
Remove exist. manhole and extend 8" sanitary sewer east to new manhole on 20" sanitary sewer. Plug 8" S.E.
Flow 15" R.C.P. S.= 103.30. Plug 10" S.E.
Note: The top 4' of manholes ... removed and the manholes ... Removal of tops of manholes ... shall be considered as incidental to the ...
Scale 1"=20'
Z
Observation hole adjusted by others.
Sta. 0+35.5 Line No. 1 equals Sta. 0+00 Line No. 2. Constr. Reinf. Conc. Manhole Type II. Flow 24" R.C.P. W.= 101.20.
Remove inlet and plug lead.
Remove and seal observation hole.
Constr. 2'x5' Inlet T.C.= 108.26. Flow out= 104.75.
Remove and seal observation hole.
Remove and seal observation hole.
Remove inlet & plug lead.
Constr. Special 2'x5' Inlet. T.C.= 108.26. Flow Out= 103.55.
Lewis St.
37 L.F. 15" R.C.P.
37 L.F. 15" R.C.P.
55 L.F. 18" Clay Pipe
6 L.F. 6" Clay Pipe
Line No. 2
Washington
Ave.
3.60'
Adjust manhole and install new ring and lid. Plug 8" N.W.
37 L.F. 24" R.C.P.
Abandon Manhole
Abandon Manhole & plug 10" N.W.
Thimble
Remove manhole, brick arch S.W.S. 12" & 8" V.C.P. to clear constr. Plug 8" & 12" V.C.P.
Line No. 1
Line No. 1
Constr. Std. Brick Manhole Type A on exist. 20" sanitary sewer. Flow= 99.87 E. Flow 8" sewer west= 100.79 E.
Sta. 2+64.66 Constr. Reinf. Conc. Manhole Type II. Flow 24" R.C.P. west= 102.80.
Constr. 2'x5' Inlet. T.C.= 108.45. Flow Out= 104.95.
22 L.F. 12" R.C.P.
20 L.F. 15" R.C.P.
12 L.F. 15" R.C.P.
Lewis St.
Sta. 0+00 Constr. Reinf. Conc. Manhole Type I on exist. 48" Brick Arch Sewer. Flow 15" R.C.P. North= 103.00. Flow 15" R.C.P. S.= 100.75.
B.M. 108.91 "X" cut on conc. base to flood light pole approx. 6" east of 4" pole on W. side of Washington and approx. 20 Ft. south of S.L. Lewis East.
Note: Drainage contractor shall excavate underground utility crossings prior to laying any pipe for leads to inlets so that the field engineer can adjust the flow ... of the pipes to clear the utilities. All 2'x5' inlets are std. brick inlets unless noted otherwise. All salvaged material to be disposed of as directed by the engineer.
Plan Scale 1"=20'
Profile Scale Horiz. 1"=20'
Vert. 1"=4'
Sta. 0+00 Constr. Reinf. Conc. Manhole Type I on exist. 48" Brick Arch.
Sta. 0+35.5 Line No. 1 equals Sta. 0+00 Line No. 2. Constr. Reinf. Conc. Manhole Type II.
Sta. 2+64.66 Constr. Reinf. Conc. Manhole Type II
Top of Exist. Pavement
Bottom of Proposed Pavement
Set Top of Manhole to Elev. 108.36
Set Top of Manhole to Elev. 108.29
Set Top of Manhole to Elev. 107.99
Line No. 1
550 L.F. 16.6 Sq. Ft. Horizontal Elliptical R.C.P. @ 0.13%
Flow= 100.65
Flow Out= 100.70
Flow In= 100.80
Flow= 100.82
Flow= 100.88
Flow= 100.95
Flow= 101.01
Flow= 101.08
Flow= 101.10
Flow= 101.14
Flow= 101.21
Flow= 101.27
4+50 Flow= 101.34
5+00 Flow= 101.40
5+50 Flow= 101.47
INCIDENTAL DRAINAGE - WASHINGTON AVE.

Sta. 6+25 Constr. Reinf. Conc. Manhole Type II. Flow 15" R.C.P. E. = 101.32. Flow 18" R.C.P. W. = 103.00.

Constr. Reinf. Conc. Manhole Type III on exist. line of 21" Storm Water Sewer. Flow 34" R.C.P. S. = 103.50.

Scale 1" = 20'

Remove inlet & plug lead.

Constr. 2'X5' Inlet. T.C. = 108.20 Flow Out = 104.70.

Remove manholes and pipe to clear new constr.

Remove & seal exist. hole.

Remove inlet & plug lead.

Constr. 2'X5' Inlet. T.C. = Flow Out = 104.70

Remove & seal observation hole.

Observation hole adjusted by others.

Sta. 9+10 Constr. Reinf. Conc. Manhole Type II. Flow 15" R.C.P. W. = 103.75. Flow 12" R.C.P. E. = 101.56.

Constr. 2'X5' Inlet on exist. 10" Clay Pipe. T.C. = 107.94. Flow Out = 104.40.

Remove inlet & plug lead.

Adjust manhole & install new ring and lid.

38 L.F. 15" R.C.P.

43 L.F. 15" R.C.P.

48 L.F. 15" R.C.P.

Washington

Thimble

Thimble

Line No. 1

17 L.F. 12" R.C.P.

Abandon manhole and plug leads.

Ave.

30'

30'

24'

24'

255.8'

Constr. Double 2'X2' Drop Inlet. T.C. = 107.87. Flow Out = 101.80.

Sta. 6+40 Constr. Reinf. Conc. Manhole Type II. Flow 15" R.C.P. E. = 101.68. Flow 15" R.C.P. W. = 103.70.

Sta. 6+91.1 Constr. Reinf. Conc. Manhole Type II on exist. 51" R.C.P. Flow 36" R.C.P. S.W. = 101.18.

Sta. 11+00 Constr. Reinf. Conc. Manhole Type II. Flow 15" R.C.P. In = 104.00. Flow 24" R.C.P. W. = 103.30.

Watterman

B.M. 107.96 "D" cut on N.W. corner conc. base to traffic light pole on S.E. corner Washington and Watterman.

Plan Scale 1" = 20'
Profile Scale Horz. 1" = 20'
Vert. 1" = 4'

115

Sta. 6+40 Constr. Manhole Conc. Type II.

Set Top of Manhole to Elev. 107.45

Sta. 6+91.1 Constr. Manhole Conc. Type II on exist. 51" R.C.P.

Set Top of Manhole to Elev. 107.42

Sta. 7+25 Constr. Manhole Conc. Type II.

Top of Exist. Pavement

Set Top of Manhole to Elev. 107.41.

Sta. 9+10 Constr. Manhole Conc. Type II.

Bottom of Proposed Pavement

Set Top of Manhole to Elev. 107.69

Sta. 11+00 Constr. Manhole Conc. Type II.

Set Top of Manhole to Elev. 107.96

Line No. 1

Flow exist. 51" R.C.P. Out = 101.08

550 L.F. 16.6 Sq. Ft. Horizontal Elliptical R.C.P. @ 0.13%

100 L.F. 48" R.C.P. @ 0.13%

95

Flow = 101.53

Flow = 101.58

Flow = 101.60

Flow Out = 101.65
Flow In = 131.18
Flow = 101.19

Flow = 101.22

Flow = 101.25

Flow = 101.32

Flow = 101.38

Flow = 101.45

Flow = 101.46

Flow = 101.51

Flow = 101.58

Flow = 101.64

11+00 Flow = 101.71

11+50 Flow = 101.77

12+00 Flow = 101.83


Scale 1"=20'
N
Adjust manhole and install new ring & lid.
Remove & seal observation hole.
Remove inlet & plug leads.
Constr. 2'X5' Inlet. T.C.=108.50. Flow Out = 105.00.
Remove & seal observation holes.
Remove exist. manhole and extend 4" sanitary sewer east to new manhole on 20" sanitary sewer. Plug 8" S.E.
Constr. Std. Brick Manhole Type A on exist. 20" sanitary sewer. Flow = 101.49±. Flow 8" sewer west = 101.88±.
Constr. 2'X5' Inlet. T.C.=109.01. Flow 15" R.C.P. E. = 105.50.
16' Alley
Remove and seal observation hole. 24 L.F. 6" Clay Pipe
Adjust manhole and install new ring & lid. Plug 8" sewer N.W. & N.E.
55'
17 L.F. 15" R.C.P.
32 L.F. 15" R.C.P.
Washington Ave.
Abandon Manhole & plug leads.
Line No. 1
Underground Tele. Conduit
32 L.F. 15" R.C.P.
20 L.F. 1.8 Sq. Ft. Horizontal Elliptical R.C.P.
30'
24'
34'
39'
44'
5'
10'
Thimble
English St.
48 L.F. 15" R.C.P.
20 L.F. 15" R.C.P.
Sta 17+50 Constr. Reinf. Conc. Manhole Type II. Flow 15" R.C.P. W. = 105.30. Flow 15" R.C.P. E. = 102.70.
Remove manhole & 8" sewer to clear construction.
Constr. 2'X5' Inlet. T.C.=108.85 Flow 15" R.C.P. W. = 103.00.
Abandon manhole & sewer. Plug 8" sewer S.W. & E.
Constr. Special Brick Manhole Type B on exist. 8" & 15" sanitary sewers. Flow 8" sewer in = 102.13. Flow 15" sewer out = 101.23. See detail on sheet no. 5.
16.5' Alley
Remove manhole on 15" sanitary sewer.
Remove inlet & plug lead.
Constr. 2'X5' Inlet. T.C.=108.34. Flow 15" R.C.P. N.E. = 104.80.
Constr. Special 2'X5' Inlet. T.C. = 108.30 Flow 15" R.C.P. S.E. = 102.60. Flow 1.8 Sq. Ft. Hor. Elliptical R.C.P. N.W. = 102.40.
Remove inlet & plug lead.
Constr. 2'X5' Inlet. T.C.=108.39. Flow 15" R.C.P. N.W. = 103.00. Flow 15" R.C.P. S.W. = 104.30.
B.M. 108.71 South rim of 4" metal post approx. 2" high on S.E. corner of Washington and English.
Plan Scale 1"=20'
Profile Scale Horz. 1"=20' Vert. 1"=4'
Sta. 17+00 Constr. Reinf. Conc. Manhole Type II.
Sta. 17+50 Constr. Reinf. Conc. Manhole Type II.
115
Top of Exist. Pavement
Bottom of Proposed Pavement
Set Top of Manhole to Elev. 108.77
Set Top of Manhole to Elev. 108.73.
Line No. 1
550 L.F. 48" R.C.P. @ 0.13 %
105
Flow = 101.87
Flow = 101.90
Flow = 101.97
Flow = 102.03
Flow = 102.04
Flow = 102.10
Flow = 102.16
Flow = 102.23
Flow = 102.29
Flow = 102.36
Flow = 102.42
17+00 Flow = 102.49
17+50 Flow = 102.55
18+00 Flow = 102.62

Sta. 17+50 Constr. Reinf. Conc. Manhole Type II

Scale 1"=20'

Remove inlets & plug leads.

Adjust manhole and install new ring & lid. Plug 15" N.E.

16' Alley

Line No. 1

Washington Ave.

46 L.F. 15" R.C.P.

30.34'

Douglas Ave.

Abandon 15" S.W.S.

Remove manholes and pipe to clear const. plug pipes.

Remove inlet & plug lead.

16.5' Alley

Sta. 19+16 Constr. Reinf. Conc. Manhole Type II on exist 42" Brick Arch Storm Water Sewer Flow 15" R.C.P. W. = 105.00.

Sta. 0+00 Line No. 2 equals Sta. 0+35.5 Line No. 1 Constr. Reinf. Conc. Manhole Type II.

Lewis St.

Iron

Adjust manhole and install new ring & lid.

Sta. 1+97 Constr. Std. Brick Manhole Type A. Flow 15" R.C.P. W. = 103.00. Flow 15" R.C.P. W. = 104.20. Flow 15" R.C.P. S.E. = 103.00.

Constr. Special 2'X5' Inlet T.C. = No Flow 15" R.C.P. Out = 103.38

Remove & seal observation hole.

Line No. 1

Washington Line No. 2 Ave.

30 L.F. 15" R.C.P.

50 L.F. 18" R.C.P.

20 L.F. 15" R.C.P.

63 L.F. 15" R.C.P.

Remove manhole & pipe to clear const. plug pipe.

Sta. 0+12 Constr. Std. Brick Manhole Type B. Flow 18" R.C.P. S.W. = 102.50.

Constr. Special 2'X5' Inlet on exist. 12" Storm Water Sewer T.C. = 108.64. Flow 18" R.C.P. Out = 103.00.

Constr. Special 2'X5' Inlet T.C. = 108.96. Flow Out = 103.25.

B.M. 109.59 "X" cut on N.W. corner base of flood light pole approx. 1' North of S.E. corner of building at 447 South Washington.

B.M. 111.75 "X" cut on N.W. corner pedestrian island on centerline of Douglas at E.L. Washington.

Plan Scale 1"=20'
Profile Scale Horiz. 1"=2
Vert. 1"=4'

115

105

95

Sta. 17+50 Constr. Reinf. Conc. Manhole Type II

Top of Exist. Pavement
Bottom of Proposed Pavement

Set Top of Manhole to Elev. 108.73.

Sta. 19+16 Constr. Reinf. Conc. Manhole Type II

Set Top of Manhole to Match Exist. Pavement.

Line No. 1

166 L.F. 48" R.C.P. @ 0.13%

Sta. 0+00 Line No. 2 equals Sta. 0+35.5 Line No. 1 Constr. Reinf. Conc. Manhole Type II

Sta. 0+12 Constr. Std. Brick Manhole Type B.

Top of Exist. Pavement
Bottom of Proposed Pavement

Set Top of Manhole to Elev. 108.29.

Set Top of Manhole to Elev. 108.33.

Sta. 1+97 Constr. Std. Brick Manhole Type A.

Set Top of Manhole to Elev. 108.32

Line No. 2

185 L.F. 18" R.C.P. @ 0.5%

12 L.F. 24" R.C.P. @ 0.5%

Flow Out = 100.70
In = 101.20

Flow Out = 101.26
In = 101.76

Flow = 102.00

Flow = 102.25

Flow = 102.50

Flow = 102.74

Flow = 102.55

Flow = 102.62

Flow = 102.68

Flow = 102.75

Flow Out = 102.77
In = 102.87

Constr. Std. Brick Manhole Type A on exist. 12" Storm sewer. Flow 15" R.C.P. S.E. = 104.00

Remove monhole and pipe to clear construction.

Remove inlet and pipe to clear construction.

Constr. Inlet Type A-5 Special. T.C. = 107.60. Flow 15" R.C.P. N. = 103.85.

Constr. Inlet Type A-5 Special. T.C. = 107.62. Flow 15" R.C.P. S. = 103.75. Flow 15" R.C.P. N. = 103.60. Flow 18" R.C.P. S.E. = 103.35.

Remove inlet & plug lead.

Constr. Inlet Type A-5 Special on exist 8" storm sewer. T.C. = 107.69. Flow 15" R.C.P. S. = 103.94.

Brick Manhole Type B on ... 24" R.C.P. Flow 36" R.C.P. N.E. = ...25 Flow 15" R.C.P. N.W. = 103.70. Flow ... R.C.P. S. = 102.00.

...ove inlet and pipe to ... construction.

17 L.F. 15" R.C.P.

...str. Inlet Type A-5. T.C. = 107.90. ...w Out = 102.20.

...str. Inlet Type A-5. T.C. = 107.70. ...w Out = 103.00. Connect exist 4" ...wer to inlet.

...move double inlet & plug lead.

52 L.F. 36" R.C.P.

31 L.F. 15" R.C.P.

38 L.F. 15" R.C.P.

4 L.F. 15" R.C.P.

30 L.F. 18" R.C.P.

...ashington Ave.

Abandon Manhole

Remove manhole & pipe to clear construction.

16 L.F. 15" R.C.P.

16 L.F. 15" R.C.P.

...o. 6+90 Line No. 1. Reinf. Conc. ...anhole Type II. Flow 15" R.C.P. ... = 103.70. Flow 15" R.C.P. E. = 101.68.

...emove double inlet ...d plug lead.

...onstr. Double 2'X2' Drop Inlet. ...C. = 107.60. Flow Out = 101.85.

...o. 6+91.1 Line No. 1. Reinf. Conc. ...anhole Type II. Flow 36" R.C.P. ...W. = 101.18.

Remove double inlet and plug lead.

Abandon manhole.

Sta. 7+25 Line No. 1. Reinf. Conc. Manhole Type II. Flow 15" R.C.P. E. = 101.32. Flow 18" R.C.P. W. = 103.00.

Constr. Double 2'X2' Drop Inlet. T.C. = 107.60. Flow Out = 101.50.

Remove inlet and plug lead.

Remove manhole & pipe to clear construction.

Adjust manhole and install new lid & ring. Plug 15" pipe N.&S.

Water...

Scale 1"=20'

STORM WATER SEWER LAYOUT
WATERMAN & WASHINGTON

Remove manhole & pipe to clear construction.

20" Cast Iron Pipe Siphon.

Remove exist. manhole and constr. Std Brick Manhole Type A on exist. 20" sanitary sewer. Flow 20" sewer = 100.13. Plug 8" M.E. & N.W.

...Observation hole adjusted by owner.

Remove manhole & pipe to clear construction.

22 L.F. 8" Clay Pipe.

Remove exist. manhole and ... Brick Manhole Type A on exist. 20" ... sewer. Flow 20" sewer = 100.32. ... sewer S.W. = 100.97.

Remove inlet & pipe to clear construction.

...ashington Ave.

18" Cast Iron Pipe Siphon.

...Cast Iron ...e Siphon.

Remove manhole & pipe to clear construction. Plug 8" S.W.

Constr. Std. Brick Manhole Type A on exist. 15" Sanitary sewer. Flow 15" sewer = 100.12.

Constr. Std. Brick Manhole Type A on exist. 12" Sanitary sewer. Flow 12" Sewer = 101.11.

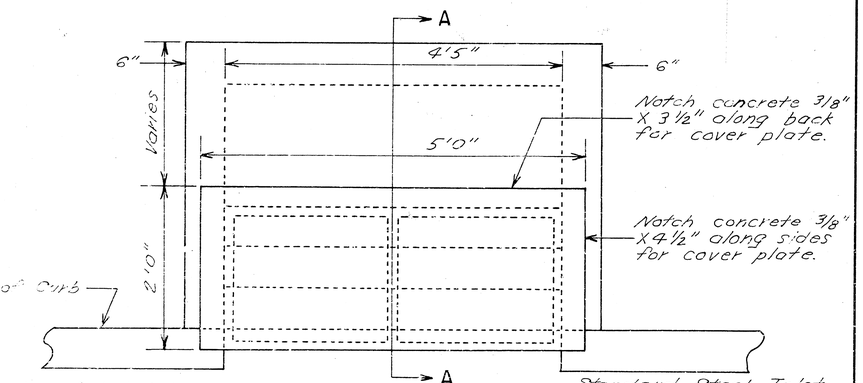
See sheet nos. 8 & 9 for ... of siphons.

Water...

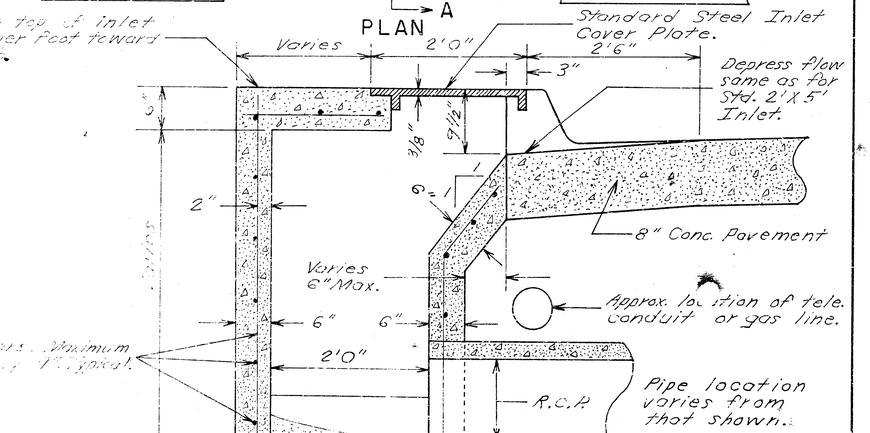
Scale 1"=20'

SANITARY SEWER LAYOUT
WATERMAN & WASHINGTON

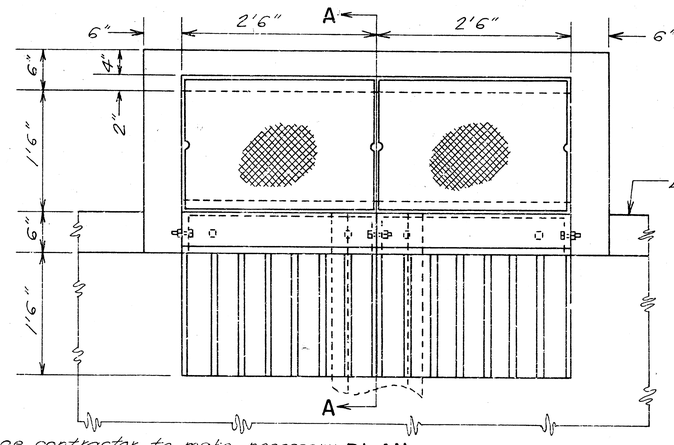
SPECIAL 2'X5' INLET DETAIL



PLAN



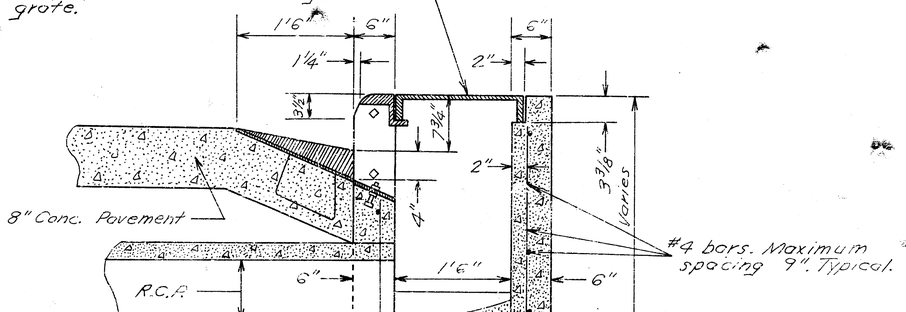
INLET TYPE A-5



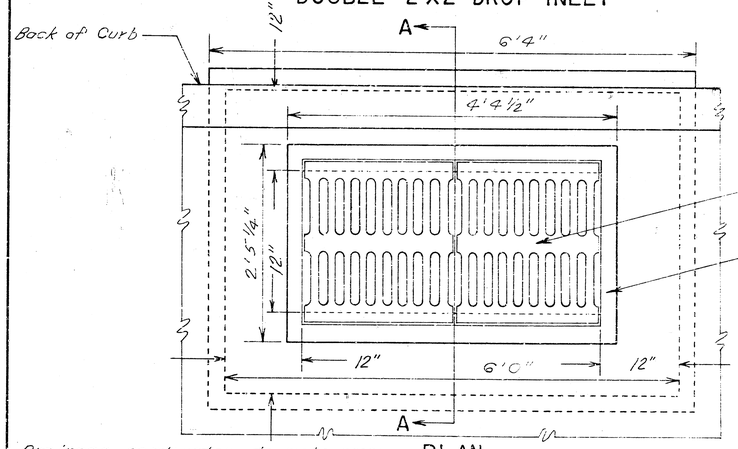
Drainage contractor to make necessary arrangements with paving contractor for proper installation of gutter grate.

PLAN

Slope top of inlet 1/4" per foot toward curb.

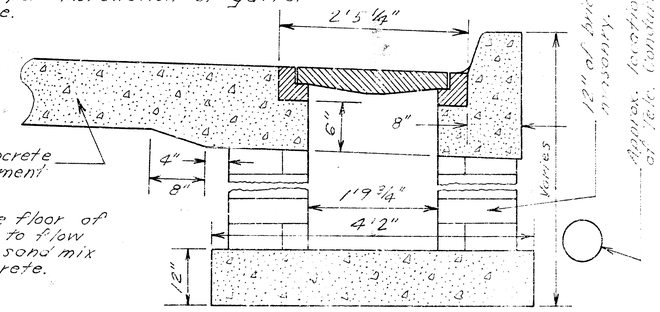


DOUBLE 2'X2' DROP INLET



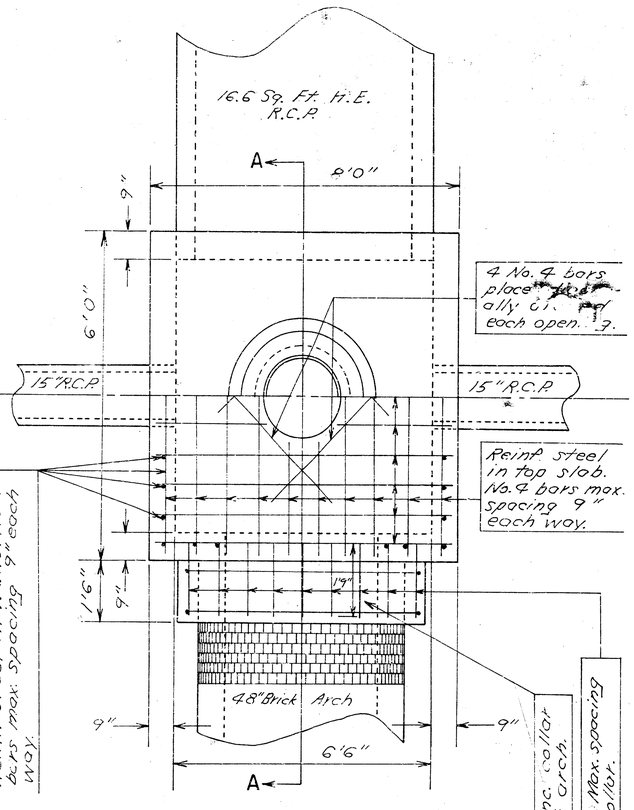
Drainage contractor to make necessary arrangements with paving contractor for proper installation of gutter grate.

PLAN



Slope floor of inlet to flow with sand mix concrete.

REINF. CONC. MANHOLE TYPE I

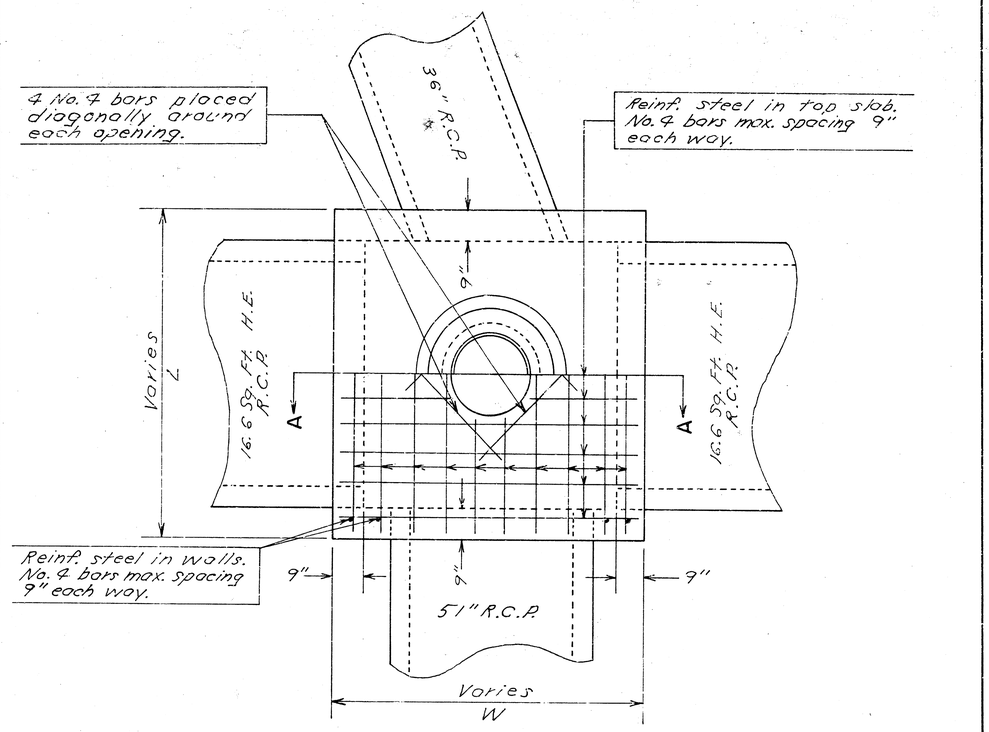


PLAN

SECTION A-A

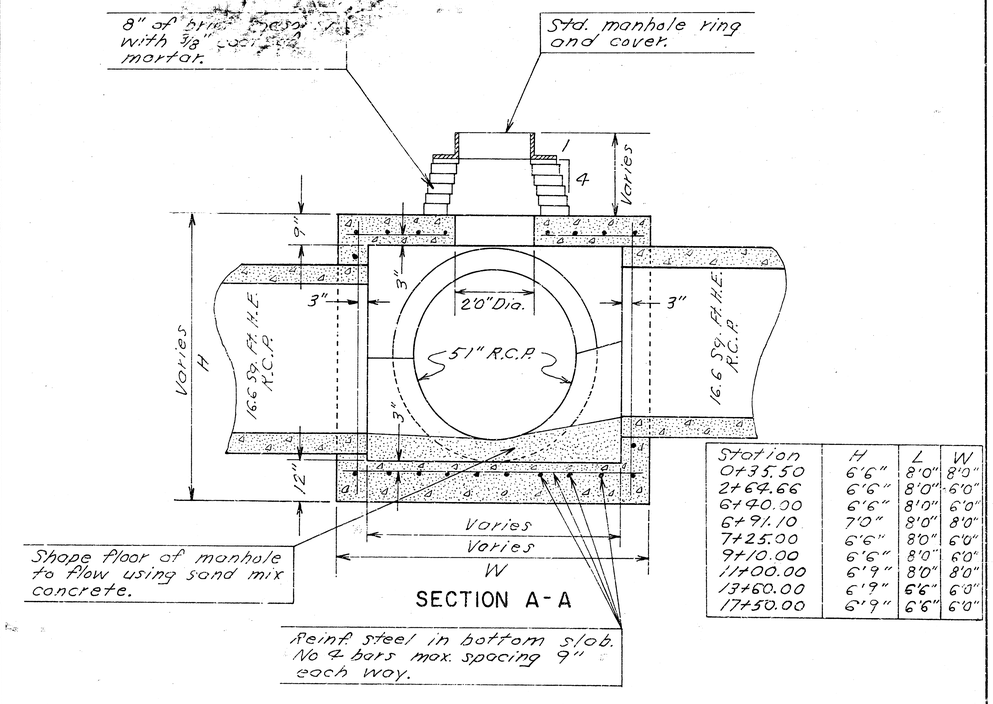
"Z" Bar Bending Diagram

REINF. CONC. MANHOLE TYPE II



PLAN

Note: Pipe sizes and locations shown are for manhole at Sta. 5+91.10. Pipe locations and sizes vary from those shown for manholes of other locations.

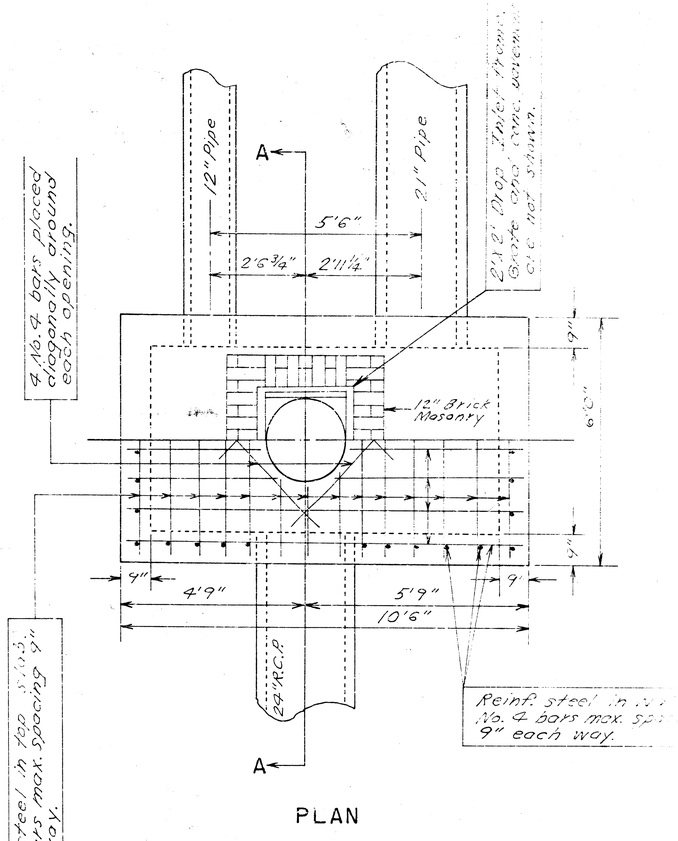


Station	H	L	W
0+35.50	6'6"	8'0"	8'0"
2+64.66	6'6"	8'0"	6'0"
6+40.00	6'6"	8'0"	6'0"
6+91.10	7'0"	8'0"	8'0"
7+25.00	6'6"	8'0"	6'0"
9+10.00	6'6"	8'0"	6'0"
11+00.00	6'9"	8'0"	8'0"
13+60.00	6'9"	6'6"	6'0"
17+50.00	6'9"	6'6"	6'0"

SECTION A-A

Note: Dimension "L" is perpendicular to

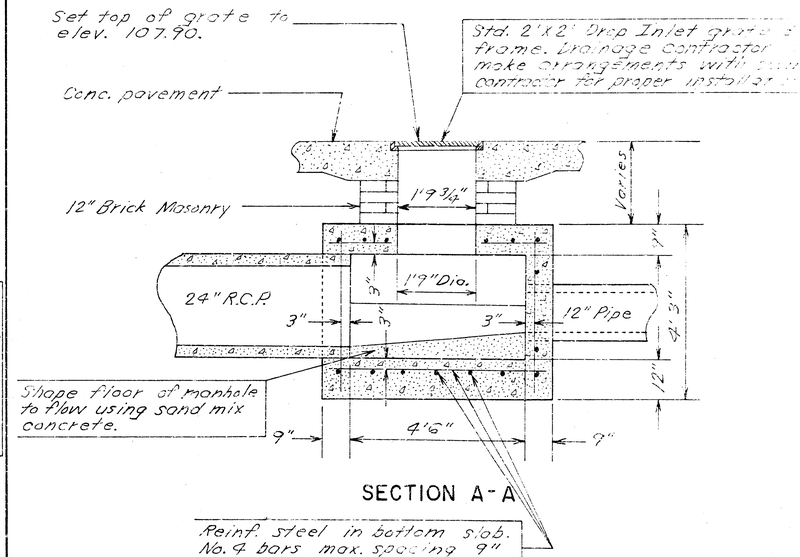
REINF. CONC. MANHOLE TYPE III



PLAN

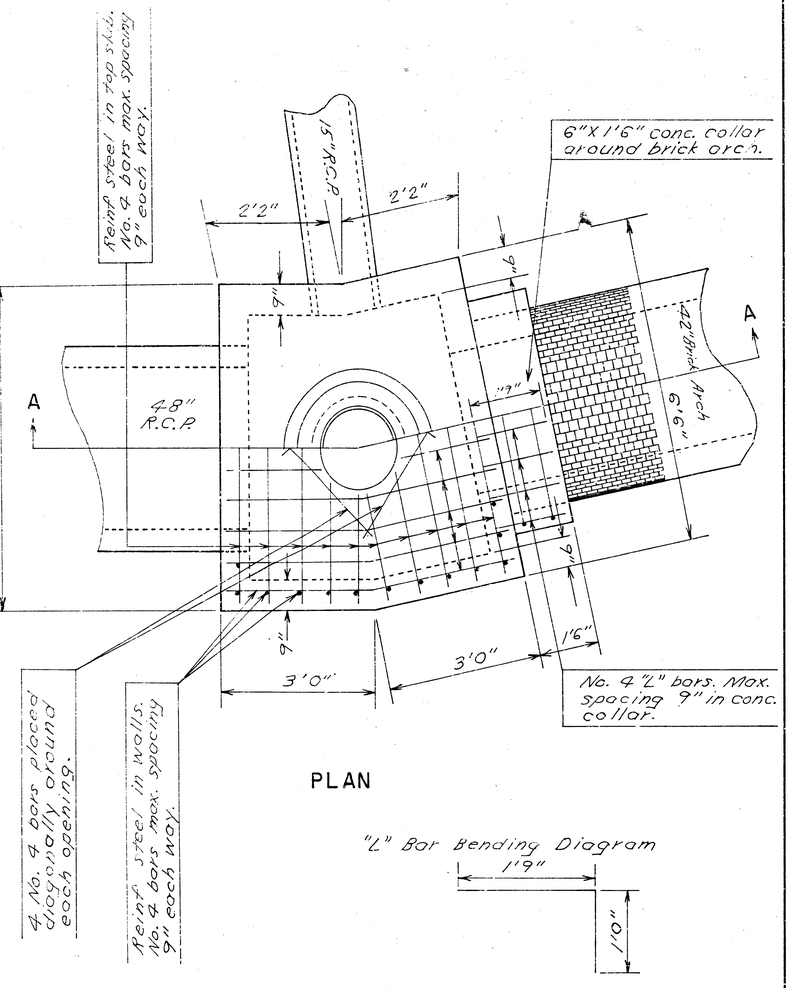
Reinf. steel in top slab. No. 4 bars max. spacing 9" each way.

Note: Installation of inlet frame to be same as for Std. 2'X2' Drop Inlet.



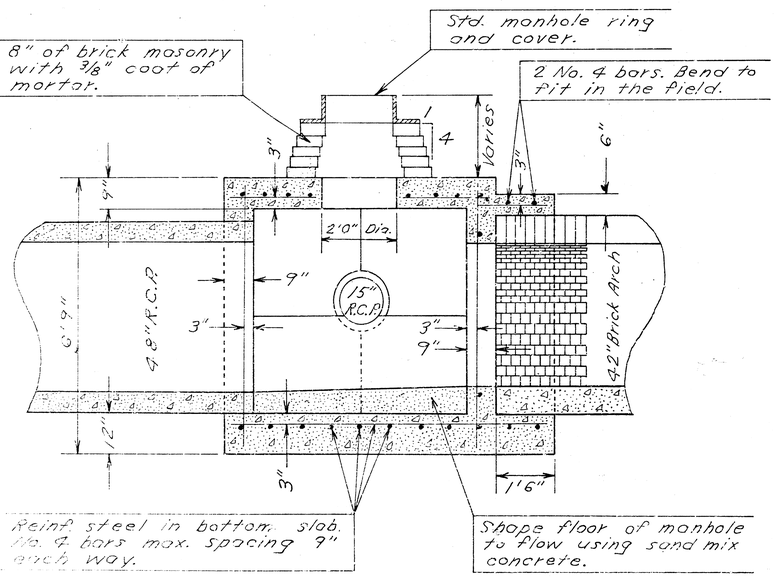
SECTION A-A

REINF. CONC. MANHOLE TYPE IV



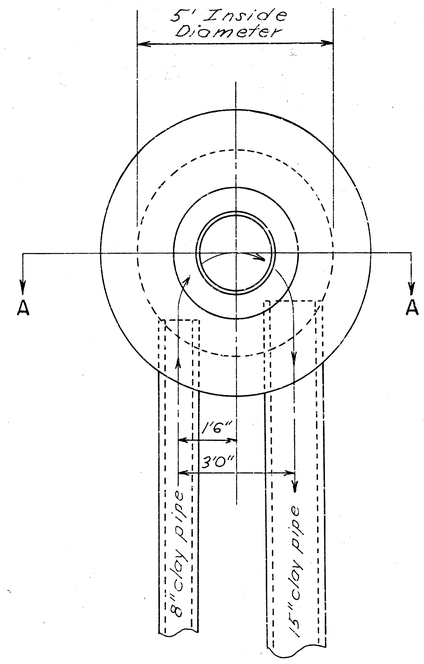
PLAN

"L" Bar Bending Diagram

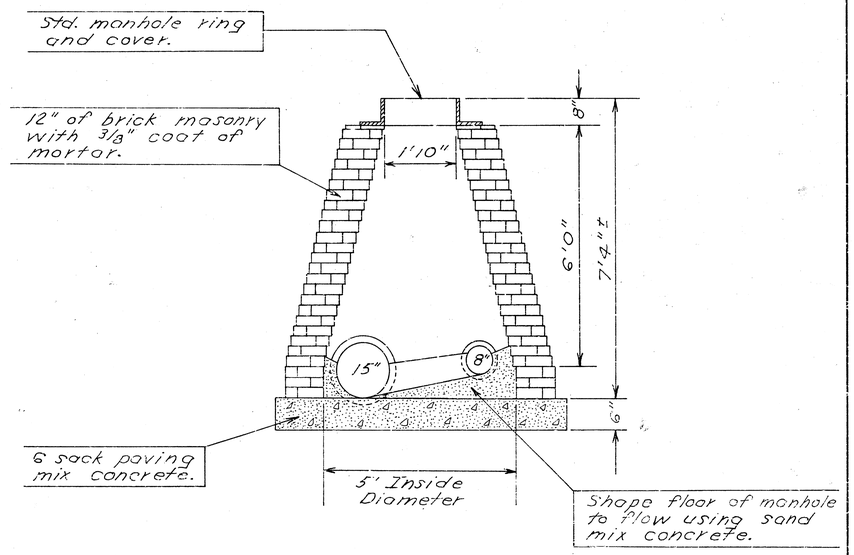


SECTION A-A

SPECIAL BRICK MANHOLE TYPE B



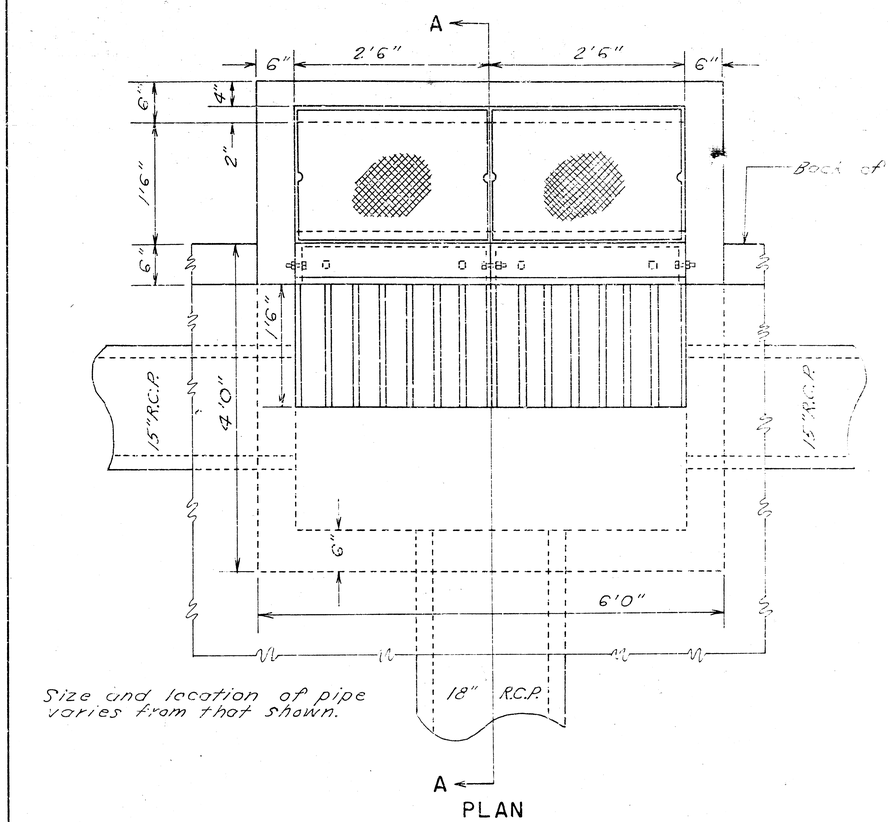
PLAN



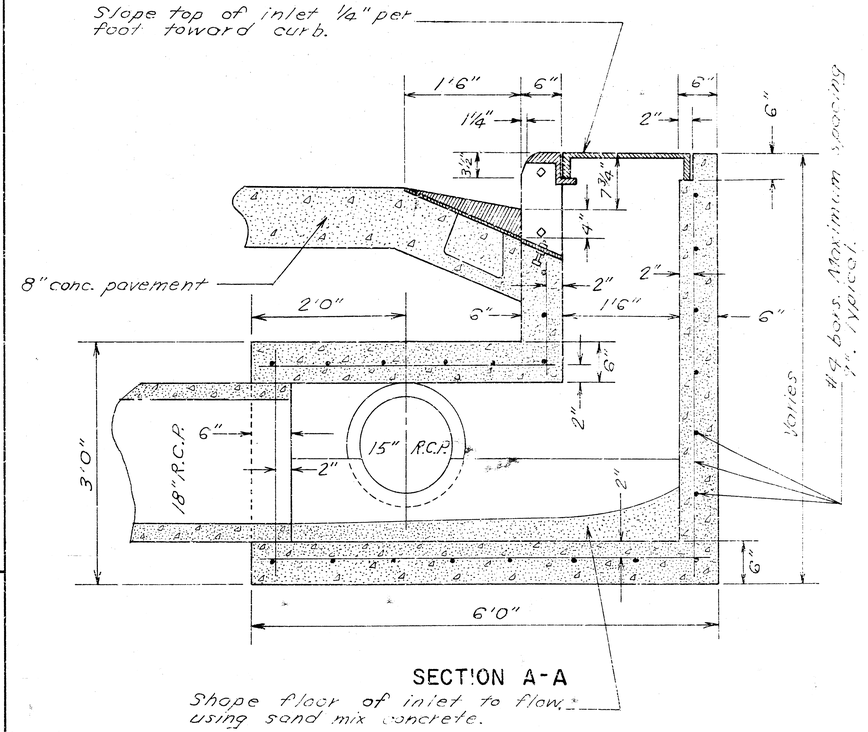
SECTION A-A

Note: Concrete for inlets and manholes shall be six sack paving mix. The bid price for each type of conc. manhole and inlet shall include the cost of excavation, furnishing and placing concrete, brick, all castings, cover plates, and reinforcing steel. All observation holes on 20" sanitary sewer shall be removed completely to tee or wye in 20" sewer. The tee or wye shall be plugged with a standard clay pipe plug and a concrete collar shall be constructed around the 20" sewer such that the tee or wye section will be completely encased.

INLET TYPE A-5 SPECIAL



PLAN



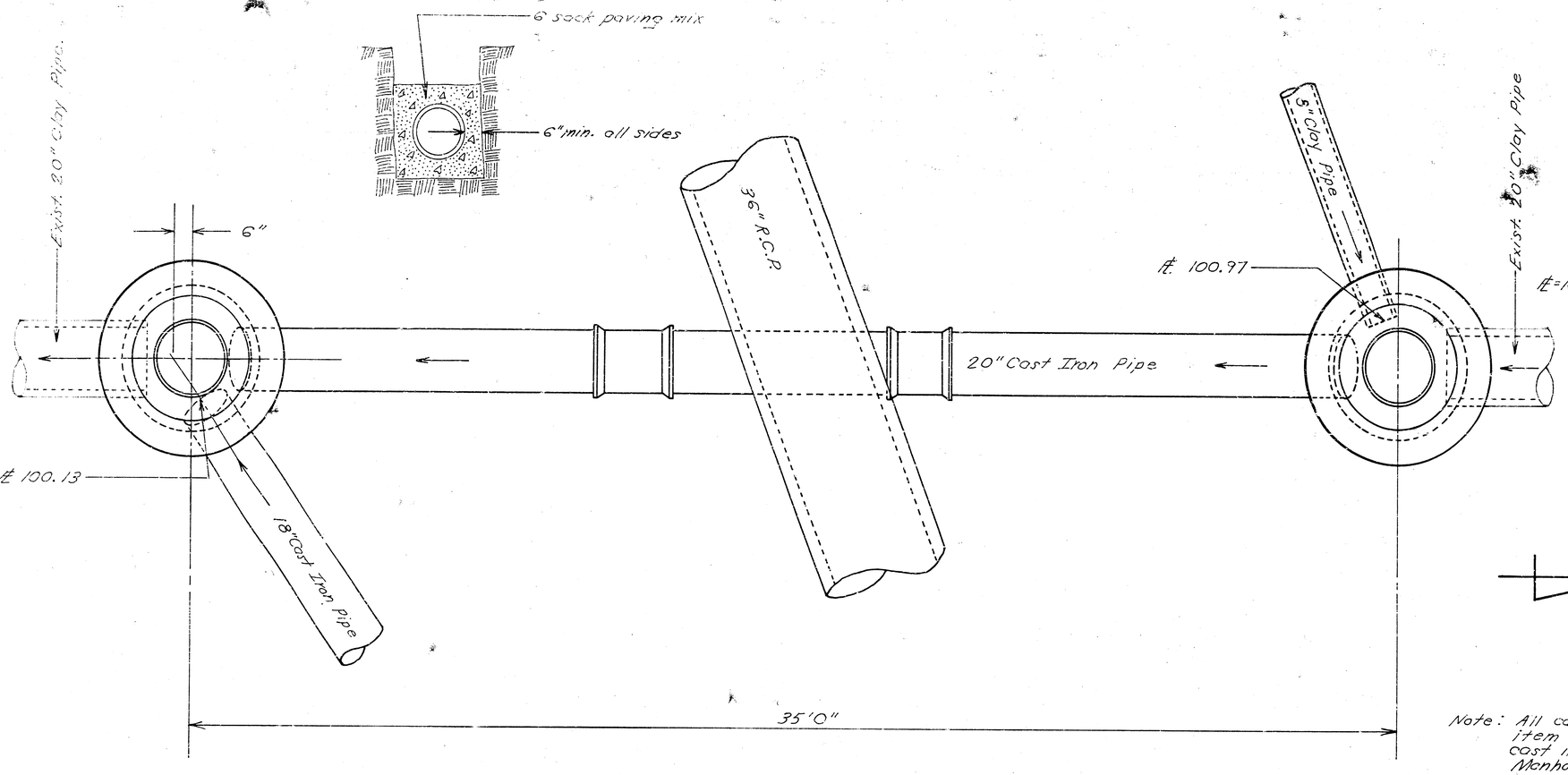
SECTION A-A

Shape floor of inlet to flow using sand mix concrete.

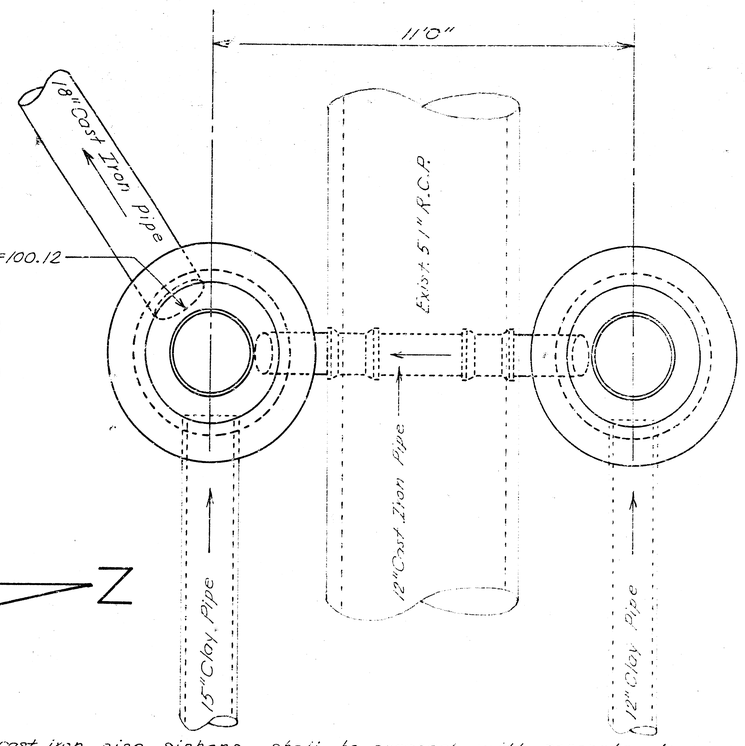
Drainage contractor to make necessary arrangements with paving contractor for proper installation of gutter grate.

Concrete Encasement Detail

20" SIPHON DETAIL

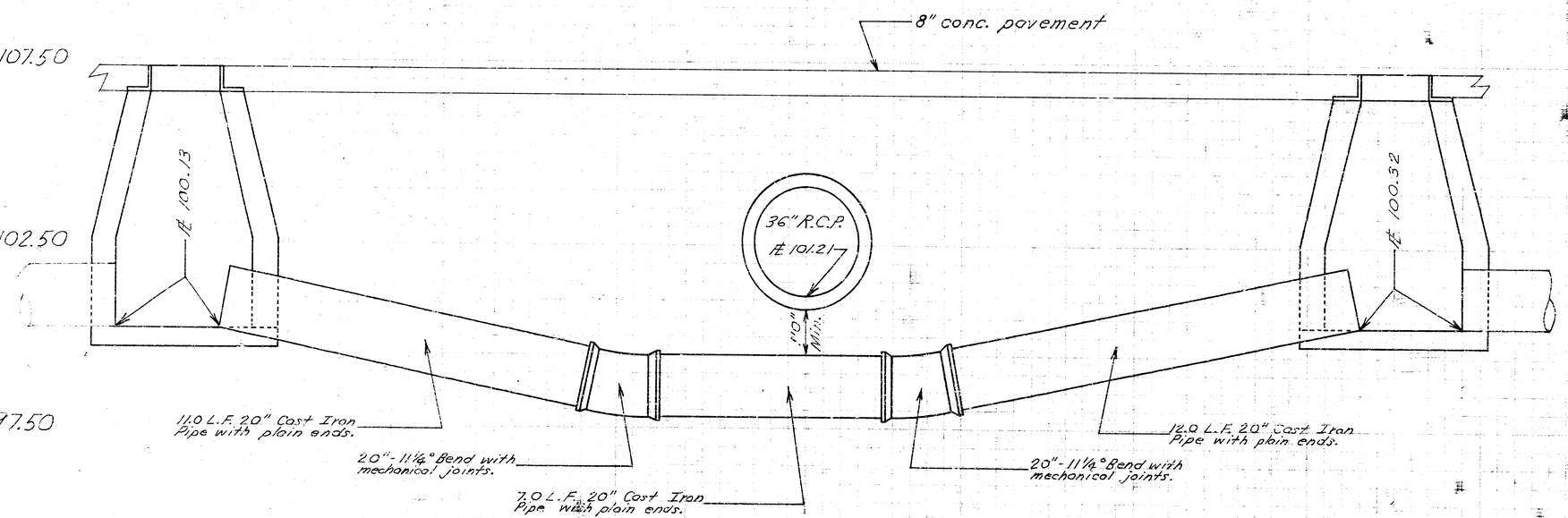


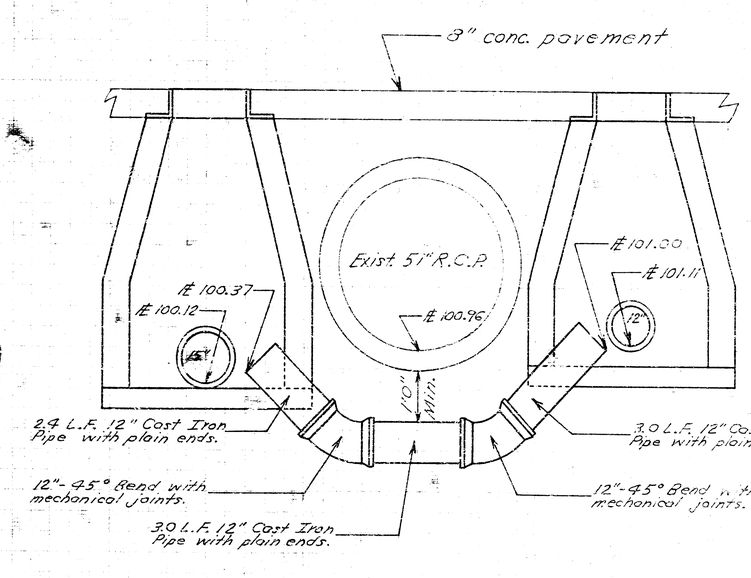
12" SIPHON DETAIL



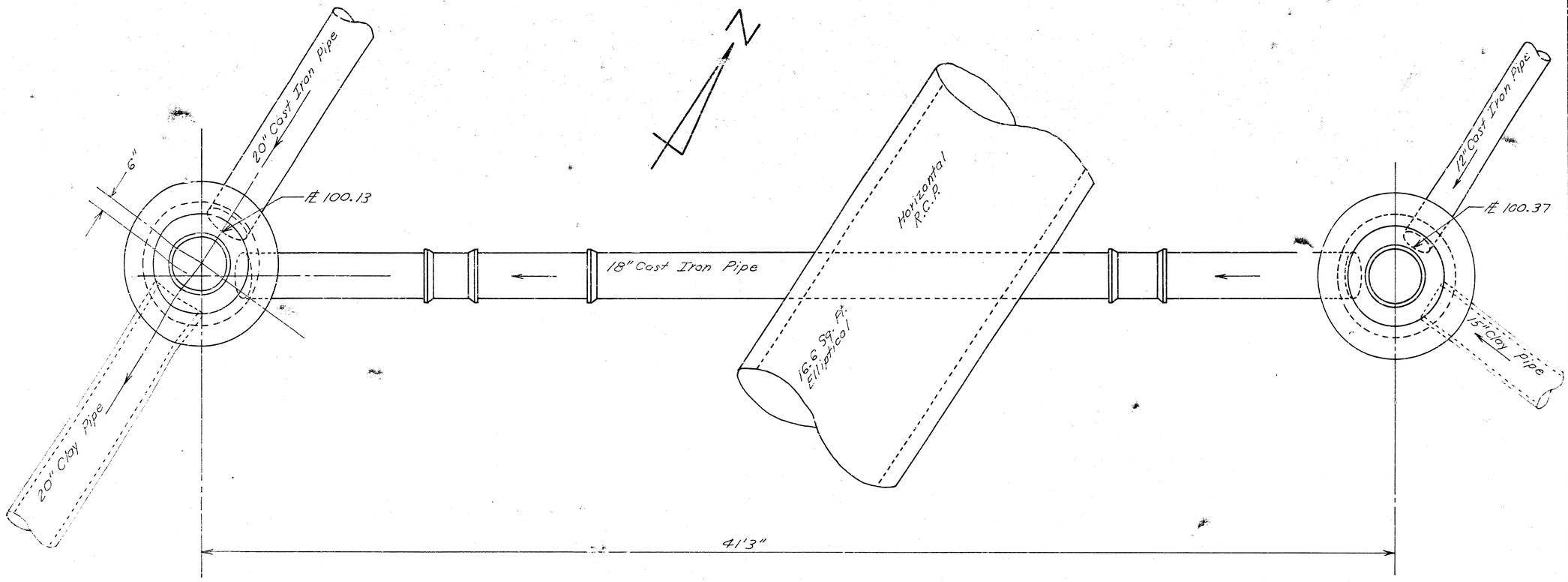
Note: All cast iron pipe siphons shall be encased with concrete. Lump sum bid item for the various size siphons shall include furnishing and placing cast iron pipe, all fittings, cast iron bends, and concrete encasement. Manholes will be paid for separately.

Plan Scale 1" = 2'
Profile Scale Horz. & Vert.

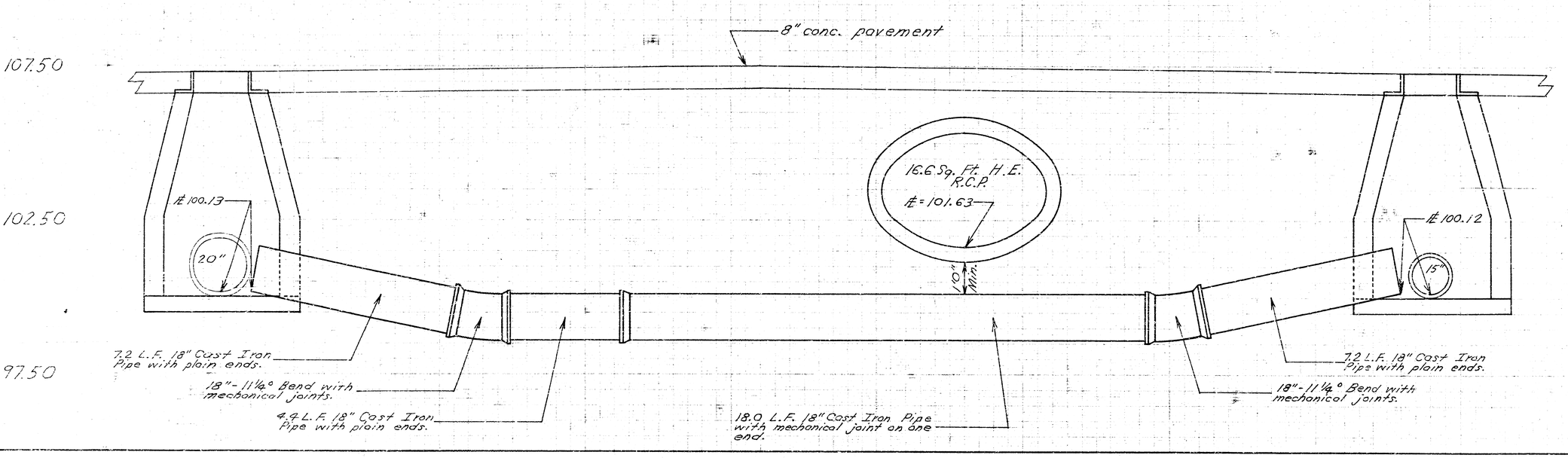




18" SIPHON DETAIL

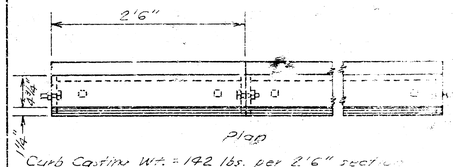


Plan Scale 1" = 2'
Profile Scale Horz. & Vert. 1" = 2'

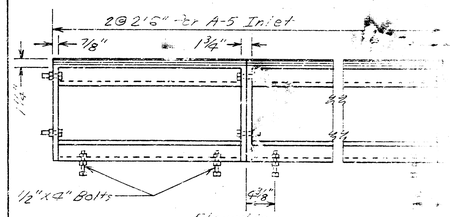


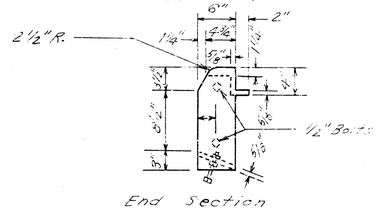
CURB & GUTTER CASTING DETAILS TYPE A-5 INLET

CURB CASTING

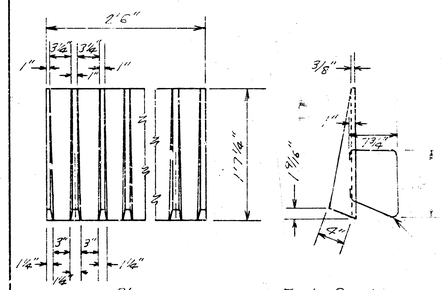


Curb Casting Wt. = 192 lbs. per 2'6" section



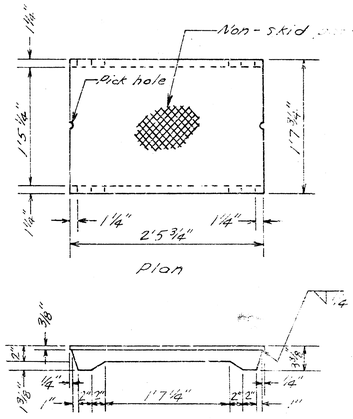


GUTTER CASTING



Gutter Casting Wt. = 145 lbs. per 2'6" section

COVER PLATE



Cover Plate Wt. = 100 lbs. per section.

General Notes

Drainage contractor to mound all excess excavated material over sewer trenches if the excavated material is used as backfill for the sewer trenches. If the sewer trenches are sand filled, the drainage contractor shall mound approx. 1,000 C.Y. of the excavated material uniformly over the sewer trenches and the remainder of the excavated material shall be disposed of by the drainage contractor. All pipe plugs shall be considered as incidental to the project. The adjustment of existing manholes and installation of new rings and covers shall be done by others. Observation holes shall be removed and sealed as shown. The brick arch sewer shall be removed where necessary to clear new construction. Brick arch sewer to be abandoned in place shall be filled with sand. The method of filling the brick arch sewer with sand