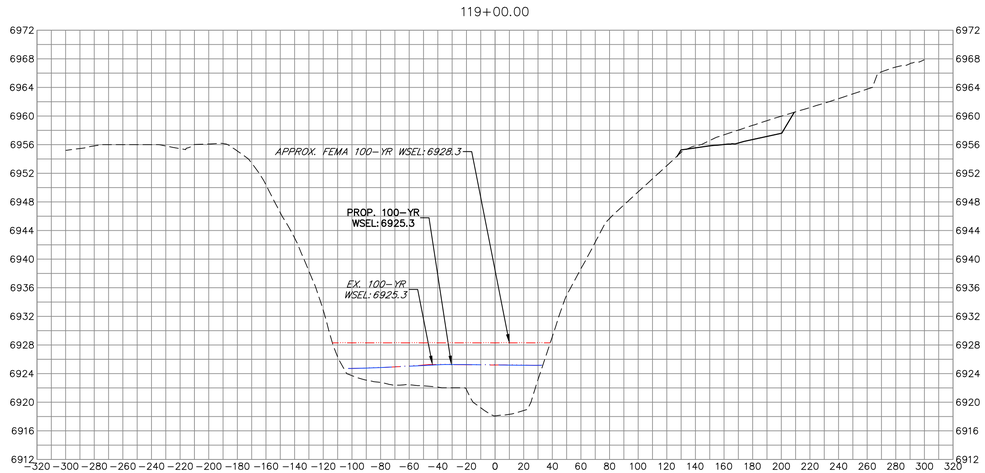
NO RISE CERTIFICATION:
KETTLE CREEK-MS2213
CANYON CREEK RANCH
JOB NO. 25322.00
06/24/2026
SHEET 2 OF 4

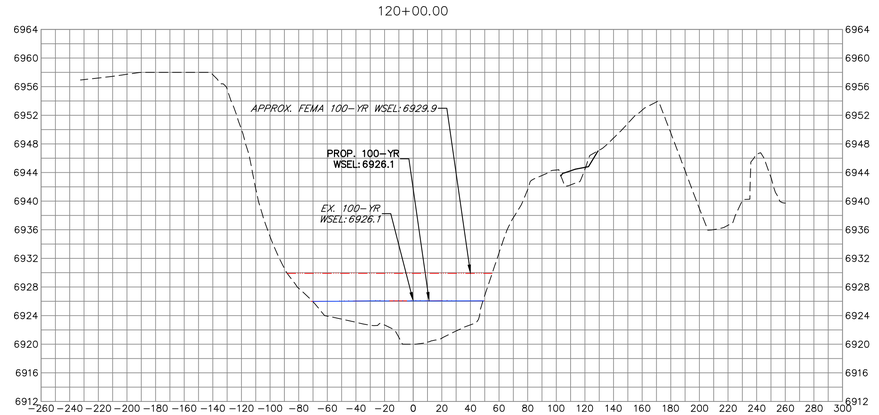
J·R ENGINEERING
A Westrian Company

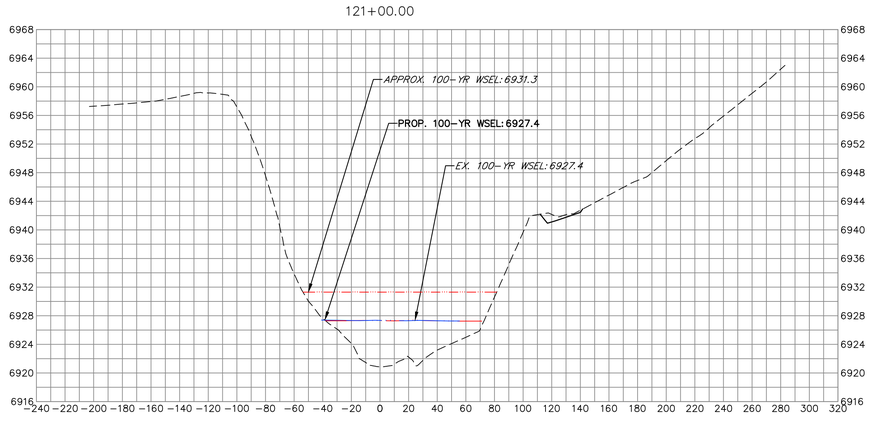
Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

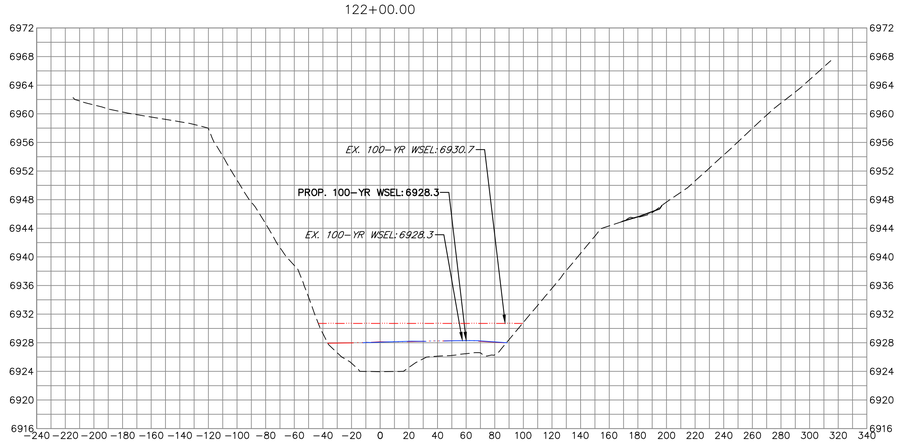
CANYON CREEK RANCH

NO RISE CERTIFICATION: KETTLE CREEK-MS2213



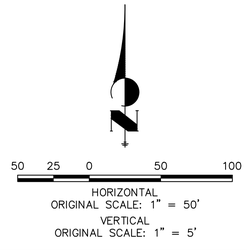






LEGEND

- EXISTING GRADE
- PROPOSED GRADE
- APPROXIMATE FEMA 100-YEAR WSEL
- EXISTING MODELED 100-YEAR WSEL
- PROPOSED MODELED 100-YEAR WSEL



HORIZONTAL
ORIGINAL SCALE: 1" = 50'
VERTICAL
ORIGINAL SCALE: 1" = 5'

NO RISE CERTIFICATION:
KETTLE CREEK-MS2213
CANYON CREEK RANCH
JOB NO. 25322.00
06/24/2026
SHEET 3 OF 4

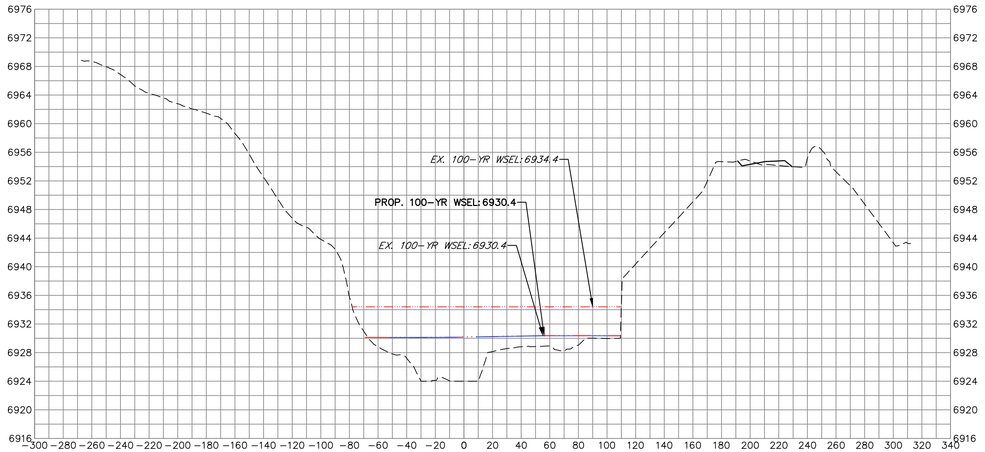
J·R ENGINEERING
A Westrian Company

Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

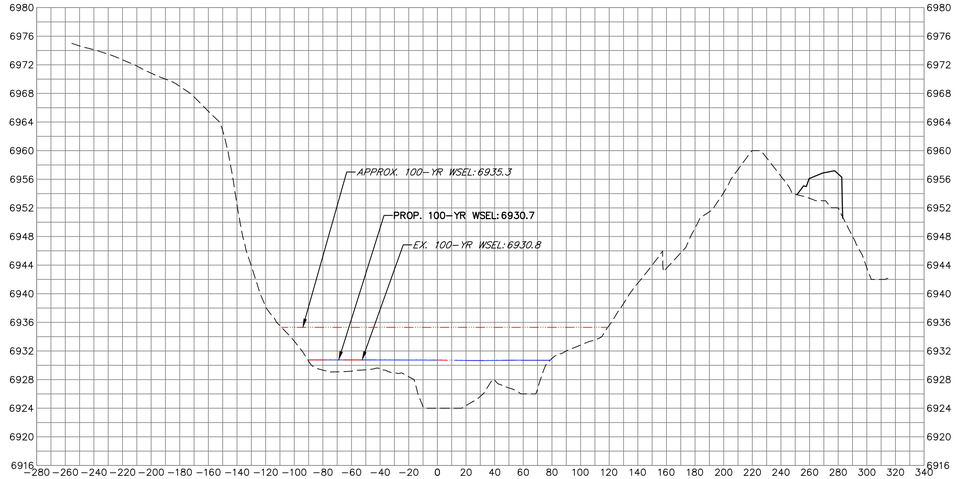
CANYON CREEK RANCH

NO RISE CERTIFICATION: KETTLE CREEK-MS2213

123+00.00



124+00.00



125+00.00

LEGEND

- EXISTING GRADE
- PROPOSED GRADE
- APPROXIMATE FEMA 100-YEAR WSEL
- EXISTING MODELED 100-YEAR WSEL
- PROPOSED MODELED 100-YEAR WSEL

N

50 25 0 50 100

HORIZONTAL
ORIGINAL SCALE: 1" = 50'

VERTICAL
ORIGINAL SCALE: 1" = 5'

NO RISE CERTIFICATION:
KETTLE CREEK-MS2213
CANYON CREEK RANCH
JOB NO. 25322.00
06/24/2026
SHEET 4 OF 4

J·R ENGINEERING
A Westrian Company

Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com