



A.P. Kohut
Senior Geological Engineer
Groundwater

Date: September 22, 1980

File: 92G/1 (33)

Re: Fraser Valley Trout Hatchery Standby Production Well No.4
- Screen Design and Ordering.

During the course of drilling the above hole, formation samples were collected at regular 1 to 2 ft. intervals. These samples were dried and sieve analyses were performed. Enclosed is a summary of the results (Design Table for screen slot size and length), including a summary of the selected screen design (summary of screen design).

Following approval of the screen design, by yourself and J.C. Foweraker, Alec Laing of A.C. Drillers was notified by telephone on Monday, Sept. 15, 1980 of the screen design specifications. Immediately following our conversation, Mr. Laing placed the order for the screen sections through Langley Welding Ltd. of Langley. The following order for screen sections (including Welding rings) was made, beginning at the bottom of the backfilled hole (i.e. depth of 266 ft.):

Section 1 (246' to 266'): A single length of 12-inch pipe size Johnson's stainless steel screen, 20 ft. long, consisting of 3 ft. of 25-slot; 5 ft. of 40-slot; 4 ft. of 80-slot; 8 ft. of 70-slot; and a flat plate bottom.

Section 2 (195' to 220'): Two lengths of 12-inch pipe size screen consisting of a 14 ft. length of 50-slot; and an 11 ft. length of 7 ft. of 20-slot and 4 ft. of 30-slot.

Section 3 (146'-171'): Two lengths of 12-inch pipe size screen consisting of a 14 ft. length of 6 ft. of 25-slot and 8 ft. of 20-slot; and an 11 ft. length of 4 ft. of 40-slot and 7 ft. of 20-slot.

Section 4 (120'-130'): A single 10 ft. length of 18-inch pipe size, 100-slot screen.

Mr. Laing also placed an order for one 12" X 14" reducing packer (K-type), one 18" X 20" reducing packer (K-type), and a 14" X 18" concentric reducing bushing. Details of the method of connection and fittings to be used by Mr. Laing in the construction of the screen section between the 18-inch pipe size screen and the 12-inch pipe size screen are shown on the next page. Essentially Mr. Laing proposes to install the 12-inch diameter screen assembly through the 16-inch working casing; pull out the 16-inch casing, thus exposing the 12-inch screen; install the 18-inch screen connected to the 14-inch casing which overlaps onto the 12-inch diameter screen assembly; pull up 20 ft. of the 20-inch casing to 120 ft. depth and thereby expose the 18-inch screen.

APK
22/9/80
DR. FOWERAKER *9/10/10/80*
FILE 4

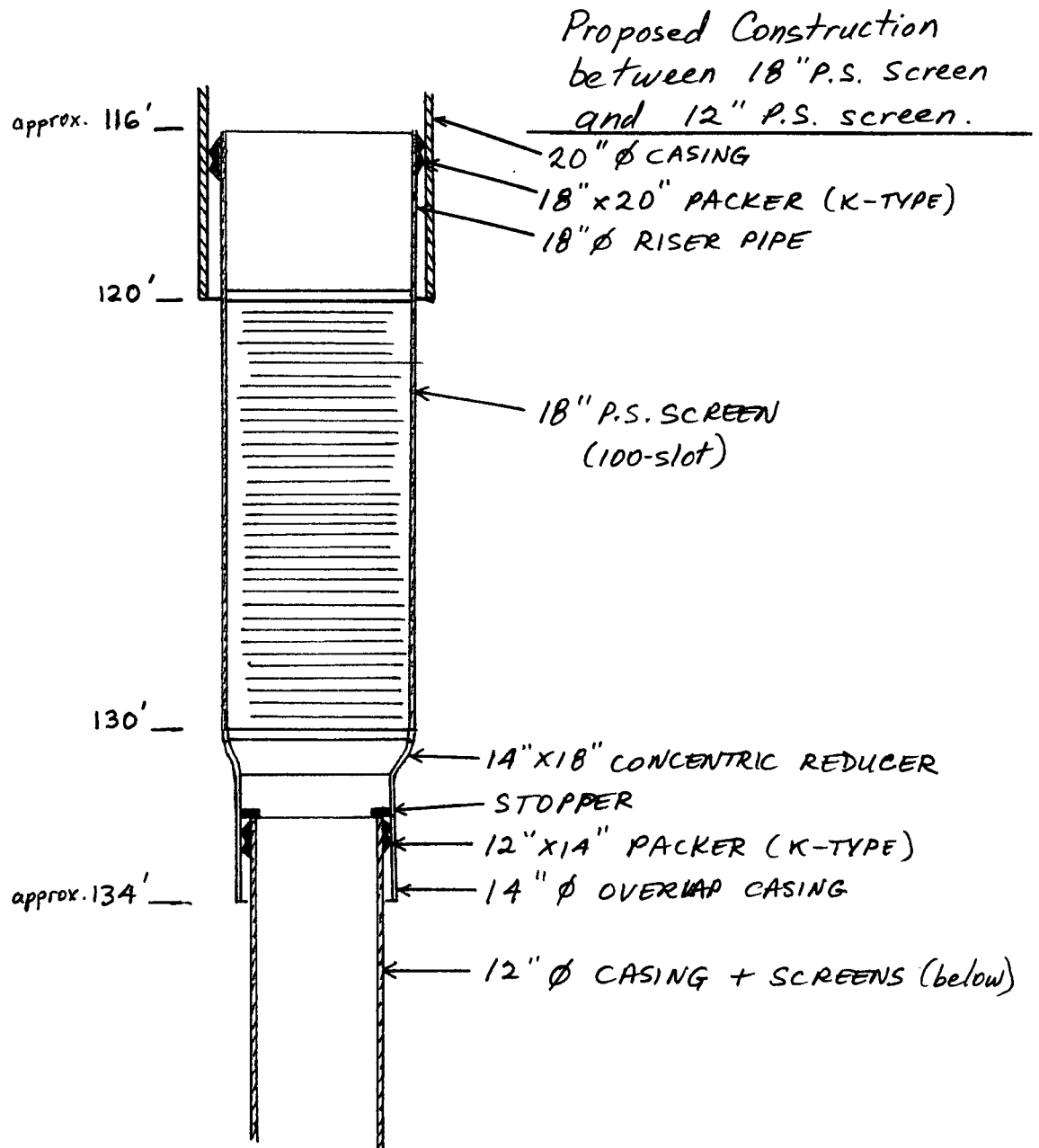
According to Langley Welding Ltd., the above order for the screens and accessories was placed to the manufacturer (Johnson Division, UOP, St. Paul, Minnesota, USA) on Tuesday morning, Sept. 16, 1980. Mr. Lainq indicated that he would personally travel to St. Paul, Minnesota to pick up the screens and accessories and deliver them to the site by Tuesday, Sept. 23, 1980.

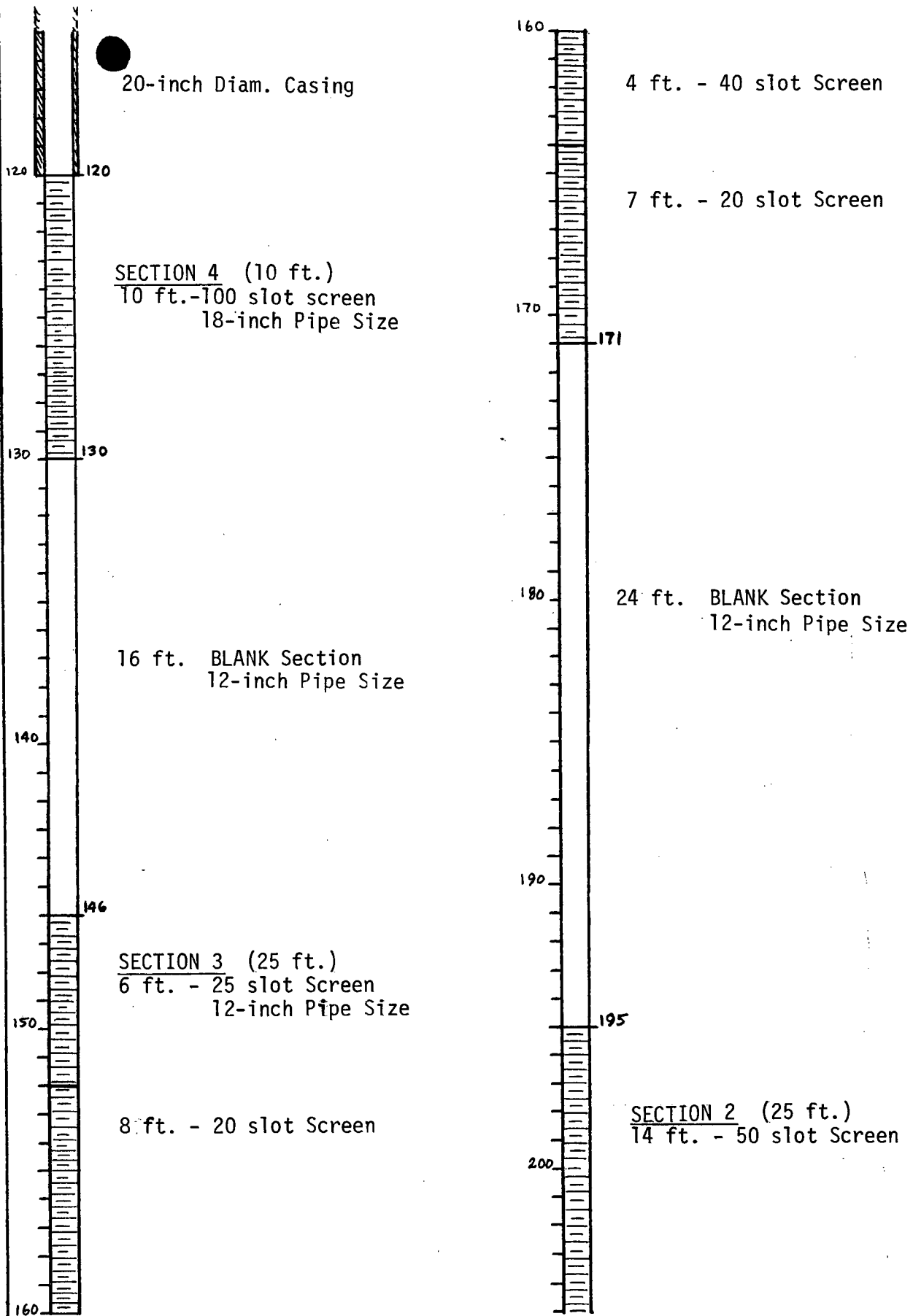
Marc Zubel.

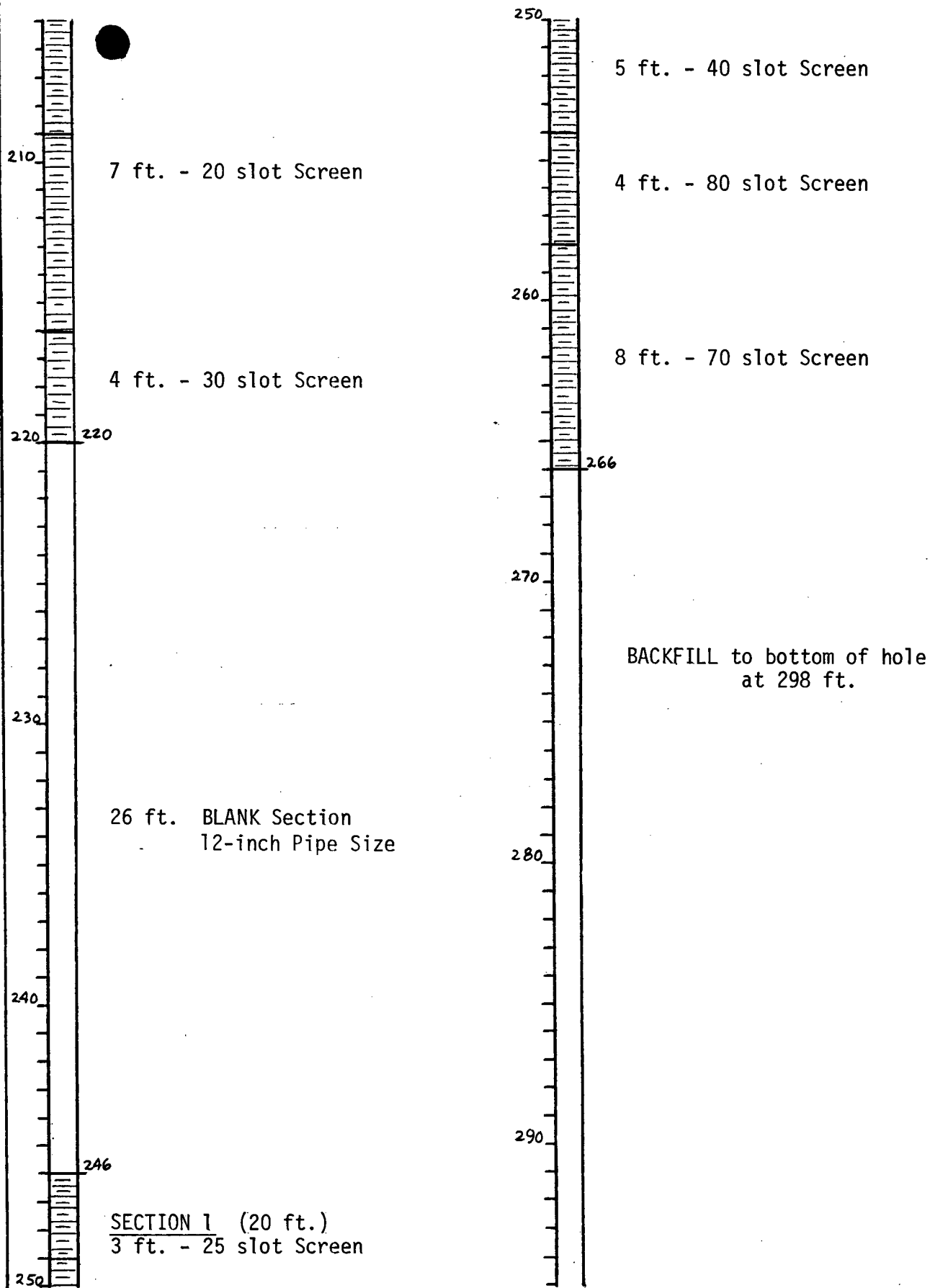
Marc Zubel
Geological Engineer
Groundwater-Hydrology Section

Enc.

MZ/dp







SUMMARY OF SCREEN DESIGN

DEPTH INTERVAL in FEET	SCREEN SLOT SIZE in THOUS. OF INCH	SCREEN LENGTH in FEET	THEORETICAL (MAXIMUM) TRANSMITTING CAPACITY of SCREEN in USGPM
<u>SECTION 4</u> 120 - 130	100 (18-inch PS)	10	815
<u>SECTION 3</u> 146 - 152	25 (12-inch PS)	6	135
152 - 160	20 (")	8	168
160 - 164	40 (")	4	120
164 - 171	20 (")	7	147
<u>SECTION 2</u> 195 - 209	50 (")	14	504
209 - 216	20 (")	7	147
216 - 220	30 (")	4	96
<u>SECTION 1</u> 246 - 249	25 (")	3	68
249 - 254	40 (")	5	150
254 - 258	80 (")	4	200
258 - 266	70 (")	8	360

TOTAL :

80 ft.

2910 USgpm

DESIGN TABLE FOR SCREEN SLOT SIZE AND LENGTH

Depth in Feet	Effective Size Squared	Possible Range of Screen Slot Openings in Thous. of an Inch			% of Sample Not Sieved 1/2 in. or Over	Restricted Range of Screen Slot Opening in Thous. of an Inch	Multiple Slot Scr. Design			Final Screen Design
		Percentage Retained					Prelim.	Modif. Based on Rule 1	Modif. Based on Rule 2	
		50%	40%	30%						
135	49	13	15	18	1	13-15	Blank	Blank	Blank	
136	64	18	20	22	< 1	18-20	20	Blank	Blank	
137	"	"	"	"	"	"	20	Blank	Blank	
138	"	"	"	"	"	"	20	20	20	
139	121	27	31	40	< 1	31-40	40	20	20	
140	64	20	22	27	< 1	20-22	20	20	20	
141	"	"	"	"	"	"	20	20	20	
142	144	30	39	53	5	39-53	40	20	20	
143	"	"	"	"	"	"	40	20	20	
144	169	39	60	96	15	96+	100	40	40	
145	"	"	"	"	"	96+	100	40	40	
146	121	30	42	63	10	42-63	60	60	60	146-152:
147	196	22	25	30	0	22-25	25	25	25	6'-25 slot
148	"	"	"	"	"	"	25	25	25	(12" P.S. screen)
149	144	21	24	30	2	24	25	25	25	
150	"	"	"	"	"	"	25	25	25	
151	100	23	29	35	2	29	30	25	25	
152	64	19	20	21	< 1	19-20	20	20	20	152-160

DESIGN TABLE FOR SCREEN SLOT SIZE AND LENGTH

Depth in Feet	Effective Size Squared	Possible Range of Screen Slot Openings in Thous. of an Inch			% of Sample Not Sieved 1/2 in. or Over	Restricted Range of Screen Slot Opening in Thous. of an Inch	Multiple Slot Scr. Design			Final Screen Design
		Percentage Retained					Prelim.	Modif. Based on Rule 1	Modif. Based on Rule 2	
		50%	40%	30%						
153	64	19	20	21	< 1	19 - 20	20	20	20	8' - 20 slot
154	"	17	20	21	< 1	17 - 20	20	20	20	
155	"	20	22	25	3	20 - 22	20	20	20	
156	"	"	"	"	"	"	20	20	20	
157	"	16	18	19	< 1	16	20	20	20	
158	81	31	63	110	19	110	100	20	20	
159	"	26	34	48	3	40	40	20	20	
160	"	"	"	"	"	"	40	40	40	160 - 164
161	"	32	48	80	12	80	80	40	40	
162	"	36	53	80	4	80	80	40	40	4' - 40 slot
163	"	"	"	"	"	"	80	80	80	
164	64	20	22	27	1	20 - 22	20	20	20	164 - 171
165	"	"	"	"	"	"	20	20	20	7' - 20 slot
166	196	25	26	28	0	25 - 26	25	20	20	
167	"	"	"	"	"	"	25	20	20	
168	49	18	19	21	3	18 - 19	20	20	20	
169	"	"	"	"	"	"	20	20	20	
170	81	22	25	30	11	22 - 25	25	20	20	

Depth in Feet	Effective Size Squared	Possible Range of Screen Slot Openings in Thous. of an Inch			% of Sample Not Sieved 1/2 in. or Over	Restricted Range of Screen Slot Opening in Thous. of an Inch	Multiple Slot Scr. Design			Final Screen Design
		Percentage Retained					Prelim.	Modif. Based on Rule 1	Modif. Based on Rule 2	
		50%	40%	30%						
171	81	22	25	30	11	22-25	25	20	20	171-195
172	64	22	28	35	3	28	30	25	25	BLANK
173	"	"	"	"	"	"	30	25	25	
174	"	21	25	32	19	25	25	25	25	
175	225	31	38	50	6	38-50	40	25	25	
176	64	18	20	23	1	18-20	20	20	20	
177	"	"	"	"	"	"	20	20	20	
178	49	15	17	19	0	15	Blank	Blank	Blank	
179	"	"	"	"	"	"	"	"	"	
180	"	14	16	19	0	14	"	"	"	
181	"	"	"	"	"	"	"	"	"	
182	"	11	13	16	0	11	"	"	"	
183	"	"	"	"	"	"	"	"	"	
184	"	"	"	"	"	"	"	"	"	
185	"	"	"	"	"	"	"	"	"	
186	"	18	19	21	9	18-19	20	"	"	
187	64	20	22	30	16	22	20	"	"	
188	"	"	"	"	"	"	20	20	20	

Depth in Feet	Effective Size Squared	Possible Range of Screen Slot Openings in Thous. of an Inch			% of Sample Not Sieved 1/2 in. or Over	Restricted Range of Screen Slot Opening in Thous. of an Inch	Multiple Slot Scr. Design			Final Screen Design
		Percentage Retained					Prelim.	Modif. Based on Rule 1	Modif. Based on Rule 2	
		50%	40%	30%						
189	36	19	21	25	2	20-22	20	20	20	
190	"	"	"	"	"	"	20	20	20	
191	"	"	"	"	"	"	20	20	20	
192	100	25	30	49	16	30-49	50	20	20	
193	81	25	37	68	7	37-68	60	20	20	
194	121	30	36	49	4	36-49	50	50	40	
195	"	"	"	"	"	"	50	50	50	195-209
196	100	32	37	43	5	37-43	50	50	50	14' - 50 slot
197	144	29	37	53	4	37-53	50	50	50	
198	"	"	"	"	"	"	50	50	50	
199	169	31	39	56	2	39-56	50	50	50	
200	"	"	"	"	"	"	50	50	50	
201	"	"	"	"	"	"	50	50	50	
202	"	32	38	48	3	38-48	50	50	50	
203	"	"	"	"	"	"	50	50	50	
204	"	"	"	"	"	"	50	50	50	
205	"	"	"	"	"	"	50	50	50	
206	256	32	40	59	"	59	60	50	50	

DESIGN TABLE FOR SCREEN SLOT SIZE AND LENGTH

Depth in Feet	Effective Size Squared	Possible Range of Screen Slot Openings in Thous. of an Inch			% of Sample Not Sieved 1/2 in. or Over	Restricted Range of Screen Slot Opening in Thous. of an Inch	Multiple Slot Scr. Design			Final Screen Design
		Percentage Retained					Prelim.	Modif. Based on Rule 1	Modif. Based on Rule 2	
		50%	40%	30%						
207	256	32	40	59	3	59	60	50	50	
208	"	"	"	"	"	"	60	60	60	
209	100	23	27	31	4	27-31	30	30	30	209-216
210	"	"	"	"	"	"	30	30	30	7' - 20 slot
211	64	19	21	25	2	19-21	20	20	20	
212	"	"	"	"	"	"	20	20	20	
213	"	"	"	"	"	"	20	20	20	
214	36	20	24	36	17	24-36	30	20	20	
215	"	"	"	"	"	"	30	20	20	
216	81	45	86	149	25	149+	150	30	30	216 - 220
217	"	"	"	"	"	"	150	30	30	4' - 30 slot
218	100	26	30	35	10	30-35	30	30	30	
219	"	"	"	"	"	"	30	30	30	
220	64	14	18	22	4	14-18	20	20	20	220-246
221	"	"	"	"	"	"	20	20	20	BLANK
222	"	22	30	50	10	30-50	40	20	20	
223	100	28	29	31	2	29	30	20	20	
224	"	"	"	"	"	"	30	30	30	

DESIGN TABLE FOR SCREEN SLOT SIZE AND LENGTH

Depth in Feet	Effective Size Squared	Possible Range of Screen Slot Open- ings in Thous. of an Inch			% of Sample Not Sieved 1/2 in. or Over	Restricted Range of Screen Slot Opening in Thous. of an Inch	Multiple Slot Scr. Design			Final Screen Design ●
		Percentage Retained					Prelim.	Modif. Based on Rule 1	Modif. Based on Rule 2	
		50%	40%	30%						
225	64	19	21	22	0	19	20	20	20	BLANK
226	"	"	"	"	"	"	20	20	20	
227	81	23	25	27	"	23-25	25	20	20	
228	49	15	18	22	1	15-18	20	20	20	
229	"	"	"	"	"	"	20	20	20	
230	"	"	"	"	"	"	20	20	20	
231	"	19	22	29	5	22	20	20	20	
232	"	"	"	"	"	"	20	20	20	
233	64	21	25	33	1	25	25	20	20	
234	"	"	"	"	"	"	25	20	20	
235	81	21	24	29	3	24	25	25	25	
236	"	"	"	"	"	"	25	25	25	
237	100	26	29	32	1	29-32	30	25	25	
238	64	22	24	27	0	22-24	25	25	25	
239	"	"	"	"	"	"	25	25	25	
240	"	"	"	"	"	"	25	25	25	
241	"	"	"	"	"	"	25	25	25	
242	"	"	"	"	"	"	25	25	25	

Depth in Feet	Effective Size Squared	Possible Range of Screen Slot Openings in Thous. of an Inch			% of Sample Not Sieved 1/2 in. or Over	Restricted Range of Screen Slot Opening in Thous. of an Inch	Multiple Slot Scr. Design			Final Screen Design
		Percentage Retained					Prelim.	Modif. Based on Rule 1	Modif. Based on Rule 2	
		50%	40%	30%						
243	121	23	26	28	2	26	25	25	25	
244	"	"	"	"	"	"	25	25	25	
245	"	"	"	"	"	"	25	25	25	
246	"	"	"	"	"	"	25	25	25	246 - 249
247	144	23	28	38	3	28-38	40	25	25	3' - 25 slot
248	121	26	30	39	5	30-39	40	25	25	
249	"	"	"	"	"	"	40	40	40	249 - 254
250	289	38	40	41	11	40-41	40	40	40	5' - 40 slot
251	"	"	"	"	"	"	40	40	40	
252	100	27	40	70	1	70+	70	40	40	
253	256	40	68	93	"	93+	90	40	40	
254	"	"	"	"	"	"	90	90	80	254 - 258
255	324	60	75	89	0	89+	90	90	90	4' - 80 slot
256	"	"	"	"	"	"	90	90	90	
257	"	76	89	139	11	139+	140	90	90	
258	225	37	42	69	2	69+	70	70	70	258 - 266
259	"	"	"	"	"	"	70	70	70	8' - 70 slot
260	"	60	88	130	16	130+	130	70	70	

Depth in Feet	Effective Size Squared	Possible Range of Screen Slot Open- ings in Thous. of an Inch			% of Sample Not Sieved 1/2 in. or Over	Restricted Range of Screen Slot Opening in Thous. of an Inch	Multiple Slot Scr. Design			Final Screen Design ●
		Percentage Retained					Prelim.	Modif. Based on Rule 1	Modif. Based on Rule 2	
		50%	40%	30%						
261	225	60	88	130	16	130+	130	70	70	
262	289	44	56	72	2	72	70	70	70	
263	"	"	"	"	"	"	70	70	70	
264	"	34	43	60	14	60+	70	70	70	
265	"	"	"	"	"	"	70	70	70	
266	225	30	35	43	0	35-43	40	40	40	266-298
267	"	"	"	"	"	"	40	40	40	To be
268	81	19	21	23	"	19-21	20	20	20	BACKFILLED
269	"	"	"	"	"	"	20	20	20	
270	"	"	"	"	"	"	20	20	20	
271	"	"	"	"	"	"	20	20	20	
272	"	18	20	22	4	18	20	20	20	
273	"	"	"	"	"	"	20	20	20	
274	"	"	"	"	"	"	20	20	20	
275	"	"	"	"	"	"	20	20	20	
276	64	18	19	21	0	"	20	20	20	
277	"	"	"	"	"	"	20	20	20	
278	144	28	30	32	1	28-30	30	20	20	

Depth in Feet	Effective Size Squared	Possible Range of Screen Slot Openings in Thous. of an Inch			% of Sample Not Sieved 1/2 in. or Over	Restricted Range of Screen Slot Opening in Thous. of an Inch	Multiple Slot Scr. Design			Final Screen Design
		Percentage Retained					Prelim.	Modif. Based on Rule 1	Modif. Based on Rule 2	
		50%	40%	30%						
279	144	28	30	32	1	28-30	30	20	20	BACK FILL
280	"	"	"	"	"	"	30	30	30	
281	196	25	26	28	0	25-26	25	25	25	
282	"	"	"	"	"	"	25	25	25	
283	"	"	"	"	"	"	25	25	25	
284	144	27	29	32	"	29	30	25	25	
285	"	"	"	"	"	"	30	25	25	
286	64	15	16	18	"	15	Blank	Blank	Blank	
287	100	21	23	25	1	21-23	20	Blank	Blank	
288	64	20	23	31	5	23-31	30	Blank	Blank	
289	"	"	"	"	"	"	30	30	30	
290	81	26	35	70	14	35-70	60	30	30	
291	"	"	"	"	"	"	60	30	30	
292	121	27	31	45	7	31-45	40	40	40	
293	"	"	"	"	"	"	40	40	40	
294	"	"	"	"	"	"	40	40	40	
295	81	20	24	32	4	24-32	30	30	30	
296	"	"	"	"	"	"	30	30	30	
297	100	25	28	30	1	28-30	30	30	30	