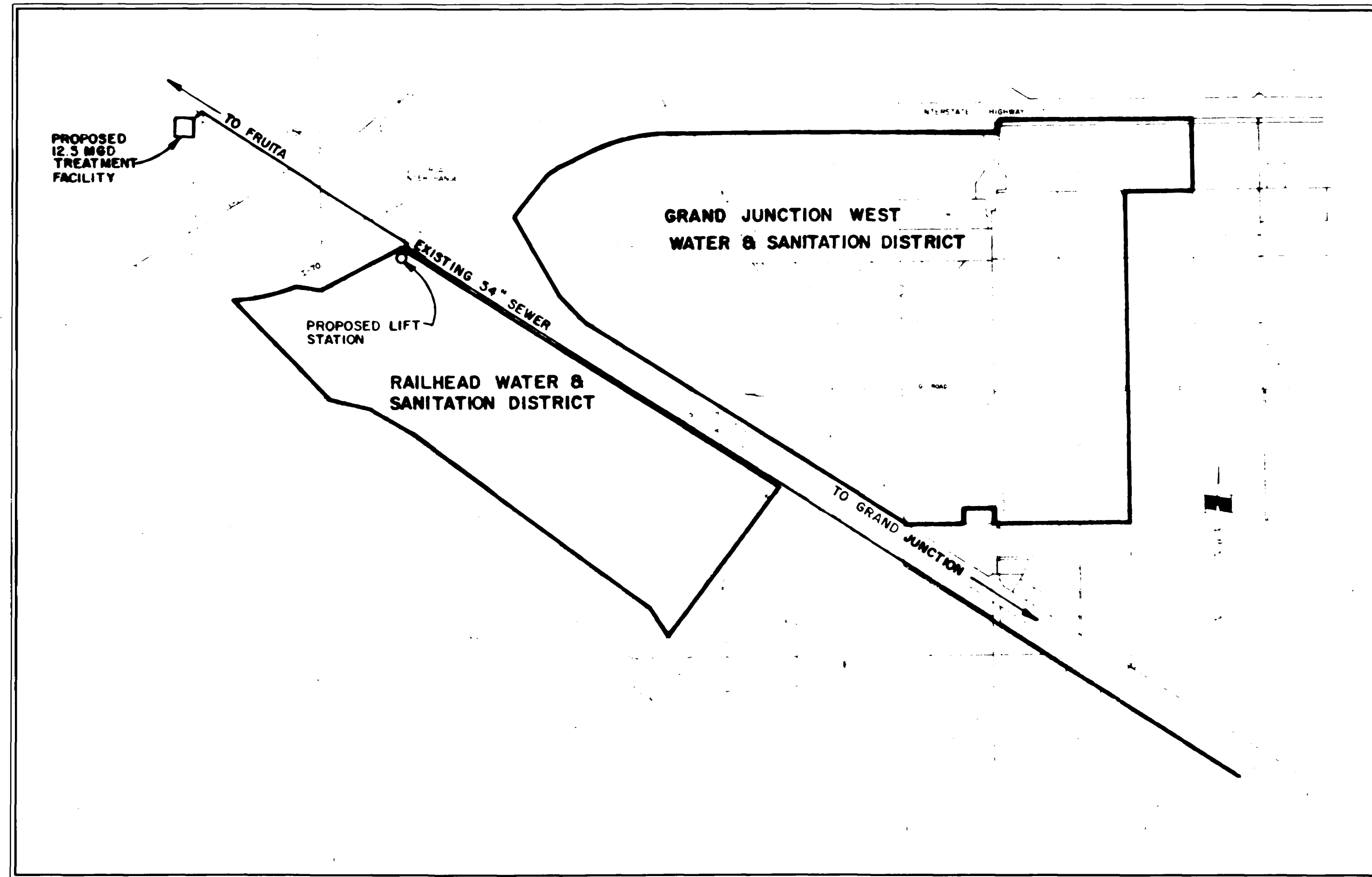


02-35901 AB

# GRAND JUNCTION WEST WATER AND SANITATION DISTRICT



VICINITY MAP  
NO SCALE

## SHEET INDEX

NO.	DESCRIPTION
1	TITLE SHEET AND INDEX
2	INDEX MAP
3	LIFT STATION TO STA. 11+52.80
4	STA. 11+52.80 TO STA. 23+36.18 (MANHOLE-7 = STA. 0+00 N)
5	MANHOLE-7 = STA. 0+00 NO. TO STA. 12+41.43 NO. (MH-45)
6	MANHOLE-7, STA. 23+36.18 TO STA. 29+94.08
7	STA. 29+94.08 TO STA. 43+66.68, INCLUDES: EQUATION STA. 40+86.68 = 0+00 NORTH
8	STA. 43+66.68 TO STA. 57+46.19
9	STA. 57+46.19 TO STA. 64+01.30 (END G ROAD SEWER)
10	MANHOLE-22, EQUATION STA. 63+96.30 = STA. 0+00 NORTH TO STA. 14+01.96
11	STA. 14+01.96 TO STA. 20+34.40 P.I. #1 TO W.L. STA. 7+00
12	W.L. STA. 7+00 TO P.I. #6
13	MANHOLE-13, EQUATION STA. 40+86.68 = STA. 0+00 NORTH TO STA. 11+50.80
14	MANHOLE-36, EQUATION STA. 11+50.80 = STA. 0+00 NE TO STA. 13+49.70
15	LIFT STATION
16	LIFT STATION FOUNDATION
17	SANITARY SEWER DETAILS
18	DOMESTIC WATER DETAILS

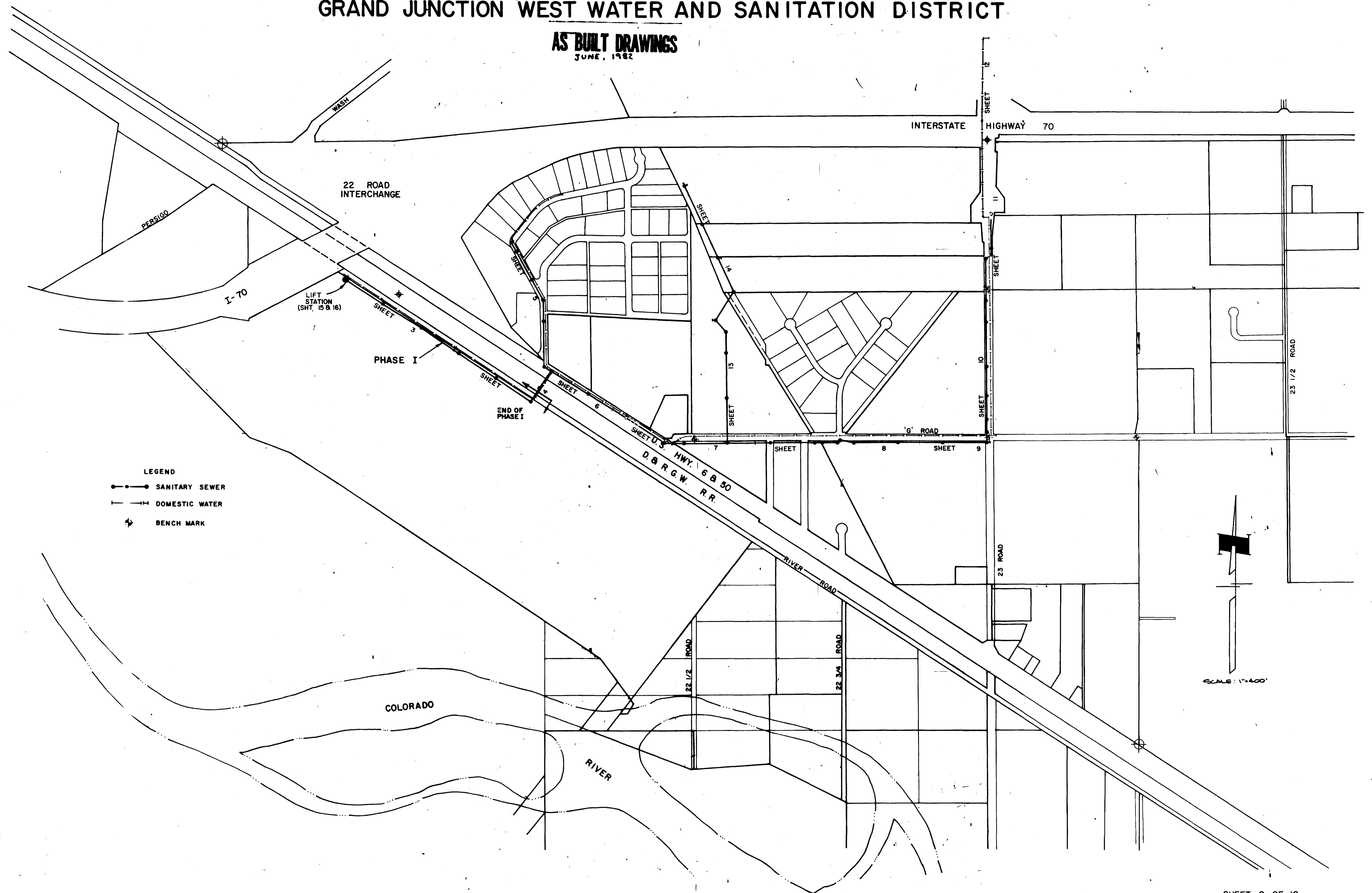
AS BUILT

NOTE:  
This is to certify that the system  
infiltration does not exceed 200  
gallons per inch diameter per mile  
of length per day.

# THE MAP OF DOMESTIC WATER & SANITARY SEWER SYSTEMS

## GRAND JUNCTION WEST WATER AND SANITATION DISTRICT

AS BUILT DRAWINGS  
JUNE, 1982



LEGEND  
●—● SANITARY SEWER  
— T — DOMESTIC WATER  
⊕ BENCH MARK

SCALE: 1"=400'

NOTE:  
This is to certify that the system  
infiltration does not exceed 200  
gallons per inch diameter per mile  
of length per day.

SHEET 2 OF 18

INDEX MAP



CHECKED	
VCB	
DATE	
JANUARY, 1981	JSF
SCALE	
HORIZ. 1"=50'	
VERT. 1"=5'	

REVISIONS	BY
SEPT 18, 1981	PMO
SEPT 22, 1981	WBP
AS BUILTS 1-20-82	LDP
AS BUILTS 6-16-82	ESK

**PARAGON ENGINEERING, INC.**  
 P.O. Box 2872  
 Grand Junction, Colorado 81501  
 (303) 243-8866

*John E. Bennett*  
 1/20/81

**GRAND JUNCTION WEST WATER AND SANITATION DISTRICT**  
**LIFT STATION TO STA. 11+52.80**

SHEET **3**  
**18** SHEETS

02-357-03

**LEGEND**

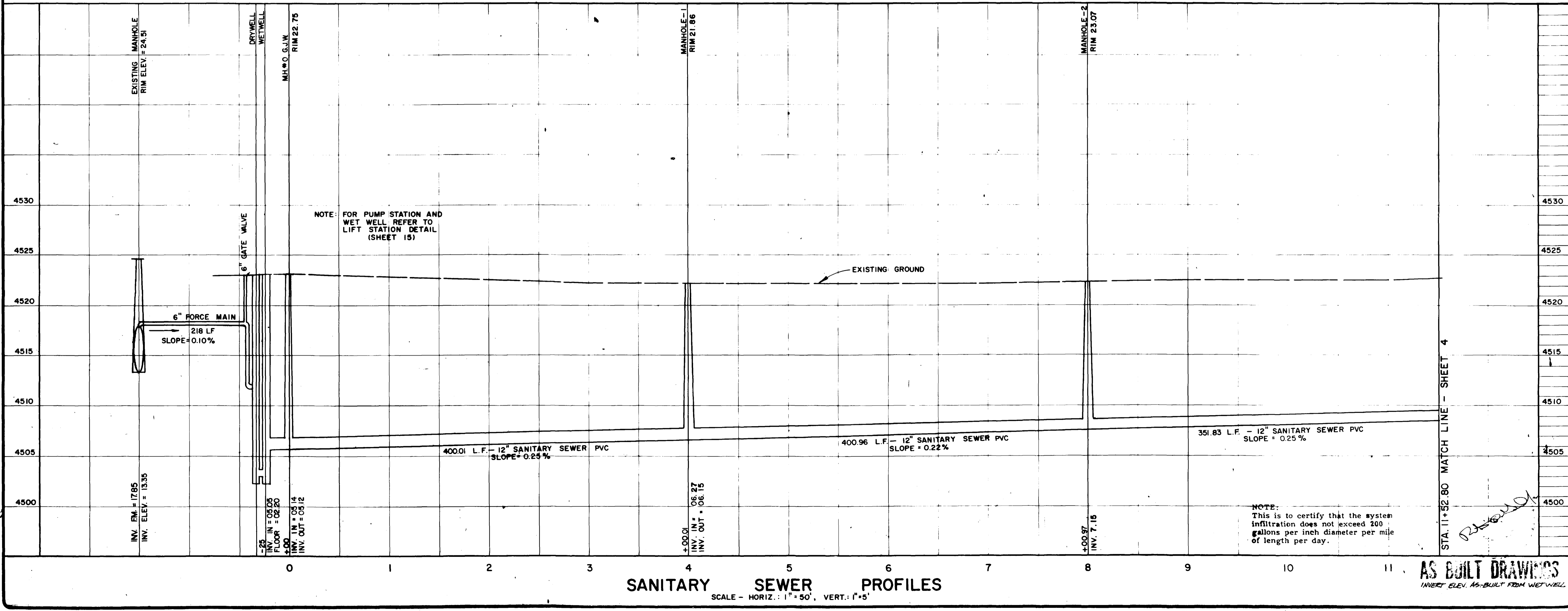
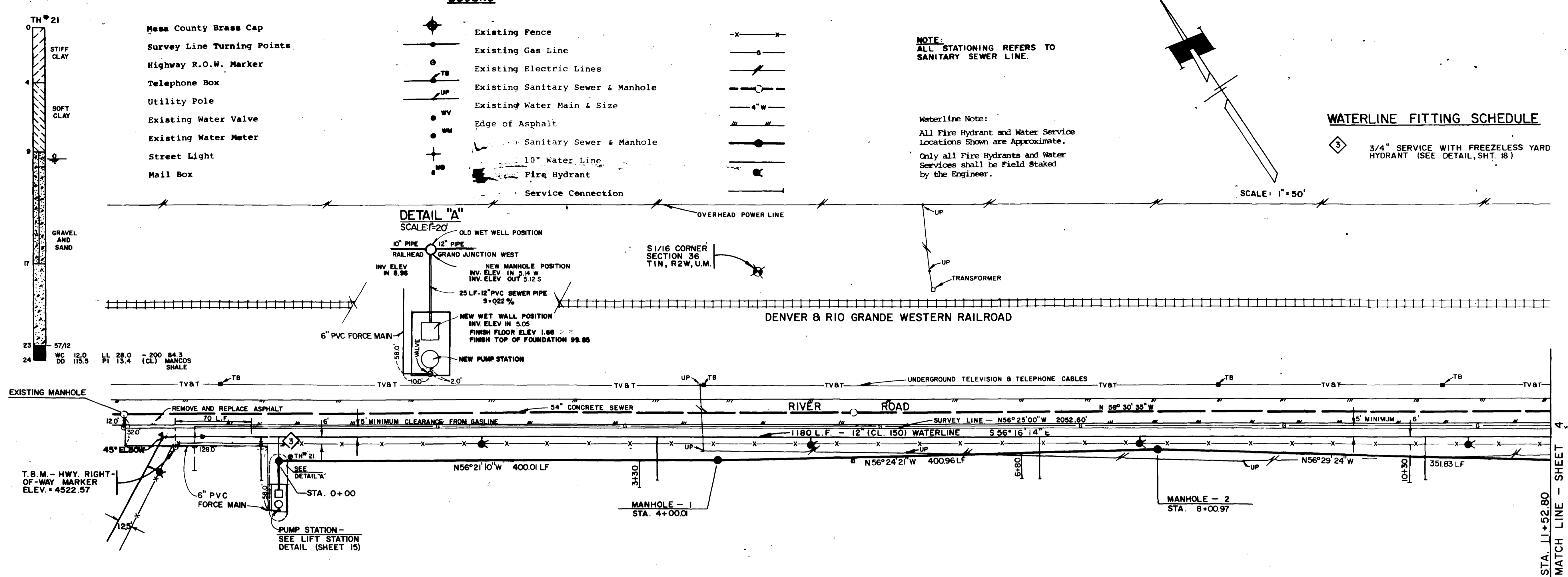
- Mesa County Brass Cap
- Survey Line Turning Points
- Highway R.O.W. Marker
- Telephone Box
- Utility Pole
- Existing Water Valve
- Existing Water Meter
- Street Light
- Mail Box
- Existing Fence
- Existing Gas Line
- Existing Electric Lines
- Existing Sanitary Sewer & Manhole
- Existing Water Main & Size
- Edge of Asphalt
- Sanitary Sewer & Manhole
- 10" Water Line
- Fire Hydrant
- Service Connection

**NOTE:**  
 ALL STATIONING REFERS TO  
 SANITARY SEWER LINE.

**Waterline Note:**  
 All Fire Hydrant and Water Service  
 Locations Shown are Approximate.  
 Only all Fire Hydrants and Water  
 Services shall be Field Staked  
 by the Engineer.

**WATERLINE FITTING SCHEDULE**

3 3/4" SERVICE WITH FREEZELESS YARD  
 HYDRANT (SEE DETAIL, SHT. 18)



**SANITARY SEWER PROFILES**  
 SCALE - HORIZ.: 1"=50', VERT.: 1"=5'

**AS BUILT DRAWINGS**  
 INVERT ELEV. AS-BUILT FROM WETWELL

*William E. B...*  
 5/20/81

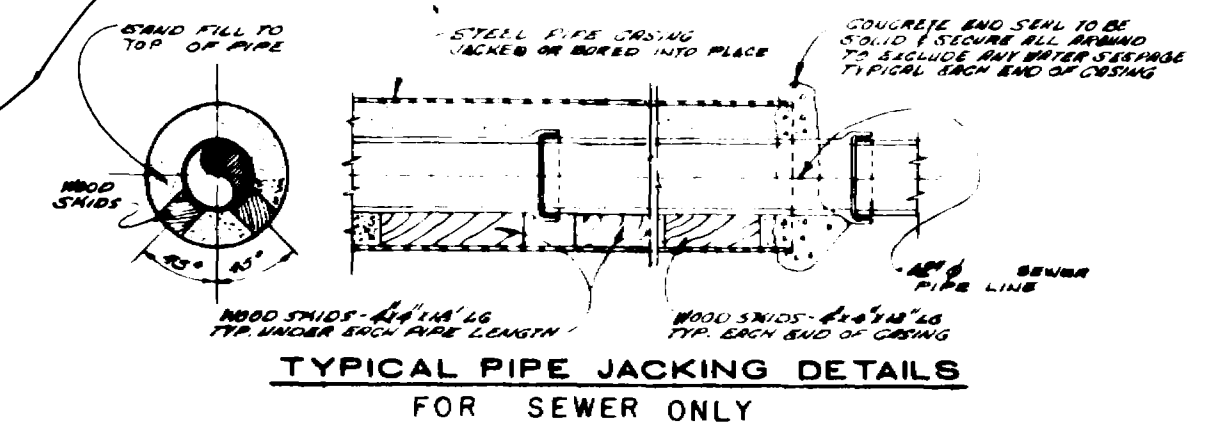
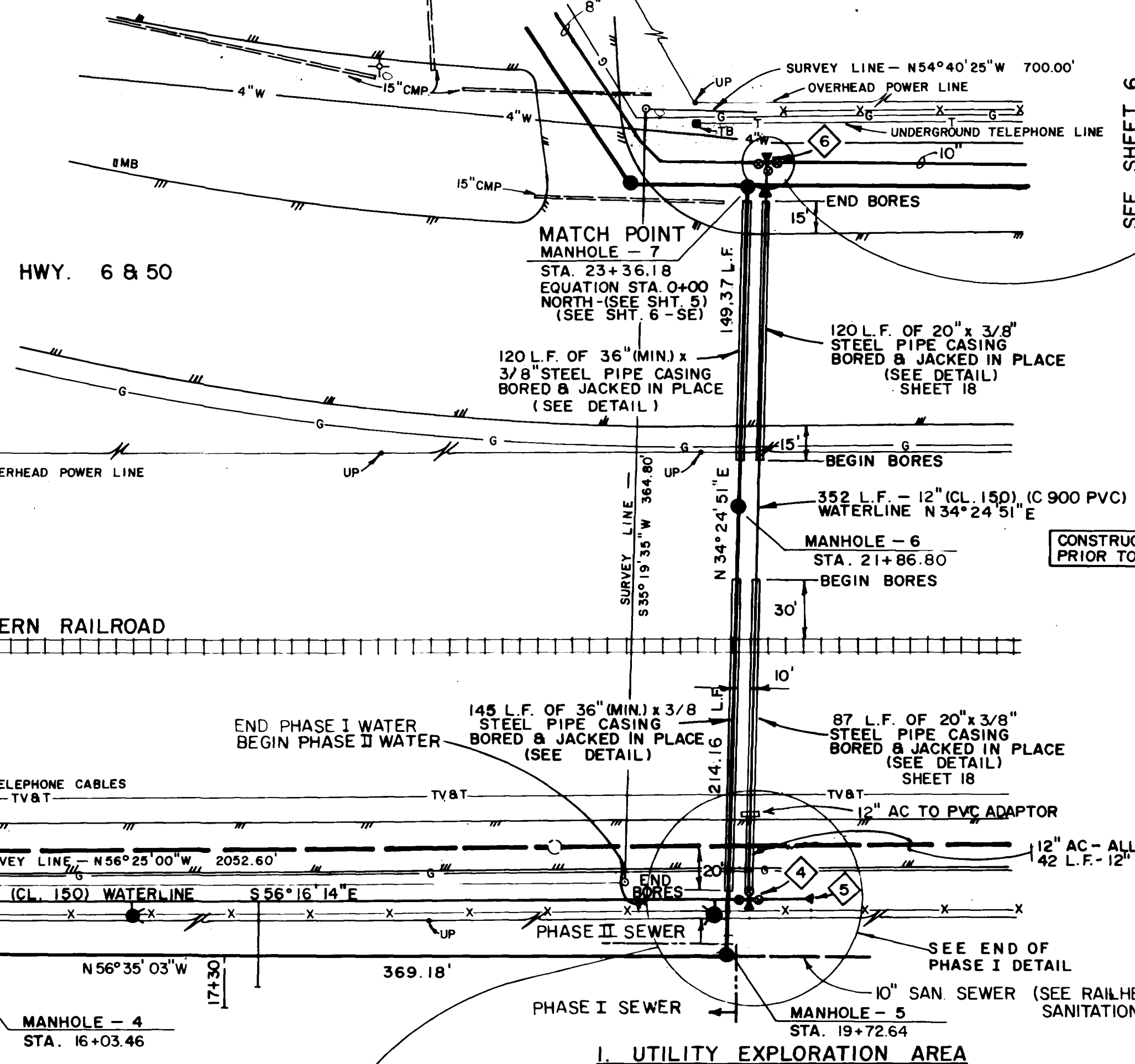
**GRAND JUNCTION WEST WATER AND SANITATION DISTRICT**  
 STA. 11+52.80 STA. 23+36.18  
 (MANHOLE - 7 = STA. 0+00N)

**4**  
**18**

**LEGEND**

- Mesa County Brass Cap
- Survey Line Turning Points
- Highway R.O.W. Marker
- Telephone Box
- Utility Pole
- Existing Water Valve
- Existing Water Meter
- Street Light
- Mail Box
- Existing Fence
- Existing Gas Line
- Existing Electric Lines
- Existing Sanitary Sewer & Manhole
- Existing Water Main & Size
- Edge of Asphalt
- INSTALLED Sanitary Sewer & Manhole
- INSTALLED 10" Water Line
- Fire Hydrant
- Service Connection

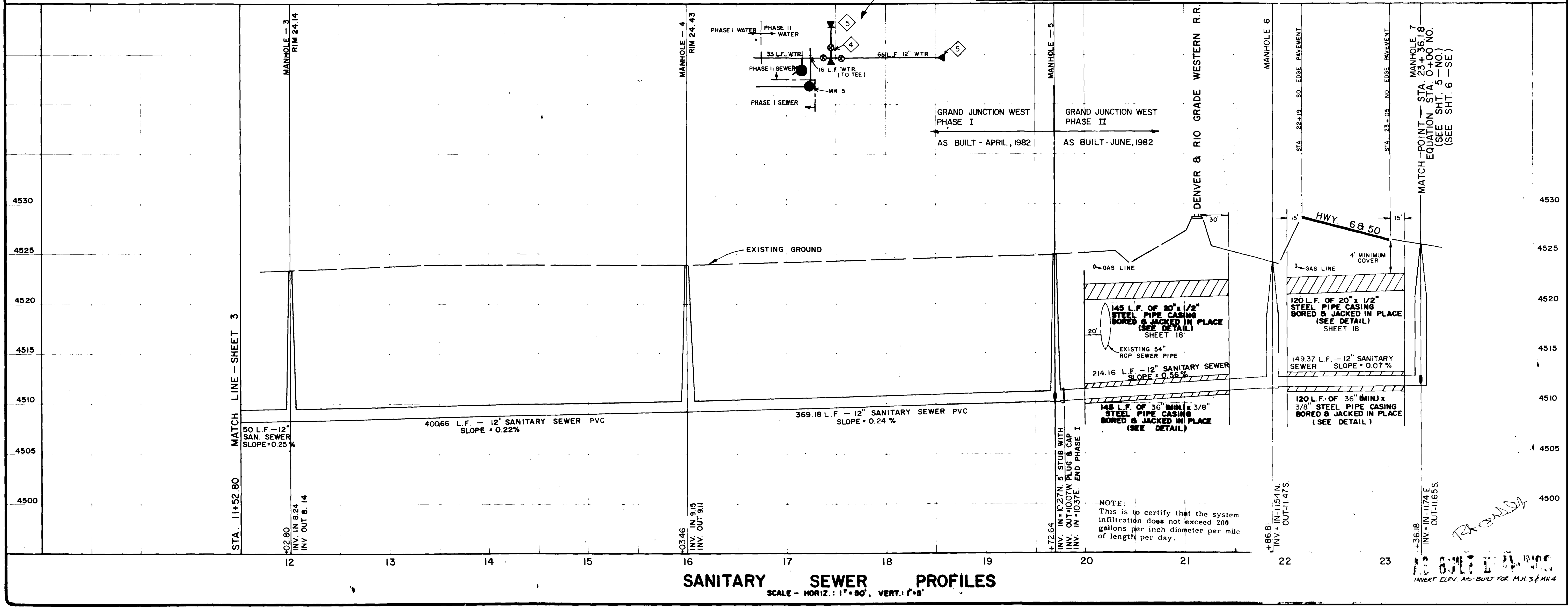
SEE SHEET 5  
**2. UTILITY EXPLORATION AREA**



**WATERLINE FITTING SCHEDULE**

- 4 TEE WITH INLINE GATE VALVE, RING TITE JOINT CONNECTION, VALVE BOX ASSEMBLY AND THRUST BLOCK.
  - 5 FLANGE x RING TITE VALVE AND VALVE BOX ASSEMBLY
  - 6 CAST IRON PLUG AND THRUST BLOCK (SEE DETAIL, SHT. 18)
  - 7 FLANGE x RING TITE VALVE, TEE AND VALVE BOX ASSEMBLY
  - 8 INLINE VALVES WITH 10" x 8" REDUCER AND VALVE BOX ASSEMBLY
- Waterline Note:  
 All Fire Hydrant and Water Service Locations Shown are Approximate

**1. UTILITY EXPLORATION AREA**



02359-01



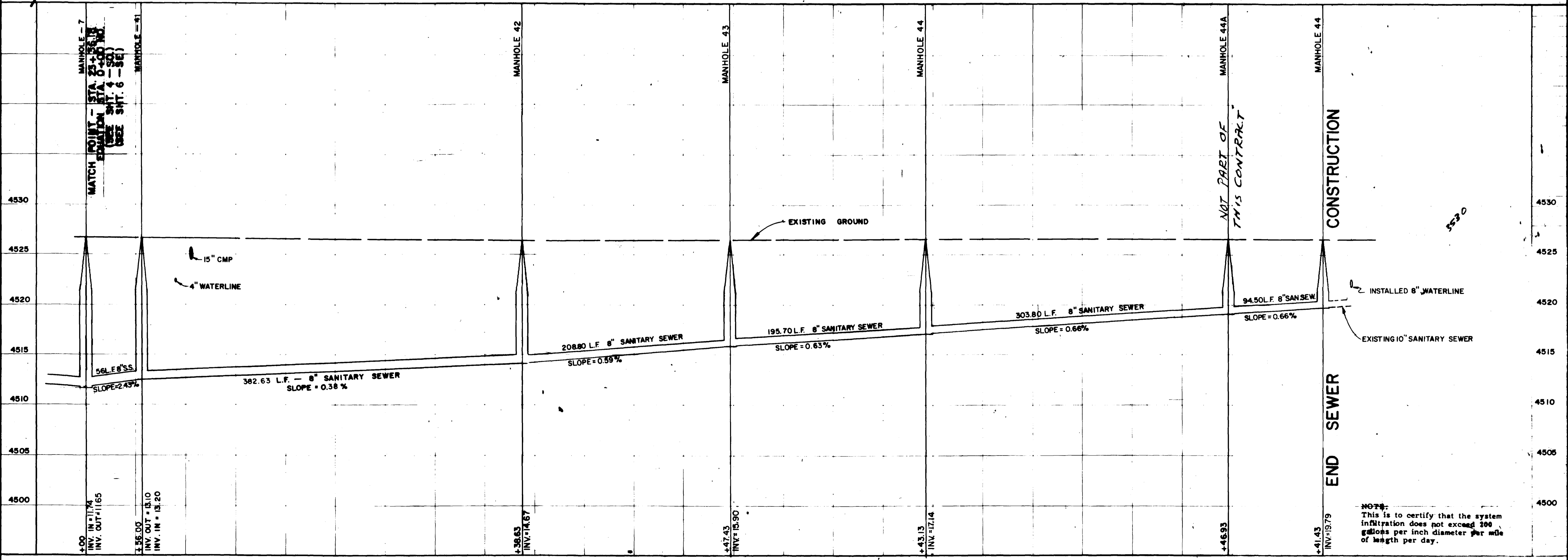
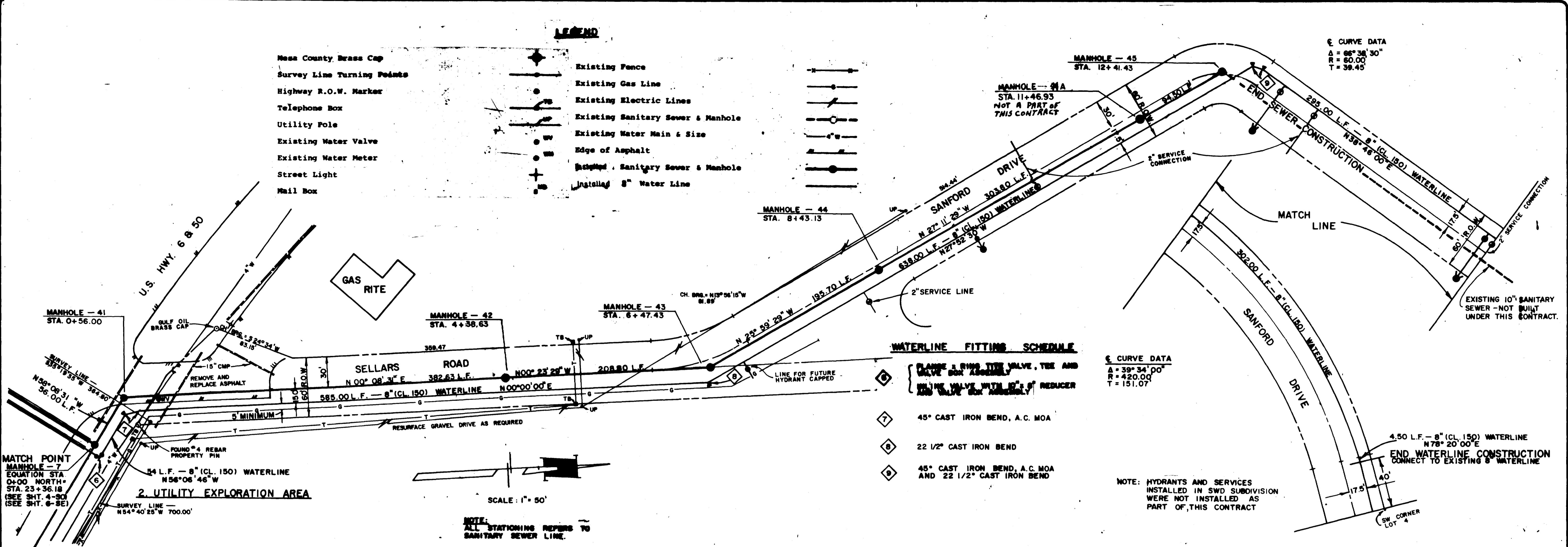
02-359-05

- Mesa County Brass Cap  
 Survey Line Turning Points  
 Highway R.O.W. Marker  
 Telephone Box  
 Utility Pole  
 Existing Water Valve  
 Existing Water Meter  
 Street Light  
 Mail Box

**LEGEND**

- Existing Fence
- Existing Gas Line
- Existing Electric Lines
- Existing Sanitary Sewer & Manhole
- Existing Water Main & Size
- Edge of Asphalt
- Installed Sanitary Sewer & Manhole
- Installed 8" Water Line

☉ CURVE DATA  
 Δ = 66° 36' 30"  
 R = 60.00  
 T = 39.45



**SANITARY SEWER PROFILES**

**AS BUILT DRAWINGS**

HE. KED  
 425  
 DATE  
 MARCH, 1981  
 JSF  
 HORIZ. 1" = 50'  
 VERT. 1" = 5'

**PARAGON ENGINEERING, INC.**  
 P.O. Box 2372  
 Grand Junction, Colorado 81501 (303) 243-1998



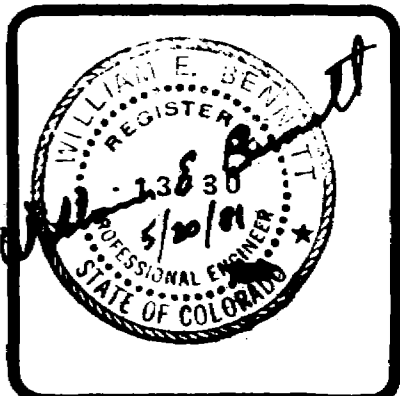
**GRAND JUNCTION WEST WATER AND SANITATION DISTRICT**

**MANHOLE - 7 = STA. 0+00 NO. TO STA. 12+41.43 NO (MH-45)**

CHECKED  
*WES*  
 DATE  
 JANUARY, 1981 JCF  
 SCALE:  
 HORIZ: 1" = 50'  
 VERT: 1" = 5'

REVISIONS BY  
 SAUER AS BUILT  
 6-17-82 RSK

**PARAGON ENGINEERING, INC.**  
 P.O. Box 2872  
 Grand Junction, Colorado 81501 (303) 243-3444



**GRAND JUNCTION WEST WATER AND SANITATION DISTRICT**  
 MANHOLE - 7, STA. 23+36.18 TO STA. 29+94.08

SHEET  
**6**  
 OF 18 SHEETS

- Mesa County Brass Cap  
 Survey Line Turning Points  
 Highway R.O.W. Marker  
 Telephone Box  
 Utility Pole  
 Existing Water Valve  
 Existing Water Meter  
 Street Light  
 Mail Box

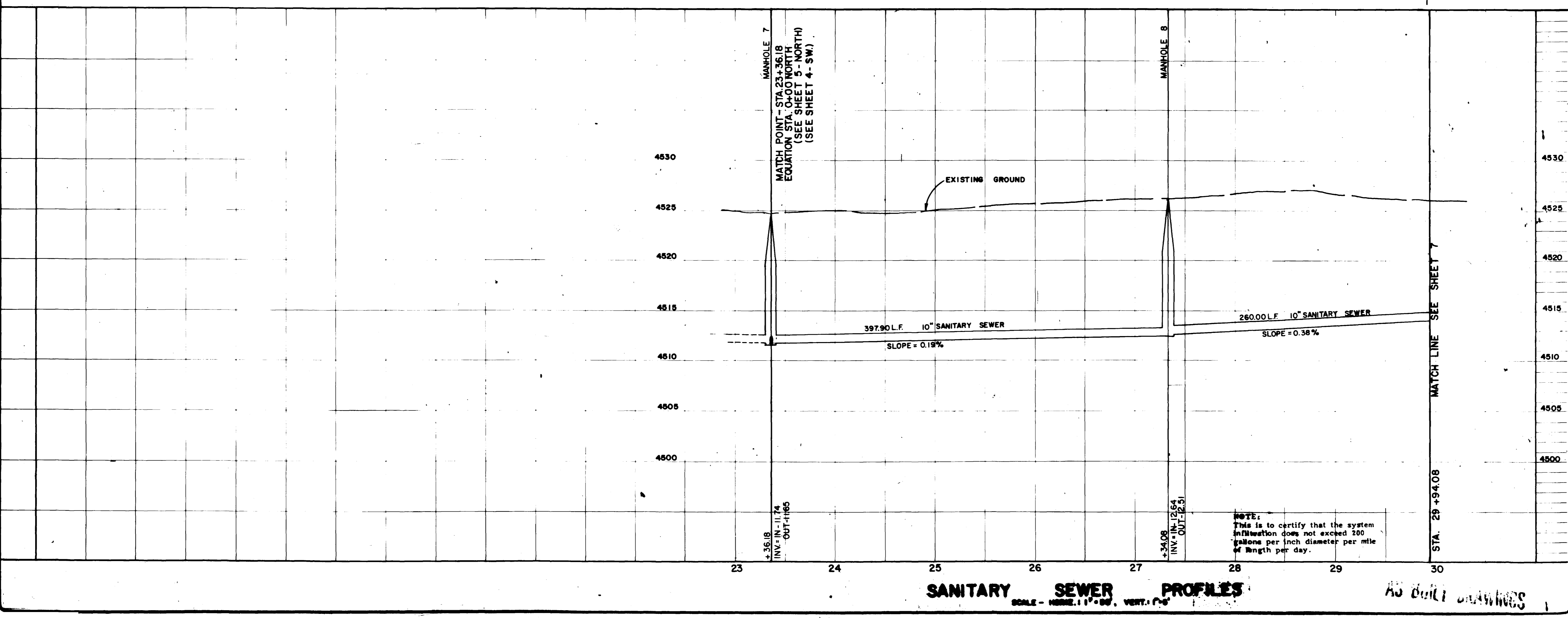
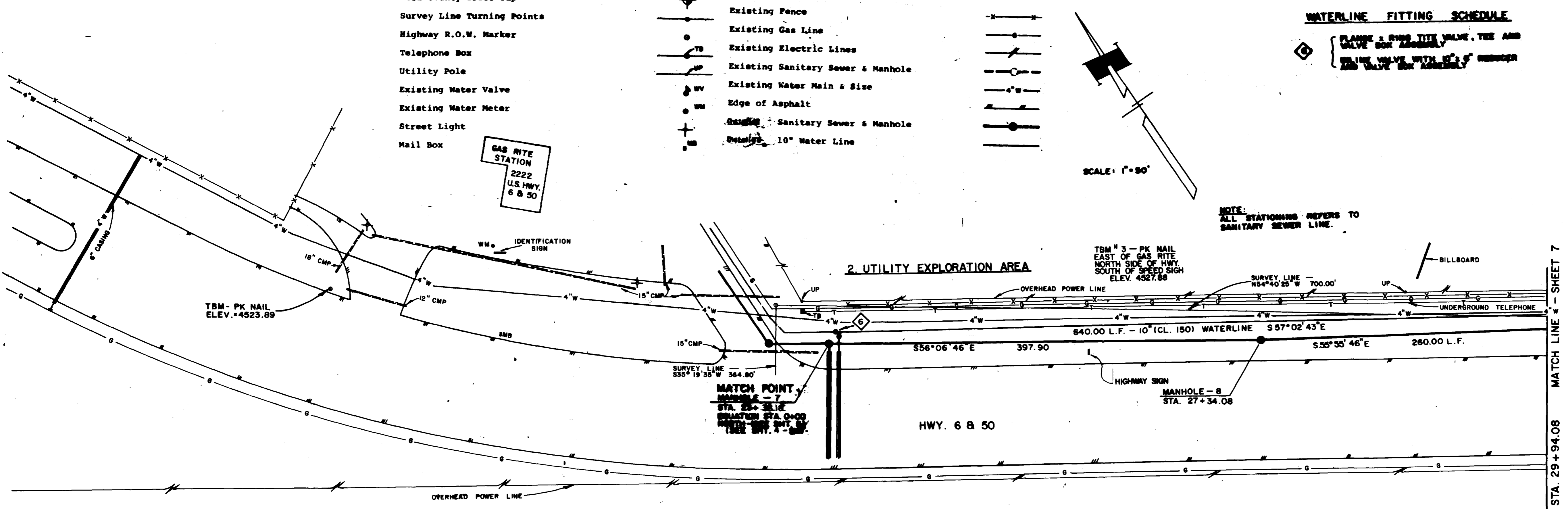
- LEGEND**
- Existing Fence
  - Existing Gas Line
  - Existing Electric Lines
  - Existing Sanitary Sewer & Manhole
  - Existing Water Main & Size
  - Edge of Asphalt
  - Sanitary Sewer & Manhole
  - 10" Water Line

**WATERLINE FITTING SCHEDULE**

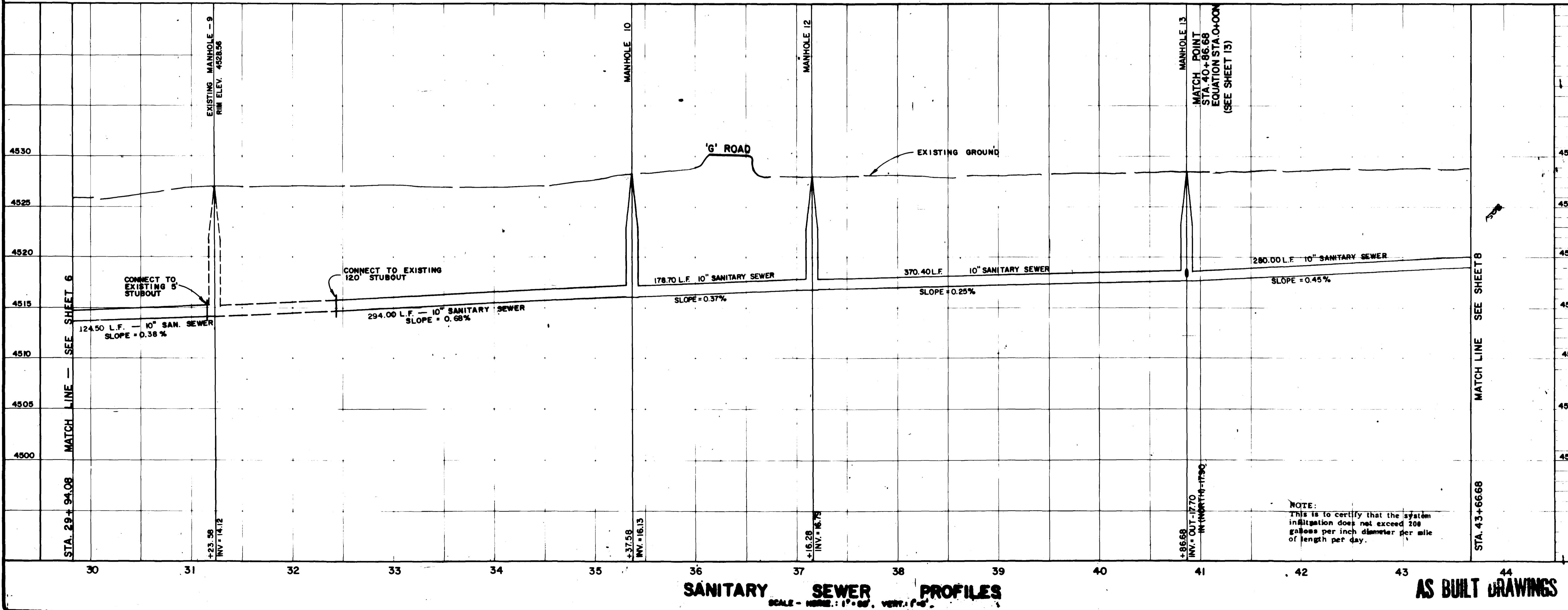
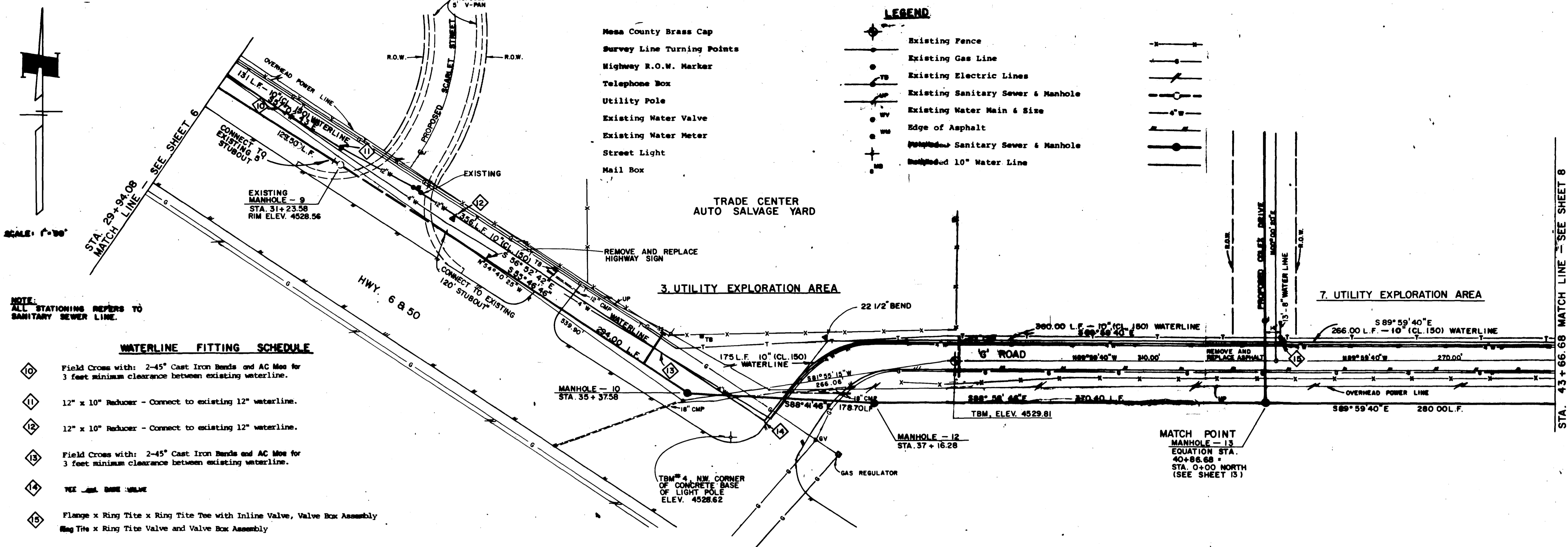
FLANGE & RING TYPE VALVE, TEE AND GATE BOX ASSEMBLY  
 BALL VALVE WITH 1/2" REDUCER AND VALVE BOX ASSEMBLY

SCALE: 1" = 50'

NOTE:  
 ALL STATIONING REFERS TO SANITARY SEWER LINE.



02-359-07

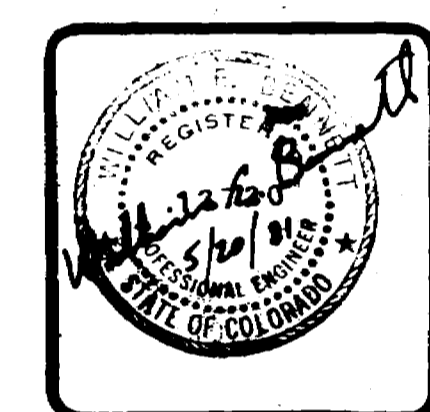


CHECKED	W.E.B.
DATE	JANUARY, 1981
BY	JSF
SCALE	HORIZ. 1" = 40'
VERT.	1" = 5'

**REVISIONS**

NO.	DATE	BY	DESCRIPTION
1	6-17-82	RSK	SEWER AS BUILT

**PARAGON ENGINEERING, INC.**  
P.O. Box 2872  
Grand Junction, Colorado 81501



**GRAND JUNCTION WEST WATER AND SANITATION DISTRICT**

**STA. 29+94.08 TO STA. 43+66.68, INCLUDES: EQUATION STA. 40+86.68 = 0+00 NORTH**



**WATERLINE FITTING SCHEDULE**

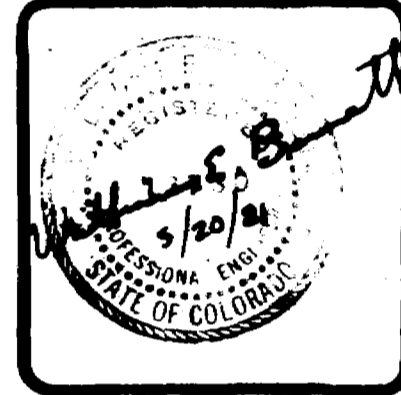
**LEGEND**

- Meas County Brass Cap
- Survey Line Turning Points
- Highway R.O.W. Marker
- Telephone Box
- Utility Pole
- Existing Water Valve
- Existing Water Meter
- Street Light
- Mail Box
- Existing Fence
- Existing Gas Line
- Existing Electric Lines
- Existing Sanitary Sewer & Manhole
- Existing Water Main & Size
- Edge of Asphalt
- Installed Sanitary Sewer & Manhole
- Proposed 10" Water Line

CHECKED  
WEB  
DATE  
MARCH, 1991  
SCALE  
HORIZ: 1" = 50'  
VERT: 1" = 5'

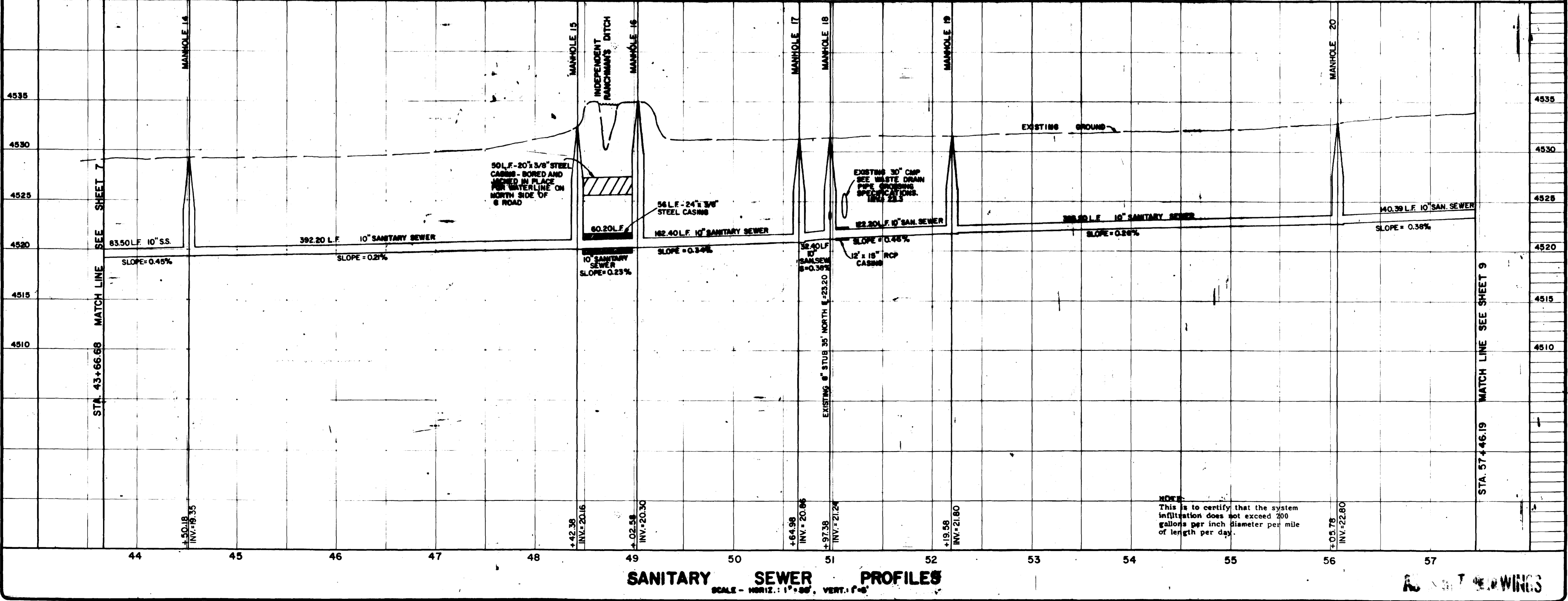
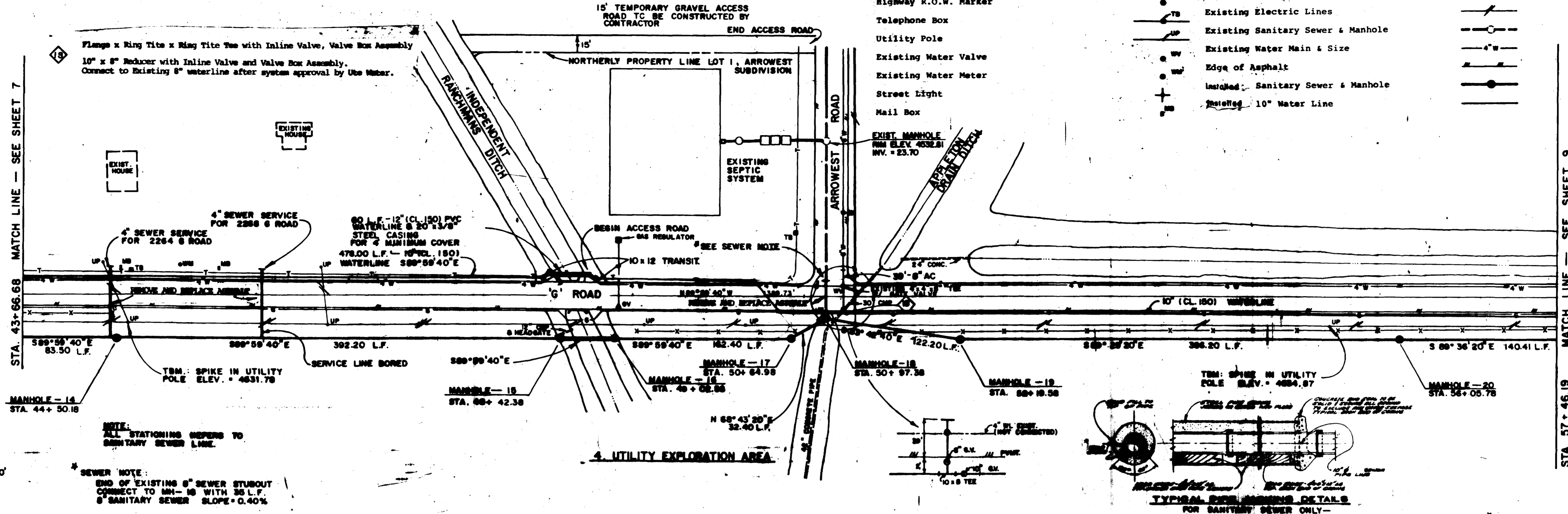
REVISIONS BY  
As BUILT  
6-16-92 JSF

PARAGON ENGINEERING, INC.  
P.O. Box 2872



GRAND JUNCTION WEST WATER AND SANITATION DISTRICT  
STA. 43+66.68 TO STA. 57+46.19

SHEET 8 OF 18 SHEETS



AS NOTED DRAWINGS

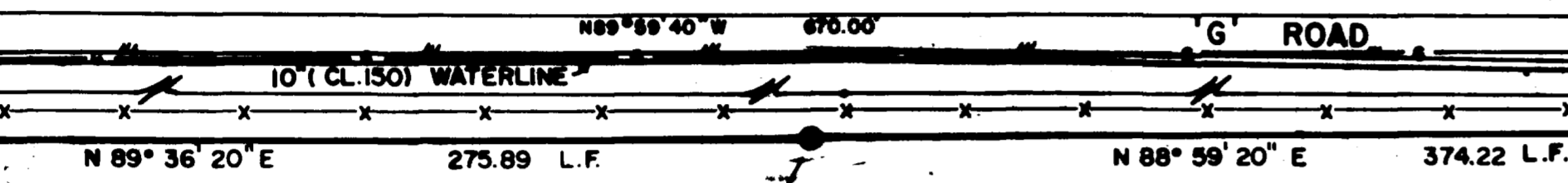


- Neen County Brass Cap
- Survey Line Turning Points
- Highway R.O.W. Marker
- Telephone Box
- Utility Pole
- Existing Water Valve
- Existing Water Meter
- Street Light
- Mail Box

- Existing Fence
- Existing Gas Line
- Existing Electric Lines
- Existing Sanitary Sewer & Manhole
- Existing Water Main & Size
- Edge of Asphalt
- Sanitary Sewer & Manhole
- 10" Water Line

STA. 57+46.19 MATCH LINE - SEE SHEET 8

EXISTING WATER LINE EXPLORATION AREA



MANHOLE - 25  
STA. 0+80.90

N 10° 33' 20" E 80.90 L.F.

MANHOLE - 21  
STA. 60+22.08

MATCH POINT  
MANHOLE - 22  
EQUATION STA.  
63+96.30  
STA. 0+00.00 NORTH  
(SEE SHEET 10)

TBM: BRASS CAP  
AT 23 RD. & G RD.  
ELEV. = 4537.28

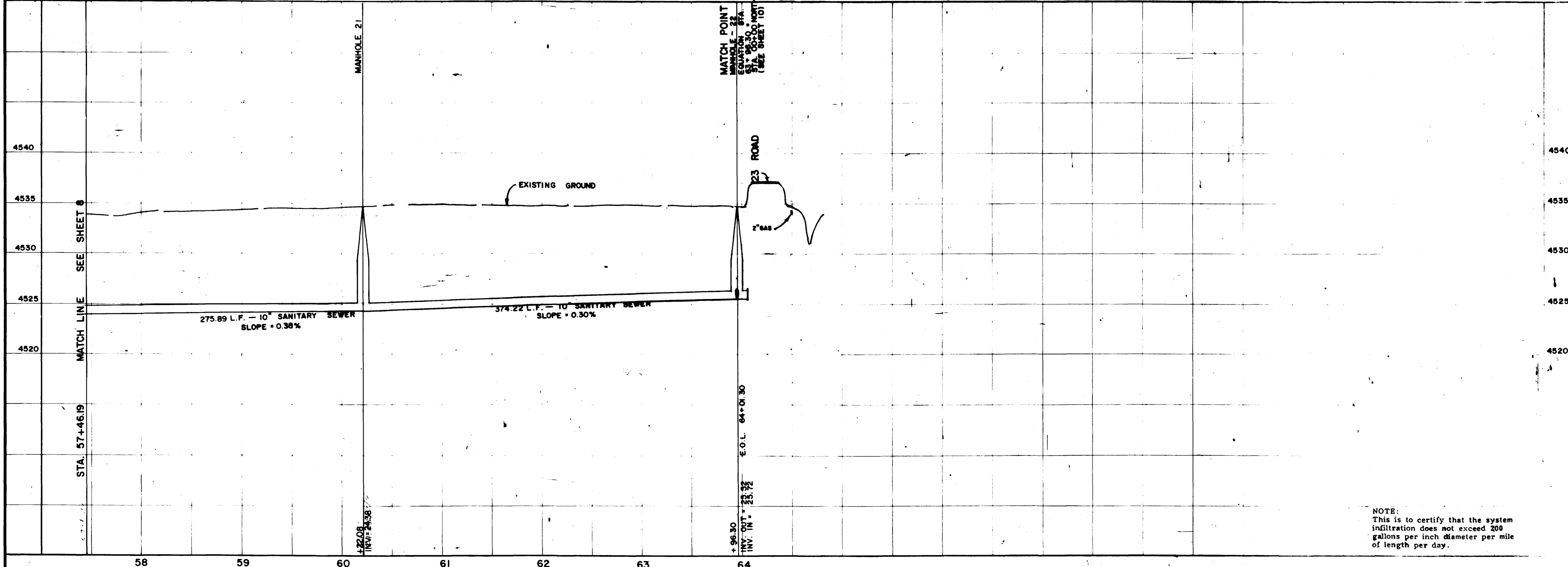
5. UTILITY EXPLORATION AREA

ALL STATIONING REFERS TO  
SANITARY SEWER LINE.

SCALE: 1" = 80'

DATE	
WEB	
MARCH, 1981 JSF	
HORIZ. SCALE: 1" = 80'	
VERT. SCALE: 1" = 8'	
REVISIONS	BY
MAR 22, 1981	WFB
APR 17, 1981	ESK

PARAGON ENGINEERING, INC.  
P.O. Box 2872  
Grand Junction, Colorado 81501 (303) 243-8868



SANITARY SEWER PROFILES  
SCALE - HORIZ.: 1" = 80', VERT.: 1" = 8'

NOTE:  
This is to certify that the system  
infiltration does not exceed 200  
gallons per inch diameter per mile  
of length per day.

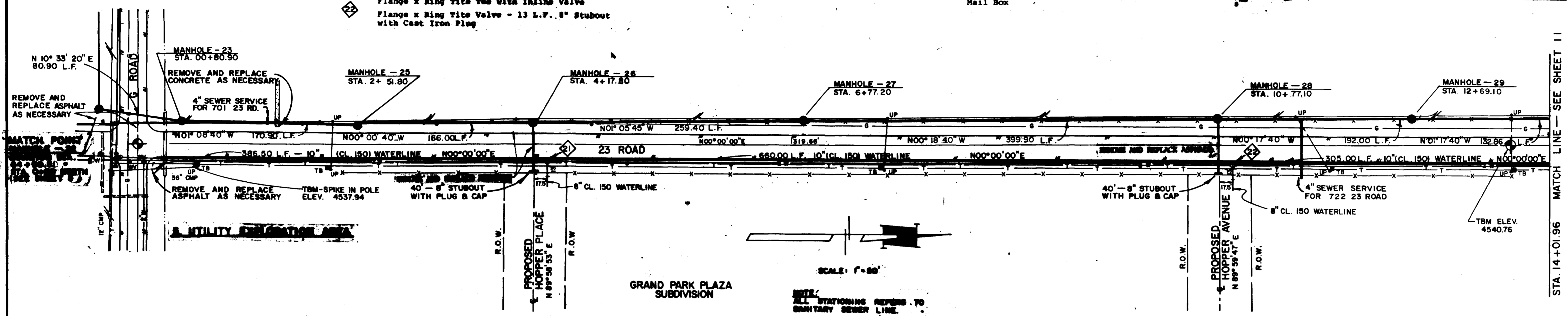
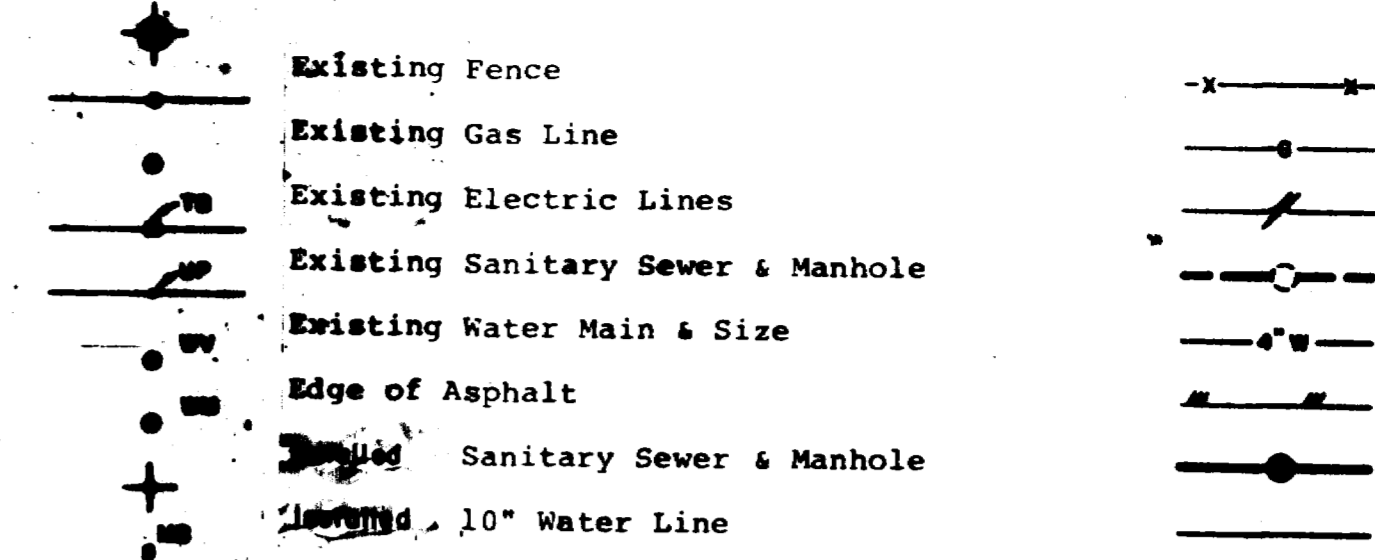
GRAND JUNCTION WEST WATER  
AND SANITATION DISTRICT  
STA. 57+46.19 TO STA 64+01.30  
(END G ROAD SEWER)

**WATERLINE FITTING SCHEDULE**

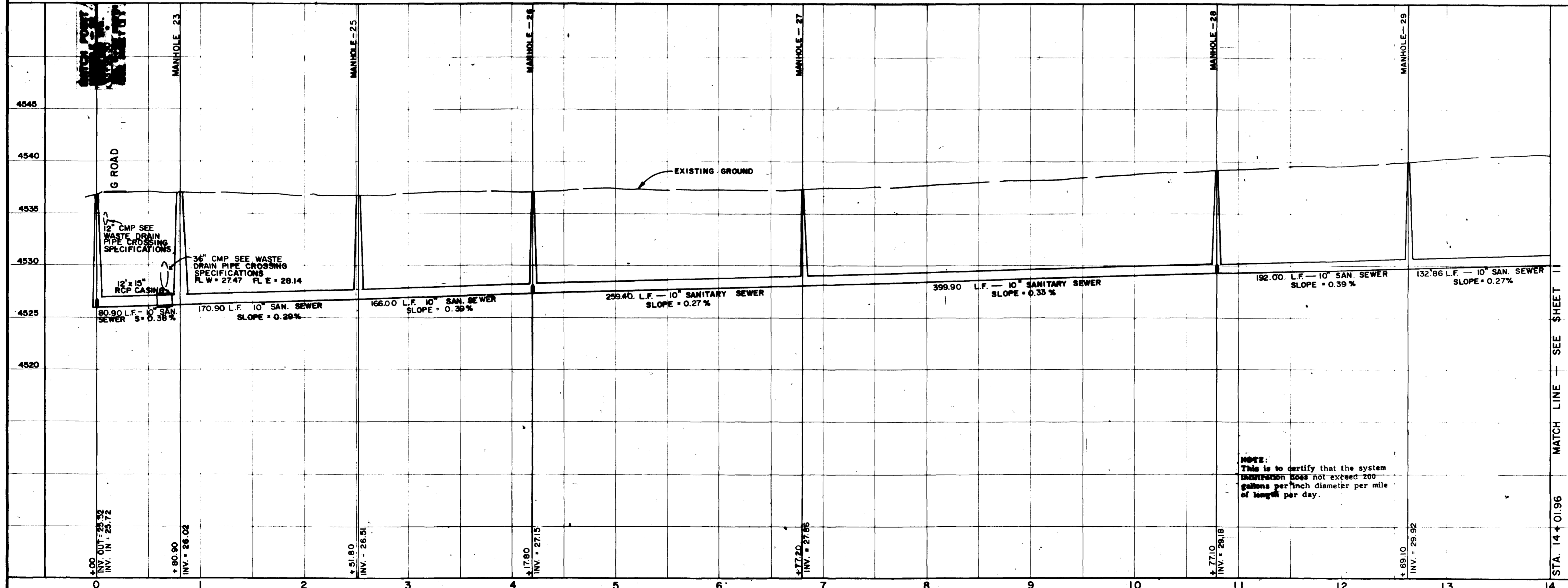
- 19 Flange x Ring Tite Tee with 2 Inline Valves and Valve Box Assemblies  
Flange x Ring Tite Valve and Valve Box Assembly
- 21 Flange x Ring Tite Tee with Inline Valve  
Flange x Ring Tite Valve - 13 L.F. 8" Stubout with Cast Iron Plug
- 22 Flange x Ring Tite Tee with Inline Valve  
Flange x Ring Tite Valve - 13 L.F. 8" Stubout with Cast Iron Plug

- Mesa County Brass Cap
- Survey Line Turning Points
- Highway R.O.W. Marker
- Telephone Box
- Utility Pole
- Existing Water Valve
- Existing Water Meter
- Street Light
- Mail Box

**LEGEND**



SCALE: 1" = 60'  
NOTE: ALL STATIONING REFERS TO SANITARY SEWER LINE.

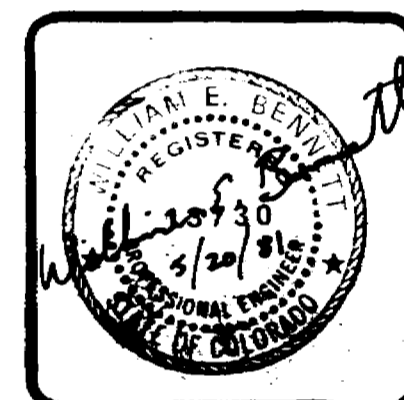


**SANITARY SEWER PROFILES**

CHECKED  
WEB  
DATE  
MARCH, 1981  
JSF  
SCALE  
HORIZ: 1" = 50'  
VERT: 1" = 5'

REVISIONS	BY
AS BUILT 6-10-82	JSF

**PARAGON ENGINEERING, INC.**  
P.O. Box 2872  
Grand Junction, Colorado 81501 (303) 243-8866



**GRAND JUNCTION WEST WATER AND SANITATION DISTRICT**  
MANHOLE - 22, EQUATION STA. 63 +96.30  
= STA. 0+00 NORTH TO STA. 14+01.96

SHEET  
**10**  
OF **18** SHEETS

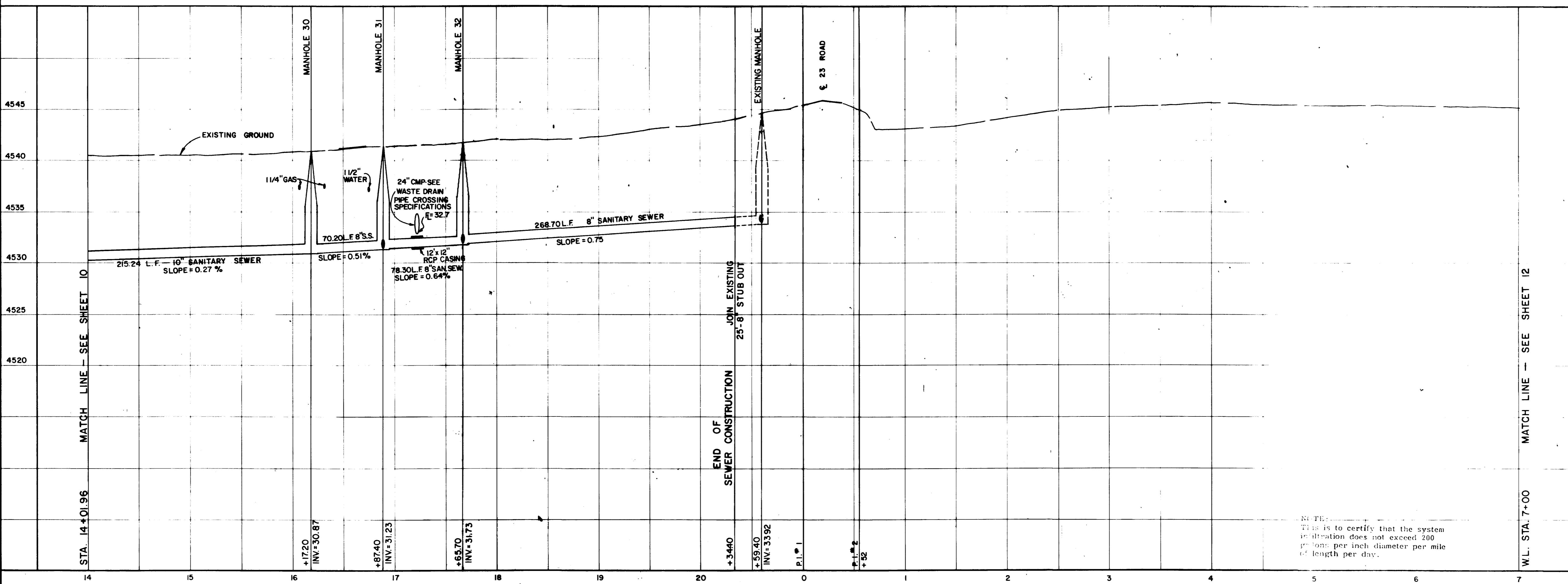
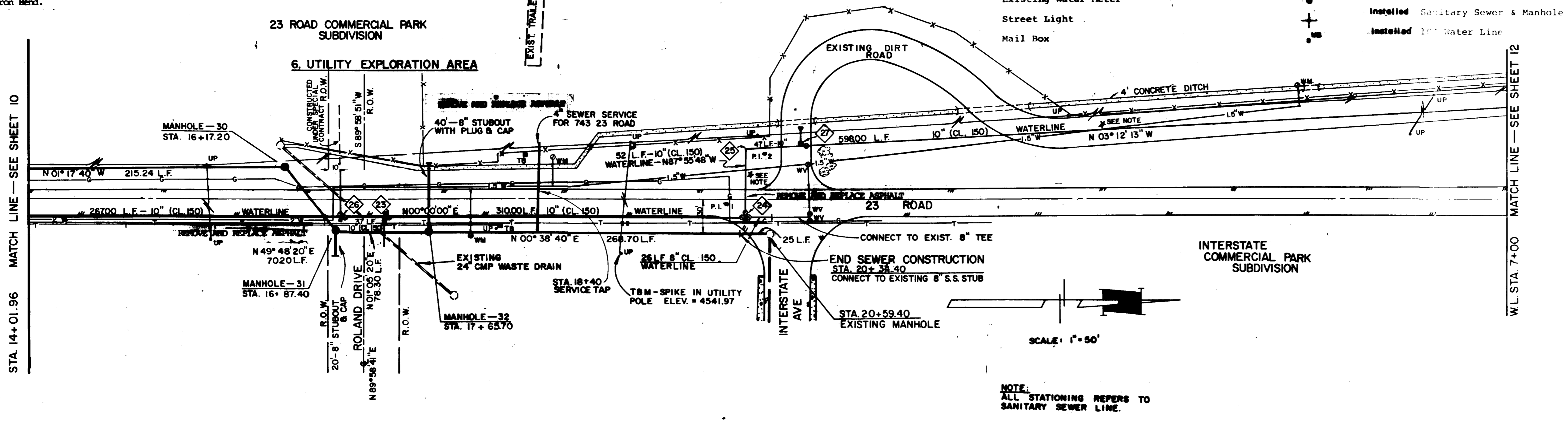
**WATERLINE FITTING SCHEDULE**

- 23 Flange x Ring Tite Tee with Inline Valve
- 24 All Flange Tee, 2-10" Flange x Ring Tite Valve 10" x 8" Flange Reducer, 8" Flange x Ring Tite Valve. Valve Box Assemblies with All Valves.
- 25 90° Cast Iron Bend.
- 26 Flange x Ring Tite Tee with Inline Valve. Flange x Ring Tite Valve - 39 L.F. 8" Stubout with Cast Iron Plug.
- 27 Flange x Ring Tite Tee with Inline Valve. Flange x Ring Tite Valve - 13 L.F. 8" Stubout with Cast Iron Plug.

**LEGEND**

- Mesa County Brass Cap
- Survey Line Turning Points
- Highway R.O.W. Marker
- Telephone Box
- Utility Pole
- Existing Water Valve
- Existing Water Meter
- Street Light
- Mail Box
- Existing Fence
- Existing Gas Line
- Existing Electric Lines
- Existing Sanitary Sewer & Manhole
- Existing Water Main & Size
- Edge of Asphalt
- Installed Sanitary Sewer & Manhole
- Installed 10" Water Line

**APPLETON SOUTH COMMERCIAL SUBDIVISION**



**SANITARY SEWER PROFILES**

**AS BUILT DRAWINGS**

CHECKED  
WJB  
DATE  
APRIL, 1981  
WJC  
HORIZ. 1" = 50'  
VERT. 1" = 5'

BY  
AS BUILT  
6-18-82  
BKL

**PARAGON ENGINEERING, INC.**  
P.O. Box 2872  
Grand Junction, Colorado 81501  
(303) 243-3464

*William E. Smith*  
Professional Engineer  
No. 1010  
Grand Junction, Colorado

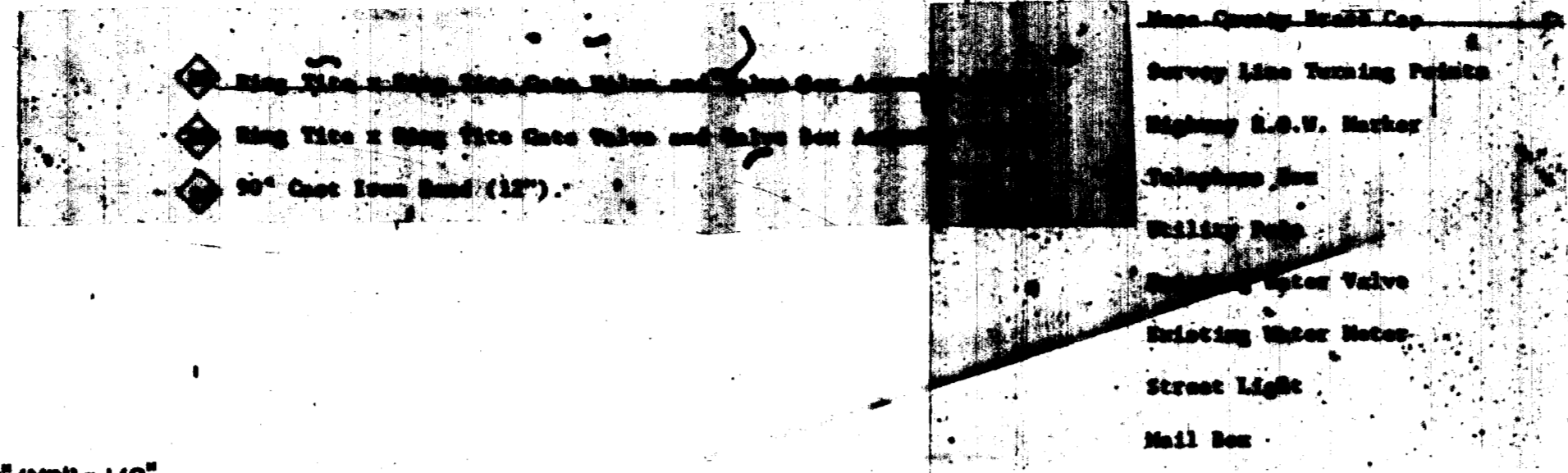
**GRAND JUNCTION WEST WATER AND SANITATION DISTRICT**  
STA. 14+01.96 TO STA. 20+34.40  
P.I. # 1 TO W.L. STA. 7+00

11  
18 SHEETS

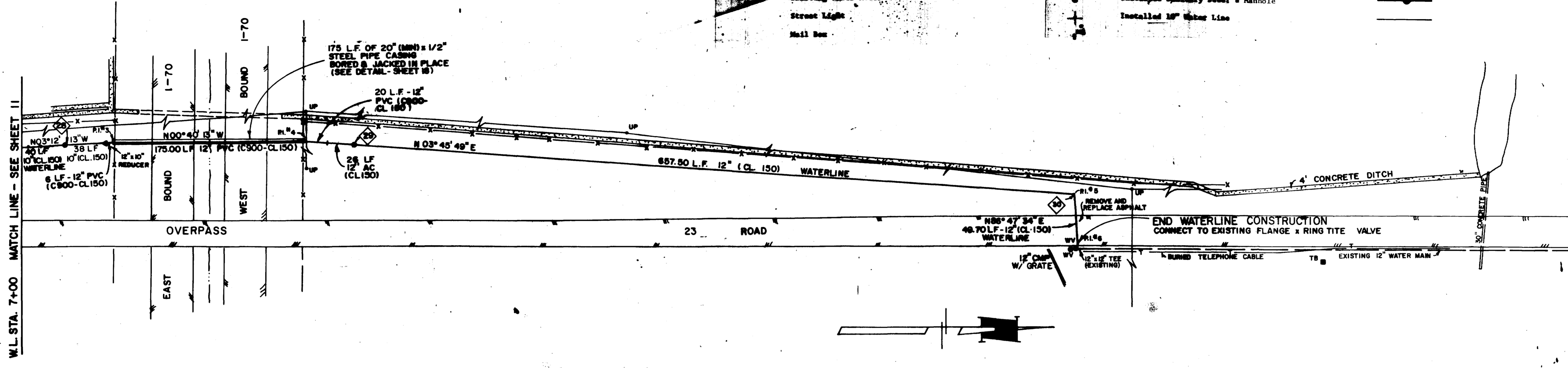
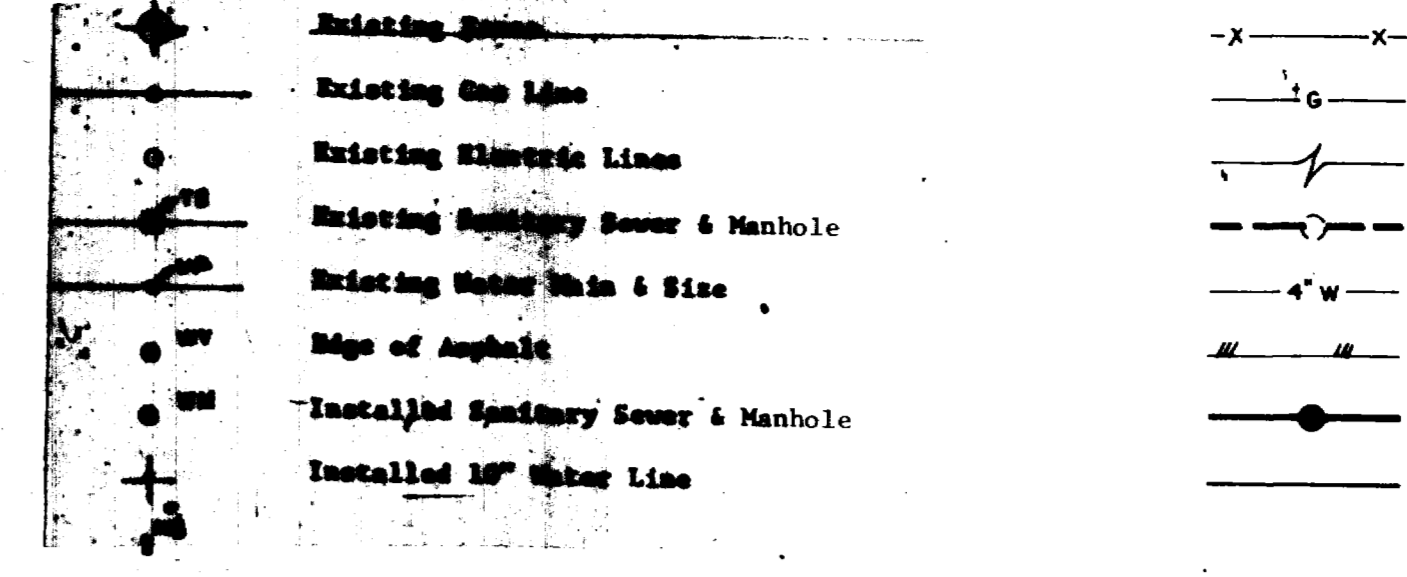


02-35-9-12

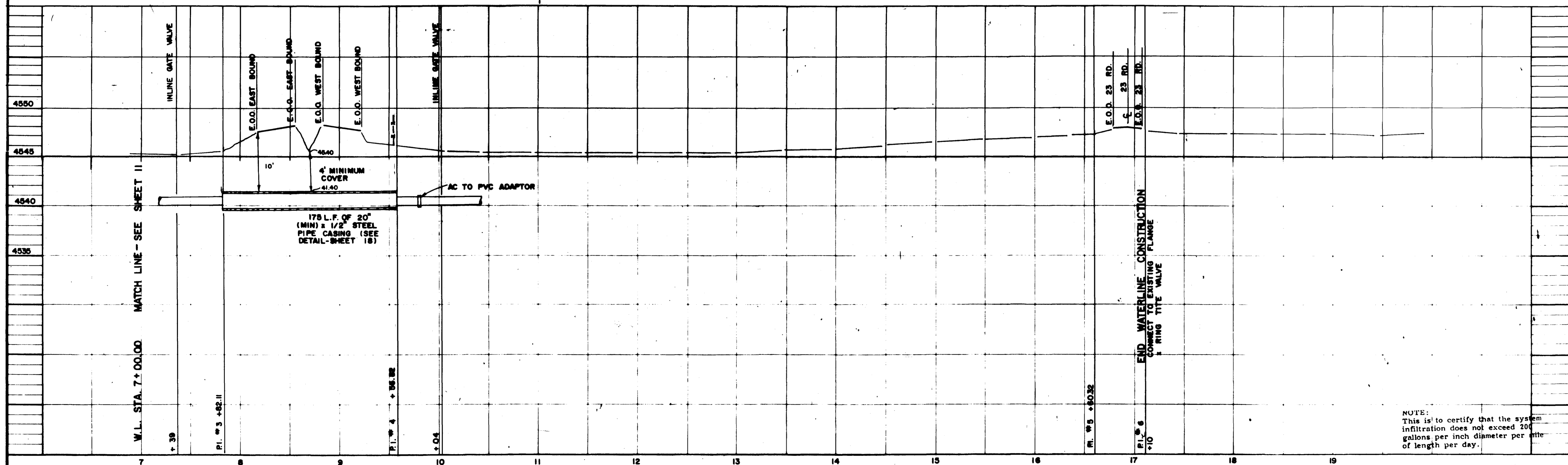
WATERLINE FITTING SCHEDULE



LEGEND



SCALE: 1" = 50'



NOTE:  
This is to certify that the system infiltration does not exceed 200 gallons per inch diameter per mile of length per day.

CHECKED  
DATE  
6-21-82  
SCALE  
As SHOWN

REVISIONS	BY

**PARAGON ENGINEERING, INC.**  
P.O. Box 2877  
Grand Junction, Colorado 81501 (970) 243-8968

GRAND JUNCTION WEST WATER AND  
SANITATION DISTRICT  
W.L. STATION 7+00 TO P.I. # 6

SHEET  
12  
OF 18 SHEETS

CHECKED	WEB
DATE	APRIL, 1981
	W J C
SCALE	HORIZ: 1" = 50'
	VERT: 1" = 5'

REVISIONS	BY
10-9-81	EB
11-18-82	ESK

**PARAGON ENGINEERING, INC.**  
P.O. Box 2872  
Grand Junction, Colorado 81501



**GRAND JUNCTION WEST WATER AND SANITATION DISTRICT**  
MANHOLE - 13, EQUATION STA. 40+86.68  
= STA. 0+00 NORTH TO STA. 11+50.80

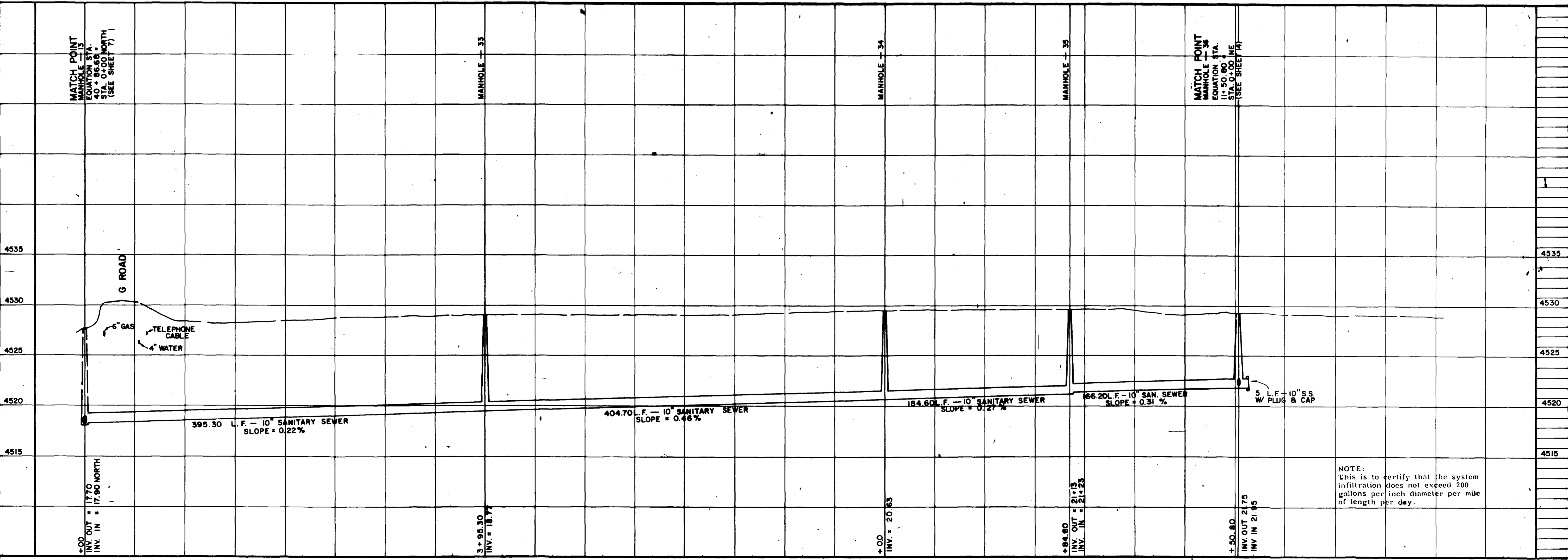
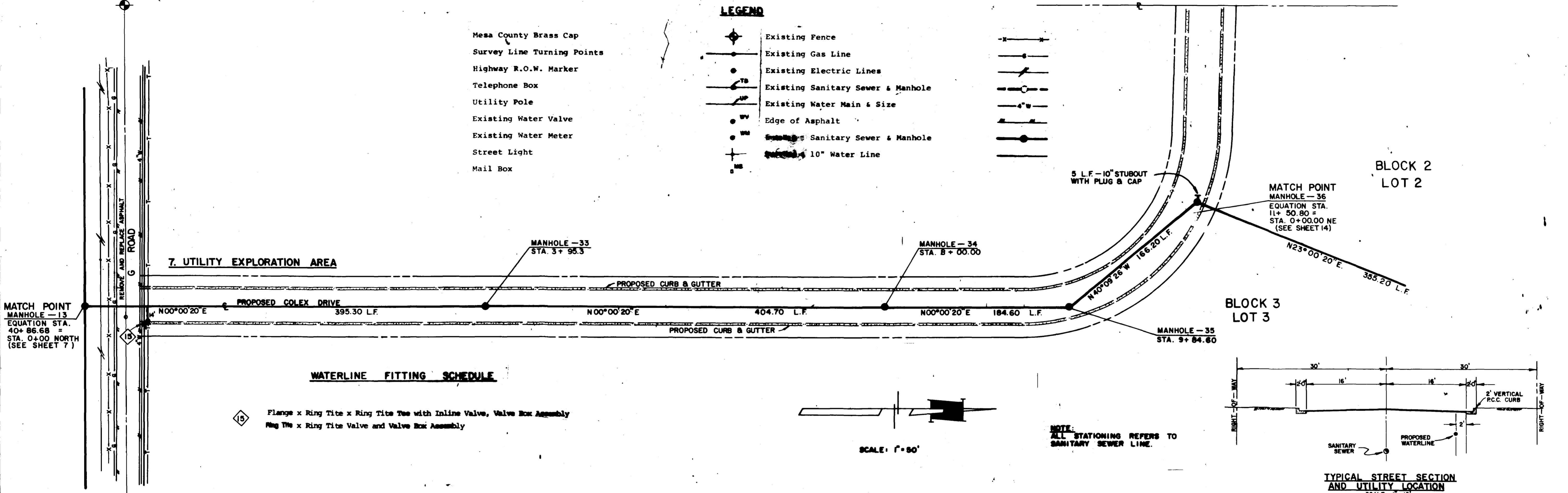
TQM ELEVATION 4529.81

- Mesa County Brass Cap
- Survey Line Turning Points
- Highway R.O.W. Marker
- Telephone Box
- Utility Pole
- Existing Water Valve
- Existing Water Meter
- Street Light
- Mail Box

**LEGEND**

- Existing Fence
- Existing Gas Line
- Existing Electric Lines
- Existing Sanitary Sewer & Manhole
- Existing Water Main & Size
- Edge of Asphalt
- Existing Sanitary Sewer & Manhole
- 10" Water Line

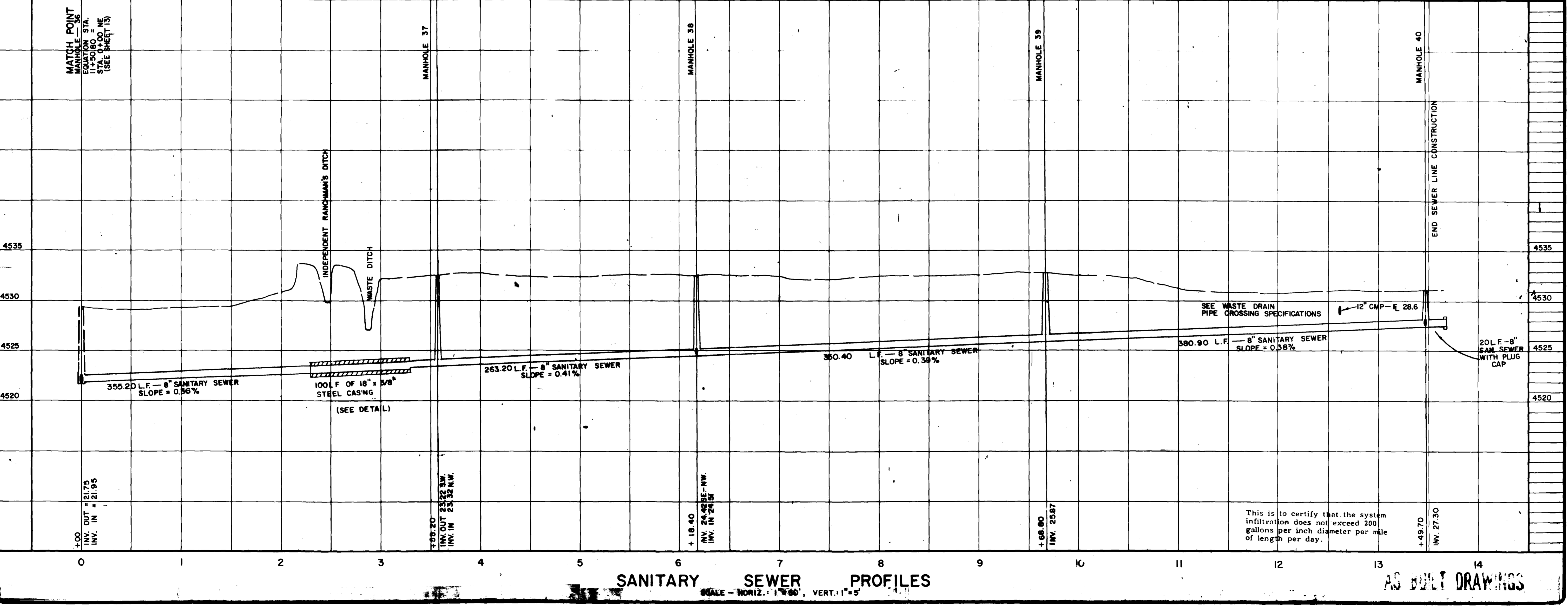
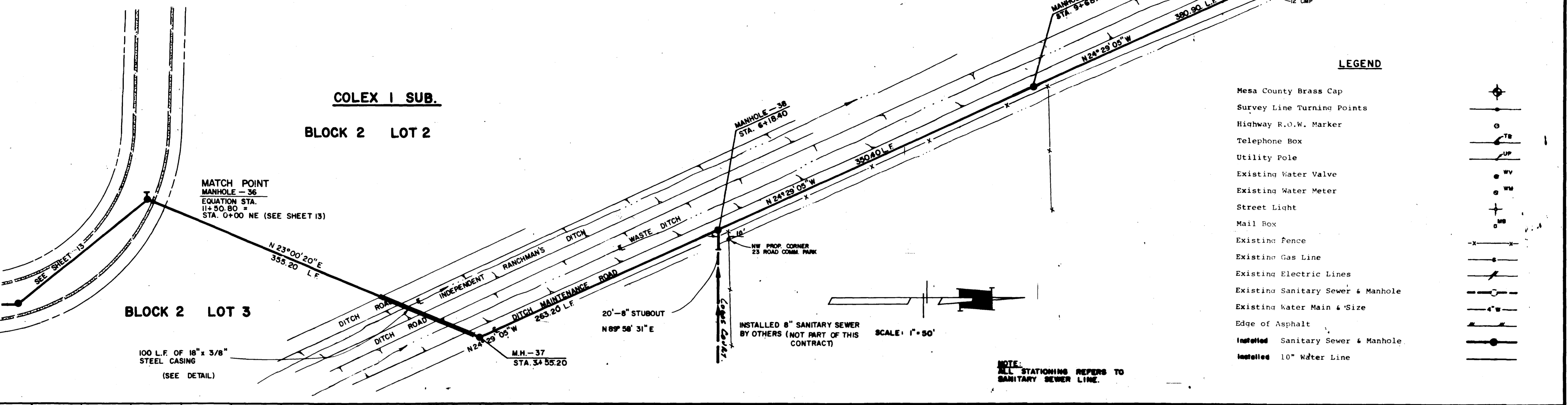
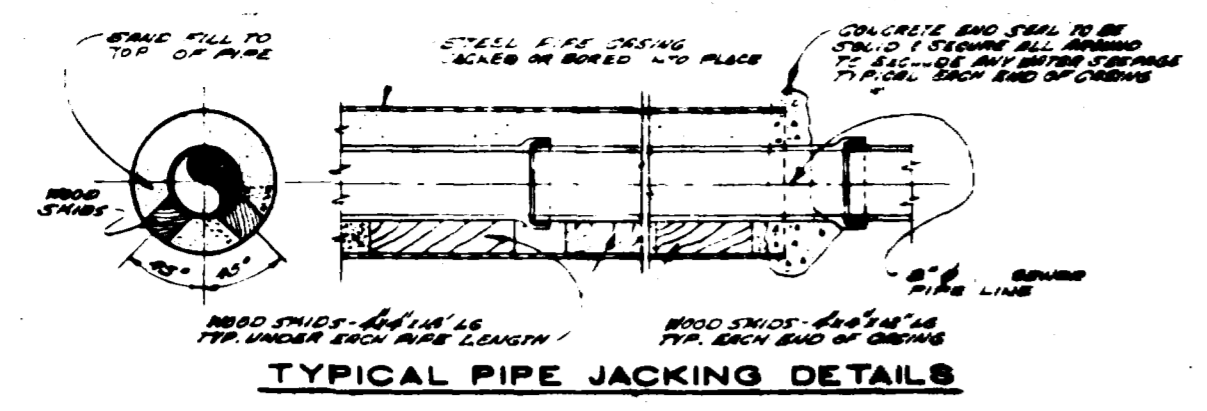
PROPOSED SELLARS SUBDIVISION



**SANITARY SEWER PROFILES**

**AS BUILT DRAWINGS**

02359-14

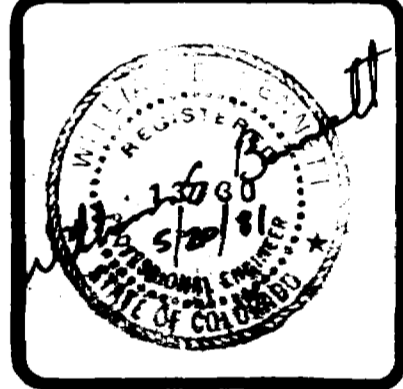


CHECKED	WEB
DATE	APRIL, 1981
	WJC
SCALE	HORIZ. 1" = 80'
	VERT. 1" = 5'

REVISIONS	BY
10-9-81	WJC
AS BUILT	RSK
0-10-82	RSK

PARAGON ENGINEERING, INC.

Grand Junction, Colorado 81501 P.O. Box 2892



GRAND JUNCTION WEST WATER AND SANITATION DISTRICT

MANHOLE - 36, EQUATION STA. 11 + 50.80 = STA. 0+00 NE TO STA. 13 + 49.70



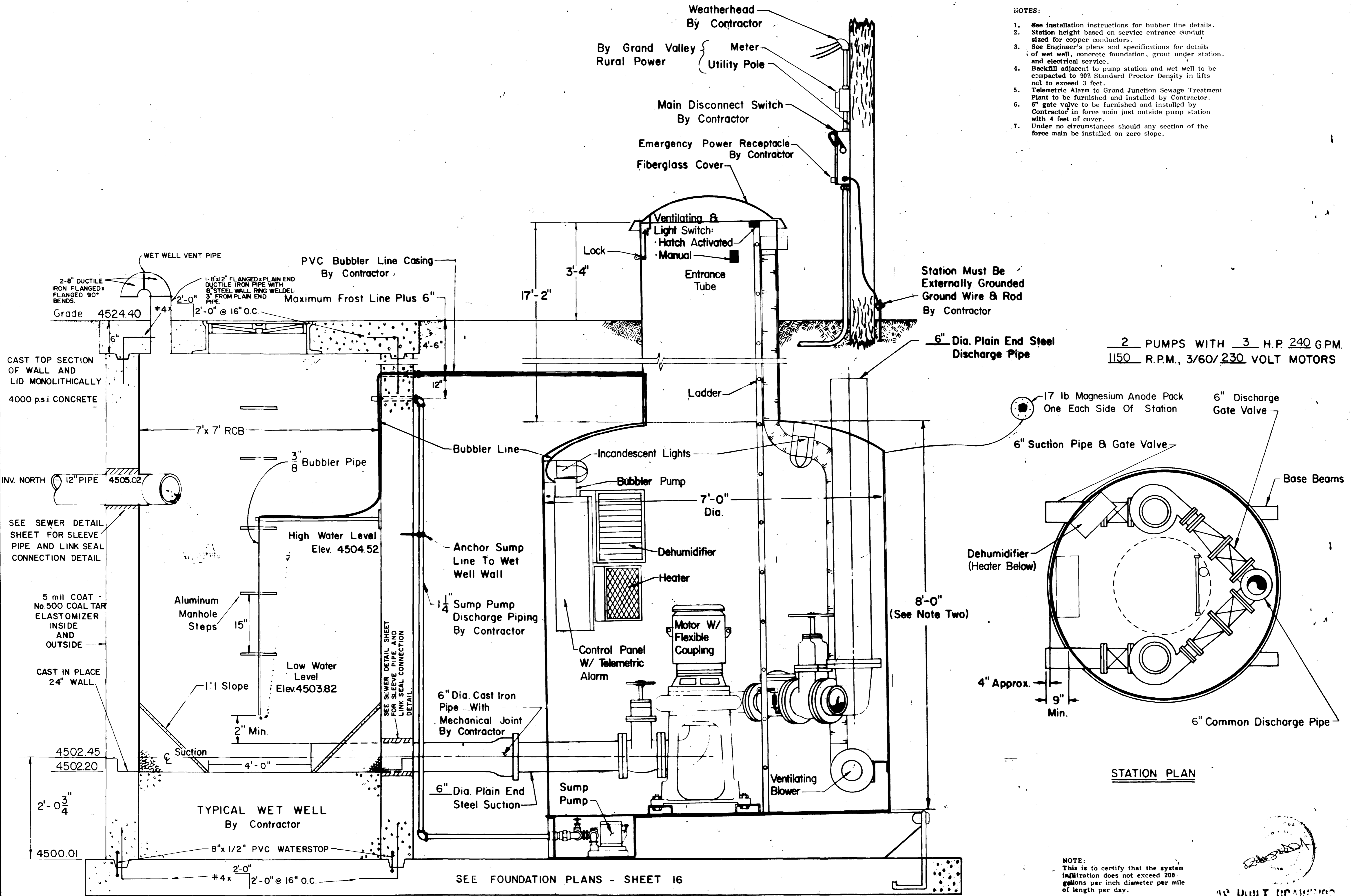
REVISIONS	BY
SEPT 22 1981	WEBB
4-21-82	LDK
AS BUILT REV	

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 P. O. Box 2872  
 Grand Junction, Colorado 81501 (303) 243-8866



GRAND JUNCTION WEST WATER AND SANITATION DISTRICT  
 LIFT STATION

- NOTES:
- See installation instructions for bubbler line details.
  - Station height based on service entrance conduit sized for copper conductors.
  - See Engineer's plans and specifications for details of wet well, concrete foundation, grout under station and electrical service.
  - Backfill adjacent to pump station and wet well to be compacted to 90% Standard Proctor Density in lifts not to exceed 3 feet.
  - Telemetric Alarm to Grand Junction Sewage Treatment Plant to be furnished and installed by Contractor.
  - 6" gate valve to be furnished and installed by Contractor in force main just outside pump station with 4 feet of cover.
  - Under no circumstances should any section of the force main be installed on zero slope.



2 PUMPS WITH 3 H.P. 240 G.P.M.  
 1150 R.P.M., 3/60/230 VOLT MOTORS

STATION PLAN

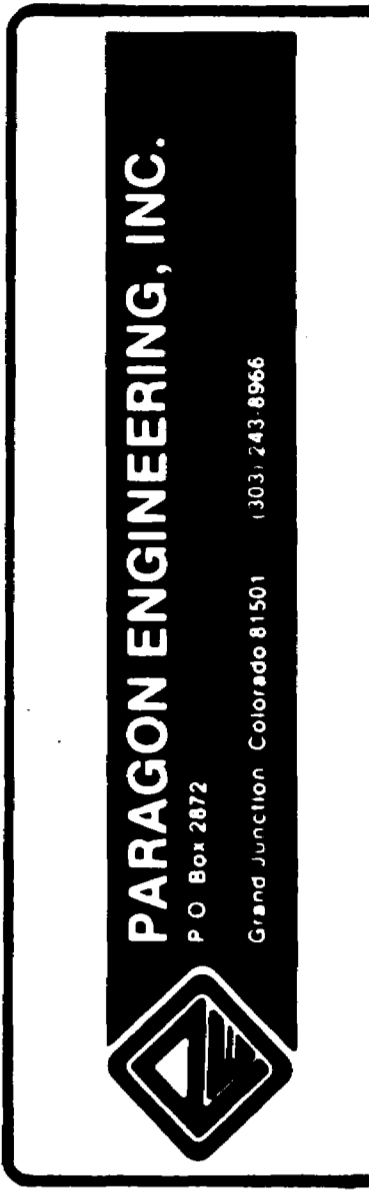
NOTE:  
 This is to certify that the system infiltration does not exceed 200 gallons per inch diameter per mile of length per day.

AS BUILT DRAWINGS

SEE FOUNDATION PLANS - SHEET 16

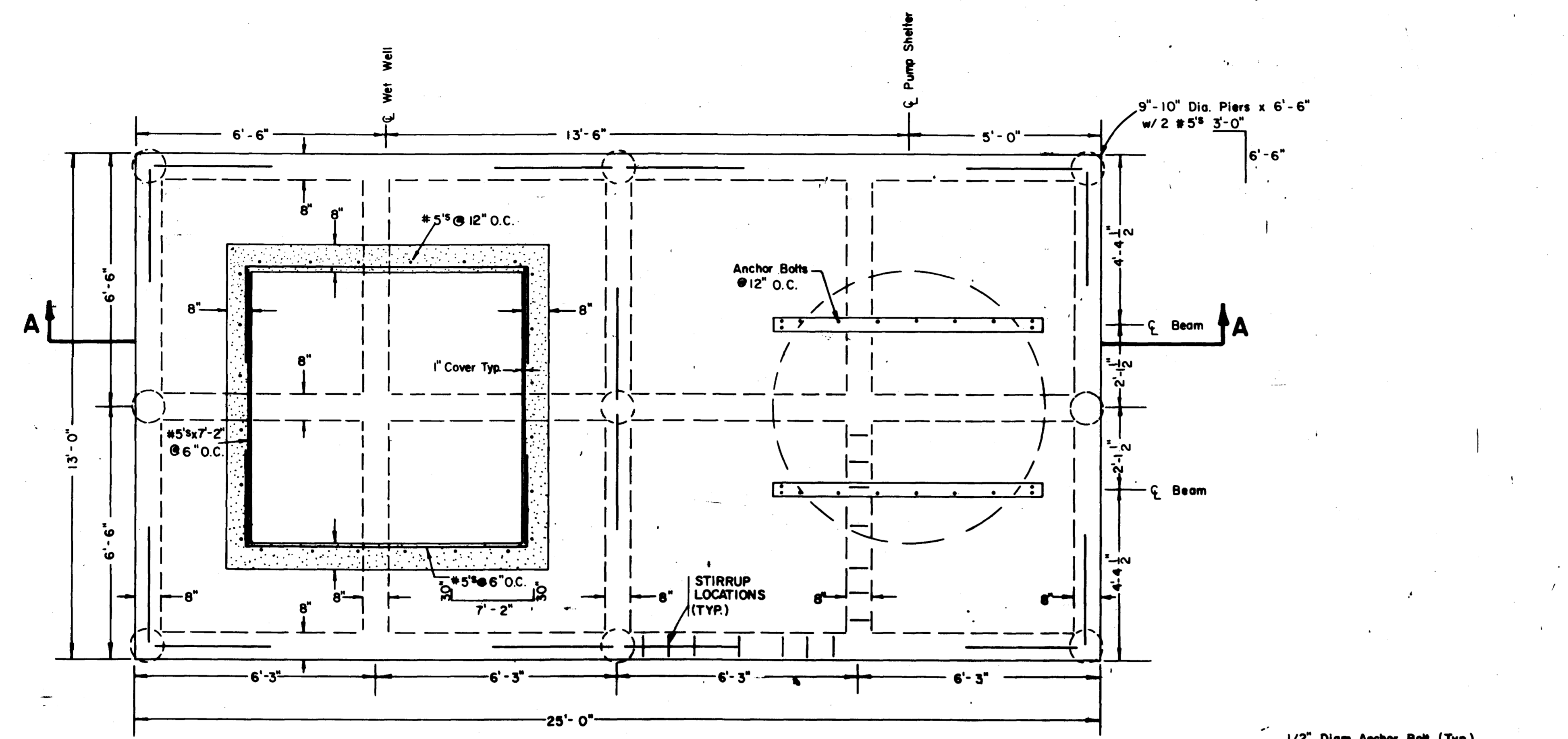
02-359-15

REVISIONS	BY
4-21-81	WED
AS BUILT REV	LDC

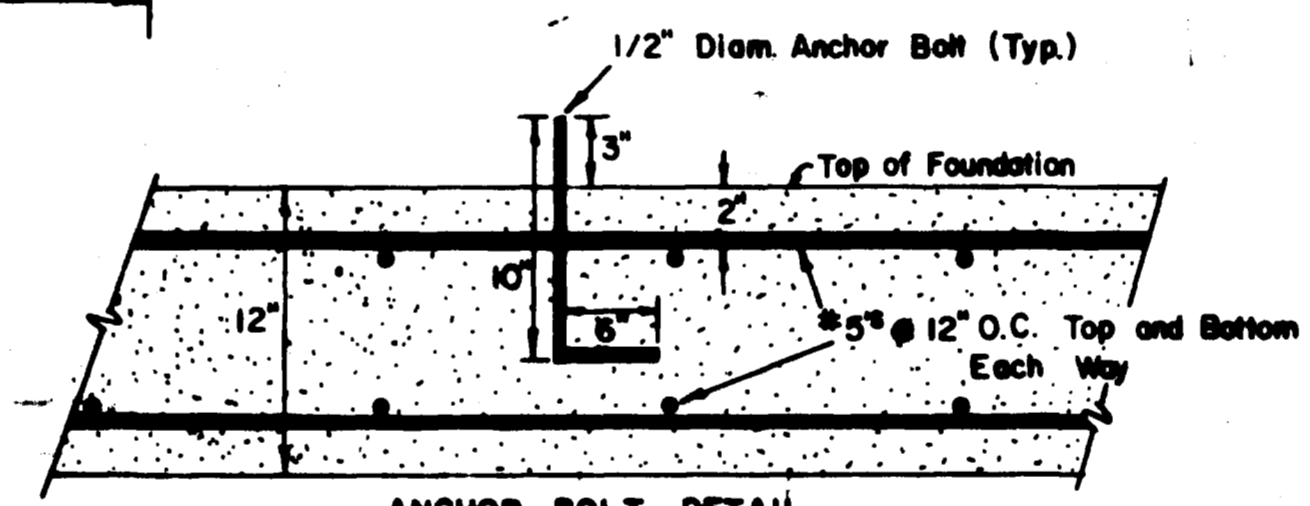


GRAND JUNCTION WEST WATER AND SANITATION DISTRICT

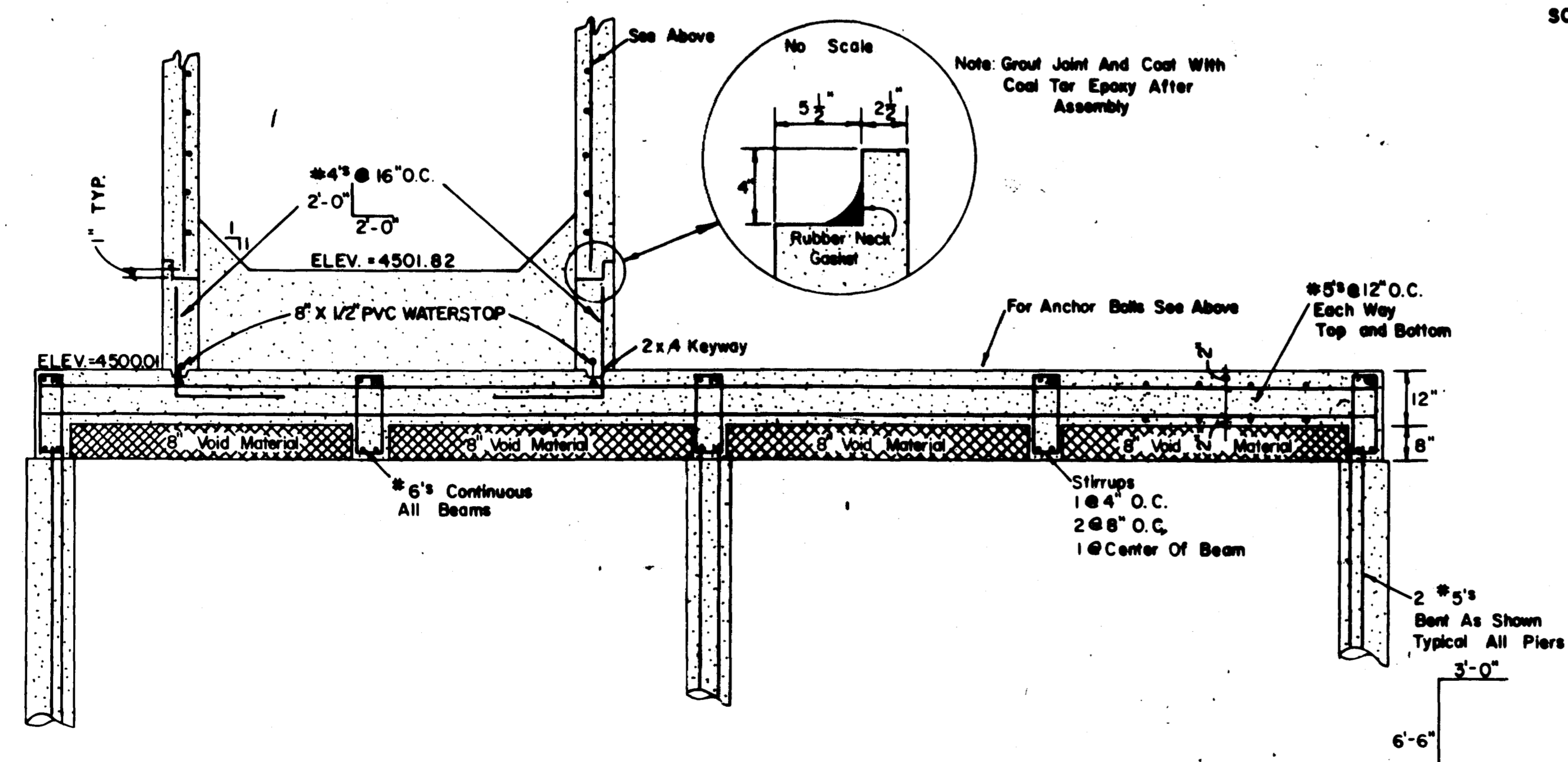
LIFT STATION FOUNDATION



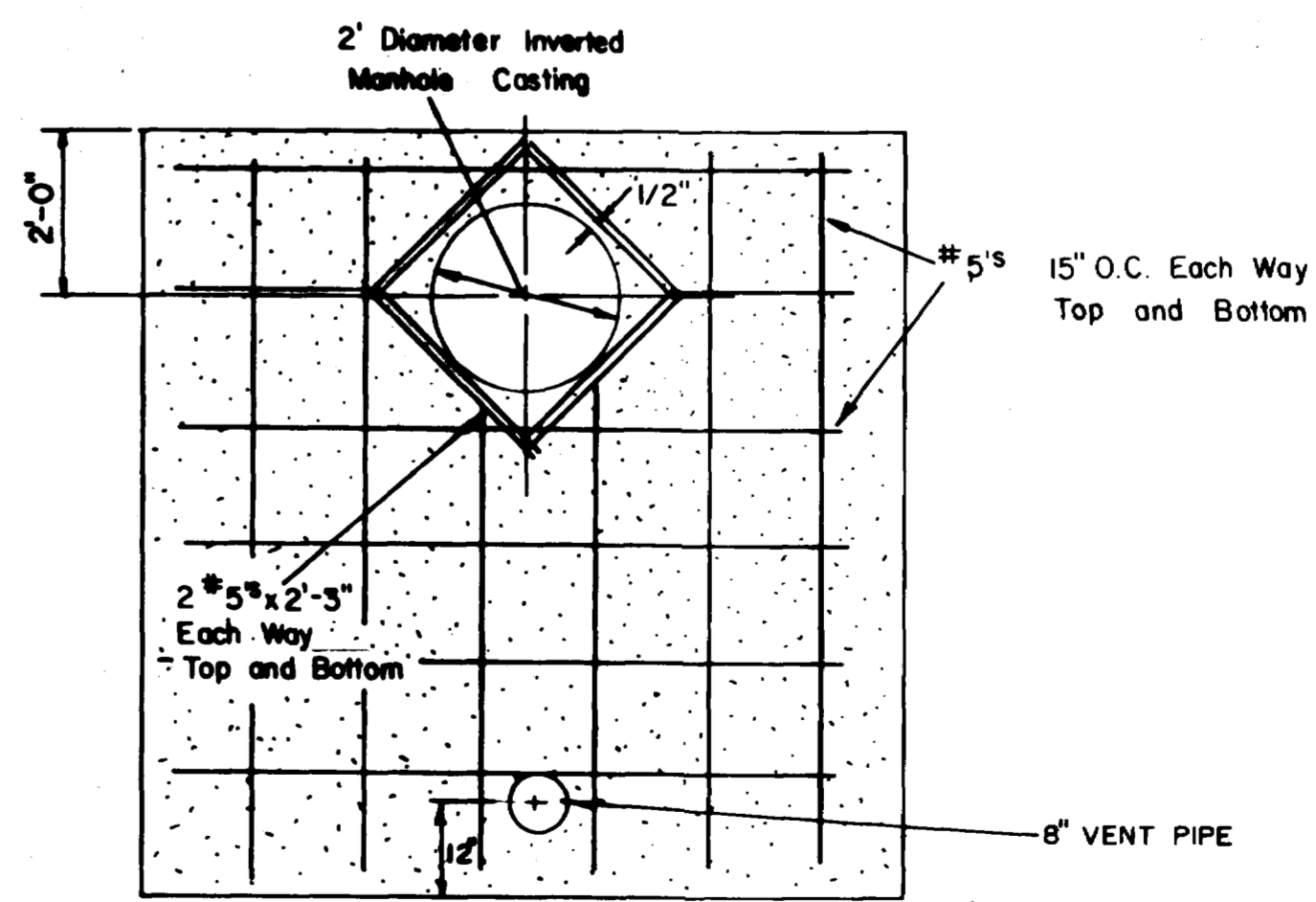
FOUNDATION PLAN  
SCALE 1/2" = 1'



ANCHOR BOLT DETAIL  
SCALE 1 1/2" = 1'



SECTION A-A  
SCALE 1/2" = 1'



TOP OF WET WELL DETAIL  
SCALE 1/2" = 1'

General Notes:

- I. Concrete
  - A. All concrete is to have an F'c = 4,000 psi at 28 days and is to be made with Type II Modified cement. Under no circumstances should calcium chloride ever be added to a Type II cement.
  - B. Detail all reinforcement and provide bar supports in accordance with A.C.I. Detailing Manual, latest edition.
  - C. Vibrators or other suitable mechanical means must be used to consolidate concrete.
  - D. Four test cylinders per truck shall be required.
- II. Reinforcement
  - A. All reinforcement shall be Grade 60 new billet steel.
  - B. When reinforcing steel is to be spliced, the following is the minimum lap splice acceptable:
 

No's.	LAP
3	20"
4	20"
5	26"
6	33"
7	40"
8	48"
  - C. All reinforcing shall be continuous.
  - D. Reinforcement Protection, unless noted.
    - When concrete is placed against earth ... 3"
    - When concrete is placed in forms, but exposed to earth or weather ... 2"
    - When concrete is placed in forms, but not exposed to earth or weather ... 1"
- III. Soils data compiled by Geo Testing Laboratories, Inc., Job #4-4. Copy of soils report available upon request.
- IV. The foundation site shall be kept dry during excavation and construction of the foundation.
- V. Anchor Bolts shall be 1/2" diameter x 10" and meet ASTN A-325 standard.
- VI. All open footing excavation must be inspected prior to the placing of forms and pouring of concrete to establish that proper design bearing material has been reached and that no debris, soft spots or areas of unusually low density are located within the foundation region.

NOTE:  
SEE SHEET 15B 17  
FOR SUCTION LINE  
CONNECTIONS

NOTE:  
This is to certify that the system  
infiltration does not exceed 200  
gallons per inch diameter per mile  
of length per day.

AS BUILT DRAWINGS



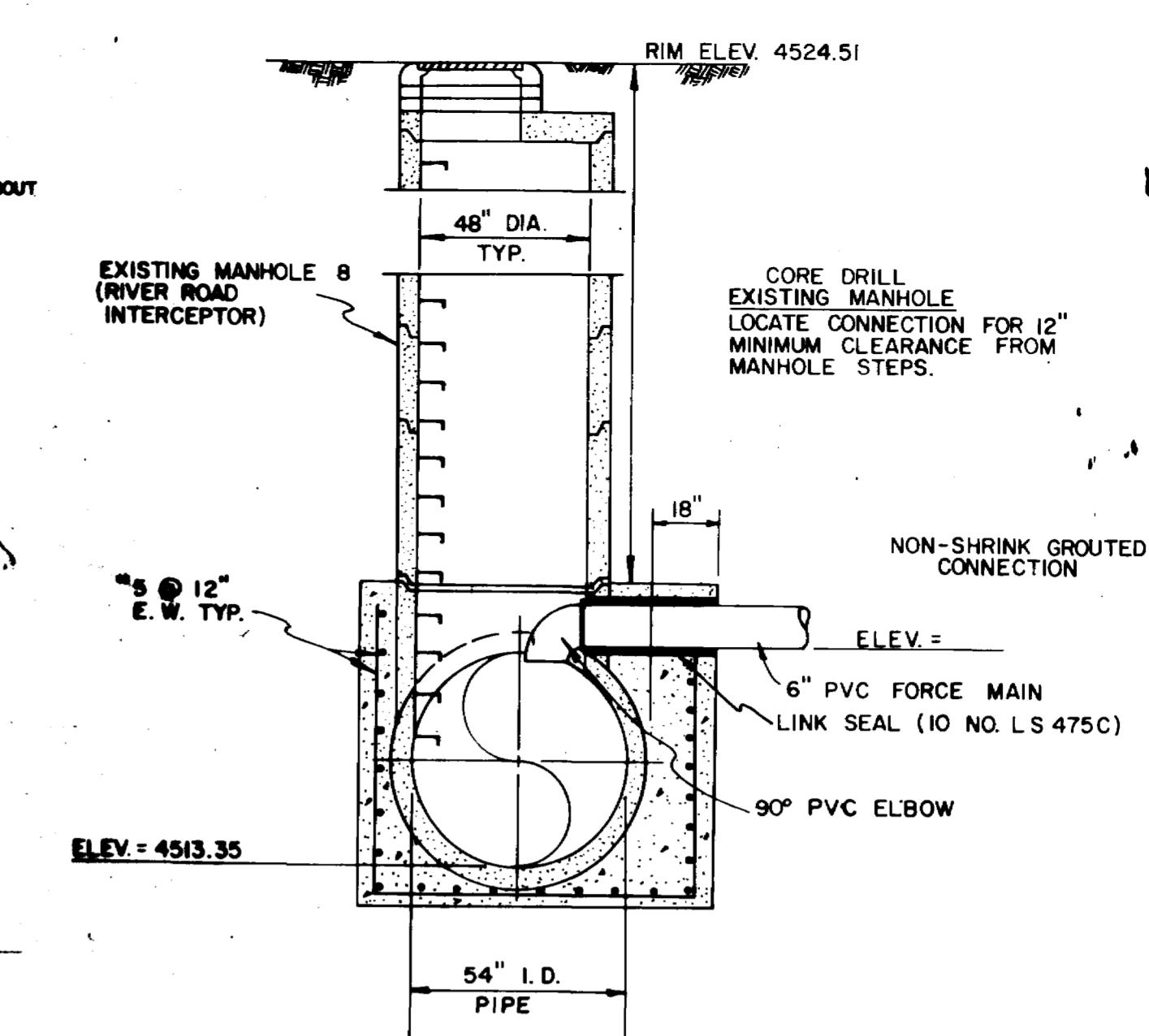
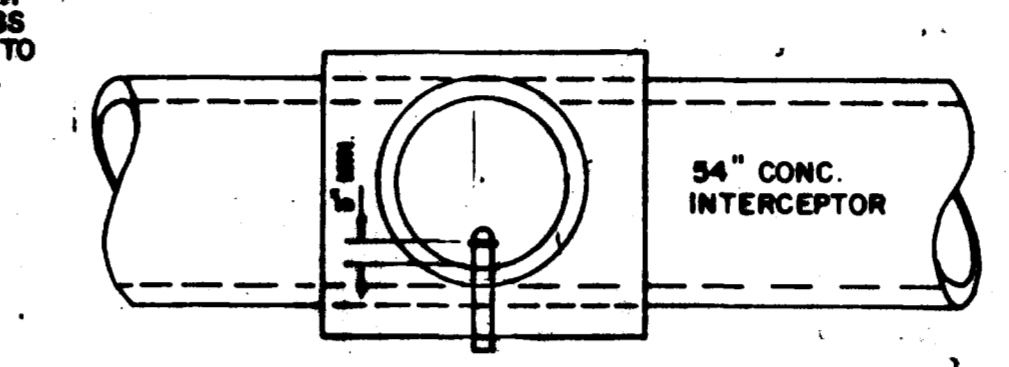
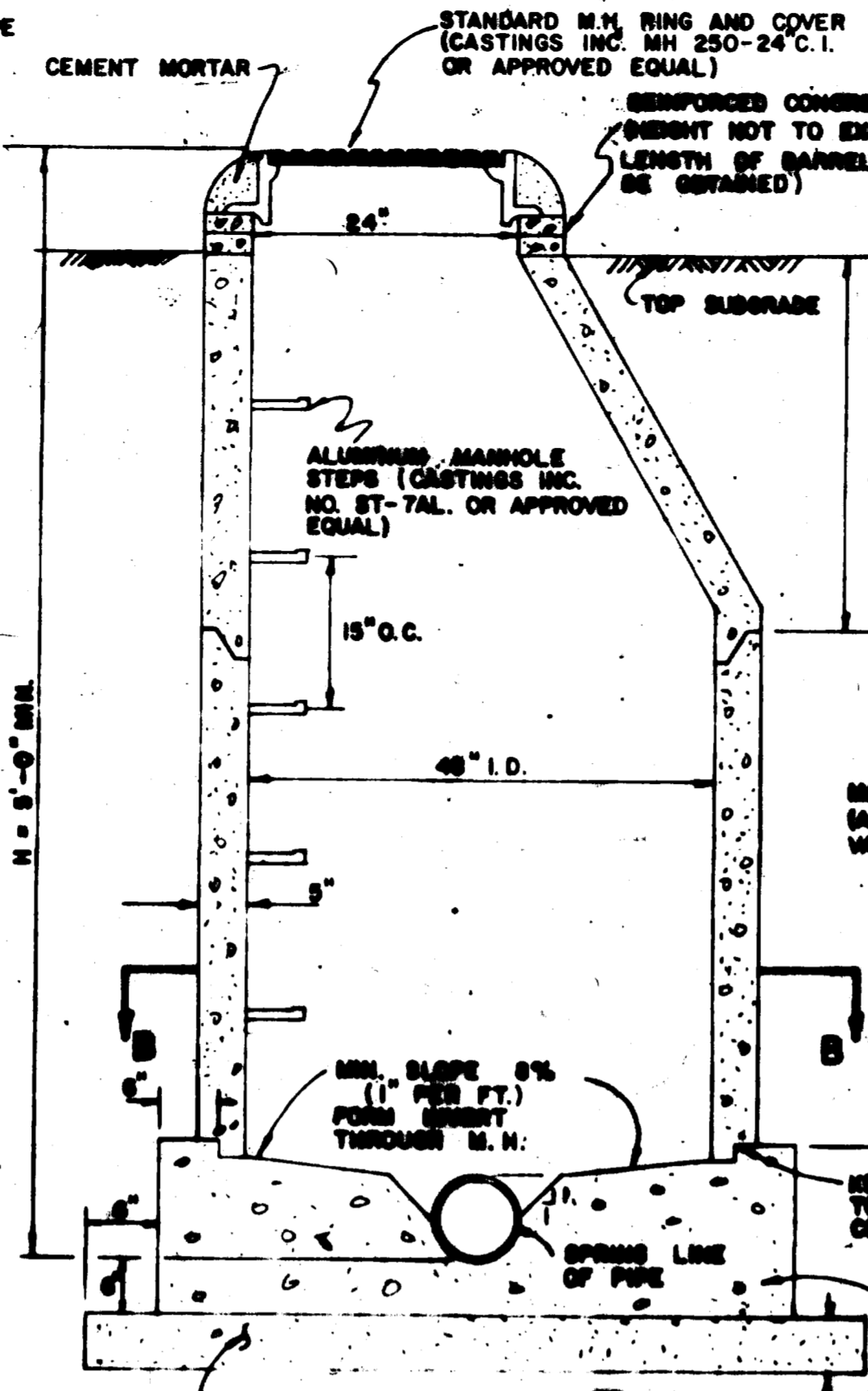
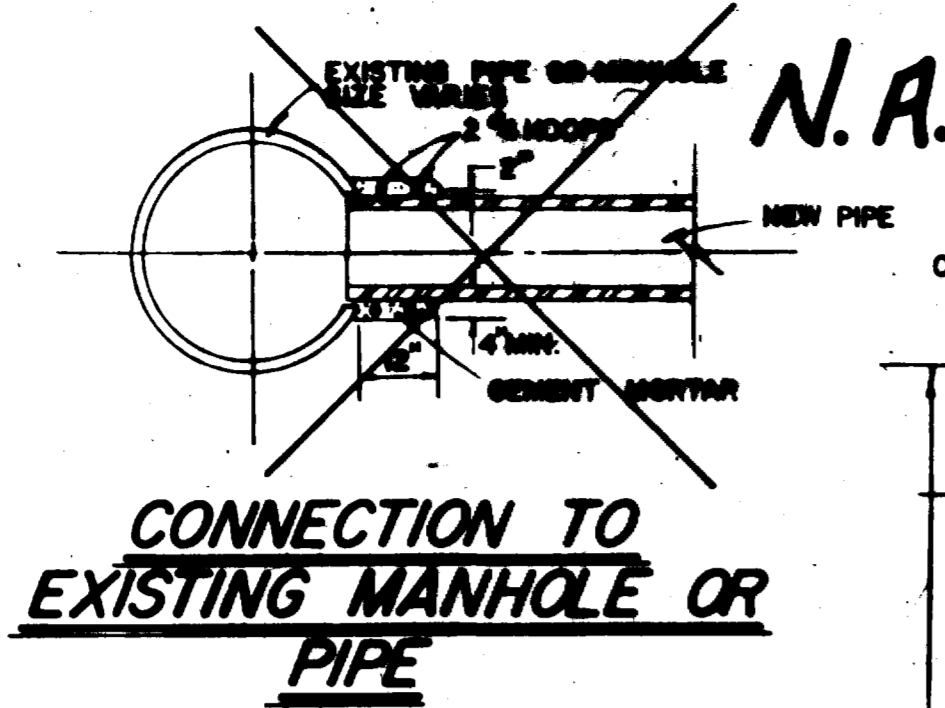
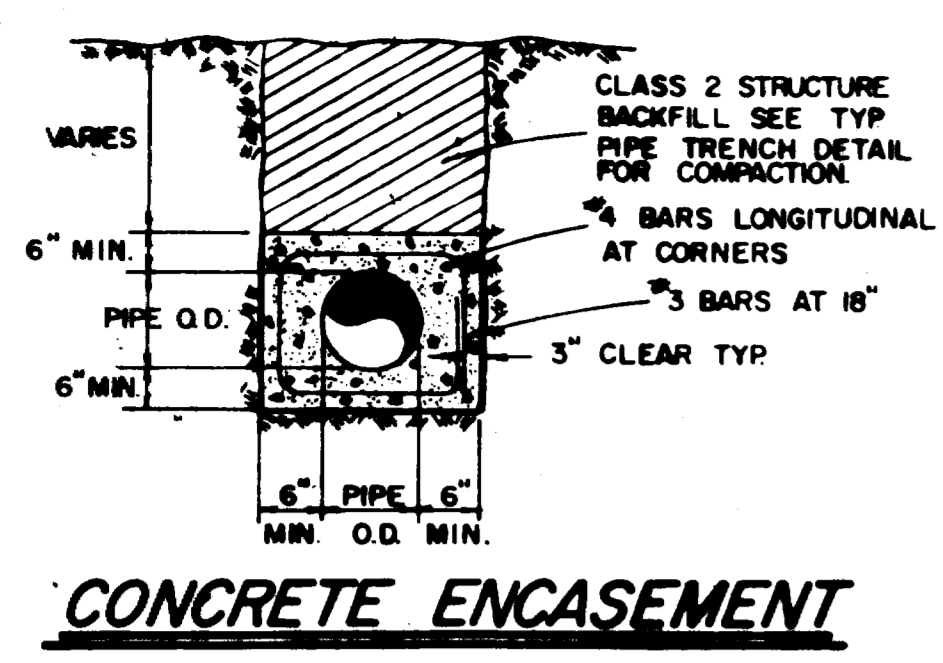
REVISIONS	BY
1	W.S.B.
2	W.S.B.
3	W.S.B.
4	W.S.B.
5	W.S.B.
6	W.S.B.
7	W.S.B.
8	W.S.B.
9	W.S.B.
10	W.S.B.

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Colorado Springs, Colorado 80901  
(303) 243-1906

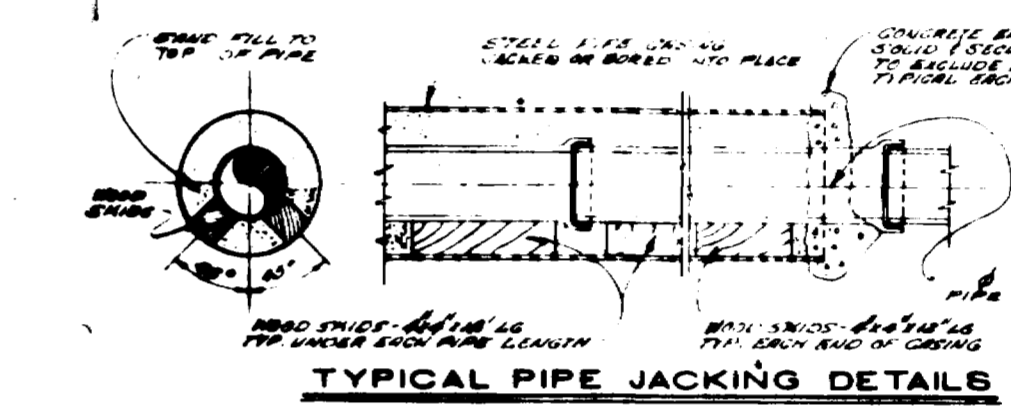


GRAND JUNCTION WEST WATER AND SANITATION DISTRICT  
SANITARY SEWER DETAILS

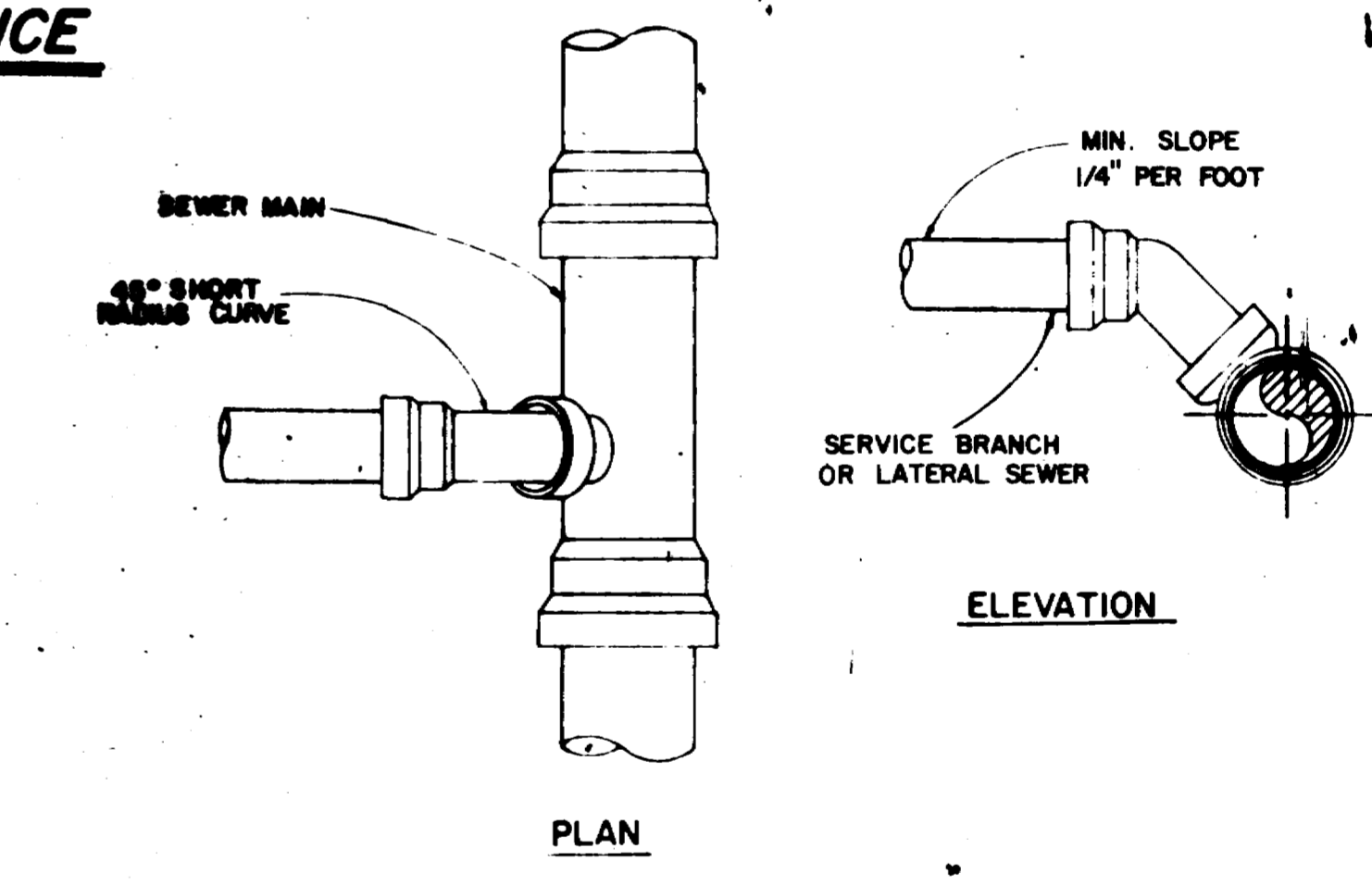
TRANSITE SLEEVE PIPE DIAMETER	SEWER PIPE DIAMETER	LINK SEAL MODEL NO.
10"	6"	10 NO. LS 475 C
14"	10"	10 NO. LS 485 C
16"	12"	12 NO. LS 485 C



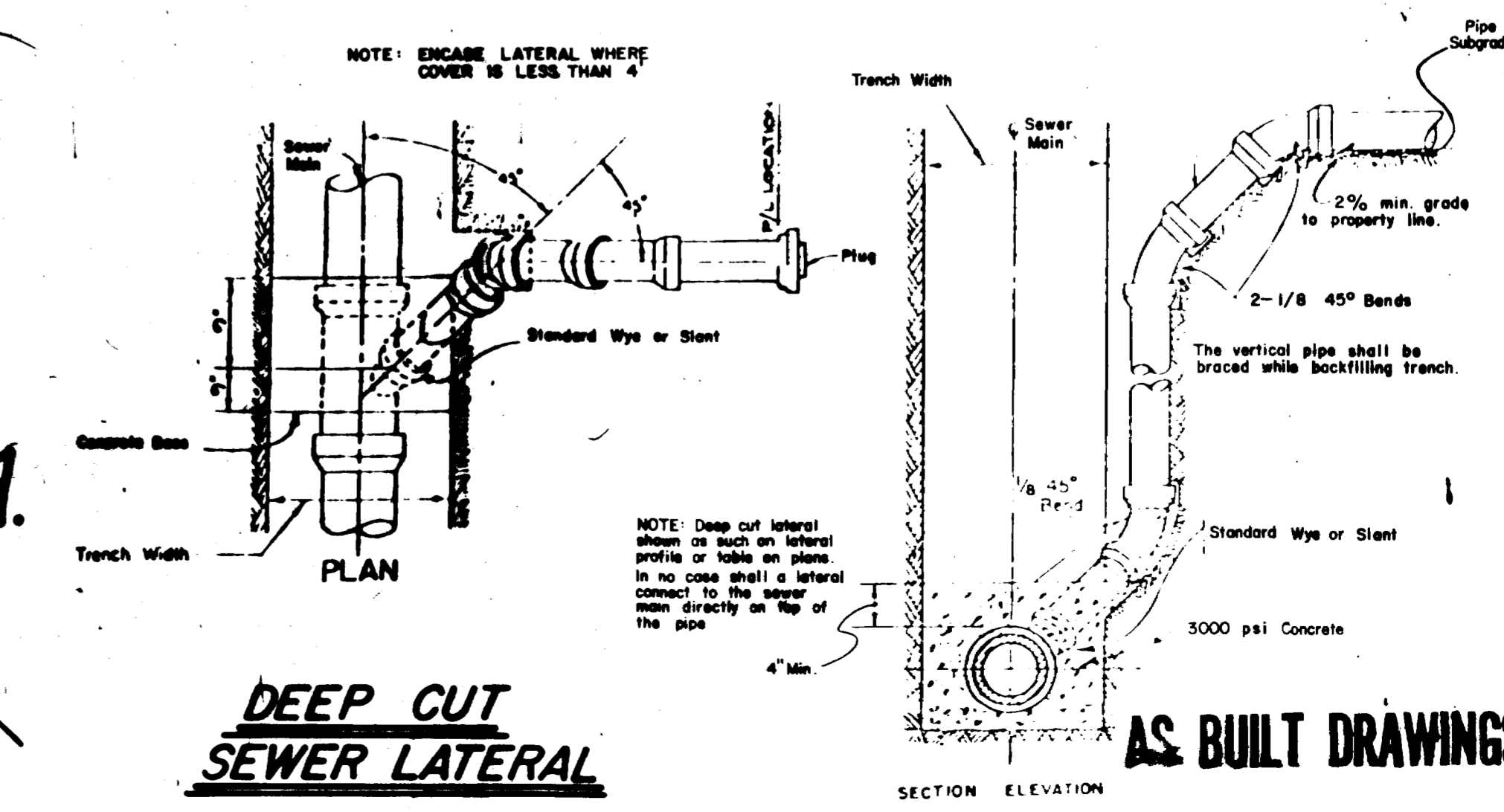
**MANHOLE CONNECTION DETAILS**



**FORCE MAIN & SEWER SERVICE MARKER DETAIL**

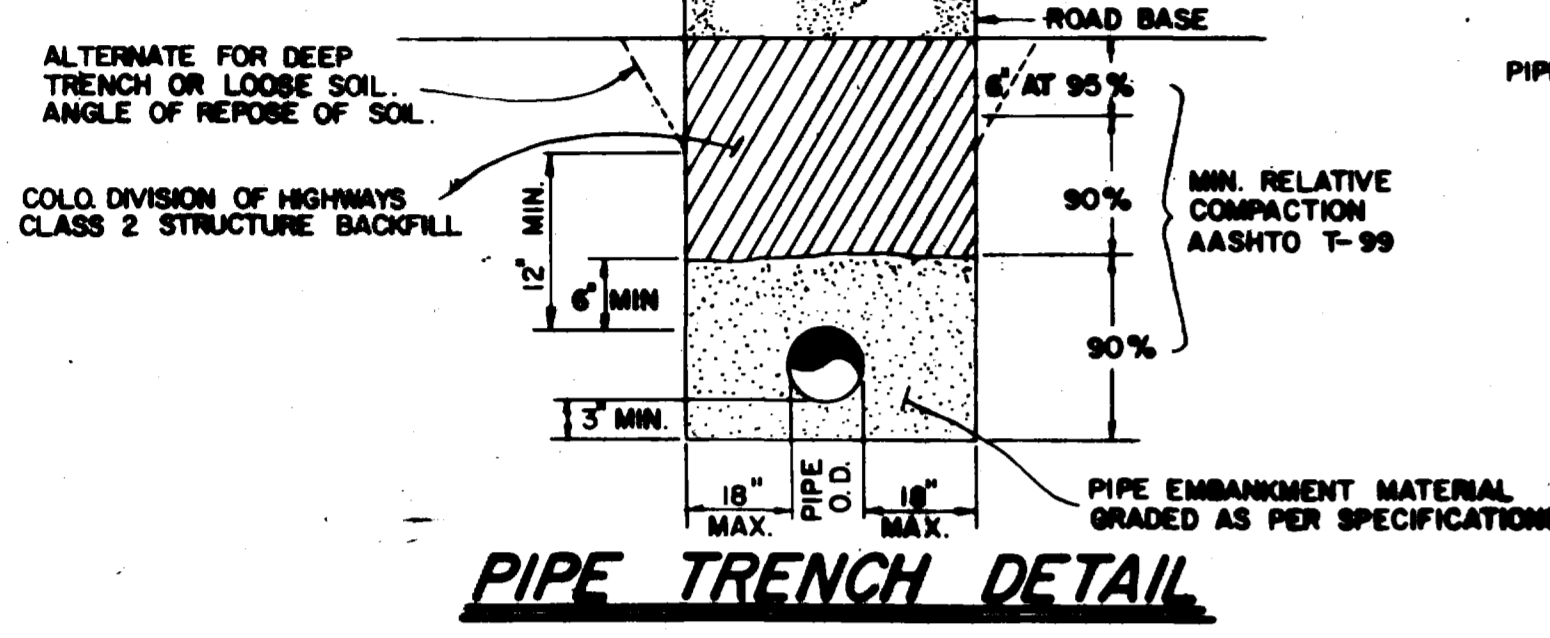


**TYPICAL LATERAL CONNECTION**



**DEEP CUT SEWER LATERAL**

AS BUILT DRAWINGS

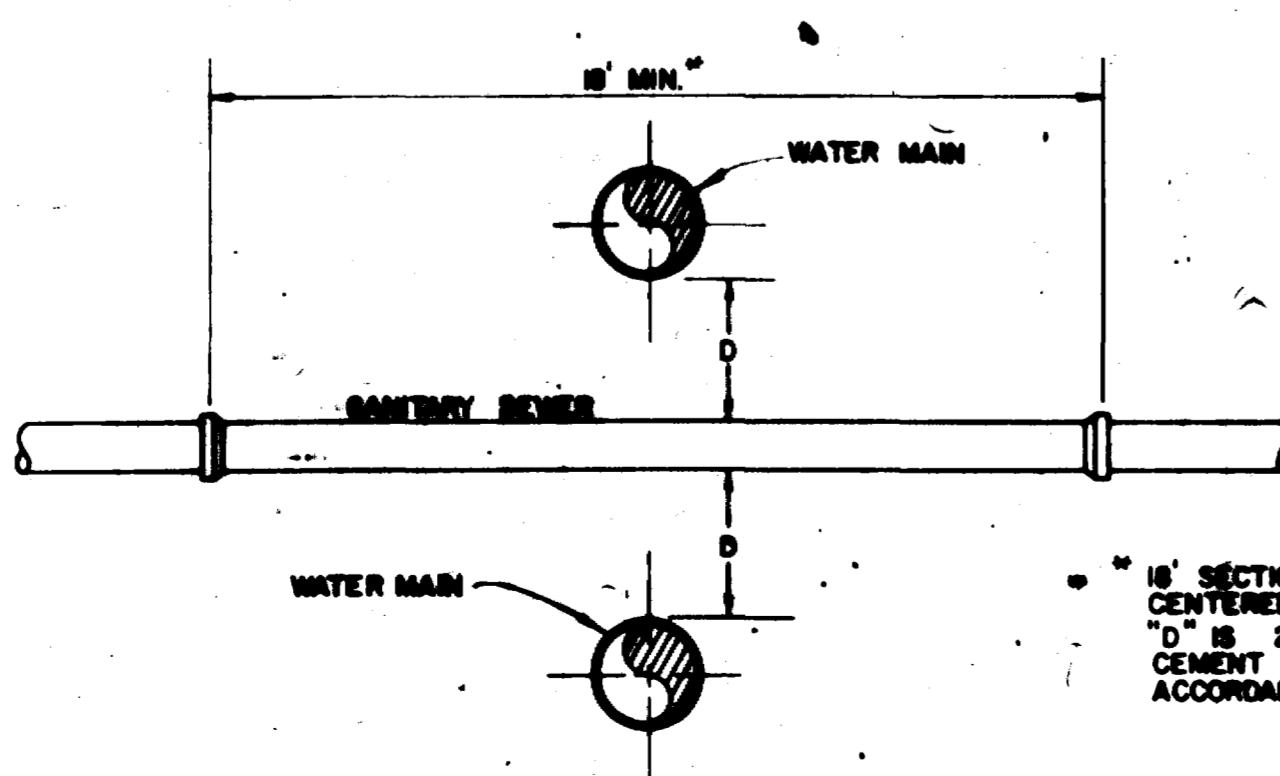
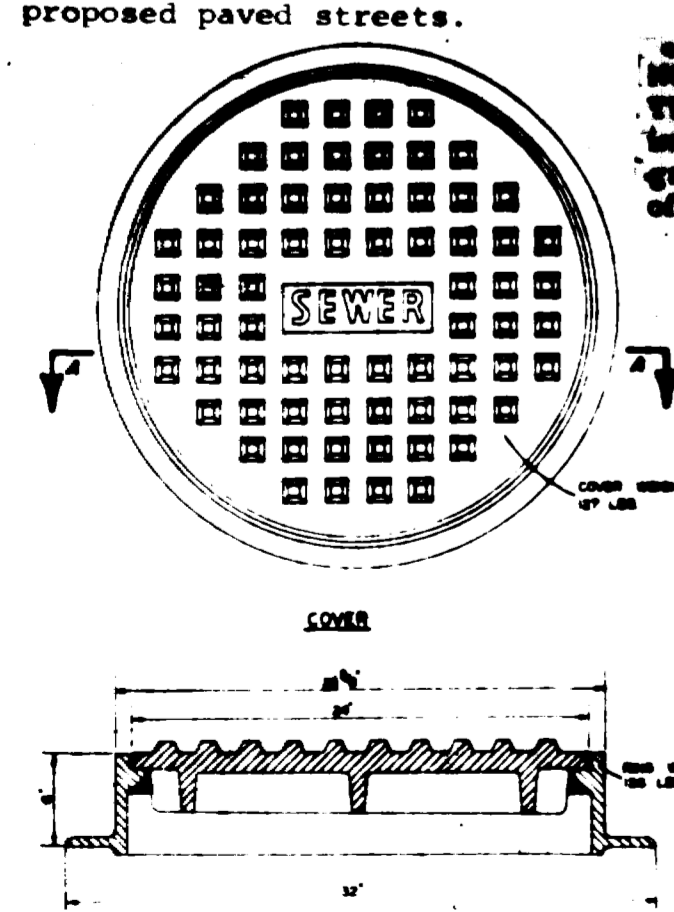
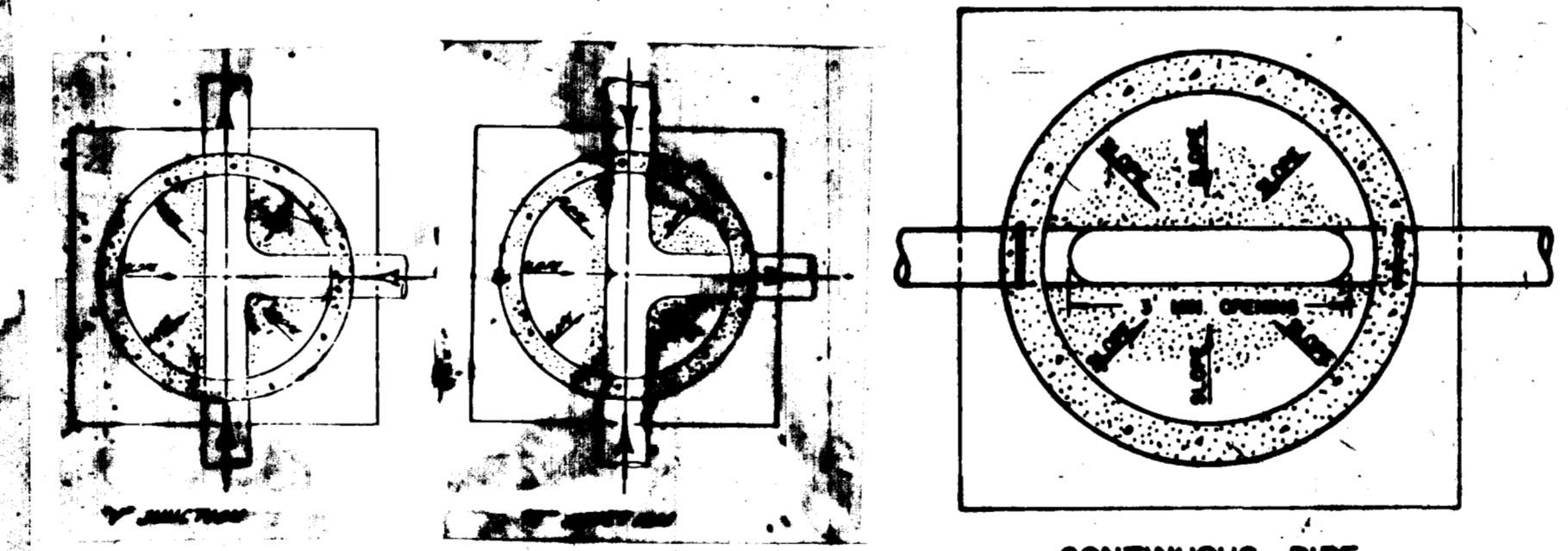


- SEWER WORK NOTES**
- Sewer mains and appurtenances shall be constructed in accordance with these Plans and the current Specifications of the Grand Junction West Water and Sanitation District.
  - All sewer mains shall be constructed with a 5' minimum cover unless otherwise shown. All sewer elevations are invert elevations.
  - ABS plastic pipe, PVC (Poly Vinyl Chloride) mains may be installed in lieu of VCP sewer mains as noted in Specifications. ALL LINES INSTALLED ARE PVC.
  - Work done without District inspection shall be subject to removal.
  - Any "break-ins" or modifications to existing installations shall be made in the presence of the Engineer or his representative.
  - Minimum relative compaction in pipe zone shall be 90%.
  - All mains and laterals shall be subject to testing using the air test or the water method.
  - Each lot shall receive a 4" lateral set a minimum grade of 2% with a minimum drop of 0.3' to the main, and the invert shall be at a depth of 4.0' below finished grade at property line. Unless otherwise noted, the locations shall be determined by the Engineer of work and shall be constructed perpendicular to the main.
  - Fill areas must be compacted to 90% Standard Proctor Density prior to pipe installation.
  - No house laterals to be constructed into manholes.
  - The Contractor is responsible for locating and protecting all buried utilities.
  - The Contractor is to set all manhole rims a minimum of 0.5 feet above existing grade on all manholes not located in existing or proposed paved streets.

- PIPE TRENCH NOTES**
- ALL BACKFILL MATERIAL SHALL BE PLACED FULL WIDTH AND COMPACTED IN 12" MAX. LIFTS TO THE MIN. RELATIVE COMPACTIONS SHOWN IN DETAIL.
  - VERTICAL TRENCH WALLS ARE DESIRED. IF THIS IS NOT PRACTICAL, THE SIDES MAY BE SLOPED BACK FROM THE TOP OF PIPE WHERE APPROVED BY THE ENGINEER.

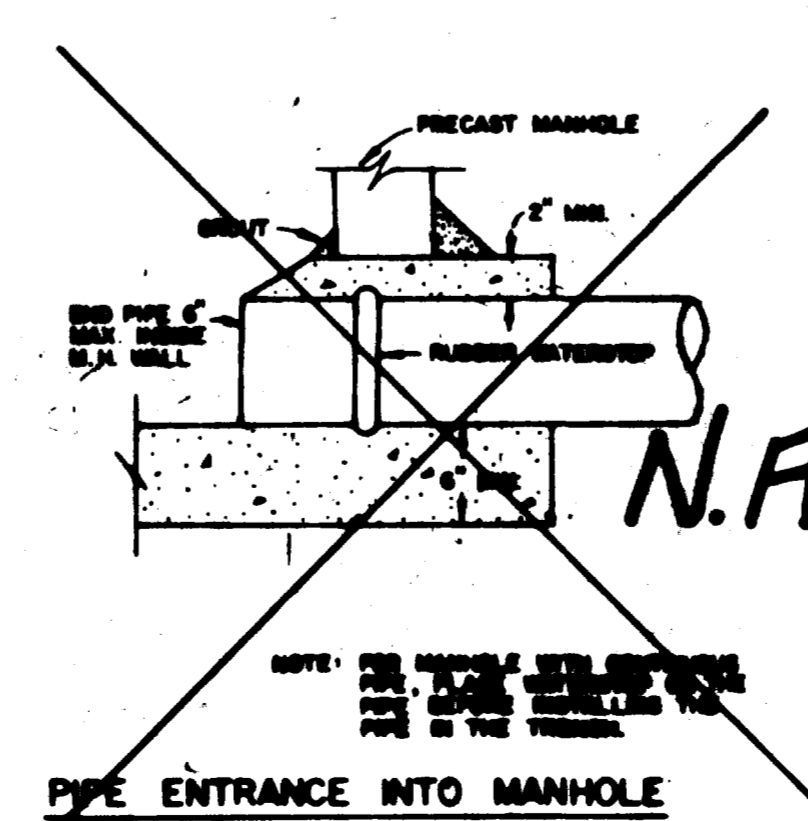
- NOTES:**
- MANHOLE FRAME AND ALL JOINTS SHALL BE SET IN CLASS C MORTAR.
  - ALL PRECAST COMPONENTS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C-476 EXCEPT STEP BRANCHES.
  - VERTICAL WALL OF ONE SHALL BE ON THE UPSTREAM SIDE OF THE MANHOLE.
  - CONCRETE BASE SHALL BE 3000 psi (1) 20 DAYS.
  - APPROVED WATER STOP REQUIRED FOR PLASTIC PIPE CONNECTIONS.
  - FLEXIBLE PIPE JOINTS SHALL BE REMOVED WITHIN 12" OF INSIDE FACE OF MANHOLE.

**STANDARD MANHOLE**



**SANITARY SEWER-WATER MAIN CROSSING**

18" SECTION OF C.I. OR D.I. PIPE CENTERED ON WATER LINE WHEN "D" IS 24" IRON PIPE SHALL BE CEMENT MORTAR LINED IN ACCORDANCE WITH A.W.W.A. C-104



**PIPE ENTRANCE INTO MANHOLE**

02-359-17



02-359-18

**TABLE OF BEARING AREAS IN SQ. FT. FOR CONCRETE THRUST BLOCKING**

SIZE	BENDS				TEES	GATE VALVES	DEAD ENDS
	90°	45°	22 1/2°	11 1/4°			
3	1.0	0.6	0.3	0	0.7	0.5	0.7
4	1.8	1.0	0.5	0	1.3	0.5	1.3
6	4.0	2.2	1.1	0	2.8	0.7	2.8
8	7.1	3.8	2.0	1.0	5.0	2.4	5.0
10	11.1	6.0	3.0	1.5	7.8	4.5	7.8
12	16.0	8.6	4.4	2.2	11.3	7.3	11.3

NOTE: TEE SIZE IS BRANCH SIZE.

AREAS GIVEN IN TABLE ARE BASED UPON INTERNAL STATIC PRESSURE OF 100 P.S.I. AND A SOIL BEARING CAPACITY OF 1,000 LBS. PER SQ. FT.

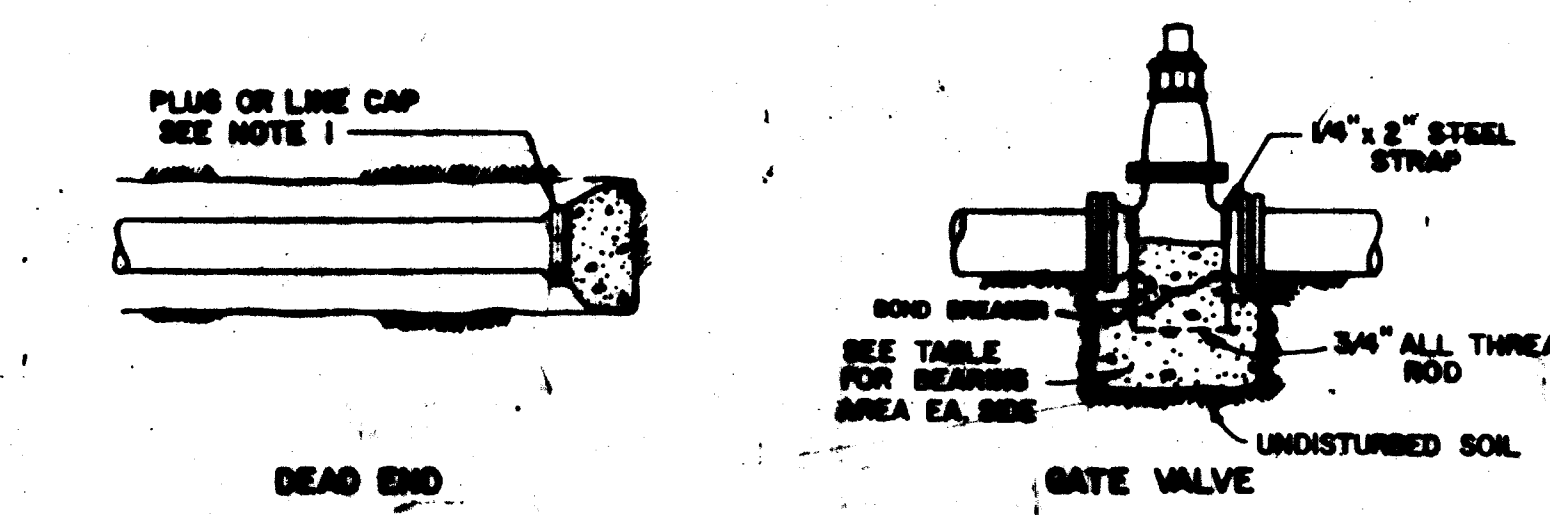
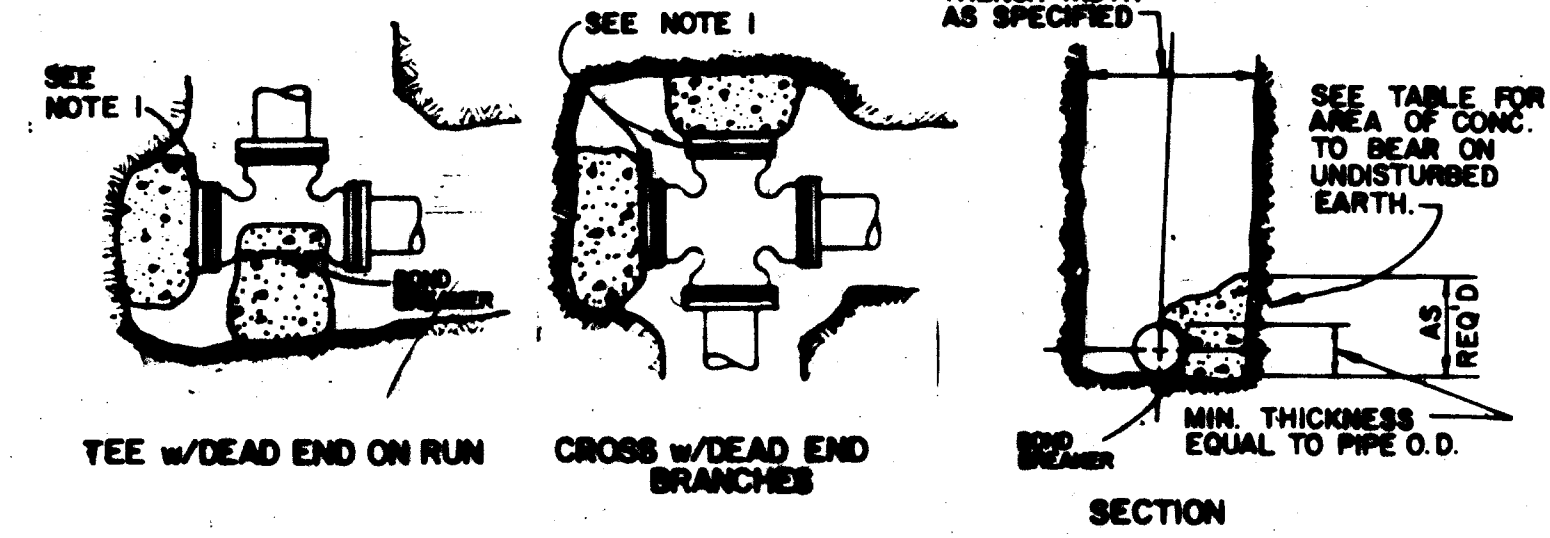
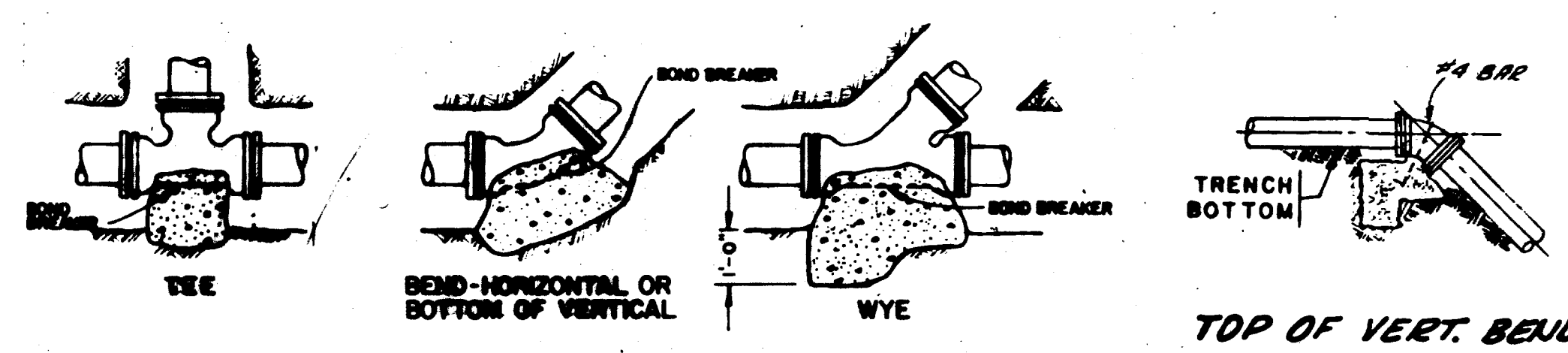
BEARING AREAS FOR ANY PRESSURE AND SOIL BEARING CAPACITY MAY BE OBTAINED BY MULTIPLYING TABULATED VALUES BY A CORRECTION FACTOR "F".

F = ACTUAL SPECIFIED TEST PRESSURE IN HUNDREDS OF LBS. / ACTUAL SOIL BEARING CAPACITY IN THOUSANDS OF LBS.

SOIL BEARING CAPACITIES SHALL BE DETERMINED BY THE ENGINEER.

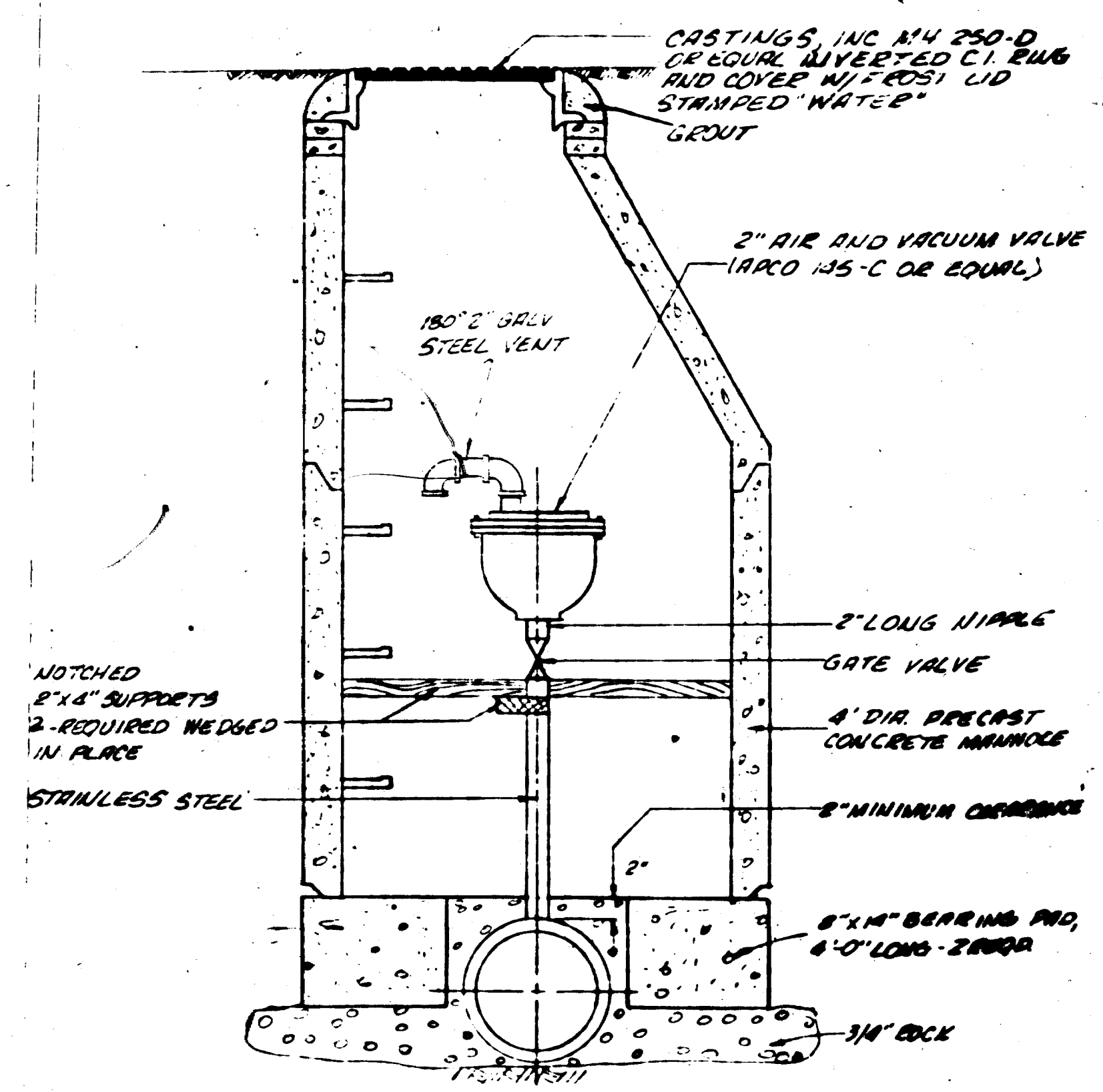
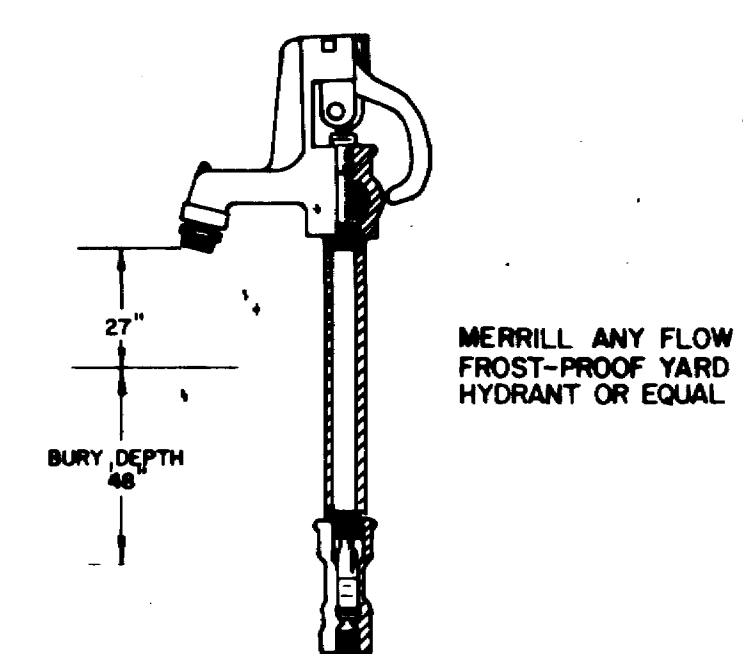
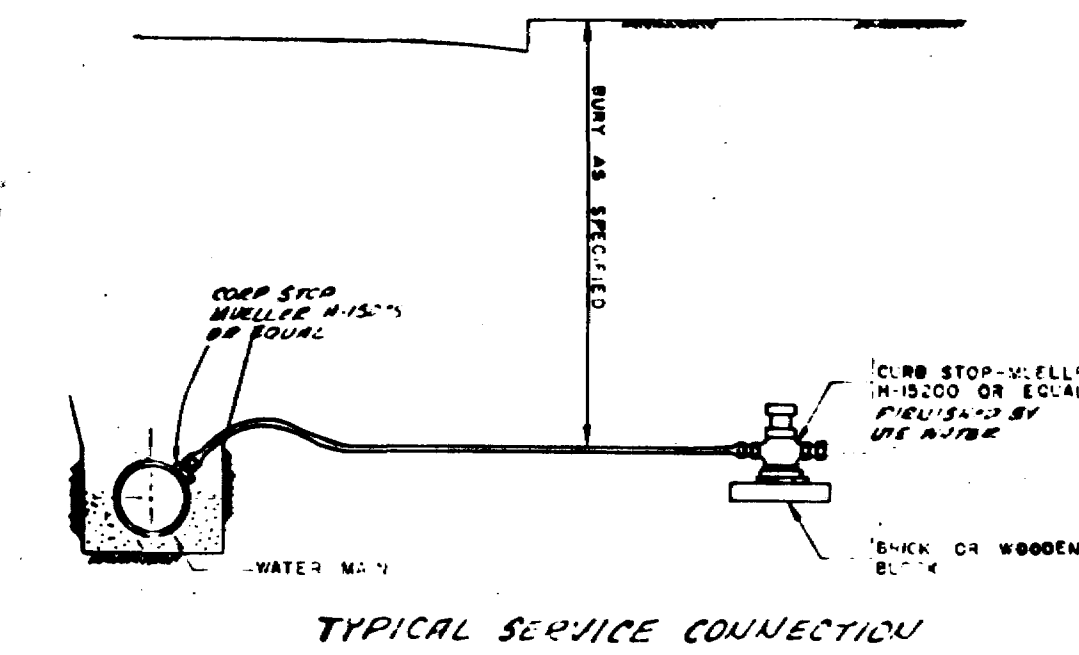
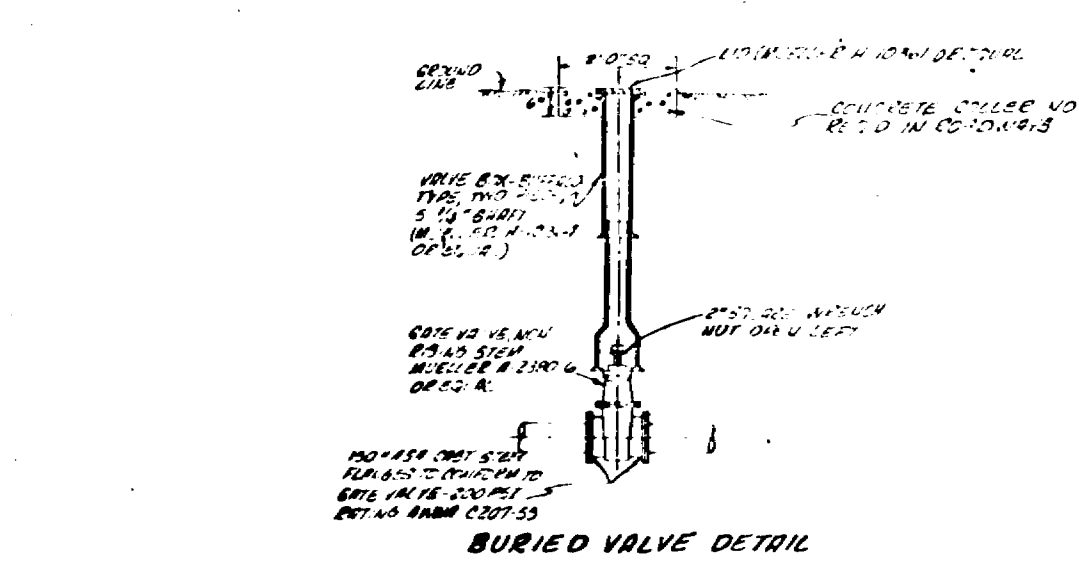
NOTES FOR DRAWINGS

- AT DEAD ENDS, WRAP FITTINGS WITH TAR PAPER, FELT, OR HEAVY KRAFT PAPER TO PROVIDE BOND BREAK BETWEEN CONCRETE AND FITTING.
- ALL THRUST BLOCKING SHALL BE CAST-IN-PLACE CONCRETE HAVING A MINIMUM YIELD STRENGTH OF 3000 P.S.I.
- THRUST BLOCKING SHALL BE CAST AGAINST UNDISTURBED EARTH. FORMS SHALL BE USED AS REQUIRED TO OBTAIN APPROPRIATE BEARING AREA AND TO CONFINE THE CONCRETE. THRUST BLOCKING SHALL BEAR ON THE FITTING OR END CAP ONLY AND SHOULD NOT BE ALLOWED TO SPILL OVER THE JOINT OR AGAINST THE PIPE.

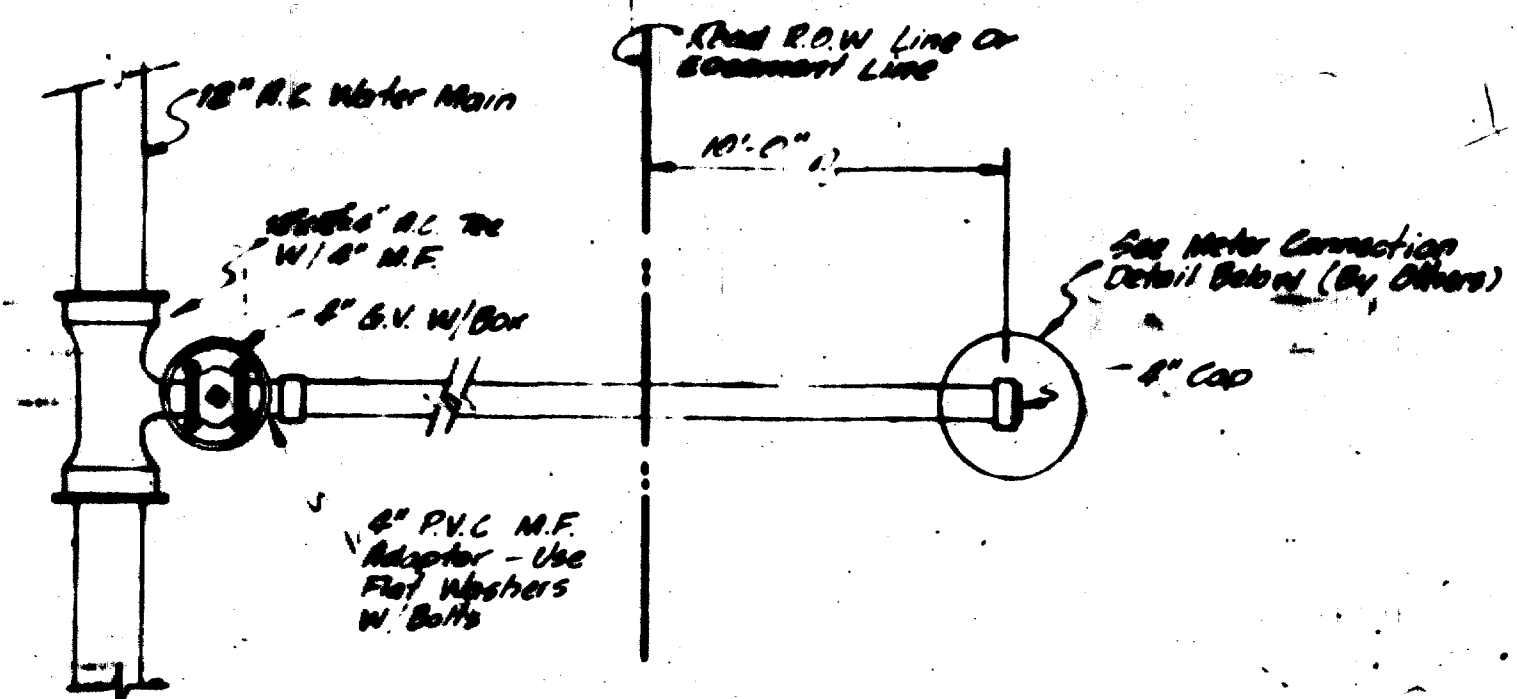


**TABLE OF VOLUMES OF CONCRETE (IN CU. FT.)**

SIZE	BEND		
	45°	22 1/2°	11 1/4°
3	7.8	3.8	1.8
4	13.0	6.6	2.9
6	29.2	15.0	7.4
8	52.0	26.4	13.2
10	81.0	41.4	20.6
12	117.0	60.0	29.6

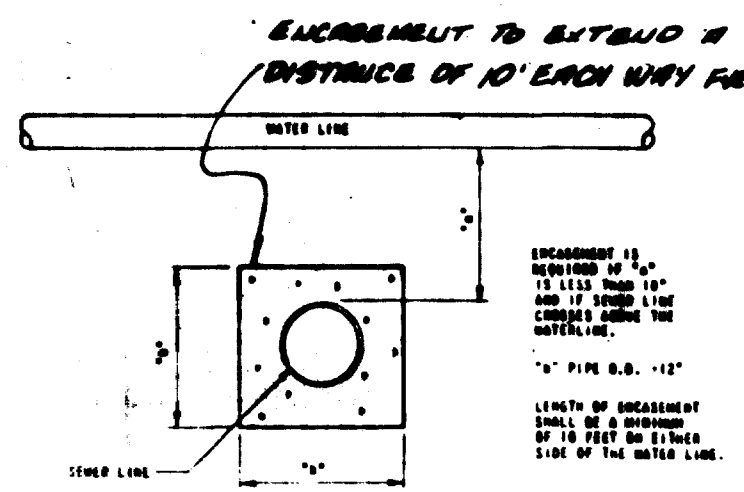


COMBINATION AIR/VACUUM VALVE

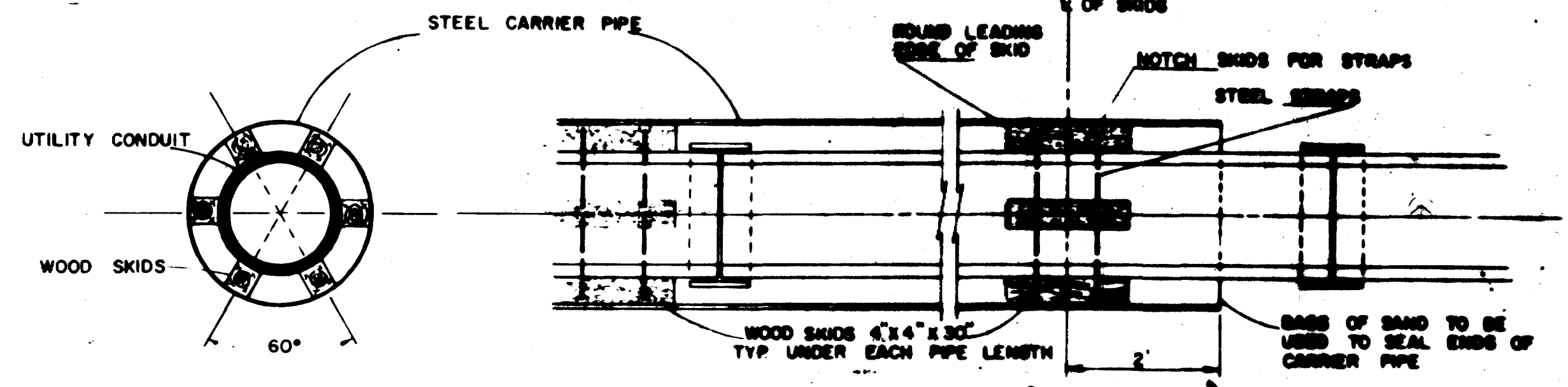


SERVICE CONNECTION DETAIL

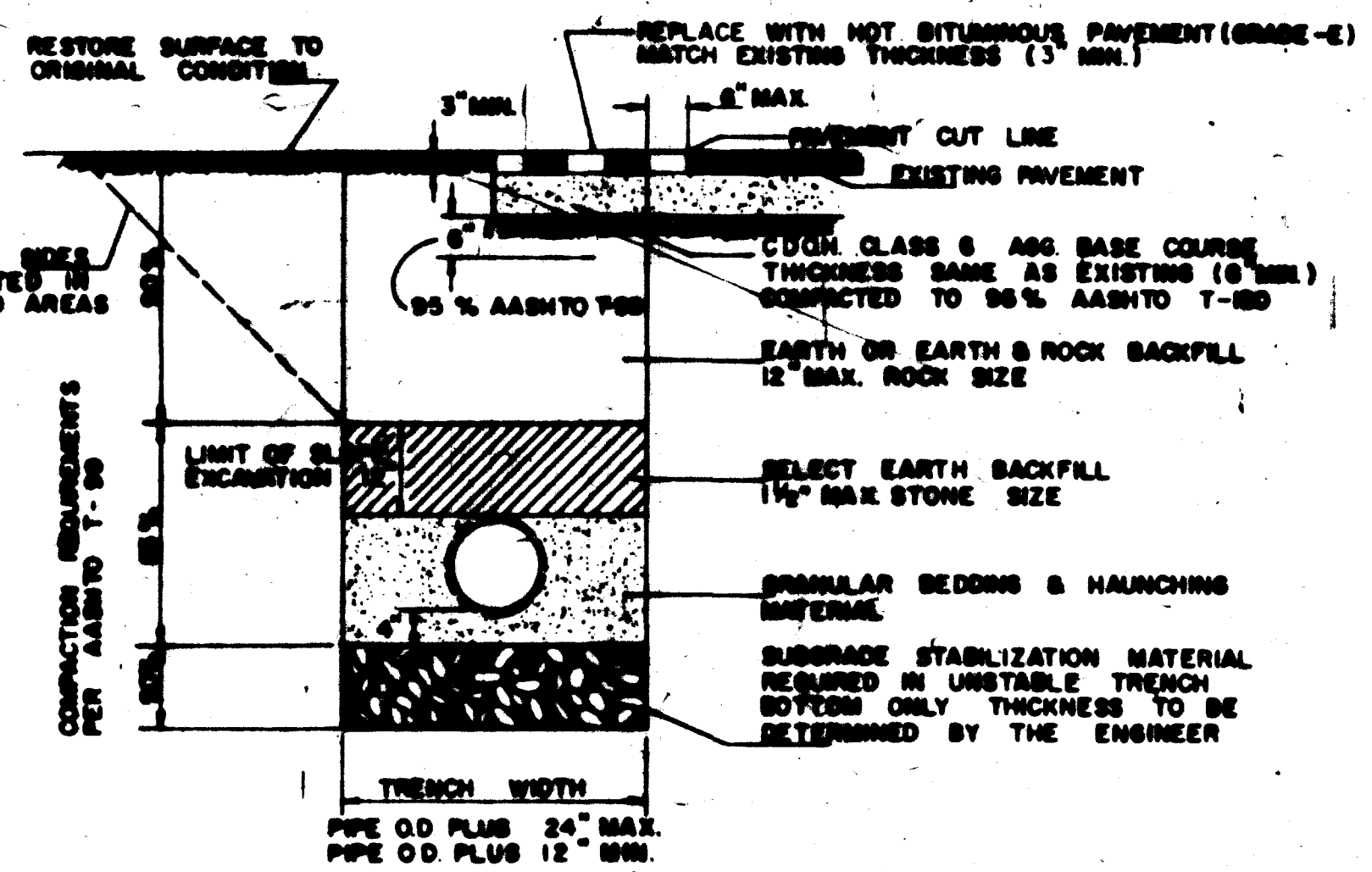
- WATER WORK NOTES**
- Meter mains and appurtenances shall be constructed in accordance with these plans and the current specifications of the Ute Water Conservancy District.
  - Water mains shall have a minimum cover of 48 inches to top of pipe.
  - All water mains shall be Class 150 ACP or as shown on the plans. If PVC (Class 150) is installed at all times minimum cover shall be maintained.
  - Work done without Ute Water inspection shall be subject to removal.
  - No water meters shall be installed by Ute Water Conservancy District until new facilities have been accepted by the District Board Directors.



SEWER LINE ENCASEMENT DETAIL



PIPE JACKING AND ENCASEMENT DETAIL



**PERCENT BY WEIGHT PASSING SQUARE MESH SIEVES**

SIEVES SIZE	SUBGRADE STABILIZATION MATERIAL	
	GRANULAR BEDDING AND HAUNCHING MATERIAL	SUBGRADE STABILIZATION MATERIAL
4 INCH	100	100
1 INCH	100	100
No. 200	0-12	0-15

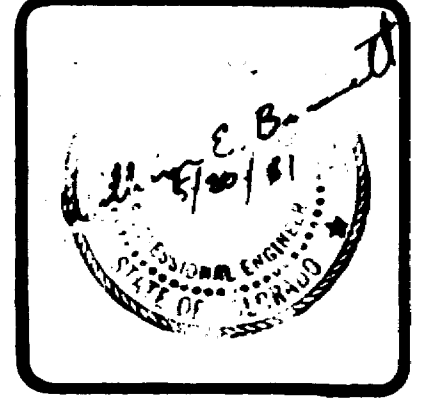
ALL BACKFILL MATERIAL SHALL BE PLACED FULL WIDTH IN 12" MAX. LIFTS AND COMPACTED TO THE MIN. RELATIVE DENSITIES SHOWN

NOTE: This is to certify that the system infiltration does not exceed 200 gallons per inch diameter per mile of length per day.

CHECKED  
W.E.B.  
DATE  
APRIL, 1981  
W.J.C.  
SCALE  
NO SCALE

REVISIONS BY  
AS BUILTS  
6-18-82  
PSK

**PARAGON ENGINEERING, INC.**  
P.O. Box 2872  
Grand Junction, Colorado 81501 (303) 243-1996



GRAND JUNCTION WEST WATER AND SANITATION DISTRICT  
DOMESTIC WATER DETAILS

SHEET  
18  
OF 18 SHEETS