NOTE!
Resurface existing Road where damaged by the installation of Culverts ect., with Asphalt Conc. Curbs and Sidewalks damaged shall be replaced with Class "A-1" Conc.

Sta. 26+05.62

F I S H P O N D

B L R M S

Low ground under water during rains.

℄ CURVE DATA
Δ = 40°-00'
R = 137.37'
T = 50.00'
Lc = 95.90'

Approximate edge of pond during heavy rains.

True North

Scale: 1"=100'

25

147°-00'

END OF DITCH Sta. 21+53.72

EQUATION - 35.96

END OF ROAD Sta. 20+09.72

45.00

20

187°-00'

Exist. Fence

Install 4-36" Cir. Conc. Culverts 56' long - 2 CHW

Sta. 19+50

CONSTRUCT PAVED DITCH

Sta. 16+92.78

Sta. 16+52.82

WAREHOUSE LAND

MARKET

Existing 36" Conc. Culvt. Conc. HW

EL RANCHO

Const. lined ditch 146' long ± - See Details.

Exist. 2x4 Box Culvt. Inv. = 4.62'

Exist. Open Ditch

Inv. 6.72'

Inv. 3.17

R=25'

R=25'

30

95

45'

45'

131°-45'

To Honolulu

105

Existing 24" Conc. Pipe Culvert

LUNALILO HOME ROAD

CARNATION GARDEN

CURVE DATA ℄ DITCH
Δ = 38°-30'
R = 1964.86
T = 686.16
Lc = 1320.29

Remove portion of existing CRM Paving as necessary for Const. of new Ditch.

Construct CRM Paved Inlet

To Honolulu Bay

Existing 4'x8' Conc. Box Culvt.

℄ Existing Ditch

Existing 12" Conc. Culvt.

Existing 24" Conc. Culvt.

4+15

PC Sta. 1+40

Inv. = ±4.55'

Sta. 0+00 is offset 55' to the left of Sta. 16+93.82

Install 2-48" Cir. Conc. Pipe Culvts. 24' long.

110

10

Existing CRM Paving.

Construct CRM Paved Inlets

NOTE!
Provide CRM Paved Inlets as directed by the Resident Engr.

℄ Existing Ditch

Existing R/W

℄ New Ditch

New R/W

15

Sta. 17+93 ± to Sta. 20+10 ± Construct Dirt Road with easy riding connection to Existing Pavt.

Remove Existing 18" Cir. Conc. Culvert and Install 24" Cir. Conc. Pipe Culvert - 72' long.

Inv.= 2.0'

PT Sta. 14+00

Sta. 13+50

CONSTRUCT PAVED DITCH

PLAN
SURVEYED
PLOTTED
NOTE BOOK
NO.
BY
DATE
ALIGNMENT CHECKED
RT. OF WAY CHECKED

See:
Sheets 5451.8, .9, .10 for cross sections
Sheet 5451.7 for typical sections & pipe culvt details

56.2
45.9
35.1
34.5
29.0
22.0
16.0
13.0
5.0
2.0
1.8
1.3

-3.5%
-4.3%
-1.2%
-5.5%
-7.0%
-3.4%
-3.9%
-5.0%
-0.56%
-0.12%

Sta. 11+43.97

Sta. 21+59.72

Install 2-48" Cir. Conc. Pipe Culvts. - Inv. = 45.9'

Profile of ground at ℄ Ditch

EQUATION

Profile of Grade at ℄ Ditch

Install 4-36" Cir. Conc. Pipe Culverts - Inv. = 2.0'

PROFILE
SURVEYED
PLOTTED
NOTE BOOK
NO.
BY
DATE
GRADES CHECKED
B. MS. NOTED
STRUCTURE NOTATIONS CHKD

70 60 50 40 30 20 10 0

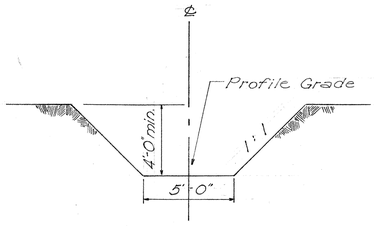
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

PLATE 1—PLAN—PROFILE O. P. R. & R. E. STANDARD
KEUFFEL & ESSER CO. NEW YORK

K & E CO. No. 345-1 MADE IN U.S.A.

5451.6

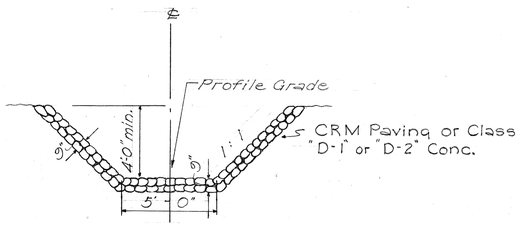
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS



TYPICAL SECTION

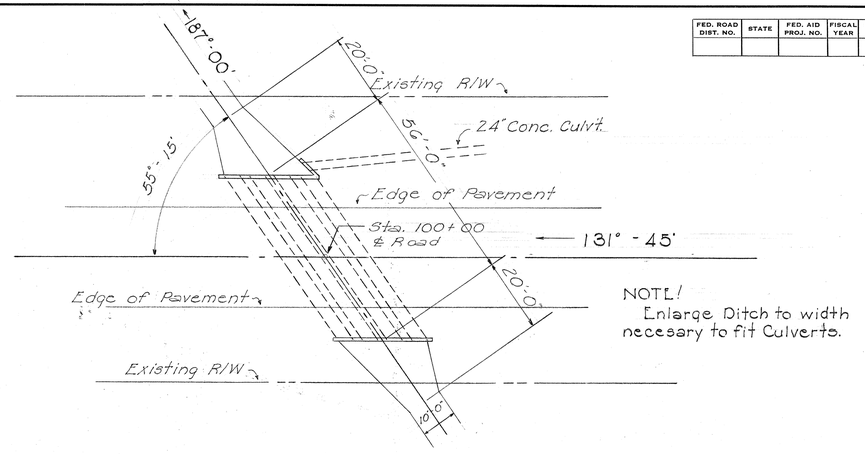
Sta. 0+00 to Sta. 11+93.27 ±

Scale: 1/4" = 1'-0"



DETAIL OF PAVED DITCH

Scale: 1/4" = 1'-0"



NOTE!
Enlarge Ditch to width necessary to fit Culverts.

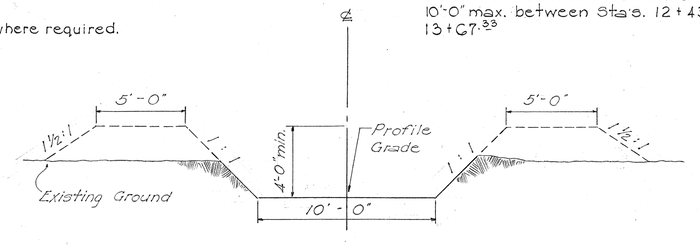
LAYOUT PLAN

36" Concrete Pipe Culverts

Scale: 1" = 20'-0"

NOTE! Berm where required.

NOTE!
Bottom of Ditch varies from 5'-0" min. to 10'-0" max. between Sta's. 12+43.27 ± and 13+67.35



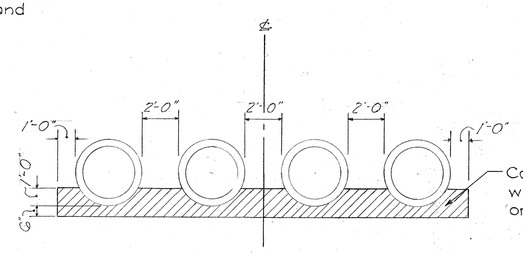
TYPICAL SECTION

Sta. 12+43.27 ± to Sta. 17+25.64 ±

Sta. 17+81.64 ± to Sta. 20+09.72 ±

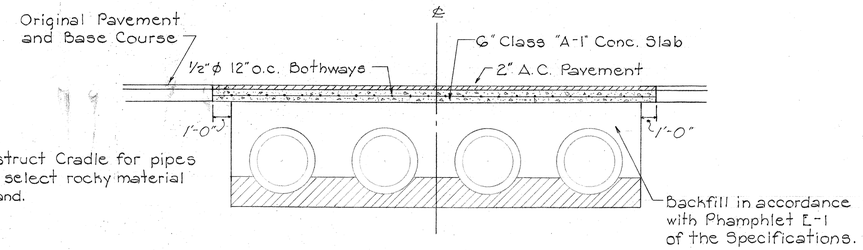
Scale: 1/4" = 1'-0"

NOTE!
CRM Paving required for this section shall be as shown in Detail of CRM Paving except for the bottom width which will be as shown in the Typical Section.



DETAIL OF CRADLE FOR CULVERTS

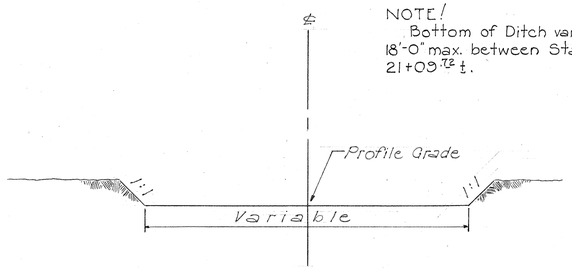
Scale: 1/4" = 1'-0"



DETAIL OF TRENCH BACKFILL AND PAVEMENT REPAIR

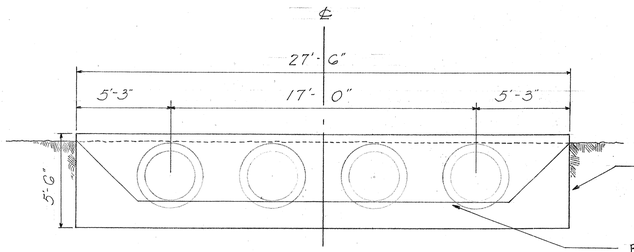
Scale: 1/4" = 1'-0"

NOTE!
Bottom of Ditch varies from 10'-0" min. to 18'-0" max. between Sta's. 20+09.72 ± and 21+09.72 ±.



TYPICAL SECTION

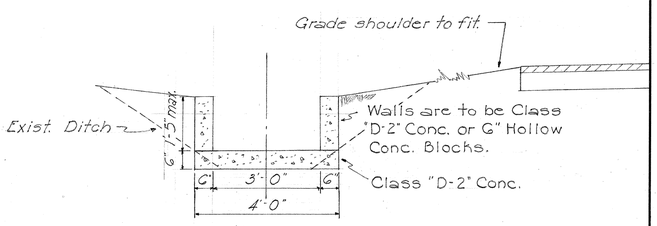
Scale: 1/4" = 1'-0"



TYPICAL SECTION

36" Concrete Pipe Culverts

Scale: 1/4" = 1'-0"



DETAIL OF LINED DITCH

Scale ½" = 1'-0"

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DESIGNED BY	
	DRAWN BY	
	TRACED BY	
NOTE BOOK	QUANTITIES BY	
No.	QUANTITIES CHECKED BY	
	CHECKED BY	

TERRITORIAL HIGHWAY DEPARTMENT

TERRITORY OF HAWAII

TYPICAL SECTIONS & PIPE CULVERT DETAILS

KALANIANAOLE HIGHWAY

Scale: As shown. Oct. 20, 1949

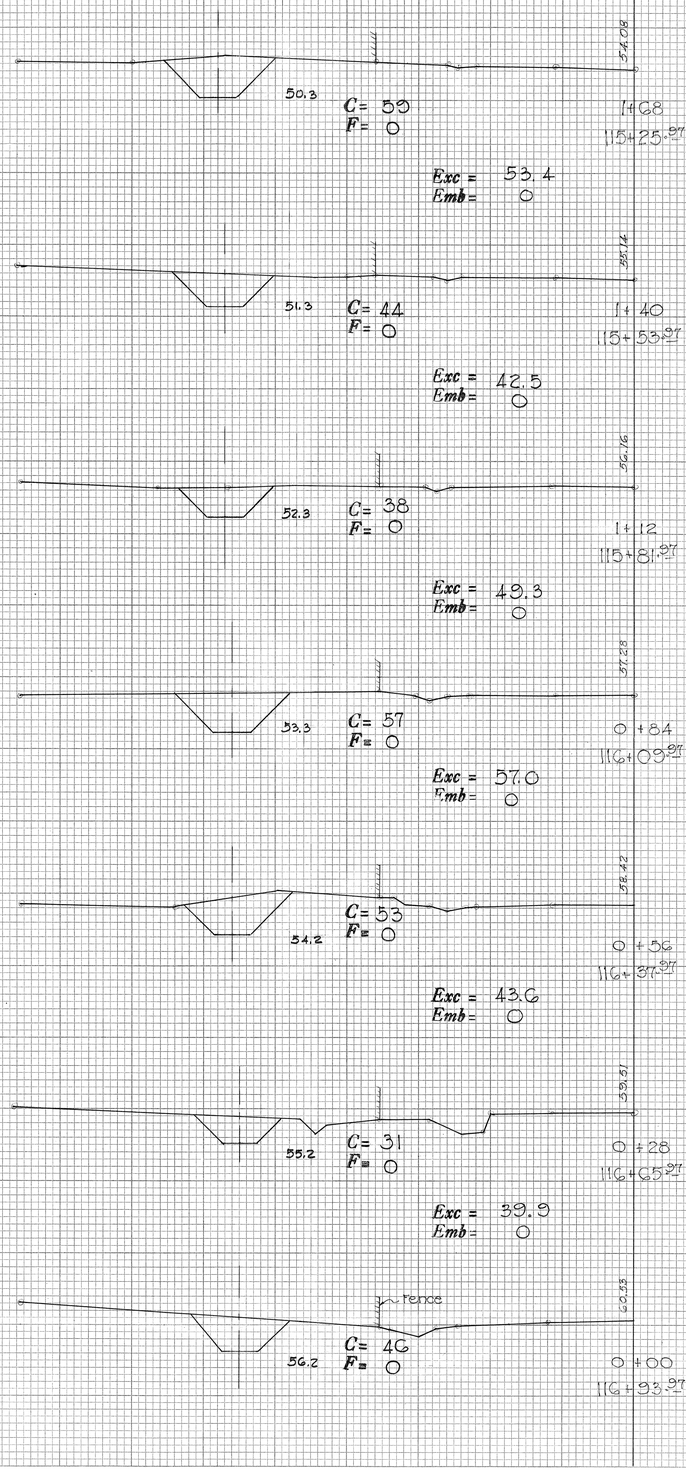
SHEET No. OF SHEETS

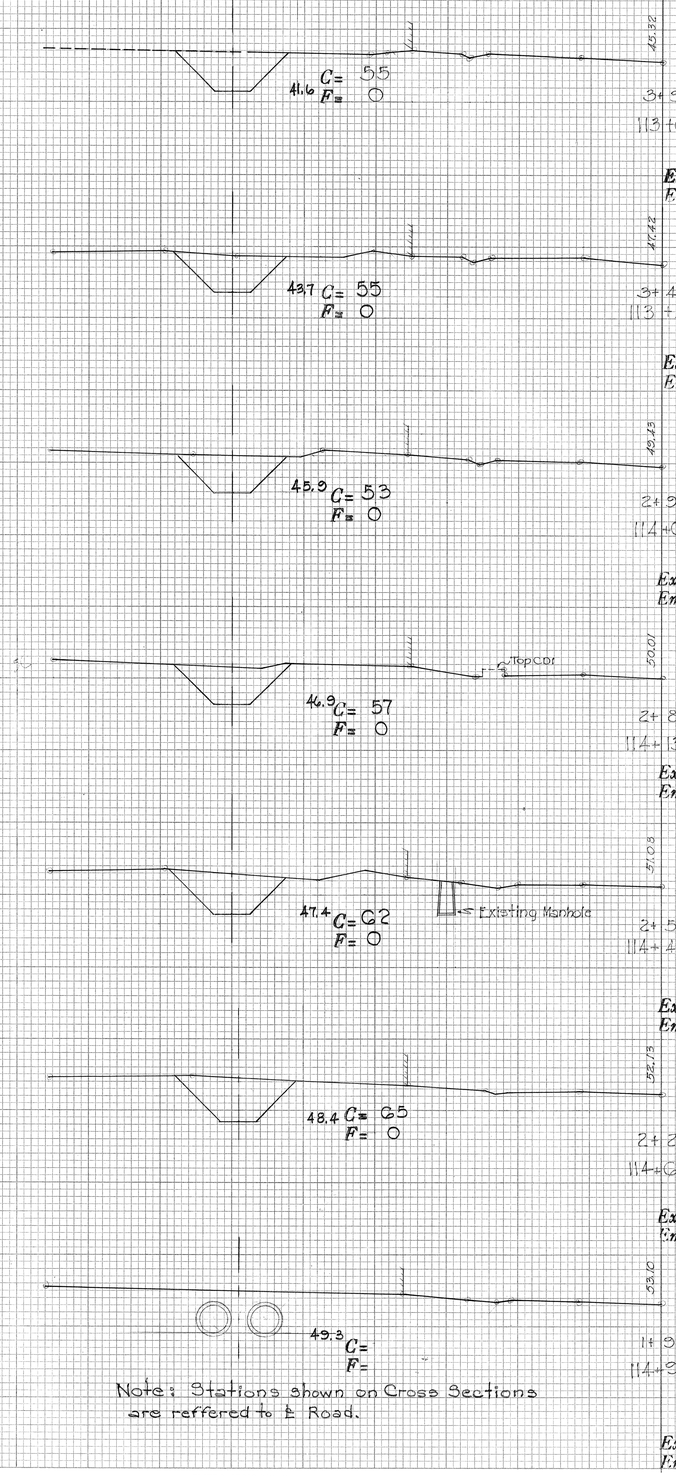
5451.7

"R.K." No. 1987 K & E CO., N.Y. U.S.A.

FINAL SURVEY — SURVEYED BY, PLOTTED, TEMPLATE, AREAS, AREAS CHECKED — NOTE BOOK, NO. — DATE, BY

ORIGINAL SURVEY — SURVEYED BY, PLOTTED, TEMPLATE, AREAS, AREAS CHECKED — NOTE BOOK, NO. — DATE, BY





Note: Stations shown on Cross Sections are reffered to ℄ Road.

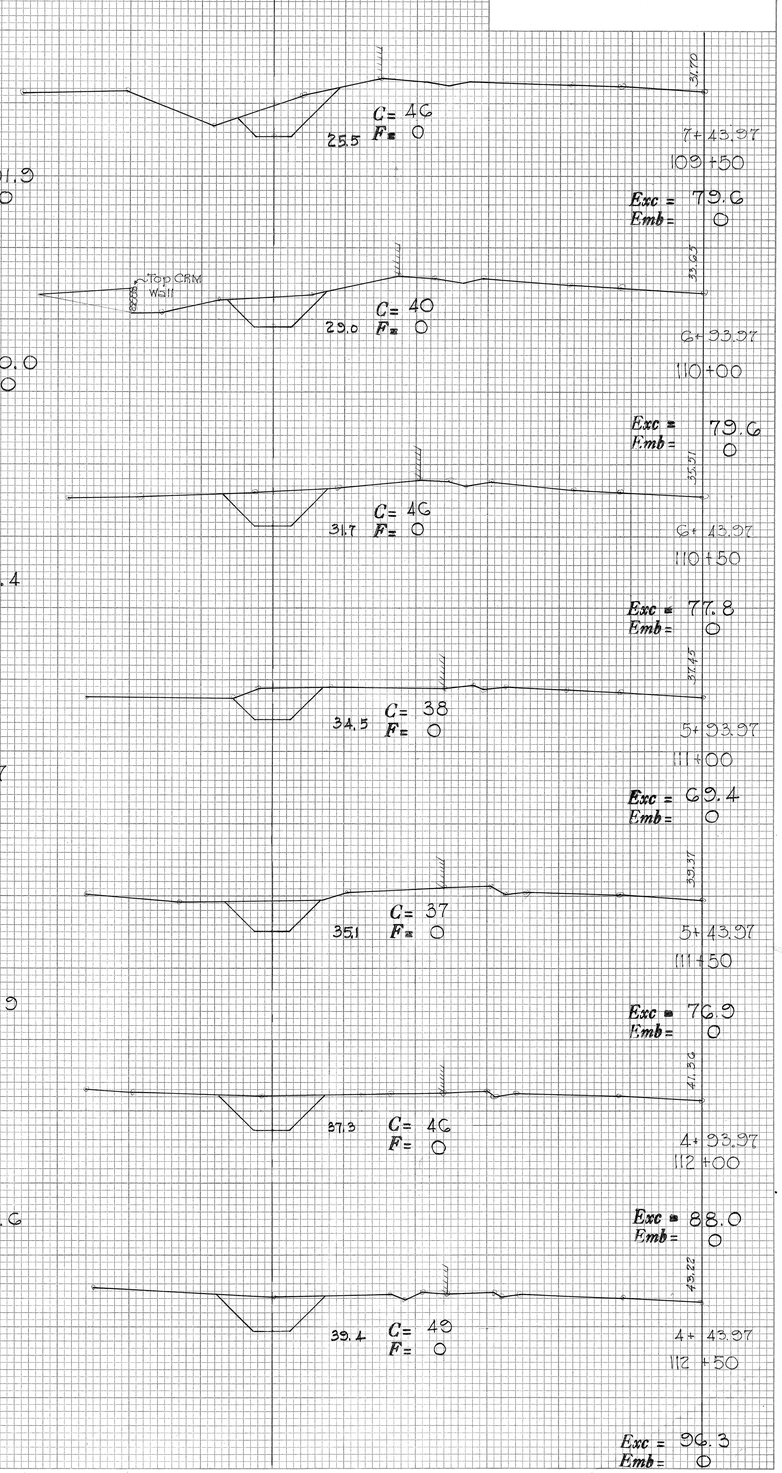


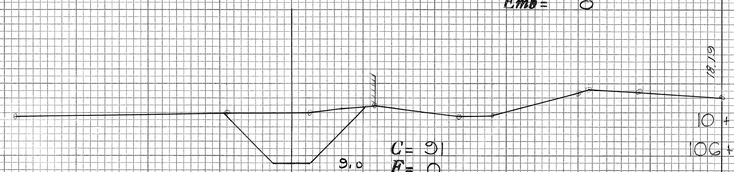
PLATE 3 - CROSS SECTION O. P. R. & R. E. STANDARD
KEUFFEL & ESSER CO., NEW YORK.
K & E CO. No. 345-3 MADE IN U.S.A. 44765 3

5451.8

FINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, AREAS, AREAS CHECKED, NOTE BOOK, NO., BY, DATE

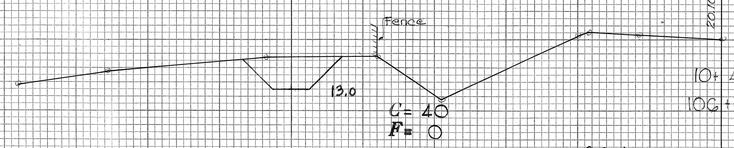
ORIGINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, AREAS, AREAS CHECKED, NOTE BOOK, NO., BY, DATE

Exc = 122.2
Emb = 0



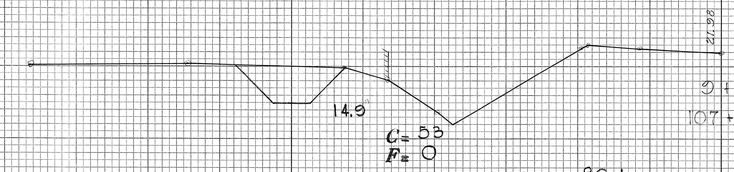
10+93.37
106+00

Exc = 121.3
Emb = 0



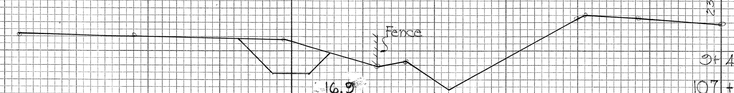
10+43.37
106+50

Exc = 86.1
Emb = 0



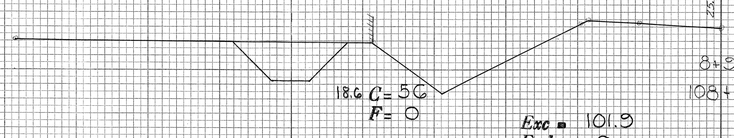
9+93.37
107+00

Exc = 86.1
Emb = 0



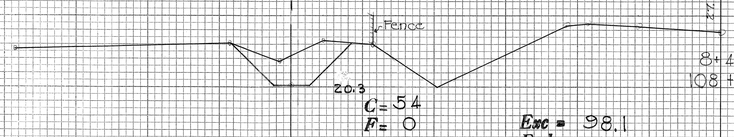
9+43.37
107+50

Exc = 88.9
Emb = 0



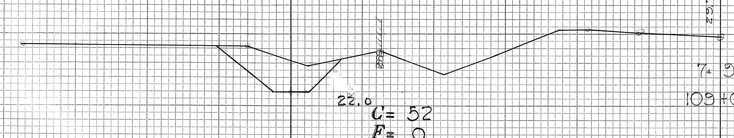
8+93.37
108+00

Exc = 101.9
Emb = 0



8+43.37
108+50

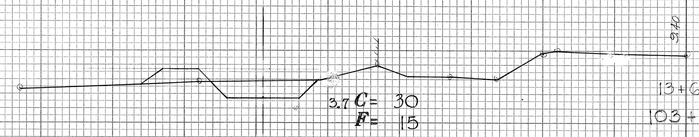
Exc = 98.1
Emb = 0



7+93.37
109+00

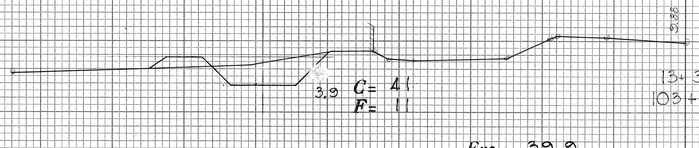
Exc = 90.7
Emb = 0

Exc = 29.0
Emb = 21.3



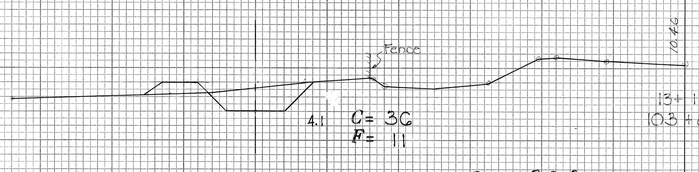
13+67.33
103+26.64

Exc = 36.8
Emb = 13.5



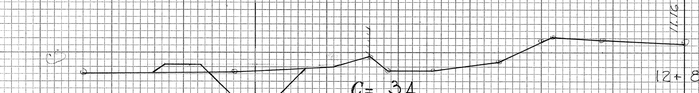
13+39.33
103+54.64

Exc = 39.9
Emb = 11.4



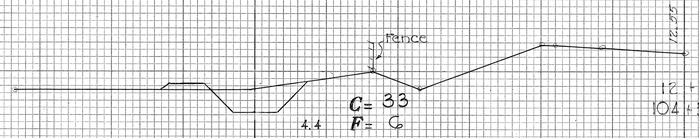
13+11.33
103+82.64

Exc = 36.3
Emb = 10.9



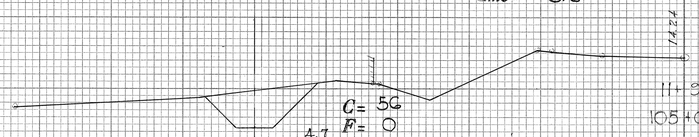
12+83.33
104+10.64

Exc = 48.8
Emb = 11.7



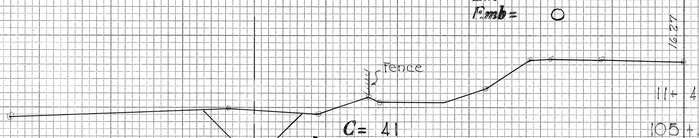
12+43.97
104+50

Exc = 82.4
Emb = 5.6

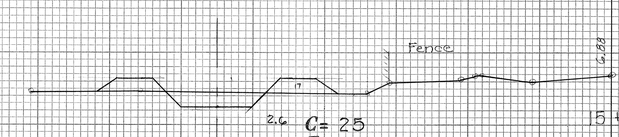


11+93.37
105+00

Exc = 89.8
Emb = 0

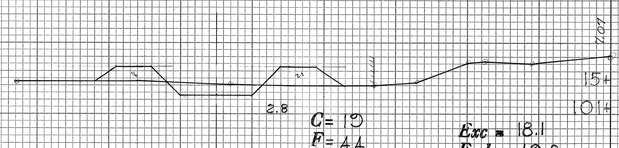


11+43.37
105+50



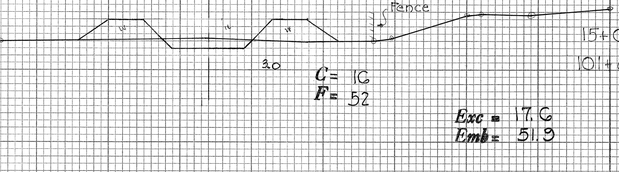
15+63.33
101+31.64

Exc = 22.8
Emb = 38.9



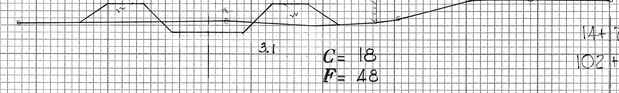
15+35.33
101+58.64

Exc = 18.1
Emb = 49.8



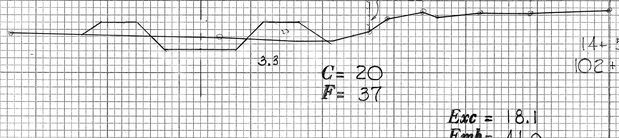
15+07.33
101+86.64

Exc = 17.6
Emb = 51.9



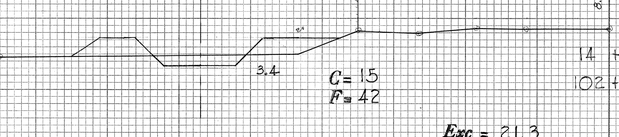
14+79.33
102+14.64

Exc = 19.7
Emb = 44.1



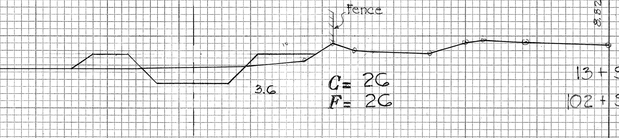
14+51.33
102+42.64

Exc = 18.1
Emb = 41.0



14+23.33
102+70.64

Exc = 21.3
Emb = 35.3



13+95.33
102+98.64

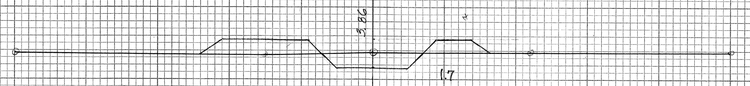
PLATE 3 - CROSS SECTION O.P.R.&R.E. STANDARD
KEUFFEL & ESSER CO., NEW YORK.
K & E CO. No. 345-3 MADE IN U.S.A. 44788 x

5451.9

FINAL SURVEY — NOTE BOOK NO. — SURVEYED, PLOTTED, TEMPLATE, AREAS, AREAS CHECKED — BY — DATE

ORIGINAL SURVEY — NOTE BOOK NO. — SURVEYED, PLOTTED, TEMPLATE, AREAS, AREAS CHECKED — BY — DATE

Exc = 83.3
Emb = 140.7



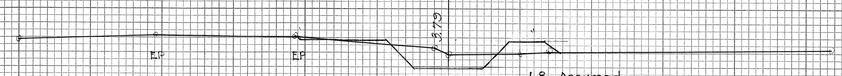
18+59.72 **C** = 25
F = 45

Exc = 53.7
Emb = 76.9



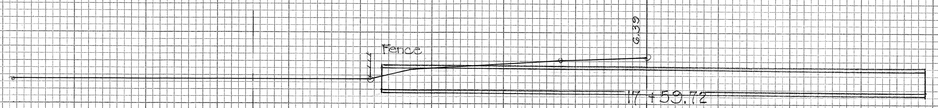
18+09.72 **C** = 33
F = 38

Exc = 18.7
Emb = 15.4



17+93.72 **C** = 30
F = 14

Exc = 132.2
Emb = 146.0



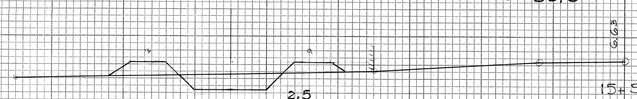
100+00 **C** =
F =

Exc =
Emb =



16+44.97
100+50 **C** = 18
F = 39

Exc = 43.5
Emb = 59.3



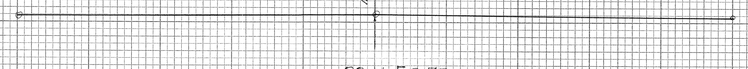
15+94.97
101+00 **C** = 29
F = 25

Exc = 31.6
Emb = 32.8

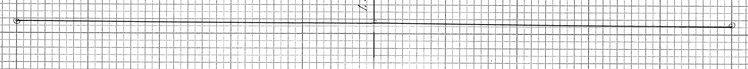
Note: Stations shown on Cross Sections are reffered to ℄ Road.



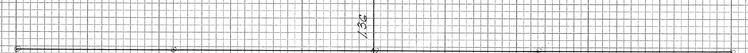
23+59.72



22+59.72

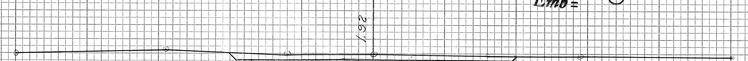


22+09.72



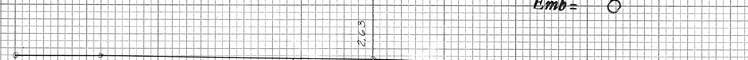
21+59.72 **C** = 0
F = 0

Exc = 35.2
Emb = 0



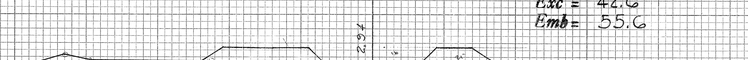
21+09.72 **C** = 38
F = 0

Exc = 63.0
Emb = 0



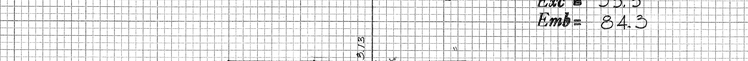
20+59.72 **C** = 30
F = 0

Exc = 42.6
Emb = 55.6



20+09.72 **C** = 16
F = 60.0

Exc = 33.3
Emb = 84.3



C = 20
F = 31

19+59.72

Total Exc. = 3,152.8 c.y.
Total Emb. = 946.4 c.y.

PLATE 3 - CROSS SECTION O. P. R. & R. E. STANDARD
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