

96

Graes

696

DIETZGEN  
TRADE MARK

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ENGINEERS'

FIELD BOOK

No. 403

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# EUGENE DIETZGEN CO.

DRAWING MATERIALS, MATHEMATICAL and  
SURVEYING INSTRUMENTS

Chicago New York San Francisco New Orleans Pittsburg Toronto

Distances from Center of Roadway for Cross-Sectioning  
Roadway 16 feet wide. Side Slopes 1 on 1.  
For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	0
1	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	1
2	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	2
3	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	3
4	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	4
5	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	5
6	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	6
7	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	7
8	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	8
9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	9
10	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	10
11	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	11
12	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	12
13	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	13
14	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	14
15	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	15
16	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	16
17	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	17
18	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	18
19	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	19
20	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	20
21	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	21
22	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	22
23	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	31.9	23
24	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	24
25	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	25
26	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	26
27	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	27
28	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	36.9	28
29	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	37.9	29
30	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9	30
31	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	31
32	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	40.9	32
33	41.0	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8	41.9	33
34	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	42.9	34
35	43.0	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8	43.9	35
36	44.0	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8	44.9	36
37	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	45.9	37
38	46.0	46.1	46.2	46.3	46.4	46.5	46.6	46.7	46.8	46.9	38
39	47.0	47.1	47.2	47.3	47.4	47.5	47.6	47.7	47.8	47.9	39
40	48.0	48.1	48.2	48.3	48.4	48.5	48.6	48.7	48.8	48.9	40

**Example**—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 30.6. For same slopes but other widths of roadbed, correct above figures by one-half difference in width of roadbed; thus in example above, for 20 ft. roadbed distance will be  $30.6 + (20 - 16) \div 2$  or 2 ft. added to 30.6 = 32.6. For slopes of 1 on  $1\frac{1}{2}$  see inside of back cover.

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184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500

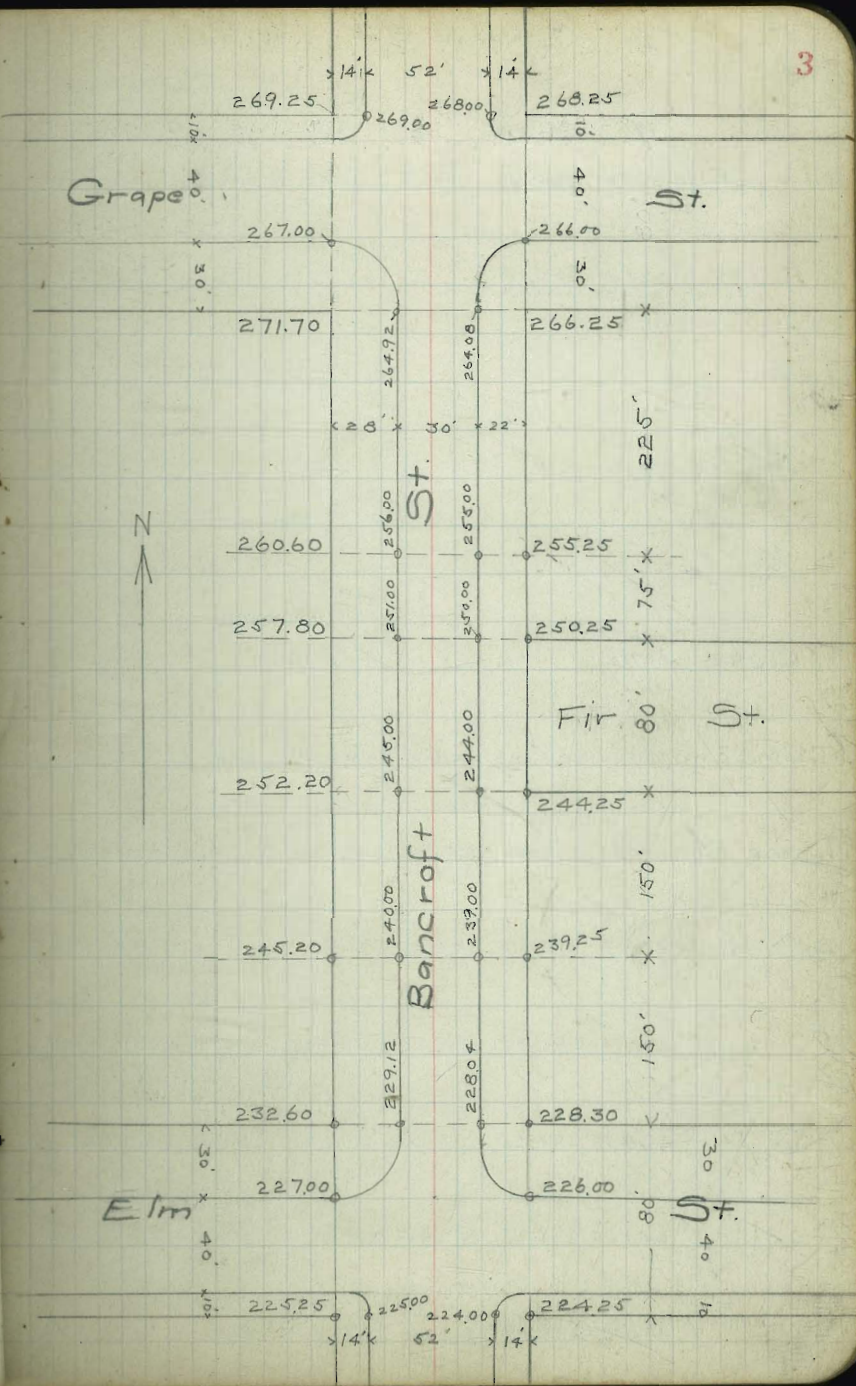
ENGINEERING DEPARTMENT  
CITY OF SAN DIEGO,  
CALIFORNIA.

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CITY OF SAN DIEGO,  
CALIFORNIA.



Dec. 1918

# BANCROFT ST.

S. Line Elm  
N. Line <sup>to</sup> Grape.

W. CURB  $\frac{1}{4}$  E  $\frac{1}{4}$  CURB E

S. Line Elm 225.25 225.00 224.58 224.50 224.08 224.00 224.25

" CURB 225.00 225.00 224.00 224.00  
(Gutter) 224.33 224.33 223.33 223.33

"  $\frac{1}{4}$

E

N  $\frac{1}{4}$

" CURB 226.33 227.00 228.33 226.00

N. Line Elm 232.60 229.12 228.68 228.58 228.13 228.04 228.30

N. Line Elm 232.60 229.12 228.68 228.58 228.13 228.04 228.30

25' N. 234.70 230.93 230.50 230.40 229.96 229.87 230.13

50' " 236.80 232.75 232.31 232.22 231.78 231.69 231.95

75' " 238.10 234.56 234.13 234.04 233.61 233.52 233.78

100' " 241.00 236.37 235.95 235.86 235.43 235.35 235.60

125' " 243.10 238.19 237.76 237.68 237.26 237.17 237.43

## BANCROFT ST.

5

(N. of N.L. Elm)

	W. CURB	$\frac{1}{4}$	$\oplus$	$\frac{1}{4}$	CURB	E.
125' N.	243.10	238.19	237.76	237.68	237.26	237.17 237.43
150' "	245.20	240.00	239.58	239.50	239.08	239.00 239.25
175' "	246.37	240.83	240.41	240.33	239.91	239.83 240.08
200' "	247.53	241.67	241.25	241.17	240.75	240.67 240.92
225' "	248.70	242.50	242.08	242.00	241.58	241.50 241.75
250' "	249.87	243.33	242.91	242.83	242.41	242.33 242.58
275' "	251.03	244.17	243.75	243.67	243.25	243.17 243.42
300' " S.L. Fir	252.20	245.00	244.58	244.50	244.08	244.00 244.25
20' N. of S.L. Fir	253.60	246.50	246.08	246.00	245.58	245.50 245.75
40' " "	255.00	248.00	247.58	247.50	247.08	247.00 247.25
60' " "	256.40	249.50	249.08	249.00	248.58	248.50 248.75
80' " N.L. Fir	257.80	251.00	250.58	250.50	250.08	250.00 250.25

## BANCROFT ST.

6

	W	CURB	$\frac{1}{4}$	$\oplus$	$\frac{1}{4}$	CURB	E
N. Line Fir	257.80	251.00	250.58	250.50	250.08	250.00	250.25
25' N.	258.73	252.67	252.25	252.17	251.75	251.67	251.92
50' "	259.67	254.33	253.91	253.83	253.41	253.33	253.58
75' "	260.60	256.00	255.58	255.50	255.08	255.00	255.25
100' "	261.83	256.99	256.58	256.50	256.08	256.01	256.47
125' "	263.07	257.98	257.57	257.50	257.09	257.02	257.69
150' "	264.30	258.97	258.57	258.50	258.09	258.03	258.92
175' "	265.53	259.96	259.56	259.50	259.10	259.04	260.14
200' "	266.77	260.96	260.56	260.50	260.10	260.04	261.36
225' "	268.00	261.95	261.55	261.50	261.11	261.05	262.58
250' "	269.23	262.94	262.55	262.50	262.11	262.06	263.81
275' "	270.47	263.93	263.54	263.50	263.12	263.07	265.03
300' "	271.70	264.92	264.54	264.50	264.12	264.08	266.25

= S.L. Grape

BANCROFT St.

W. CURB  $\frac{1}{4}$  E  $\frac{1}{4}$  CURB E.

S. Line Grape 271.70 264.92 264.54 264.50 264.12 264.08 266.25

S. Curb 267.00 266.00

"  $\frac{1}{4}$

E

N  $\frac{1}{4}$

Curb 269.00 268.00

N. Line Grape 269.25 269.00 268.58 268.50 268.08 268.00 268.25





Dec. 1918

## GRAPE ST. (To be closed 20' on S. Side)

9

between the West Line of 32nd St. produced North and the West Line of Bancroft St.

W. Line 32nd	N. CURB	$\frac{1}{4}$	$\Phi$	$\frac{1}{4}$	CURB	S
produced N.	27825	27800	27750	27750	27700	27725
		27700			27600	

W. Curb	27840	27815	27755	27755	27713	27600	27700
		27715					

W $\frac{1}{4}$	27857	27833	27766	27761	27728	27661	27675
		27733					

$\Phi$	27876	27851	27776	27767	27744	27722	27700
		(27751)					

E $\frac{1}{4}$	27895	27870	27785	27774	27734	27661	27675
-----------------	-------	-------	-------	-------	-------	-------	-------

W.L. 32nd (N. side)							
= 0.7 E. of E $\frac{1}{4}$	27895	27870	27785	27774			
		(27770)					

E. Curb	27895	27770	27795	27780	27725	27600	27700
		Gutter					

(S. Side Grape)						27600	
E.L. 32nd	27895	27770	27802	27785	27717	27700	27725
		Gutter					

2.5 E of							
E.L. 32nd	27895	27870	27790	27773			
		27770					

2.5' E. of							
E.L. 32nd	27785	27760	27680	27662	27593	27575	27600

50' E	27662	27637	27558	27539	27469	27450	27475
-------	-------	-------	-------	-------	-------	-------	-------

75' E	27539	27514	27436	27416	27345	27325	27350
-------	-------	-------	-------	-------	-------	-------	-------

GRAPE ST.

N CURB  $\frac{1}{4}$   $\Phi$   $\frac{1}{4}$  CURB S

75' E. of  
E.L. 3200 27539 27514 27436 27416 27345 27325 27350

100' E. 27416 27391 27313 27292 27221 27200 27225

125' E. 27293 27268 27191 27169 27097 27075 27100

150' E. 27171 27146 27069 27046 26973 26950 26975

175' E. 27048 27023 26947 26923 26849 26825 26850

W.L. Bancroft  
26800 26600  
200' E. 26925 26900 26825 26800 26725 26700 26725

75'  
E.L. 3

100

125

150

175

W.L. B

20



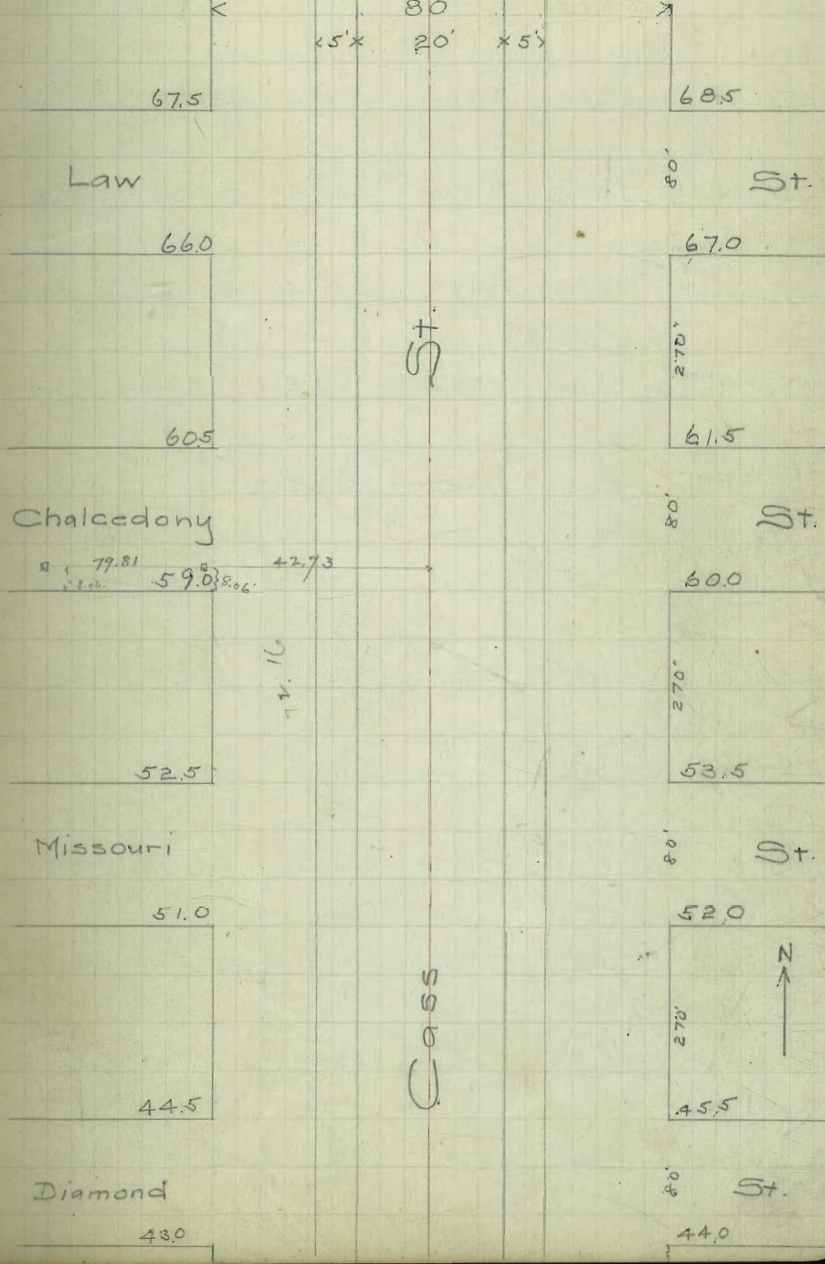
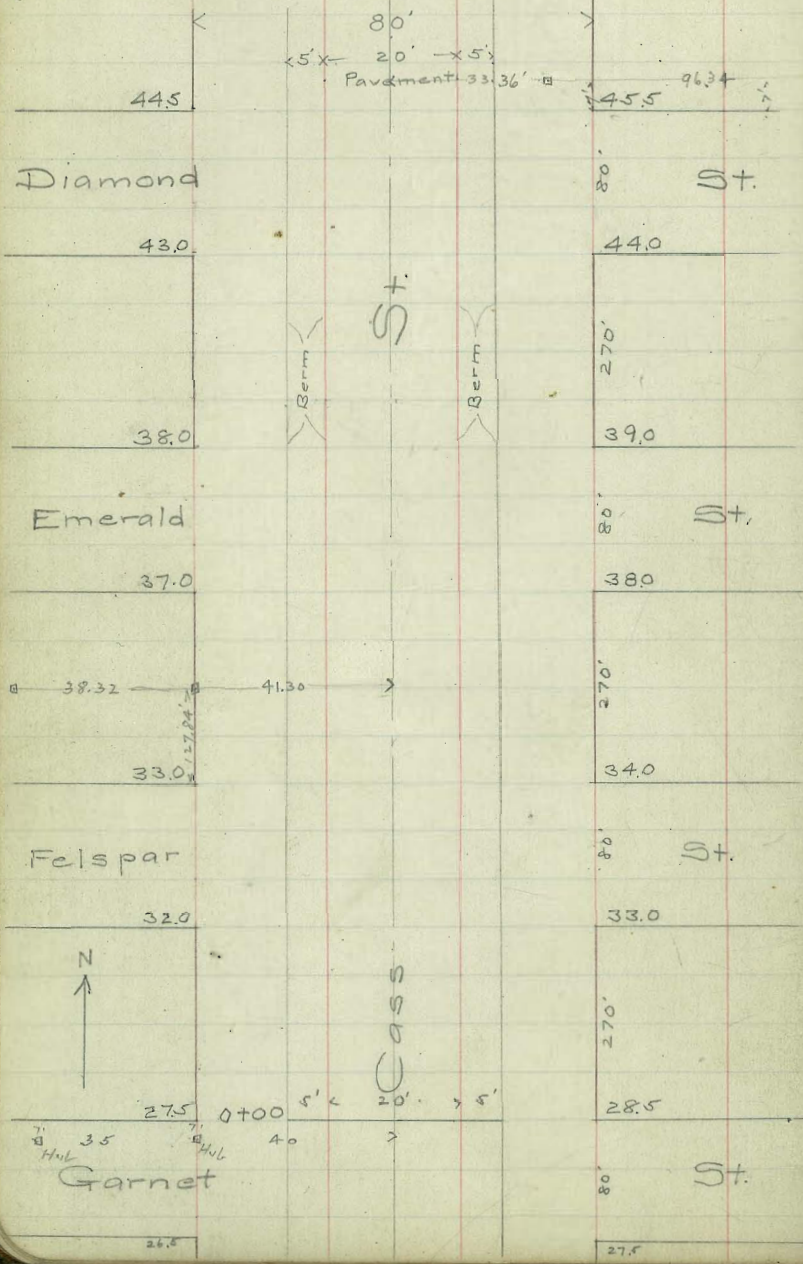




Feb. 1919

Pacific Beach to La Jolla Paving

Cass St. (Garnet to Turquoise)









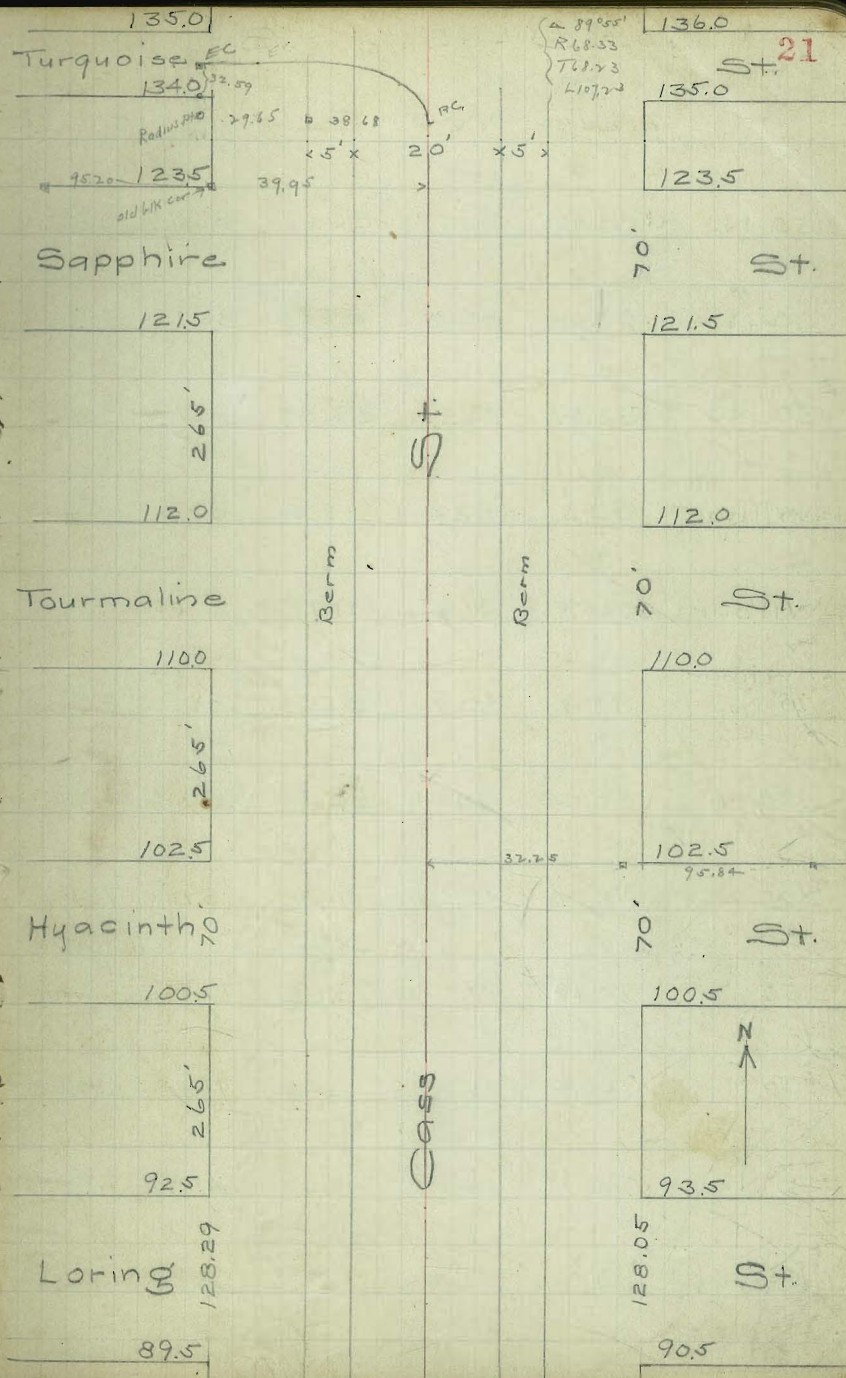
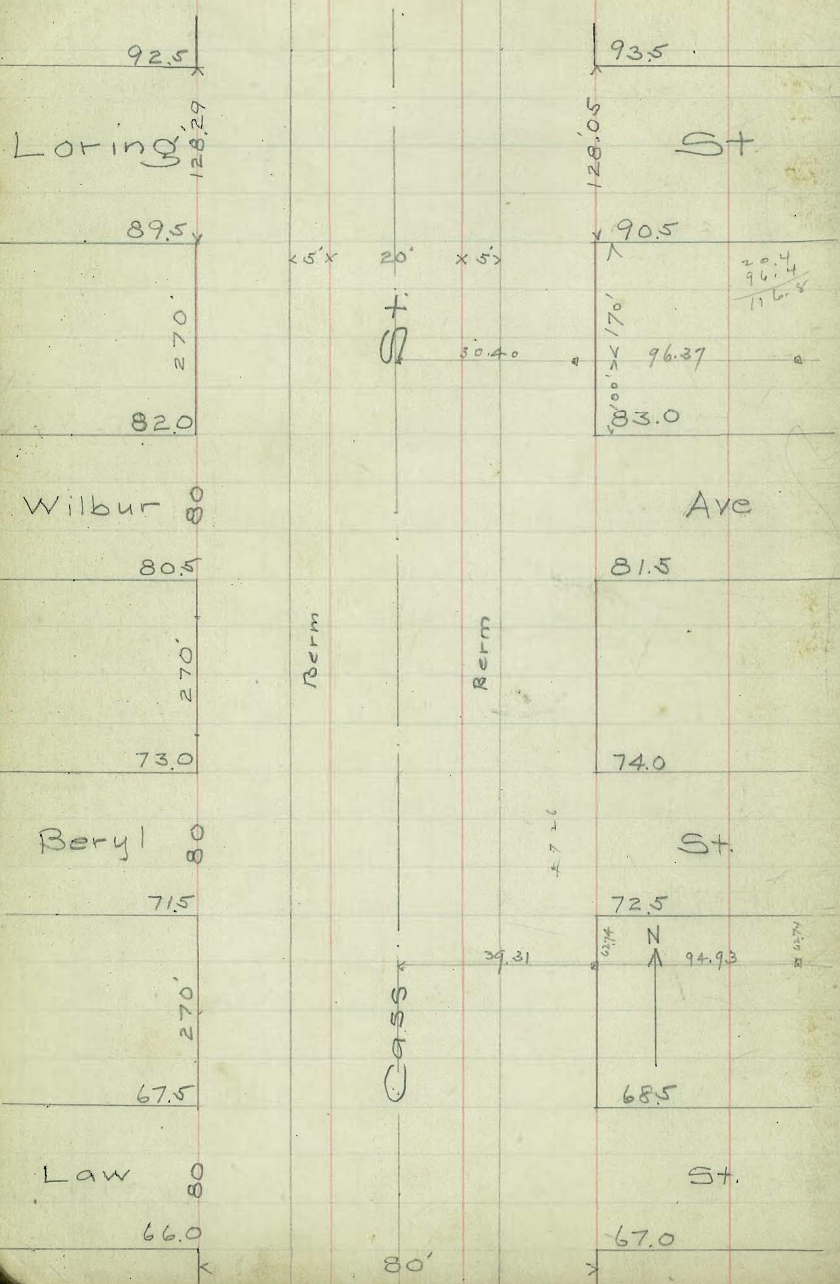




	Berm W.Edge	W.	☉	E.	Berm E.Edge
N.L. Beryl	73.3	73.4	73.5	73.4	73.3
☉ Beryl	72.55	72.65	72.75	72.65	72.55
S.L. Beryl 270° N.	71.8	71.9	72.0	71.9	71.8
250° N.	71.50	71.60	71.70	71.60	71.50
200° N.	70.76	70.86	70.96	70.86	70.76
150° N.	70.02	70.12	70.22	70.12	70.02
100° N.	69.28	69.38	69.48	69.38	69.28
50° N. of N.L. Law.	68.54	68.64	68.74	68.64	
N.L. Law.	67.8	67.9	68.0	67.9	67.8
☉ Law	67.05	67.15	67.25	67.15	67.05
S.L. Law 270° N.	66.3	66.4	66.5	66.4	66.3
250° N. of N.L. Chalcedony	65.89	65.99	66.09	65.99	65.89

$\frac{71.64 \text{ M}}{10 \text{ P}}$      $\frac{66.00}{5.62}$      $\frac{67.60}{4.02}$      $\frac{68.24}{3.30}$      $\frac{68.07}{2.58}$      $\frac{69.87}{1.87}$      $\frac{70.02}{1.02}$      $\frac{71.60}{5.66}$      $\frac{72.10}{6.16}$      $\frac{74.49}{2.77}$   
 $\frac{705.6 \text{ TP}}{67.0}$      $\frac{72.65}{4.97}$      $\frac{71.90}{5.72}$      $\frac{71.60}{6.02}$      $\frac{70.86}{6.76}$   
 $\frac{77.62 \text{ M}}{6.76}$      $\frac{66.40}{5.10}$      $\frac{67.15}{6.55}$      $\frac{67.90}{3.60}$      $\frac{68.64}{2.86}$      $\frac{69.38}{2.12}$      $\frac{70.12}{1.38}$      $\frac{70.86}{1.64}$   
 $\frac{70.86 \text{ TP}}{71.50 \text{ M}}$

Pacific Beach — La Jolla Paving



	CASS			St.	
	Berm W. Edge	W	☉	E	Berm E. Edge
150' N.	86.47	86.57	86.67	86.57	86.47
100' N.	85.08	85.18	85.28	85.18	85.08
50' N.	83.69	83.79	83.89	83.79	83.69
N.L. Wilbur	82.3	82.4	82.5	82.4	82.3
☉ Wilbur	81.55	81.65	81.75	81.65	81.55
S.L. Wilbur 270' N.	80.8	80.9	81.0	80.9	80.8
250' N.	80.24	80.34	80.44	80.34	80.24
200' N.	78.86	78.96	79.06	78.96	78.86
150' N.	77.47	77.57	77.67	77.57	77.47
100' N.	76.08	76.18	76.28	76.18	76.08
50' N.	74.69	74.79	74.89	74.79	74.69
N.L. Beryl	73.3	73.4	73.5	73.4	73.3

71.21 MI	77.61	77.71	77.81	77.91	78.01
72.11	78.11	78.21	78.31	78.41	78.51
73.01	78.61	78.71	78.81	78.91	79.01
73.91	79.11	79.21	79.31	79.41	79.51
74.81	79.61	79.71	79.81	79.91	80.01
75.71	80.11	80.21	80.31	80.41	80.51
76.61	80.61	80.71	80.81	80.91	81.01
77.51	81.11	81.21	81.31	81.41	81.51
78.41	81.61	81.71	81.81	81.91	82.01
79.31	82.11	82.21	82.31	82.41	82.51
80.21	82.61	82.71	82.81	82.91	83.01
81.11	83.11	83.21	83.31	83.41	83.51
82.01	83.61	83.71	83.81	83.91	84.01
82.91	84.11	84.21	84.31	84.41	84.51
83.81	84.61	84.71	84.81	84.91	85.01
84.71	85.11	85.21	85.31	85.41	85.51
85.61	85.61	85.71	85.81	85.91	86.01
86.51	86.11	86.21	86.31	86.41	86.51
87.41	86.61	86.71	86.81	86.91	87.01
88.31	87.11	87.21	87.31	87.41	87.51
89.21	87.61	87.71	87.81	87.91	88.01
90.11	88.11	88.21	88.31	88.41	88.51
91.01	88.61	88.71	88.81	88.91	89.01
91.91	89.11	89.21	89.31	89.41	89.51
92.81	89.61	89.71	89.81	89.91	90.01
93.71	90.11	90.21	90.31	90.41	90.51
94.61	90.61	90.71	90.81	90.91	91.01
95.51	91.11	91.21	91.31	91.41	91.51
96.41	91.61	91.71	91.81	91.91	92.01
97.31	92.11	92.21	92.31	92.41	92.51
98.21	92.61	92.71	92.81	92.91	93.01
99.11	93.11	93.21	93.31	93.41	93.51
100.01	93.61	93.71	93.81	93.91	94.01

	CASS		St.		
	Berm				Berm
	W. Edge	W	☉	E	E. Edge
S.L. Hyacinth 265' N.	100.3	100.4	100.5	100.4	100.3
250' N.	99.74	99.84	99.94	99.84	99.74
200' N	98.36	98.46	98.56	98.46	98.36
150' N.	96.97	97.07	97.17	97.07	96.97
100' N.	95.58	95.68	95.78	95.68	95.58
50' N.	94.19	94.29	94.39	94.29	94.19
N.L. Loring	92.8	92.9	93.0	92.9	92.8
☉ Loring	91.3	91.4	91.5	91.4	91.3
S.L. Loring 270' N.	89.8	89.9	90.0	89.9	89.8
250' N.	89.24	89.34	89.44	89.34	89.24
200' N.	87.86	87.96	88.06	87.96	87.86
150' N. of N.L. Wilbur	86.47	86.57	86.67	86.57	86.47

90.73  
 0.48  
 91.21 M1  
 101.70 M1  
 92.89  
 11.1  
 94.07  
 100.53  
 3.90  
 104.43 M1

99.60  
 1.61  
 99.14  
 1.86  
 99.34  
 4.73  
 95.28 M1

97.65  
 3.55  
 97.46  
 3.24  
 97.96  
 6.11  
 91.40  
 3.88

96.27  
 0.94  
 97.07  
 4.63  
 96.57  
 7.50  
 92.90  
 2.38

94.29  
 7.41  
 92.90  
 8.80  
 91.40  
 2.67  
 89.90  
 4.17



## CASS St.

	Berm W.Edge	W.	☉	E	Berm E.Edge
N.L. Tourmaline	111.8	111.9	112.0	111.9	111.8
☉ Tourmaline	110.8	110.9	111.0	110.9	110.8
S.L. Tourmaline					
265' N.	109.8	109.9	110.0	109.9	109.8
250' N.	109.24	109.34	109.44	109.34	109.24
200' N.	107.86	107.96	108.06	107.96	107.86
150' N.	106.47	106.57	106.67	106.57	106.47
100' N.	105.08	105.18	105.28	105.18	105.08
50' N.	103.69	103.79	103.89	103.79	103.69
N.L. Hyacinth	102.3	102.4	102.5	102.4	102.3
☉ Hyacinth	101.3	101.4	101.5	101.4	101.3
S.L. Hyacinth	100.3	100.4	100.5	100.4	100.3

100.53 Spk Hydt brace - Hyacinth  
 105.1  
 111.04 M  
 8.64  
 7.25  
 586  
 4.47  
 308  
 1.70  
 1.14  
 11.16  
 104.9  
 121.06 M  
 10.16  
 9.16  
 101.40  
 100.20  
 1.17  
 100.53  
 101.70 M

## CASS St.

	Berm W.Edge	W.	±	E	Berm E.Edge
150' N.	129.77	129.37	129.17	129.17	129.77
2+18-PC	131.86	132.23	132.98	133.73	134.10
2+00		131.60		132.88	
1+50	129.63	129.89	130.28	130.53	130.63
1+00	128.08	128.18	128.28	128.18	128.08
+50			126.29	126.19	126.09
N.L. Sapphire	123.3	123.4	124.30	124.20	124.10
± Sapphire	122.3	122.1	122.5	122.80	122.3
S.L. Sapphire 265' N.	121.3	121.4	121.5	121.4	121.3
250' N.	120.60	120.70	120.80	120.70	120.60
200' N.	118.84	118.94	119.04	118.94	118.84
150' N.	117.08	117.18	117.28	117.18	117.08
100' N.	115.32	115.42	115.52	115.42	115.32
50' N.	113.56	113.66	113.76	113.66	113.56
N.L. of Tourmaline	111.8	111.9	112.0	111.9	111.8

13373 0.94	3288	3160	2989	3053	2818	2619	2420
13467 41	1.79	3.07	4.78	4.14	6.49	8.48	10.47
21.20	2280	2140					
1.49	2.89	4.29					
25.69 10							
21.06 41	1366	1542	1718	1894	2070		
26	740	664	398	212	0.36		
20.70 TP							
11.20							
31.90							

TURQUOISE ST.

	Berm S.Edge	S.	E	N	Berm N.Edge
150' W.	131.01	131.14	131.26	31.43	
100' W.	132.26	132.36 <small>32.76</small>	132.46	32.52 <small>32.76</small>	132.26
78' N.	132.60	132.70	132.85	132.70	132.60
50' W. of W.L. Cass	132.91	132.96	133.40	133.95	133.95
P.T. 107.23 from P.C. (2823 W. of W.L. Cass)	132.76	133.14	133.89	134.64	135.02
3rd Sta. on Curve + 80.43	133.06	133.43	134.18	134.92	135.36
2nd. Sta. on Curve. + 53.62	133.16	133.59	134.28	135.03	135.40
1st. Sta. on Curve + 26.81	132.85	133.22	133.97	134.72	135.09
P.C. 2+18	132.44	132.91	133.56	134.31	134.68
	131.86	132.23	132.98	133.73	134.10
200' N.					
100' N.					
100' N. of N.L. Siphon					
	Berm W.Edge	W	E	E	Berm E.Edge
		CASS ST.			

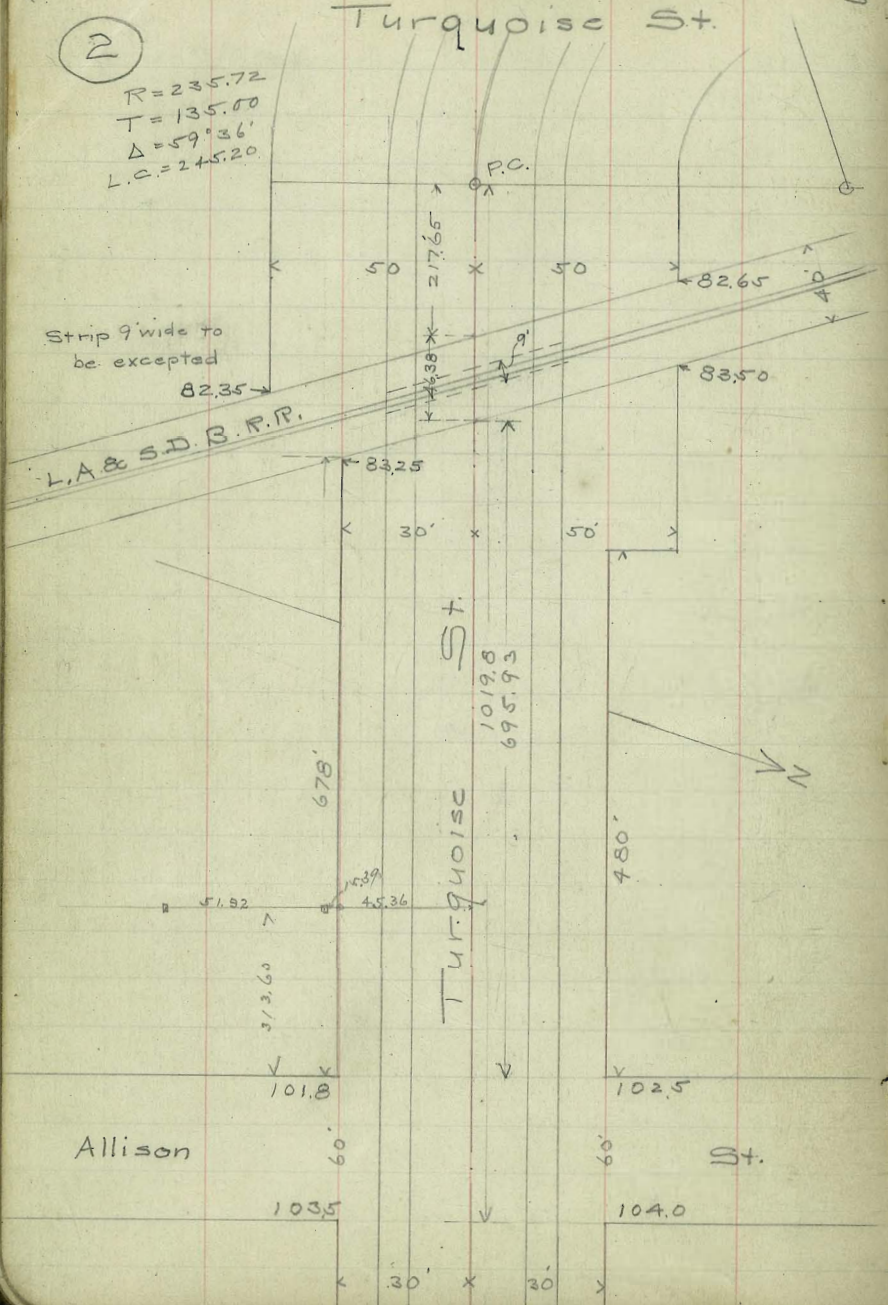
158.30 BM.	3223 6.22	3373 4.72	3431 4.11	3581 5.64	3327 5.23	3472 3.73	3497 3.48
138.45 HI.	3347 4.98	3352 4.92	3503 3.42	3497 3.53	3343 5.02	3314 3.81	3414 2.81
22.51 HI.	3395 4.50	3400 5.55	3327 6.18	3372 5.93	3143 7.02		
138.30 194 140.24 HI.	13464 8.60	3492 5.32	3503 6.27	3497 6.27	3472 5.52	1431 8.93	3372 6.57

Feb. 1919

## Pacific Beach - La Jolla Paving Turquoise St.

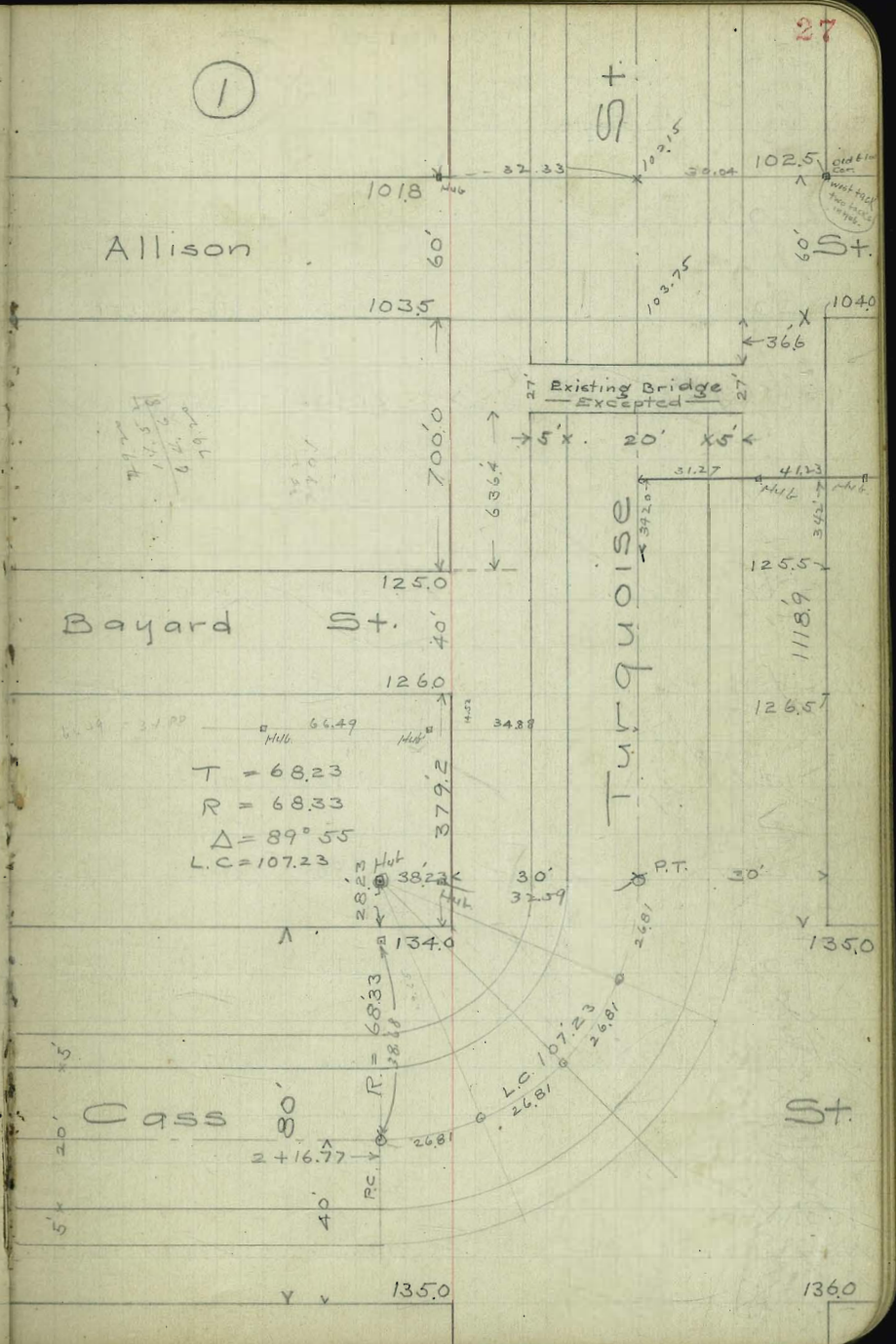
(2)

$R = 235.72$   
 $T = 135.00$   
 $\Delta = 59^{\circ}36'$   
 $L.C. = 245.20$



27

(1)



## Turquoise St.

28

	Berm S. Edge	S	±	N	Berm N. Edge
250' W.					
200' W.			120.03	119.93 W	119.83
150' W.			121.58	121.48 W	121.38
100' W.			123.14	123.04 W	122.94
50' W.			124.69	124.59 W	124.49
W.L. Bayard 40' St.			126.25	126.15 W	126.05
E.L. Bayard 379.2 W.			127.25	127.15 W	127.05
350' W.			127.80	127.70 W	127.60
300' W.			128.73	128.63 W	128.53
250' W.			129.66	129.56 W	129.46
200' W.			130.60	130.50 W	130.40
150' W. of W.L. Cass St			131.53	131.43 W	131.33

32.51 H1	30.50	29.56	28.63	27.70	27.15	128.27
	2.01	2.98	3.89	4.81	5.36	10.16
						32.83
27.53 H1	26.15	24.59	23.04	21.48	19.92	
4.38	6.38	2.24	4.79	6.35	7.90	
26.15 TP	27.15	26.15	24.59	23.04	21.48	19.92
1.68	1.31	1.31	3.87	5.42	6.98	8.53
27.83 M						10.09
17.83						
0.09						
128.46 M						

Turquoise St.

29

Berm S. Edge S E N Berm N. Edge

2783 M	1837	1682	1527	1371	1216	1062	906	751
946	946	275	230	586	741	895	342	517
1837 T.P.	1137							
1957 M	119.67 M	1682	1527	1371	1216	1062	906	751
895	895	2.87	442	598	753	907	249	404
1062	110.52 T.P.							
286	111.93							
1268 M	111.55 M							

E.L. Allison  
7+00

W. End of Br.  
663.4 W.

6+50  
E. End of Br.  
636.4 W.

106.05 on Bridge

600' W.	107.61	107.51 W	107.41
550' W.	109.16	109.06 W	108.96
500' W.	110.72	110.62 W	110.52
450' W.	112.26	112.16 W	112.06
400' W.	113.81	113.71 W	113.61
350' W.	115.37	115.27 W	115.17
300' W.	116.92	116.82 W	116.72
250' W. of W.L. Bayard	118.47	118.37 W	118.27

TUY & CR N.W.

112.11



Turquoise St.

Berm S. Edge	S	E	N	Berm N. Edge
-----------------	---	---	---	-----------------

88.81 MI	83.55	84.85	86.05	87.24	88.53	89.83	91.12	92.42
<u>28</u>	5.26	2.96	2.76	1.57	0.28	8.70	7.87	4.17
88.53 T.P.	83.55	84.85	86.05	87.24	88.53	89.83	91.12	92.42
<u>1.28</u>	5.39	4.09	2.89	1.70	0.41	8.26	3.97	2.67
88.59 MI								
88.94 MI								
88.53 T.P.								
<u>1.56</u>								
95.09 MI								

100' W

50' W

83.65    83.55 W    83.45

SW 1/4 L. of R.R. Row. ---

742.31 W.

End of Turquoise St. = 0+00

84.95    84.85 W    84.75

E R.R. Row.

719.12 W.

700' W.

NE 1/4 L. of L.A.B.

S.D.B. Ry.  
695.23 W.

86.15    86.05 W    85.95

650' W.

87.34    87.24 W    87.14

600' W.

88.63    88.53 W    88.43

550' W.

89.93    89.83 W    89.73

500' W.

91.22    91.12 W    91.02

450' W. of W.L.

Allison

92.52    92.42 W    92.32



L. Jolla Blvd.

Berm W. Edge W.  $\Phi$  E E. Edge Berm

500' N					
462.85 PT.	73.72	73.35	72.60	71.85	71.48
	74.14	73.77 W	73.02	72.27	71.90
	74.60	74.23 N	73.48	72.70 W	72.36
	75.10	74.73 W	73.98	73.23 W	72.86
	75.64	75.27 W	74.52	73.77 W	73.40
	76.22	75.85 W	75.10	74.25 W	73.98
	76.84	76.47 W	75.72	74.97 W	74.60
	77.50	77.13 W	76.38	75.63 W	75.26
	78.20	77.83 W	77.08	76.33 W	75.96
	78.94	78.57 W	77.82	77.07 W	76.70
PC 217.65 W.	79.72	79.35 W	78.60	77.85 W	77.48
200' W	80.08	79.79 W		78.51 W	78.18
150' W.	81.11	81.02 W		80.38 W	80.16
100' W. of SWly R.R. R.O.W.	82.15	82.25 W (S)	82.35	82.25 W (N)	82.15

10 Parts

$\Delta 59^{\circ}3'$   
 $T 135.0$   
 $\Delta 59^{\circ}36'$   
 $L 245.20$   
 $R 235.72$   
 $E 259.2$

$L 25'$  inside = 219.19  
 $L 25'$  outside = 271.19  
 Chords = 21.91  
 Chords = 27.11

70.18 Mon - N E Curve  
 10 parts

Def 30  
 $2^{\circ}58'00''$   
 $5^{\circ}57'40''$   
 $8^{\circ}56'30''$   
 $11^{\circ}55'15''$   
 $14^{\circ}54'$   
 $17^{\circ}52'45''$   
 $20^{\circ}51'40''$   
 $23^{\circ}50'20''$   
 $26^{\circ}49'15''$   
 $29^{\circ}48''$

73.77	72.27	72.73	74.23	74.73	73.23	73.77	75.27	75.85
5.84	7.34	6.88	5.38	4.88	6.38	5.84	4.34	3.76
74.35	74.97	74.47	77.13	75.63	76.33	77.23	78.77	77.07
5.26	4.62	3.14	2.48	3.98	3.28	1.78	1.04	2.54
77.77	79.27		79.72	79.25	79.51	80.38	84.02	82.25
1.76	2.6		9.02	9.46	10.30	8.42	7.79	6.86
72.27	72.23	73.77	73.23	74.25	74.97	75.63	76.33	77.07
8.84	8.38	7.84	7.88	6.76	6.70	6.48	4.98	4.04
79.35	78.57	77.13	77.13	76.77	75.85	75.27	74.73	74.23
1.76	2.54	2.28	3.98	4.62	5.26	5.84	6.38	6.88
78.83	78.77	78.79	81.02	80.38	82.02	82.25		
2.11	2.34	10.43	9.15	7.92	8.56	6.84	6.69	

82.94 NJ

La Jolla Blvd

	Berm W. Edge	W	E	E	Berm E. Edge
1000' N	69.25	69.28	69.71 69.35	69.61 69.52	69.51 69.45
950' N					69.68 ✓
900' N					69.75 ✓
850' N					69.82 ✓
800' N			70.00	69.90 W	69.80
750' N					70.23 W
700' N					70.56 W
650' N					70.90 W
600' N	<u>71.13</u>	<u>71.23</u>	<u>71.33</u>	<u>71.23 W</u>	71.13
550	72.08	72.00 W			71.46 W 71.26
500	73.02	72.78 W			71.68 W 71.38
462 <sup>85</sup> PT	73.72	73.35 ✓	72.66	71.85 ✓	71.48

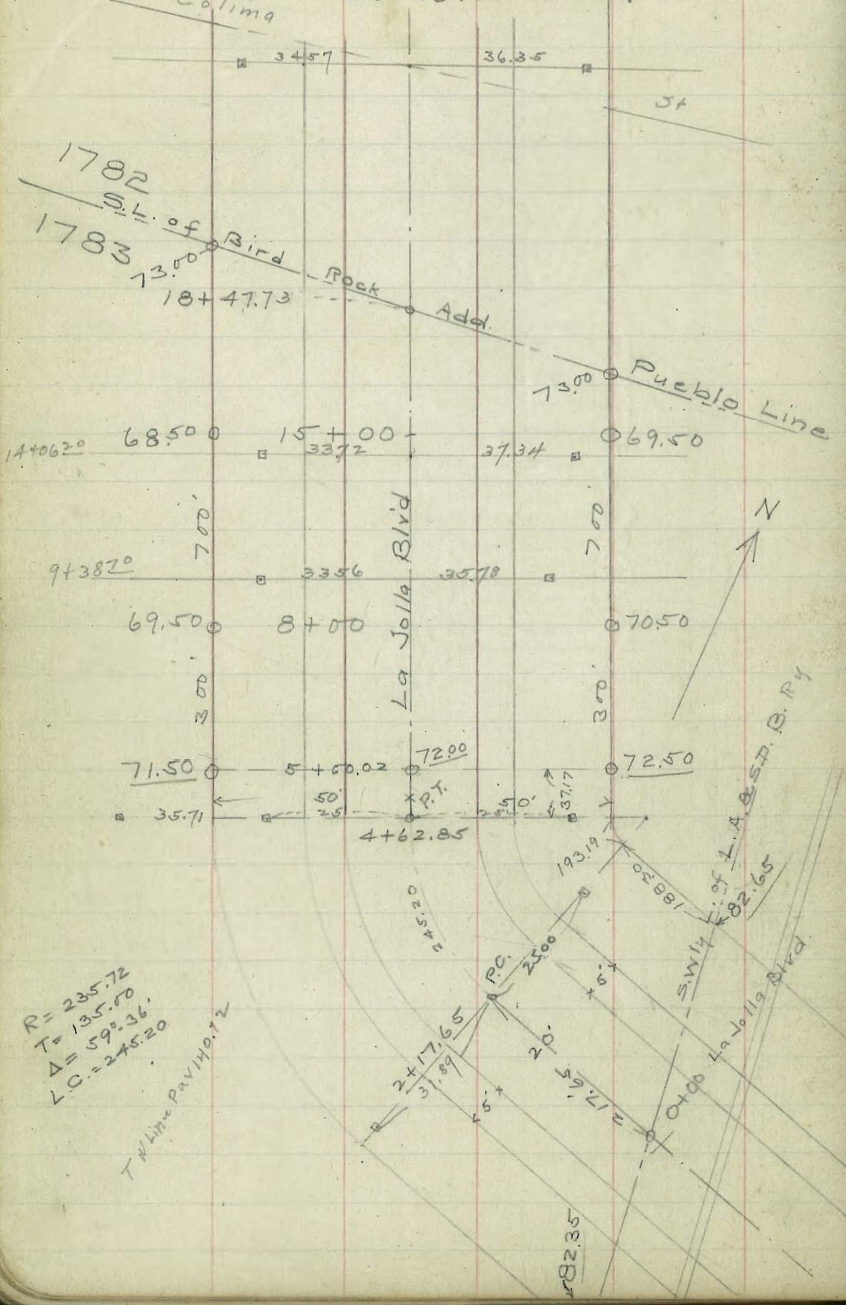
70.46. 13M 9450 SPK pole

33

72.92 MI	<u>69.68</u>	<u>246</u>						
	3.20	70.46						
70.46	69.75	69.82	69.90	70.23	70.56	70.90		
4.06	4.77	4.70	4.62	4.29	3.96	3.62		
74.52 MI								
70.92 TP	71.23	71.46	72.00	72.78	71.68	71.85	73.35	
8.62	8.36	8.13	7.59	6.81	7.91	7.70	6.22	
77.59 MI	73.18		70.23	69.80	70.56	70.90	71.23	72.00
7.91	5.01		5.29	4.63	4.29	3.96	3.19	3.73
80.83	75.19 MI							
7.91	7.92	7.25	7.15					
88.81 MI	81.11 MI	1.84	3.20					

Pacific Beach - La Jolla Paving

S.L. Colima - La Jolla Blvd -



$R = 235.72$   
 $T = 135.60$   
 $\Delta = 59^\circ 36'$   
 $L.C. = 246.20$

T.M. PAVING

Berm W. Edge W. E E E. Edge

1550 69.38 69.48 69.58 69.48 69.38

1500 68.8 68.9 69.00 68.9 68.8

Drain water across at 14+00 - no crown

1450 68.87 68.97 69.07 68.97 68.87  
68.60 68.62 68.70 68.77 68.80

1400 68.94 69.04 69.14 69.04 68.94

1350 69.02 69.12 69.22 69.12 69.02

1300 69.09 69.19 69.29 69.19 69.09

1250 69.16 69.26 69.36 69.26 69.16

1200 69.23 69.33 69.43 69.33 69.23

1150 69.30 69.40 69.50 69.40 69.30

1100 69.37 69.47 69.57 69.47 69.37

1050 N 69.44 69.54 69.64 69.54 69.44

Sta 10+00 - Surface drain

1000' N 69.51 69.61 69.71 69.61 69.51  
69.25 69.28 69.35 69.42 69.45

74.57 MI

69.63  
5.12  
73.75 MI  
3.5  
69.48 TP  
3.5  
72.9 MI

68.90	68.77	68.63	69.04	69.12	69.19	69.26	69.33	69.40
5.67	5.80	5.94	4.71	4.63	4.56	4.49	4.42	4.35
69.43	69.51	69.42	69.28					
3.45	3.38	3.58	3.62					

Tic hub  
33.72

4406.70  
Approx 15+02.3

37.34 Tic hub

Tic hub  
33.56

510.97 38.20  
35.78 Tic hub

La Jolla Blvd.

	Berm W.Edge	W.	±	E	Berm E.Edge
N.L. Colima			77.76	77.66	
2078 N	77.8	77.9	78.0	77.77	77.3
200' N			77.87		
E. Colima			77.71	77.61	77.7
1730 N	77.3	77.4	77.5	77.4	77.3
S.L. Colima			77.29	77.19	
138.2 N	76.8	76.9	77.0	76.83	76.3
1 + 18.2			76.92		
100' N	75.69	75.79	75.89	75.79	75.69
50' N	74.25	74.35	74.45	74.35	74.25
S.L. Bird Rock Add. = 0 + 00					
18 + 47.73	72.80	72.90	73.00	72.90	72.80
1800	72.25	72.35	72.45	72.35	72.25
1750	71.67	71.77	71.87	71.77	71.67
1700	71.10	71.20	71.30	71.20	71.10
1650	70.52	70.62	70.72	70.62	70.52
1600	69.95	70.05	70.15	70.05	69.95
1550	69.38	69.48	69.58	69.48	69.38

73.06 - RR Spk - Flower Shop

81.71 Mt	77.77	77.61	77.19	76.83	4.16	
77.56	3.9	4.10	4.52	4.88	77.55	
0.93	2.17	2.70	4.14	5.59	6.14	6.72
78.49 Mt	71.20	70.62	70.05	69.48		
6.72	5.37	3.95	4.52	5.09		
N. 7.7 T.R.						
74.58 Mt						
74.57 Mt						

Tichob

x 34.57

36.35

x Tichob





La Jolla Blvd.  
 Berm W. Edge W. E. E. Edge Berm

BM 76.58 RRSPK NE Forward

76.58	75.35	75.27	75.19	75.11	75.03	74.95	74.90	74.90
1.88	3.11	3.19	3.27	3.35	3.43	3.51	3.56	3.28
78.46								
16.0								
78.18								

1650					
16+44.9 EC			75.45	75.35	75.25
16+17.97			75.37	75.27	75.17
15+91.76			75.29	75.19	75.09
15+65.55			75.21	75.11	75.01
15+39.34			75.13	75.03	74.93
15+13.13			75.05	74.95	74.85
14+86.92			75.00	74.90	74.80
14+60.11			75.00	74.90	74.80
PC.C. S.L. Forward					
1434.5N.	73.3		75.00	74.90	74.80
<del>1400</del>	<del>72.96</del>	<del>73.06</del>	<del>73.16</del>	<del>73.06</del>	<del>72.96</del>
<del>1350</del>	<del>72.48</del>	<del>72.58</del>	<del>72.68</del>	<del>72.58</del>	<del>72.48</del>
<del>1300</del>	<del>72.00</del>	<del>72.10</del>	<del>72.20</del>	<del>72.10</del>	<del>72.00</del>
<del>1250</del>	<del>71.51</del>	<del>71.61</del>	<del>71.71</del>	<del>71.61</del>	<del>71.51</del>

Equal points



32

33



La Jolla Blvd

80.82 Bm Mon NW BR Ave

42

	Berm W.Edge	W	±	E	Berm E.Edge	
2650	77.60	77.70	77.76	77.66✓	77.56	
2600	77.81	77.91	78.21	78.11✓	78.01	
2550	78.42	78.12	78.67	78.57✓	78.47	
2500	78.23	78.33	79.13	79.03✓	78.93	
2450	78.53	78.53	79.59	79.49✓	79.39	
+25			79.79	79.69✓		
2400	78.64	78.74	79.94	79.84✓	79.74	
+75			80.01	79.91✓		
2350	78.85	78.95	80.04	79.94✓	79.84	
+25			80.01	79.91✓		
2300	79.06	79.16	79.92	79.82✓	79.72	
+75			79.77	79.67✓		
2250	79.27	79.37	79.57	79.47✓	79.37	
N.L. Bird Rock Ave.	2242.72	79.30	79.40	79.50	79.40	79.30
2200	78.96	79.06	79.16	79.06	78.96	
S.L. Bird Rock Ave.	2181.0	78.80	78.90	79.0	78.90	78.80

7781	7801	7823	7843	7861	7885	7906	7920	7930
5.79	5.33	4.87	4.41	4.06	3.66	4.08	4.50	4.50
W 0.0	+0.21	+0.2	+0.2	+0.2	+0.2	+0.2	+0.2	+0.2
E 0.15	0.12	0.15	0.16	0.17	0.21	0.20	0.10	0.2
7801	7847	7883	7939	7974	7994	7972	7930	
3.20	3.17	3.27	3.42	3.62	4.08	4.50	5.00	5.46
7882	7907	7947	7990	7990				
2.60	2.75	2.95	3.30	3.52				

2843  
2243  
600

La Jolla Blvd.

	Berm W. Edge	W.	±	E.	Berm E. Edge
400	71.30	71.40	71.50	71.50	71.30
350	71.55	71.65	71.75	71.75	71.55
300	71.80	71.90	72.00	72.00	71.80
250	72.05	72.15	72.25	72.25	72.05
200	72.30	72.40	72.50	72.50	72.30
150	73.43	73.53	73.64	73.65	73.41
100' N.	74.55	74.65	74.75	74.80	74.55
50' N.	75.65	75.75	75.85	75.90	75.65
N.L. Bird Rock City = 0400			75.66	75.56	
2842.72	76.80	76.90	76.00	75.90	75.80
2800	76.98	77.08	76.30	76.29	76.19
2750	77.19	77.29	76.85	76.75	76.65
2700	77.40	77.50	77.30	77.20	77.10
2650	77.60	77.70	77.70	77.60	77.50

BM 77.02 RRSPK @ 27410

76.20	76.61	76.55	76.43	76.30	76.05	71.30	71.55	71.30
1.57	3.01	4.14	5.20	6.34	6.54	6.89	7.14	7.37
1.77								
E 2.01	0.6	0.5	0.5	0.2	0.0	0.0	0.0	0.0
W 0.0	0.0	0.2	0.3	0.0	0.7	1.0	0.7	0.9

76.20	76.61	76.55	76.43	76.30	76.05	71.30	71.55	71.30
1.57	3.01	4.14	5.20	6.34	6.54	6.89	7.14	7.37
1.77								
E 2.01	0.6	0.5	0.5	0.2	0.0	0.0	0.0	0.0
W 0.0	0.0	0.2	0.3	0.0	0.7	1.0	0.7	0.9
76.20	76.61	76.55	76.43	76.30	76.05	71.30	71.55	71.30
1.57	3.01	4.14	5.20	6.34	6.54	6.89	7.14	7.37
1.77								
E 2.01	0.6	0.5	0.5	0.2	0.0	0.0	0.0	0.0
W 0.0	0.0	0.2	0.3	0.0	0.7	1.0	0.7	0.9
76.20	76.61	76.55	76.43	76.30	76.05	71.30	71.55	71.30
1.57	3.01	4.14	5.20	6.34	6.54	6.89	7.14	7.37
1.77								
E 2.01	0.6	0.5	0.5	0.2	0.0	0.0	0.0	0.0
W 0.0	0.0	0.2	0.3	0.0	0.7	1.0	0.7	0.9
76.20	76.61	76.55	76.43	76.30	76.05	71.30	71.55	71.30
1.57	3.01	4.14	5.20	6.34	6.54	6.89	7.14	7.37
1.77								
E 2.01	0.6	0.5	0.5	0.2	0.0	0.0	0.0	0.0
W 0.0	0.0	0.2	0.3	0.0	0.7	1.0	0.7	0.9

La Jolla Blvd.  
 Berm W. Edge W. E E. Edge Berm

950'	75.01	75.11	75.21	75.11	75.01
900	74.8	74.9	75.01	74.9	74.8
850	74.45	74.55	74.65	74.55	74.45
800	74.10	74.20	74.30	74.20	74.10
750	73.75	73.85	73.95	73.85	73.75
700	73.40	73.50	73.60	73.50	73.40
650	73.05	73.15	73.25	73.15	73.05
600	72.70	72.80	72.90	72.80	72.70
550	72.35	72.45	72.55	72.45	72.35
500	72.00	72.10	72.20	72.10	72.00
450' N	71.65	71.75	71.85	71.75	71.65
400' N. of Bird Rock City by the sea	71.3	71.4	71.5	71.4	71.3

Edge of Parking

7274 NI	7165	72.0	7235	7270	7205	7340	7375	7410	7445	748	7501
	709	6.74	6.37	6.04	5.67	5.34	4.97	4.64	4.29	3.94	3.59
E	0.0	0.2	F0.1	F0.2	F0.6	F0.3	F0.1	F0.2	F0.3	C0.4	C0.2
W	F1.0	F1.0	F0.7	F1.3	F0.7	F0.6	F0.5	F0.5	F0.6	F0.5	F0.3

505	7165	72.00	7255	7290	7325	7360	7395	7430
BN 72.64 RR 3pt @ 5402	4.59	4.24	3.89	3.54	3.19	2.84	2.49	2.14
	7465	7500						
	2.93	2.58						

La Jolla Blvd.

Berm  
W.Edge

W.

±

E

Berm  
E.Edge

1500

77.57 ✓

77.37

1450

77.36 ✓

77.16

1400

77.14 ✓

76.94

1350

76.93 ✓

76.73

1300

76.71 ✓

76.51

1250

76.50 ✓

76.30

1200

76.29 ✓

76.09

1150

76.07 ✓

75.87

1100

75.86 ✓

75.66

1050

75.64 ✓

75.44

1000

75.43 ✓

75.23

950 N. of N.L.  
Bird Pk. City by Sea

75.21 ✓

45

77.74	75.23	75.44	78.74	78.29	75.66	75.87	76.09	76.30	76.51	76.73
	36.1	3.30	0.45	30.0	56.5	5.44	5.22	5.01	4.80	4.58
	E. F0.1	F0.1	DM 8.29 RR 6.6	8.31	F0.1	C0.4	0.0	0.0	F0.1	F0.2
	W. F0.3	F0.2	at Sta 10+60		F0.4	F0.5	F0.6	F1.1	F1.1	F1.2

71.57	75.00	75.21	77.43	75.64	75.86	76.07	76.29	76.50
51.0	4.84	4.63	4.41	4.20	5.01	4.80	4.58	4.37
F3.73 M1								
78.29 BM.								
1.55	7.71	7.69	7.71	7.73	7.75	7.77	7.80	
	4.16	3.94	3.73	4.01	3.80	3.58	3.37	
79.84 M1								
2.59	78.86							
N. 2.1	2.51							
81.37 M1								

La Jolla Blvd.

Berm W. Edge W E E. Edge

2100		78.63		
2050		78.56		
2000		78.5		
1950		78.44		
1900		78.38		
1850		78.31		
1800		78.25		
1750		78.19		
1700		78.13		
1650		78.06		
1600		78.0		
1550		77.79		
1500' N. of N.L. Bird Rk. City by Sea		77.57		

7181 77.59 82.94 N. 2770 77.76 77.93 77.99 78.05 78.11 78.18 78.24 78.30 78.36  
 8.72 6.08 5.98 5.98 5.98 5.98 5.98 5.98 5.98 5.98 5.98 5.98 5.98  
 E 0.0 E 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
 W 0.0 W 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
 247  
 87 77.74 RR 54 61546 N G  
 78.56 78.60 78.44 78.38 78.31  
 4.23 4.26 4.32 4.38 4.45  
 78.86 78.00 78.06 78.13 78.19 78.25 78.31  
 3.02 3.89 3.83 3.76 3.70 3.64 3.58  
 11.89 MI

La Jolla Blvd.

	Berm W.Edge	W	±	E	Berm E.Edge
2650			80.2		
2600			79.95	79.90	
2550			79.7	79.67	
2500			79.53	79.45	
2450			79.24	79.22	
2400			79.04	79.00	
2350			78.94	78.9	
2300			78.87	78.8	
2250			78.81	78.7	
2200			78.75	78.7	
2150			78.69	78.59	
2100 N. of N.L. Bird Rock City			78.63	78.43	

78.84	78.83	78.82	78.81	78.80	78.79	78.78	78.77	78.76	78.75	78.74	78.73	78.72	78.71	78.70	78.69	78.68	78.67	78.66	78.65	78.64	78.63	78.62	78.61	78.60
83.84	83.83	83.82	83.81	83.80	83.79	83.78	83.77	83.76	83.75	83.74	83.73	83.72	83.71	83.70	83.69	83.68	83.67	83.66	83.65	83.64	83.63	83.62	83.61	83.60
83.84	83.83	83.82	83.81	83.80	83.79	83.78	83.77	83.76	83.75	83.74	83.73	83.72	83.71	83.70	83.69	83.68	83.67	83.66	83.65	83.64	83.63	83.62	83.61	83.60
83.84	83.83	83.82	83.81	83.80	83.79	83.78	83.77	83.76	83.75	83.74	83.73	83.72	83.71	83.70	83.69	83.68	83.67	83.66	83.65	83.64	83.63	83.62	83.61	83.60

83.84 N 83.83 83.82 83.81 83.80 83.79 83.78 83.77 83.76 83.75 83.74 83.73 83.72 83.71 83.70 83.69 83.68 83.67 83.66 83.65 83.64 83.63 83.62 83.61 83.60  
 E. CO. V CO.2 CO.4 CO.6  
 W. FO.2 FO.5 FO.7 FO.9 FO.11 FO.13 FO.15 FO.17 FO.19 FO.21 FO.23 FO.25 FO.27 FO.29 FO.31 FO.33 FO.35 FO.37 FO.39 FO.41 FO.43 FO.45 FO.47 FO.49 FO.51 FO.53 FO.55 FO.57 FO.59 FO.61 FO.63 FO.65 FO.67 FO.69 FO.71 FO.73 FO.75 FO.77 FO.79 FO.81 FO.83 FO.85 FO.87 FO.89 FO.91 FO.93 FO.95 FO.97 FO.99

83.84 N 83.83 83.82 83.81 83.80 83.79 83.78 83.77 83.76 83.75 83.74 83.73 83.72 83.71 83.70 83.69 83.68 83.67 83.66 83.65 83.64 83.63 83.62 83.61 83.60  
 E. CO. V CO.2 CO.4 CO.6  
 W. FO.2 FO.5 FO.7 FO.9 FO.11 FO.13 FO.15 FO.17 FO.19 FO.21 FO.23 FO.25 FO.27 FO.29 FO.31 FO.33 FO.35 FO.37 FO.39 FO.41 FO.43 FO.45 FO.47 FO.49 FO.51 FO.53 FO.55 FO.57 FO.59 FO.61 FO.63 FO.65 FO.67 FO.69 FO.71 FO.73 FO.75 FO.77 FO.79 FO.81 FO.83 FO.85 FO.87 FO.89 FO.91 FO.93 FO.95 FO.97 FO.99

83.84 N 83.83 83.82 83.81 83.80 83.79 83.78 83.77 83.76 83.75 83.74 83.73 83.72 83.71 83.70 83.69 83.68 83.67 83.66 83.65 83.64 83.63 83.62 83.61 83.60  
 E. CO. V CO.2 CO.4 CO.6  
 W. FO.2 FO.5 FO.7 FO.9 FO.11 FO.13 FO.15 FO.17 FO.19 FO.21 FO.23 FO.25 FO.27 FO.29 FO.31 FO.33 FO.35 FO.37 FO.39 FO.41 FO.43 FO.45 FO.47 FO.49 FO.51 FO.53 FO.55 FO.57 FO.59 FO.61 FO.63 FO.65 FO.67 FO.69 FO.71 FO.73 FO.75 FO.77 FO.79 FO.81 FO.83 FO.85 FO.87 FO.89 FO.91 FO.93 FO.95 FO.97 FO.99

83.84 N 83.83 83.82 83.81 83.80 83.79 83.78 83.77 83.76 83.75 83.74 83.73 83.72 83.71 83.70 83.69 83.68 83.67 83.66 83.65 83.64 83.63 83.62 83.61 83.60  
 E. CO. V CO.2 CO.4 CO.6  
 W. FO.2 FO.5 FO.7 FO.9 FO.11 FO.13 FO.15 FO.17 FO.19 FO.21 FO.23 FO.25 FO.27 FO.29 FO.31 FO.33 FO.35 FO.37 FO.39 FO.41 FO.43 FO.45 FO.47 FO.49 FO.51 FO.53 FO.55 FO.57 FO.59 FO.61 FO.63 FO.65 FO.67 FO.69 FO.71 FO.73 FO.75 FO.77 FO.79 FO.81 FO.83 FO.85 FO.87 FO.89 FO.91 FO.93 FO.95 FO.97 FO.99



Curve divided into 20 equal parts bet  
 P.C. & Sta. 32+00  
 Inside Lengths 20' from P.C. = 512.38  
 Outside " " " = 518.40

26+84.60 P.C.  
 S.L. Pueblo 1258  
 26 62.80 - Pueblo Line -

	Berm				Berm
	W. Edge	W	E	E	E. Edge
32+00	83.30	Inside Chords: 25 on 9 Outside " = 25.92	83.50		83.40
	83.14	Def. 0° 13'	83.34		83.24
	82.99	0° 25' 50"	83.19		83.09
	82.83	0° 38' 50" 1° 04' 45"	83.03		82.93
	82.68	1° 17' 40" 1° 38' 30"	82.88		82.78
	82.52	1° 48' 30" 1° 58' 25"	82.72		82.62
	82.36	2° 09' 20" 2° 22' 20"	82.56		82.46
	82.21	2° 35' 15" 2° 48' 10"	82.41		82.31
	82.05	3° 01' 10" 3° 14'	82.25		82.15
	81.90	3° 27' 3° 40'	82.10		82.00
	81.74	3° 53' 4° 05' 50"	81.94		81.84
	81.58		81.78		81.68
	81.43	4° 18' 45"	81.63		81.53
	81.27		81.47		81.37
	81.12		81.32		81.22
	80.96		81.16		81.06
	80.80		81.00		80.90
	80.65		80.85		80.75
	80.49		80.69		80.59
	80.34		80.54		80.44
	80.18	P.C.	80.38		80.28
	Pueblo	Line	80.25		80.18
	+ 31.40		80.18		80.04
	26+00		79.90		

14.23 80.11 81.51 80.49 80.80 81.10  
 4.80 4.95 4.20 5.74 4.2 4.1  
 E P.O. 1 862343 F.O. 2 F.O. 3 F.O. 4  
 W F.O. 6 F.O. 7 F.O. 8 F.O. 9

81.43	81.74	82.05	82.36	82.68	82.99	83.30
4.80	4.49	4.18	3.87	3.56	3.24	2.93
E F.O. 1	E F.O. 10	F.O. 11	F.O. 12	F.O. 13	F.O. 14	F.O. 15
W F.O. 6	W F.O. 10	F.O. 11	F.O. 12	F.O. 13	G.O. 1	G.O. 2

84.83  
 7.84  
 82.31 82.46 81.62 82.78 82.92 83.09 83.24 83.40  
 5.26 5.21 5.08 4.87 4.74 4.58 4.43 4.27

80.28	80.44	80.59	80.75	80.90	81.06	81.22	81.37	81.53	81.68
4.57	4.41	4.26	4.10	3.95	3.79	3.63	3.48	3.32	3.17
81.51	81.74	82.05	82.36	82.68	82.99	83.30			
3.34	3.24	3.24	3.38	3.52	3.62	3.71	3.78	3.85	3.90
81.51	81.74	82.05	82.36	82.68	82.99	83.30			
4.85	4.71	4.66	4.61	4.54	4.47	4.40	4.32	4.24	4.16

81.51 81.74 82.05 82.36 82.68 82.99 83.30  
 4.85 4.71 4.66 4.61 4.54 4.47 4.40 4.32 4.24 4.16  
 80.42 81.14 81.68 82.12 82.56 83.00 83.44 83.88 84.32 84.76  
 3.24 3.38 3.52 3.62 3.71 3.78 3.85 3.90 3.95 3.98  
 81.51 81.74 82.05 82.36 82.68 82.99 83.30  
 4.85 4.71 4.66 4.61 4.54 4.47 4.40 4.32 4.24 4.16  
 80.78 80.90 81.06 81.22 81.37 81.53 81.68  
 3.78 3.85 3.90 3.95 3.98 4.01 4.04  
 81.51 81.74 82.05 82.36 82.68 82.99 83.30  
 4.85 4.71 4.66 4.61 4.54 4.47 4.40 4.32 4.24 4.16

81.53 spike pole Sta 27+11 48

86184.60  
 26 62.80  
 21.8

Bl

Bl

Berm W. Edge	W	E	E Berm E. Edge
3650		78.85	78.75 ✓
+25		79.15	79.05 ✓
3600		79.55	79.45 ✓
+75		79.92	79.82 ✓
3550		80.29	80.19 ✓
+25		80.66	80.56 ✓
3500		81.03	80.93 ✓
+75		81.40	81.30 ✓
3450		81.77	81.67 ✓
+25		82.14	82.04 ✓
3400		82.50	82.40 ✓
+75		82.87	82.77 ✓
3350		83.18	83.08 ✓
+25		83.42	83.32 ✓
3300		83.60	83.50 ✓
+75		83.67	83.57 ✓
+50		83.68	83.58 ✓
+25		83.62	83.52 ✓
32+00		83.50	
3		82.1	
3		82.00	
		81.27	

50

	78.55	79.69	80.84	81.98	82.04	81.67
85.12 M1	6.57	5.03	4.28	3.14	5.13	5.50
191	6.5	4.9	4.2	3.1	5.1	5.5
83.21 TP	70.1	+0.9	+1.4	+1.2	+2.7	+0.5
3.92						
87.19 M1	83.57	83.60				
86.23 M1	2.50	2.63				
2.00	W F0.1	F F0.1				
83.63 TP	E F0.1	F0.3				
1.5	83.18	82.50	81.77	81.03	80.29	79.55
82.78 M1	0.60	1.27	2.01	2.75	3.49	4.23
	W F0.1	0.0	F0.5	F1.6	F1.7	F2.0
83.26 M1	E F0.1	F0.6	F0.5	F0.9	F1.3	F1.3
						F1.0
	78.75	71.05	79.45	79.82	80.19	80.56
	4.51	4.21	3.81	3.44	3.07	2.70
						2.33
						1.96
						1.59
87.67 M1	82.04	82.40	83.52	83.58	83.57	83.50
	1.22	0.86	4.18	4.07	4.65	4.72
84.83		82.40				4.90
2.39		5.82				5.14
82.22 M1						5.45

32.15 SpK in Pole - E Side

La Jolla Blvd.

Berm W: E E Berm  
W.Edge E.Edge

EG 41+44.52

Curve divided into 8 equal parts

8 parts  
20' from E  
inside chord = 27.28  
outside " = 27.60  
Def  
0° 13' 45"  
0° 27' 30" 1° 22' 40"  
0° 41' 20" 1° 35' 30"  
0° 55' 10" 1° 50' 15"  
1° 09'

79.75 Seek. Next page

79.55

79.47 79.37 ✓

79.19 79.09 ✓ 78.99

78.90 78.80 ✓

78.62 78.52 ✓ 78.42

78.34 78.24 ✓

78.06 77.96 ✓ 77.86

77.78 77.68 ✓

77.60 ✓  
77.50 77.50 ✓ 77.30

39+25

39+00

+75

3850

+25

3800

+75

3750

+25

3700

+75

3660

Sta 32+00 to 39+25  
20' from E  
inside Chords 24.855  
outside " = 25.146  
Def  
0° 12' 30" 3° 46'  
0° 25' 12" 3° 59' 30"  
0° 37' 40" 4° 11'  
0° 50' 10" 4° 28' 40"  
1° 02' 45" 4° 36' 10"  
1° 15' 20" 4° 48' 40"  
1° 27' 50" 5° 01' 15"  
1° 41' 15" 5° 13' 45"  
1° 53' 5° 26' 20"  
2° 05' 30" 5° 39'  
2° 18' 5° 51' 30"  
2° 30' 40"  
2° 43' 10" 6° 04'  
2° 55' 45"  
3° 08' 15"  
3° 20' 50"  
3° 33' 20"

Long inside = 720.78 - Outside = 729.25

78.50 78.40 ✓ 78.30

78.63 78.53 ✓

78.15

81.65 HI	27.62	76.87	77.27	77.67				
397	403	407	413	419				
77.78 TP	70.7	70.3	70.3	70.1				
734								
85.7 HI	78.30	78.08	77.85	77.63	77.41	77.30	77.26	
83.78 HI	5.48	5.70	5.93	6.15	6.37	6.59	6.81	
643	F1.5	F1.8	F2.1	F2.4	F2.7	F3.0	F3.3	
77.25 TP	E F1.0	E F1.8	E F2.2	E F2.7	E F3.2	E F3.7	E F4.1	
494	78.42	78.44	78.45	78.46	78.47	78.48	78.49	
82.31 HI	3.89	5.32	6.75	8.18	9.61	11.04	12.47	
189	W F1.2	W F1.7	W F2.2	W F2.7	W F3.2	W F3.7	W F4.1	
500	E F0.1	E F0.3	E F0.5	E F0.7	E F0.9	E F1.1	E F1.3	
80.42 BM	79.37	79.09	78.80	78.52	78.24	77.96	77.68	77.50
0.51	1.86	1.84	2.13	2.41	2.69	2.97	3.25	3.43
80.93 HI	77.62	77.73	77.84	77.95	78.07	78.18	78.29	78.40
275	3.31	3.20	3.09	2.98	2.86	2.75	2.64	2.53
78.18 L.P.	78.29	78.40	78.53	78.66	78.79	78.92	79.05	79.18
608	4.97	4.86	4.73	4.61	4.49	4.37	4.25	4.13
83.26 HI								

651



La Jolla Blvd.

Berm W. Edge W. E Berm E. Edge

N.L. Gravilla  
 ↓ 591.23

69.5

550

omit.  
 70.23 70.12 70.03

S.L. Gravilla  
 540.71

70.4 70.30 70.2

500

71.40 71.30 71.2

450

72.63 72.50 72.43

426.94

73.20 73.10 73.0

400

73.75 73.65 73.55

350

74.78 74.68 74.58

↳ to N.W. Cor. Kolmar  
 ↓ 311.94

75.57 75.47 75.37

300

75.74 75.64

↳ to S.W. Cor. Kolmar  
 260.9

76.29 76.19 76.09

6886 1071 79.57 HI	70.2 9.37 FOE	73.00 6.57 +0.8	75.37 4.20 +0.7	76.09 3.48 +0.7
778 70.7 728 FOE 8.09	71.2 2.91 4.5 C.I.S.=E FOE=W	72.43 4.75 FOE 21.0	73.0 4.8 FOE 2.07	73.57 3.63 FOE 2.07
149 75.97 711 8380	81.74 HI 6.10	76.19 5.65 71.30 5.02	75.64 6.10 70.20 6.02	75.47 0.85 74.68 1.64
				73.65 2.67 73.10 3.22 72.53 3.77

La Jolla Blvd.

W.      E      E

P.T.  
 8 8 54      63 51      63 51      63 51  
 77 2 2      63 51      63 51      63 51

↑	9+50	64.50	64.00	64.70	64.60	64.50
	9+00	64.21				63.65
	8+65	64.01		63.86	63.74	63.05
↓	8+18 DEC	63.75	63.50	63.00	62.50	62.25
		63.85	63.60	63.10	62.60	62.35
		64.15	63.90	63.40	62.90	62.65
		64.87	64.62	64.12	63.62	63.37
		65.60	65.35	64.85	64.35	64.10
		66.33	66.08	65.58	65.08	64.83
	6+76 PC	67.05	66.80	66.30	65.80	65.55
			68.10		67.60	
			68.79		68.56	
√	5+91.23	69.30	69.40	69.5	69.40	69.30
			69.34		69.28	
			69.76		69.76	

A=27.08  
 R=300

68.89	69.14	66.28	67.00	67.2								
69.55 N1	4.41	3.27	5.27	7.35								
	0.2	0.3	7.1	70.8								
65.59	64.21	63.65	63.05	64.01	63.75	62.25	63.85	62.35	62.05	64.15	64.25	63.97
2.08	3.46	4.02	4.62	3.66	3.92	5.12	3.82	5.22	5.02	2.52	2.80	4.30
67.67	8.56	8.8	6.02	7.58	7.42	4.82	5.8	4.22	5.22	4.2	4.2	3.6
	F.5.1	F.4.4	F.1.4	F.4.9	2.3.5	6.7.1	F.1.9	6.1.0	0.7.1	F.1.1	F.1.2	2.5.7
	64.10	65.60	66.33	64.82	65.55	67.05	65.50	66.2	66.75	66.75	66.75	66.75
	3.57	4.09	3.87	2.14	2.12	0.62	4.22	6.675	10.45	9.1	8.8	6.8
	4.07	3.47	2.91	3.6	2.3	1.9	1.9	10.45	9.1	8.8	6.8	6.8
	60.6	F.1.4	F.1.6	6.2.2	6.8	F.1.3	F.1.3	7.7.8	6.1.3	F.1.2	F.1.2	9.5.2
77.8	65.59	64.21	64.01	64.50	63.75	63.50	62.50	62.60	62.90			
	3.40	4.78	4.96	3.97	4.7	4.97	5.97	5.87	5.57			
	63.99											
68.47 M1	63.62	64.35	65.08	65.80	66.80	66.08	65.35	66.2	69.0			
	4.85	4.1	3.29	2.67	1.67	2.07	3.12	3.65	4.57			
76.32 M2	66.0	69.76	69.28	69.24	69.79	68.5	67.60	68.10				
	4.87	6.56	7.04	6.98	7.53	7.76	8.72	8.22				

La Jolla Blvd

W       $\Phi$       E

1075.26		6841.			
1050	67.47	67.67			
1000	66.00	66.20			
950	64.53	64.73	64.53		
918.54	63.60	63.30	63.70	63.60	
908.28		63.5			
900 -	63.62	63.66	63.29	63.47	63.34
888.28		63.0			
868.23		62.70			
850	63.65	63.55	62.66	62.85	62.65
846.0		62.5			
826.8		62.75			
P.T. V818.54	63.71	63.40	62.90	62.40	62.21

100'  
Grade 21.  
55  
in 5  
Precision.

69.55 M3 216 67.39 TP. 11.72 <hr/> 79.11 M3	63.30 6.25 4.02 <hr/> 67.47	62.4 7.15 4.06 <hr/> 66.00	66.00 3.55 0.62 <hr/> 64.53	66.20 6.25 0.9 <hr/> 60.5
75.17 M3 1122 <hr/> 63.95 T.P.	67.47 2.70 -1.7 <hr/> 66.00	66.00 9.17 3.5 +0.7 -0.5 <hr/> 64.53	64.53 10.64 -0.5.00 <hr/> 63.95	



79.11.74

70.25	71.80	73.45
8.86	7.81	5.66
9.1	10.4	
-0.4	-3.3	

74.64	73.91	73.59	73.27	72.92	72.62	72.32
266	339	341	4.00	4.34	4.66	5.00
77.50 MI	72.0	72.1	72.3	72.5	72.8	72.26
74.64	76.17	75.85	75.53	75.22	74.90	74.58
4.69						
79.33 MI	2.16	2.48	2.80	3.11	3.43	3.75
74.64	2.3	2.7	3.08	3.47	3.85	4.24
53	+4.8	+4.98	+5.18	+5.37	+5.56	+5.75
75.17 MI	73.64	71.87	71.94	71.06	70.25	70.25
	4.83	3.0	3.23	4.11	4.98	4.9
	-2.5	+1.9	-6.5	+0.8	-7.2	-1.7

74.64	72.32	74.53	73.55	71.75	70.81	71.10	69.24	68.51	67.17	65.84	64.50
279	511	280	3.88	4.66	5.44	6.22	7.00	7.78	8.56	9.34	10.12
77.42	29	72	6.18	5.7	5.22	4.74	4.26	3.78	3.3	2.82	2.34
65.59	76.40	75.72	75.47	75.15	74.84	74.52	74.20	73.70	73.02	72.70	72.32
67.17	3.59	4.20	4.82	4.84	5.15	5.47	5.79	7.29	6.97		
65.59	79.99 MI	72.24	73.65	3.92							
83.5		6.65	6.34	6.02							
73.94 MI	9.34	8.00	6.67	6.61	6.99	4.00					
65.59											
288											
68.47 MI											

5 equal parts A  
 EC 13+79.54  
 Δ = 38° 54'

W      ±      E

73.91	74.29	75.04	75.79	76.17
73.59	73.91 ✓	74.72	75.47 ✓	75.85
73.27	73.65	74.40	75.15 ✓	75.53
72.96	73.34 ✓	74.09	74.84 ✓	75.22
72.64	73.02 ✓	73.77	74.52 ✓	74.90

V P.C. R=150 18" Elev.

1277.66	72.32	72.70	73.45	74.20	74.58
12+50	71.78		72.71		73.55
12+00	70.81		71.38		71.70
11+50	69.84	69.94	70.04	69.94	69.84
11+00			68.71	68.61	68.51
10+50			67.37	67.27	67.17
10+00			66.04	65.94 ✓	65.84
19+50	64.50	64.60	64.70	64.60 ✓	64.50

1100			64.08	
1075.26			63.41	

Black

Black

7-19 BM. RR Spk in Pole at C.C.

7464 RR Spk Bonair

8311 M	77.25 5.86	76.73 6.38	76.18 6.83	75.62 7.29	74.84 8.27	74.50 9.21	74.84 10.29	76.18 11.25
79.11 M	+1.9	+2.3	+2.3	+2.7	+1.6	+1.0	+1.6	+1.6
84.14 M	77.25 6.87	76.73 7.41	76.18 7.96	75.24 8.90	74.18 9.86	74.30 10.82	74.18 11.78	76.18 12.74
75.88 TP	73.91	76.17						
73.82 M	1.23	7.99						
72.19 BM	72.00	77.45	76.38					
80.22 M	5.03	5.58	6.65					
82.22 M	3.35	5.18	6.31	7.405	7.687			
	77.62	77.35	76.83	76.28				
	4.60	4.87	5.39	5.94				
	75.79	74.29						
	4.13	5.63						

W      E

N.L. Nautilus 1656.32			78.0		
1650			77.94		
1626.32 E			77.72	77.62	
1600 S.L. Nautilus 1596.32			77.48		
	77.25		77.45	77.35	
1550	76.73		76.93	76.83	
1500	76.18	76.28	76.38	76.28	76.18
1479.54	75.05		76.15		
1450	75.24				76.18
1400	74.30				76.18
P.T. 1379.54	73.91	74.29	75.04	75.79	76.17

near Nautilus St Bon

Set 0.1 high

100' Warped

Paving

Paving

E

N.L. Westbourne  
(East)

2063.12

77.61 77.51 ✓

2050

77.61

77.81

Av. Sta. bet. Gr. Pts.

2004.47

78.30

78.5 78.40

2000

78.33

78.53

1965.82 E

78.75

1950

78.65

78.85

1945 E

S.L. Westbourne  
(West)

1925.82

78.80

77.99 78.99 ✓

79.0 78.85 ✓

W-78.95 not on

1940.5 E

78.93 78.83 ✓

1900

78.70

78.90

1850

78.52

78.72 78.62

1800

78.33

78.53 78.43 ✓

1750

78.15

78.35 78.25 ✓

1700

77.94

78.16 78.06

N.L. Nautilus

1656.32

77.80

78.0 77.90 ✓

83.22 H1	78.30	78.80	78.52	78.33	78.15	77.96	77.80
432	5.52	5.02	5.30	5.49	5.67	5.86	5.81
78.50 TT	3.8	4	3.9	3.7	4.1	4.5	3.8
78.61	+1.7	+1.0	+1.4	+1.6	+1.5	+1.5	+1.5
83.11 H1	77.61	78.30	78.65	78.80	78.70	78.52	
10.47 H1	2.86	3.84	5.49	5.34	5.54	5.62	
13.4	4.1 + 2.7	4.05 + 2.2	4.03 + 1.3	4.04 + 0.1	4.02 + 1.6	4.02 + 1.9	
79.13 TR	78.33	78.15	77.90	77.80			
5.01	5.81	6.00	6.20	6.3			
84.14 H1	4.07 + 2.2	4.14 + 2.2	4.09 + 2.2	4.19 + 2.2			
81.22	77.61	78.50	79.00				
16.0	5.21	4.32	3.82				
82.8 2 H1	78.62	78.83	78.85	78.79	78.40	77.51	
	4.73	4.52	4.50	4.56	4.95	5.84	
83.35 H1	78.43	78.25	78.04	77.90			
	3.79	3.97	4.16	4.32			
78.62							
36.0							
82.2 2 H1							

	W.	±	E
2450		71.14	71.04 ✓
2420		71.34	
2400	71.2	71.47	
Av. S.L. Fern Glen.			
<u>2396.17</u>	71.31	71.5	71.40 ✓
2350	72.35	72.55	72.45 ✓
2300	73.18	73.68	73.58 ✓
N.L. Belvedere			
<u>2285.82</u>	73.80	74.0	73.90 ✓
2250		74.62	74.52 ✓
S.L. Belvedere			
<u>2225.82</u>	74.84	75.04	74.94 ✓
2200	75.25	75.45	
2150	76.14	76.24	
2100	76.83	77.03	76.93
N.L. Westbourne (East)			
<u>2063.12</u>	77.4	77.61	

77.0341	71.50	74.00	75.00
	5.53	5.00	1.99
83.3541	73.58	73.90	74.52
75.59	5.90	5.58	4.96
3.19			4.54
79.48 M.	72.45	74.40	76.04
75.59	4.26	5.31	5.67
1.12			
76.71 M.			

S.L. Aronas (East)  
2806.07

68.45 68.35 ✓

2800

68.50 68.40 ✓

2750

68.68

68.88 68.78

2700

69.06

69.26 69.16 ✓

N.L. Rushville St  
2666.07

69.2 ✓

69.52 69.4 ✓

2650

69.64 69.54 ✓

2636.07

69.74

S.L. Rushville St  
2606.07

69.16

69.96 69.86 ✓

2600

70.01

2550

70.19

70.39 70.29 ✓

2500

70.58

70.78 70.68 ✓

Av. N.L. Fern Glen  
2471.77

70.80

71.0 70.90 ✓

2450

70.94

71.14

75.59	69.96	71.00			
77.03	7.07	6.03			
76.71	70.90	70.68	70.29	69.86	69.54
	581	603	6.42	6.80	7.17
	69.16	68.78	68.40	68.55	69.42
	2.53	3.91	4.29	4.34	7.29
76.71					



Levels over Hubs along La Jolla Road.

	187	78.45	76.58 BM, Spk NE Forward				
	Ground	Grade	±	Ground	±		
164419	418	74.27	75.25	-0.98	418	74.27	+0.98
+1797	441	74.04	75.17	-1.13	3.50	74.95	-0.22
1589476	454	73.91	75.09	-1.18	3.73	74.72	+0.37
+6555	471	73.74	75.01	-1.27	3.52	74.93	-0.08
+3930	461	73.84	74.93	+1.09	3.46	74.99	+0.06
+1313	460	73.85	74.85	+1.00	3.05	75.40	+0.55
1478692	438	74.07	74.80	+0.73	2.90	75.55	+0.75
+6024	481	73.64	74.80	-1.16	3.96	74.99	-0.31
1430450 PC	490	73.55	74.80	-1.25	2.14	74.31	-0.49
+091	547	72.98	74.62	-1.64	3.90	74.55	-0.07
134837	584	72.61	74.44	-1.83	3.21	75.24	+0.80
+583	593	72.52	74.26	-1.74	3.34	75.11	+0.85
+329	597	72.48	74.08	-1.60	3.10	75.35	+1.27
+075	598	72.47	73.90	-1.43	3.20	75.25	+1.35
124821	605	72.40	73.73	-1.33	2.97	75.08	+1.75
+567	625	72.20	73.55	+1.35	2.92	75.53	+1.98
+333	628	72.17	73.37	-1.20	3.72	74.73	+1.36
121058	627	72.18	73.19	-1.01	3.67	74.78	+1.59
114805	634	72.11	73.01	-0.90	3.97	74.88	+1.47
+551	646	71.99	72.83	-0.84	3.95	74.50	+1.67
+227	681	71.64	72.65	-1.01	3.84	74.67	+1.96
+043	719	71.26	72.47	-1.21	4.28	74.17	+1.70
101789	780	70.25	72.29	-1.64	5.01	73.42	+1.15
T. P.	4.91		75.56	7.30		70.65	

West		Ground	Grade	±		Ground	East	±
10525	527	70.19	72.11	+1.92	2.90	72.66	+0.55	
+281	543	70.13	71.93	+1.80	2.68	72.88	+0.95	
+047	558	69.98	71.75	+1.77	2.86	72.70	+0.95	
94773	620	69.26	71.58	+2.32	3.47	72.09	+0.51	
94519	652	69.04	71.40	+2.36	3.81	71.75	+0.35	
91265	714	68.42	71.22	+2.80	4.31	71.25	+0.03	
94011	705	68.51	71.04	+2.53	4.17	71.39	+0.35	
847577	727	68.29	70.86	+2.57	4.46	71.10	+0.24	
84503	788	67.68	70.80	+3.12	4.74	70.82	+0.02	
84249	749	67.87	70.80	+2.93	4.77	70.79	-0.01	
744950	696	68.60	70.81	+2.21	4.67	70.89	+0.08	
7450	603	69.53	71.40	+1.87	4.19	71.37	+0.03	
7	469	70.89	71.99	+1.12	3.53	73.03	+1.04	
450	380	71.76	72.58	+0.82	7.60	73.96	+1.38	
T. P.	9.14		83.02		1.68		73.88	
6	1033	72.69	73.17	+0.48	8.34	74.68	+1.51	
450	886	74.16	73.76	+0.40	7.21	75.81	+2.05	
6	148	75.04	74.35	+0.69	6.60	76.42	+2.07	
450	743	75.59	74.94	+0.65	8.76	77.26	+2.32	
4	613	76.89	75.53	+1.36	5.04	77.98	+2.45	
450	600	78.02	76.12	+1.90	4.40	78.62	+2.50	
3	532	79.70	76.71	+2.99	3.80	80.02	+3.31	
450	293	80.09	77.30	+2.79	2.42	80.60	+3.30	
24178	259	79.45	77.00	+1.65	2.69	80.33	+2.53	
14382	646	76.56	74.80	+0.14	5.89	77.13	+0.33	
					5.49			

17 5/2 Mo. 4



		West 1.87 Ground 75.48	M 79.38 Grade 75.69	I -0.21		77.56 East Ground 76.61	±
1+00	3.90				2.77		+0.92
+50	5.74	73.64	74.25	-0.61	4.38	75.00	+0.75
0+18+47.13	6.97	72.39	72.80	-0.41	5.40	73.90	+1.18
18	8.12	71.26	72.25	-0.99	6.36	73.02	+0.77
+50	8.73	70.65	71.67	-1.02	7.03	72.35	+0.68
17	8.65	70.73	71.10	-0.37	7.28	72.10	+1.00
+50	9.43	69.95	70.52	-0.57	8.33	71.05	+0.53
T.P.	4.35		M 74.65		9.08	70.30	
16	5.50	69.15	69.95	-0.80	4.17	70.88	+0.53
+50	6.27	68.38	69.38	-1.00	5.32	69.33	-0.05
15	7.02	67.63	68.80	-1.17	5.64	69.01	+0.21
+50	7.21	67.14	68.60	-1.16	6.12	68.51	-0.29
14	6.82	67.83	68.94	-1.11	6.04	68.61	-0.33
+50	6.45	68.20	69.02	-0.82	4.87	69.78	+0.75
13	6.20	68.45	69.09	-0.64	5.37	69.28	+0.19
+50	6.18	68.47	69.16	-0.69	5.31	69.34	+0.18
12	6.33	68.22	69.23	-0.91	5.38	69.27	+0.04
T.P.	4.88		M 74.20		5.33	69.32	
+50	5.86	68.34	69.30	-0.96	5.16	69.04	-0.26
11	6.00	68.20	69.37	-1.17	4.72	69.48	+0.11
+50	6.11	68.09	69.44	-1.35	5.10	69.10	-0.24
10	4.96	69.24	69.25	-0.01	4.69	69.51	+0.06
+50	5.26	68.94	69.59	-0.65	4.16	70.04	+0.45
					3.78	70.42	

		West 2.18 Ground 68.46	M 75.86 Grade 69.66	±		73.18 East Ground 69.47	±
9	6.96				5.88		-0.19
+50	6.90	68.46	69.73	-1.27	5.65	69.71	-0.02
8	6.70	68.66	69.80	-1.14	5.53	69.83	+0.03
+50	5.72	69.64	70.13	-0.49	5.37	69.99	-0.14
7	5.42	69.94	70.47	-0.53	4.66	70.70	+0.23
+50	4.86	70.50	70.80	-0.30	4.49	70.87	+0.07
6	4.54	70.82	71.13	-0.31	4.11	71.25	+0.12
+50	4.36	71.00	72.08	-1.08	3.43	71.93	+0.67
5	4.22	71.14	73.02	-1.88	2.91	72.45	+1.07
+50	3.51	71.95	73.72	-1.87	2.21	73.15	+1.67

P.C. Cass X Turquoise	2.26		140.56		138.30 N.E. Cass & Turquoise		Grade	±	9.45		116.44		±			
	Ground	Grade	North	South	Grade	North			South	±						
6.41	134.15	34.10	+0.05	829	132.27	31.81	+0.41	4.00	3.71	112.78	13.61	-0.83	2.10	114.39	+0.78	
5.41	135.15	34.02	+0.47	816	132.40	32.24	-0.04	4.50	5.57	110.92	12.06	+1.14	3.17	113.32	+1.26	
5.23	135.33	35.09	+0.24	774	132.82	32.85	-0.03	5	7.64	108.85	10.52	-1.67	4.54	111.95	+1.43	
4.73	135.83	35.34	+0.49	6.58	133.98	32.10	+0.88	4.50	8.15	108.34	8.96	-0.62	7.45	109.04	+0.08	
4.45	136.11	35.46	+0.71	6.65	133.90	32.16	+0.74	6			7.41					
4.96	135.60	35.30	+1.30	6.80	133.76	32.01	+0.70	4.50								
0.2.123.5C	4.83	135.73	35.02	+0.71	6.99	133.57	32.76	+0.81	7.21	9.44	107.05	4.30	+2.75	6.34	101.21	-3.09
+50	5.26	135.30	34.18	+1.12	7.75	132.81	32.60	+0.21		0.51			107.55		107.04	
1	6.35	134.21	32.26	+1.95	8.92	131.62	32.26	-0.64	W.L.A.M.	4.19	103.36	2.95	+0.21	4.58	102.97	+0.02
+50	7.28	133.28	31.32	+1.95	9.55	131.01		-0.32	+50	4.97	102.58	1.91	+0.67	6.39	101.16	-0.75
2	9.24	131.32	30.40	+0.92	10.47	130.09		-0.31	1	4.68	102.87	0.97	+2.00	7.80	99.75	-1.12
+50	11.20	129.36	29.46	-0.10	12.68	127.88		-1.52	+50	7.24	99.81	9.54	-0.03	9.17	98.38	-1.66
3	11.20	129.36	28.50	+0.93	13.90	127.66		-0.87	2	6.65	100.90	8.80	+2.10	9.45	98.10	-0.70
		1.79		130.16		128.37			+50	7.13	100.42	6.50	+3.92	9.80	97.75	+1.55
+50	1.60	128.56	27.60	+0.96	3.10	127.06		-0.54	3	8.45	99.10	6.21	+2.89	9.85	97.70	+1.49
EL. Boyd + 792	2.01	128.15	27.05	+1.10	4.03	126.13		-0.92		1.73			98.21		96.48	
W.L. Bayard	2.52	127.64	26.05	+1.59	5.72	125.04		-1.01	+50	0.38	97.83	4.91	+2.92	1.77	96.44	+1.53
+50	3.75	126.41	24.49	+1.92	5.17	124.99		+0.50	4	2.00	96.21	3.62	+2.69	3.21	94.90	+1.28
1	5.17	124.99	22.94	+2.05	6.70	123.46		+0.52	+50	3.00	95.21	2.22	+2.89	4.59	93.72	+1.40
+50	6.81	123.35	21.38	+1.97	8.54	121.62		+0.24	6	4.58	93.63	1.02	+2.61	5.71	92.50	+1.48
2	8.25	121.91	19.83	+2.08	10.28	119.78		-0.95	+50	6.27	91.94	89.73	+2.21	7.60	90.61	+0.88
+50	9.51	120.65	18.27	+2.38	11.07	119.09		+0.22	6	7.96	90.25	84.5	+1.82	8.90	89.31	+0.89
3	10.56	119.60	16.71	+2.88	11.87	118.29		+1.51	+50	9.78	88.43	7.14	+1.29	10.50	87.71	+0.57
+50	11.73	118.43	15.27	+3.26	12.51	117.65		+2.48	19.57	11.08	87.13	5.95	+1.18	5.40	82.22	-3.73

P.C. Cass X Turquoise	2.26		140.56		138.30 N.E. Cass & Turquoise		Grade	±	9.45		116.44		±
	Ground	Grade	North	South	Grade	North			South	±			
4.00	3.71	112.78	13.61	-0.83	2.10	114.39	+0.78						
4.50	5.57	110.92	12.06	+1.14	3.17	113.32	+1.26						
5	7.64	108.85	10.52	-1.67	4.54	111.95	+1.43						
4.50	8.15	108.34	8.96	-0.62	7.45	109.04	+0.08						
6													
4.50													
7.21	9.44	107.05	4.30	+2.75	6.34	101.21	-3.09						
		0.51		107.55		107.04							
W.L.A.M.	4.19	103.36	2.95	+0.21	4.58	102.97	+0.02						
+50	4.97	102.58	1.91	+0.67	6.39	101.16	-0.75						
1	4.68	102.87	0.97	+2.00	7.80	99.75	-1.12						
+50	7.24	99.81	9.54	-0.03	9.17	98.38	-1.66						
2	6.65	100.90	8.80	+2.10	9.45	98.10	-0.70						
+50	7.13	100.42	6.50	+3.92	9.80	97.75	+1.55						
3	8.45	99.10	6.21	+2.89	9.85	97.70	+1.49						
+50	0.38	97.83	4.91	+2.92	1.77	96.44	+1.53						
4	2.00	96.21	3.62	+2.69	3.21	94.90	+1.28						
+50	3.00	95.21	2.22	+2.89	4.59	93.72	+1.40						
6	4.58	93.63	1.02	+2.61	5.71	92.50	+1.48						
+50	6.27	91.94	89.73	+2.21	7.60	90.61	+0.88						
6	7.96	90.25	84.5	+1.82	8.90	89.31	+0.89						
+50	9.78	88.43	7.14	+1.29	10.50	87.71	+0.57						
19.57	11.08	87.13	5.95	+1.18	5.40	82.22	-3.73						

	6.87	North	87.70	South	80.83	
		Grade		Grade		
W.L.R.W. +100	+49	83.21	-1.54	2.85	84.85	+0.10
+50	396	83.74	+0.29	4.07	83.63	+0.18
1	5.62	82.08	-0.07	5.75	81.95	-0.20
+50	6.80	80.90	+0.74	7.40	80.30	-0.81
	1.50		82.33		80.83	
2	2.58	79.75	+1.67	3.58	78.75	-1.33
2175 P.C.	3.10	79.23	+1.95	4.08	78.25	-1.47
	3.89	78.44	+1.74	4.87	77.46	-1.48
	5.03	77.30	+1.54	5.22	77.11	-1.09
	5.73	76.60	+1.34	6.04	76.29	-1.21
	6.55	75.78	+1.18	7.01	75.32	-1.52
	7.02	75.31	+1.33	7.27	75.06	-1.16
	7.67	74.66	+1.26	8.01	74.32	-1.32
	8.24	74.09	+1.23	8.94	73.39	-1.71
	9.08	73.25	+0.89	9.44	72.89	-1.71
	9.29	73.04	+1.14	10.02	72.31	-1.83
+1625 Ek	9.20	73.13	+1.65	10.50	71.83	-1.89

10 Equal parts.

	9.52	West	36.87		27.35	East	
	Grade		Grade				
W.L. Garnet	7.02	27.85	27.80	+0.05	87.0	28.17	+0.37
+50	8.32	28.55	28.62	-0.08	8.12	28.75	+0.12
100	7.62	29.25	29.47	+0.22	7.25	29.52	+0.05
+50	6.80	30.07	30.30	-0.23	6.42	30.45	+0.15
200	5.90	30.97	31.13	-0.16	5.43	31.44	+0.31
+70	4.41	32.46	32.30	+0.16	4.06	32.81	+0.51
	Felspar				St		
0	3.57	33.30	33.30	0.0	3.19	33.68	+0.38
+50	2.73	34.14	34.04	+0.10	2.18	34.69	+0.65
100	2.00	34.87	34.78	+0.09	1.41	35.46	+0.68
	T.P.						35.55 35.57
+50	7.92	35.88	35.52	+0.36	7.25	36.45	+0.93
2	7.04	36.66	36.26	+0.40	6.38	37.32	+1.06
+70	6.47	37.23	37.30	-0.07	6.01	37.69	+0.39
	Emerald				St		
0	5.29	38.41	38.30	+0.11	5.60	38.10	-0.20
+50	4.51	39.19	39.23	-0.04	4.68	39.02	-0.21
1	3.63	40.07	40.15	-0.08	3.58	40.12	-0.03
+50	2.61	41.09	41.08	+0.01	2.59	41.12	+0.04
2	1.63	42.07	42.00	+0.07	1.51	42.19	+0.19
	T.P.						43.24
+70	10.20	43.34	43.30	+0.04	9.57	43.77	+0.67
	r BM						45.16 45.16
	Diamond						

		West	Grade	East		West	Grade	East
0 Diamond	8.79	44.75	4180 -0.05	798	45.56	+0.76		
+50	7.70	45.84	4600 -0.16	692	46.62	+0.62		
1	6.50	47.04	4721 -0.17	605	47.49	+0.58		
+50	5.55	47.99	4841 -0.42	511	48.43	+0.02		
2	4.30	49.24	4962 -0.38	321	50.23	+0.61		
+70	2.72	50.82	5130 -0.48	218	51.36	+0.86		

M1350001

St

	T.P.	West	Grade	East		West	Grade	East
	10.93	64.22	025	53.29				
0	11.15	53.07	5280 +0.27	1060	53.62	+0.82		
+50	10.09	54.13	5400 +0.13	920	55.02	+1.02		
1	9.03	55.19	5521 -0.02	780	56.42	+1.21		
+50	7.85	56.07	5641 -0.04	683	57.39	+0.98		
2	6.54	57.68	5762 +0.06	607	58.15	+0.53		
+70	4.92	59.29	5920 -0.01	646	57.76	-1.54		

Chalcedony

St

	T.P.	West	Grade	East		West	Grade	East
0	2.50	61.72	6050 +0.92	3.00	61.22	+0.42		
+50	1.54	62.68	6122 +0.86	200	62.22	+0.40		
	9.33	72.72	0.82	63.39				
1	9.02	63.70	6281 +0.86	9.23	63.39	+0.55		
+50	8.10	64.62	6386 +0.76	7.86	64.86	+1.00		
2	7.07	65.65	6488 +0.77	6.58	66.14	+1.26		
+70	5.91	66.81	6620 +0.51	5.66	67.06	+0.76		

Law

St

		West	Grade	East		West	Grade	East
0	4.52	68.20	67.80	+0.40	3.70	69.02	+1.22	
+50	3.58	69.14	68.54	+0.60	3.25	69.47	+0.93	
1	3.11	69.61	69.28	+0.33	3.05	69.67	+0.39	
+50	2.78	69.94	70.02	-0.08	2.61	70.11	+0.09	
2	2.12	70.60	70.76	-0.16	1.91	70.81	+0.05	
T.P.	10.20		80.90		2.12		70.60	
170	9.13	71.77	71.80	-0.03	8.58	72.32	+0.52	

Beryl

St

		West	Grade	East		West	Grade	East
0	7.68	73.22	7330 -0.08	613	74.77	+1.47		
+50	6.22	74.68	7469 -0.01	4.42	76.48	+1.79		
1	4.64	76.26	7608	+0.18	3.46	77.44	+1.36	
			M1 50.86		3.05		77.55	77.81
+50	2.94	77.92	7747	+0.45	2.19	78.67	+1.20	
T.P.	12.57		92.15		1.25		79.61	
2	12.70	79.48	7886	+0.62	12.27	79.91	+1.05	
170	10.95	81.23	80.80	+0.43	10.82	81.35	+0.55	

Willow

St

		West	Grade	East		West	Grade	East
0	9.13	85.05	8230	+0.75	8.75	83.45	+1.15	
+50	8.03	84.15	8349	+0.46	7.46	84.72	+1.03	
1	6.73	85.45	8600	+0.37	6.42	85.76	+0.68	
+50	5.43	86.75	8647	+0.28	4.82	87.36	+0.89	
2	4.99	87.19	8786	-0.07	3.51	88.64	+0.78	
170	2.08	90.10	8900	+0.30	1.70	90.48	+0.68	
T.P.	10.79		101.54		1.43		90.75	
170	10.55	90.99	9130	-0.31	9.60	91.94	+0.64	

Loring

		10154				East	
		West				East	
0-N.L. Loring	8.58	92.96	Grade 92.80	+0.16	8.13	93.41	+0.61
+50	7.52	94.02	94.19	-0.17	7.25	94.29	+0.10
1	6.35	95.19	95.58	-0.39	5.99	95.55	-0.03
+50	4.74	96.80	96.97	-0.17	4.45	97.09	+0.12
2	3.25	98.29	98.36	-0.07	3.60	97.94	+0.42
+65	1.05	100.49	100.20	+0.19	1.71	99.83	-0.47

Hyacinth

St

T.P.		113.58		0.79		100.55		100.53	
0	10.63	102.95	102.30	+0.65	10.52	103.06	+0.76		
+50	9.40	104.19	103.69	+0.49	8.44	105.14	+1.45		
1	7.79	105.99	105.08	+0.91	6.66	106.92	+1.84		
+50	6.21	107.37	106.47	+0.90	5.44	107.94	+1.47		
2	5.17	108.41	107.86	+0.55	4.14	109.44	+1.58		
+65	3.41	110.17	109.80	+0.37	2.61	110.97	+1.17		

Tourmaline

St.

T.P.		125.81		0.48		113.10			
		Cor M1		125.77		12.50		113.31	
								113.27	
0	13.58	112.19	111.80	+0.39	12.50	113.27	+1.47		
+50	12.88	112.89	112.80	-0.07	11.24	114.53	+0.97		
1	11.20	114.57	115.32	-0.75	10.24	115.53	+0.21		
+50	11.00	114.77	117.08	-2.31	8.90	116.87	-0.21		
2	9.37	116.40	118.80	-2.44	7.78	117.99	-0.85		
+65	5.38	122.39	121.30	-0.91	4.45	121.32	+0.02		

Sapphire

St.

T.P.		136.22		0.40		125.37	

		13622				East	
		West				East	
0	11.68	124.54	Grade 124.10	+0.44	10.40	125.82	+1.72
+50	10.11	126.11	126.09	+0.02	7.72	128.50	+2.41
1	8.50	127.72	128.08	-0.36	6.58	129.14	+1.56
+50	6.67	129.55	129.62	-0.08	4.84	131.38	+0.75
+65	3.25	132.27	131.86	+0.41	2.06	134.16	+0.06

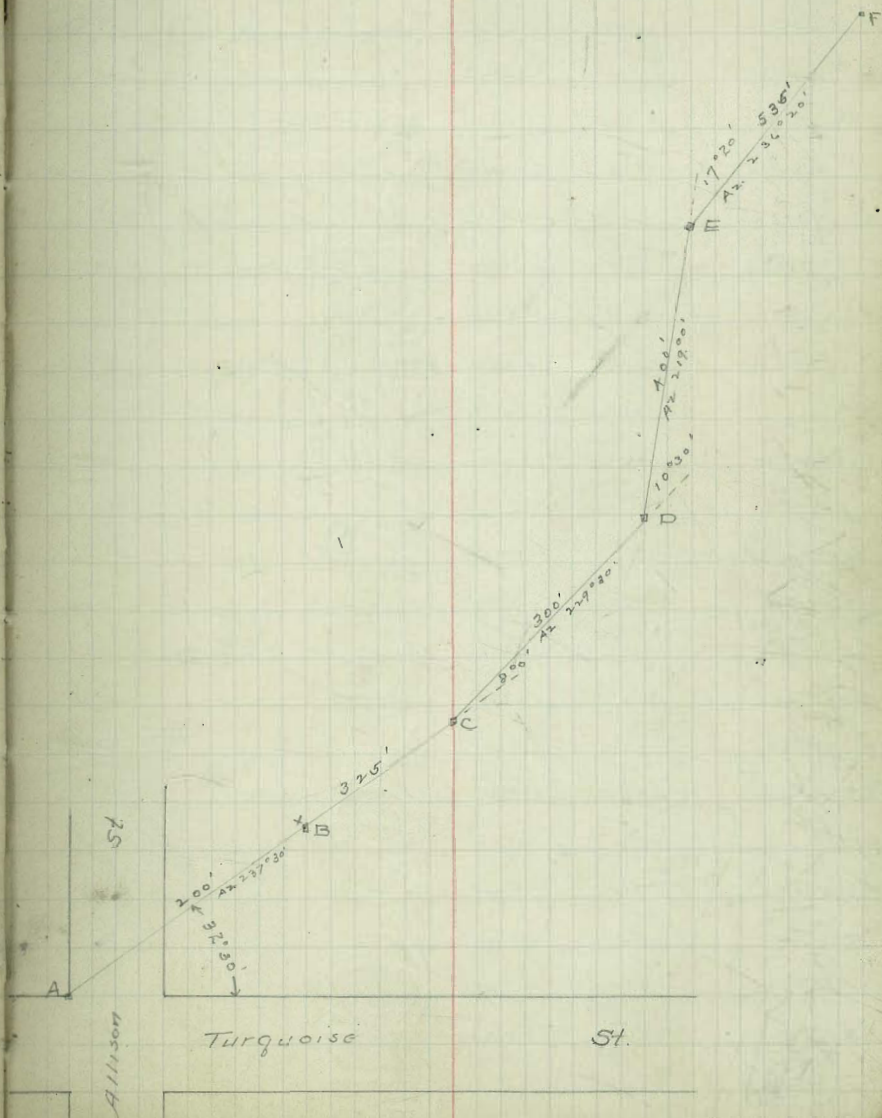
BM's Bet	h.f. B.R.	city	Curve
+	ht.	-	Elev
1.80	82.62		50.82 Mon NW BRAN
BM. 28+10		4.41	78.21
T.P. 2+18	76.22	8.88	73.74
BM. 5+02		2.58	73.64
T.P. 6+48	79.68	3.02	73.20
BM 10+60		1.39	78.29
T.P. 5+25	81.78	3.15	76.53
BM 15+65		2.92	78.86
T.P. 3+50	82.27	3.01	78.77
BM. 22+05		3.66	78.61
T.P. 4+31	83.42	3.16	79.11
BM 27+11		1.89	81.53

+	ht.	-	Elev
11.87	113.91		107.04 BM NE Alliance & Targum RR 6th pole
Sta B		5.42	113.49
T.P. 11.89	130.63	0.17	118.74
Sta C		1.61	128.62
T.P. 11.61	142.05	0.19	130.44
Sta D		6.07	135.98
T.P. 11.75	153.64	0.16	141.89
T.P. 12.02	165.47	0.19	153.45
Sta E		10.10	155.37
T.P. 12.02	176.99	0.56	164.91
T.P. 11.52	188.01	0.50	176.49
Sta F		2.36	185.65

Base Line for Stadia Readings in Cañon North of Turquoise St.

Note Turquoise St. assumed as being east 0° in Azimuths = South.

∠ at B	Elev	Dist	Vert	Hor. Dist	Elev	Notes
∠ at B	113.50			H.I. 118.40		
✓ 29° 14'	148		-3° 02'			• NW Cor Bridge
✓ 46° 50'	158		-1° 57'			Rim
✓ 48° 01'	90		-2° 05'			"
✓ 73° 30'	70		-2° 10'			"
✓ 237° 55'	120		+2° 07'			"
✓ 274° 40'	134		+1° 21'			"
✓ 276° 45'	152		+1° 08'			"
✓ 248° 40'	160		+2° 19'			"
292° 30'	168		-3° 49'			Bottom
313° 05'	132		-5° 25'			"
314° 40'	66		-12° 30'			"
0° 10'	86		-9° 42'			"
24° 40'	146		-8° 20'			"
✓ 21° 14'	136		-2° 57'			• NE Cor Bridge
✓ 351° 25'	114		-2° 52'			Rim
✓ 312° 55'	156		-0° 17'			"
✓ 298° 20'	240		+0° 35'			"
✓ 284° 55'	244		+1° 20'			"
✓ 282° 30'	294		+1° 24'			"



A at C Elev 128.0 H.I. 132.9						A at D Elev 136.0 H.I. 140.90					
Ang	Dist	Vert	Hor Dist	Elev	Notes	Ang	Dist	Vert	Hor Dist	Elev	Notes
✓ 38° 50'	94	-3° 12'			Rim	✓ 75° 10'	44	+0° 36'			Rim
✓ 359° 40'	40	-2° 06'			"	✓ 224° 25'	48	+4° 35'			"
✓ 215° 10'	14	-1° 05'			"	✓ 211° 55'	116	+3° 33'			"
✓ 238° 20'	94	+1° 45'			"	✓ 228° 55'	176	+3° 15'			"
230° 35'	206	+1° 58'			"	✓ 226° 20'	220	+2° 51'			"
✓ 248° 35'	234	-1° 16'			Bottom	✓ 219° 01'	284	+2° 47'			Rim
✓ 269° 15'	168	-2° 37'			"	240° 15'	228	-0° 10'			Bottom
✓ 282° 50'	108	-4° 55'			"	254° 35'	140	-1° 49'			"
279° 15'	60	-10° 36'			"	275° 40'	98	-3° 04'			"
269° 30'	26	-36° 11'			"	335° 01'	52	-10° 14'			"
343° 30'	40	-22° 50'			"	30° 01'	98	-6° 42'			Bottom-Creek
341° 40'	80	-11° 39'			"	✓ 290° 55'	98	+1° 53'			Rim
351° 05'	130	-7° 44'			"	✓ 265° 10'	152	+1° 41'			"
344° 30'	180	-6° 09'			"	✓ 257° 30'	214	+2° 40'			"
4° 20'	188	-6° 10'			"	251° 10'	314	+2° 44'			"
15° 30'	220	-5° 46'			"						
24° 20'	230	-5° 27'			Bottom						
✓ 352° 45'	200	-1° 34'			Rim						
✓ 337° 05'	166	-1° 06'			"						
✓ 306° 40'	130	-0° 22'			"						
✓ 287° 05'	142	+0° 20'			"						
✓ 271° 25'	184	+1° 09'			"						
✓ 257° 50'	236	+1° 25'			"						
✓ 250° 30'	294	+1° 30'			Rim						



At E	Elev 155.40	H.I. 160.35			
Ang	Dist	Vert.	Hor. Dist	Elev	Notes
✓ 61° 55'	106	-2° 30'			Rim
✓ 25° 45'	52	-2° 42'			
✓ 357° 50'	111	-5° 35'			
✓ 218° 15'	44	+1° 07'			
✓ 241° 40'	82	+1° 05'			
✓ 258° 30'	102	+0° 30'			
✓ 256° 10'	146	+1° 28'			
✓ 258° 45'	198	+1° 52'			
✓ 252° 30'	236	+1° 41'			
✓ 242° 40'	260	+1° 56'			Rim
264° 30'	232	+0° 01'			Bottom
263° 35'	170	-0° 14'			"
270° 15'	122	-1° 25'			"
282° 35'	106	-2° 23'			"
242° 50'	62	-6° 22'			"
304° 35'	38	-13° 50'			"
353° 30'	80	-7° 50'			"
19° 10'	112	-6° 29'			"
10° 0'	128	-6° 24'			"
✓ 349° 15'	140	-1° 11'			Rim { Center is 10' beyond to lower
✓ 356° 15'	92	-2° 25'			
✓ 324° 50'	72	-0° 37'			
✓ 284° 25'	52	-0° 55'			
✓ 289° 10'	110	+1° 19'			
✓ 234° 35'	186	+2° 09'			
✓ 268° 10'	230	+2° 43'			

At F	Elev 185.65	H.I. 190.3			
Ang	Dist	Vert.	Hor. Dist	Elev	Notes
✓ 56° 15'	248	-4° 30'			Rim
✓ 66° 55'	164	-6° 06'			
✓ 63° 25'	122	-7° 30'			Bottom hill
✓ 27° 40'	56	-11° 20'			"
✓ 289° 10'	28	-15° 0'			"
✓ 29° 55'	72	-3° 11'			"
✓ 218° 45'	128	-0° 26'			"
✓ 222° 55'	184	+0° 18'			"
✓ 231° 20'	236	+0° 31'			"
✓ 233° 0'	292	+0° 22'			"
233°	266	+0° 17'			Bottom
251° 20'	226	-0° 55'			"
265° 45'	{ 10.30 200 } 180	-0° 20'			"
282° 15'	{ 7.75 6.00 } 175	-2° 03'			"
302° 30'	{ 5.30 7.00 } 130	-3° 54'			"
332° 20'	{ 7.47 6.00 } 147	-4° 42'			"
349° 10'	158	-5° 43'			"
351° 0'	{ 7.25 8.00 } 135	-8° 19'			"
29° 15'	156	-8° 41'			"
45° 10'	160	-7° 37'			"
53° 20'	250	-5° 27'			"
38° 25'	{ 11.86 9.00 } 286	-4° 27'			"

Ang	Dist	Vert	Hor. Dist	Elev	Notes
✓ 32° 45'	228	-3° 0'			Rim
✓ 34° 20'	256	-3° 28'			"
✓ 19° 55'	174	-3° 47'			"
✓ 354° 10'	162	-3° 10'			"
✓ 330° 05'	178	-2° 38'			"
✓ 314° 35'	172	-1° 58'			"
✓ 293° 05'	182	-1° 25'			Sat. Hill
✓ 278° 50'	194	-0° 21'			"
✓ 260° 35'	218	-0° 17'			"
✓ 259° 0'	<sup>800</sup> 260	+1° 15'			"

alley between Blks 1 + 2  
Crittenden add

	South	+	North
EW 6th St	288.95	288.51	288.87
75 E	89.14	88.76	89.07
50	89.33	89.01	89.27
75	89.51	89.26	89.48
100	89.70	89.50	89.68
175	89.89	89.75	89.88
140	290.00	89.99	290.00
150	290.00	290.00	90.00
160	290.20	89.41	290.00
175	89.11	89.50	89.09
200	87.65	87.57	87.57
225	86.16	85.61	86.06
250	84.14	84.14	84.54
275	83.20	82.68	83.03
300 = W 7th	281.77	281.21	281.51

N

pa  
89.41  
89.50  
89.99



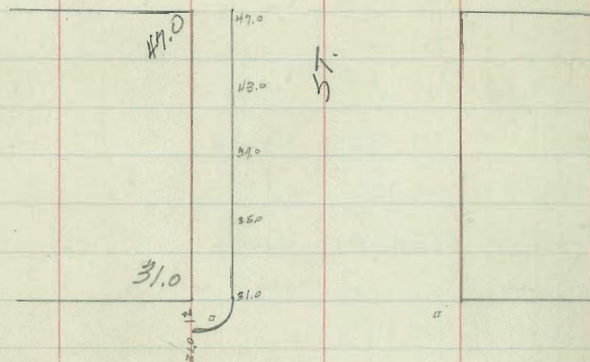
1/7/20

Gregory  
Miller  
Shaw

3/c stakes on  
JUNIPER ST  
PUBLIC CONTRACT

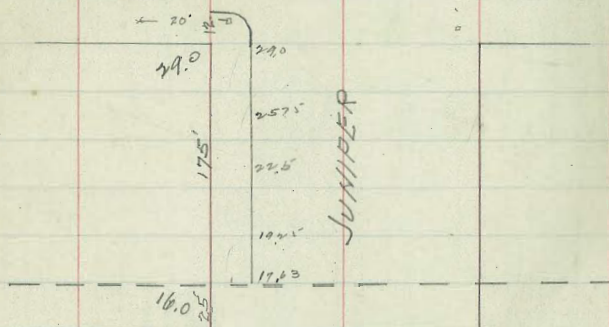
INDIA

ST



ARCTIC

ST



CALIFORNIA

ST

46.87 SW India + Juniper  
~~46.87~~  
~~47.14~~  
~~47.30~~  
 35.00 T.P.  
 4.87  
 35.87

22  
4.87  
25.05  
9.73  
22.5  
12.98  
22.5  
3.40  
25.90  
19.25  
6.65  
17.63  
8.27

269.5	270.5
268.5	269
268.5	269
266.5	267.5

6.5' x 4.8'

5' from trail

Q Quince	268.39	268.49	268.55
	3.87	3.77	3.71

SL Quince	cb=268	268.39	268.49	268.55	cb=2690
-----------	--------	--------	--------	--------	---------

N. Palm	cb=266.5	267.10	267.11	267.12	cb=267.5
---------	----------	--------	--------	--------	----------

11.3' W of L = 06  
2' line →

5' west of L

L of 4th

268.91 NE 4th Quince  

$$\begin{array}{r} 335 \\ 272.26 \end{array}$$

387  

$$\begin{array}{r} 387 \\ 268.29 \end{array}$$

267.12  

$$\begin{array}{r} 514 \\ 267.12 \\ \hline 268.89 \\ \hline 511 \\ 267.16 \end{array}$$



4 } Davis  
 4 } Moore  
 19 } Folke

Levels over Water Main on Turquoise St

	10.34	91.17		80.83	
650' W of Allison			6.90	84.27	
550 " "			3.28	87.89	
T.P.	11.74	102.65	0.26	90.91	
450 " "			11.66	91.00	
350 " "			8.89	93.76	
250 " "			6.26	96.39	
150 " "			5.07	97.58	
50 " "			3.35	99.30	
T.P.	11.87	114.02	0.50	102.15	
8' W of E. Allison			11.50	102.48	
W. end bridge			8.70	105.32	
E " "			7.90	106.12	
600' W Bayard			9.35	104.67	
500 " "			5.80	108.22	
T.P.	9.69	123.54	0.17	113.85	
400 " "			11.63	111.91	
300 " "			8.48	115.06	
200 " "			4.76	118.78	
100 " "			1.63	121.91	
T.P.	11.53	134.95	0.12	123.42	
W.L. Bayard			10.60	124.35	
		Cor Mt. 134.92	6.55	128.40	128.37
300' W Cass			8.49	124.43	
200 " "			5.87	129.05	
28231 P.T			19.9	132.93	

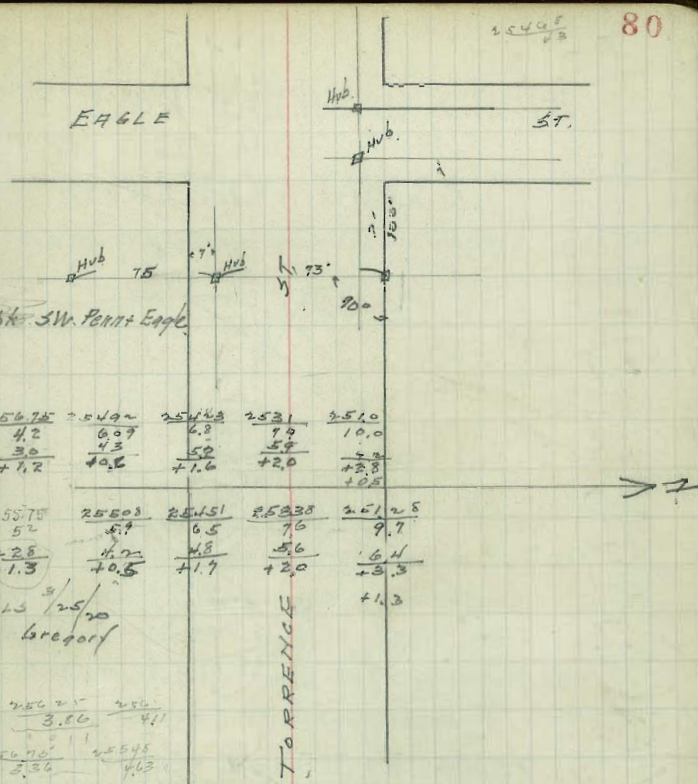
Levels over Water Main on Cass St

	598	131.80		125.82	
100' W Sapphire			4.55	127.25	
N.L. "			8.60	123.20	
	1.96	115.23		113.27	
N.L. Tourmaline			393	111.30	
S.L. "			6.39	108.84	
200' W Hypocenthy			8.20	107.03	
100 " "			10.92	104.31	



TORRENCE ST  
GRADES

El. Eagle	256.5	256.25	256.0	256.25
+ 50	257.0	256.75	256.5	256.75
1+00		256.0	255.75	256.0
1+25		255.48	255.23	255.48
1+50		254.68	254.43	254.68
1+75		253.61	253.36	253.61
1+80		253.34	253.09	253.34
2+00		252.25	252.0	252.25



254.90 spt. SW. Penn + Eagle  
 $\frac{8.11}{261.01 HI}$

256.25	256.75	254.90	254.68	253.1	251.0
4.75	4.2	6.97	6.8	7.9	10.0
4.55	3.0	4.3	5.2	5.7	2.2
+9.2	+7.2	+0.8	+1.6	+2.0	+2.8
256.25	255.75	255.03	254.51	253.33	251.25
4.7	5.75	5.7	6.5	7.0	7.7
4.4	+2.5	4.0	4.8	5.6	6.4
+0.3	+1.3	+0.5	+1.7	+2.0	+3.3
					+1.3

CUTS + FILLS 3/25/20  
 Gregory

254.90	256.25	256.0
8.11	3.06	4.1
260.11		

256.75	255.48
2.36	4.03

255.48	254.68
4.76	5.92

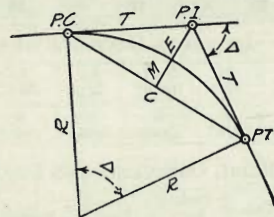
254.68	253.34
6.77	5.98

254.90  
 8.11  
 260.11

ENGINEERING DEPARTMENT,  
 CITY OF SAN DIEGO,  
 CALIFORNIA.

# DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

Copyright, 1914, by Eugene Dietzgen Co., New York City



## CURVE FORMULAS

Radius= $R = \frac{50}{\sin. \frac{D}{2}}$  (1) Degree of Curve= $D$  and  $\sin. \frac{D}{2} = \frac{50}{R}$  (2)

Tangent= $T = R \tan \frac{\Delta}{2}$  (3) Length of Curve= $L = 100 \frac{\Delta}{D}$  (4)

Middle ordinate= $M = R(1 - \cos. \frac{\Delta}{2})$  (5)  $= R \text{vers} \frac{\Delta}{2}$  (6)

External= $E = T \tan \frac{\Delta}{4}$  (7)  $= R \cos \frac{\Delta}{2} (1 - \cos. \frac{\Delta}{2})$  (8)  $= R \text{exsec} \frac{\Delta}{2}$  (9)

Long Chord= $C = 2 R \sin. \frac{\Delta}{2}$  (10)  $\Delta =$  Central Angle

## EXPLANATION AND USE OF TABLES

**Stations.**—Given P. I.=Sta. 161+60.35 to find Sta. of P. C. and P. T.  $\Delta=62^\circ 10'$   $D=8^\circ 20'$ . From Table IV for  $1^\circ$  curve  $T=3454.1$  and  $\div 8\frac{1}{3}=414.49$  ft. From Table V correction=.36 or  $T=414.85$  ft. P. C.=Sta. P.I.— $T=157+45.50$ . Also from (4)  $L=746.00$  and P. T.=Sta. P. C. + $L=164+91.50$ .

**Offsets.**—Tangent offsets vary (approximately) directly with  $D$  and with square of the distance. Thus tangent offset for Sta. 158 on above curve is 2.16 ft. found as follows. From Table III tangent offset for 100 ft.=7.27 ft. Distance=158—Sta. P. C.=54.50, hence offset= $7.27 (54.50 \div 100)^2=2.16$  ft. Also square of any distance divided by twice the radius equals (approximately) the distance from tangent to curve. Thus  $(54.50)^2 \div (2 \times 688.26)=2.16$  ft.

**Deflections.**—Deflection angle= $\frac{1}{2} D$  for 100 ft.,  $\frac{1}{4} D$  for 50 ft., etc. For  $c$  ft.=(in minutes)  $.3 \times C \times D^\circ$  or=defl. for 1 ft. from Table III  $\times C$ . For Sta. 158 of above curve= $.3 \times 54.5 \times 8\frac{1}{3}=136.2'$  or  $2^\circ 16.2'$ , or= $2.50 \times 54.5=136.2'$  from Table III. For Sta. 159 deflection angle= $2^\circ 16.2' + 8^\circ 20' \div 2=6^\circ 26.2'$ , etc.

**Externals.**—May be found in similar manner to tangents. Thus  $E$  for curve above is 91.37. For from Table IV for  $1^\circ$  curve  $E=960.6$  for  $8^\circ 20'=960.6 \div 8\frac{1}{3}=91.27$  and from Table V correction=.10 or  $E=91.37$  ft. Or suppose  $\Delta=32^\circ$  and  $E$  is measured and found to be 42 ft. What is  $D$ ? From Table IV  $E=230.9$  and  $\div 42=5.5$  or  $D=5^\circ 30'$ .

Sta 16+00 No 4 B.R. City

35.84 W - 35.37 C

Sta 8+00

32.95 W 31.82 E

N.L. B.R. City

37.20 W 36.77 E

23+00 46 337.8 W 29.4 E N.L. B.R. City 22+00

57600  
200

180  
40  
700

180  
30  
200

16  
24  
120

5  
17.3

300  
2  
666  
110  
2790  
300  
43  
999  
1332  
10214

57  
57  
349  
255  
3219

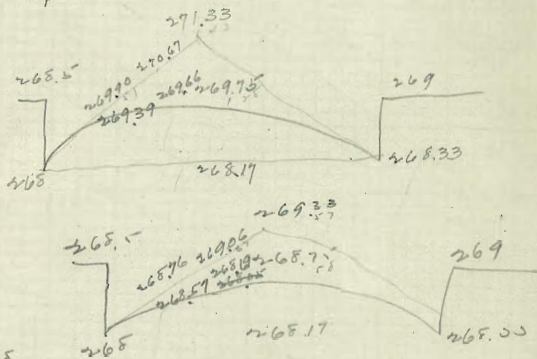
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.64  
1.58  
64  
948  
10112

133  
2  
266

2.58  
64  
948  
10112

55  
30  
156  
174  
186

232  
57



96.48  
1.95  
98.43

99.12  
9.32  
102  
17.41  
72  
97.71  
936  
481

96.48  
21  
96.77

4.50  
11.97  
82.73  
8.04

No

4450 1.55 95.22

5400 3.12 93.65

5750 4.10 91.97

6400 6.48 90.29

6700 8.22 88.49

7170 10.06 86.49

7770 12.06 84.15

8495 14.27 81.15

9270 16.68 77.15

10100 19.28 71.15

10980 22.07 64.15

11910 25.05 56.15

12890 28.22 47.15

13920 31.58 37.15

15000 35.13 27.15

16140 38.87 17.15

17340 42.80 7.15

18600 46.92 0.15

20000 51.23 0.00

21540 55.73 0.00

23240 60.42 0.00

25100 65.30 0.00

27130 70.37 0.00

29340 75.63 0.00

31740 81.08 0.00

34340 86.72 0.00

37150 92.55 0.00

40180 98.57 0.00

43440 104.78 0.00

46940 111.18 0.00

50680 117.77 0.00

54670 124.54 0.00

58920 131.48 0.00

63440 138.59 0.00

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8495  
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77.15

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71.15

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64.15

11910  
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56.15

12890  
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13920  
31.58  
37.15

15000  
35.13  
27.15

16140  
38.87  
17.15

17340  
42.80  
7.15

18600  
46.92  
0.15

19920  
51.23  
0.00

21300  
55.73  
0.00

22740  
60.42  
0.00

12690  
12.06  
84.15

13920  
14.27  
81.15

15210  
16.68  
77.15

16560  
19.28  
71.15

17970  
22.07  
64.15

19440  
25.05  
56.15

20970  
28.22  
47.15

22560  
31.58  
37.15

24210  
35.13  
27.15

25940  
38.87  
17.15

27750  
42.80  
7.15

29640  
46.92  
0.15

31610  
51.23  
0.00

33660  
55.73  
0.00

35790  
60.42  
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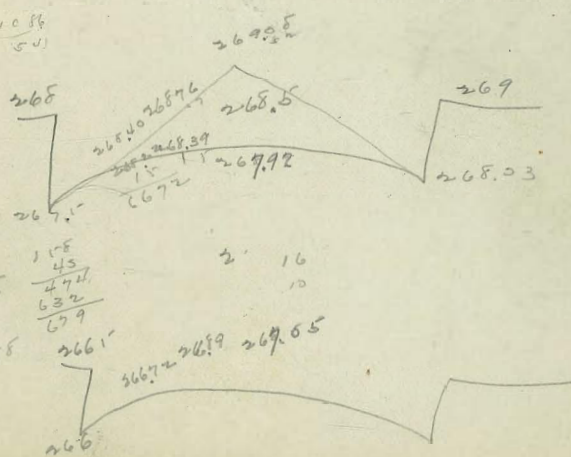
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5607

2689

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269.05

45  
3.10

91.02

89.47

87.92

86.37

84.82

83.27

81.72

80.17

78.62

77.07

75.52

73.97

72.42

70.87

70.87

51.22 Spr pole S.E Westbourne

U.P. 86 Plyr. North Gravello

Colonia Sw man 77.60

St. N. line - 73.25

Cross & grand 17.80

Allison + Garnet NW Man

37.3

37.3

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4.4

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

Roadway 16 feet wide. Side Slopes 1 on 1 1/2. For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.2	8.3	8.5	8.6	8.8	8.9	9.1	9.2	9.4	0
1	9.5	9.7	9.8	10.0	10.1	10.3	10.4	10.6	10.7	10.9	1
2	11.0	11.2	11.3	11.5	11.6	11.8	11.9	12.1	12.2	12.4	2
3	12.5	12.7	12.8	13.0	13.1	13.3	13.4	13.6	13.7	13.9	3
4	14.0	14.2	14.3	14.5	14.6	14.8	14.9	15.1	15.2	15.4	4
5	15.5	15.7	15.8	16.0	16.1	16.3	16.4	16.6	16.7	16.9	5
6	17.0	17.2	17.3	17.5	17.6	17.8	17.9	18.1	18.2	18.4	6
7	18.5	18.7	18.8	19.0	19.1	19.3	19.4	19.6	19.7	19.9	7
8	20.0	20.2	20.3	20.5	20.6	20.8	20.9	21.1	21.2	21.4	8
9	21.5	21.7	21.8	22.0	22.1	22.3	22.4	22.6	22.7	22.9	9
10	23.0	23.2	23.3	23.5	23.6	23.8	23.9	24.1	24.2	24.4	10
11	24.5	24.7	24.8	25.0	25.1	25.3	25.4	25.6	25.7	25.9	11
12	26.0	25.2	26.3	26.5	26.6	26.8	26.9	27.1	27.2	27.4	12
13	27.5	27.7	27.8	28.0	28.1	28.3	28.4	28.6	28.7	28.9	13
14	29.0	29.2	29.3	29.5	29.6	29.8	29.9	30.1	30.2	30.4	14
15	30.5	30.7	30.8	31.0	31.1	31.3	31.4	31.6	31.7	31.9	15
16	32.0	32.2	32.3	32.5	32.6	32.8	32.9	33.1	33.2	33.4	16
17	33.5	33.7	33.8	34.0	34.1	34.3	34.4	34.6	34.7	34.9	17
18	35.0	35.2	35.3	35.5	35.6	35.8	35.9	36.1	36.2	36.4	18
19	36.5	36.7	36.8	37.0	37.1	37.3	37.4	37.6	37.7	37.9	19
20	38.0	38.2	38.3	38.5	38.6	38.8	38.9	39.1	39.2	39.4	20
21	39.5	39.7	39.8	40.0	40.1	40.3	40.4	40.6	40.7	40.9	21
22	41.0	41.2	41.3	41.5	41.6	41.8	41.9	42.1	42.2	42.4	22
23	42.5	42.7	42.8	43.0	43.1	43.3	43.4	43.6	43.7	43.9	23
24	44.0	44.2	44.3	44.5	44.6	44.8	44.9	45.1	45.2	45.4	24
25	45.5	45.7	45.8	46.0	46.1	46.3	46.4	46.6	46.7	46.9	25
26	47.0	47.2	47.3	47.5	47.6	47.8	47.9	48.1	48.2	48.4	26
27	48.5	48.7	48.8	49.0	49.1	49.3	49.4	49.6	49.7	49.9	27
28	50.0	50.2	50.3	50.5	50.6	50.8	50.9	51.1	51.2	51.4	28
29	51.5	51.7	51.8	52.0	52.1	52.3	52.4	52.6	52.7	52.9	29
30	53.0	53.2	53.3	53.5	53.6	53.8	53.9	54.1	54.2	54.4	30
31	54.5	54.7	54.8	55.0	55.1	55.3	55.4	55.6	55.7	55.9	31
32	56.0	56.2	56.3	56.5	56.6	56.8	56.9	57.1	57.2	57.4	32
33	57.5	57.7	57.8	58.0	58.1	58.3	58.4	58.6	58.7	58.9	33
34	59.0	59.2	59.3	59.5	59.6	59.8	59.9	60.1	60.2	60.4	34
35	60.5	60.7	60.8	61.0	61.1	61.3	61.4	61.6	61.7	61.9	35
36	62.0	62.2	62.3	62.5	62.6	62.8	62.9	63.1	63.2	63.4	36
37	63.5	63.7	63.8	64.0	64.1	64.3	64.4	64.6	64.7	64.9	37
38	65.0	65.2	65.3	65.5	65.6	65.8	65.9	66.1	66.2	66.4	38
39	66.5	66.7	66.8	67.0	67.1	67.3	67.4	67.6	67.7	67.9	39
40	68.0	68.2	68.3	68.5	68.6	68.8	68.9	69.1	69.2	69.4	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 41.9. For same slopes but other widths of roadbed correct above figures by one-half difference in width of roadbed; thus in example above for 20 ft. roadbed distance will be 41.9 + (20 - 16) ÷ 2 or 2 ft. added to 41.9 = 43.9. For slopes of 1 on 1 see inside of front cover.