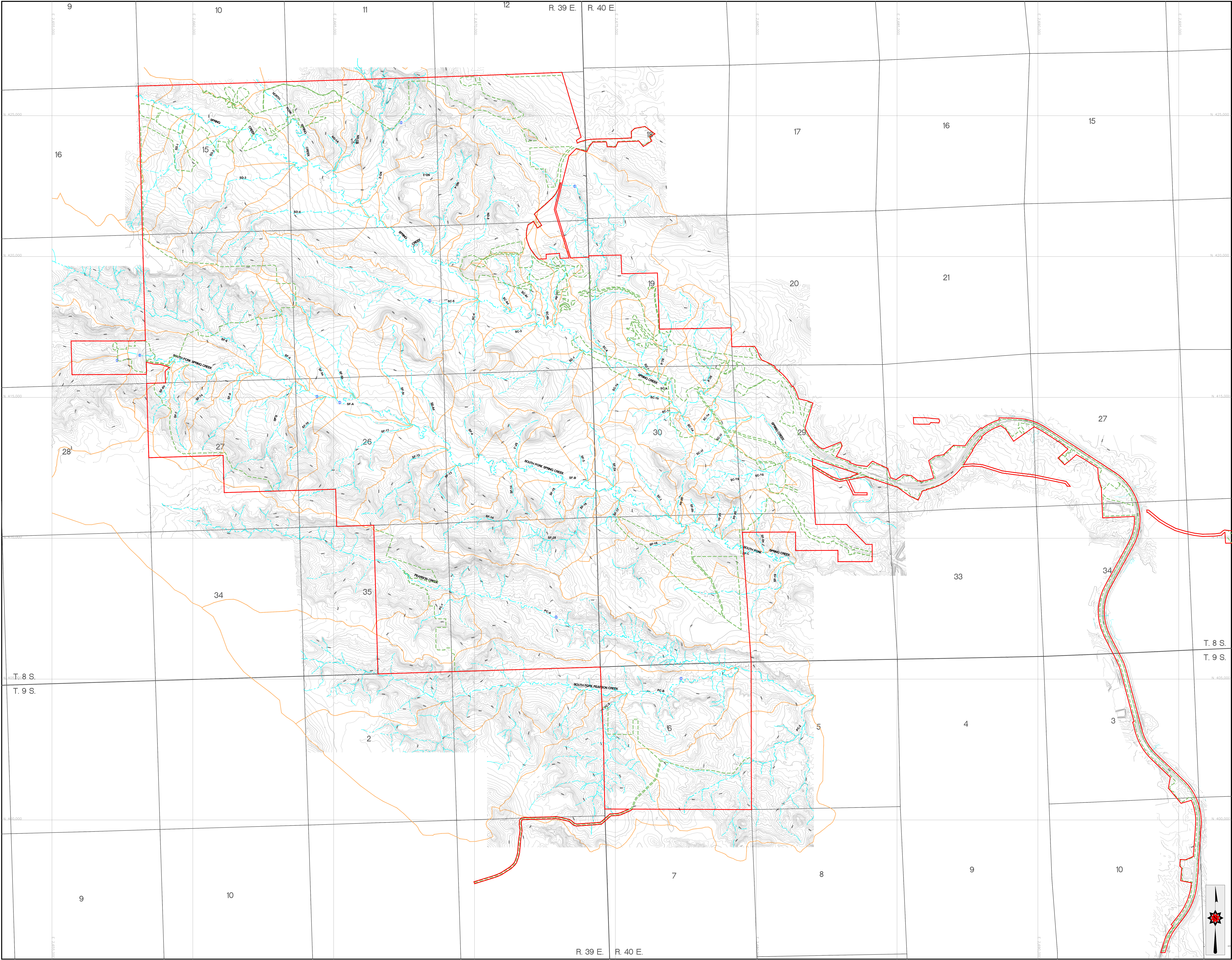




Note: See Plate 8 for Current Permit and Life of Mine Disturbance Boundary

LEGEND

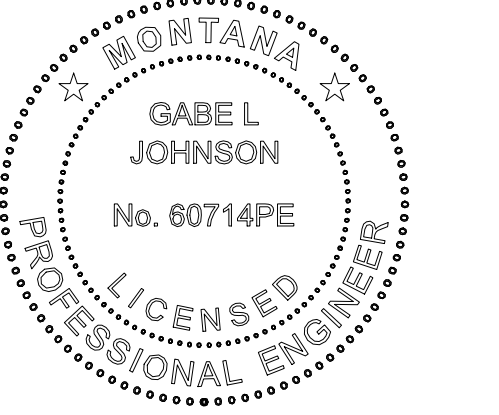
- Spring Creek Mine Permit Boundary
- Life of Mine Disturbance Boundary
- Drainage Channel
- Profiled Drainage Channel
- Drainage Basin I.D.
- Premining Stockpound

SF-1

SPRING CREEK COAL PRE-MINING BASIN STATISTICS											
Drainage Basin	Drainage Area (Acres)	Total Stream Length (Feet)	Drainage Density (Inches)	Main Channel Length (Feet)	Channel Density (Inches)	Elevation Difference (Feet)	Average Channel Slope (%)	Valley Length (Feet)	Average Valley Slope (%)		
SPRING CREEK TRIBUTARIES											
BD-1	0.160	8.855	55.971	5.284	1.01	343	6.4%	5,230	6.5%		
BD-2	0.213	4.551	21.366	4.888	1.01	150	3.7%	4,038	3.7%		
BD-3	0.221	6.102	36.669	6.811	1.02	395	5.2%	5,707	5.2%		
BD-4	0.281	9.853	35.420	6.419	1.01	330	5.1%	5,349	5.2%		
BD-1A	0.065	1.607	24.723	1.607	1.03	85	6.9%	1,567	6.1%		
BD-1B	0.101	3.039	30.055	3.477	1.08	165	4.7%	3,324	5.1%		
BD-2	0.380	22.408	58.889	8.6	1.11	250	3.7%	4,435	4.1%		
BD-3	0.172	4.607	26.754	4.607	1.04	202	4.4%	4,435	4.0%		
BD-4	0.175	5.847	33.885	4.287	1.05	202	4.7%	4,070	5.0%		
BD-5	0.305	6.486	21.269	5.719	1.09	295	4.0%	4,750	4.3%		
SC-1	0.204	9.119	44.656	4.313	1.05	103	0.7%	11,990	0.9%		
SC-1A	0.071	3.010	42.384	2.184	1.01	96	2.6%	2,183	2.6%		
SC-1B	0.048	1.851	30.763	1.851	1.02	97	3.1%	1,920	3.1%		
SC-1C	0.112	6.184	55.214	2.134	1.04	120	5.6%	2,053	5.6%		
SC-1D	0.088	1.117	123.400	8.93	1.05	85	6.1%	784	6.5%		
SC-1E	0.018	1.884	110.215	1.287	1.04	60	4.8%	1,245	4.8%		
SC-1F	0.088	5.188	75.885	3.913	1.03	105	5.5%	2,050	5.6%		
SC-1G	0.155	11.299	72.888	4.188	1.07	177	4.2%	3,974	4.0%		
SC-2	0.044	2.270	51.982	2.270	1.04	65	4.2%	2,191	4.3%		
SC-3	0.105	5.665	66.472	2.883	1.01	120	5.2%	2,940	5.0%		
SC-4	0.514	20.257	39.411	8.227	1.03	238	2.6%	7,995	3.0%		
SC-5	0.843	29.550	32.179	1.98	362	5.2%	3.0%	11,488	3.2%		
SC-6A	0.075	4.687	64.764	3.945	1.04	148	4.4%	3,215	4.6%		
SC-6B	0.022	3.744	51.580	2.142	1.06	185	4.2%	2,087	4.5%		
SC-6C	0.034	3.140	92.365	2.387	1.05	140	5.6%	2,234	6.3%		
SC-6D	0.041	2.786	65.900	2.547	1.04	120	4.7%	2,450	5.0%		
SC-7	0.079	2.421	30.645	1.781	1.04	65	3.7%	1,715	3.8%		
SC-8	0.104	6.170	49.787	3.884	1.04	191	4.8%	3,846	5.0%		
SC-9	0.155	6.106	52.287	3.861	1.03	197	4.9%	3,846	5.1%		
TOTAL	0.389	218.378	48.375	128.785	1.06	168	4.3%	125,992	4.5%		
MEAN	0.179	7.232	50.750	128.785	1.06	168	4.3%	4,052	4.5%		
SOUTH FORK SPRING CREEK TRIBUTARIES - CENTRAL FIELD											
SF-1	0.546	15.180	27.780	15.181	1.41	160	1.1%	10,745	1.5%		
SF-2	0.439	16.208	37.781	16.208	1.57	105	0.6%	10,330	1.0%		
SF-3	0.341	10.305	30.719	10.305	1.38	80	0.8%	7,470	1.1%		
SF-4	0.036	2.719	75.534	2.136	1.05	120	5.6%	2,008	6.0%		
SF-5	0.028	1.884	69.368	9.02	1.04	80	6.9%	884	6.9%		
SF-6	0.033	2.070	62.741	1.984	1.04	115	7.3%	1,526	7.5%		
SF-7	0.027	2.210	61.910	1.544	1.02	75	3.9%	1,450	6.1%		
SF-8	0.059	2.933	49.718	2.298	1.02	75	3.3%	2,245	3.3%		
SF-9	0.108	4.887	36.888	3.887	1.03	85	1.9%	3,305	2.6%		
SF-10	0.083	2.078	25.056	1.058	1.07	52	3.1%	885	3.3%		
SF-11	0.050	4.314	78.430	2.689	1.08	73	2.7%	2,498	2.9%		
SF-12	0.062	2.748	43.867	2.088	1.02	110	5.3%	2,040	5.4%		
SF-13	0.125	4.273	34.151	2.728	1.01	145	5.3%	2,705	5.4%		
SF-14	0.084	4.175	60.288	3.083	1.02	180	5.3%	3,324	5.4%		
SF-15	0.118	4.895	40.751	4.806	1.00	340	7.1%	4,830	7.0%		
SF-16	0.152	5.030	52.885	4.858	1.03	390	6.2%	4,680	6.4%		
SF-17	0.085	3.711	43.658	4.205	1.03	218	5.1%	4,067	5.3%		
SF-18	0.116	4.737	40.830	3.852	1.03	190	5.2%	3,560	5.2%		
SF-19	1.473	91.656	35.068	15.644	1.08	485	3.1%	14,754	3.3%		
SF-20	0.087	3.746	55.865	3.717	1.04	211	11.4%	2,817	11.6%		
SF-21	0.108	4.017	37.154	3.468	1.03	310	6.8%	3,365	9.2%		
SF-22	0.031	2.860	86.460	2.860	2.03	140	4.7%	4,406	9.8%		
SF-23	0.110	4.587	41.794	3.803	1.02	340	8.3%	3,718	8.1%		
SF-24	0.260	11.851	40.787	4.684	1.02	327	7.3%	4,408	7.4%		
SF-25	0.081	3.885	47.364	3.624	1.02	240	7.3%	3,358	7.4%		
SF-26	0.333	9.088	28.566	5.863	1.07	364	6.2%	3,502	6.6%		
SF-27	0.161	6.331	51.744	4.655	1.04	240	7.7%	4,475	8.0%		
SF-28	0.087	3.905	40.788	2.164	1.02	130	6.0%	2,128	6.1%		
SF-29	0.121	5.546	41.323	5.117	1.03	360	7.2%	4,495	7.4%		
SF-30	0.088	4.017	59.689	1.448	1.01	92	5.6%	1,626	5.7%		
SF-31	0.129	14.887	62.375	6.439	1.04	190	4.3%	4,295	4.5%		
SF-32	0.061	2.725	44.676	1.807	1.01	80	5.6%	1,851	5.7%		
SF-33	0.092	2.688	3.149	1.08	117	8.1%	1,538	3.3%			
SF-34	0.333	5.604	10.029	5.604	1.07	170	3.1%	5,062	3.4%		
TOTAL	0.389	243.707	38.145	153.985	1.14	191	5.2%	135,430	5.6%		
MEAN	0.188	7.168	50.966								
PEARSON CREEK TRIBUTARIES											
PC-1	2.680	52.896	20.282	28.760	1.15	890	2.1%	24,943	2.4%		
PC-2	1.6180	51.067	31.962	29.154	1.22	485	2.1%	16,543	2.6%		
PC-3	0.2900	4.082	18.970	1.842	1.03	100	6.8%	1,553	7.0%		
PC-4	0.8890	28.830	34.052	7.520	1.04	280	3.7%	7,308	3.9%		
PC-5	0.6690	30.948	49.336	6.144	1.05	230	3.6%	55,974	3.6%		
TOTAL	5.916	167.920	28.384	64.120	1.15	1515	3.7%	11,190	3.9%		
MEAN	1.183	33.584	31.828			304	3.7%	11,190	3.9%		

CERTIFICATE OF ENGINEER

I, Gabe L. Johnson, hereby certify that this drawing was prepared by myself or by engineers under my direct supervision and shows, to the best of my knowledge and belief, all the information required by the mining laws of this state.



NOTARY PUBLIC

SUBSCRIBED AND SWORN BEFORE ME THIS _____ DAY OF _____

NOTARY PUBLIC

RESIDING IN _____

MY COMMISSION EXPIRES _____

DATE	REVISION
2/15	MR 206 IBC
2/20	MO220
2/20	161
2/20	Major Permit Rev.

CLOUD PEAK ENERGY

SPRING CREEK MINE
P.O. BOX 60 DECKERS MT. 26003
PHONE: (486) 757-2581

PLATE 4B
PREMINING CONTOURS
WITH DRAINAGE DIVIDES

DESIGN: _____ DRAWN: _____ DATE: 3/14/ _____ SHEET: _____ OF: _____

SCALE: 1" = 1000' CONTOUR INTERVAL: 10' FILE NUMBER: Plate 4B, Premining, 20200210, 751MR210