89	7.42	0.37	0.070	(0.350)	0.063	0.007
90	7.50	0.37	0.070	(0.349)	0.063	0.007
91	7.58	0.40	0.077	(0.347)	0.069	0.008
92	7.67	0.40	0.077	(0.345)	0.069	0.008
93	7.75	0.40	0.077	(0.344)	0.069	0.008
94	7.83	0.43	0.083	(0.342)	0.075	0.008
95	7.92	0.43	0.083	(0.341)	0.075	0.008
96	8.00	0.43	0.083	(0.339)	0.075	0.008
97	8.08	0.50	0.096	(0.337)	0.086	0.010
98	8.17	0.50	0.096	(0.336)	0.086	0.010
99	8.25	0.50	0.096	(0.334)	0.086	0.010
100	8.33	0.50	0.096	(0.333)	0.086	0.010
101	8.42	0.50	0.096	(0.331)	0.086	0.010
102	8.50	0.50	0.096	(0.330)	0.086	0.010
103	8.58	0.53	0.102	(0.328)	0.092	0.010
104	8.67	0.53	0.102	(0.327)	0.092	0.010
105	8.75	0.53	0.102	(0.325)	0.092	0.010
106	8.83	0.57	0.109	(0.323)	0.098	0.011
107	8.92	0.57	0.109	(0.322)	0.098	0.011
108	9.00	0.57	0.109	(0.320)	0.098	0.011
109	9.08	0.63	0.122	(0.319)	0.109	0.012
110	9.17	0.63	0.122	(0.317)	0.109	0.012
111	9.25	0.63	0.122	(0.316)	0.109	0.012
112	9.33	0.67	0.128	(0.314)	0.115	0.013
113	9.42	0.67	0.128	(0.313)	0.115	0.013
114	9.50	0.67	0.128	(0.311)	0.115	0.013
115	9.58	0.70	0.134	(0.310)	0.121	0.013
116	9.67	0.70	0.134	(0.308)	0.121	0.013
117	9.75	0.70	0.134	(0.307)	0.121	0.013
118	9.83	0.73	0.141	(0.305)	0.127	0.014
119	9.92	0.73	0.141	(0.304)	0.127	0.014
120	10.00	0.73	0.141	(0.303)	0.127	0.014
121	10.08	0.50	0.096	(0.301)	0.086	0.010
122	10.17	0.50	0.096	(0.300)	0.086	0.010
123	10.25	0.50	0.096	(0.298)	0.086	0.010
124	10.33	0.50	0.096	(0.297)	0.086	0.010
125	10.42	0.50	0.096	(0.295)	0.086	0.010
126	10.50	0.50	0.096	(0.294)	0.086	0.010
127	10.58	0.67	0.128	(0.292)	0.115	0.013
128	10.67	0.67	0.128	(0.291)	0.115	0.013
129	10.75	0.67	0.128	(0.290)	0.115	0.013
130	10.83	0.67	0.128	(0.288)	0.115	0.013
131	10.92	0.67	0.128	(0.287)	0.115	0.013
132	11.00	0.67	0.128	(0.285)	0.115	0.013
133	11.08	0.63	0.122	(0.284)	0.109	0.012
134	11.17	0.63	0.122	(0.282)	0.109	0.012
135	11.25	0.63	0.122	(0.281)	0.109	0.012
136	11.33	0.63	0.122	(0.280)	0.109	0.012
137	11.42	0.63	0.122	(0.278)	0.109	0.012
138	11.50	0.63	0.122	(0.277)	0.109	0.012

139	11.58	0.57	0.109	(0.276)	0.098	0.011
140	11.67	0.57	0.109	(0.274)	0.098	0.011
141	11.75	0.57	0.109	(0.273)	0.098	0.011
142	11.83	0.60	0.115	(0.271)	0.104	0.012
143	11.92	0.60	0.115	(0.270)	0.104	0.012
144	12.00	0.60	0.115	(0.269)	0.104	0.012
145	12.08	0.83	0.160	(0.267)	0.144	0.016
146	12.17	0.83	0.160	(0.266)	0.144	0.016
147	12.25	0.83	0.160	(0.265)	0.144	0.016
148	12.33	0.87	0.166	(0.263)	0.150	0.017
149	12.42	0.87	0.166	(0.262)	0.150	0.017
150	12.50	0.87	0.166	(0.261)	0.150	0.017
151	12.58	0.93	0.179	(0.259)	0.161	0.018
152	12.67	0.93	0.179	(0.258)	0.161	0.018
153	12.75	0.93	0.179	(0.257)	0.161	0.018
154	12.83	0.97	0.186	(0.256)	0.167	0.019
155	12.92	0.97	0.186	(0.254)	0.167	0.019
156	13.00	0.97	0.186	(0.253)	0.167	0.019
157	13.08	1.13	0.218	(0.252)	0.196	0.022
158	13.17	1.13	0.218	(0.250)	0.196	0.022
159	13.25	1.13	0.218	(0.249)	0.196	0.022
160	13.33	1.13	0.218	(0.248)	0.196	0.022
161	13.42	1.13	0.218	(0.247)	0.196	0.022
162	13.50	1.13	0.218	(0.245)	0.196	0.022
163	13.58	0.77	0.147	(0.244)	0.132	0.015
164	13.67	0.77	0.147	(0.243)	0.132	0.015
165	13.75	0.77	0.147	(0.242)	0.132	0.015
166	13.83	0.77	0.147	(0.240)	0.132	0.015
167	13.92	0.77	0.147	(0.239)	0.132	0.015
168	14.00	0.77	0.147	(0.238)	0.132	0.015
169	14.08	0.90	0.173	(0.237)	0.156	0.017
170	14.17	0.90	0.173	(0.236)	0.156	0.017
171	14.25	0.90	0.173	(0.234)	0.156	0.017
172	14.33	0.87	0.166	(0.233)	0.150	0.017
173	14.42	0.87	0.166	(0.232)	0.150	0.017
174	14.50	0.87	0.166	(0.231)	0.150	0.017
175	14.58	0.87	0.166	(0.230)	0.150	0.017
176	14.67	0.87	0.166	(0.228)	0.150	0.017
177	14.75	0.87	0.166	(0.227)	0.150	0.017
178	14.83	0.83	0.160	(0.226)	0.144	0.016
179	14.92	0.83	0.160	(0.225)	0.144	0.016
180	15.00	0.83	0.160	(0.224)	0.144	0.016
181	15.08	0.80	0.154	(0.223)	0.138	0.015
182	15.17	0.80	0.154	(0.221)	0.138	0.015
183	15.25	0.80	0.154	(0.220)	0.138	0.015
184	15.33	0.77	0.147	(0.219)	0.132	0.015
185	15.42	0.77	0.147	(0.218)	0.132	0.015
186	15.50	0.77	0.147	(0.217)	0.132	0.015
187	15.58	0.63	0.122	(0.216)	0.109	0.012
188	15.67	0.63	0.122	(0.215)	0.109	0.012

189	15.75	0.63	0.122	(0.214)	0.109	0.012
190	15.83	0.63	0.122	(0.213)	0.109	0.012
191	15.92	0.63	0.122	(0.211)	0.109	0.012
192	16.00	0.63	0.122	(0.210)	0.109	0.012
193	16.08	0.13	0.026	(0.209)	0.023	0.003
194	16.17	0.13	0.026	(0.208)	0.023	0.003
195	16.25	0.13	0.026	(0.207)	0.023	0.003
196	16.33	0.13	0.026	(0.206)	0.023	0.003
197	16.42	0.13	0.026	(0.205)	0.023	0.003
198	16.50	0.13	0.026	(0.204)	0.023	0.003
199	16.58	0.10	0.019	(0.203)	0.017	0.002
200	16.67	0.10	0.019	(0.202)	0.017	0.002
201	16.75	0.10	0.019	(0.201)	0.017	0.002
202	16.83	0.10	0.019	(0.200)	0.017	0.002
203	16.92	0.10	0.019	(0.199)	0.017	0.002
204	17.00	0.10	0.019	(0.198)	0.017	0.002
205	17.08	0.17	0.032	(0.197)	0.029	0.003
206	17.17	0.17	0.032	(0.196)	0.029	0.003
207	17.25	0.17	0.032	(0.195)	0.029	0.003
208	17.33	0.17	0.032	(0.194)	0.029	0.003
209	17.42	0.17	0.032	(0.193)	0.029	0.003
210	17.50	0.17	0.032	(0.192)	0.029	0.003
211	17.58	0.17	0.032	(0.191)	0.029	0.003
212	17.67	0.17	0.032	(0.190)	0.029	0.003
213	17.75	0.17	0.032	(0.189)	0.029	0.003
214	17.83	0.13	0.026	(0.188)	0.023	0.003
215	17.92	0.13	0.026	(0.187)	0.023	0.003
216	18.00	0.13	0.026	(0.186)	0.023	0.003
217	18.08	0.13	0.026	(0.185)	0.023	0.003
218	18.17	0.13	0.026	(0.185)	0.023	0.003
219	18.25	0.13	0.026	(0.184)	0.023	0.003
220	18.33	0.13	0.026	(0.183)	0.023	0.003
221	18.42	0.13	0.026	(0.182)	0.023	0.003
222	18.50	0.13	0.026	(0.181)	0.023	0.003
223	18.58	0.10	0.019	(0.180)	0.017	0.002
224	18.67	0.10	0.019	(0.179)	0.017	0.002
225	18.75	0.10	0.019	(0.178)	0.017	0.002
226	18.83	0.07	0.013	(0.177)	0.012	0.001
227	18.92	0.07	0.013	(0.177)	0.012	0.001
228	19.00	0.07	0.013	(0.176)	0.012	0.001
229	19.08	0.10	0.019	(0.175)	0.017	0.002
230	19.17	0.10	0.019	(0.174)	0.017	0.002
231	19.25	0.10	0.019	(0.173)	0.017	0.002
232	19.33	0.13	0.026	(0.173)	0.023	0.003
233	19.42	0.13	0.026	(0.172)	0.023	0.003
234	19.50	0.13	0.026	(0.171)	0.023	0.003
235	19.58	0.10	0.019	(0.170)	0.017	0.002
236	19.67	0.10	0.019	(0.169)	0.017	0.002
237	19.75	0.10	0.019	(0.169)	0.017	0.002
238	19.83	0.07	0.013	(0.168)	0.012	0.001

239	19.92	0.07	0.013	(0.167)	0.012	0.001
240	20.00	0.07	0.013	(0.166)	0.012	0.001
241	20.08	0.10	0.019	(0.166)	0.017	0.002
242	20.17	0.10	0.019	(0.165)	0.017	0.002
243	20.25	0.10	0.019	(0.164)	0.017	0.002
244	20.33	0.10	0.019	(0.163)	0.017	0.002
245	20.42	0.10	0.019	(0.163)	0.017	0.002
246	20.50	0.10	0.019	(0.162)	0.017	0.002
247	20.58	0.10	0.019	(0.161)	0.017	0.002
248	20.67	0.10	0.019	(0.161)	0.017	0.002
249	20.75	0.10	0.019	(0.160)	0.017	0.002
250	20.83	0.07	0.013	(0.159)	0.012	0.001
251	20.92	0.07	0.013	(0.159)	0.012	0.001
252	21.00	0.07	0.013	(0.158)	0.012	0.001
253	21.08	0.10	0.019	(0.157)	0.017	0.002
254	21.17	0.10	0.019	(0.157)	0.017	0.002
255	21.25	0.10	0.019	(0.156)	0.017	0.002
256	21.33	0.07	0.013	(0.156)	0.012	0.001
257	21.42	0.07	0.013	(0.155)	0.012	0.001
258	21.50	0.07	0.013	(0.155)	0.012	0.001
259	21.58	0.10	0.019	(0.154)	0.017	0.002
260	21.67	0.10	0.019	(0.153)	0.017	0.002
261	21.75	0.10	0.019	(0.153)	0.017	0.002
262	21.83	0.07	0.013	(0.152)	0.012	0.001
263	21.92	0.07	0.013	(0.152)	0.012	0.001
264	22.00	0.07	0.013	(0.151)	0.012	0.001
265	22.08	0.10	0.019	(0.151)	0.017	0.002
266	22.17	0.10	0.019	(0.150)	0.017	0.002
267	22.25	0.10	0.019	(0.150)	0.017	0.002
268	22.33	0.07	0.013	(0.149)	0.012	0.001
269	22.42	0.07	0.013	(0.149)	0.012	0.001
270	22.50	0.07	0.013	(0.148)	0.012	0.001
271	22.58	0.07	0.013	(0.148)	0.012	0.001
272	22.67	0.07	0.013	(0.148)	0.012	0.001
273	22.75	0.07	0.013	(0.147)	0.012	0.001
274	22.83	0.07	0.013	(0.147)	0.012	0.001
275	22.92	0.07	0.013	(0.146)	0.012	0.001
276	23.00	0.07	0.013	(0.146)	0.012	0.001
277	23.08	0.07	0.013	(0.146)	0.012	0.001
278	23.17	0.07	0.013	(0.145)	0.012	0.001
279	23.25	0.07	0.013	(0.145)	0.012	0.001
280	23.33	0.07	0.013	(0.145)	0.012	0.001
281	23.42	0.07	0.013	(0.145)	0.012	0.001
282	23.50	0.07	0.013	(0.144)	0.012	0.001
283	23.58	0.07	0.013	(0.144)	0.012	0.001
284	23.67	0.07	0.013	(0.144)	0.012	0.001
285	23.75	0.07	0.013	(0.144)	0.012	0.001
286	23.83	0.07	0.013	(0.143)	0.012	0.001
287	23.92	0.07	0.013	(0.143)	0.012	0.001
288	24.00	0.07	0.013	(0.143)	0.012	0.001

(Loss Rate Not Used)
Sum = 100.0 Sum = 1.9
Flood volume = Effective rainfall 0.16(In)
times area 19.8(Ac.)/[(In)/(Ft.)] = 0.3(Ac.Ft)
Total soil loss = 1.44(In)
Total soil loss = 2.376(Ac.Ft)
Total rainfall = 1.60(In)
Flood volume = 11499.4 Cubic Feet
Total soil loss = 103494.6 Cubic Feet

Peak flow rate of this hydrograph = 0.430(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q				
0+10	0.0001	0.01	Q				
0+15	0.0002	0.02	Q				
0+20	0.0004	0.02	Q				
0+25	0.0006	0.03	Q				
0+30	0.0008	0.03	Q				
0+35	0.0011	0.04	Q				
0+40	0.0013	0.04	Q				
0+45	0.0016	0.04	Q				
0+50	0.0019	0.04	Q				
0+55	0.0022	0.04	Q				
1+ 0	0.0025	0.05	Q				
1+ 5	0.0028	0.05	Q				
1+10	0.0031	0.04	Q				
1+15	0.0034	0.04	Q				
1+20	0.0037	0.04	Q				
1+25	0.0039	0.04	Q				
1+30	0.0042	0.04	Q				
1+35	0.0045	0.04	Q				
1+40	0.0047	0.04	Q				
1+45	0.0050	0.04	Q				
1+50	0.0053	0.04	Q				
1+55	0.0056	0.05	Q				
2+ 0	0.0059	0.05	Q				
2+ 5	0.0063	0.05	Q				
2+10	0.0066	0.05	Q				
2+15	0.0069	0.05	QV				
2+20	0.0073	0.05	QV				
2+25	0.0076	0.05	QV				

2+30	0.0080	0.05	QV	|	|	|	|
2+35	0.0084	0.05	QV	|	|	|	|
2+40	0.0088	0.06	QV	|	|	|	|
2+45	0.0092	0.06	QV	|	|	|	|
2+50	0.0096	0.06	QV	|	|	|	|
2+55	0.0100	0.06	QV	|	|	|	|
3+ 0	0.0105	0.06	QV	|	|	|	|
3+ 5	0.0109	0.06	QV	|	|	|	|
3+10	0.0113	0.06	QV	|	|	|	|
3+15	0.0118	0.06	QV	|	|	|	|
3+20	0.0122	0.06	QV	|	|	|	|
3+25	0.0127	0.06	QV	|	|	|	|
3+30	0.0131	0.06	QV	|	|	|	|
3+35	0.0135	0.06	Q V	|	|	|	|
3+40	0.0140	0.06	Q V	|	|	|	|
3+45	0.0144	0.06	Q V	|	|	|	|
3+50	0.0149	0.07	Q V	|	|	|	|
3+55	0.0153	0.07	Q V	|	|	|	|
4+ 0	0.0159	0.07	Q V	|	|	|	|
4+ 5	0.0164	0.07	Q V	|	|	|	|
4+10	0.0169	0.08	Q V	|	|	|	|
4+15	0.0174	0.08	Q V	|	|	|	|
4+20	0.0179	0.08	Q V	|	|	|	|
4+25	0.0185	0.08	Q V	|	|	|	|
4+30	0.0191	0.09	Q V	|	|	|	|
4+35	0.0197	0.09	Q V	|	|	|	|
4+40	0.0203	0.09	Q V	|	|	|	|
4+45	0.0209	0.09	Q V	|	|	|	|
4+50	0.0215	0.09	Q V	|	|	|	|
4+55	0.0222	0.10	Q V	|	|	|	|
5+ 0	0.0229	0.10	Q V	|	|	|	|
5+ 5	0.0236	0.10	Q V	|	|	|	|
5+10	0.0242	0.09	Q V	|	|	|	|
5+15	0.0247	0.08	Q V	|	|	|	|
5+20	0.0253	0.08	Q V	|	|	|	|
5+25	0.0259	0.09	Q V	|	|	|	|
5+30	0.0265	0.09	Q V	|	|	|	|
5+35	0.0271	0.09	Q V	|	|	|	|
5+40	0.0278	0.10	Q V	|	|	|	|
5+45	0.0284	0.10	Q V	|	|	|	|
5+50	0.0291	0.10	Q V	|	|	|	|
5+55	0.0298	0.10	Q V	|	|	|	|
6+ 0	0.0305	0.10	Q V	|	|	|	|
6+ 5	0.0312	0.10	Q V	|	|	|	|
6+10	0.0320	0.11	Q V	|	|	|	|
6+15	0.0327	0.11	Q V	|	|	|	|
6+20	0.0335	0.11	Q V	|	|	|	|
6+25	0.0343	0.11	Q V	|	|	|	|
6+30	0.0351	0.11	Q V	|	|	|	|
6+35	0.0359	0.12	Q V	|	|	|	|

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 6+40       0.0367      0.12  Q    V    |          |          |          |
 6+45       0.0376      0.12  Q    V    |          |          |          |
 6+50       0.0384      0.13  Q    V    |          |          |          |
 6+55       0.0393      0.13  Q    V    |          |          |          |
 7+ 0       0.0402      0.13  Q     V   |          |          |          |
 7+ 5       0.0411      0.13  Q     V   |          |          |          |
 7+10       0.0419      0.13  Q     V   |          |          |          |
 7+15       0.0428      0.13  Q     V   |          |          |          |
 7+20       0.0437      0.13  Q     V   |          |          |          |
 7+25       0.0446      0.13  Q     V   |          |          |          |
 7+30       0.0456      0.14  Q     V   |          |          |          |
 7+35       0.0465      0.14  Q      V  |          |          |          |
 7+40       0.0475      0.15  Q      V  |          |          |          |
 7+45       0.0486      0.15  Q      V  |          |          |          |
 7+50       0.0496      0.15  Q      V  |          |          |          |
 7+55       0.0507      0.16  Q      V  |          |          |          |
 8+ 0       0.0518      0.16  Q      V  |          |          |          |
 8+ 5       0.0530      0.17  Q       V |          |          |          |
 8+10       0.0542      0.18  Q       V |          |          |          |
 8+15       0.0555      0.18  Q       V |          |          |          |
 8+20       0.0568      0.19  Q       V |          |          |          |
 8+25       0.0580      0.19  Q       V |          |          |          |
 8+30       0.0594      0.19  Q       V |          |          |          |
 8+35       0.0607      0.19  Q        V|          |          |          |
 8+40       0.0620      0.20  Q        V|          |          |          |
 8+45       0.0634      0.20  Q        V|          |          |          |
 8+50       0.0648      0.20  Q        V|          |          |          |
 8+55       0.0663      0.21  Q         V          |          |          |
 9+ 0       0.0677      0.21  Q         V          |          |          |
 9+ 5       0.0692      0.22  Q         V          |          |          |
 9+10       0.0708      0.23  Q         V          |          |          |
 9+15       0.0724      0.24  Q         V          |          |          |
 9+20       0.0741      0.24  Q         |V         |          |          |
 9+25       0.0758      0.25  Q         |V         |          |          |
 9+30       0.0775      0.25  |Q        |V         |          |          |
 9+35       0.0792      0.25  |Q        | V        |          |          |
 9+40       0.0810      0.26  |Q        | V        |          |          |
 9+45       0.0829      0.26  |Q        | V        |          |          |
 9+50       0.0847      0.27  |Q        | V        |          |          |
 9+55       0.0866      0.27  |Q        |  V       |          |          |
10+ 0       0.0885      0.28  |Q        |  V       |          |          |
10+ 5       0.0903      0.27  |Q        |  V       |          |          |
10+10       0.0919      0.23  Q         |  V       |          |          |
10+15       0.0934      0.21  Q         |   V      |          |          |
10+20       0.0948      0.21  Q         |   V      |          |          |
10+25       0.0962      0.20  Q         |   V      |          |          |
10+30       0.0975      0.20  Q         |   V      |          |          |
10+35       0.0989      0.20  Q         |   V      |          |          |
10+40       0.1005      0.23  Q         |    V     |          |          |
10+45       0.1022      0.24  Q         |    V     |          |          |
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10+50       0.1039      0.25  Q         |    V    |         |         |
10+55       0.1056      0.25  Q         |    V    |         |         |
11+ 0       0.1073      0.25  |Q        |     V   |         |         |
11+ 5       0.1090      0.25  |Q        |     V   |         |         |
11+10       0.1107      0.25  Q         |     V   |         |         |
11+15       0.1124      0.24  Q         |      V  |         |         |
11+20       0.1141      0.24  Q         |      V  |         |         |
11+25       0.1158      0.24  Q         |      V  |         |         |
11+30       0.1175      0.24  Q         |      V  |         |         |
11+35       0.1191      0.24  Q         |       V |         |         |
11+40       0.1207      0.23  Q         |       V |         |         |
11+45       0.1223      0.22  Q         |       V |         |         |
11+50       0.1238      0.22  Q         |       V |         |         |
11+55       0.1253      0.23  Q         |       V |         |         |
12+ 0       0.1269      0.23  Q         |        V|         |         |
12+ 5       0.1286      0.24  Q         |        V|         |         |
12+10       0.1305      0.28  |Q        |        V|         |         |
12+15       0.1325      0.30  |Q        |         V         |         |
12+20       0.1346      0.31  |Q        |         V         |         |
12+25       0.1368      0.32  |Q        |         V         |         |
12+30       0.1390      0.32  |Q        |         |V        |         |
12+35       0.1413      0.33  |Q        |         |V        |         |
12+40       0.1437      0.34  |Q        |         |V        |         |
12+45       0.1461      0.35  |Q        |         | V       |         |
12+50       0.1485      0.35  |Q        |         | V       |         |
12+55       0.1510      0.36  |Q        |         | V       |         |
13+ 0       0.1535      0.37  |Q        |         |  V      |         |
13+ 5       0.1561      0.37  |Q        |         |  V      |         |
13+10       0.1588      0.40  |Q        |         |   V     |         |
13+15       0.1617      0.42  |Q        |         |   V     |         |
13+20       0.1646      0.42  |Q        |         |   V     |         |
13+25       0.1676      0.43  |Q        |         |    V    |         |
13+30       0.1705      0.43  |Q        |         |    V    |         |
13+35       0.1734      0.41  |Q        |         |     V   |         |
13+40       0.1759      0.36  |Q        |         |     V   |         |
13+45       0.1781      0.33  |Q        |         |     V   |         |
13+50       0.1803      0.32  |Q        |         |      V  |         |
13+55       0.1824      0.31  |Q        |         |      V  |         |
14+ 0       0.1845      0.30  |Q        |         |      V  |         |
14+ 5       0.1866      0.31  |Q        |         |       V |         |
14+10       0.1889      0.33  |Q        |         |       V |         |
14+15       0.1912      0.33  |Q        |         |       V |         |
14+20       0.1935      0.34  |Q        |         |        V|         |
14+25       0.1958      0.33  |Q        |         |        V|         |
14+30       0.1981      0.33  |Q        |         |         V         |
14+35       0.2003      0.33  |Q        |         |         V         |
14+40       0.2026      0.33  |Q        |         |         V         |
14+45       0.2049      0.33  |Q        |         |         |V        |
14+50       0.2072      0.33  |Q        |         |         |V        |
14+55       0.2094      0.33  |Q        |         |         |V        |
```

```
15+ 0       0.2117      0.32  |Q        |         |         | V       |
15+ 5       0.2139      0.32  |Q        |         |         | V       |
15+10       0.2160      0.31  |Q        |         |         | V       |
15+15       0.2182      0.31  |Q        |         |         |  V      |
15+20       0.2203      0.31  |Q        |         |         |  V      |
15+25       0.2224      0.30  |Q        |         |         |  V      |
15+30       0.2244      0.30  |Q        |         |         |   V     |
15+35       0.2264      0.29  |Q        |         |         |   V     |
15+40       0.2283      0.27  |Q        |         |         |   V     |
15+45       0.2300      0.26  |Q        |         |         |   V     |
15+50       0.2318      0.25  |Q        |         |         |    V    |
15+55       0.2335      0.25  Q         |         |         |    V    |
16+ 0       0.2352      0.25  Q         |         |         |    V    |
16+ 5       0.2367      0.22  Q         |         |         |    V    |
16+10       0.2377      0.14  Q         |         |         |     V   |
16+15       0.2384      0.10  Q         |         |         |     V   |
16+20       0.2390      0.08  Q         |         |         |     V   |
16+25       0.2394      0.07  Q         |         |         |     V   |
16+30       0.2399      0.07  Q         |         |         |     V   |
16+35       0.2403      0.06  Q         |         |         |     V   |
16+40       0.2406      0.05  Q         |         |         |     V   |
16+45       0.2410      0.05  Q         |         |         |     V   |
16+50       0.2412      0.04  Q         |         |         |     V   |
16+55       0.2415      0.04  Q         |         |         |     V   |
17+ 0       0.2418      0.04  Q         |         |         |     V   |
17+ 5       0.2421      0.04  Q         |         |         |     V   |
17+10       0.2424      0.05  Q         |         |         |     V   |
17+15       0.2428      0.06  Q         |         |         |     V   |
17+20       0.2433      0.06  Q         |         |         |     V   |
17+25       0.2437      0.06  Q         |         |         |     V   |
17+30       0.2441      0.06  Q         |         |         |     V   |
17+35       0.2445      0.06  Q         |         |         |      V  |
17+40       0.2450      0.06  Q         |         |         |      V  |
17+45       0.2454      0.06  Q         |         |         |      V  |
17+50       0.2458      0.06  Q         |         |         |      V  |
17+55       0.2462      0.06  Q         |         |         |      V  |
18+ 0       0.2466      0.05  Q         |         |         |      V  |
18+ 5       0.2470      0.05  Q         |         |         |      V  |
18+10       0.2473      0.05  Q         |         |         |      V  |
18+15       0.2477      0.05  Q         |         |         |      V  |
18+20       0.2480      0.05  Q         |         |         |      V  |
18+25       0.2484      0.05  Q         |         |         |      V  |
18+30       0.2487      0.05  Q         |         |         |      V  |
18+35       0.2491      0.05  Q         |         |         |      V  |
18+40       0.2494      0.04  Q         |         |         |      V  |
18+45       0.2497      0.04  Q         |         |         |      V  |
18+50       0.2500      0.04  Q         |         |         |      V  |
18+55       0.2502      0.03  Q         |         |         |      V  |
19+ 0       0.2504      0.03  Q         |         |         |      V  |
19+ 5       0.2506      0.03  Q         |         |         |      V  |
```

19+10	0.2508	0.03	Q	|	|	|	V |
19+15	0.2511	0.04	Q	|	|	|	V |
19+20	0.2513	0.04	Q	|	|	|	V |
19+25	0.2516	0.04	Q	|	|	|	V |
19+30	0.2520	0.05	Q	|	|	|	V |
19+35	0.2523	0.05	Q	|	|	|	V |
19+40	0.2526	0.04	Q	|	|	|	V |
19+45	0.2529	0.04	Q	|	|	|	V |
19+50	0.2531	0.04	Q	|	|	|	V |
19+55	0.2533	0.03	Q	|	|	|	V |
20+ 0	0.2535	0.03	Q	|	|	|	V |
20+ 5	0.2538	0.03	Q	|	|	|	V |
20+10	0.2540	0.03	Q	|	|	|	V |
20+15	0.2542	0.04	Q	|	|	|	V |
20+20	0.2545	0.04	Q	|	|	|	V |
20+25	0.2548	0.04	Q	|	|	|	V |
20+30	0.2550	0.04	Q	|	|	|	V |
20+35	0.2553	0.04	Q	|	|	|	V |
20+40	0.2555	0.04	Q	|	|	|	V |
20+45	0.2558	0.04	Q	|	|	|	V |
20+50	0.2560	0.04	Q	|	|	|	V |
20+55	0.2563	0.03	Q	|	|	|	V |
21+ 0	0.2565	0.03	Q	|	|	|	V |
21+ 5	0.2567	0.03	Q	|	|	|	V |
21+10	0.2569	0.03	Q	|	|	|	V |
21+15	0.2571	0.04	Q	|	|	|	V |
21+20	0.2574	0.04	Q	|	|	|	V |
21+25	0.2576	0.03	Q	|	|	|	V|
21+30	0.2578	0.03	Q	|	|	|	V|
21+35	0.2580	0.03	Q	|	|	|	V|
21+40	0.2582	0.03	Q	|	|	|	V|
21+45	0.2585	0.04	Q	|	|	|	V|
21+50	0.2587	0.04	Q	|	|	|	V|
21+55	0.2589	0.03	Q	|	|	|	V|
22+ 0	0.2591	0.03	Q	|	|	|	V|
22+ 5	0.2593	0.03	Q	|	|	|	V|
22+10	0.2595	0.03	Q	|	|	|	V|
22+15	0.2598	0.04	Q	|	|	|	V|
22+20	0.2600	0.04	Q	|	|	|	V|
22+25	0.2602	0.03	Q	|	|	|	V|
22+30	0.2604	0.03	Q	|	|	|	V|
22+35	0.2606	0.03	Q	|	|	|	V|
22+40	0.2608	0.03	Q	|	|	|	V|
22+45	0.2610	0.03	Q	|	|	|	V|
22+50	0.2612	0.03	Q	|	|	|	V|
22+55	0.2613	0.03	Q	|	|	|	V|
23+ 0	0.2615	0.03	Q	|	|	|	V|
23+ 5	0.2617	0.03	Q	|	|	|	V|
23+10	0.2619	0.03	Q	|	|	|	V|
23+15	0.2620	0.03	Q	|	|	|	V|

```
   23+20       0.2622      0.03  Q          |          |          |         V|
   23+25       0.2624      0.03  Q          |          |          |         V|
   23+30       0.2626      0.03  Q          |          |          |         V|
   23+35       0.2627      0.03  Q          |          |          |         V|
   23+40       0.2629      0.03  Q          |          |          |         V|
   23+45       0.2631      0.03  Q          |          |          |         V|
   23+50       0.2633      0.03  Q          |          |          |         V|
   23+55       0.2635      0.03  Q          |          |          |         V|
   24+ 0       0.2636      0.03  Q          |          |          |         V|
   24+ 5       0.2638      0.02  Q          |          |          |         V|
   24+10       0.2639      0.01  Q          |          |          |         V|
   24+15       0.2639      0.01  Q          |          |          |         V|
   24+20       0.2639      0.00  Q          |          |          |         V|
   24+25       0.2640      0.00  Q          |          |          |         V|
   24+30       0.2640      0.00  Q          |          |          |         V|
   24+35       0.2640      0.00  Q          |          |          |         V|
   24+40       0.2640      0.00  Q          |          |          |         V|
   24+45       0.2640      0.00  Q          |          |          |         V|
   24+50       0.2640      0.00  Q          |          |          |          V
-------------------------------------------------------------------------
```

PROPOSED CONDITION UNIT HYDROGRAPHS

PROPOSED CONDITION ONSITE 2-YEAR, 24-HOUR UNIT HYDROGRAPH

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 12/14/22 File: ONSITEPROP242.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 4010

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

22-0198 - ETHANAC COMMERCE CENTER
ONSITE UNIT HYDROGRAPH ANALYSIS
PROPOSED CONDITION, 2-YEAR 24-HOUR
FN: ONSITEPROP.OUT- RSB

Drainage Area = 19.80(Ac.) = 0.031 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 19.80(Ac.) = 0.031 Sq. Mi.
Length along longest watercourse = 553.00(Ft.)
Length along longest watercourse measured to centroid = 150.00(Ft.)
Length along longest watercourse = 0.105 Mi.
Length along longest watercourse measured to centroid = 0.028 Mi.
Difference in elevation = 7.00(Ft.)
Slope along watercourse = 66.8354 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.018 Hr.
Lag time = 1.07 Min.
25% of lag time = 0.27 Min.
40% of lag time = 0.43 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

```
Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       19.80            1.60                  31.68

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       19.80            4.00                  79.20

STORM EVENT (YEAR) =    2.00
Area Averaged 2-Year Rainfall =    1.600(In)
Area Averaged 100-Year Rainfall =    4.000(In)

Point rain (area averaged) =    1.600(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.600(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    19.800           75.00         0.900
 Total Area Entered =     19.80(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-1     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
75.0  57.0      0.501     0.900        0.095       1.000      0.095
                                                 Sum (F) =   0.095
Area averaged mean soil loss (F) (In/Hr) =  0.095
Minimum soil loss rate ((In/Hr)) =  0.048
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.180
------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                       VALLEY S-Curve
------------------------------------------------------------------------
               Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %            (CFS)
------------------------------------------------------------------------
    1   0.083        469.158         69.318             13.832
    2   0.167        938.316         30.682              6.122
                               Sum = 100.000   Sum=      19.955
------------------------------------------------------------------------

 The following loss rate calculations reflect use of the minimum calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective Rain value
```

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.013	(0.169)	0.002	0.010
2	0.17	0.07	0.013	(0.168)	0.002	0.010
3	0.25	0.07	0.013	(0.167)	0.002	0.010
4	0.33	0.10	0.019	(0.167)	0.003	0.016
5	0.42	0.10	0.019	(0.166)	0.003	0.016
6	0.50	0.10	0.019	(0.165)	0.003	0.016
7	0.58	0.10	0.019	(0.165)	0.003	0.016
8	0.67	0.10	0.019	(0.164)	0.003	0.016
9	0.75	0.10	0.019	(0.163)	0.003	0.016
10	0.83	0.13	0.026	(0.163)	0.005	0.021
11	0.92	0.13	0.026	(0.162)	0.005	0.021
12	1.00	0.13	0.026	(0.162)	0.005	0.021
13	1.08	0.10	0.019	(0.161)	0.003	0.016
14	1.17	0.10	0.019	(0.160)	0.003	0.016
15	1.25	0.10	0.019	(0.160)	0.003	0.016
16	1.33	0.10	0.019	(0.159)	0.003	0.016
17	1.42	0.10	0.019	(0.158)	0.003	0.016
18	1.50	0.10	0.019	(0.158)	0.003	0.016
19	1.58	0.10	0.019	(0.157)	0.003	0.016
20	1.67	0.10	0.019	(0.156)	0.003	0.016
21	1.75	0.10	0.019	(0.156)	0.003	0.016
22	1.83	0.13	0.026	(0.155)	0.005	0.021
23	1.92	0.13	0.026	(0.155)	0.005	0.021
24	2.00	0.13	0.026	(0.154)	0.005	0.021
25	2.08	0.13	0.026	(0.153)	0.005	0.021
26	2.17	0.13	0.026	(0.153)	0.005	0.021
27	2.25	0.13	0.026	(0.152)	0.005	0.021
28	2.33	0.13	0.026	(0.151)	0.005	0.021
29	2.42	0.13	0.026	(0.151)	0.005	0.021
30	2.50	0.13	0.026	(0.150)	0.005	0.021
31	2.58	0.17	0.032	(0.150)	0.006	0.026
32	2.67	0.17	0.032	(0.149)	0.006	0.026
33	2.75	0.17	0.032	(0.148)	0.006	0.026
34	2.83	0.17	0.032	(0.148)	0.006	0.026
35	2.92	0.17	0.032	(0.147)	0.006	0.026
36	3.00	0.17	0.032	(0.147)	0.006	0.026
37	3.08	0.17	0.032	(0.146)	0.006	0.026
38	3.17	0.17	0.032	(0.145)	0.006	0.026
39	3.25	0.17	0.032	(0.145)	0.006	0.026
40	3.33	0.17	0.032	(0.144)	0.006	0.026
41	3.42	0.17	0.032	(0.144)	0.006	0.026
42	3.50	0.17	0.032	(0.143)	0.006	0.026
43	3.58	0.17	0.032	(0.142)	0.006	0.026
44	3.67	0.17	0.032	(0.142)	0.006	0.026
45	3.75	0.17	0.032	(0.141)	0.006	0.026
46	3.83	0.20	0.038	(0.141)	0.007	0.031
47	3.92	0.20	0.038	(0.140)	0.007	0.031

48	4.00	0.20	0.038	(0.139)	0.007	0.031
49	4.08	0.20	0.038	(0.139)	0.007	0.031
50	4.17	0.20	0.038	(0.138)	0.007	0.031
51	4.25	0.20	0.038	(0.138)	0.007	0.031
52	4.33	0.23	0.045	(0.137)	0.008	0.037
53	4.42	0.23	0.045	(0.136)	0.008	0.037
54	4.50	0.23	0.045	(0.136)	0.008	0.037
55	4.58	0.23	0.045	(0.135)	0.008	0.037
56	4.67	0.23	0.045	(0.135)	0.008	0.037
57	4.75	0.23	0.045	(0.134)	0.008	0.037
58	4.83	0.27	0.051	(0.134)	0.009	0.042
59	4.92	0.27	0.051	(0.133)	0.009	0.042
60	5.00	0.27	0.051	(0.132)	0.009	0.042
61	5.08	0.20	0.038	(0.132)	0.007	0.031
62	5.17	0.20	0.038	(0.131)	0.007	0.031
63	5.25	0.20	0.038	(0.131)	0.007	0.031
64	5.33	0.23	0.045	(0.130)	0.008	0.037
65	5.42	0.23	0.045	(0.129)	0.008	0.037
66	5.50	0.23	0.045	(0.129)	0.008	0.037
67	5.58	0.27	0.051	(0.128)	0.009	0.042
68	5.67	0.27	0.051	(0.128)	0.009	0.042
69	5.75	0.27	0.051	(0.127)	0.009	0.042
70	5.83	0.27	0.051	(0.127)	0.009	0.042
71	5.92	0.27	0.051	(0.126)	0.009	0.042
72	6.00	0.27	0.051	(0.126)	0.009	0.042
73	6.08	0.30	0.058	(0.125)	0.010	0.047
74	6.17	0.30	0.058	(0.124)	0.010	0.047
75	6.25	0.30	0.058	(0.124)	0.010	0.047
76	6.33	0.30	0.058	(0.123)	0.010	0.047
77	6.42	0.30	0.058	(0.123)	0.010	0.047
78	6.50	0.30	0.058	(0.122)	0.010	0.047
79	6.58	0.33	0.064	(0.122)	0.012	0.052
80	6.67	0.33	0.064	(0.121)	0.012	0.052
81	6.75	0.33	0.064	(0.121)	0.012	0.052
82	6.83	0.33	0.064	(0.120)	0.012	0.052
83	6.92	0.33	0.064	(0.119)	0.012	0.052
84	7.00	0.33	0.064	(0.119)	0.012	0.052
85	7.08	0.33	0.064	(0.118)	0.012	0.052
86	7.17	0.33	0.064	(0.118)	0.012	0.052
87	7.25	0.33	0.064	(0.117)	0.012	0.052
88	7.33	0.37	0.070	(0.117)	0.013	0.058
89	7.42	0.37	0.070	(0.116)	0.013	0.058
90	7.50	0.37	0.070	(0.116)	0.013	0.058
91	7.58	0.40	0.077	(0.115)	0.014	0.063
92	7.67	0.40	0.077	(0.115)	0.014	0.063
93	7.75	0.40	0.077	(0.114)	0.014	0.063
94	7.83	0.43	0.083	(0.114)	0.015	0.068
95	7.92	0.43	0.083	(0.113)	0.015	0.068
96	8.00	0.43	0.083	(0.113)	0.015	0.068
97	8.08	0.50	0.096	(0.112)	0.017	0.079

98	8.17	0.50	0.096	(0.112)	0.017	0.079
99	8.25	0.50	0.096	(0.111)	0.017	0.079
100	8.33	0.50	0.096	(0.110)	0.017	0.079
101	8.42	0.50	0.096	(0.110)	0.017	0.079
102	8.50	0.50	0.096	(0.109)	0.017	0.079
103	8.58	0.53	0.102	(0.109)	0.018	0.084
104	8.67	0.53	0.102	(0.108)	0.018	0.084
105	8.75	0.53	0.102	(0.108)	0.018	0.084
106	8.83	0.57	0.109	(0.107)	0.020	0.089
107	8.92	0.57	0.109	(0.107)	0.020	0.089
108	9.00	0.57	0.109	(0.106)	0.020	0.089
109	9.08	0.63	0.122	(0.106)	0.022	0.100
110	9.17	0.63	0.122	(0.105)	0.022	0.100
111	9.25	0.63	0.122	(0.105)	0.022	0.100
112	9.33	0.67	0.128	(0.104)	0.023	0.105
113	9.42	0.67	0.128	(0.104)	0.023	0.105
114	9.50	0.67	0.128	(0.103)	0.023	0.105
115	9.58	0.70	0.134	(0.103)	0.024	0.110
116	9.67	0.70	0.134	(0.102)	0.024	0.110
117	9.75	0.70	0.134	(0.102)	0.024	0.110
118	9.83	0.73	0.141	(0.101)	0.025	0.115
119	9.92	0.73	0.141	(0.101)	0.025	0.115
120	10.00	0.73	0.141	(0.100)	0.025	0.115
121	10.08	0.50	0.096	(0.100)	0.017	0.079
122	10.17	0.50	0.096	(0.099)	0.017	0.079
123	10.25	0.50	0.096	(0.099)	0.017	0.079
124	10.33	0.50	0.096	(0.099)	0.017	0.079
125	10.42	0.50	0.096	(0.098)	0.017	0.079
126	10.50	0.50	0.096	(0.098)	0.017	0.079
127	10.58	0.67	0.128	(0.097)	0.023	0.105
128	10.67	0.67	0.128	(0.097)	0.023	0.105
129	10.75	0.67	0.128	(0.096)	0.023	0.105
130	10.83	0.67	0.128	(0.096)	0.023	0.105
131	10.92	0.67	0.128	(0.095)	0.023	0.105
132	11.00	0.67	0.128	(0.095)	0.023	0.105
133	11.08	0.63	0.122	(0.094)	0.022	0.100
134	11.17	0.63	0.122	(0.094)	0.022	0.100
135	11.25	0.63	0.122	(0.093)	0.022	0.100
136	11.33	0.63	0.122	(0.093)	0.022	0.100
137	11.42	0.63	0.122	(0.092)	0.022	0.100
138	11.50	0.63	0.122	(0.092)	0.022	0.100
139	11.58	0.57	0.109	(0.091)	0.020	0.089
140	11.67	0.57	0.109	(0.091)	0.020	0.089
141	11.75	0.57	0.109	(0.091)	0.020	0.089
142	11.83	0.60	0.115	(0.090)	0.021	0.094
143	11.92	0.60	0.115	(0.090)	0.021	0.094
144	12.00	0.60	0.115	(0.089)	0.021	0.094
145	12.08	0.83	0.160	(0.089)	0.029	0.131
146	12.17	0.83	0.160	(0.088)	0.029	0.131
147	12.25	0.83	0.160	(0.088)	0.029	0.131

148	12.33	0.87	0.166	(0.087)	0.030	0.136
149	12.42	0.87	0.166	(0.087)	0.030	0.136
150	12.50	0.87	0.166	(0.087)	0.030	0.136
151	12.58	0.93	0.179	(0.086)	0.032	0.147
152	12.67	0.93	0.179	(0.086)	0.032	0.147
153	12.75	0.93	0.179	(0.085)	0.032	0.147
154	12.83	0.97	0.186	(0.085)	0.033	0.152
155	12.92	0.97	0.186	(0.084)	0.033	0.152
156	13.00	0.97	0.186	(0.084)	0.033	0.152
157	13.08	1.13	0.218	(0.084)	0.039	0.178
158	13.17	1.13	0.218	(0.083)	0.039	0.178
159	13.25	1.13	0.218	(0.083)	0.039	0.178
160	13.33	1.13	0.218	(0.082)	0.039	0.178
161	13.42	1.13	0.218	(0.082)	0.039	0.178
162	13.50	1.13	0.218	(0.081)	0.039	0.178
163	13.58	0.77	0.147	(0.081)	0.026	0.121
164	13.67	0.77	0.147	(0.081)	0.026	0.121
165	13.75	0.77	0.147	(0.080)	0.026	0.121
166	13.83	0.77	0.147	(0.080)	0.026	0.121
167	13.92	0.77	0.147	(0.079)	0.026	0.121
168	14.00	0.77	0.147	(0.079)	0.026	0.121
169	14.08	0.90	0.173	(0.079)	0.031	0.142
170	14.17	0.90	0.173	(0.078)	0.031	0.142
171	14.25	0.90	0.173	(0.078)	0.031	0.142
172	14.33	0.87	0.166	(0.077)	0.030	0.136
173	14.42	0.87	0.166	(0.077)	0.030	0.136
174	14.50	0.87	0.166	(0.077)	0.030	0.136
175	14.58	0.87	0.166	(0.076)	0.030	0.136
176	14.67	0.87	0.166	(0.076)	0.030	0.136
177	14.75	0.87	0.166	(0.075)	0.030	0.136
178	14.83	0.83	0.160	(0.075)	0.029	0.131
179	14.92	0.83	0.160	(0.075)	0.029	0.131
180	15.00	0.83	0.160	(0.074)	0.029	0.131
181	15.08	0.80	0.154	(0.074)	0.028	0.126
182	15.17	0.80	0.154	(0.074)	0.028	0.126
183	15.25	0.80	0.154	(0.073)	0.028	0.126
184	15.33	0.77	0.147	(0.073)	0.026	0.121
185	15.42	0.77	0.147	(0.072)	0.026	0.121
186	15.50	0.77	0.147	(0.072)	0.026	0.121
187	15.58	0.63	0.122	(0.072)	0.022	0.100
188	15.67	0.63	0.122	(0.071)	0.022	0.100
189	15.75	0.63	0.122	(0.071)	0.022	0.100
190	15.83	0.63	0.122	(0.071)	0.022	0.100
191	15.92	0.63	0.122	(0.070)	0.022	0.100
192	16.00	0.63	0.122	(0.070)	0.022	0.100
193	16.08	0.13	0.026	(0.069)	0.005	0.021
194	16.17	0.13	0.026	(0.069)	0.005	0.021
195	16.25	0.13	0.026	(0.069)	0.005	0.021
196	16.33	0.13	0.026	(0.068)	0.005	0.021
197	16.42	0.13	0.026	(0.068)	0.005	0.021

198	16.50	0.13	0.026	(0.068)	0.005	0.021
199	16.58	0.10	0.019	(0.067)	0.003	0.016
200	16.67	0.10	0.019	(0.067)	0.003	0.016
201	16.75	0.10	0.019	(0.067)	0.003	0.016
202	16.83	0.10	0.019	(0.066)	0.003	0.016
203	16.92	0.10	0.019	(0.066)	0.003	0.016
204	17.00	0.10	0.019	(0.066)	0.003	0.016
205	17.08	0.17	0.032	(0.065)	0.006	0.026
206	17.17	0.17	0.032	(0.065)	0.006	0.026
207	17.25	0.17	0.032	(0.065)	0.006	0.026
208	17.33	0.17	0.032	(0.064)	0.006	0.026
209	17.42	0.17	0.032	(0.064)	0.006	0.026
210	17.50	0.17	0.032	(0.064)	0.006	0.026
211	17.58	0.17	0.032	(0.063)	0.006	0.026
212	17.67	0.17	0.032	(0.063)	0.006	0.026
213	17.75	0.17	0.032	(0.063)	0.006	0.026
214	17.83	0.13	0.026	(0.062)	0.005	0.021
215	17.92	0.13	0.026	(0.062)	0.005	0.021
216	18.00	0.13	0.026	(0.062)	0.005	0.021
217	18.08	0.13	0.026	(0.062)	0.005	0.021
218	18.17	0.13	0.026	(0.061)	0.005	0.021
219	18.25	0.13	0.026	(0.061)	0.005	0.021
220	18.33	0.13	0.026	(0.061)	0.005	0.021
221	18.42	0.13	0.026	(0.060)	0.005	0.021
222	18.50	0.13	0.026	(0.060)	0.005	0.021
223	18.58	0.10	0.019	(0.060)	0.003	0.016
224	18.67	0.10	0.019	(0.059)	0.003	0.016
225	18.75	0.10	0.019	(0.059)	0.003	0.016
226	18.83	0.07	0.013	(0.059)	0.002	0.010
227	18.92	0.07	0.013	(0.059)	0.002	0.010
228	19.00	0.07	0.013	(0.058)	0.002	0.010
229	19.08	0.10	0.019	(0.058)	0.003	0.016
230	19.17	0.10	0.019	(0.058)	0.003	0.016
231	19.25	0.10	0.019	(0.058)	0.003	0.016
232	19.33	0.13	0.026	(0.057)	0.005	0.021
233	19.42	0.13	0.026	(0.057)	0.005	0.021
234	19.50	0.13	0.026	(0.057)	0.005	0.021
235	19.58	0.10	0.019	(0.056)	0.003	0.016
236	19.67	0.10	0.019	(0.056)	0.003	0.016
237	19.75	0.10	0.019	(0.056)	0.003	0.016
238	19.83	0.07	0.013	(0.056)	0.002	0.010
239	19.92	0.07	0.013	(0.055)	0.002	0.010
240	20.00	0.07	0.013	(0.055)	0.002	0.010
241	20.08	0.10	0.019	(0.055)	0.003	0.016
242	20.17	0.10	0.019	(0.055)	0.003	0.016
243	20.25	0.10	0.019	(0.055)	0.003	0.016
244	20.33	0.10	0.019	(0.054)	0.003	0.016
245	20.42	0.10	0.019	(0.054)	0.003	0.016
246	20.50	0.10	0.019	(0.054)	0.003	0.016
247	20.58	0.10	0.019	(0.054)	0.003	0.016

248	20.67	0.10	0.019	(0.053)	0.003	0.016
249	20.75	0.10	0.019	(0.053)	0.003	0.016
250	20.83	0.07	0.013	(0.053)	0.002	0.010
251	20.92	0.07	0.013	(0.053)	0.002	0.010
252	21.00	0.07	0.013	(0.052)	0.002	0.010
253	21.08	0.10	0.019	(0.052)	0.003	0.016
254	21.17	0.10	0.019	(0.052)	0.003	0.016
255	21.25	0.10	0.019	(0.052)	0.003	0.016
256	21.33	0.07	0.013	(0.052)	0.002	0.010
257	21.42	0.07	0.013	(0.051)	0.002	0.010
258	21.50	0.07	0.013	(0.051)	0.002	0.010
259	21.58	0.10	0.019	(0.051)	0.003	0.016
260	21.67	0.10	0.019	(0.051)	0.003	0.016
261	21.75	0.10	0.019	(0.051)	0.003	0.016
262	21.83	0.07	0.013	(0.051)	0.002	0.010
263	21.92	0.07	0.013	(0.050)	0.002	0.010
264	22.00	0.07	0.013	(0.050)	0.002	0.010
265	22.08	0.10	0.019	(0.050)	0.003	0.016
266	22.17	0.10	0.019	(0.050)	0.003	0.016
267	22.25	0.10	0.019	(0.050)	0.003	0.016
268	22.33	0.07	0.013	(0.050)	0.002	0.010
269	22.42	0.07	0.013	(0.049)	0.002	0.010
270	22.50	0.07	0.013	(0.049)	0.002	0.010
271	22.58	0.07	0.013	(0.049)	0.002	0.010
272	22.67	0.07	0.013	(0.049)	0.002	0.010
273	22.75	0.07	0.013	(0.049)	0.002	0.010
274	22.83	0.07	0.013	(0.049)	0.002	0.010
275	22.92	0.07	0.013	(0.049)	0.002	0.010
276	23.00	0.07	0.013	(0.048)	0.002	0.010
277	23.08	0.07	0.013	(0.048)	0.002	0.010
278	23.17	0.07	0.013	(0.048)	0.002	0.010
279	23.25	0.07	0.013	(0.048)	0.002	0.010
280	23.33	0.07	0.013	(0.048)	0.002	0.010
281	23.42	0.07	0.013	(0.048)	0.002	0.010
282	23.50	0.07	0.013	(0.048)	0.002	0.010
283	23.58	0.07	0.013	(0.048)	0.002	0.010
284	23.67	0.07	0.013	(0.048)	0.002	0.010
285	23.75	0.07	0.013	(0.048)	0.002	0.010
286	23.83	0.07	0.013	(0.048)	0.002	0.010
287	23.92	0.07	0.013	(0.048)	0.002	0.010
288	24.00	0.07	0.013	(0.048)	0.002	0.010

(Loss Rate Not Used)

Sum = 100.0 Sum = 15.7

Flood volume = Effective rainfall 1.31(In)
times area 19.8(Ac.)/[(In)/(Ft.)] = 2.2(Ac.Ft)
Total soil loss = 0.29(In)
Total soil loss = 0.475(Ac.Ft)
Total rainfall = 1.60(In)
Flood volume = 94295.0 Cubic Feet
Total soil loss = 20698.9 Cubic Feet

Peak flow rate of this hydrograph = 3.562(CFS)

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24 - H O U R S T O R M

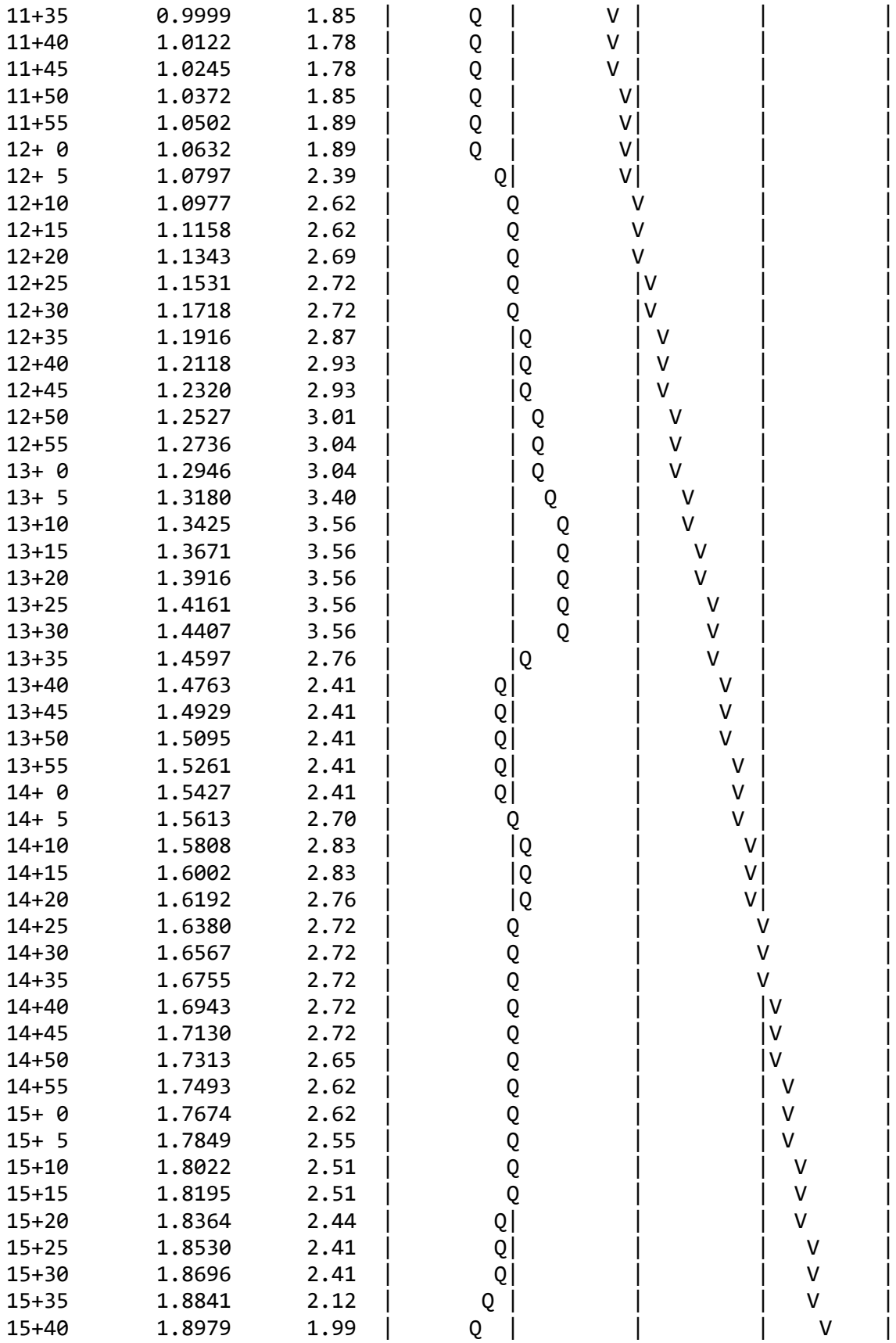
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0010	0.15	Q				
0+10	0.0024	0.21	Q				
0+15	0.0039	0.21	Q				
0+20	0.0058	0.28	VQ				
0+25	0.0080	0.31	VQ				
0+30	0.0102	0.31	VQ				
0+35	0.0123	0.31	VQ				
0+40	0.0145	0.31	VQ				
0+45	0.0167	0.31	VQ				
0+50	0.0193	0.39	VQ				
0+55	0.0222	0.42	VQ				
1+ 0	0.0251	0.42	VQ				
1+ 5	0.0275	0.35	VQ				
1+10	0.0296	0.31	VQ				
1+15	0.0318	0.31	VQ				
1+20	0.0340	0.31	VQ				
1+25	0.0361	0.31	VQ				
1+30	0.0383	0.31	VQ				
1+35	0.0405	0.31	VQ				
1+40	0.0426	0.31	VQ				
1+45	0.0448	0.31	VQ				
1+50	0.0475	0.39	VQ				
1+55	0.0503	0.42	VQ				
2+ 0	0.0532	0.42	VQ				
2+ 5	0.0561	0.42	|Q				
2+10	0.0590	0.42	|Q				
2+15	0.0619	0.42	|Q				
2+20	0.0648	0.42	|Q				
2+25	0.0677	0.42	|Q				
2+30	0.0706	0.42	|Q				
2+35	0.0739	0.49	|Q				
2+40	0.0775	0.52	|VQ				
2+45	0.0812	0.52	|VQ				
2+50	0.0848	0.52	|VQ				
2+55	0.0884	0.52	|VQ				
3+ 0	0.0920	0.52	|VQ				
3+ 5	0.0956	0.52	|VQ				
3+10	0.0992	0.52	|VQ				

3+15	0.1028	0.52	VQ				
3+20	0.1064	0.52	VQ				
3+25	0.1100	0.52	Q				
3+30	0.1136	0.52	Q				
3+35	0.1172	0.52	Q				
3+40	0.1208	0.52	Q				
3+45	0.1244	0.52	Q				
3+50	0.1286	0.60	Q				
3+55	0.1329	0.63	Q				
4+ 0	0.1372	0.63	Q				
4+ 5	0.1415	0.63	Q				
4+10	0.1459	0.63	Q				
4+15	0.1502	0.63	Q				
4+20	0.1550	0.70	Q				
4+25	0.1601	0.73	Q				
4+30	0.1651	0.73	QV				
4+35	0.1702	0.73	QV				
4+40	0.1752	0.73	QV				
4+45	0.1803	0.73	QV				
4+50	0.1858	0.81	Q				
4+55	0.1916	0.84	Q				
5+ 0	0.1974	0.84	Q				
5+ 5	0.2022	0.69	QV				
5+10	0.2065	0.63	QV				
5+15	0.2108	0.63	QV				
5+20	0.2156	0.70	QV				
5+25	0.2207	0.73	Q V				
5+30	0.2257	0.73	Q V				
5+35	0.2313	0.81	QV				
5+40	0.2371	0.84	QV				
5+45	0.2428	0.84	QV				
5+50	0.2486	0.84	QV				
5+55	0.2544	0.84	QV				
6+ 0	0.2602	0.84	QV				
6+ 5	0.2664	0.91	QV				
6+10	0.2729	0.94	Q V				
6+15	0.2794	0.94	Q V				
6+20	0.2859	0.94	Q V				
6+25	0.2924	0.94	Q V				
6+30	0.2989	0.94	Q V				
6+35	0.3059	1.02	QV				
6+40	0.3131	1.05	QV				
6+45	0.3203	1.05	QV				
6+50	0.3275	1.05	Q V				
6+55	0.3348	1.05	Q V				
7+ 0	0.3420	1.05	Q V				
7+ 5	0.3492	1.05	Q V				
7+10	0.3564	1.05	Q V				
7+15	0.3636	1.05	Q V				
7+20	0.3713	1.12	Q V				

7+25	0.3793	1.15	Q V				
7+30	0.3872	1.15	Q V				
7+35	0.3957	1.23	Q V				
7+40	0.4043	1.26	Q V				
7+45	0.4130	1.26	Q V				
7+50	0.4221	1.33	Q V				
7+55	0.4315	1.36	Q V				
8+ 0	0.4409	1.36	Q V				
8+ 5	0.4513	1.51	Q V				
8+10	0.4621	1.57	Q V				
8+15	0.4729	1.57	Q V				
8+20	0.4837	1.57	Q V				
8+25	0.4946	1.57	Q V				
8+30	0.5054	1.57	Q V				
8+35	0.5167	1.64	Q V				
8+40	0.5283	1.68	Q V				
8+45	0.5398	1.68	Q V				
8+50	0.5518	1.75	Q V				
8+55	0.5641	1.78	Q V				
9+ 0	0.5764	1.78	Q V				
9+ 5	0.5896	1.93	Q V				
9+10	0.6034	1.99	Q V				
9+15	0.6171	1.99	Q V				
9+20	0.6313	2.06	Q V				
9+25	0.6457	2.10	Q V				
9+30	0.6601	2.10	Q V				
9+35	0.6751	2.17	Q V				
9+40	0.6902	2.20	Q V				
9+45	0.7054	2.20	Q V				
9+50	0.7210	2.27	Q V				
9+55	0.7369	2.30	Q V				
10+ 0	0.7528	2.30	Q V				
10+ 5	0.7652	1.80	Q V				
10+10	0.7760	1.57	Q V				
10+15	0.7868	1.57	Q V				
10+20	0.7976	1.57	Q V				
10+25	0.8084	1.57	Q V				
10+30	0.8193	1.57	Q V				
10+35	0.8326	1.93	Q V				
10+40	0.8470	2.10	Q V				
10+45	0.8615	2.10	Q V				
10+50	0.8759	2.10	Q V				
10+55	0.8903	2.10	Q V				
11+ 0	0.9048	2.10	Q V				
11+ 5	0.9187	2.02	Q V				
11+10	0.9324	1.99	Q V				
11+15	0.9461	1.99	Q V				
11+20	0.9598	1.99	Q V				
11+25	0.9735	1.99	Q V				
11+30	0.9872	1.99	Q V				



```
15+45       1.9116      1.99  |       Q  |          |          |     V    |
15+50       1.9253      1.99  |       Q  |          |          |     V    |
15+55       1.9390      1.99  |       Q  |          |          |     V    |
16+ 0       1.9527      1.99  |       Q  |          |          |      V   |
16+ 5       1.9589      0.90  |   Q      |          |          |      V   |
16+10       1.9618      0.42  |Q         |          |          |      V   |
16+15       1.9647      0.42  |Q         |          |          |      V   |
16+20       1.9676      0.42  |Q         |          |          |      V   |
16+25       1.9704      0.42  |Q         |          |          |      V   |
16+30       1.9733      0.42  |Q         |          |          |      V   |
16+35       1.9757      0.35  |Q         |          |          |      V   |
16+40       1.9779      0.31  |Q         |          |          |      V   |
16+45       1.9801      0.31  |Q         |          |          |      V   |
16+50       1.9822      0.31  |Q         |          |          |      V   |
16+55       1.9844      0.31  |Q         |          |          |      V   |
17+ 0       1.9865      0.31  |Q         |          |          |      V   |
17+ 5       1.9897      0.46  |Q         |          |          |      V   |
17+10       1.9933      0.52  | Q        |          |          |      V   |
17+15       1.9969      0.52  | Q        |          |          |      V   |
17+20       2.0005      0.52  | Q        |          |          |      V   |
17+25       2.0041      0.52  | Q        |          |          |       V  |
17+30       2.0077      0.52  | Q        |          |          |       V  |
17+35       2.0114      0.52  | Q        |          |          |       V  |
17+40       2.0150      0.52  | Q        |          |          |       V  |
17+45       2.0186      0.52  | Q        |          |          |       V  |
17+50       2.0217      0.45  |Q         |          |          |       V  |
17+55       2.0246      0.42  |Q         |          |          |       V  |
18+ 0       2.0275      0.42  |Q         |          |          |       V  |
18+ 5       2.0303      0.42  |Q         |          |          |       V  |
18+10       2.0332      0.42  |Q         |          |          |       V  |
18+15       2.0361      0.42  |Q         |          |          |       V  |
18+20       2.0390      0.42  |Q         |          |          |       V  |
18+25       2.0419      0.42  |Q         |          |          |       V  |
18+30       2.0448      0.42  |Q         |          |          |       V  |
18+35       2.0472      0.35  |Q         |          |          |       V  |
18+40       2.0493      0.31  |Q         |          |          |       V  |
18+45       2.0515      0.31  |Q         |          |          |       V  |
18+50       2.0532      0.24  Q          |          |          |       V  |
18+55       2.0546      0.21  Q          |          |          |       V  |
19+ 0       2.0560      0.21  Q          |          |          |       V  |
19+ 5       2.0580      0.28  |Q         |          |          |        V |
19+10       2.0601      0.31  |Q         |          |          |        V |
19+15       2.0623      0.31  |Q         |          |          |        V |
19+20       2.0650      0.39  |Q         |          |          |        V |
19+25       2.0679      0.42  |Q         |          |          |        V |
19+30       2.0707      0.42  |Q         |          |          |        V |
19+35       2.0731      0.35  |Q         |          |          |        V |
19+40       2.0753      0.31  |Q         |          |          |        V |
19+45       2.0775      0.31  |Q         |          |          |        V |
19+50       2.0791      0.24  Q          |          |          |        V |
```

Qpeak,pre = 0.43 cfs
2.0246-0.0706=1.954 ac-ft
85,116 cf
110% preliminary
93,628 cf

```
19+55       2.0806      0.21  Q         |         |         |        V |
20+ 0       2.0820      0.21  Q         |         |         |        V |
20+ 5       2.0840      0.28  |Q        |         |         |        V |
20+10       2.0861      0.31  |Q        |         |         |        V |
20+15       2.0883      0.31  |Q        |         |         |        V |
20+20       2.0905      0.31  |Q        |         |         |        V |
20+25       2.0926      0.31  |Q        |         |         |        V |
20+30       2.0948      0.31  |Q        |         |         |        V |
20+35       2.0969      0.31  |Q        |         |         |        V |
20+40       2.0991      0.31  |Q        |         |         |        V |
20+45       2.1013      0.31  |Q        |         |         |        V |
20+50       2.1029      0.24  Q         |         |         |        V |
20+55       2.1044      0.21  Q         |         |         |        V |
21+ 0       2.1058      0.21  Q         |         |         |        V |
21+ 5       2.1078      0.28  |Q        |         |         |        V |
21+10       2.1099      0.31  |Q        |         |         |        V |
21+15       2.1121      0.31  |Q        |         |         |         V|
21+20       2.1138      0.24  Q         |         |         |         V|
21+25       2.1152      0.21  Q         |         |         |         V|
21+30       2.1166      0.21  Q         |         |         |         V|
21+35       2.1186      0.28  |Q        |         |         |         V|
21+40       2.1208      0.31  |Q        |         |         |         V|
21+45       2.1229      0.31  |Q        |         |         |         V|
21+50       2.1246      0.24  Q         |         |         |         V|
21+55       2.1260      0.21  Q         |         |         |         V|
22+ 0       2.1275      0.21  Q         |         |         |         V|
22+ 5       2.1294      0.28  |Q        |         |         |         V|
22+10       2.1316      0.31  |Q        |         |         |         V|
22+15       2.1337      0.31  |Q        |         |         |         V|
22+20       2.1354      0.24  Q         |         |         |         V|
22+25       2.1369      0.21  Q         |         |         |         V|
22+30       2.1383      0.21  Q         |         |         |         V|
22+35       2.1397      0.21  Q         |         |         |         V|
22+40       2.1412      0.21  Q         |         |         |         V|
22+45       2.1426      0.21  Q         |         |         |         V|
22+50       2.1441      0.21  Q         |         |         |         V|
22+55       2.1455      0.21  Q         |         |         |         V|
23+ 0       2.1470      0.21  Q         |         |         |         V|
23+ 5       2.1484      0.21  Q         |         |         |         V|
23+10       2.1498      0.21  Q         |         |         |         V|
23+15       2.1513      0.21  Q         |         |         |         V|
23+20       2.1527      0.21  Q         |         |         |         V|
23+25       2.1542      0.21  Q         |         |         |         V|
23+30       2.1556      0.21  Q         |         |         |         V|
23+35       2.1571      0.21  Q         |         |         |         V|
23+40       2.1585      0.21  Q         |         |         |         V|
23+45       2.1599      0.21  Q         |         |         |         V|
23+50       2.1614      0.21  Q         |         |         |         V|
23+55       2.1628      0.21  Q         |         |         |         V|
24+ 0       2.1643      0.21  Q         |         |         |         V|
```

```
   24+ 5       2.1647      0.06  Q         |         |         |        V|
-------------------------------------------------------------------------
```

PROPOSED CONDITION ONSITE 100-YEAR, 24-HOUR UNIT HYDROGRAPH

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 04/04/23 File: ONSITEPROP24100.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 4010

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

22-0198 - ETHANAC COMMERCE CENTER
ONSITE UNIT HYDROGRAPH ANALYSIS
PROPOSED CONDITION, 100-YEAR 24-HOUR
FN: ONSITEPROP.OUT- RSB

Drainage Area = 19.80(Ac.) = 0.031 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 19.80(Ac.) = 0.031 Sq. Mi.
Length along longest watercourse = 553.00(Ft.)
Length along longest watercourse measured to centroid = 150.00(Ft.)
Length along longest watercourse = 0.105 Mi.
Length along longest watercourse measured to centroid = 0.028 Mi.
Difference in elevation = 7.00(Ft.)
Slope along watercourse = 66.8354 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.018 Hr.
Lag time = 1.07 Min.
25% of lag time = 0.27 Min.
40% of lag time = 0.43 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

```
Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       19.80            1.60                  31.68

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       19.80            4.00                  79.20

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.600(In)
Area Averaged 100-Year Rainfall =    4.000(In)

Point rain (area averaged) =    4.000(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    4.000(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    19.800           75.00         0.900
 Total Area Entered =     19.80(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
75.0  75.0      0.303     0.900        0.058       1.000      0.058
                                                 Sum (F) =   0.058
Area averaged mean soil loss (F) (In/Hr) =  0.058
Minimum soil loss rate ((In/Hr)) =  0.029
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.180
------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                       VALLEY S-Curve
------------------------------------------------------------------------
               Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %            (CFS)
------------------------------------------------------------------------
    1   0.083        469.158         69.318             13.832
    2   0.167        938.316         30.682              6.122
                               Sum = 100.000   Sum=      19.955
------------------------------------------------------------------------

 The following loss rate calculations reflect use of the minimum calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective Rain value
```

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.032	(0.102)	0.006	0.026
2	0.17	0.07	0.032	(0.102)	0.006	0.026
3	0.25	0.07	0.032	(0.101)	0.006	0.026
4	0.33	0.10	0.048	(0.101)	0.009	0.039
5	0.42	0.10	0.048	(0.100)	0.009	0.039
6	0.50	0.10	0.048	(0.100)	0.009	0.039
7	0.58	0.10	0.048	(0.100)	0.009	0.039
8	0.67	0.10	0.048	(0.099)	0.009	0.039
9	0.75	0.10	0.048	(0.099)	0.009	0.039
10	0.83	0.13	0.064	(0.099)	0.012	0.052
11	0.92	0.13	0.064	(0.098)	0.012	0.052
12	1.00	0.13	0.064	(0.098)	0.012	0.052
13	1.08	0.10	0.048	(0.097)	0.009	0.039
14	1.17	0.10	0.048	(0.097)	0.009	0.039
15	1.25	0.10	0.048	(0.097)	0.009	0.039
16	1.33	0.10	0.048	(0.096)	0.009	0.039
17	1.42	0.10	0.048	(0.096)	0.009	0.039
18	1.50	0.10	0.048	(0.095)	0.009	0.039
19	1.58	0.10	0.048	(0.095)	0.009	0.039
20	1.67	0.10	0.048	(0.095)	0.009	0.039
21	1.75	0.10	0.048	(0.094)	0.009	0.039
22	1.83	0.13	0.064	(0.094)	0.012	0.052
23	1.92	0.13	0.064	(0.094)	0.012	0.052
24	2.00	0.13	0.064	(0.093)	0.012	0.052
25	2.08	0.13	0.064	(0.093)	0.012	0.052
26	2.17	0.13	0.064	(0.092)	0.012	0.052
27	2.25	0.13	0.064	(0.092)	0.012	0.052
28	2.33	0.13	0.064	(0.092)	0.012	0.052
29	2.42	0.13	0.064	(0.091)	0.012	0.052
30	2.50	0.13	0.064	(0.091)	0.012	0.052
31	2.58	0.17	0.080	(0.091)	0.014	0.066
32	2.67	0.17	0.080	(0.090)	0.014	0.066
33	2.75	0.17	0.080	(0.090)	0.014	0.066
34	2.83	0.17	0.080	(0.089)	0.014	0.066
35	2.92	0.17	0.080	(0.089)	0.014	0.066
36	3.00	0.17	0.080	(0.089)	0.014	0.066
37	3.08	0.17	0.080	(0.088)	0.014	0.066
38	3.17	0.17	0.080	(0.088)	0.014	0.066
39	3.25	0.17	0.080	(0.088)	0.014	0.066
40	3.33	0.17	0.080	(0.087)	0.014	0.066
41	3.42	0.17	0.080	(0.087)	0.014	0.066
42	3.50	0.17	0.080	(0.087)	0.014	0.066
43	3.58	0.17	0.080	(0.086)	0.014	0.066
44	3.67	0.17	0.080	(0.086)	0.014	0.066
45	3.75	0.17	0.080	(0.085)	0.014	0.066
46	3.83	0.20	0.096	(0.085)	0.017	0.079
47	3.92	0.20	0.096	(0.085)	0.017	0.079

48	4.00	0.20	0.096	(0.084)	0.017	0.079
49	4.08	0.20	0.096	(0.084)	0.017	0.079
50	4.17	0.20	0.096	(0.084)	0.017	0.079
51	4.25	0.20	0.096	(0.083)	0.017	0.079
52	4.33	0.23	0.112	(0.083)	0.020	0.092
53	4.42	0.23	0.112	(0.083)	0.020	0.092
54	4.50	0.23	0.112	(0.082)	0.020	0.092
55	4.58	0.23	0.112	(0.082)	0.020	0.092
56	4.67	0.23	0.112	(0.082)	0.020	0.092
57	4.75	0.23	0.112	(0.081)	0.020	0.092
58	4.83	0.27	0.128	(0.081)	0.023	0.105
59	4.92	0.27	0.128	(0.080)	0.023	0.105
60	5.00	0.27	0.128	(0.080)	0.023	0.105
61	5.08	0.20	0.096	(0.080)	0.017	0.079
62	5.17	0.20	0.096	(0.079)	0.017	0.079
63	5.25	0.20	0.096	(0.079)	0.017	0.079
64	5.33	0.23	0.112	(0.079)	0.020	0.092
65	5.42	0.23	0.112	(0.078)	0.020	0.092
66	5.50	0.23	0.112	(0.078)	0.020	0.092
67	5.58	0.27	0.128	(0.078)	0.023	0.105
68	5.67	0.27	0.128	(0.077)	0.023	0.105
69	5.75	0.27	0.128	(0.077)	0.023	0.105
70	5.83	0.27	0.128	(0.077)	0.023	0.105
71	5.92	0.27	0.128	(0.076)	0.023	0.105
72	6.00	0.27	0.128	(0.076)	0.023	0.105
73	6.08	0.30	0.144	(0.076)	0.026	0.118
74	6.17	0.30	0.144	(0.075)	0.026	0.118
75	6.25	0.30	0.144	(0.075)	0.026	0.118
76	6.33	0.30	0.144	(0.075)	0.026	0.118
77	6.42	0.30	0.144	(0.074)	0.026	0.118
78	6.50	0.30	0.144	(0.074)	0.026	0.118
79	6.58	0.33	0.160	(0.074)	0.029	0.131
80	6.67	0.33	0.160	(0.073)	0.029	0.131
81	6.75	0.33	0.160	(0.073)	0.029	0.131
82	6.83	0.33	0.160	(0.073)	0.029	0.131
83	6.92	0.33	0.160	(0.072)	0.029	0.131
84	7.00	0.33	0.160	(0.072)	0.029	0.131
85	7.08	0.33	0.160	(0.072)	0.029	0.131
86	7.17	0.33	0.160	(0.071)	0.029	0.131
87	7.25	0.33	0.160	(0.071)	0.029	0.131
88	7.33	0.37	0.176	(0.071)	0.032	0.144
89	7.42	0.37	0.176	(0.070)	0.032	0.144
90	7.50	0.37	0.176	(0.070)	0.032	0.144
91	7.58	0.40	0.192	(0.070)	0.035	0.157
92	7.67	0.40	0.192	(0.069)	0.035	0.157
93	7.75	0.40	0.192	(0.069)	0.035	0.157
94	7.83	0.43	0.208	(0.069)	0.037	0.171
95	7.92	0.43	0.208	(0.068)	0.037	0.171
96	8.00	0.43	0.208	(0.068)	0.037	0.171
97	8.08	0.50	0.240	(0.068)	0.043	0.197

98	8.17	0.50	0.240	(0.067)	0.043	0.197
99	8.25	0.50	0.240	(0.067)	0.043	0.197
100	8.33	0.50	0.240	(0.067)	0.043	0.197
101	8.42	0.50	0.240	(0.067)	0.043	0.197
102	8.50	0.50	0.240	(0.066)	0.043	0.197
103	8.58	0.53	0.256	(0.066)	0.046	0.210
104	8.67	0.53	0.256	(0.066)	0.046	0.210
105	8.75	0.53	0.256	(0.065)	0.046	0.210
106	8.83	0.57	0.272	(0.065)	0.049	0.223
107	8.92	0.57	0.272	(0.065)	0.049	0.223
108	9.00	0.57	0.272	(0.064)	0.049	0.223
109	9.08	0.63	0.304	(0.064)	0.055	0.249
110	9.17	0.63	0.304	(0.064)	0.055	0.249
111	9.25	0.63	0.304	(0.063)	0.055	0.249
112	9.33	0.67	0.320	(0.063)	0.058	0.262
113	9.42	0.67	0.320	(0.063)	0.058	0.262
114	9.50	0.67	0.320	(0.063)	0.058	0.262
115	9.58	0.70	0.336	(0.062)	0.060	0.276
116	9.67	0.70	0.336	(0.062)	0.060	0.276
117	9.75	0.70	0.336	(0.062)	0.060	0.276
118	9.83	0.73	0.352	0.061	(0.063)	0.291
119	9.92	0.73	0.352	0.061	(0.063)	0.291
120	10.00	0.73	0.352	0.061	(0.063)	0.291
121	10.08	0.50	0.240	(0.060)	0.043	0.197
122	10.17	0.50	0.240	(0.060)	0.043	0.197
123	10.25	0.50	0.240	(0.060)	0.043	0.197
124	10.33	0.50	0.240	(0.060)	0.043	0.197
125	10.42	0.50	0.240	(0.059)	0.043	0.197
126	10.50	0.50	0.240	(0.059)	0.043	0.197
127	10.58	0.67	0.320	(0.059)	0.058	0.262
128	10.67	0.67	0.320	(0.058)	0.058	0.262
129	10.75	0.67	0.320	(0.058)	0.058	0.262
130	10.83	0.67	0.320	(0.058)	0.058	0.262
131	10.92	0.67	0.320	(0.058)	0.058	0.262
132	11.00	0.67	0.320	0.057	(0.058)	0.263
133	11.08	0.63	0.304	(0.057)	0.055	0.249
134	11.17	0.63	0.304	(0.057)	0.055	0.249
135	11.25	0.63	0.304	(0.056)	0.055	0.249
136	11.33	0.63	0.304	(0.056)	0.055	0.249
137	11.42	0.63	0.304	(0.056)	0.055	0.249
138	11.50	0.63	0.304	(0.056)	0.055	0.249
139	11.58	0.57	0.272	(0.055)	0.049	0.223
140	11.67	0.57	0.272	(0.055)	0.049	0.223
141	11.75	0.57	0.272	(0.055)	0.049	0.223
142	11.83	0.60	0.288	(0.055)	0.052	0.236
143	11.92	0.60	0.288	(0.054)	0.052	0.236
144	12.00	0.60	0.288	(0.054)	0.052	0.236
145	12.08	0.83	0.400	0.054	(0.072)	0.346
146	12.17	0.83	0.400	0.053	(0.072)	0.347
147	12.25	0.83	0.400	0.053	(0.072)	0.347

148	12.33	0.87	0.416	0.053	(0.075)	0.363
149	12.42	0.87	0.416	0.053	(0.075)	0.363
150	12.50	0.87	0.416	0.052	(0.075)	0.364
151	12.58	0.93	0.448	0.052	(0.081)	0.396
152	12.67	0.93	0.448	0.052	(0.081)	0.396
153	12.75	0.93	0.448	0.052	(0.081)	0.396
154	12.83	0.97	0.464	0.051	(0.084)	0.413
155	12.92	0.97	0.464	0.051	(0.084)	0.413
156	13.00	0.97	0.464	0.051	(0.084)	0.413
157	13.08	1.13	0.544	0.051	(0.098)	0.493
158	13.17	1.13	0.544	0.050	(0.098)	0.494
159	13.25	1.13	0.544	0.050	(0.098)	0.494
160	13.33	1.13	0.544	0.050	(0.098)	0.494
161	13.42	1.13	0.544	0.050	(0.098)	0.494
162	13.50	1.13	0.544	0.049	(0.098)	0.495
163	13.58	0.77	0.368	0.049	(0.066)	0.319
164	13.67	0.77	0.368	0.049	(0.066)	0.319
165	13.75	0.77	0.368	0.049	(0.066)	0.319
166	13.83	0.77	0.368	0.048	(0.066)	0.320
167	13.92	0.77	0.368	0.048	(0.066)	0.320
168	14.00	0.77	0.368	0.048	(0.066)	0.320
169	14.08	0.90	0.432	0.048	(0.078)	0.384
170	14.17	0.90	0.432	0.047	(0.078)	0.385
171	14.25	0.90	0.432	0.047	(0.078)	0.385
172	14.33	0.87	0.416	0.047	(0.075)	0.369
173	14.42	0.87	0.416	0.047	(0.075)	0.369
174	14.50	0.87	0.416	0.046	(0.075)	0.370
175	14.58	0.87	0.416	0.046	(0.075)	0.370
176	14.67	0.87	0.416	0.046	(0.075)	0.370
177	14.75	0.87	0.416	0.046	(0.075)	0.370
178	14.83	0.83	0.400	0.045	(0.072)	0.355
179	14.92	0.83	0.400	0.045	(0.072)	0.355
180	15.00	0.83	0.400	0.045	(0.072)	0.355
181	15.08	0.80	0.384	0.045	(0.069)	0.339
182	15.17	0.80	0.384	0.045	(0.069)	0.339
183	15.25	0.80	0.384	0.044	(0.069)	0.340
184	15.33	0.77	0.368	0.044	(0.066)	0.324
185	15.42	0.77	0.368	0.044	(0.066)	0.324
186	15.50	0.77	0.368	0.044	(0.066)	0.324
187	15.58	0.63	0.304	0.043	(0.055)	0.261
188	15.67	0.63	0.304	0.043	(0.055)	0.261
189	15.75	0.63	0.304	0.043	(0.055)	0.261
190	15.83	0.63	0.304	0.043	(0.055)	0.261
191	15.92	0.63	0.304	0.042	(0.055)	0.261
192	16.00	0.63	0.304	0.042	(0.055)	0.262
193	16.08	0.13	0.064	(0.042)	0.012	0.052
194	16.17	0.13	0.064	(0.042)	0.012	0.052
195	16.25	0.13	0.064	(0.042)	0.012	0.052
196	16.33	0.13	0.064	(0.041)	0.012	0.052
197	16.42	0.13	0.064	(0.041)	0.012	0.052

198	16.50	0.13	0.064	(0.041)	0.012	0.052
199	16.58	0.10	0.048	(0.041)	0.009	0.039
200	16.67	0.10	0.048	(0.041)	0.009	0.039
201	16.75	0.10	0.048	(0.040)	0.009	0.039
202	16.83	0.10	0.048	(0.040)	0.009	0.039
203	16.92	0.10	0.048	(0.040)	0.009	0.039
204	17.00	0.10	0.048	(0.040)	0.009	0.039
205	17.08	0.17	0.080	(0.040)	0.014	0.066
206	17.17	0.17	0.080	(0.039)	0.014	0.066
207	17.25	0.17	0.080	(0.039)	0.014	0.066
208	17.33	0.17	0.080	(0.039)	0.014	0.066
209	17.42	0.17	0.080	(0.039)	0.014	0.066
210	17.50	0.17	0.080	(0.039)	0.014	0.066
211	17.58	0.17	0.080	(0.038)	0.014	0.066
212	17.67	0.17	0.080	(0.038)	0.014	0.066
213	17.75	0.17	0.080	(0.038)	0.014	0.066
214	17.83	0.13	0.064	(0.038)	0.012	0.052
215	17.92	0.13	0.064	(0.038)	0.012	0.052
216	18.00	0.13	0.064	(0.037)	0.012	0.052
217	18.08	0.13	0.064	(0.037)	0.012	0.052
218	18.17	0.13	0.064	(0.037)	0.012	0.052
219	18.25	0.13	0.064	(0.037)	0.012	0.052
220	18.33	0.13	0.064	(0.037)	0.012	0.052
221	18.42	0.13	0.064	(0.037)	0.012	0.052
222	18.50	0.13	0.064	(0.036)	0.012	0.052
223	18.58	0.10	0.048	(0.036)	0.009	0.039
224	18.67	0.10	0.048	(0.036)	0.009	0.039
225	18.75	0.10	0.048	(0.036)	0.009	0.039
226	18.83	0.07	0.032	(0.036)	0.006	0.026
227	18.92	0.07	0.032	(0.035)	0.006	0.026
228	19.00	0.07	0.032	(0.035)	0.006	0.026
229	19.08	0.10	0.048	(0.035)	0.009	0.039
230	19.17	0.10	0.048	(0.035)	0.009	0.039
231	19.25	0.10	0.048	(0.035)	0.009	0.039
232	19.33	0.13	0.064	(0.035)	0.012	0.052
233	19.42	0.13	0.064	(0.035)	0.012	0.052
234	19.50	0.13	0.064	(0.034)	0.012	0.052
235	19.58	0.10	0.048	(0.034)	0.009	0.039
236	19.67	0.10	0.048	(0.034)	0.009	0.039
237	19.75	0.10	0.048	(0.034)	0.009	0.039
238	19.83	0.07	0.032	(0.034)	0.006	0.026
239	19.92	0.07	0.032	(0.034)	0.006	0.026
240	20.00	0.07	0.032	(0.033)	0.006	0.026
241	20.08	0.10	0.048	(0.033)	0.009	0.039
242	20.17	0.10	0.048	(0.033)	0.009	0.039
243	20.25	0.10	0.048	(0.033)	0.009	0.039
244	20.33	0.10	0.048	(0.033)	0.009	0.039
245	20.42	0.10	0.048	(0.033)	0.009	0.039
246	20.50	0.10	0.048	(0.033)	0.009	0.039
247	20.58	0.10	0.048	(0.032)	0.009	0.039

248	20.67	0.10	0.048	(0.032)	0.009	0.039
249	20.75	0.10	0.048	(0.032)	0.009	0.039
250	20.83	0.07	0.032	(0.032)	0.006	0.026
251	20.92	0.07	0.032	(0.032)	0.006	0.026
252	21.00	0.07	0.032	(0.032)	0.006	0.026
253	21.08	0.10	0.048	(0.032)	0.009	0.039
254	21.17	0.10	0.048	(0.032)	0.009	0.039
255	21.25	0.10	0.048	(0.031)	0.009	0.039
256	21.33	0.07	0.032	(0.031)	0.006	0.026
257	21.42	0.07	0.032	(0.031)	0.006	0.026
258	21.50	0.07	0.032	(0.031)	0.006	0.026
259	21.58	0.10	0.048	(0.031)	0.009	0.039
260	21.67	0.10	0.048	(0.031)	0.009	0.039
261	21.75	0.10	0.048	(0.031)	0.009	0.039
262	21.83	0.07	0.032	(0.031)	0.006	0.026
263	21.92	0.07	0.032	(0.030)	0.006	0.026
264	22.00	0.07	0.032	(0.030)	0.006	0.026
265	22.08	0.10	0.048	(0.030)	0.009	0.039
266	22.17	0.10	0.048	(0.030)	0.009	0.039
267	22.25	0.10	0.048	(0.030)	0.009	0.039
268	22.33	0.07	0.032	(0.030)	0.006	0.026
269	22.42	0.07	0.032	(0.030)	0.006	0.026
270	22.50	0.07	0.032	(0.030)	0.006	0.026
271	22.58	0.07	0.032	(0.030)	0.006	0.026
272	22.67	0.07	0.032	(0.030)	0.006	0.026
273	22.75	0.07	0.032	(0.030)	0.006	0.026
274	22.83	0.07	0.032	(0.029)	0.006	0.026
275	22.92	0.07	0.032	(0.029)	0.006	0.026
276	23.00	0.07	0.032	(0.029)	0.006	0.026
277	23.08	0.07	0.032	(0.029)	0.006	0.026
278	23.17	0.07	0.032	(0.029)	0.006	0.026
279	23.25	0.07	0.032	(0.029)	0.006	0.026
280	23.33	0.07	0.032	(0.029)	0.006	0.026
281	23.42	0.07	0.032	(0.029)	0.006	0.026
282	23.50	0.07	0.032	(0.029)	0.006	0.026
283	23.58	0.07	0.032	(0.029)	0.006	0.026
284	23.67	0.07	0.032	(0.029)	0.006	0.026
285	23.75	0.07	0.032	(0.029)	0.006	0.026
286	23.83	0.07	0.032	(0.029)	0.006	0.026
287	23.92	0.07	0.032	(0.029)	0.006	0.026
288	24.00	0.07	0.032	(0.029)	0.006	0.026

(Loss Rate Not Used)

Sum = 100.0 Sum = 40.6

Flood volume = Effective rainfall 3.39(In)
times area 19.8(Ac.)/[(In)/(Ft.)] = 5.6(Ac.Ft)
Total soil loss = 0.61(In)
Total soil loss = 1.014(Ac.Ft)
Total rainfall = 4.00(In)
Flood volume = 243304.0 Cubic Feet
Total soil loss = 44180.9 Cubic Feet

Peak flow rate of this hydrograph = 9.875(CFS)

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0 2.5 5.0 7.5 10.0
0+ 5	0.0025	0.36	VQ
0+10	0.0061	0.52	V Q
0+15	0.0097	0.52	V Q
0+20	0.0146	0.71	V Q
0+25	0.0200	0.79	V Q
0+30	0.0254	0.79	V Q
0+35	0.0308	0.79	V Q
0+40	0.0362	0.79	V Q
0+45	0.0416	0.79	V Q
0+50	0.0483	0.97	V Q
0+55	0.0555	1.05	V Q
1+ 0	0.0627	1.05	V Q
1+ 5	0.0687	0.87	V Q
1+10	0.0741	0.79	V Q
1+15	0.0795	0.79	V Q
1+20	0.0849	0.79	V Q
1+25	0.0903	0.79	V Q
1+30	0.0958	0.79	V Q
1+35	0.1012	0.79	V Q
1+40	0.1066	0.79	V Q
1+45	0.1120	0.79	V Q
1+50	0.1186	0.97	V Q
1+55	0.1259	1.05	V Q
2+ 0	0.1331	1.05	V Q
2+ 5	0.1403	1.05	|V Q
2+10	0.1475	1.05	|V Q
2+15	0.1547	1.05	|V Q
2+20	0.1619	1.05	|V Q
2+25	0.1692	1.05	|V Q
2+30	0.1764	1.05	|V Q
2+35	0.1848	1.23	|V Q
2+40	0.1939	1.31	|V Q
2+45	0.2029	1.31	|V Q
2+50	0.2119	1.31	|V Q
2+55	0.2209	1.31	|V Q
3+ 0	0.2299	1.31	|V Q
3+ 5	0.2390	1.31	|V Q
3+10	0.2480	1.31	|V Q

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3+15       0.2570      1.31  |V   Q    |          |          |          |
3+20       0.2660      1.31  |V   Q    |          |          |          |
3+25       0.2750      1.31  |V   Q    |          |          |          |
3+30       0.2841      1.31  | V  Q    |          |          |          |
3+35       0.2931      1.31  | V  Q    |          |          |          |
3+40       0.3021      1.31  | V  Q    |          |          |          |
3+45       0.3111      1.31  | V  Q    |          |          |          |
3+50       0.3214      1.49  | V  Q    |          |          |          |
3+55       0.3322      1.57  | V   Q   |          |          |          |
4+ 0       0.3430      1.57  | V   Q   |          |          |          |
4+ 5       0.3539      1.57  | V   Q   |          |          |          |
4+10       0.3647      1.57  | V   Q   |          |          |          |
4+15       0.3755      1.57  | V   Q   |          |          |          |
4+20       0.3876      1.75  | V    Q  |          |          |          |
4+25       0.4002      1.83  | V    Q  |          |          |          |
4+30       0.4128      1.83  | V    Q  |          |          |          |
4+35       0.4255      1.83  |  V   Q  |          |          |          |
4+40       0.4381      1.83  |  V   Q  |          |          |          |
4+45       0.4507      1.83  |  V   Q  |          |          |          |
4+50       0.4646      2.02  |  V    Q |          |          |          |
4+55       0.4790      2.10  |  V    Q |          |          |          |
5+ 0       0.4935      2.10  |  V    Q |          |          |          |
5+ 5       0.5054      1.73  |  V  Q   |          |          |          |
5+10       0.5162      1.57  |  V  Q   |          |          |          |
5+15       0.5270      1.57  |  V  Q   |          |          |          |
5+20       0.5391      1.75  |  V   Q  |          |          |          |
5+25       0.5517      1.83  |  V   Q  |          |          |          |
5+30       0.5644      1.83  |   V  Q  |          |          |          |
5+35       0.5782      2.02  |   V   Q |          |          |          |
5+40       0.5927      2.10  |   V   Q |          |          |          |
5+45       0.6071      2.10  |   V   Q |          |          |          |
5+50       0.6215      2.10  |   V   Q |          |          |          |
5+55       0.6360      2.10  |   V   Q |          |          |          |
6+ 0       0.6504      2.10  |   V   Q |          |          |          |
6+ 5       0.6661      2.28  |   V    Q|          |          |          |
6+10       0.6823      2.36  |   V    Q|          |          |          |
6+15       0.6986      2.36  |    V   Q|          |          |          |
6+20       0.7148      2.36  |    V   Q|          |          |          |
6+25       0.7310      2.36  |    V   Q|          |          |          |
6+30       0.7473      2.36  |    V   Q|          |          |          |
6+35       0.7647      2.54  |    V    Q          |          |          |
6+40       0.7828      2.62  |    V    Q          |          |          |
6+45       0.8008      2.62  |    V    Q          |          |          |
6+50       0.8189      2.62  |    V    Q          |          |          |
6+55       0.8369      2.62  |    V    Q          |          |          |
7+ 0       0.8549      2.62  |     V   Q          |          |          |
7+ 5       0.8730      2.62  |     V   Q          |          |          |
7+10       0.8910      2.62  |     V   Q          |          |          |
7+15       0.9091      2.62  |     V   Q          |          |          |
7+20       0.9283      2.80  |     V   |Q         |          |          |
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7+25	0.9482	2.88	V	Q			
7+30	0.9680	2.88	V	Q			
7+35	0.9891	3.06	V	Q			
7+40	1.0108	3.14	V	Q			
7+45	1.0324	3.14	V	Q			
7+50	1.0553	3.32	V	Q			
7+55	1.0788	3.41	V	Q			
8+ 0	1.1022	3.41	V	Q			
8+ 5	1.1282	3.77	V	Q			
8+10	1.1552	3.93	V	Q			
8+15	1.1823	3.93	V	Q			
8+20	1.2094	3.93	V	Q			
8+25	1.2364	3.93	V	Q			
8+30	1.2635	3.93	V	Q			
8+35	1.2918	4.11	V	Q			
8+40	1.3206	4.19	V	Q			
8+45	1.3495	4.19	V	Q			
8+50	1.3796	4.37	V	Q			
8+55	1.4103	4.45	V	Q			
9+ 0	1.4410	4.45	V	Q			
9+ 5	1.4741	4.82	V	Q			
9+10	1.5084	4.98	V	Q			
9+15	1.5427	4.98	V	Q			
9+20	1.5782	5.16	V	Q			
9+25	1.6143	5.24	V	Q			
9+30	1.6504	5.24	V	Q			
9+35	1.6877	5.42	V	Q			
9+40	1.7256	5.50	V	Q			
9+45	1.7634	5.50	V	Q			
9+50	1.8028	5.71	V	Q			
9+55	1.8428	5.81	V	Q			
10+ 0	1.8828	5.81	V	Q			
10+ 5	1.9138	4.51	V	Q			
10+10	1.9409	3.93	V Q				
10+15	1.9679	3.93	VQ				
10+20	1.9950	3.93	VQ				
10+25	2.0221	3.93	VQ				
10+30	2.0491	3.93	VQ				
10+35	2.0824	4.84	V	Q			
10+40	2.1185	5.24	V	Q			
10+45	2.1546	5.24	V	Q			
10+50	2.1907	5.24	V	Q			
10+55	2.2267	5.24	V	Q			
11+ 0	2.2628	5.24	V	Q			
11+ 5	2.2977	5.06	V	Q			
11+10	2.3320	4.98	V	Q			
11+15	2.3662	4.98	V	Q			
11+20	2.4005	4.98	V	Q			
11+25	2.4348	4.98	V	Q			
11+30	2.4691	4.98	V	Q			

```
11+35       2.5008      4.61  |          |       VQ |          |          |
11+40       2.5315      4.45  |          |       QV |          |          |
11+45       2.5622      4.45  |          |       QV |          |          |
11+50       2.5941      4.63  |          |        Q |          |          |
11+55       2.6266      4.71  |          |        Q |          |          |
12+ 0       2.6590      4.71  |          |       QV |          |          |
12+ 5       2.7020      6.24  |          |        V |   Q      |          |
12+10       2.7496      6.92  |          |        V |      Q   |          |
12+15       2.7973      6.92  |          |         V|      Q   |          |
12+20       2.8465      7.15  |          |         V|       Q  |          |
12+25       2.8965      7.25  |          |         V|        Q |          |
12+30       2.9465      7.26  |          |          |V       Q |          |
12+35       2.9995      7.71  |          |          |V        Q|          |
12+40       3.0540      7.91  |          |          |V         |Q         |
12+45       3.1085      7.91  |          |          | V        |Q         |
12+50       3.1645      8.14  |          |          | V        | Q        |
12+55       3.2213      8.24  |          |          |  V       | Q        |
13+ 0       3.2781      8.25  |          |          |  V       | Q        |
13+ 5       3.3425      9.36  |          |          |  V       |       Q  |
13+10       3.4104      9.85  |          |          |   V      |         Q|
13+15       3.4783      9.86  |          |          |   V      |         Q|
13+20       3.5462      9.86  |          |          |    V     |         Q|
13+25       3.6142      9.87  |          |          |    V     |         Q|
13+30       3.6822      9.87  |          |          |     V    |         Q|
13+35       3.7335      7.44  |          |          |     V  Q |          |
13+40       3.7773      6.37  |          |          |    Q V   |          |
13+45       3.8213      6.38  |          |          |    Q V   |          |
13+50       3.8652      6.38  |          |          |    Q V   |          |
13+55       3.9092      6.39  |          |          |    Q V   |          |
14+ 0       3.9532      6.39  |          |          |    Q  V  |          |
14+ 5       4.0033      7.28  |          |          |       VQ |          |
14+10       4.0562      7.68  |          |          |         VQ          |
14+15       4.1091      7.68  |          |          |         VQ          |
14+20       4.1606      7.47  |          |          |         Q|          |
14+25       4.2113      7.37  |          |          |         QV          |
14+30       4.2621      7.38  |          |          |         QV          |
14+35       4.3130      7.38  |          |          |         QV          |
14+40       4.3639      7.39  |          |          |         Q|V         |
14+45       4.4148      7.39  |          |          |         Q|V         |
14+50       4.4642      7.18  |          |          |        Q |V         |
14+55       4.5130      7.08  |          |          |        Q | V        |
15+ 0       4.5618      7.09  |          |          |        Q | V        |
15+ 5       4.6091      6.87  |          |          |       Q  |  V       |
15+10       4.6558      6.78  |          |          |       Q  |  V       |
15+15       4.7025      6.78  |          |          |       Q  |  V       |
15+20       4.7477      6.56  |          |          |      Q   |  V       |
15+25       4.7922      6.47  |          |          |     Q    |   V      |
15+30       4.8368      6.48  |          |          |     Q    |   V      |
15+35       4.8753      5.59  |          |          |  Q       |   V      |
15+40       4.9112      5.21  |          |          |         Q|    V     |
```

15+45	4.9471	5.21	|	Q	|	V |
15+50	4.9830	5.22	|	Q	|	V |
15+55	5.0189	5.22	|	Q	|	V |
16+ 0	5.0549	5.22	|	Q	|	V |
16+ 5	5.0710	2.33	| Q	|	|	V |
16+10	5.0782	1.05	| Q	|	|	V |
16+15	5.0854	1.05	| Q	|	|	V |
16+20	5.0926	1.05	| Q	|	|	V |
16+25	5.0998	1.05	| Q	|	|	V |
16+30	5.1070	1.05	| Q	|	|	V |
16+35	5.1130	0.87	| Q	|	|	V |
16+40	5.1184	0.79	| Q	|	|	V |
16+45	5.1238	0.79	| Q	|	|	V |
16+50	5.1292	0.79	| Q	|	|	V |
16+55	5.1347	0.79	| Q	|	|	V |
17+ 0	5.1401	0.79	| Q	|	|	V |
17+ 5	5.1480	1.15	| Q	|	|	V |
17+10	5.1570	1.31	| Q	|	|	V |
17+15	5.1660	1.31	| Q	|	|	V |
17+20	5.1750	1.31	| Q	|	|	V |
17+25	5.1841	1.31	| Q	|	|	V |
17+30	5.1931	1.31	| Q	|	|	V |
17+35	5.2021	1.31	| Q	|	|	V |
17+40	5.2111	1.31	| Q	|	|	V |
17+45	5.2201	1.31	| Q	|	|	V |
17+50	5.2279	1.13	| Q	|	|	V |
17+55	5.2351	1.05	| Q	|	|	V |
18+ 0	5.2423	1.05	| Q	|	|	V |
18+ 5	5.2496	1.05	| Q	|	|	V |
18+10	5.2568	1.05	| Q	|	|	V |
18+15	5.2640	1.05	| Q	|	|	V |
18+20	5.2712	1.05	| Q	|	|	V |
18+25	5.2784	1.05	| Q	|	|	V |
18+30	5.2856	1.05	| Q	|	|	V |
18+35	5.2916	0.87	| Q	|	|	V |
18+40	5.2970	0.79	| Q	|	|	V |
18+45	5.3024	0.79	| Q	|	|	V |
18+50	5.3066	0.60	| Q	|	|	V |
18+55	5.3102	0.52	| Q	|	|	V |
19+ 0	5.3138	0.52	| Q	|	|	V |
19+ 5	5.3187	0.71	| Q	|	|	V |
19+10	5.3241	0.79	| Q	|	|	V |
19+15	5.3295	0.79	| Q	|	|	V |
19+20	5.3361	0.97	| Q	|	|	V |
19+25	5.3434	1.05	| Q	|	|	V |
19+30	5.3506	1.05	| Q	|	|	V |
19+35	5.3565	0.87	| Q	|	|	V |
19+40	5.3619	0.79	| Q	|	|	V |
19+45	5.3674	0.79	| Q	|	|	V |
19+50	5.3715	0.60	| Q	|	|	V |

19+55	5.3751	0.52	Q				V
20+ 0	5.3787	0.52	Q				V
20+ 5	5.3836	0.71	Q				V
20+10	5.3890	0.79	Q				V
20+15	5.3944	0.79	Q				V
20+20	5.3998	0.79	Q				V
20+25	5.4052	0.79	Q				V
20+30	5.4107	0.79	Q				V
20+35	5.4161	0.79	Q				V
20+40	5.4215	0.79	Q				V
20+45	5.4269	0.79	Q				V
20+50	5.4311	0.60	Q				V
20+55	5.4347	0.52	Q				V
21+ 0	5.4383	0.52	Q				V
21+ 5	5.4431	0.71	Q				V
21+10	5.4485	0.79	Q				V
21+15	5.4539	0.79	Q				V
21+20	5.4581	0.60	Q				V
21+25	5.4617	0.52	Q				V
21+30	5.4653	0.52	Q				V
21+35	5.4702	0.71	Q				V
21+40	5.4756	0.79	Q				V
21+45	5.4810	0.79	Q				V
21+50	5.4852	0.60	Q				V
21+55	5.4888	0.52	Q				V
22+ 0	5.4924	0.52	Q				V
22+ 5	5.4972	0.71	Q				V
22+10	5.5027	0.79	Q				V
22+15	5.5081	0.79	Q				V
22+20	5.5122	0.60	Q				V
22+25	5.5158	0.52	Q				V
22+30	5.5194	0.52	Q				V
22+35	5.5231	0.52	Q				V
22+40	5.5267	0.52	Q				V
22+45	5.5303	0.52	Q				V
22+50	5.5339	0.52	Q				V
22+55	5.5375	0.52	Q				V
23+ 0	5.5411	0.52	Q				V
23+ 5	5.5447	0.52	Q				V
23+10	5.5483	0.52	Q				V
23+15	5.5519	0.52	Q				V
23+20	5.5555	0.52	Q				V
23+25	5.5591	0.52	Q				V
23+30	5.5627	0.52	Q				V
23+35	5.5663	0.52	Q				V
23+40	5.5700	0.52	Q				V
23+45	5.5736	0.52	Q				V
23+50	5.5772	0.52	Q				V
23+55	5.5808	0.52	Q				V
24+ 0	5.5844	0.52	Q				V

```
   24+ 5       5.5855      0.16  Q         |         |         |        V|
-------------------------------------------------------------------------
```

PROPOSED CONDITION OFFSITE 100-YEAR, 3-HOUR UNIT HYDROGRAPH

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 04/11/23 File: OFFSITEPROP3100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 4010

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

22-0198 - ETHANAC COMMERCE CENTER
OFFSITE UNIT HYDROGRAPH ANALYSIS
PROPOSED CONDITION, 100-YEAR 24-HOUR
FN: OFFSITEPROP.OUT- RSB

Drainage Area = 64.60(Ac.) = 0.101 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 64.60(Ac.) = 0.101 Sq. Mi.
Length along longest watercourse = 2500.00(Ft.)
Length along longest watercourse measured to centroid = 1250.00(Ft.)
Length along longest watercourse = 0.473 Mi.
Length along longest watercourse measured to centroid = 0.237 Mi.
Difference in elevation = 13.00(Ft.)
Slope along watercourse = 27.4560 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.084 Hr.
Lag time = 5.01 Min.
25% of lag time = 1.25 Min.
40% of lag time = 2.00 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

```
Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       64.60            0.80                  51.68

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       64.60            1.90                 122.74

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.800(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.97 %
Adjusted average point rain =    1.899(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    64.600           75.00         0.500
 Total Area Entered =     64.60(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
75.0  75.0      0.303     0.500        0.167       1.000      0.167
                                                 Sum (F) =   0.167
Area averaged mean soil loss (F) (In/Hr) =  0.167
Minimum soil loss rate ((In/Hr)) =  0.083
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.500
------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                       VALLEY S-Curve
------------------------------------------------------------------------
               Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %            (CFS)
------------------------------------------------------------------------
    1   0.083         99.774         19.130             12.455
    2   0.167        199.547         48.385             31.501
    3   0.250        299.321         15.669             10.201
    4   0.333        399.095          7.074              4.606
    5   0.417        498.869          3.984              2.594
    6   0.500        598.642          2.582              1.681
    7   0.583        698.416          1.607              1.046
    8   0.667        798.190          1.051              0.684
```

9	0.750	897.963	0.517			0.337		
			Sum = 100.000		Sum=	65.105		

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	1.30	0.296	(0.167)		0.148	0.148
2	0.17	1.30	0.296	(0.167)		0.148	0.148
3	0.25	1.10	0.251	(0.167)		0.125	0.125
4	0.33	1.50	0.342	0.167	(	0.171)	0.175
5	0.42	1.50	0.342	0.167	(	0.171)	0.175
6	0.50	1.80	0.410	0.167	(	0.205)	0.244
7	0.58	1.50	0.342	0.167	(	0.171)	0.175
8	0.67	1.80	0.410	0.167	(	0.205)	0.244
9	0.75	1.80	0.410	0.167	(	0.205)	0.244
10	0.83	1.50	0.342	0.167	(	0.171)	0.175
11	0.92	1.60	0.365	0.167	(	0.182)	0.198
12	1.00	1.80	0.410	0.167	(	0.205)	0.244
13	1.08	2.20	0.501	0.167	(	0.251)	0.335
14	1.17	2.20	0.501	0.167	(	0.251)	0.335
15	1.25	2.20	0.501	0.167	(	0.251)	0.335
16	1.33	2.00	0.456	0.167	(	0.228)	0.289
17	1.42	2.60	0.593	0.167	(	0.296)	0.426
18	1.50	2.70	0.615	0.167	(	0.308)	0.449
19	1.58	2.40	0.547	0.167	(	0.274)	0.380
20	1.67	2.70	0.615	0.167	(	0.308)	0.449
21	1.75	3.30	0.752	0.167	(	0.376)	0.586
22	1.83	3.10	0.707	0.167	(	0.353)	0.540
23	1.92	2.90	0.661	0.167	(	0.331)	0.494
24	2.00	3.00	0.684	0.167	(	0.342)	0.517
25	2.08	3.10	0.707	0.167	(	0.353)	0.540
26	2.17	4.20	0.957	0.167	(	0.479)	0.791
27	2.25	5.00	1.140	0.167	(	0.570)	0.973
28	2.33	3.50	0.798	0.167	(	0.399)	0.631
29	2.42	6.80	1.550	0.167	(	0.775)	1.383
30	2.50	7.30	1.664	0.167	(	0.832)	1.497
31	2.58	8.20	1.869	0.167	(	0.935)	1.702
32	2.67	5.90	1.345	0.167	(	0.672)	1.178
33	2.75	2.00	0.456	0.167	(	0.228)	0.289
34	2.83	1.80	0.410	0.167	(	0.205)	0.244
35	2.92	1.80	0.410	0.167	(	0.205)	0.244
36	3.00	0.60	0.137	(0.167)		0.068	0.068
		(Loss Rate Not Used)					
Sum =		100.0				Sum =	17.0

Flood volume = Effective rainfall 1.41(In)
times area 64.6(Ac.)/[(In)/(Ft.)] = 7.6(Ac.Ft)

```
      Total soil loss =      0.49(In)
      Total soil loss =     2.612(Ac.Ft)
      Total rainfall =      1.90(In)
      Flood volume =      331632.8 Cubic Feet
      Total soil loss =      113787.4 Cubic Feet
      ------------------------------------------------------------------------
       Peak flow rate of this hydrograph =     94.640(CFS)
      ------------------------------------------------------------------------
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
      ------------------------------------------------------------------------
                   Hydrograph in   5   Minute intervals ((CFS))

      ------------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0       25.0      50.0      75.0     100.0
----------------------------------------------------------------------------
  0+ 5       0.0127      1.85  Q         |         |         |         |
  0+10       0.0576      6.52  V Q       |         |         |         |
  0+15       0.1109      7.74  V  Q      |         |         |         |
  0+20       0.1683      8.33  V  Q      |         |         |         |
  0+25       0.2375     10.05  |V  Q     |         |         |         |
  0+30       0.3171     11.56  |V  Q     |         |         |         |
  0+35       0.4080     13.19  | V  Q    |         |         |         |
  0+40       0.4960     12.78  | V  Q    |         |         |         |
  0+45       0.5969     14.66  |  V Q    |         |         |         |
  0+50       0.6961     14.40  |  V Q    |         |         |         |
  0+55       0.7843     12.81  |   VQ    |         |         |         |
  1+ 0       0.8777     13.55  |   VQ    |         |         |         |
  1+ 5       0.9888     16.13  |    VQ   |         |         |         |
  1+10       1.1227     19.45  |    V Q  |         |         |         |
  1+15       1.2642     20.55  |     V Q |         |         |         |
  1+20       1.4055     20.51  |      VQ |         |         |         |
  1+25       1.5506     21.07  |       Q |         |         |         |
  1+30       1.7255     25.39  |        VQ         |         |         |
  1+35       1.9086     26.58  |         Q         |         |         |
  1+40       2.0883     26.10  |         Q         |         |         |
  1+45       2.2927     29.68  |         |QV       |         |         |
  1+50       2.5272     34.04  |         |  Q      |         |         |
  1+55       2.7594     33.72  |         |  QV     |         |         |
  2+ 0       2.9860     32.90  |         |  Q V    |         |         |
  2+ 5       3.2180     33.68  |         |  Q  V   |         |         |
  2+10       3.4776     37.69  |         |    Q  V |         |         |
  2+15       3.8094     48.18  |         |         QV        |         |
  2+20       4.1701     52.38  |         |          QV       |         |
  2+25       4.5424     54.06  |         |          |Q V     |         |
  2+30       5.0741     77.20  |         |          |     V   Q         |
  2+35       5.6965     90.37  |         |          |        V|     Q   |
  2+40       6.3483     94.64  |         |          |         |  V   Q  |
  2+45       6.8401     71.41  |         |          |       Q |    V    |
```

```
    2+50       7.1144     39.83  |          |    Q     |          |       V  |
    2+55       7.3089     28.24  |          |Q         |          |        V |
    3+ 0       7.4535     21.00  |        Q |          |          |         V|
    3+ 5       7.5346     11.77  |   Q      |          |          |         V|
    3+10       7.5748      5.84  | Q        |          |          |         V|
    3+15       7.5957      3.04  |Q         |          |          |         V|
    3+20       7.6056      1.44  Q          |          |          |         V|
    3+25       7.6100      0.63  Q          |          |          |         V|
    3+30       7.6122      0.32  Q          |          |          |         V|
    3+35       7.6131      0.13  Q          |          |          |         V|
    3+40       7.6132      0.02  Q          |          |          |          V
---------------------------------------------------------------------------
```

PROPOSED CONDITION OFFSITE 100-YEAR, 24-HOUR UNIT HYDROGRAPH

U n i t H y d r o g r a p h A n a l y s i s

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Study date 04/11/23 File: OFFSITEPROP24100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 4010

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

22-0198 - ETHANAC COMMERCE CENTER
OFFSITE UNIT HYDROGRAPH ANALYSIS
PROPOSED CONDITION, 100-YEAR 24-HOUR
FN: OFFSITEPROP.OUT- RSB

Drainage Area = 64.60(Ac.) = 0.101 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 64.60(Ac.) = 0.101 Sq. Mi.
Length along longest watercourse = 2500.00(Ft.)
Length along longest watercourse measured to centroid = 1250.00(Ft.)
Length along longest watercourse = 0.473 Mi.
Length along longest watercourse measured to centroid = 0.237 Mi.
Difference in elevation = 13.00(Ft.)
Slope along watercourse = 27.4560 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.084 Hr.
Lag time = 5.01 Min.
25% of lag time = 1.25 Min.
40% of lag time = 2.00 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

```
Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       64.60            1.60                  103.36

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       64.60            4.00                  258.40

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.600(In)
Area Averaged 100-Year Rainfall =    4.000(In)

Point rain (area averaged) =    4.000(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    3.999(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    64.600           75.00         0.500
 Total Area Entered =     64.60(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
75.0  75.0      0.303     0.500        0.167       1.000      0.167
                                                 Sum (F) =   0.167
Area averaged mean soil loss (F) (In/Hr) =  0.167
Minimum soil loss rate ((In/Hr)) =  0.083
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.500
------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                       VALLEY S-Curve
------------------------------------------------------------------------
               Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %            (CFS)
------------------------------------------------------------------------
    1   0.083         99.774         19.130             12.455
    2   0.167        199.547         48.385             31.501
    3   0.250        299.321         15.669             10.201
    4   0.333        399.095          7.074              4.606
    5   0.417        498.869          3.984              2.594
    6   0.500        598.642          2.582              1.681
    7   0.583        698.416          1.607              1.046
    8   0.667        798.190          1.051              0.684
```

9	0.750	897.963	0.517			0.337
			Sum = 100.000		Sum=	65.105

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.032	(0.295)	0.016	0.016
2	0.17	0.07	0.032	(0.294)	0.016	0.016
3	0.25	0.07	0.032	(0.293)	0.016	0.016
4	0.33	0.10	0.048	(0.292)	0.024	0.024
5	0.42	0.10	0.048	(0.291)	0.024	0.024
6	0.50	0.10	0.048	(0.290)	0.024	0.024
7	0.58	0.10	0.048	(0.289)	0.024	0.024
8	0.67	0.10	0.048	(0.287)	0.024	0.024
9	0.75	0.10	0.048	(0.286)	0.024	0.024
10	0.83	0.13	0.064	(0.285)	0.032	0.032
11	0.92	0.13	0.064	(0.284)	0.032	0.032
12	1.00	0.13	0.064	(0.283)	0.032	0.032
13	1.08	0.10	0.048	(0.282)	0.024	0.024
14	1.17	0.10	0.048	(0.281)	0.024	0.024
15	1.25	0.10	0.048	(0.280)	0.024	0.024
16	1.33	0.10	0.048	(0.279)	0.024	0.024
17	1.42	0.10	0.048	(0.277)	0.024	0.024
18	1.50	0.10	0.048	(0.276)	0.024	0.024
19	1.58	0.10	0.048	(0.275)	0.024	0.024
20	1.67	0.10	0.048	(0.274)	0.024	0.024
21	1.75	0.10	0.048	(0.273)	0.024	0.024
22	1.83	0.13	0.064	(0.272)	0.032	0.032
23	1.92	0.13	0.064	(0.271)	0.032	0.032
24	2.00	0.13	0.064	(0.270)	0.032	0.032
25	2.08	0.13	0.064	(0.269)	0.032	0.032
26	2.17	0.13	0.064	(0.268)	0.032	0.032
27	2.25	0.13	0.064	(0.266)	0.032	0.032
28	2.33	0.13	0.064	(0.265)	0.032	0.032
29	2.42	0.13	0.064	(0.264)	0.032	0.032
30	2.50	0.13	0.064	(0.263)	0.032	0.032
31	2.58	0.17	0.080	(0.262)	0.040	0.040
32	2.67	0.17	0.080	(0.261)	0.040	0.040
33	2.75	0.17	0.080	(0.260)	0.040	0.040
34	2.83	0.17	0.080	(0.259)	0.040	0.040
35	2.92	0.17	0.080	(0.258)	0.040	0.040
36	3.00	0.17	0.080	(0.257)	0.040	0.040
37	3.08	0.17	0.080	(0.256)	0.040	0.040
38	3.17	0.17	0.080	(0.255)	0.040	0.040
39	3.25	0.17	0.080	(0.254)	0.040	0.040
40	3.33	0.17	0.080	(0.253)	0.040	0.040

41	3.42	0.17	0.080	(0.251)	0.040	0.040
42	3.50	0.17	0.080	(0.250)	0.040	0.040
43	3.58	0.17	0.080	(0.249)	0.040	0.040
44	3.67	0.17	0.080	(0.248)	0.040	0.040
45	3.75	0.17	0.080	(0.247)	0.040	0.040
46	3.83	0.20	0.096	(0.246)	0.048	0.048
47	3.92	0.20	0.096	(0.245)	0.048	0.048
48	4.00	0.20	0.096	(0.244)	0.048	0.048
49	4.08	0.20	0.096	(0.243)	0.048	0.048
50	4.17	0.20	0.096	(0.242)	0.048	0.048
51	4.25	0.20	0.096	(0.241)	0.048	0.048
52	4.33	0.23	0.112	(0.240)	0.056	0.056
53	4.42	0.23	0.112	(0.239)	0.056	0.056
54	4.50	0.23	0.112	(0.238)	0.056	0.056
55	4.58	0.23	0.112	(0.237)	0.056	0.056
56	4.67	0.23	0.112	(0.236)	0.056	0.056
57	4.75	0.23	0.112	(0.235)	0.056	0.056
58	4.83	0.27	0.128	(0.234)	0.064	0.064
59	4.92	0.27	0.128	(0.233)	0.064	0.064
60	5.00	0.27	0.128	(0.232)	0.064	0.064
61	5.08	0.20	0.096	(0.231)	0.048	0.048
62	5.17	0.20	0.096	(0.230)	0.048	0.048
63	5.25	0.20	0.096	(0.229)	0.048	0.048
64	5.33	0.23	0.112	(0.228)	0.056	0.056
65	5.42	0.23	0.112	(0.227)	0.056	0.056
66	5.50	0.23	0.112	(0.226)	0.056	0.056
67	5.58	0.27	0.128	(0.225)	0.064	0.064
68	5.67	0.27	0.128	(0.224)	0.064	0.064
69	5.75	0.27	0.128	(0.223)	0.064	0.064
70	5.83	0.27	0.128	(0.222)	0.064	0.064
71	5.92	0.27	0.128	(0.221)	0.064	0.064
72	6.00	0.27	0.128	(0.220)	0.064	0.064
73	6.08	0.30	0.144	(0.219)	0.072	0.072
74	6.17	0.30	0.144	(0.218)	0.072	0.072
75	6.25	0.30	0.144	(0.217)	0.072	0.072
76	6.33	0.30	0.144	(0.216)	0.072	0.072
77	6.42	0.30	0.144	(0.215)	0.072	0.072
78	6.50	0.30	0.144	(0.214)	0.072	0.072
79	6.58	0.33	0.160	(0.213)	0.080	0.080
80	6.67	0.33	0.160	(0.212)	0.080	0.080
81	6.75	0.33	0.160	(0.211)	0.080	0.080
82	6.83	0.33	0.160	(0.210)	0.080	0.080
83	6.92	0.33	0.160	(0.209)	0.080	0.080
84	7.00	0.33	0.160	(0.208)	0.080	0.080
85	7.08	0.33	0.160	(0.207)	0.080	0.080
86	7.17	0.33	0.160	(0.207)	0.080	0.080
87	7.25	0.33	0.160	(0.206)	0.080	0.080
88	7.33	0.37	0.176	(0.205)	0.088	0.088
89	7.42	0.37	0.176	(0.204)	0.088	0.088
90	7.50	0.37	0.176	(0.203)	0.088	0.088

91	7.58	0.40	0.192	(0.202)	0.096	0.096
92	7.67	0.40	0.192	(0.201)	0.096	0.096
93	7.75	0.40	0.192	(0.200)	0.096	0.096
94	7.83	0.43	0.208	(0.199)	0.104	0.104
95	7.92	0.43	0.208	(0.198)	0.104	0.104
96	8.00	0.43	0.208	(0.197)	0.104	0.104
97	8.08	0.50	0.240	(0.196)	0.120	0.120
98	8.17	0.50	0.240	(0.195)	0.120	0.120
99	8.25	0.50	0.240	(0.194)	0.120	0.120
100	8.33	0.50	0.240	(0.194)	0.120	0.120
101	8.42	0.50	0.240	(0.193)	0.120	0.120
102	8.50	0.50	0.240	(0.192)	0.120	0.120
103	8.58	0.53	0.256	(0.191)	0.128	0.128
104	8.67	0.53	0.256	(0.190)	0.128	0.128
105	8.75	0.53	0.256	(0.189)	0.128	0.128
106	8.83	0.57	0.272	(0.188)	0.136	0.136
107	8.92	0.57	0.272	(0.187)	0.136	0.136
108	9.00	0.57	0.272	(0.186)	0.136	0.136
109	9.08	0.63	0.304	(0.186)	0.152	0.152
110	9.17	0.63	0.304	(0.185)	0.152	0.152
111	9.25	0.63	0.304	(0.184)	0.152	0.152
112	9.33	0.67	0.320	(0.183)	0.160	0.160
113	9.42	0.67	0.320	(0.182)	0.160	0.160
114	9.50	0.67	0.320	(0.181)	0.160	0.160
115	9.58	0.70	0.336	(0.180)	0.168	0.168
116	9.67	0.70	0.336	(0.179)	0.168	0.168
117	9.75	0.70	0.336	(0.179)	0.168	0.168
118	9.83	0.73	0.352	(0.178)	0.176	0.176
119	9.92	0.73	0.352	(0.177)	0.176	0.176
120	10.00	0.73	0.352	(0.176)	0.176	0.176
121	10.08	0.50	0.240	(0.175)	0.120	0.120
122	10.17	0.50	0.240	(0.174)	0.120	0.120
123	10.25	0.50	0.240	(0.173)	0.120	0.120
124	10.33	0.50	0.240	(0.173)	0.120	0.120
125	10.42	0.50	0.240	(0.172)	0.120	0.120
126	10.50	0.50	0.240	(0.171)	0.120	0.120
127	10.58	0.67	0.320	(0.170)	0.160	0.160
128	10.67	0.67	0.320	(0.169)	0.160	0.160
129	10.75	0.67	0.320	(0.168)	0.160	0.160
130	10.83	0.67	0.320	(0.168)	0.160	0.160
131	10.92	0.67	0.320	(0.167)	0.160	0.160
132	11.00	0.67	0.320	(0.166)	0.160	0.160
133	11.08	0.63	0.304	(0.165)	0.152	0.152
134	11.17	0.63	0.304	(0.164)	0.152	0.152
135	11.25	0.63	0.304	(0.164)	0.152	0.152
136	11.33	0.63	0.304	(0.163)	0.152	0.152
137	11.42	0.63	0.304	(0.162)	0.152	0.152
138	11.50	0.63	0.304	(0.161)	0.152	0.152
139	11.58	0.57	0.272	(0.160)	0.136	0.136
140	11.67	0.57	0.272	(0.160)	0.136	0.136

141	11.75	0.57	0.272	(0.159)	0.136	0.136
142	11.83	0.60	0.288	(0.158)	0.144	0.144
143	11.92	0.60	0.288	(0.157)	0.144	0.144
144	12.00	0.60	0.288	(0.156)	0.144	0.144
145	12.08	0.83	0.400	0.156	(0.200)	0.244
146	12.17	0.83	0.400	0.155	(0.200)	0.245
147	12.25	0.83	0.400	0.154	(0.200)	0.246
148	12.33	0.87	0.416	0.153	(0.208)	0.263
149	12.42	0.87	0.416	0.152	(0.208)	0.263
150	12.50	0.87	0.416	0.152	(0.208)	0.264
151	12.58	0.93	0.448	0.151	(0.224)	0.297
152	12.67	0.93	0.448	0.150	(0.224)	0.298
153	12.75	0.93	0.448	0.149	(0.224)	0.299
154	12.83	0.97	0.464	0.149	(0.232)	0.315
155	12.92	0.97	0.464	0.148	(0.232)	0.316
156	13.00	0.97	0.464	0.147	(0.232)	0.317
157	13.08	1.13	0.544	0.146	(0.272)	0.398
158	13.17	1.13	0.544	0.146	(0.272)	0.398
159	13.25	1.13	0.544	0.145	(0.272)	0.399
160	13.33	1.13	0.544	0.144	(0.272)	0.400
161	13.42	1.13	0.544	0.143	(0.272)	0.400
162	13.50	1.13	0.544	0.143	(0.272)	0.401
163	13.58	0.77	0.368	0.142	(0.184)	0.226
164	13.67	0.77	0.368	0.141	(0.184)	0.227
165	13.75	0.77	0.368	0.141	(0.184)	0.227
166	13.83	0.77	0.368	0.140	(0.184)	0.228
167	13.92	0.77	0.368	0.139	(0.184)	0.229
168	14.00	0.77	0.368	0.138	(0.184)	0.230
169	14.08	0.90	0.432	0.138	(0.216)	0.294
170	14.17	0.90	0.432	0.137	(0.216)	0.295
171	14.25	0.90	0.432	0.136	(0.216)	0.296
172	14.33	0.87	0.416	0.136	(0.208)	0.280
173	14.42	0.87	0.416	0.135	(0.208)	0.281
174	14.50	0.87	0.416	0.134	(0.208)	0.282
175	14.58	0.87	0.416	0.134	(0.208)	0.282
176	14.67	0.87	0.416	0.133	(0.208)	0.283
177	14.75	0.87	0.416	0.132	(0.208)	0.284
178	14.83	0.83	0.400	0.132	(0.200)	0.268
179	14.92	0.83	0.400	0.131	(0.200)	0.269
180	15.00	0.83	0.400	0.130	(0.200)	0.270
181	15.08	0.80	0.384	0.129	(0.192)	0.254
182	15.17	0.80	0.384	0.129	(0.192)	0.255
183	15.25	0.80	0.384	0.128	(0.192)	0.256
184	15.33	0.77	0.368	0.128	(0.184)	0.240
185	15.42	0.77	0.368	0.127	(0.184)	0.241
186	15.50	0.77	0.368	0.126	(0.184)	0.242
187	15.58	0.63	0.304	0.126	(0.152)	0.178
188	15.67	0.63	0.304	0.125	(0.152)	0.179
189	15.75	0.63	0.304	0.124	(0.152)	0.180
190	15.83	0.63	0.304	0.124	(0.152)	0.180

191	15.92	0.63	0.304	0.123	(0.152)	0.181
192	16.00	0.63	0.304	0.122	(0.152)	0.182
193	16.08	0.13	0.064	(0.122)	0.032	0.032
194	16.17	0.13	0.064	(0.121)	0.032	0.032
195	16.25	0.13	0.064	(0.121)	0.032	0.032
196	16.33	0.13	0.064	(0.120)	0.032	0.032
197	16.42	0.13	0.064	(0.119)	0.032	0.032
198	16.50	0.13	0.064	(0.119)	0.032	0.032
199	16.58	0.10	0.048	(0.118)	0.024	0.024
200	16.67	0.10	0.048	(0.117)	0.024	0.024
201	16.75	0.10	0.048	(0.117)	0.024	0.024
202	16.83	0.10	0.048	(0.116)	0.024	0.024
203	16.92	0.10	0.048	(0.116)	0.024	0.024
204	17.00	0.10	0.048	(0.115)	0.024	0.024
205	17.08	0.17	0.080	(0.115)	0.040	0.040
206	17.17	0.17	0.080	(0.114)	0.040	0.040
207	17.25	0.17	0.080	(0.113)	0.040	0.040
208	17.33	0.17	0.080	(0.113)	0.040	0.040
209	17.42	0.17	0.080	(0.112)	0.040	0.040
210	17.50	0.17	0.080	(0.112)	0.040	0.040
211	17.58	0.17	0.080	(0.111)	0.040	0.040
212	17.67	0.17	0.080	(0.111)	0.040	0.040
213	17.75	0.17	0.080	(0.110)	0.040	0.040
214	17.83	0.13	0.064	(0.109)	0.032	0.032
215	17.92	0.13	0.064	(0.109)	0.032	0.032
216	18.00	0.13	0.064	(0.108)	0.032	0.032
217	18.08	0.13	0.064	(0.108)	0.032	0.032
218	18.17	0.13	0.064	(0.107)	0.032	0.032
219	18.25	0.13	0.064	(0.107)	0.032	0.032
220	18.33	0.13	0.064	(0.106)	0.032	0.032
221	18.42	0.13	0.064	(0.106)	0.032	0.032
222	18.50	0.13	0.064	(0.105)	0.032	0.032
223	18.58	0.10	0.048	(0.105)	0.024	0.024
224	18.67	0.10	0.048	(0.104)	0.024	0.024
225	18.75	0.10	0.048	(0.104)	0.024	0.024
226	18.83	0.07	0.032	(0.103)	0.016	0.016
227	18.92	0.07	0.032	(0.103)	0.016	0.016
228	19.00	0.07	0.032	(0.102)	0.016	0.016
229	19.08	0.10	0.048	(0.102)	0.024	0.024
230	19.17	0.10	0.048	(0.101)	0.024	0.024
231	19.25	0.10	0.048	(0.101)	0.024	0.024
232	19.33	0.13	0.064	(0.100)	0.032	0.032
233	19.42	0.13	0.064	(0.100)	0.032	0.032
234	19.50	0.13	0.064	(0.099)	0.032	0.032
235	19.58	0.10	0.048	(0.099)	0.024	0.024
236	19.67	0.10	0.048	(0.099)	0.024	0.024
237	19.75	0.10	0.048	(0.098)	0.024	0.024
238	19.83	0.07	0.032	(0.098)	0.016	0.016
239	19.92	0.07	0.032	(0.097)	0.016	0.016
240	20.00	0.07	0.032	(0.097)	0.016	0.016

241	20.08	0.10	0.048	(0.096)	0.024	0.024
242	20.17	0.10	0.048	(0.096)	0.024	0.024
243	20.25	0.10	0.048	(0.096)	0.024	0.024
244	20.33	0.10	0.048	(0.095)	0.024	0.024
245	20.42	0.10	0.048	(0.095)	0.024	0.024
246	20.50	0.10	0.048	(0.094)	0.024	0.024
247	20.58	0.10	0.048	(0.094)	0.024	0.024
248	20.67	0.10	0.048	(0.093)	0.024	0.024
249	20.75	0.10	0.048	(0.093)	0.024	0.024
250	20.83	0.07	0.032	(0.093)	0.016	0.016
251	20.92	0.07	0.032	(0.092)	0.016	0.016
252	21.00	0.07	0.032	(0.092)	0.016	0.016
253	21.08	0.10	0.048	(0.092)	0.024	0.024
254	21.17	0.10	0.048	(0.091)	0.024	0.024
255	21.25	0.10	0.048	(0.091)	0.024	0.024
256	21.33	0.07	0.032	(0.091)	0.016	0.016
257	21.42	0.07	0.032	(0.090)	0.016	0.016
258	21.50	0.07	0.032	(0.090)	0.016	0.016
259	21.58	0.10	0.048	(0.090)	0.024	0.024
260	21.67	0.10	0.048	(0.089)	0.024	0.024
261	21.75	0.10	0.048	(0.089)	0.024	0.024
262	21.83	0.07	0.032	(0.089)	0.016	0.016
263	21.92	0.07	0.032	(0.088)	0.016	0.016
264	22.00	0.07	0.032	(0.088)	0.016	0.016
265	22.08	0.10	0.048	(0.088)	0.024	0.024
266	22.17	0.10	0.048	(0.087)	0.024	0.024
267	22.25	0.10	0.048	(0.087)	0.024	0.024
268	22.33	0.07	0.032	(0.087)	0.016	0.016
269	22.42	0.07	0.032	(0.087)	0.016	0.016
270	22.50	0.07	0.032	(0.086)	0.016	0.016
271	22.58	0.07	0.032	(0.086)	0.016	0.016
272	22.67	0.07	0.032	(0.086)	0.016	0.016
273	22.75	0.07	0.032	(0.086)	0.016	0.016
274	22.83	0.07	0.032	(0.085)	0.016	0.016
275	22.92	0.07	0.032	(0.085)	0.016	0.016
276	23.00	0.07	0.032	(0.085)	0.016	0.016
277	23.08	0.07	0.032	(0.085)	0.016	0.016
278	23.17	0.07	0.032	(0.085)	0.016	0.016
279	23.25	0.07	0.032	(0.084)	0.016	0.016
280	23.33	0.07	0.032	(0.084)	0.016	0.016
281	23.42	0.07	0.032	(0.084)	0.016	0.016
282	23.50	0.07	0.032	(0.084)	0.016	0.016
283	23.58	0.07	0.032	(0.084)	0.016	0.016
284	23.67	0.07	0.032	(0.084)	0.016	0.016
285	23.75	0.07	0.032	(0.084)	0.016	0.016
286	23.83	0.07	0.032	(0.083)	0.016	0.016
287	23.92	0.07	0.032	(0.083)	0.016	0.016
288	24.00	0.07	0.032	(0.083)	0.016	0.016
		(Loss Rate Not Used)				
	Sum =	100.0			Sum =	27.2

```
      Flood volume = Effective rainfall      2.27(In)
       times area      64.6(Ac.)/[(In)/(Ft.)] =      12.2(Ac.Ft)
      Total soil loss =      1.73(In)
      Total soil loss =     9.321(Ac.Ft)
      Total rainfall =      4.00(In)
      Flood volume =      531864.8 Cubic Feet
      Total soil loss =      406008.9 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     25.896(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                           24 - H O U R    S T O R M
                      R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------------
                    Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        7.5      15.0      22.5      30.0
-------------------------------------------------------------------------
  0+ 5       0.0014      0.20  Q         |         |         |         |
  0+10       0.0062      0.70  Q         |         |         |         |
  0+15       0.0122      0.87  VQ        |         |         |         |
  0+20       0.0194      1.04  VQ        |         |         |         |
  0+25       0.0285      1.33  VQ        |         |         |         |
  0+30       0.0385      1.44  VQ        |         |         |         |
  0+35       0.0488      1.50  VQ        |         |         |         |
  0+40       0.0593      1.53  V Q       |         |         |         |
  0+45       0.0699      1.55  V Q       |         |         |         |
  0+50       0.0813      1.65  V Q       |         |         |         |
  0+55       0.0945      1.91  V Q       |         |         |         |
  1+ 0       0.1083      2.00  V Q       |         |         |         |
  1+ 5       0.1216      1.93  V Q       |         |         |         |
  1+10       0.1333      1.70  V Q       |         |         |         |
  1+15       0.1446      1.63  V Q       |         |         |         |
  1+20       0.1556      1.61  V Q       |         |         |         |
  1+25       0.1666      1.59  V Q       |         |         |         |
  1+30       0.1775      1.58  V Q       |         |         |         |
  1+35       0.1883      1.57  V Q       |         |         |         |
  1+40       0.1991      1.57  V Q       |         |         |         |
  1+45       0.2098      1.56  V Q       |         |         |         |
  1+50       0.2213      1.66  V Q       |         |         |         |
  1+55       0.2345      1.91  V Q       |         |         |         |
  2+ 0       0.2482      2.00  V Q       |         |         |         |
  2+ 5       0.2622      2.03  V Q       |         |         |         |
  2+10       0.2764      2.05  V Q       |         |         |         |
  2+15       0.2906      2.07  V Q       |         |         |         |
  2+20       0.3049      2.08  V Q       |         |         |         |
  2+25       0.3192      2.08  |VQ       |         |         |         |
  2+30       0.3336      2.08  |VQ       |         |         |         |
  2+35       0.3486      2.18  |VQ       |         |         |         |
```

2+40	0.3654	2.44	V Q				
2+45	0.3827	2.52	V Q				
2+50	0.4003	2.55	V Q				
2+55	0.4181	2.58	V Q				
3+ 0	0.4359	2.59	V Q				
3+ 5	0.4538	2.60	V Q				
3+10	0.4717	2.60	V Q				
3+15	0.4897	2.61	V Q				
3+20	0.5076	2.61	V Q				
3+25	0.5255	2.61	V Q				
3+30	0.5435	2.61	V Q				
3+35	0.5614	2.61	V Q				
3+40	0.5794	2.61	V Q				
3+45	0.5973	2.61	V Q				
3+50	0.6159	2.70	VQ				
3+55	0.6363	2.96	VQ				
4+ 0	0.6572	3.04	V Q				
4+ 5	0.6784	3.08	V Q				
4+10	0.6997	3.10	V Q				
4+15	0.7212	3.11	V Q				
4+20	0.7433	3.22	V Q				
4+25	0.7672	3.48	V Q				
4+30	0.7918	3.56	V Q				
4+35	0.8165	3.60	V Q				
4+40	0.8414	3.62	V Q				
4+45	0.8664	3.63	V Q				
4+50	0.8922	3.74	V Q				
4+55	0.9197	4.00	V Q				
5+ 0	0.9478	4.08	V Q				
5+ 5	0.9748	3.92	V Q				
5+10	0.9985	3.43	VQ				
5+15	1.0211	3.28	VQ				
5+20	1.0439	3.32	VQ				
5+25	1.0683	3.54	VQ				
5+30	1.0930	3.59	VQ				
5+35	1.1186	3.71	VQ				
5+40	1.1460	3.97	V Q				
5+45	1.1740	4.06	V Q				
5+50	1.2023	4.11	V Q				
5+55	1.2308	4.14	VQ				
6+ 0	1.2593	4.15	VQ				
6+ 5	1.2887	4.26	VQ				
6+10	1.3198	4.52	V Q				
6+15	1.3515	4.60	V Q				
6+20	1.3834	4.64	V Q				
6+25	1.4155	4.66	V Q				
6+30	1.4477	4.67	V Q				
6+35	1.4806	4.78	V Q				
6+40	1.5153	5.04	V Q				
6+45	1.5506	5.12	VQ				

6+50	1.5862	5.16	VQ				
6+55	1.6218	5.18	VQ				
7+ 0	1.6576	5.19	VQ				
7+ 5	1.6934	5.20	VQ				
7+10	1.7293	5.21	VQ				
7+15	1.7652	5.21	VQ				
7+20	1.8017	5.31	V Q				
7+25	1.8401	5.56	VQ				
7+30	1.8789	5.64	VQ				
7+35	1.9187	5.78	VQ				
7+40	1.9604	6.05	V Q				
7+45	2.0028	6.15	V Q				
7+50	2.0461	6.29	V Q				
7+55	2.0914	6.57	V Q				
8+ 0	2.1373	6.67	VQ				
8+ 5	2.1849	6.91	V Q				
8+10	2.2362	7.44	V Q				
8+15	2.2887	7.62	V Q				
8+20	2.3418	7.71	V Q				
8+25	2.3952	7.75	V Q				
8+30	2.4488	7.78	V Q				
8+35	2.5032	7.90	V Q				
8+40	2.5594	8.16	V Q				
8+45	2.6162	8.25	V Q				
8+50	2.6739	8.39	V Q				
8+55	2.7336	8.66	V Q				
9+ 0	2.7939	8.75	V Q				
9+ 5	2.8558	9.00	V Q				
9+10	2.9214	9.53	V Q				
9+15	2.9883	9.71	V Q				
9+20	3.0564	9.89	V Q				
9+25	3.1266	10.19	V Q				
9+30	3.1975	10.30	V Q				
9+35	3.2695	10.45	V Q				
9+40	3.3435	10.74	V Q				
9+45	3.4181	10.84	V Q				
9+50	3.4937	10.98	V Q				
9+55	3.5713	11.26	V Q				
10+ 0	3.6495	11.36	V Q				
10+ 5	3.7233	10.71	V Q				
10+10	3.7850	8.97	QV				
10+15	3.8430	8.41	QV				
10+20	3.8992	8.16	Q V				
10+25	3.9544	8.02	Q V				
10+30	4.0091	7.93	Q V				
10+35	4.0667	8.37	Q V				
10+40	4.1328	9.59	QV				
10+45	4.2015	9.98	Q				
10+50	4.2716	10.17	Q				
10+55	4.3423	10.27	QV				

11+ 0	4.4135	10.34	|	| QV |	|	|
11+ 5	4.4843	10.28	|	| QV |	|	|
11+10	4.5535	10.06	|	| QV |	|	|
11+15	4.6223	9.99	|	| Q V |	|	|
11+20	4.6909	9.95	|	| Q V |	|	|
11+25	4.7592	9.93	|	| Q V |	|	|
11+30	4.8275	9.92	|	| Q V |	|	|
11+35	4.8944	9.71	|	| Q V |	|	|
11+40	4.9578	9.20	|	| Q V |	|	|
11+45	5.0200	9.03	|	| Q V |	|	|
11+50	5.0824	9.06	|	| Q V |	|	|
11+55	5.1462	9.27	|	| Q V |	|	|
12+ 0	5.2104	9.32	|	| Q V |	|	|
12+ 5	5.2834	10.60	|	| Q V |	|	|
12+10	5.3783	13.78	|	| VQ |	|	|
12+15	5.4805	14.85	|	| V Q|	|	|
12+20	5.5877	15.56	|	| V Q |	|	|
12+25	5.7005	16.37	|	| V |Q |	|	|
12+30	5.8159	16.76	|	| V| Q |	|	|
12+35	5.9356	17.38	|	| V| Q |	|	|
12+40	6.0633	18.55	|	| V| Q |	|	|
12+45	6.1941	18.99	|	| V Q |	|	|
12+50	6.3277	19.40	|	| V Q |	|	|
12+55	6.4658	20.05	|	| |V Q |	|	|
13+ 0	6.6057	20.32	|	| |V Q |	|	|
13+ 5	6.7536	21.47	|	| | V Q |	|	|
13+10	6.9196	24.11	|	| | V | Q |	|	|
13+15	7.0918	25.01	|	| | V | Q |	|	|
13+20	7.2671	25.44	|	| | V | Q |	|	|
13+25	7.4441	25.71	|	| | V | Q |	|	|
13+30	7.6224	25.90	|	| | V | Q |	|	|
13+35	7.7866	23.83	|	| | V |Q |	|	|
13+40	7.9132	18.39	|	| | QV |	|	|
13+45	8.0280	16.67	|	| | Q V |	|	|
13+50	8.1376	15.90	|	| |Q V |	|	|
13+55	8.2443	15.49	|	| Q V |	|	|
14+ 0	8.3493	15.24	|	| Q V |	|	|
14+ 5	8.4588	15.90	|	| |Q V |	|	|
14+10	8.5817	17.85	|	| | Q V |	|	|
14+15	8.7090	18.49	|	| | Q V |	|	|
14+20	8.8373	18.63	|	| | Q V |	|	|
14+25	8.9636	18.34	|	| | Q V|	|	|
14+30	9.0898	18.32	|	| | Q V|	|	|
14+35	9.2163	18.36	|	| | Q V |	|	|
14+40	9.3431	18.41	|	| | Q V |	|	|
14+45	9.4701	18.45	|	| | Q |V |	|	|
14+50	9.5960	18.28	|	| | Q |V |	|	|
14+55	9.7187	17.81	|	| | Q |V |	|	|
15+ 0	9.8404	17.68	|	| | Q | V |	|	|
15+ 5	9.9606	17.45	|	| | Q | V |	|	|

| | | |

19+20	11.6995	1.62	| Q	|	|	|	V |
19+25	11.7125	1.89	| Q	|	|	|	V |
19+30	11.7262	1.98	| Q	|	|	|	V |
19+35	11.7394	1.93	| Q	|	|	|	V |
19+40	11.7512	1.70	| Q	|	|	|	V |
19+45	11.7624	1.63	| Q	|	|	|	V |
19+50	11.7728	1.51	| Q	|	|	|	V |
19+55	11.7813	1.24	|Q	|	|	|	V |
20+ 0	11.7892	1.15	|Q	|	|	|	V |
20+ 5	11.7975	1.20	|Q	|	|	|	V |
20+10	11.8073	1.43	|Q	|	|	|	V |
20+15	11.8176	1.49	|Q	|	|	|	V |
20+20	11.8280	1.52	| Q	|	|	|	V |
20+25	11.8386	1.54	| Q	|	|	|	V |
20+30	11.8493	1.55	| Q	|	|	|	V |
20+35	11.8600	1.55	| Q	|	|	|	V |
20+40	11.8707	1.56	| Q	|	|	|	V |
20+45	11.8815	1.56	| Q	|	|	|	V |
20+50	11.8916	1.46	|Q	|	|	|	V |
20+55	11.8999	1.21	|Q	|	|	|	V |
21+ 0	11.9077	1.13	|Q	|	|	|	V|
21+ 5	11.9159	1.19	|Q	|	|	|	V|
21+10	11.9257	1.42	|Q	|	|	|	V|
21+15	11.9360	1.49	|Q	|	|	|	V|
21+20	11.9458	1.42	|Q	|	|	|	V|
21+25	11.9539	1.18	|Q	|	|	|	V|
21+30	11.9616	1.11	|Q	|	|	|	V|
21+35	11.9698	1.18	|Q	|	|	|	V|
21+40	11.9795	1.42	|Q	|	|	|	V|
21+45	11.9898	1.49	|Q	|	|	|	V|
21+50	11.9996	1.42	|Q	|	|	|	V|
21+55	12.0078	1.18	|Q	|	|	|	V|
22+ 0	12.0154	1.11	|Q	|	|	|	V|
22+ 5	12.0236	1.18	|Q	|	|	|	V|
22+10	12.0334	1.42	|Q	|	|	|	V|
22+15	12.0436	1.49	|Q	|	|	|	V|
22+20	12.0534	1.42	|Q	|	|	|	V|
22+25	12.0616	1.18	|Q	|	|	|	V|
22+30	12.0693	1.11	|Q	|	|	|	V|
22+35	12.0767	1.08	|Q	|	|	|	V|
22+40	12.0841	1.07	|Q	|	|	|	V|
22+45	12.0914	1.06	|Q	|	|	|	V|
22+50	12.0986	1.05	|Q	|	|	|	V|
22+55	12.1058	1.04	|Q	|	|	|	V|
23+ 0	12.1130	1.04	|Q	|	|	|	V|
23+ 5	12.1202	1.04	|Q	|	|	|	V|
23+10	12.1273	1.04	|Q	|	|	|	V|
23+15	12.1345	1.04	|Q	|	|	|	V|
23+20	12.1417	1.04	|Q	|	|	|	V|
23+25	12.1489	1.04	|Q	|	|	|	V|

```
   23+30      12.1560      1.04  |Q        |         |         |        V|
   23+35      12.1632      1.04  |Q        |         |         |        V|
   23+40      12.1704      1.04  |Q        |         |         |        V|
   23+45      12.1776      1.04  |Q        |         |         |        V|
   23+50      12.1848      1.04  |Q        |         |         |        V|
   23+55      12.1919      1.04  |Q        |         |         |        V|
   24+ 0      12.1991      1.04  |Q        |         |         |        V|
   24+ 5      12.2049      0.84  |Q        |         |         |        V|
   24+10      12.2072      0.34  Q         |         |         |        V|
   24+15      12.2084      0.18  Q         |         |         |        V|
   24+20      12.2091      0.10  Q         |         |         |        V|
   24+25      12.2096      0.06  Q         |         |         |        V|
   24+30      12.2098      0.03  Q         |         |         |        V|
   24+35      12.2099      0.02  Q         |         |         |        V|
   24+40      12.2099      0.01  Q         |         |         |        V|
-------------------------------------------------------------------------
```

PROPOSED CONDITION OFFSITE 100-YEAR, 3-HOUR PLUS BASE FLOW UNIT HYDROGRAPH

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 07/05/23 File: OFFSITEPROPONSITE1003100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 4010

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

22-0198 - ETHANAC COMMERCE CENTER
OFFSITE UNIT HYDROGRAPH ANALYSIS
100 YEAR, 1 HOUR + ONSITE 100 YEAR
FN: OFFSITEPROPONSITE100.OUT-RSB

Drainage Area = 64.60(Ac.) = 0.101 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 64.60(Ac.) = 0.101 Sq. Mi.
Length along longest watercourse = 2500.00(Ft.)
Length along longest watercourse measured to centroid = 1250.00(Ft.)
Length along longest watercourse = 0.473 Mi.
Length along longest watercourse measured to centroid = 0.237 Mi.
Difference in elevation = 13.00(Ft.)
Slope along watercourse = 27.4560 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.084 Hr.
Lag time = 5.01 Min.
25% of lag time = 1.25 Min.
40% of lag time = 2.00 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 5.00(CFS)

2 YEAR Area rainfall data:

```
Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       64.60            0.80                  51.68

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       64.60            1.90                 122.74

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.800(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.97 %
Adjusted average point rain =    1.899(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    64.600           75.00         0.500
 Total Area Entered =     64.60(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
75.0  75.0      0.303     0.500        0.167       1.000      0.167
                                                 Sum (F) =   0.167
Area averaged mean soil loss (F) (In/Hr) =  0.167
Minimum soil loss rate ((In/Hr)) =  0.083
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.500
------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                       VALLEY S-Curve
------------------------------------------------------------------------
               Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %            (CFS)
------------------------------------------------------------------------
    1   0.083         99.774         19.130             12.455
    2   0.167        199.547         48.385             31.501
    3   0.250        299.321         15.669             10.201
    4   0.333        399.095          7.074              4.606
    5   0.417        498.869          3.984              2.594
    6   0.500        598.642          2.582              1.681
    7   0.583        698.416          1.607              1.046
    8   0.667        798.190          1.051              0.684
```

9	0.750	897.963	0.517			0.337		
			Sum = 100.000		Sum=	65.105		

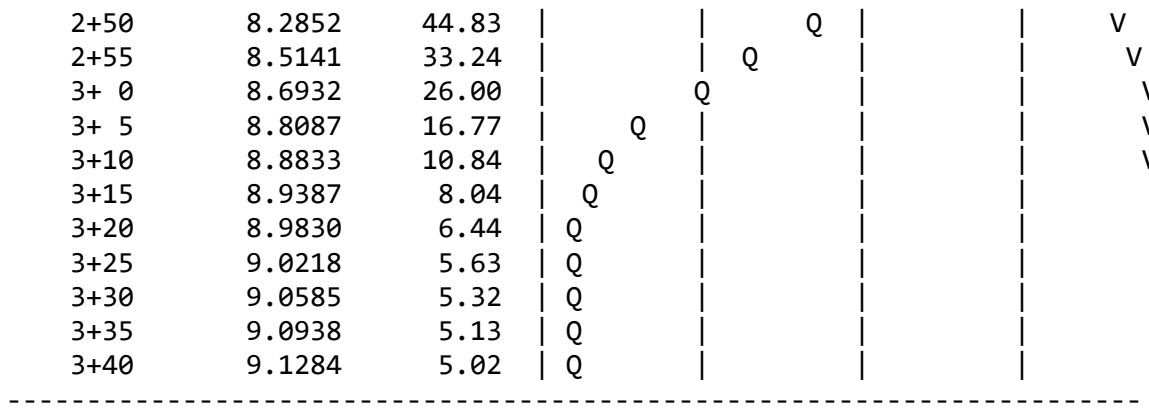
The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	1.30	0.296	(0.167)		0.148	0.148
2	0.17	1.30	0.296	(0.167)		0.148	0.148
3	0.25	1.10	0.251	(0.167)		0.125	0.125
4	0.33	1.50	0.342	0.167	(	0.171)	0.175
5	0.42	1.50	0.342	0.167	(	0.171)	0.175
6	0.50	1.80	0.410	0.167	(	0.205)	0.244
7	0.58	1.50	0.342	0.167	(	0.171)	0.175
8	0.67	1.80	0.410	0.167	(	0.205)	0.244
9	0.75	1.80	0.410	0.167	(	0.205)	0.244
10	0.83	1.50	0.342	0.167	(	0.171)	0.175
11	0.92	1.60	0.365	0.167	(	0.182)	0.198
12	1.00	1.80	0.410	0.167	(	0.205)	0.244
13	1.08	2.20	0.501	0.167	(	0.251)	0.335
14	1.17	2.20	0.501	0.167	(	0.251)	0.335
15	1.25	2.20	0.501	0.167	(	0.251)	0.335
16	1.33	2.00	0.456	0.167	(	0.228)	0.289
17	1.42	2.60	0.593	0.167	(	0.296)	0.426
18	1.50	2.70	0.615	0.167	(	0.308)	0.449
19	1.58	2.40	0.547	0.167	(	0.274)	0.380
20	1.67	2.70	0.615	0.167	(	0.308)	0.449
21	1.75	3.30	0.752	0.167	(	0.376)	0.586
22	1.83	3.10	0.707	0.167	(	0.353)	0.540
23	1.92	2.90	0.661	0.167	(	0.331)	0.494
24	2.00	3.00	0.684	0.167	(	0.342)	0.517
25	2.08	3.10	0.707	0.167	(	0.353)	0.540
26	2.17	4.20	0.957	0.167	(	0.479)	0.791
27	2.25	5.00	1.140	0.167	(	0.570)	0.973
28	2.33	3.50	0.798	0.167	(	0.399)	0.631
29	2.42	6.80	1.550	0.167	(	0.775)	1.383
30	2.50	7.30	1.664	0.167	(	0.832)	1.497
31	2.58	8.20	1.869	0.167	(	0.935)	1.702
32	2.67	5.90	1.345	0.167	(	0.672)	1.178
33	2.75	2.00	0.456	0.167	(	0.228)	0.289
34	2.83	1.80	0.410	0.167	(	0.205)	0.244
35	2.92	1.80	0.410	0.167	(	0.205)	0.244
36	3.00	0.60	0.137	(0.167)		0.068	0.068
		(Loss Rate Not Used)					
Sum =		100.0				Sum =	17.0

Flood volume = Effective rainfall 1.41(In)
times area 64.6(Ac.)/[(In)/(Ft.)] = 7.6(Ac.Ft)

```
      Total soil loss =      0.49(In)
      Total soil loss =     2.612(Ac.Ft)
      Total rainfall =      1.90(In)
      Flood volume =      331632.8 Cubic Feet
      Total soil loss =      113787.4 Cubic Feet
      ------------------------------------------------------------------------
       Peak flow rate of this hydrograph =     99.640(CFS)
      ------------------------------------------------------------------------
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
      ------------------------------------------------------------------------
                   Hydrograph in   5   Minute intervals ((CFS))

      ------------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0       25.0      50.0      75.0     100.0
----------------------------------------------------------------------------
  0+ 5       0.0472      6.85  V Q       |         |         |         |
  0+10       0.1265     11.52  V   Q     |         |         |         |
  0+15       0.2142     12.74  V    Q    |         |         |         |
  0+20       0.3060     13.33  |V   Q    |         |         |         |
  0+25       0.4097     15.05  |V    Q   |         |         |         |
  0+30       0.5238     16.56  | V   Q   |         |         |         |
  0+35       0.6490     18.19  | V    Q  |         |         |         |
  0+40       0.7714     17.78  |  V   Q  |         |         |         |
  0+45       0.9068     19.66  |  V   Q  |         |         |         |
  0+50       1.0405     19.40  |   V  Q  |         |         |         |
  0+55       1.1631     17.81  |    V Q  |         |         |         |
  1+ 0       1.2909     18.55  |    V Q  |         |         |         |
  1+ 5       1.4364     21.13  |     V Q |         |         |         |
  1+10       1.6048     24.45  |      V Q|         |         |         |
  1+15       1.7808     25.55  |      V  Q         |         |         |
  1+20       1.9565     25.51  |       V Q         |         |         |
  1+25       2.1360     26.07  |        VQ         |         |         |
  1+30       2.3454     30.39  |         V Q       |         |         |
  1+35       2.5629     31.58  |         |VQ       |         |         |
  1+40       2.7771     31.10  |         | Q       |         |         |
  1+45       3.0159     34.68  |         |  Q      |         |         |
  1+50       3.2848     39.04  |         |   VQ    |         |         |
  1+55       3.5514     38.72  |         |    Q    |         |         |
  2+ 0       3.8124     37.90  |         |    QV   |         |         |
  2+ 5       4.0789     38.68  |         |    Q V  |         |         |
  2+10       4.3729     42.69  |         |      Q V|         |         |
  2+15       4.7391     53.18  |         |         VQ        |         |
  2+20       5.1343     57.38  |         |         | Q       |         |
  2+25       5.5411     59.06  |         |         |  QV     |         |
  2+30       6.1072     82.20  |         |         |     V   | Q       |
  2+35       6.7640     95.37  |         |         |        V|       Q |
  2+40       7.4503     99.64  |         |         |         | V      Q|
  2+45       7.9765     76.41  |         |         |         Q   V     |
```


2+50 8.2852 44.83
2+55 8.5141 33.24
3+ 0 8.6932 26.00
3+ 5 8.8087 16.77
3+10 8.8833 10.84
3+15 8.9387 8.04
3+20 8.9830 6.44
3+25 9.0218 5.63
3+30 9.0585 5.32
3+35 9.0938 5.13
3+40 9.1284 5.02

BASIN ROUTING 100-YEAR, 3-HOUR PLUS BASE FLOW STORM EVENT

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2022
Study date: 08/29/23

HILLWOOD-ETHANAC
100-YR 3-HR ROUTING, 5 CFS INFLOW
22-0198
2023-08-29 RSB

Program License Serial Number 6584

********** HYDROGRAPH INFORMATION **********

From study/file name: OFFSITEPROPONSITE1003100.rte
**********HYDROGRAPH DATA**********
Number of intervals = 44
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 99.640 (CFS)
Total volume = 9.128 (Ac.Ft)

Status of hydrographs being held in storage

	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5
Peak (CFS)	0.000	0.000	0.000	0.000	0.000
Vol (Ac.Ft)	0.000	0.000	0.000	0.000	0.000

****

++
Process from Point/Station 100.000 to Point/Station 101.000
**** RETARDING BASIN ROUTING ****
_____

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 44
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
0.100	0.060	10.000	0.026	0.094
1.000	0.580	10.000	0.546	0.614
2.000	1.160	10.000	1.126	1.194
3.000	1.730	10.000	1.696	1.764
4.000	2.310	10.000	2.276	2.344
5.000	2.890	10.000	2.856	2.924
6.000	3.470	10.000	3.436	3.504
7.000	4.050	10.000	4.016	4.084
8.000	4.630	10.000	4.596	4.664
9.000	5.200	10.000	5.166	5.234
10.000	5.780	10.000	5.746	5.814
10.500	6.070	15.500	6.017	6.123
11.000	6.360	15.500	6.307	6.413
12.000	6.940	15.500	6.887	6.993

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0 24.9 49.82 74.73 99.64	Depth (Ft.)
0.083	6.85	2.50	0.015	O I | | | |	0.02
0.167	11.52	7.37	0.044	| OI | | | |	0.07
0.250	12.74	10.00	0.068	| OI | | | |	0.11
0.333	13.33	10.00	0.089	| OI | | | |	0.15
0.417	15.05	10.00	0.118	| OI | | | |	0.20
0.500	16.56	10.00	0.158	| O I | | | |	0.27
0.583	18.19	10.00	0.209	| O I | | | |	0.36
0.667	17.78	10.00	0.263	| O I | | | |	0.45
0.750	19.66	10.00	0.324	| O I | | | |	0.56
0.833	19.40	10.00	0.389	| O I | | | |	0.67
0.917	17.81	10.00	0.448	| O I | | | |	0.77
1.000	18.55	10.00	0.505	| O I | | | |	0.87
1.083	21.13	10.00	0.573	| O I | | | |	0.99
1.167	24.45	10.00	0.661	| O I| | | |	1.14
1.250	25.55	10.00	0.764	| O I | | |	1.32
1.333	25.51	10.00	0.871	| O I | | |	1.50
1.417	26.07	10.00	0.980	| O I | | |	1.69
1.500	30.39	10.00	1.105	| O |I | | |	1.91
1.583	31.58	10.00	1.250	| O | I | | |	2.16
1.667	31.10	10.00	1.397	| O |I | | |	2.42
1.750	34.68	10.00	1.554	| O | I | | |	2.69

1.833	39.04	10.00	1.739	O	I			3.02
1.917	38.72	10.00	1.938	O	I			3.36
2.000	37.90	10.00	2.133	O	I			3.70
2.083	38.68	10.00	2.328	O	I			4.03
2.167	42.69	10.00	2.539	O	I			4.40
2.250	53.18	10.00	2.801	O	I			4.85
2.333	57.38	10.00	3.113	O	I			5.38
2.417	59.06	10.00	3.445	O	I			5.96
2.500	82.20	10.00	3.862	O	I			6.68
2.583	95.37	10.00	4.405	O	I			7.61
2.667	99.64	10.00	5.008	O	I			8.66
2.750	76.41	10.00	5.545	O	I			9.59
2.833	44.83	12.02	5.887	O	I			10.18
2.917	33.24	15.33	6.061	O	I			10.48
3.000	26.00	15.50	6.159	O	I			10.65
3.083	16.77	15.50	6.199	OI				10.72
3.167	10.84	15.50	6.188	IO				10.70
3.250	8.04	15.50	6.146	I O				10.63
3.333	6.44	15.50	6.089	I O				10.53
3.417	5.63	14.68	6.027	I O				10.43
3.500	5.32	13.55	5.967	I O				10.32
3.583	5.13	12.53	5.913	I O				10.23
3.667	5.02	11.62	5.865	I O				10.15
3.750	0.00	10.50	5.806	I O				10.05
3.833	0.00	10.00	5.736	I O				9.92
3.917	0.00	10.00	5.667	I O				9.81
4.000	0.00	10.00	5.598	I O				9.69
4.083	0.00	10.00	5.529	I O				9.57
4.167	0.00	10.00	5.460	I O				9.45
4.250	0.00	10.00	5.391	I O				9.33
4.333	0.00	10.00	5.323	I O				9.21
4.417	0.00	10.00	5.254	I O				9.09
4.500	0.00	10.00	5.185	I O				8.97
4.583	0.00	10.00	5.116	I O				8.85
4.667	0.00	10.00	5.047	I O				8.73
4.750	0.00	10.00	4.978	I O				8.61
4.833	0.00	10.00	4.909	I O				8.49
4.917	0.00	10.00	4.840	I O				8.37
5.000	0.00	10.00	4.772	I O				8.25
5.083	0.00	10.00	4.703	I O				8.13
5.167	0.00	10.00	4.634	I O				8.01
5.250	0.00	10.00	4.565	I O				7.89
5.333	0.00	10.00	4.496	I O				7.77
5.417	0.00	10.00	4.427	I O				7.65
5.500	0.00	10.00	4.358	I O				7.53
5.583	0.00	10.00	4.290	I O				7.41
5.667	0.00	10.00	4.221	I O				7.29
5.750	0.00	10.00	4.152	I O				7.18
5.833	0.00	10.00	4.083	I O				7.06
5.917	0.00	10.00	4.014	I O				6.94

6.000	0.00	10.00	3.945	I	O				6.82
6.083	0.00	10.00	3.876	I	O				6.70
6.167	0.00	10.00	3.807	I	O				6.58
6.250	0.00	10.00	3.739	I	O				6.46
6.333	0.00	10.00	3.670	I	O				6.34
6.417	0.00	10.00	3.601	I	O				6.23
6.500	0.00	10.00	3.532	I	O				6.11
6.583	0.00	10.00	3.463	I	O				5.99
6.667	0.00	10.00	3.394	I	O				5.87
6.750	0.00	10.00	3.325	I	O				5.75
6.833	0.00	10.00	3.256	I	O				5.63
6.917	0.00	10.00	3.188	I	O				5.51
7.000	0.00	10.00	3.119	I	O				5.39
7.083	0.00	10.00	3.050	I	O				5.28
7.167	0.00	10.00	2.981	I	O				5.16
7.250	0.00	10.00	2.912	I	O				5.04
7.333	0.00	10.00	2.843	I	O				4.92
7.417	0.00	10.00	2.774	I	O				4.80
7.500	0.00	10.00	2.706	I	O				4.68
7.583	0.00	10.00	2.637	I	O				4.56
7.667	0.00	10.00	2.568	I	O				4.44
7.750	0.00	10.00	2.499	I	O				4.33
7.833	0.00	10.00	2.430	I	O				4.21
7.917	0.00	10.00	2.361	I	O				4.09
8.000	0.00	10.00	2.292	I	O				3.97
8.083	0.00	10.00	2.223	I	O				3.85
8.167	0.00	10.00	2.155	I	O				3.73
8.250	0.00	10.00	2.086	I	O				3.61
8.333	0.00	10.00	2.017	I	O				3.49
8.417	0.00	10.00	1.948	I	O				3.38
8.500	0.00	10.00	1.879	I	O				3.26
8.583	0.00	10.00	1.810	I	O				3.14
8.667	0.00	10.00	1.741	I	O				3.02
8.750	0.00	10.00	1.672	I	O				2.90
8.833	0.00	10.00	1.604	I	O				2.78
8.917	0.00	10.00	1.535	I	O				2.66
9.000	0.00	10.00	1.466	I	O				2.54
9.083	0.00	10.00	1.397	I	O				2.42
9.167	0.00	10.00	1.328	I	O				2.29
9.250	0.00	10.00	1.259	I	O				2.17
9.333	0.00	10.00	1.190	I	O				2.05
9.417	0.00	10.00	1.121	I	O				1.93
9.500	0.00	10.00	1.053	I	O				1.81
9.583	0.00	10.00	0.984	I	O				1.70
9.667	0.00	10.00	0.915	I	O				1.58
9.750	0.00	10.00	0.846	I	O				1.46
9.833	0.00	10.00	0.777	I	O				1.34
9.917	0.00	10.00	0.708	I	O				1.22
10.000	0.00	10.00	0.639	I	O				1.10
10.083	0.00	10.00	0.571	I	O				0.98

10.167	0.00	10.00	0.502	I	O	|	|	|	0.86
10.250	0.00	10.00	0.433	I	O	|	|	|	0.75
10.333	0.00	10.00	0.364	I	O	|	|	|	0.63
10.417	0.00	10.00	0.295	I	O	|	|	|	0.51
10.500	0.00	10.00	0.226	I	O	|	|	|	0.39
10.583	0.00	10.00	0.157	I	O	|	|	|	0.27
10.667	0.00	10.00	0.088	I	O	|	|	|	0.15
10.750	0.00	5.72	0.034	IO		|	|	|	0.06
10.833	0.00	1.55	0.009	O		|	|	|	0.02
10.917	0.00	0.42	0.003	O		|	|	|	0.00
11.000	0.00	0.11	0.001	O		|	|	|	0.00
11.083	0.00	0.03	0.000	O		|	|	|	0.00

**********HYDROGRAPH DATA**********

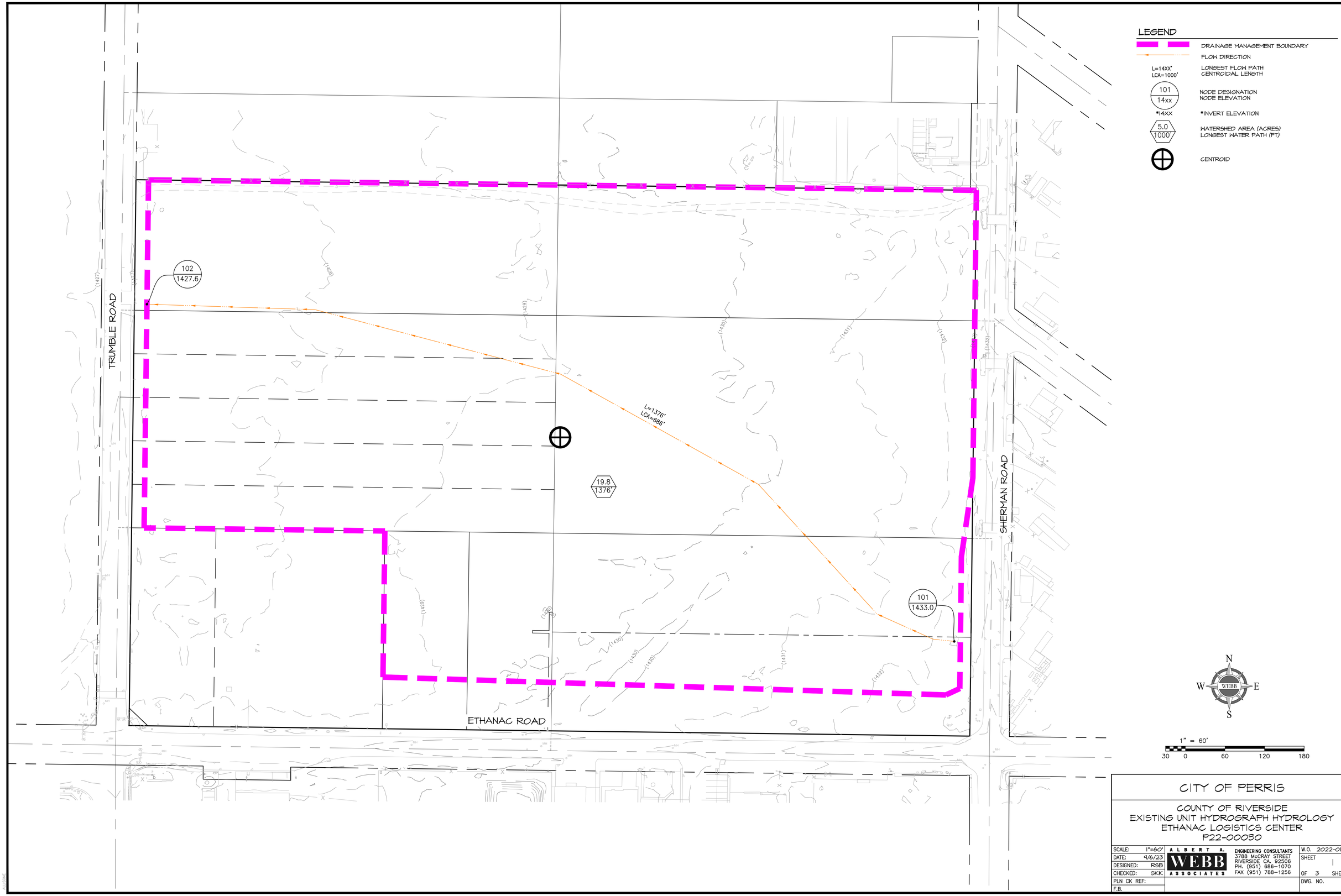
Number of intervals = 133
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 15.500 (CFS)
Total volume = 9.128 (Ac.Ft)

Status of hydrographs being held in storage

	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5
Peak (CFS)	0.000	0.000	0.000	0.000	0.000
Vol (Ac.Ft)	0.000	0.000	0.000	0.000	0.000

****

UNIT HYDROGRAPH HYDROLOGY MAPS



CITY OF PERRIS

COUNTY OF RIVERSIDE
EXISTING UNIT HYDROGRAPH HYDROLOGY
ETHANAC LOGISTICS CENTER
P22-00030

SCALE:	1"=60'	ALBERT A. WEBB ASSOCIATES	W.O. 2022-0198
DATE:	9/6/23	ENGINEERING CONSULTANTS 3788 McCRAY STREET RIVERSIDE, CA. 92506 PH. (951) 686-1070 FAX (951) 788-1256	SHEET 1
DESIGNED:	RSB		OF 3 SHEETS
CHECKED:	SKK		
PLN CK REF:			DWG. NO.
F.B.			

H:\2022\22-0198\DRAINAGE\HYD\DWG FOLDER\22-0198-PHYD-UH.DWG 9/6/2023 2:38:13 PM

ALLSWE

LEGEND

- DRAINAGE MANAGEMENT BOUNDARY
- FLOW DIRECTION
- L=14XX' / LCA=1000' — LONGEST FLOW PATH / CENTROIDAL LENGTH
- 101 / 14XX — NODE DESIGNATION / NODE ELEVATION
- *14XX — *INVERT ELEVATION
- 5.0 / 1000' — WATERSHED AREA (ACRES) / LONGEST WATER PATH (FT)
- CENTROID

TRUMBLE ROAD

SHERMAN ROAD

ETHANAC ROAD

19.8
553'

202
1427.3

201
1434.0

L=553'
LCA=150'

N
W WEBB E
S

1" = 60'
30 0 60 120 180

CITY OF PERRIS

COUNTY OF RIVERSIDE
PROPOSED UNIT HYDROGRAPH HYDROLOGY
ETHANAC LOGISTICS CENTER
P22-00030

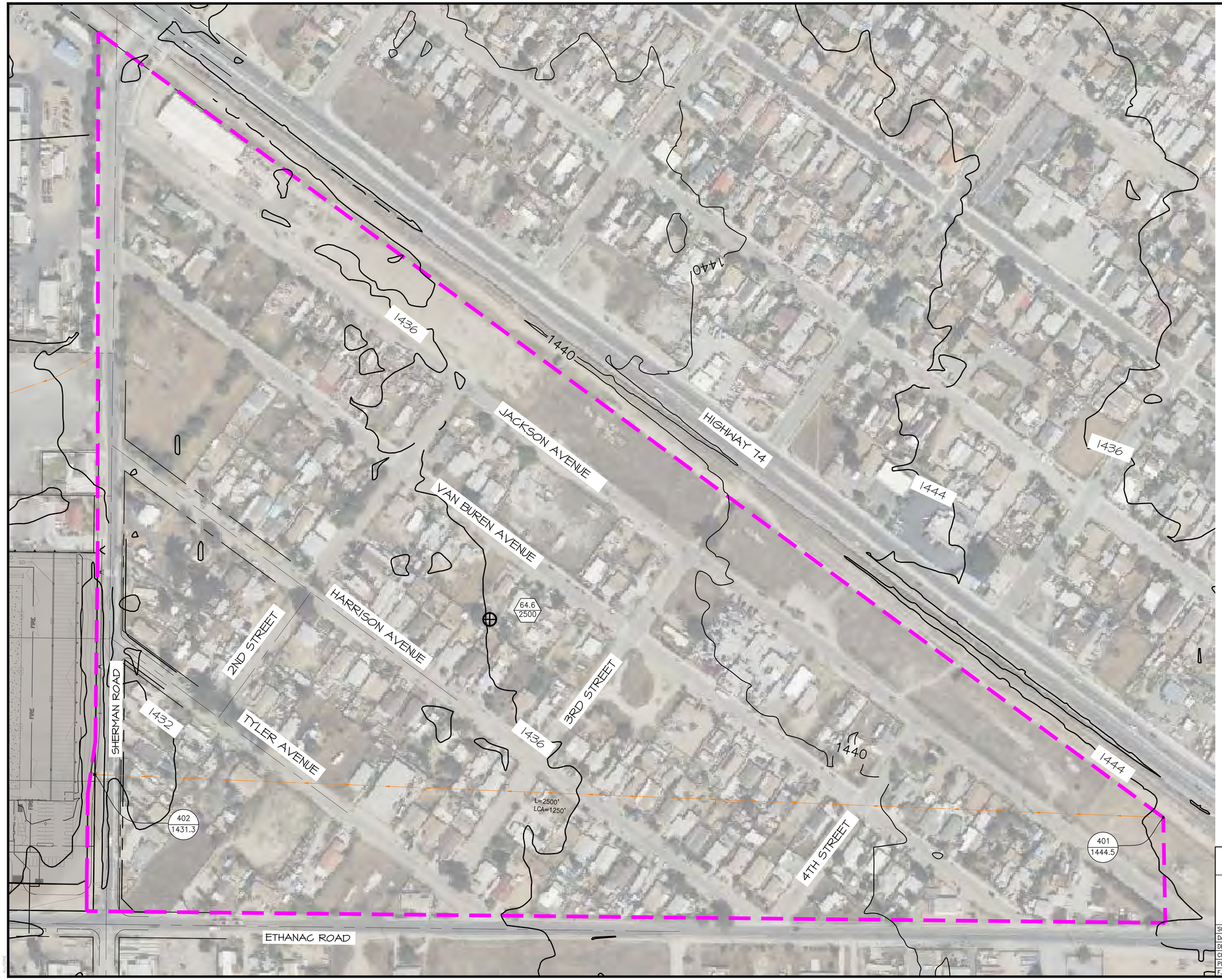
SCALE:	1"=60'
DATE:	9/6/23
DESIGNED:	RSB
CHECKED:	SKK
PLN CK REF:	
F.B.	

ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET
RIVERSIDE, CA. 92506
PH. (951) 686-1070
FAX (951) 788-1256

W.O.	2022-0198
SHEET	2
OF	3 SHEETS
DWG. NO.	

H:\2022\22-0198\DRAINAGE\HYD\DWG FOLDER\22-0198-PHYD-UH.DWG 9/6/2023 2:38:13 PM

ALLISONE



LEGEND

- DRAINAGE MANAGEMENT BOUNDARY
- FLOW DIRECTION
- L=14XX' LCA=1000' — LONGEST FLOW PATH CENTROIDAL LENGTH
- 101 / 14xx — NODE DESIGNATION NODE ELEVATION
- *14XX — *INVERT ELEVATION
- 5.0 / 1000' — WATERSHED AREA (ACRES) LONGEST WATER PATH (FT)
- CENTROID

N W E S

1" = 100'

50 0 100 200 300

CITY OF PERRIS

COUNTY OF RIVERSIDE
OFFSITE UNIT HYDROGRAPH HYDROLOGY
ETHANAC LOGISTICS CENTER
P22-00030

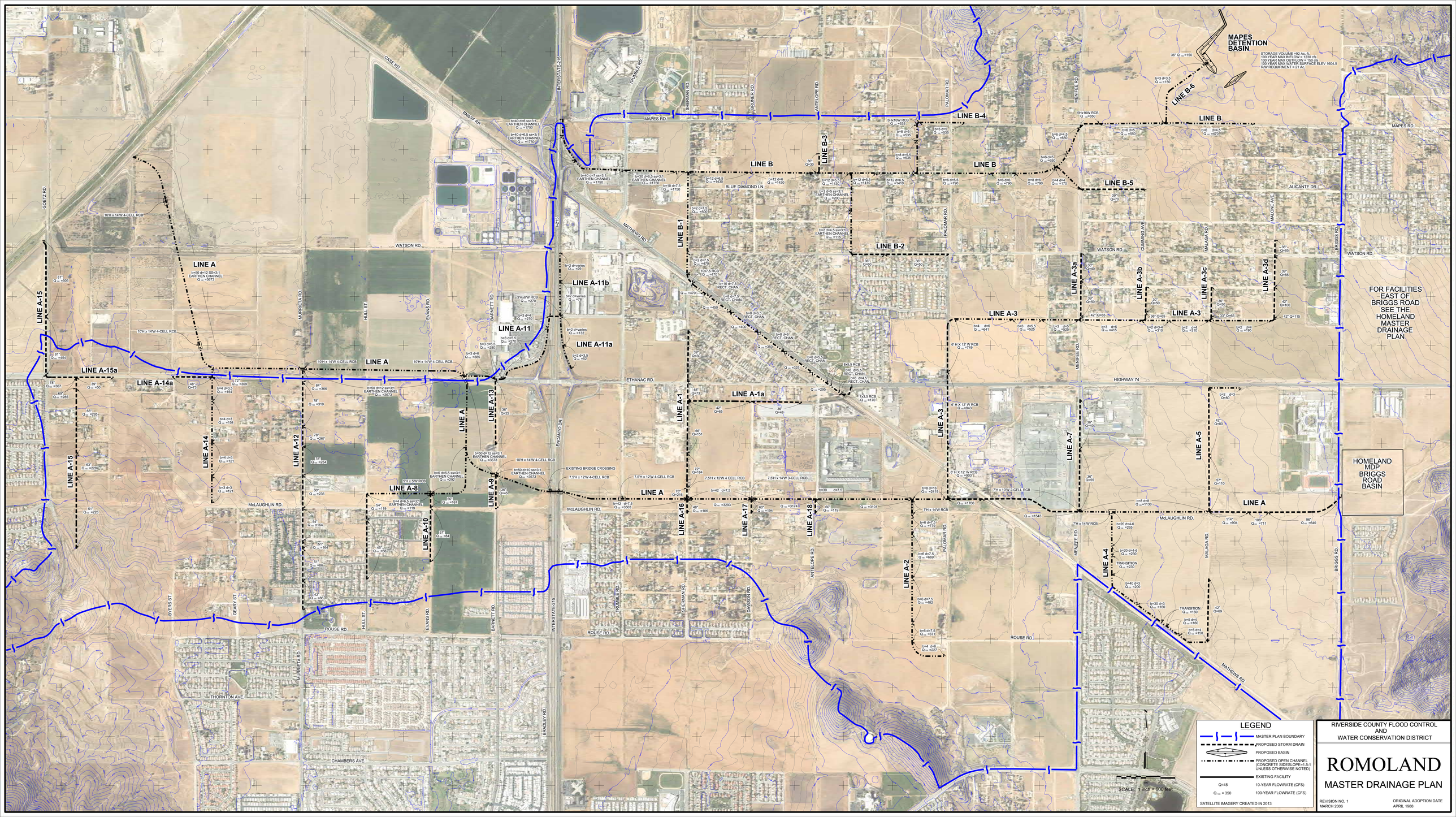
SCALE:	1"=100'	ALBERT A. WEBB ASSOCIATES — ENGINEERING CONSULTANTS, 3788 McCRAY STREET, RIVERSIDE, CA. 92506, PH. (951) 686-1070, FAX (951) 788-1256	W.O. 2022-0198
DATE:	9/6/23		SHEET 3
DESIGNED:	RSB		OF 3 SHEETS
CHECKED:	SKK		
PLN CK REF:			DWG. NO.
F.B.			

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ALLISONE

APPENDIX D – REFERENCES

ROMOLAND MASTER DRAINAGE PLAN


MAPES DETENTION BASIN
STORAGE VOLUME =92 Ac.-ft.
100 YEAR MAX INFLOW = 1230 cfs
100 YEAR MAX OUTFLOW = 150 cfs
100 YEAR MAX WATER SURFACE ELEV 1604.5
R/W REQUIRMENT = 21 Ac.
LINE A
LINE A-1
LINE A-1a
LINE A-2
LINE A-3
LINE A-3a
LINE A-3b
LINE A-3c
LINE A-3d
LINE A-4
LINE A-5
LINE A-7
LINE A-8
LINE A-9
LINE A-10
LINE A-11
LINE A-11a
LINE A-11b
LINE A-12
LINE A-13
LINE A-14
LINE A-14a
LINE A-15
LINE A-15a
LINE A-16
LINE A-17
LINE A-18
LINE B
LINE B-1
LINE B-2
LINE B-3
LINE B-4
LINE B-5
LINE B-6
MAPES RD.
WATSON RD.
ETHANAC RD.
McLAUGHLIN RD.
ROUSE RD.
HIGHWAY 74
CHAMBERS AVE.
THORNTON AVE.
CASE RD.
GOETZ RD.
MURRIETA RD.
HULL ST.
EVANS RD.
BARNETT RD.
BYERS ST.
GEARY ST.
ENCANTO DR.
MATHEWS RD.
BLUE DIAMOND LN.
ALICANTE DR.
INTERSTATE-215
I-215
BNSSF RR
TRUMBLE RD.
SHERMAN RD.
PALMER RD.
ANTELOPE RD.
PALOMAR RD.
MENIFEE RD.
CLEMMING AVE.
MALONE AVE.
MALAGA RD.
BRIGGS RD.
BRADLEY RD.
DAWSON RD.
EXISTING BRIDGE CROSSING
FOR FACILITIES EAST OF BRIGGS ROAD SEE THE HOMELAND MASTER DRAINAGE PLAN
HOMELAND MDP BRIGGS ROAD BASIN
LEGEND
MASTER PLAN BOUNDARY
PROPOSED STORM DRAIN
PROPOSED BASIN
PROPOSED OPEN CHANNEL (CONCRETE SIDESLOPE=1.5:1 UNLESS OTHERWISE NOTED)
EXISTING FACILITY
Q=45 10-YEAR FLOWRATE (CFS)
Q100 = 350 100-YEAR FLOWRATE (CFS)
SATELLITE IMAGERY CREATED IN 2013
SCALE: 1 inch = 600 feet
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
ROMOLAND
MASTER DRAINAGE PLAN
REVISION NO. 1
MARCH 2006
ORIGINAL ADOPTION DATE
APRIL 1988

ILLINOIS AVENUE LINE A STORM DRAIN PLAN P8-921

STORM DRAIN IMPROVEMENT PLANS FOR:

CLASSIC PACIFIC BUSINESS PARK (PM 34082)

IN THE CITY OF PERRIS, CALIFORNIA

STORM DRAIN GENERAL NOTES

1. THE CONTRACTOR SHALL CONSTRUCT THE FLOOD CONTROL IMPROVEMENTS SHOWN ON THE DRAWINGS IN CONFORMANCE WITH THE REQUIREMENTS OF THE RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT'S MEMORANDUM OF UNDERSTANDING STANDARD SPECIFICATIONS DATED SEPTEMBER 1984 AND DESIGN MANUAL STANDARD DRAWINGS DATED MAY 1971.
2. ALL STATIONING REFERS TO THE CENTERLINE OF CONSTRUCTION UNLESS OTHERWISE NOTED.
3. STATIONING FOR LATERALS AND CONNECTOR PIPES REFER TO THE CENTERLINE– CENTERLINE INTERSECTION STATION, UNLESS OTHERWISE NOTED.
4. FORTY–EIGHT HOURS BEFORE EXCAVATION, CALL UNDERGROUND SERVICE ALERT 1–800–227–2600.
5. ALL ELEVATIONS SHOWN ARE IN FEET AND DECIMALS THEREOF BASED ON U.S.C. & G.S. DATUM.
6. ALL CROSS SECTIONS ARE TAKEN LOOKING DOWNSTREAM.
7. ELEVATIONS OF UTILITIES ARE APPROXIMATE UNLESS OTHERWISE NOTED.
8. OPENINGS RESULTING FROM THE CUTTING OR PARTIAL REMOVAL OF EXISTING CULVERTS, PIPES, OR SIMILAR STRUCTURES TO BE ABANDONED SHALL BE SEALED WITH 8" OF CLASS "B" CONCRETE.
9. "V" IS THE DEPTH OF INLET OF CATCH BASINS MEASURED FROM THE TOP OF CURB TO THE INVERT OF THE CONNECTOR PIPE.
10. ALL CURBS, GUTTERS, SIDEWALKS, DRIVEWAYS AND OTHER EXISTING IMPROVEMENTS TO BE RECONSTRUCTED IN KIND AND AT THE SAME ELEVATION AND LOCATION AS THE EXISTING IMPROVEMENTS UNLESS OTHERWISE NOTED.
11. ROAD CLOSURES SHALL BE PERMITTED FOR A SHORT PERIOD ONLY. THE CONTRACTOR IS TO SUBMIT A DETOUR PLAN TO THE CITY ENGINEER FOR APPROVAL AND PLACE SIGNS PER APPROVED PLANS PRIOR TO BEGINNING CONSTRUCTION.
12. VIDEO OF STORM DRAIN FACILITIES SHOWN ON THESE PLANS MUST BE SUBMITTED TO CITY ENGINEER FOR REVIEW.
13. TRAFFIC CONTROL PLAN SHALL BE SUBMITTED TO THE CITY ENGINEER FOR REVIEW AND APPROVAL.
14. ALL MANHOLE COVERS FOR STORM DRAIN LOCATED OUTSIDE OF DEDICATED RIGHT–OF–WAY SHALL BE LOCKED PRESSURE TYPE, AND SHALL READ "CITY OF PERRIS S.D."
15. VIDEO OF ALL ON–SITE AND OFF–SITE STORM DRAIN SHALL BE SUBMITTED TO CITY ENGINEER FOR REVIEW AND APPROVAL.

NOTICE TO CONTRACTOR:

THE EXISTENCE AND LOCATIONS OF ALL UNDERGROUND UTILITIES (UTILITY PIPES, STRUCTURES, ETC.) SHOWN ON THESE PLANS (MAIN LINES ONLY – NO SERVICE LATERALS) WERE ASCERTAINED BY A REVIEW OF RECORDS PROVIDED BY THESE MEMBER AGENCIES AND ARE APPROXIMATE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY FOR UTILITIES NOT SHOWN OR NOT IN THE LOCATION SHOWN.

THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. LOCATIONS OF UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF CONSTRUCTION.

BASIS OF BEARINGS

BASIS OF BEARING IS THE CENTERLINE OF PERRIS BOULEVARD TAKEN AS N00°16'30"E, AS SHOWN BY AMENDED PARCEL MAP 16950 PER P.M. 113/62–70, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

NOTE

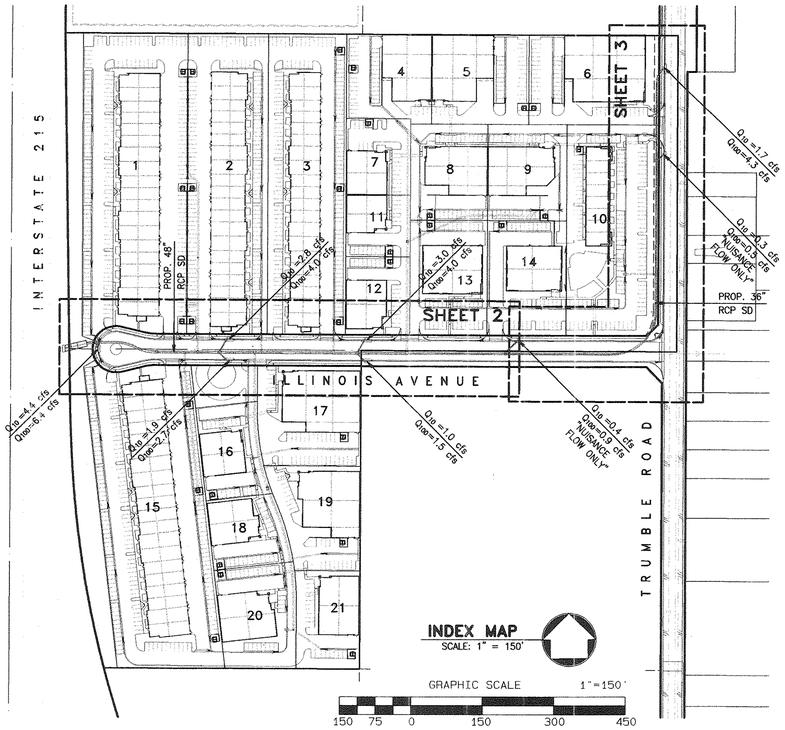
ALL ON–SITE STORM DRAIN AND PRIVATE LATERALS REFERRED TO ON THESE PLANS ARE TO BE CONSTRUCTED PER SEPARATE ON–SITE DRAINAGE PLANS AND CONCURRENTLY WITH PUBLIC STORM DRAIN SHOWN HEREON.

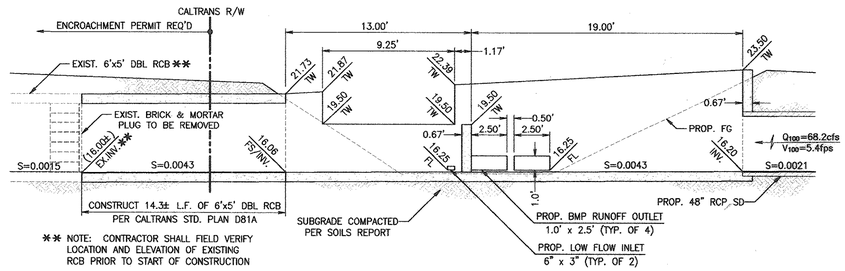
CONSTRUCTION NOTES

		QUANTITIES	
(1)	INSTALL 48" RCP, D–LOAD PER PLAN	661	LF
(2)	INSTALL 36" RCP, D–LOAD PER PLAN	638	LF
(3)	INTENTIONALLY LEFT BLANK	–	–
(4)	INSTALL 24" RCP, D–LOAD PER PLAN	437	LF
(5)	INSTALL 18" RCP, D–LOAD PER PLAN	180	LF
(6)	CONSTRUCT CURB OPENING CATCH BASIN PER APWA STD. PLAN 300–2 (H=4" – W NOTED ON PLANS)	5	EA
(7)	CONSTRUCT LOCAL DEPRESSION PER AWA STD. PLAN 313–1 CASE B	5	EA
(8)	CONSTRUCT MANHOLE NO. 2 PER RCFCD STD. DWG. NO. MH252	4	EA
(9)	CONSTRUCT MANHOLE NO. 4 PER RCFCD STD. DWG. NO. MH254	1	EA
(10)	INTENTIONALLY LEFT BLANK	–	–
(11)	CONSTRUCT MANHOLE NO. 1 PER RCFCD STD. DWG. NO. MH251	1	EA
(12)	CONSTRUCT JUNCTION STRUCTURE NO. 2 PER RCFCD STD. DWG. NO. JS227	4	EA
(13)	CONSTRUCT TRANSITION STRUCTURE NO. 3 PER RCFCD STD. DWG. NO. TS303	2	EA
(14)	CONSTRUCT JUNCTION STRUCTURE NO. 4 PER RCFCD STD. DWG. NO. JS229	2	EA

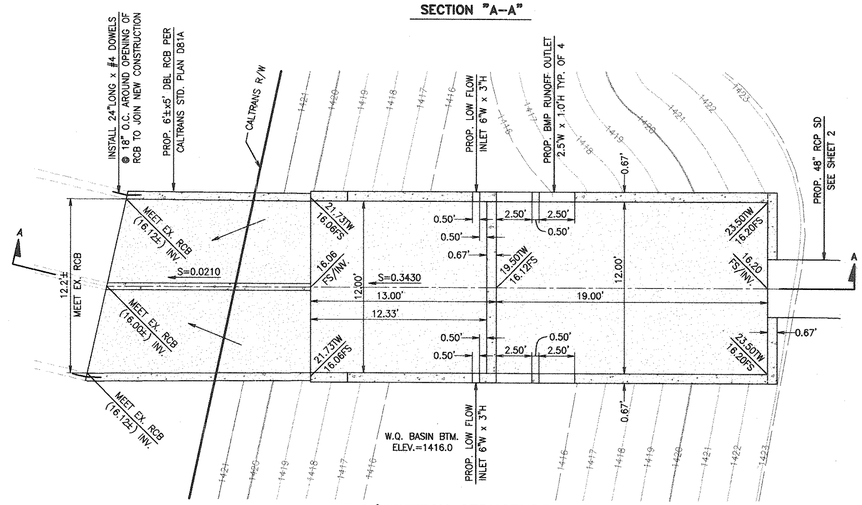
AS BUILT
THESE PLANS REFLECT ANY SUBSTANTIAL DESIGN MODIFICATIONS AS PROVIDED TO WEBB ASSOCIATES BY THE CONTRACTOR.
SCOTT R. HILDEBRANDT R.C.E. C44762 — DATE 9/30/08

REGISTERED PROFESSIONAL ENGINEER SCOTT R. HILDEBRANDT NO. C44762 EXP. 3-31-08 CIVIL STATE OF CALIFORNIA



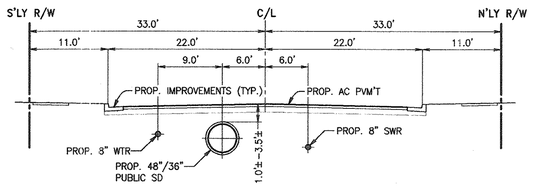


SECTION "A–A"



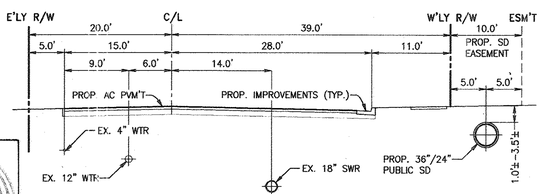
WEIR/FOREBAY STRUCTURE DETAIL

SCALE: 1" = 5'



UNDERGROUND UTILITIES TYPICAL SECTION ILLINOIS AVENUE

NOT TO SCALE

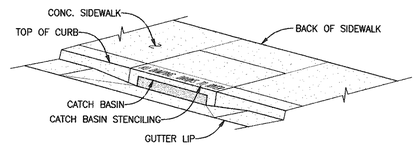


UNDERGROUND UTILITIES TYPICAL SECTION TRUMBLE ROAD

NOT TO SCALE

LIST OF ABBREVIATIONS

AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
APWA	AMERICAN PUBLIC WORKS ASSOCIATION
BC	BEGINNING OF CURVE
BCR	BEGINNING OF CURVE RETURN
BTM	BOTTOM
BVC	BEGINNING OF VERTICAL CURVE
CB	CATCH BASIN
C/L	CENTERLINE
C&G	CURB & GUTTER
EC	END OF CURVE
ECC.	ECCENTRIC
ECR	END OF CURVE RETURN
ESMT	EASEMENT
EVC	END OF VERTICAL CURVE
FH	FIRE HYDRANT
FL	FLOWLINE
FS	FINISH SURFACE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HP	HIGH POINT
INV	INVERT ELEVATION
JS	JUNCTION STRUCTURE
LAT.	LATERAL
LF	LINEAR FEET
LP	LOW POINT
MC	MEDIAN CURB
MH	MANHOLE
MVC	MIDDLE OF VERTICAL CURVE
NTS	NOT TO SCALE
PCC	PORTLAND CEMENT CONCRETE
PRC	POINT OF REVERSE CURVE
RCP	REINFORCED CONCRETE PIPE
RED.	REDUCER
R/W	RIGHT OF WAY
SCE	SOUTHERN CALIFORNIA EDISON
SEP.	SEPARATE
S/W	SIDEWALK
TC	TOP OF CURB
TS	TRANSITION STRUCTURE
XING	CROSSING



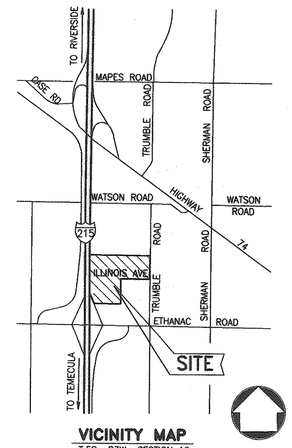
CATCH BASIN STENCILING DETAIL

NOT TO SCALE

A. STENCILS TO HAVE 2" LETTERS AS FOLLOW:
   NO DUMPING
   DRAINS TO RIVER
B. PLACE BOTH STENCILS CENTERED WITHIN THE CATCHBASIN OPENING AND WITHIN THE TOP OF CURB.
C. SPRAY BOTH STENCILS WITH WHITE PAINT.
D. REMOVE STENCILS WHEN PAINT IS DRY.

INDEX OF SHEETS

SHEET 1	TITLE SHEET
SHEET 2	STA 10+00 TO 19+00 – PLAN & PROFILE
SHEET 3	STA 19+00 TO 28+06 – PLAN & PROFILE



VICINITY MAP

T.5S., R.3W., SECTION 18
N.T.S.

BENCHMARK
RIVERSIDE COUNTY B.M. M–26–2, BRASS DISC ON BRIDGE
ELEV = 1423.462, DATUM NGVD29.
AT THE SOUTHWEST CORNER OF THE BRIDGE SO 14–P OVER THE SAN JACINTO RIVER AT NUEVO ROAD; 14.0 FEET SOUTH OF NUEVO ROAD; A BRASS DISK SET IN THE TOP OF A CONCRETE BRIDGE ABUTMENT AND MARKED M–26–2 1963.

THE PRIVATE ENGINEER SIGNING THESE PLANS IS RESPONSIBLE FOR ASSURING THE ACCURACY AND ACCEPTABILITY OF THE DESIGN HEREON. IN THE EVENT OF DISCREPANCIES ARISING AFTER CITY APPROVAL OR DURING CONSTRUCTION, THE PRIVATE ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING AN ACCEPTABLE SOLUTION AND REVISING THE PLANS FOR APPROVAL BY THE CITY.

DIGALERT — DIAL BEFORE YOU DIG TOLL FREE 1–800–227–2600 — TWO WORKING DAYS BEFORE YOU DIG — A PUBLIC SEVICE BY UNDERGROUND SERVICE ALERT

DATE	BY	MARK	REVISIONS	APPR.	DATE
9/30/08	RR	1	AS BUILT		
ENGINEER				CITY	

DESIGNED BY: RB DRAWN BY: BTE CHECKED BY: RB

SEAL

SEAL

APPROVED BY: DATE: 2-15-07
CITY ENGINEER

PREPARED UNDER THE SUPERVISION OF: DATE: 2-9-07
SCOTT R. HILDEBRANDT
R.C.E. NO. C44762 EXP. DATE 3-31-08

ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
CIVIL ENGINEERS
3788 McCRAY STREET
RIVERSIDE, CA. 92506
PH: (951) 686–1070
FAX: (951) 788–1256

SCALE: AS SHOWN
DATE: Feb 2007

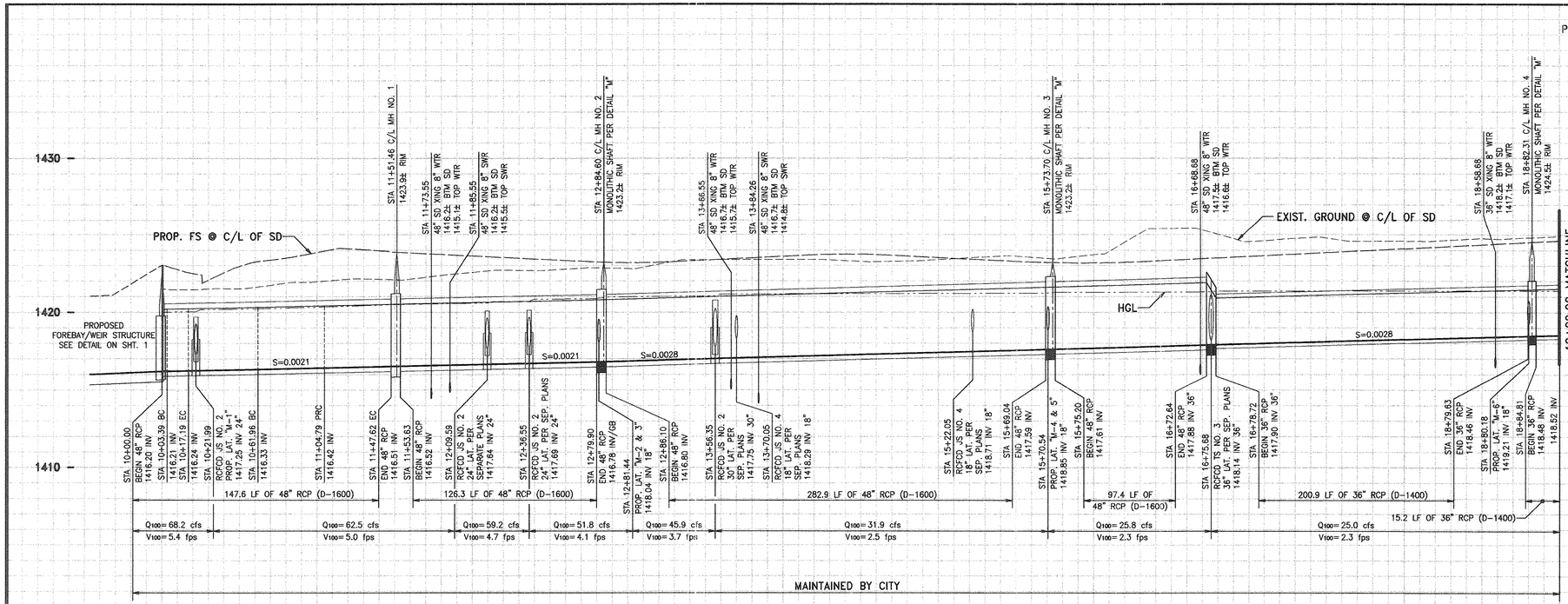
CITY OF PERRIS
STORM DRAIN PLANS
CLASSIC PACIFIC BUSINESS PARK (PM 34062)
TITLE SHEET
INDEX MAP

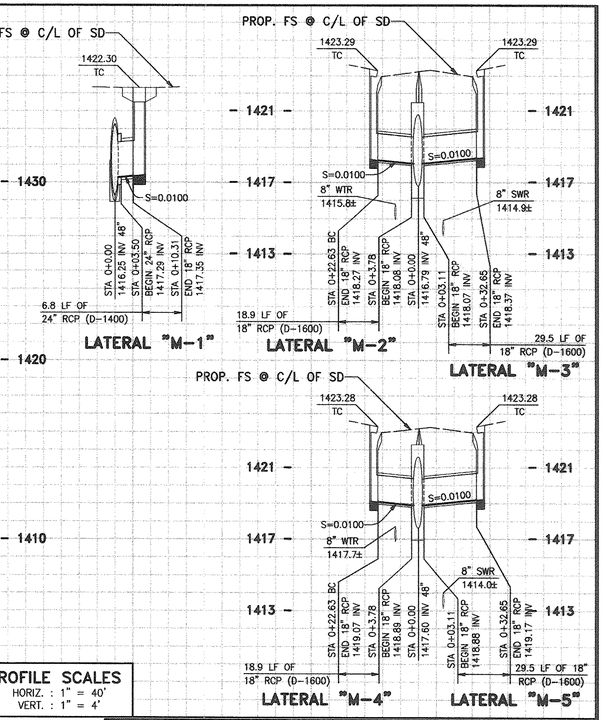
FOR: CLASSIC PACIFIC W.O. 04–0425

SHEET 1 OF 3 SHEETS
CITY FILE NO: P8–921

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PROFILE SCALES
HORIZ. : 1" = 40'
VERT. : 1" = 4'

JS STA 10+21.99	
ANGLE A	90°00'00"
B	24"
C	3.50'
D	48"
E	1.44'
F	1.84'
G	1.59'
L	2.88"
ELEV. R	1417.39
ELEV. S	1417.27

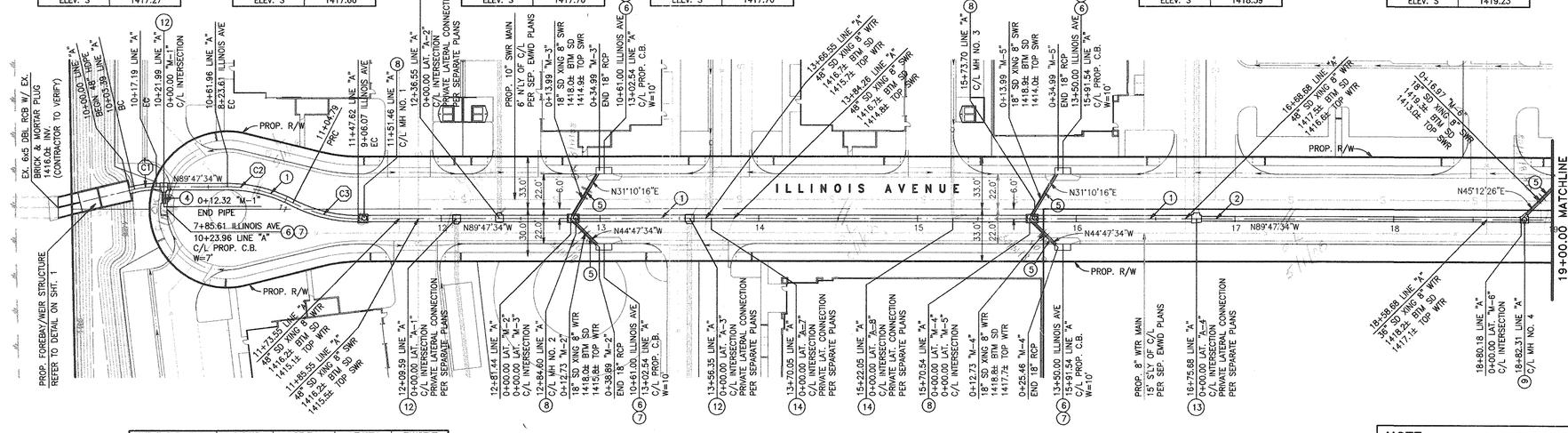
JS STA 12+09.59	
ANGLE A	90°00'00"
B	24"
C	3.50'
D	48"
E	1.44'
F	1.84'
G	1.59'
L	2.88"
ELEV. R	1417.68
ELEV. S	1417.66

JS STA 12+36.55	
ANGLE A	90°00'00"
B	24"
C	3.50'
D	48"
E	1.44'
F	1.85'
G	1.59'
L	2.88"
ELEV. R	1417.71
ELEV. S	1417.70

JS STA 13+56.35	
ANGLE A	90°00'00"
B	30"
C	3.50'
D	48"
E	2.25'
F	1.56'
G	1.35'
L	3.50'
ELEV. R	1417.77
ELEV. S	1417.76

TS STA 16+75.68	
ANGLE A	90°00'00"
B	36"
C	3.67'
D_1 & D_2	48" & 36"
L	6.08'
ELEV. R	1418.40
ELEV. S	1418.39

MH STA 18+80.18	
ANGLE A	45°00'00"
B	18"
C	5.01'
D_1 & D_2	36"
L	5.18'
ELEV. R	1419.26
ELEV. S	1419.23



CURVE DATA TABLE	RADIUS	DELTA	LENGTH	TANGENT
C1	60.00'	13°10'44"	13.80'	6.93'
C2	90.00'	27°15'58"	42.83'	21.83'
C3	90.00'	27°15'58"	42.83'	21.83'

CONSTRUCTION NOTES

1. INSTALL 48" RCP, D-LOAD PER PLAN
2. INSTALL 36" RCP, D-LOAD PER PLAN
3. INTENTIONALLY LEFT BLANK
4. INSTALL 24" RCP, D-LOAD PER PLAN
5. INSTALL 18" RCP, D-LOAD PER PLAN
6. CONSTRUCT CURB OPENING CATCH BASIN PER APWA STD. PLAN 300-2 (H=4" – W NOTED ON PLANS)
7. CONSTRUCT LOCAL DEPRESSION PER AWA STD. PLAN 313-1 CASE B
8. CONSTRUCT MANHOLE NO. 2 PER RCFCD STD. DWG. NO. MH252
9. CONSTRUCT MANHOLE NO. 4 PER RCFCD STD. DWG. NO. MH254
10. INTENTIONALLY LEFT BLANK
11. CONSTRUCT MANHOLE NO. 1 PER RCFCD STD. DWG. NO. MH251
12. CONSTRUCT JUNCTION STRUCTURE NO. 2 PER RCFCD STD. DWG. NO. JS227
13. CONSTRUCT TRANSITION STRUCTURE NO. 3 PER RCFCD STD. DWG. NO. TS303
14. CONSTRUCT JUNCTION STRUCTURE NO. 4 PER RCFCD STD. DWG. NO. JS229

NOTE
ALL ON-SITE STORM DRAIN AND PRIVATE LATERALS REFERRED TO ON THESE PLANS ARE TO BE CONSTRUCTED PER SEPARATE ON-SITE DRAINAGE PLANS AND CONCURRENTLY WITH PUBLIC STORM DRAIN SHOWN HEREON.

GRAPHIC SCALE 1"=40'
40 20 0 40 80 120

AS BUILT
THESE PLANS REFLECT ANY SUBSTANTIAL DESIGN MODIFICATIONS AS PROVIDED TO WEBB ASSOCIATES BY THE CONTRACTOR.
SCOTT R. HILDEBRANDT R.C.E. C44762
16-308 DATE
REGISTERED PROFESSIONAL ENGINEER SCOTT R. HILDEBRANDT NO. C44762 EXP. 3-31-08 CIVIL STATE OF CALIFORNIA

BENCHMARK
RIVERSIDE COUNTY B.M. M-26-2, BRASS DISC ON BRIDGE
ELEV = 1423.462, DATUM NGVD29.
AT THE SOUTHWEST CORNER OF THE BRIDGE SO 14-P OVER THE SAN JACINTO RIVER AT NUEVO ROAD; 14.0 FEET SOUTH OF NUEVO ROAD; A BRASS DISK SET IN THE TOP OF A CONCRETE BRIDGE ABUTMENT AND MARKED M-26-2 1963.

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DIGALERT
DIAL BEFORE YOU DIG TOLL FREE 1-800-227-2600 A PUBLIC SEVICE BY UNDERGROUND SERVICE ALERT
TWO WORKING DAYS BEFORE YOU DIG

DATE	BY	MARK	REVISIONS	APPR.	DATE
9-30-08	RR	1	AS BUILT		
ENGINEER				CITY	

DESIGNED BY: RB DRAWN BY: BTE CHECKED BY: RB

SEAL

SEAL
REGISTERED PROFESSIONAL ENGINEER SCOTT R. HILDEBRANDT NO. C44762 EXP. 3-31-08 CIVIL STATE OF CALIFORNIA

APPROVED BY: DATE: 2-7-07
CITY ENGINEER
PREPARED UNDER THE SUPERVISION OF: DATE: 2-9-07
SCOTT R. HILDEBRANDT
R.C.E. NO. C44762 EXP. DATE 3-31-08

ALBERT A. WEBB ASSOCIATES
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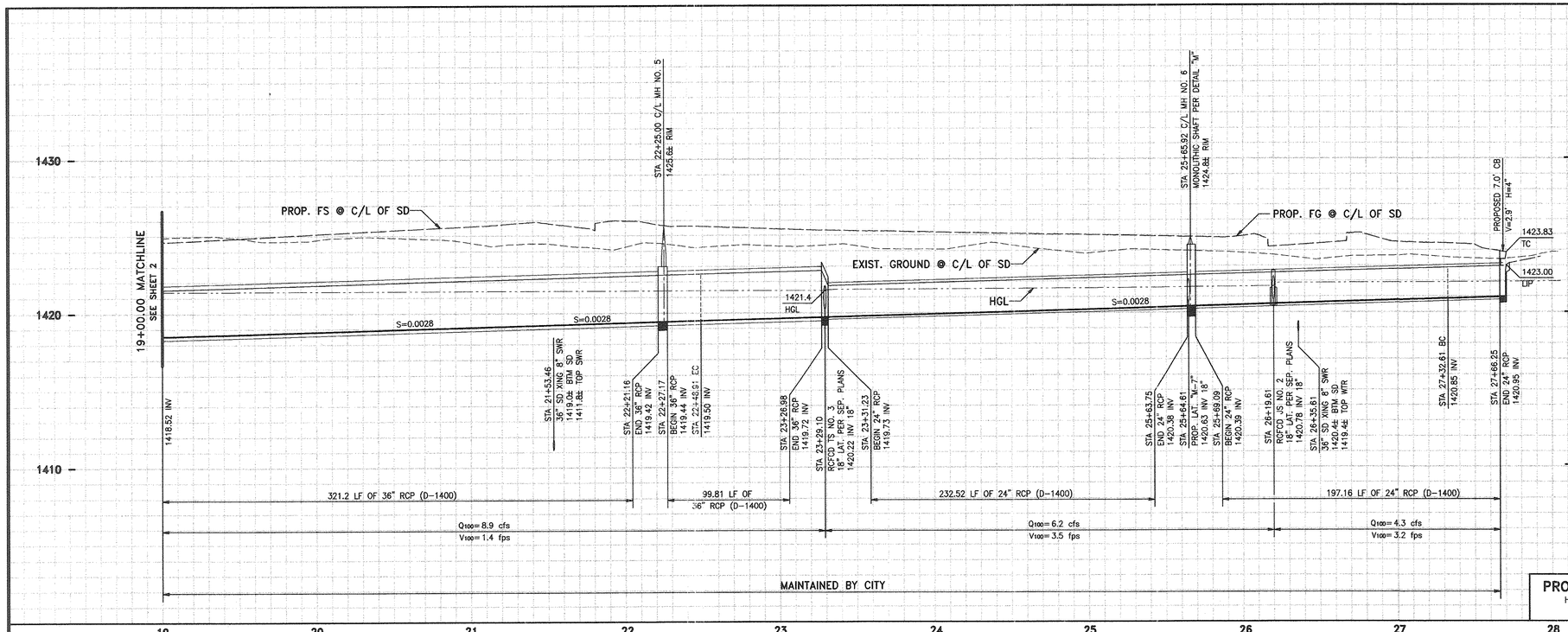
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DATE: Feb 2007

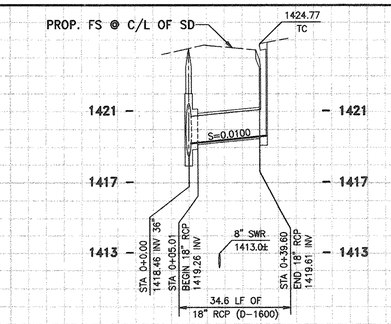
CITY OF PERRIS
STORM DRAIN PLANS
CLASSIC PACIFIC BUSINESS PARK (PM 34082)
PLAN AND PROFILE
STA. 10+00 TO STA. 19+00
FOR: CLASSIC PACIFIC W.O. 04-0425

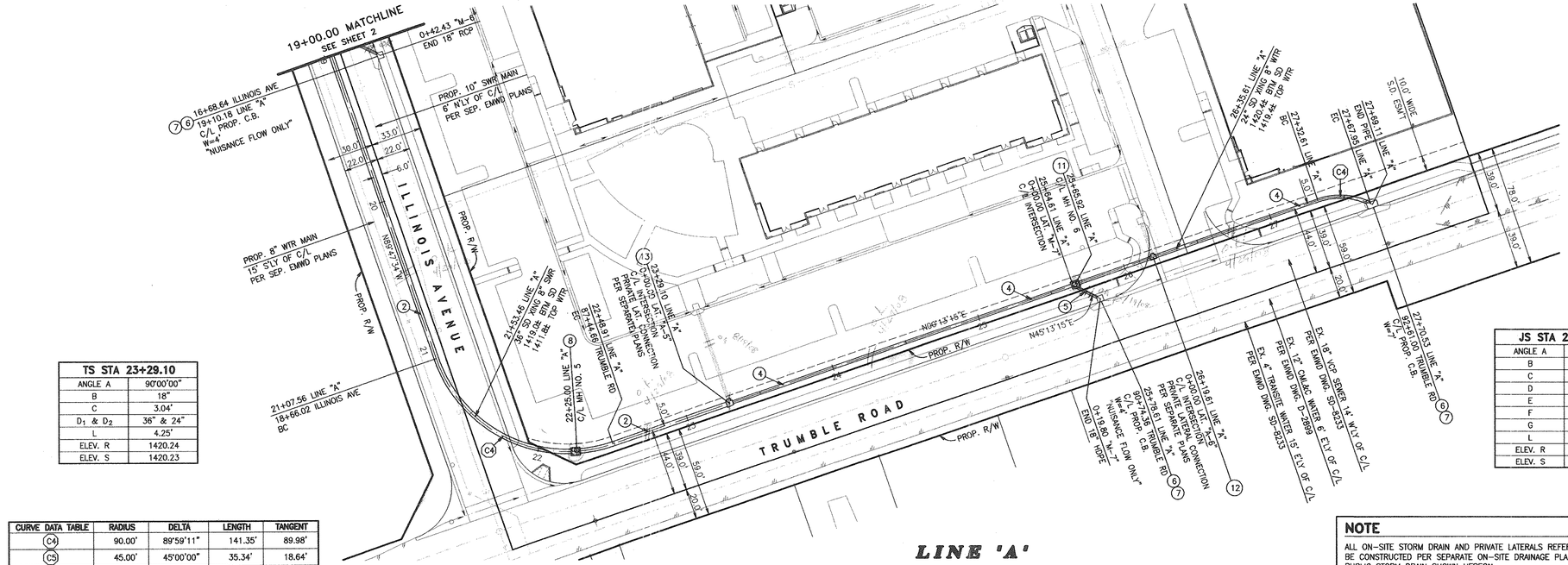
SHEET 2 OF 3 SHEETS
CITY FILE NO: P8-921

16575 P-412

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TS STA 23+29.10	
ANGLE A	90°00'00"
B	18"
C	3.04'
D_1 & D_2	36" & 24"
L	4.25'
ELEV. R	1420.24
ELEV. S	1420.23

JS STA 26+19.61	
ANGLE A	90°00'00"
B	18"
C	2.33'
D	24"
E	1.13'
F	0.75'
G	0.65'
L	2.25'
ELEV. R	1420.81
ELEV. S	1420.79

CURVE DATA TABLE	RADIUS	DELTA	LENGTH	TANGENT
C4	90.00'	89°59'11"	141.35'	89.98'
C5	45.00'	45°00'00"	35.34'	18.64'

PROFILE SCALES
HORIZ. : 1" = 40'
VERT. : 1" = 4'

AS BUILT
THESE PLANS REFLECT ANY SUBSTANTIAL DESIGN MODIFICATIONS AS PROVIDED TO WEBB ASSOCIATES BY THE CONTRACTOR

SCOTT R. HILDEBRANDT R.C.E. C44762 — DATE 9-3-08

REGISTERED PROFESSIONAL ENGINEER SCOTT R. HILDEBRANDT NO. C44762 EXP. 3/31/10 CIVIL STATE OF CALIFORNIA

CONSTRUCTION NOTES
1. INSTALL 48" RCP, D-LOAD PER PLAN
2. INSTALL 36" RCP, D-LOAD PER PLAN
3. INTENTIONALLY LEFT BLANK
4. INSTALL 24" RCP, D-LOAD PER PLAN
5. INSTALL 18" RCP, D-LOAD PER PLAN
6. CONSTRUCT CURB OPENING CATCH BASIN PER APWA STD. PLAN 300-2 (H=4" – W NOTED ON PLANS)
7. CONSTRUCT LOCAL DEPRESSION PER AWA STD. PLAN 313-1 CASE B
8. CONSTRUCT MANHOLE NO. 2 PER RCFCD STD. DWG. NO. MH252
9. CONSTRUCT MANHOLE NO. 4 PER RCFCD STD. DWG. NO. MH254
10. INTENTIONALLY LEFT BLANK
11. CONSTRUCT MANHOLE NO. 1 PER RCFCD STD. DWG. NO. MH251
12. CONSTRUCT JUNCTION STRUCTURE NO. 2 PER RCFCD STD. DWG. NO. JS227
13. CONSTRUCT TRANSITION STRUCTURE NO. 3 PER RCFCD STD. DWG. NO. TS303
14. CONSTRUCT JUNCTION STRUCTURE NO. 4 PER RCFCD STD. DWG. NO. JS229

NOTE
ALL ON-SITE STORM DRAIN AND PRIVATE LATERALS REFERRED TO ON THESE PLANS ARE TO BE CONSTRUCTED PER SEPARATE ON-SITE DRAINAGE PLANS AND CONCURRENTLY WITH PUBLIC STORM DRAIN SHOWN HEREON.

GRAPHIC SCALE 1"=40'
40 20 0 40 80 120

BENCHMARK
RIVERSIDE COUNTY B.M. M-26-2, BRASS DISC ON BRIDGE
ELEV = 1423.462, DATUM NGVD29.
AT THE SOUTHWEST CORNER OF THE BRIDGE SO 14-P OVER THE SAN JACINTO RIVER AT NUEVO ROAD; 14.0 FEET SOUTH OF NUEVO ROAD; A BRASS DISK SET IN THE TOP OF A CONCRETE BRIDGE ABUTMENT AND MARKED M-26-2 1963.

THE PRIVATE ENGINEER SIGNING THESE PLANS IS RESPONSIBLE FOR ASSURING THE ACCURACY AND ACCEPTABILITY OF THE DESIGN HEREON. IN THE EVENT OF DISCREPANCIES ARISING AFTER CITY APPROVAL OR DURING CONSTRUCTION, THE PRIVATE ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING AN ACCEPTABLE SOLUTION AND REVISING THE PLANS FOR APPROVAL BY THE CITY.

DIGALERT — DIAL BEFORE YOU DIG TOLL FREE — A PUBLIC SEVICE BY 1-800-227-2600 UNDERGROUND SERVICE ALERT — TWO WORKING DAYS BEFORE YOU DIG

DATE	BY	MARK	REVISIONS	APPR.	DATE
9-30-08	RR	1	AS BUILT		

ENGINEER — CITY

DESIGNED BY: RB DRAWN BY: BTE CHECKED BY: RB

SEAL

SEAL — REGISTERED PROFESSIONAL ENGINEER SCOTT R. HILDEBRANDT NO. C44762 EXP. 3-31-08 CIVIL STATE OF CALIFORNIA

APPROVED BY: DATE: 2-7-07
CITY ENGINEER

PREPARED UNDER THE SUPERVISION OF: DATE: 2-5-07
SCOTT R. HILDEBRANDT
R.C.E. NO. C44762 EXP. DATE 3-31-08

ALBERT A. WEBB ASSOCIATES — ENGINEERING CONSULTANTS
CIVIL ENGINEERS
3788 McCRAY STREET
RIVERSIDE, CA. 92506
PH: (951) 686-1070
FAX: (951) 788-1256

SCALE: AS SHOWN
DATE: Feb 2007

CITY OF PERRIS
STORM DRAIN PLANS
CLASSIC PACIFIC BUSINESS PARK (PM 34062)
PLAN AND PROFILE
STA. 19+00 TO STA. 28+06

FOR: CLASSIC PACIFIC — W.O. 04-0425

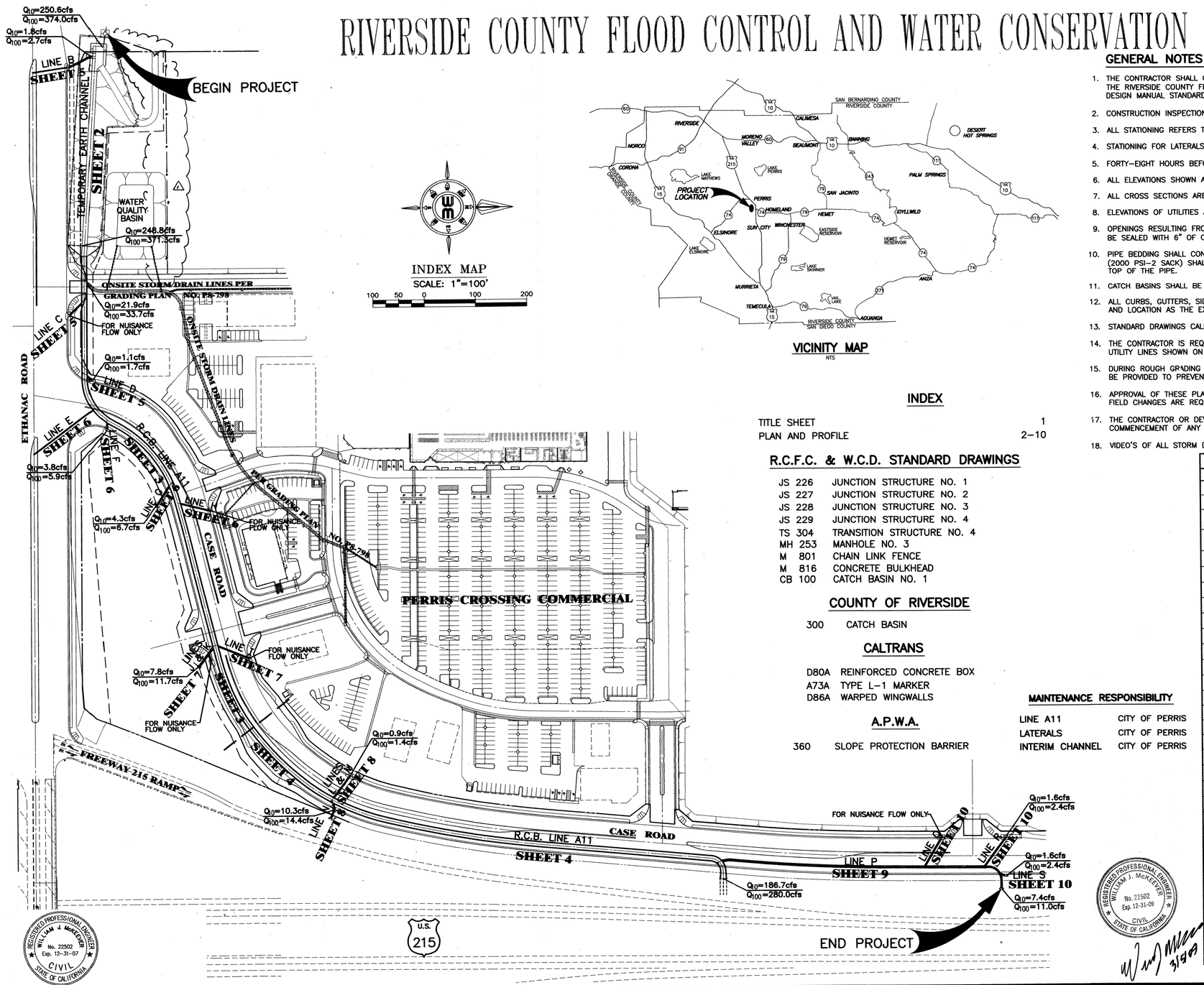
SHEET 3 OF 3 SHEETS
CITY FILE NO: P8-921

16575 P-412

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MDP LINE A-11 STORM DRAIN PLAN P8-798

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT



INDEX MAP
SCALE: 1"=100'
100 50 0 100 200

VICINITY MAP
NTS

INDEX

TITLE SHEET	1
PLAN AND PROFILE	2–10

R.C.F.C. & W.C.D. STANDARD DRAWINGS

JS 226	JUNCTION STRUCTURE NO. 1
JS 227	JUNCTION STRUCTURE NO. 2
JS 228	JUNCTION STRUCTURE NO. 3
JS 229	JUNCTION STRUCTURE NO. 4
TS 304	TRANSITION STRUCTURE NO. 4
MH 253	MANHOLE NO. 3
M 801	CHAIN LINK FENCE
M 816	CONCRETE BULKHEAD
CB 100	CATCH BASIN NO. 1

COUNTY OF RIVERSIDE

300 CATCH BASIN

CALTRANS

D80A	REINFORCED CONCRETE BOX
A73A	TYPE L–1 MARKER
D86A	WARPED WINGWALLS

A.P.W.A.

360 SLOPE PROTECTION BARRIER

MAINTENANCE RESPONSIBILITY

LINE A11	CITY OF PERRIS
LATERALS	CITY OF PERRIS
INTERIM CHANNEL	CITY OF PERRIS

GENERAL NOTES

1. THE CONTRACTOR SHALL CONSTRUCT THE FLOOD CONTROL IMPROVEMENTS SHOWN ON THE DRAWINGS IN CONFORMANCE WITH THE REQUIREMENTS OF THE RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT'S M.O.U. STANDARD SPECIFICATIONS DATED SEPTEMBER 1984, AND DESIGN MANUAL STANDARD DRAWINGS DATED APRIL 2004.
2. CONSTRUCTION INSPECTION WILL BE PERFORMED BY CITY OF PERRIS. THE CITY MUST BE NOTIFIED TWENTY DAYS (20) PRIOR TO CONSTRUCTION.
3. ALL STATIONING REFERS TO CENTERLINE OF CONSTRUCTION UNLESS OTHERWISE NOTED.
4. STATIONING FOR LATERALS AND CONNECTOR PIPE REFER TO THE CENTERLINE INTERSECTION STATIONS.
5. FORTY–EIGHT HOURS BEFORE EXCAVATION, CALL UNDERGROUND SERVICE ALERT 1–800–422–4133 AND/OR 1800–227–2600.
6. ALL ELEVATIONS SHOWN ARE IN FEET AND DECIMALS THEREOF BASED ON U.S.C. & G.S. DATUM.
7. ALL CROSS SECTIONS ARE TAKEN LOOKING DOWNSTREAM.
8. ELEVATIONS OF UTILITIES ARE APPROXIMATE UNLESS OTHERWISE NOTED.
9. OPENINGS RESULTING FROM THE CUTTING OR PARTIAL REMOVAL OF EXISTING CULVERTS, PIPES OR SIMILAR STRUCTURES TO BE ABANDONED SHALL BE SEALED WITH 6" OF CLASS "B" CONCRETE.
10. PIPE BEDDING SHALL CONFORM TO RCFC&WCD STD. DWG. NO. M815 EXCEPT FOR COVER <2 FEET. FOR COVER <2 FEET, CONCRETE SLURRY (2000 PSI–2 SACK) SHALL BE USED. THE ENTIRE TRENCH SHALL BE SLURRY EXTENDING 4 INCHES MINIMUM AND 12 INCHES MAXIMUM ABOVE THE TOP OF THE PIPE.
11. CATCH BASINS SHALL BE LOCATED SO THAT LOCAL DEPRESSION SHALL BEGIN AT EXISTING CURB RETURN JOINT, UNLESS OTHERWISE SPECIFIED.
12. ALL CURBS, GUTTERS, SIDEWALKS, DRIVEWAYS AND OTHER EXISTING IMPROVEMENTS TO BE RECONSTRUCTED IN KIND AND AT THE SAME ELEVATION AND LOCATION AS THE EXISTING IMPROVEMENTS UNLESS OTHERWISE NOTED.
13. STANDARD DRAWINGS CALLED FOR ON THE PLAN AND PROFILE SHALL CONFORM TO DISTRICT STANDARD DRAWINGS UNLESS NOTED OTHERWISE.
14. THE CONTRACTOR IS REQUIRED TO CALL ALL UTILITY AGENCIES REGARDING TEMPORARY SHORING AND SUPPORT REQUIREMENTS FOR THE VARIOUS UTILITY LINES SHOWN ON THESE PLANS.
15. DURING ROUGH GRADING OPERATIONS AND PRIOR TO CONSTRUCTION OF PERMANENT DRAINAGE STRUCTURES, TEMPORARY DRAINAGE CONTROL SHOULD BE PROVIDED TO PREVENT PONDING WATER AND DAMAGE TO ADJACENT PROPERTIES.
16. APPROVAL OF THESE PLANS BY THE CITY DOES NOT RELIEVE THE DEVELOPER'S ENGINEER OF RESPONSIBILITY FOR THE ENGINEERING DESIGN. IF FIELD CHANGES ARE REQUIRED, IT WILL BE THE RESPONSIBILITY OF THE DESIGN ENGINEER TO MAKE THE NECESSARY CORRECTIONS.
17. THE CONTRACTOR OR DEVELOPER SHALL SECURE ALL REQUIRED ENCROACHMENT AND/OR STATE AND FEDERAL REGULATORY PERMITS PRIOR TO THE COMMENCEMENT OF ANY WORK.
18. VIDEO'S OF ALL STORM DRAINS SHALL BE SUBMITTED TO THE CITY ENGINEER.

CONSTRUCTION NOTES AND QUANTITIES

REFERENCE/S	CONSTRUCTION NOTE	QUANTITY
①	CONSTRUCT TEMPORARY TRAPEZOIDAL EARTHEN CHANNEL PER SECTION SHEET 2.	388 L.F.
②	CONSTRUCT PIPE THRU EARTHEN CHANNEL PER DETAILS SHEET 2.	1 EA.
③	CONSTRUCT WARPED WINGWALL PER CALTRANS STD. PLAN D86A. W=32.7' AND 29' L=30.8' AND 34.3'	1 EA.
④	CONSTRUCT REINFORCED CONCRETE BOX PER CALTRANS STD. PLAN D80A. 10' SPAN x 5' HEIGHT FLAT INVERT.	2,022 L.F.
⑤	INSTALL SLOPE PROTECTION BARRIER PER A.P.W.A. STD. PLAN 360.	1 EA.
⑥	PLACE 4" THICK CONCRETE SLAB.	1,567 S.F.
⑦	CONSTRUCT 3" A.C. OVER NATIVE.	3,542 S.F.
⑧ ⑳	CONSTRUCT JUNCTION STRUCTURE NO. 1 PER RCFCD STD. DWG. NO. JS226.	2 EA.
㉚ ㉞ ㊱	CONSTRUCT JUNCTION STRUCTURE NO. 2 PER RCFCD STD. DWG. NO. JS227	3 EA.
⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑱ ⑲ ㉜	CONSTRUCT JUNCTION STRUCTURE NO. 3 PER RCFCD STD. DWG. NO. JS228.	10 EA.
⑯	CONSTRUCT MANHOLE NO. 3 PER RCFCD STD. DWG. NO. MH253.	4 EA.
⑰	REMOVE EXISTING STORM DRAIN LINES AND HEADWALL.	385 L.F.
㉑	CONSTRUCT TRANSITION STRUCTURE NO. 4 PER RCFCD STD. DWG. NO. TS304.	1 EA.
㉒	CONSTRUCT CATCH BASIN PER COUNTY OF RIVERSIDE STD. NO. 300.	5 EA.
㉓	INSTALL 18" CLASS IV RCP. SLOPE PER PLAN.	382 L.F.
㉔	INSTALL 24" CLASS IV RCP. SLOPE PER PLAN.	635 L.F.
㉕	INSTALL 8" PVC DRAIN LINE AND RISER IN MEDIAN.	232 L.F.
㉖	INSTALL 8" NDS–10 ROUND GRATES PER NAT'L DIVERSIFIED SALES, INC. OR APPROVED EQUAL.	3 EA.
㉗	CONSTRUCT CONCRETE DROP INLET PER RCFCD STD. DWG. NO. CB110.	2 EA.
㉘	CONSTRUCT CONCRETE COLLAR PER RCFCD STD. DWG. NO. M803.	3 EA.
㉙	INSTALL 30" RCP 1500D. SLOPE PER PLAN.	45 L.F.
㉝	CONSTRUCT HEADWALL PER CALTRANS STD. PLAN D90A TYPE A.	2 EA.
㉟	CONSTRUCT MANHOLE NO. 1 PER RCFCD STD. DWG. NO. MH251	3 EA.
㊳	INSTALL MARKERS PER CALTRANS STD. PLAN A73A TYPE L–1 ALONG CHANNEL AT 100' O.C.	5 EA.
㊴	INSTALL 36" RCP 1500D. SLOPE PER PLAN.	510 L.F.
㊵	CONSTRUCT CHAIN LINK FENCE PER RCFCD STD. DWG. NO. M801.	145 L.F.
㊶	CONSTRUCT RCB CURVED SECTIONS PER RCFCD STD. DWG. NO. M819.	38 L.F.
㊷	INSTALL 4 L.F. 48" STUB AT S=0.0354.	4 L.F.
㊸	CONSTRUCT CONCRETE BULKHEAD PER RCFCD STD. DWG. NO. M816.	1 EA.
㊹	CONSTRUCT GROUTED 12" MIN. DIA. ROCK AROUND PUMP 2' THICK AND 2' DEPTH.	128 C.Y.
㊺	CONSTRUCT CATCH BASIN NO. 1 PER COUNTY OF RCFCD STD. DWG. NO. CB100.	7 EA.

REGISTERED PROFESSIONAL ENGINEER WILLIAM J. McKEEVER No. 22502 Exp. 12-31-07 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER WILLIAM J. McKEEVER No. 22502 Exp. 12-31-09 CIVIL STATE OF CALIFORNIA

AS BUILT

W.J. McKEEVER, INC.
CIVIL ENGINEERING
647 NORTH MAIN STREET, SUITE 2A
RIVERSIDE, CALIFORNIA 92501
PH: (951) 341–3700
FAX: (951) 341–3740

WILLIAM J. McKEEVER, R.C.E. 22502 — DATE 12/11/06

CITY OF PERRIS
CITY FILE NO. P8–798
APPROVED BY:
CITY ENGINEER — DATE 12/11/06

DIG ALERT
CALL: TOLL FREE
1–800
227–2600
TWO WORKING DAYS BEFORE YOU DIG!

BENCHMARK:
RIVERSIDE COUNTY BENCHMARK BRASS DISK STAMPED "600–31–68" 700' N OF INT. MURRIETA RD & ETHANAC RD, 40' W OF MURRIETA ROAD 3' NE OF THE SE CORN. OF 8' CLF OF EMWD MURRIETA PUMP STA. 2' N OF A MARKER POST. ELEVATION = 1414.416 FT (5/85)

REVISIONS

REF.	DESCRIPTION	APPR.	DATE
1	AS-BUILT REV. INDEX MAP ADD FENCE & BASIN		

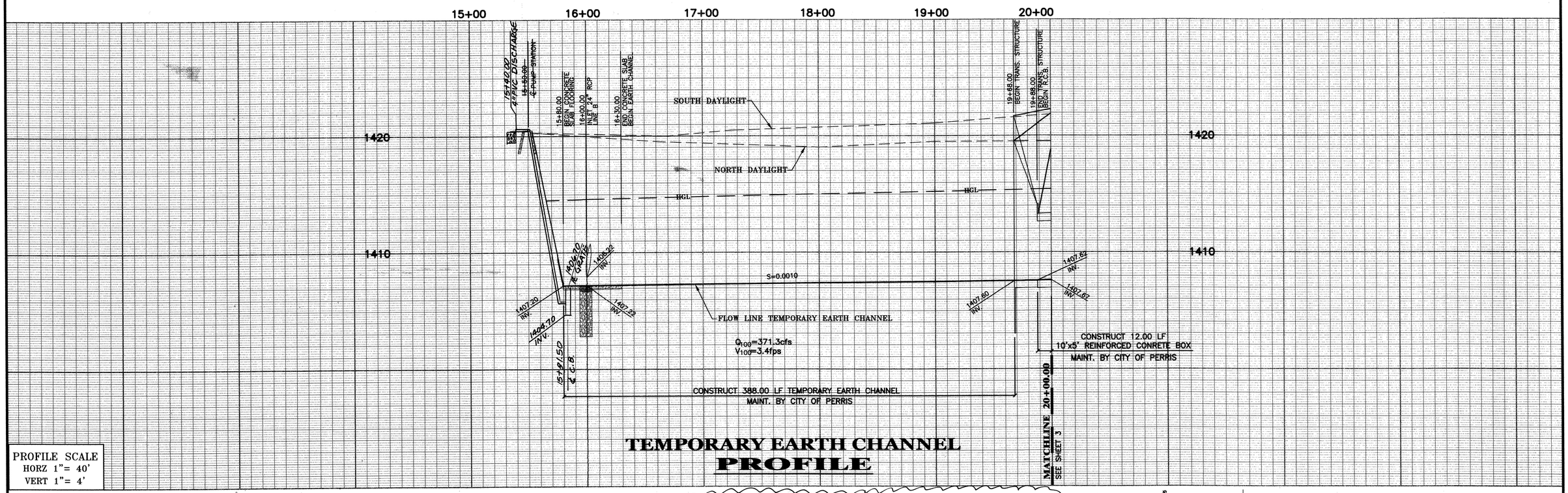
DESIGN BY: G. MELUSKI
DRAWN BY: J. NAPOLES
DATE DRAWN: JANUARY 2006
CHECKED BY: W.J. McKEEVER

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
RECOMMENDED FOR APPROVAL BY: — DATE:
APPROVED BY: — DATE:

PERRIS CROSSING
TEMPORARY EARTH CHANNEL, ROMOLAND MDP LINE A11 AND LATERALS
TITLE SHEET

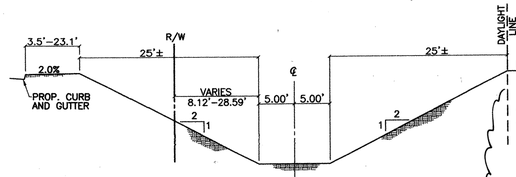
PROJECT NUMBER P8-798
DRAWING NO.
SHEET NO. 1 OF 10

P-397

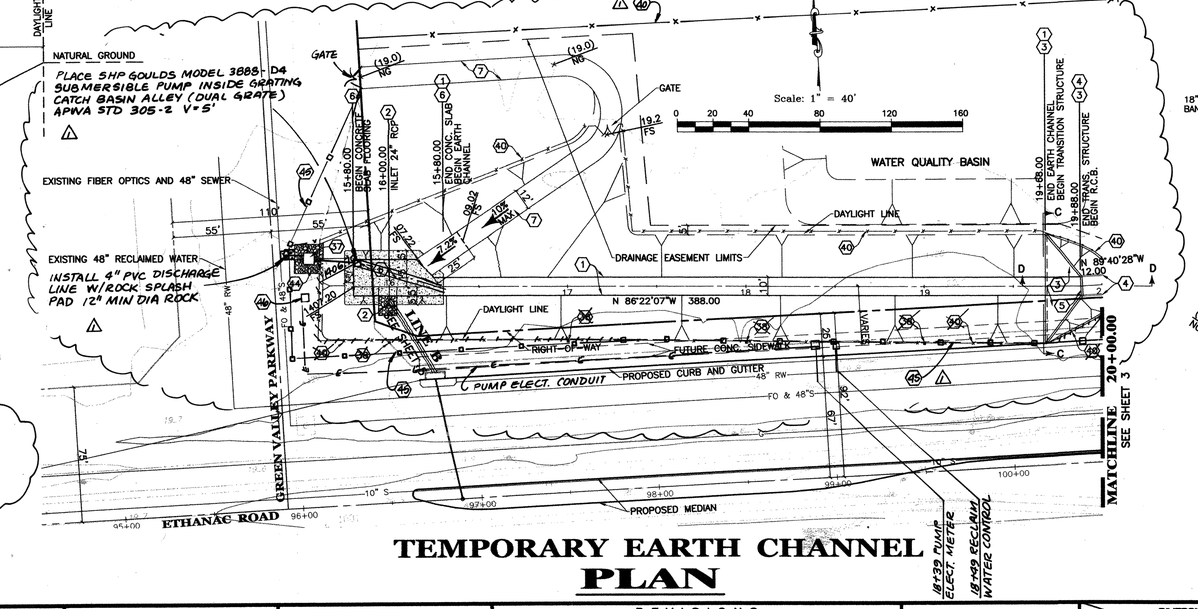


TEMPORARY EARTH CHANNEL
PROFILE

PROFILE SCALE
HORZ 1"= 40'
VERT 1"= 4'



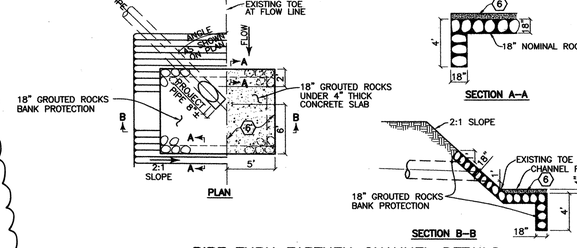
1 TRAPEZOIDAL EARTH CHANNEL DETAIL
SCALE: 1"=10'



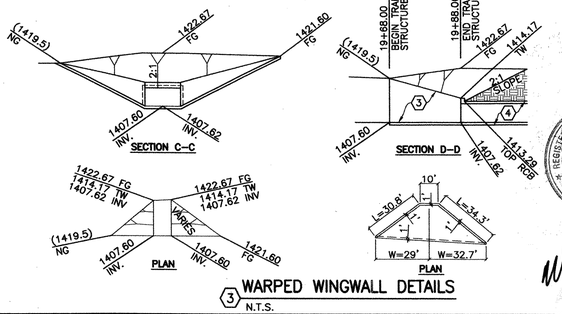
TEMPORARY EARTH CHANNEL
PLAN

CONSTRUCTION NOTES:

1. CONSTRUCT TEMPORARY TRAPEZOIDAL EARTHEN CHANNEL PER SECTION ABOVE.
2. CONSTRUCT PIPE THRU EARTHEN CHANNEL PER DETAILS RIGHT.
3. CONSTRUCT WARPED WINGWALL PER CALTRANS STD. PLAN D86A. W=32.7' AND 29' L=30.8' AND 34.3'
4. CONSTRUCT REINFORCED CONCRETE BOX PER CALTRANS STD. PLAN D80A. 10' SPAN x 5' HEIGHT FLAT INVERT.
5. INSTALL SLOPE PROTECTION BARRIER PER A.P.W.A. STD. PLAN 360.
6. PLACE 4" THICK CONCRETE SLAB.
7. CONSTRUCT 3" A.C. OVER NATIVE.
37. ~~FUTURE PUMP PAD~~ ~~5'WIDE 3'THICK CONC. SPLASH PAD~~
38. ~~INSTALL MARKERS PER CALTRANS STD. PLAN A73A TYPE L-1 ALONG CHANNEL AT 100' O.C.~~
40. CONSTRUCT CHAIN LINK FENCE PER RCFCD STD. DWG. NO. M801.
44. CONSTRUCT GROUTED 12" MIN. DIA. ROCK AROUND ~~PUMP~~ SPLASH PAD 2' THICK AND 2' DEPTH.
45. 6' WROUGHT IRON FENCE
46. PUMP CONTROL PAD



2 PIPE THRU EARTHEN CHANNEL DETAILS
N.T.S.



3 WARPED WINGWALL DETAILS
N.T.S.

REGISTERED PROFESSIONAL ENGINEER
WILLIAM J. McKEEVER
No. 22502
Exp. 12-31-07
CIVIL
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
WILLIAM J. McKEEVER
No. 22502
Exp. 12-31-09
CIVIL
STATE OF CALIFORNIA

AS BUILT

W.J. McKEEVER, INC.
CIVIL ENGINEERING
647 NORTH MAIN STREET, SUITE 2A
RIVERSIDE, CALIFORNIA 92501
PH.: (951) 341-3700
FAX: (951) 341-3740
WILLIAM J. McKEEVER R.C.E. 22502 DATE

CITY OF PERRIS
CITY FILE NO. P8-798
APPROVED BY:
CITY ENGINEER DATE

DIG ALERT
CALL: TOLL FREE
1-800
227-2600
TWO WORKING DAYS BEFORE YOU DIG!

BENCHMARK:
RIVERSIDE COUNTY BENCHMARK BRASS DISK STAMPED "600-31-68" 700' N OF INT. MURRIETA RD & ETHANAC RD, 40' W OF MURRIETA ROAD 3' NE OF THE SE CORN. OF 8' CLF OF EMWD MURRIETA PUMP STA. 2' N OF A MARKER POST. ELEVATION = 1414.416 FT (5/85)

REVISIONS

REF.	DESCRIPTION	APPR.	DATE
1	AS-BUILT REV FENCE LOCATION & TYPE ADD DISCHARGE LINE, ELECT LINE AND METERS ADD PUMP, BASIN AND SPLASH PAD NOTES		

DESIGN BY: G. MELUSKI
DRAWN BY: J. NAPOLES
DATE DRAWN: JANUARY 2006
CHECKED BY: W.J. McKEEVER

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
RECOMMENDED FOR APPROVAL BY: DATE:
APPROVED BY: DATE:

PERRIS CROSSING
TEMPORARY
EARTH CHANNEL
PLAN AND PROFILE

PROJECT NUMBER P8-798
DRAWING NO.
SHEET NO. 2 OF 10

P-397

*CONTRACTOR TO VERIFY EXACT LOCATION AND DEPTH OF EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION AND NOTIFY DESIGN ENGINEER OF ANY DISCREPANCIES FOUND.

CONSTRUCT 1,000.00 LF 10'x5' REINFORCED CONRETE BOX
MAINT. BY CITY OF PERRIS

PROPOSED FINISH SURFACE OVER STORM DRAIN
EXISTING GROUND OVER STORM DRAIN

MATCHLINE 20+00.00 — SEE SHEET 2

MATCHLINE 30+00.00 — SEE SHEET 4

20+42.56 INLET 48" RCP PER ONSITE SD PLAN NO. P8-798
20+44.56 ℄ 12" WATER
20+85.00 INLET 18" RCP LINE C
21+28.11 HORIZONTAL ANGLE POINT
21+34.28 ℄ 8" SEWER
22+17.00 ℄ MANHOLE NO. 1 RIM=1423.00
22+22.00 INLET 18" RCP LINE D
22+25.55 EC
22+47.41 ℄ 12" WATER
22+55.72 ℄ 3" GAS
22+89.49 INLET 8" PVC LINE F
23+25.85 INLET 18" RCP LINE F
23+37.30 EC
24+12.57 ℄ 12" WATER
25+00.00 ℄ MANHOLE NO. 2 RIM=1423.00
25+03.68 INLET 24" RCP LINE G
25+35.00 EC
25+45.00 INLET 18" RCP LINE H
27+93.09 ℄ 12" WATER
28+30.54 INLET 18" RCP LINE I
28+30.85 INLET 30" RCP LINE J
28+52.15 BC

INT. WS
HGL
1414.64 BOT
1415.31 TOP
1419.00* BOT
1414.34 TOP
1417.02 BOT
1414.30 TOP
1417.48 BOT
1415.00 TOP
1418.62 BOT
1412.91 INV. ELEV. S (N)
1412.00 INV. ELEV. S (S)

1408.42 INV. ELEV. S
1410.01 INV. ELEV. S
1407.67 INV.
1407.83 INV.
1408.00 INV.
1407.52 BOT
1405.74 TOP
1408.37 INV.
1408.61 INV.
1410.56 INV. ELEV. S
1408.55 INV.
1408.54 INV.
1411.34 INV. ELEV. S
1409.80 INV.
1411.00 INV. ELEV. S
1409.98 INV.
1409.89 INV.
1409.62 INV.
1411.38 INV. ELEV. S
1412.00 INV. ELEV. S
1409.63 INV.
1409.78 INV.
1409.80 INV.
1410.91 INV.
1410.99 INV.
1412.57 INV.

S=0.0039

Q_{100}=371.3cfs V_{100}=7.4fps
Q_{100}=337.6cfs V_{100}=6.8fps
Q_{100}=335.9cfs V_{100}=6.7fps
Q_{100}=330.0cfs V_{100}=6.6fps
Q_{100}=323.3cfs V_{100}=6.5fps
Q_{100}=311.6cfs V_{100}=6.2fps

INVERT 10'x5' RCB

ROMOLAND MDP LINE A11
PROFILE

PROFILE SCALE
HORZ 1"= 40'
VERT 1"= 4'

CONSTRUCTION NOTES:

4. CONSTRUCT REINFORCED CONCRETE BOX PER CALTRANS STD. PLAN D80A. 10' SPAN x 5' HEIGHT FLAT INVERT.
8. CONSTRUCT JUNCTION STRUCTURE NO. 1 PER RCFCD STD. DWG. NO. JS226. A=44°29'32" B=48" C=11.55" ELEV. "K"=1408.56
9. CONSTRUCT JUNCTION STRUCTURE NO. 3 PER RCFCD STD. DWG. NO. JS228. A=45°00'00" D=18"
10. CONSTRUCT JUNCTION STRUCTURE NO. 3 PER RCFCD STD. DWG. NO. JS228. MODIFIED FOR 8" PVC. A=90°00'00" D=8"
11. CONSTRUCT JUNCTION STRUCTURE NO. 3 PER RCFCD STD. DWG. NO. JS228. A=52°33'30" D=18"
12. CONSTRUCT JUNCTION STRUCTURE NO. 3 PER RCFCD STD. DWG. NO. JS228. A=60°43'43" D=18"
13. CONSTRUCT JUNCTION STRUCTURE NO. 3 PER RCFCD STD. DWG. NO. JS228. A=53°45'04" D=18"
14. CONSTRUCT JUNCTION STRUCTURE NO. 3 PER RCFCD STD. DWG. NO. JS228. A=51°28'18" D=30"
15. CONSTRUCT JUNCTION STRUCTURE NO. 3 PER RCFCD STD. DWG. NO. JS228. A=54°23'26" B=24"
16. CONSTRUCT MANHOLE NO. 3 PER RCFCD STD. DWG. NO. MH253.
17. REMOVE EXISTING STORM DRAIN LINES AND HEADWALL.
42. INSTALL 4 L.F. 48" STUB AT S=0.0354.
43. CONSTRUCT CONCRETE BULKHEAD PER RCFCD STD. DWG. NO. M816.
44. CONSTRUCT 6' WROUGHT IRON FENCE

Scale: 1" = 40'
0 20 40 80 120 160

20+37.47 ℄ INTR.
FUTURE ONSITE S.D.
20+49.25 EXISTING WELL TO BE ABANDONED BY PERMIT FROM CONTRACTOR PER RIV. CO. HEALTH DEPT. STANDARDS
N 89°40'28"W
20+44.56 RCB X-ING 12" WATER
PROPOSED 12" WATER
20+72.00 ℄ INTR.
MATCHLINE 20+00.00 — SEE SHEET 2
97.44
RIGHT-OF-WAY
DRAINAGE ESMT. LIMIT
21+28.11 HORIZ. ANGLE 77°
PROPOSED 8" SEWER
21+34.28 RCB X-ING 8" SEWER
N 89°42'19"W
SEE SHEET 5 FOR CONTINUATION
LINE C — SEE SHEET 5
22+17.00 ℄ MH No. 1
22+25.52 ℄ INTR.
22+47.41 RCB X-ING 12" WATER
22+55.72 RCB X-ING 3" GAS
22+89.49 ℄ INTR.
23+37.30 P.I.C.
PROPOSED 12" WATER
EXISTING 3" GAS
EXISTING DBL. 24" SD
LINE F — SEE SHEET 5
23+20.26 ℄ INTR.
110+00.00 CASE ROAD= 103+13.57 ETHANAC ROAD
ETHANAC ROAD
101+00 102+00 103+00 104+00

25+00.00 ℄ MH NO. 2
RIGHT-OF-WAY
PROP. 12" WATER
EXISTING 3" GAS
12"W
LINE H — SEE SHEET 6
CASE ROAD
PROPOSED CURB AND GUTTER
PROPOSED MEDIAN
284.67
N 75°43'43"E
LINE G — SEE SHEET 6
PROP. 12" WATER
25+35.00 EC
25+42.20 ℄ INTR.
REFER TO GRADING PLAN SHEET 9 CITY FILE NO. P8-798
27+93.09 RCB X-ING 12" WATER
28+26.87 ℄ INTR.
18"RCP
LINE I — SEE SHEET 7
28+52.15 BC
LINES J & K — SEE SHEET 7
MATCHLINE 30+00.00 — SEE SHEET 4

CURVE DATA				
	DELTA	RADIUS	LENGTH	TANGENT
A	36°38'01"	100.00	63.94	33.10
B	17°37'45"	100.00	30.77	15.51
C	09°46'05"	100.00	17.05	8.54
D	40°42'23"	229.00	162.70	84.95
E	08°45'29"	229.00	35.00	17.54
F	19°12'33"	441.00	147.85	74.63

ROMOLAND MDP LINE A11 PLAN

REGISTERED PROFESSIONAL ENGINEER WILLIAM J. McKEEVER No. 22502 Exp. 12-31-07 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER WILLIAM J. McKEEVER No. 22502 Exp. 12-31-09 CIVIL STATE OF CALIFORNIA
3/15/06
AS-BUILT

W.J. McKEEVER, INC.
CIVIL ENGINEERING
647 NORTH MAIN STREET, SUITE 2A
RIVERSIDE, CALIFORNIA 92501
PH.: (951) 341-3700
FAX: (951) 341-3740
WILLIAM J. McKEEVER, R.C.E. 22502 — DATE 12/14/06

CITY OF PERRIS
CITY FILE NO. P8-798
APPROVED BY:
CITY ENGINEER — DATE 12-22-06

DIG ALERT
CALL: TOLL FREE
1-800
227-2600
TWO WORKING DAYS BEFORE YOU DIG!

BENCHMARK:
RIVERSIDE COUNTY BENCHMARK BRASS DISK STAMPED "600-31-68" 700' N OF INT. MURRIETA RD & ETHANAC RD, 40' W OF MURRIETA ROAD 3' NE OF THE SE CORN. OF 8' CLF OF EMWD MURRIETA PUMP STA. 2' N OF A MARKER POST. ELEVATION = 1414.416 FT (5/85)

REVISIONS

REF.	DESCRIPTION	APPR.	DATE
1	AS BUILT ADD W.I FENCE 18"R.C.P.		

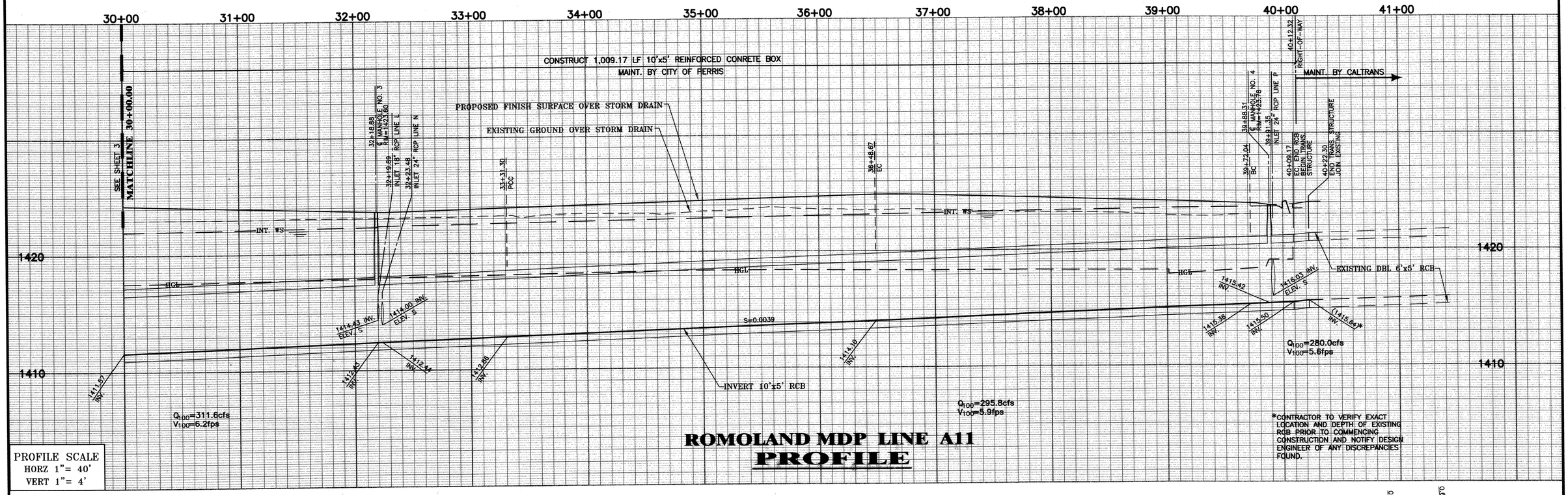
DESIGN BY: G. MELUSKI
DRAWN BY: J. NAPOLES
DATE DRAWN: JANUARY 2006
CHECKED BY: W.J. McKEEVER

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
RECOMMENDED FOR APPROVAL BY: — DATE:
APPROVED BY: — DATE:

PERRIS CROSSING
ROMOLAND MDP
LINE A11
PLAN AND PROFILE

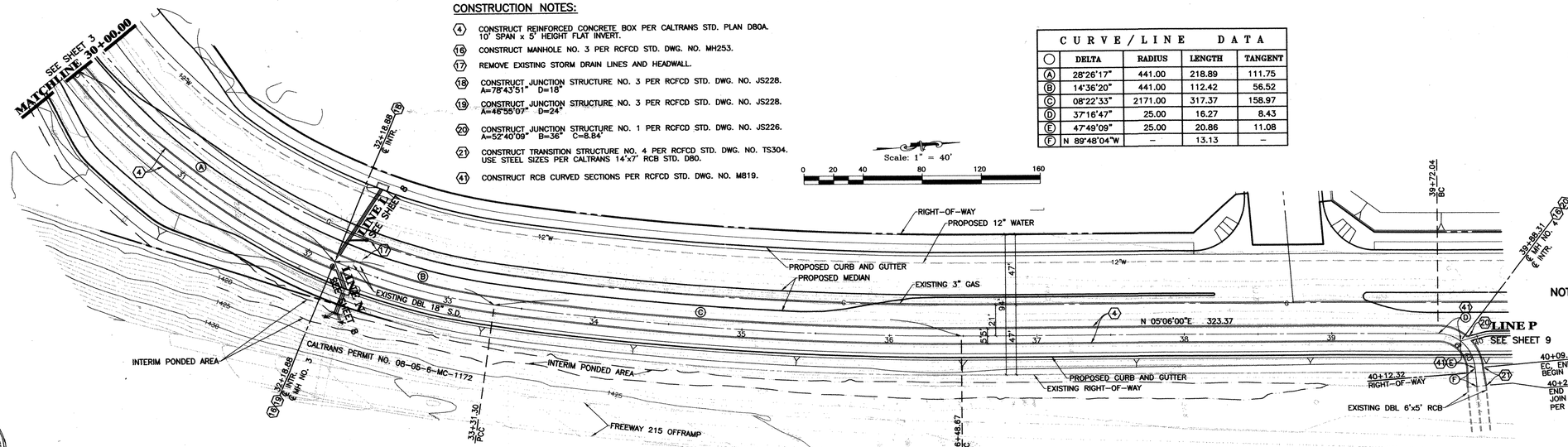
PROJECT NUMBER P8-798
DRAWING NO.
SHEET NO. 3 OF 10

P-397



PROFILE SCALE
HORZ 1"= 40'
VERT 1"= 4'

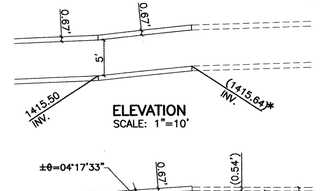
ROMOLAND MDP LINE A11
PROFILE



CONSTRUCTION NOTES:

4. CONSTRUCT REINFORCED CONCRETE BOX PER CALTRANS STD. PLAN D80A. 10' SPAN x 5' HEIGHT FLAT INVERT.
16. CONSTRUCT MANHOLE NO. 3 PER RCFCD STD. DWG. NO. MH253.
17. REMOVE EXISTING STORM DRAIN LINES AND HEADWALL.
18. CONSTRUCT JUNCTION STRUCTURE NO. 3 PER RCFCD STD. DWG. NO. JS228. A=78°43'51" D=18"
19. CONSTRUCT JUNCTION STRUCTURE NO. 3 PER RCFCD STD. DWG. NO. JS228. A=46°55'07" D=24"
20. CONSTRUCT JUNCTION STRUCTURE NO. 1 PER RCFCD STD. DWG. NO. JS226. A=52°40'09" B=36" C=8.84'
21. CONSTRUCT TRANSITION STRUCTURE NO. 4 PER RCFCD STD. DWG. NO. TS304. USE STEEL SIZES PER CALTRANS 14'x7' RCB STD. D80.
41. CONSTRUCT RCB CURVED SECTIONS PER RCFCD STD. DWG. NO. M819.

CURVE / LINE DATA				
○	DELTA	RADIUS	LENGTH	TANGENT
(A)	28°26'17"	441.00	218.89	111.75
(B)	14°36'20"	441.00	112.42	56.52
(C)	08°22'33"	2171.00	317.37	158.97
(D)	37°16'47"	25.00	16.27	8.43
(E)	47°49'09"	25.00	20.86	11.08
(F)	N 89°48'04"W	–	13.13	–



NOTE: USE STEEL SIZES PER CALTRANS 14'x7' RCB STD. D80.

21 TRANSITION STRUCTURE DETAILS
SCALE: 1"=10'

40+09.17 EC END RCB BEGIN TRANS. STRUCTURE (4)(21)
40+22.30 END TRANS. STRUCTURE JOIN EXISTING DBL 6'Wx5' RCB PER CALTRANS PERMIT NO. 08-05-6-MC-1172 (21)

REGISTERED PROFESSIONAL ENGINEER WILLIAM J. McKEEVER No. 22502 Exp. 12-31-07 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER WILLIAM J. McKEEVER No. 22502 Exp. 12-31-09 CIVIL STATE OF CALIFORNIA

AS BUILT

ROMOLAND MDP LINE A11
PLAN

W.J. McKEEVER, INC.
CIVIL ENGINEERING
647 NORTH MAIN STREET, SUITE 2A
RIVERSIDE, CALIFORNIA 92501
PH.: (951) 341-3700
FAX: (951) 341-3740
WILLIAM J. McKEEVER, R.C.E. 22502 — DATE

CITY OF PERRIS
CITY FILE NO. P8-798
APPROVED BY:
CITY ENGINEER — DATE

DIG ALERT
CALL: TOLL FREE
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227-2600
TWO WORKING DAYS BEFORE YOU DIG!

BENCHMARK:
RIVERSIDE COUNTY BENCHMARK BRASS DISK STAMPED "600-31-68" 700' N OF INT. MURRIETA RD & ETHANAC RD, 40' W OF MURRIETA ROAD 3' NE OF THE SE CORN. OF 8' CLF OF EMWD MURRIETA PUMP STA. 2' N OF A MARKER POST. ELEVATION = 1414.416 FT (5/85)

REVISIONS

REF.	DESCRIPTION	APPR.	DATE
1	AS BUILT NO REVISIONS		

DESIGN BY: G. MELUSKI
DRAWN BY: J. NAPOLES
DATE DRAWN: JANUARY 2006
CHECKED BY: W.J. McKEEVER

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
RECOMMENDED FOR APPROVAL BY: — DATE:
APPROVED BY: — DATE:

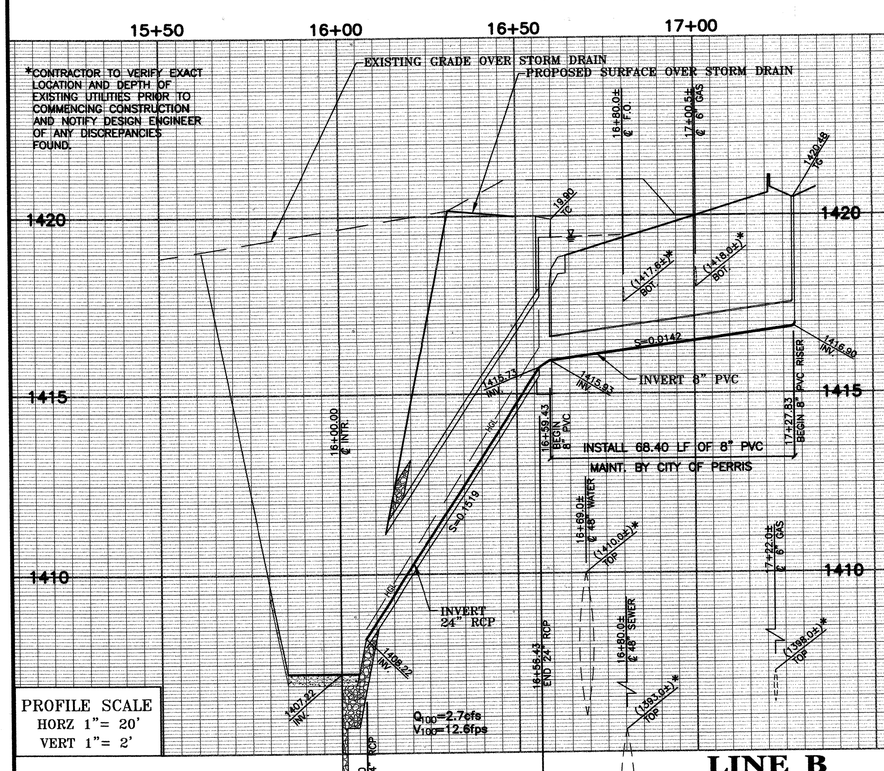
PERRIS CROSSING
ROMOLAND MDP
LINE A11
PLAN AND PROFILE

PROJECT NUMBER P8-798
DRAWING NO.
SHEET NO. 4 OF 10

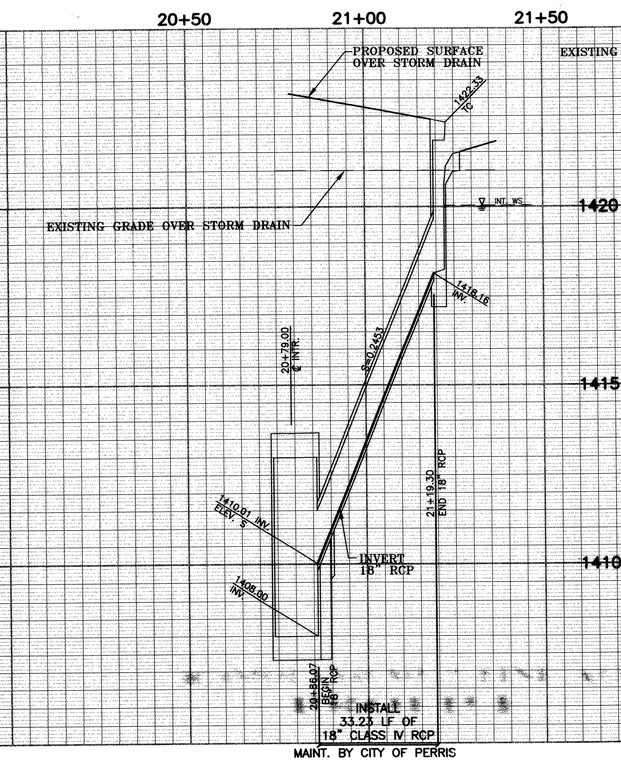
P-397

*CONTRACTOR TO VERIFY EXACT LOCATION AND DEPTH OF EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION AND NOTIFY DESIGN ENGINEER OF ANY DISCREPANCIES FOUND.

PROFILE SCALE
HORZ 1"= 20'
VERT 1"= 2'

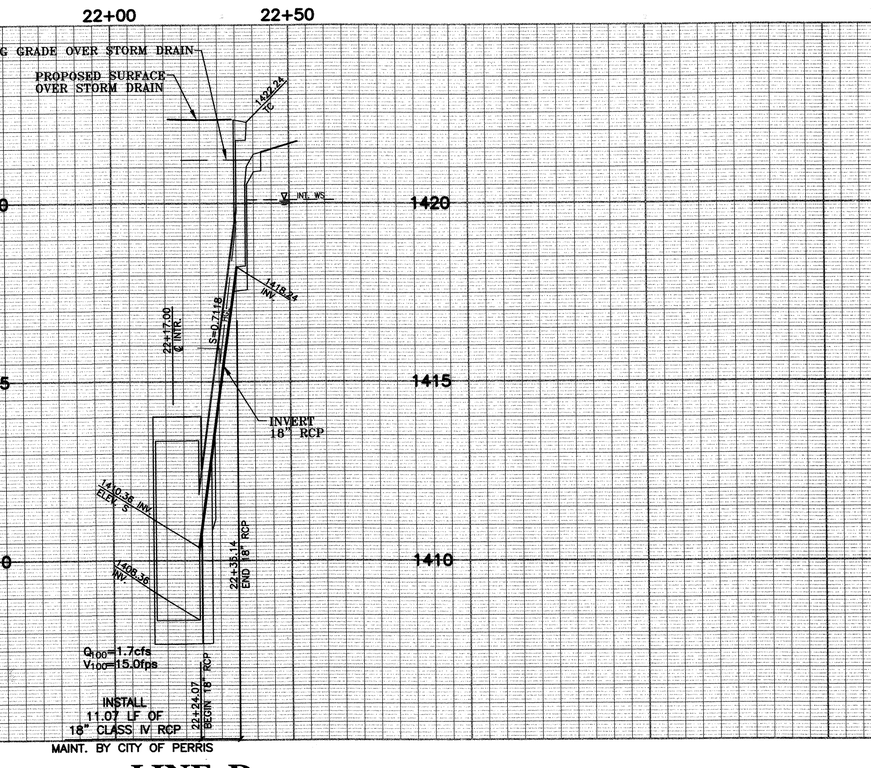


LINE B PROFILE

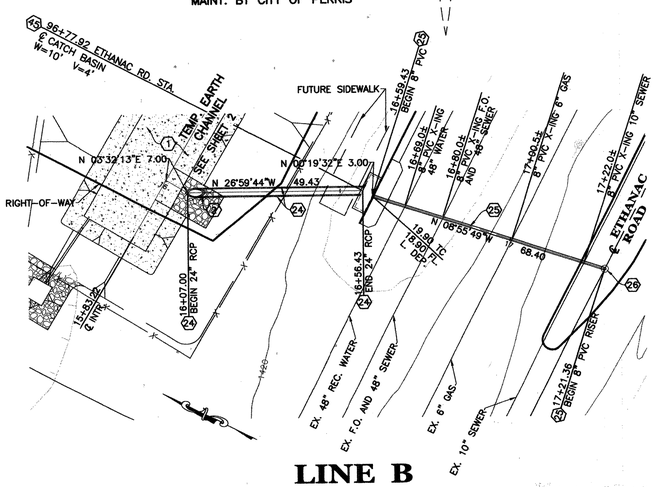


LINE C PROFILE

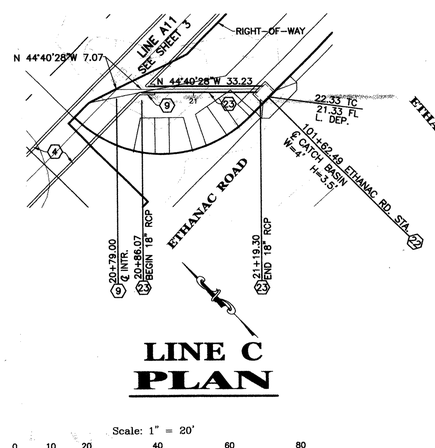
*CB FOR NUISANCE FLOWS ONLY



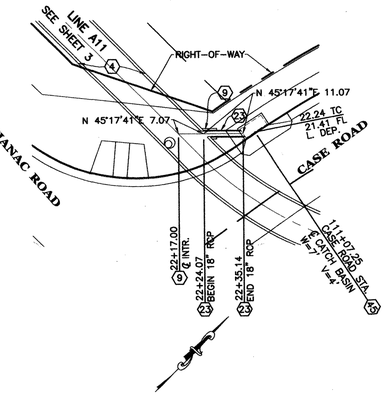
LINE D PROFILE



LINE B PLAN



LINE C PLAN



LINE D PLAN

CONSTRUCTION NOTES:

1. CONSTRUCT TEMPORARY TRAPEZOIDAL EARTHEN CHANNEL PER SECTION SHEET 2.
2. CONSTRUCT PIPE THRU EARTHEN CHANNEL PER DETAILS SHEET 2.
4. CONSTRUCT REINFORCED CONCRETE BOX PER CALTRANS STD. PLAN D80A. 10' SPAN x 5' HEIGHT FLAT INVERT.
9. CONSTRUCT JUNCTION STRUCTURE NO. 3 PER RCFCD STD. DWG. NO. JS228. A=45°00'00" D=18"
22. CONSTRUCT CATCH BASIN PER COUNTY OF RIVERSIDE STD. NO. 300.
23. INSTALL 18" CLASS IV RCP. SLOPE PER PLAN.
24. INSTALL 24" CLASS IV RCP. SLOPE PER PLAN.
25. INSTALL 8" PVC DRAIN LINE AND RISER IN MEDIAN.
26. INSTALL 8" NDS-10 ROUND GRATES PER NATIONAL DIVERSIFIED SALES, INC. OR APPROVED EQUAL.
45. CONSTRUCT CATCH BASIN NO. 1 PER RCFCD STD. DWG. NO. CB100.

REGISTERED PROFESSIONAL ENGINEER WILLIAM J. McKEEVER No. 22502 Exp. 12-31-07 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER WILLIAM J. McKEEVER No. 22502 Exp. 12-31-09 CIVIL STATE OF CALIFORNIA

W.J. McKEEVER, INC.
CIVIL ENGINEERING
647 NORTH MAIN STREET, SUITE 2A
RIVERSIDE, CALIFORNIA 92501
PH.: (951) 341-3700
FAX: (951) 341-3740
WILLIAM J. McKEEVER, R.C.E. 22502 DATE 12/19/06

CITY OF PERRIS
CITY FILE NO. P8-798
APPROVED BY:
CITY ENGINEER DATE

DIG ALERT
CALL: TOLL FREE
1-800
227-2600
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BENCHMARK:
RIVERSIDE COUNTY BENCHMARK BRASS DISK STAMPED "600-31-68" 700' N OF INT. MURRIETA RD & ETHANAC RD, 40' W OF MURRIETA ROAD 3' NE OF THE SE CORN. OF 8' CLF OF EMWD MURRIETA PUMP STA. 2' N OF A MARKER POST. ELEVATION = 1414.416 FT (5/85)

REVISIONS			
REF.	DESCRIPTION	APPR.	DATE
1	AS BUILT NO REVISIONS		

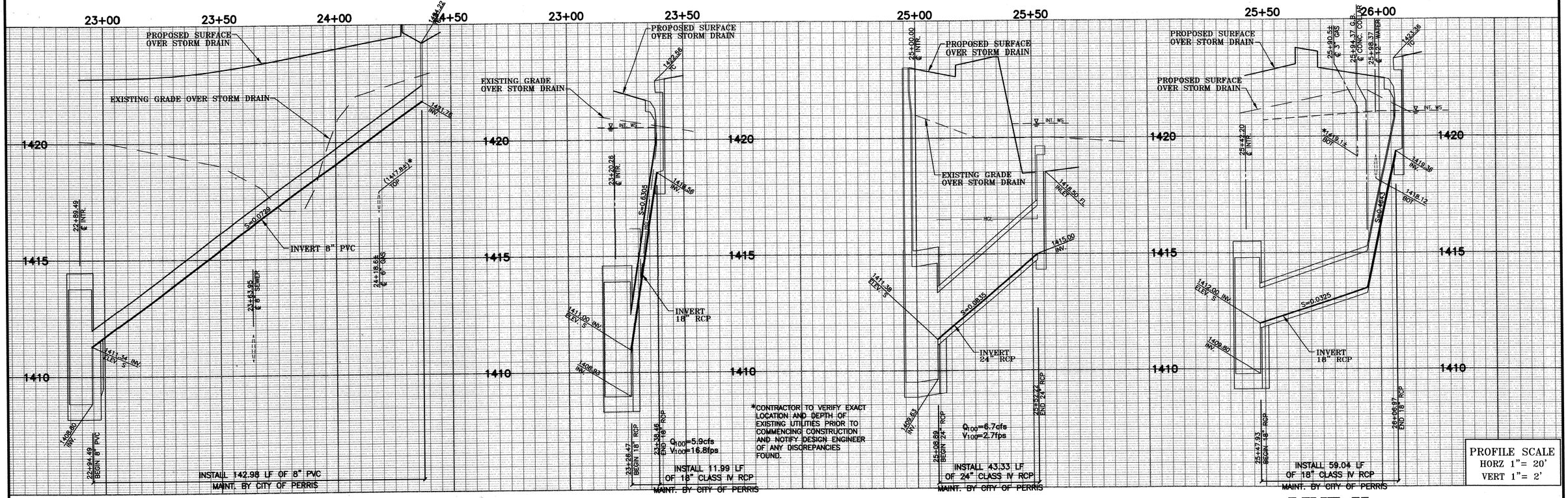
DESIGN BY: G. MELUSKI
DRAWN BY: J. NAPOLES
DATE DRAWN: JANUARY 2006
CHECKED BY: W.J. McKEEVER

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
RECOMMENDED FOR APPROVAL: DATE:
APPROVED BY: DATE:

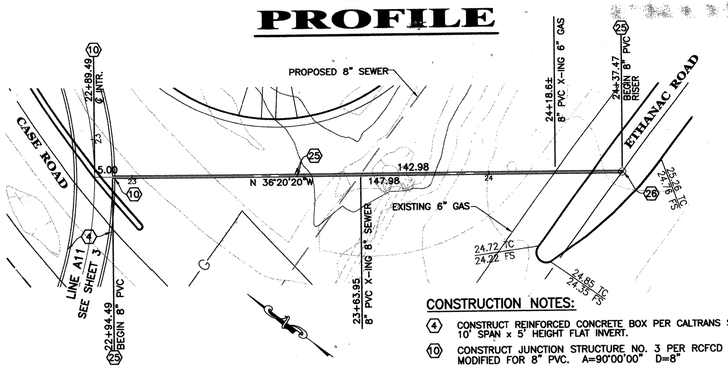
PERRIS CROSSING R.C.P. LINES B, C, AND D
PLAN AND PROFILE

PROJECT NUMBER P8-798
DRAWING NO.
SHEET NO. 5 OF 10

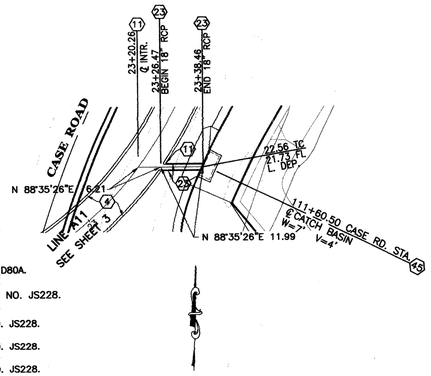
P-397



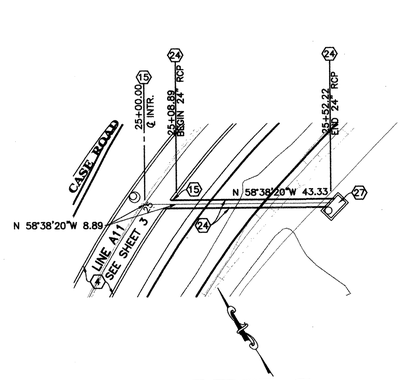
LINE E PROFILE



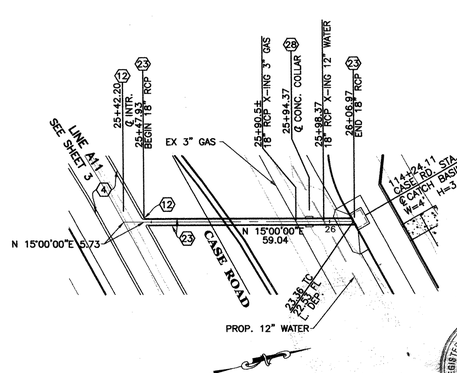
LINE E PLAN



LINE F PLAN



LINE G PLAN



LINE H PLAN

LINE E PROFILE

LINE F PROFILE

LINE G PROFILE

LINE H PROFILE

*CB FOR NUISANCE FLOWS ONLY

CONSTRUCTION NOTES:

(4) CONSTRUCT REINFORCED CONCRETE BOX PER CALTRANS STD. PLAN D80A. 10' SPAN x 5' HEIGHT FLAT INVERT.

(10) CONSTRUCT JUNCTION STRUCTURE NO. 3 PER RCFCD STD. DWG. NO. JS228. MODIFIED FOR 8" PVC. A=90°00'00" D=8"

(11) CONSTRUCT JUNCTION STRUCTURE NO. 3 PER RCFCD STD. DWG. NO. JS228. A=52°33'30" D=18"

(12) CONSTRUCT JUNCTION STRUCTURE NO. 3 PER RCFCD STD. DWG. NO. JS228. A=60°43'43" D=18"

(15) CONSTRUCT JUNCTION STRUCTURE NO. 3 PER RCFCD STD. DWG. NO. JS228. A=54°23'26" D=24"

(22) CONSTRUCT CATCH BASIN PER COUNTY OF RIVERSIDE STD. NO. 300.

(23) INSTALL 18" CLASS IV RCP. SLOPE PER PLAN.

(24) INSTALL 24" CLASS IV RCP. SLOPE PER PLAN.

(25) INSTALL 8" PVC DRAIN LINE AND RISER IN MEDIAN.

(26) INSTALL 8" NDS-10 ROUND GRATES PER NATIONAL DIVERSIFIED SALES, INC. OR APPROVED EQUAL.

(27) CONSTRUCT CONCRETE DROP INLET (W=6' V=4.62') PER RCFCD STD. DWG. NO. CB110.

(28) CONSTRUCT CONCRETE COLLAR PER RCFCD STD. DWG. NO. M803.

(45) CONSTRUCT CATCH BASIN NO. 1 PER RCFCD STD. DWG. NO. CB100.

Scale: 1" = 20'

0 10 20 40 60 80

REGISTERED PROFESSIONAL ENGINEER WILLIAM J. McKEEVER No. 22502 Exp. 12-31-07 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER WILLIAM J. McKEEVER No. 22502 Exp. 12-31-09 CIVIL STATE OF CALIFORNIA

AS BUILT

W.J. McKEEVER, INC.
CIVIL ENGINEERING
647 NORTH MAIN STREET, SUITE 2A
RIVERSIDE, CALIFORNIA 92501
PH.: (951) 341-3700
FAX: (951) 341-3740
WILLIAM J. McKEEVER, R.C.E. 22502 — DATE 12/31/06

CITY OF PERRIS
CITY FILE NO. P8-798
APPROVED BY: _____ CITY ENGINEER — DATE 12-26-06

DIG ALERT
CALL: TOLL FREE
1-800
227-2600
TWO WORKING DAYS BEFORE YOU DIG!

BENCHMARK:
RIVERSIDE COUNTY BENCHMARK BRASS DISK STAMPED "600-31-68" 700' N OF INT. MURRIETA RD & ETHANAC RD, 40' W OF MURRIETA ROAD 3' NE OF THE SE CORN. OF 8' CLF OF EMWD MURRIETA PUMP STA. 2' N OF A MARKER POST. ELEVATION = 1414.416 FT (5/85)

REVISIONS

REF.	DESCRIPTION	APPR.	DATE
1	AS-BUILT NO REVISIONS		

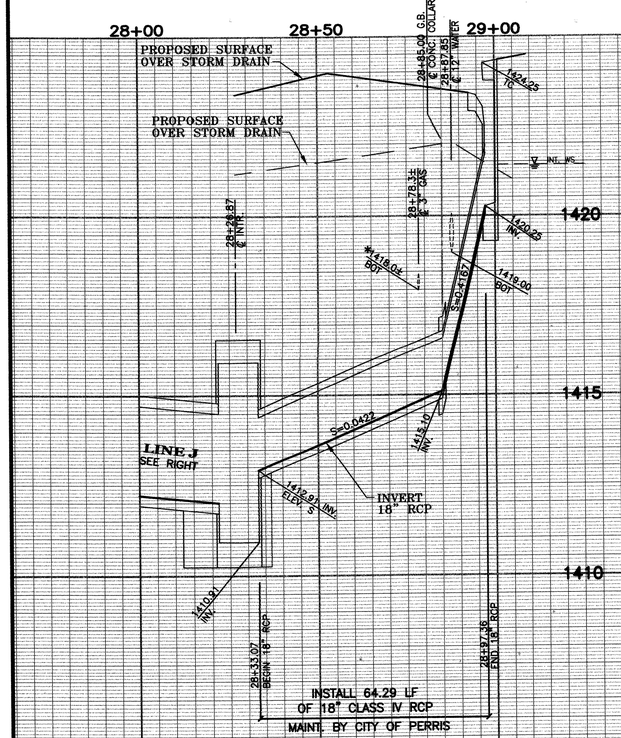
DESIGN BY: G. MELUSKI
DRAWN BY: J. NAPOLES
DATE DRAWN: JANUARY 2006
CHECKED BY: W.J. McKEEVER

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
RECOMMENDED FOR APPROVAL BY: _____ DATE: _____
APPROVED BY: _____ DATE: _____

PERRIS CROSSING
R.C.P.
LINES E, F, G AND H
PLAN AND PROFILE

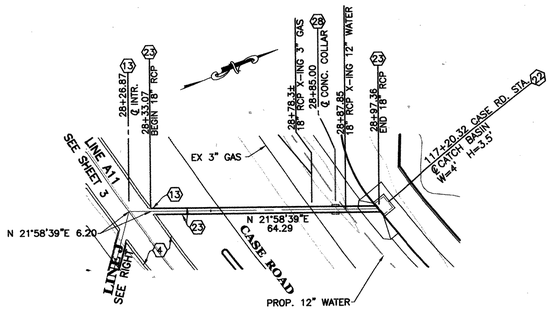
PROJECT NUMBER P8-798
DRAWING NO.
SHEET NO. 6 OF 10

P-397

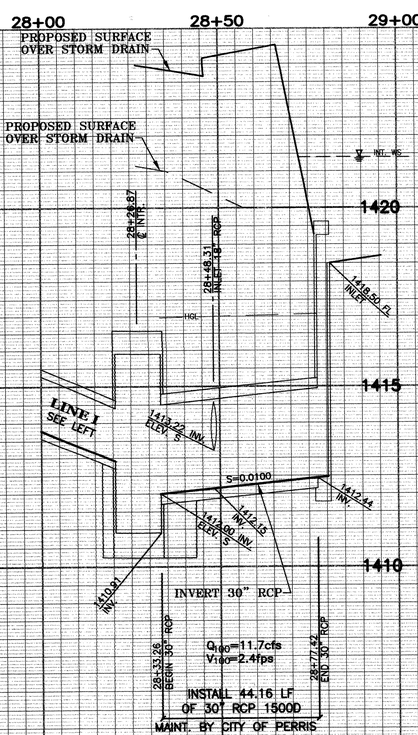


LINE I
PROFILE

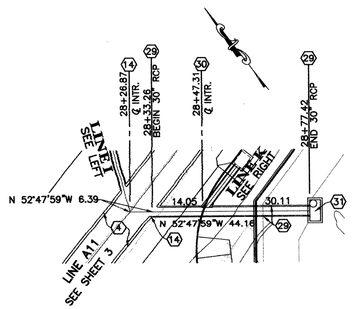
*CB FOR NUISANCE FLOWS ONLY



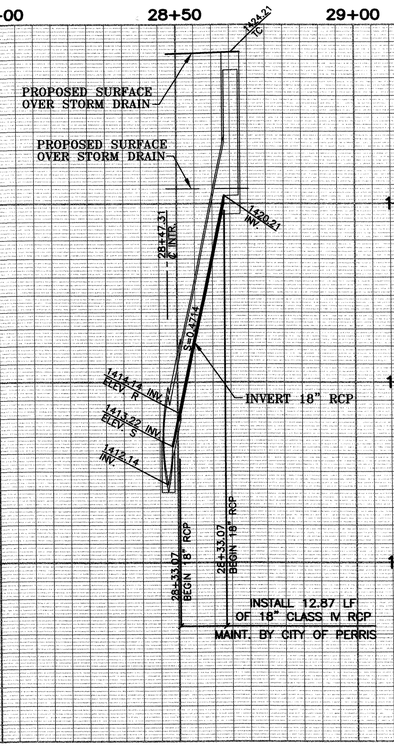
LINE I
PLAN



LINE J
PROFILE

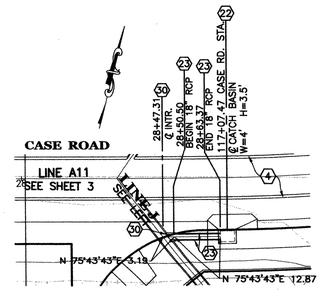


LINE J
PLAN



LINE K
PROFILE

*CB FOR NUISANCE FLOWS ONLY



LINE K
PLAN

PROFILE SCALE
HORZ 1"= 20'
VERT 1"= 2'

CONSTRUCTION NOTES:

4. CONSTRUCT REINFORCED CONCRETE BOX PER CALTRANS STD. PLAN D80A. 10' SPAN x 5' HEIGHT FLAT INVERT.
13. CONSTRUCT JUNCTION STRUCTURE NO. 3 PER RCFCD STD. DWG. NO. JS228. A=53°45'04" D=18"
14. CONSTRUCT JUNCTION STRUCTURE NO. 3 PER RCFCD STD. DWG. NO. JS228. A=51°28'18" D=30"
22. CONSTRUCT CATCH BASIN PER COUNTY OF RIVERSIDE STD. NO. 300.
23. INSTALL 18" CLASS IV RCP. SLOPE PER PLAN.
28. CONSTRUCT CONCRETE COLLAR PER RCFCD STD. DWG. NO. M803.
29. INSTALL 30" RCP 1500D. SLOPE PER PLAN.
30. CONSTRUCT JUNCTION STRUCTURE NO. 2 PER RCFCD STD. DWG. NO. JS227 A=51°28'18" B=18' C=3.61' D=30" E=2.66' F=0.68' G=1.22' L=2.86'
31. CONSTRUCT CONCRETE DROP INLET (W=6' V=7.18') PER RCFCD STD. DWG NO. CB110.

REGISTERED PROFESSIONAL ENGINEER WILLIAM J. McKEEVER No. 22502 Exp. 12-31-09 CIVIL STATE OF CALIFORNIA

AS BUILT

REGISTERED PROFESSIONAL ENGINEER WILLIAM J. McKEEVER No. 22502 Exp. 12-31-07 CIVIL STATE OF CALIFORNIA

Scale: 1" = 20'
0 10 20 40 60 80

W.J. McKEEVER, INC.
CIVIL ENGINEERING
647 NORTH MAIN STREET, SUITE 2A
RIVERSIDE, CALIFORNIA 92501
PH.: (951) 341-3700
FAX: (951) 341-3740
WILLIAM J. McKEEVER, R.C.E. 22502 — DATE 12/18/06

CITY OF PERRIS
CITY FILE NO. P8-798
APPROVED BY:
CITY ENGINEER — DATE

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BENCHMARK:
RIVERSIDE COUNTY BENCHMARK BRASS DISK STAMPED "600-31-68" 700' N OF INT. MURRIETA RD & ETHANAC RD, 40' W OF MURRIETA ROAD 3' NE OF THE SE CORN. OF 8' CLF OF EMWD MURRIETA PUMP STA. 2' N OF A MARKER POST.
ELEVATION = 1414.416 FT (5/85)

REVISIONS

REF.	DESCRIPTION	APPR.	DATE
1	AS BUILT NO REVISIONS		

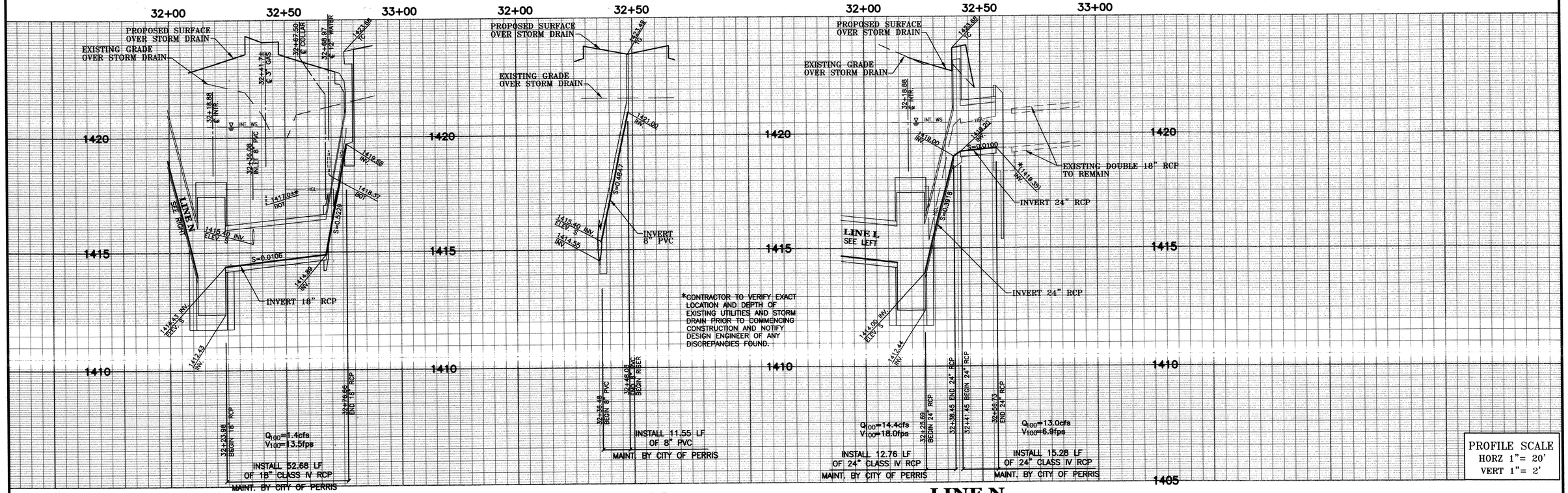
DESIGN BY: G. MELUSKI
DRAWN BY: J. NAPOLES
DATE DRAWN: JANUARY 2006
CHECKED BY: W.J. McKEEVER

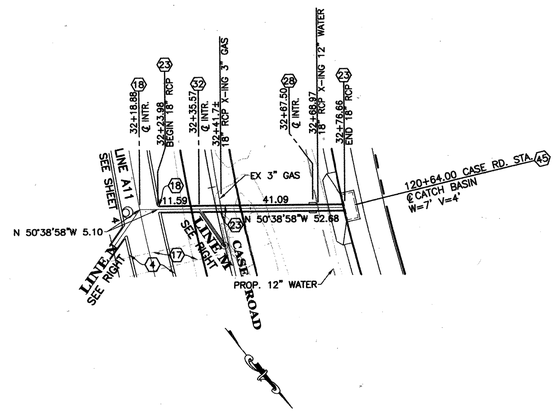
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
RECOMMENDED FOR APPROVAL BY: — DATE:
APPROVED BY: — DATE:

PERRIS CROSSING
R.C.P.
LINES I, J AND K
PLAN AND PROFILE

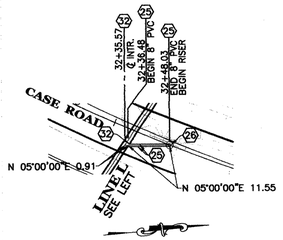
PROJECT NUMBER P8-798
DRAWING NO.
SHEET NO. 7 OF 10

P-397





LINE L
PROFILE

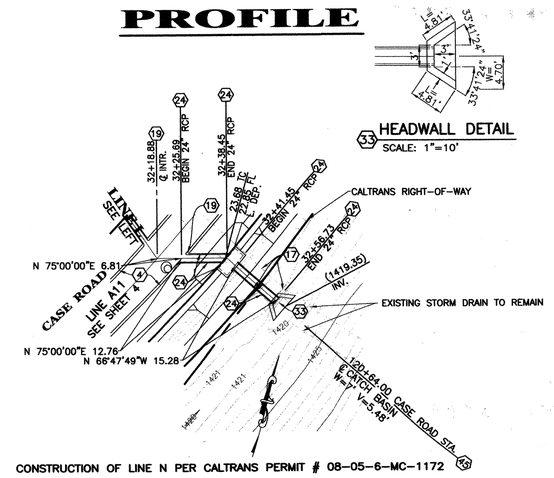


LINE M
PROFILE

LINE M
PLAN

Scale: 1" = 20'

0 10 20 40 60 80



CONSTRUCTION OF LINE N PER CALTRANS PERMIT # 08-05-6-MC-1172

LINE N
PROFILE

HEADWALL DETAIL
SCALE: 1"=10'

LINE N
PLAN

CONSTRUCTION NOTES:

4. CONSTRUCT REINFORCED CONCRETE BOX PER CALTRANS STD. PLAN D80A. 10' SPAN x 5' HEIGHT FLAT INVERT.
17. REMOVE EXISTING STORM DRAIN LINES AND HEADWALL.
18. CONSTRUCT JUNCTION STRUCTURE NO. 3 PER RCFCD STD. DWG. NO. JS228. A=78°43'51" D=18"
19. CONSTRUCT JUNCTION STRUCTURE NO. 3 PER RCFCD STD. DWG. NO. JS228. A=46°55'07" D=24"
23. INSTALL 18" CLASS IV RCP. SLOPE PER PLAN.
24. INSTALL 24" CLASS IV RCP. SLOPE PER PLAN.
25. INSTALL 8" PVC DRAIN LINE AND RISER IN MEDIAN.
26. INSTALL 8" NDS-10 ROUND GRATES PER NATIONAL DIVERSIFIED SALES, INC. OR APPROVED EQUAL.
28. CONSTRUCT CONCRETE COLLAR PER RCFCD STD. DWG. NO. M803.
52. CONSTRUCT JUNCTION STRUCTURE NO. 3 PER RCFCD STD. DWG. NO. JS228. MODIFIED FOR 8" PVC. A=55°38'58" D=8
33. CONSTRUCT HEADWALL PER CALTRANS STD. PLAN D90A TYPE A.
45. CONSTRUCT CATCH BASIN NO. 1 PER RCFCD STD. DWG. NO. CB100.

REGISTERED PROFESSIONAL ENGINEER WILLIAM J. McKEEVER No. 22502 Exp. 12-31-07 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER WILLIAM J. McKEEVER No. 22502 Exp. 12-31-09 CIVIL STATE OF CALIFORNIA

AS-BUILT

W.J. McKEEVER, INC.
CIVIL ENGINEERING
647 NORTH MAIN STREET, SUITE 2A
RIVERSIDE, CALIFORNIA 92501
PH: (951) 341-3700
FAX: (951) 341-3740

WILLIAM J. McKEEVER, R.C.E. 22502 — DATE 12/1/06

CITY OF PERRIS
CITY FILE NO. P8-798
APPROVED BY:
CITY ENGINEER — DATE 12-6-06

DIG ALERT
CALL: TOLL FREE
1-800
227-2600
TWO WORKING DAYS BEFORE YOU DIG!

BENCHMARK:
RIVERSIDE COUNTY BENCHMARK BRASS DISK STAMPED "600-31-68" 700' N OF INT. MURRIETA RD & ETHANAC RD, 40' W OF MURRIETA ROAD 3' NE OF THE SE CORN. OF 8' CLF OF EMWD MURRIETA PUMP STA. 2' N OF A MARKER POST. ELEVATION = 1414.416 FT (5/85)

REVISIONS

REF.	DESCRIPTION	APPR.	DATE
1	AS-BUILT NO REVISIONS		

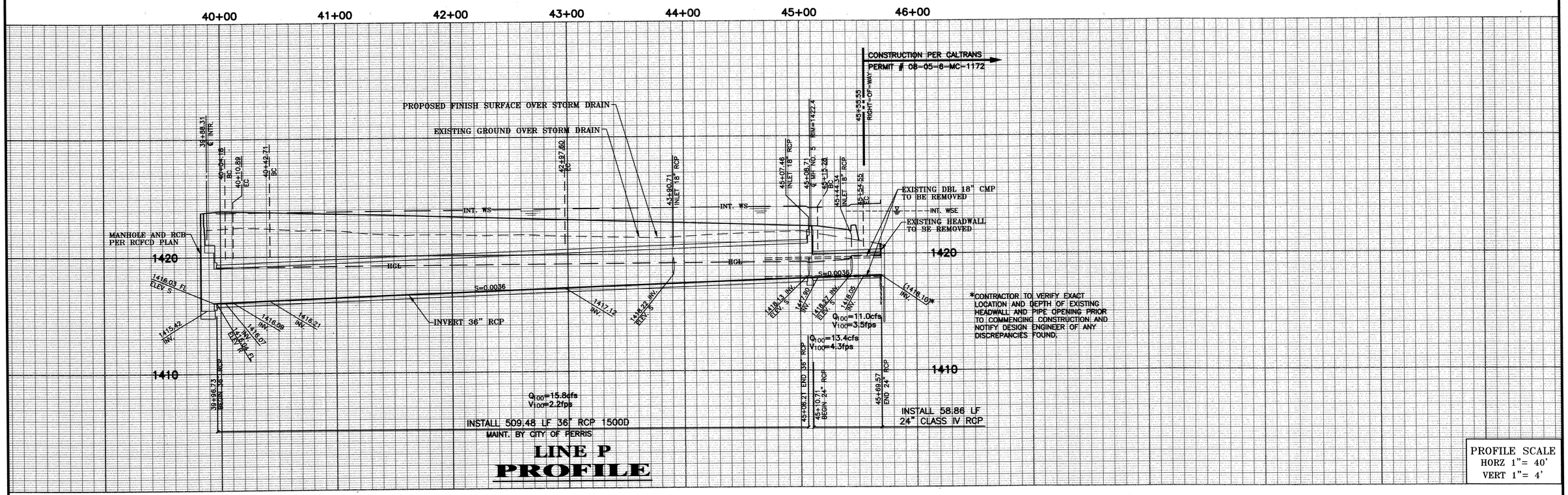
DESIGN BY: G. MELUSKI
DRAWN BY: J. NAPOLES
DATE DRAWN: JANUARY 2006
CHECKED BY: W.J. McKEEVER

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
RECOMMENDED FOR APPROVAL BY: DATE:
APPROVED BY: DATE:

PERRIS CROSSING
R.C.P.
LINES L, M AND N
PLAN AND PROFILE

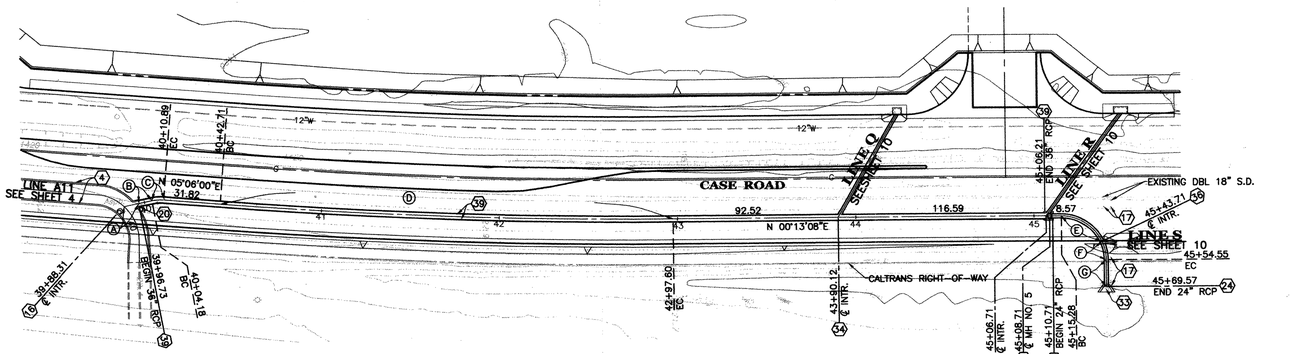
PROJECT NUMBER P8-798
DRAWING NO.
SHEET NO. 8 OF 10

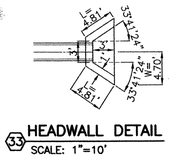
P-397

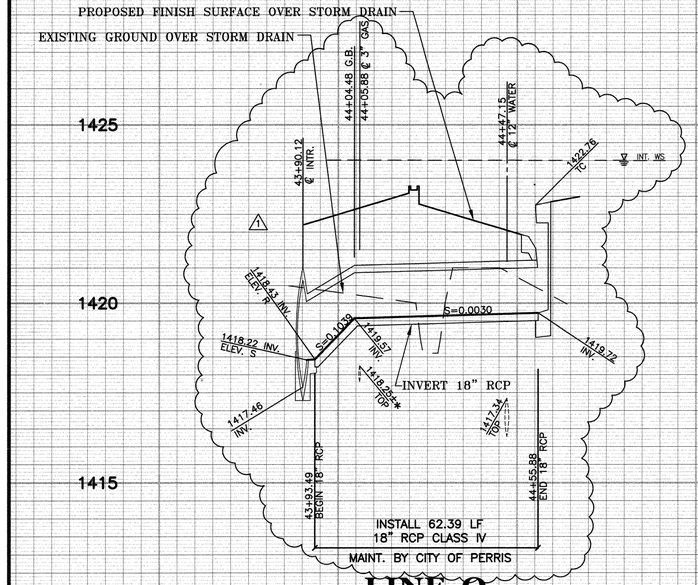


LINE P PROFILE

PROFILE SCALE
HORZ 1"= 40'
VERT 1"= 4'

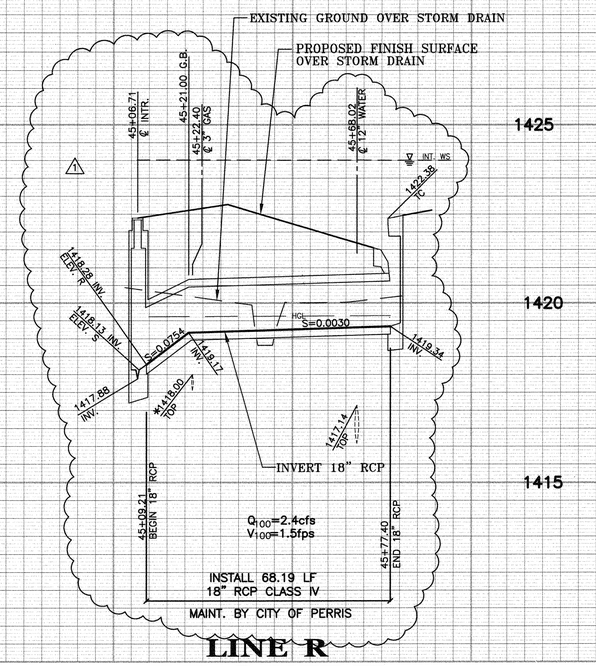



1.81'
33°41'24"
2.41'
2.41'
2.41'

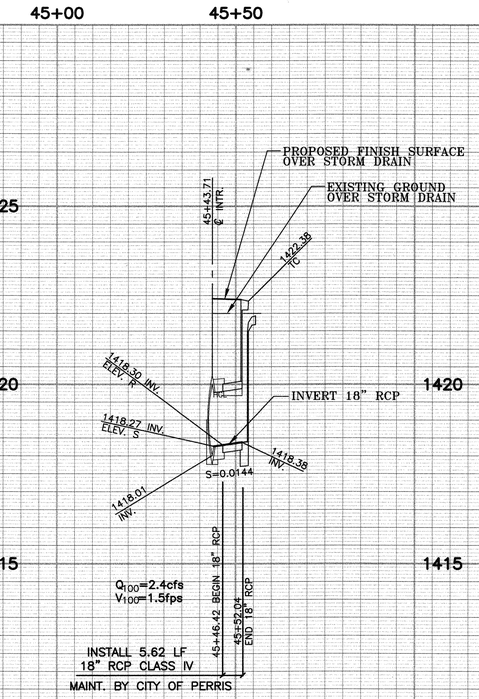


LINE Q
PROFILE

*CB FOR NUISANCE FLOWS ONLY

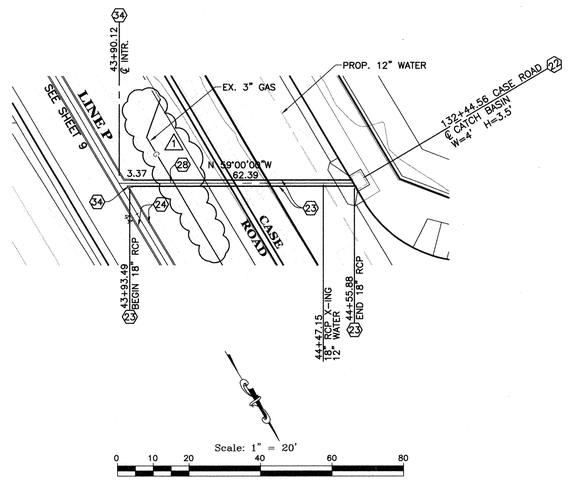


LINE R
PROFILE

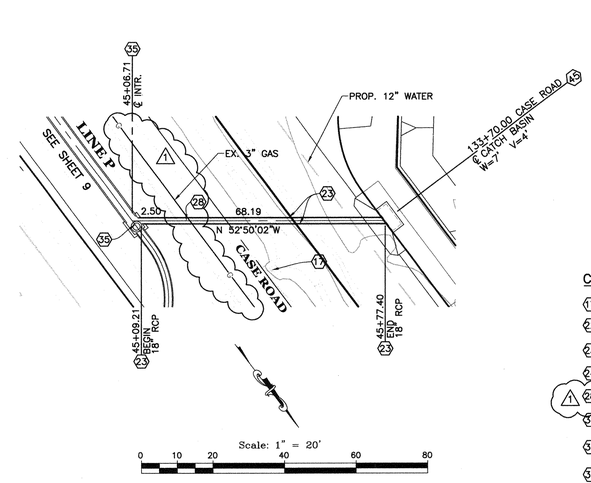


LINE S
PROFILE

PROFILE SCALE
HORZ 1"= 20'
VERT 1"= 2'



LINE Q
PLAN



LINE R
PLAN

CURVE / LINE DATA				
◯	DELTA/BEARING	RADIUS	LENGTH	TANGENT
(A)	N 10°17'22"W	–	8.09	–
(B)	N 10°17'22"W	–	8.24	–
(C)	15°23'22"	25.00	6.71	3.38
(D)	04°52'52"	2992.00	254.89	127.52
(E)	65°09'55"	25.00	28.43	15.98
(F)	24°50'05"	25.00	10.84	5.50
(G)	N 89°46'52"W	–	15.02	–

CONSTRUCTION NOTES:

17 REMOVE EXISTING STORM DRAIN LINES AND HEADWALL.

22 CONSTRUCT CATCH BASIN PER COUNTY OF RIVERSIDE STD. NO. 300.

23 INSTALL 18" CLASS IV RCP. SLOPE PER PLAN.

24 INSTALL 24" CLASS IV RCP. SLOPE PER PLAN.

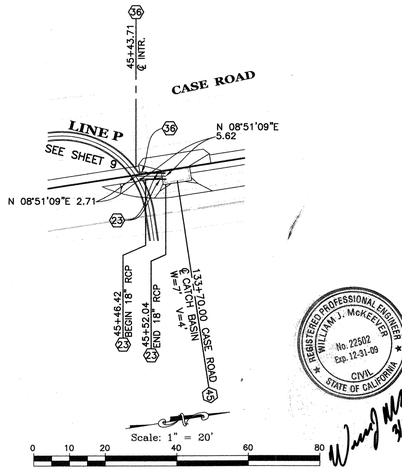
1/28 CONSTRUCT CONCRETE COLLAR PER RCFCD STD. DWG. NO. M803.

34 CONSTRUCT JUNCTION STRUCTURE NO. 2 PER RCFCD STD. DWG. NO. JS227. A=59°13'08" B=18" C=3.37' D=24" E=2.05' F=0.91' G=0.66' L=2.61'

35 CONSTRUCT JUNCTION STRUCTURE NO. 2 PER RCFCD STD. DWG. NO. JS227. A=53°03'10" B=18" C=3.64' D=24" E=2.34' F=1.00' G=0.80' L=2.80'

36 CONSTRUCT JUNCTION STRUCTURE NO. 2 PER RCFCD STD. DWG. NO. JS227. A=56°31'55" B=18" C=3.13' D=24" E=2.01' F=0.99' G=0.81' L=2.50'

45 CONSTRUCT CATCH BASIN NO. 1 PER RCFCD STD. DWG. NO. CB100.



LINE S
PLAN

AS BUILT

REGISTERED PROFESSIONAL ENGINEER WILLIAM J. McKEEVER No. 22502 Exp. 12-31-07 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER WILLIAM J. McKEEVER No. 22502 Exp. 12-31-09 CIVIL STATE OF CALIFORNIA

W.J. McKEEVER, INC.
CIVIL ENGINEERING
647 NORTH MAIN STREET, SUITE 2A
RIVERSIDE, CALIFORNIA 92501
PH.: (951) 341-3700
FAX: (951) 341-3740

WILLIAM J. McKEEVER, R.C.E. 22502 — DATE 6/6/07

CITY OF PERRIS
CITY FILE NO. P8-798
APPROVED BY:
CITY ENGINEER — DATE 7-13-07

DIG ALERT
CALL: TOLL FREE
1-800
227-2600
TWO WORKING DAYS BEFORE YOU DIG!

BENCHMARK:
RIVERSIDE COUNTY BENCHMARK BRASS DISK STAMPED "600-31-68" 700' N OF INT. MURRIETA RD & ETHANAC RD, 40' W OF MURRIETA ROAD 3' NE OF THE SE CORN. OF 8' CLF OF EMWD MURRIETA PUMP STA. 2' N OF A MARKER POST. ELEVATION = 1414.416 FT (5/85)

REVISIONS			
REF.	DESCRIPTION	APPR.	DATE
2	AS BUILT NO REVISIONS		
1	REVISED STORM DRAIN TO CLEAR GAS LINE		7-13-07

DESIGN BY: G. MELUSKI
DRAWN BY: J. NAPOLES
DATE DRAWN: JANUARY 2006
CHECKED BY: W.J. McKEEVER

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
RECOMMENDED FOR APPROVAL: — DATE:
APPROVED BY: — DATE:

PERRIS CROSSING R.C.P. LINES Q,R AND S
PLAN AND PROFILE

PROJECT NUMBER P8-798
DRAWING NO.
SHEET NO. 10 OF 10

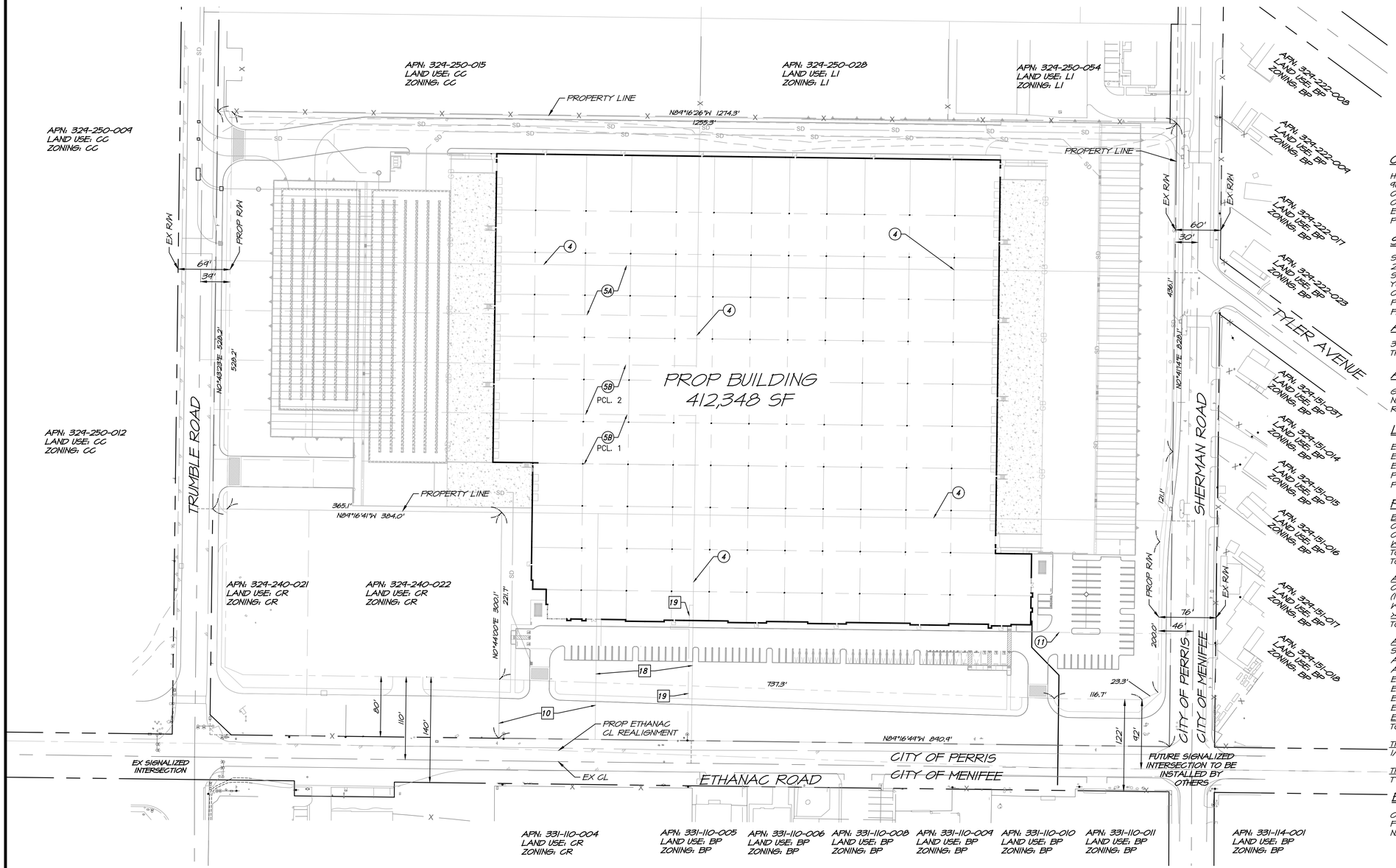
P-397

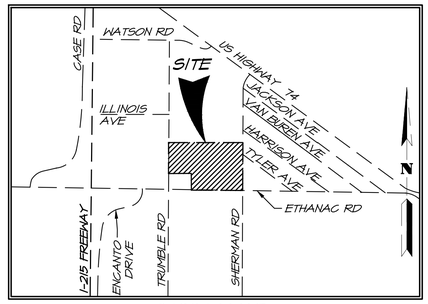
DEVELOPMENT PLAN REVIEW 22-00030

IN THE CITY OF PERRIS, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

DEVELOPMENT PLAN REVIEW NO. 22-00030

LOCATED IN SECTION 10 SW, T. 5S., R. 3W., S.B.M.





VICINITY MAP
NTS

OWNER/APPLICANT

HILLWOOD INVESTMENT PROPERTIES
901 VIA PIEMONTE STE. 175
ONTARIO CA, 91764
CONTACT: JOHN GRACE
EMAIL: JOHN.GRACE@HILLWOOD.COM
PHONE: (909) 256-5424

PROJECT REPRESENTATIVE

ALBERT A. WEBB ASSOCIATES
3788 MCCRAY STREET
RIVERSIDE, CA 92506
CONTACT: RICHARD BELMUDEZ
PHONE: (951) 686-1070
FAX: (951) 788-1256

SOILS ENGINEER

SOUTHERN CALIFORNIA GEOTECHNICAL
22885 E. SAVI RANCH PARKWAY,
SUITE E
YORBA LINDA, CA 92887
CONTACT: ROBERT TRAZO
PHONE: (714) 685-1115
FAX: (714) 685-1118

ENGINEER

ALBERT A. WEBB ASSOCIATES
3788 MCCRAY STREET
RIVERSIDE, CA 92506
CONTACT: SARAH KOWALSKI
PHONE: (951) 686-1070
FAX: (951) 788-1256

A.P.N.

324-240-016 THRU -020, -023,
THRU -027

ARCHITECT

HPA ARCHITECTS
18831 BARDEEN AVE., STE 100
IRVINE, CA 92612
CONTACT: INKON KIM
PHONE: (949) 863-1770
EMAIL: INKON@HPARCHS.COM

ACREAGE

GROSS	21.6 AC
NET	19.9 AC
R/W	1.7 AC

TOPOGRAPHY SOURCE

TOPOGRAPHY FLOWN BY INLAND AERIAL SURVEYS INC. ON 02/15/2022

LAND USE

EXISTING LAND USE: VACANT
EXISTING GENERAL PLAN LAND USE: COMMERCIAL COMMUNITY (CC)
EXISTING ZONING: COMMERCIAL COMMUNITY (CC)
PROPOSED GENERAL PLAN LAND USE: LIGHT INDUSTRIAL (LI)
PROPOSED ZONING: LIGHT INDUSTRIAL (LI)

PROJECT DATA

BUILDING AREA	
OFFICE - FIRST FLOOR	10,000 SF
OFFICE - SECOND FLOOR	5,000 SF
WAREHOUSE	397,348 SF
TOTAL BUILDING FOOTPRINT	407,348 SF
TOTAL FLOOR AREA	412,348 SF
AUTO PARKING REQUIRED	
OFFICE:	
(1 STALL/300 SF IF LESS THAN 10% GFA)	N/A
WAREHOUSE:	
>40K SF @ (30 STALLS + 1 STALL/5,000 SF)	105 STALLS
TOTAL	105 STALLS
AUTO PARKING PROVIDED	
STANDARD (9' x 19')	76 STALLS
ADA STANDARD (9' x 19')	3 STALLS
ADA VAN (12' x 19')	2 STALLS
EV ADA STANDARD (9' x 19')	1 STALLS
EV ADA VAN (12' x 19')	1 STALLS
EV AMBULATORY (10' x 19')	1 STALLS
EVCS STANDARD (9' x 19')	3 STALLS
EV CALPABLE (9' x 19')	19 STALLS
TOTAL	106 STALLS
TRAILER PARKING REQUIRED	
1/ 5,000 SF	82 STALLS
TRAILER PARKING PROVIDED	
TYPICAL TRAILER (10' x 55')	157 STALLS

EARTHWORK ESTIMATE

CUT:	15,600 CY
FILL:	66,100 CY
NET:	50,500 CY (FILL)

SHEET INDEX

SHEET 1 - TITLE SHEET
SHEET 2 - STREET AND GRADING SECTIONS
SHEET 3 - CONCEPTUAL GRADING
SHEETS 4,5 - CONCEPTUAL UTILITIES

PRELIMINARY

GENERAL INFORMATION

1. ALL PARCELS WITHIN PROJECT BOUNDARY TO BE COMBINED VIA PARCEL MAP
2. THOMAS BROS. MAP BOOK PAGE: 838, GRID: C1 AND D1
3. PROJECT IS NOT WITHIN A SPECIFIC PLAN.
4. PROJECT LIES WITHIN THE CITY OF PERRIS REDEVELOPMENT PROJECT AREA.
5. PROJECT LIES WITHIN CFD NO. 1.
6. EASEMENTS OF RECORD ARE PLOTTED HEREIN.
7. PROJECT IS WITHIN EASTERN MUNICIPAL WATER DISTRICT
8. THERE ARE NO EXISTING WELLS ON THE PROPERTY.
9. ALL SLOPES ARE 2:1 RATIO, UNLESS OTHERWISE NOTED.
10. LAND IS NOT WITHIN A SPECIAL STUDIES ZONE.
11. LAND HAS LOW POTENTIAL FOR LIQUEFACTION PER SOCAL GEO REPORT DATED 02/23/2022.
12. SUB-SURFACE SEPTIC DISPOSAL IS NOT INTENDED ON SITE.
13. STRUCTURES AND/OR DWELLINGS DO NOT EXIST ON SITE.
14. THE PROJECT WILL COMPLY WITH NPDES REQUIREMENTS AS REQUIRED BY NPDES SUPPLEMENT "A".
15. FLOOD ZONE X, AREA OF LOW FLOODING PER FEMA PANEL 06065C2060H.
16. PROJECT LIES WITHIN AIRPORT LAND USE COMPATIBILITY ZONE D.
17. ARCHITECTURAL SITE PLAN PROVIDED BY HPA ARCHITECTURE ON 04/12/23

UTILITY PROVIDERS

WATER:	EASTERN MUNICIPAL WATER DISTRICT PHONE: (951) 685-7434
SEWER:	EASTERN MUNICIPAL WATER DISTRICT PHONE: (951) 685-7434
GAS:	SOUTHERN CALIFORNIA GAS COMPANY PHONE: (909) 307-7070
ELECTRIC:	SOUTHERN CALIFORNIA EDISON PHONE: 1 (800) 655-4555
TELEPHONE:	CHARTER COMMUNICATIONS (SPECTRUM) PHONE: (951) 406-1666
CABLE T.V.:	FRONTIER COMMUNICATIONS PHONE: (310) 264-5100
SCHOOL DISTRICT(S):	ROMOLAND SCHOOL DISTRICT (TK-8) PHONE: (951) 926-4244 PERRIS UNION HIGH SCHOOL DISTRICT (9-12) PHONE: (951) 943-6369

EASEMENT NOTES

SEE SHEET 2

LEGAL DESCRIPTION

SEE SHEET 2

N
W WEBB E
S

1" = 70'
70 0 70 140 210

REVISIONS	DATE	BY
PUBLIC DETENTION BASIN ADDED	4/23	AG

CITY OF PERRIS

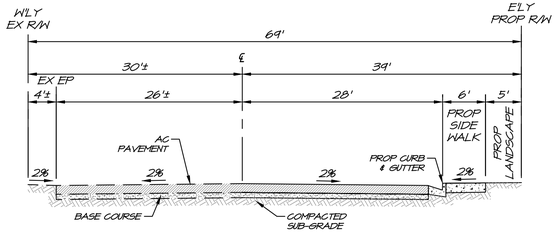
ETHANAC LOGISTICS CENTER
TITLE SHEET
DEVELOPMENT PLAN REVIEW NO. 22-00030

SCALE:	1" = 70'
DATE:	9/1/2023
DESIGNED:	AG
CHECKED:	SK
PLN CK REF:	
F.B.	

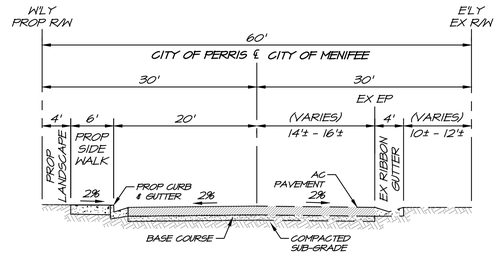
ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET
RIVERSIDE CA. 92506
PH. (951) 686-1070
FAX (951) 788-1256

W.O. 22-0198
SHEET 1
OF 5 SHEETS
DWG. NO.

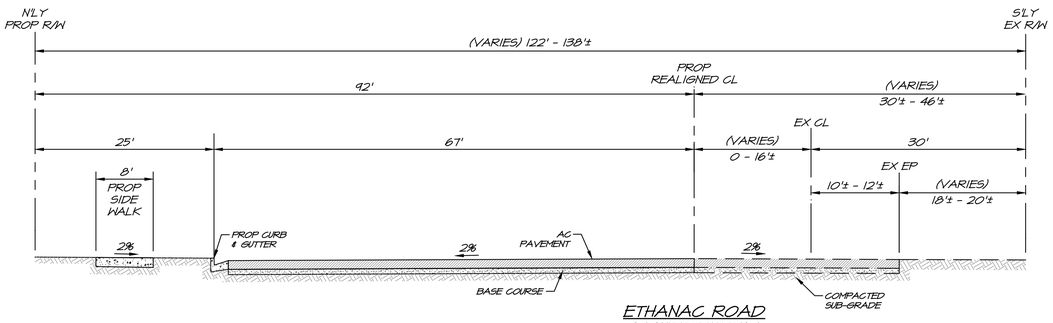
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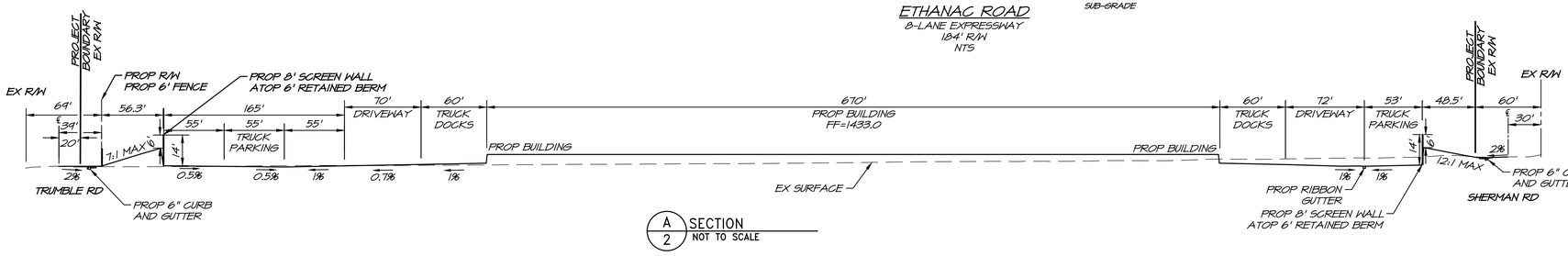
TRUMBLE ROAD
MAJOR COLLECTOR
78' R/W
NTS



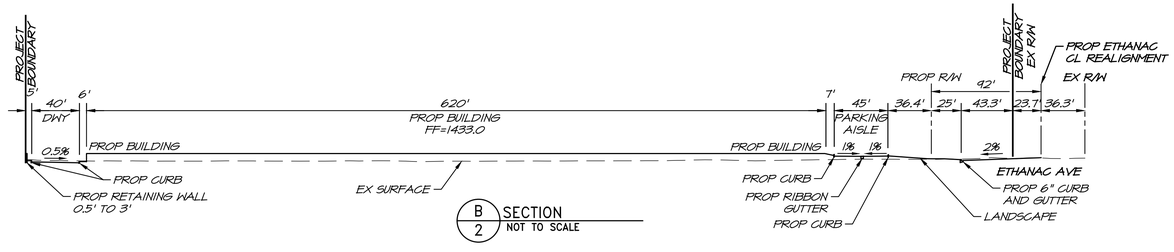
SHERMAN ROAD
LOCAL
60' R/W
NTS



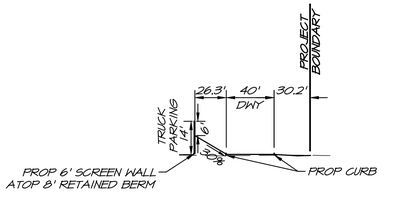
ETHANAC ROAD
8-LANE EXPRESSWAY
184' R/W
NTS



A
2
SECTION
NOT TO SCALE



B
2
SECTION
NOT TO SCALE



C
2
SECTION
NOT TO SCALE

EASEMENT NOTES

APN: 324-240-016 THRU -020 AND 324-240-025 THRU -027.

4. AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES, RECORDED JUNE 25, 1927 IN BOOK 120 OF DEEDS, PAGE 209, IN FAVOR OF SOUTHERN SIERRAS POWER COMPANY. THE LOCATION OF THE EASEMENT CANNOT BE DETERMINED FROM RECORD INFORMATION.

5. COVENANTS, CONDITIONS, RESTRICTIONS AND EASEMENTS IN THE DOCUMENT RECORDED APRIL 17, 1934 AS BOOK 170, PAGE 305 AND JANUARY 13, 1936 IN BOOK 254, PAGE 560 (BOTH) OF OFFICIAL RECORDS, BUT DELETING ANY COVENANT, CONDITION OR RESTRICTION INDICATING A PREFERENCE, LIMITATION OR DISCRIMINATION BASED ON RACE, COLOR, RELIGION, SEX, HANDICAP, FAMILIAL STATUS, NATIONAL ORIGIN, SEXUAL ORIENTATION, MARITAL STATUS, ANCESTRY, SOURCE OF INCOME OR DISABILITY, TO THE EXTENT SUCH COVENANTS, CONDITIONS OR RESTRICTIONS VIOLATE TITLE 42, SECTION 3604(C), OF THE UNITED STATES CODES, LAWFUL RESTRICTIONS UNDER STATE AND FEDERAL LAW ON THE AGE OF OCCUPANTS IN SENIOR HOUSING OR HOUSING FOR OLDER PERSONS SHALL NOT BE CONSTRUED AS RESTRICTIONS BASED ON FAMILIAL STATUS.
[(5A) BOOK 170, PAGE 305 & (5B) BOOK 254, PAGE 560]

11. AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES, RECORDED AUGUST 8, 1947 AS BOOK 846, PAGE 355 OF OFFICIAL RECORDS. IN FAVOR OF CALIFORNIA ELECTRIC POWER COMPANY.
[℄ OF UNDISCLOSED WIDTH]

APN: 324-240-023 AND -024

10. COVENANTS, CONDITIONS, RESTRICTIONS AND EASEMENTS IN THE DOCUMENT RECORDED APRIL 24, 1933 AS BOOK 120, PAGE 347 OF OFFICIAL RECORDS, WHICH PROVIDE THAT A VIOLATION THEREOF SHALL NOT DEFEAT OR RENDER INVALID THE LIEN OF ANY FIRST MORTGAGE OR DEED OF TRUST MADE IN GOOD FAITH AND FOR VALUE, BUT DELETING ANY COVENANT, CONDITION OR RESTRICTION INDICATING A PREFERENCE, LIMITATION OR DISCRIMINATION BASED ON RACE, COLOR, RELIGION, SEX, HANDICAP, FAMILIAL STATUS, NATIONAL ORIGIN, SEXUAL ORIENTATION, MARITAL STATUS, ANCESTRY, SOURCE OF INCOME OR DISABILITY, TO THE EXTENT SUCH COVENANTS, CONDITIONS OR RESTRICTIONS VIOLATE TITLE 42, SECTION 3604(C), OF THE UNITED STATES CODES OR SECTION 12955 OF THE CALIFORNIA GOVERNMENT CODE. LAWFUL RESTRICTIONS UNDER STATE AND FEDERAL LAW ON THE AGE OF OCCUPANTS IN SENIOR HOUSING OR HOUSING FOR OLDER PERSONS SHALL NOT BE CONSTRUED AS RESTRICTIONS BASED ON FAMILIAL STATUS.

18. EASEMENTS, COVENANTS AND CONDITIONS CONTAINED IN THE DEED FROM ETHANAC RANCHO, LTD, AS GRANTOR, TO PHILA M. LAUDIG, AS GRANTEE, RECORDED APRIL 24, 1933 AS BOOK 123, PAGE 42 OF OFFICIAL RECORDS. REFERENCE BEING MADE TO THE DOCUMENT FOR FULL PARTICULARS.
[BLANKET IN NATURE]

19. AN EASEMENT FOR TELEPHONE LINE, CONSISTING OF POLES, NECESSARY GUYS AND ANCHORS, BRACES, CROSS-ARMS, WIRE, CONDUITS, CABLES, AND OTHER FIXTURES AND APPLIANCES, FOR CONVEYING ELECTRIC ENERGY TO BE USED FOR COMMUNICATION, TELEPHONE, TELEGRAPH AND/OR OTHER PURPOSES AND ACCESS FOR EXERCISING THE RIGHTS AND INCIDENTAL PURPOSES, RECORDED SEPTEMBER 18, 1961 AS INSTRUMENT NO. 79475, BOOK 2483, PAGE 446 OF OFFICIAL RECORDS, IN FAVOR OF CALIFORNIA WATER & TELEPHONE COMPANY, A CORPORATION, AND ITS SUCCESSORS.

LEGAL DESCRIPTION

APN: 324-240-016 (AFFECTS THE PORTION OF LOT 133), **324-240-017** (AFFECTS THE PORTION OF LOT 134), **324-240-018** (AFFECTS THE PORTION OF LOT 134), **324-240-019** (AFFECTS THE PORTION OF LOT 134), **324-240-020** (AFFECTS THE PORTION OF LOT 134), **324-240-026** (AFFECTS THE LOT 131), **324-240-027** (AFFECTS THE PORTION OF LOT 138), **324-240-025** (AFFECT LOT 136).

REAL PROPERTY IN THE CITY OF PERRIS, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCEL A:
LOTS 134, 131 AND THE SOUTH 198 FEET OF LOTS 133 AND 138 OF RAMOLA FARMS NO. 6A, IN THE CITY OF PERRIS, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 14, PAGES 63, 64, AND 65 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

PARCEL B:
LOT 136 OF RAMOLA FARMS NO. 6A, IN THE CITY OF PERRIS, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 14, PAGES 63, 64, AND 65 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

APN: 324-240-023 (AFFECTS PARCEL A) AND **324-240-024** (AFFECTS PARCEL B)

PARCEL A:

THE WESTERLY 128.00 FEET OF THE EASTERLY 256.00 FEET OF LOT 135 OF ROMOLA FARMS NO. 6-A, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 14, PAGES 63, 64 AND 65 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

PARCEL B:

THAT PORTION OF LOT 135 OF ROMOLA FARMS NO. 6A, AS SHOWN BY MAP OF SAID TRACT ON FILE IN BOOK 14, PAGES 63, 64, AND 65 OF MAPS, RIVERSIDE COUNTY RECORDS, DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF SAID LOT 135; THENCE WEST, ON THE SOUTH LINE OF SAID LOT, 128 FEET; THENCE NORTH, PARALLEL WITH THE EAST LINE OF SAID LOT, 300 FEET, TO A POINT ON THE NORTH LINE OF SAID LOT, 128 FEET WEST OF THE NORTHEAST CORNER THEREOF; THENCE EAST, ON THE NORTH LINE OF SAID LOT, 128 FEET, TO THE NORTHEAST CORNER THEREOF; THENCE SOUTH, ON THE EAST LINE OF SAID LOT, 300 FEET, TO THE POINT OF BEGINNING.

PRELIMINARY

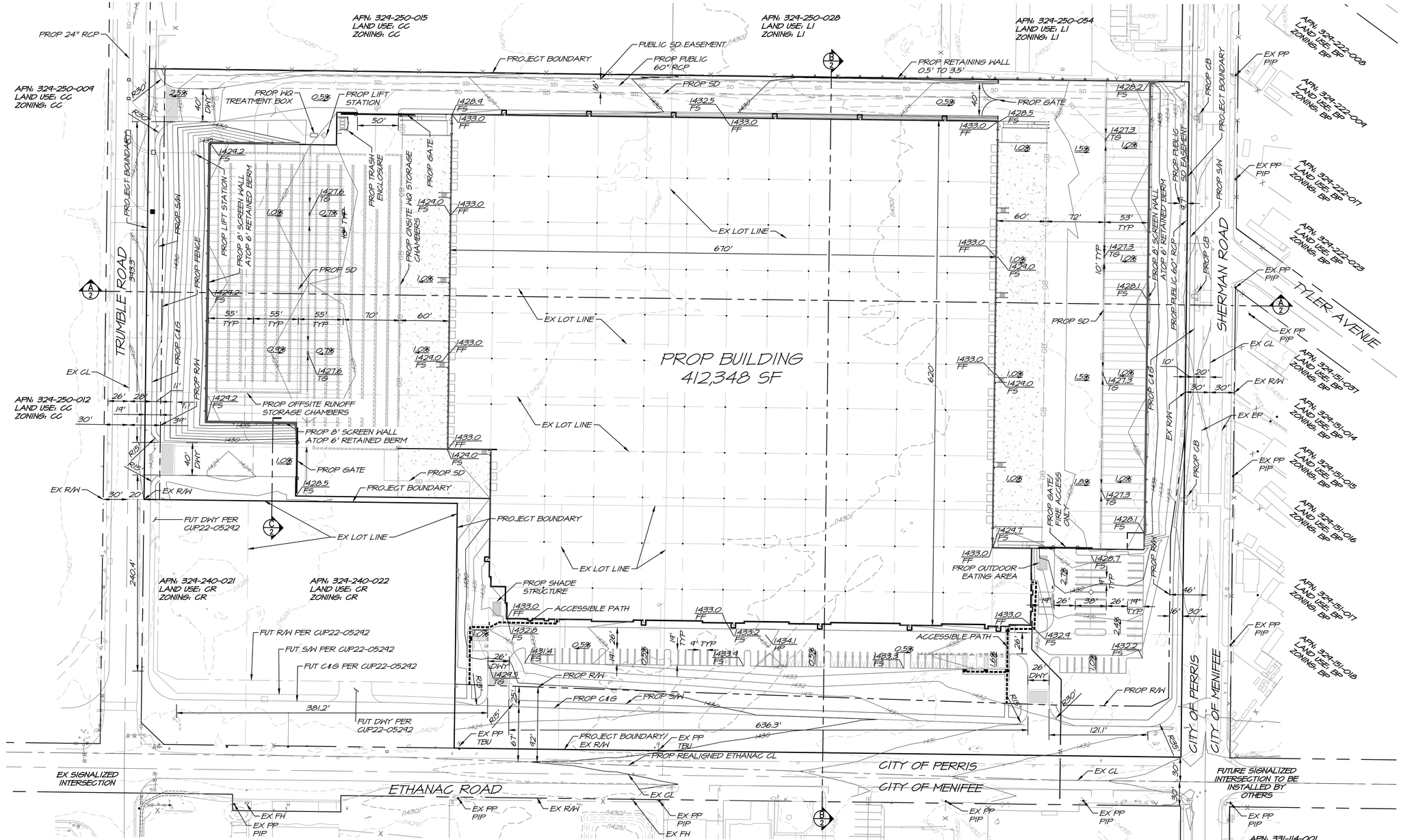
REVISIONS	DATE	BY
REVISED SECTIONS FOR PUBLIC DETENTION BASIN	4/23	AG

CITY OF PERRIS

ETHANAC LOGISTICS CENTER
GRADING AND STREET SECTIONS
DEVELOPMENT PLAN REVIEW NO. 22-00030

SCALE: NTS	ALBERT A. WEBB ASSOCIATES ENGINEERING CONSULTANTS 3788 McCRAY STREET RIVERSIDE, CA. 92506 PH. (951) 686-1070 FAX (951) 788-1256	W.O.	22-0198
DATE: 9/1/2023		SHEET	2
DESIGNED: AG		OF	5 SHEETS
CHECKED: SK		DWG. NO.	
PLN CK REF:			
F.B.			

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LEGEND

- ACCESSIBLE PATH
- (1430) EXISTING CONTOUR
- EXISTING CENTER LINE
- EXISTING EASEMENT
- EXISTING EDGE OF PAVEMENT
- X EXISTING FENCE
- EXISTING LOT LINE
- GB GRADE BREAK
- PROJECT BOUNDARY
- PROPOSED CENTER LINE
- 1430 PROPOSED CONTOUR
- PROPOSED CURB
- PROP/EX RIGHT OF WAY

ABBREVIATIONS

CB	CATCH BASIN
EP	EDGE OF PAVEMENT
EX	EXISTING
FF	FINISHED FLOOR
FH	FIRE HYDRANT
FS	FINISHED SURFACE
PIP	PROTECT IN PLACE
PROP	PROPOSED
R/W	RIGHT-OF-WAY
RCB	REINFORCED CONCRETE BOX
RCP	REINFORCED CONCRETE PIPE
S/W	SIDEWALK
TBU	TO BE UNDERGROUNDED
TG	TOP OF GRATE
TYP	TYPICAL

REVISIONS	DATE	BY
PUBLIC DETENTION BASIN ADDED	4/23	AG

PRELIMINARY

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CITY OF PERRIS

ETHANAC LOGISTICS CENTER
CONCEPTUAL GRADING
DEVELOPMENT PLAN REVIEW NO. 22-00030

SCALE:	1" = 60'
DATE:	9/1/2023
DESIGNED:	AG
CHECKED:	SK
PLN CK REF:	
F.B.	

ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET
RIVERSIDE, CA. 92506
PH. (951) 686-1070
FAX (951) 788-1256

W.O.	22-0198
SHEET	3
OF	5 SHEETS
DWG. NO.	

SEE SHEET 5

APN: 324-250-015
LAND USE: CC
ZONING: CC

APN: 324-250-028
LAND USE: LI
ZONING: LI

APN: 324-250-054
LAND USE: LI
ZONING: LI

APN: 324-250-009
LAND USE: CC
ZONING: CC

APN: 324-250-012
LAND USE: CC
ZONING: CC

APN: 324-240-021
LAND USE: CR
ZONING: CR

APN: 324-240-022
LAND USE: CR
ZONING: CR

APN: 331-110-004
LAND USE: CR
ZONING: CR

APN: 331-110-005
LAND USE: BP
ZONING: BP

APN: 331-110-006
LAND USE: BP
ZONING: BP

APN: 331-110-008
LAND USE: BP
ZONING: BP

APN: 331-110-009
LAND USE: BP
ZONING: BP

APN: 331-110-010
LAND USE: BP
ZONING: BP

APN: 331-110-011
LAND USE: BP
ZONING: BP

APN: 331-114-001
LAND USE: BP
ZONING: BP

APN: 324-222-002
LAND USE: BP
ZONING: BP

APN: 324-222-001
LAND USE: BP
ZONING: BP

APN: 324-222-017
LAND USE: BP
ZONING: BP

APN: 324-222-023
LAND USE: BP
ZONING: BP

APN: 324-151-031
LAND USE: BP
ZONING: BP

APN: 324-151-014
LAND USE: BP
ZONING: BP

APN: 324-151-015
LAND USE: BP
ZONING: BP

APN: 324-151-016
LAND USE: BP
ZONING: BP

APN: 324-151-017
LAND USE: BP
ZONING: BP

APN: 324-151-018
LAND USE: BP
ZONING: BP

PROJECT BOUNDARY
PUBLIC SD EASEMENT
PROP PUBLIC 60" RCP
PROP RETAINING WALL 0.5' TO 3.5'
PROP PUBLIC 36" RCP
PROP PUBLIC 18" RCP
PROP PUBLIC 24" RCP
PROP PUBLIC 18" RCP
PROP STORM WATER TREATMENT BOX
PROP LIFT STATION
PROP LIFT STATION
PROP WATER
PROP SD
PROP SD
EX TELEPHONE
EX 2" GAS
EX ELECTRIC
EX 18" SEWER
EX 12" WATER
PROP OFFSITE RUNOFF STORAGE CHAMBERS
PROP INLET
PROP ONSITE RUNOFF STORAGE CHAMBERS
PROP FIRE LINE
PROP C&G
PROP R/W
PROP BUILDING
412,348 SF
1433.0 F.F.
PROP INLET
PROP FIRE LINE
PROP SD
PROP INLET
PROP INLET
EX 18" BRACKISH WATER
PROJECT BOUNDARY
EX 8" WATER
EX TELEPHONE
EX 2" GAS
PROP C&G
EX R/W
PROP PUBLIC SD EASEMENT
PROP R/W
EX PP PIP
PROP CATCH BASIN (TYP)
PROP 36" RCP
EX 8" SEWER
EX 2" GAS
EX PP PIP
EX OVERHEAD UTILITY
EX PP PIP
EX PP PIP
EX PP PIP
EX CL/ CITY BOUNDARY
EX R/W
EX EP
EX PP PIP
EX PP PIP
TYLER AVENUE
SHERMAN ROAD
TRUMBLE ROAD
ETHANAC ROAD
EX SIGNALIZED INTERSECTION
FUT DWY PER CUP22-05242
FUT R/W PER CUP22-05242
FUT S/W PER CUP22-05242
FUT C&G PER CUP22-05242
FUT DWY PER CUP22-05242
PROP SEWER CONNECTION
PROP FIRE LINE
PROP R/W
PROP C&G
PROJECT BOUNDARY / EX R/W
PROJECT BOUNDARY / EX R/W
EX PP TBU
EX PP TBU
EX 15" SEWER
EX 6" GAS
EX 2" GAS
EX CL
PROP REALIGNED ETHANAC CL
EX CL
EX PP PIP
EX FH
EX R/N
EX PP PIP
EX FH
EX TELEPHONE
EX 18" BRACKISH WATER
EX 20" WATER
EX PP PIP
EX OVERHEAD UTILITY
EX PP PIP
EX PP PIP
APN: 331-114-001
LAND USE: BP
ZONING: BP
FUTURE SIGNALIZED INTERSECTION TO BE INSTALLED BY OTHERS

LEGEND

- EXISTING 18" BRACKISH WATER
- EXISTING BRACKISH WATER BLOW OFF VALVE
- EXISTING ELECTRIC
- EXISTING FIRE HYDRANT
- EXISTING 2" GAS
- EXISTING 3" GAS
- EXISTING 6" GAS
- EXISTING OVERHEAD UTILITY
- EXISTING 6" SEWER
- EXISTING 8" SEWER
- EXISTING 15" SEWER
- EXISTING 18" SEWER
- EXISTING SEWER MANHOLE
- EXISTING 36" STORM DRAIN
- EXISTING 48" STORM DRAIN
- EXISTING TELEPHONE
- EXISTING 8" WATER
- EXISTING 12" WATER
- EXISTING 20" WATER
- PROJECT BOUNDARY
- RIGHT-OF-WAY (EXISTING/PROPOSED)
- PROPOSED WATER
- PROPOSED FIRE LINE
- PROPOSED SEWER
- PROPOSED STORM DRAIN

ABBREVIATIONS

CL	CENTER LINE
C&G	CURB AND GUTTER
EX	EXISTING
PP	POWER POLE
PROP	PROPOSED
PIP	PROTECT IN PLACE
RCB	REINFORCED CONCRETE BOX
RCP	REINFORCED CONCRETE PIPE
R/W	RIGHT-OF-WAY
SD	STORM DRAIN
TBU	TO BE UNDERGROUNDED
TYP	TYPICAL

1" = 60'
60 0 60 120 180

N W WEBB E S

PRELIMINARY

REVISIONS	DATE	BY
PUBLIC DETENTION BASIN ADDED	4/23	AG

CITY OF PERRIS

ETHANAC LOGISTICS CENTER
CONCEPTUAL UTILITY
DEVELOPMENT PLAN REVIEW NO. 22-00030

SCALE:	1" = 60'
DATE:	9/1/2023
DESIGNED:	AG
CHECKED:	SK
PLN CK REF:	
F.B.	

ALBERT A. WEBB ASSOCIATES
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SHEET	4
OF	5 SHEETS
DWG. NO.	

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SEE SHEET 4

LEGEND

- EXISTING 18" BRACKISH WATER
- EXISTING BRACKISH WATER BLOW OFF VALVE
- EXISTING ELECTRIC
- EXISTING FIRE HYDRANT
- EXISTING 2" GAS
- EXISTING 3" GAS
- EXISTING 6" GAS
- EXISTING OVERHEAD UTILITY
- EXISTING 6" SEWER
- EXISTING 8" SEWER
- EXISTING 15" SEWER
- EXISTING 18" SEWER
- EXISTING SEWER MANHOLE
- EXISTING 36" STORM DRAIN
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- EXISTING TELEPHONE
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- EXISTING 12" WATER
- EXISTING 20" WATER
- PROJECT BOUNDARY
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- PROPOSED FIRE LINE
- PROPOSED SEWER
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ABBREVIATIONS

CL	CENTER LINE
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RCP	REINFORCED CONCRETE PIPE
R/W	RIGHT-OF-WAY
SD	STORM DRAIN
TBU	TO BE UNDERGROUNDED
TYP	TYPICAL

N W E S

1" = 60'

60 0 60 120 180

PRELIMINARY

REVISIONS	DATE	BY
REFERENCE TO MDP LINE A-11 ADDED	4/23	AG

CITY OF PERRIS

ETHANAC LOGISTICS CENTER
CONCEPTUAL UTILITY
DEVELOPMENT PLAN REVIEW NO. 22-00030

SCALE:	1" = 60'
DATE:	9/1/2023
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W.O.	22-0192
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APPENDIX E.2

WEBB-A1

Preliminary Water Quality Management Plan (PWQMP)

Technical Memorandum

To: Deborah de Chambeau MS PE, Riverside County Flood Control & Water Conservation District (RCFC&WCD)

From: Sarah Kowalski, P.E., Senior Engineer

Date: January 8th, 2024

Re: Ethanac Logistics Center – DPR 22-00030 – Offsite Drainage Considerations

Introduction

As a follow up to our December 20, 2023 meeting, the purpose of this memorandum is to document the hydrologic analyses performed for the Ethanac Logistics Center (Project) located in City of Perris, County of Riverside, California and to demonstrate that implementation of this project will not create additional impacts to downstream drainage facilities.

The Project is located north of Ethanac Road, bounded by Sherman Road to east, Trumble Road to the west, vacant land and an industrial development to the north. The Project applicant proposes to build a commercial/industrial building on approximately 21 gross acres.

The centerline of Sherman Road is the boundary between the City of Perris and the City of Menifee. Under the current conditions, runoff from the easterly side of Sherman Road (City of Menifee) sheetflows across the centerline and the west side of the street (City of Perris) and continues westerly to Interstate 215. Ultimately, the runoff from the easterly side of Sherman Road will need to be collected and conveyed southerly to the RCFC&WCD Romoland MDP Line A. Based on discussions with the City of Perris, while the historic sheetflow condition drains from east to west, the City of Perris does not want to responsible for operating and maintaining storm drain facilities for another municipalities runoff. Therefore, the Project must be designed to allow the offsite tributary runoff to be conveyed through the site in a sheetflow manner, but the amount of runoff to the Interstate 215 storm drainage facilities cannot be increased due the development of the Project.

Existing Condition Runoff

The site receives runoff from approximately 65 acres easterly of Sherman Road. This tributary area is an existing residential area that is characterized by sheetflow runoff as the streets have no curb and gutters to contain and convey runoff. While there are some minor roadside swales in this tributary area, there is no defined drainage system within the tributary area. Once runoff from the tributary area intersects Sherman Road, runoff ponds on the east side of Sherman Road until enough runoff has accumulated to spillover the centerline of the street and continues to sheetflow across the Project area towards Interstate 215. A number of low flow cross-gutters have been constructed across Sherman Road to relieve the low flow ponding that occurs at several areas along the easterly side of Sherman Road.

Runoff from the Project, the area tributary to the Project, and the surrounding area northerly and westerly of the Project all drain to a culvert crossing of Interstate 215. A total of approximately 235 acres is tributary to the existing Caltrans dual 6'x5' box culvert crossing underneath Interstate 215 at the west end of Illinois Avenue. Runoff from the area tributary to the box crossing is predominately sheetflow that is collected in a linear basin along the easterly side of Interstate 215 that was constructed with the Classic Pacific Business Park (PM 34082). The Classic Pacific Business Park (PM 34082) also constructed a storm drain in Illinois Avenue (Classic Pacific Business Park Storm Drain Improvement Plans, P8-921 in Appendix D, attached to this memorandum) to collect local runoff, but is not designed to collect the runoff from the approximately 235 acres that is tributary to the Interstate 215 box crossing.

Downstream of the Interstate 215 box culvert there is a City of Perris maintained storm drain system that collects runoff from the existing shopping center that connects to RCFC&WCD Romoland MDP Line A-11, per the existing condition unit hydrograph calculations for this total tributary area can be found in Appendix B, attached to this memorandum, and summarized in Table 1 below.

Proposed Condition Runoff

For the proposed Project, unit hydrographs were performed for the pre- and post-developed condition. For the developed condition, the unit hydrograph method was used to determine the peak flow rates and volumes in order to adequately size the proposed underground storage chambers for the onsite Project flows. The pre- and post-development unit hydrograph exhibits and calculations for the Project can be found in Appendix C, attached to this memorandum, and are summarized in Table 1 below. Because the proposed Project flows are directed to an underground chamber and are pumped out of the Project at a rate of 1 cfs, the post-development flow rates are reduced significantly below the pre-development flow rates. The Project is proposing to collect and convey onsite runoff to the existing Illinois Avenue storm drain. The Project is proposing to extend the Illinois Avenue storm drain to the Project site where the pumped Project flows are conveyed via proposed storm drain in Trumble Road that connects to the existing Illinois Avenue storm drain.

The offsite runoff from the approximately 65 acres of residential land to the east of Sherman Road that is naturally tributary to the Project will be perpetuated across the proposed Project to Trumble Road. Catch basins will be added to the proposed storm drain in Trumble Road to collect as much runoff as possible while the higher flows will continue to sheetflow westerly to Interstate 215 consistent with the direction from the City of Perris. Offsite flows that are collected by the catch basin system will then be conveyed by the proposed storm drain in Trumble Road to the Illinois Avenue storm drain. It has been discussed with the City of Perris that a parallel storm drain in Illinois Avenue may be provided for additional capacity if so, required by the City of Perris. The existing condition unit hydrograph calculations for this tributary area can be found in Appendix B, attached to this memorandum, and summarized in Table 1 below.

The following table summarizes the results of the unit hydrograph analysis:

Table 1 – Unit Hydrograph Results

		Existing Condition		Proposed Condition	
Analysis Area	Storm Event	Volume (Ac-ft)	Peak Flow (cfs)	Volume (Ac-ft)	Peak Flow (cfs)
Ethanac Logistics Center Project	100-Year, 1-Hour	1.75	47.1	1.89	67.7
	100-Year, 3-Hour	2.44	28.6	2.86	34.9
	100-Year, 6-Hour	2.75	24.0	3.65	30.7
	100-Year, 24-Hour	3.06	8.3	5.59	9.9
Area East of Sherman Rd Tributary to Ethanac Logistics Center	100-Year, 1-Hour	5.23	133.7	-	-
	100-Year, 3-Hour	6.89	84.6	-	-
	100-Year, 6-Hour	8.35	71.3	-	-
	100-Year, 24-Hour	11.2	21.4	-	-
Total Area Tributary to A-11	100-Year, 1-Hour	20.62	404.4	-	-
	100-Year, 3-Hour	28.78	289.3	-	-
	100-Year, 6-Hour	33.97	249.8	-	-
	100-Year, 24-Hour	46.18	93.0	-	-

Table 2 summarizes the flows for the total area tributary to the existing Caltrans dual 6'x5' box culvert crossing in post-development condition of the Project. The total proposed flow rate is calculated by subtracting out the existing Project flows and replacing with the proposed pumped Project flow of 1 cfs.

Table 2 –Total Area Proposed Condition Flows

		Proposed Condition
Analysis Area	Storm Event	Peak Flow (cfs)
Total Area Tributary to A-11	100-Year, 1-Hour	358.3
	100-Year, 3-Hour	261.7
	100-Year, 6-Hour	226.8
	100-Year, 24-Hour	85.7

Interstate 215 Culvert Crossing Capacity

The previously mentioned existing Interstate 215 dual 6'x5' box culvert crossing that connects to a City of Perris maintained storm drain system that collects runoff from the existing shopping center that connects to RCFC&WCD Romoland MDP Line A-11 and eventually to Romoland MDP Line A. The Interstate 215 culvert crossing has a slope of 0.0015 per the storm drain plans, P8-921 in Appendix D attached to this memorandum. A capacity calculation for the culvert crossing at a slope of 0.0015 yields a flow capacity of the dual RCB as approximately 404 cfs. With a post-development peak flow of 358.3 cfs, the box culvert has sufficient capacity to handle the pumped Project flows while perpetuating all existing tributary flows, including the 65 acres east of Sherman Road that are tributary to the Project.

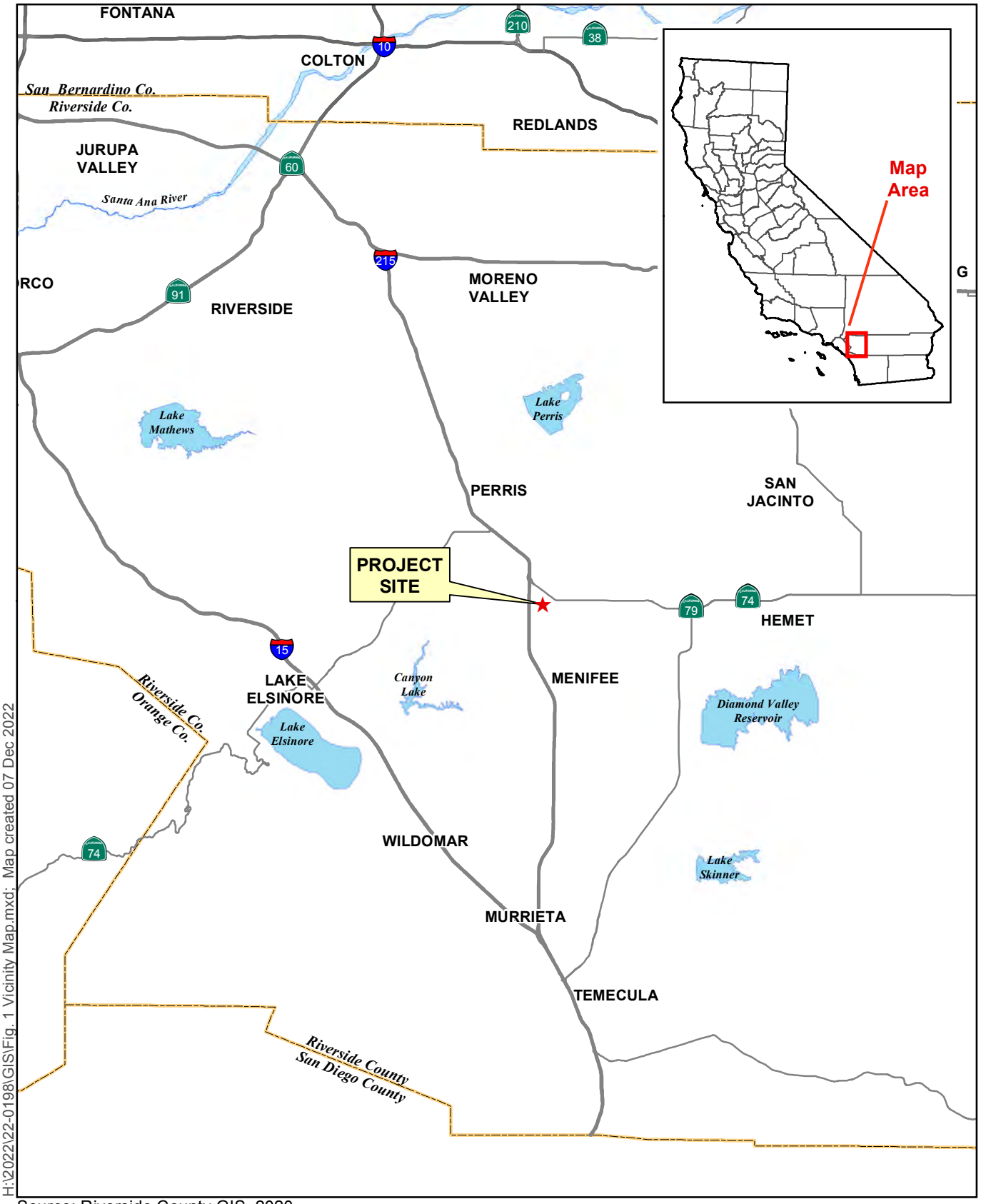
Conclusion

Based on the analysis of the existing and proposed conditions for the runoff tributary to the Interstate 215 culvert crossing, it has been determined that the existing culvert crossing has the capacity to convey the existing condition runoff under the Interstate to the storm drain system downstream. The proposed Project further reduces the peak runoff to the Interstate 215 culvert crossing by implementing a onsite storage and pumping system to control the runoff to levels significantly below the existing conditions. The Project will be designed in such a manner to allow the offsite runoff tributary to the Project to continue to sheetflow across the Project. With the reduction in the total runoff to the Interstate 215 culvert crossing being reduced with the implementation of the Project and with the verification that the Interstate 215 culvert crossing has sufficient capacity for the 100 -year runoff, no new impacts are created for the Interstate 215 culvert crossing or the existing storm drain systems on the west side of Interstate 215.

Appendices

APPENDIX A – Vicinity Map
APPENDIX B – Unit Hydrograph Exhibit – Existing Condition Tributary to Line A-11
APPENDIX C – Ethanac Logistics Center Unit Hydrograph Exhibits – Pre and Post Development
APPENDIX D – Classic Pacific Business Park Storm Drain Plans – P8-921

APPENDIX A



Source: Riverside County GIS, 2020

0 2 4 6 Miles

Figure 1 – Vicinity Map

Ethanac Commerce Center

ALBERT A. WEBB ASSOCIATES

APPENDIX B

LEGEND

- DRAINAGE MANAGEMENT BOUNDARY
- FLOW DIRECTION
- SOIL TYPE BOUNDARY
- L=14XX' LCA=1000' — LONGEST FLOW PATH CENTROIDAL LENGTH
- 101 / 14xx — NODE DESIGNATION NODE ELEVATION
- *14XX — *INVERT ELEVATION
- 5.0 / 1000' — WATERSHED AREA (ACRES) LONGEST WATER PATH (FT)
- CENTROID
- COMMERCIAL / INDUSTRIAL
- UNDEVELOPED
- ¼ ACRE LOT RESIDENTIAL

HIGHWAY 74
INTERSTATE 215
ILLINOIS AVENUE
TRUMBLE ROAD
SHERMAN ROAD
ETHANAC ROAD
JACKSON AVENUE
VAN BUREN AVENUE
HARRISON AVENUE
TYLER AVENUE
2ND STREET
3RD STREET
4TH STREET
1002 / 1424.0
1001 / 1444.5
75.8
5.4
235.5
88.6
65.6
L=5432' LCA=1184'

N W E S

1" = 200'
100 0 200 400 600

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CITY OF PERRIS

COUNTY OF RIVERSIDE
EXISTING UNIT HYDROGRAPH HYDROLOGY
ETHANAC LOGISTICS CENTER
P22-00030

SCALE:	1"=200'
DATE:	12/18/23
DESIGNED:	RSB
CHECKED:	SKK
PLN CK REF:	
F.B.	

ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET
RIVERSIDE, CA. 92506
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W.O.	2022-0198
SHEET	1
OF	1 SHEETS
DWG. NO.	

H:\2022\22-0198\DRAINAGE\HYDRO\DWG FOLDER\22-0198-HYDRO-UH A-11.DWG 12/18/2023 10:29:20 AM

U n i t H y d r o g r a p h A n a l y s i s

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Study date 12/21/23 File: A11TRIB1100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6586

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

22-0198 - ETHANAC COMMERCE CENTER
OFFSITE UNIT HYDROGRAPH ANALYSIS
A-11 TRIBUTARY, 100-YEAR 24-HOUR
FN: A11TRIB.OUT- RSB

Drainage Area = 235.50(Ac.) = 0.368 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 235.50(Ac.) = 0.368 Sq. Mi.
Length along longest watercourse = 5432.00(Ft.)
Length along longest watercourse measured to centroid = 1784.00(Ft.)
Length along longest watercourse = 1.029 Mi.
Length along longest watercourse measured to centroid = 0.338 Mi.
Difference in elevation = 20.50(Ft.)
Slope along watercourse = 19.9264 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.227 Hr.
Lag time = 13.65 Min.
25% of lag time = 3.41 Min.
40% of lag time = 5.46 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

```
Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      235.50            0.50                 117.75

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      235.50            1.20                 282.60

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.500(In)
Area Averaged 100-Year Rainfall =    1.200(In)

Point rain (area averaged) =    1.200(In)
Areal adjustment factor =   99.79 %
Adjusted average point rain =    1.197(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    44.000           56.00         0.500
    21.600           75.00         0.500
    88.600           89.00         0.000
     5.400           75.00         0.500
    57.300           69.00         0.900
    18.600           75.00         0.900
 Total Area Entered =    235.50(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
56.0  56.0      0.511     0.500        0.281       0.187      0.052
75.0  75.0      0.303     0.500        0.167       0.092      0.015
89.0  89.0      0.141     0.000        0.141       0.376      0.053
75.0  75.0      0.303     0.500        0.167       0.023      0.004
69.0  69.0      0.373     0.900        0.071       0.243      0.017
75.0  75.0      0.303     0.900        0.058       0.079      0.005
                                                 Sum (F) =   0.147
Area averaged mean soil loss (F) (In/Hr) =  0.147
Minimum soil loss rate ((In/Hr)) =  0.073
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.500
------------------------------------------------------------------------
Slope of intensity-duration curve for a 1 hour storm =0.5000
------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                      VALLEY S-Curve
------------------------------------------------------------------
               Unit Hydrograph Data
```

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	36.639	3.827	9.083
2	0.167	73.278	15.298	36.309
3	0.250	109.918	24.567	58.307
4	0.333	146.557	18.994	45.081
5	0.417	183.196	9.692	23.004
6	0.500	219.835	5.696	13.518
7	0.583	256.474	4.227	10.033
8	0.667	293.114	3.309	7.853
9	0.750	329.753	2.568	6.095
10	0.833	366.392	2.147	5.097
11	0.917	403.031	1.700	4.035
12	1.000	439.670	1.357	3.222
13	1.083	476.309	1.154	2.738
14	1.167	512.949	1.084	2.572
15	1.250	549.588	0.867	2.059
16	1.333	586.227	0.734	1.743
17	1.417	622.866	0.631	1.498
18	1.500	659.505	0.518	1.230
19	1.583	696.145	0.407	0.965
20	1.667	732.784	0.366	0.870
21	1.750	769.423	0.366	0.870
22	1.833	806.062	0.489	1.161
			Sum = 100.000	Sum= 237.340

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.20	0.604	0.147	(0.302)	0.457
2	0.17	4.30	0.618	0.147	(0.309)	0.471
3	0.25	5.00	0.718	0.147	(0.359)	0.572
4	0.33	5.00	0.718	0.147	(0.359)	0.572
5	0.42	5.80	0.833	0.147	(0.417)	0.687
6	0.50	6.50	0.934	0.147	(0.467)	0.787
7	0.58	7.40	1.063	0.147	(0.532)	0.917
8	0.67	8.60	1.236	0.147	(0.618)	1.089
9	0.75	12.30	1.767	0.147	(0.884)	1.621
10	0.83	29.10	4.181	0.147	(2.091)	4.035
11	0.92	6.80	0.977	0.147	(0.489)	0.831
12	1.00	5.00	0.718	0.147	(0.359)	0.572
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	12.6

Flood volume = Effective rainfall 1.05(In)

```
 times area     235.5(Ac.)/[(In)/(Ft.)] =      20.6(Ac.Ft)
Total soil loss =      0.15(In)
Total soil loss =     2.877(Ac.Ft)
Total rainfall =      1.20(In)
Flood volume =      898346.8 Cubic Feet
Total soil loss =      125301.9 Cubic Feet
---------------------------------------------------------------------
 Peak flow rate of this hydrograph =    404.404(CFS)
---------------------------------------------------------------------
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    1 - H O U R    S T O R M
               R u n o f f      H y d r o g r a p h
---------------------------------------------------------------------
            Hydrograph in   5   Minute intervals ((CFS))

---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0      125.0     250.0     375.0     500.0
-------------------------------------------------------------------------
  0+ 5       0.0286      4.15  Q         |         |         |         |
  0+10       0.1724     20.88  VQ        |         |         |         |
  0+15       0.5097     48.97  V  Q      |         |         |         |
  0+20       1.0199     74.08  |V   Q    |         |         |         |
  0+25       1.6545     92.15  |  V   Q  |         |         |         |
  0+30       2.4003    108.29  |   V   Q |         |         |         |
  0+35       3.2745    126.92  |     V   Q         |         |         |
  0+40       4.3029    149.34  |       V |Q        |         |         |
  0+45       5.5362    179.07  |         V   Q     |         |         |
  0+50       7.2117    243.29  |         |  V     Q|         |         |
  0+55       9.6131    348.68  |         |       V |      Q  |         |
  1+ 0      12.3982    404.40  |         |         |   V     | Q       |
  1+ 5      14.6767    330.83  |         |         |     Q V |         |
  1+10      16.1827    218.67  |         |      Q  |         |V        |
  1+15      17.1624    142.25  |         |Q        |         |  V      |
  1+20      17.8452     99.15  |      Q  |         |         |   V     |
  1+25      18.3651     75.49  |     Q   |         |         |    V    |
  1+30      18.7774     59.86  |   Q     |         |         |     V   |
  1+35      19.1149     49.02  |  Q      |         |         |      V  |
  1+40      19.3891     39.81  |  Q      |         |         |      V  |
  1+45      19.6155     32.87  | Q       |         |         |       V |
  1+50      19.8088     28.07  | Q       |         |         |       V |
  1+55      19.9761     24.29  |Q        |         |         |       V |
  2+ 0      20.1147     20.12  |Q        |         |         |        V|
  2+ 5      20.2305     16.82  |Q        |         |         |        V|
  2+10      20.3269     14.00  |Q        |         |         |        V|
  2+15      20.4057     11.43  Q         |         |         |        V|
  2+20      20.4690      9.20  Q         |         |         |        V|
  2+25      20.5220      7.69  Q         |         |         |        V|
  2+30      20.5679      6.67  Q         |         |         |        V|
  2+35      20.6086      5.91  Q         |         |         |        V|
  2+40      20.6186      1.46  Q         |         |         |        V|
```

```
    2+45       20.6232       0.66  Q          |          |          |         V
-------------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Study date 12/21/23 File: A11TRIB3100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6586

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

22-0198 - ETHANAC COMMERCE CENTER
OFFSITE UNIT HYDROGRAPH ANALYSIS
A-11 TRIBUTARY, 100-YEAR 24-HOUR
FN: A11TRIB.OUT- RSB

Drainage Area = 235.50(Ac.) = 0.368 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 235.50(Ac.) = 0.368 Sq. Mi.
Length along longest watercourse = 5432.00(Ft.)
Length along longest watercourse measured to centroid = 1784.00(Ft.)
Length along longest watercourse = 1.029 Mi.
Length along longest watercourse measured to centroid = 0.338 Mi.
Difference in elevation = 20.50(Ft.)
Slope along watercourse = 19.9264 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.227 Hr.
Lag time = 13.65 Min.
25% of lag time = 3.41 Min.
40% of lag time = 5.46 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

```
Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      235.50            0.80                 188.40

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      235.50            1.90                 447.45

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.800(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.90 %
Adjusted average point rain =    1.898(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    44.000           56.00         0.500
    21.600           75.00         0.500
    88.600           89.00         0.000
     5.400           75.00         0.500
    57.300           69.00         0.900
    18.600           75.00         0.900
 Total Area Entered =    235.50(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
56.0  56.0      0.511     0.500        0.281       0.187      0.052
75.0  75.0      0.303     0.500        0.167       0.092      0.015
89.0  89.0      0.141     0.000        0.141       0.376      0.053
75.0  75.0      0.303     0.500        0.167       0.023      0.004
69.0  69.0      0.373     0.900        0.071       0.243      0.017
75.0  75.0      0.303     0.900        0.058       0.079      0.005
                                                 Sum (F) =   0.147
Area averaged mean soil loss (F) (In/Hr) =  0.147
Minimum soil loss rate ((In/Hr)) =  0.073
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.500
------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                       VALLEY S-Curve
------------------------------------------------------------------------
               Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
```

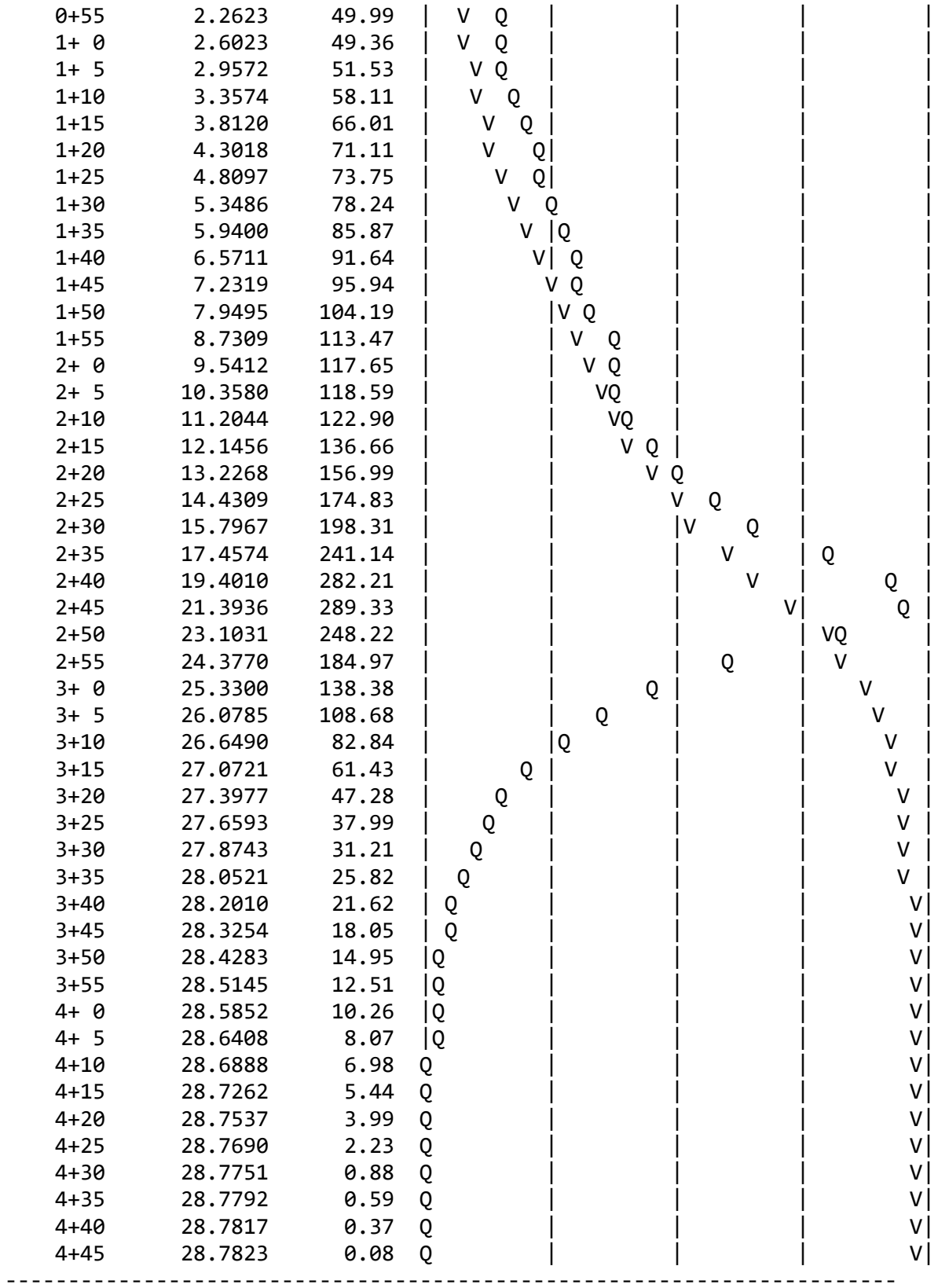
	(hrs)		Graph %	(CFS)
1	0.083	36.639	3.827	9.083
2	0.167	73.278	15.298	36.309
3	0.250	109.918	24.567	58.307
4	0.333	146.557	18.994	45.081
5	0.417	183.196	9.692	23.004
6	0.500	219.835	5.696	13.518
7	0.583	256.474	4.227	10.033
8	0.667	293.114	3.309	7.853
9	0.750	329.753	2.568	6.095
10	0.833	366.392	2.147	5.097
11	0.917	403.031	1.700	4.035
12	1.000	439.670	1.357	3.222
13	1.083	476.309	1.154	2.738
14	1.167	512.949	1.084	2.572
15	1.250	549.588	0.867	2.059
16	1.333	586.227	0.734	1.743
17	1.417	622.866	0.631	1.498
18	1.500	659.505	0.518	1.230
19	1.583	696.145	0.407	0.965
20	1.667	732.784	0.366	0.870
21	1.750	769.423	0.366	0.870
22	1.833	806.062	0.489	1.161
			Sum = 100.000	Sum= 237.340

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.296	0.147	(0.148)	0.150
2	0.17	1.30	0.296	0.147	(0.148)	0.150
3	0.25	1.10	0.251	(0.147)	0.125	0.125
4	0.33	1.50	0.342	0.147	(0.171)	0.195
5	0.42	1.50	0.342	0.147	(0.171)	0.195
6	0.50	1.80	0.410	0.147	(0.205)	0.263
7	0.58	1.50	0.342	0.147	(0.171)	0.195
8	0.67	1.80	0.410	0.147	(0.205)	0.263
9	0.75	1.80	0.410	0.147	(0.205)	0.263
10	0.83	1.50	0.342	0.147	(0.171)	0.195
11	0.92	1.60	0.364	0.147	(0.182)	0.218
12	1.00	1.80	0.410	0.147	(0.205)	0.263
13	1.08	2.20	0.501	0.147	(0.251)	0.355
14	1.17	2.20	0.501	0.147	(0.251)	0.355
15	1.25	2.20	0.501	0.147	(0.251)	0.355
16	1.33	2.00	0.456	0.147	(0.228)	0.309
17	1.42	2.60	0.592	0.147	(0.296)	0.446

```
18   1.50     2.70      0.615          0.147    (  0.307)        0.468
19   1.58     2.40      0.547          0.147    (  0.273)        0.400
20   1.67     2.70      0.615          0.147    (  0.307)        0.468
21   1.75     3.30      0.752          0.147    (  0.376)        0.605
22   1.83     3.10      0.706          0.147    (  0.353)        0.559
23   1.92     2.90      0.661          0.147    (  0.330)        0.514
24   2.00     3.00      0.683          0.147    (  0.342)        0.537
25   2.08     3.10      0.706          0.147    (  0.353)        0.559
26   2.17     4.20      0.957          0.147    (  0.478)        0.810
27   2.25     5.00      1.139          0.147    (  0.569)        0.992
28   2.33     3.50      0.797          0.147    (  0.399)        0.651
29   2.42     6.80      1.549          0.147    (  0.774)        1.402
30   2.50     7.30      1.663          0.147    (  0.831)        1.516
31   2.58     8.20      1.868          0.147    (  0.934)        1.721
32   2.67     5.90      1.344          0.147    (  0.672)        1.197
33   2.75     2.00      0.456          0.147    (  0.228)        0.309
34   2.83     1.80      0.410          0.147    (  0.205)        0.263
35   2.92     1.80      0.410          0.147    (  0.205)        0.263
36   3.00     0.60      0.137       (  0.147)       0.068        0.068
               (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    17.6
      Flood volume = Effective rainfall      1.47(In)
       times area     235.5(Ac.)/[(In)/(Ft.)] =      28.8(Ac.Ft)
      Total soil loss =      0.43(In)
      Total soil loss =     8.467(Ac.Ft)
      Total rainfall =      1.90(In)
      Flood volume =     1253756.2 Cubic Feet
      Total soil loss =      368813.9 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =    289.328(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                     R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0       75.0     150.0     225.0     300.0
-------------------------------------------------------------------------
  0+ 5       0.0094      1.36  Q         |         |         |         |
  0+10       0.0561      6.79  Q         |         |         |         |
  0+15       0.1614     15.29  V Q       |         |         |         |
  0+20       0.3115     21.79  V Q       |         |         |         |
  0+25       0.4930     26.35  V  Q      |         |         |         |
  0+30       0.7132     31.97  V   Q     |         |         |         |
  0+35       0.9744     37.93  |V   Q    |         |         |         |
  0+40       1.2671     42.50  |V   Q    |         |         |         |
  0+45       1.5818     45.70  | V   Q   |         |         |         |
  0+50       1.9181     48.82  | V   Q   |         |         |         |
```


0+55 2.2623 49.99
1+ 0 2.6023 49.36
1+ 5 2.9572 51.53
1+10 3.3574 58.11
1+15 3.8120 66.01
1+20 4.3018 71.11
1+25 4.8097 73.75
1+30 5.3486 78.24
1+35 5.9400 85.87
1+40 6.5711 91.64
1+45 7.2319 95.94
1+50 7.9495 104.19
1+55 8.7309 113.47
2+ 0 9.5412 117.65
2+ 5 10.3580 118.59
2+10 11.2044 122.90
2+15 12.1456 136.66
2+20 13.2268 156.99
2+25 14.4309 174.83
2+30 15.7967 198.31
2+35 17.4574 241.14
2+40 19.4010 282.21
2+45 21.3936 289.33
2+50 23.1031 248.22
2+55 24.3770 184.97
3+ 0 25.3300 138.38
3+ 5 26.0785 108.68
3+10 26.6490 82.84
3+15 27.0721 61.43
3+20 27.3977 47.28
3+25 27.6593 37.99
3+30 27.8743 31.21
3+35 28.0521 25.82
3+40 28.2010 21.62
3+45 28.3254 18.05
3+50 28.4283 14.95
3+55 28.5145 12.51
4+ 0 28.5852 10.26
4+ 5 28.6408 8.07
4+10 28.6888 6.98
4+15 28.7262 5.44
4+20 28.7537 3.99
4+25 28.7690 2.23
4+30 28.7751 0.88
4+35 28.7792 0.59
4+40 28.7817 0.37
4+45 28.7823 0.08

U n i t H y d r o g r a p h A n a l y s i s

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Study date 12/21/23 File: A11TRIB6100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6586

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

22-0198 - ETHANAC COMMERCE CENTER
OFFSITE UNIT HYDROGRAPH ANALYSIS
A-11 TRIBUTARY, 100-YEAR 24-HOUR
FN: A11TRIB.OUT- RSB

Drainage Area = 235.50(Ac.) = 0.368 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 235.50(Ac.) = 0.368 Sq. Mi.
Length along longest watercourse = 5432.00(Ft.)
Length along longest watercourse measured to centroid = 1784.00(Ft.)
Length along longest watercourse = 1.029 Mi.
Length along longest watercourse measured to centroid = 0.338 Mi.
Difference in elevation = 20.50(Ft.)
Slope along watercourse = 19.9264 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.227 Hr.
Lag time = 13.65 Min.
25% of lag time = 3.41 Min.
40% of lag time = 5.46 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

```
Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      235.50            1.00                 235.50

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      235.50            2.50                 588.75

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.000(In)
Area Averaged 100-Year Rainfall =    2.500(In)

Point rain (area averaged) =    2.500(In)
Areal adjustment factor =   99.92 %
Adjusted average point rain =    2.498(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    44.000           56.00         0.500
    21.600           75.00         0.500
    88.600           89.00         0.000
     5.400           75.00         0.500
    57.300           69.00         0.900
    18.600           75.00         0.900
 Total Area Entered =    235.50(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
56.0  56.0      0.511     0.500        0.281       0.187      0.052
75.0  75.0      0.303     0.500        0.167       0.092      0.015
89.0  89.0      0.141     0.000        0.141       0.376      0.053
75.0  75.0      0.303     0.500        0.167       0.023      0.004
69.0  69.0      0.373     0.900        0.071       0.243      0.017
75.0  75.0      0.303     0.900        0.058       0.079      0.005
                                                 Sum (F) =   0.147
Area averaged mean soil loss (F) (In/Hr) =  0.147
Minimum soil loss rate ((In/Hr)) =  0.073
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.500
------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                       VALLEY S-Curve
------------------------------------------------------------------------
               Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
```

	(hrs)		Graph %	(CFS)
1	0.083	36.639	3.827	9.083
2	0.167	73.278	15.298	36.309
3	0.250	109.918	24.567	58.307
4	0.333	146.557	18.994	45.081
5	0.417	183.196	9.692	23.004
6	0.500	219.835	5.696	13.518
7	0.583	256.474	4.227	10.033
8	0.667	293.114	3.309	7.853
9	0.750	329.753	2.568	6.095
10	0.833	366.392	2.147	5.097
11	0.917	403.031	1.700	4.035
12	1.000	439.670	1.357	3.222
13	1.083	476.309	1.154	2.738
14	1.167	512.949	1.084	2.572
15	1.250	549.588	0.867	2.059
16	1.333	586.227	0.734	1.743
17	1.417	622.866	0.631	1.498
18	1.500	659.505	0.518	1.230
19	1.583	696.145	0.407	0.965
20	1.667	732.784	0.366	0.870
21	1.750	769.423	0.366	0.870
22	1.833	806.062	0.489	1.161
			Sum = 100.000	Sum= 237.340

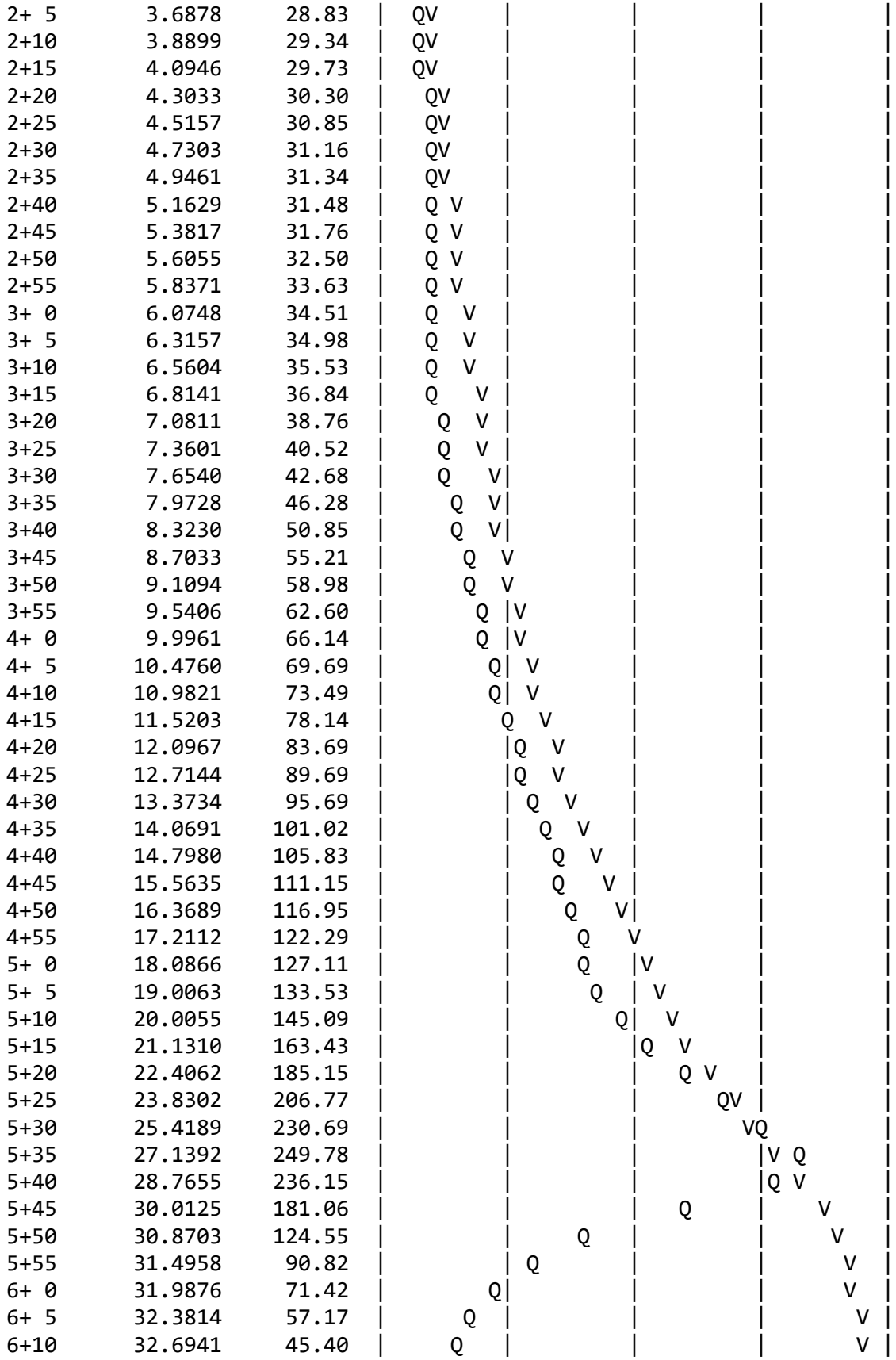
The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.150	(0.147)	0.075	0.075
2	0.17	0.60	0.180	(0.147)	0.090	0.090
3	0.25	0.60	0.180	(0.147)	0.090	0.090
4	0.33	0.60	0.180	(0.147)	0.090	0.090
5	0.42	0.60	0.180	(0.147)	0.090	0.090
6	0.50	0.70	0.210	(0.147)	0.105	0.105
7	0.58	0.70	0.210	(0.147)	0.105	0.105
8	0.67	0.70	0.210	(0.147)	0.105	0.105
9	0.75	0.70	0.210	(0.147)	0.105	0.105
10	0.83	0.70	0.210	(0.147)	0.105	0.105
11	0.92	0.70	0.210	(0.147)	0.105	0.105
12	1.00	0.80	0.240	(0.147)	0.120	0.120
13	1.08	0.80	0.240	(0.147)	0.120	0.120
14	1.17	0.80	0.240	(0.147)	0.120	0.120
15	1.25	0.80	0.240	(0.147)	0.120	0.120
16	1.33	0.80	0.240	(0.147)	0.120	0.120
17	1.42	0.80	0.240	(0.147)	0.120	0.120

18	1.50	0.80	0.240	(0.147)	0.120	0.120
19	1.58	0.80	0.240	(0.147)	0.120	0.120
20	1.67	0.80	0.240	(0.147)	0.120	0.120
21	1.75	0.80	0.240	(0.147)	0.120	0.120
22	1.83	0.80	0.240	(0.147)	0.120	0.120
23	1.92	0.80	0.240	(0.147)	0.120	0.120
24	2.00	0.90	0.270	(0.147)	0.135	0.135
25	2.08	0.80	0.240	(0.147)	0.120	0.120
26	2.17	0.90	0.270	(0.147)	0.135	0.135
27	2.25	0.90	0.270	(0.147)	0.135	0.135
28	2.33	0.90	0.270	(0.147)	0.135	0.135
29	2.42	0.90	0.270	(0.147)	0.135	0.135
30	2.50	0.90	0.270	(0.147)	0.135	0.135
31	2.58	0.90	0.270	(0.147)	0.135	0.135
32	2.67	0.90	0.270	(0.147)	0.135	0.135
33	2.75	1.00	0.300	0.147	(0.150)	0.153
34	2.83	1.00	0.300	0.147	(0.150)	0.153
35	2.92	1.00	0.300	0.147	(0.150)	0.153
36	3.00	1.00	0.300	0.147	(0.150)	0.153
37	3.08	1.00	0.300	0.147	(0.150)	0.153
38	3.17	1.10	0.330	0.147	(0.165)	0.183
39	3.25	1.10	0.330	0.147	(0.165)	0.183
40	3.33	1.10	0.330	0.147	(0.165)	0.183
41	3.42	1.20	0.360	0.147	(0.180)	0.213
42	3.50	1.30	0.390	0.147	(0.195)	0.243
43	3.58	1.40	0.420	0.147	(0.210)	0.273
44	3.67	1.40	0.420	0.147	(0.210)	0.273
45	3.75	1.50	0.450	0.147	(0.225)	0.303
46	3.83	1.50	0.450	0.147	(0.225)	0.303
47	3.92	1.60	0.480	0.147	(0.240)	0.333
48	4.00	1.60	0.480	0.147	(0.240)	0.333
49	4.08	1.70	0.510	0.147	(0.255)	0.363
50	4.17	1.80	0.540	0.147	(0.270)	0.393
51	4.25	1.90	0.570	0.147	(0.285)	0.423
52	4.33	2.00	0.600	0.147	(0.300)	0.453
53	4.42	2.10	0.629	0.147	(0.315)	0.483
54	4.50	2.10	0.629	0.147	(0.315)	0.483
55	4.58	2.20	0.659	0.147	(0.330)	0.513
56	4.67	2.30	0.689	0.147	(0.345)	0.543
57	4.75	2.40	0.719	0.147	(0.360)	0.573
58	4.83	2.40	0.719	0.147	(0.360)	0.573
59	4.92	2.50	0.749	0.147	(0.375)	0.603
60	5.00	2.60	0.779	0.147	(0.390)	0.633
61	5.08	3.10	0.929	0.147	(0.465)	0.783
62	5.17	3.60	1.079	0.147	(0.540)	0.933
63	5.25	3.90	1.169	0.147	(0.585)	1.022
64	5.33	4.20	1.259	0.147	(0.629)	1.112
65	5.42	4.70	1.409	0.147	(0.704)	1.262
66	5.50	5.60	1.679	0.147	(0.839)	1.532
67	5.58	1.90	0.570	0.147	(0.285)	0.423

```
68   5.67     0.90      0.270       (  0.147)       0.135        0.135
69   5.75     0.60      0.180       (  0.147)       0.090        0.090
70   5.83     0.50      0.150       (  0.147)       0.075        0.075
71   5.92     0.30      0.090       (  0.147)       0.045        0.045
72   6.00     0.20      0.060       (  0.147)       0.030        0.030
              (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    20.8
      Flood volume = Effective rainfall      1.73(In)
       times area     235.5(Ac.)/[(In)/(Ft.)] =      34.0(Ac.Ft)
      Total soil loss =      0.77(In)
      Total soil loss =    15.057(Ac.Ft)
      Total rainfall =      2.50(In)
      Flood volume =     1479549.8 Cubic Feet
      Total soil loss =      655882.6 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =    249.777(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          6 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0       75.0     150.0     225.0     300.0
-------------------------------------------------------------------------
  0+ 5       0.0047      0.68  Q         |         |         |         |
  0+10       0.0291      3.54  Q         |         |         |         |
  0+15       0.0873      8.46  VQ        |         |         |         |
  0+20       0.1748     12.71  VQ        |         |         |         |
  0+25       0.2789     15.11  V Q       |         |         |         |
  0+30       0.3933     16.61  V Q       |         |         |         |
  0+35       0.5180     18.11  V Q       |         |         |         |
  0+40       0.6538     19.72  V Q       |         |         |         |
  0+45       0.7982     20.97  V Q       |         |         |         |
  0+50       0.9482     21.79  |VQ       |         |         |         |
  0+55       1.1023     22.37  |VQ       |         |         |         |
  1+ 0       1.2604     22.96  |V Q      |         |         |         |
  1+ 5       1.4248     23.87  |V Q      |         |         |         |
  1+10       1.5975     25.07  |V Q      |         |         |         |
  1+15       1.7767     26.02  | VQ      |         |         |         |
  1+20       1.9598     26.59  | VQ      |         |         |         |
  1+25       2.1456     26.98  | VQ      |         |         |         |
  1+30       2.3335     27.28  | VQ      |         |         |         |
  1+35       2.5231     27.53  | VQ      |         |         |         |
  1+40       2.7141     27.73  |  Q      |         |         |         |
  1+45       2.9063     27.91  |  Q      |         |         |         |
  1+50       3.0998     28.09  |  Q      |         |         |         |
  1+55       3.2939     28.18  |  Q      |         |         |         |
  2+ 0       3.4893     28.37  |  QV     |         |         |         |
```



```
    6+15      32.9420     35.99  |   Q     |         |         |       V |
    6+20      33.1401     28.76  |  Q      |         |         |        V|
    6+25      33.3022     23.54  |  Q      |         |         |        V|
    6+30      33.4376     19.66  | Q       |         |         |        V|
    6+35      33.5513     16.51  | Q       |         |         |        V|
    6+40      33.6448     13.58  |Q        |         |         |        V|
    6+45      33.7218     11.19  |Q        |         |         |        V|
    6+50      33.7855      9.25  |Q        |         |         |        V|
    6+55      33.8373      7.51  |Q        |         |         |        V|
    7+ 0      33.8783      5.96  Q         |         |         |        V|
    7+ 5      33.9109      4.73  Q         |         |         |        V|
    7+10      33.9361      3.66  Q         |         |         |        V|
    7+15      33.9538      2.56  Q         |         |         |        V|
    7+20      33.9597      0.86  Q         |         |         |        V|
    7+25      33.9623      0.38  Q         |         |         |        V|
    7+30      33.9640      0.24  Q         |         |         |        V|
    7+35      33.9650      0.15  Q         |         |         |        V|
    7+40      33.9655      0.08  Q         |         |         |        V|
    7+45      33.9658      0.03  Q         |         |         |         V
---------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0
Study date 12/21/23 File: A11TRIB24100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6586

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

22-0198 - ETHANAC COMMERCE CENTER
OFFSITE UNIT HYDROGRAPH ANALYSIS
A-11 TRIBUTARY, 100-YEAR 24-HOUR
FN: A11TRIB.OUT- RSB

Drainage Area = 235.50(Ac.) = 0.368 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 235.50(Ac.) = 0.368 Sq. Mi.
Length along longest watercourse = 5432.00(Ft.)
Length along longest watercourse measured to centroid = 1784.00(Ft.)
Length along longest watercourse = 1.029 Mi.
Length along longest watercourse measured to centroid = 0.338 Mi.
Difference in elevation = 20.50(Ft.)
Slope along watercourse = 19.9264 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.227 Hr.
Lag time = 13.65 Min.
25% of lag time = 3.41 Min.
40% of lag time = 5.46 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

```
Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      235.50            1.60                 376.80

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      235.50            4.00                 942.00

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.600(In)
Area Averaged 100-Year Rainfall =    4.000(In)

Point rain (area averaged) =    4.000(In)
Areal adjustment factor =   99.95 %
Adjusted average point rain =    3.998(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    44.000           56.00         0.500
    21.600           75.00         0.500
    88.600           89.00         0.000
     5.400           75.00         0.500
    57.300           69.00         0.900
    18.600           75.00         0.900
 Total Area Entered =    235.50(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
56.0  56.0      0.511     0.500        0.281       0.187      0.052
75.0  75.0      0.303     0.500        0.167       0.092      0.015
89.0  89.0      0.141     0.000        0.141       0.376      0.053
75.0  75.0      0.303     0.500        0.167       0.023      0.004
69.0  69.0      0.373     0.900        0.071       0.243      0.017
75.0  75.0      0.303     0.900        0.058       0.079      0.005
                                                 Sum (F) =   0.147
Area averaged mean soil loss (F) (In/Hr) =  0.147
Minimum soil loss rate ((In/Hr)) =  0.073
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.500
------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                       VALLEY S-Curve
------------------------------------------------------------------------
               Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
```

	(hrs)		Graph %	(CFS)
1	0.083	36.639	3.827	9.083
2	0.167	73.278	15.298	36.309
3	0.250	109.918	24.567	58.307
4	0.333	146.557	18.994	45.081
5	0.417	183.196	9.692	23.004
6	0.500	219.835	5.696	13.518
7	0.583	256.474	4.227	10.033
8	0.667	293.114	3.309	7.853
9	0.750	329.753	2.568	6.095
10	0.833	366.392	2.147	5.097
11	0.917	403.031	1.700	4.035
12	1.000	439.670	1.357	3.222
13	1.083	476.309	1.154	2.738
14	1.167	512.949	1.084	2.572
15	1.250	549.588	0.867	2.059
16	1.333	586.227	0.734	1.743
17	1.417	622.866	0.631	1.498
18	1.500	659.505	0.518	1.230
19	1.583	696.145	0.407	0.965
20	1.667	732.784	0.366	0.870
21	1.750	769.423	0.366	0.870
22	1.833	806.062	0.489	1.161
			Sum = 100.000	Sum= 237.340

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.032	(0.260)	0.016	0.016
2	0.17	0.07	0.032	(0.259)	0.016	0.016
3	0.25	0.07	0.032	(0.258)	0.016	0.016
4	0.33	0.10	0.048	(0.257)	0.024	0.024
5	0.42	0.10	0.048	(0.256)	0.024	0.024
6	0.50	0.10	0.048	(0.255)	0.024	0.024
7	0.58	0.10	0.048	(0.254)	0.024	0.024
8	0.67	0.10	0.048	(0.253)	0.024	0.024
9	0.75	0.10	0.048	(0.252)	0.024	0.024
10	0.83	0.13	0.064	(0.251)	0.032	0.032
11	0.92	0.13	0.064	(0.250)	0.032	0.032
12	1.00	0.13	0.064	(0.249)	0.032	0.032
13	1.08	0.10	0.048	(0.248)	0.024	0.024
14	1.17	0.10	0.048	(0.247)	0.024	0.024
15	1.25	0.10	0.048	(0.246)	0.024	0.024
16	1.33	0.10	0.048	(0.245)	0.024	0.024
17	1.42	0.10	0.048	(0.244)	0.024	0.024

18	1.50	0.10	0.048	(0.243)	0.024	0.024
19	1.58	0.10	0.048	(0.242)	0.024	0.024
20	1.67	0.10	0.048	(0.241)	0.024	0.024
21	1.75	0.10	0.048	(0.240)	0.024	0.024
22	1.83	0.13	0.064	(0.239)	0.032	0.032
23	1.92	0.13	0.064	(0.238)	0.032	0.032
24	2.00	0.13	0.064	(0.237)	0.032	0.032
25	2.08	0.13	0.064	(0.236)	0.032	0.032
26	2.17	0.13	0.064	(0.235)	0.032	0.032
27	2.25	0.13	0.064	(0.234)	0.032	0.032
28	2.33	0.13	0.064	(0.233)	0.032	0.032
29	2.42	0.13	0.064	(0.232)	0.032	0.032
30	2.50	0.13	0.064	(0.231)	0.032	0.032
31	2.58	0.17	0.080	(0.231)	0.040	0.040
32	2.67	0.17	0.080	(0.230)	0.040	0.040
33	2.75	0.17	0.080	(0.229)	0.040	0.040
34	2.83	0.17	0.080	(0.228)	0.040	0.040
35	2.92	0.17	0.080	(0.227)	0.040	0.040
36	3.00	0.17	0.080	(0.226)	0.040	0.040
37	3.08	0.17	0.080	(0.225)	0.040	0.040
38	3.17	0.17	0.080	(0.224)	0.040	0.040
39	3.25	0.17	0.080	(0.223)	0.040	0.040
40	3.33	0.17	0.080	(0.222)	0.040	0.040
41	3.42	0.17	0.080	(0.221)	0.040	0.040
42	3.50	0.17	0.080	(0.220)	0.040	0.040
43	3.58	0.17	0.080	(0.219)	0.040	0.040
44	3.67	0.17	0.080	(0.218)	0.040	0.040
45	3.75	0.17	0.080	(0.217)	0.040	0.040
46	3.83	0.20	0.096	(0.217)	0.048	0.048
47	3.92	0.20	0.096	(0.216)	0.048	0.048
48	4.00	0.20	0.096	(0.215)	0.048	0.048
49	4.08	0.20	0.096	(0.214)	0.048	0.048
50	4.17	0.20	0.096	(0.213)	0.048	0.048
51	4.25	0.20	0.096	(0.212)	0.048	0.048
52	4.33	0.23	0.112	(0.211)	0.056	0.056
53	4.42	0.23	0.112	(0.210)	0.056	0.056
54	4.50	0.23	0.112	(0.209)	0.056	0.056
55	4.58	0.23	0.112	(0.208)	0.056	0.056
56	4.67	0.23	0.112	(0.208)	0.056	0.056
57	4.75	0.23	0.112	(0.207)	0.056	0.056
58	4.83	0.27	0.128	(0.206)	0.064	0.064
59	4.92	0.27	0.128	(0.205)	0.064	0.064
60	5.00	0.27	0.128	(0.204)	0.064	0.064
61	5.08	0.20	0.096	(0.203)	0.048	0.048
62	5.17	0.20	0.096	(0.202)	0.048	0.048
63	5.25	0.20	0.096	(0.201)	0.048	0.048
64	5.33	0.23	0.112	(0.200)	0.056	0.056
65	5.42	0.23	0.112	(0.200)	0.056	0.056
66	5.50	0.23	0.112	(0.199)	0.056	0.056
67	5.58	0.27	0.128	(0.198)	0.064	0.064

68	5.67	0.27	0.128	(0.197)	0.064	0.064
69	5.75	0.27	0.128	(0.196)	0.064	0.064
70	5.83	0.27	0.128	(0.195)	0.064	0.064
71	5.92	0.27	0.128	(0.194)	0.064	0.064
72	6.00	0.27	0.128	(0.193)	0.064	0.064
73	6.08	0.30	0.144	(0.193)	0.072	0.072
74	6.17	0.30	0.144	(0.192)	0.072	0.072
75	6.25	0.30	0.144	(0.191)	0.072	0.072
76	6.33	0.30	0.144	(0.190)	0.072	0.072
77	6.42	0.30	0.144	(0.189)	0.072	0.072
78	6.50	0.30	0.144	(0.188)	0.072	0.072
79	6.58	0.33	0.160	(0.188)	0.080	0.080
80	6.67	0.33	0.160	(0.187)	0.080	0.080
81	6.75	0.33	0.160	(0.186)	0.080	0.080
82	6.83	0.33	0.160	(0.185)	0.080	0.080
83	6.92	0.33	0.160	(0.184)	0.080	0.080
84	7.00	0.33	0.160	(0.183)	0.080	0.080
85	7.08	0.33	0.160	(0.182)	0.080	0.080
86	7.17	0.33	0.160	(0.182)	0.080	0.080
87	7.25	0.33	0.160	(0.181)	0.080	0.080
88	7.33	0.37	0.176	(0.180)	0.088	0.088
89	7.42	0.37	0.176	(0.179)	0.088	0.088
90	7.50	0.37	0.176	(0.178)	0.088	0.088
91	7.58	0.40	0.192	(0.178)	0.096	0.096
92	7.67	0.40	0.192	(0.177)	0.096	0.096
93	7.75	0.40	0.192	(0.176)	0.096	0.096
94	7.83	0.43	0.208	(0.175)	0.104	0.104
95	7.92	0.43	0.208	(0.174)	0.104	0.104
96	8.00	0.43	0.208	(0.173)	0.104	0.104
97	8.08	0.50	0.240	(0.173)	0.120	0.120
98	8.17	0.50	0.240	(0.172)	0.120	0.120
99	8.25	0.50	0.240	(0.171)	0.120	0.120
100	8.33	0.50	0.240	(0.170)	0.120	0.120
101	8.42	0.50	0.240	(0.169)	0.120	0.120
102	8.50	0.50	0.240	(0.169)	0.120	0.120
103	8.58	0.53	0.256	(0.168)	0.128	0.128
104	8.67	0.53	0.256	(0.167)	0.128	0.128
105	8.75	0.53	0.256	(0.166)	0.128	0.128
106	8.83	0.57	0.272	(0.166)	0.136	0.136
107	8.92	0.57	0.272	(0.165)	0.136	0.136
108	9.00	0.57	0.272	(0.164)	0.136	0.136
109	9.08	0.63	0.304	(0.163)	0.152	0.152
110	9.17	0.63	0.304	(0.162)	0.152	0.152
111	9.25	0.63	0.304	(0.162)	0.152	0.152
112	9.33	0.67	0.320	(0.161)	0.160	0.160
113	9.42	0.67	0.320	(0.160)	0.160	0.160
114	9.50	0.67	0.320	0.159	(0.160)	0.161
115	9.58	0.70	0.336	0.159	(0.168)	0.177
116	9.67	0.70	0.336	0.158	(0.168)	0.178
117	9.75	0.70	0.336	0.157	(0.168)	0.179

118	9.83	0.73	0.352		0.156	(0.176)		0.196
119	9.92	0.73	0.352		0.156	(0.176)		0.196
120	10.00	0.73	0.352		0.155	(0.176)		0.197
121	10.08	0.50	0.240	(0.154)			0.120	0.120
122	10.17	0.50	0.240	(0.153)			0.120	0.120
123	10.25	0.50	0.240	(0.153)			0.120	0.120
124	10.33	0.50	0.240	(0.152)			0.120	0.120
125	10.42	0.50	0.240	(0.151)			0.120	0.120
126	10.50	0.50	0.240	(0.150)			0.120	0.120
127	10.58	0.67	0.320		0.150	(0.160)		0.170
128	10.67	0.67	0.320		0.149	(0.160)		0.171
129	10.75	0.67	0.320		0.148	(0.160)		0.172
130	10.83	0.67	0.320		0.147	(0.160)		0.172
131	10.92	0.67	0.320		0.147	(0.160)		0.173
132	11.00	0.67	0.320		0.146	(0.160)		0.174
133	11.08	0.63	0.304		0.145	(0.152)		0.159
134	11.17	0.63	0.304		0.145	(0.152)		0.159
135	11.25	0.63	0.304		0.144	(0.152)		0.160
136	11.33	0.63	0.304		0.143	(0.152)		0.161
137	11.42	0.63	0.304		0.142	(0.152)		0.161
138	11.50	0.63	0.304		0.142	(0.152)		0.162
139	11.58	0.57	0.272	(0.141)			0.136	0.136
140	11.67	0.57	0.272	(0.140)			0.136	0.136
141	11.75	0.57	0.272	(0.140)			0.136	0.136
142	11.83	0.60	0.288		0.139	(0.144)		0.149
143	11.92	0.60	0.288		0.138	(0.144)		0.150
144	12.00	0.60	0.288		0.138	(0.144)		0.150
145	12.08	0.83	0.400		0.137	(0.200)		0.263
146	12.17	0.83	0.400		0.136	(0.200)		0.264
147	12.25	0.83	0.400		0.135	(0.200)		0.264
148	12.33	0.87	0.416		0.135	(0.208)		0.281
149	12.42	0.87	0.416		0.134	(0.208)		0.282
150	12.50	0.87	0.416		0.133	(0.208)		0.282
151	12.58	0.93	0.448		0.133	(0.224)		0.315
152	12.67	0.93	0.448		0.132	(0.224)		0.316
153	12.75	0.93	0.448		0.131	(0.224)		0.316
154	12.83	0.97	0.464		0.131	(0.232)		0.333
155	12.92	0.97	0.464		0.130	(0.232)		0.334
156	13.00	0.97	0.464		0.129	(0.232)		0.334
157	13.08	1.13	0.544		0.129	(0.272)		0.415
158	13.17	1.13	0.544		0.128	(0.272)		0.416
159	13.25	1.13	0.544		0.127	(0.272)		0.416
160	13.33	1.13	0.544		0.127	(0.272)		0.417
161	13.42	1.13	0.544		0.126	(0.272)		0.418
162	13.50	1.13	0.544		0.126	(0.272)		0.418
163	13.58	0.77	0.368		0.125	(0.184)		0.243
164	13.67	0.77	0.368		0.124	(0.184)		0.244
165	13.75	0.77	0.368		0.124	(0.184)		0.244
166	13.83	0.77	0.368		0.123	(0.184)		0.245
167	13.92	0.77	0.368		0.122	(0.184)		0.245

168	14.00	0.77	0.368	0.122	(0.184)	0.246
169	14.08	0.90	0.432	0.121	(0.216)	0.311
170	14.17	0.90	0.432	0.121	(0.216)	0.311
171	14.25	0.90	0.432	0.120	(0.216)	0.312
172	14.33	0.87	0.416	0.119	(0.208)	0.297
173	14.42	0.87	0.416	0.119	(0.208)	0.297
174	14.50	0.87	0.416	0.118	(0.208)	0.298
175	14.58	0.87	0.416	0.117	(0.208)	0.298
176	14.67	0.87	0.416	0.117	(0.208)	0.299
177	14.75	0.87	0.416	0.116	(0.208)	0.300
178	14.83	0.83	0.400	0.116	(0.200)	0.284
179	14.92	0.83	0.400	0.115	(0.200)	0.285
180	15.00	0.83	0.400	0.114	(0.200)	0.285
181	15.08	0.80	0.384	0.114	(0.192)	0.270
182	15.17	0.80	0.384	0.113	(0.192)	0.271
183	15.25	0.80	0.384	0.113	(0.192)	0.271
184	15.33	0.77	0.368	0.112	(0.184)	0.256
185	15.42	0.77	0.368	0.112	(0.184)	0.256
186	15.50	0.77	0.368	0.111	(0.184)	0.257
187	15.58	0.63	0.304	0.110	(0.152)	0.193
188	15.67	0.63	0.304	0.110	(0.152)	0.194
189	15.75	0.63	0.304	0.109	(0.152)	0.195
190	15.83	0.63	0.304	0.109	(0.152)	0.195
191	15.92	0.63	0.304	0.108	(0.152)	0.196
192	16.00	0.63	0.304	0.108	(0.152)	0.196
193	16.08	0.13	0.064	(0.107)	0.032	0.032
194	16.17	0.13	0.064	(0.107)	0.032	0.032
195	16.25	0.13	0.064	(0.106)	0.032	0.032
196	16.33	0.13	0.064	(0.105)	0.032	0.032
197	16.42	0.13	0.064	(0.105)	0.032	0.032
198	16.50	0.13	0.064	(0.104)	0.032	0.032
199	16.58	0.10	0.048	(0.104)	0.024	0.024
200	16.67	0.10	0.048	(0.103)	0.024	0.024
201	16.75	0.10	0.048	(0.103)	0.024	0.024
202	16.83	0.10	0.048	(0.102)	0.024	0.024
203	16.92	0.10	0.048	(0.102)	0.024	0.024
204	17.00	0.10	0.048	(0.101)	0.024	0.024
205	17.08	0.17	0.080	(0.101)	0.040	0.040
206	17.17	0.17	0.080	(0.100)	0.040	0.040
207	17.25	0.17	0.080	(0.100)	0.040	0.040
208	17.33	0.17	0.080	(0.099)	0.040	0.040
209	17.42	0.17	0.080	(0.099)	0.040	0.040
210	17.50	0.17	0.080	(0.098)	0.040	0.040
211	17.58	0.17	0.080	(0.098)	0.040	0.040
212	17.67	0.17	0.080	(0.097)	0.040	0.040
213	17.75	0.17	0.080	(0.097)	0.040	0.040
214	17.83	0.13	0.064	(0.096)	0.032	0.032
215	17.92	0.13	0.064	(0.096)	0.032	0.032
216	18.00	0.13	0.064	(0.095)	0.032	0.032
217	18.08	0.13	0.064	(0.095)	0.032	0.032

218	18.17	0.13	0.064	(0.094)	0.032	0.032
219	18.25	0.13	0.064	(0.094)	0.032	0.032
220	18.33	0.13	0.064	(0.093)	0.032	0.032
221	18.42	0.13	0.064	(0.093)	0.032	0.032
222	18.50	0.13	0.064	(0.093)	0.032	0.032
223	18.58	0.10	0.048	(0.092)	0.024	0.024
224	18.67	0.10	0.048	(0.092)	0.024	0.024
225	18.75	0.10	0.048	(0.091)	0.024	0.024
226	18.83	0.07	0.032	(0.091)	0.016	0.016
227	18.92	0.07	0.032	(0.090)	0.016	0.016
228	19.00	0.07	0.032	(0.090)	0.016	0.016
229	19.08	0.10	0.048	(0.090)	0.024	0.024
230	19.17	0.10	0.048	(0.089)	0.024	0.024
231	19.25	0.10	0.048	(0.089)	0.024	0.024
232	19.33	0.13	0.064	(0.088)	0.032	0.032
233	19.42	0.13	0.064	(0.088)	0.032	0.032
234	19.50	0.13	0.064	(0.087)	0.032	0.032
235	19.58	0.10	0.048	(0.087)	0.024	0.024
236	19.67	0.10	0.048	(0.087)	0.024	0.024
237	19.75	0.10	0.048	(0.086)	0.024	0.024
238	19.83	0.07	0.032	(0.086)	0.016	0.016
239	19.92	0.07	0.032	(0.085)	0.016	0.016
240	20.00	0.07	0.032	(0.085)	0.016	0.016
241	20.08	0.10	0.048	(0.085)	0.024	0.024
242	20.17	0.10	0.048	(0.084)	0.024	0.024
243	20.25	0.10	0.048	(0.084)	0.024	0.024
244	20.33	0.10	0.048	(0.084)	0.024	0.024
245	20.42	0.10	0.048	(0.083)	0.024	0.024
246	20.50	0.10	0.048	(0.083)	0.024	0.024
247	20.58	0.10	0.048	(0.083)	0.024	0.024
248	20.67	0.10	0.048	(0.082)	0.024	0.024
249	20.75	0.10	0.048	(0.082)	0.024	0.024
250	20.83	0.07	0.032	(0.082)	0.016	0.016
251	20.92	0.07	0.032	(0.081)	0.016	0.016
252	21.00	0.07	0.032	(0.081)	0.016	0.016
253	21.08	0.10	0.048	(0.081)	0.024	0.024
254	21.17	0.10	0.048	(0.080)	0.024	0.024
255	21.25	0.10	0.048	(0.080)	0.024	0.024
256	21.33	0.07	0.032	(0.080)	0.016	0.016
257	21.42	0.07	0.032	(0.079)	0.016	0.016
258	21.50	0.07	0.032	(0.079)	0.016	0.016
259	21.58	0.10	0.048	(0.079)	0.024	0.024
260	21.67	0.10	0.048	(0.078)	0.024	0.024
261	21.75	0.10	0.048	(0.078)	0.024	0.024
262	21.83	0.07	0.032	(0.078)	0.016	0.016
263	21.92	0.07	0.032	(0.078)	0.016	0.016
264	22.00	0.07	0.032	(0.077)	0.016	0.016
265	22.08	0.10	0.048	(0.077)	0.024	0.024
266	22.17	0.10	0.048	(0.077)	0.024	0.024
267	22.25	0.10	0.048	(0.077)	0.024	0.024

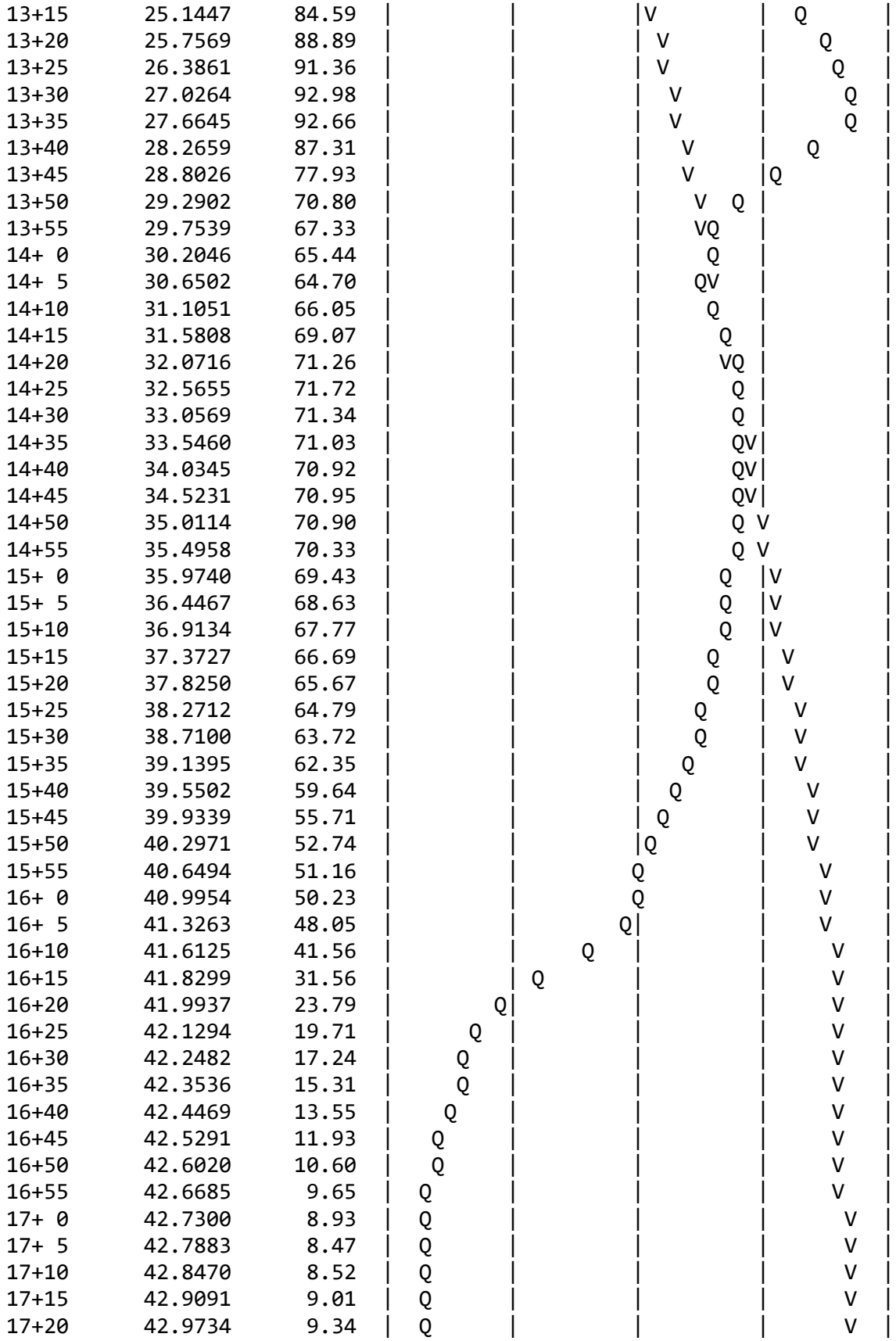
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268  22.33     0.07      0.032       (  0.076)       0.016        0.016
269  22.42     0.07      0.032       (  0.076)       0.016        0.016
270  22.50     0.07      0.032       (  0.076)       0.016        0.016
271  22.58     0.07      0.032       (  0.076)       0.016        0.016
272  22.67     0.07      0.032       (  0.076)       0.016        0.016
273  22.75     0.07      0.032       (  0.075)       0.016        0.016
274  22.83     0.07      0.032       (  0.075)       0.016        0.016
275  22.92     0.07      0.032       (  0.075)       0.016        0.016
276  23.00     0.07      0.032       (  0.075)       0.016        0.016
277  23.08     0.07      0.032       (  0.075)       0.016        0.016
278  23.17     0.07      0.032       (  0.074)       0.016        0.016
279  23.25     0.07      0.032       (  0.074)       0.016        0.016
280  23.33     0.07      0.032       (  0.074)       0.016        0.016
281  23.42     0.07      0.032       (  0.074)       0.016        0.016
282  23.50     0.07      0.032       (  0.074)       0.016        0.016
283  23.58     0.07      0.032       (  0.074)       0.016        0.016
284  23.67     0.07      0.032       (  0.074)       0.016        0.016
285  23.75     0.07      0.032       (  0.073)       0.016        0.016
286  23.83     0.07      0.032       (  0.073)       0.016        0.016
287  23.92     0.07      0.032       (  0.073)       0.016        0.016
288  24.00     0.07      0.032       (  0.073)       0.016        0.016
                (Loss Rate Not Used)
    Sum =     100.0                                    Sum =    28.2
       Flood volume = Effective rainfall      2.35(In)
        times area     235.5(Ac.)/[(In)/(Ft.)] =      46.2(Ac.Ft)
       Total soil loss =      1.64(In)
       Total soil loss =    32.281(Ac.Ft)
       Total rainfall =      4.00(In)
       Flood volume =     2011715.0 Cubic Feet
       Total soil loss =     1406172.2 Cubic Feet
       ---------------------------------------------------------------------
        Peak flow rate of this hydrograph =     92.977(CFS)
       ---------------------------------------------------------------------
       +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          24 - H O U R    S T O R M
                      R u n o f f      H y d r o g r a p h
       ---------------------------------------------------------------------
                   Hydrograph in   5   Minute intervals ((CFS))

       ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0       25.0      50.0      75.0     100.0
 ---------------------------------------------------------------------------
   0+ 5       0.0010      0.15  Q         |         |         |         |
   0+10       0.0060      0.73  Q         |         |         |         |
   0+15       0.0174      1.66  Q         |         |         |         |
   0+20       0.0343      2.45  Q         |         |         |         |
   0+25       0.0558      3.11  VQ        |         |         |         |
   0+30       0.0819      3.79  VQ        |         |         |         |
   0+35       0.1116      4.32  VQ        |         |         |         |
   0+40       0.1435      4.63  VQ        |         |         |         |
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0+45	0.1767	4.83	VQ	|	|	|	|
0+50	0.2116	5.07	V Q	|	|	|	|
0+55	0.2494	5.48	V Q	|	|	|	|
1+ 0	0.2911	6.05	V Q	|	|	|	|
1+ 5	0.3353	6.42	V Q	|	|	|	|
1+10	0.3793	6.39	V Q	|	|	|	|
1+15	0.4213	6.09	V Q	|	|	|	|
1+20	0.4616	5.86	V Q	|	|	|	|
1+25	0.5014	5.78	V Q	|	|	|	|
1+30	0.5411	5.76	V Q	|	|	|	|
1+35	0.5807	5.75	V Q	|	|	|	|
1+40	0.6203	5.75	V Q	|	|	|	|
1+45	0.6598	5.75	V Q	|	|	|	|
1+50	0.7000	5.83	V Q	|	|	|	|
1+55	0.7421	6.11	V Q	|	|	|	|
2+ 0	0.7873	6.58	V Q	|	|	|	|
2+ 5	0.8351	6.94	V Q	|	|	|	|
2+10	0.8841	7.11	V Q	|	|	|	|
2+15	0.9338	7.21	V Q	|	|	|	|
2+20	0.9840	7.29	V Q	|	|	|	|
2+25	1.0346	7.35	V Q	|	|	|	|
2+30	1.0855	7.39	V Q	|	|	|	|
2+35	1.1372	7.51	V Q	|	|	|	|
2+40	1.1911	7.82	|V Q	|	|	|	|
2+45	1.2483	8.31	|V Q	|	|	|	|
2+50	1.3081	8.68	|V Q	|	|	|	|
2+55	1.3693	8.89	|V Q	|	|	|	|
3+ 0	1.4314	9.01	|V Q	|	|	|	|
3+ 5	1.4941	9.11	|V Q	|	|	|	|
3+10	1.5573	9.18	|V Q	|	|	|	|
3+15	1.6209	9.24	|V Q	|	|	|	|
3+20	1.6849	9.29	|V Q	|	|	|	|
3+25	1.7491	9.33	|V Q	|	|	|	|
3+30	1.8136	9.36	|V Q	|	|	|	|
3+35	1.8783	9.39	|V Q	|	|	|	|
3+40	1.9431	9.41	|V Q	|	|	|	|
3+45	2.0080	9.43	|V Q	|	|	|	|
3+50	2.0735	9.51	|V Q	|	|	|	|
3+55	2.1411	9.82	|V Q	|	|	|	|
4+ 0	2.2120	10.29	|V Q	|	|	|	|
4+ 5	2.2854	10.66	|V Q	|	|	|	|
4+10	2.3602	10.85	| V Q	|	|	|	|
4+15	2.4357	10.97	| V Q	|	|	|	|
4+20	2.5124	11.13	| V Q	|	|	|	|
4+25	2.5914	11.48	| V Q	|	|	|	|
4+30	2.6741	12.00	| V Q	|	|	|	|
4+35	2.7595	12.40	| V Q	|	|	|	|
4+40	2.8464	12.62	| V Q	|	|	|	|
4+45	2.9342	12.75	| V Q	|	|	|	|
4+50	3.0232	12.92	| V Q	|	|	|	|

```
4+55       3.1148     13.30  | V  Q    |         |         |         |
5+ 0       3.2100     13.83  | V  Q    |         |         |         |
5+ 5       3.3071     14.10  | V  Q    |         |         |         |
5+10       3.4018     13.75  | V  Q    |         |         |         |
5+15       3.4911     12.96  |  V Q    |         |         |         |
5+20       3.5766     12.42  |  VQ     |         |         |         |
5+25       3.6622     12.43  |  VQ     |         |         |         |
5+30       3.7501     12.75  |  V Q    |         |         |         |
5+35       3.8402     13.09  |  V Q    |         |         |         |
5+40       3.9331     13.48  |  V Q    |         |         |         |
5+45       4.0295     14.00  |  V Q    |         |         |         |
5+50       4.1286     14.39  |  V Q    |         |         |         |
5+55       4.2291     14.60  |  V Q    |         |         |         |
6+ 0       4.3305     14.73  |  V Q    |         |         |         |
6+ 5       4.4331     14.90  |  V Q    |         |         |         |
6+10       4.5382     15.25  |  V  Q   |         |         |         |
6+15       4.6468     15.77  |   V Q   |         |         |         |
6+20       4.7582     16.18  |   V Q   |         |         |         |
6+25       4.8711     16.40  |   V Q   |         |         |         |
6+30       4.9850     16.53  |   V Q   |         |         |         |
6+35       5.1001     16.72  |   V Q   |         |         |         |
6+40       5.2178     17.09  |   V Q   |         |         |         |
6+45       5.3391     17.62  |   V  Q  |         |         |         |
6+50       5.4632     18.02  |   V  Q  |         |         |         |
6+55       5.5889     18.26  |   V  Q  |         |         |         |
7+ 0       5.7157     18.41  |   V  Q  |         |         |         |
7+ 5       5.8433     18.53  |    V Q  |         |         |         |
7+10       5.9715     18.62  |    V Q  |         |         |         |
7+15       6.1002     18.69  |    V Q  |         |         |         |
7+20       6.2298     18.82  |    V Q  |         |         |         |
7+25       6.3618     19.16  |    V Q  |         |         |         |
7+30       6.4972     19.66  |    V Q  |         |         |         |
7+35       6.6358     20.12  |    V  Q |         |         |         |
7+40       6.7779     20.63  |    V  Q |         |         |         |
7+45       6.9240     21.22  |    V  Q |         |         |         |
7+50       7.0739     21.76  |     V Q |         |         |         |
7+55       7.2276     22.31  |     V Q |         |         |         |
8+ 0       7.3856     22.94  |     V  Q|         |         |         |
8+ 5       7.5480     23.58  |     V  Q|         |         |         |
8+10       7.7163     24.45  |     V  Q|         |         |         |
8+15       7.8924     25.57  |     V   Q         |         |         |
8+20       8.0745     26.44  |     V   Q         |         |         |
8+25       8.2600     26.93  |      V  Q         |         |         |
8+30       8.4475     27.23  |      V  Q         |         |         |
8+35       8.6372     27.54  |      V  |Q        |         |         |
8+40       8.8302     28.02  |      V  |Q        |         |         |
8+45       9.0274     28.64  |      V  |Q        |         |         |
8+50       9.2285     29.20  |      V  |Q        |         |         |
8+55       9.4336     29.78  |       V |Q        |         |         |
9+ 0       9.6432     30.44  |       V | Q       |         |         |
```

9+ 5	9.8574	31.10	V | Q	|	|	|
9+10	10.0777	31.99	V | Q	|	|	|
9+15	10.3058	33.12	V | Q	|	|	|
9+20	10.5406	34.08	V| Q	|	|	|
9+25	10.7807	34.87	V| Q	|	|	|
9+30	11.0263	35.66	V| Q	|	|	|
9+35	11.2773	36.44	V| Q	|	|	|
9+40	11.5353	37.47	V| Q	|	|	|
9+45	11.8023	38.77	V Q	|	|	|
9+50	12.0777	39.98	V Q	|	|	|
9+55	12.3616	41.23	V Q	|	|	|
10+ 0	12.6553	42.65	V Q	|	|	|
10+ 5	12.9520	43.08	|V Q	|	|	|
10+10	13.2343	40.99	|V Q	|	|	|
10+15	13.4889	36.96	|V Q	|	|	|
10+20	13.7220	33.85	|V Q	|	|	|
10+25	13.9448	32.35	| Q	|	|	|
10+30	14.1619	31.53	| Q	|	|	|
10+35	14.3782	31.40	| Q	|	|	|
10+40	14.6039	32.78	| VQ	|	|	|
10+45	14.8478	35.40	| V Q	|	|	|
10+50	15.1058	37.46	| VQ	|	|	|
10+55	15.3709	38.50	| V Q	|	|	|
11+ 0	15.6404	39.13	| V Q	|	|	|
11+ 5	15.9123	39.47	| V Q	|	|	|
11+10	16.1828	39.27	| VQ	|	|	|
11+15	16.4491	38.68	| VQ	|	|	|
11+20	16.7126	38.27	| VQ	|	|	|
11+25	16.9754	38.16	| VQ	|	|	|
11+30	17.2384	38.18	| VQ	|	|	|
11+35	17.5002	38.02	| Q	|	|	|
11+40	17.7559	37.13	| QV	|	|	|
11+45	18.0013	35.63	| QV	|	|	|
11+50	18.2391	34.54	| Q V	|	|	|
11+55	18.4765	34.47	| Q V	|	|	|
12+ 0	18.7172	34.95	| Q V	|	|	|
12+ 5	18.9678	36.39	| Q V	|	|	|
12+10	19.2480	40.68	| Q	|	|	|
12+15	19.5742	47.37	| V Q	|	|	|
12+20	19.9375	52.74	| V |Q	|	|	|
12+25	20.3233	56.02	| V | Q	|	|	|
12+30	20.7268	58.59	| V | Q	|	|	|
12+35	21.1459	60.86	| V | Q	|	|	|
12+40	21.5825	63.39	| V | Q	|	|	|
12+45	22.0389	66.28	| V| Q	|	|	|
12+50	22.5123	68.73	| V| Q	|	|	|
12+55	22.9997	70.77	| V| Q |	|	|	|
13+ 0	23.5006	72.74	| V Q|	|	|	|
13+ 5	24.0175	75.05	| V Q	|	|	|
13+10	24.5621	79.08	| |V |Q	|	|	|



17+25	43.0383	9.43	Q			V
17+30	43.1032	9.42	Q			V
17+35	43.1679	9.40	Q			V
17+40	43.2324	9.36	Q			V
17+45	43.2965	9.30	Q			V
17+50	43.3592	9.11	Q			V
17+55	43.4203	8.87	Q			V
18+ 0	43.4784	8.44	Q			V
18+ 5	43.5343	8.12	Q			V
18+10	43.5892	7.97	Q			V
18+15	43.6435	7.89	Q			V
18+20	43.6974	7.83	Q			V
18+25	43.7511	7.79	Q			V
18+30	43.8045	7.76	Q			V
18+35	43.8573	7.66	Q			V
18+40	43.9079	7.35	Q			V
18+45	43.9552	6.87	Q			V
18+50	43.9995	6.44	Q			V
18+55	44.0405	5.94	Q			V
19+ 0	44.0773	5.35	Q			V
19+ 5	44.1115	4.97	Q			V
19+10	44.1459	5.00	Q			V
19+15	44.1824	5.30	Q			V
19+20	44.2210	5.60	Q			V
19+25	44.2622	5.98	Q			V
19+30	44.3067	6.47	Q			V
19+35	44.3533	6.77	Q			V
19+40	44.3993	6.67	Q			V
19+45	44.4428	6.32	Q			V
19+50	44.4839	5.97	Q			V
19+55	44.5222	5.56	Q			V
20+ 0	44.5568	5.03	Q			V
20+ 5	44.5892	4.70	Q			V
20+10	44.6221	4.78	Q			V
20+15	44.6574	5.12	Q			V
20+20	44.6944	5.37	Q			V
20+25	44.7322	5.49	Q			V
20+30	44.7703	5.54	Q			V
20+35	44.8087	5.57	Q			V
20+40	44.8473	5.60	Q			V
20+45	44.8860	5.62	Q			V
20+50	44.9244	5.57	Q			V
20+55	44.9608	5.29	Q			V
21+ 0	44.9941	4.83	Q			V
21+ 5	45.0254	4.55	Q			V
21+10	45.0575	4.66	Q			V
21+15	45.0921	5.02	Q			V
21+20	45.1280	5.22	Q			V
21+25	45.1629	5.06	Q			V
21+30	45.1949	4.65	Q			V

```
21+35      45.2252      4.40  |Q        |         |         |         V|
21+40      45.2566      4.55  |Q        |         |         |         V|
21+45      45.2906      4.94  |Q        |         |         |         V|
21+50      45.3262      5.17  | Q       |         |         |         V|
21+55      45.3607      5.01  | Q       |         |         |         V|
22+ 0      45.3925      4.62  |Q        |         |         |         V|
22+ 5      45.4226      4.38  |Q        |         |         |         V|
22+10      45.4538      4.52  |Q        |         |         |         V|
22+15      45.4876      4.91  |Q        |         |         |         V|
22+20      45.5230      5.14  | Q       |         |         |         V|
22+25      45.5573      4.99  |Q        |         |         |         V|
22+30      45.5890      4.59  |Q        |         |         |         V|
22+35      45.6185      4.28  |Q        |         |         |         V|
22+40      45.6470      4.14  |Q        |         |         |         V|
22+45      45.6750      4.07  |Q        |         |         |         V|
22+50      45.7027      4.02  |Q        |         |         |         V|
22+55      45.7301      3.98  |Q        |         |         |         V|
23+ 0      45.7573      3.94  |Q        |         |         |         V|
23+ 5      45.7842      3.91  |Q        |         |         |         V|
23+10      45.8110      3.89  |Q        |         |         |         V|
23+15      45.8377      3.88  |Q        |         |         |         V|
23+20      45.8644      3.87  |Q        |         |         |         V|
23+25      45.8909      3.86  |Q        |         |         |         V|
23+30      45.9174      3.84  |Q        |         |         |         V|
23+35      45.9437      3.83  |Q        |         |         |         V|
23+40      45.9701      3.82  |Q        |         |         |         V|
23+45      45.9964      3.82  |Q        |         |         |         V|
23+50      46.0227      3.82  |Q        |         |         |         V|
23+55      46.0489      3.81  |Q        |         |         |         V|
24+ 0      46.0752      3.81  |Q        |         |         |         V|
24+ 5      46.1003      3.65  |Q        |         |         |         V|
24+10      46.1215      3.07  |Q        |         |         |         V|
24+15      46.1362      2.14  Q         |         |         |         V|
24+20      46.1460      1.42  Q         |         |         |         V|
24+25      46.1532      1.05  Q         |         |         |         V|
24+30      46.1589      0.83  Q         |         |         |         V|
24+35      46.1635      0.67  Q         |         |         |         V|
24+40      46.1673      0.55  Q         |         |         |         V|
24+45      46.1704      0.45  Q         |         |         |         V|
24+50      46.1729      0.37  Q         |         |         |         V|
24+55      46.1750      0.30  Q         |         |         |         V|
25+ 0      46.1767      0.25  Q         |         |         |         V|
25+ 5      46.1782      0.21  Q         |         |         |         V|
25+10      46.1793      0.17  Q         |         |         |         V|
25+15      46.1802      0.13  Q         |         |         |         V|
25+20      46.1810      0.11  Q         |         |         |         V|
25+25      46.1815      0.08  Q         |         |         |         V|
25+30      46.1820      0.06  Q         |         |         |         V|
25+35      46.1823      0.05  Q         |         |         |         V|
25+40      46.1825      0.03  Q         |         |         |         V|
```

```
   25+45      46.1826      0.02  Q         |         |         |        V|
-------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Study date 12/21/23 File: A11TRIB1000SERIES1100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6586

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

22-0198 - ETHANAC COMMERCE CENTER
OFFSITE UNIT HYDROGRAPH ANALYSIS
A-11 TRIBUTARY, 100-YEAR 24-HOUR
FN: A11TRIB1000SERIES.OUT- RSB

Drainage Area = 65.60(Ac.) = 0.102 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 65.60(Ac.) = 0.102 Sq. Mi.
Length along longest watercourse = 3208.00(Ft.)
Length along longest watercourse measured to centroid = 1567.00(Ft.)
Length along longest watercourse = 0.608 Mi.
Length along longest watercourse measured to centroid = 0.297 Mi.
Difference in elevation = 13.00(Ft.)
Slope along watercourse = 21.3965 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time = 0.140 Hr.
Lag time = 8.39 Min.
25% of lag time = 2.10 Min.
40% of lag time = 3.36 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

```
Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       65.60            0.50                  32.80

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       65.60            1.20                  78.72

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.500(In)
Area Averaged 100-Year Rainfall =    1.200(In)

Point rain (area averaged) =    1.200(In)
Areal adjustment factor =   99.94 %
Adjusted average point rain =    1.199(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    44.000           56.00         0.500
    21.600           75.00         0.500
 Total Area Entered =     65.60(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
56.0  56.0      0.511     0.500        0.281       0.671      0.188
75.0  75.0      0.303     0.500        0.167       0.329      0.055
                                                 Sum (F) =   0.243
Area averaged mean soil loss (F) (In/Hr) =  0.243
Minimum soil loss rate ((In/Hr)) =  0.122
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.500
------------------------------------------------------------------------
Slope of intensity-duration curve for a 1 hour storm =0.5000
------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                       VALLEY S-Curve
------------------------------------------------------------------------
               Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %            (CFS)
------------------------------------------------------------------------
    1   0.083         59.573          8.119              5.367
    2   0.167        119.146         33.665             22.257
    3   0.250        178.719         26.721             17.666
    4   0.333        238.292         10.380              6.863
```

5	0.417	297.865	6.122	4.048
6	0.500	357.438	4.144	2.740
7	0.583	417.011	2.958	1.955
8	0.667	476.584	2.077	1.373
9	0.750	536.157	1.718	1.136
10	0.833	595.730	1.277	0.844
11	0.917	655.303	0.975	0.645
12	1.000	714.876	0.695	0.460
13	1.083	774.448	0.596	0.394
14	1.167	834.021	0.553	0.366
			Sum = 100.000	Sum= 66.112

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.20	0.604	0.243	(0.302)	0.361
2	0.17	4.30	0.619	0.243	(0.309)	0.376
3	0.25	5.00	0.720	0.243	(0.360)	0.476
4	0.33	5.00	0.720	0.243	(0.360)	0.476
5	0.42	5.80	0.835	0.243	(0.417)	0.591
6	0.50	6.50	0.935	0.243	(0.468)	0.692
7	0.58	7.40	1.065	0.243	(0.532)	0.822
8	0.67	8.60	1.238	0.243	(0.619)	0.994
9	0.75	12.30	1.770	0.243	(0.885)	1.527
10	0.83	29.10	4.188	0.243	(2.094)	3.945
11	0.92	6.80	0.979	0.243	(0.489)	0.735
12	1.00	5.00	0.720	0.243	(0.360)	0.476
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	11.5

Flood volume = Effective rainfall 0.96(In)
times area 65.6(Ac.)/[(In)/(Ft.)] = 5.2(Ac.Ft)
Total soil loss = 0.24(In)
Total soil loss = 1.330(Ac.Ft)
Total rainfall = 1.20(In)
Flood volume = 227645.3 Cubic Feet
Total soil loss = 57938.4 Cubic Feet

Peak flow rate of this hydrograph = 133.730(CFS)

++

1 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	50.0	100.0	150.0	200.0
0+ 5	0.0134	1.94	Q				
0+10	0.0826	10.06	V Q				
0+15	0.2018	17.30	|V Q				
0+20	0.3552	22.28	| V Q				
0+25	0.5360	26.24	| VQ				
0+30	0.7500	31.09	| VQ				
0+35	1.0063	37.21	| Q				
0+40	1.3121	44.40	| Q V				
0+45	1.6921	55.18	| |QV				
0+50	2.2785	85.14	| | Q				
0+55	3.1995	133.73	| | | V Q				
1+ 0	3.9497	108.93	| | |Q	V			
1+ 5	4.3894	63.85	| | Q	|	| V		
1+10	4.6566	38.79	| Q	|	| V		
1+15	4.8209	23.86	| Q	|	| V		
1+20	4.9357	16.66	| Q	|	| V		
1+25	5.0183	11.99	| Q	|	| V		
1+30	5.0818	9.22	|Q	|	| V		
1+35	5.1289	6.84	|Q	|	| V		
1+40	5.1640	5.10	|Q	|	| V		
1+45	5.1892	3.66	Q	|	| V		
1+50	5.2082	2.76	Q	|	| V		
1+55	5.2217	1.95	Q	|	| V		
2+ 0	5.2248	0.46	Q	|	| V		
2+ 5	5.2260	0.17	Q	|	| V		

U n i t H y d r o g r a p h A n a l y s i s

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Study date 12/21/23 File: A11TRIB1000SERIES3100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6586

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

22-0198 - ETHANAC COMMERCE CENTER
OFFSITE UNIT HYDROGRAPH ANALYSIS
A-11 TRIBUTARY, 100-YEAR 24-HOUR
FN: A11TRIB1000SERIES.OUT- RSB

Drainage Area = 65.60(Ac.) = 0.102 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 65.60(Ac.) = 0.102 Sq. Mi.
Length along longest watercourse = 3208.00(Ft.)
Length along longest watercourse measured to centroid = 1567.00(Ft.)
Length along longest watercourse = 0.608 Mi.
Length along longest watercourse measured to centroid = 0.297 Mi.
Difference in elevation = 13.00(Ft.)
Slope along watercourse = 21.3965 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time = 0.140 Hr.
Lag time = 8.39 Min.
25% of lag time = 2.10 Min.
40% of lag time = 3.36 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

```
Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       65.60            0.80                  52.48

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       65.60            1.90                 124.64

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.800(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.97 %
Adjusted average point rain =    1.899(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
    44.000           56.00         0.500
    21.600           75.00         0.500
 Total Area Entered =     65.60(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
56.0  56.0      0.511     0.500        0.281       0.671      0.188
75.0  75.0      0.303     0.500        0.167       0.329      0.055
                                                 Sum (F) =   0.243
Area averaged mean soil loss (F) (In/Hr) =  0.243
Minimum soil loss rate ((In/Hr)) =  0.122
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.500
------------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                       VALLEY S-Curve
------------------------------------------------------------------
               Unit Hydrograph Data
------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                          Graph %            (CFS)
------------------------------------------------------------------
    1   0.083         59.573          8.119              5.367
    2   0.167        119.146         33.665             22.257
    3   0.250        178.719         26.721             17.666
    4   0.333        238.292         10.380              6.863
    5   0.417        297.865          6.122              4.048
    6   0.500        357.438          4.144              2.740
```

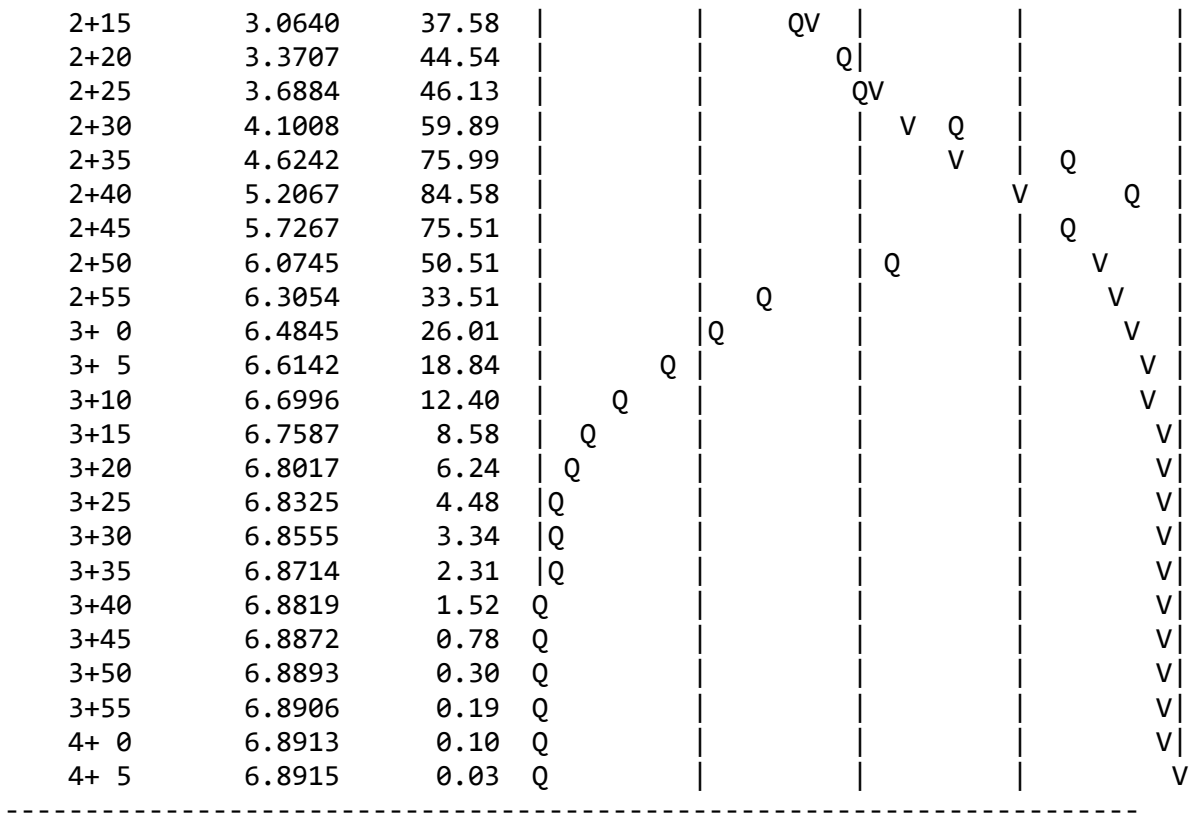
7	0.583	417.011	2.958	1.955
8	0.667	476.584	2.077	1.373
9	0.750	536.157	1.718	1.136
10	0.833	595.730	1.277	0.844
11	0.917	655.303	0.975	0.645
12	1.000	714.876	0.695	0.460
13	1.083	774.448	0.596	0.394
14	1.167	834.021	0.553	0.366
			Sum = 100.000	Sum= 66.112

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.296	(0.243)	0.148	0.148
2	0.17	1.30	0.296	(0.243)	0.148	0.148
3	0.25	1.10	0.251	(0.243)	0.125	0.125
4	0.33	1.50	0.342	(0.243)	0.171	0.171
5	0.42	1.50	0.342	(0.243)	0.171	0.171
6	0.50	1.80	0.410	(0.243)	0.205	0.205
7	0.58	1.50	0.342	(0.243)	0.171	0.171
8	0.67	1.80	0.410	(0.243)	0.205	0.205
9	0.75	1.80	0.410	(0.243)	0.205	0.205
10	0.83	1.50	0.342	(0.243)	0.171	0.171
11	0.92	1.60	0.365	(0.243)	0.182	0.182
12	1.00	1.80	0.410	(0.243)	0.205	0.205
13	1.08	2.20	0.501	0.243	(0.251)	0.258
14	1.17	2.20	0.501	0.243	(0.251)	0.258
15	1.25	2.20	0.501	0.243	(0.251)	0.258
16	1.33	2.00	0.456	(0.243)	0.228	0.228
17	1.42	2.60	0.593	0.243	(0.296)	0.349
18	1.50	2.70	0.615	0.243	(0.308)	0.372
19	1.58	2.40	0.547	0.243	(0.274)	0.304
20	1.67	2.70	0.615	0.243	(0.308)	0.372
21	1.75	3.30	0.752	0.243	(0.376)	0.509
22	1.83	3.10	0.707	0.243	(0.353)	0.463
23	1.92	2.90	0.661	0.243	(0.331)	0.418
24	2.00	3.00	0.684	0.243	(0.342)	0.440
25	2.08	3.10	0.707	0.243	(0.353)	0.463
26	2.17	4.20	0.957	0.243	(0.479)	0.714
27	2.25	5.00	1.140	0.243	(0.570)	0.896
28	2.33	3.50	0.798	0.243	(0.399)	0.554
29	2.42	6.80	1.550	0.243	(0.775)	1.307
30	2.50	7.30	1.664	0.243	(0.832)	1.421
31	2.58	8.20	1.869	0.243	(0.935)	1.626
32	2.67	5.90	1.345	0.243	(0.672)	1.102
33	2.75	2.00	0.456	(0.243)	0.228	0.228

```
34   2.83     1.80      0.410       (  0.243)       0.205        0.205
35   2.92     1.80      0.410       (  0.243)       0.205        0.205
36   3.00     0.60      0.137       (  0.243)       0.068        0.068
               (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    15.1
      Flood volume = Effective rainfall      1.26(In)
       times area      65.6(Ac.)/[(In)/(Ft.)] =       6.9(Ac.Ft)
      Total soil loss =      0.64(In)
      Total soil loss =     3.492(Ac.Ft)
      Total rainfall =      1.90(In)
      Flood volume =      300193.7 Cubic Feet
      Total soil loss =      152119.7 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     84.579(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0       22.5      45.0      67.5      90.0
-------------------------------------------------------------------------
  0+ 5       0.0055      0.80  Q         |         |         |         |
  0+10       0.0337      4.09  VQ        |         |         |         |
  0+15       0.0791      6.59  V Q       |         |         |         |
  0+20       0.1297      7.35  V  Q      |         |         |         |
  0+25       0.1886      8.56  |V Q      |         |         |         |
  0+30       0.2561      9.80  |V  Q     |         |         |         |
  0+35       0.3310     10.89  |V  Q     |         |         |         |
  0+40       0.4084     11.24  | V Q     |         |         |         |
  0+45       0.4902     11.88  | V  Q    |         |         |         |
  0+50       0.5755     12.39  |  V Q    |         |         |         |
  0+55       0.6582     12.01  |  V Q    |         |         |         |
  1+ 0       0.7408     11.99  |   VQ    |         |         |         |
  1+ 5       0.8297     12.91  |   VQ    |         |         |         |
  1+10       0.9300     14.56  |    VQ   |         |         |         |
  1+15       1.0378     15.66  |     Q   |         |         |         |
  1+20       1.1477     15.96  |     VQ  |         |         |         |
  1+25       1.2595     16.23  |      Q  |         |         |         |
  1+30       1.3883     18.71  |       Q |         |         |         |
  1+35       1.5324     20.92  |       VQ|         |         |         |
  1+40       1.6767     20.96  |        Q|         |         |         |
  1+45       1.8328     22.66  |         Q         |         |         |
  1+50       2.0161     26.62  |         |Q        |         |         |
  1+55       2.2108     28.26  |         | Q       |         |         |
  2+ 0       2.4023     27.81  |         | QV      |         |         |
  2+ 5       2.5958     28.10  |         | Q  V    |         |         |
  2+10       2.8052     30.40  |         |  Q  V   |         |         |
```



2+15	3.0640	37.58	QV
2+20	3.3707	44.54	Q
2+25	3.6884	46.13	QV
2+30	4.1008	59.89	V Q
2+35	4.6242	75.99	V Q
2+40	5.2067	84.58	V Q
2+45	5.7267	75.51	Q
2+50	6.0745	50.51	Q V
2+55	6.3054	33.51	Q V
3+ 0	6.4845	26.01	Q V
3+ 5	6.6142	18.84	Q V
3+10	6.6996	12.40	Q V
3+15	6.7587	8.58	Q V
3+20	6.8017	6.24	Q V
3+25	6.8325	4.48	Q V
3+30	6.8555	3.34	Q V
3+35	6.8714	2.31	Q V
3+40	6.8819	1.52	Q V
3+45	6.8872	0.78	Q V
3+50	6.8893	0.30	Q V
3+55	6.8906	0.19	Q V
4+ 0	6.8913	0.10	Q V
4+ 5	6.8915	0.03	Q V

U n i t H y d r o g r a p h A n a l y s i s

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Study date 12/21/23 File: A11TRIB1000SERIES6100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6586

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

22-0198 - ETHANAC COMMERCE CENTER
OFFSITE UNIT HYDROGRAPH ANALYSIS
A-11 TRIBUTARY, 100-YEAR 24-HOUR
FN: A11TRIB1000SERIES.OUT- RSB

Drainage Area = 65.60(Ac.) = 0.102 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 65.60(Ac.) = 0.102 Sq. Mi.
Length along longest watercourse = 3208.00(Ft.)
Length along longest watercourse measured to centroid = 1567.00(Ft.)
Length along longest watercourse = 0.608 Mi.
Length along longest watercourse measured to centroid = 0.297 Mi.
Difference in elevation = 13.00(Ft.)
Slope along watercourse = 21.3965 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time = 0.140 Hr.
Lag time = 8.39 Min.
25% of lag time = 2.10 Min.
40% of lag time = 3.36 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data: