Micron Area Plan
Pressurized Irrigation

Micron
Pressurized Irrigation

Design Criteria

Minimum Pipe Size:	8" (10" in commercial areas)
Pipe Roughness Coefficient:	130
Peak Daily Flow:	3.39 gpm per irrigated acre (Ut. R309-510-7 (3))
Peak Hourly Flow:	6.78 gpm per irrigated acre (Ut. R309-510-9 (3))
Outdoor Use Storage:	4881 gallons per irrigated acre (1 day of peak day)
Fire Storage	540,000 gallons
Source:	3.39 gpm per irrigated acre
Commercial Fire Flow:	3,000 gpm for 3 hours
Residential Fire Flow	1,500 gpm for 2 hours
Minimum Operating Pressure:	50 psi at peak hourly flow (Lehi Code 13.040B) 20 psi at peak hourly flow with fire flow (Lehi Design Standards 2.09)

Summary of Results

Peak Hourly Flow:	1,722 gpm
Storage Required:	Total: 2,000,000 gallons (6.14 acre-ft) Reservoir 1: 1,475,000 gallons (4.53 acre-ft) (Includes 3000 gpm fire flow for 3 hours) Reservoir 2: 525,000 gallons (1.61 acre-ft) (Includes 1500 gpm fire flow for 2 hours)
Source Required:	860 gpm
Case 1: Peak Hourly Minimum Pressure	52.4 psi @ J-65
Case 2: Peak Hourly + Fire Minimum Pressure	23.7 psi @ J-117

Note: Future area plan areas as shown on L14 are included in Pressurized Irrigation calculations.

MICRON AREA PLAN

Pressurized Irrigation Zone 1

	Area (Acres)	% Irrigated Landscape	Est. Irrigated Area (Acres)	Peak Day Flow (gpm/acre)	Peak Day Flow (gpm)	Peak Factor	Peak Hourly Flow (gpm)	Storage Required (gal/acre)	Storage Required (gallons)
Office	131.2	25%	33	3.39	111	2	222	5040	165,341
Technical / Manufacturing	14.8	25%	4	3.39	13	2	25	5040	18,591
Retail / Mixed Use	38.4	25%	10	3.39	33	2	65	5040	48,331
Public	0.0	80%	0	3.39	0	2	0	5040	0
Multi-Family (Townhomes)	7.8	80%	6	3.39	21	2	42	5040	31,450
Multi-Family (Condo / Apartment)	0.0	80%	0	3.39	0	2	0	5040	0
Single Family	0.0	80%	0	3.39	0	2	0	5040	0
School / Park	0.0	100%	0	3.39	0	2	0	5040	0
Open Space	44.9	0%	0	3.39	0	2	0	5040	0
Restricted Open Space		0%	0	3.39	0	2	0	5040	0
Total	**237.0**		**52**		**177**		**355**		**263,713**

Pressurized Irrigation Zone 2

	Area (Acres)	% Irrigated Landscape	Est. Irrigated Area (Acres)	Peak Day Flow (gpm/acre)	Peak Day Flow (gpm)	Peak Factor	Peak Hourly Flow (gpm)	Storage Required (gal/acre)	Storage Required (gallons)
Office	76.6	25%	19	3.39	65	2	130	5040	96,524
Technical / Manufacturing	26.6	25%	7	3.39	23	2	45	5040	33,485
Retail / Mixed Use	0.0	25%	0	3.39	0	2	0	5040	0
Public	9.5	80%	8	3.39	26	2	52	5040	38,332
Multi-Family (Townhomes)	11.7	80%	9	3.39	32	2	63	5040	47,174
Multi-Family (Condo / Apartment)	6.0	80%	5	3.39	16	2	33	5040	24,192
Single Family	67.3	80%	54	3.39	182	2	365	5040	271,192
School / Park	31.8	100%	32	3.39	108	2	216	5040	160,348
Open Space	66.6	0%	0	3.39	0	2	0	5040	0
Restricted Open Space	78.2	0%	0	3.39	0	2	0	5040	0
Total	**374.3**		**133**		**451**		**903**		**671,247**

Pressurized Irrigation Zone 3

	Area (Acres)	% Irrigated Landscape	Est. Irrigated Area (Acres)	Peak Day Flow (gpm/acre)	Peak Day Flow (gpm)	Peak Factor	Peak Hourly Flow (gpm)	Storage Required (gal/acre)	Storage Required (gallons)
Office	27.4	25%	7	3.39	23	2	46	5040	34,490
Technical / Manufacturing	18.6	25%	5	3.39	16	2	32	5040	23,423
Retail / Mixed Use	0.0	25%	0	3.39	0	2	0	5040	0
Public	0.0	80%	0	3.39	0	2	0	5040	0
Multi-Family (Townhomes)	5.1	80%	4	3.39	14	2	27	5040	20,362
Multi-Family (Condo / Apartment)	21.0	80%	17	3.39	57	2	114	5040	84,632
Single Family	30.1	80%	24	3.39	82	2	163	5040	121,484
School / Park	12.0	100%	12	3.39	41	2	81	5040	60,530
Open Space	57.3	0%	0	3.39	0	2	0	5040	0
Restricted Open Space	59.4	0%	0	3.39	0	2	0	5040	0
Total	**230.8**		**68**		**232**		**464**		**344,921**

Active Scenario: Peak Hourly Demand

Current Time: 0.000 hours

Label	Elevation (ft)	Peak Hourly Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-25	4,842.00	22	5,040.07	85.7
J-26	4,844.00	37	5,040.07	84.8
J-29	5,025.00	52	5,173.68	64.3
J-31	4,855.00	20	5,040.07	80.1
J-32	4,895.00	42	5,040.07	62.8
J-33	4,968.00	0	5,173.73	89.0
J-35	5,035.00	22	5,172.56	59.5
J-36	4,934.00	12	5,172.55	103.2
J-37	4,874.00	0	5,040.08	71.9
J-38	4,832.00	12	5,040.07	90.0
J-39	4,884.00	21	5,040.08	67.5
J-40	4,872.00	0	5,040.07	72.7
J-41	4,950.00	31	5,173.28	96.6
J-42	4,940.00	69	5,172.10	100.4
J-43	4,970.00	216	5,171.41	87.1
J-44	5,004.00	0	5,172.14	72.7
J-62	4,855.00	41	5,040.09	80.1
J-63	4,898.00	19	5,040.09	61.5
J-65	4,919.00	17	5,040.10	52.4
J-66	4,978.00	25	5,173.92	84.8
J-67	4,975.00	115	5,171.35	85.0
J-68	5,044.00	18	5,175.51	56.9
J-69	5,000.00	135	5,170.08	73.6
J-70	5,098.00	205	5,307.62	90.7
J-71	4,994.00	0	5,170.17	76.2
J-74	4,967.00	115	5,169.81	87.7
J-75	5,041.00	34	5,174.65	57.8
J-77	5,012.00	12	5,172.27	69.3
J-78	5,025.00	80	5,171.83	63.5
J-79	5,110.00	111	5,308.65	85.9
J-80	4,870.00	26	5,040.08	73.6
J-81	4,874.00	33	5,040.07	71.9
J-82	4,880.00	32	5,040.07	69.3
J-83	5,100.00	40	5,308.65	90.3
J-87	4,890.00	0	5,040.09	64.9
J-92	4,997.05	0	5,173.68	76.4
J-101	5,029.72	0	5,173.03	62.0
J-102	4,941.60	0	5,172.99	100.1
J-112	5,126.00	0	5,308.68	79.0
J-114	5,125.00	32	5,308.83	79.5
J-115	5,108.00	23	5,308.74	86.9
J-117	5,060.15	40	5,307.53	107.0
J-118	5,078.00	13	5,308.37	99.7
J-120	5,045.00	0	5,171.64	54.8
J-121	5,050.00	0	5,308.74	111.9
J-122	5,065.00	0	5,308.68	105.4
J-123	5,110.00	0	5,308.65	85.9

Active Scenario: Peak Hourly Demand

Current Time: 0.000 hours

Label	Elevation (ft)	Peak Hourly Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-124	5,060.00	0	5,308.66	107.6
J-125	5,070.00	0	5,308.82	103.3
J-126	5,040.50	0	5,176.53	58.9
J-127	5,036.00	0	5,177.72	61.3
J-128	5,110.00	0	5,309.10	86.1

Active Scenario: Peak Hourly + Fire

Current Time: 0.000 hours

Label	Fire Flow (Available) (gpm)	Peak Hourly Demand (gpm)	Pressure (Calculated System Lower Limit) (psi)	Junction w/ Minimum Pressure (System)	Pipe w/ Maximum Velocity	Velocity of Maximum Pipe (ft/s)
J-25	3,000	22	47.7	J-35	P-189	8.11
J-26	3,000	37	47.5	J-35	P-189	7.89
J-29	3,000	52	45.9	J-75	P-260	7.12
J-31	3,000	20	47.9	J-35	P-189	8.25
J-32	3,000	42	48.3	J-35	P-189	8.28
J-33	3,000	0	39.1	J-68	P-177	8.26
J-35	3,000	22	47.6	J-75	P-231	7.78
J-36	3,000	12	45.8	J-35	P-231	7.78
J-37	3,000	0	47.2	J-35	P-189	8.01
J-38	3,000	12	47.4	J-35	P-189	8.01
J-39	3,000	21	47.3	J-35	P-189	7.84
J-40	3,000	0	47.6	J-35	P-189	8.20
J-41	3,000	31	46.2	J-75	P-260	7.21
J-42	3,000	69	47.0	J-35	P-231	8.09
J-43	3,000	216	48.7	J-112	P-233	10.72
J-44	3,000	0	46.3	J-35	P-231	8.26
J-62	3,000	41	41.0	J-68	P-256	9.19
J-63	3,000	19	40.8	J-68	P-256	9.20
J-65	3,000	17	40.4	J-68	P-147	9.06
J-66	3,000	25	38.8	J-68	P-177	8.00
J-67	3,000	115	45.9	J-68	P-177	10.55
J-68	3,000	18	44.2	J-126	P-256	9.07
J-75	3,000	34	48.6	J-35	P-260	6.99
J-77	3,000	12	45.5	J-35	P-231	8.06
J-80	3,000	26	47.4	J-35	P-189	7.89
J-81	3,000	33	47.6	J-35	P-189	8.01
J-82	3,000	32	47.8	J-35	P-231	8.16
J-87	3,000	0	40.7	J-68	P-256	9.35
J-92	3,000	0	45.5	J-75	P-260	7.23
J-101	3,000	0	45.7	J-35	P-231	7.46
J-102	3,000	0	45.9	J-35	P-231	7.51
J-70	2,835	205	36.4	J-117	P-259	11.80
J-69	3,000	135	32.3	J-70	P-259	10.64
J-71	3,000	0	31.6	J-70	P-259	10.67
J-74	3,000	115	23.7	J-117	P-178	11.34
J-79	3,000	111	31.9	J-112	P-260	9.51
J-83	3,000	40	30.0	J-112	P-260	9.71
J-78	3,000	80	48.7	J-112	P-232	9.78
J-112	3,000	0	35.4	J-79	P-260	9.83
J-114	3,000	32	45.7	J-112	P-260	9.74
J-115	3,000	23	37.0	J-112	P-260	9.76
J-117	1,895	40	51.2	J-70	P-227	12.10
J-118	3,000	13	41.1	J-70	P-259	13.26
J-120	3,000	0	38.1	J-112	P-231	10.88

Active Scenario: Peak Hourly + Fire

Current Time: 0.000 hours

Label	Fire Flow (Available) (gpm)	Peak Hourly Demand (gpm)	Pressure (Calculated System Lower Limit) (psi)	Junction w/ Minimum Pressure (System)	Pipe w/ Maximum Velocity	Velocity of Maximum Pipe (ft/s)
J-121	3,000	0	36.4	J-112	P-260	9.83
J-122	3,000	0	29.3	J-112	P-260	9.83
J-123	3,000	0	28.8	J-112	P-260	9.83
J-124	3,000	0	28.8	J-112	P-260	9.83
J-125	3,000	0	42.6	J-112	P-260	9.83
J-126	3,000	0	41.0	J-68	P-256	9.98
J-127	3,000	0	49.3	J-68	P-257	7.31
J-128	3,000	0	52.4	J-65	P-260	9.83

Active Scenario: Peak Hourly Demand

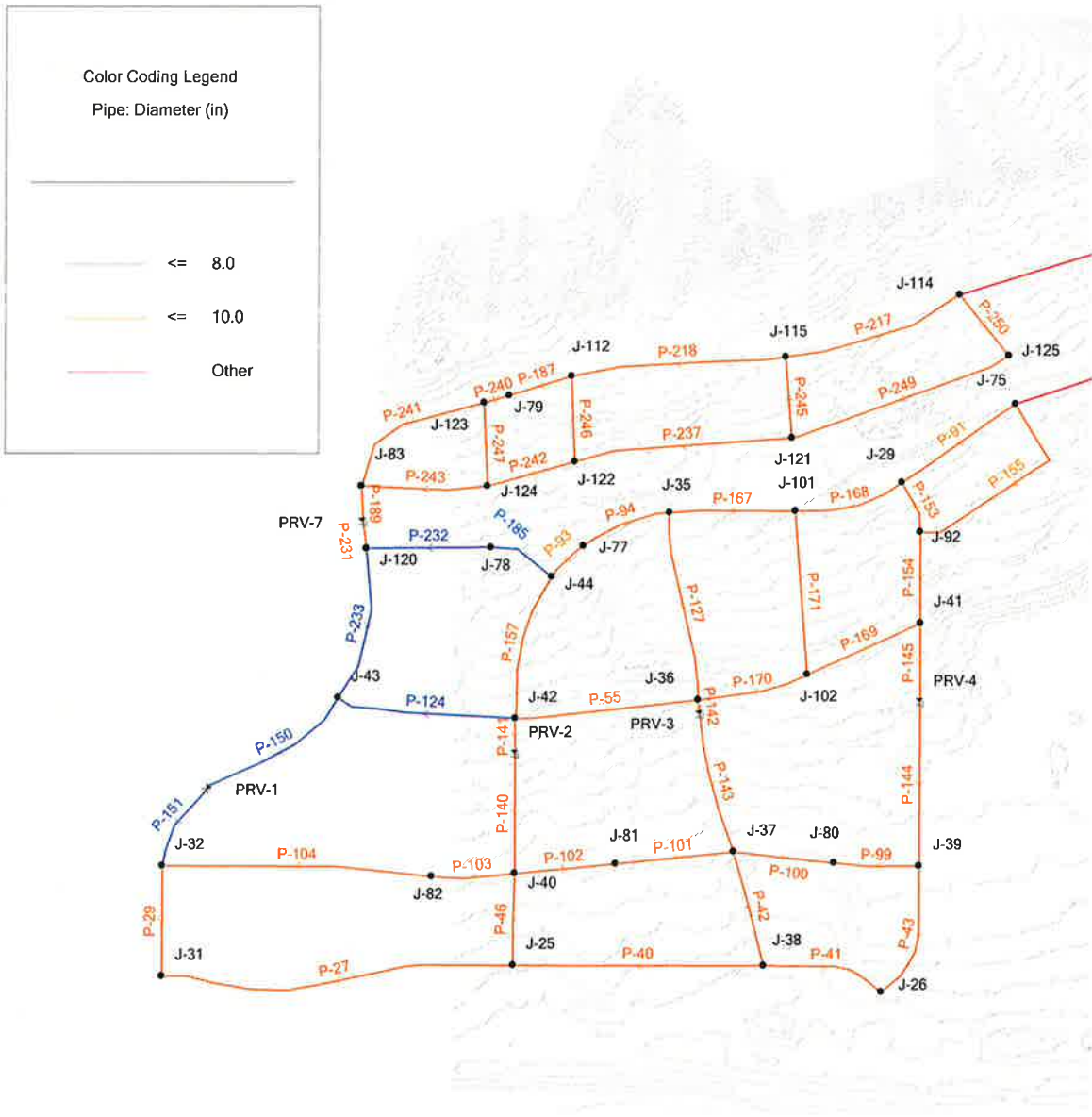
Current Time: 0.000 hours

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Headloss (ft)	Velocity (ft/s)
P-27	2,073	J-25	J-31	10.0	PVC	130.0	0.00	0.04
P-29	647	J-31	J-32	10.0	PVC	130.0	0.00	0.04
P-40	1,463	J-25	J-38	10.0	PVC	130.0	0.00	0.02
P-41	734	J-38	J-26	10.0	PVC	130.0	0.00	0.04
P-42	690	J-37	J-38	10.0	PVC	130.0	0.01	0.12
P-43	818	J-26	J-39	10.0	PVC	130.0	0.01	0.11
P-46	540	J-25	J-40	10.0	PVC	130.0	0.00	0.11
P-55	1,075	J-36	J-42	10.0	PVC	130.0	0.45	0.96
P-77	878	J-65	J-63	10.0	PVC	130.0	0.01	0.12
P-79	161	J-66	J-33	10.0	PVC	130.0	0.19	1.68
P-81	842	J-67	J-33	8.0	PVC	130.0	2.38	2.33
P-83	1,200	J-68	J-66	10.0	PVC	130.0	1.59	1.78
P-91	807	J-29	J-75	10.0	PVC	130.0	0.97	1.69
P-93	261	J-44	J-77	10.0	PVC	130.0	0.13	1.03
P-94	545	J-77	J-35	10.0	PVC	130.0	0.29	1.08
P-99	503	J-39	J-80	10.0	PVC	130.0	0.00	0.05
P-100	588	J-80	J-37	10.0	PVC	130.0	0.00	0.06
P-101	691	J-37	J-81	10.0	PVC	130.0	0.00	0.09
P-102	593	J-81	J-40	10.0	PVC	130.0	0.00	0.05
P-103	487	J-40	J-82	10.0	PVC	130.0	0.01	0.14
P-104	1,571	J-82	J-32	10.0	PVC	130.0	0.00	0.01
P-124	1,054	J-43	J-42	8.0	PVC	130.0	0.70	1.06
P-127	1,113	J-35	J-36	10.0	PVC	130.0	0.00	0.04
P-131	519	J-63	J-87	10.0	PVC	130.0	0.00	0.02
P-132	658	J-87	J-62	10.0	PVC	130.0	0.00	0.11
P-140	700	J-40	PRV-2	10.0	PVC	130.0	0.03	0.30
P-141	208	J-42	PRV-2	10.0	PVC	130.0	0.01	0.30
P-142	88	J-36	PRV-3	10.0	PVC	130.0	0.00	0.26
P-143	830	PRV-3	J-37	10.0	PVC	130.0	0.03	0.26
P-144	959	J-39	PRV-4	10.0	PVC	130.0	0.03	0.24
P-145	464	J-41	PRV-4	10.0	PVC	130.0	0.02	0.24
P-146	1,134	J-33	PRV-6	10.0	PVC	130.0	0.02	0.19
P-147	452	PRV-6	J-65	10.0	PVC	130.0	0.01	0.19
P-149	1,714	PRV-5	J-87	10.0	PVC	130.0	0.02	0.13
P-150	951	J-43	PRV-1	8.0	PVC	130.0	0.07	0.32
P-151	536	PRV-1	J-32	8.0	PVC	130.0	0.04	0.32
P-153	317	J-29	J-92	10.0	PVC	130.0	0.00	0.03
P-154	534	J-92	J-41	10.0	PVC	130.0	0.40	1.30
P-155	1,264	J-75	J-92	10.0	PVC	130.0	0.97	1.33
P-156	1,671	J-62	J-63	10.0	PVC	130.0	0.00	0.06
P-157	870	J-44	J-42	10.0	PVC	130.0	0.04	0.30
P-167	735	J-35	J-101	10.0	PVC	130.0	0.48	1.21
P-168	661	J-101	J-29	10.0	PVC	130.0	0.64	1.51
P-169	727	J-41	J-102	10.0	PVC	130.0	0.29	0.93
P-170	658	J-102	J-36	10.0	PVC	130.0	0.44	1.23
P-171	959	J-101	J-102	10.0	PVC	130.0	0.04	0.29

Active Scenario: Peak Hourly Demand

Current Time: 0.000 hours

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Headloss (ft)	Velocity (ft/s)
P-176	217	J-69	J-71	8.0	PVC	130.0	0.10	0.86
P-177	841	J-71	J-67	8.0	PVC	130.0	1.18	1.59
P-178	1,081	J-71	J-74	8.0	PVC	130.0	0.36	0.73
P-185	414	J-78	J-44	8.0	PVC	130.0	0.32	1.15
P-187	383	J-112	J-79	10.0	PVC	130.0	0.03	0.36
P-189	210	J-83	PRV-7	10.0	PVC	130.0	0.00	0.00
P-195	430	J-70	PRV-8	8.0	PVC	130.0	0.00	0.00
P-196	579	PRV-8	J-69	8.0	PVC	130.0	0.00	0.00
P-209	1,275	PRV-9	J-74	8.0	PVC	130.0	0.00	0.00
P-217	1,097	J-114	J-115	10.0	PVC	130.0	0.09	0.40
P-218	1,256	J-115	J-112	10.0	PVC	130.0	0.07	0.31
P-226	43	PRV-9	J-117	8.0	PVC	130.0	0.00	0.00
P-227	1,843	J-117	J-70	8.0	PVC	130.0	0.09	0.26
P-228	1,645	J-70	J-118	10.0	PVC	130.0	0.75	1.00
P-231	156	PRV-7	J-120	10.0	PVC	130.0	0.00	0.00
P-232	726	J-120	J-78	8.0	PVC	130.0	0.19	0.64
P-233	917	J-120	J-43	8.0	PVC	130.0	0.23	0.64
P-237	1,278	J-121	J-122	10.0	PVC	130.0	0.06	0.31
P-240	154	J-79	J-123	10.0	PVC	130.0	0.00	0.10
P-241	946	J-123	J-83	10.0	PVC	130.0	0.00	0.05
P-242	531	J-122	J-124	10.0	PVC	130.0	0.02	0.26
P-243	736	J-124	J-83	10.0	PVC	130.0	0.01	0.12
P-245	475	J-115	J-121	10.0	PVC	130.0	0.00	0.01
P-246	501	J-112	J-122	10.0	PVC	150.0	0.00	0.04
P-247	487	J-123	J-124	10.0	PVC	150.0	0.00	0.15
P-249	1,361	J-125	J-121	10.0	PVC	130.0	0.07	0.31
P-250	460	J-114	J-125	10.0	PVC	150.0	0.02	0.31
P-252	715	J-68	J-126	10.0	PVC	130.0	1.02	1.86
P-253	2,396	J-126	PRV-5	10.0	PVC	130.0	0.02	0.13
P-255	1,955	J-75	J-127	12.0	PVC	130.0	3.07	2.19
P-256	739	J-127	J-126	10.0	PVC	130.0	1.19	1.98
P-257	1,878	R-1	J-127	12.0	PVC	130.0	7.28	3.57
P-258	1,928	J-114	J-128	12.0	PVC	130.0	0.26	0.58
P-259	1,450	J-128	J-118	10.0	PVC	130.0	0.73	1.05
P-260	1,478	R-2	J-128	12.0	PVC	130.0	0.90	1.32


Color Coding Legend
Pipe: Diameter (in)
<= 8.0
<= 10.0
Other
J-114
P-250
J-125
J-115
P-217
J-112
P-218
P-240
P-187
J-79
P-241
J-123
P-246
P-245
P-249
J-75
P-247
P-237
J-83
P-242
J-121
J-29
P-91
P-243
J-124
J-122
J-35
J-101
P-168
P-155
P-189
P-167
P-153
PRV-7
P-231
P-232
P-185
P-94
J-92
J-120
J-78
P-93
J-77
J-44
P-154
P-127
P-171
J-41
P-233
P-157
P-169
J-43
J-36
P-170
P-145
PRV-4
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P-55
J-102
P-142
PRV-2
PRV-3
P-150
P-141
P-143
P-144
PRV-1
P-151
P-140
J-81
J-37
J-80
J-39
J-32
P-104
P-101
P-99
P-103
P-102
P-100
J-82
J-40
P-42
P-29
P-46
P-43
J-38
J-25
P-40
P-41
J-31
P-27
J-26