PLANS

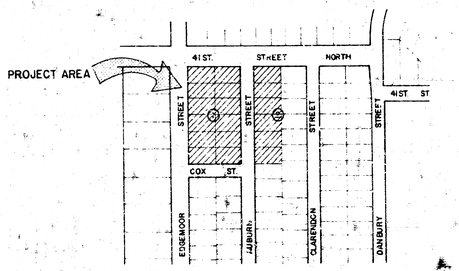
FOR

# SANITARY SEWER & WATER WORKS EXTENSIONS

## BEL AIRE VILLAGE SECOND ADDITION

# BEL AIRE, KANSAS

1983




VICINITY MAP

NOTE TO CONTRACTOR

This project will be constructed under the supervision of the CITY ENGINEER and conforming to the SPECIFICATIONS of the CITY OF WICHITA. The CONTRACTOR will prepay the City of Wichita for all costs of Inspection.

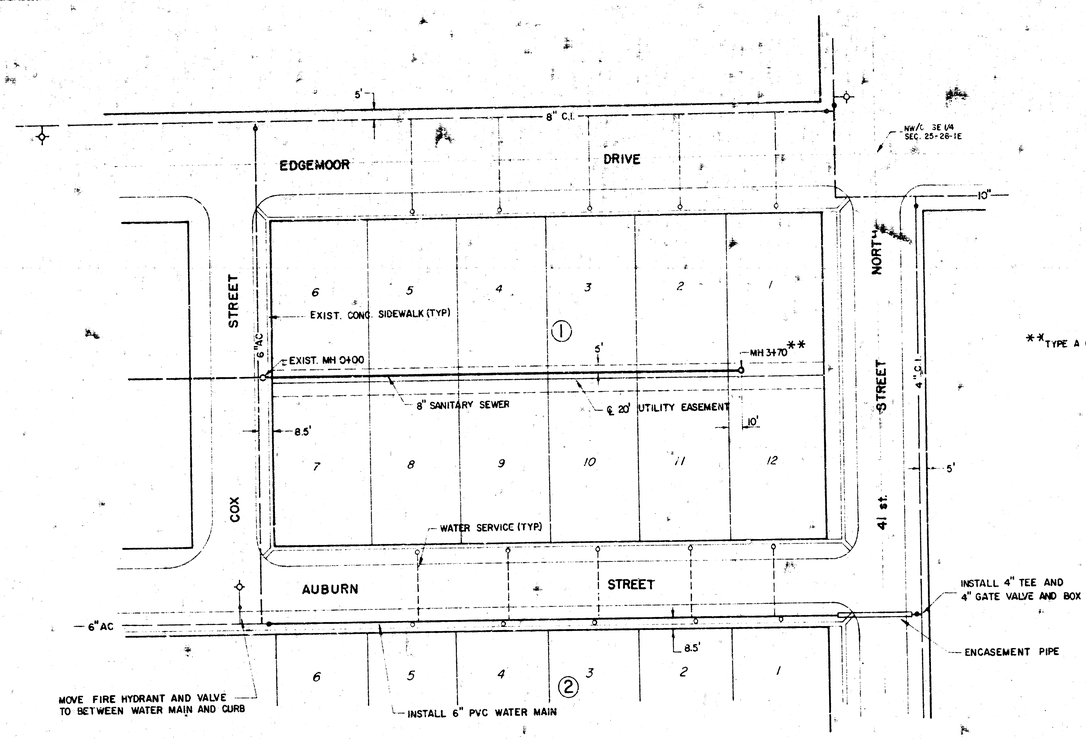
7-7-83

APPROVED AS NOTED
By CITY ENGINEER OF WICHITA
Sanitary Sewers A.C.A.
Storm Sewers
Driveway Approaches

Proj. # 468-76-245-80000-000-000-008

REISS & GOODNESS ENGINEERS
2100 WEST 21ST STREET
WICHITA, KANSAS 67203
(316) 832 0213

| REVISION | DRAWN BY | CHECKED BY | DESIGNED BY | PROJECT | CUSTOMER | SCALE NOTED | PROJECT NO. 1 |
|---|---|---|---|---|---|---|---|
| | | | | | | DATE 6/22/83 | SHEET 1 of 7 |



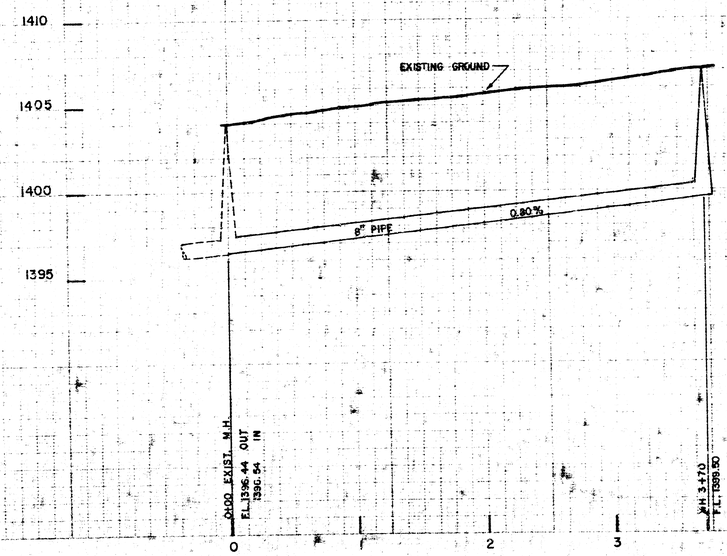

** TYPE A OR C MANHOLE

BM
"MH" ON FIRE HYDRANT, SW COR. EDGEMOOR DRIVE AND 41st STREET NORTH.
EL. 1411.27 USGS DATUM

SCALE
PLAN 1"=50'
PROFILE
HORIZ. 1"=50'
VERT. 1"=4'

## LAT. BV-1A EXTENSION

PIPE TO BE PVC, ABS, OR VCP




REVIS. 6-30-83
7-5-83

REISS & GOODNESS ENGINEERS
2150 WEST 21st STREET
WICHITA, KANSAS 67204
(316) 832-0213

| REVISION | DRAWN BY | CHECKED BY | DESIGNED BY | PROJECT |
|---|---|---|---|---|

**SANITARY SEWER AND WATER IMPROVEMENTS**

CUSTOMER

**BEL AIRE VILLAGE SECOND ADDITION**

SCALE NOTED | PROJECT 2
DATE 6/22/83 | SHEET 2 OF 7

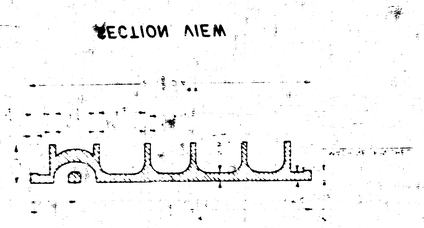
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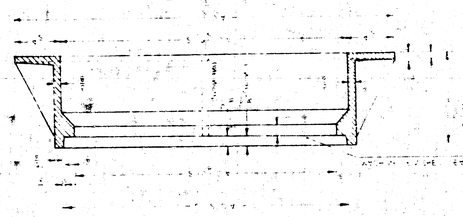
# MANHOLE FRAME AND COVER DETAIL

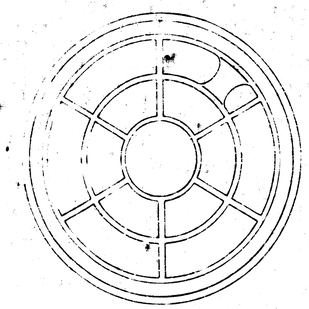
## City of Wichita, Kansas

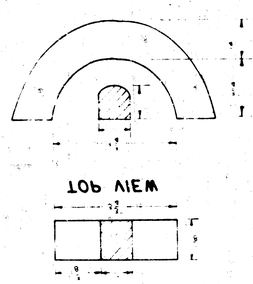
ADOPTED AS STANDARD DESIGN

BY

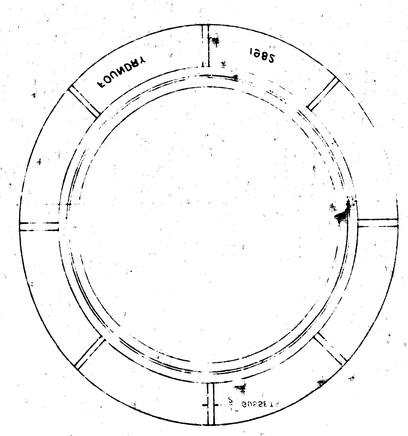


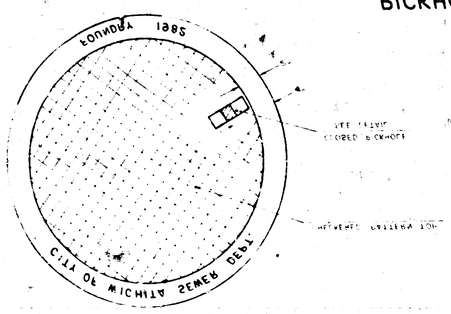




PICKHOLE DETAIL




Weight: 540 Lbs.

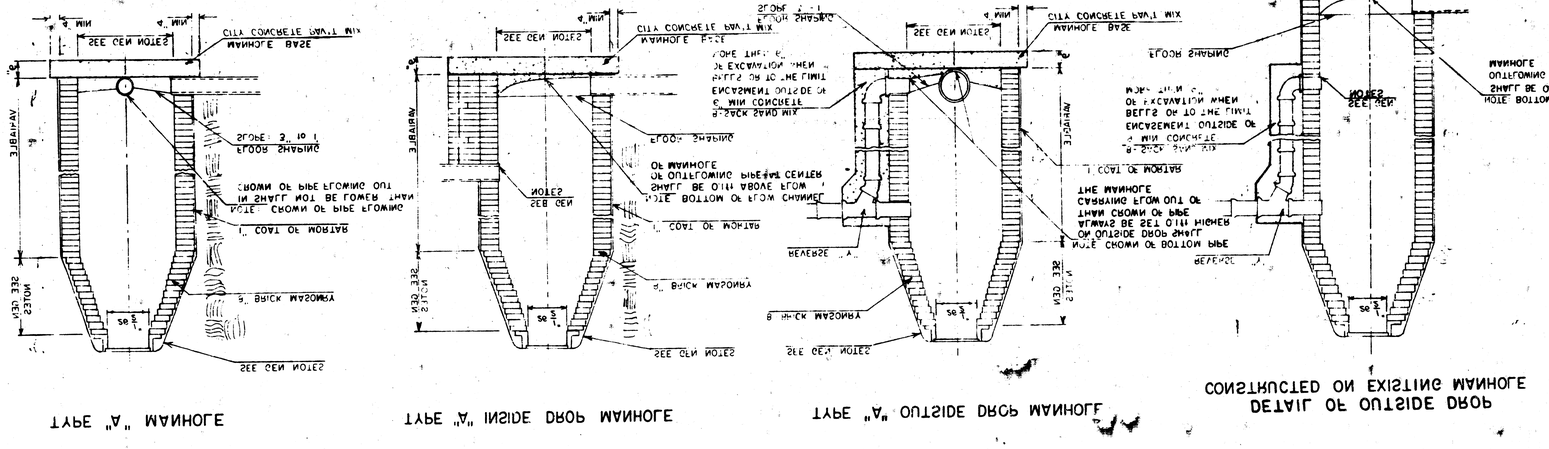
MANHOLE FRAME




Weight: 180 Lbs.

MANHOLE COVER

FILMED FROM THE BEST AVAILABLE COPY




# SEWER APPURTENANCES DETAILS

ADOPTED AS STANDARD DESIGN

BY

CITY of WICHITA, KANSAS

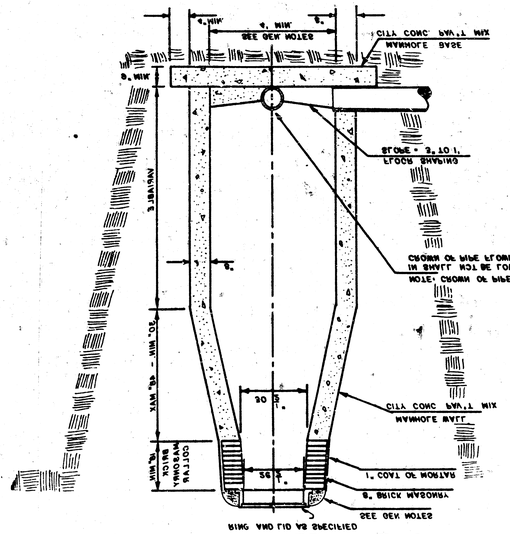
REVISED SEPTEMBER 1980

CITY OF MICHIGAN CITY, INDIANA
APPROVED FOR USE
DEPARTMENT OF PUBLIC WORKS
DATE 1-1-85

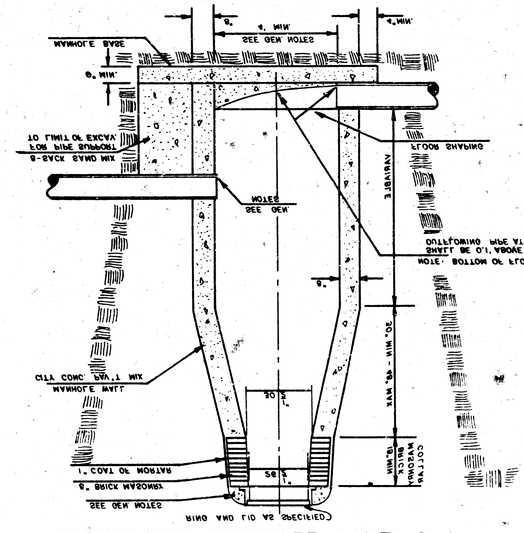


## GENERAL NOTES

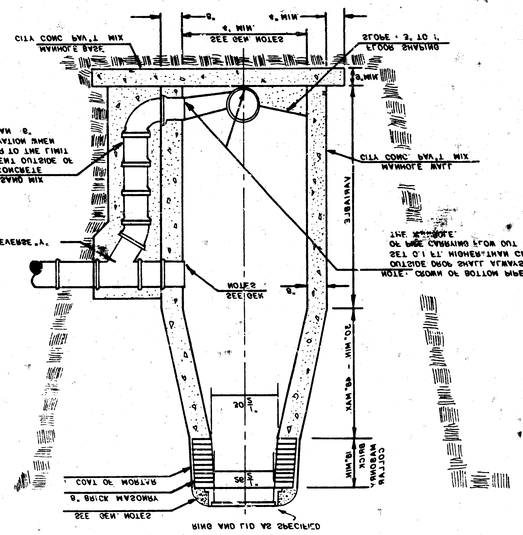
1. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 SACKS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE WALLS AND BASES SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE FOR CONCRETE PAVEMENT CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD PAVING SPECIFICATIONS. NOTE CITY CONCRETE PAVEMENT MIX MINIMUM MIN. ENTRAINED AIR MAXIMUM. MORTAR SHALL BE PLACED AROUND THE MANHOLE RING AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. TYPE "C" MANHOLES CAN BE CONSTRUCTED ONLY WHERE PIPE SIZES ARE 8" OR SMALLER. THE INSIDE DIAMETER OF TYPE "C" MANHOLES SHALL BE 4'.
2. MANHOLE STEPS SHALL BE INSTALLED IN THE MANHOLE BASE. REINFORCING STEEL SHALL BE PLACED 6" ABOVE THE BOTTOM OF THE MANHOLE BASE. REINFORCING STEEL SHALL BE PLACED ON 6" CENTERS IN BOTH DIRECTIONS. REINFORCING STEEL SHALL BE BENT TO CONFORM TO THE SHAPE OF THE MANHOLE BASE. CO21 OR EQUIVALENT MAY BE SUBSTITUTED FOR REINFORCING STEEL SHALL BE INSTALLED IN THE TWO BID FOR THE MANHOLE.
3. AN OPENING SHALL BE CUT IN THE MANHOLE WALL FOR THE OPPOSITE INLET PIPE FOR INSIDE DROP MANHOLES. THE OPPOSITE INLET PIPE SHALL BE GROUTED INTO THE OPENING WITH NON-SHRINK GROUT. THE EXTERIOR OF THE CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT CONNECTION MUST BE MADE TIGHT."
4. THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES MUST BE SELF CLEANING AND FREE OF AREAS WHERE SOLIDS COULD BE DEPOSITED AS REMOVAL FROM THROUGH THE MANHOLE FROM ALL INLET PIPES TO THE OUTLET PIPE." FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM HALVES OF THE INVERTING PIPES AND THE CONNECTING PIPE AS SHOWN BY THE DRAWINGS EXCEPT FOR INSIDE DROP MANHOLES. FLOW CHANNELS FOR INSIDE DROP MANHOLES SHALL BE CONSTRUCTED AS SPECIFIED.
5. REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASE. REINFORCING STEEL SHALL CONSIST OF NO. 4 BARS SPACED ON 6" CENTERS IN BOTH DIRECTIONS. REINFORCING STEEL SHALL BE PLACED 6" ABOVE THE BOTTOM OF THE MANHOLE BASE. CO21 OR EQUIVALENT MAY BE SUBSTITUTED FOR REINFORCING STEEL SHALL BE INSTALLED IN THE TWO BID FOR THE MANHOLE."
6. MANHOLE COVER CASTINGS AND MANHOLE FRAME CASTINGS SHALL CONFORM TO THE REQUIREMENTS AS INDICATED IN THE STANDARD SPECIFICATIONS AND AS SHOWN IN THE STANDARD DETAIL DRAWING."
7. THE VERTICAL DROP IN INSIDE DROP MANHOLES SHALL NOT EXCEED 4', FOR INFLOWING PIPES SIZED 15". OR SMALLER AND 5' FOR INFLOWING PIPES LARGER THAN 15." THE CROWNS OF INFLOWING PIPES SHALL MEASURE TO BE AT THE SAME ELEVATION AS THE CROWN OF THE OUTFLOWING PIPE."
8. STANDARD MANHOLES TYPE "C" AND STANDARD INSIDE DROP MANHOLES TYPE "C" SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES TYPE "C" SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS MUST BE 4', UNLESS INDICATED OTHERWISE.
9. MANHOLES SHALL HAVE THE TOP REMOVED TO NEW LINES AND GRADES IF THE LOWEST PIPE INSTALLED WITHIN THE EXCAVATION MADE FOR THE MANHOLE SHALL BE CRUSHED WITH CONCRETE TO THE LINES OF THE MANHOLE EXCAVATION. WHEN CLAY PIPE IS USED, THE CRADLE SHALL EXTEND TO THE TIRST FULL JOINT OUTSIDE THE MANHOLE. THE CRADLE SHALL BE TERMINATED AT THE CLAY PIPE IF USED. THE CRADLE SHALL BE PLACED AT LEAST 6" BELOW THE BOTTOM OF EXCAVATION OR 10 CLAY PIPE TOTAL CO21 OR CRADLE WITHIN MANHOLE EXCAVATION. WHERE THE FLEXIBILITY OF CLAY PIPE IS NEEDED A MINIMUM OF 4' OF PIPE WHICH HAS MAXIMUM JOINT SPACING WHICH MAY BE INCORPORATED IN THE MANHOLE WALL. ADDITIONAL CO21 OR CRADLE SHALL BE INSTALLED IN THE TWO BID FOR THE MANHOLE."
10. MANHOLE INVERTS SHALL BE SHAPED TO PROVIDE SMOOTH FLOW CHANNELS FOR THE FLOW. THE FLOW CHANNELS SHALL BE FORMED TO A DEPTH EQUAL TO THE DEPTH OF THE LARGEST PIPE INVERTING INTO THE MANHOLE. MANHOLE FLOORS SHALL THEN BE SHAPED FROM THE FLOW CHANNELS TOWARD THE FLOW CHANNELS. PIPES PASS THROUGH MANHOLES SHALL NOT BE CUT AND REMOVED TO NEW LINES AND GRADES FOR THE FLOW CHANNELS. THE CROWN OF BOTTOM PIPE ON THE OUTSIDE OF THE MANHOLE SHALL MEASURE TO BE AT THE SAME ELEVATION AS THE CROWN OF THE OUTFLOWING PIPE.
11. THE CROWNS OF INFLOWING PIPES SHALL NEARLY BE TEL AROUND THE BOTTOM HALF OF THE PIPE WHICH FORMS THE FLOW CHANNEL" INSIDE DIAMETER OF THE MANHOLE." MANHOLE FLOORS SHALL THEN BE SHAPED




STANDARD MANHOLE TYPE "C"




INSIDE DROP MANHOLE TYPE "C"



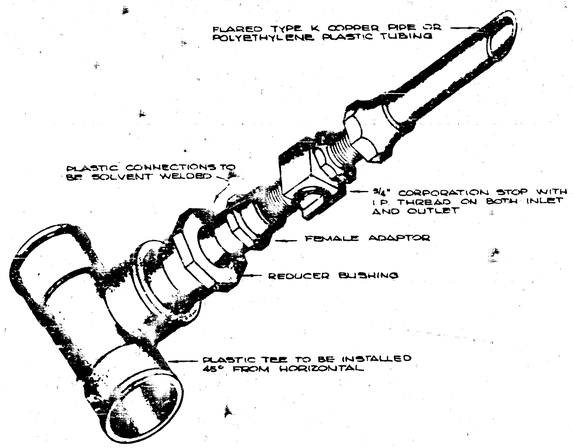

OUTSIDE DROP MANHOLE TYPE "C"

ADOPTED AS STANDARD DESIGN

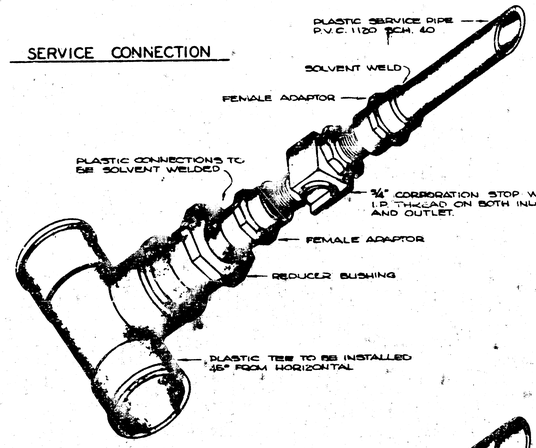
BY

City of Michigan, Indiana

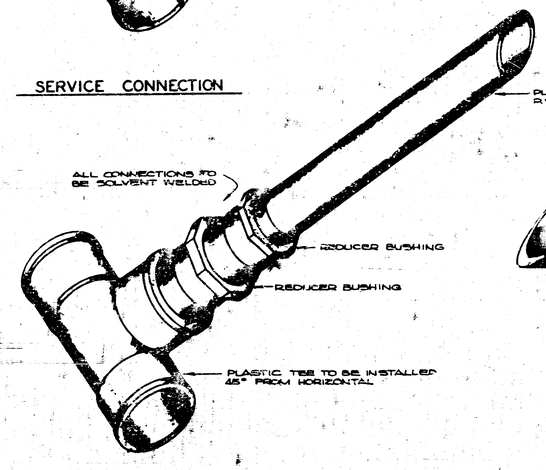
SEWER APPURTENANCES DETAILS



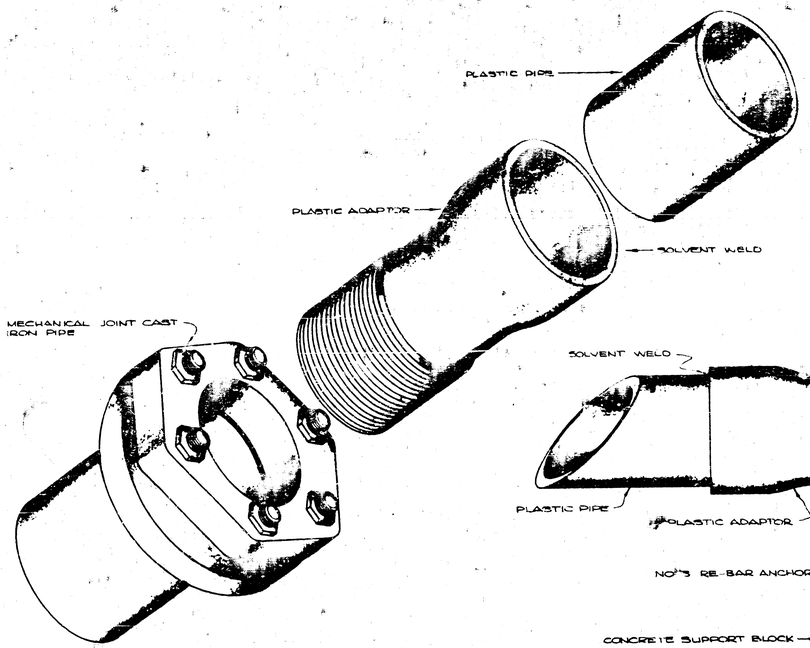

SERVICE CONNECTION



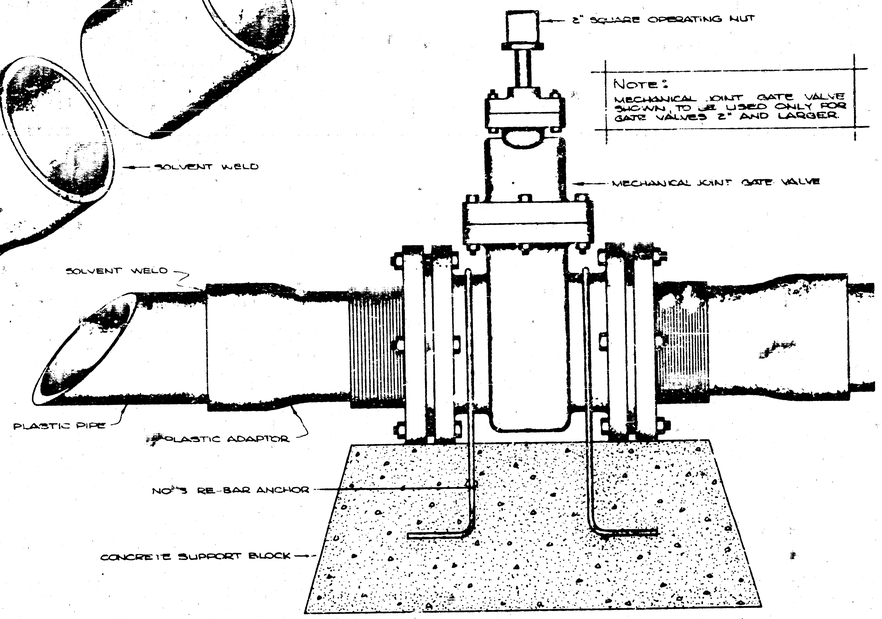

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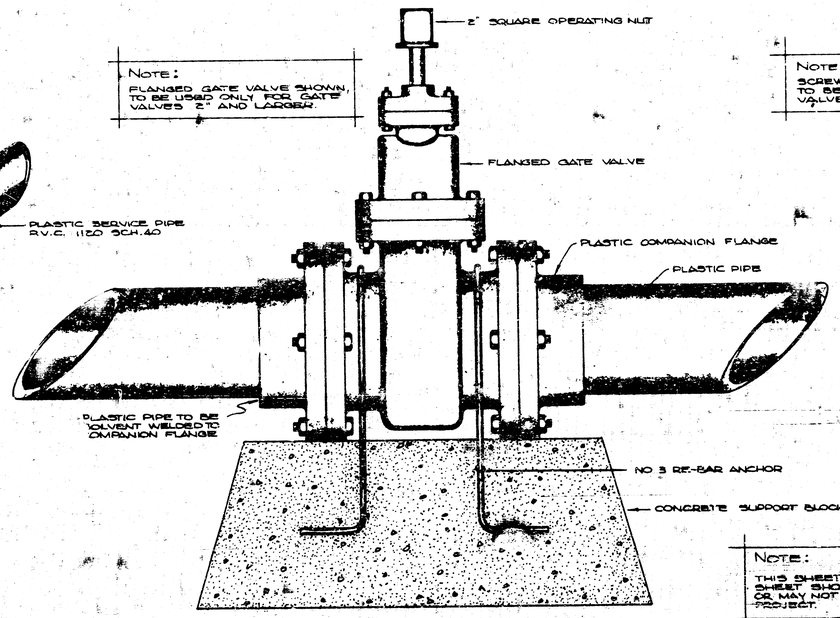

SERVICE CONNECTION



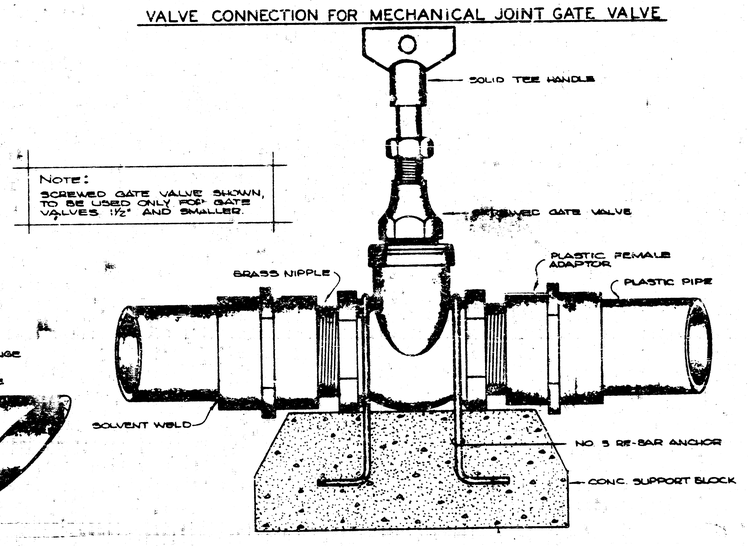

TYPICAL MECHANICAL JOINT C.I.P TO PLASTIC PIPE




VALVE CONNECTION FOR MECHANICAL JOINT GATE VALVE




VALVE CONNECTION FOR FLANGED GATE VALVE



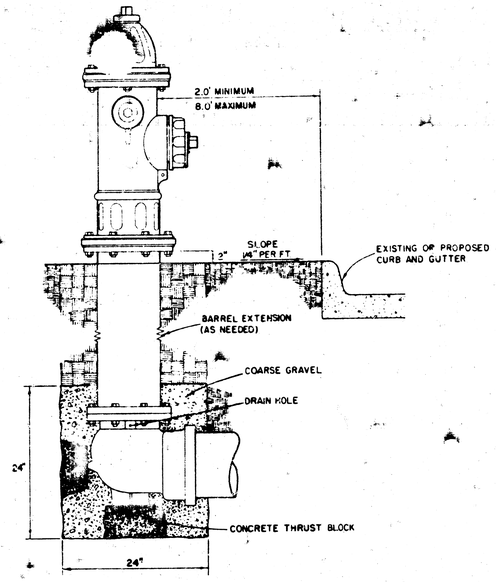

VALVE CONNECTION FOR SCREWED GATE VALVE

NOTE:
THIS SHEET IS A STANDARD DETAIL SHEET SHOWING DETAILS WHICH MAY OR MAY NOT BE INCLUDED ON A SPECIFIC PROJECT.

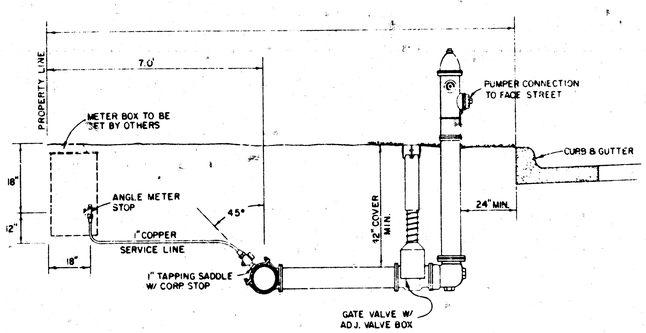

REISS & GOODNESS ENGINEERS
2160 WEST 21ST STREET
WICHITA, KANSAS 67204
(316) 832-0213


| REVISION | | DRAWN BY | | CHECKED BY | DESIGNED BY | PROJECT | CUSTOMER | 6/7 |
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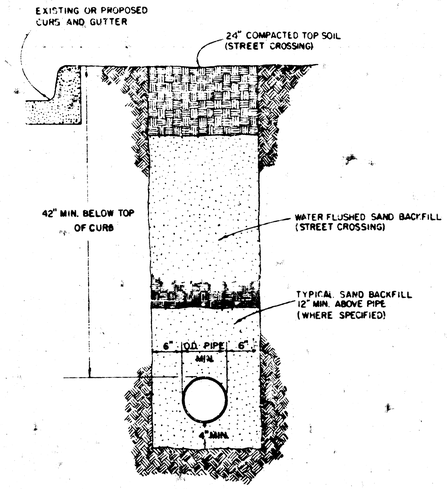
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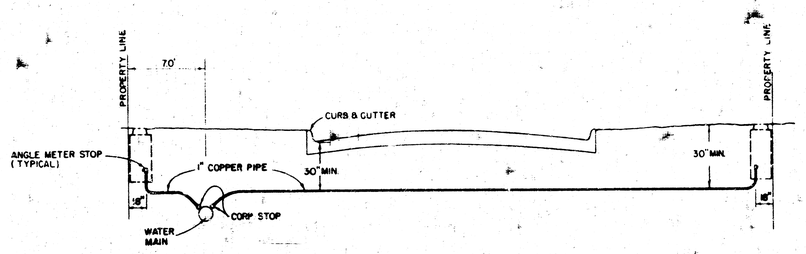



FIRE HYDRANT SETTING DETAIL




TYPICAL SERVICE &
FIRE HYDRANT LOCATION

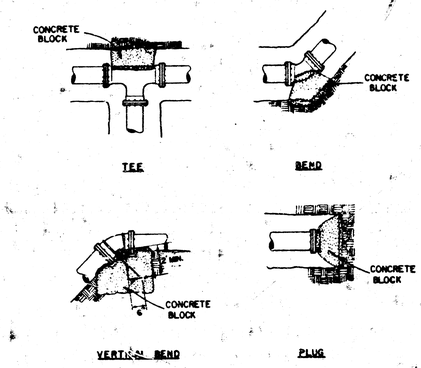



TYPICAL SERVICE INSTALLATION

NOTE
TRENCH TO BE FILLED WITH FLUSHED AND VIBRATED SAND TO WITHIN 12" OF FINISHED GROUND ELEVATION OR TO PAVEMENT BASE UNDER PAVEMENT.

TRENCH DETAIL




| PIPE SIZE | THRUST AT FITTINGS IN TONS (AT 150# / in² P) | | | | | |
|---|---|---|---|---|---|---|
| | PLUG | 90° | 45° | 22 1/2°- | 11 1/4° | TEE |
| 6" | 2.8 | 3.95 | 2.15 | 1.09 | .55 | 2.8 |
| 8" | 4.9 | 6.95 | 3.75 | 1.90 | .96 | 4.9 |
| 12" | 11.4 | 16.1 | 8.75 | 4.45 | 2.25 | 11.4 |
| 16" | 20.15 | 28.5 | 15.4 | 7.85 | 3.95 | 20.15 |
| 20" | 31.15 | 44.0 | 23.85 | 12.15 | 6.1 | 31.15 |
| 24" | 44.55 | 63.0 | 34.1 | 17.4 | 8.75 | 44.55 |

THRUST BLOCKS

REISS & GOODNESS ENGINEERS
2180 WEST 21ST STREET
WICHITA, KANSAS 67204
(316) 838-0325

| REVISION | DRAWN BY | CHECKED BY | DESIGNED BY | PROJECT | CUSTOMER | SCALE NONE | PROJECT NO. |
|---|---|---|---|---|---|---|---|
| | | | | | | DATE | SHEET OF |