FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW	F6(18)	1954	67	79

WAILUPE TRUNK SEWER

SECTION II

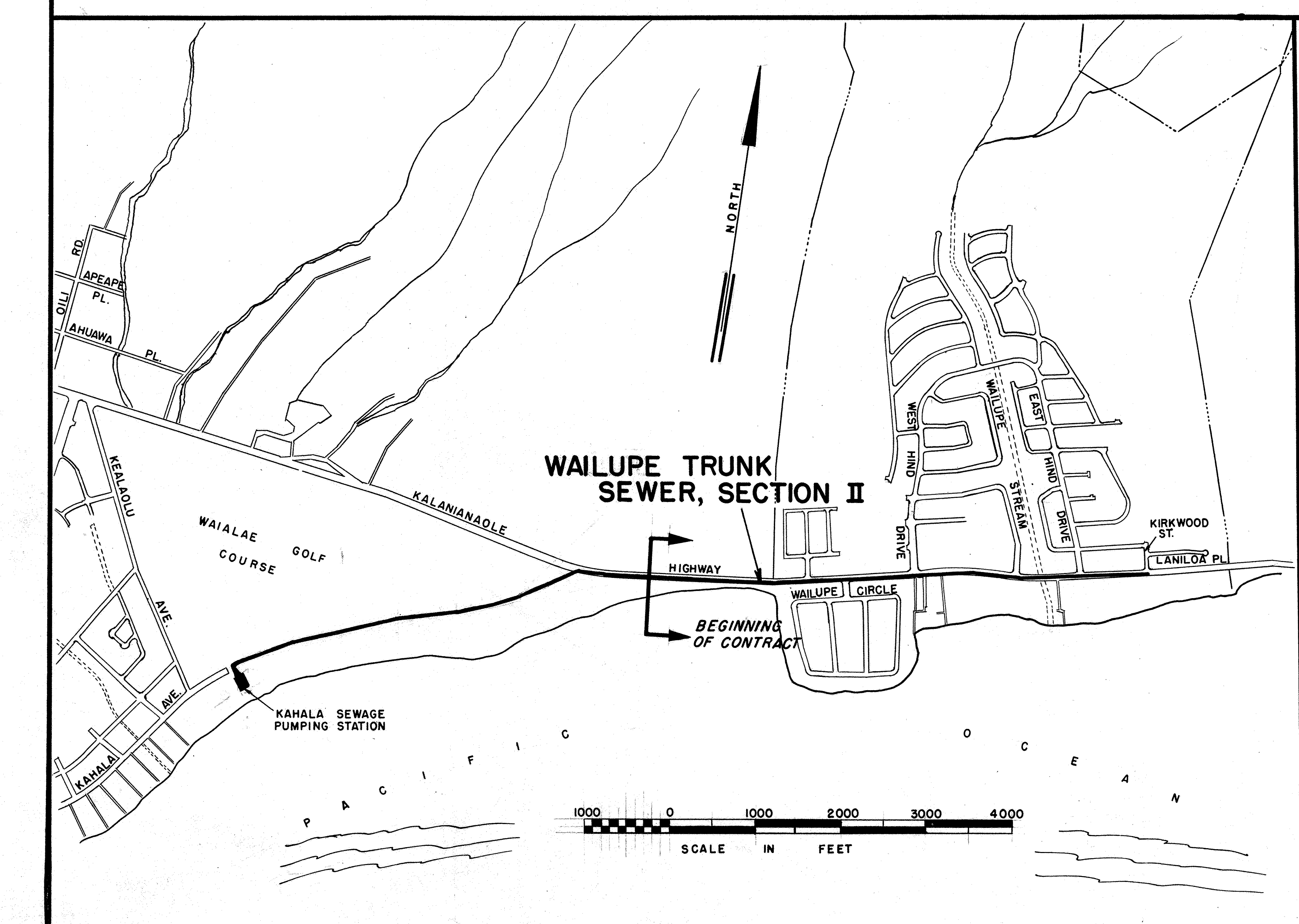
(FROM M.H. #25 STATION 62 + 38 TO KIRKWOOD PLACE)

THESE PLANS WERE PREPARED BY THE

DEPARTMENT OF PUBLIC WORKS

CITY AND COUNTY OF HONOLULU

DIVISION OF SEWERS


OILI RD.
APEAPE PL.
AHUAWA PL.
KEALAOLU AVE.
KAHALA AVE.
WAIALAE GOLF COURSE
KALANIANAOLE HIGHWAY
NORTH
WAILUPE TRUNK SEWER, SECTION II
BEGINNING OF CONTRACT
KAHALA SEWAGE PUMPING STATION
WAILUPE CIRCLE
WEST HIND DRIVE
WAILUPE STREAM
EAST HIND DRIVE
KIRKWOOD ST.
LANILOA PL.
PACIFIC OCEAN
1000 0 1000 2000 3000 4000
SCALE IN FEET

APPROVED:

Wm. C. Vannatta — Oct. 4, 1954
REGISTERED PROFESSIONAL ENGINEER No. 286, HAWAII — DATE
DEPARTMENT OF PUBLIC WORKS
CITY & COUNTY OF HONOLULU, T. H.

Franklin Y. K. Sunn — Oct. 4, 1954
REGISTERED PROFESSIONAL ENGINEER No. 531, HAWAII — DATE
DIVISION OF SEWERS
CITY & COUNTY OF HONOLULU, T. H.

B. J. McMorrow — 10-5-'54
REGISTERED PROFESSIONAL ENGINEER No. 362-E, HAWAII — DATE
DIVISION OF SANITATION
BOARD OF HEALTH, T. H.

INDEX

DESCRIPTION	SHEET No.
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KEY SHEET	2
PLAN & PROFILE	3-6
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STANDARD DETAILS	11-13

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

KALANIANAOLE HIGHWAY
PROJECT No. F6 (18)
NOVEMBER 1954

5686.67 SHEET 1 OF 13

FILE	POCKET	FOLDER	NO.
7	11	1	35

FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW	F6 (18)	1954	68	79

WAIALAE NUI
WAIALAE IKI
STREAM
KAPAKAHI PLACE
AHUAWA PLACE
AKIAKI
KAPAKAHI
KAPAKAHI ROAD
STREAM
KALANIANAOLE
KEALAOLU AVENUE
KAHALA AVENUE
KAHALA SEWAGE PUMPING STATION
#1 #2 #3 #4 #5 #6 #7 #8 #9 #10 #11 #12 #13 #14 #15 #16 #17 #18 #19 #20 #21 #22 #23 24 #25 #26 #27 #28 #29 #30 #31 #32 #33 #34 #35 #36 #37 #38 #39 #40 #41 #42 #42-A #42-B #42-C #43 #44 #45 #46 #47 #48 #49 #50 #52 #51 #54 #53 #53-A #55 #56
36" 30" 10" 8"
BEGINNING OF CONTRACT
WILIWILINUI RIDGE
WAILUPE
KEIKILANI
KAAI STREET
CIRCLE
WAILUPE CIRCLE
AKILOLO STREET
NIHIU STREET
WAILUPE PL.
PUNAHELE PL.
WEST
HAO STREET
PILIKAI STREET
KEAKEALANI STREET
LIWAI STREET
WAIHOU STREET
KIHOLO
HALAPEPE STREET
KIMOKEO STREET
LAWELAWE
ALAHEE
IKUA DRIVE
HIND DRIVE
NOHU ST.
OIOI
APO DRIVE
DRIVE
NENUE
MAKALENA STREET
DRAINAGE DITCH
OPIHI STREET
EAST HIND
OLAPA STREET
UHIUHI STREET
MANUWEA STREET
OPHI STREET
LIMU PLACE
NEHU PLACE
PAPAI STREET
LAWELAWE STREET
KIRKWOOD
NANILOA PLACE
HAWAIILOA RIDGE
TRUE NORTH
SCALE 1" = 500'
NIU
KULEPEAMOA RD.
HAWAIILOA RD.
HALEMANU ROAD
KANAU RD.
HIGHWAY
PACIFIC OCEAN
WAILUPE TRUNK SEWER
SECTION II

NOTE: These plans were prepared in the office of the Department of Public Works, City and County of Honolulu.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

KALANIANAOLE HIGHWAY
PROJECT No. F6 (18)
NOVEMBER 1954

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
DIVISION OF SEWERS

WAILUPE TRUNK SEWER
SECTION II
KEY MAP

ENGINEER R. Cole
DRAFTSMAN M. Kotaki
SCALE 1" = 500'
APPROVED: G. Cavaretta
CHIEF ENGINEER

DATE Oct. 5, 1954
CHECKED BY H. Finley
TRACER M. K.
APPROVED: Y. Gunn
DIVISION ENGINEER

W. S.	PROFILE	C. B.
CR. SEC.	F. B.	S. B.
W. M. BY:	F. W. BY:	S. BY:

IMPERIAL 150 K & E CO., N.Y. ® TRADE MARK

5686.68

Sheet 2 of 13

FILE	POCKET	FOLDER	NO.
7	11	1	36

HAWAII HAW F6(18) 1954 69 79

BEGINNING OF CONTRACT
#49
M.H. Sta. 0+94.00
#50
M.H. Sta. 1+03.00
#52
M.H. Sta. 3+37.00
#51
M.H. Sta. 1+00.00
LINE 29-A
LINE 31-B
(FOR PROFILE SEE SHEET NO. 6)
#54
M. H. Sta. 3+15.00
#53-A
M.H. Sta. 1+41.00
LINE 31-A
(FOR PLAN & PROFILE SEE SHEET NO. 4)
#53
M.H. Sta. 0+00 Line 31-B
& Sta. 0+90.00 Line 31-A
To Honolulu
KALANIANAOLE HWY.
Base Line
Test Boring #5
LINE 26-A
LINE 27-A
WAILUPE
TRUNK
SEWER
NOTE: Contractor shall brick up lower end of M.H. for future 30" R.C.
#25
M. H. Sta. 62+38.00
Existing double barrel 30" pipe culvert
#26
M. H. Sta. 64+88.00 Trunk Line
& Sta. 0+00 Line 26-A
U.S. Coast Guard Radio Station
#27
D. M. H. Sta. 67+03.00 Trunk Line
& Sta. 0+00 Line 27-A
#28
M. H. Sta. 69+12.00
#29
S.D.M.H. Sta. 71+21.00 Trunk Line
& Sta. 0+00 Line 29-A
#30
M.H. Sta. 73+83.00
#31
M.H. Sta. 75+83.00 Trunk Line
& Sta. 0+00 Line 31-A
65.00' - 10" V.C. at 0.32%
WAILUPE PENINSULA
250.00' - 30" R.C.
215.00' - 30" R.C.
209.00' - 30" R.C.
212.00' - 30" R.C.
62+00
63+00
64+00
65+00
66+00
67+00
68+00
69+00
70+00
71+00
72+00
73+00
74+00
75+00
76+00
10
5
0
-5
250.00' - 30" R.C. at 0.085 %
215.00' - 30" R.C. at 0.085 %
209.00' - 30" R.C. at 0.085 %
209.00' - 30" R.C. at 0.085 %
212.00' - 30" R.C. at 0.085%
250.00' - 30" R.C. at 0.085%
-5.41
-5.20
-5.02
-4.84
-4.66
-4.48
-4.27
Soft Red Top Soil
Soft Sandy Soil
Very Hardpacked Sand
Fairly Hardpacked Sand
Soft Sand & Mud
Fairly Compact Beach Sand
Soft Gray Mud & Sand
Finger Coral Fairly Harpacked with Sand & Shell
Finger Coral Very Hard-packed with Sand & Shell
Hard & Medium Coral Rock with Pockets of Hard-packed Sand
Double barrel 30" Concrete Pipe Culvert
Cable duct 4-4" transite in concrete
Exist. 6" sewer
10" Inv. -4.20 Line 26-A
10" Inv. 0.57 Line 27-A
8" Inv. 0.00 Line 29-A
8" Inv. -2.44 Line 31-A
10" Lateral Inv. -3.79
#49
94.00' - 10" V.C. at 3.30%
10" Stub Inv. -1.10
6" Stub Inv. -0.77
30" Inv. -5.20 Trunk Line
#50
10" Stub Inv. 1.00
6" Stub Inv. 1.33
103.00' - 10" V.C. at 0.52%
30" Inv. -5.02 Trunk Line
#52
6" Stub Inv. 1.68
237.00' - 8" V.C. at 0.42 %
#51
6" Stub Inv. 0.52
100.00' - 8" V.C. at 0.52%
30" Inv. -4.66 Trunk Line
24" Culvert
LINE 26-A
LINE 27-A
LINE 29-A
3+00
2+00
1+00
0+00

℄ CURVE DATA
Δ = 6° 19' 30"
R = 2865.00'
T = 158.30'
L = 316.27'
C = 316.11'

NOTE: Bidders are required to examine the site to aquaint themselves with the existing improvements and conditions.

All sewer construction shall be done in accordance with the City and County Sewer Plans, Standard Sewer Details, and Sewer Specifications under the supervision of an inspector or representative of the Sewer Division, City and County of Honolulu.

For detail plan of roadway and complete roadway construction notes see sheet 5686.4 to 5686.7 inclusive.

NOTE: These plans were prepared in the office of the Department of Public Works, City and County of Honolulu.

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

PROFILE
SURVEYED
PLOTTED
NOTE BOOK GRADES CHECKED
B. M.S NOTED
NO. STRUCTURE NOTAT'NS CH'KD.
BY
DATE

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

KALANIANAOLE HIGHWAY
PROJECT No. F6 (18)
NOVEMBER 1954

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
DIVISION OF SEWERS

WAILUPE TRUNK SEWER
SECTION II

ENGINEER R. Cole
DRAFTSMAN M. Kotake
SCALE Hor. 1" = 50' Vert. 1" = 5'
APPROVED: C. Yamawaki
CHIEF ENGINEER
DATE Oct. 5, 1954
CHECKED BY H. Finley
TRACER M. K.
APPROVED:
DIVISION ENGINEER

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

5686.69 Sheet 3 of 13

FILE	POCKET	FOLDER	NO.
7	11	1	37

K & E Co. No. 346-1C
"IMPERIAL" TRACING CLOTH
45139

PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
NOTE BOOK
NO.
BY
DATE
True North
#53
M.H. Sta. 0+90.00 Line 31-A
& Sta. 0+00 Line 31-B
#55
M.H. Sta. 4+28.00
6" Stub
Inv. 2.63
LINE 31-A
LINE 34-A
KALANIANAOLE HWY.
Base Line 255° 37' 45"
Inbound Lanes
Outbound Lanes
24" Water
12" Water
Exist. 4" Gas
U.S. Signal Corps
WAILUPE TRUNK SEWER
New R/W Line
Existing R/W Line
#31
M.H. Sta. 75+83.00 Trunk Line
& Sta. 0+00 Line 31-A
Cap pipe
Inv. -3.78
68.00' - 10" V.C. at 0.32%
#32
M.H. Sta. 77+38.00
155.00' 30" R.C.
301.00'
#33
M.H. Sta. 80+39.00
Cinder Tile Wall on New R/W Line by others
2-18" Extra Strength Reinf. Conc. Culvt. Pipe
#34
M.H. Sta. 83+40.00 Trunk Line
& Sta. 0+00 Line 34-A
WEST HIND DRIVE
B.M. "2" on top of F.H. 2479
El. 7.66
Test Boring #6
125.00' - 30" R.C.
Inv. -3.07
42.00' - 10" V.C. at 0.36%
Cap pipe
#35
M.H. Sta. 84+65.00
WAILUPE PLACE
205.00' - 30" R.C.
#36
M.H. Sta. 86+70.00
10" Stub
Inv. -0.86
320.00' 30" R.C.
Boring #5
Remove Existing Fence
18" Std. Strength Reinf. Conc. Culvt. Pipe and Std. Conc. Headwalls
#37
M.H. Sta. 89+90.00
2-36" Extra Strength Reinf. Conc. Culvt. Pipe 61 Lin. Ft. ea. with Conc. Protection
Construct Conc. Headwall
210.00' 30" R.C.
#38
M.H. Sta. 92+00.00
10" Stub
Inv. -1.22
Boring #4
Telephone Conduit
CONC. INTAKE BOX #4
Inv. El. = 0.57
(See Detail Sheet No. 5686.46 & 47)
2-36" Extra Strength Reinf. Conc. Culvt. Pipe 52 Lin. Ft. ea. with Conc. Protection
24" Extra Strength Reinf. Conc. Culvt. Pipe
Std. Catch Basin
Inv. El. = 1.87
24" Std. Strength Reinf. Conc. Culvt. Pipe
Beg. Conc. Lined Ditch
Inv. El. = 2.91
8' Wide Conc. Lined Ditch
Type "B" Curb
Std. Catch Basin
Inv. El. 3.44
18" Extra Strength Reinf. Conc. Culvt. Pipe
Std. Storm Drain M.H.
24" Std. Strength Reinf. Conc. Culvert Pipe
Precast Conc. Curb
P.C. Conc. Pavt. with Gutter
Conc. Sidewalk
Exist. Pipe Inv. El. = 1.43
Ditch Inv. El. = 1.43
Ditch Inv. El. = 1.13
Existing Culverts, Headwalls, & Conc. Ditch
℄ CURVE DATA
Δ = 8° 31' 30"
R = 2865.00
T = 215.53
L = 426.28
C = 425.89
PROFILE
SURVEYED
PLOTTED
GRADES CHECKED
B.M.'S NOTED
STRUCTURE NOTAT'NS CH'KD.
WAILUPE TRUNK SEWER
Electric
8" Line 31-A Inv. -2.44
10" Stub Inv. -3.78
-4.27
155.00' - 30" R.C. at 0.085%
-4.14
301.00' - 30" R.C. at 0.085%
-3.88
12" V.C. Pipe Line 34-A Inv. -2.14
-3.62
Exist. 30" Conc. Culvert
Test Boring #6
Soft Red Soil
Soft Gray Mud & Mud
Fairly Compact Gray Sand & Shell
Soft Coral Sand & Mud
125.00' - 30" R.C. at 0.085%
1-1/2" Gas
10" V.C. Stub Inv. -3.07
-3.51
205.00' - 30" R.C. at 0.085%
10" Stub Inv. -0.86
3/4" Gas
-3.33
320.00' - 30" R.C. at 0.085%
3/4" Gas
-3.06
210.00' - 30" R.C. at 0.085%
36" Culvert Pipe
10" Stub Inv. -1.22
-2.88
76+00
77+00
78+00
79+00
80+00
81+00
82+00
83+00
84+00
85+00
86+00
87+00
88+00
89+00
90+00
91+00
92+00
LINE 31-A
Telephone
12" Water
4" Gas
U.S. Signal Corp
24" Water
8" Line 31-B Inv. 1.07
338.00' - 8" V.C. at 0.42%
2.46
6" Stub Inv. 2.63
90.00' - 8" V.C. at 0.90%
10" Stub Inv. -3.78
30" Trunk Line Inv. -4.27
#53
#55
Test Boring #6 (Cont.)
Soft Coral Sand & Mud
Compact Sand & Gravel
Medium Lava Rock
Hard Lava Rock
LINE 34-A
4" Gas
U.S. Signal Corps
Existing 18" Drain
2-18" Drain
4" Gas
12" Water
24" Water
30" Trunk Line Inv. -3.62
-2.14
157.00' - 12" V.C. at 1.12%
Cap end of pipe
-0.39
Sta. 1+57.00 End of line
0+00
1+00
2+00
3+00
4+00

NOTE:
These plans were prepared in the Office of the Department of Public Works, City & County of Honolulu.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

KALANIANAOLE HIGHWAY
PROJECT No. F6 (18)
NOVEMBER 1954

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
DIVISION OF SEWERS

WAILUPE TRUNK SEWER
SECTION II

ENGINEER R. Cole
DRAFTSMAN M. Kotaki
SCALE Hor. 1" = 50' Vert. 1" = 5'
APPROVED: [illegible]
CHIEF ENGINEER
DATE Oct. 5, 1954
CHECKED BY H. Finley
TRACER M. K.
APPROVED:
DIVISION ENGINEER

PLATE 1 - PLAN-PROFILE O. P. R. & R. E. STANDARD
KEUFFEL & ESSER CO., NEW YORK.
K & E Co. No. 346-1C

5686.70

Sheet 4 of 13

FILE	POCKET	FOLDER	NO.
7	11	1	38

4

CURB CURVE DATA
Δ1 76°05'57" Δ2 6°57'09"
R1 56.00' R2 600.00'
T1 43.83' T2 36.45
L1 74.38' L2 72.81
℄ CURVE DATA
Δ 7°38'15"
R 1935.00'
T 129.15'
L 257.93'
C 257.74'
CURB CURVE DATA
Δ1 76°11'47" Δ2 6°54'06"
R1 48.00' R2 600.00'
T1 37.63' T2 36.18'
L1 63.83' L2 72.28'
CHURCH OF HOLY NATIVITY
NENUE STREET
EAST HIND DRIVE
WAILUPE STREAM
KALANIANAOLE HWY.
WAILUPE TRUNK SEWER
Nenue St. Sta. 1+75.85
24" Extra Strength Reinf. Conc. Culv't. Pipe 110 Lin. Ft. ±
℄ P.C. Sta. 112+59.38
Exist. ℄ Pavt. P.C. Sta. 112+62.16
Cap end of pipe
Construct Easy Riding Connection
Conc. Sidewalk
LINE 39-A
#42-A
M.H. Sta. 0+27.00
Inv. -0.80
6 & 8" Stub at 60°00'
#42
M.H. Sta. 99+82.00
#42-B
M.H. Sta. 101+52.00
#43
M.H. Sta. 1+74.00
#42-C
M.H. Sta. 101+92.00
#44
M.H. Sta. 105+20.00
#38
M.H. Sta. 92+00.00
#39
S.D.M.H. Sta. 95+35.00 Trunk Line & Sta. 0+00 Line 39-A
#40
M.H. Sta. 97+97.00
#41
M.H. Sta. 98+92.00 Trunk Line & Sta. 0+00 Line 41-A
#56
M.H. Sta. 1+37.00
LINE 41-A
NEW BRIDGE
Existing Bridge
B.M. #5 El. = 8.58
8" Stub Inv. -0.80 Cap end of pipe
10" Stub Inv. -1.22
8" Inv. -2.00
210.00' - 30" R.C.
335.00' - 30" R.C.
262.00' - 30" R.C.
95.00' - 16, 10, & 8" C.I.
90.00' - 30" R.C.
170.00' - 30" R.C.
137.00' - 10" V.C.
328.00' - 27" V.C.
330.00' - 27" V.C.
160.00' - 8" V.C.
16" x 48" Conc. Box
10" Stub (Capped for future) Inv. -0.18
10" Inv. -0.67
12" C.I. Water to be raised
19.00' - 18" V.C. at 0.12%
Existing R/W Line
New R/W Line
Base Line
Telephone Line
24" C.I. Water
12" C.I. Water
Electric
Gas
LINE 39-A
TRUNK SEWER
EAST HIND DRIVE LINE
WAILUPE
LINE 41-A
174.00' - 18" V.C. at 0.12%
Q = 2.3
QR = 2.2
V = 2.05
S = 0.0012
N = 0.013
335.00' - 30" R.C. at 0.085%
262.00' - 30" R.C. at 0.085%
90.00' - 30" R.C. at 0.085%
170.00' - 30" R.C. at 0.085%
328.00' - 27" V.C. at 0.085%
330.00' - 27" V.C. at 0.085%
137.00' - 10" V.C. at 0.36%
40.00' - 16" x 48" Conc. Box at 0.085% (For detail see sheet no. 10)
See sheet no. 9 for siphon detail
30" Concrete Culvert
92+00
93+00
94+00
95+00
96+00
97+00
98+00
100+00
101+00
103+00
104+00
105+00
106+00

REVISION	DATE	BRIEF	MADE BY	APPROVED
2	12-10-54	CHANGE ALIGNMENT LINE 39-A	HF	KS
1	11-8-54	ADD LINE TO EAST HIND DRIVE. RELOCATE M. H. & LOWER INVERT FROM M.H. #41 TO M.H. #44	R.C.	KS

NOTE:

These plans were prepared in the Office of the Department of Public Works, City & County of Honolulu.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

KALANIANAOLE HIGHWAY
PROJECT No. F6 (18)
NOVEMBER 1954

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
DIVISION OF SEWERS

WAILUPE TRUNK SEWER
SECTION II

ENGINEER R. Cole
DRAFTSMAN M. Kotaki
SCALE Hor. 1" = 50' Vert. 1" = 5'
APPROVED: C. Yamawatta
CHIEF ENGINEER

DATE Oct. 5, 1954
CHECKED BY F. Finley
TRACER M.K.
APPROVED:
DIVISION ENGINEER

5686.71 Sheet 5 of 13

FILE	POCKET	FOLDER	NO.
7	11	1	39

K & E Co. No. 348-1C

HAWAII HAW F6(18) 1954 72 79

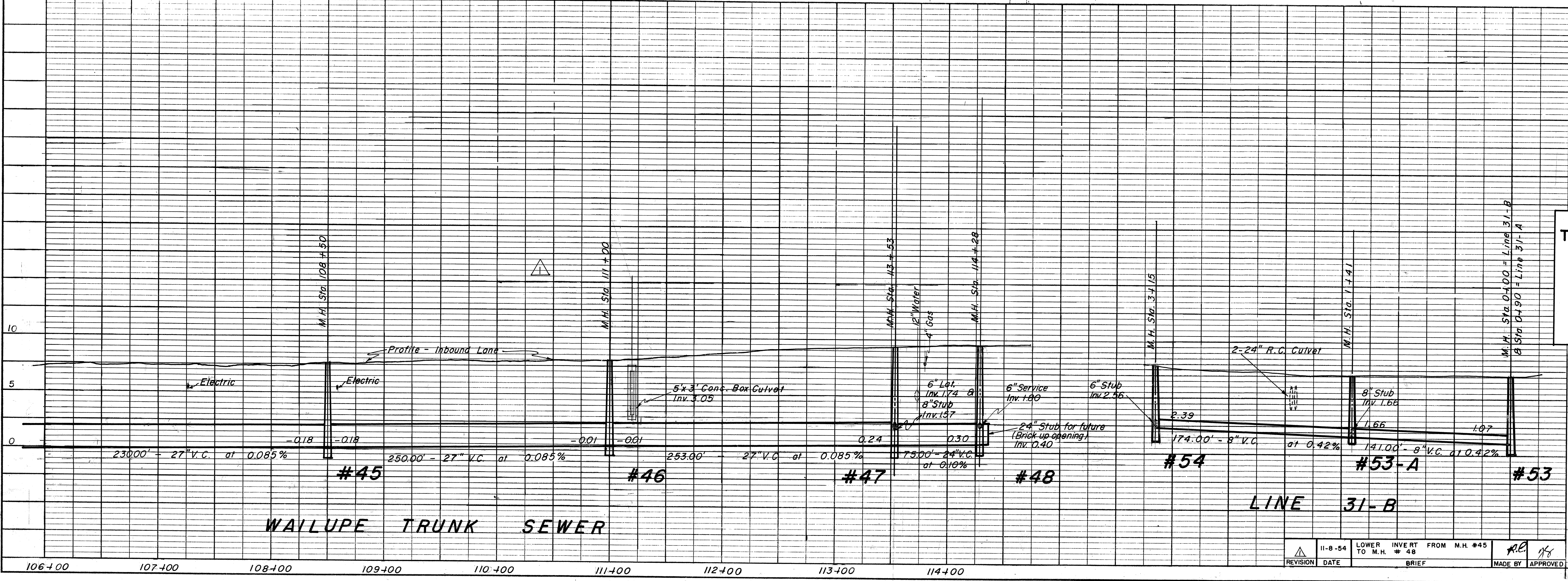
PLAN

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

#45
M.H. Sta. 108 + 50
#46
M.H. Sta. 111 + 00
#47
M.H. Sta. 113 + 53
#48
M.H. Sta. 114 + 28
WAILUPE TRUNK SEWER
KALANIANAOLE HWY.
240.00' 27" V.C.
250.00' 27" V.C.
253.00' 27" V.C.
75.00' 24" V.C.
256° 31' 00"
253° 52' 45"
℄ Inbound Lanes
℄ Outbound Lanes
Base Line
Boring #8
Remove Existing 24" Culvert & Drop Intake
Construct Std Conc. Headwall Inv. El. = 4.00
Telephone Line
Existing R/W Line
Type "B" Curb
Type "D" Curb
Conc. Sidewalk
24" C.I. Water
12" C.I. Water
4" C.I. Water
4" Gas
3/4" Gas
Electric
℄ Medial Ditch
P.C. Conc. Pavement
BUS STOP
New R/W Line
Reconstruct Fence on New R/W Line
18" Std. Strength Reinf. Conc. Culv't Pipe
℄ Sta. 125+37.49
Inv. El. = 3.67
Type "C" Conc. Catch Basin
333° 56' 55"
Type "DG" Curb & Gutter
Conc. Sidewalk
Construct Easy Riding Connection
U.S. Army Signal Corps Cable
Sta. 1+05.24 Kirkwood Ave.
Type "C" Curb Inv. El. = 3.25
30" Extra Strength Reinf. Conc. Culv't Pipe
30" Std. Strength Reinf. Conc. Culv't. Pipe 56 Lin. Ft. ±
Inv. El. = 3.56
Type "A" Conc. Catch Basin
E.P. P.T.
E.P. P.C.
6" Lat. Inv. 1.74
8" Stub Inv. 1.57
Existing R/W Line
U.S.S.C. Cable
24" Stub for future Inv. 0.40 Brick up opening
6" Service Inv. 1.80
Construct Connection
P.C. Conc. Pavement with Gutter
Remove Exist. Fence
Wooden Fence and Hibiscus Hedge
24" Extra Strength Reinf. Conc. Culv't. Pipe 25 Lin. Ft. ±
5'-0" x 3'-0" Conc. Box Culvert For Details see sht. no. 5686.49
Constr. 6'-0" x 3'-0" Conc. Lined Ditch For Detail see Sht. No. 5686.49 & 50
Inv. El. = 2.30
10' R/W
Existing Fence to Remain
Excavated Open Ditch
Existing E.P.
℄ Existing Pavement
To Koko Head →
BM #4 "□" on top of F.H. #1686 El. = 13.37
True North Scale: 1" = 50 ft.
House
Gar.
Tennis Court
Poinciana
Kiawe
Plumerias
Valve Boxes
C.R.M. Wall
D.R.M. Wall
Coral Wall
Shower
Mango

PROFILE

SURVEYED
PLOTTED
NOTE BOOK
GRADES CHECKED
B. M.S NOTED
STRUCTURE NOTAT'NS CH'KD.
NO.
BY
DATE



M.H. Sta. 108 + 50
M.H. Sta. 111 + 00
M.H. Sta. 113 + 53
M.H. Sta. 114 + 28
M.H. Sta. 3 + 15
M.H. Sta. 1 + 41
M.H. Sta. 0+00 = Line 31-B
8 Sta. 0+90 = Line 31-A
Profile - Inbound Lane
Electric
5'x3' Conc. Box Culvert Inv. 3.05
12" Water
4" Gas
6" Lat. Inv. 1.74
8" Stub Inv. 1.57
6" Service Inv. 1.80
24" Stub for future (Brick up opening) Inv. 0.40
6" Stub Inv. 2.56
2-24" R.C. Culvert
8" Stub Inv. 1.66
-0.18
-0.01
0.24
0.30
2.39
1.66
1.07
230.00' - 27" V.C. at 0.085%
250.00' - 27" V.C. at 0.085%
253.00' - 27" V.C. at 0.085%
75.00' - 24" V.C. at 0.10%
174.00' - 8" V.C. at 0.42%
141.00' - 8" V.C. at 0.42%
#45
#46
#47
#48
#54
#53-A
#53
LINE 31-B
WAILUPE TRUNK SEWER
10
5
0
106+00
107+00
108+00
109+00
110+00
111+00
112+00
113+00
114+00

NOTE:
These plans were prepared in the Office of the Department of Public Works, City and County of Honolulu.

10
5
0

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

KALANIANAOLE HIGHWAY
PROJECT No. F6 (18)
NOVEMBER 1954

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
DIVISION OF SEWERS

WAILUPE TRUNK SEWER
SECTION II

ENGINEER R. Cole
DRAFTSMAN M. Kotaki
SCALE Hor. 1" = 50' Vert. 1" = 5'
APPROVED:
CHIEF ENGINEER

DATE Oct. 5, 1954
CHECKED BY H. Finley
TRACER
APPROVED:
DIVISION ENGINEER

REVISION	DATE	BRIEF	MADE BY	APPROVED
⚠1	11-8-54	LOWER INVERT FROM M.H. #45 TO M.H. #48	R.C.	

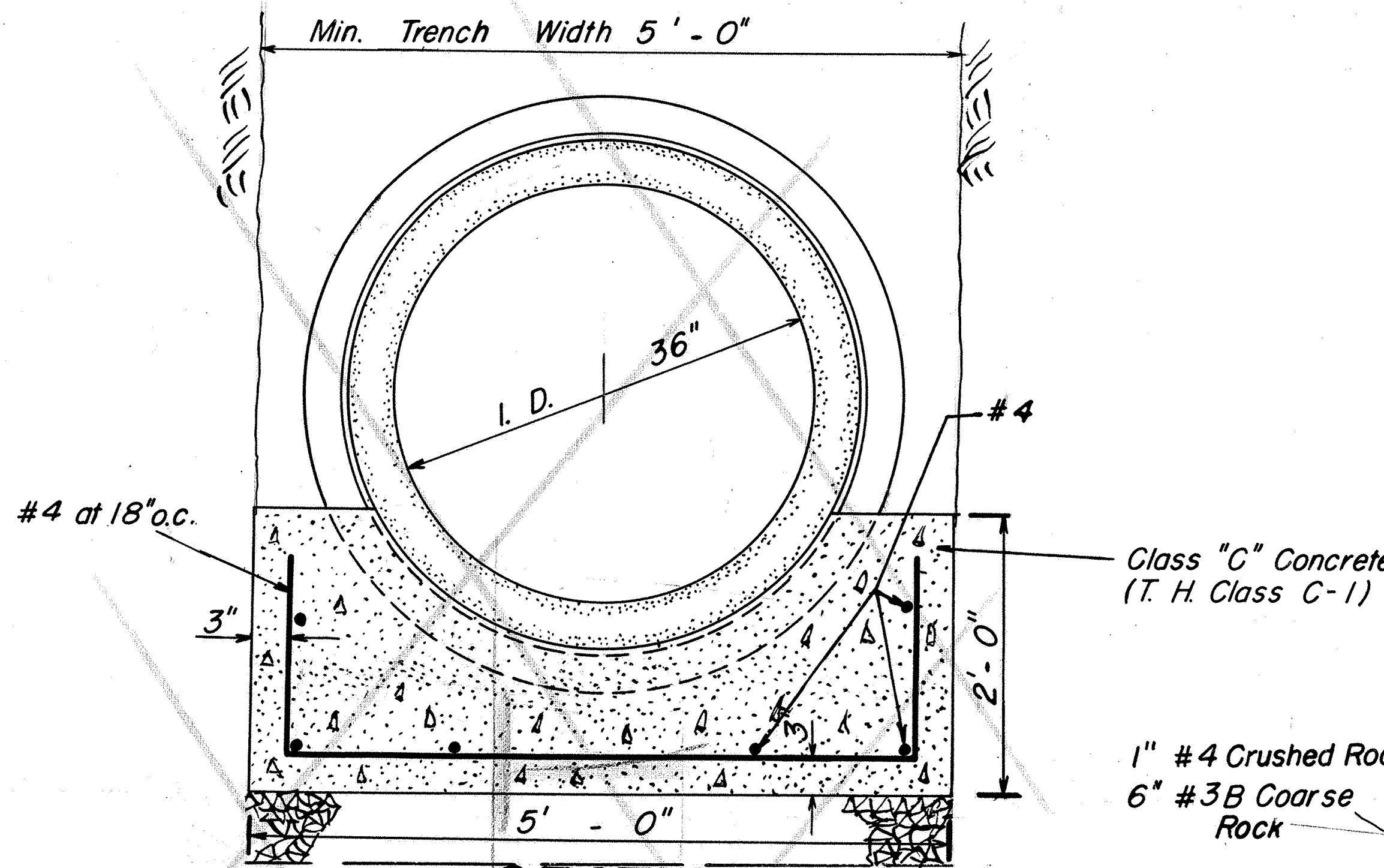
PLATE 1 — PLAN-PROFILE O.P.R. & R.E. STANDARD
KEUFFEL & ESSER CO., NEW YORK.
K & E Co. No. 346-1C

5686.72 Sheet 6 of 13

FILE	POCKET	FOLDER	NO.
7	11	1	40

HAWAII HAW F6(18) 1954 73 79

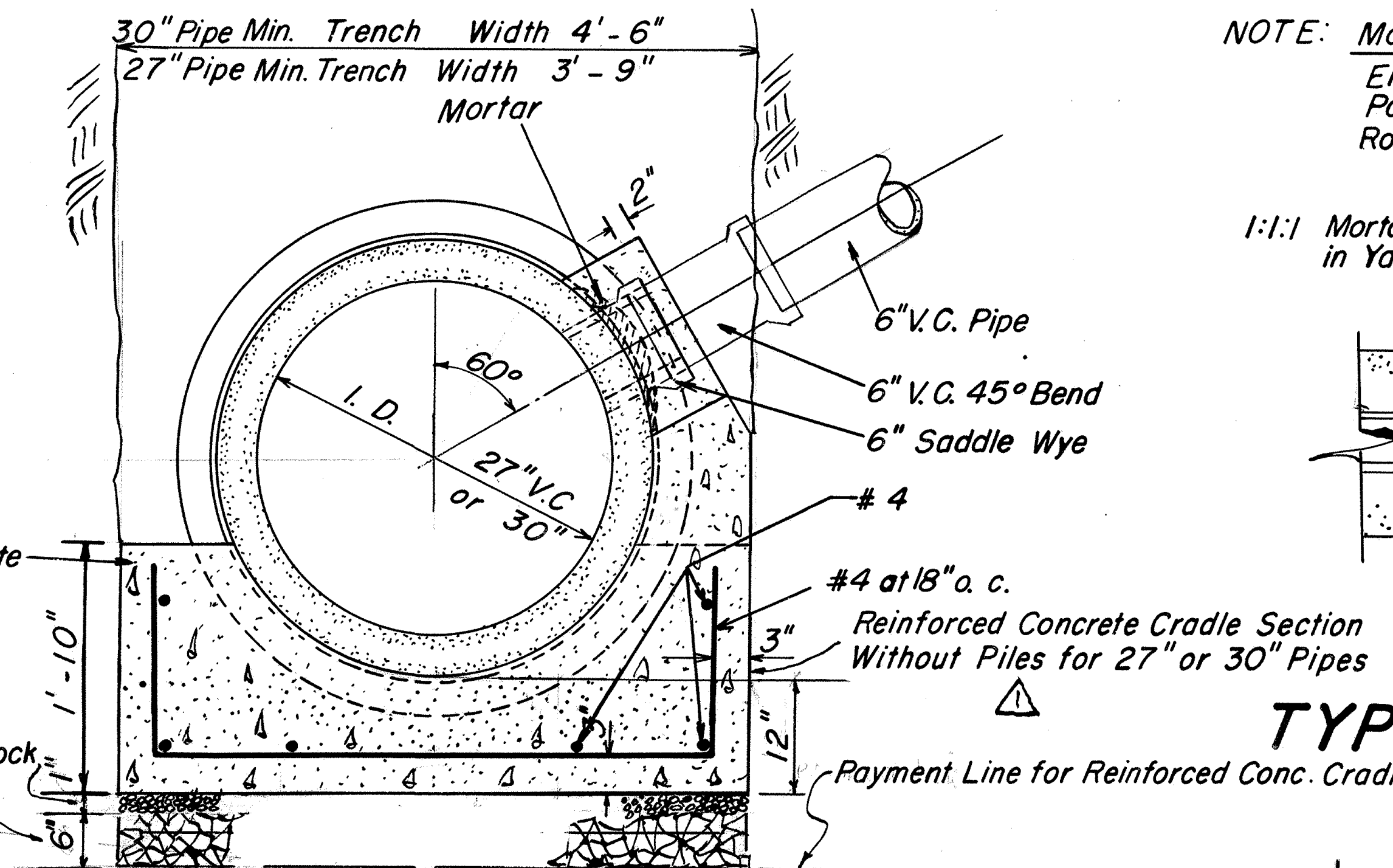
REV. 1-26-55



Min. Trench Width 5'-0"
I. D. 36"
#4
#4 at 18" o.c.
3"
Class "C" Concrete (T. H. Class C-1)
2'-0"
5'-0"

SECTION

Scale: 3/4" = 1'-0"



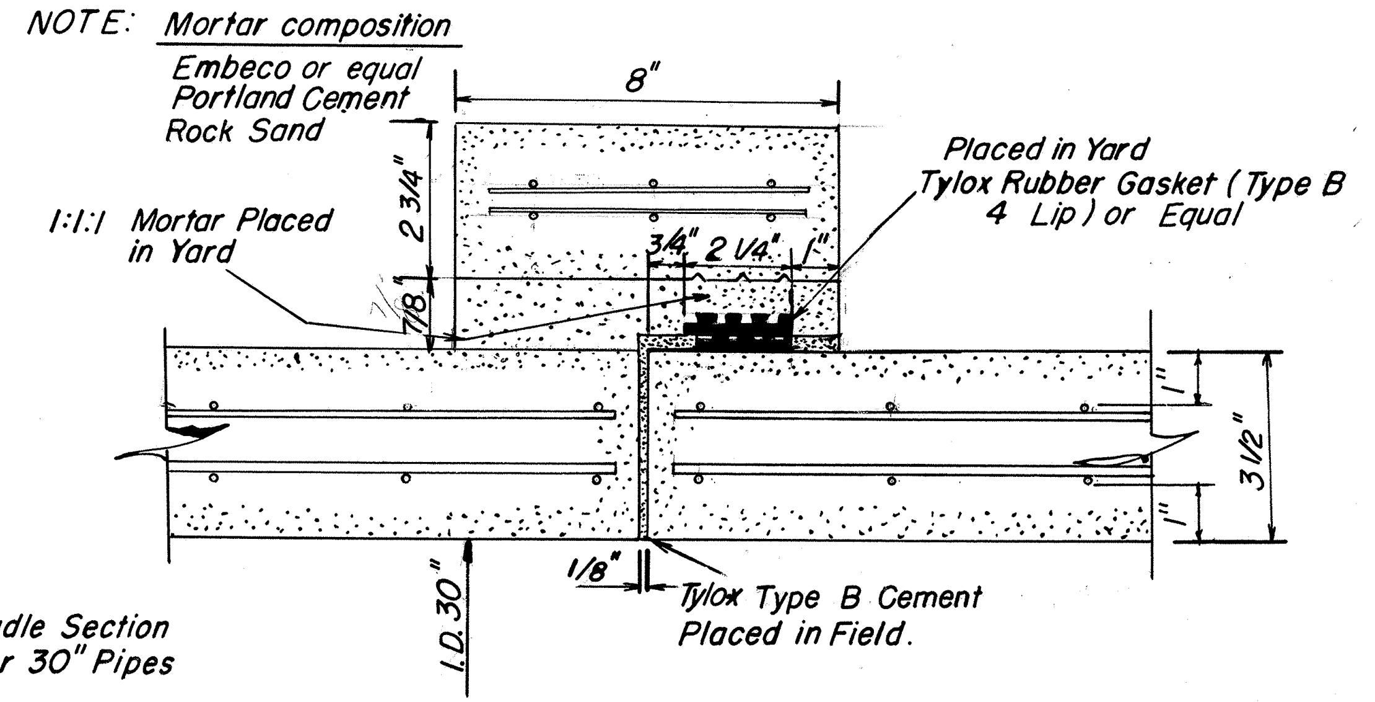
30" Pipe Min. Trench Width 4'-6"
27" Pipe Min. Trench Width 3'-9"
Mortar
2"
6" V.C. Pipe
6" V.C. 45° Bend
6" Saddle Wye
I. D.
60°
27" V.C. or 30"
#4
#4 at 18" o. c.
Reinforced Concrete Cradle Section Without Piles for 27" or 30" Pipes
1'-10"
3"
12"
1" #4 Crushed Rock
6" #3B Coarse Rock
6"
Payment Line for Reinforced Conc. Cradle

SECTION AT SADDLE WYE

Scale: 3/4" = 1'-0"

NOTE:

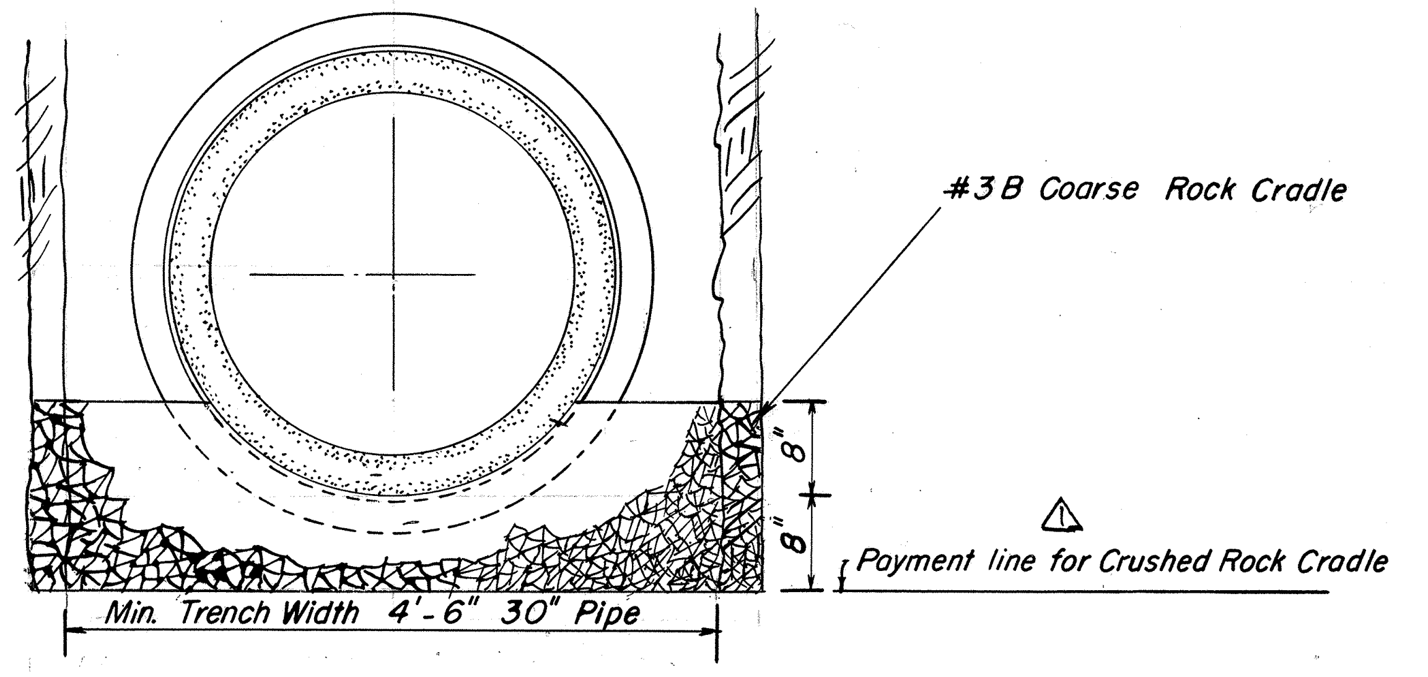
1. Reinforcing steel for precast concrete pipe not indicated on these drawings.
2. Contractor may construct the cradle in two lifts if he so desires subject to written approval of the Engineer.



NOTE: Mortar composition
Embeco or equal
Portland Cement
Rock Sand
1:1:1 Mortar Placed in Yard
8"
2 3/4"
3/4" 2 1/4"
7/8"
Placed in Yard
Tylox Rubber Gasket (Type B 4 Lip) or Equal
1"
3 1/2"
1"
1/8"
Tylox Type B Cement Placed in Field.
I.D. 30"

TYPICAL COLLAR-TYPE JOINT
TYPE "B"

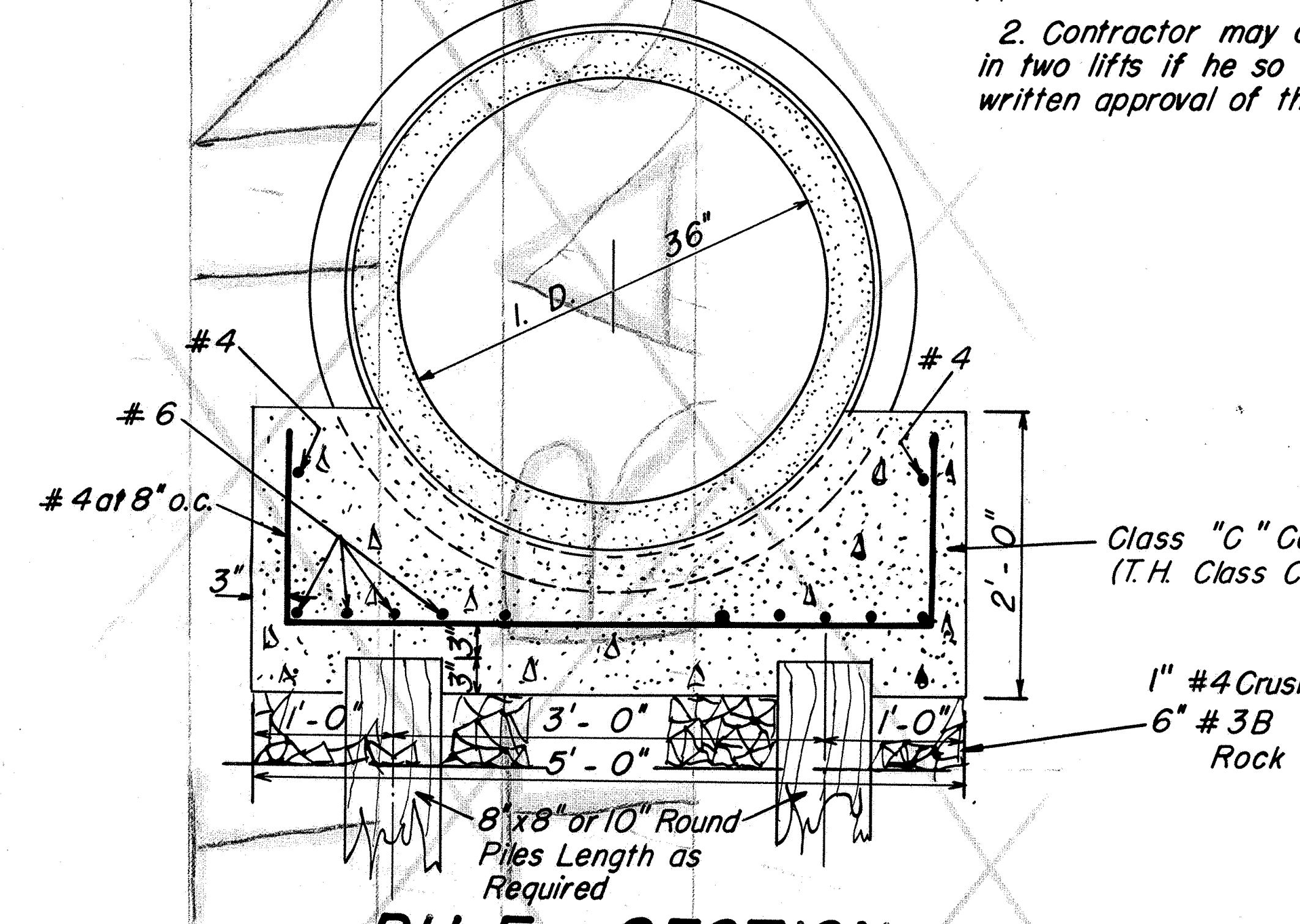
Scale: 3" = 1'-0"



#3B Coarse Rock Cradle
8"
8"
Payment line for Crushed Rock Cradle
Min. Trench Width 4'-6" 30" Pipe

SECTION

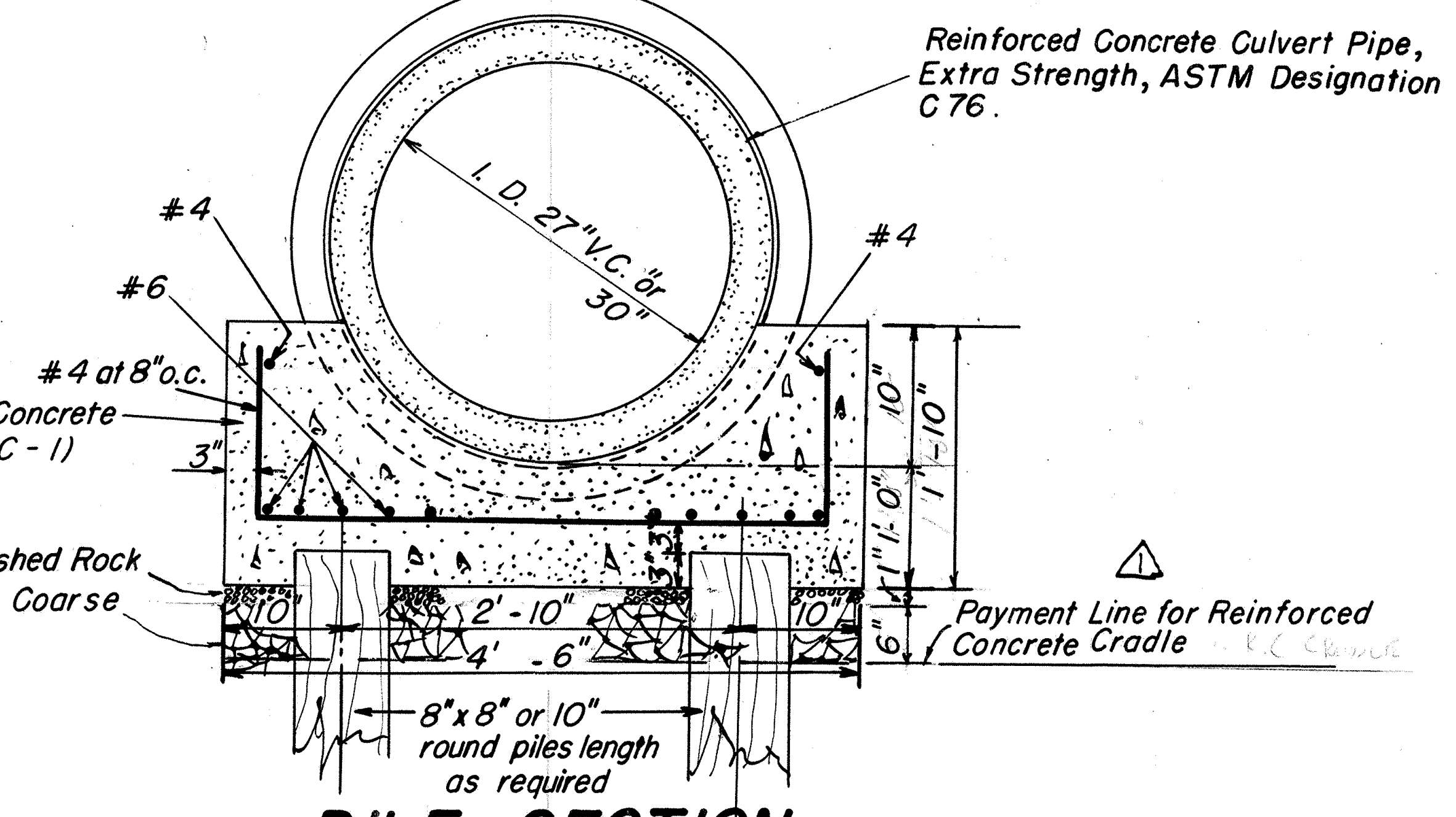
Scale: 3/4" = 1'-0"



I. D. 36"
#4
#6
#4
#4 at 8" o.c.
3"
Class "C" Concrete (T.H. Class C-1)
2'-0"
1'-0"
3'-0"
1'-0"
5'-0"
8" x 8" or 10" Round Piles Length as Required

PILE SECTION

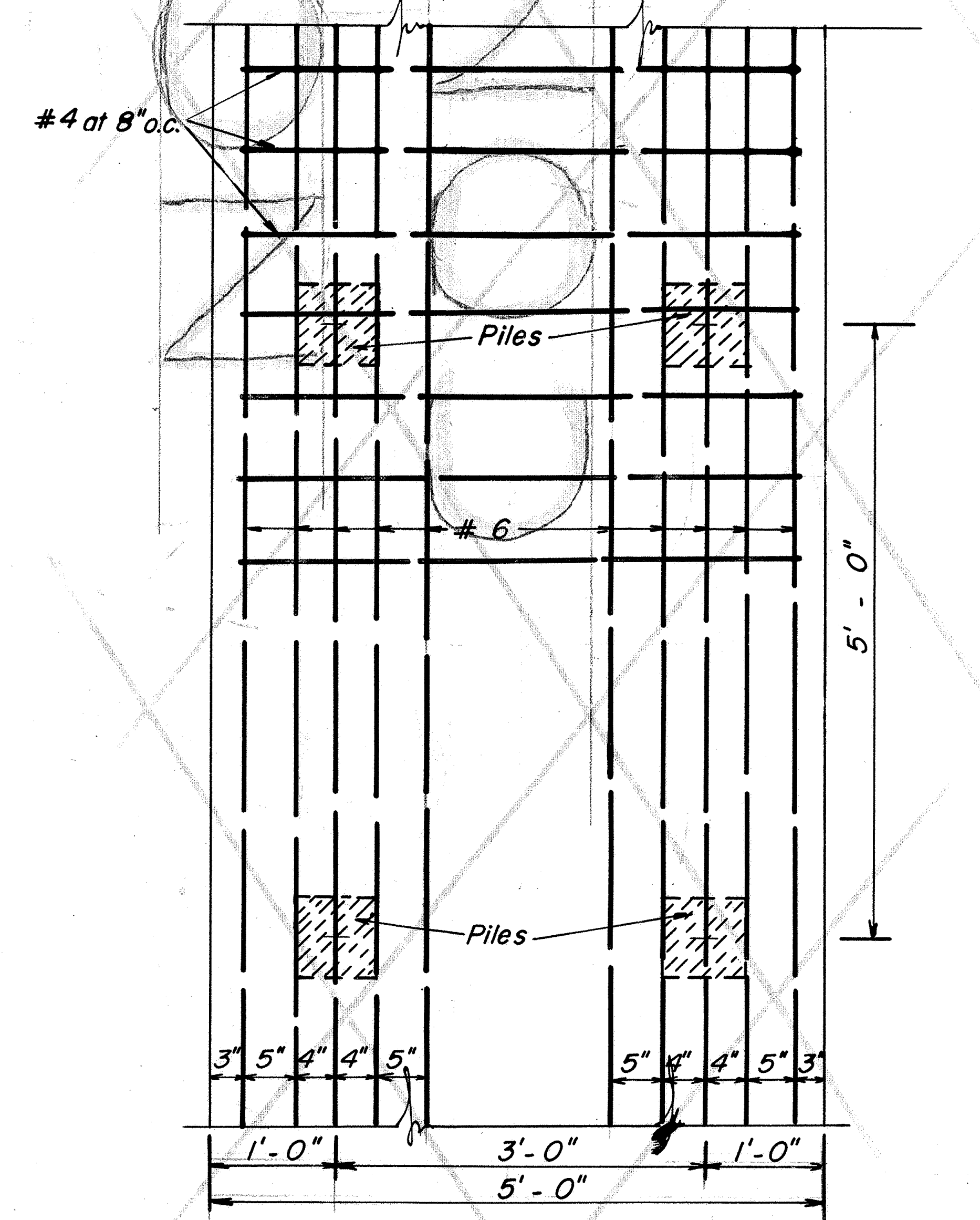
Scale: 3/4" = 1'-0"



Reinforced Concrete Culvert Pipe, Extra Strength, ASTM Designation C76.
I. D. 27" V.C. or 30"
#4
#6
#4 at 8" o.c.
#4
3"
10"
1'-10"
1'-0"
1" #4 Crushed Rock
6" #3B Coarse Rock
10"
2'-10"
10"
4'-6"
6"
Payment Line for Reinforced Concrete Cradle
8" x 8" or 10" round piles length as required

PILE SECTION

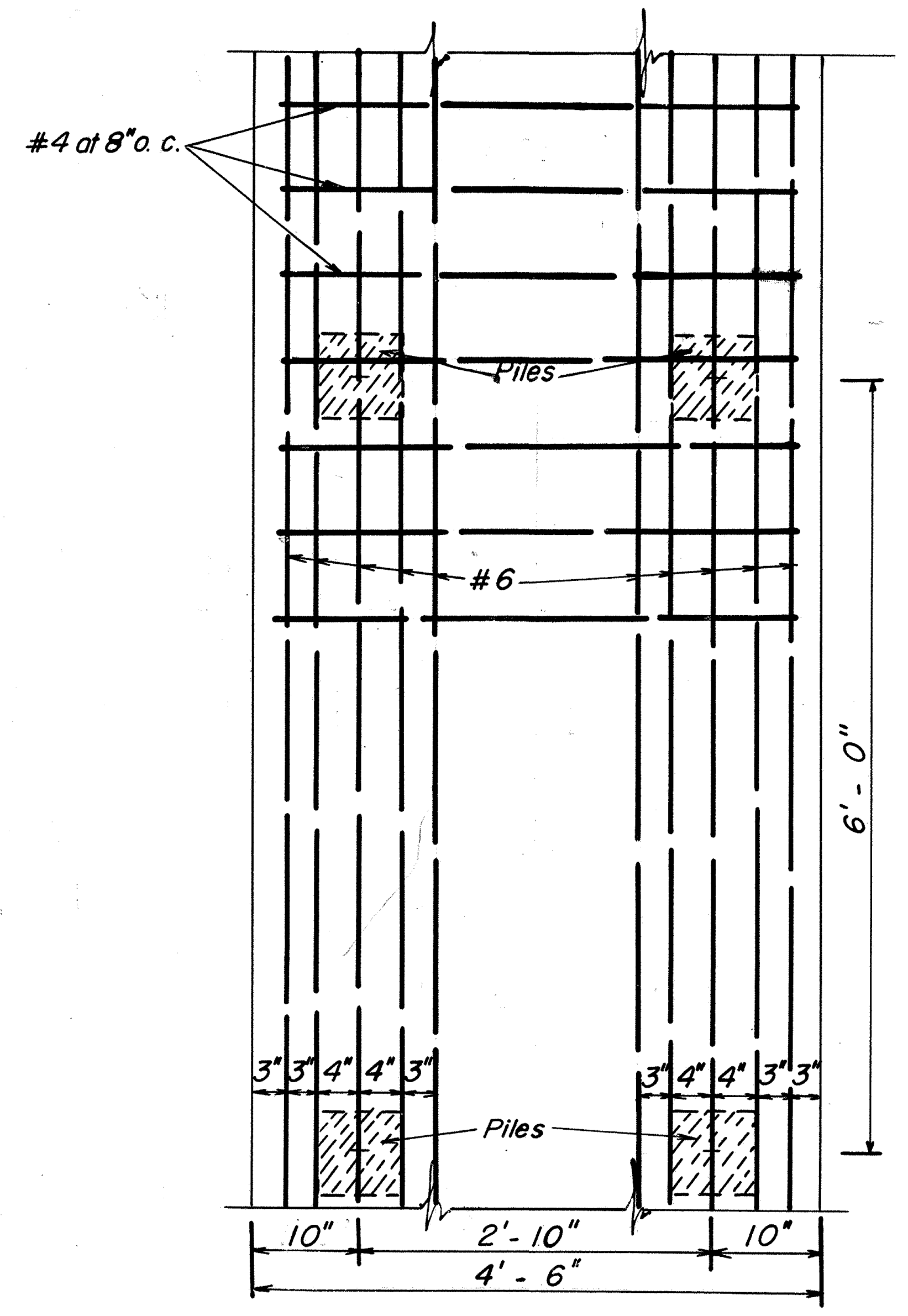
Scale: 3/4" = 1'-0"



#4 at 8" o.c.
Piles
#6
5'-0"
6'-0"
Piles
3" 5" 4" 4" 5"
5" 4" 4" 5" 3"
1'-0"
3'-0"
1'-0"
5'-0"

PILING PLAN

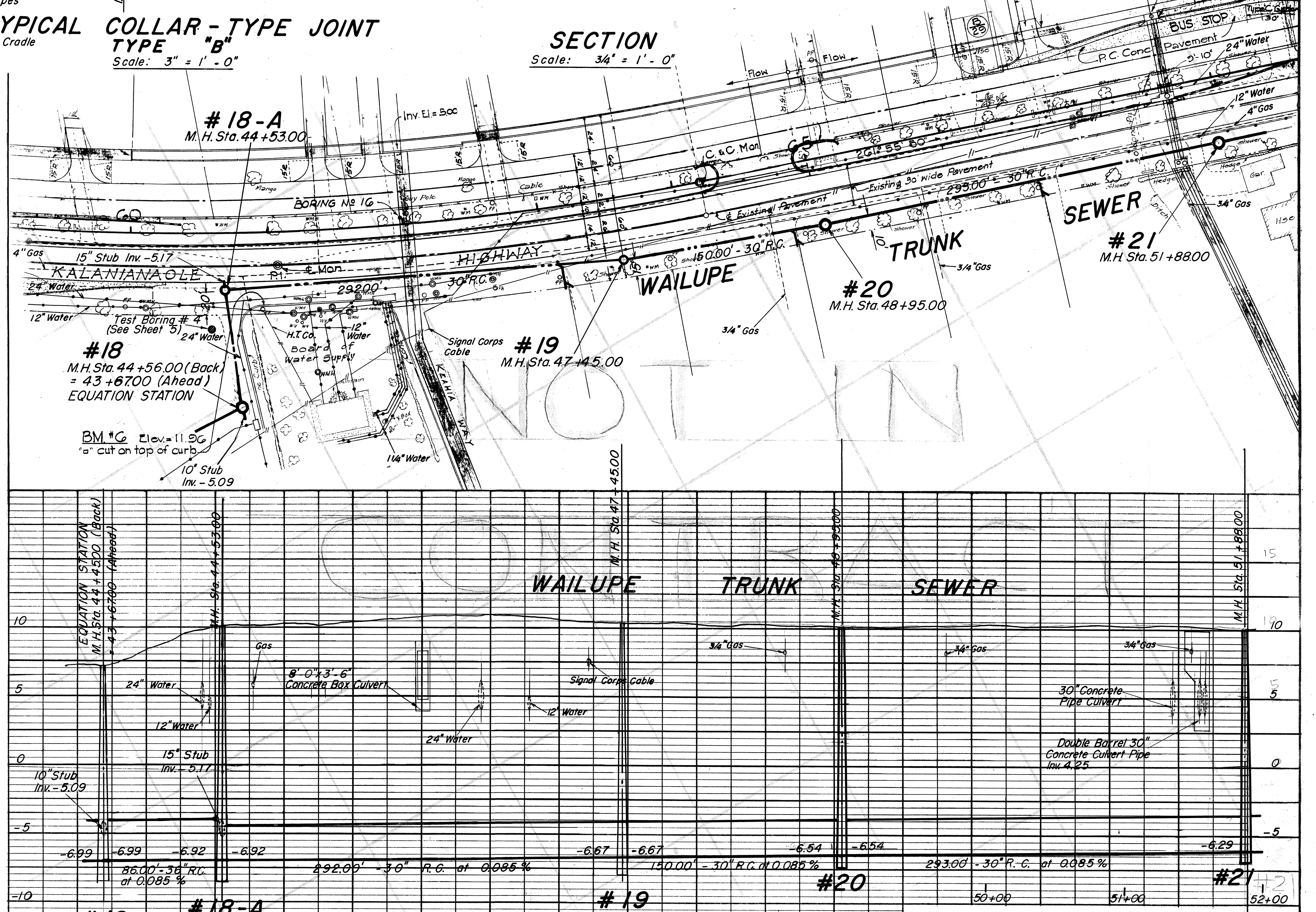
Scale: 3/4" = 1'-0"



#4 at 8" o.c.
Piles
#6
Piles
3" 3" 4" 4" 3"
3" 4" 4" 3" 3"
10"
2'-10"
10"
4'-6"

PILING PLAN

Scale: 3/4" = 1'-0"



#18-A
M.H. Sta. 44+53.00
Inv. El. = 5.00
Inv. El. = 5.00
BUS STOP
P.C. Conc. Pavement
24" Water
12" Water
4" Gas
Flow
C. & C. Man
2G12 55 60
Existing 30' wide Pavement
293.00' - 30" R.C.
SEWER
#21
M.H. Sta. 51+88.00
3/4" Gas
BORING No 16
Cable
Existing Pavement
HIGHWAY
160.00' - 30" R.C.
TRUNK
WAILUPE
#20
M.H. Sta. 48+95.00
3/4" Gas
KALANIANAOLE
24" Water
12" Water
15" Stub Inv. -5.17
292.00'
30" R.C.
Test Boring # 4 (See Sheet 5)
24" Water
H.T. Co.
12" Water
Board of Water Supply
Signal Corps Cable
#19
M.H. Sta. 47+45.00
3/4" Gas
#18
M.H. Sta. 44+56.00 (Back) = 43+67.00 (Ahead)
EQUATION STATION
BM. #6 Elev. = 11.96
"□" cut on top of curb
10" Stub Inv. - 5.09
1 1/4" Water
EQUATION STATION M.H. Sta. 44+45.00 (Back) = 43+67.00 (Ahead)
M.H. Sta. 44+53.00
M.H. Sta. 47+45.00
M.H. Sta. 48+95.00
M.H. Sta. 51+88.00
WAILUPE
TRUNK
SEWER
10
5
0
-5
-10
Gas
8'-0" x 3'-6" Concrete Box Culvert
24" Water
12" Water
15" Stub Inv. - 5.17
10" Stub Inv. - 5.09
3/4" Gas
Signal Corps Cable
12" Water
24" Water
3/4" Gas
3/4" Gas
30" Concrete Pipe Culvert
Double Barrel 30" Concrete Culvert Pipe Inv. 4.25
-6.99
-6.99
-6.92
-6.92
-6.67
-6.67
-6.54
-6.54
-6.29
86.00' - 36" R.C. at 0.085%
292.00' - 30" R.C. at 0.085%
150.00' - 30" R.C. at 0.085%
293.00' - 30" R.C. at 0.085%
#18
#18-A
#19
#20
#21
50+00
51+00
52+00
44+00
45+00
46+00

NOTE: These plans were prepared in the office of the Department of Public Works, City and County of Honolulu.

REVISION	DATE	BRIEF	MADE BY	APPROVED
△	1-21-54	ADDED 27" V.C. PIPE AND PAYMENT LINE NOTES		

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

KALANIANAOLE HIGHWAY
PROJECT No. F6 (18)
NOVEMBER 1954

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
DIVISION OF SEWERS

WAILUPE TRUNK SEWER
SECTION II

ENGINEER R. Colettom
DATE Oct. 5, 1954
DRAFTSMAN W. Kaluki
CHECKED BY H. Finley
SCALE Hor. 1" = 50' Vert. 1" = 5'
TRACER M. K.
APPROVED
CHIEF ENGINEER
APPROVED
DIVISION ENGINEER

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

PROFILE
NOTE BOOK
NO.
SURVEYED
PLOTTED
GRADES CHECKED
B.M.S NOTED
STRUCTURE NOTAT'NS CH'KD.
BY
DATE

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

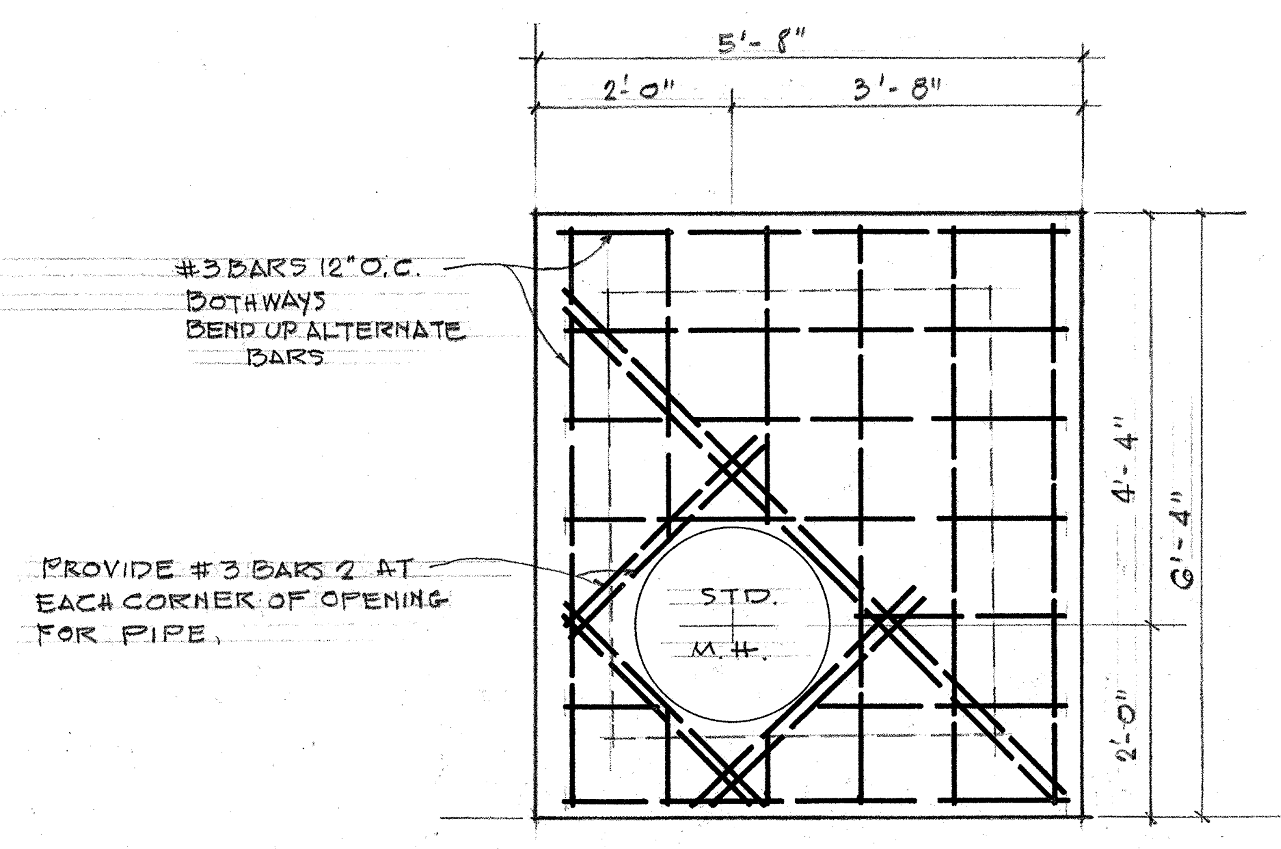
5686.73

Sheet 7 of 13

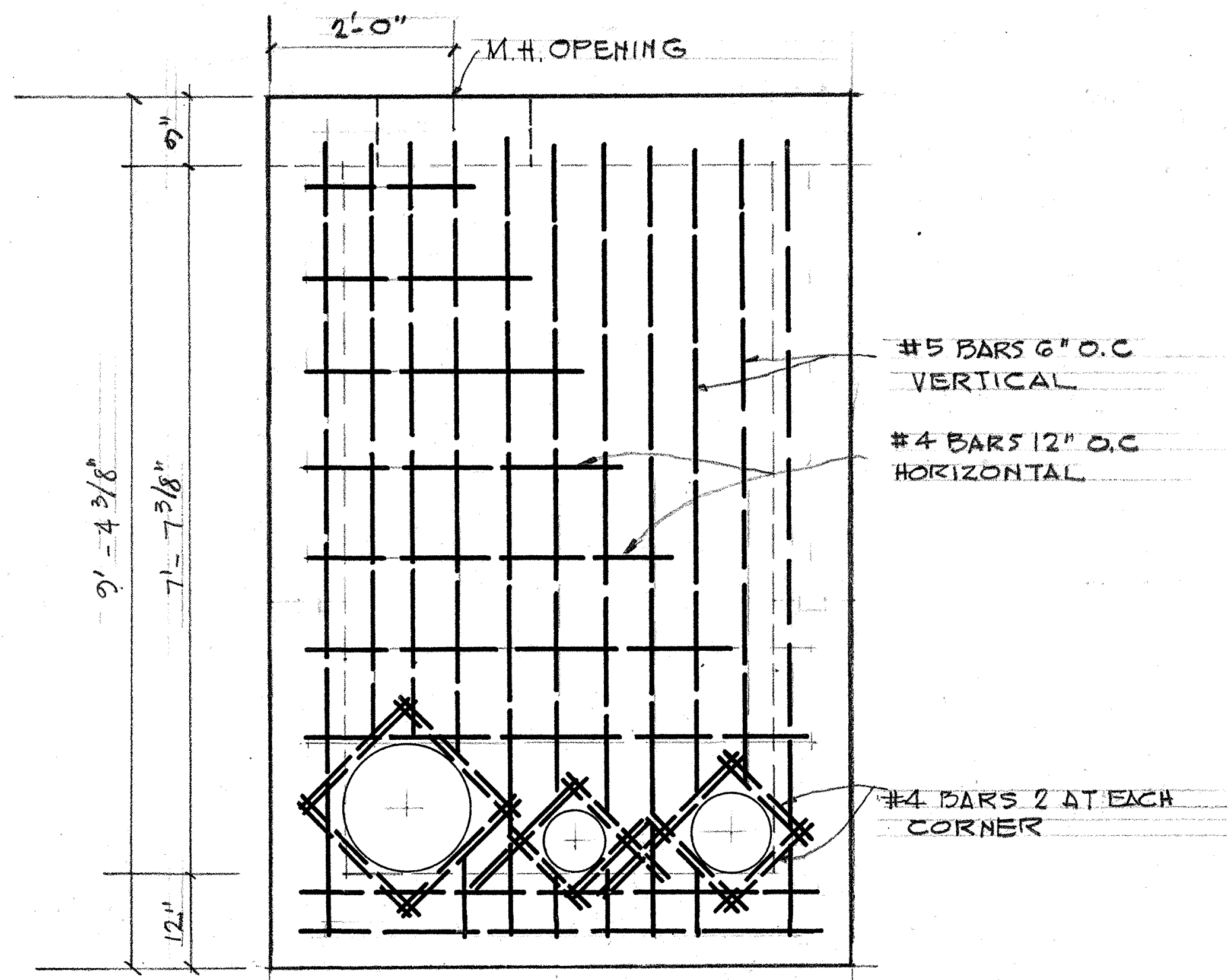
FILE	POCKET	FOLDER	NO.
7	11	1	41

K & E Co. No. 346-1C
"IMPERIAL" TRACING CLOTH

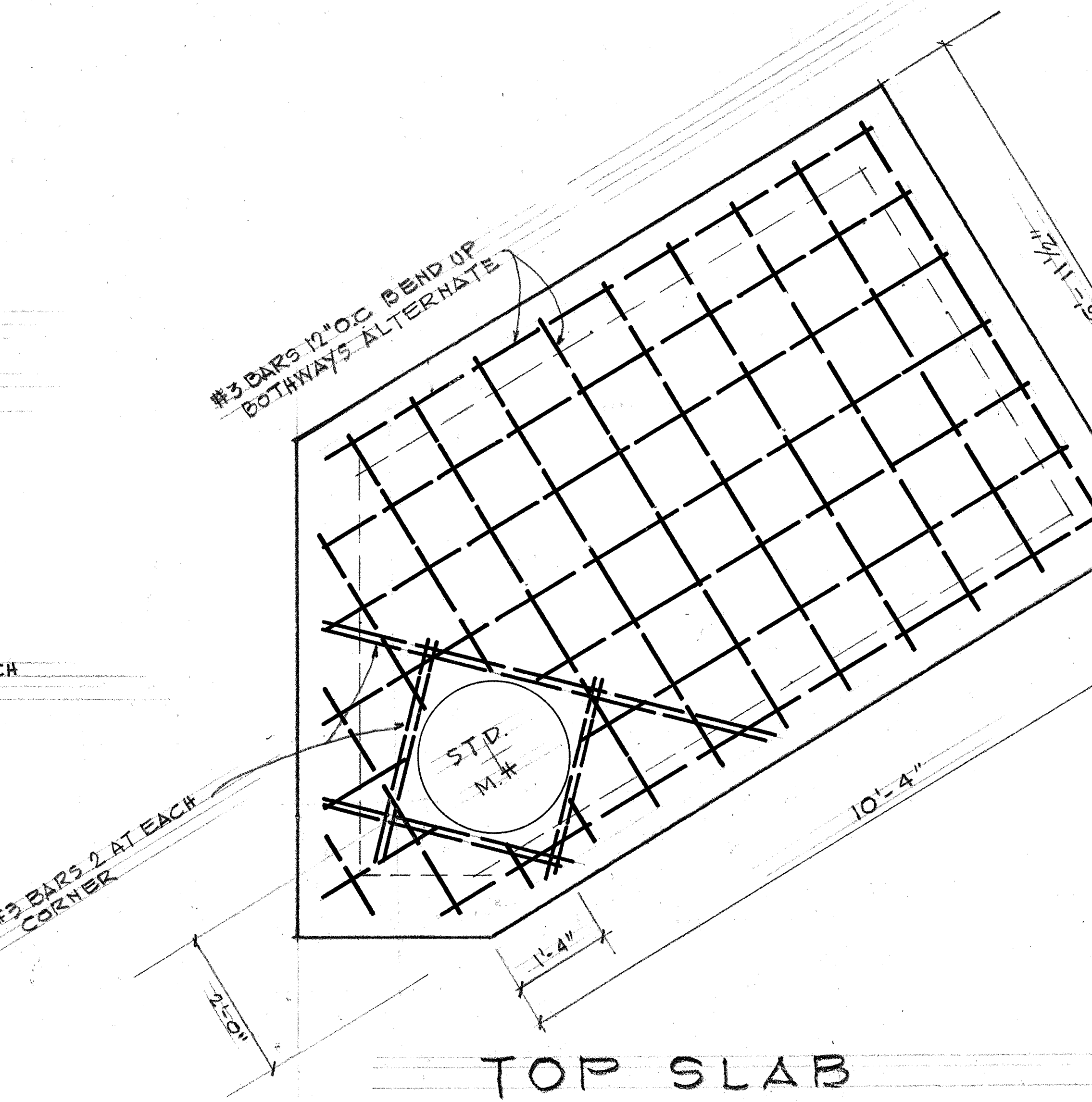
FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW	F6(18)	1954	74	79


5'-8"
2'-0"
3'-8"
#3 BARS 12" O.C. BOTHWAYS BEND UP ALTERNATE BARS
PROVIDE #3 BARS 2 AT EACH CORNER OF OPENING FOR PIPE.
STD. M.H.
4'-4"
6'-4"
2'-0"

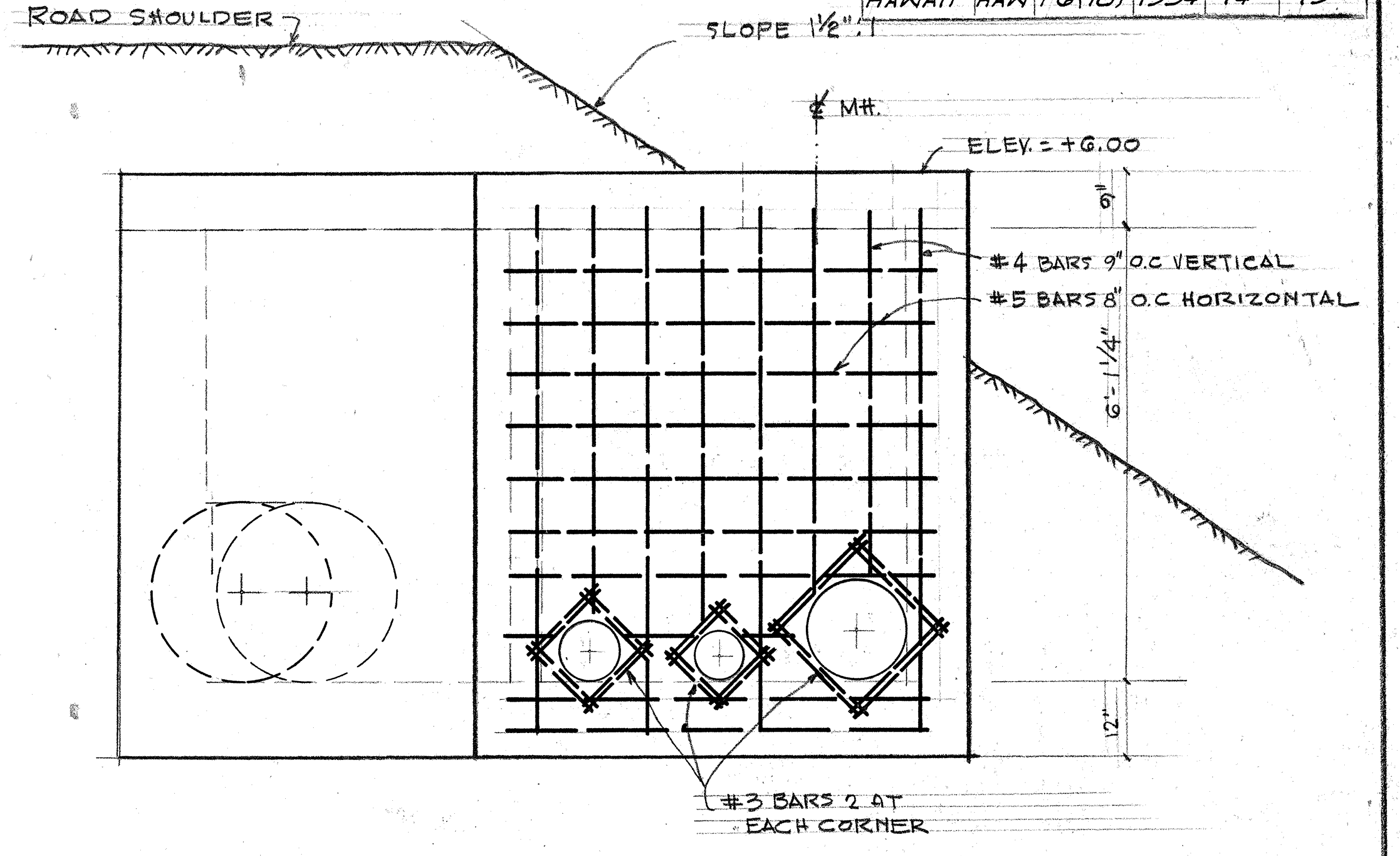
TOP SLAB


2'-0"
M.H. OPENING
9"
9'-4 3/8"
7'-7 3/8"
12"
#5 BARS 6" O.C. VERTICAL
#4 BARS 12" O.C. HORIZONTAL
#4 BARS 2 AT EACH CORNER

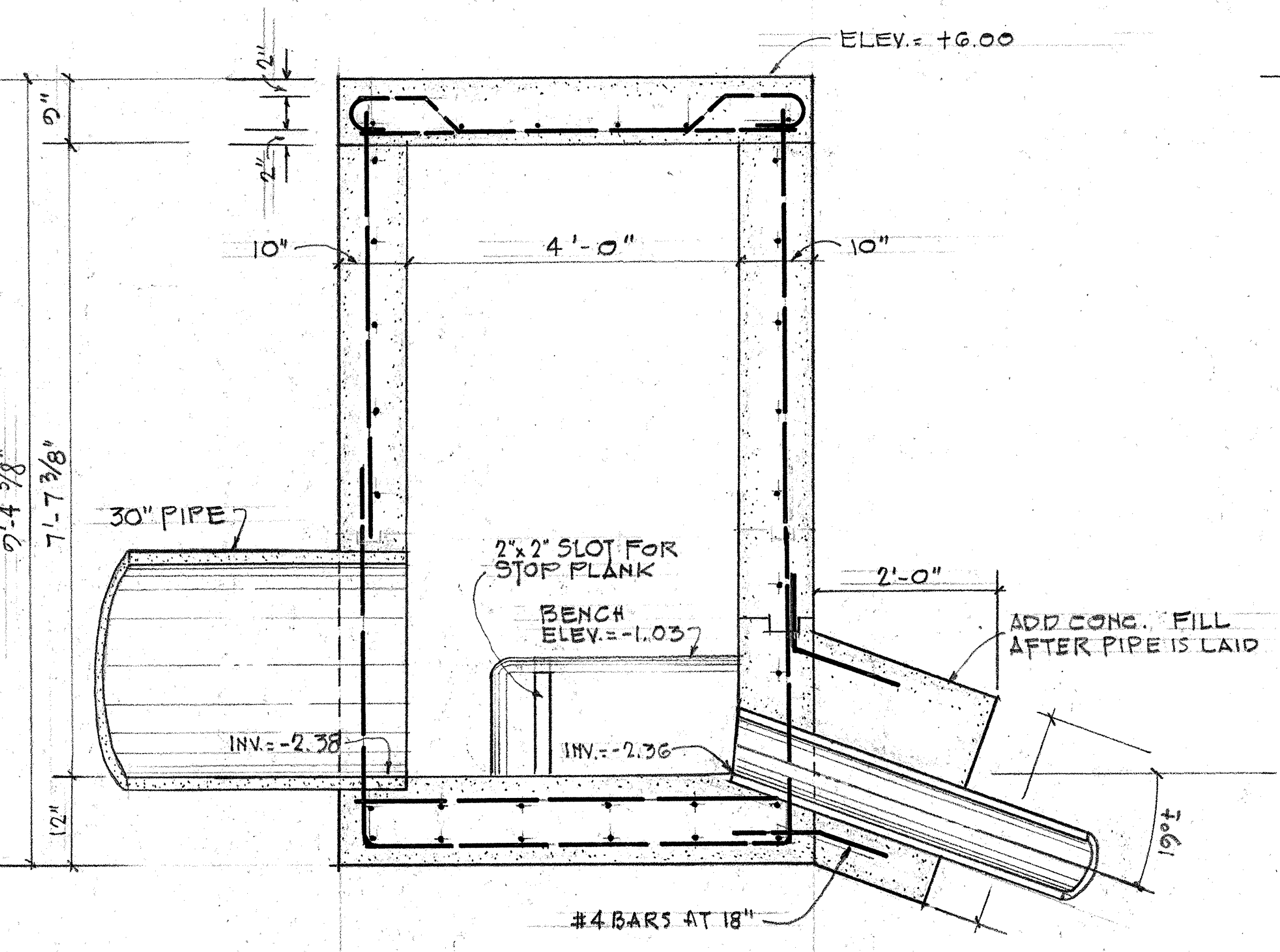
SECTION "C-C"


#3 BARS 12" O.C. BEND UP BOTHWAYS ALTERNATE
6'-11 1/2"
STD. M.H.
#3 BARS 2 AT EACH CORNER
10'-4"
1'-4"
2'-0"

TOP SLAB


ROAD SHOULDER
SLOPE 1½":1
℄ M.H.
ELEV. = +6.00
9"
#4 BARS 9" O.C. VERTICAL
#5 BARS 8" O.C. HORIZONTAL
6'-1 1/4"
12"
#3 BARS 2 AT EACH CORNER

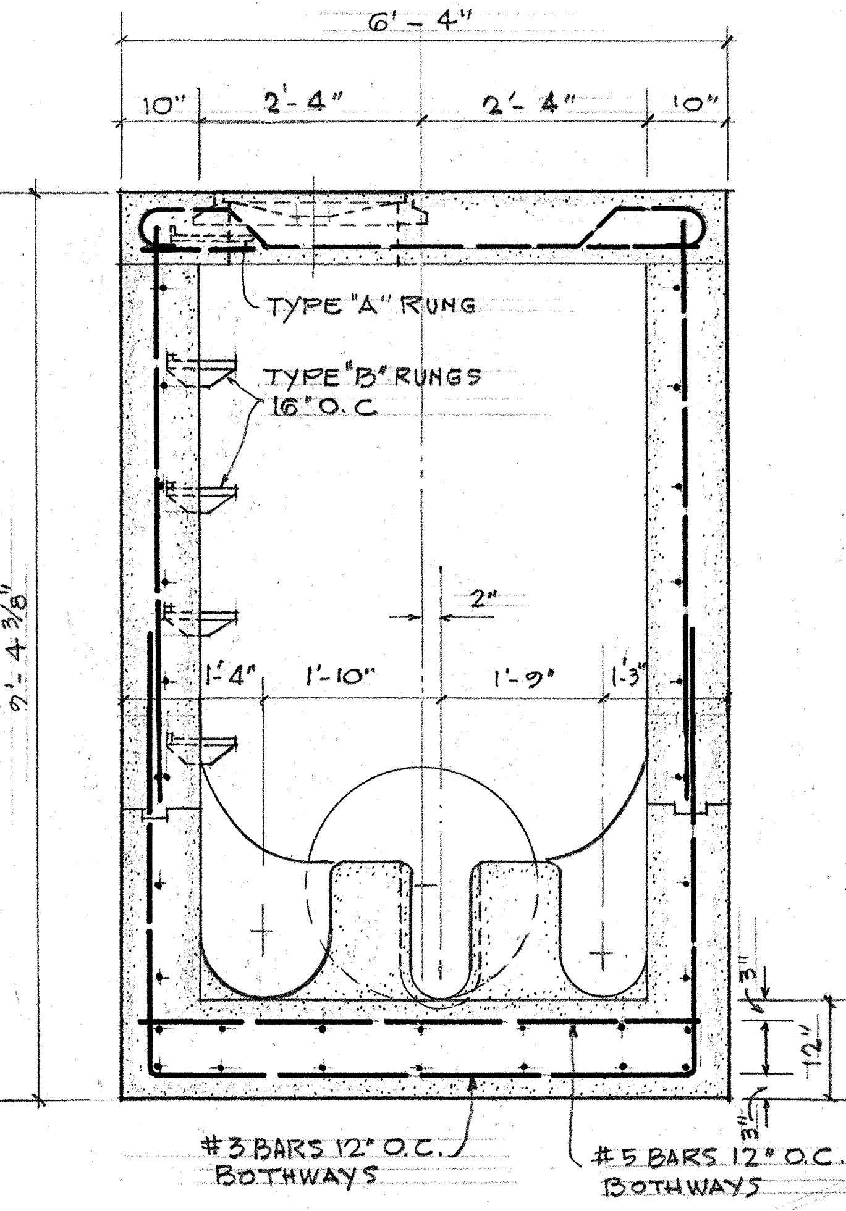
SECTION "F-F"


ELEV. = +6.00
9"
2½"
2½"
10"
4'-0"
10"
9'-4 3/8"
7'-7 3/8"
30" PIPE
2"x2" SLOT FOR STOP PLANK
BENCH ELEV. = -1.03
2'-0"
ADD CONC. FILL AFTER PIPE IS LAID
INV. = -2.38
INV. = -2.36
12"
19"±
#4 BARS AT 18"

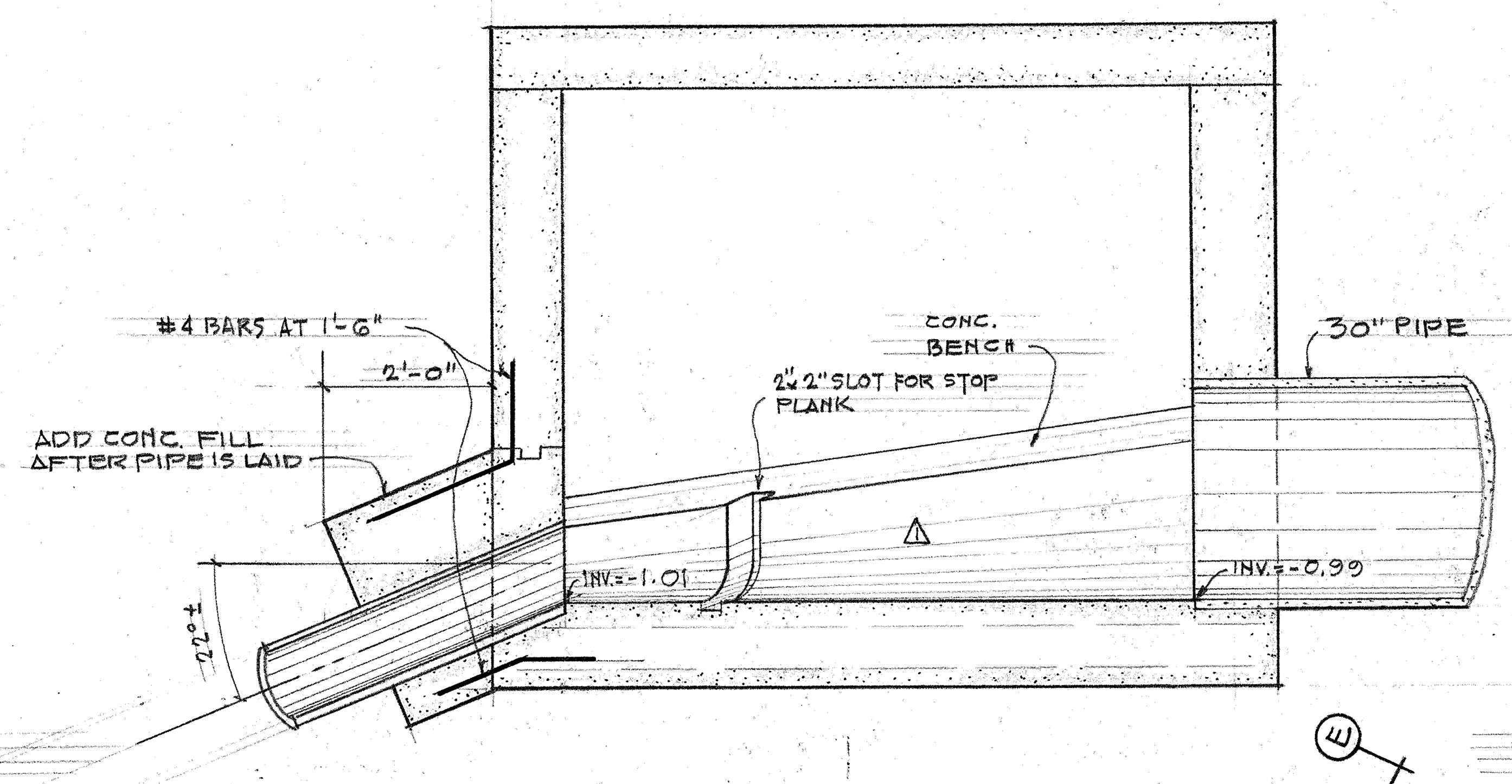
NOTE:
ELEVATION FOR ALL 3 INLET PIPES = -2.36

SECTION "B-B"

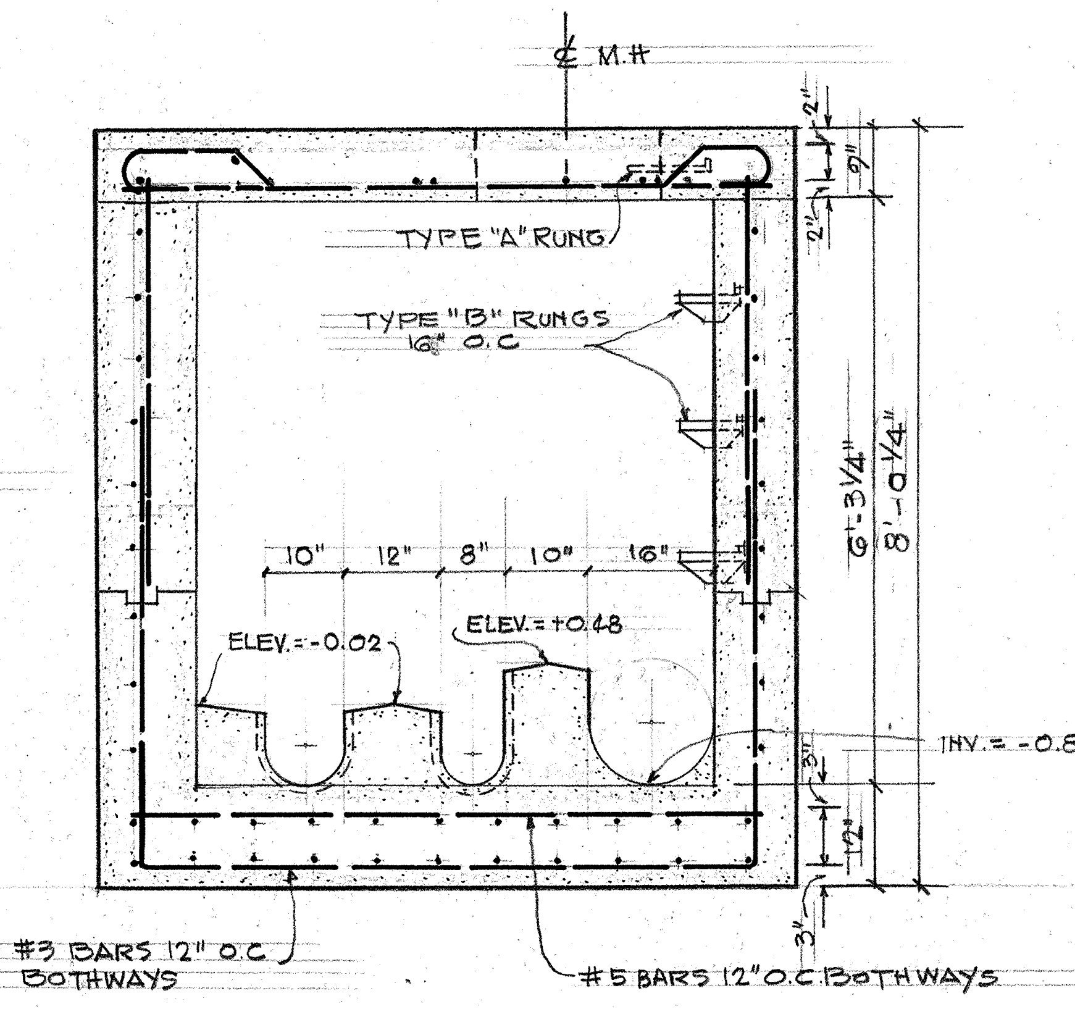
SCALE: ½" = 1'-0"


6'-4"
10"
2'-4"
2'-4"
10"
TYPE "A" RUNG
TYPE "B" RUNGS 16" O.C.
9'-4 3/8"
2"
1'-4"
1'-10"
1'-9"
1'-5"
3"
12"
3"
#3 BARS 12" O.C. BOTHWAYS
#5 BARS 12" O.C. BOTHWAYS

SECTION "A-A"


#4 BARS AT 1'-6"
2'-0"
ADD CONC. FILL AFTER PIPE IS LAID
22°±
CONC. BENCH
2"x2" SLOT FOR STOP PLANK
30" PIPE
INV. = -1.01
INV. = -0.99
1

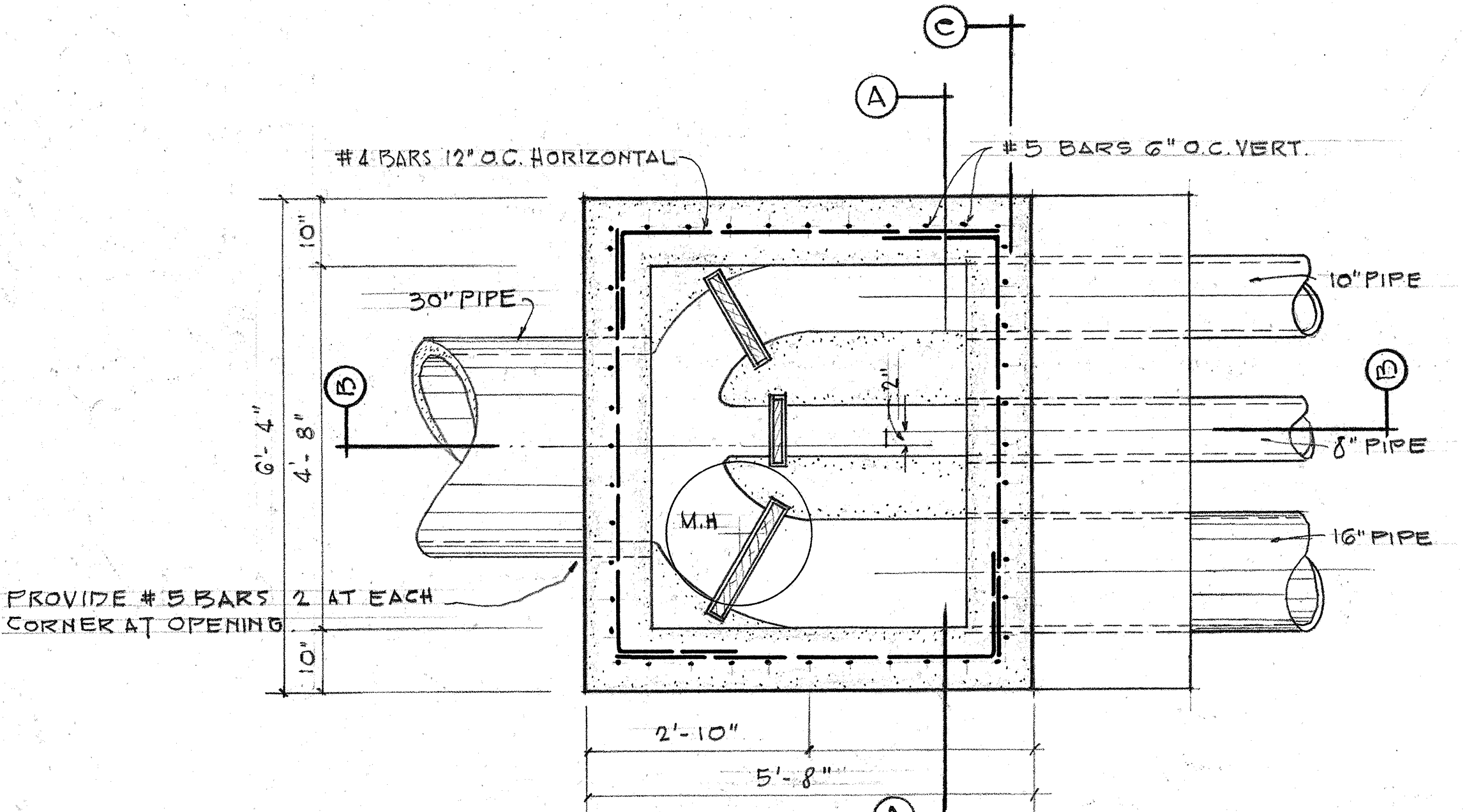
SECTION "E-E"


℄ M.H.
TYPE "A" RUNG
TYPE "B" RUNGS 16" O.C.
2½"
9"
6'-3 1/4"
8'-0 1/4"
10"
12"
8"
10"
16"
ELEV. = -0.02
ELEV. = +0.48
INV. = -0.85
3"
12"
3"
#3 BARS 12" O.C. BOTHWAYS
#5 BARS 12" O.C. BOTHWAYS

SECTION "D-D"

NOTE: USE CLASS "A" CONCRETE FOR SPECIAL MHS (T.H. CLASS A-1)

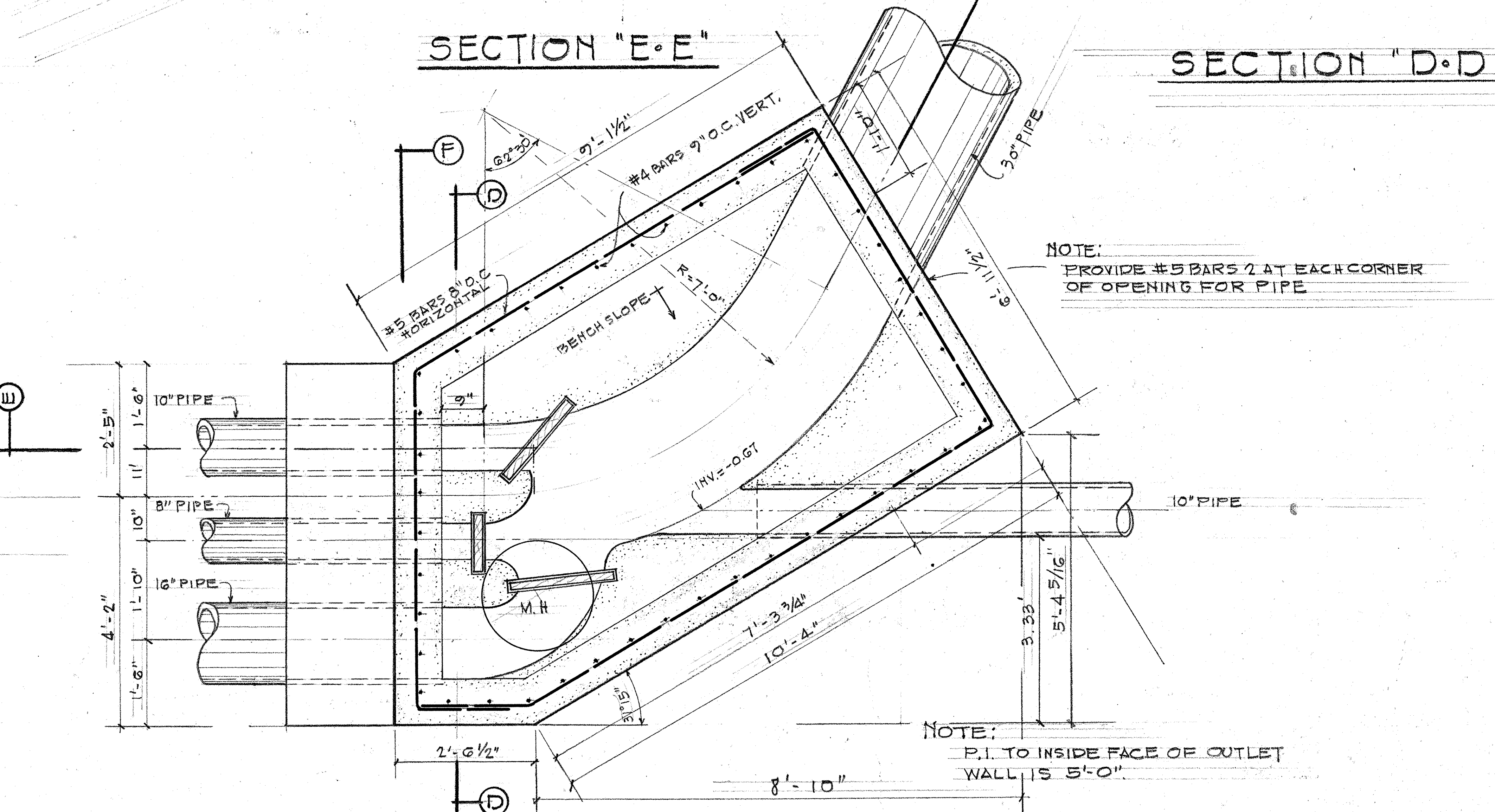
THESE PLANS WERE PREPARED IN THE OFFICE OF THE DEPARTMENT OF PUBLIC WORKS, CITY & COUNTY OF HONOLULU.


C
A
#4 BARS 12" O.C. HORIZONTAL
#5 BARS 6" O.C. VERT.
10"
30" PIPE
B
6'-4"
4'-8"
2"
M.H
10" PIPE
B
8" PIPE
16" PIPE
PROVIDE #5 BARS 2 AT EACH CORNER AT OPENING
10"
2'-10"
5'-8"
A

PLAN · MH #40

MANHOLE STA. 97+97 at CENTER OF M.H

FOR SIPHON DETAIL SEE SHEET 9 OF 13


E
F
D
62°30'
9'-1½"
#4 BARS 9" O.C. VERT.
1'-0"
30" PIPE
6'-11½"
#5 BARS 8" O.C. HORIZONTAL
R=7'-0"
BENCH SLOPE
E
10" PIPE
8" PIPE
16" PIPE
2'-5"
1'-6"
11"
10"
1'-10"
4'-2"
1'-6"
9"
INV. = -0.67
10" PIPE
M.H
7'-3 3/4"
10'-4"
3.33'
5'-4 5/16"
31°15'
2'-6½"
8'-10"
D

NOTE:
PROVIDE #5 BARS 2 AT EACH CORNER OF OPENING FOR PIPE

NOTE:
P.I. TO INSIDE FACE OF OUTLET WALL IS 5'-0".

PLAN · MH #41 SCALE: ½" = 1'-0"

MANHOLE STA. 98+92 ANGLE = 62°30'

REVISION	DATE	BRIEF	MADE BY	APPROVED
1	11-8-54	LOWERED MH#41 INVERT	T.S.R.C.	Y.Y.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
KALANIANAOLE HIGHWAY
PROJECT No. F6 (18)
NOVEMBER 1954

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
DIVISION OF SEWERS

WAILUPE TRUNK SEWER
SECTION II
SPECIAL DETAILS

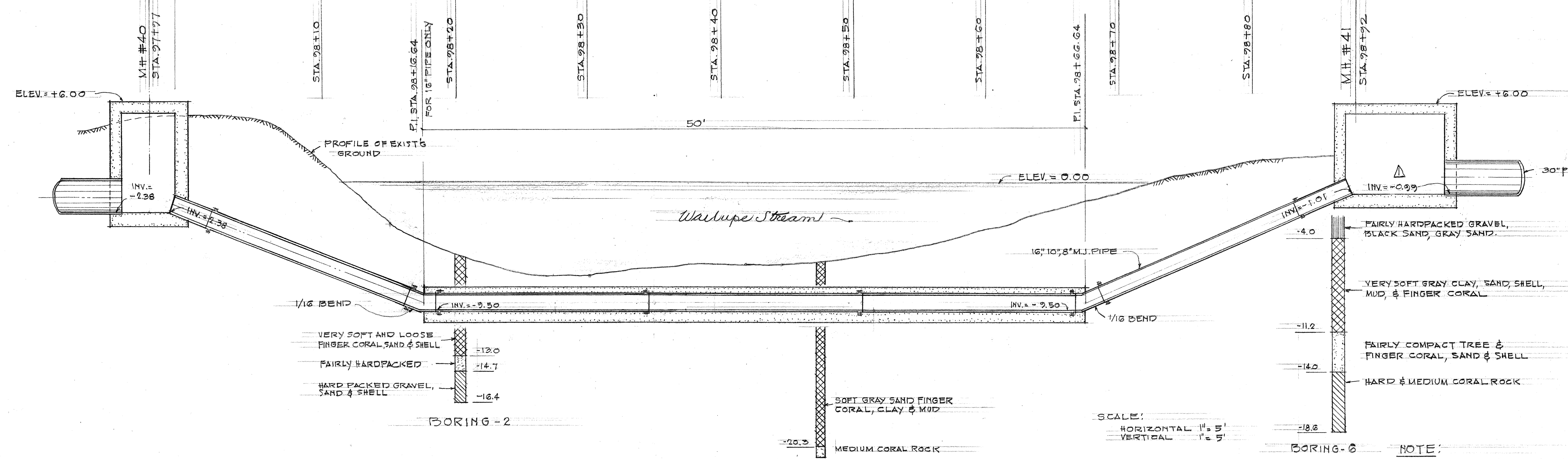
ENGINEER J. Chang
DATE Oct. 5, 1954
DRAFTSMAN D. Sasaki
CHECKED BY H. Finlay
SCALE AS SHOWN
TRACER D. Sasaki
APPROVED: Wm. C. Yamawatta
CHIEF ENGINEER
APPROVED:
DIVISION ENGINEER

5686.74

SHEET 8 OF 13 SHEETS

FILE	POCKET	FOLDER	NO.
7	11	1	42

FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS.
HAWAII	HAW	F6(18)	1954	75	79

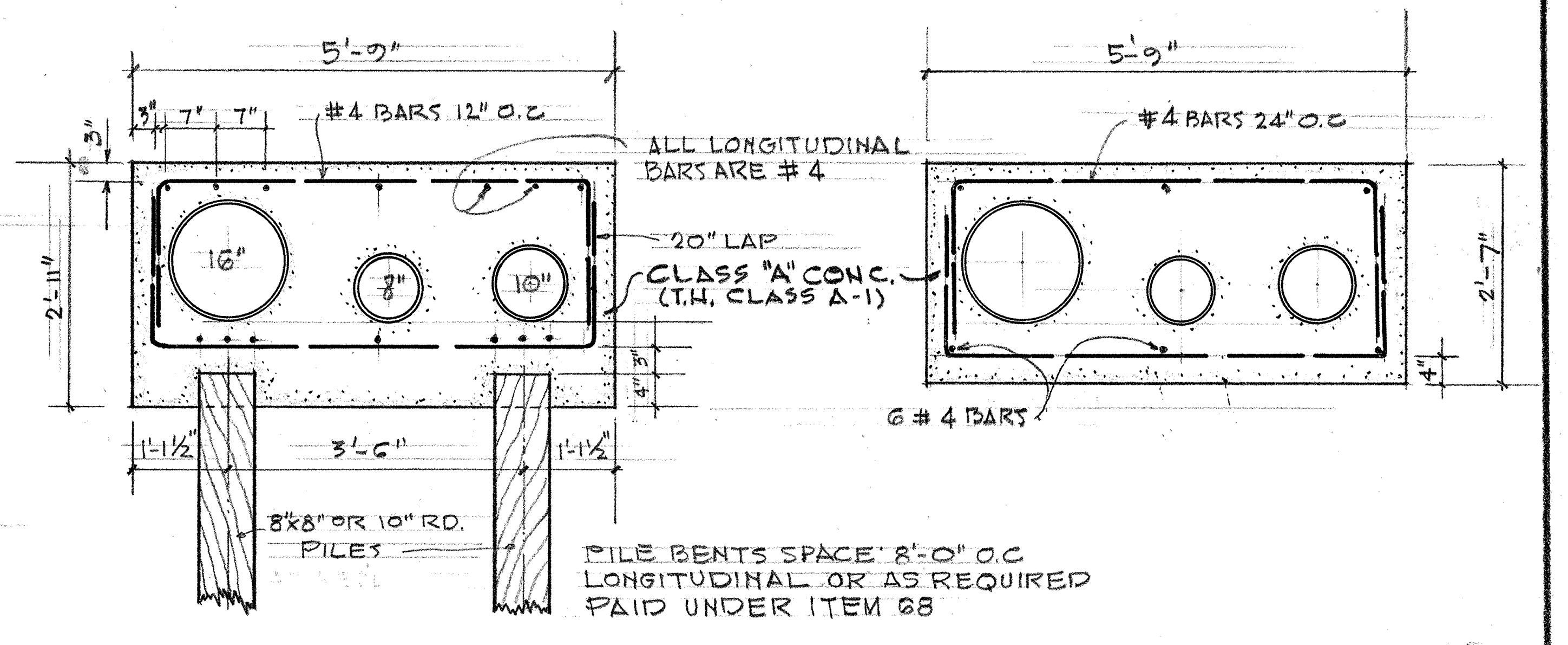


M.H. #40
STA. 97+77
STA. 98+10
P.I. STA. 98+16.64
FOR 16" PIPE ONLY
STA. 98+20
STA. 98+30
STA. 98+40
STA. 98+50
STA. 98+60
P.I. STA. 98+66.64
STA. 98+70
STA. 98+80
M.H. #41
STA. 98+92
ELEV. = +6.00
ELEV. = +6.00
50'
PROFILE OF EXIST'G GROUND
ELEV. = 0.00
INV. = -2.38
INV. = -2.38
INV. = -0.93
INV. = -1.01
30" PIPE
Wailupe Stream
16", 10", 8" M.J. PIPE
1/16 BEND
1/16 BEND
INV. = -9.50
INV. = -9.50
VERY SOFT AND LOOSE FINGER CORAL, SAND & SHELL
-13.0
FAIRLY HARDPACKED
-14.7
HARD PACKED GRAVEL, SAND & SHELL
-16.4
BORING - 2
SOFT GRAY SAND FINGER CORAL, CLAY & MUD
-20.3
MEDIUM CORAL ROCK
BORING - 4
-4.0
FAIRLY HARDPACKED GRAVEL, BLACK SAND, GRAY SAND.
VERY SOFT GRAY CLAY, SAND, SHELL, MUD, & FINGER CORAL
-11.2
FAIRLY COMPACT TREE & FINGER CORAL, SAND & SHELL
-14.0
HARD & MEDIUM CORAL ROCK
-18.8
BORING - 6
△

SCALE:
HORIZONTAL 1" = 5'
VERTICAL 1" = 5'

DETAIL OF SIPHON

NOTE:
BORING DATA TAKEN FROM TERRITORIAL HIGHWAY PLAN JOB NO. F6 (18).
NO GUARANTEE IS GIVEN THAT MATERIAL OTHER THAN SHOWN MAY NOT BE ENCOUNTERED.

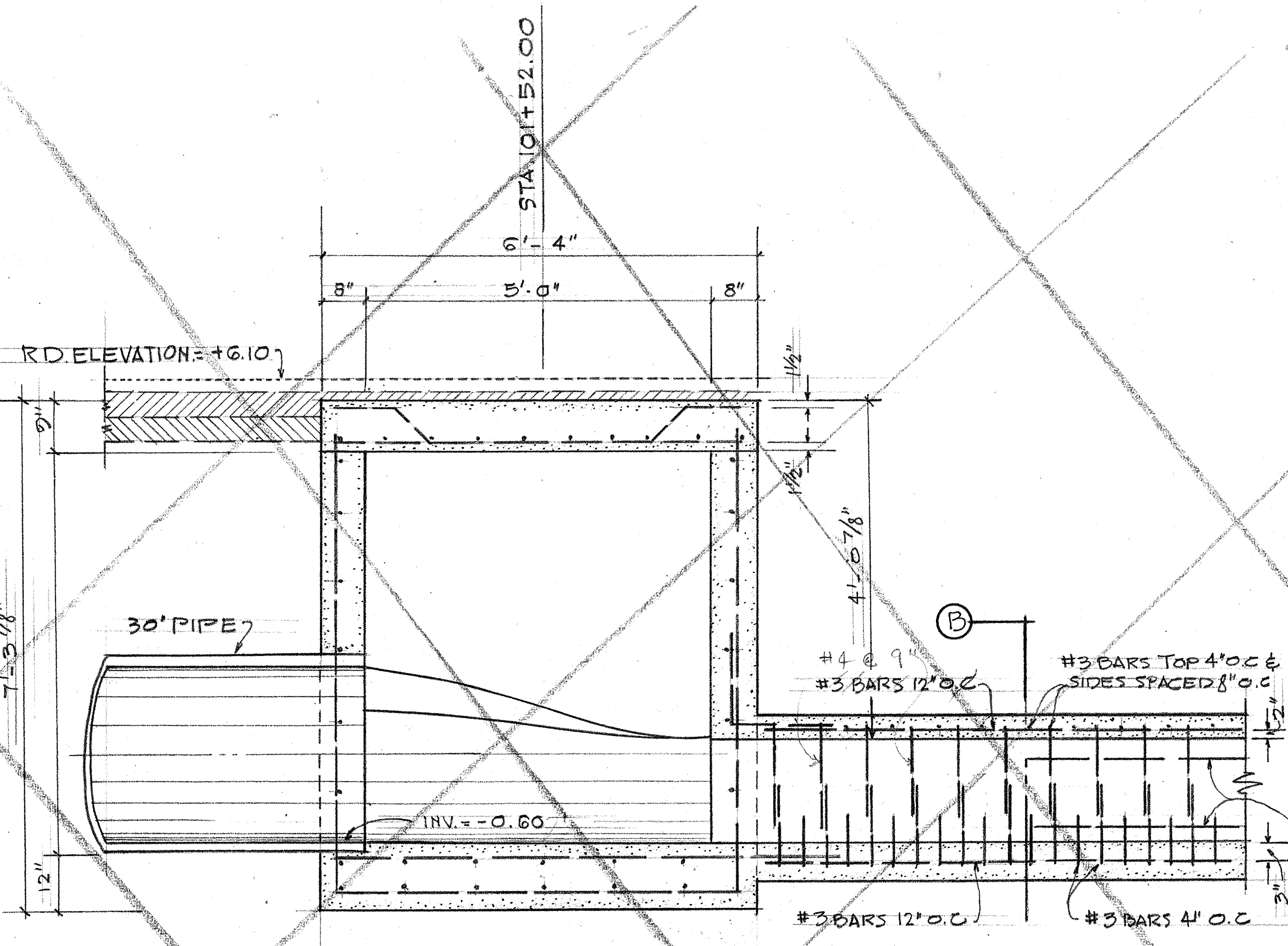


5'-9"
3"
7"
7"
#4 BARS 12" O.C.
ALL LONGITUDINAL BARS ARE #4
16"
8"
10"
20" LAP
CLASS "A" CONC. (T.H. CLASS A-1)
2'-11"
1'-1½
3'-6"
1'-1½
8"x8" OR 10" RD. PILES
PILE BENTS SPACE 8'-0" O.C. LONGITUDINAL OR AS REQUIRED PAID UNDER ITEM 28
5'-9"
#4 BARS 24" O.C.
2'-7"
6 #4 BARS

SECTION WITH PILES   SECTION WITHOUT PILES

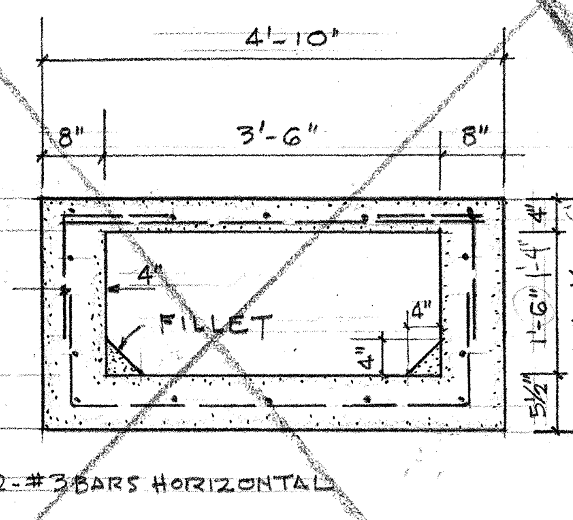
DETAIL OF SIPHON JACKET

SCALE: 1/2" = 1'-0"



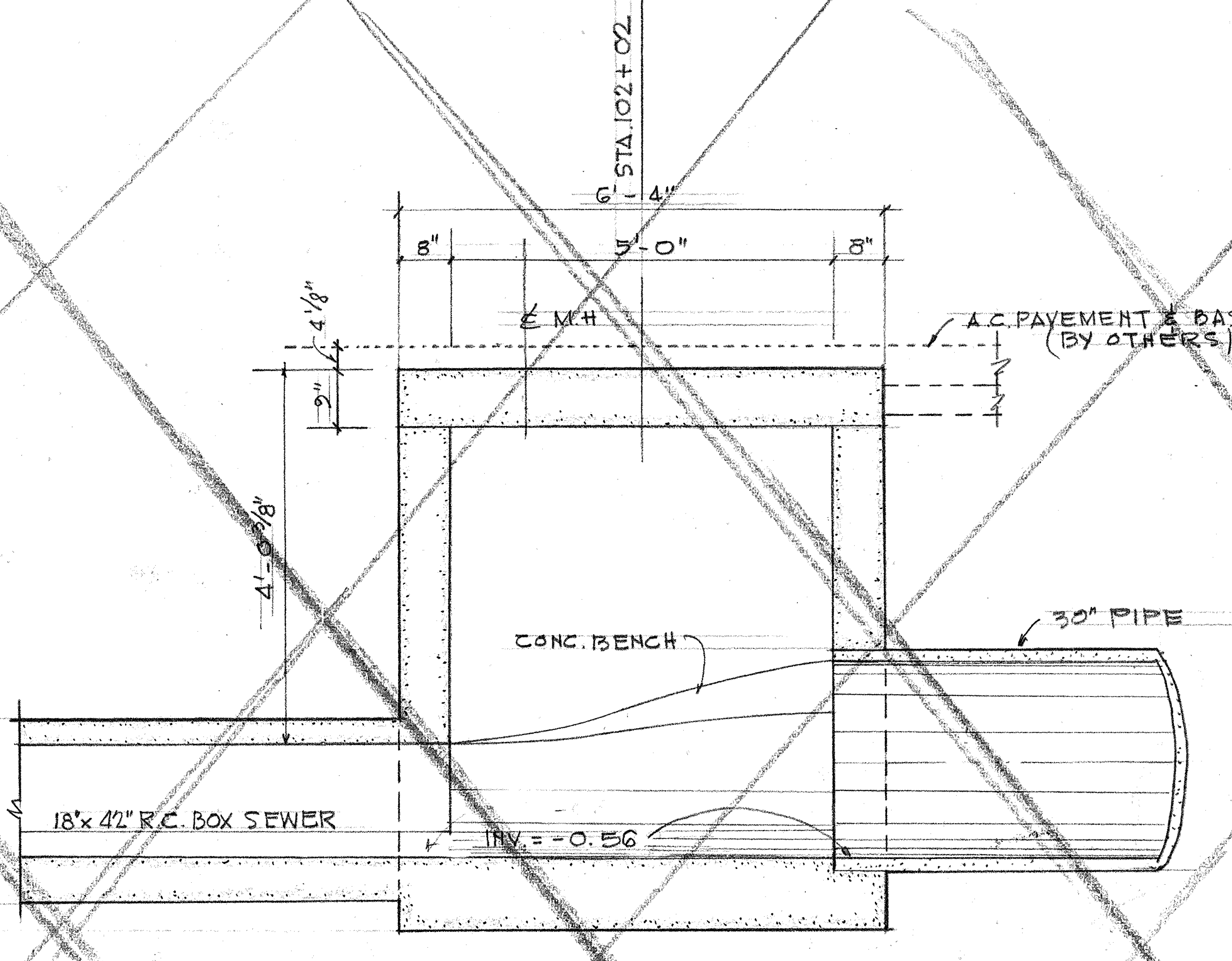
STA. 101+52.00
6'-4"
8"
5'-0"
8"
RD. ELEVATION = +6.10
30" PIPE
#4 @ 9"
#3 BARS 12" O.C.
#3 BARS TOP 4" O.C. & SIDES SPACED 8" O.C.
INV. = -0.60
#3 BARS 12" O.C.
#3 BARS 4" O.C.
2-#3 BARS HORIZONTAL
7'-3⅞"
12"

SECTION "A-A"



4'-10"
8"
3'-6"
8"
FILLET
4"
4"
2'-3½
1'-6"

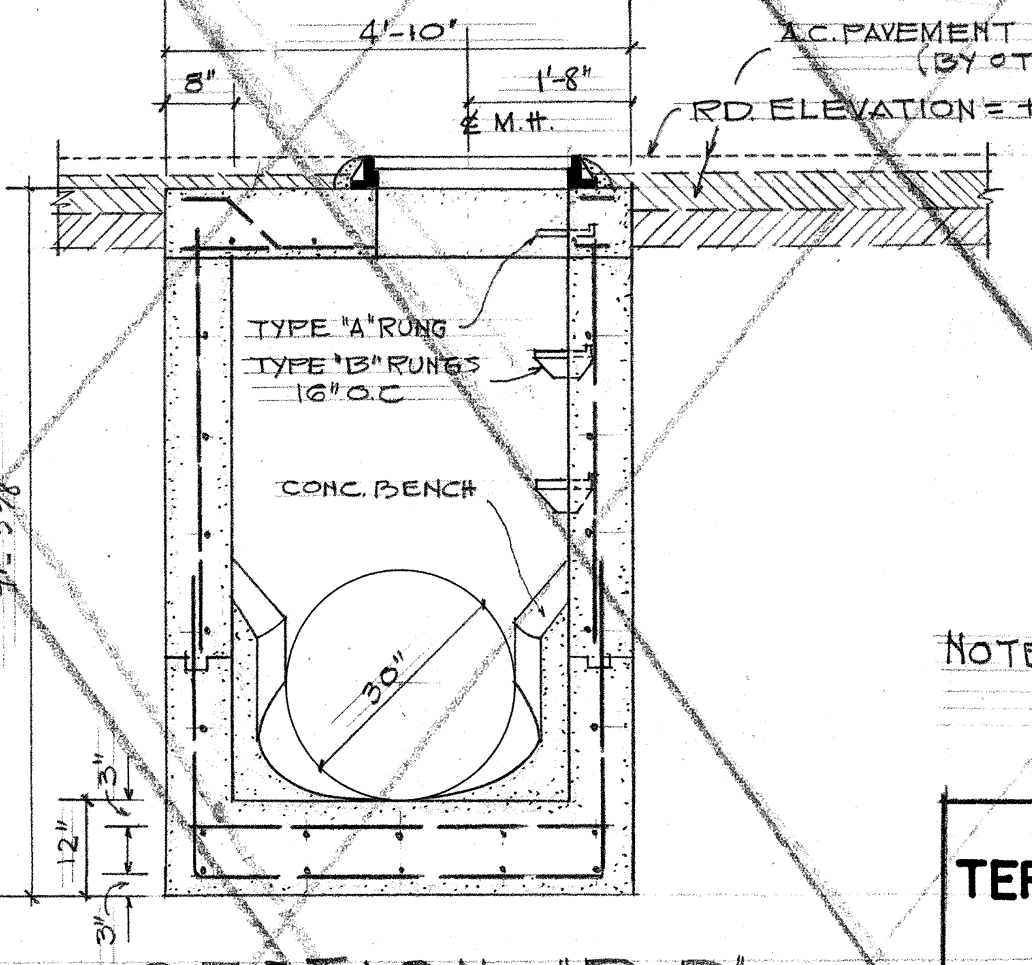
SECTION "B-B"



STA. 102+02
6'-4"
8"
5'-0"
8"
℄ M.H.
A.C. PAVEMENT & BASE COURSE (BY OTHERS)
CONC. BENCH
30" PIPE
18"x42" R.C. BOX SEWER
INV. = -0.56
4'-0⅜"

SECTION "C-C"

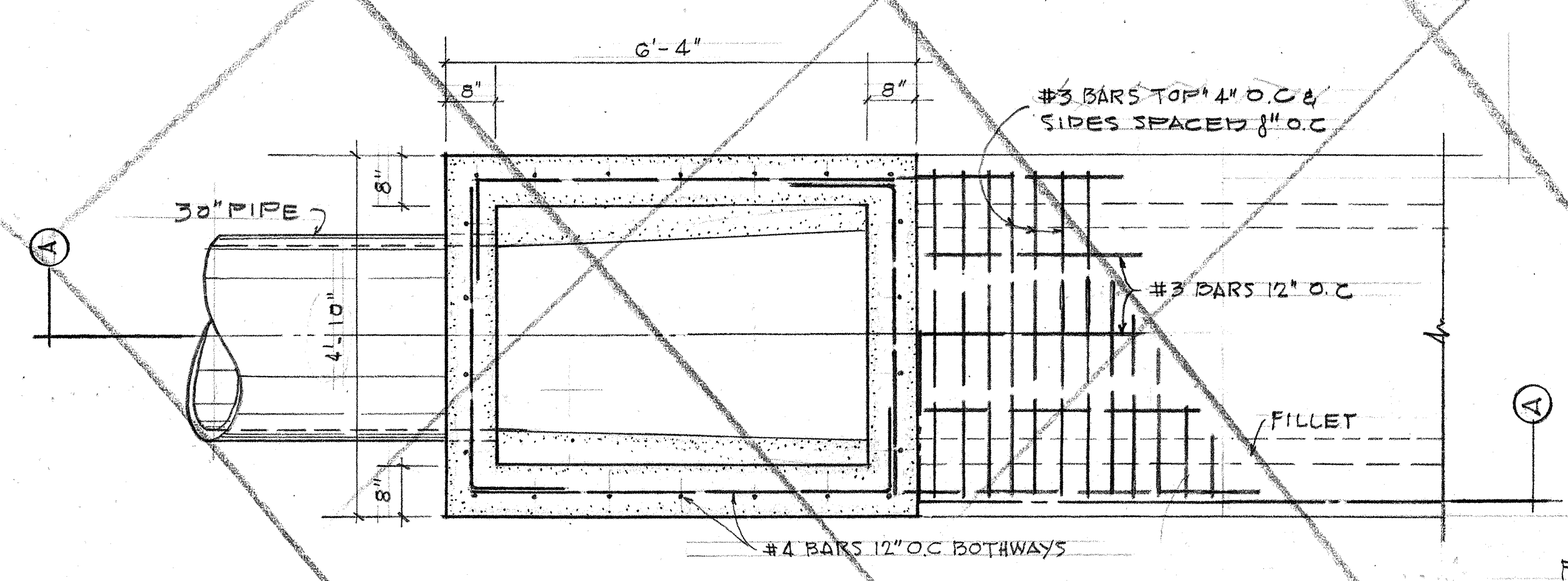
△



4'-10"
8"
1'-8"
℄ M.H.
A.C. PAVEMENT & BASE COURSE (BY OTHERS)
RD. ELEVATION = +6.10
TYPE "A" RUNG
TYPE "B" RUNGS 16" O.C.
CONC. BENCH
30"
12"

SECTION "D-D"

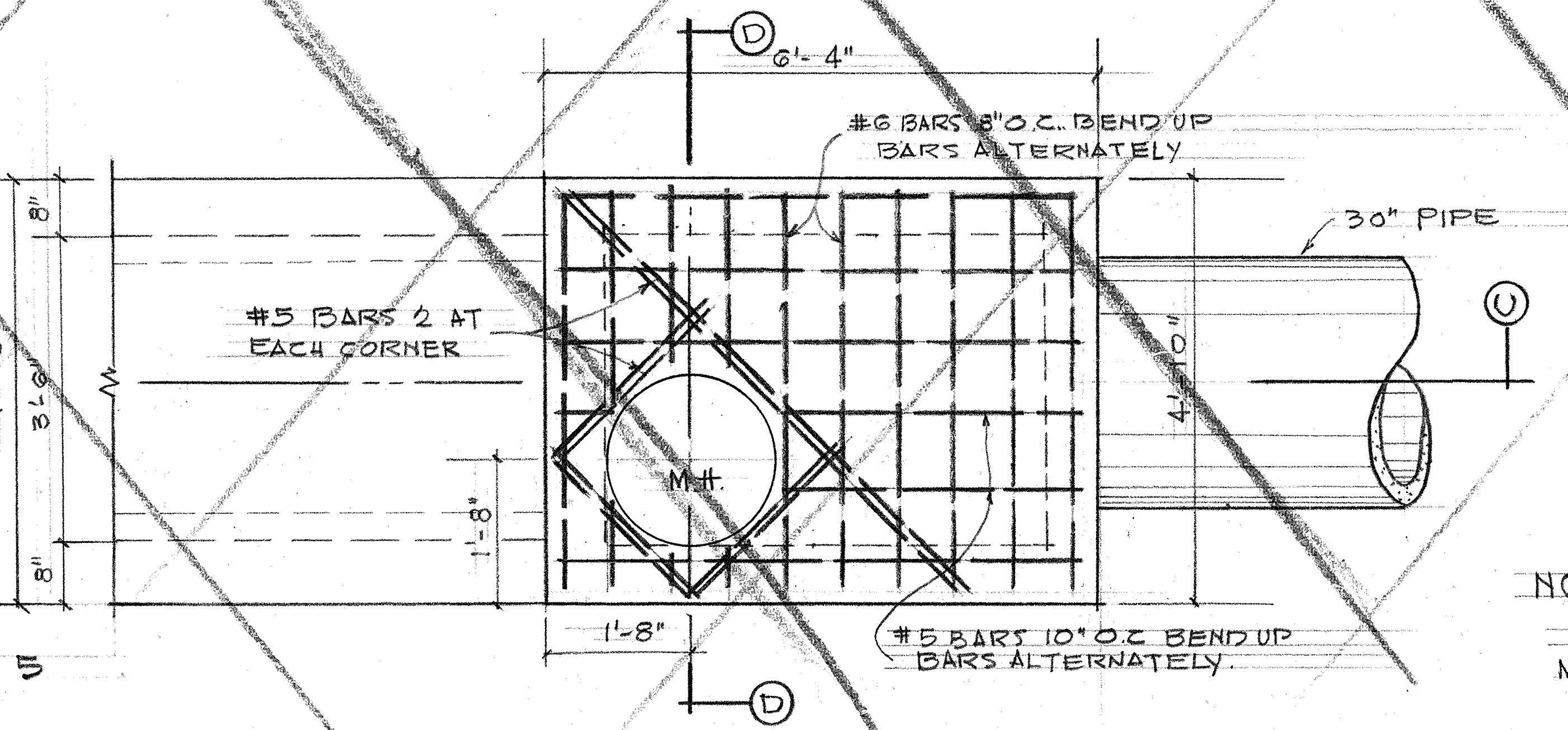
NOTE: THESE PLANS WERE PREPARED IN THE OFFICE OF THE DEPARTMENT OF PUBLIC WORKS, CITY & COUNTY OF HONOLULU.



6'-4"
8"
8"
30" PIPE
#3 BARS TOP 4" O.C. & SIDES SPACED 8" O.C.
#3 BARS 12" O.C.
FILLET
4'-10"
#4 BARS 12" O.C. BOTHWAYS
A
A

PLAN - M.H. #42-B
STA. 101+52.00

FOR PLAN & PROFILE SEE SHEET 5



D
6'-4"
#6 BARS 8" O.C. BEND UP BARS ALTERNATELY
#5 BARS 2 AT EACH CORNER
30" PIPE
M.H.
4'-10"
3'-6"
1'-8"
1'-8"
#5 BARS 10" O.C. BEND UP BARS ALTERNATELY
C
C
D

TOP SLAB MH #42-C
STA. 102+02.00

SCALE: 1/2" = 1'-0"

NOTE:
REINFORCING STEEL BARS IN BOTH M.H'S ARE THE SAME.

△	11-8-54	LOWER M.H #41 INVERT. DELETE MH #42-B AND #42-C	T S R.C.	Y8
REVISION	DATE	BRIEF	MADE BY	APPROVED

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

KALANIANAOLE HIGHWAY
PROJECT No. F6 (18)
NOVEMBER 1954

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
DIVISION OF SEWERS

WAILUPE TRUNK SEWER
SECTION II
SPECIAL DETAILS

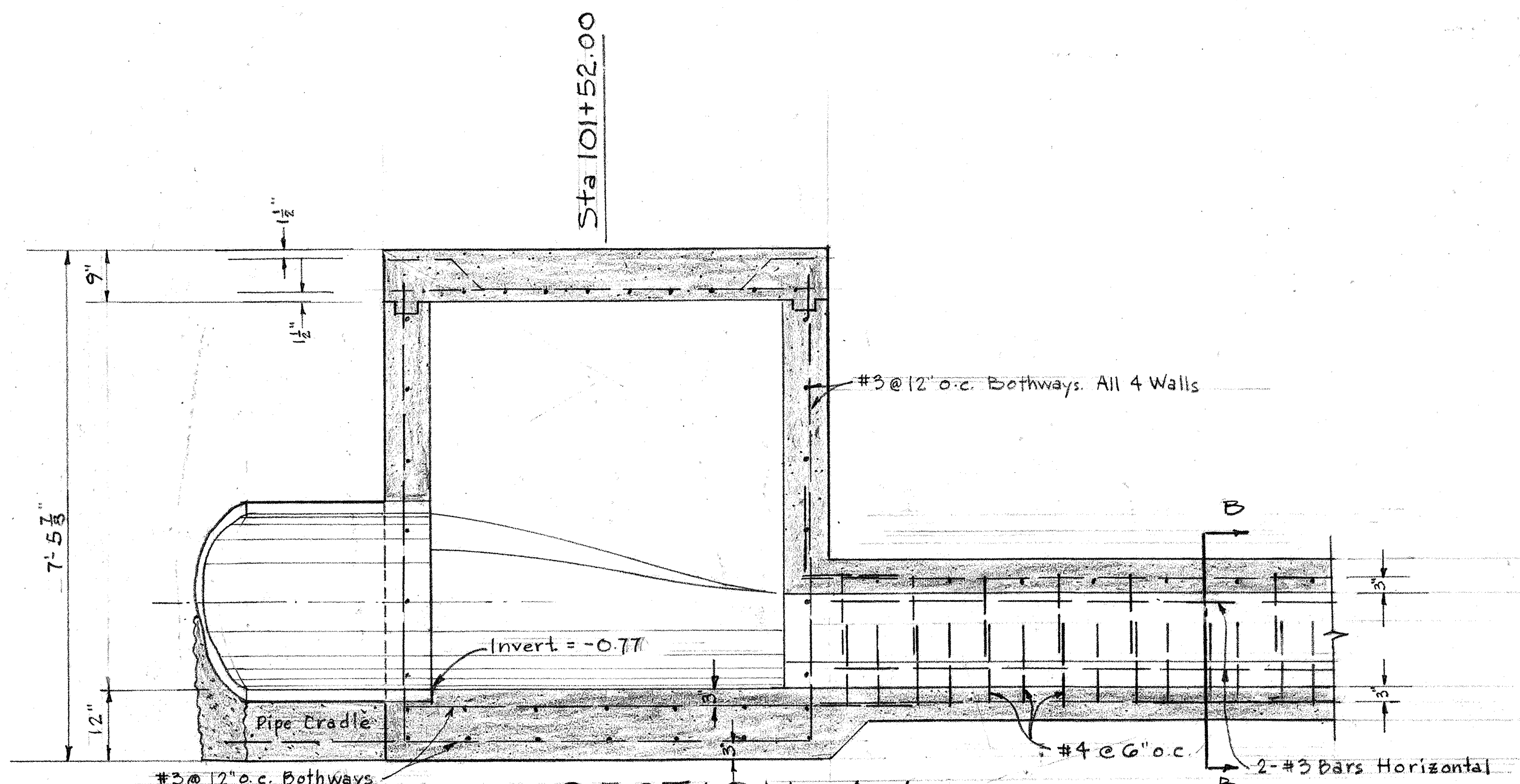
ENGINEER H. Tom & T. Kawahara   DATE OCT. 5, 1954
DRAFTSMAN D. Sasaki   CHECKED BY H. Finley
SCALE AS SHOWN   TRACER D. Sasaki
APPROVED   APPROVED
C. Yamamatta   F. Bunn
CHIEF ENGINEER   DIVISION ENGINEER

5686.75

SHEET 9 OF 13 SHEETS

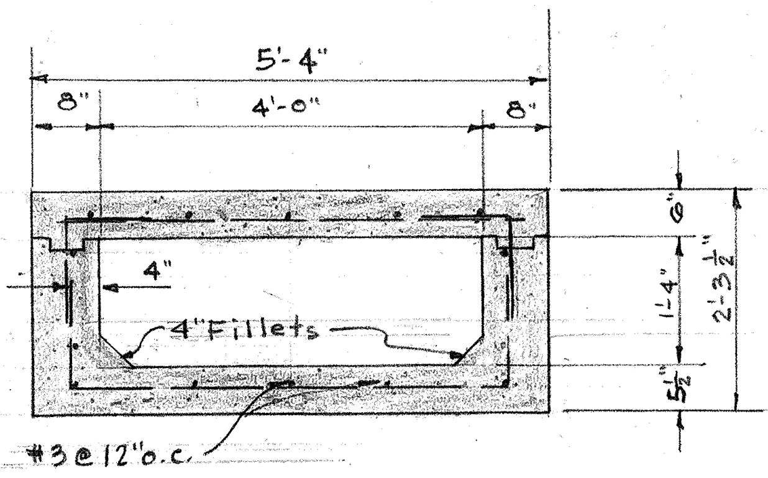
FILE	POCKET	FOLDER	NO.
7	11	1	43

FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTA SHEE
HAWAII	HAW	F6(18)	1954	76	79



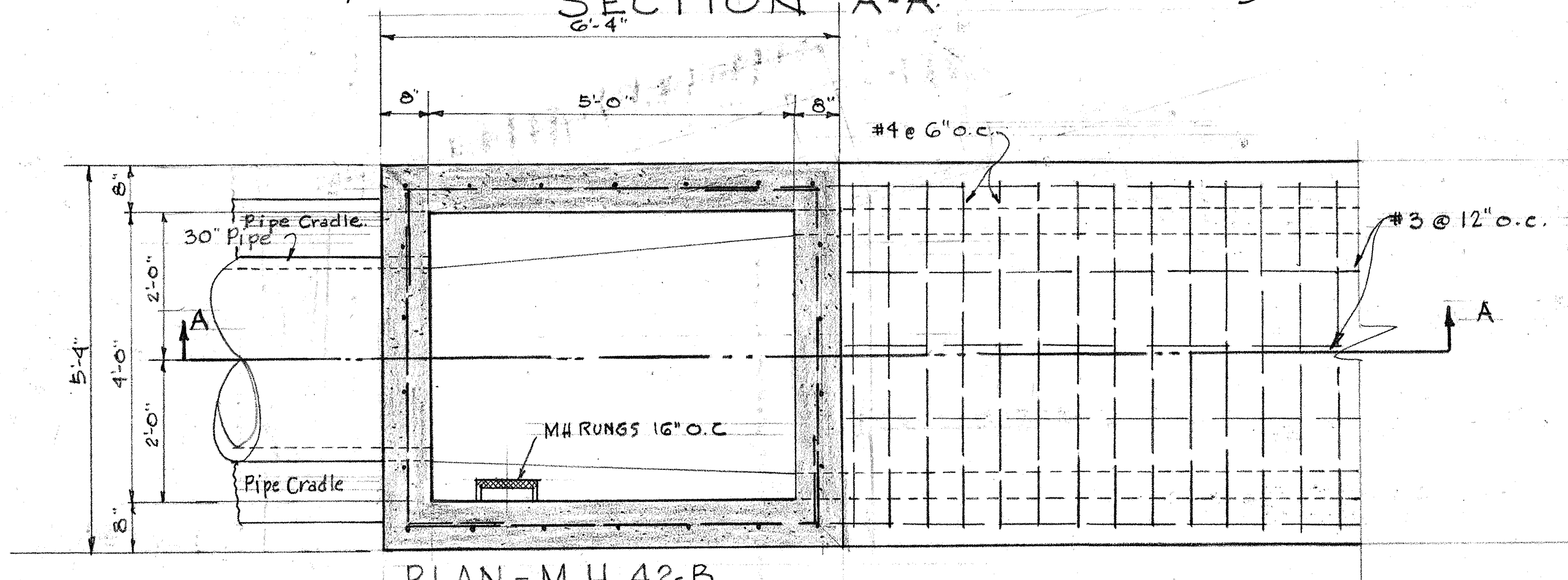
Sta 101+52.00
9"
7'-5 3/8"
12"
#3 @ 12" o.c. Bothways. All 4 Walls
Invert = -0.77
Pipe Cradle
#3 @ 12" o.c. Bothways
#4 @ 6" o.c.
2-#3 Bars Horizontal
B
B

SECTION A-A



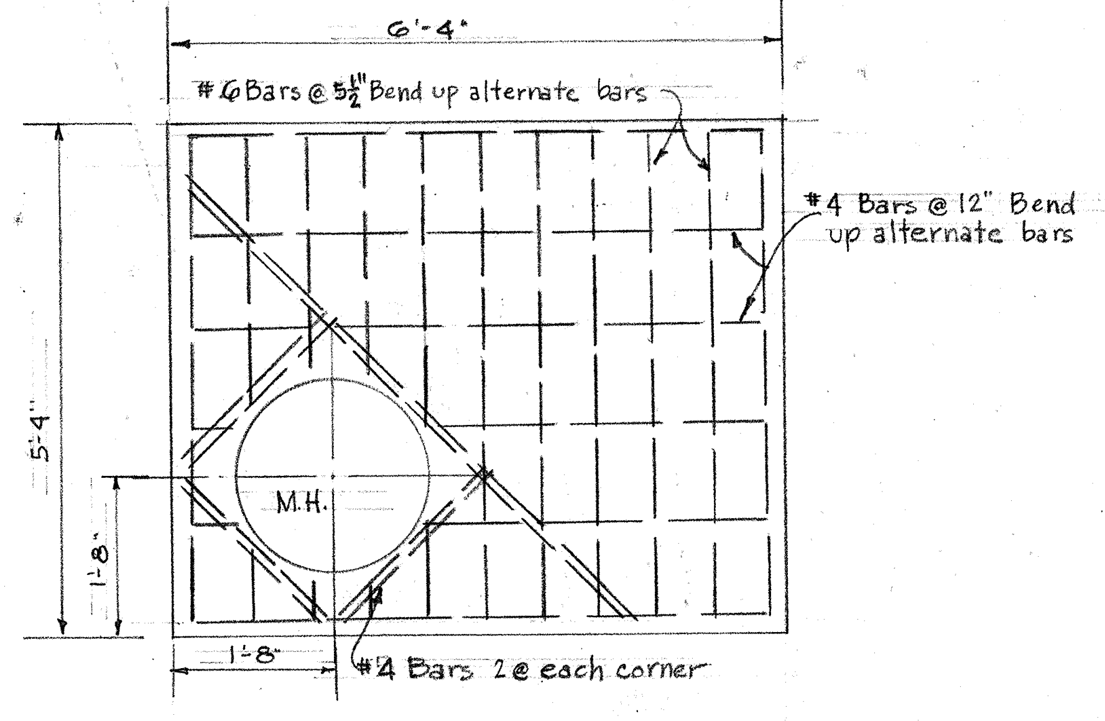
5'-4"
8"
4'-0"
8"
4"
4" Fillets
#3 @ 12" o.c.
2'-3 1/2"
1'-4"

SECTION BB



6'-4"
8"
5'-0"
8"
#4 @ 6" o.c.
#3 @ 12" o.c.
Pipe Cradle
30" Pipe
A
A
5'-4"
4'-0"
2'-0"
2'-0"
8"
8"
MH RUNGS 16" O.C.
Pipe Cradle

PLAN - M H 42-B
Sta. 101+52.00

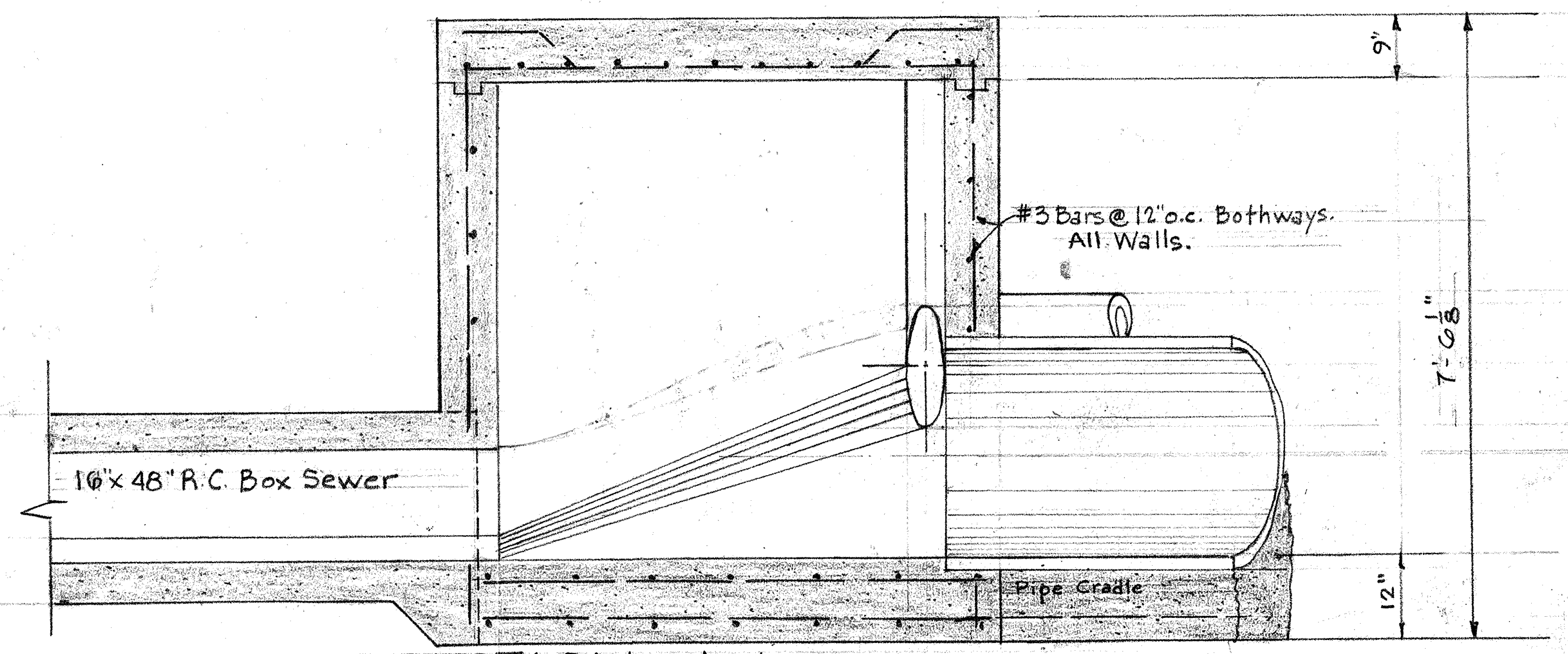


6'-4"
#6 Bars @ 5 1/2" Bend up alternate bars
#4 Bars @ 12" Bend up alternate bars
5'-4"
M.H.
1'-8"
1'-8"
#4 Bars 2 @ each corner

TOP SLAB

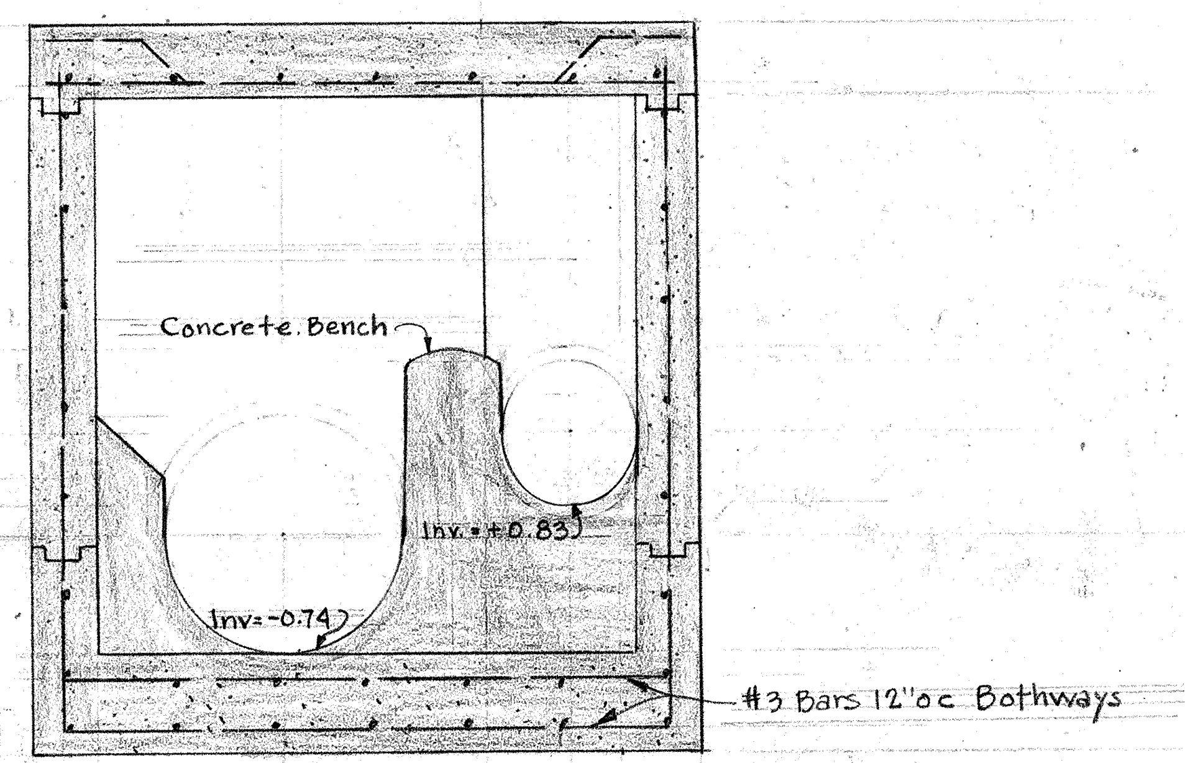
NOTES:

1. Provide 2-#4 Diagonal Bars at each corner of all openings for pipes.
2. Install Type "A" MH Rung 8" from top of MH frame then Type "B" MH Rungs 16" o.c. below.



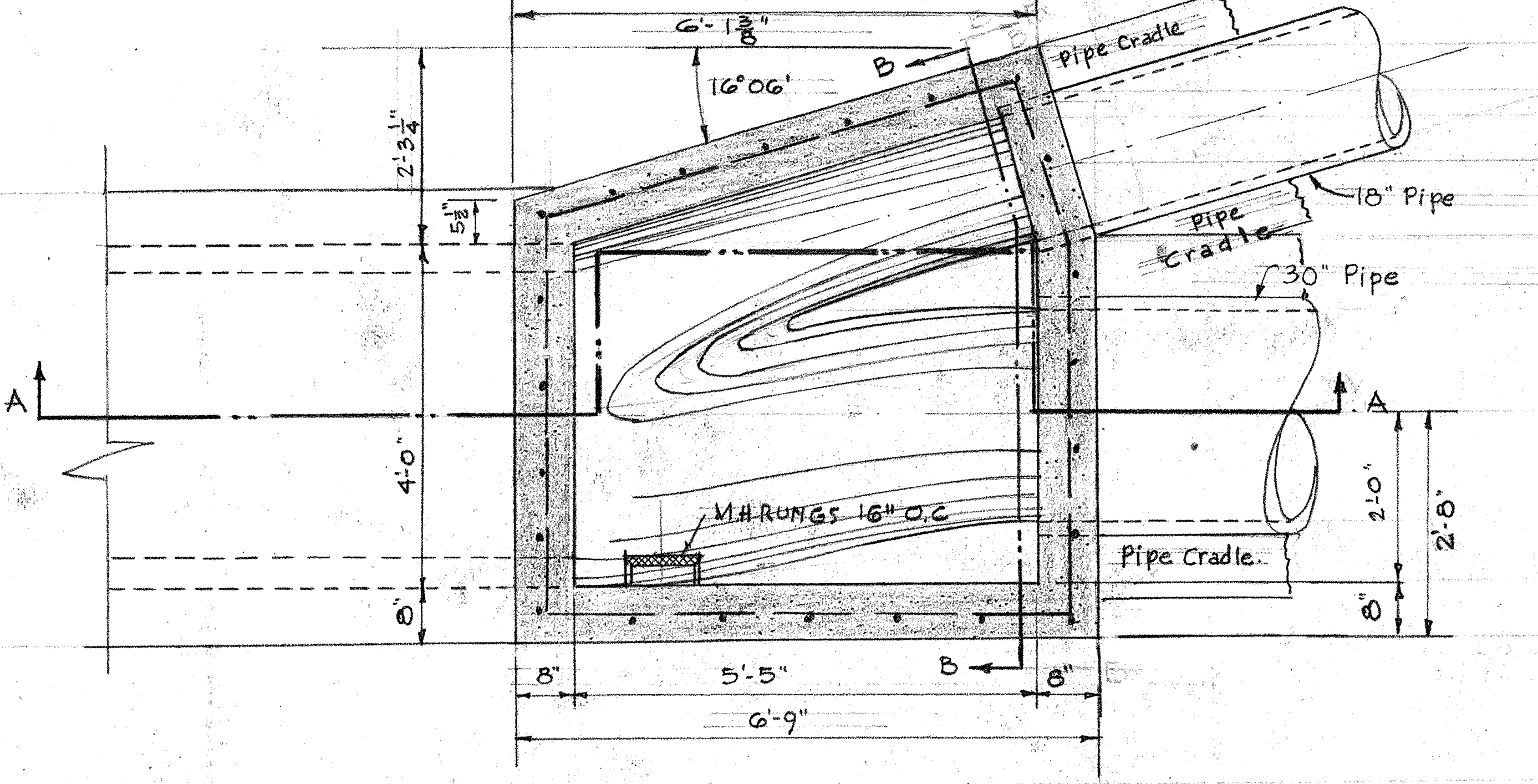
#3 Bars @ 12" o.c. Bothways. All Walls.
16"x48" R.C. Box Sewer
Pipe Cradle
9"
7'-6 1/8"
12"

SECTION A-A



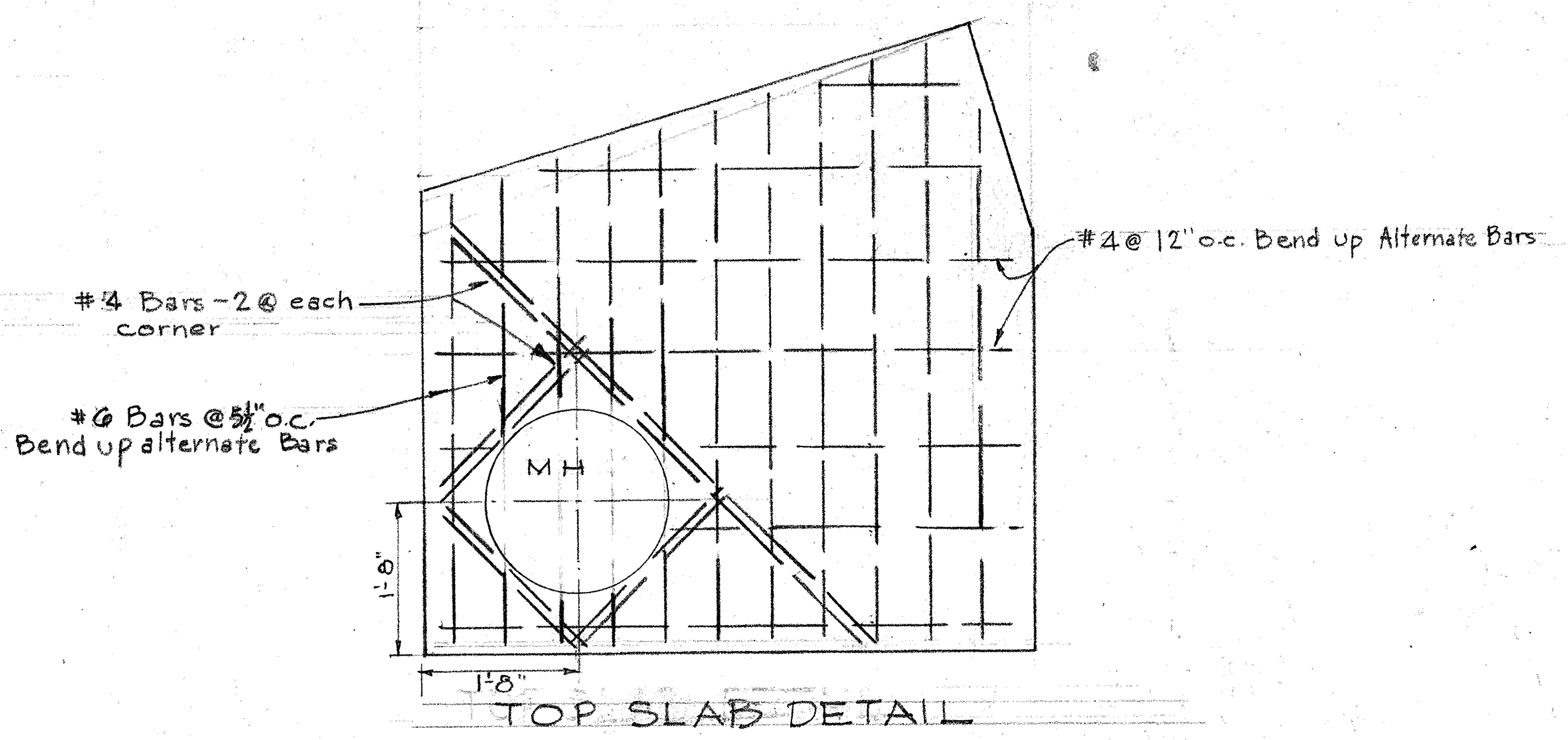
Concrete Bench
Inv. = +0.83
Inv. = -0.74
#3 Bars 12" o.c. Bothways

SECTION B-B



6'-1 3/8"
16°06'
B
Pipe Cradle
18" Pipe
Pipe Cradle
30" Pipe
2'-3 1/4"
5 1/2"
A
A
4'-0"
2'-0"
2'-8"
8"
8"
MH RUNGS 16" O.C.
Pipe Cradle
8"
5'-5"
B
8"
6'-9"

PLAN MH #42-C
Sta 101+92.00



#4 @ 12" o.c. Bend up Alternate Bars
#4 Bars - 2 @ each corner
#6 Bars @ 5 1/2" o.c. Bend up alternate Bars
MH
1'-8"
1'-8"

TOP SLAB DETAIL

NOTE: USE CLASS "A" CONCRETE FOR SPECIAL MHS (T.H. CLASS A-1)

THESE PLANS WERE PREPARED IN THE OFFICE OF T
DEPARTMENT OF PUBLIC WORKS, CITY & COUNTY
OF HONOLULU.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

KALANIANAOLE HIGHWAY
PROJECT No. F6 (18)
NOVEMBER 1954

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
DIVISION OF SEWERS

WAILUPE TRUNK SEWER
SECTION II
SPECIAL DETAILS (REVISED: 11-8-54)

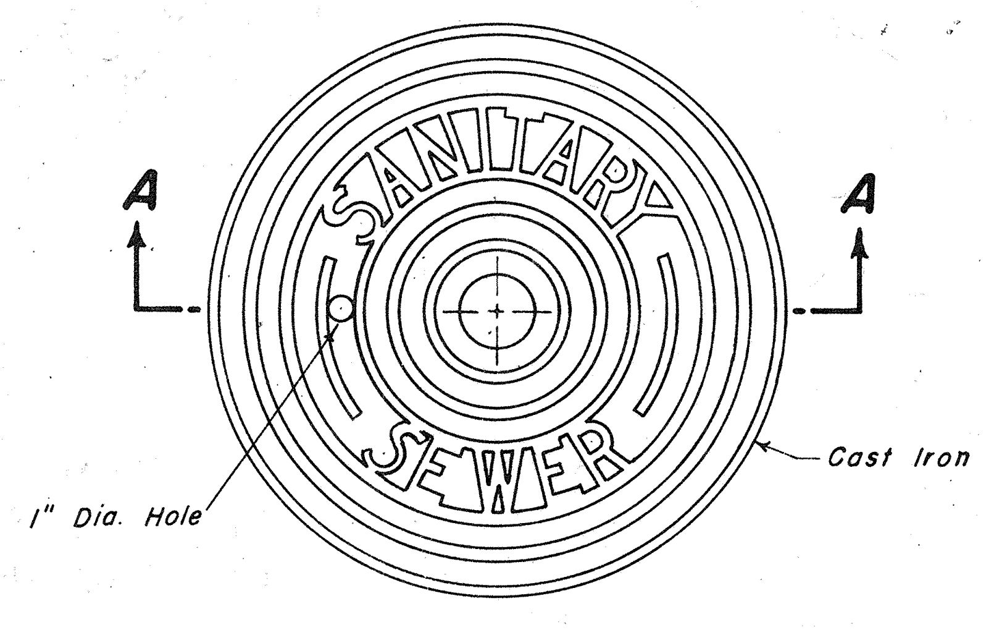
ENGINEER J. Chang
DRAFTSMAN J. Chang
SCALE 1" = 1'-0"
APPROVED:
CHIEF ENGINEER
DATE 11-8-54
CHECKED BY H. Chang
TRACER J. C.
APPROVED:
Franklin Sunn
DIVISION ENGINEER

5686.76 SHEET 10 OF 13 SHEETS

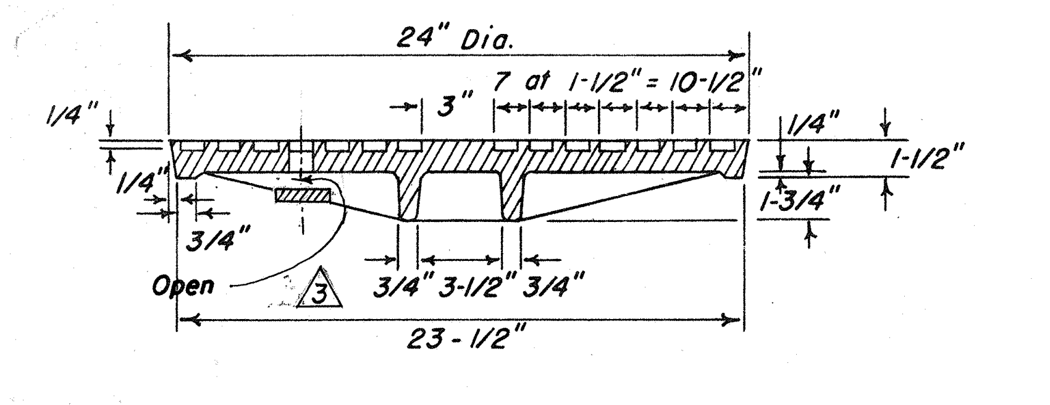
FILE	POCKET	FOLDER	NO.
7	11	1	43-a

#77

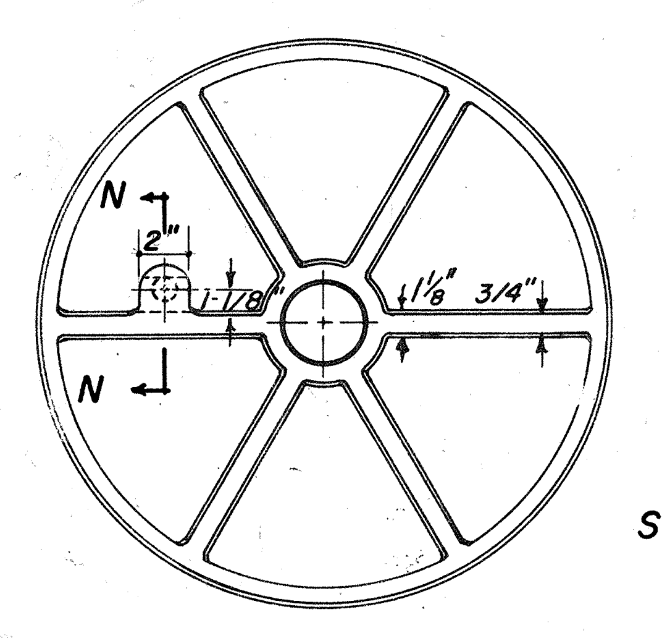
FED. ROAD DIST. No.	STATE	FED. AID. PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW	F6(18)	1954	77	79


A
A
SANITARY
SEWER
1" Dia. Hole
Cast Iron

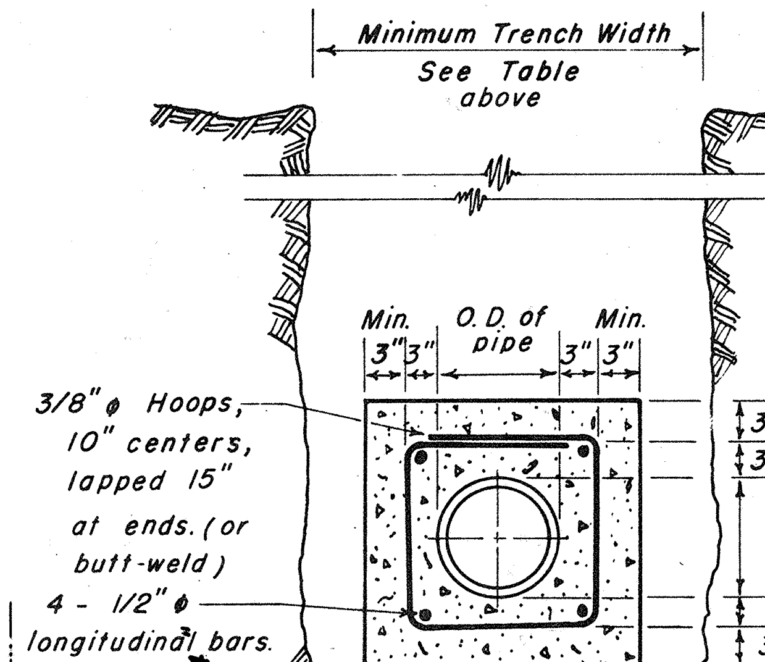
PLAN OF MANHOLE COVER
Scale 1-1/2" = 1'-0"


24" Dia.
3"
7 at 1-1/2" = 10-1/2"
1/4"
1-1/2"
1-3/4"
3/4"
Open
3
3/4" 3-1/2" 3/4"
23-1/2"

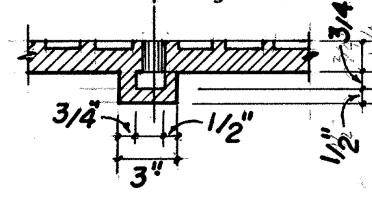
SECTION A - A


N
N
2"
1-1/8
1-1/2"
3/4"

⚠ BOTTOM VIEW OF COVER
Scale 1-1/2" = 1'-0"


Minimum Trench Width
See Table above
Min.
O.D. of pipe
Min.
3" 3"
3" 3"
3" Min.
3"
O.D. of pipe
3"
3" Min.
3/8" ϕ Hoops, 10" centers, lapped 15" at ends. (or butt-weld)
4 - 1/2" ϕ longitudinal bars.

DETAIL OF CONCRETE JACKET

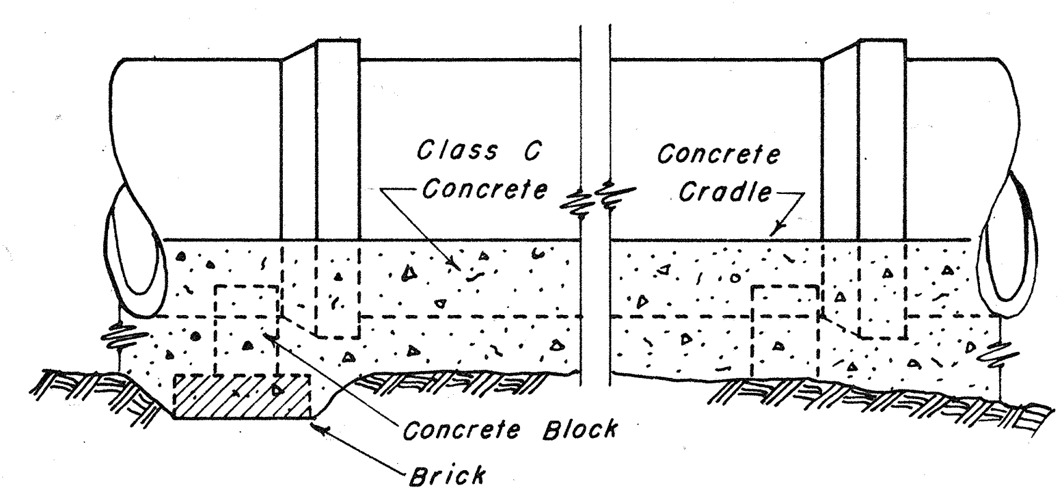

3/4"
1/2"
1/2"
2-1/2
3/4

SECTION N-N
Scale: 1-1/2" = 1'-0"
3

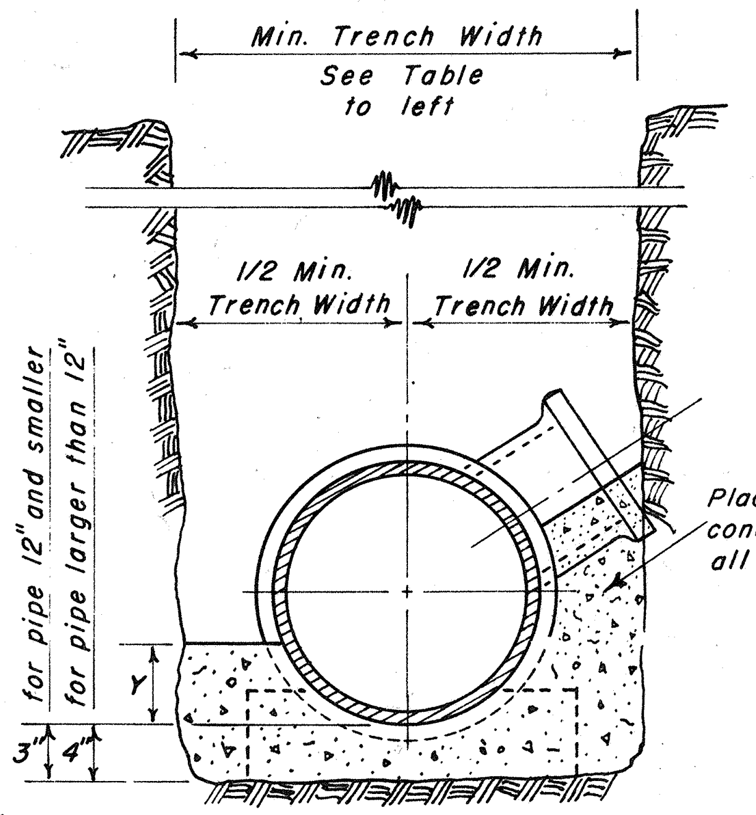
TRENCH WIDTHS	
Pipe Size	Min. Width
6"	24"
8"	24"
10"	24"
12"	30"
15"	30"
18"	36"
21"	36"
24"	45"
27"	45"
30"	50"

Contractor shall set Concrete Blocks on undisturbed ground. Where ground is too low, the Contractor shall not heap up dirt under the Concrete Block but shall use Concrete Bricks to take up the deficiency, scraping away beneath Concrete Block to give sufficient room for Brick.

Note: Minimum width of cradle shall be minimum trench width.


Class C Concrete
Concrete Cradle
Concrete Block
Brick

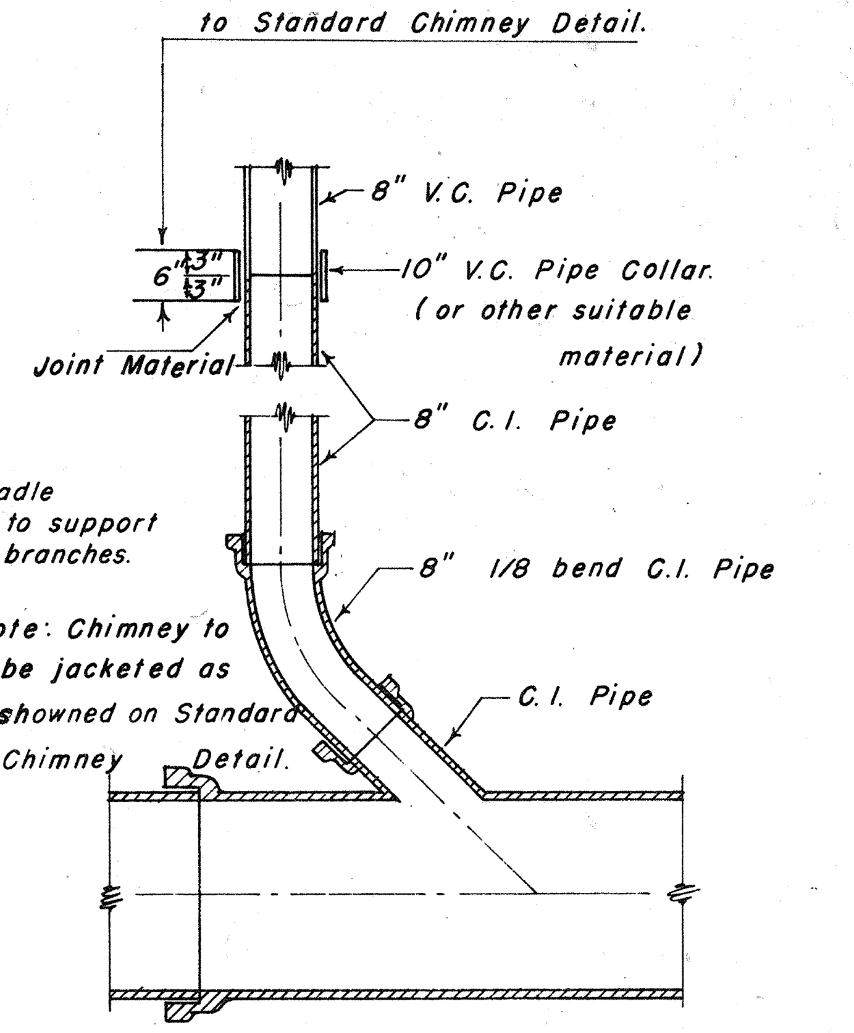
ELEVATION SHOWING METHOD OF LAYING PIPE


Min. Trench Width
See Table to left
1/2 Min. Trench Width
1/2 Min. Trench Width
for pipe 12" and smaller
for pipe larger than 12"
Y
3"
4"

Place cradle concrete to support all "Y" branches.

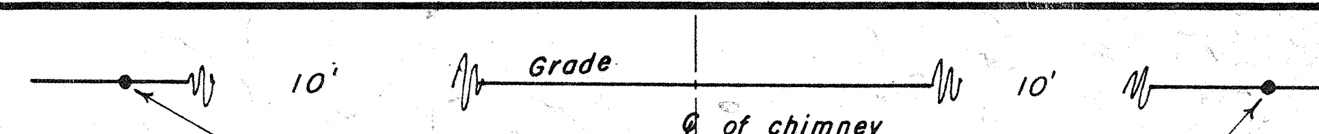
DIM. OF CONC. CRADLE	
Pipe Size	"Y"
6"	3"
8"	3"
10"	3"
12"	3"
15"	4"
18"	5"
21"	5"
24"	6"
27"	7"
30"	7"

Detail above this line similar to Standard Chimney Detail.


8" V.C. Pipe
10" V.C. Pipe Collar. (or other suitable material)
6"
3"
3"
Joint Material
8" C.I. Pipe
8" 1/8 bend C.I. Pipe
C.I. Pipe

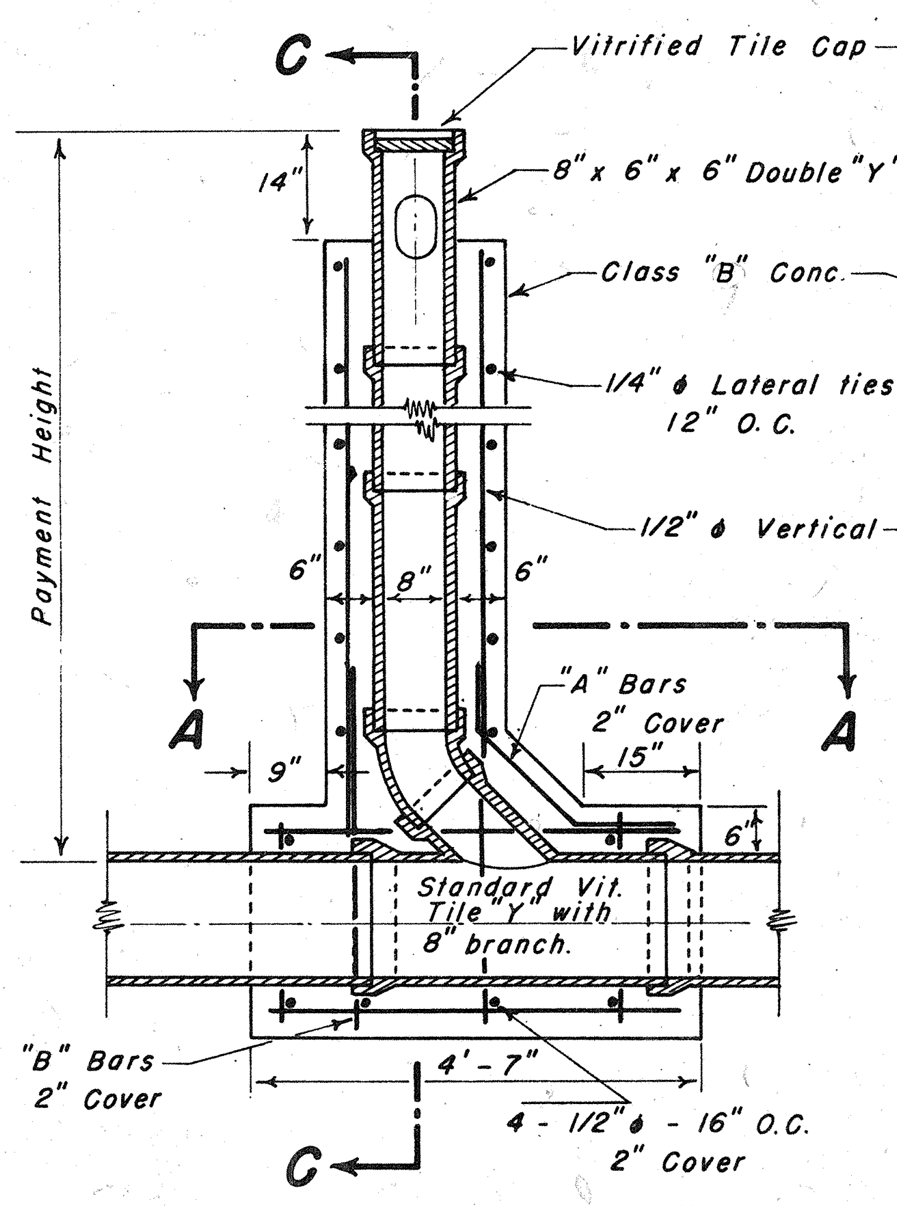
Note: Chimney to be jacketed as showned on Standard Chimney Detail.

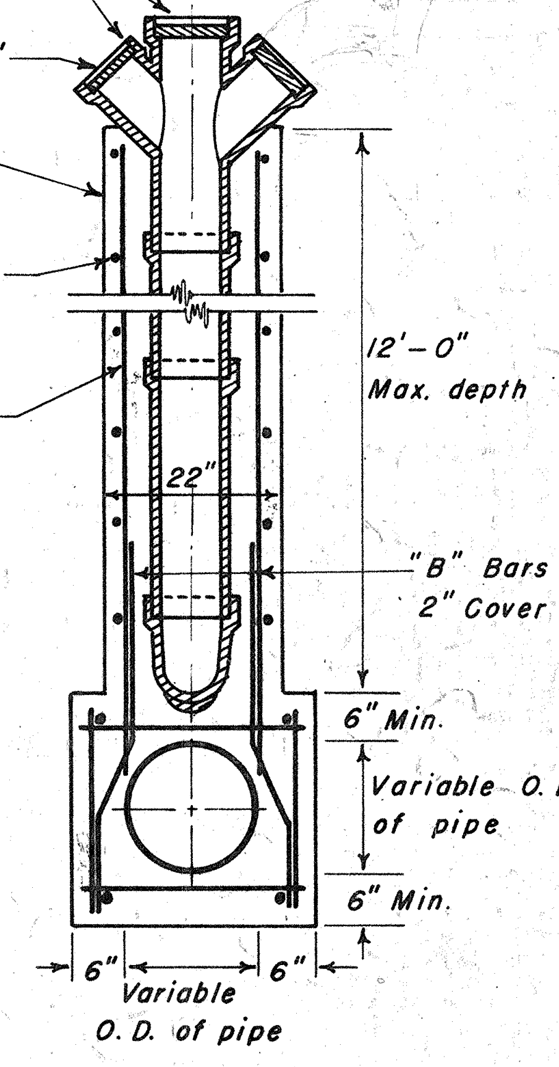
CHIMNEY DETAIL FOR CAST IRON SEWER LINE
Scale 1/2" = 1'-0"


10'
Grade
10'
℄ of chimney

No machine backfilling between these points. Backfill to be brought up evenly on each side of chimney by hand shoveling.

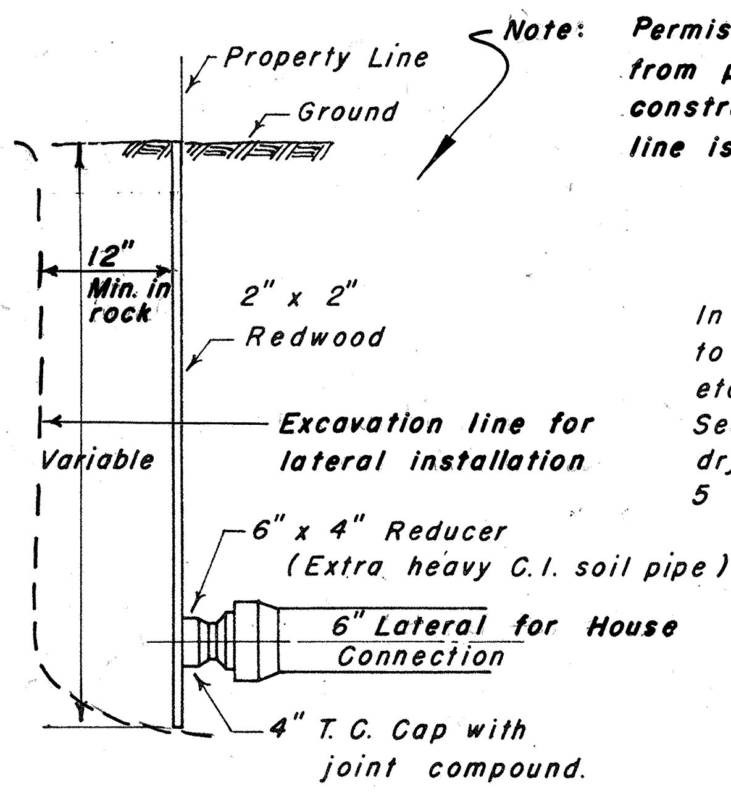
Note: All reinforcing rods 1/2" round except lateral ties.


C
Vitrified Tile Cap
8" x 6" x 6" Double "Y"
Class "B" Conc.
1/4" ϕ Lateral ties 12" O.C.
1/2" ϕ Vertical
14"
Payment Height
6"
8"
6"
22"
A
A
9"
"A" Bars 2" Cover
15"
6"
Standard Vit. Tile "Y" with 8" branch.
"B" Bars 2" Cover
4'-7"
4 - 1/2" ϕ - 16" O.C. 2" Cover
C


12'-0" Max. depth
"B" Bars 2" Cover
6" Min.
Variable - O.D. of pipe
6" Min.
6"
6"
Variable O.D. of pipe

SECTION B - B
Scale 1/2" = 1'-0"

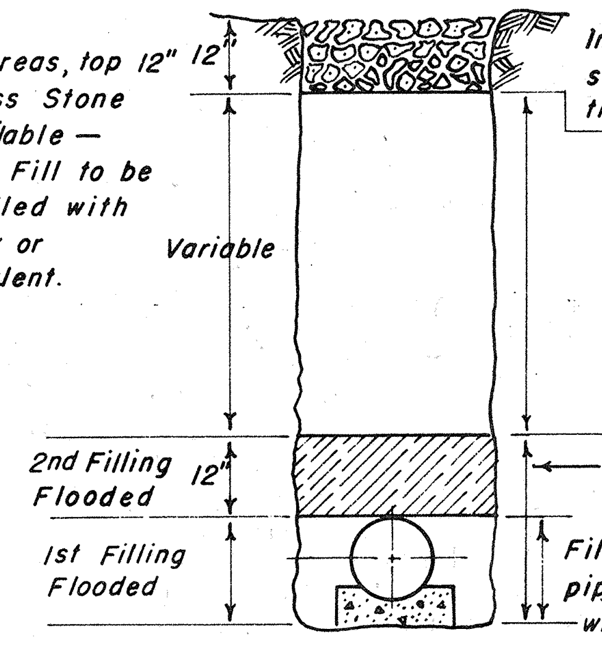
SECTION C - C
Scale 1/2" = 1'-0"


Property Line
Ground
12" Min. in rock
2" x 2" Redwood
Variable
Excavation line for lateral installation
6" x 4" Reducer (Extra heavy C.I. soil pipe)
6" Lateral for House Connection
4" T.C. Cap with joint compound.

Note: Permission is to be secured from property owner before construction at property line is started.

⚠ CONSTRUCTION AT PROPERTY LINE
Scale 1/2" = 1'-0"

In Street Areas, top 12" to be excess Stone etc. if available — See Specs. Fill to be dry and rolled with 5 Ton Truck or equivalent.


12"
Variable
2nd Filling Flooded
12"
1st Filling Flooded

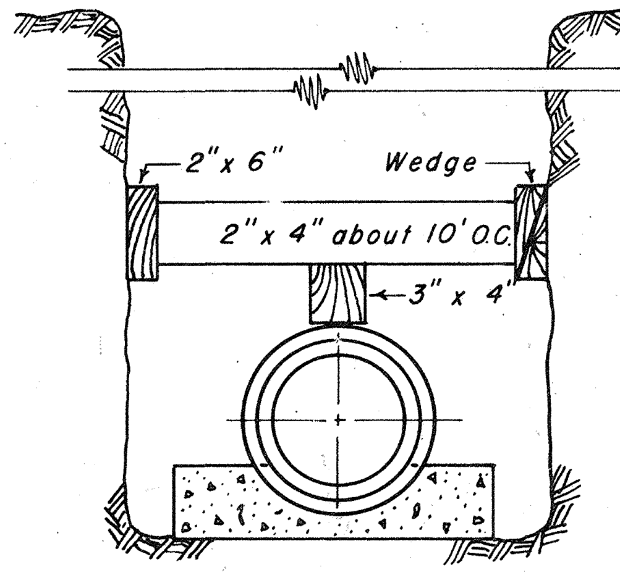
In lawn areas, top 12" shall be topsoil, thoroughly water tamped.

Fill may be from trenches if suitable. No adobe or fill containing more than 50% of rock permitted. Place in 18" layers and water tamp by flooding.

Fine coral, dirt or sand (Hand shoveled into trench)

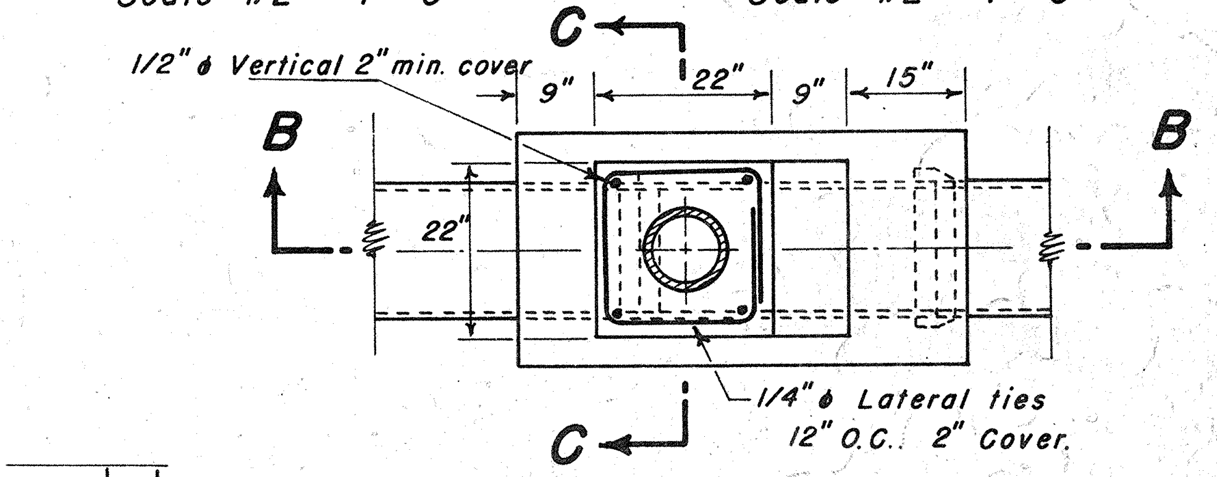
Fill to be water tamped using pipe nozzles in two increments when pipe is not cradled. See Specifications.

METHOD OF BACKFILL

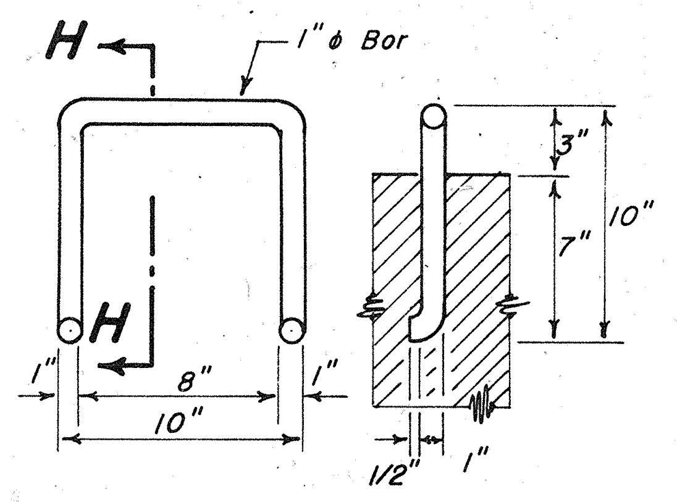

2" x 6"
Wedge
2" x 4" about 10' O.C.
3" x 4"

PIPE FLOATATION PREVENTION
Scale 1" = 1'-0"

Note: Suggested Method for preventing Pipe from floating when pouring cradle. Contractor may use any other Method if approved by the Engineer.

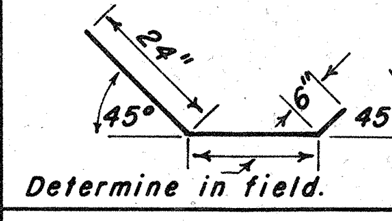
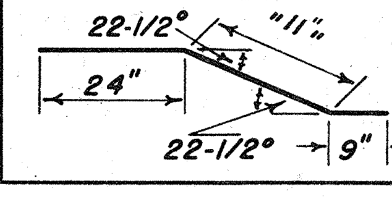

1/2" ϕ Vertical 2" min. cover
C
22"
9"
9"
15"
B
B
22"
1/4" ϕ Lateral ties 12" O.C. 2" Cover.
C

SECTION A - A
Scale 1/2" = 1'-0"


H
1" ϕ Bar
H
1"
8"
1"
10"
3"
7"
10"
1/2"
1"

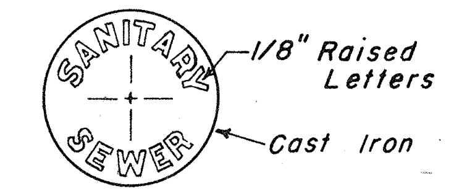
PLAN SECTION H-H

TYPE A RUNGS
WROUGHT IRON M.H. STEPS
Scale 1-1/2" = 1'-0"

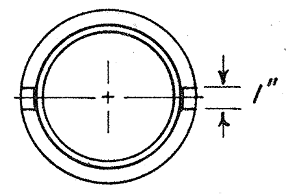
STEEL SCHEDULE			
Mark	Steel	Shape	Req.
"A"	1/2 ϕ	 Determine in field.	2 Pcs.
"B"	1/2 ϕ		4 Pcs.

CHIMNEY DETAILS

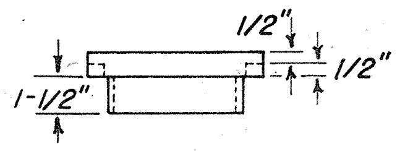
Note: Dimensions shown may be varied to accomodate specific brand of pipe furnished by Contractor.


SANITARY
SEWER
1/8" Raised Letters
Cast Iron

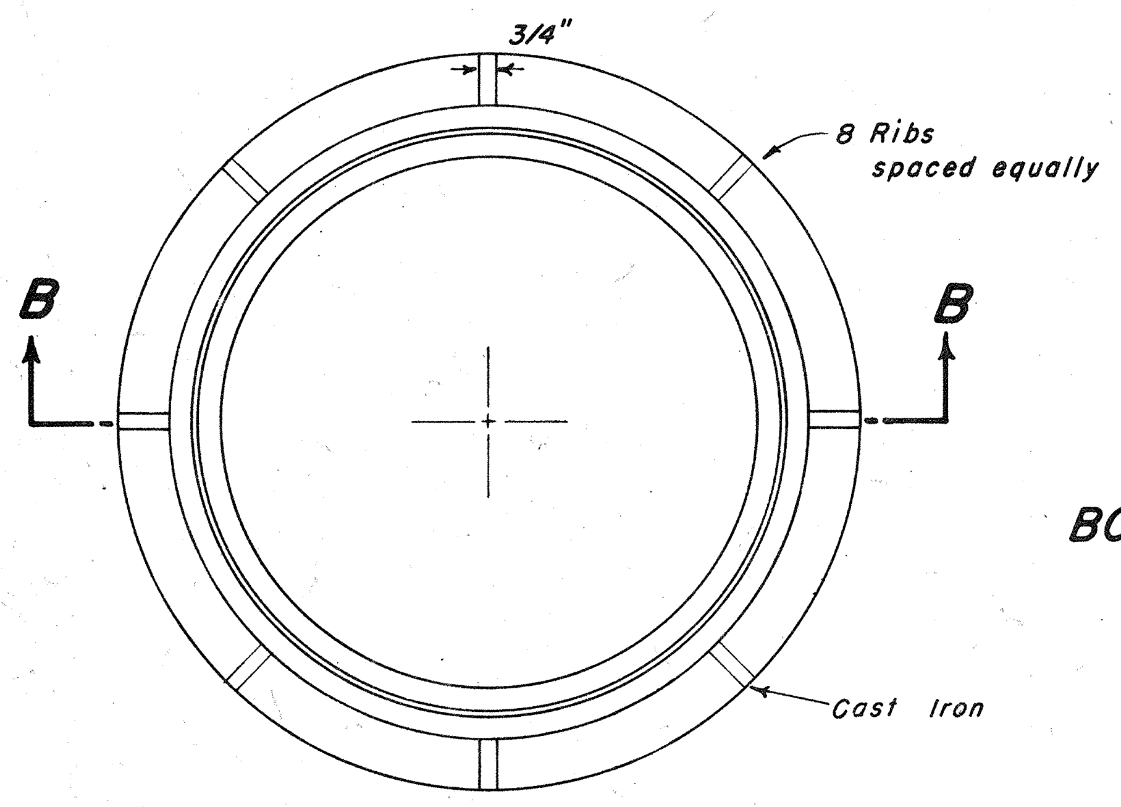
PLAN OF COVER



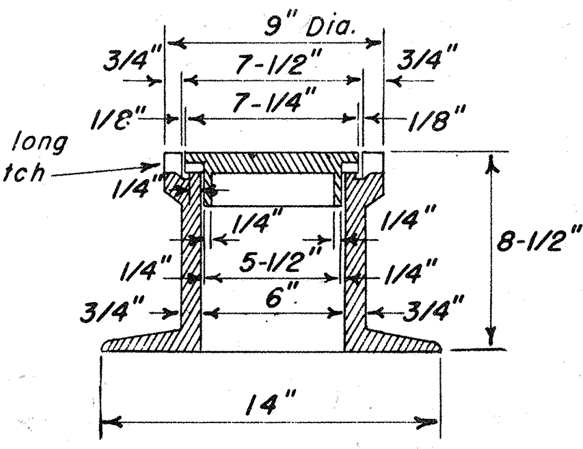
BOTTOM OF COVER



ELEVATION

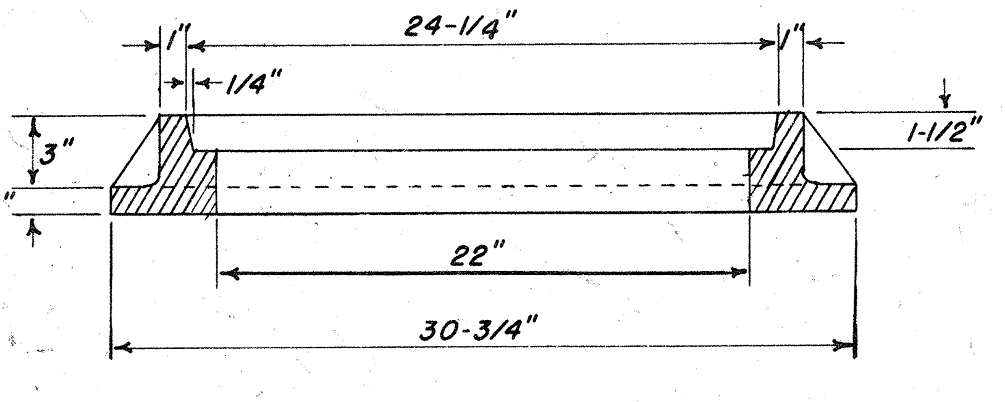

3/4"
8 Ribs spaced equally
B
B
Cast Iron

⚠ PLAN OF MANHOLE FRAME
Scale 1-1/2" = 1'-0"

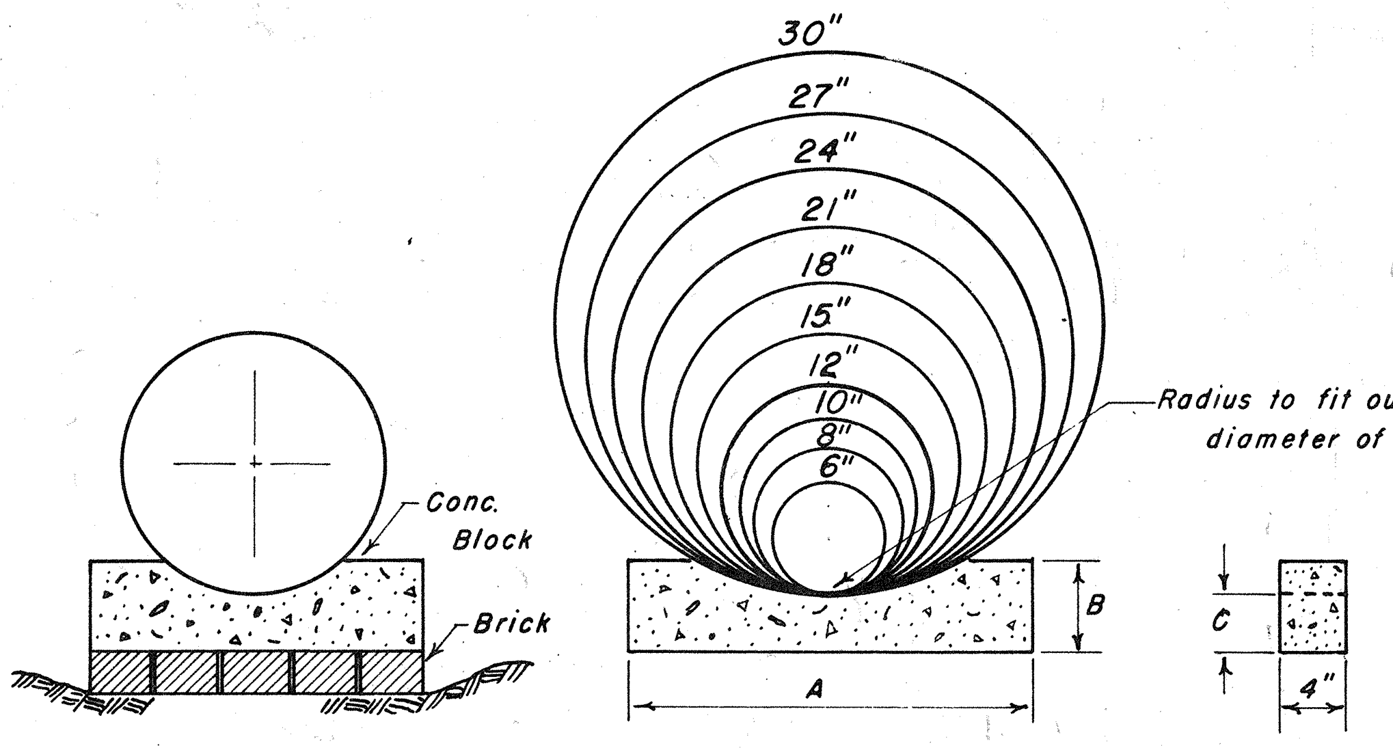

9" Dia.
3/4"
7-1/2"
3/4"
1/8"
7-1/4"
1/8"
1" long notch
1/4"
1/4"
5-1/2"
1/4"
6"
3/4"
3/4"
8-1/2"
14"

⚠ SECTION

DROP MANHOLE CHIMNEY CASTINGS
Scale 1-1/2" = 1'-0"


24-1/4"
1/4"
3"
1-1/2"
1-1/8"
22"
30-3/4"

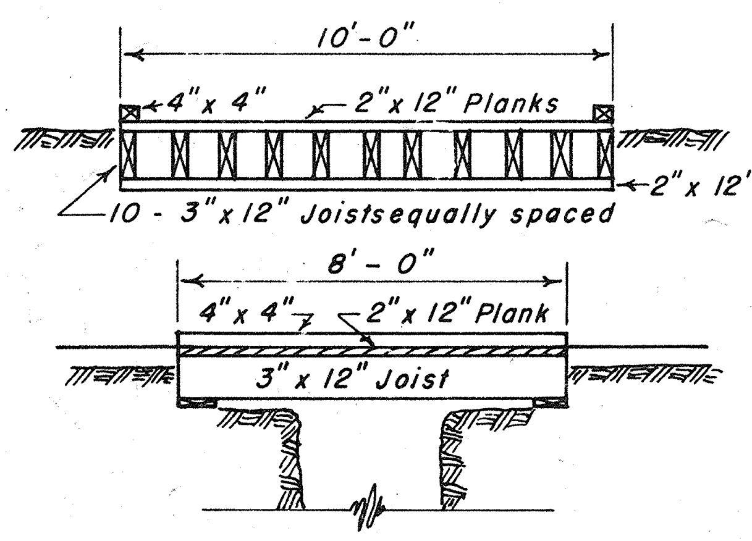
⚠ SECTION B - B


30"
27"
24"
21"
18"
15"
12"
10"
8"
6"
Radius to fit outside diameter of pipe.
Conc. Block
Brick
A
B
C
4"

Showing method of use of Bricks to set pipe on firm ground.

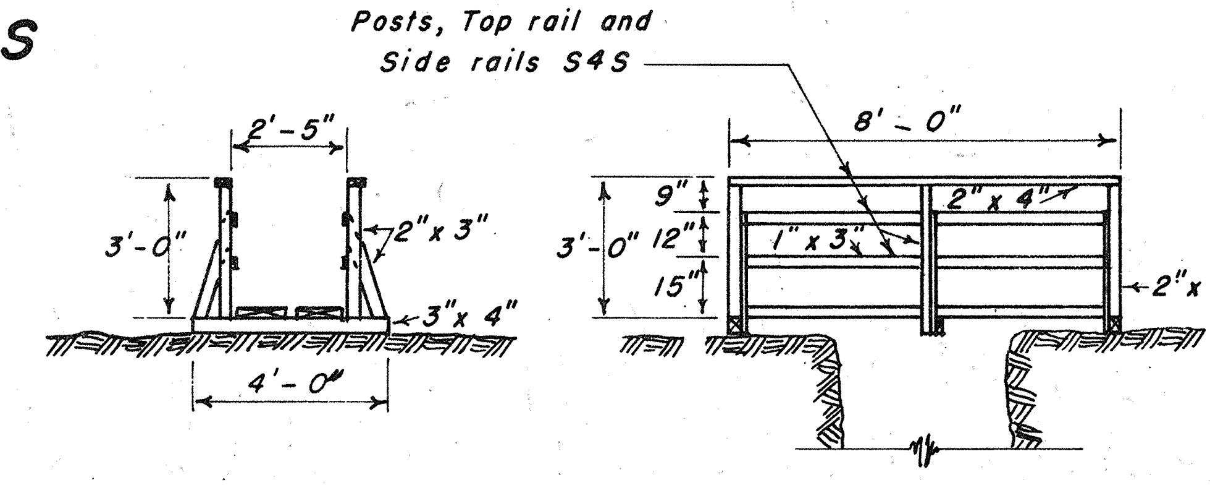
DETAIL OF PRECAST CONCRETE BLOCKS

CONCRETE BLOCK DIMENSIONS			
Pipe Size	"A"	"B"	"C"
6"	1' - 2"	6"	3"
8"	1' - 5"	6"	3"
10"	1' - 7"	6"	3"
12"	1' - 7"	6"	3"
15"	1' - 8"	6"	4"
18"	1' - 9"	6"	4"
21"	1' -10"	6"	4"
24"	1' -11"	6"	4"
27"	2' - 0"	6"	4"
30"	2' - 3"	6"	4"

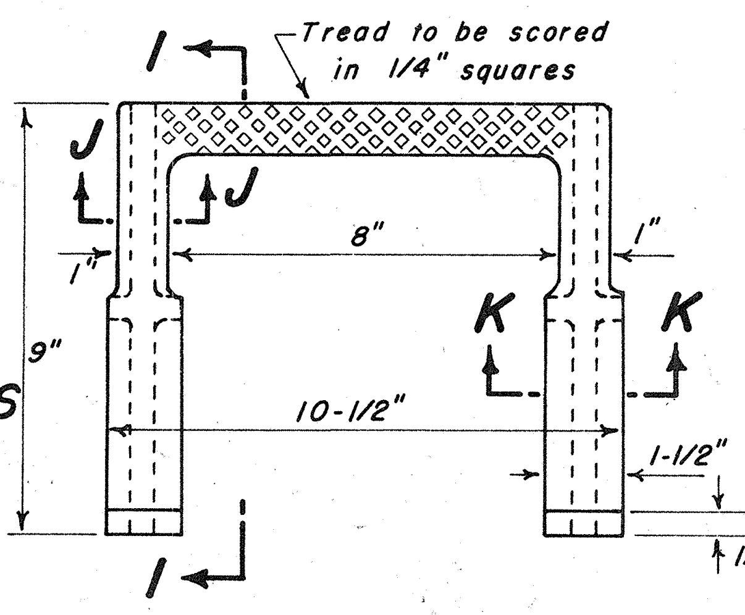

10'-0"
4" x 4"
2" x 12" Planks
2" x 12" Sill
10 - 3" x 12" Joists equally spaced
8'-0"
4" x 4"
2" x 12" Plank
3" x 12" Joist

DETAILS
WOODEN BRIDGE OVER TRENCHES AT ROAD CROSSINGS
Scale 1/4" = 1'-0"

Posts, Top rail and Side rails S4S

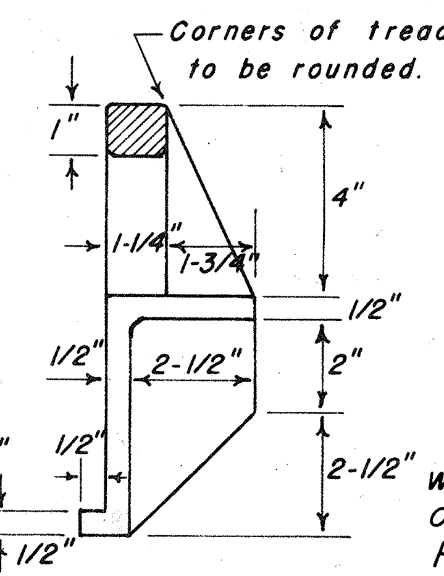

2'-5"
2" x 3"
3'-0"
3" x 4"
4'-0"
8'-0"
9"
12"
15"
3'-0"
2" x 4"
1" x 3"
2" x 3"

DETAILS
CROSS WALKS OVER TRENCHES
Scale 1/4" = 1'-0"

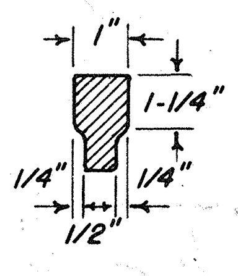

Tread to be scored in 1/4" squares
J
J
I
8"
1"
K
K
9"
10-1/2"
1-1/2"
I

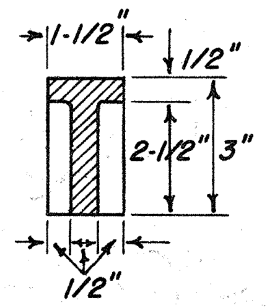
PLAN

TYPE B RUNGS
Scale 3" = 1'-0"


Corners of tread to be rounded.
1"
1-1/4"
1-3/4"
4"
1/2"
2-1/2"
2"
1/2"
2-1/2"
1/2"

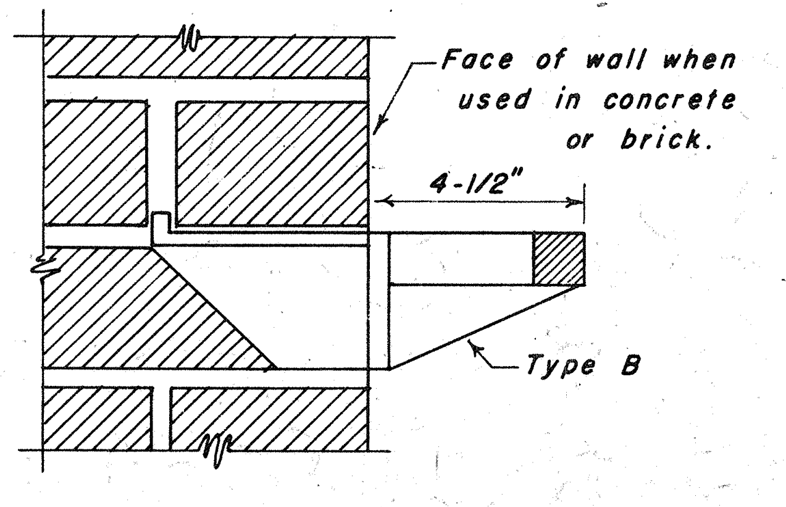
SECTION I - I


1"
1-1/4"
1/4"
1/4"
1/2"


1-1/2"
1/2"
2-1/2"
3"
1/2"

SECTION J-J SECTION K-K

CAST IRON M.H. STEPS
Scale 3" = 1'-0"


Face of wall when used in concrete or brick.
4-1/2"
Type B

METHOD OF INSTALLATION

Note: Contractor shall use such Standard Details shown above as are applicable to, and called for, on this project.

When lateral sewers are constructed from the trunk sewer to the property line, the grade of such lateral sewer shall be 1/4" per lineal foot unless otherwise ordered by the engineer.

NOTE: These plans were prepared in the office of the Department of Public Works, City and County of Honolulu.

REVISION	DATE	BRIEF	MADE BY	APPROVED
3	10/12/53	Added Tab Support on M.H. cover	T.S.	Fa.
2	8/23/50	Const. at prop. line altered	Y.N.	Gcw
1	10/20/49	M.H. Castings modified	H.B.	75 HF

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
KALANIANAOLE HIGHWAY
PROJECT No. F6 (18)
NOVEMBER 1954

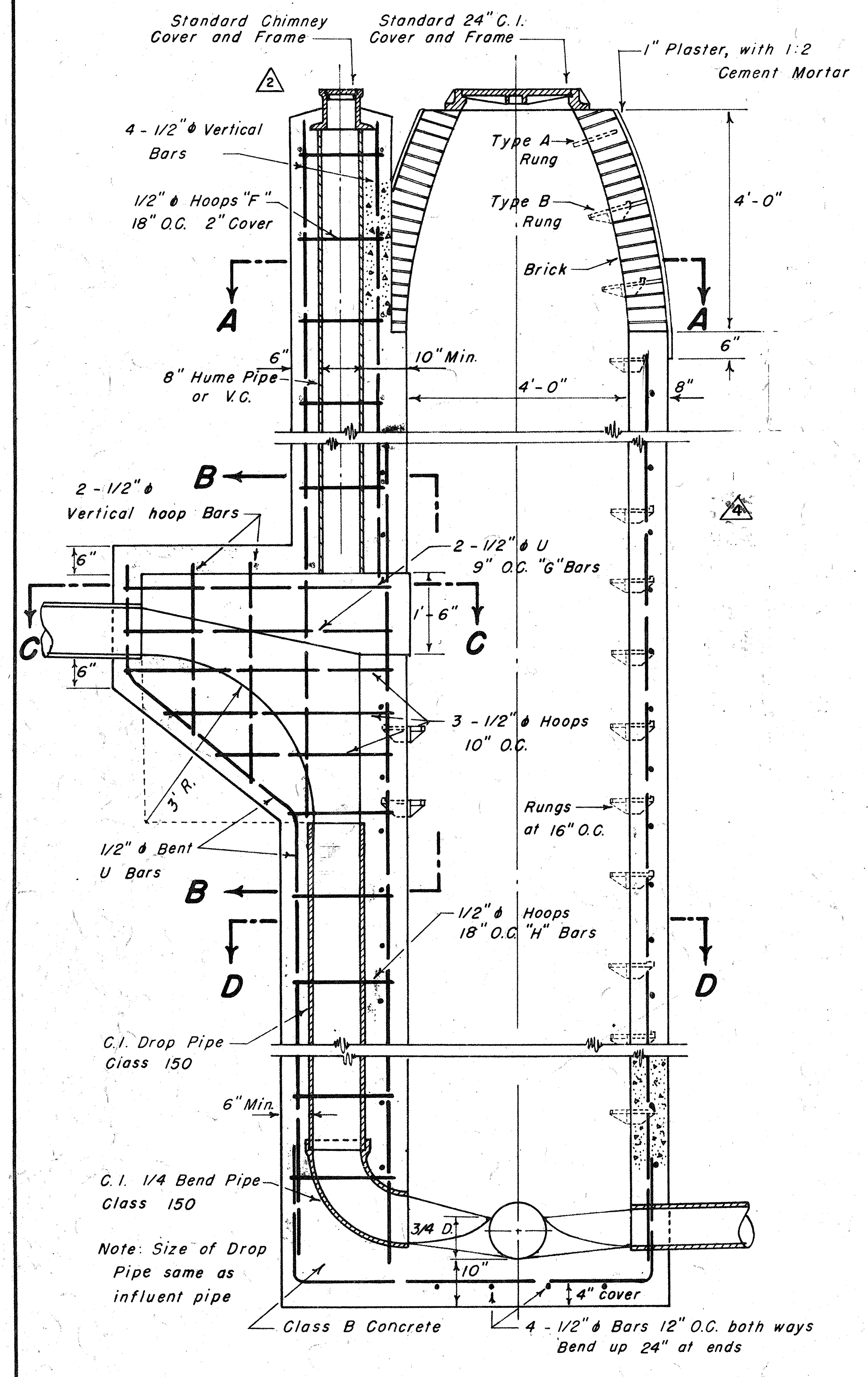
DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
DIVISION OF SEWERS
STANDARD DETAILS

ENGINEER F. Sunn
DATE 4-1-49
DRAFTSMAN F. Sunn, A. Kanayama
CHECKED BY L. Finley
SCALE As Shown
TRACER A. Kanayama
APPROVED Sinclair
CHIEF ENGINEER
APPROVED G. Wallace
ENGINEER, DIV. OF SEWERS
H. W. Butzine
ENGINEER, BUREAU OF PLANS

56S6.77

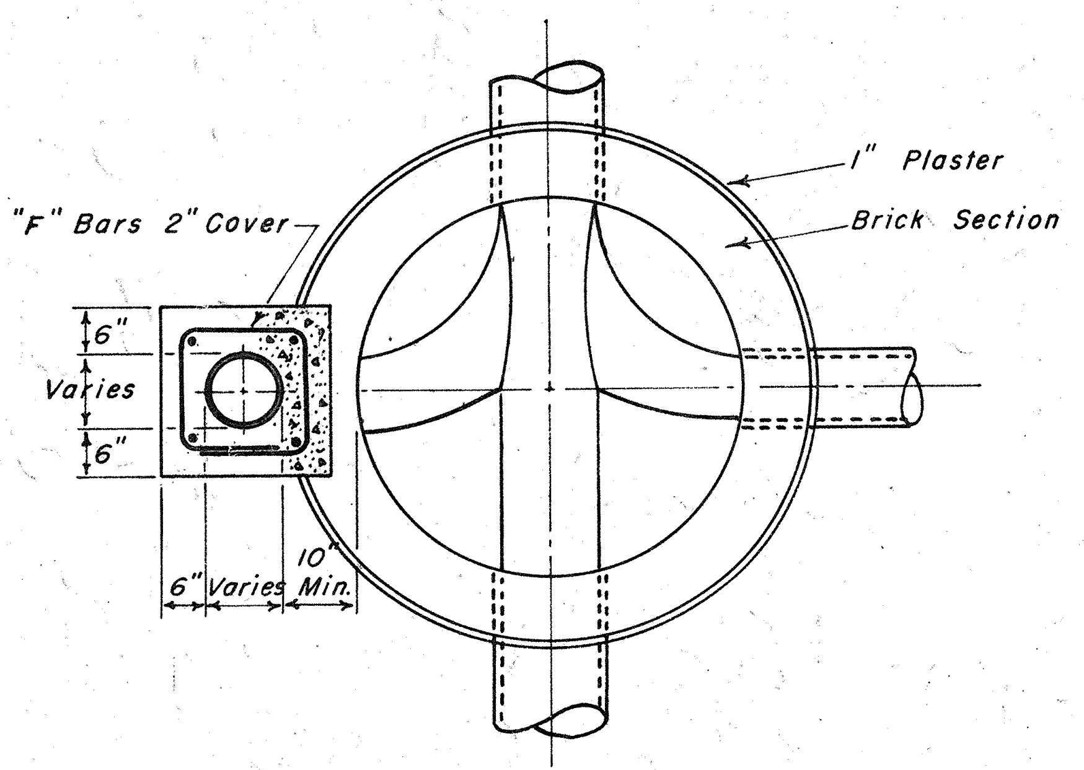
SHEET 11 OF 13 48-G-1

FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW	F6(18)	1954	78	79



Standard Chimney Cover and Frame
△2
Standard 24" C.I. Cover and Frame
1" Plaster, with 1:2 Cement Mortar
4 - 1/2" ϕ Vertical Bars
1/2" ϕ Hoops "F" 18" O.C. 2" Cover
Type A Rung
Type B Rung
Brick
4'-0"
A
A
6"
8" Hume Pipe or V.C.
10" Min.
4'-0"
8"
2 - 1/2" ϕ Vertical hoop Bars
B
2 - 1/2" ϕ U 9" O.C. "G" Bars
6"
C
1'-6"
C
6"
3' R.
3 - 1/2" ϕ Hoops 10" O.C.
Rungs at 16" O.C.
1/2" ϕ Bent U Bars
B
1/2" ϕ Hoops 18" O.C. "H" Bars
D
D
C.I. Drop Pipe Class 150
6" Min.
C.I. 1/4 Bend Pipe Class 150
3/4 D
Note: Size of Drop Pipe same as influent pipe
10"
4" cover
Class B Concrete
4 - 1/2" ϕ Bars 12" O.C. both ways Bend up 24" at ends
△4

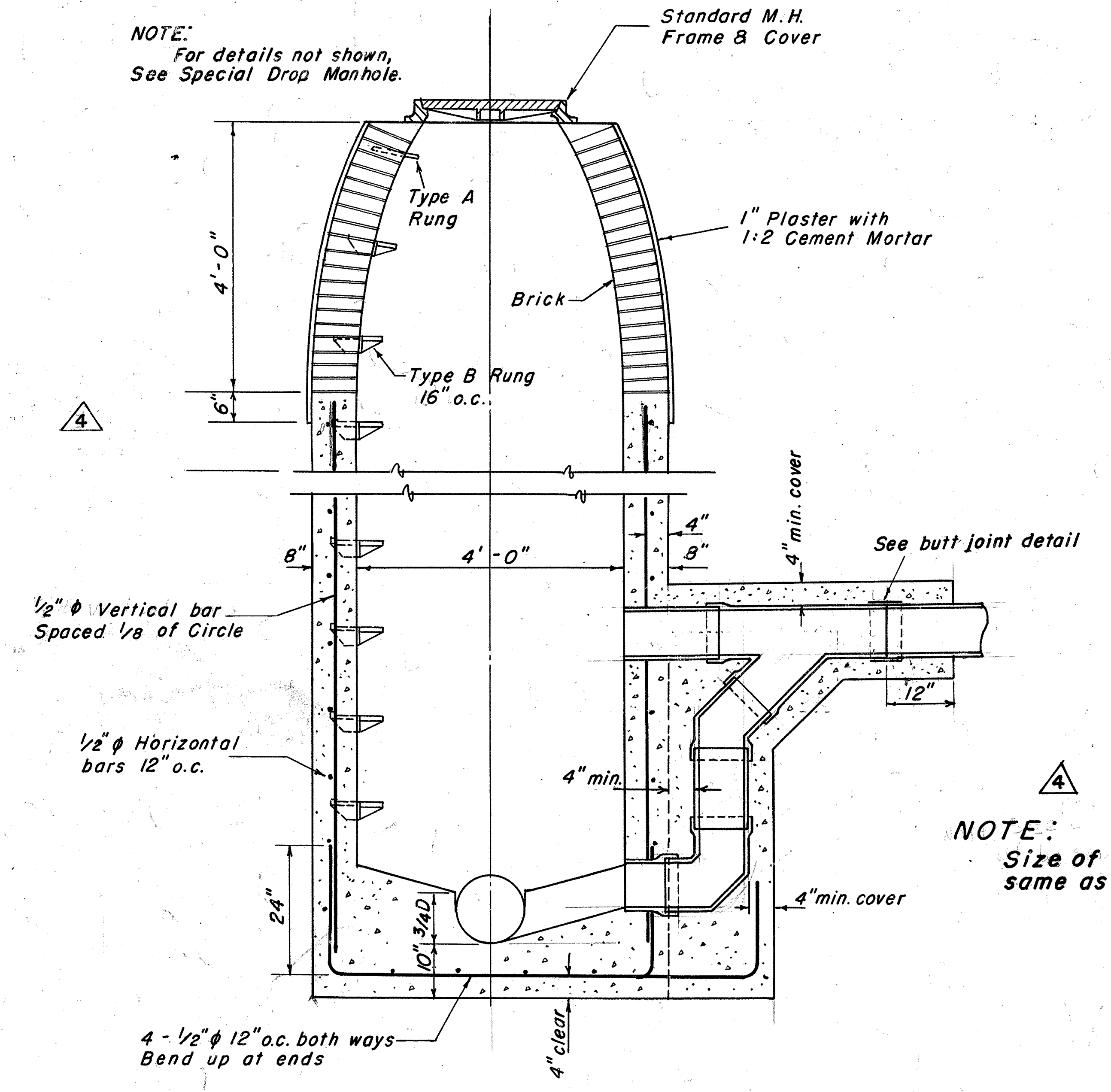
SPECIAL DROP MANHOLE



"F" Bars 2" Cover
1" Plaster
Brick Section
6"
Varies
6"
6" Varies
10" Min.

SECTION A-A

NOTE:
For details not shown,
See Special Drop Manhole.

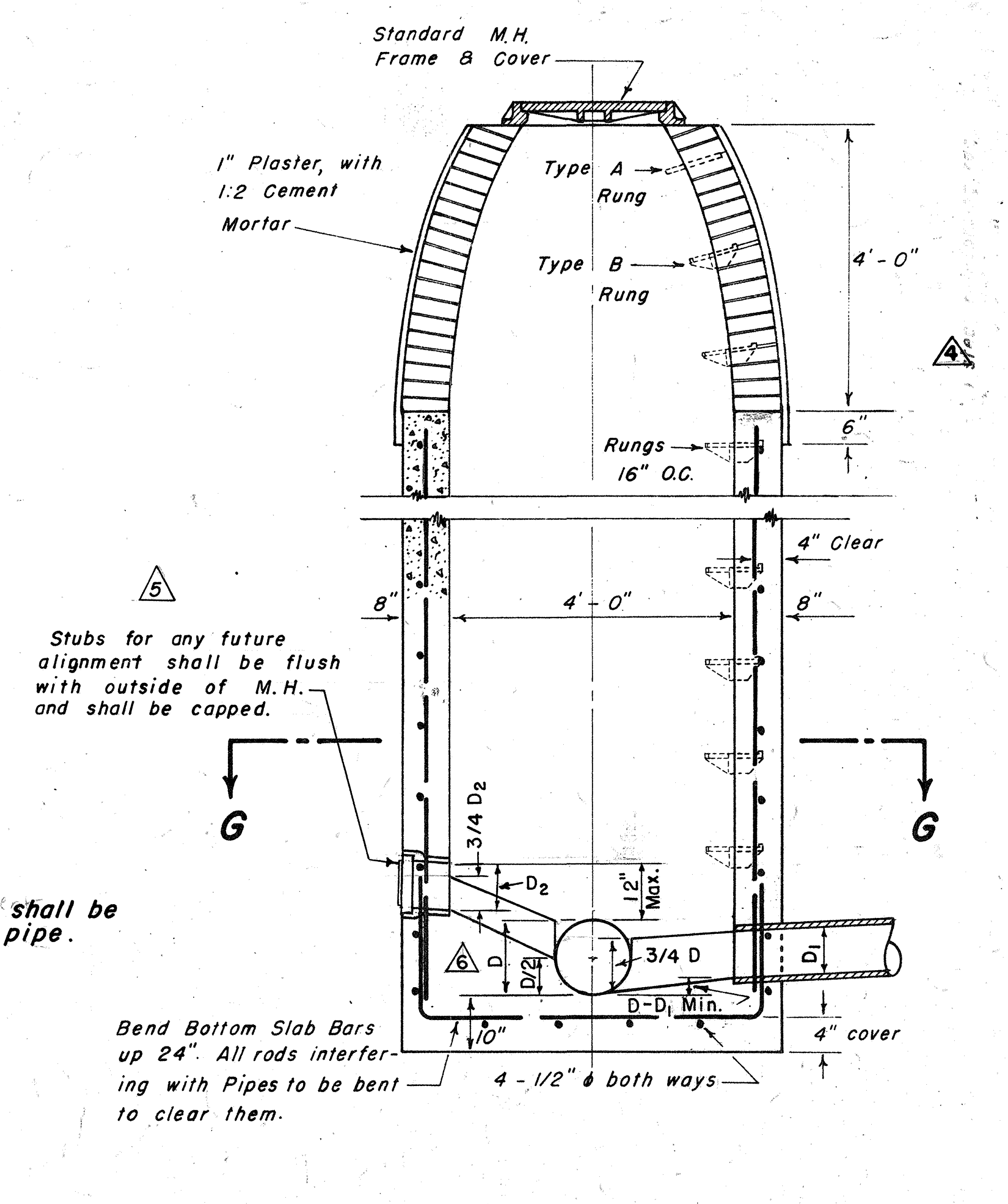


Standard M.H. Frame & Cover
4'-0"
Type A Rung
1" Plaster with 1:2 Cement Mortar
Brick
Type B Rung 16" o.c.
6"
△4
4" min. cover
8"
4'-0"
4"
8"
See butt joint detail
1/2" ϕ Vertical bar Spaced 1/8 of Circle
1/2" ϕ Horizontal bars 12" o.c.
4" min.
12"
24"
3/4 D
10"
4" min. cover
4 - 1/2" ϕ 12" o.c. both ways Bend up at ends
4" clear

△4
NOTE:
Size of drop pipe shall be same as influent pipe.

△3 DROP MANHOLE

△6

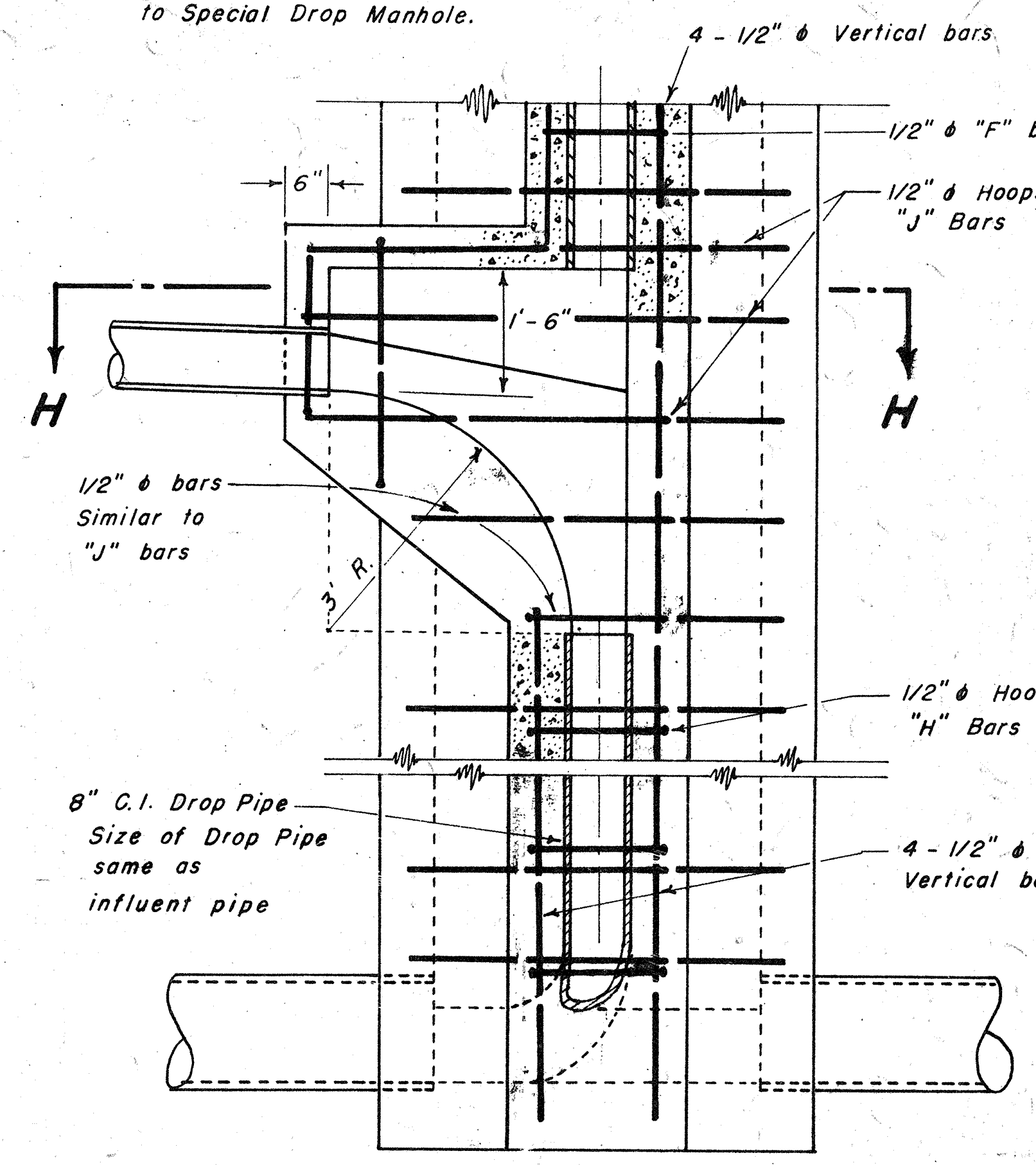


Standard M.H. Frame & Cover
1" Plaster, with 1:2 Cement Mortar
Type A Rung
Type B Rung
4'-0"
△4
Rungs 16" O.C.
6"
4" Clear
8"
4'-0"
8"
△5
Stubs for any future alignment shall be flush with outside of M.H. and shall be capped.
G
G
3/4 D2
D2
12" Max.
△6
D
D/2
3/4 D
D1
D-D1 Min.
Bend Bottom Slab Bars up 24". All rods interfering with Pipes to be bent to clear them.
10"
4 - 1/2" ϕ both ways
4" cover

PLAIN MANHOLE

△4

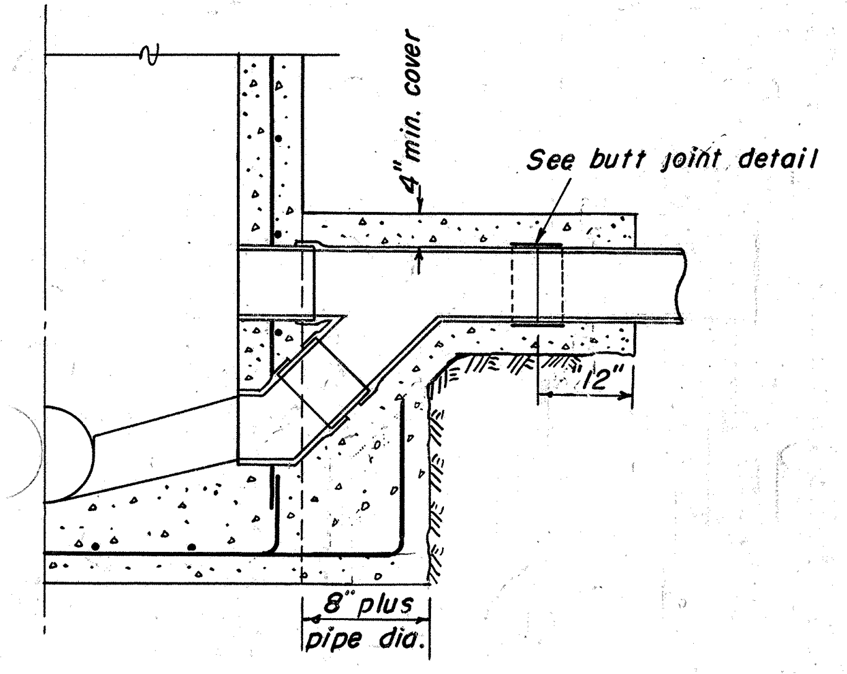
Note: Detail of Chimney similar
to Special Drop Manhole.



4 - 1/2" ϕ Vertical bars
6"
1/2" ϕ "F" bars
1/2" ϕ Hoops "J" Bars
1'-6"
H
H
1/2" ϕ bars Similar to "J" bars
3' R.
1/2" ϕ Hoops, 18" O.C. "H" Bars
8" C.I. Drop Pipe Size of Drop Pipe same as influent pipe
4 - 1/2" ϕ Vertical bars

SPECIAL SIDE DROP MANHOLE

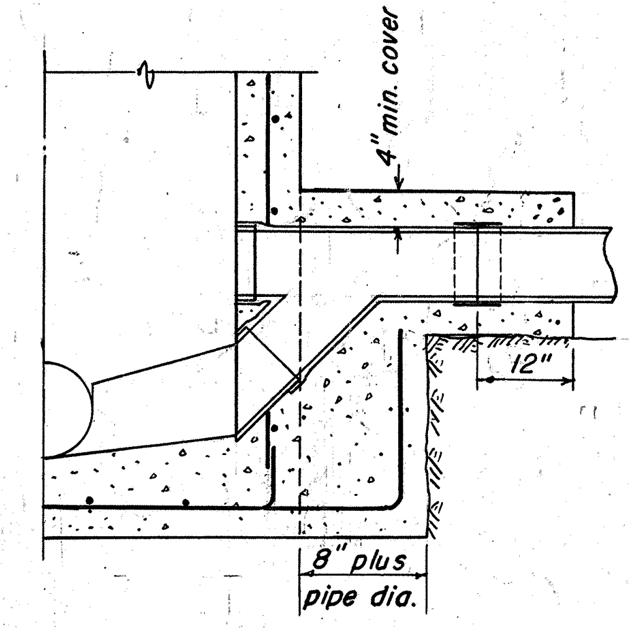
SECTION I-I



4" min. cover
See butt joint detail
12"
8" plus pipe dia.

△3 (SHALLOW) DROP MANHOLE

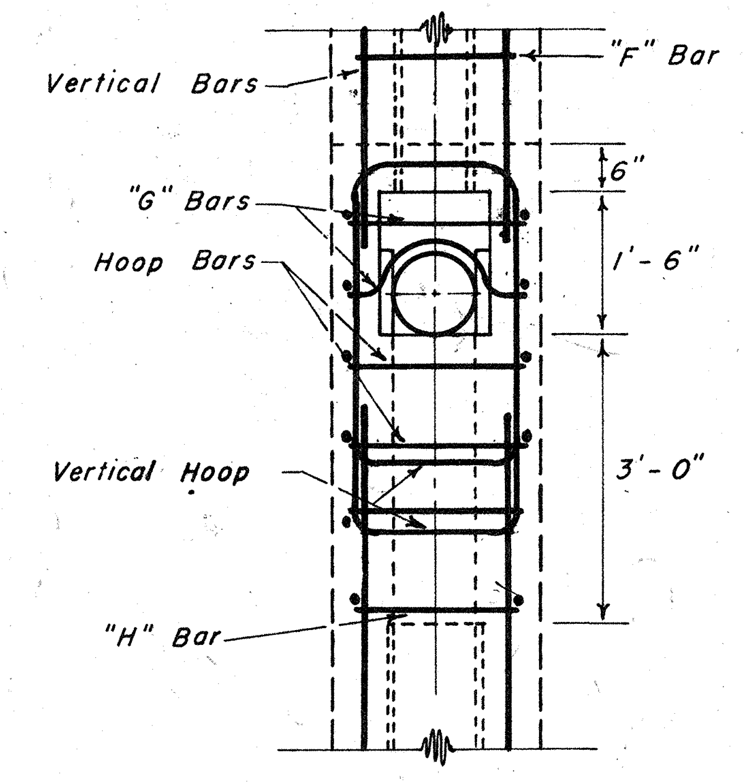
△6



4" min. cover
12"
8" plus pipe dia.

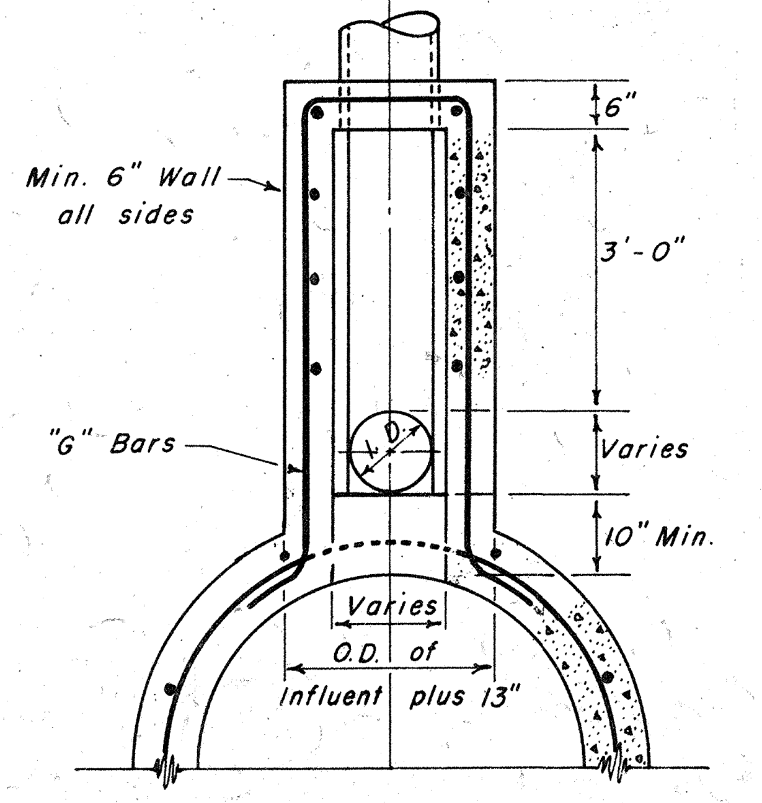
(SHALLOW) DROP MANHOLE ALTERNATE

△3
NOTE:
Cut pipe vertically through "Y" or extension for drops where detail to left cannot be used



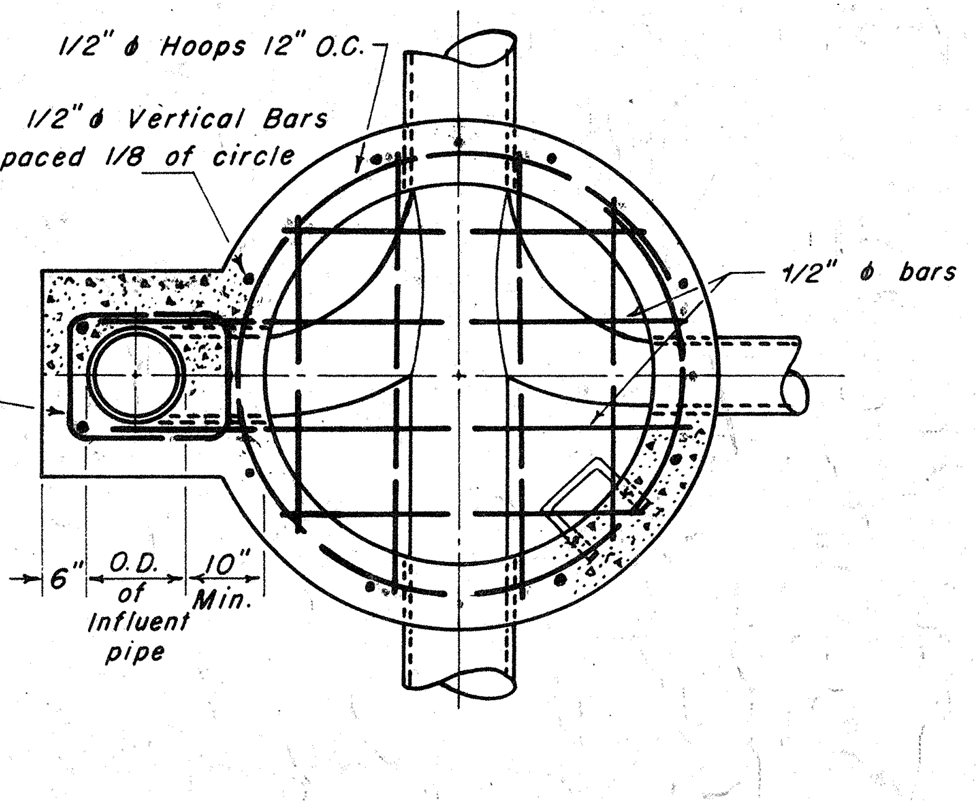
Vertical Bars
"F" Bar
"G" Bars
Hoop Bars
6"
1'-6"
Vertical Hoop
3'-0"
"H" Bar

SECTION B-B



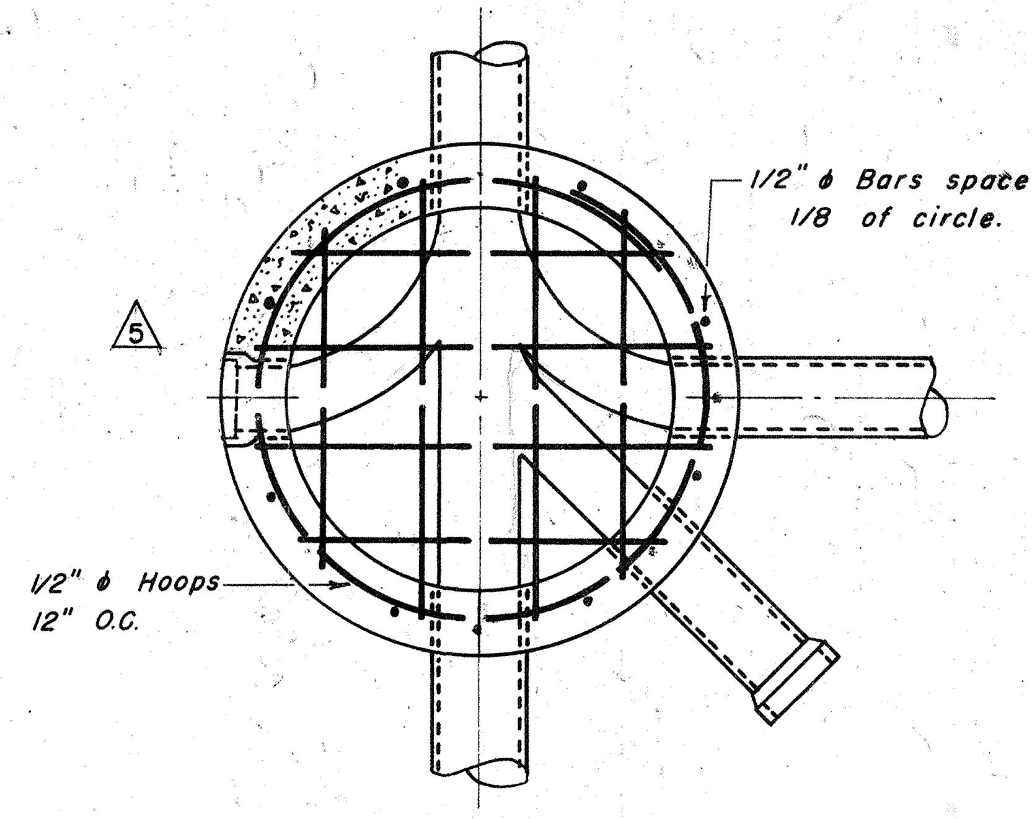
Min. 6" Wall all sides
6"
3'-0"
"G" Bars
D
Varies
10" Min.
Varies
O.D. of Influent plus 13"

SECTION C-C



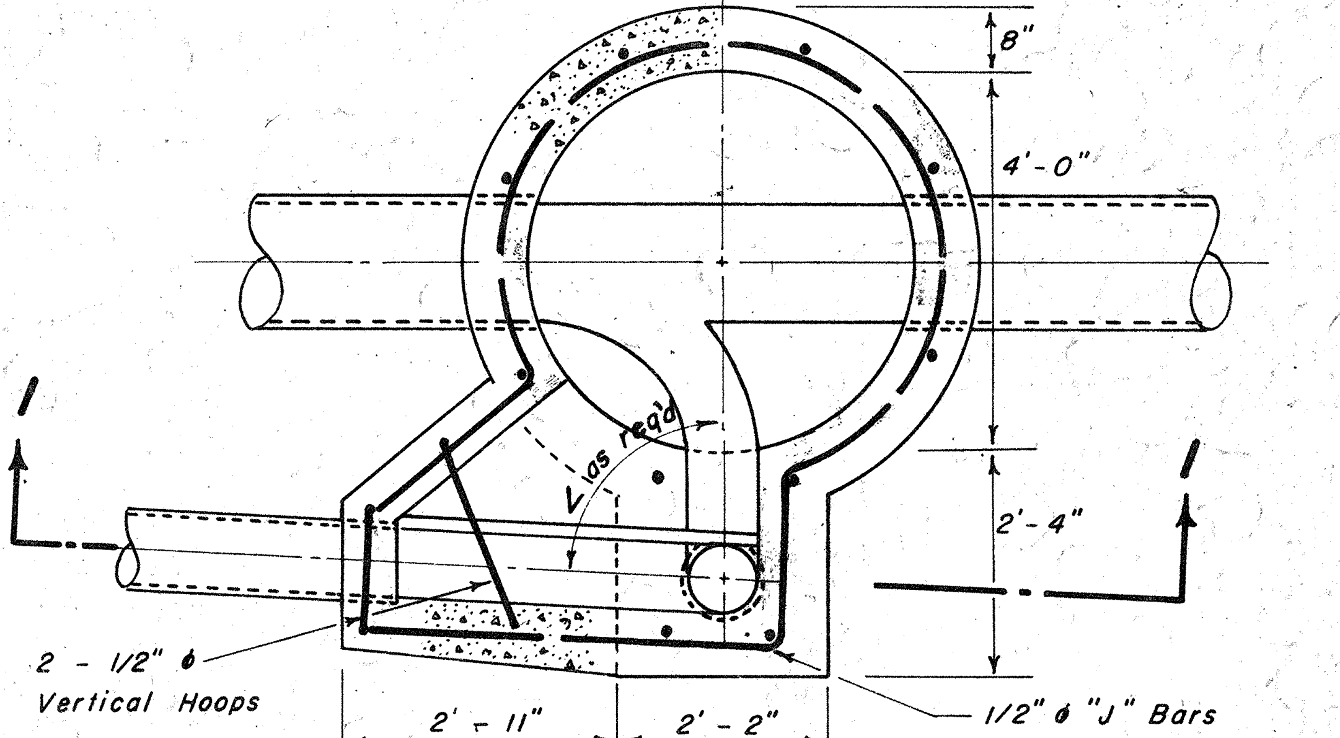
1/2" ϕ Hoops 12" O.C.
1/2" ϕ Vertical Bars spaced 1/8 of circle
1/2" ϕ bars
"H" Hoops
6"
O.D. of Influent pipe
10" Min.

SECTION D-D



1/2" ϕ Bars spaced 1/8 of circle.
△5
1/2" ϕ Hoops 12" O.C.

SECTION G-G



8"
4'-0"
I
I
V as read
2'-4"
2 - 1/2" ϕ Vertical Hoops
2'-11"
2'-2"
1/2" ϕ "J" Bars

NOTE: These plans were prepared in the office of the Department of Public Works, City and County of Honolulu.

NOTES

△ 1. Manhole rungs shall not be aligned above any flow line.

2. When not otherwise noted, manhole stubs shall be sloped as follows:

Pipe Size	Rise Per Foot
6"	1/8"
8"	3/32"
10"	1/16"
12"	1/16"

3. All reinforcing rods interfering with pipes shall be bent to clear them.

4. Data for special manholes not shown shall be similar to that for Plain Manholes.

5. Bar laps to be 40 diameters in length.

△ 6. No rungs shall be installed in manholes less than 3' high

REVISION	DATE	BRIEF	MADE BY	APPROVED
△6	9/23/54	Deleted Notes for invert differences of M.H.	H.A.	Hc 78
△5	10/9/53	Stubs for future made flush with outside of M.H.	M.M.	Ja.
△4	10/28/52	Deleted note covering steel for manholes less than 30 ft. in height.	T.S.	Hc 78
△3	6/9/50	Open Drop Manhole details deleted & Drop Manhole details modified.	H.L.	78 Rcw
△2	10/20/49	Concrete placed around Chimney Frame	H.B.	Rcw 78 HF
△1	8/30/48	Notes 1 & 6 added	N.Y.	78 Rcw

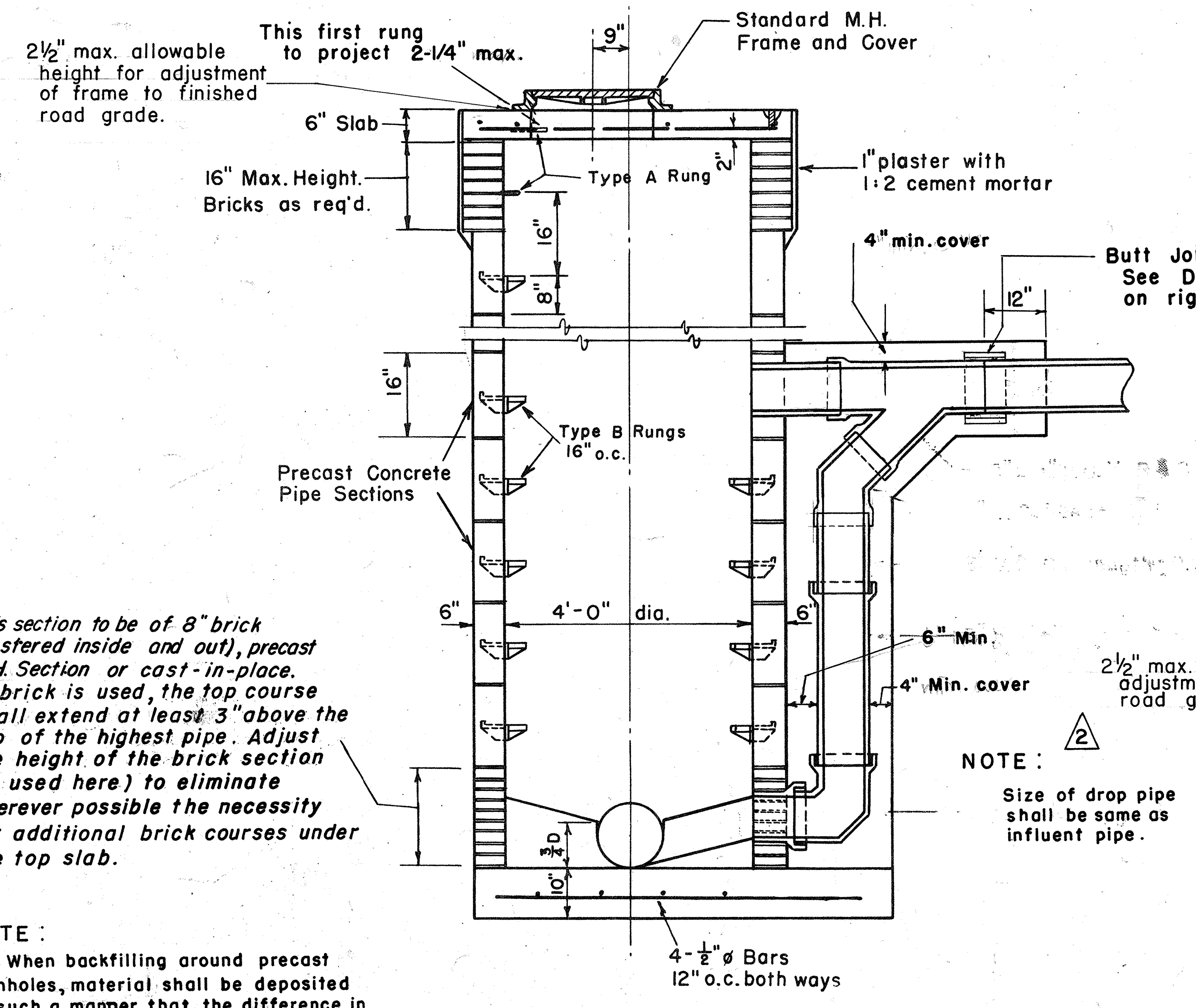
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
KALANIANAOLE HIGHWAY
PROJECT No. F6 (18)
NOVEMBER 1954

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
DIVISION OF SEWERS

STANDARD DETAILS

ENGINEER F. Sunn
DATE 4-1-49
DRAFTSMAN E. Sunn, A. Kanayama
CHECKED BY H. Dinley
SCALE 1/2" = 1'-0"
TRACER A. Kanayama
APPROVED: H. Gridan
CHIEF ENGINEER
APPROVED: Rcwallace
ENGINEER, DIV. OF SEWERS
H. W. Butzine
ENGINEER, BUR. OF PLANS

FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW	FG (18)	1954	79	79



This first rung to project 2-1/4" max.
2½" max. allowable height for adjustment of frame to finished road grade.
9"
Standard M.H. Frame and Cover
6" Slab
2"
Type A Rung
16" Max. Height. Bricks as req'd.
1" plaster with 1:2 cement mortar
16"
8"
4" min. cover
Butt Joint See Detail on right
12"
16"
Type B Rungs 16" o.c.
Precast Concrete Pipe Sections
6"
4'-0" dia.
6"
6" Min.
4" Min. cover
¾D
10"
4-½"ø Bars 12" o.c. both ways

△2 *This section to be of 8" brick (plastered inside and out), precast M.H. Section or cast-in-place. If brick is used, the top course shall extend at least 3" above the top of the highest pipe. Adjust the height of the brick section (if used here) to eliminate wherever possible the necessity for additional brick courses under the top slab.*

NOTE: △2

Size of drop pipe shall be same as influent pipe.

NOTE:

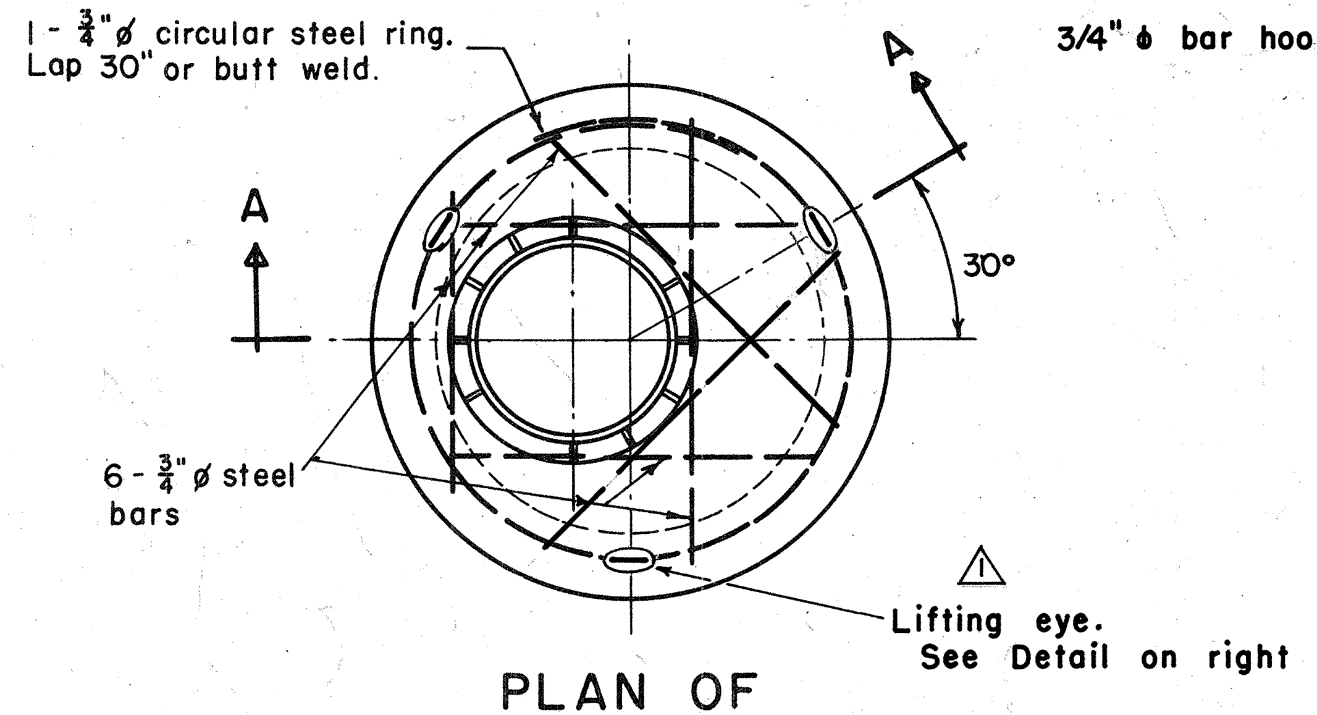
When backfilling around precast manholes, material shall be deposited in such a mamner that the difference in elevation or one side of the manhole shall not exceed the elevation on the other side by more than 5 feet.

△1

DROP MANHOLE
USING PRECAST CONCRETE PIPE SECTIONS
FOR MANHOLES LESS THAN 10 FT. IN HEIGHT

Scale: 1/2" = 1'-0" △2

NOTE: (Shallow) Drop M.H. may be constructed similarly

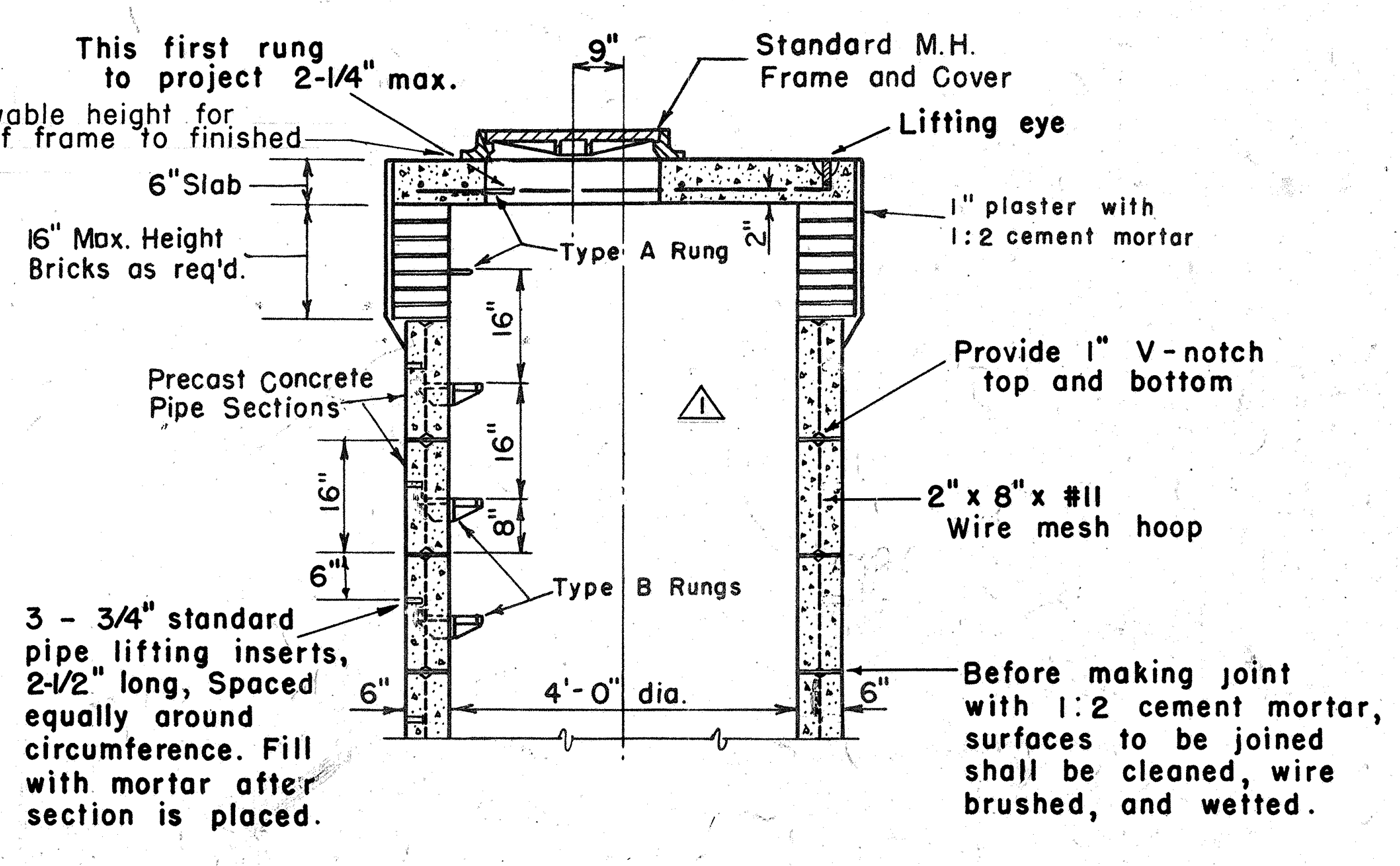


1 - ¾"ø circular steel ring. Lap 30" or butt weld.
A
A
30°
6 - ¾"ø steel bars
Lifting eye. See Detail on right

△1

PLAN OF PRECAST MANHOLE

Scale: ½" = 1'-0"

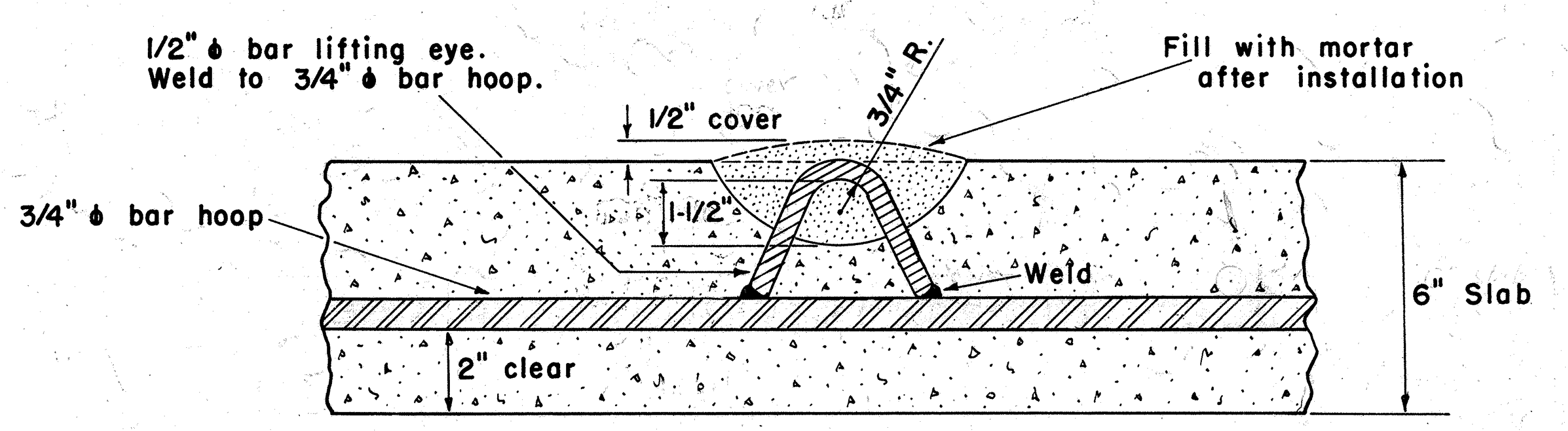


This first rung to project 2-1/4" max.
9"
Standard M.H. Frame and Cover
Lifting eye
2½" max. allowable height for adjustment of frame to finished road grade.
6" Slab
16" Max. Height Bricks as req'd.
Type A Rung
2"
1" plaster with 1:2 cement mortar
16"
Precast Concrete Pipe Sections
Provide 1" V-notch top and bottom
△1
16"
8"
2" x 8" x #11 Wire mesh hoop
6"
Type B Rungs
3 - 3/4" standard pipe lifting inserts, 2-1/2" long, Spaced equally around circumference. Fill with mortar after section is placed.
6"
4'-0" dia.
6"
Before making joint with 1:2 cement mortar, surfaces to be joined shall be cleaned, wire brushed, and wetted.

SECTION A-A

Scale: 1/2" = 1'-0"

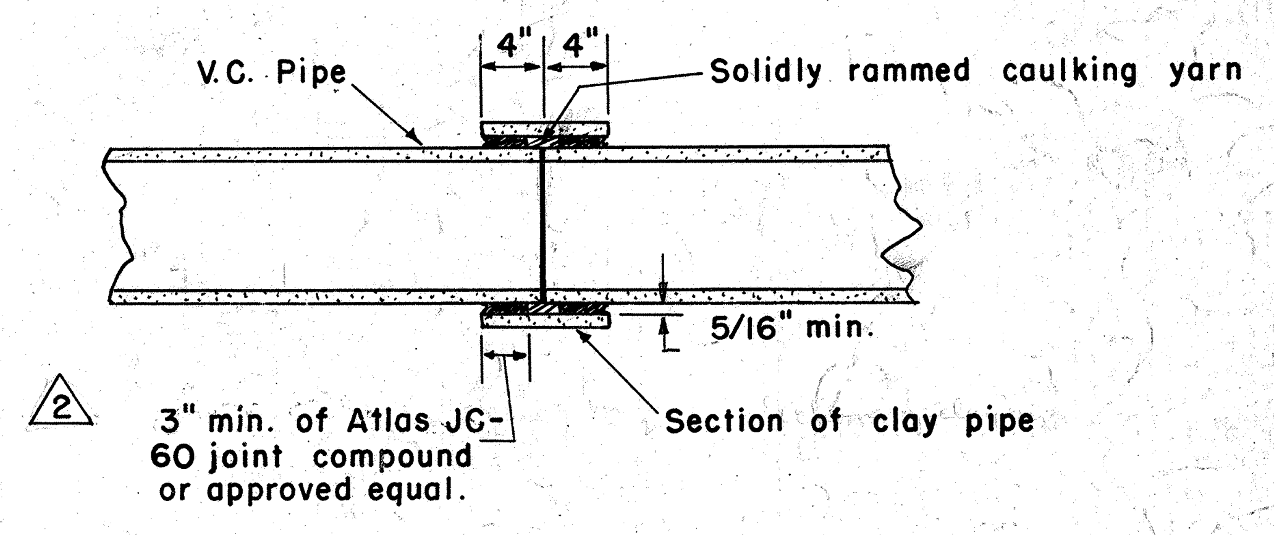
NOTE: Pipe Sections may be made in heights other than 16" if desired.



1/2" ø bar lifting eye. Weld to 3/4" ø bar hoop.
1/2" cover
3/4" R.
Fill with mortar after installation
3/4" ø bar hoop
1-1/2"
Weld
6" Slab
2" clear

SECTION OF LIFTING EYE △1

Scale: 3" = 1'-0"



V.C. Pipe
4"
4"
Solidly rammed caulking yarn
5/16" min.
△2
3" min. of Atlas JC-60 joint compound or approved equal.
Section of clay pipe

BUTT JOINT DETAIL △1

Scale: 1" = 1'-0"

NOTE: These plans were prepared in the office of the Department of Public Works, City and County of Honolulu.

Revision	DATE	BRIEF	Made by	APPROVED
△2	10/28/52	Reduced permissable height. Added notes on backfilling, size of drop and joint compound.	T. S.	TS Ha
△1	6/7/50	Revised details of Precast Manholes	A. K.	ToB GCW

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
KALANIANAOLE HIGHWAY
PROJECT No. F6 (18)
NOVEMBER 1954

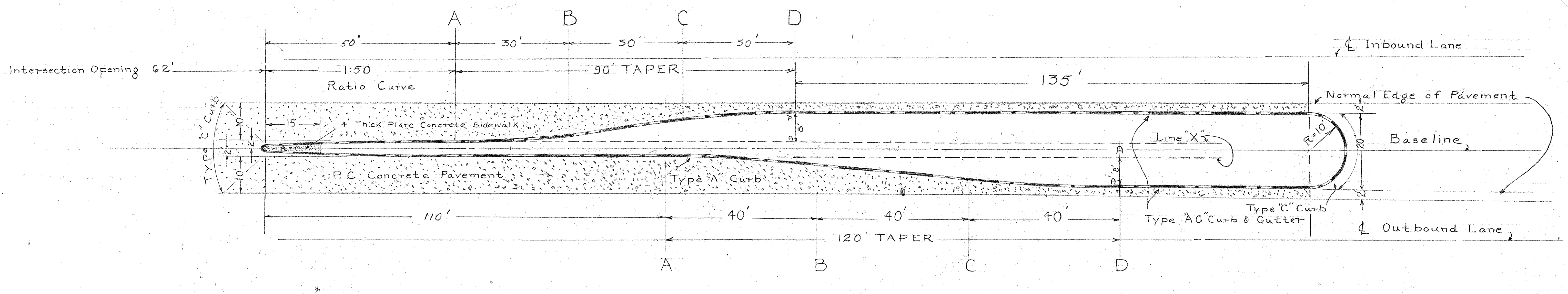
DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
DIVISION OF SEWERS
STANDARD DETAILS

ENGINEER F. Sunn
DATE July 13, 1949
DRAFTSMAN A. Kanayama
TRACER H. Lum
SCALE As Noted
CHECKED BY
APPROVED:
CHIEF ENGINEER
APPROVED:
DIVISION ENGINEER
ENGINEER, BUR. OF PLANS

FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW.	F 6.(18)	1954	1	1

TRUE NORTH
SCALE 1"=50'
N
NENUE STREET
℄ P.C. STA. 112+59.28
WAILUPE
STREAM
℄ P.T. STA. 115+17.21
EAST HIND DRIVE
C.B. #12 INV. EL. 1.61
Type "C" Curb
Type "B" Curb
C.B. #13 STA. 112+25 INV. EL. 1.32
Construct St'd Conc. Catch Basin Type "A"
110
Type "A" Curb
P.C. Conc. Pavt.
C&C MON.
P.C. Conc. Pavt. + Gutter
Type "C" Curb
Type "A" Curb
Type "AG" Curb & Gutter
KALANIANAOLE
HWY.
EXISTING BRIDGE
NEW BRIDGE
115
256° 31' 00"
120
C.B. #14 Sta. 112+25 INV. EL. 1.55
Construct St'd Conc. Catch Basin Type "A"
MEDIAN STRIP - INTERSECTION AT NENUE ST. - REFER TO PLAN NO. 5686.8 FOR DETAIL.
24" St'd Strength Reinf. Conc. Culv't. Pipe 375'± Length
Construct St'd C.R.M. Headwall at Discharge End. Inv. El. 0.75± Refer to Plan 5686.54
Construct St'd Concrete Catch Basin - Type "B" Sta. 116+60± Inv. El. = 1.51± Provide Opening in Back for Shoulder Drainage
C.B. #15 Inv. El. = 2.25' Sta. 118+47±
C.B. #16 Inv. El. = 2.53'
C.D.I. #5
C.D.I. #6
Do not install Conc. Culv't Pipe Between CB #15 and C.D.I. #5

Revised Sheet For Nenue St. & East Hind Drive Intersection (Correct Sheet No. 5686.6)


A
B
C
D
50'
30'
30'
30'
1:50 Ratio Curve
90' TAPER
Intersection Opening 62'
135'
℄ Inbound Lane
Normal Edge of Pavement
Type "C" Curb
15
4" Thick Plane Concrete Sidewalk
P.C. Concrete Pavement
Type "A" Curb
Line "X"
R=10'
20
Baseline
Type "C" Curb
Type "AG" Curb & Gutter
℄ Outbound Lane
110'
40'
40'
40'
120' TAPER
8'

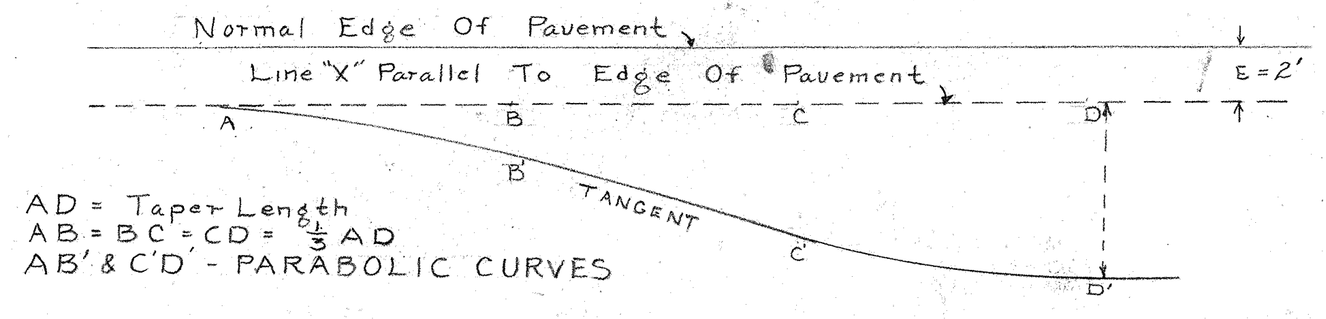
MEDIAN STRIP

Deceleration & Acceleration Lanes At Intersection
East Hind Drive

Scale 1"=20'

90' TAPER		120' TAPER
Length of Taper, Feet Distance From Point "A"	Offset From Line "X" D-D' = 8'	Length of Taper, Feet Distance From Point "A"
0	0	0
7.5	0.13	10
15	0.48	20
22.5	1.13	30
30	2.00	40
45	4.00	60
60	6.00	80
67.5	6.87	90
75	7.51	100
82.5	7.97	110
90	8.00	120

TAPER FOR SPEED CHANGE LANE


Normal Edge Of Pavement
Line "X" Parallel To Edge Of Pavement
E=2'
A
B
C
D
B'
TANGENT
C'
D'

AD = Taper Length
AB = BC = CD = $\frac{1}{3}$ AD
AB' & C'D' - PARABOLIC CURVES

Revision Date: 7-13-55

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
REVISION OF MEDIAL STRIPS
ACCELERATION & DECELERATION
LANES AT INTERSECTIONS OF
NENUE ST. & EAST HIND DRIVE
KALANIANAOLE HWY.
PROJECT NO. F 6. (18)
Scales As Noted

SHEET No. OF SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 7/13/55
	DESIGNED BY Wong	"
	DRAWN BY Wong	"
NOTE BOOK No.	TRACED BY	"
	QUANTITIES BY	"
	QUANTITIES CHECKED BY	"
	CHECKED BY	"

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5686.79A

Revision Date: 7-13-55

FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW.	F G (18)	1954		79

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

119+50
Exc = 219
Emb = 20
C = 80
F = 16

119+00
Exc = 230
Emb = 13
C = 156
F = 6

114+00
Exc = 65
Emb = 143
C = 31
F = 56

113+50
Exc = 81
Emb = 82
C = 8
F = 53

113+00
Exc = 156
Emb = 56
C = 69
F = 36

112+50
Exc = 221
Emb = 28
C = 99
F = 25

112+00
Exc = 269
Emb = 9
C = 140
F = 5

122+50
Exc = 48
Emb = 135
C = 41
F = 89

122+00
Exc = 25
Emb = 89
C = 11
F = 57

121+50
Exc = 33
Emb = 73
C = 16
F = 39

121+00
Exc = 75
Emb = 65
C = 20
F = 40

120+50
Exc = 115
Emb = 57
C = 61
F = 30

120+00
Exc = 132
Emb = 45
C = 63
F = 32

PLATE 3 - CROSS SECTION O. P. R. & R. E. STANDARD
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K & E CO. NO. 345-3 MADE IN U. S. A.

5686.79R