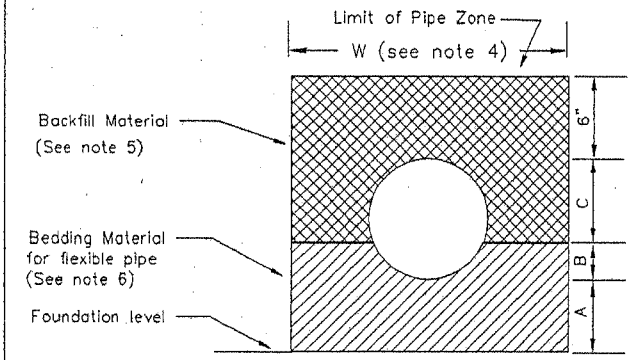
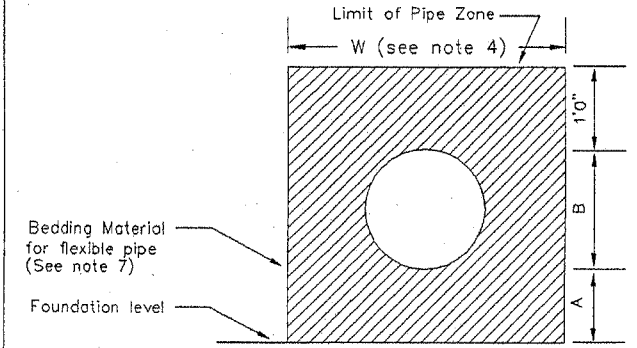


(Class A design)



(Class B, C, D design)  
BEDDING FOR RIGID PIPE



(Class F design)  
BEDDING FOR FLEXIBLE PIPE

BEDDING CLASS DESIGN

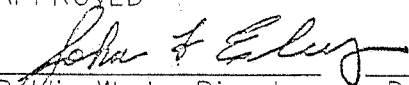
DIMENSION	CLASS A	CLASS B	CLASS C	CLASS D	CLASS F
A	4" MIN 1/4" I.D. 12" MAX	*	*	*	*
B	1/4 O.D.	1/2 O.D.	1/8 O.D.	Zero	O.D.
C	3/4 O.D.	1/2 O.D.	7/8 O.D.	O.D.	-

\*A = 4" MIN, 27" I.D. and under; 6" MIN, over 27" I.D.

NOT TO SCALE

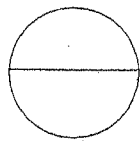
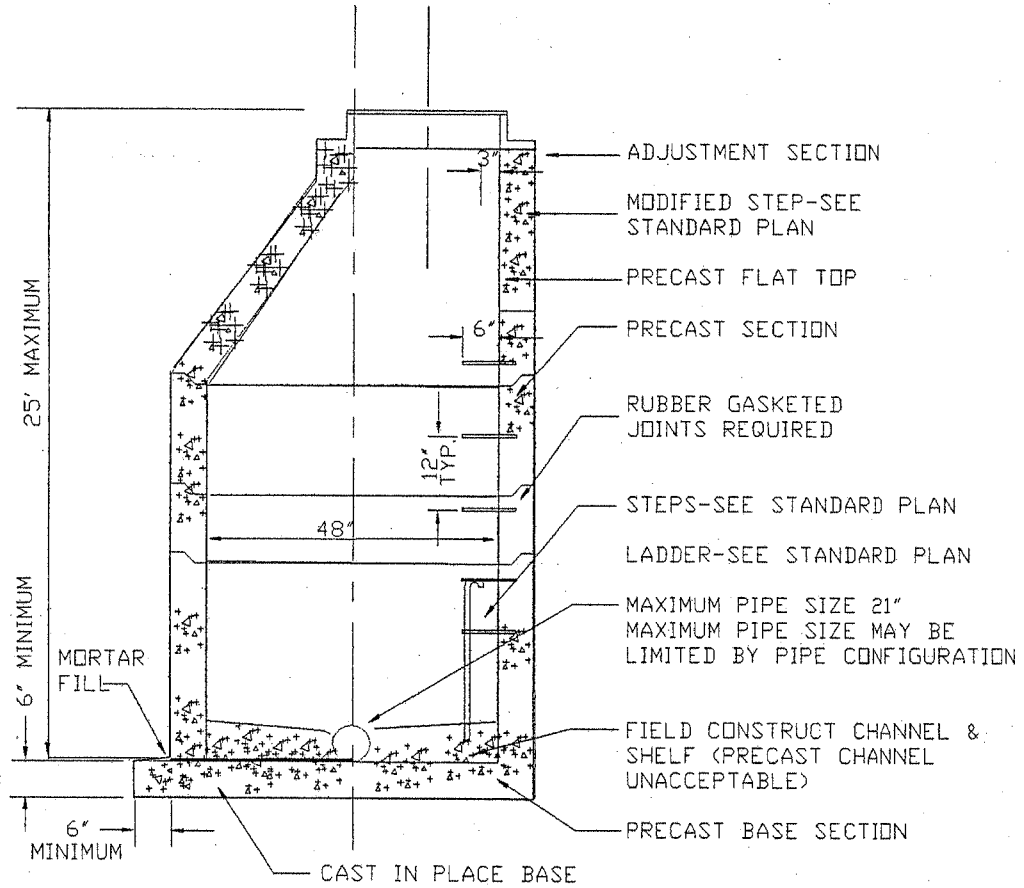
NOTES:

1. Provide uniform support under barrel.
2. Hand tamp under haunches.
3. Compact bedding material to 95% MAX density except directly over pipe, hand tamp only.
4. See "Excavation and Preparation of Trench" in the Sanitary Sewers section of the Standard Specifications for trench width "W" and trenching options. The pipe zone will be the actual trench width, except for Class A bedding. The minimum concrete width shall be 1 1/2" I.D. + 18".
5. Trench backfill shall conform to "Backfilling Sewer Trenches" in the Sanitary Sewers section of the Standard Specifications, except that rocks or lumps larger than 1" per foot of pipe diameter shall not be used in the backfill material.
7. See "Bedding Material for Flexible Pipe" in the Aggregates section of the Standard Specifications for the material specifications.
8. Pipe must be anchored in such a manner as to ensure flow line is maintained.

APPROVED  
  
 Public Works Director Date

CITY OF FERNDALE  
 PIPE BEDDING FOR  
 SANITARY SEWERS

DRAWING  
 SS-1



TYPE 1 - 48" MANHOLE

NTS

NOT TO SCALE

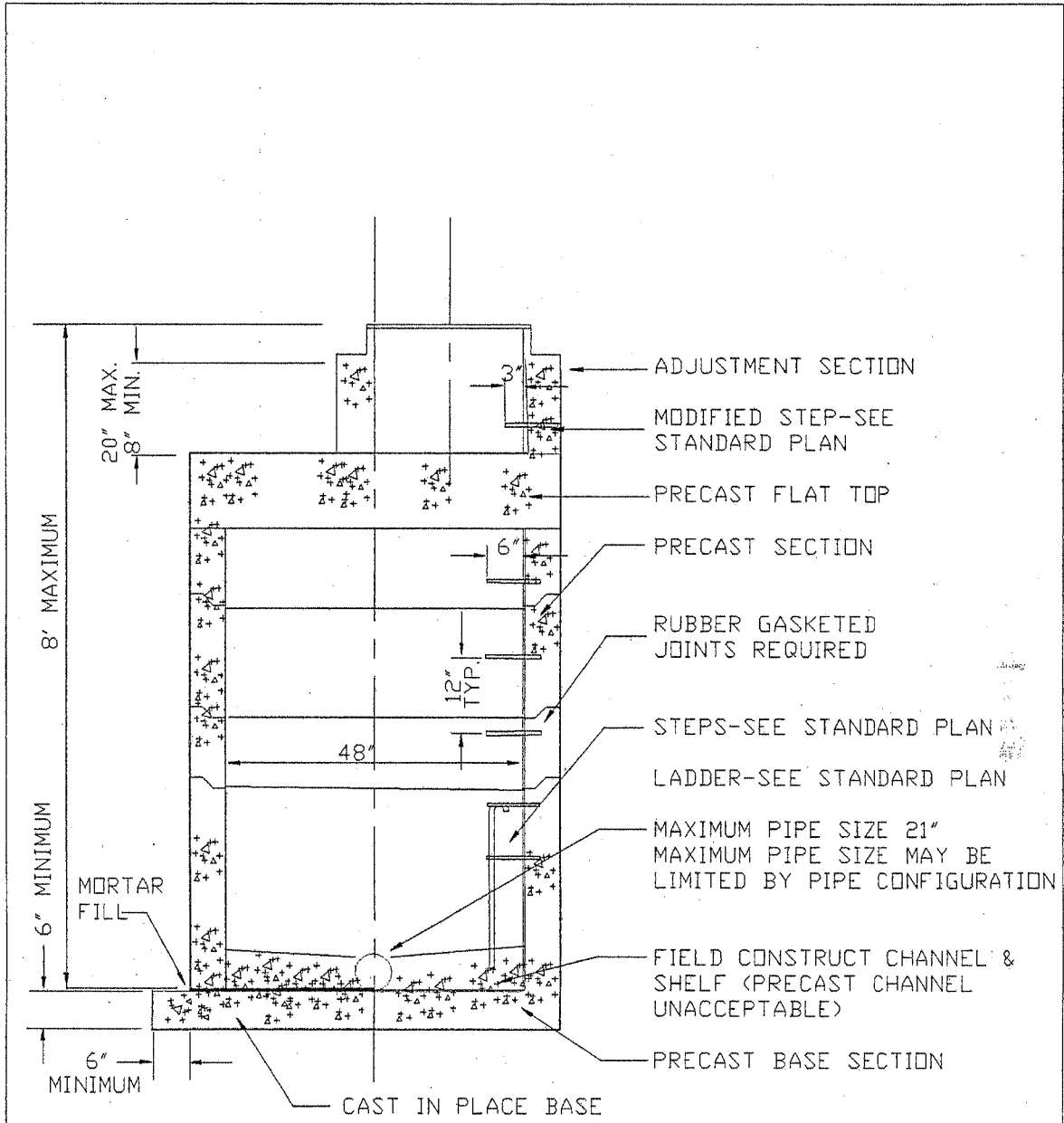
APPROVED

*John F. Ealey*  
Public Works Director Date

CITY OF FERNDALE  
TYPE 1 48" MANHOLE

DRAWING  
SS-2

JANUARY 1993



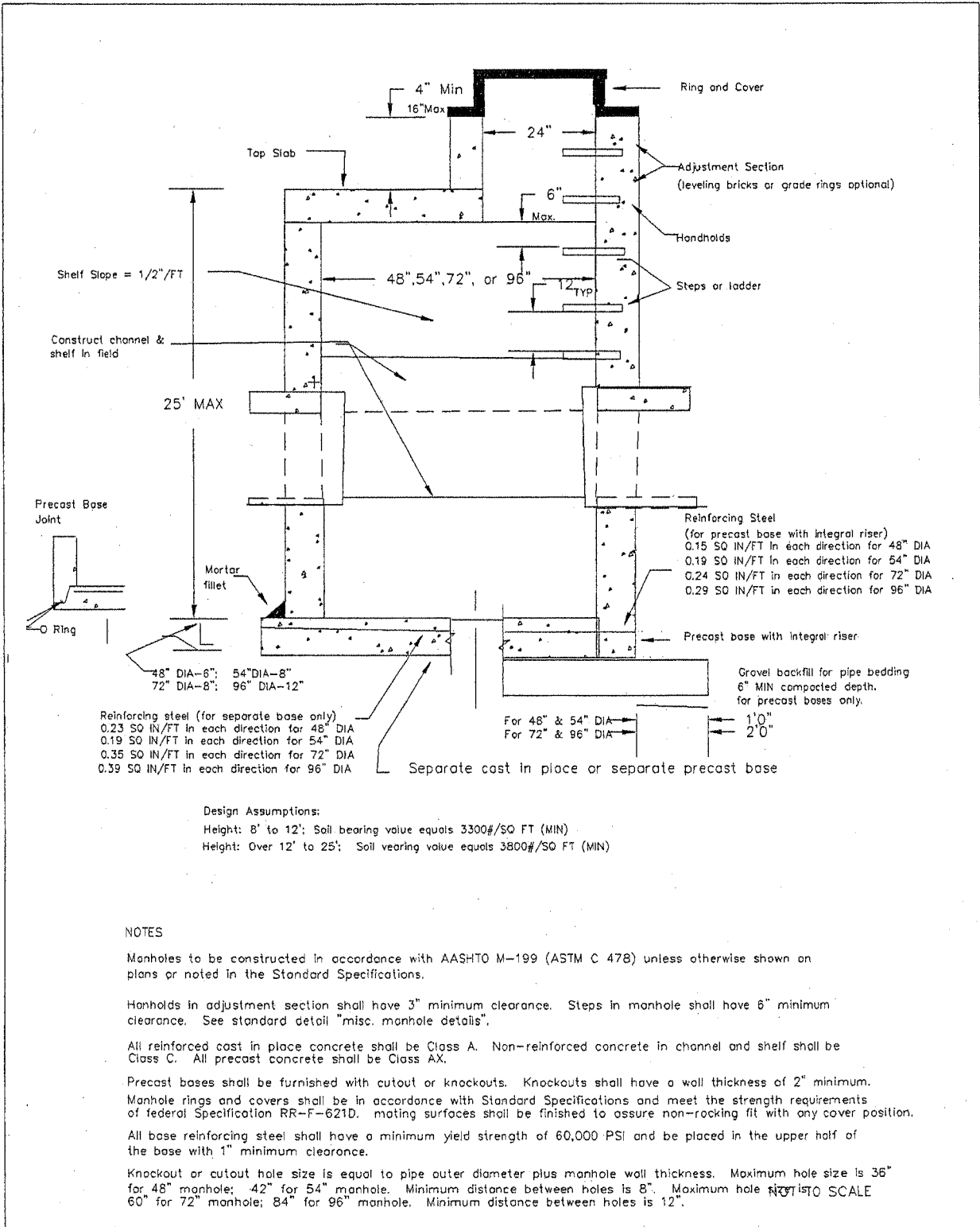
TYPE II - 48" MANHOLE

MANHOLE

NOT TO SCALE

<p>APPROVED  <i>John F. Ealey</i>          Public Works Director Date</p>	<p>CITY OF FERDALE          TYPE II 48" MANHOLE</p>	<p>DRAWING          SS-3</p>
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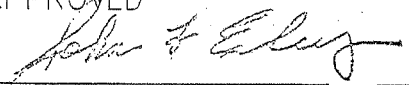
JANUARY 1993



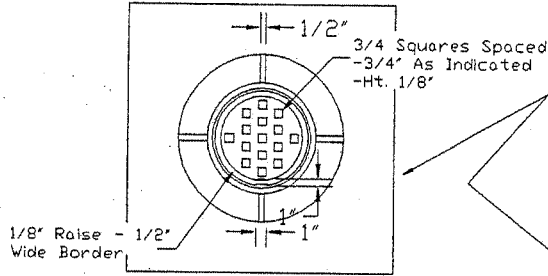
Design Assumptions:  
 Height: 8' to 12'; Soil bearing value equals 3300#/SQ FT (MIN)  
 Height: Over 12' to 25'; Soil bearing value equals 3800#/SQ FT (MIN)

NOTES

- Manholes to be constructed in accordance with AASHTO M-199 (ASTM C 478) unless otherwise shown on plans or noted in the Standard Specifications.
- Handholds in adjustment section shall have 3" minimum clearance. Steps in manhole shall have 6" minimum clearance. See standard detail "misc. manhole details".
- All reinforced cast in place concrete shall be Class A. Non-reinforced concrete in channel and shelf shall be Class C. All precast concrete shall be Class AX.
- Precast bases shall be furnished with cutout or knockouts. Knockouts shall have a wall thickness of 2" minimum. Manhole rings and covers shall be in accordance with Standard Specifications and meet the strength requirements of federal Specification RR-F-621D. mating surfaces shall be finished to assure non-rocking fit with any cover position.
- All base reinforcing steel shall have a minimum yield strength of 60,000 PSI and be placed in the upper half of the base with 1" minimum clearance.
- Knockout or cutout hole size is equal to pipe outer diameter plus manhole wall thickness. Maximum hole size is 36" for 48" manhole; 42" for 54" manhole. Minimum distance between holes is 8". Maximum hole size is 60" for 72" manhole; 84" for 96" manhole. Minimum distance between holes is 12".

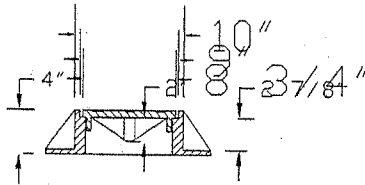
APPROVED  Public Works Director      Date	CITY OF FERNDALE TYPE 3 MANHOLE 48", 54", 72" & 96"	DRAWING SS-4
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2' SQUARE CONCRETE BLOCK TO ENCASE CLEAN-OUT. IN AREAS WHERE CLEAN-OUT OCCURS IN ASPHALT, THIS BLOCK IS TO BE LEFT APPROX. 1 1/2' LOW TO ALLOW FOR AN ASPHALT TOPPING OF LIKE MIXTURE AS THE SURROUNDING AREA. IF CLEAN-OUT OCCURS IN CONCRETE OR IN SOME TYPE OF SOIL, THE BLOCK IS TO BE MADE THE FULL 1' DEPTH AND FLUSH WITH THE SURROUNDING SURFACE.



CLEAN-OUT LIDS WHICH INCORPORATE A "GRAB BAR" FOR EASY LID REMOVAL ARE NO LONGER ALLOWED. LIDS SIMILAR TO THE VIEW AT LEFT OR THEIR EQUIVALENT ARE TO BE USED.

NOT NECESSARY TO BOND COVER PIPE TO RING AT THIS POINT. BUT TO RING AND ENCASE IN CONCRETE BLOCK.



CAST IRON RING AND COVER  
MONUMENT RING AND COVER  
NOT ACCEPTABLE.

Pipe Material  
As Specified

ROPE OFF SUFFICIENT  
DIAMETER TO SEAL  
JOINT IS O.K.  
(1"± CLEARANCE)

Fiber Joint  
Packing

1/8 Bend

PLACE PIPE ON  
UNDISTURBED SOIL  
IN AREA BETWEEN  
BENDS

Plug To Be Sealed In  
Same Manner As Main  
Sewer Joints.

DO NOT SCALE

SSCD 04/30/92 16:17

NOT TO SCALE

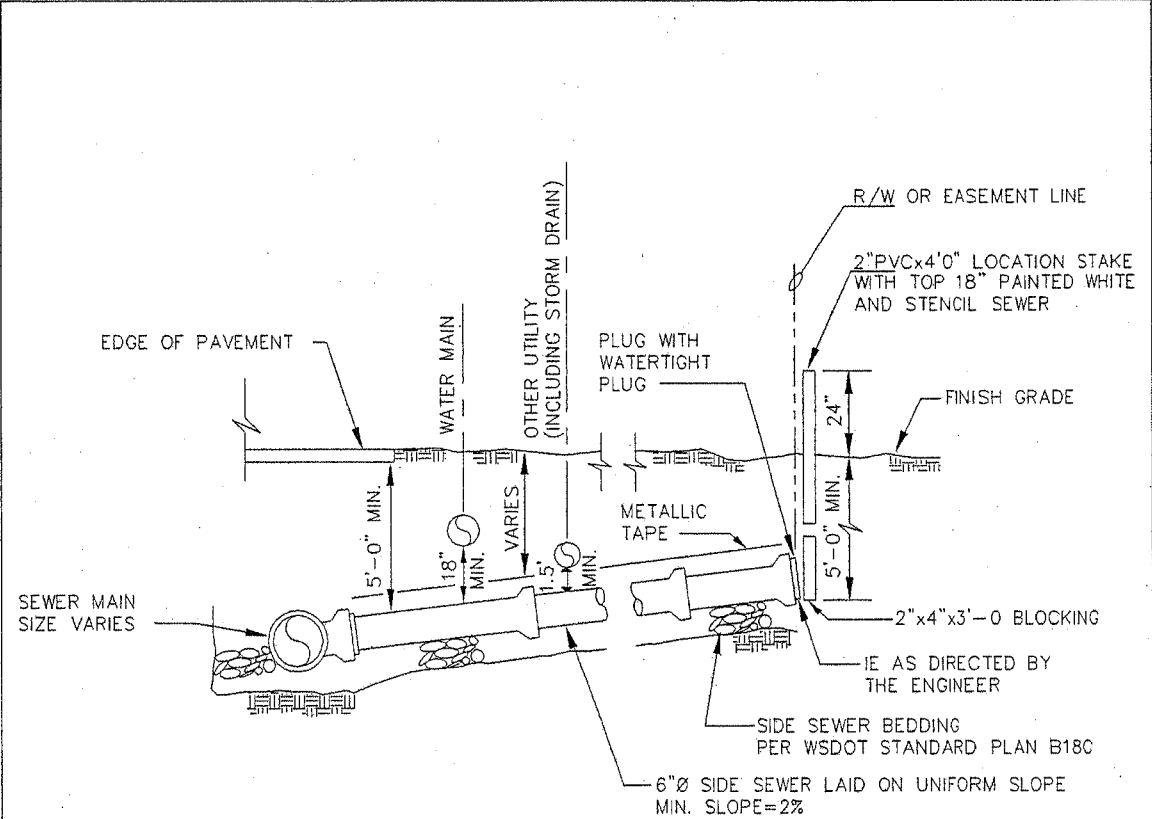
APPROVED

*John F. Elmer*  
Public Works Director Date

CITY OF FERNDALE  
8" CLEAN OUT

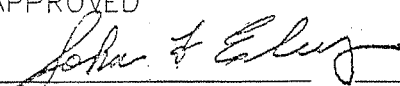
DRAWING  
SS-5

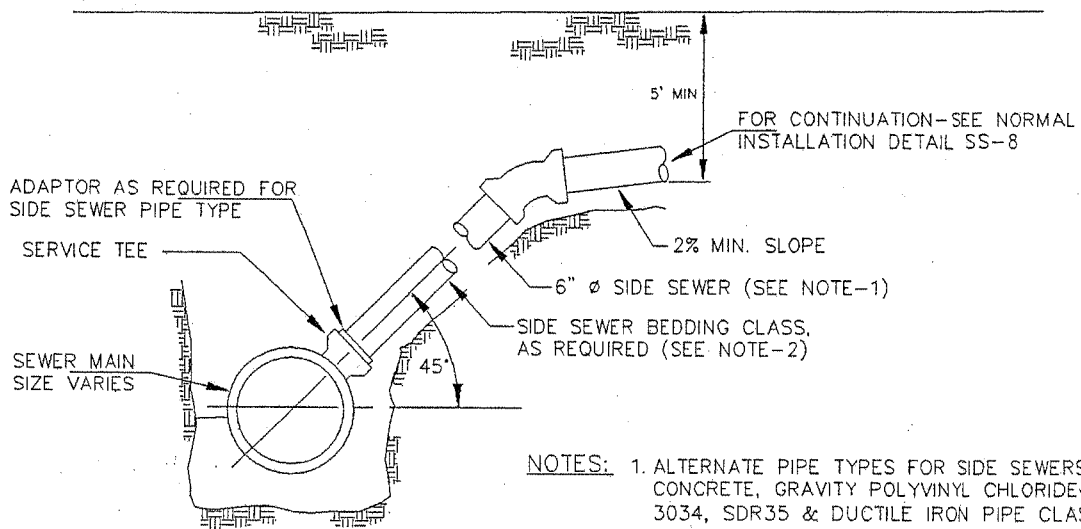
JANUARY 1993



NORMAL INSTALLATION SIDE SEWER  
15" AND SMALLER

NOT TO SCALE

<p>APPROVED            Public Works Director      Date</p>	<p>CITY OF FERNDALE          NORMAL INSTALLATION          15" AND SMALLER SEWER MAINS</p>	<p>DRAWING          SS-6</p>
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- NOTES:
1. ALTERNATE PIPE TYPES FOR SIDE SEWERS ARE CONCRETE, GRAVITY POLYVINYL CHLORIDE-ASTM 3034, SDR35 & DUCTILE IRON PIPE CLASS 50
  2. BEDDING FOR CONCRETE SHALL BE CLASS-B  
BEDDING FOR POLYVINYL SHALL BE CLASS-B  
BEDDING FOR DUCTILE IRON SHALL BE CLASS-B

NORMAL INSTALLATION  
18" AND LARGER MAINS

NOT TO SCALE

SIDE SEWER

NOT TO SCALE

APPROVED

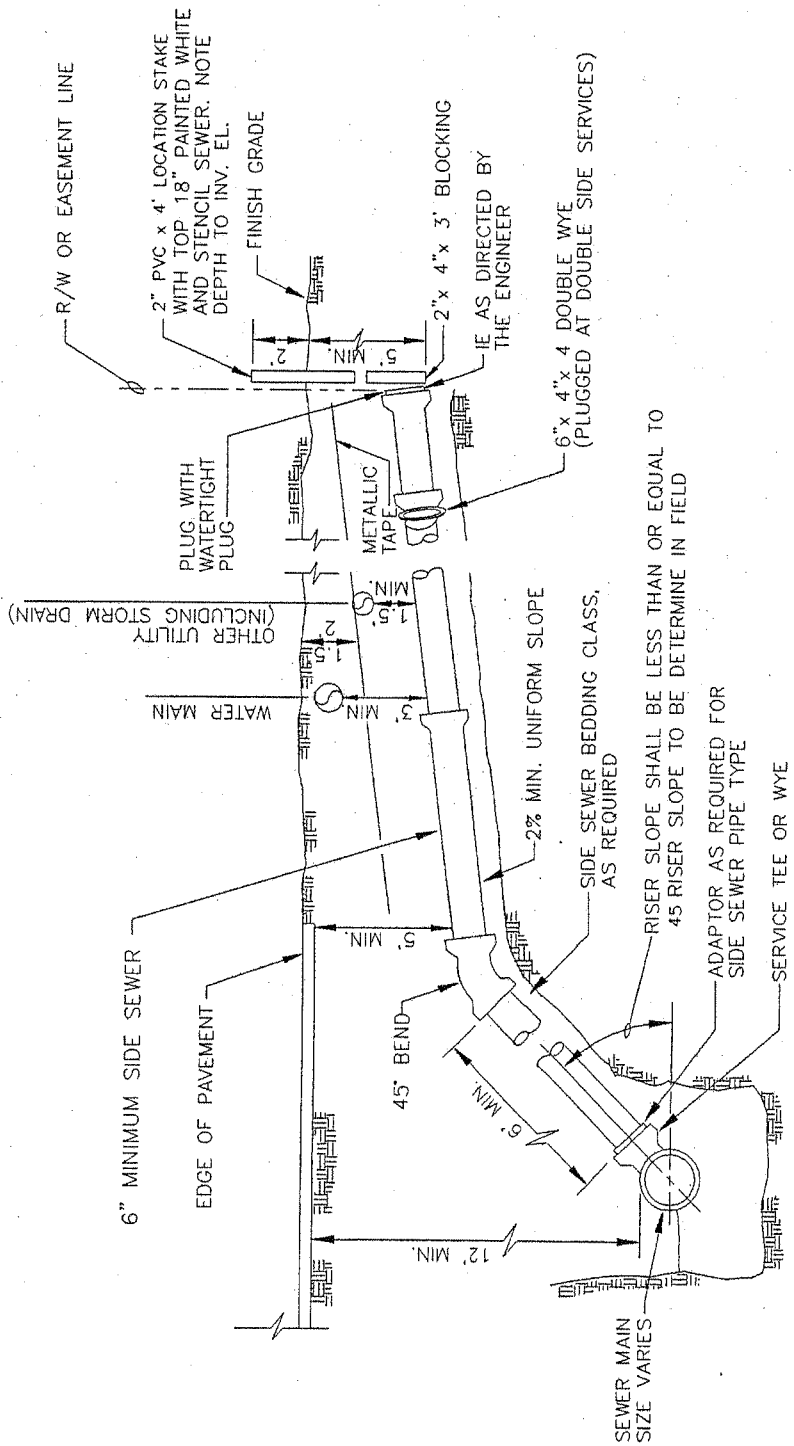
*[Signature]*  
Public Works Director Date

CITY OF FERNDALE  
NORMAL SANITARY SEWER SERVICE  
INSTALLATION  
18" AND LARGER MAINS

DRAWING  
SS-7

JUNE 1995

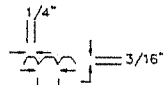
2091SE3A/SS-7



APPROVED  
*John T. Ealey*  
 Public Works Director Date

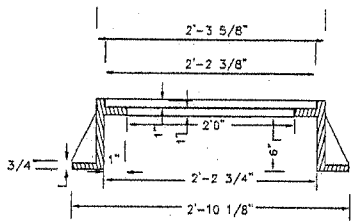
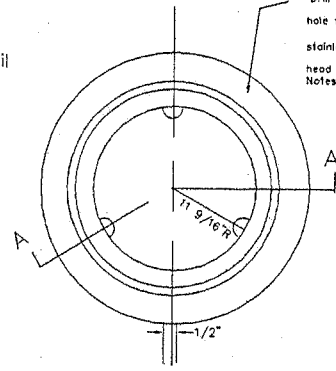
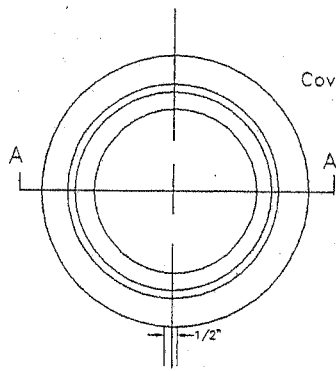
CITY OF FERNDALE  
 SANITARY SEWER  
 SIDE SERVICE INSTALLATION  
 DEEP MAINS

DRAWING  
 SS-8

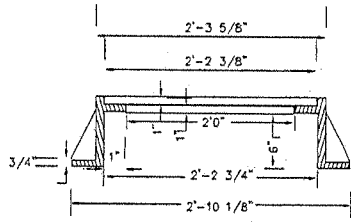


Cover Skid Design Detail

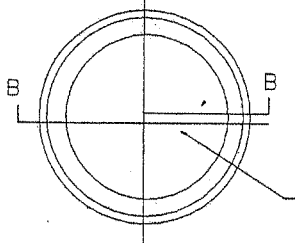
Drill & tap 5/8" x 11 hole for 1 1/2" x 5/8" stainless steel socket head cap screw  
Notes



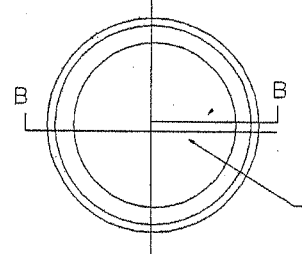
SECTION A - A



SECTION A - A

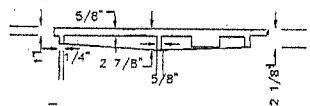
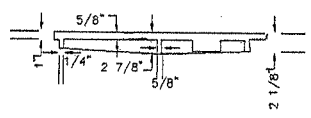


SECTION B - B  
TYPE 1  
STANDARD



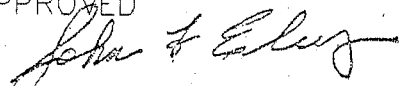
SECTION B - B  
TYPE 2

BOLT DOWN/WATERTIGHT



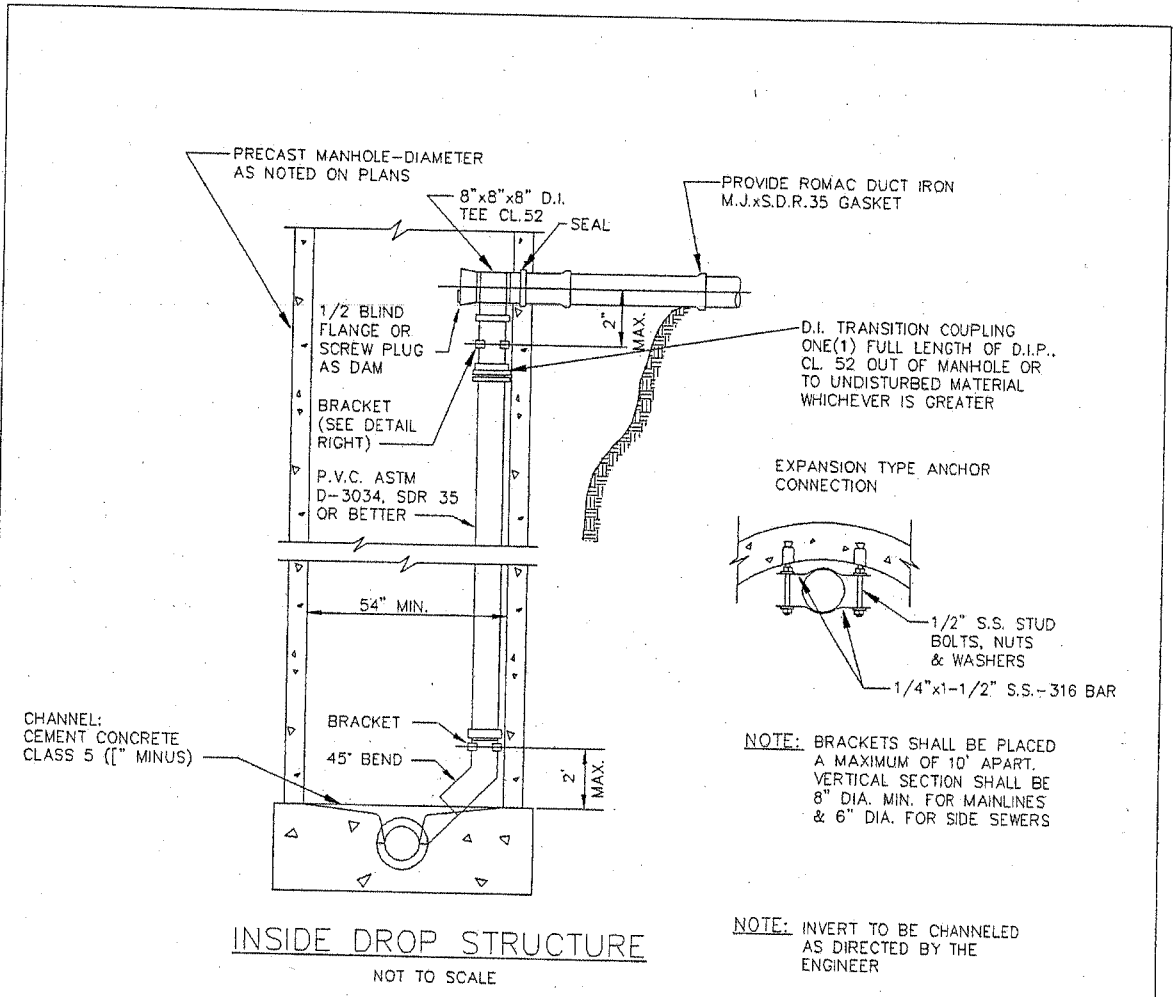
- Notes**
- Gasket and groove may be in the seat or underside of cover.
  - For bolt down manhole ring and covers that are not watertight, the neoprene gasket, groove and washer are not required.
  - Washer shall be lead or neoprene.
  - Unless otherwise shown on the Plans, or specified in the Special provisions, Type 1, Standard Manhole Rings and Covers shall be used on WSDOT contracts.
  - In lieu of blind pick notch for storm sewer manhole covers, drill three 1 inch diameter holes at 120 degree spacing.

NOT TO SCALE

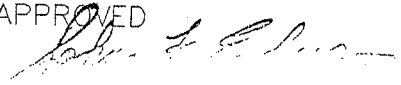
APPROVED  
  
 Public Works Director      Date

CITY OF FERNDALE  
 MANHOLE RING & COVER

DRAWING  
 SS-9

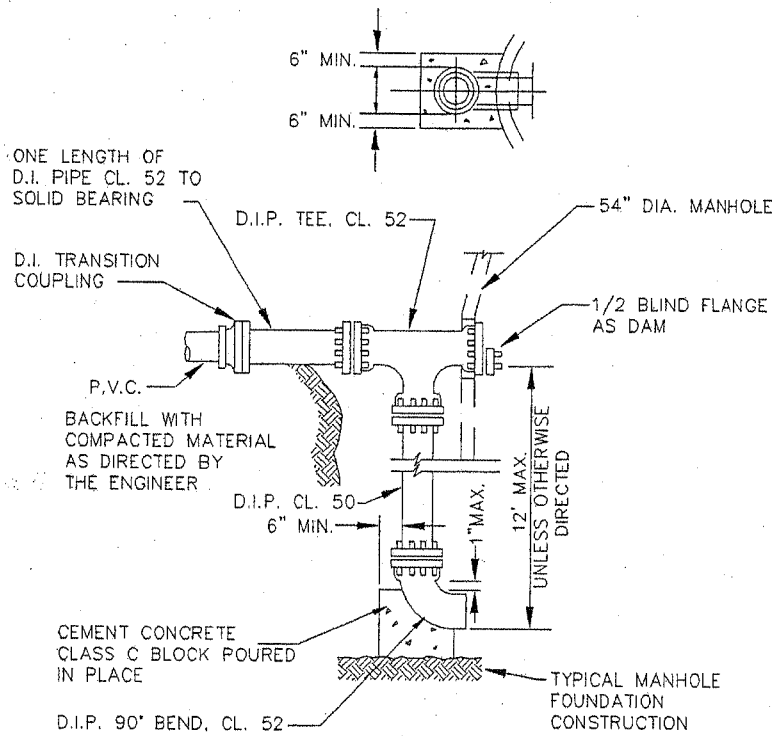


NOT TO SCALE

APPROVED 	CITY OF FERNDAL INSIDE DROP STRUCTURE	DRAWING SS-10
Public Works Director      Date		

JUNE 1995

2091SE3A/SS-10

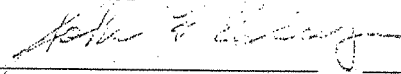


OUTSIDE DROP STRUCTURE

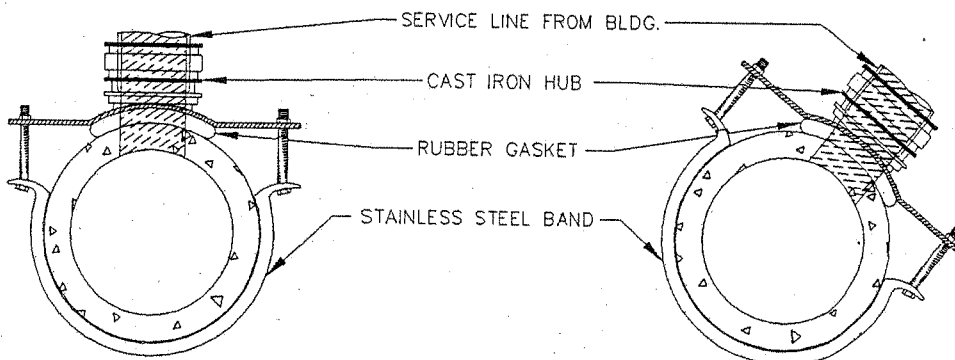
NOT TO SCALE

NOTE:  
 INSIDE DROP STRUCTURE PERMITTED ONLY BY  
 SPECIAL APPROVAL BY PUBLIC WORKS DIRECTOR.  
 INSIDE DROP STRUCTURE LIMITED TO 54" DIA.  
 MANHOLE AND SHALL BE BOUND IN PLACE BY  
 STAINLESS STEEL BANDS 2' O/C

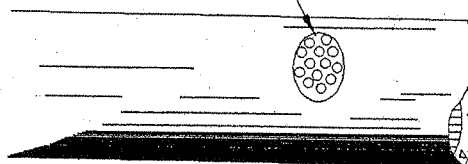
NOT TO SCALE

APPROVED  Public Works Director      Date	CITY OF FERDALE OUTSIDE DROP STRUCTURE	DRAWING SS-11
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ROMAC "CB" TAPPING TEE OR APPROVED EQUAL

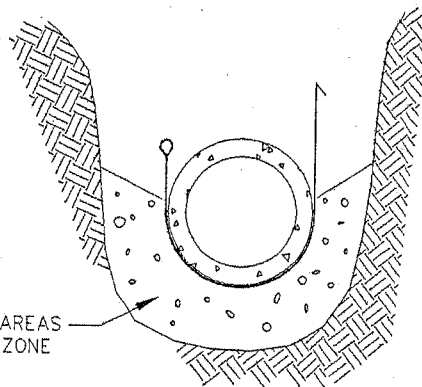
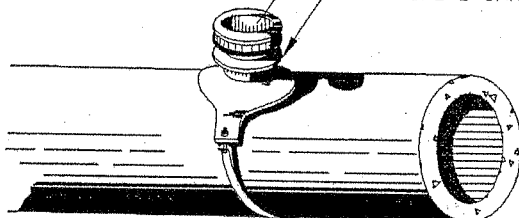


3/4" BORE HOLES FOR TAPPING  
SANITARY SEWER MAIN.



6" MINIMUM

FOR USE ON VITRIFIED CLAY OR  
CONCRETE SANITARY SEWER MAINS.



RESTORE EXCAVATED AREAS  
WITH APPROVED PIPE ZONE  
MATERIAL.

NOT TO SCALE

APPROVED

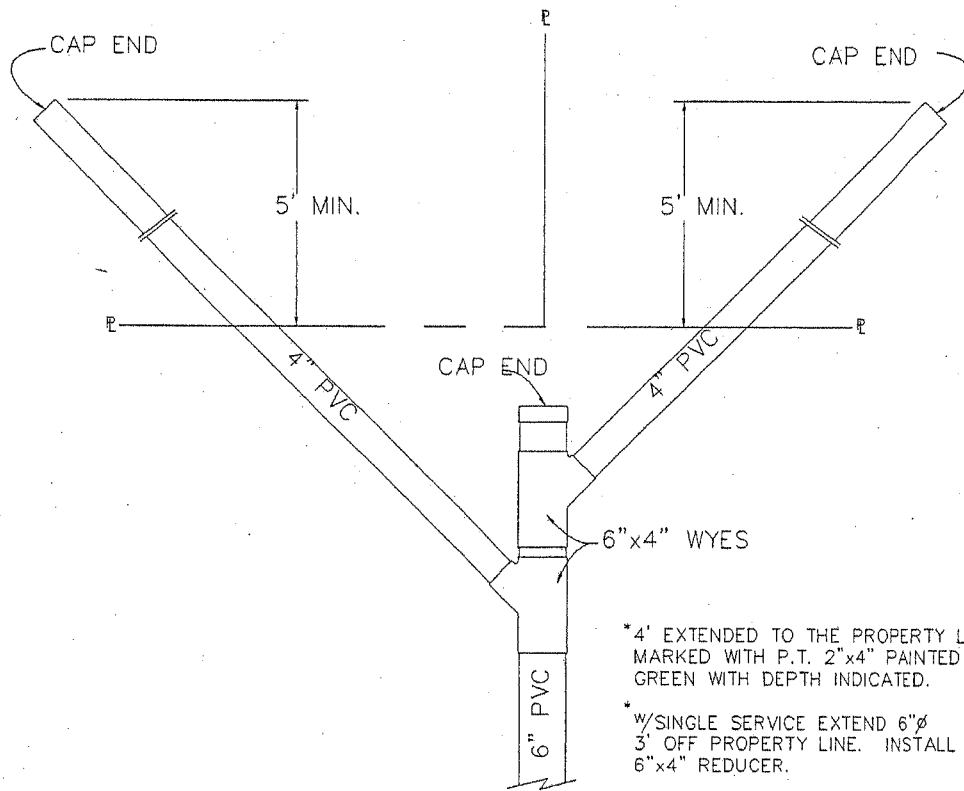
*Karla F. Ealey*

Public Works Director Date

CITY OF FERNDALE  
SANITARY SEWER  
BANDED TAPPING TEE

DRAWING

SS-12



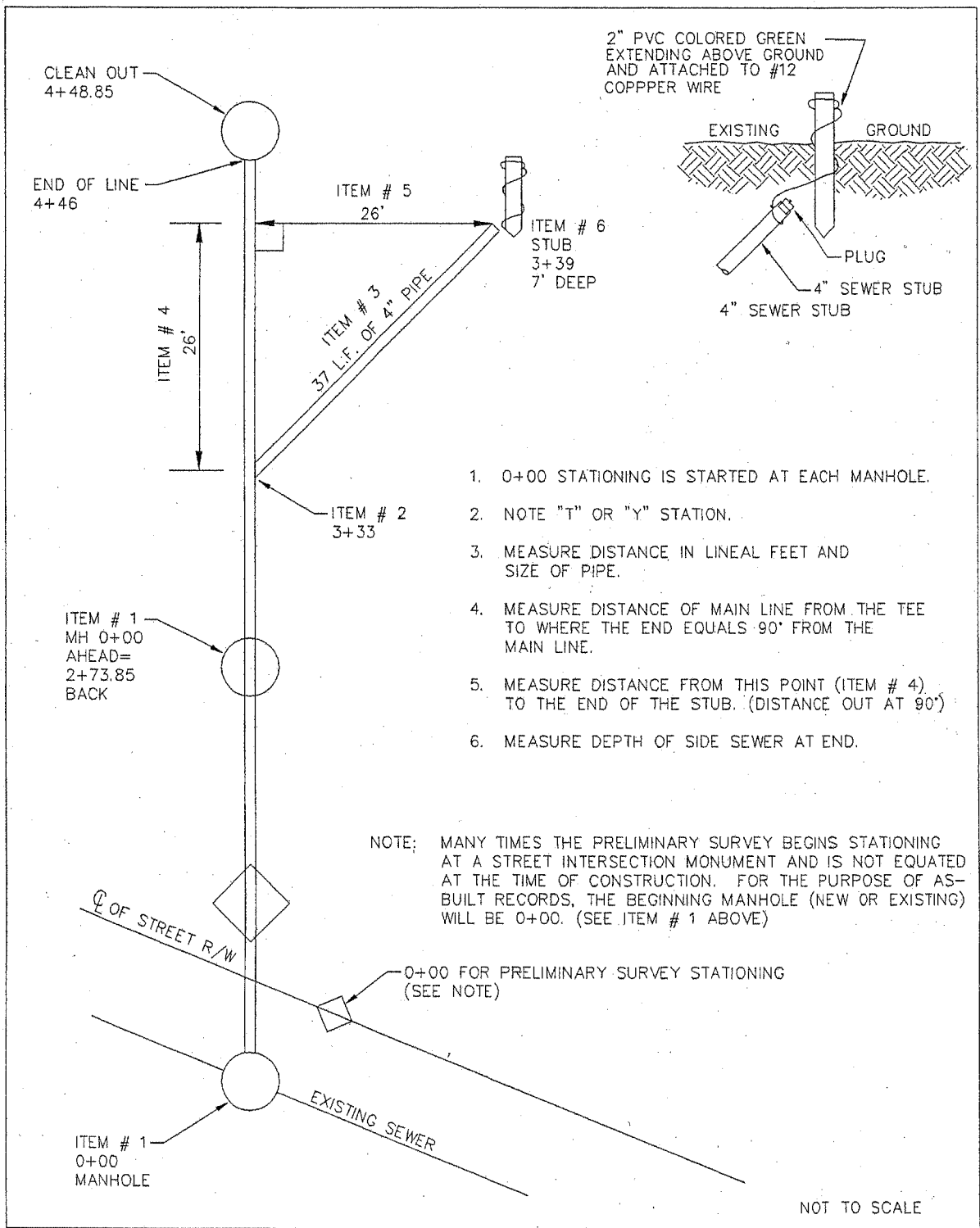
SEWER SERVICE DETAIL

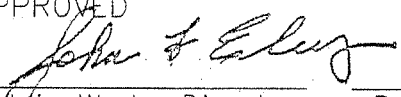
NOT TO SCALE

APPROVED  
*John T. Ealey*  
 Public Works Director      Date

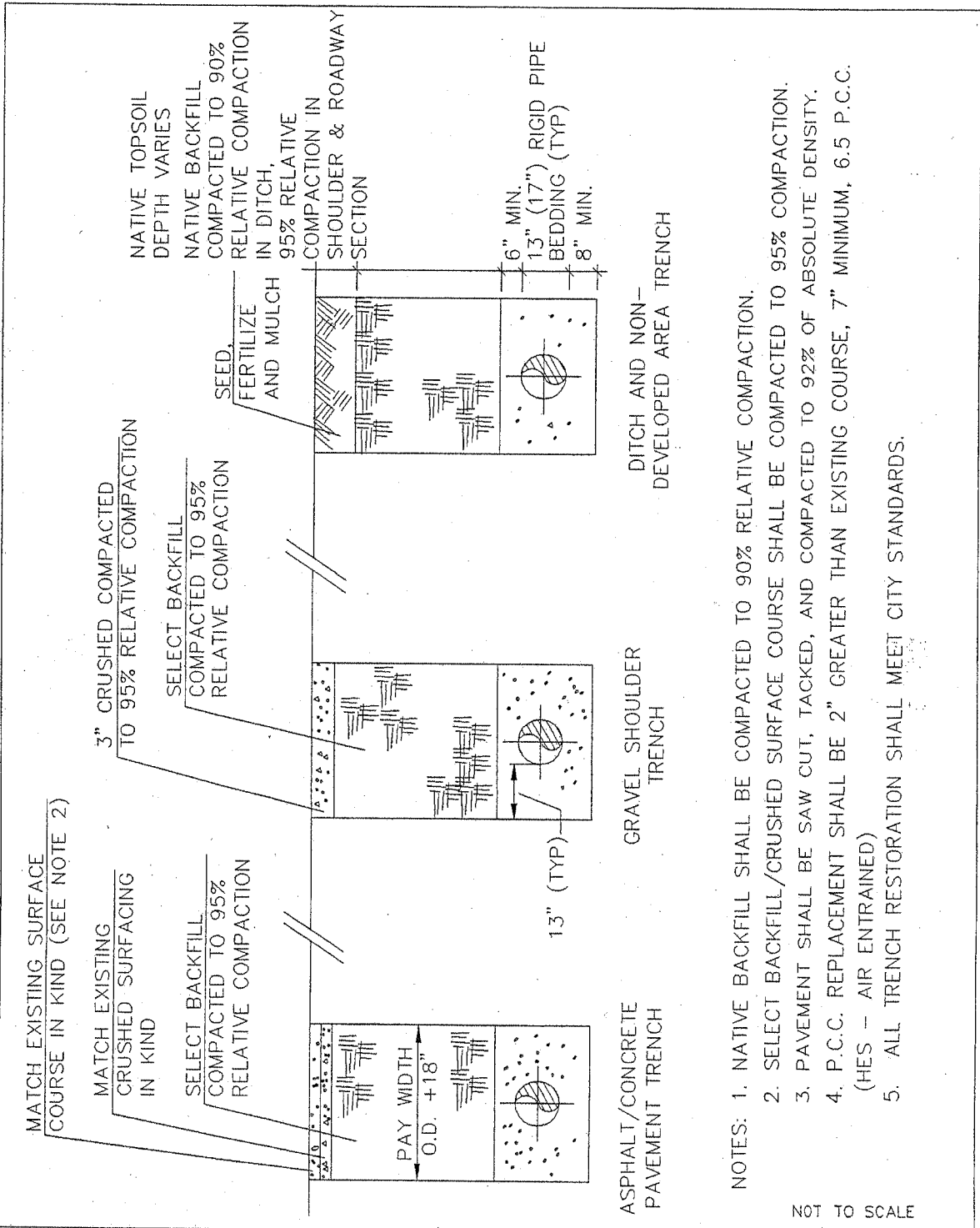
CITY OF FERNDALE  
 DOUBLE SANITARY SEWER SERVICE

DRAWING  
 SS-13



APPROVED  Public Works Director      Date	CITY OF FERNDALE SANITARY SEWER TYPICAL SIDE SERVICE	DRAWING SS-14
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JUNE 1995



- NOTES:
1. NATIVE BACKFILL SHALL BE COMPACTED TO 90% RELATIVE COMPACTION.
  2. SELECT BACKFILL/CRUSHED SURFACE COURSE SHALL BE COMPACTED TO 95% COMPACTION.
  3. PAVEMENT SHALL BE SAW CUT, TACKED, AND COMPACTED TO 92% OF ABSOLUTE DENSITY.
  4. P.C.C. REPLACEMENT SHALL BE 2" GREATER THAN EXISTING COURSE, 7" MINIMUM, 6.5 P.C.C. (HES - AIR ENTRAINED)
  5. ALL TRENCH RESTORATION SHALL MEET CITY STANDARDS.

NOT TO SCALE

APPROVED  
*John F. Elery*  
 Public Works Director      Date

CITY OF FERNDALE  
 TRENCHING DETAIL

DRAWING  
 SS-15