



STANDARD PLANS

James Enriquez
City Engineer
2025

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STREET LIGHTS AND TRAFFIC SIGNALS

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LANDSCAPING

STREET

WATER

LA COUNTY PUBLIC WORKS

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◆ PARKWAY CULVERT

STANDARD ABBREVIATIONS

STREET LIGHTS AND TRAFFIC SIGNALS

L-1	Street Light Standard
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SEWER

SS-1	Standard Manhole Frame & Cover
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SS-4	Siphon Manhole
SS-5	Rectangular Manhole Frame & Covers
SS-6	Standard Manhole Step
SS-7	Bedding For Sewer Pipe
SS-8	Special Support & Protection
SS-9	Cradling & Encasement
SS-10	Anchor Block
SS-12	Wye or Tee Support
SS-13	Saddles for House Laterals
SS-14	Allowable Trench Width
SS-15	Manhole Raising Rings
SS-16	Non-Reinforced Precast Concrete Manhole
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SS-19	Typical House Lateral

REVISIONS:

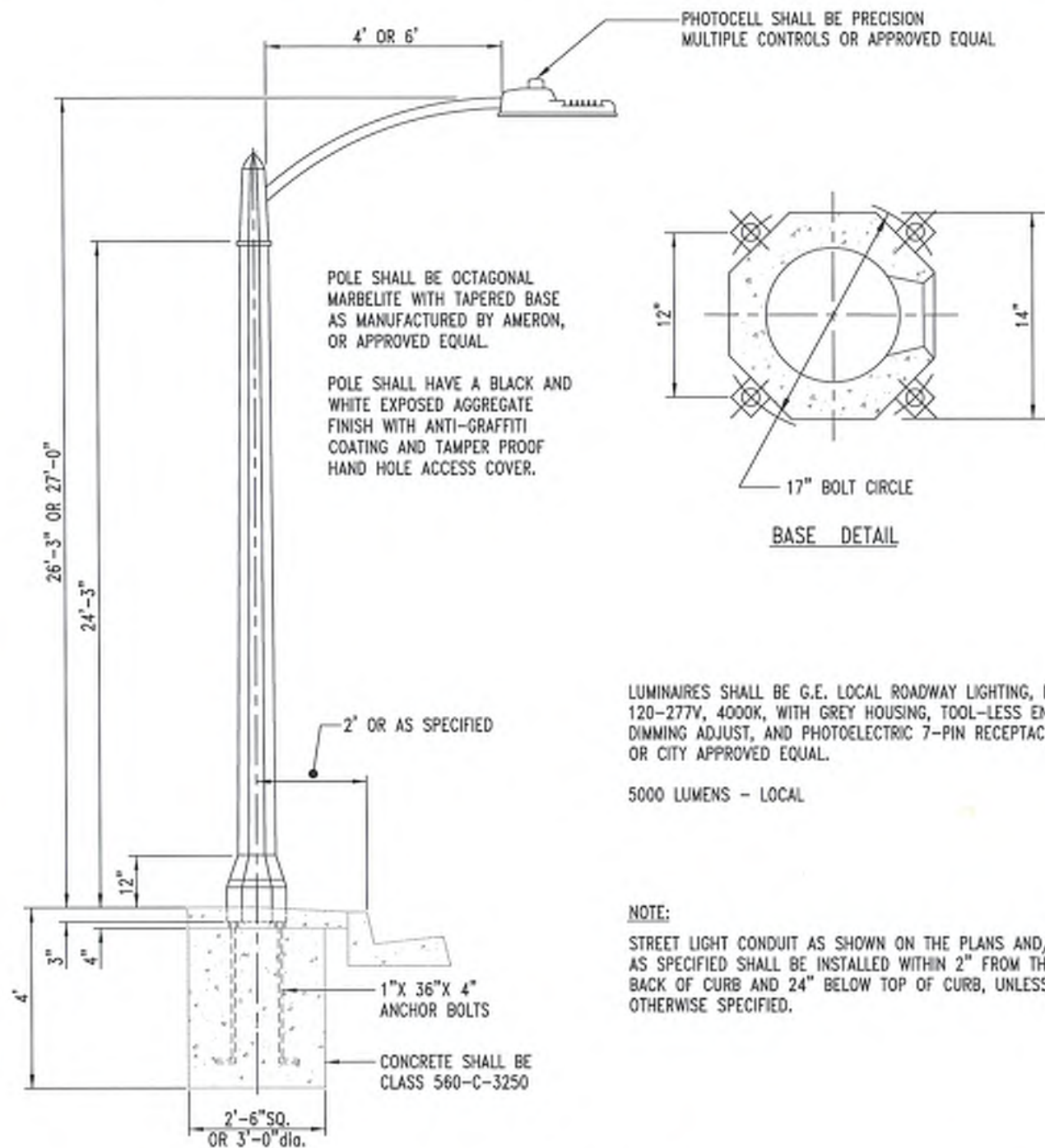
MAY 1994

JUL 2013

AUG 2014

NOV. 2022

*LOCAL



(THIS SUPERSEDES ALL OTHER L-1 STD'S)

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: TREZ/E. GARCIA

DRAWN: TREZ/R. BAYAN

CHECKED: EG

APPROVED: 

DATE: 11/22

STREET LIGHT
STANDARD

STANDARD NO.

L-1

REVISIONS:

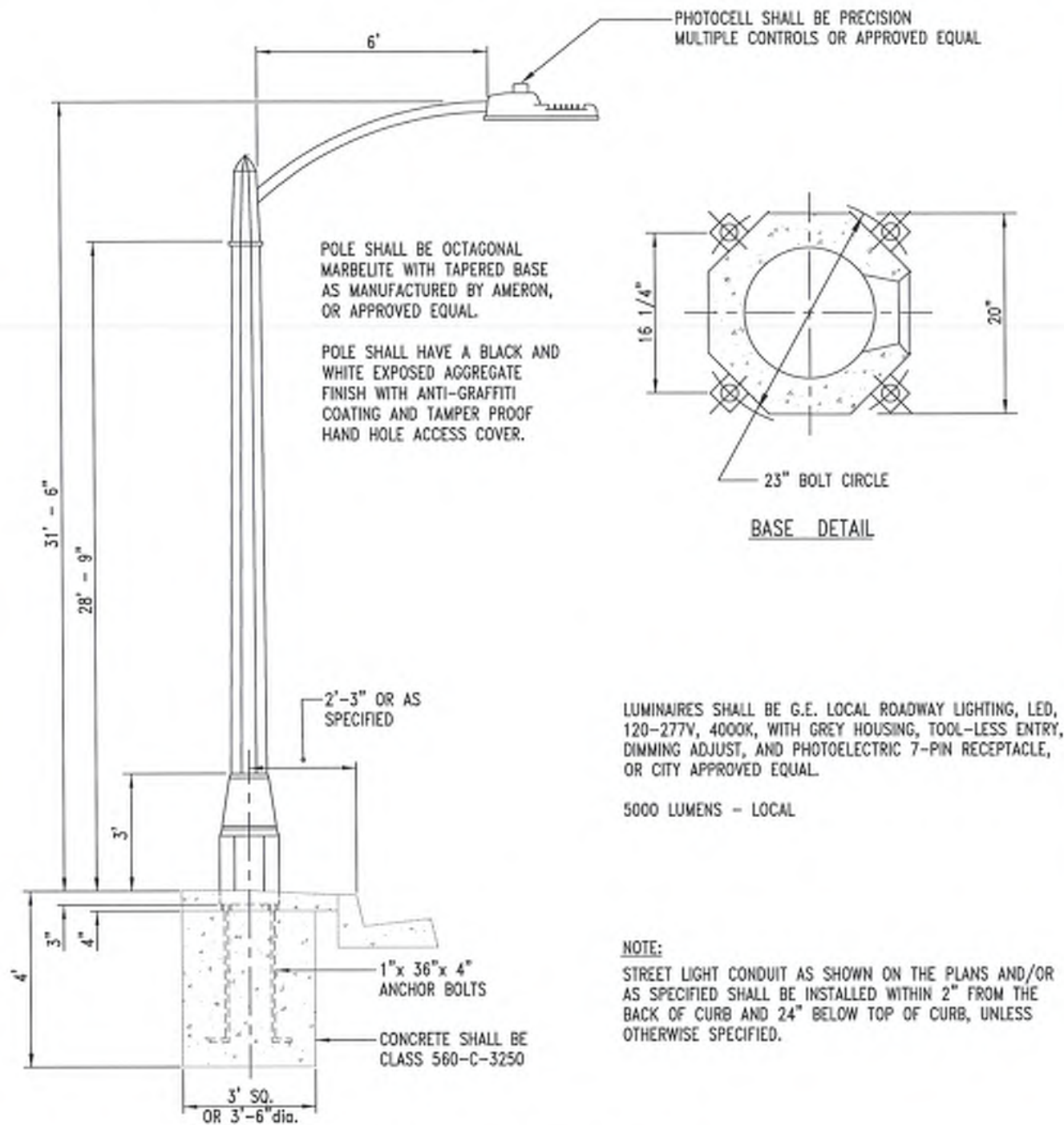
MAY-1994

JUL-2013

AUG-2014

NOV. 2022

*LOCAL



(THIS SUPERSEDES ALL OTHER L-2 STD'S)

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: TREZ/E. GARCIA

DRAWN: TREZ/R. BAYAN

CHECKED: EG

APPROVED:

DATE: 11/22

STREET LIGHT
STANDARD

STANDARD NO.

L-2

REVISIONS:

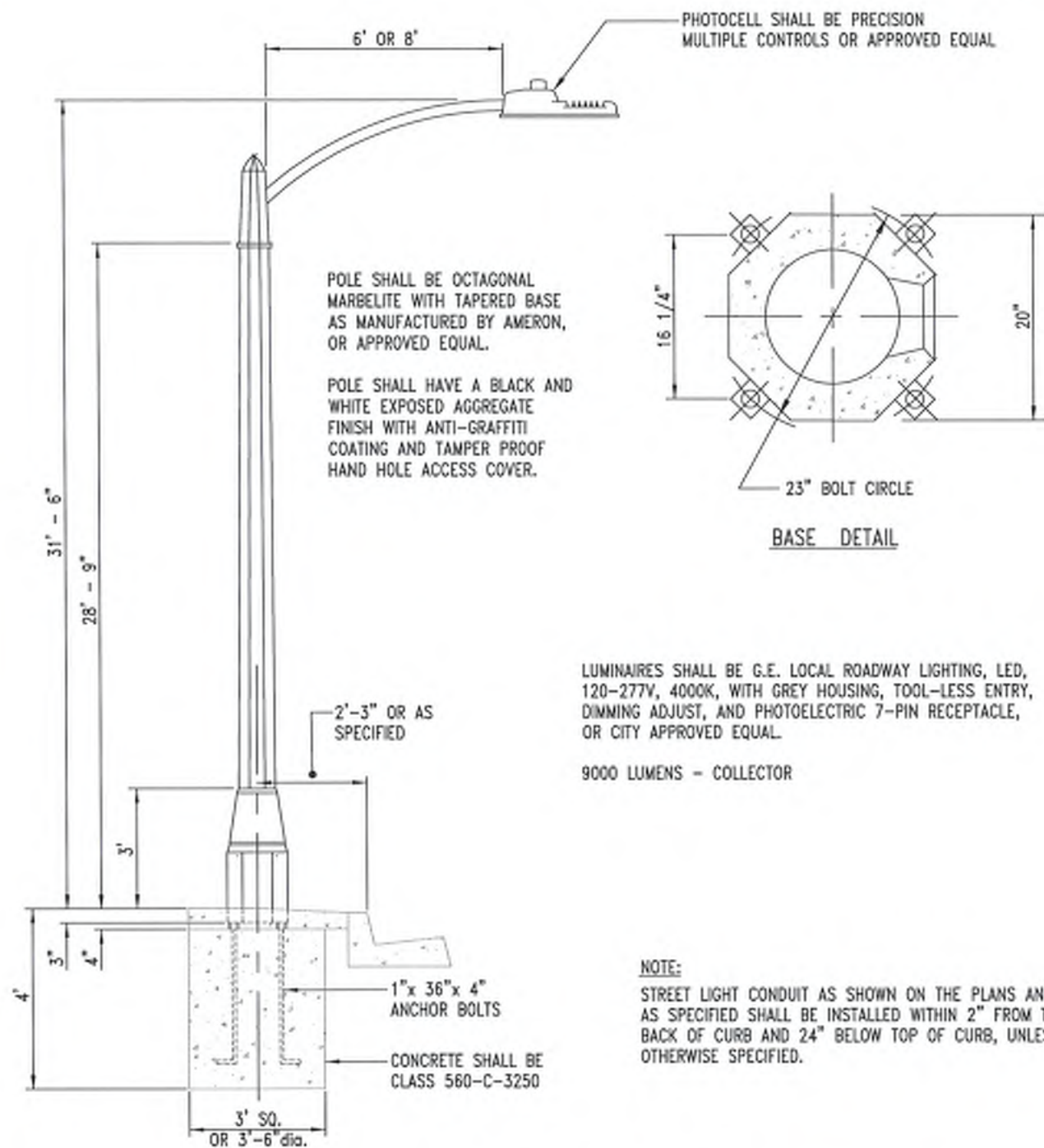
MAY-1994

JUL-2013

AUG-2014

NOV. 2022

*COLLECTOR



(THIS SUPERSEDES ALL OTHER L-3, L-3.1, L-3.2 STD'S)

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: NEGRETE/ E. GARCIA

DRAWN: R. BAYAN

CHECKED: EG

APPROVED:

DATE: 1/22

STREET LIGHT
STANDARD

STANDARD NO.

L-3

REVISIONS:

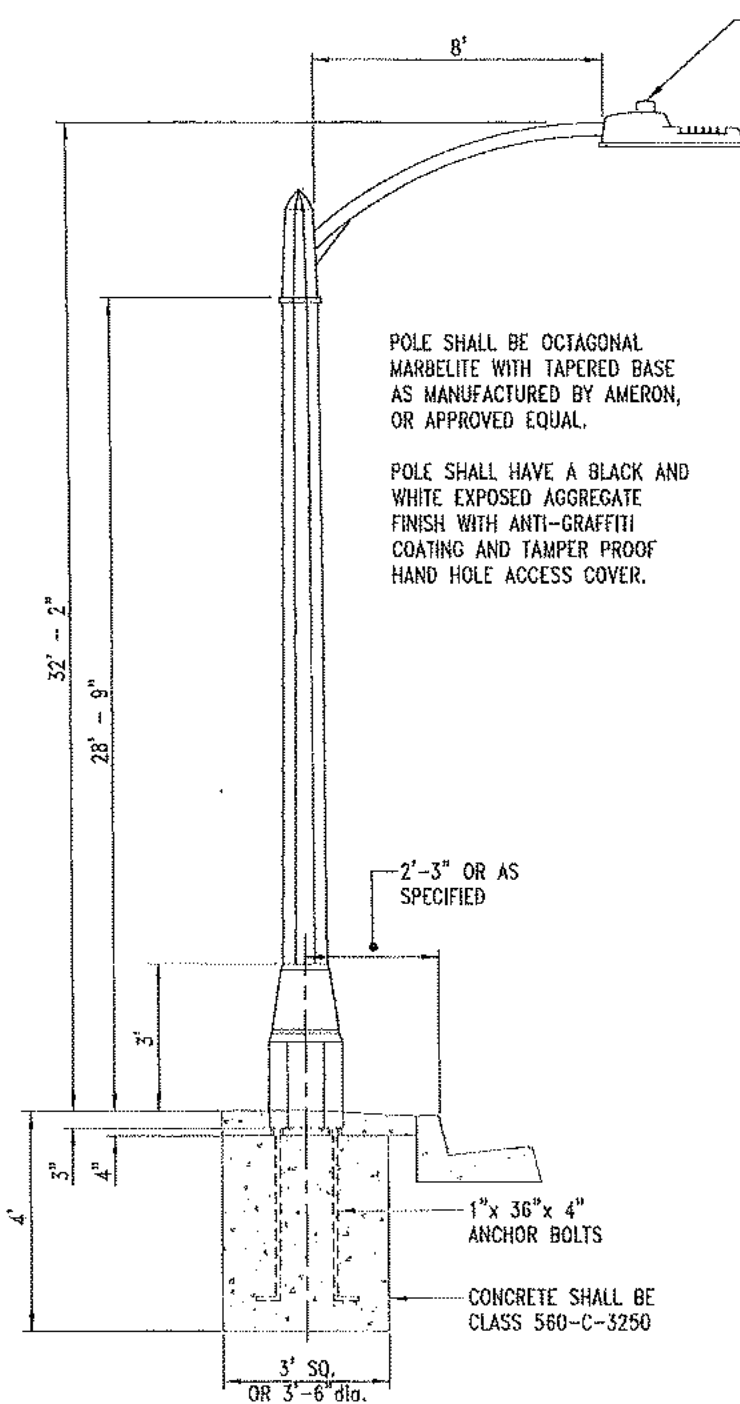
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JUL 2013

AUG 2014

NOV. 2022

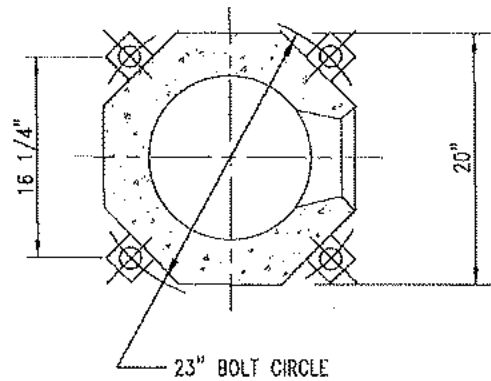
*MAJOR



POLE SHALL BE OCTAGONAL MARBELITE WITH TAPERED BASE AS MANUFACTURED BY AMERON, OR APPROVED EQUAL.

POLE SHALL HAVE A BLACK AND WHITE EXPOSED AGGREGATE FINISH WITH ANTI-GRAFFITI COATING AND TAMPER PROOF HAND HOLE ACCESS COVER.

PHOTOCELL SHALL BE PRECISION MULTIPLE CONTROLS OR APPROVED EQUAL



BASE DETAIL

LUMINAIRES SHALL BE G.E. LOCAL ROADWAY LIGHTING, LED, 120-277V, 4000K, WITH GREY HOUSING, TOOL-LESS ENTRY, DIMMING ADJUST, AND PHOTOELECTRIC 7-PIN RECEPTACLE, OR CITY APPROVED EQUAL.

12000 LUMENS - MAJOR

NOTE:

STREET LIGHT CONDUIT AS SHOWN ON THE PLANS AND/OR AS SPECIFIED SHALL BE INSTALLED WITHIN 2" FROM THE BACK OF CURB AND 24" BELOW TOP OF CURB, UNLESS OTHERWISE SPECIFIED.

(THIS SUPERSEDES ALL OTHER L-4 STD'S)

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: NEGRETE/ E. GARCIA

DRAWN: R. BAYAN

CHECKED: EG

APPROVED: *[Signature]*

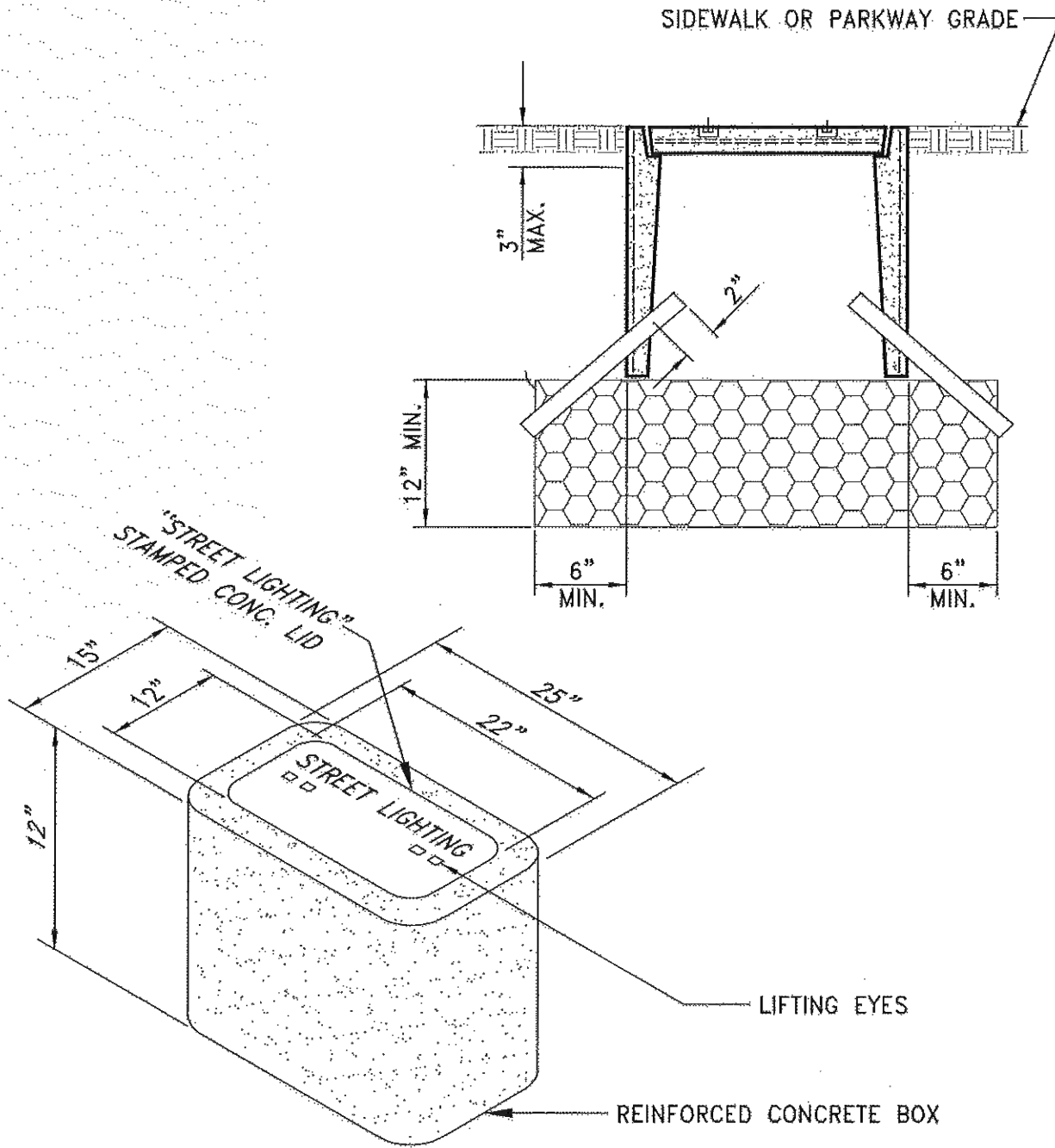
DATE: 11/22

STREET LIGHT STANDARD

STANDARD NO.

L-4

REVISIONS:



PULL BOX NO. 5

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: TREZ

DRAWN: TREZ

CHECKED:

APPROVED: *Jm*

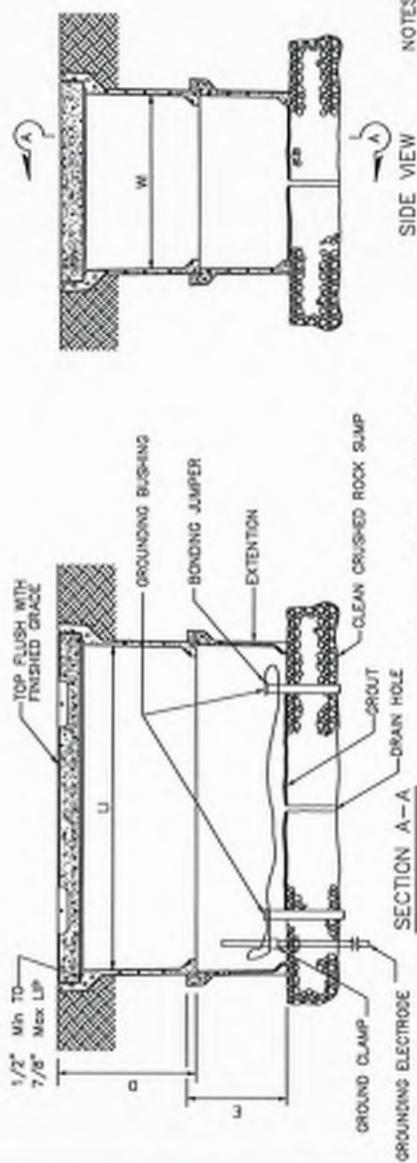
DATE: 2/15

STANDARD NO.

PULL BOX
DETAIL

L-6

REVISIONS:

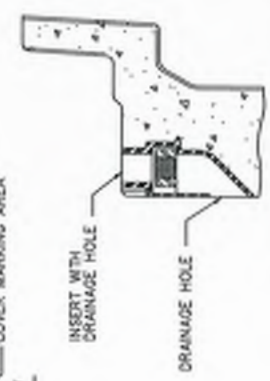
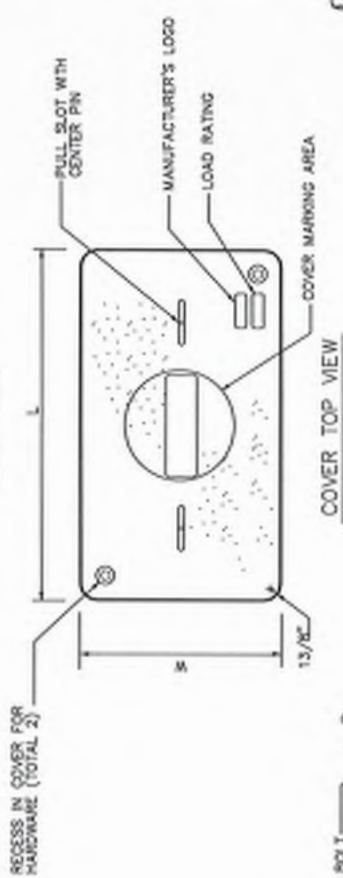


SIDE VIEW

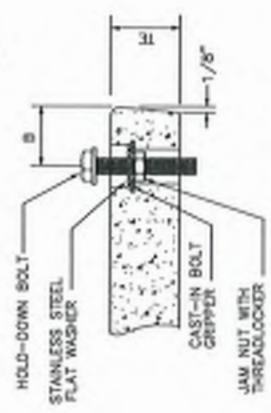
INSTALLATION DETAILS
DETAIL A

NOTES:

1. THE NOMINAL DIMENSIONS OF THE OPENING IN WHICH THE COVER SETS SHALL BE THE SAME AS THE COVER DIMENSIONS EXCEPT THE LENGTH AND WIDTH SHALL BE $\frac{1}{4}$ GREATER.
2. PULL BOX SHALL BE PROVIDED WITH REINFORCED CONCRETE COVER LABELED "TRAFFIC SIGNAL", "STREET LIGHTING", "OR COMMUNICATIONS" AS DEEMED APPROPRIATE BY THE CITY ENGINEER.
3. ULTRA-LOK P, HIGH SECURITY FASTENER OR APPROVED EQUAL, SHALL BE PROVIDED AT TIME OF INSTALLATION OF THE PULL BOX.
4. PULL BOX TO BE LOAD RATING H20 MINIMUM.



TYPICAL THREADED INSERT
OR SIMILAR



TYPICAL COVER CAPTIVE BOLT
OR SIMILAR

NOMINAL DIMENSIONS TABLE

PULL BOX TYPE	MAXIMUM DEPTH EXTENSION (D)		MINIMUM DEPTH EXTENSION (D)		COVER				
	MAXIMUM DEPTH (D)	MINIMUM DEPTH (D)	U	W	TE	B	L	W	MAXIMUM HEIGHT
No. 3 1/2"	12"	N/A	1' - 2 3/8"	9"	1.50" ± 0.04"	1 3/4"	11.3 1/4" ± 0.3 2/8"	10" - 15 1/8"	30 lb
No. 5	12"	10"	1' - 8"	11"	1.50" ± 0.04"	1 3/4"	11 1/4"	1" - 1 3/4"	60 lb
No. 6	12"	10"	2' - 4 1/4"	11" - 3 1/4"	2"	2"	2' - 6 1/2"	1" - 5 1/2"	90 lb

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

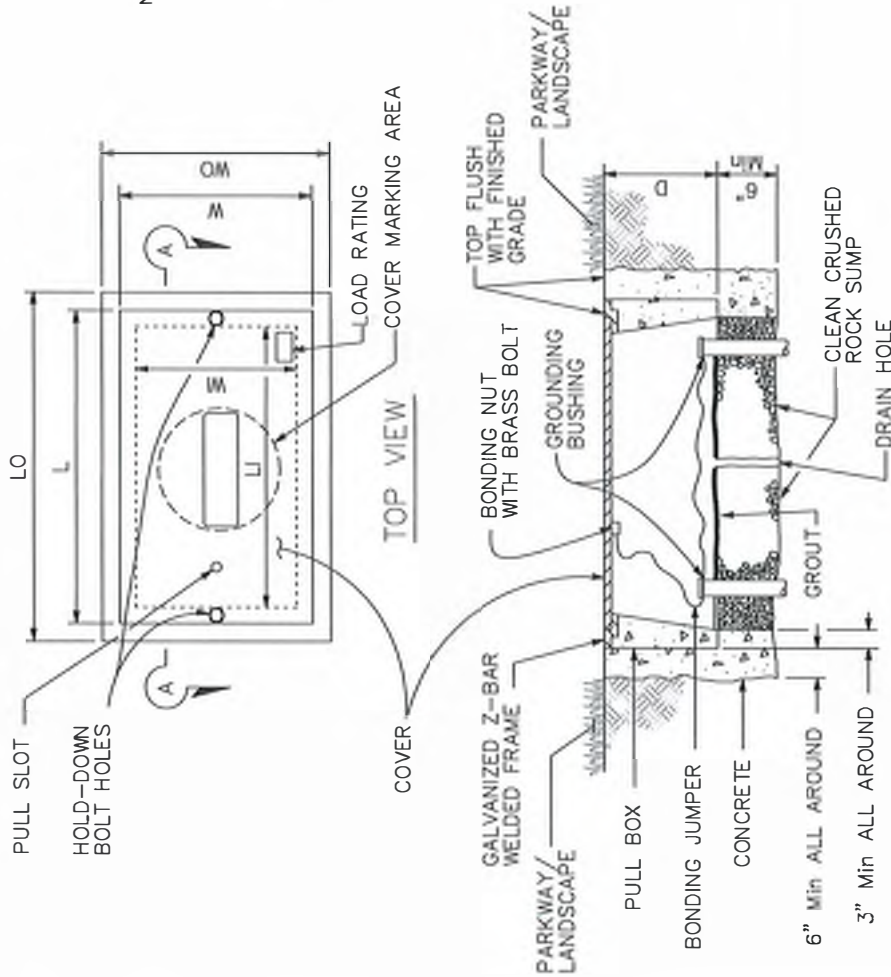
DESIGNED: EG
 DRAWN: DH
 CHECKED: EG
 APPROVED: *[Signature]*
 DATE: 11/22

PULL BOX DETAIL A

STANDARD NO.
L-6.1

REVISIONS:

- NOTES:
- PULL BOX SHALL BE PROVIDED WITH STEEL COVER AND CONCRETE FOOTING. STEEL COVER SHALL HAVE NON-SKID PATTERN LABELED "STREET LIGHTING", "LIGHTING", OR "COMMUNICATIONS" AS DEEMED APPROPRIATE BY THE CITY ENGINEER.
 - BONDING JUMPER FOR METAL COVER SHALL BE 3' LONG, MINIMUM.
 - THE NOMINAL DIMENSIONS OF THE OPENING IN WHICH THE COVER SETS SHALL BE THE SAME AS THE COVER DIMENSIONS EXCEPT THE LENGTH AND WIDTH DIMENSIONS SHALL BE $\frac{1}{8}$ " GREATER.
 - ULTRA-LOK P HIGH SECURITY FASTENER OR APPROVED EQUAL SHALL BE PROVIDED AT THE TIME OF INSTALLATION OF THE PULL BOX.
 - PULL BOX TO BE LOAD RATING H20 MINIMUM.



SECTION A-A

STREET LIGHTING/ LIGHTING PULL BOX

NOMINAL DIMENSIONS TABLE

PULL BOX TYPE	PULL BOX							COVER		
	MINIMUM THICKNESS	MINIMUM DEPTH D	LO	U	WO	W	L	L	W	
No. 3 1/2	1 1/2"	1'-0"	1'-10" - 1'-11"	1'-5" - 1'-6 1/2"	1'-3" - 1'-4"	10" - 1'-0"	1'-8" - 1'-8 1/2"	1'-1" - 1'-2"	1'-1" - 1'-2"	
No. 5	1 3/4"	1'-0"	2'-5" - 2'-6"	2'-0" - 2'-1"	1'-6" - 1'-7"	1'-1" - 1'-2"	2'-3" - 2'-3 1/2"	1'-4" - 1'-4 1/2"	1'-4" - 1'-4 1/2"	
No. 6	2"	1'-0"	2'-11" - 3'-1"	2'-6" - 2'-7"	1'-10" - 2'-0"	1'-5" - 1'-6"	2'-9" - 2'-9 1/2"	1'-8" - 1'-8 1/2"	1'-8" - 1'-8 1/2"	

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED:	EG
DRAWN:	DH
CHECKED:	EG
APPROVED:	<i>[Signature]</i>
DATE:	11/22

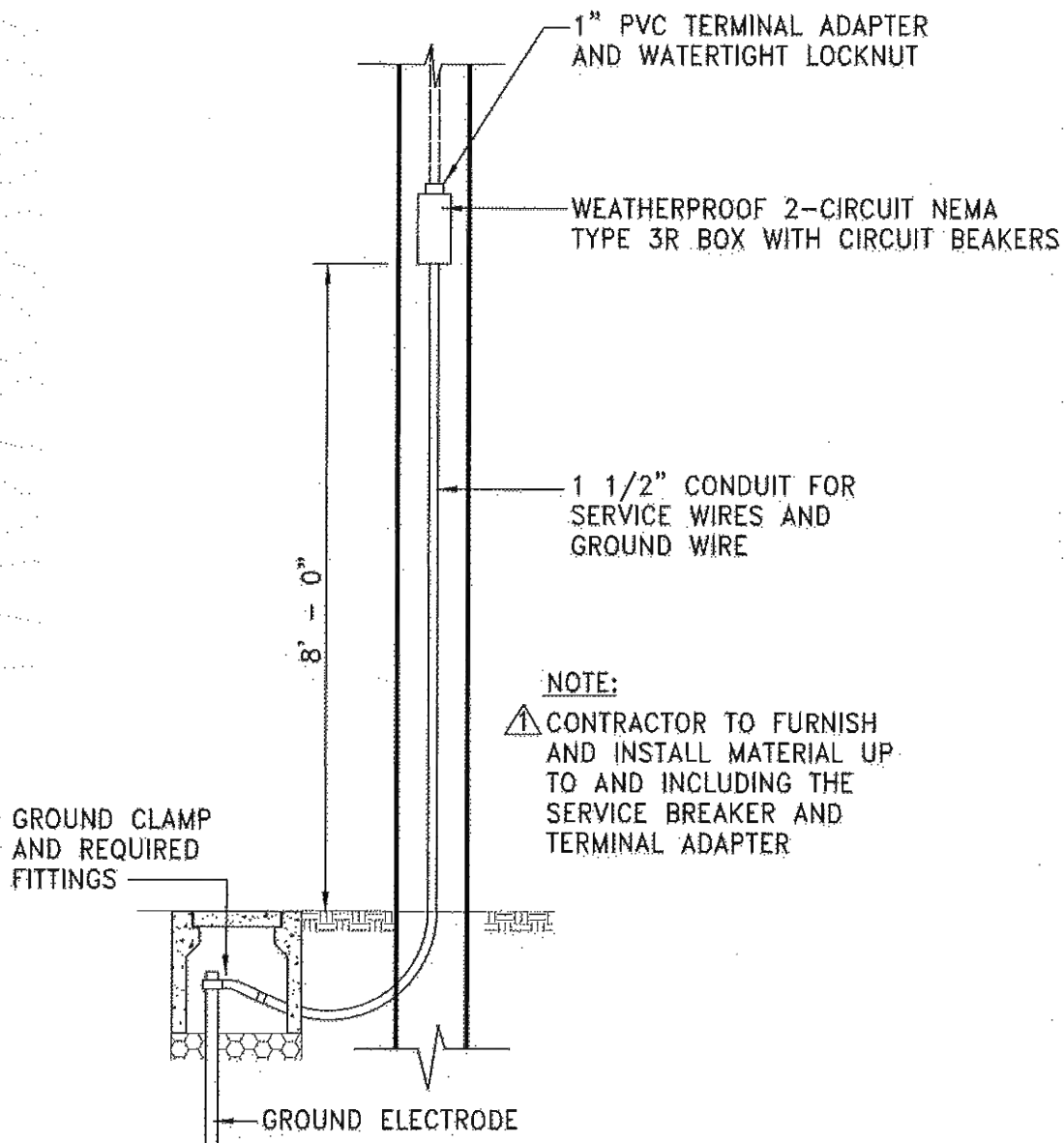
PULL BOX
DETAIL B

STANDARD NO.

L-6.2

REVISIONS:

⚠ EDISON MATERIAL SPEC. NOTE



TYPE I SERVICE
MULTIPLE SYSTEM

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: TREZ

DRAWN: TREZ

CHECKED:

APPROVED: *[Signature]*

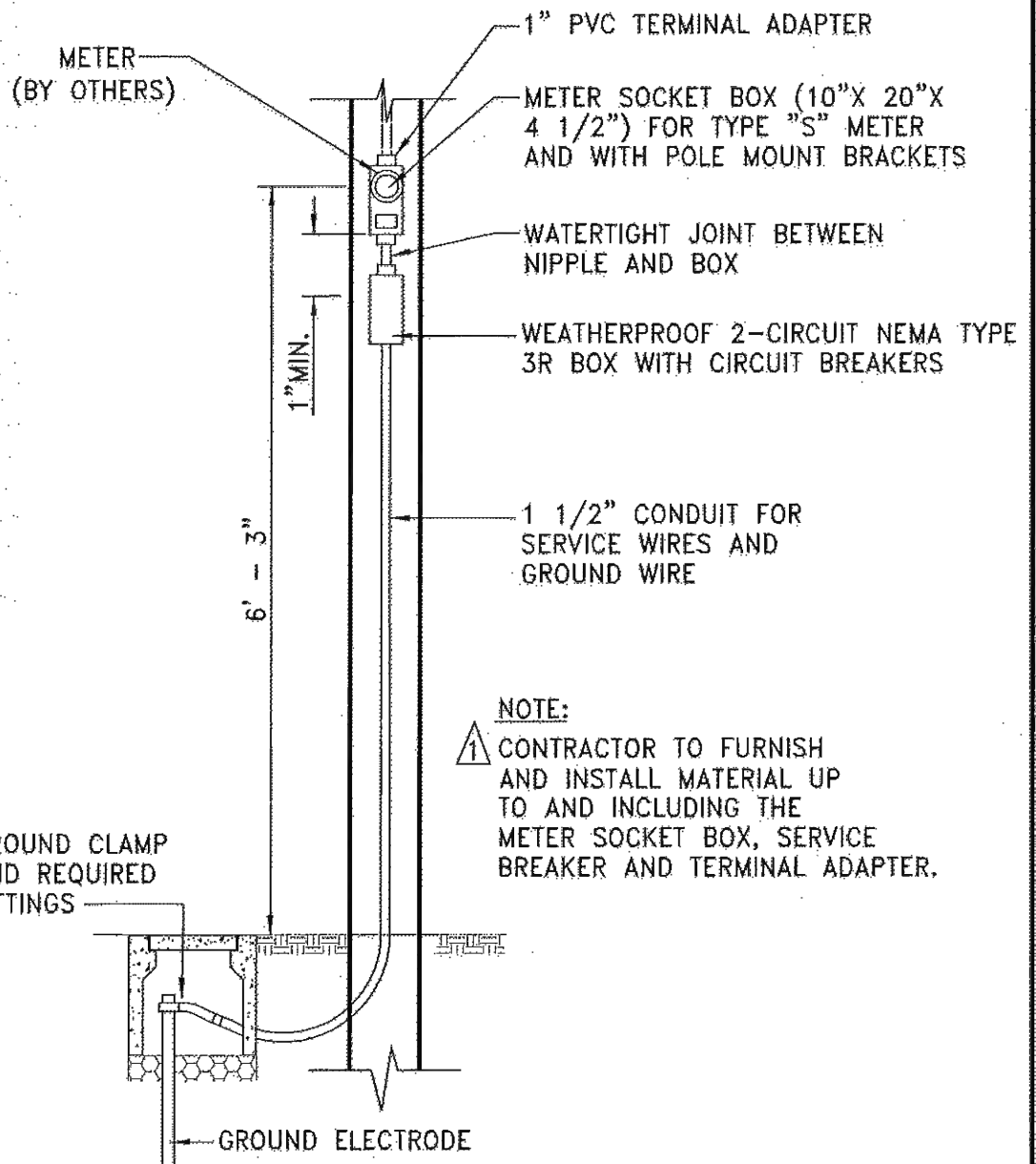
DATE: 7/13

STANDARD NO.

STREET LIGHTING
SERVICE DETAILS

L-7

REVISIONS:



CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: TREZ

DRAWN: TREZ

CHECKED:

APPROVED: *[Signature]*

DATE: 7/13

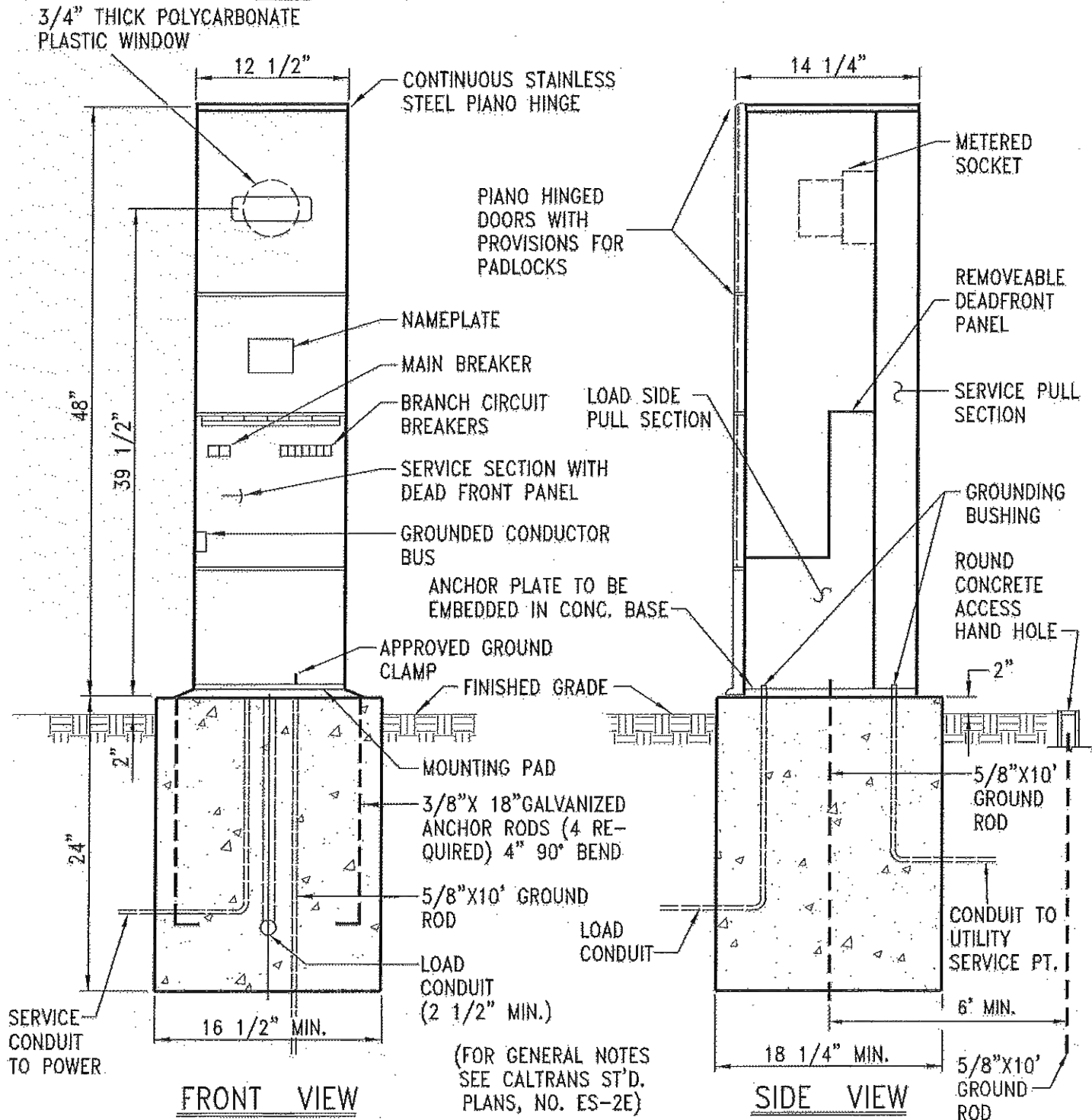
METERED SERVICE DETAIL

STANDARD NO.

L-8

REVISIONS:

NOTE: NO WINDOW FOR UNMETERED SERVICE



CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: LOPEZ

DRAWN: TREZ/ BAYAN

CHECKED: GARCIA

APPROVED: *[Signature]*

DATE: 3/14

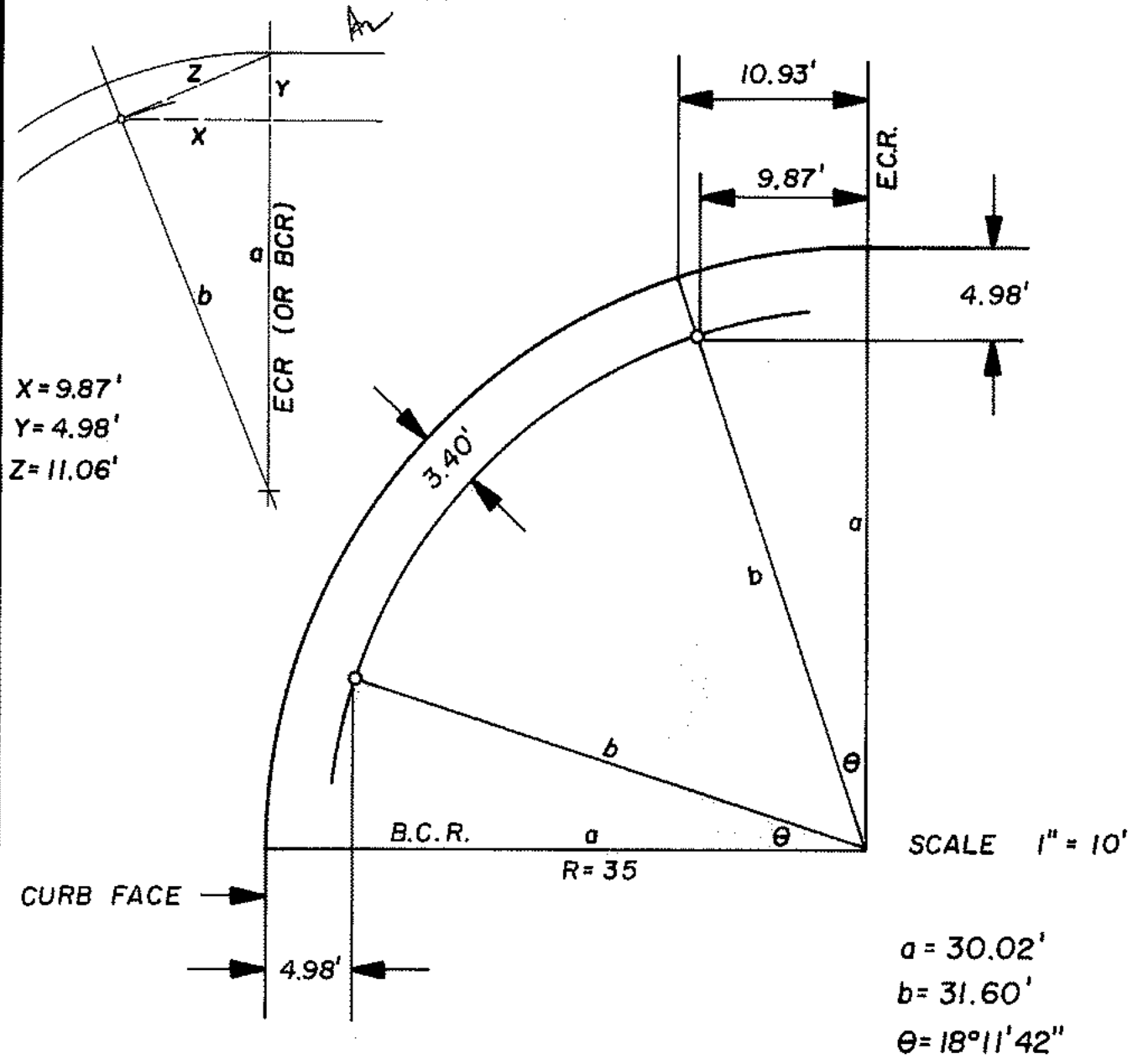
UNDERGROUND SERVICE EQUIPMENT CABINET

STANDARD NO.

L-9

REVISIONS:

12-2-80 PAT
CORR. DIMEN.



NOTE

ALL DIMENSIONS ARE TO THE CENTERLINE OF POLES

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED AZIZ

DRAWN MOORE

CHECKED *EB*

APPROVED *JJK*

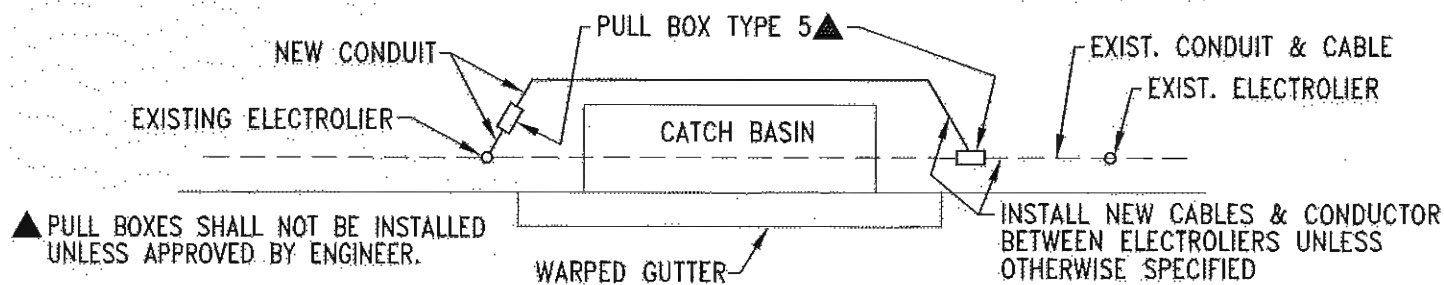
DATE 9-8-80

TRAFFIC SIGNAL POLE LOCATION
35' CURB RETURN

STANDARD NO

L-10

REVISIONS:



ALL WORK INDICATED & SHOWN ON THIS PLAN IN CONNECTION WITH THE ELECTROLIER LIGHTING INSTALLATION SHALL BE DONE BY THE CONTRACTOR, AND ALL THE MATERIALS SHALL BE FURNISHED TO COMPLETE THE SYSTEM, READY FOR OPERATION, ALL IN ACCORDANCE WITH STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION.

AT LOCATIONS WHERE NEW ELECTROLIER LIGHTING CABLE IS REQUIRED, THE CONTRACTOR SHALL FURNISH & INSTALL IN ELECTROLIER LIGHTING CONDUIT A NO.8 A.W.G. COPPER CONDUCTOR, INSULATED WITH U.L. APPROVED POLYETHYLENE COMPOUND RATED FOR 5000 V OPERATION.

ELECTROLIER LIGHTING CABLES SHALL RUN THROUGH PULL BOXES WITHOUT SPlicing, EXCEPT AS APPROVED BY THE INSPECTOR. THE CONTRACTOR SHALL ALLOW 6' OF SLACK IN EACH CABLE, IN EACH PULL BOX.

CONTRACTOR SHALL MAINTAIN SERVICE TO ANY EXISTING LAMPS, MAKE ALL NECESSARY TEMPORARY CONNECTIONS, & CONNECT ALL LAMPS AS DIRECTED BY THE INSPECTOR. WHERE CONDUIT IS DISTURBED AND FOUND UNSAFE BY THE INSPECTOR, CONTRACTOR SHALL REPLACE CONDUIT AND CABLE.

WARNING: CONTRACTOR SHALL OBTAIN DAILY SAFETY CIRCUIT CLEARANCE FROM THE CITY, AND POST "MEN AT WORK" SIGNS AT SERVICE POINTS BEFORE ANY WORK IS DONE, OR ANY CONNECTIONS MADE INVOLVING EXISTING LIGHTING SYSTEMS. CONTACT CITY TO DE-ENERGIZE SYSTEM & USE LOCKOUT, TAGOUT PROCEDURES BEFORE WORKING ON STREET LIGHT CIRCUIT.

2 $\frac{\Delta}{200}$ INDICATES NUMBER AND TOTAL LENGTH OF WIRES TO BE REMOVED. FURNISH AND INSTALL NEW WIRES.

1" $\frac{\Delta}{50}$ INDICATES SIZE AND LENGTH OF CONDUIT TO BE REMOVED. FURNISH AND INSTALL NEW CONDUIT.

P Δ INDICATES PROTECT EXISTING STREET LIGHTING FACILITIES.

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED:

DRAWN: BAYAN

CHECKED:

APPROVED: 

DATE: 7/13

TYPICAL MODIFICATION OF STREET LIGHTING CONDUIT

STANDARD NO.

L-11

TRAFFIC SIGNING

T-1	Median Warning Signing R4-7 with Type "N"
T-2	Median Nose Warning Signing Type "K"
T-3	Location of Warning and Regulatory Signs
T-4	Guide Marker Detail
T-5	Traffic Signal Pole Location - 35' Curb Return
T-6	Illuminated Street Name Sign
T-7	Guide, Warning and Regulatory Sign Installation Detail
T-8	Guide, Warning and Regulatory Sign Installation Detail
T-9	Controller Cabinet Foundation Details

REVISIONS:

2" METAL SQUARE POST
W/ ANCHOR

BEGINNING OR END
OF CURBED MEDIAN

SIGN

R4-7 (24'x30")

TYPE "N" (18"x18")

SURFACE OF
MEDIAN

INTERSECTION

MOUNTING
DETAIL

SIGN

LOCATION PLAN

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: T. LOPEZ

DRAWN: R. BAYAN

CHECKED:

APPROVED: *RR*

DATE: 10/14

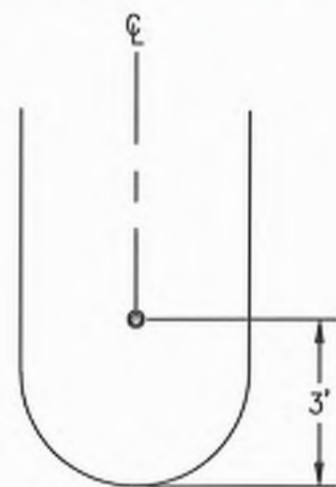
STANDARD NO.

MEDIAN
WARNING SIGNING
R4-7 w/TYPE "N"

T-1

REVISIONS:

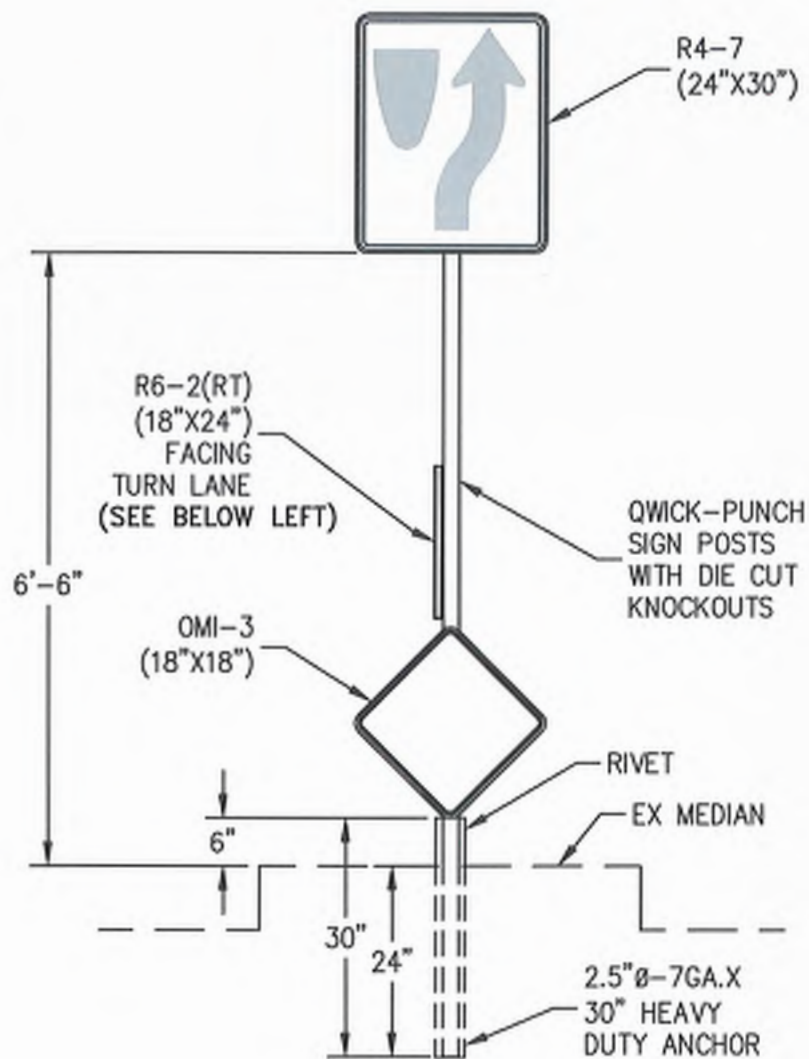
5-16-2022



MEDIAN NOSE
SIGN LOCATION
N.T.S.



R6-2(RT)



SIGN DETAIL
N.T.S.

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: T. LOPEZ

DRAWN: R. BAYAN

CHECKED:

APPROVED:

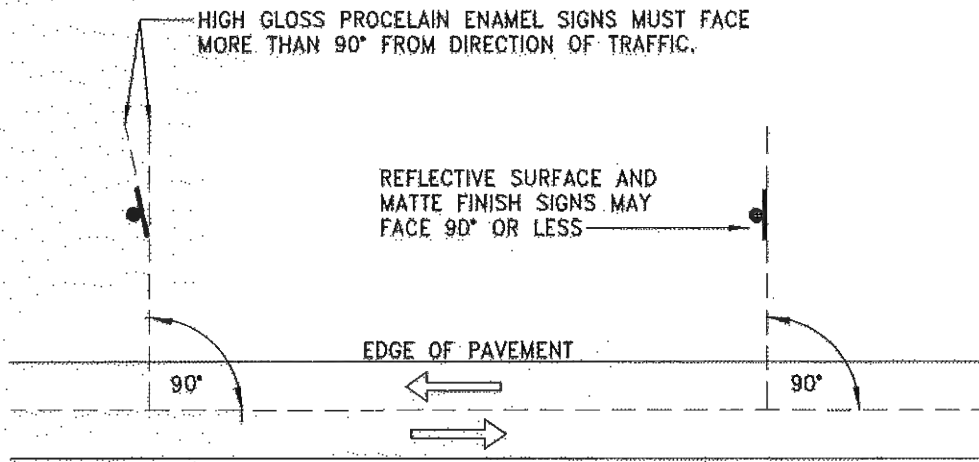
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STANDARD NO.

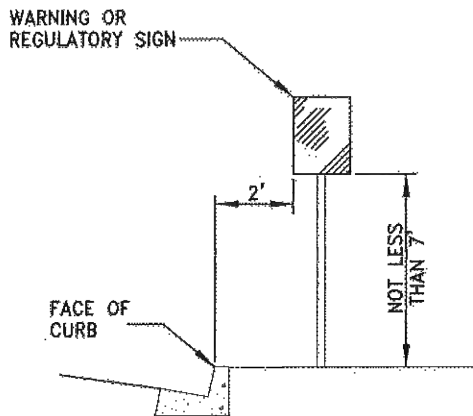
MEDIAN NOSE
WARNING SIGN CLUSTER
DETAIL & PLACEMENT

T-2

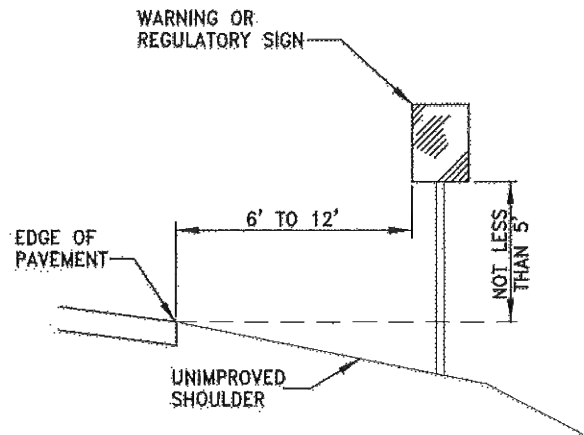
REVISIONS:



POSITION OF SIGNS IN RELATION TO DIRECTION OF TRAFFIC



SIGN LOCATION PLAN IMPROVED STREET



SIGN LOCATION PLAN UNIMPROVED STREET

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: TREZ

DRAWN: TREZ

CHECKED:

APPROVED: 

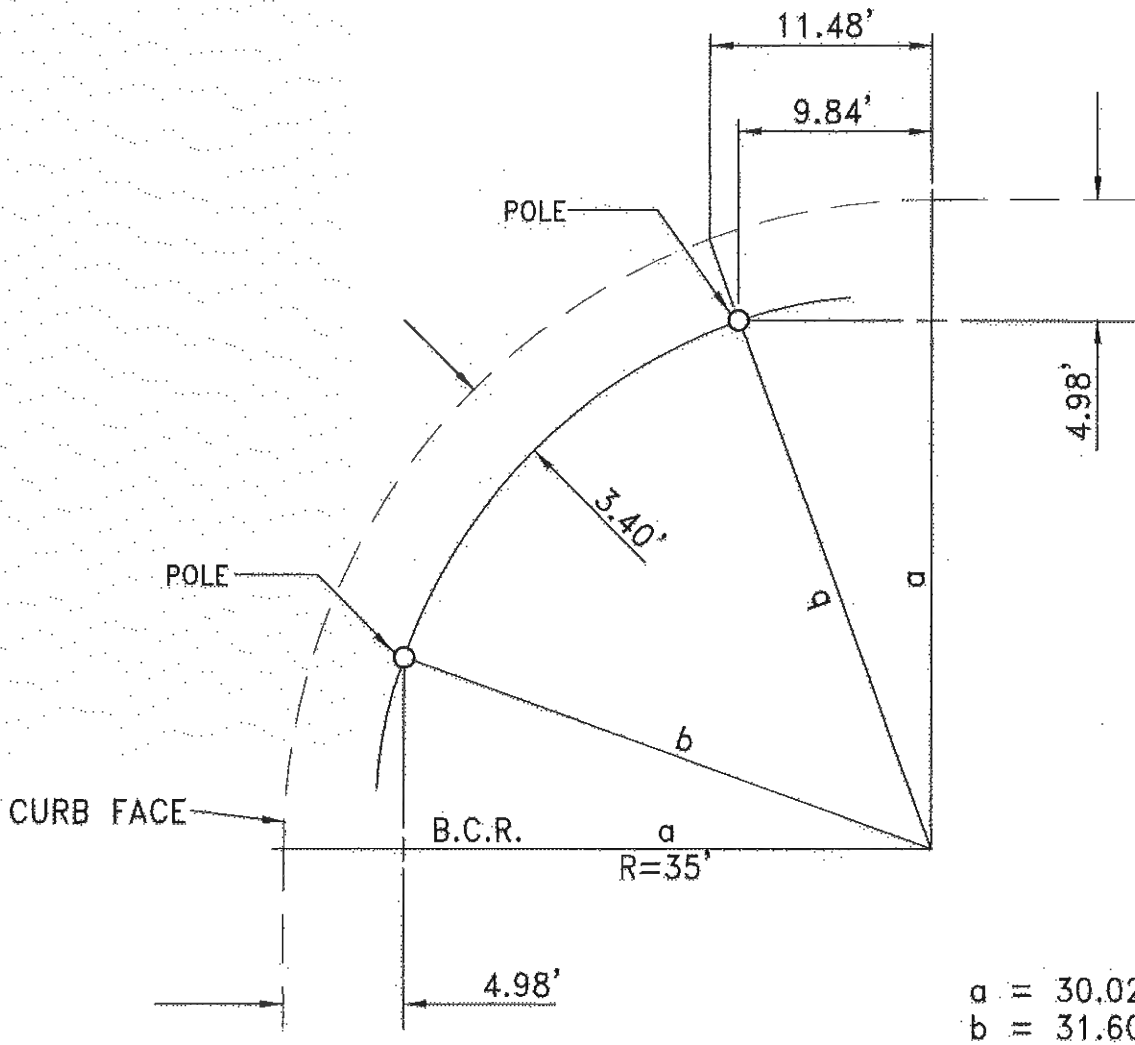
DATE: 3/13

LOCATION OF WARNING AND REGULATORY SIGNS

STANDARD NO.

T-3

REVISIONS:



NOTE:

ALL DIMENSIONS ARE TO THE CENTERLINE OF POLES.

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

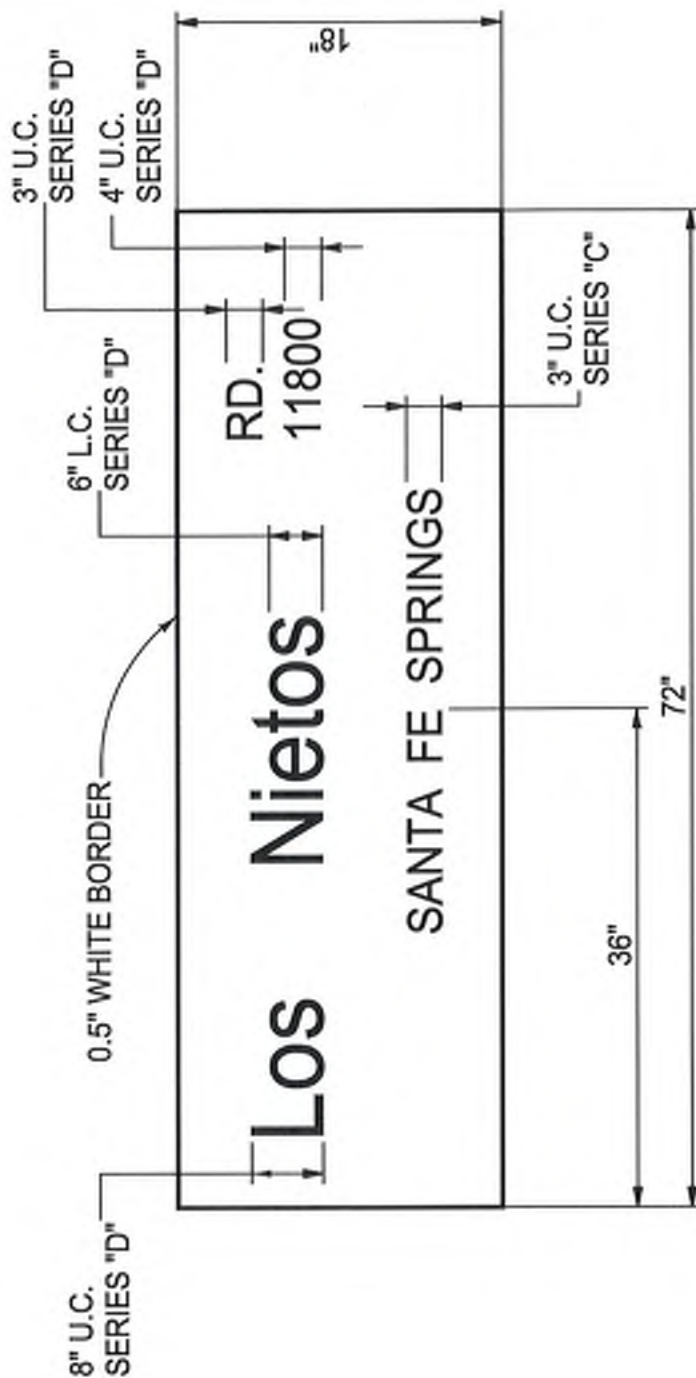
DESIGNED:	TREZ
DRAWN:	TREZ
CHECKED:	
APPROVED:	
DATE:	7/13

TRAFFIC SIGNAL POLE LOCATION
35' CURB RETURN

STANDARD NO.

T-5

REVISIONS:



CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS IMPROVEMENT STANDARDS

DESIGNED BY:

DRAWN BY: G. LOPEZ

CHECKED BY: *RL*

APPROVED BY: *ML*

DATE: 9/18

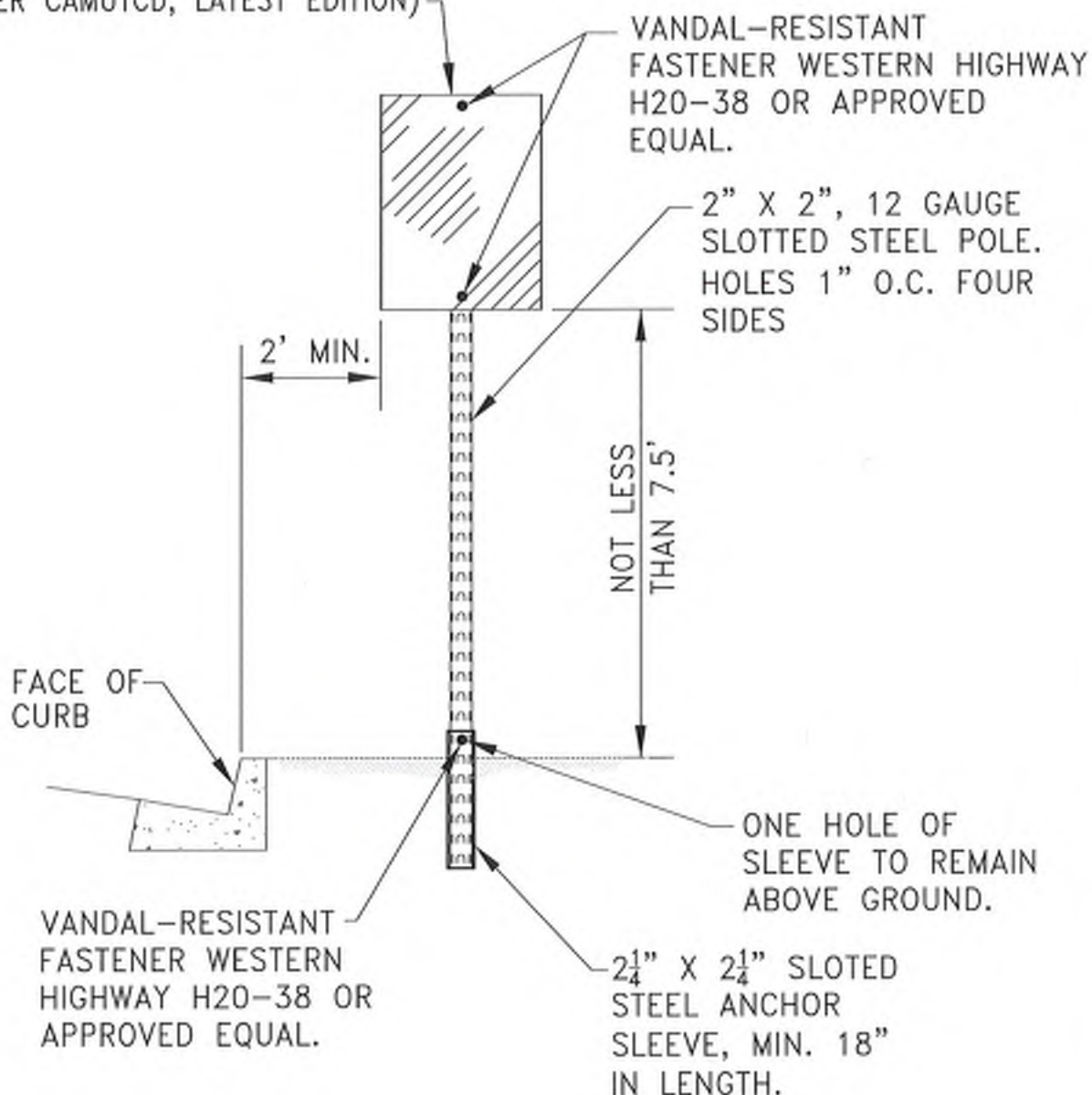
ILLUM. STREET NAME SIGN

STANDARD NO.

T-6

REVISIONS:

SIGN (SIZE PER CAMUTCD, LATEST EDITION)



NOTE:

- MAINTAIN MINIMUM 48" UNOBSTRUCTED WALKWAY FOR SIGN INSTALLATIONS IN SIDEWALK AREAS.
- NO PARKING AND/ OR N.S.A.T. SIGNS W/ ARROWS TO BE INSTALLED AT AN ANGLE BETWEEN 30° & 45° WITH THE LINE OF TRAFFIC FLOW.

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: T. LOPEZ *TL*

DRAWN: BAYAN *RB*

CHECKED: *RL*

APPROVED: *TL*

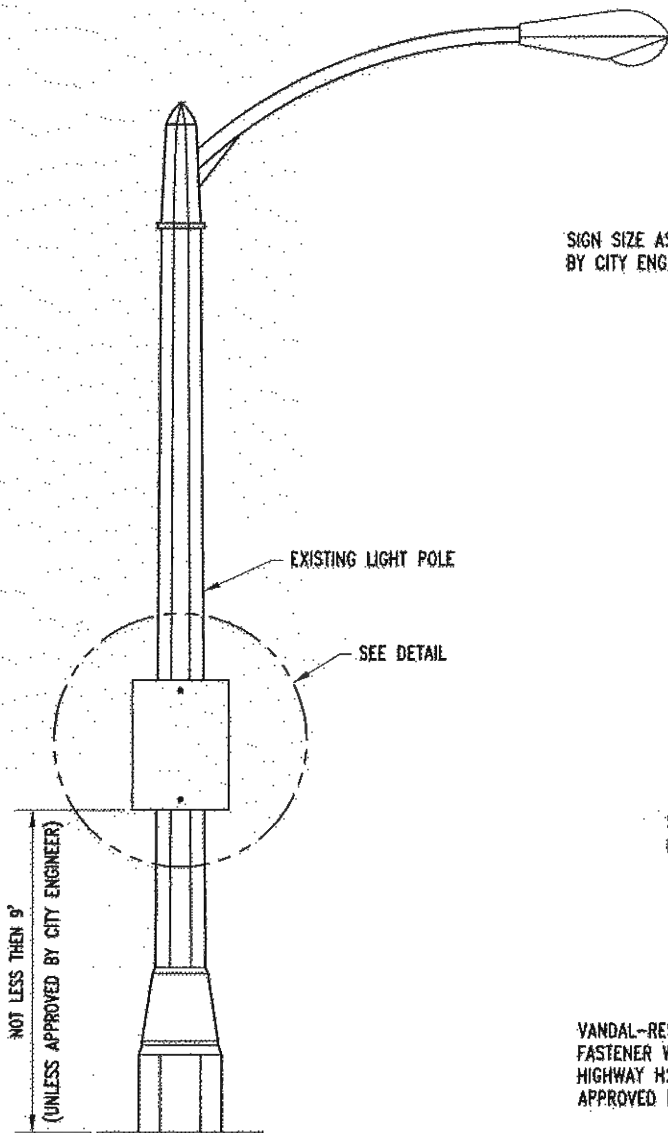
DATE: 12/18

GUIDE, WARNING AND REGULATORY SIGN INSTALLATION DETAIL

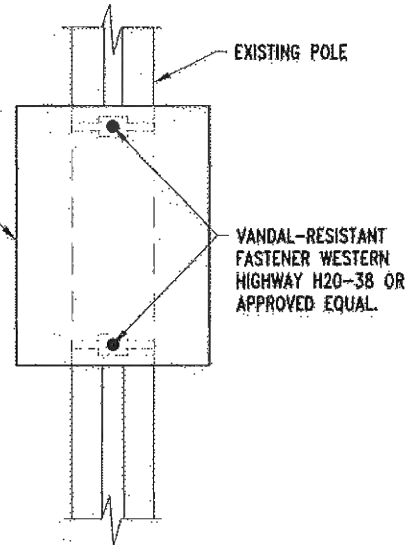
STANDARD NO.

T-7

REVISIONS:

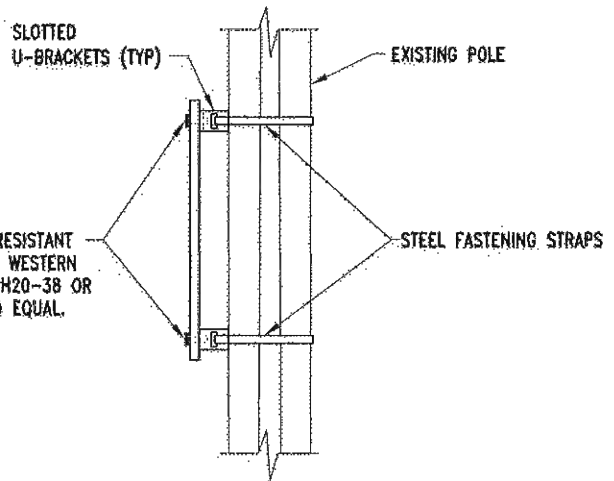


SIGN SIZE AS DIRECTED BY CITY ENGINEER



DETAIL - (FRONT)

N.T.S.



DETAIL - (SIDE)

N.T.S.

NOTE:
MAINTAIN MINIMUM 48"
UNOBSTRUCTED WALKWAY
FOR SIGN INSTALLATIONS
IN SIDEWALK AREAS.

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: T. LOPEZ

DRAWN: R. BAYAN

CHECKED:

APPROVED: *[Signature]*

DATE: 7/13

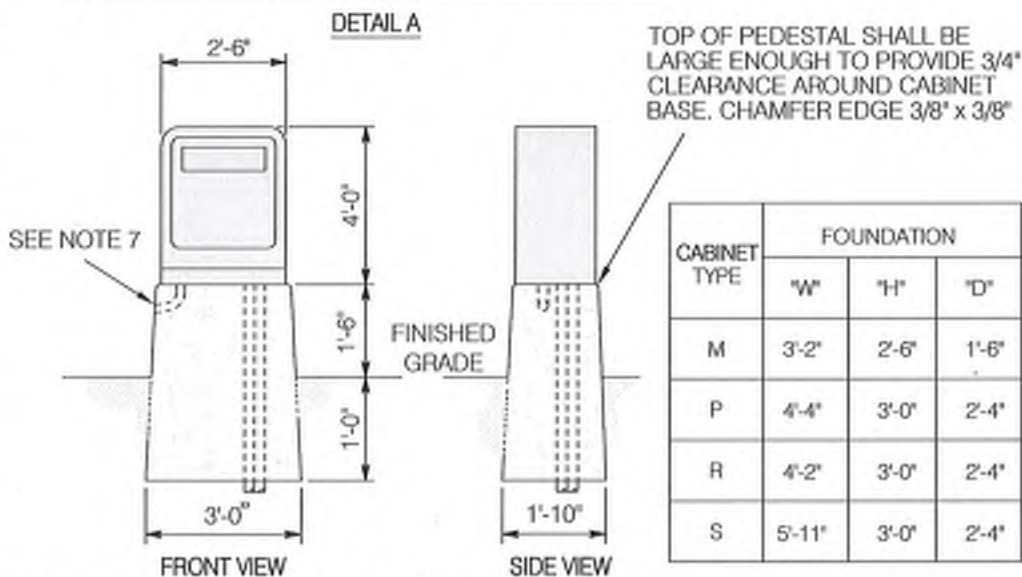
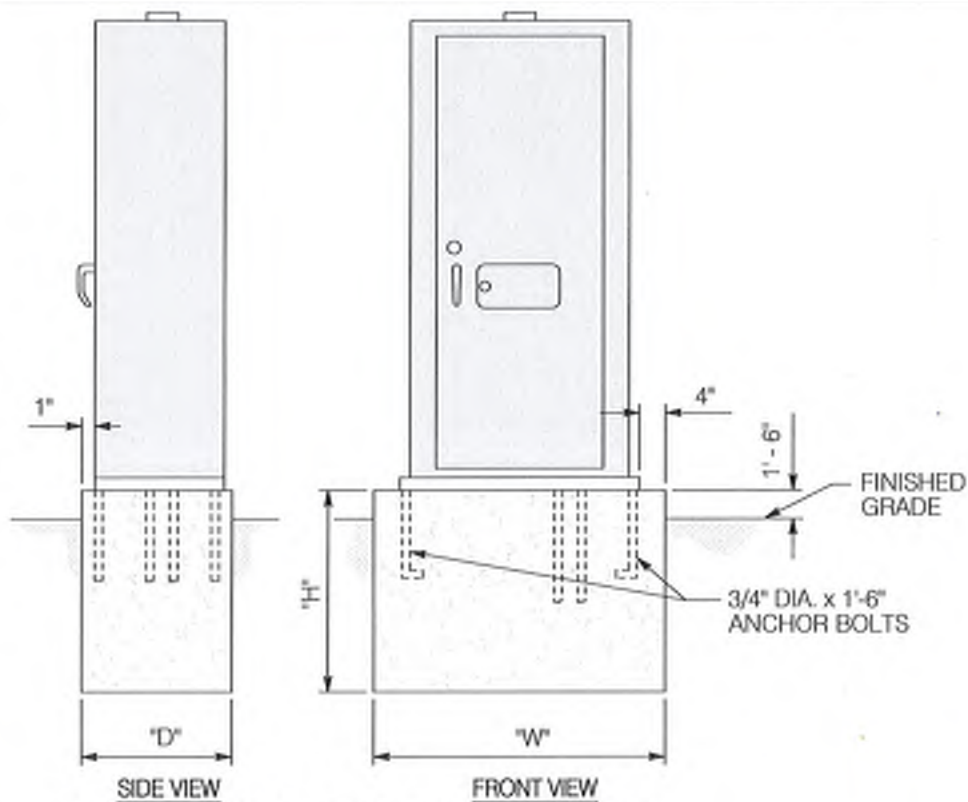
GUIDE, WARNING AND REGULATORY SIGN INSTALLATION DETAIL

STANDARD NO.

T-8

REVISIONS:
NOTES:

- CABINET DIMENSIONS ARE NOMINAL.
- FOUNDATION SHALL BE LOCATED TO PROVIDE 2'-0" MINIMUM CLEARANCE BETWEEN FACE OF CURB AND ANY PORTION OF CABINET.
- TYPE M, P, R, S AND MODEL 336L CABINETS SHALL BE INSTALLED WITH THE BACK TOWARD THE NEAREST LANE OF TRAFFIC.
- THE CONTROLLER CABINET GROUND BUS SHALL BE BONDED TO THE CONTROLLER EQUIPMENT ENCLOSURE.
- IN UNPAVED AREAS OR LANDSCAPED AREAS, A RAISED PORTLAND CEMENT CONCRETE PAD SHALL BE CONSTRUCTED IN FRONT OF EACH CONTROLLER CABINET. THE PAD SHALL BE 3'-0" X 4" THICK X WIDTH OF FOUNDATION FOR TYPE M, P, R, S AND MODEL 336L CABINETS.
- IN SIDEWALKS AND OTHER PAVED AREAS, TOP OF FOUNDATION FOR TYPE M, P, R AND S CABINETS SHALL BE 1'-6" ABOVE SURROUNDING GRADE.
- A 1" DRAIN SHALL BE PROVIDED THROUGH THE FOUNDATION OF A TYPE M OR MODEL 336L CABINET. DRAIN PIPE SHALL BE SCREENED.
- SEE TABLE FOR CABINET AND FOUNDATION DIMENSIONS; "D" = DEPTH, "H" = HEIGHT AND "W" = WIDTH.
- CABINET SHELVES SHALL BE ADJUSTABLE FOR VERTICAL SPACING AND SHALL BE REMOVABLE. TYPE M, P, R AND S CABINETS SHALL BE PROVIDED WITH A MINIMUM OF TWO SHELVES.
- ANCHOR BOLTS FOR TYPE M, P, R, S AND MODEL 336L CABINETS SHALL BE 3/4" DIA. X 1'-6" WITH A 2" - 90° BEND.
- AN APPROVED MASTIC OR CAULKING COMPOUND SHALL BE PLACED ON THE FOUNDATION PRIOR TO PLACING THE CABINET TO SEAL OPENINGS BETWEEN BOTTOM OF CABINET AND FOUNDATION.
- CONTROLLER UNITS, PLUG-MOUNTED EQUIPMENT, SHELF-MOUNTED EQUIPMENT AND WALL-MOUNTED EQUIPMENT SHALL BE LOCATED TO PERMIT SAFE AND EASY REMOVAL OR REPLACEMENT WITHOUT REMOVING ANY OTHER PIECE OF EQUIPMENT.
- CABINET FAN MAY BE INSTALLED AT AN ALTERNATE LOCATION NEAR THE TOP OF THE CABINET WHEN APPROVED BY THE ENGINEER.
- WHERE TELEPHONE INTERCONNECT IS REQUIRED, A MINIMUM OF 5' CLEAR VERTICAL SPACE SHALL BE PROVIDED INSIDE THE CABINET FOR THE EQUIPMENT.
- TELEPHONE INTERCONNECT CONDUCTORS SHALL BE ENCLOSED IN A 3/4" OR LARGER CONDUIT THROUGH THE FOUNDATION. TYPE 4 CONDUIT SHALL BE USED TO SEPARATE TELEPHONE AND POWER CONDUCTORS IN CABINETS AND PEDESTALS.



CABINET TYPE	FOUNDATION		
	"W"	"H"	"D"
M	3'-2"	2'-6"	1'-6"
P	4'-4"	3'-0"	2'-4"
R	4'-2"	3'-0"	2'-4"
S	5'-11"	3'-0"	2'-4"

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: T. LOPEZ

DRAWN: M.CENDANA/ R.BAYAN

 CHECKED: *RL*

 APPROVED: *ML*

DATE: 4/19

CONTROLLER CABINET FOUNDATION DETAILS





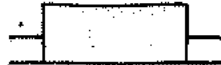

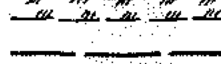



STANDARD NO.























T-9

LANDSCAPING

M-1	Standard Culture Symbols
M-2	Standard Tree Planting Detail (15 Gallon Tree or Smaller)
M-3	Tree Pruning for Street Lights
M-4	Standard Tree Planting Detail (24" Box Tree)
M-5	Standard Tree Planting Detail (15 Gallon)
M-6	Standard Tree Planting Detail (15 Gallon)
M-7	Standard Tree Planting Detail (24" Box)
M-8	Root Barrier Detail

REVISIONS:

- Future Curb & Gutter 
- Existing Curb & Gutter 
- Future Curb Only 
- Existing Curb Only 
- Future Concrete Driveway 
- Future Concrete Sidewalk 
- Existing Concrete Surface 
- Asphalt Surface 
- Future R/W Line (Property Line) 
- Existing R/W Line (Property Line) 

- Manholes Sewer 
- Storm Drain 
- Telephone 
- Edison Pole 
- Telephone Pole 
- Utility Pole with Anchor 
- Water Meter 
- Gas Meter 
- Valve 
- Fire Hydrant 
- Traffic Signal 
- Pull Box or Control Box 
- Street Light 
- Sign 
- Tree 
- Palm Tree 
- Shrub 
- Fence 
- Block Wall or Brick Wall 
- Test Boring 
- Bench Mark 
- Building 

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS IMPROVEMENT STANDARDS

DESIGNED *M.M.*
 DRAWN *F-2/F*
 CHECKED *JBP*
 APPROVED *GLD*
 DATE *June 27, 1967*

**STANDARD
 CULTURE
 SYMBOLS**

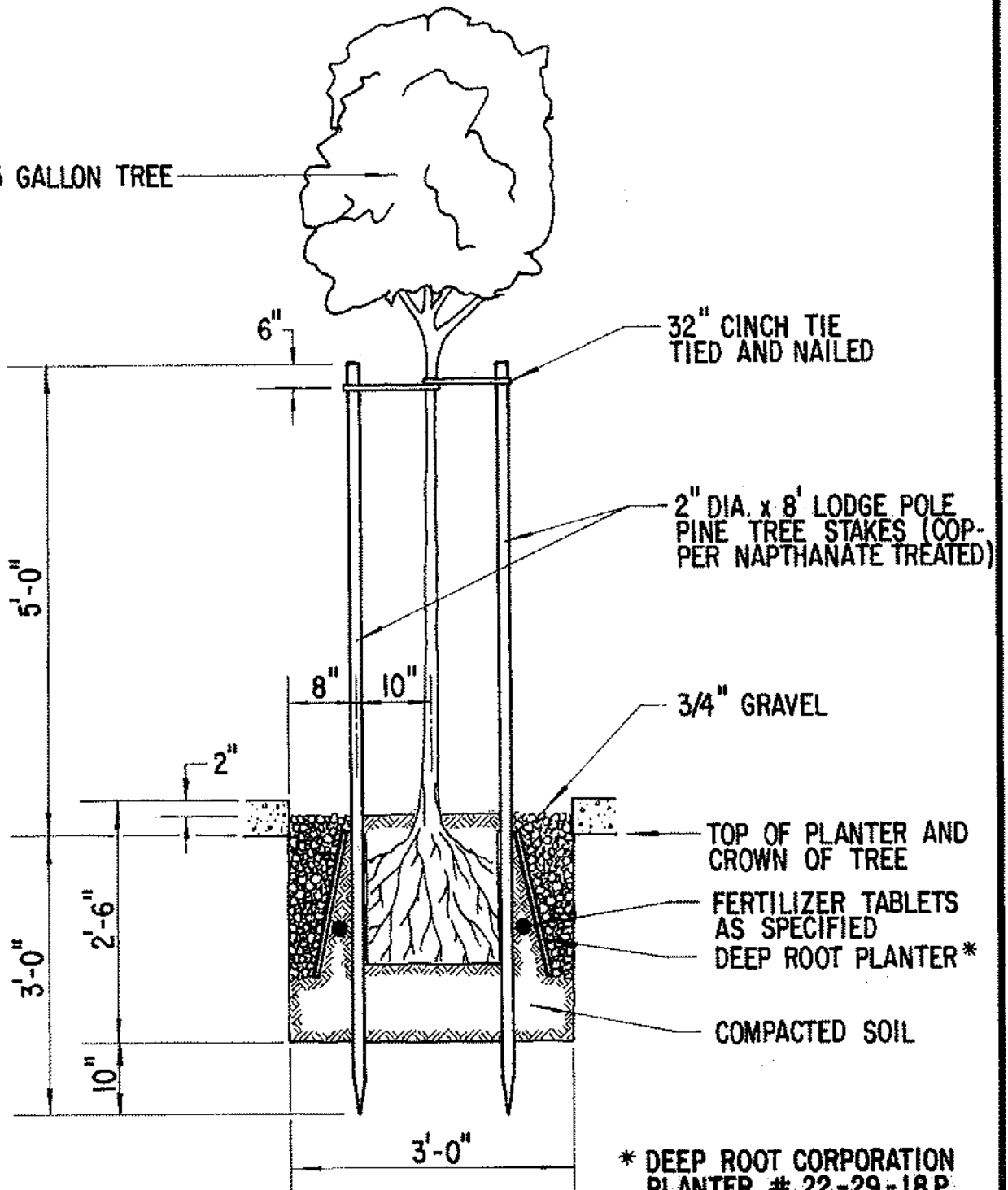
STANDARD NO

M-1

REVISIONS:

7-3-80

15 GALLON TREE



CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

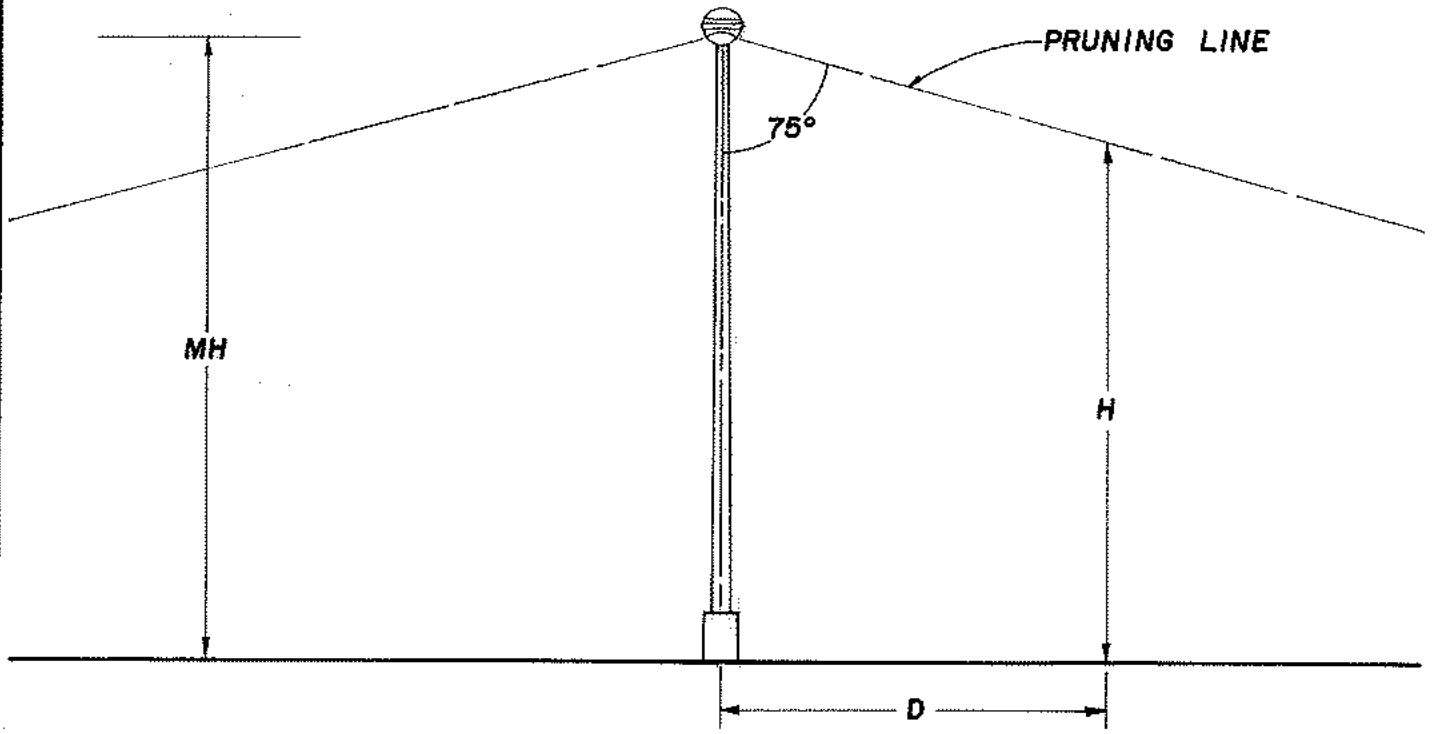
DESIGNED **S.M.K.**
 DRAWN **H.Q.**
 CHECKED *Azi2*
 APPROVED *AP*
 DATE **8-19-80**

**STANDARD TREE
 PLANTING DETAIL**
 (15 GALLON TREE OR SMALLER)

STANDARD NO

M-2

REVISIONS:



TREE PRUNING HEIGHT = $MH - 0.26D$

STD. L-1 MH=27'										
D	10	20	30	40	50	60	70	80	90	100
H	24.4	21.8	19.2	16.6	14	11.4	8.8	6.2	3.6	1
STD. L-2 MH=32'										
D	10	20	30	40	50	60	70	80	90	100
H	29.4	26.8	24.2	21.6	19	16.4	13.8	11.2	8.6	6

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED **BURTT**

DRAWN **MOORE**

CHECKED *AS A 2/2/83*

APPROVED *JP*

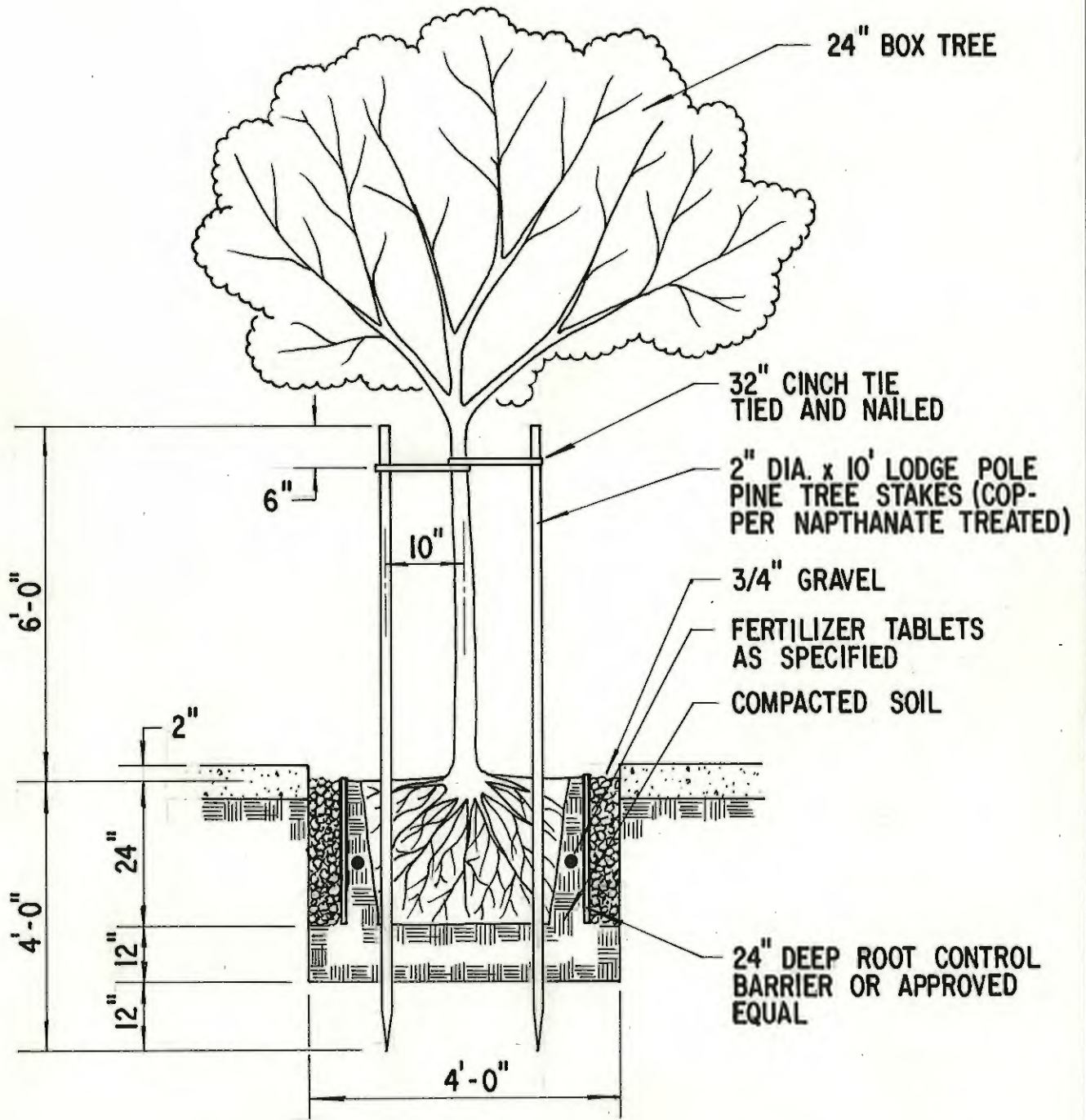
DATE **4-28-83**

**TREE PRUNING
FOR
STREET LIGHTS**

STANDARD NO

M-3

REVISIONS:



CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED HQ

DRAWN HQ

CHECKED *RBA 2/12/84*

APPROVED *[Signature]*

DATE 1-27-84

STANDARD TREE PLANTING DETAIL

STANDARD NO

M-4

REVISIONS:

12/10/86 ETC.

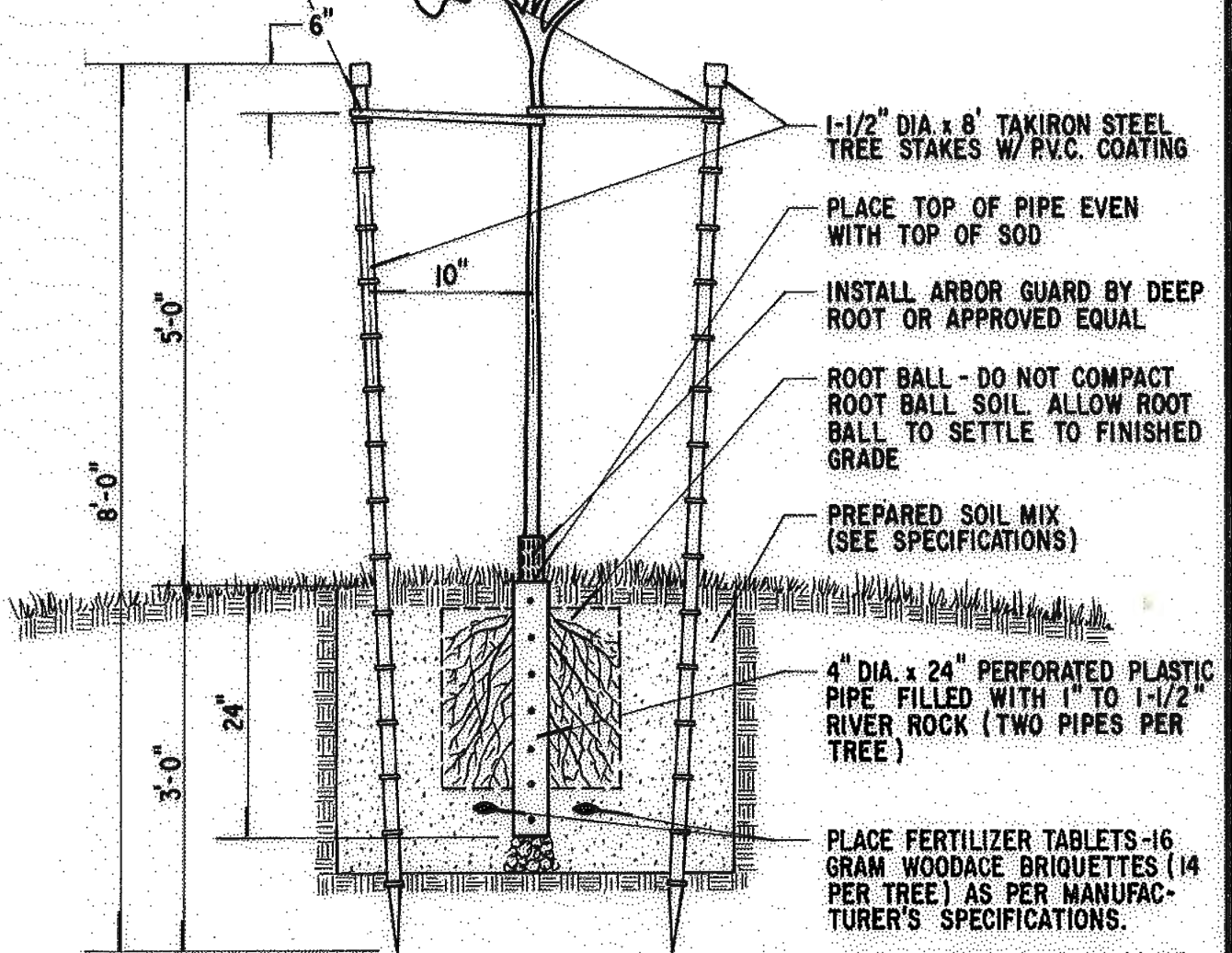
15 GALLON TREE

CINCH TIE FASTENED TO STAKE W/SHEET METAL SCREW

4" DIA. PLASTIC PIPES PLACED NEXT TO THE ROOT BALL

TREE STAKES

PLAN VIEW
(NO SCALE)



ELEVATION
(NO SCALE)

NOTE: THE PLANTING HOLE SHALL BE TWICE AS WIDE AS THE ROOT BALL AND ABOUT 6" DEEPER.

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: HQ

DRAWN BY: HQ

CHECKED: *ETA*

APPROVED: *[Signature]*

DATE: 7/10/86

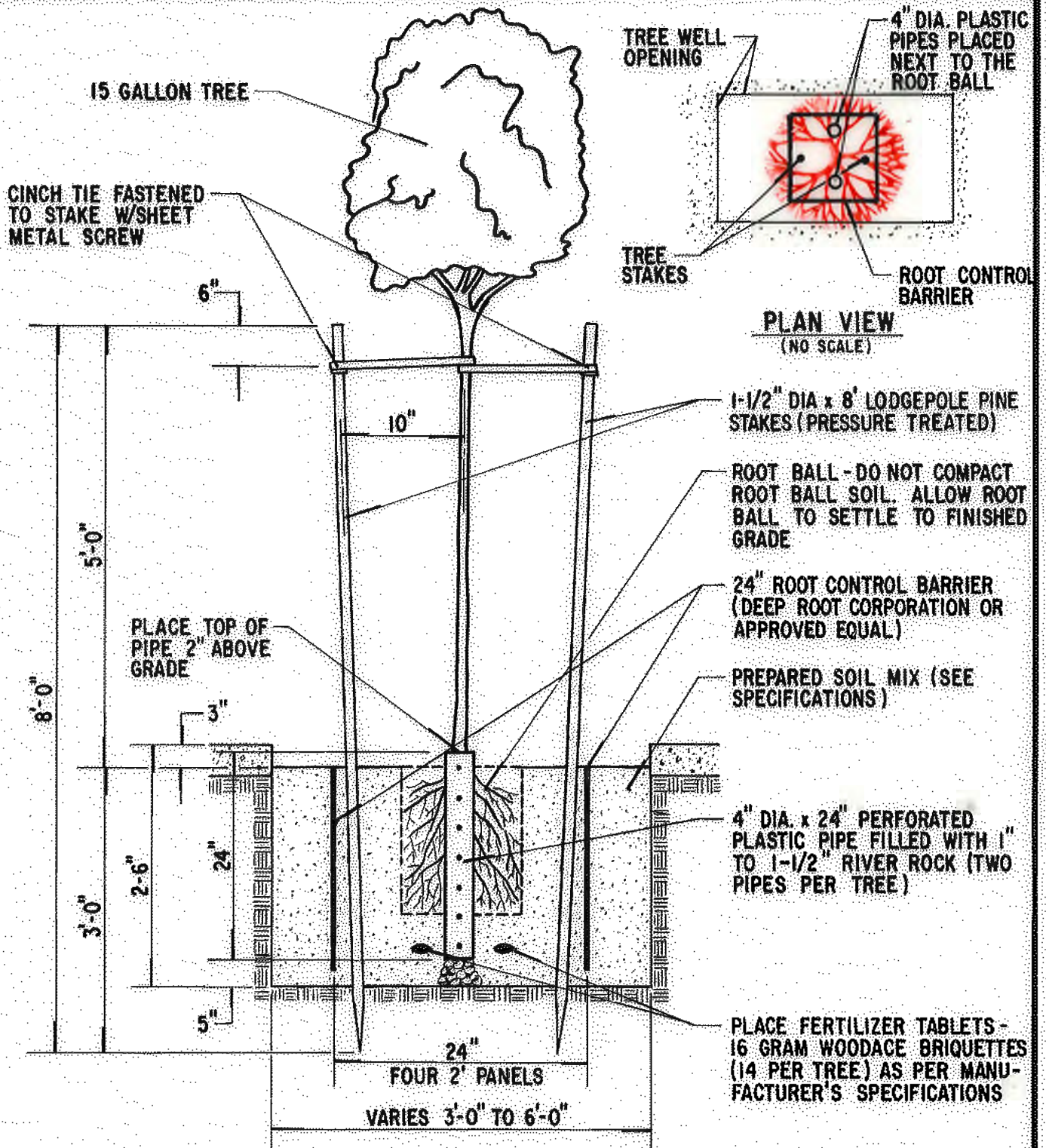
STANDARD TREE PLANTING DETAIL

STANDARD NO.

M-5

REVISIONS:

12/4/86 HQ



CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: FT. CARDIEL

DRAWN: HQ

CHECKED: ETA

APPROVED: [Signature]

DATE: 7/10/86

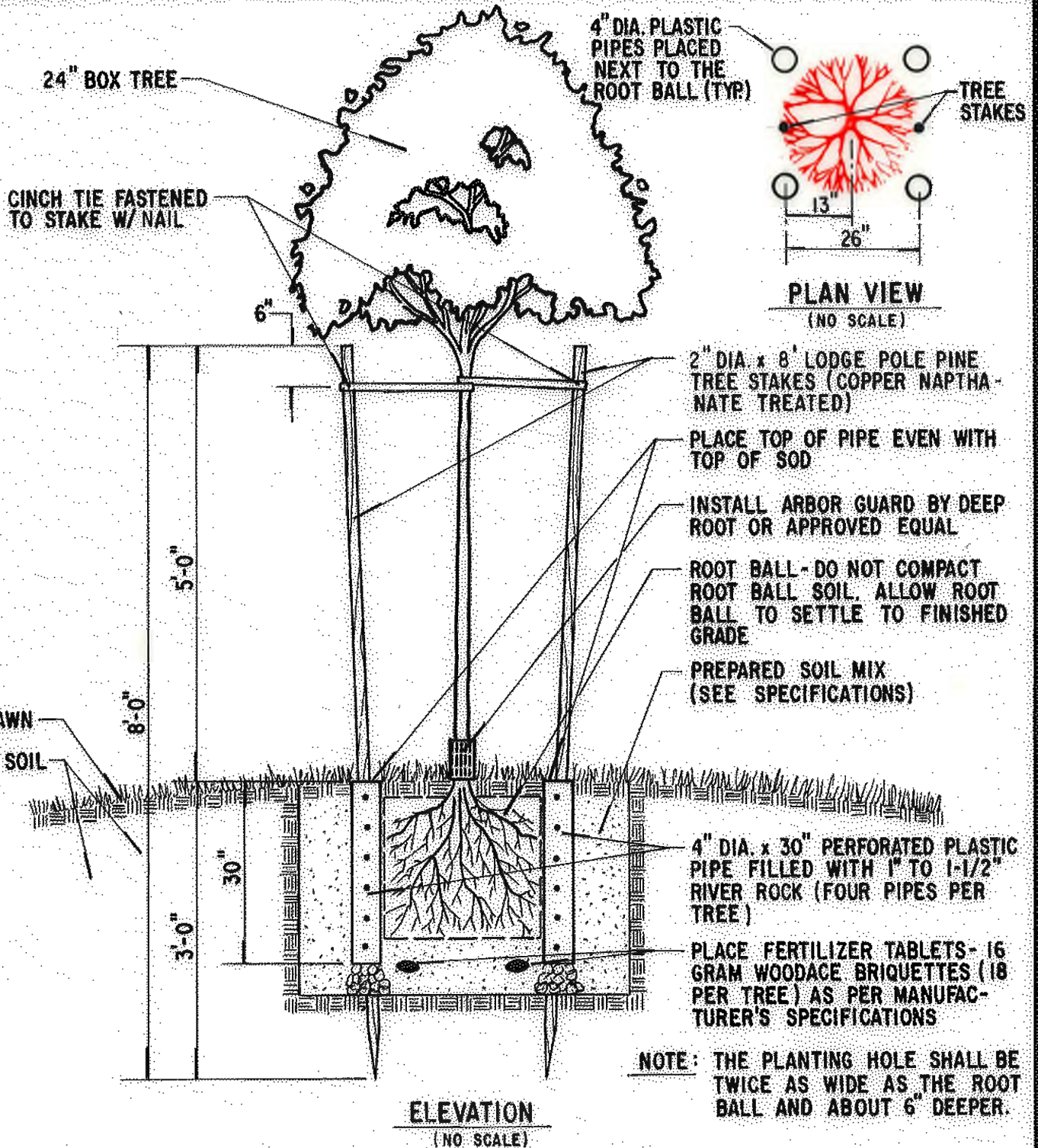
STANDARD TREE PLANTING DETAIL

STANDARD NO.

M-6

REVISIONS:

6-9-88 HQ



CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: FT. CARDIEL

DRAWN BY: HQ

CHECKED: ETA

APPROVED: JRP

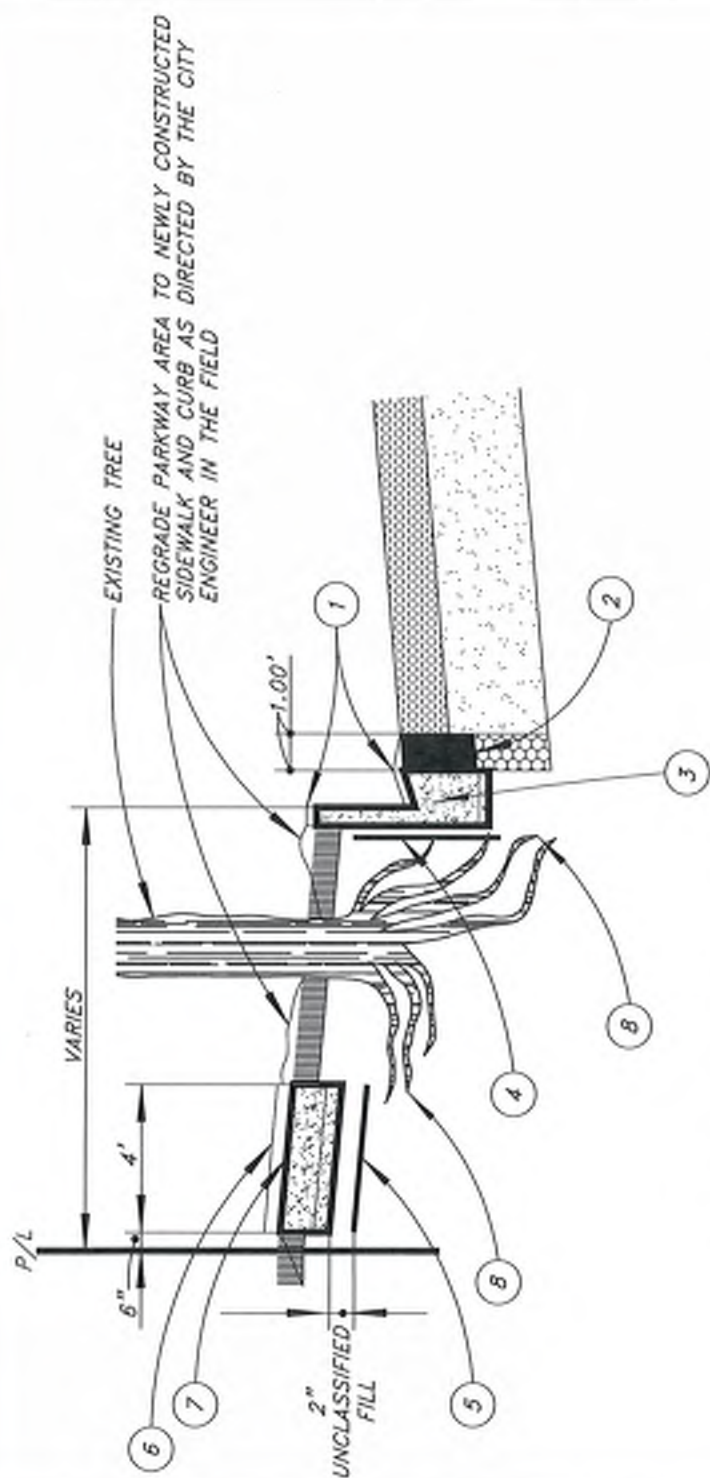
DATE: 12/11/86

STANDARD TREE PLANTING DETAIL

STANDARD NO.

M-7

REVISIONS:



CONSTRUCTION NOTES

- 1 SAWCUT AND REMOVE EXISTING P.C.C. CURB, GUTTER AND A.C. OR MACADAM PAVEMENT (1 FT. OUT FROM EDGE OF GUTTER - UNLESS NOTED OTHERWISE). LENGTH TO BE DETERMINED IN THE FIELD.
- 2 CONSTRUCT 6" A.C. PAVEMENT ON COMPACTED SUBGRADE.
- 3 CONSTRUCT P.C.C. CURB AND GUTTER (TO MATCH EXISTING) PER CITY OF S.F.S. STD. DWG. R-7.
- 4 INSTALL 19.5" WIDE "BIO BARRIER" AT 1" BELOW FINISH GRADE ADJACENT TO FOOTING OF P.C.C. CURB AND GUTTER.
- 5 INSTALL 39" WIDE "BIO BARRIER" AT 2" BELOW FOOTING OF P.C.C. SIDEWALK.
- 6 SAWCUT AND REMOVE EXISTING P.C.C. SIDEWALK (AT LOCATIONS SHOWN OR AS DIRECTED BY THE CITY ENGINEER).
- 7 CONSTRUCT 4" P.C.C. SIDEWALK PER CITY OF S.F.S. STD. DWG. NO. R-2 (AT LOCATIONS SHOWN OR AS DIRECTED BY THE CITY ENGINEER). LENGTH TO BE DETERMINED IN THE FIELD.
- 8 PRUNE TREE ROOTS AS DIRECTED BY THE CITY ENGINEER IN THE FIELD.

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS IMPROVEMENT STANDARDS

DESIGNED BY:
 DRAWN BY: G. LOPEZ
 CHECKED BY:
 APPROVED BY: *[Signature]*
 DATE: 7/13

ROOT BARRIER DETAIL

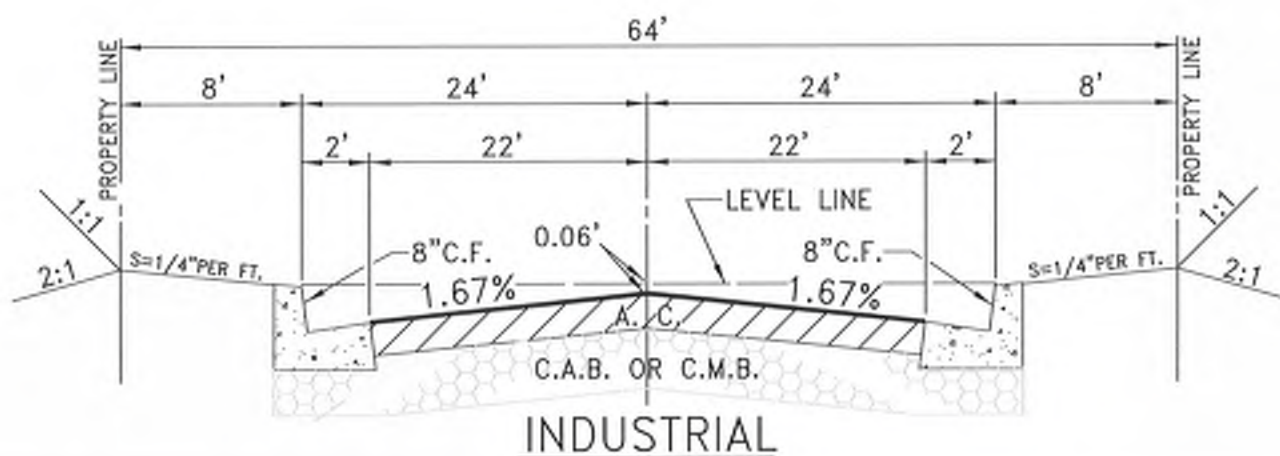
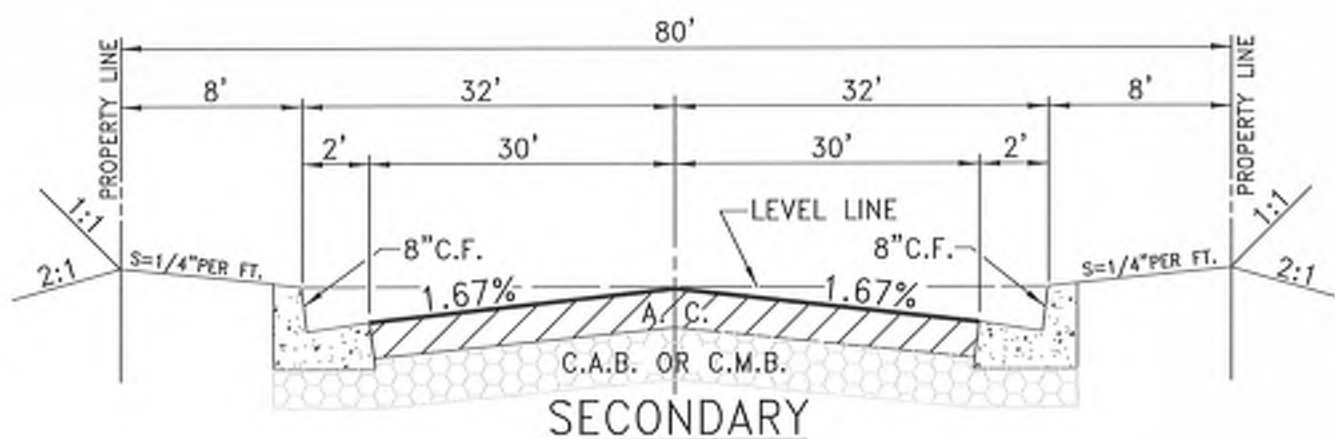
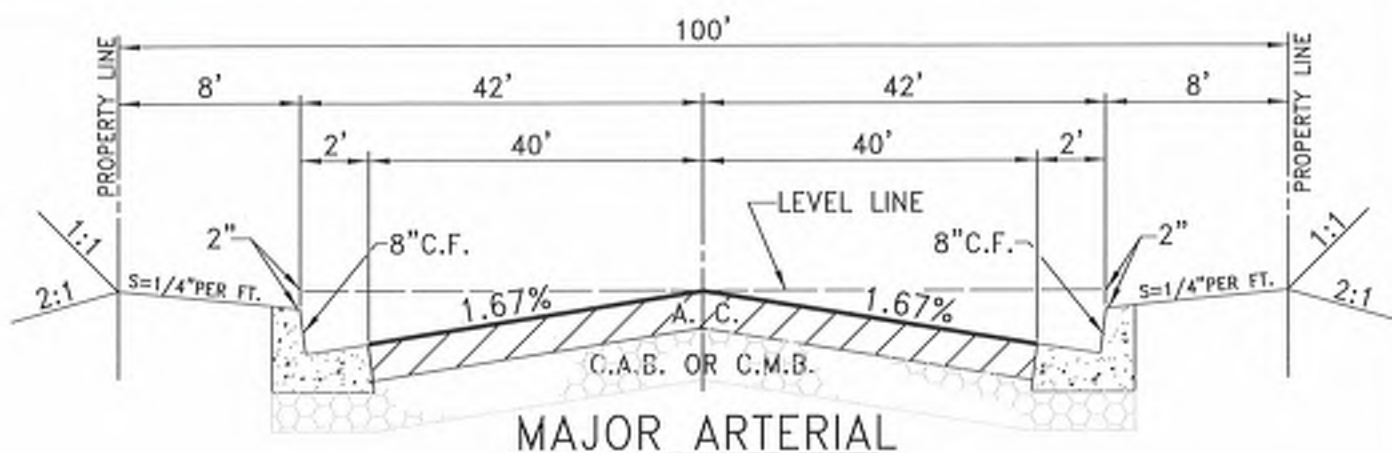
STANDARD NO.
036

M-8

STREET

R-1	Typical Street Sections
R-2	Residential Sidewalk Details
R-2.1	Sidewalk Return Details (Corner Cut-Off Return)
R-2.2	Sidewalk Return Details (Corner Radial Return)
R-3.2	Cross Gutter (Section A-A)
R-3.3	Cross Gutter (Section C-C)
R-3.4	Cross Gutter (Section B-B)
R-5	Guard Panel Detail
R-6.1	Residential Driveway
R-6.2	Commercial Driveway
R-6.3	Temporary Asphalt Concrete Driveway Special
R-6.4	Commercial Driveway (Section B-B) Special
R-6.4A	Commercial Driveway (Section B-B) Special
R-6.4B	Commercial Driveway (Section B-B) Special
R-6.4C	Commercial Driveway (Section B-B) Commercial
R-6.4D	Driveway
R-7	Curb & Gutter
R-8.1	Cul-de-Sacs (For Industrial Streets)
R-9	Street Transition at Railroad Crossing
R-10	Median Nose Detail for Signalized Intersections
R-11	Trench Paving Detail
R-11.1	Trench Paving Detail
R-12	Meandering Sidewalk
R-13	Existing PCC Grinding Repair
R-14	Existing PCC Pavemnt Joint Filler & Sealant

REVISIONS:



CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: TREZ
 DRAWN: TREZ
 CHECKED:
 APPROVED: 
 DATE: 10/18

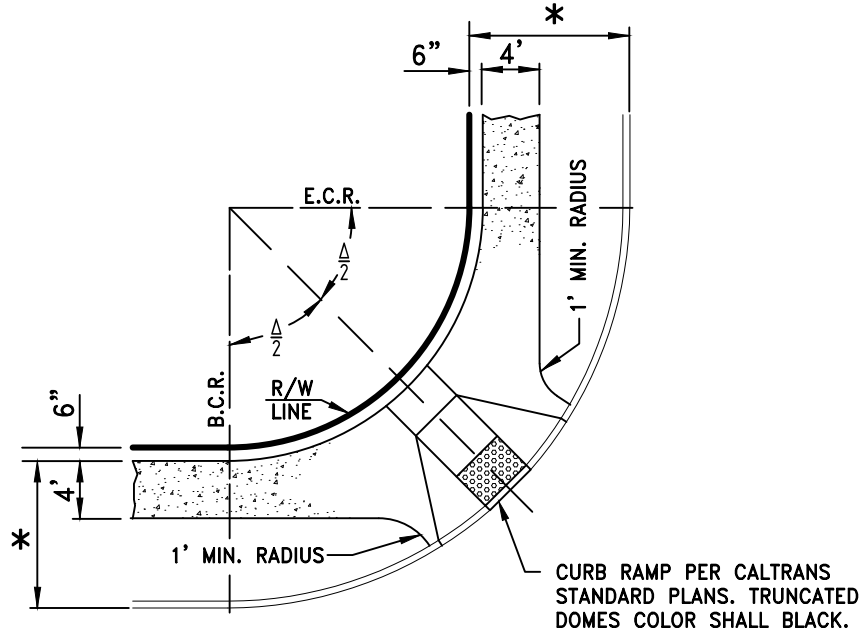
TYPICAL
 STREET SECTIONS

STANDARD NO.

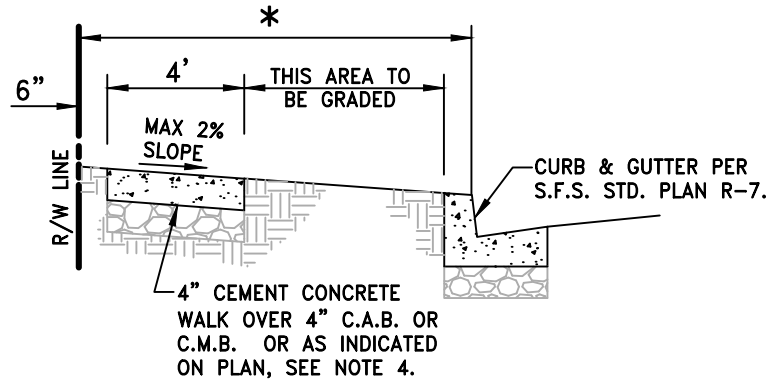
R-1

REVISIONS:

7/19



TYPICAL WALK RETURN



TYPICAL SIDEWALK SECTION

ABBREVIATIONS:

- B.C.R. BEGINNING OF CURB RETURN
- E.C.R. END OF CURB RETURN
- C.A.B. CRUSHED AGGREGATE BASE
- C.M.B. CRUSHED MISCELLANEOUS BASE
- R/W RIGHT-OF-WAY
- S.F.S. SANTA FE SPRINGS
- STD. STANDARD

NOTES:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION UNLESS OTHERWISE SPECIFIED HEREIN.
2. PARKWAY WIDTHS AS INDICATED BY AN ASTERISK (*) ARE SHOWN ON PLANS OR AS-BUILTS.
3. SIDEWALKS SHALL BE CONSTRUCTED OF CLASS 520-C-2500 PORTLAND CEMENT CONCRETE.
4. C.A.B. OR C.M.B. UNDER CONCRETE SHALL BE PLACED AS SHOWN ON THE PLANS AND SPECS OR AS DIRECTED IN THE FIELD BY THE ENGINEER.
5. CURB RAMPS SHALL BE FROM B.C.R. TO E.C.R. AND SHALL INCLUDE SIDEWALK AND CURB & GUTTER.

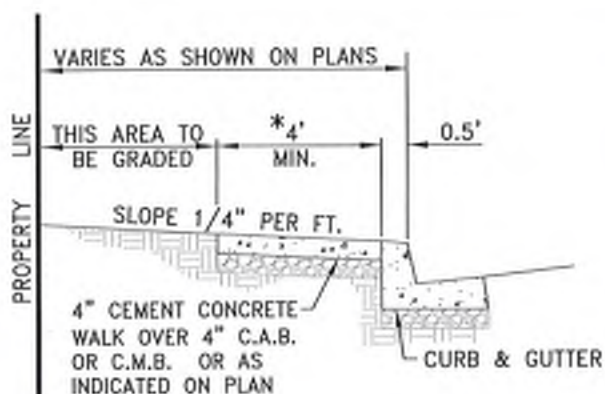
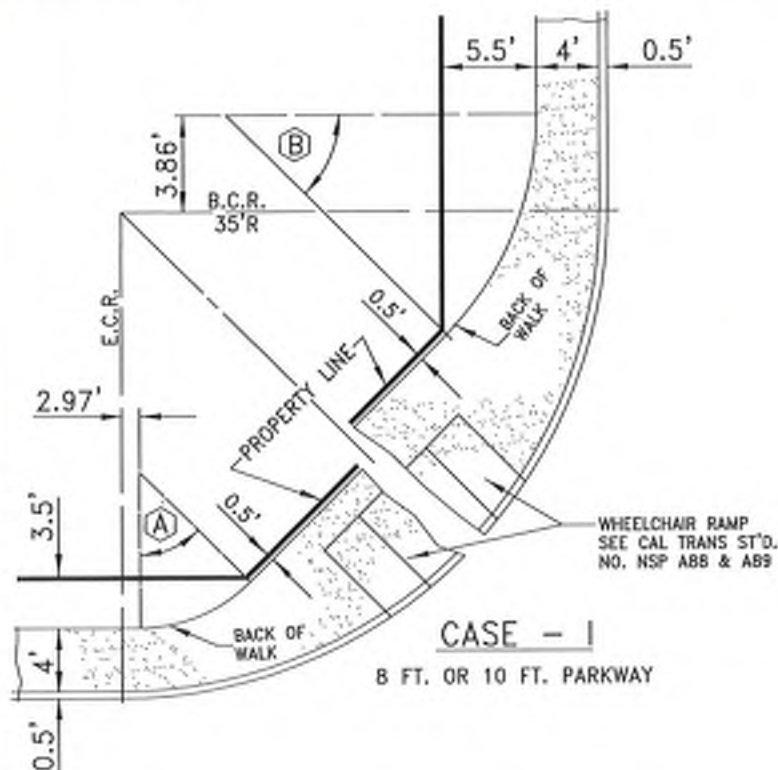
CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: FLORES	<h1>RESIDENTIAL SIDEWALK DETAILS</h1>	STANDARD NO.
DRAWN: FLORES		<h1>R-2</h1>
CHECKED: GARCIA		
APPROVED:		
DATE: 3/26		

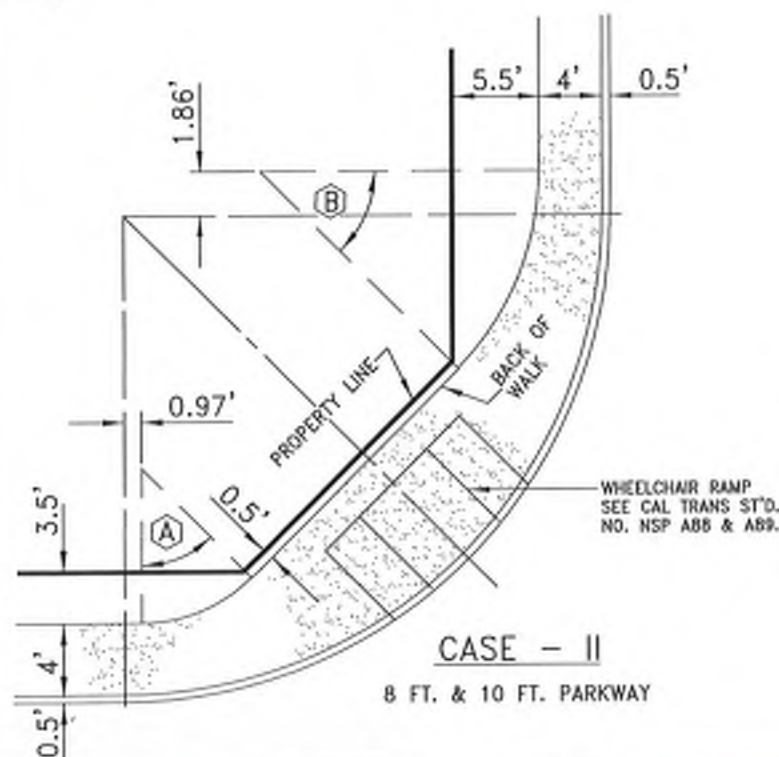
REVISIONS:



NOTE:

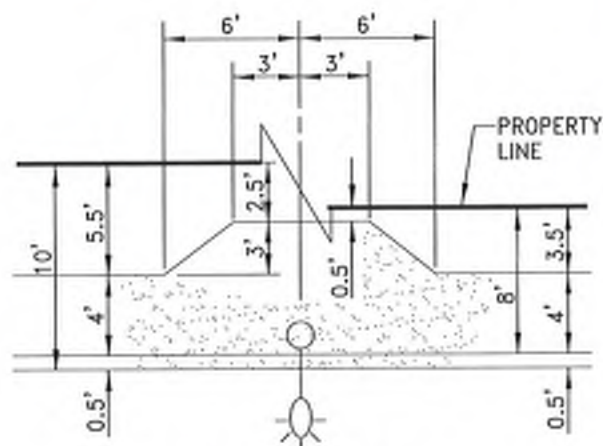
SIDEWALKS SHALL BE CONSTRUCTED OF CLASS 520 C 2500 PORTLAND CEMENT CONCRETE FOUR (4) INCHES THICK.

* SIDEWALK WIDTH AS APPROVED BY THE CITY ENGINEER.



CURVE DATA:

(A)	A = 45°	(B)	A = 45°
	R = 10.24'		R = 17.07'
	L = 8.04'		L = 13.41'
	T = 4.24'		T = 7.07'



CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: TREZ
DRAWN: TREZ
CHECKED:
APPROVED: 
DATE: 7/19

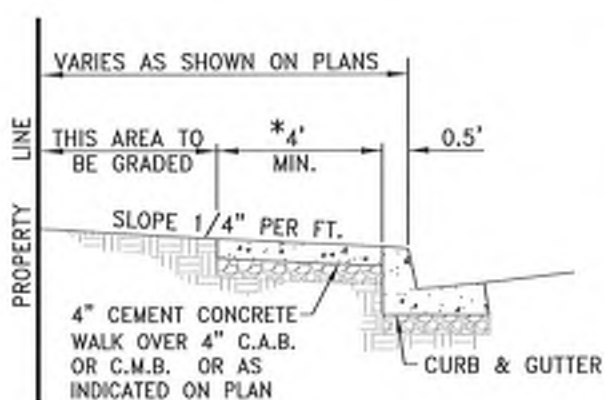
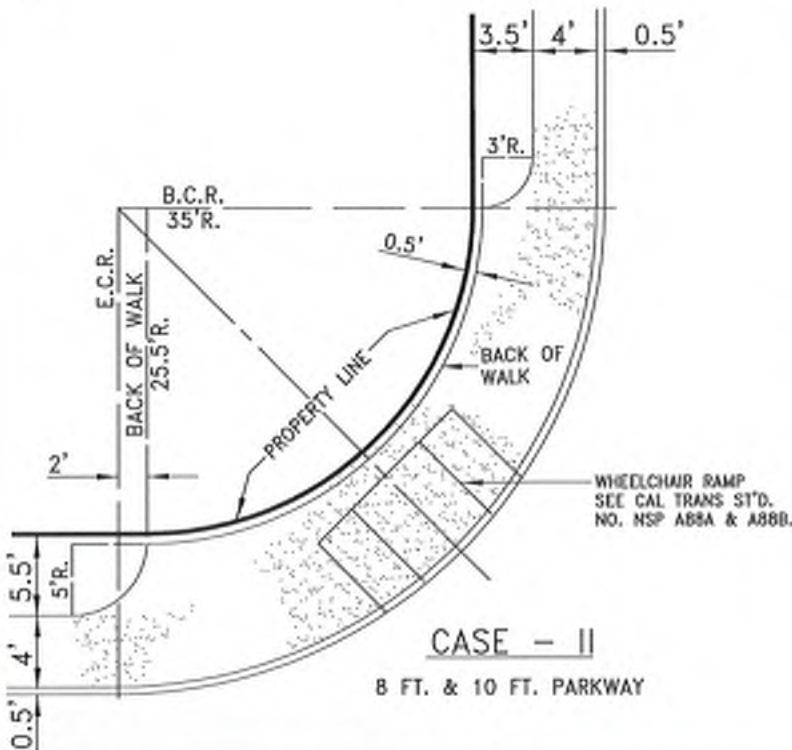
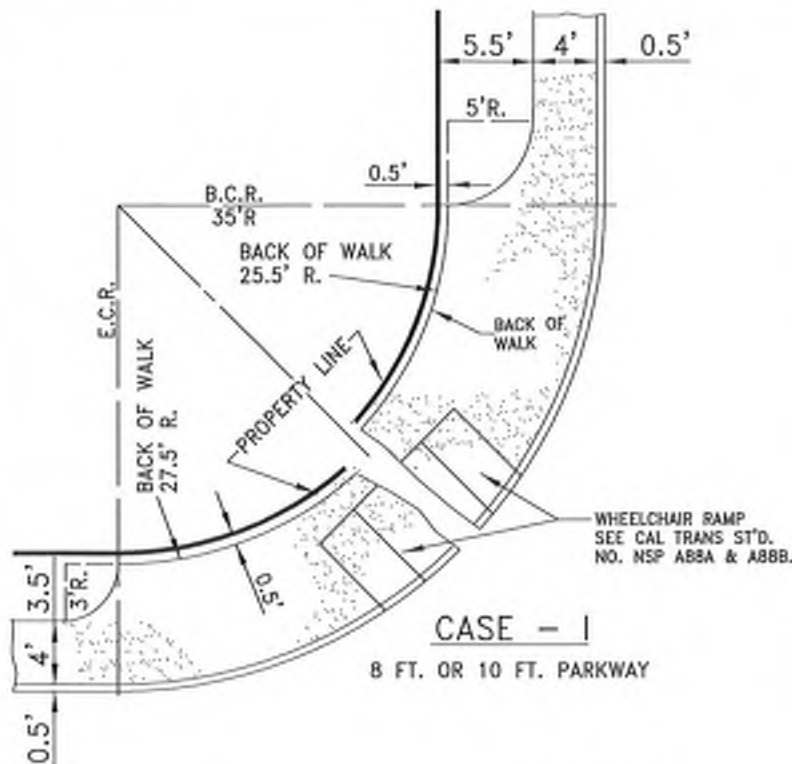
SIDEWALK/RETURN DETAILS

(CORNER CUT-OFF RETURN)

STANDARD NO.

R-2.1

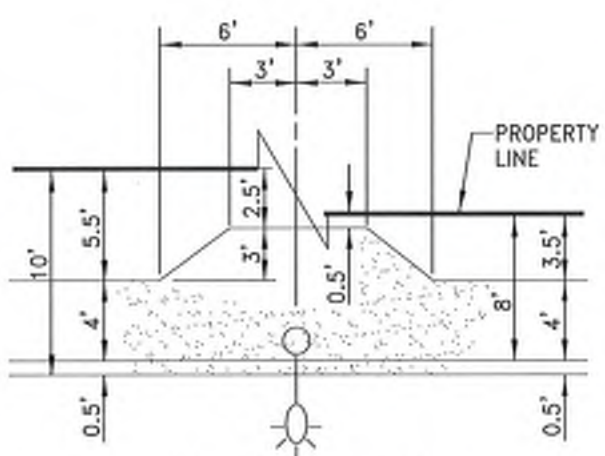
REVISIONS:



TYPICAL SIDEWALK SECTION

NOTE:
SIDEWALKS SHALL BE CONSTRUCTED OF CLASS 520 C 2500 PORTLAND CEMENT CONCRETE FOUR (4) INCHES THICK.

* SIDEWALK WIDTH AS APPROVED BY THE CITY ENGINEER.




SIDEWALK DETAIL
(TYPICAL FOR PED. OBSTRUCTIONS)

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

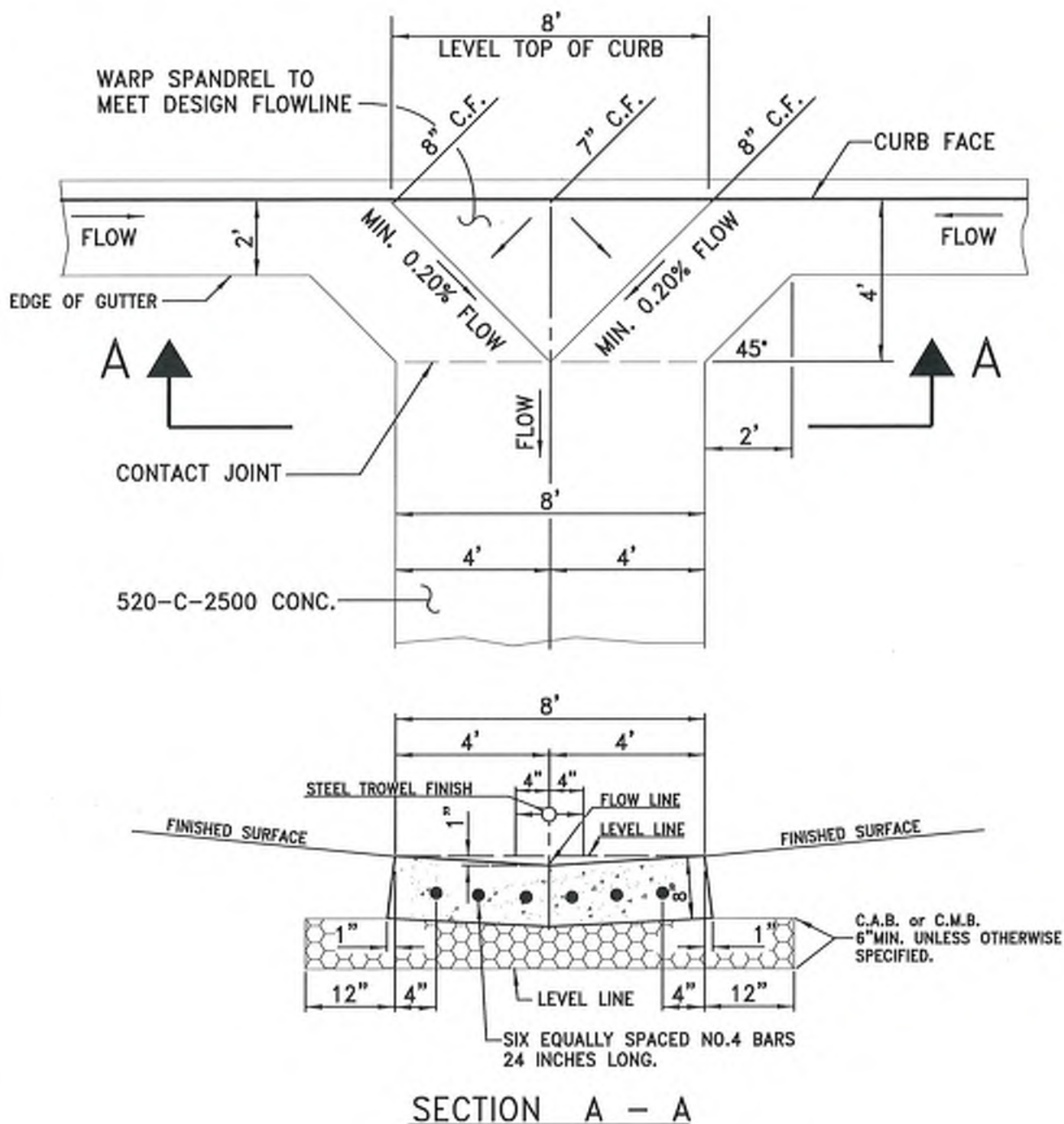
IMPROVEMENT STANDARDS

DESIGNED: TREZ
DRAWN: TREZ/ BAYAN
CHECKED:
APPROVED: 
DATE: 7/19

SIDEWALK/RETURN DETAILS
(CORNER RADIAL RETURN)

STANDARD NO.
R-2.2

REVISIONS:



CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: TREZ

DRAWN: BAYAN

CHECKED:

APPROVED:

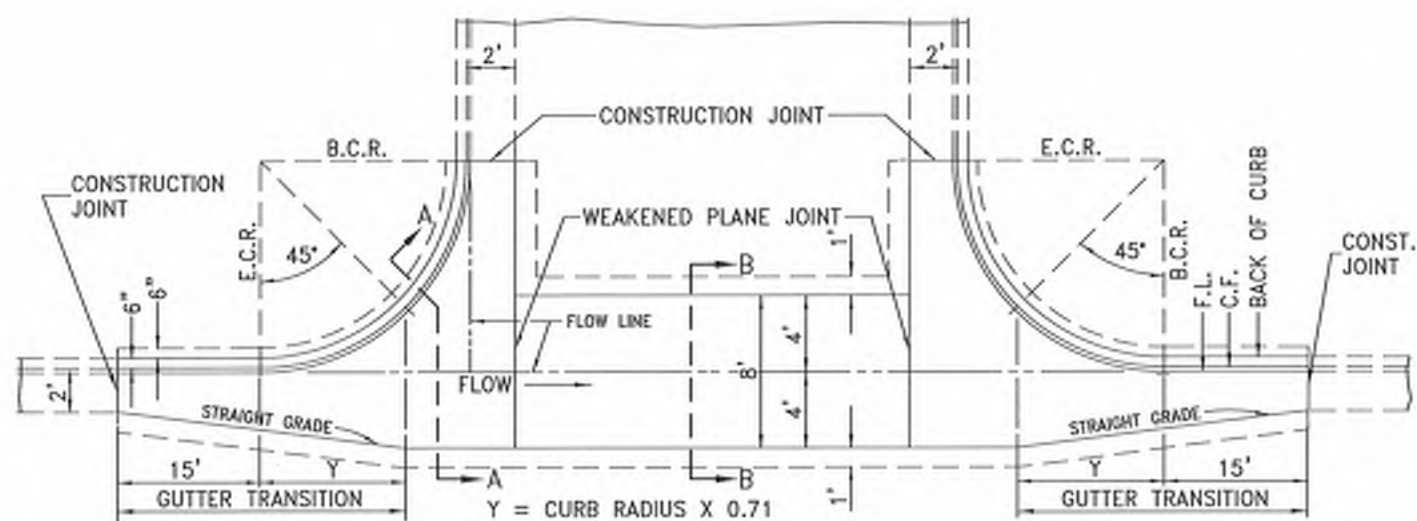
DATE: 5/19

CROSS GUTTER

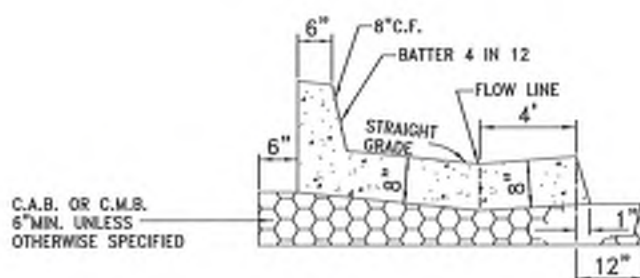
STANDARD NO.

R-3.2

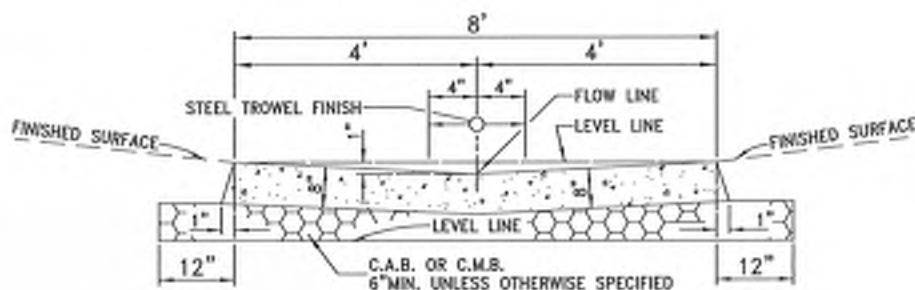
REVISIONS:



PLAN



SECTION A-A



SECTION B-B

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: TREZ
 DRAWN: TREZ/ BAYAN
 CHECKED:
 APPROVED: 
 DATE: 10/18

CROSS GUTTER

STANDARD NO.

R-3.4

REVISIONS:

11-7-61

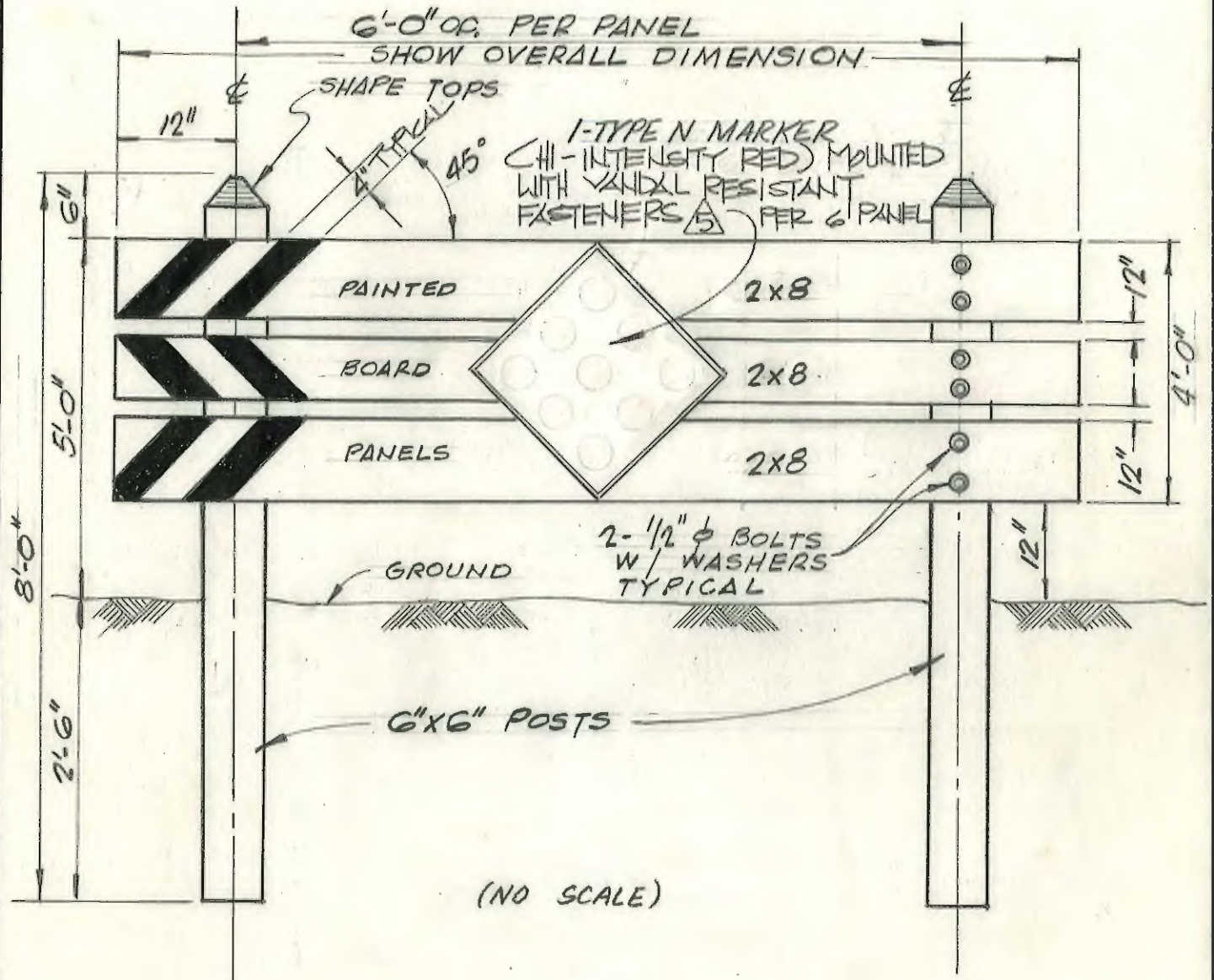
4-8-66

6-28-83

10-4-83

5/7/88

glo
JP
AM



NOTE:

PAINT PANELS 3-COAT REFLECTORIZED WHITE WITH REFLECTORIZED RED STRIPES.

ALL LUMBER SHALL BE PRESSURE TREATED DOUGLAS FIR (5)

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED H.H.O.

DRAWN H.H.O.

CHECKED

APPROVED

DATE 4-8-66

GUARD PANEL DETAIL

STANDARD NO

R-5

REVISIONS:

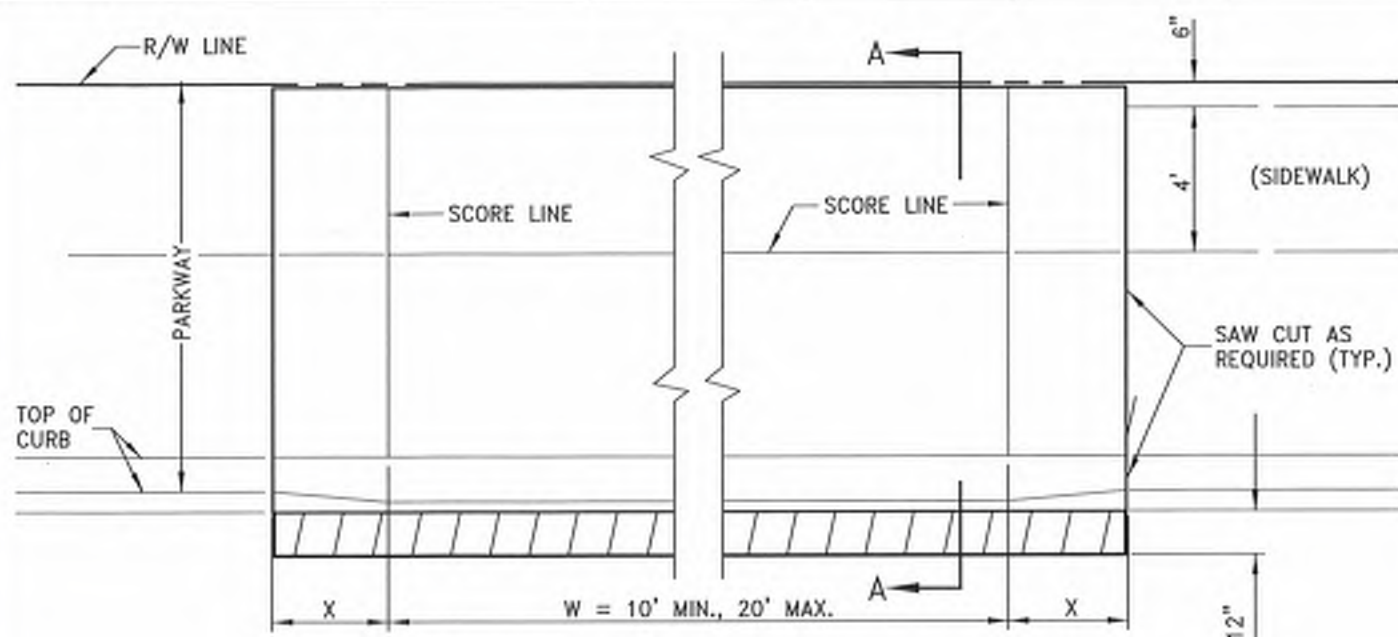
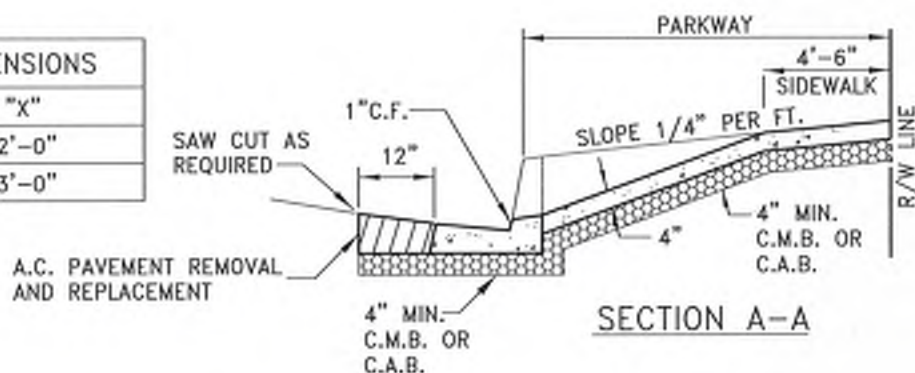


TABLE OF "X" DIMENSIONS	
CURB FACE	"X"
7 1/2" OR LESS	2'-0"
8" TO 12"	3'-0"



NOTES:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION UNLESS OTHERWISE SPECIFIED HEREIN.
2. THE MINIMUM DISTANCE BETWEEN THE TOP OF THE SIDE SLOPES ON ADJACENT DRIVEWAYS IS TWO (2) FEET.
3. CLASS 520-C-2500 CONCRETE SHALL BE USED FOR ALL SUCH WORK UNLESS OTHERWISE SPECIFIED ON THE PLANS APPROVED BY THE CITY ENGINEER.
4. WHEN EXISTING SIDEWALK IS LESS THAN 4", SAWCUT AND REPLACE WITH 4" SIDEWALK.
5. SCORING LINES SHALL CORRESPOND WITH THE SCORING LINES IN THE ADJACENT SIDEWALK.
6. A DRIVEWAY SHALL NOT ENCROACH ON ANY CURB RETURN.
7. CONCRETE APRONS MUST BE A SOLID ONE PIECE SLAB WITH NO SEAMS, JOINTS OR PATCHES.

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: TREZ/GARCIA

DRAWN: TREZ/ BAYAN

CHECKED:

APPROVED:

DATE: 9/18

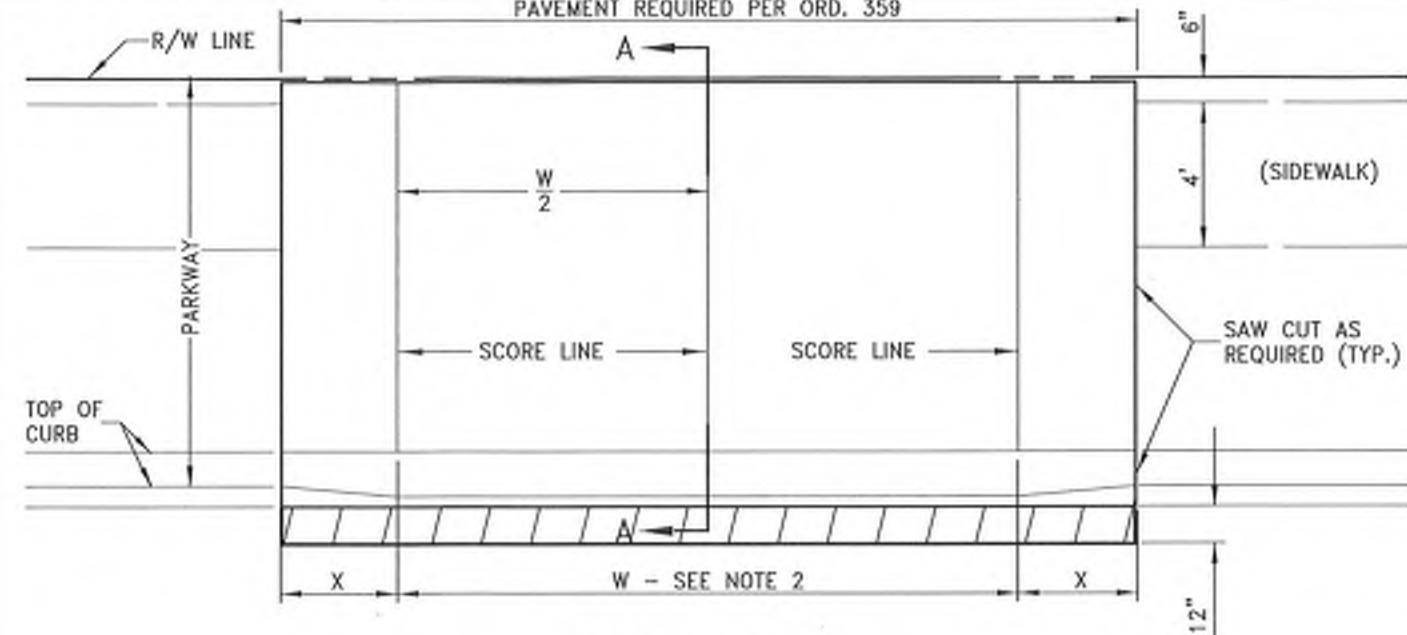
RESIDENTIAL DRIVEWAY

STANDARD NO.

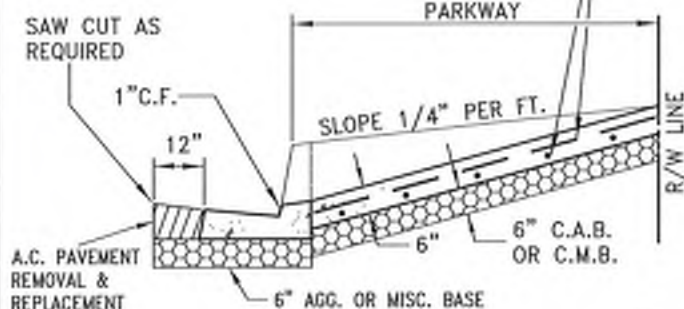
R-6.1

REVISIONS:

PAVEMENT REQUIRED PER ORD. 359



#4@18"O/C EACH WAY (CENTER IN SLAB)



SECTION A-A

TABLE OF "X" DIMENSIONS

CURB FACE	"X"
8" TO 8 1/2"	4'-0"
9" TO 9 1/2"	4'-6"
10" TO 10 1/2"	5'-0"
11" TO 12"	6'-0"

NOTES:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION UNLESS OTHERWISE SPECIFIED HEREIN.
2. THE MAXIMUM "W" OF DRIVEWAYS IS 40'.
3. THE MINIMUM "W" OF DRIVEWAYS IS 14'.
4. THE MINIMUM DISTANCE BETWEEN THE TOP OF "X" AND PROPERTY LINE SHALL BE ONE (1') FOOT.
5. CLASS 520-C-2500 CONCRETE SHALL BE USED FOR ALL SUCH WORK UNLESS OTHERWISE SPECIFIED ON THE PLANS APPROVED BY THE CITY ENGINEER.
6. A DRIVEWAY, INCLUDING SIDE SLOPES, SHALL NOT ENCROACH ON ANY CURB RETURN.
7. CONCRETE APRONS MUST BE A SOLID ONE PIECE SLAB WITH NO SEAMS, JOINTS OR PATCHES.

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: TREZ/ GARCIA

DRAWN: TREZ/ BAYAN

CHECKED:

APPROVED:

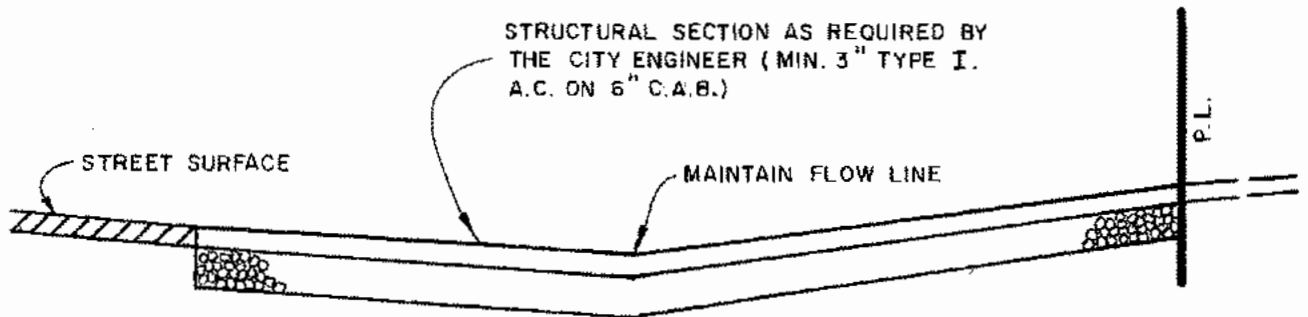
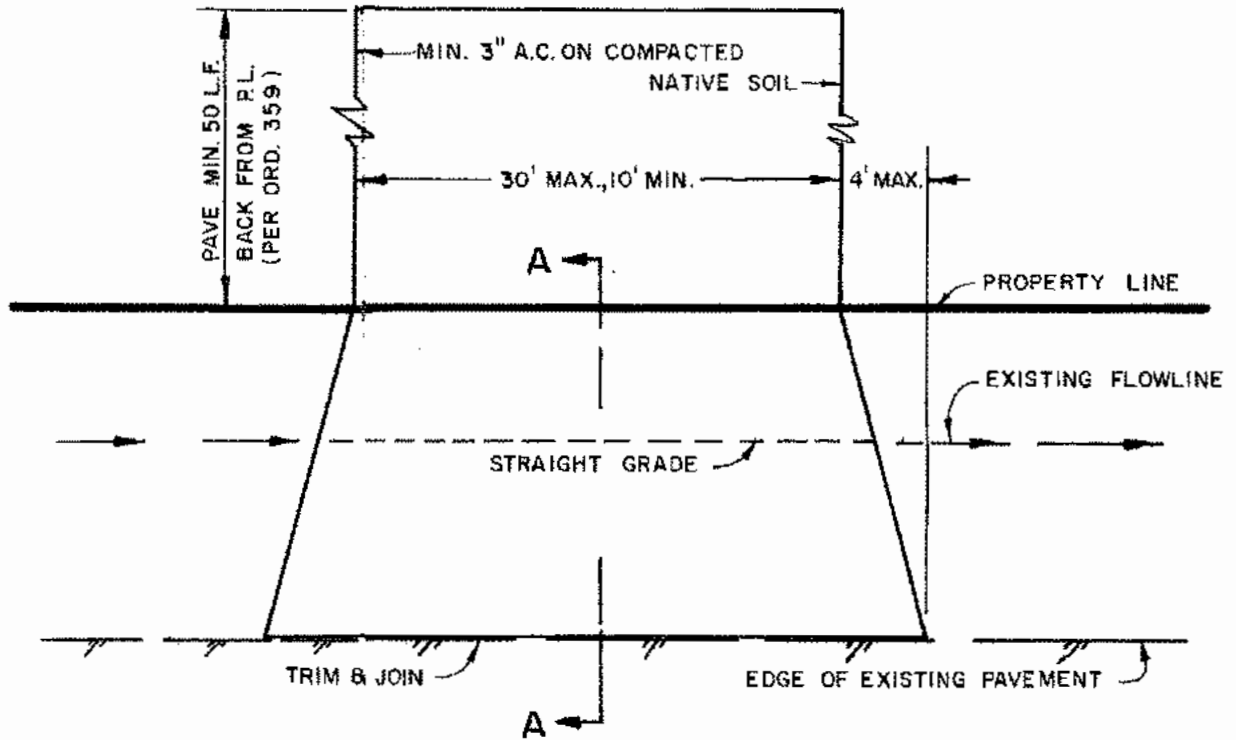
DATE: 9/18

COMMERCIAL DRIVEWAY

STANDARD NO.

R-6.2

REVISIONS:



SECTION A-A

NOTES :

- 1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION UNLESS OTHERWISE SPECIFIED HEREIN.
- 2. A STANDARD CONCRETE DRIVEWAY IS REQUIRED WHEN THE ULTIMATE RIGHT OF WAY IS EXISTING , UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED *10710*

DRAWN *RE*

CHECKED *RRP*

APPROVED *RE*

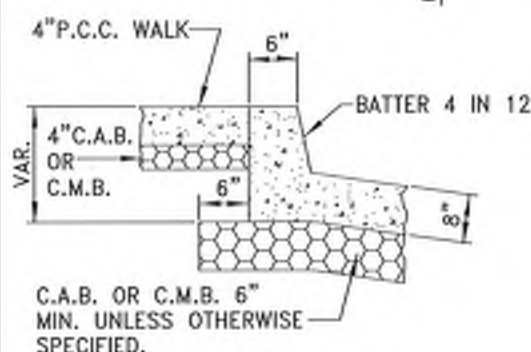
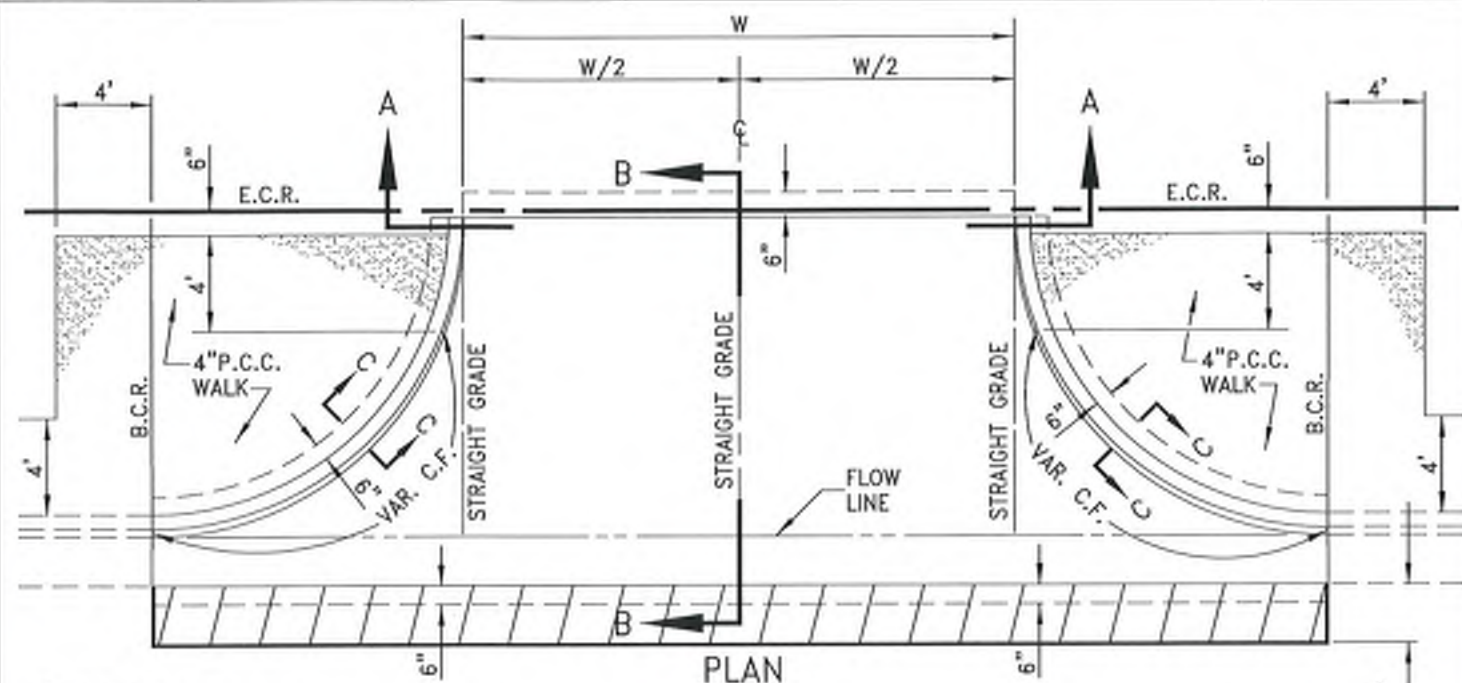
DATE 12-21-70

**TEMPORARY ASPHALT
CONCRETE DRIVEWAY**

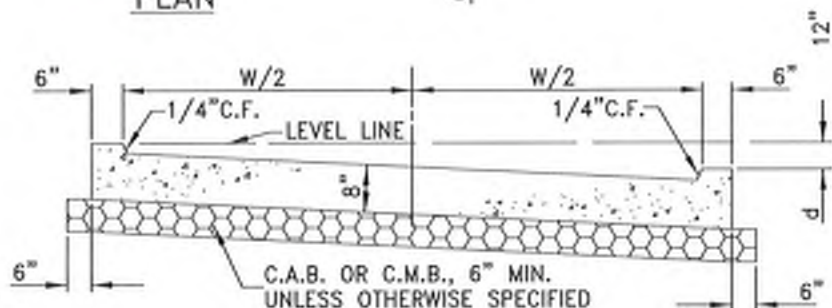
STANDARD NO

R-6.3

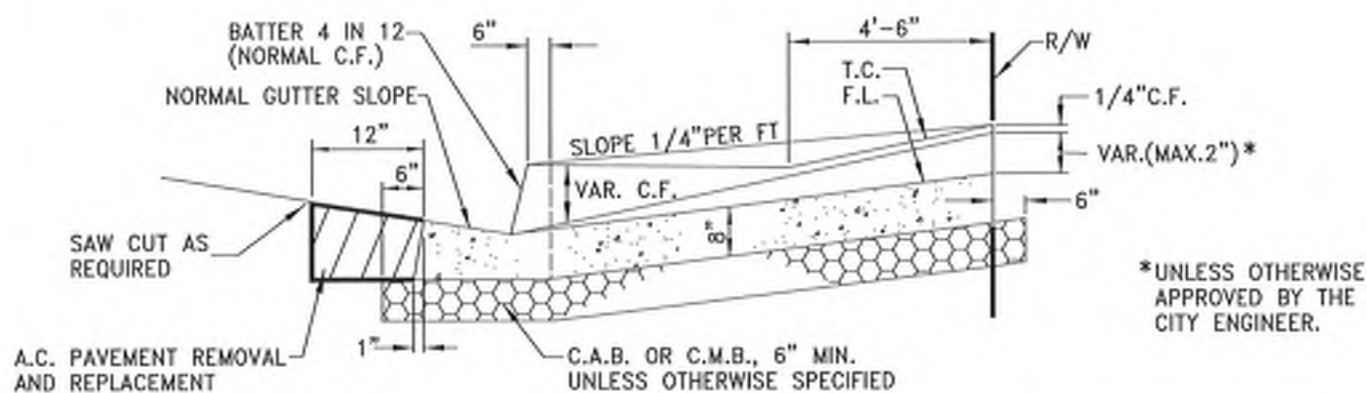
REVISIONS:



SECTION C - C



SECTION A - A



SECTION B - B

*UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

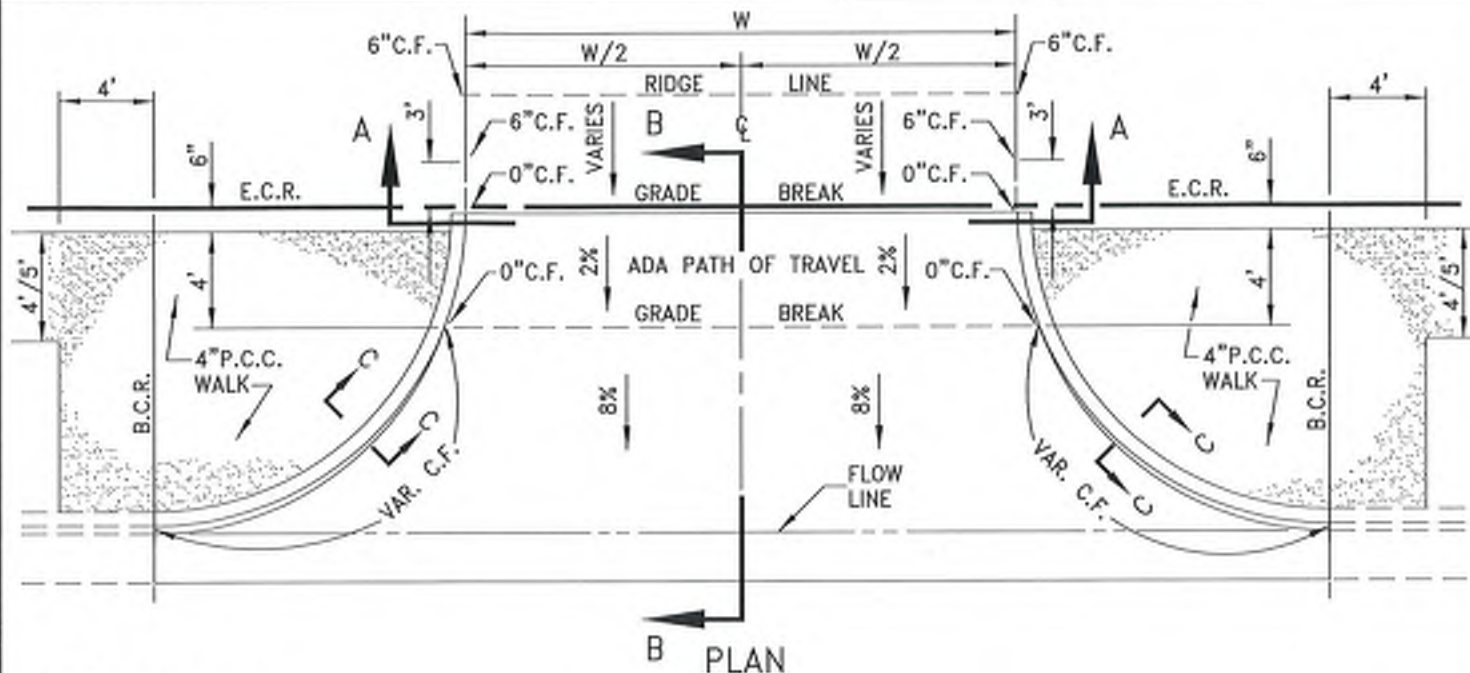
DESIGNED: TREZ/ GARCIA
 DRAWN: TREZ/ BAYAN
 CHECKED:
 APPROVED: 
 DATE: 7/19

SPECIAL COMMERCIAL DRIVEWAY

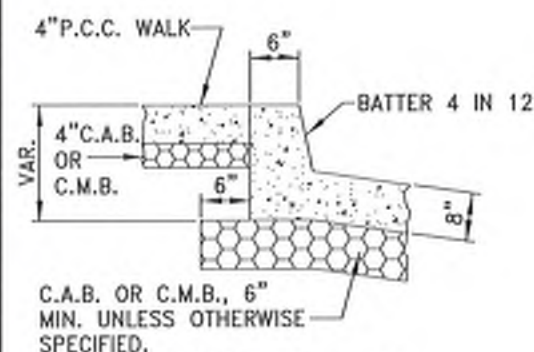
STANDARD NO.

R-6.4

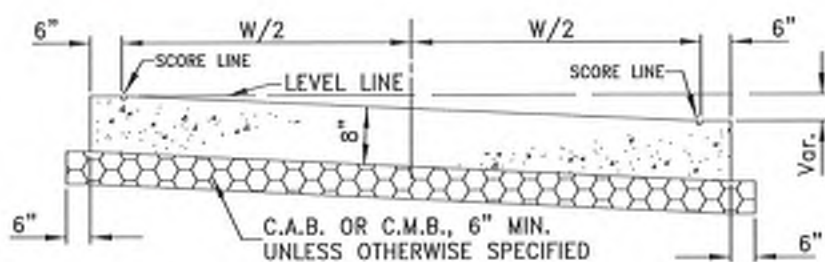
REVISIONS:



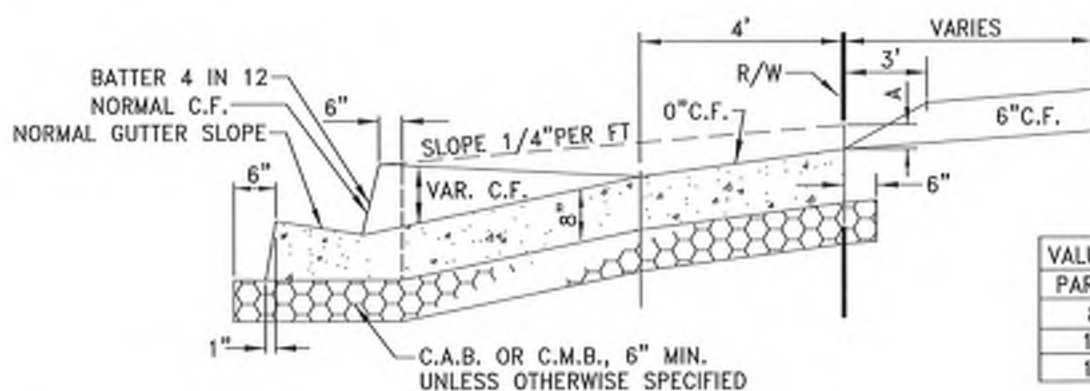
B PLAN



SECTION C - C



SECTION A - A



SECTION B - B

VALUES OF "A"	
PARKWAY	A
8'	.35'
10'	.23'
12'	.11'

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: TREZ/ GARCIA

DRAWN: TREZ/ BAYAN

CHECKED:

APPROVED:

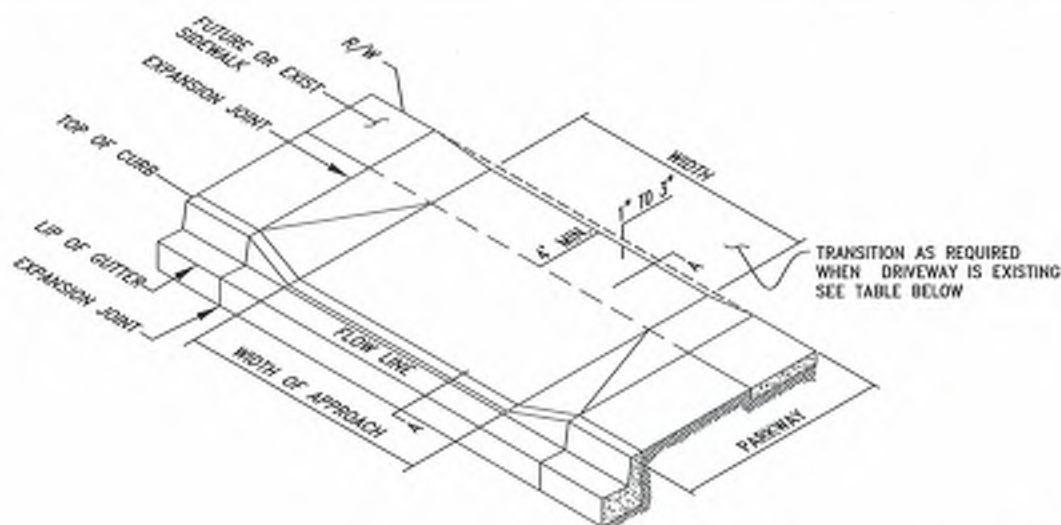
DATE: 7/19

SPECIAL COMMERCIAL DRIVEWAY

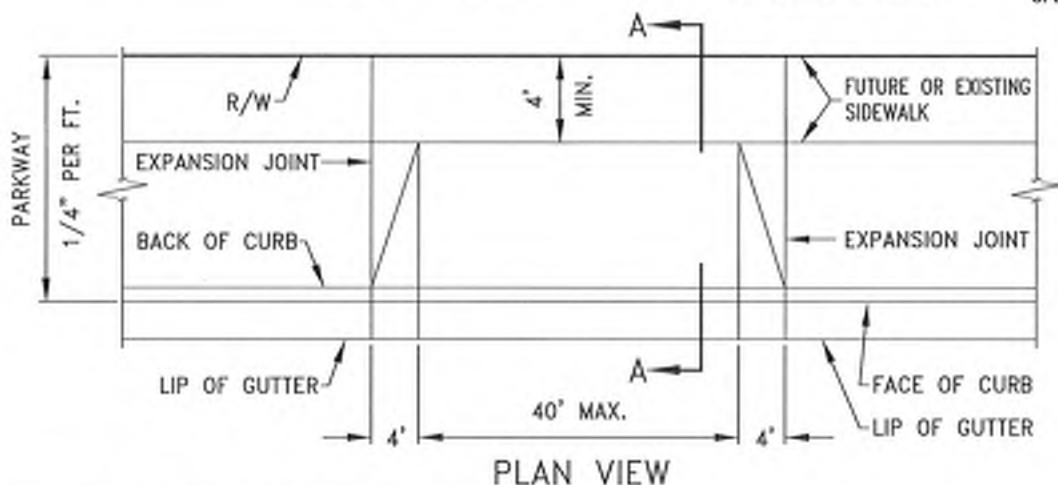
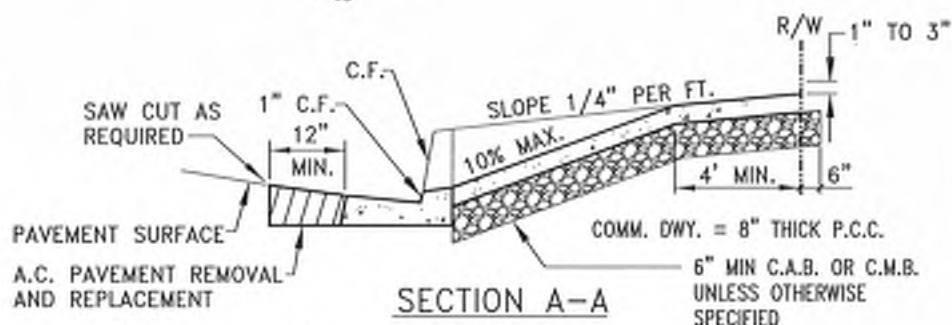
STANDARD NO.

R-6.4B

REVISIONS:



PARKWAY WIDTH	8" C.F.	6" C.F.
12'	1"	0"
10'	2"	0"
8'	3"	1"



NOTES:

1. EXPANSION JOINT MATERIAL SHALL BE PLACED IN THE CENTER OF ALL COMMERCIAL APPROACHES OVER 20' FEET IN WIDTH.
2. FOR FINISHING, REPAIRING, REPLACEMENT, SCOREMARKS, AND CURING, SEE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
3. APPROACH MAY BE CONSTRUCTED 6" FROM PROPERTY LINE, PER PLANS OR AS SPECIFIED.
4. CLASS 520-C-2500 CONCRETE SHALL BE USED FOR ALL SUCH WORK UNLESS OTHERWISE SPECIFIED ON THE PLANS AS APPROVED BY CITY ENGINEER.

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: NEGRETE

DRAWN: BAYAN

CHECKED:

APPROVED:

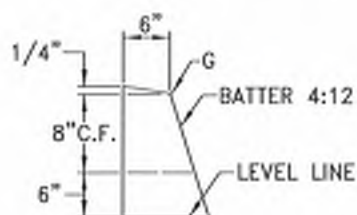
DATE: 9/18

STANDARD NO.

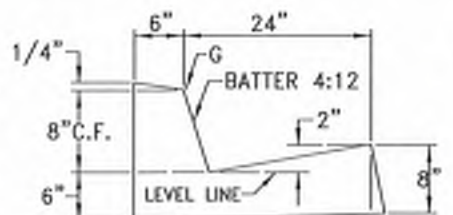
COMMERCIAL DRIVEWAY

R-6.4D

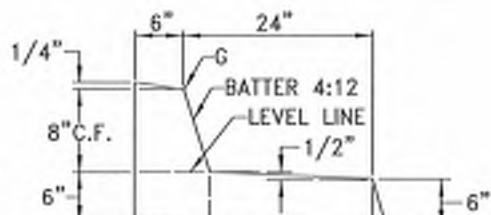
REVISIONS:



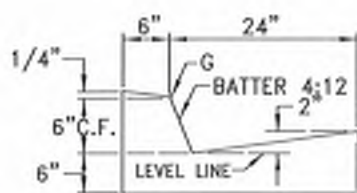
A1



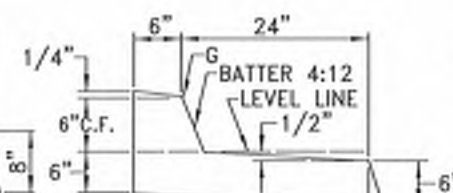
A2



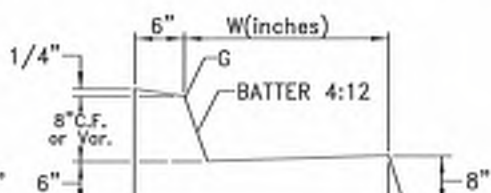
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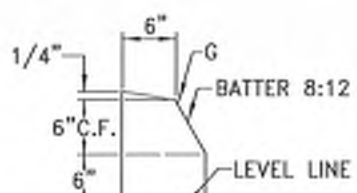
A4



A5



A(W'')



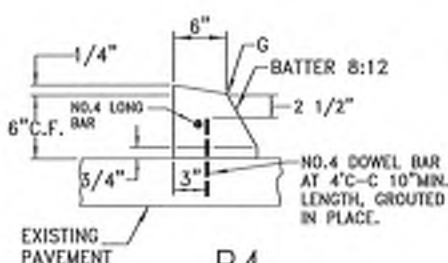
B1



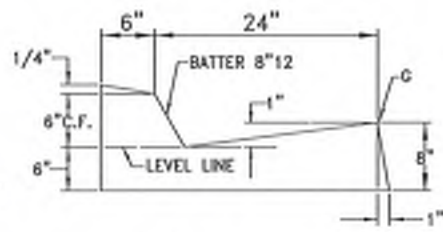
B2



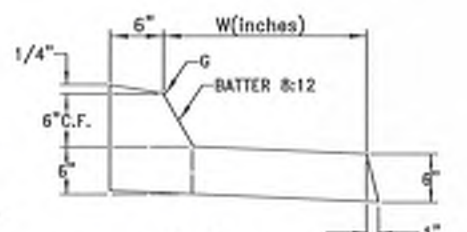
B3



B4



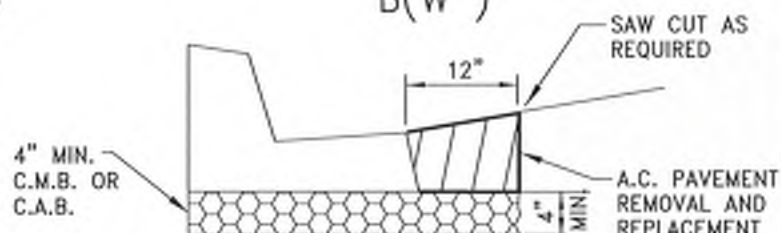
B5



B(W'')

NOTES:

1. TYPE A---BARRIER CURB.
2. TYPE B---MEDIAN CURB.
3. G DESIGNATES GRADE LINE AND OFFSET POINT.
4. W" DESIGNATES WIDTH OF GUTTER.
5. EXTRUDED CURB AND GUTTER SHALL NOT BE ALLOWED UNLESS PERMITTED OTHERWISE BY THE CITY ENGINEER.



TYPICAL BASE DETAIL

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: TREZ/GARCIA

DRAWN: TREZ/ BAYAN

CHECKED:

APPROVED:

DATE: 9/18

STANDARD NO.

CURB & GUTTER

R-7

REVISIONS:

CURB CURVE DATA

$\Delta = 219^{\circ}49'42''$
 $R = 50'$
 $L = 191.84'$

R/W CURVE DATA

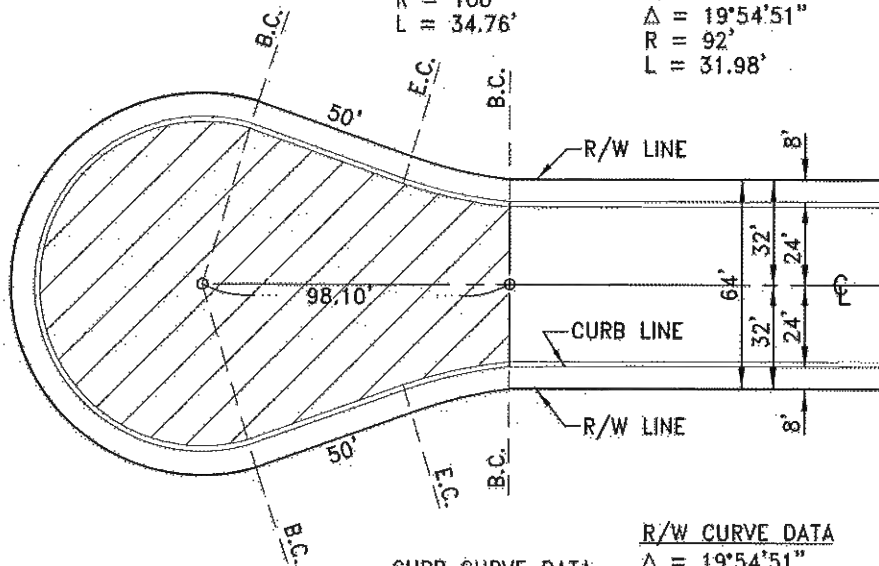
$\Delta = 219^{\circ}49'42''$
 $R = 58'$
 $L = 222.53'$

CURB CURVE DATA

$\Delta = 19^{\circ}54'51''$
 $R = 100'$
 $L = 34.76'$

R/W CURVE DATA

$\Delta = 19^{\circ}54'51''$
 $R = 92'$
 $L = 31.98'$



CROSS HATCHED AREA = 10,269 SQ.FT.

CURB CURVE DATA

$\Delta = 19^{\circ}54'51''$
 $R = 100'$
 $L = 34.76'$

R/W CURVE DATA

$\Delta = 19^{\circ}54'51''$
 $R = 92'$
 $L = 31.98'$

CURB CURVE DATA

$\Delta = 212^{\circ}40'34''$
 $R = 50'$
 $L = 185.59'$

R/W CURVE DATA

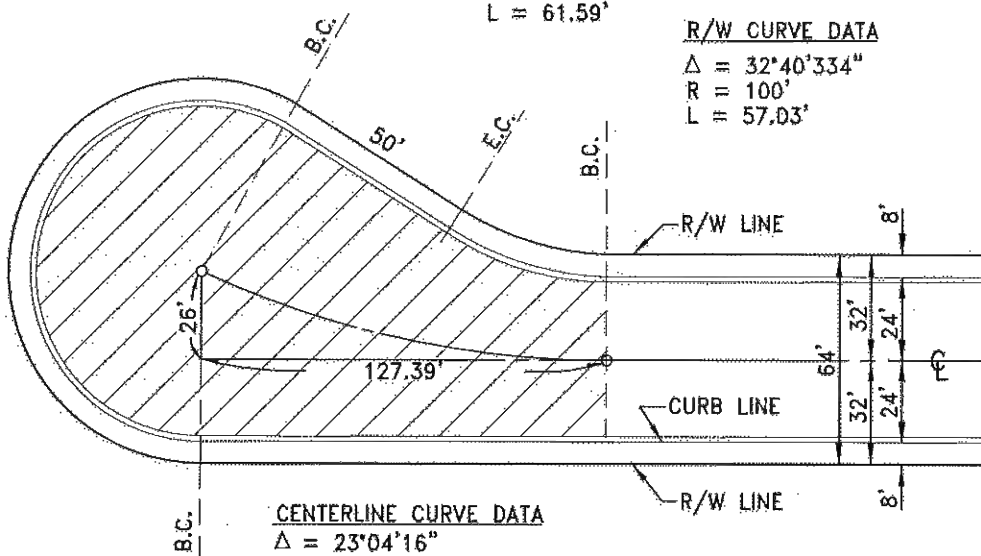
$\Delta = 212^{\circ}40'34''$
 $R = 58'$
 $L = 215.29'$

CURB CURVE DATA

$\Delta = 32^{\circ}40'34''$
 $R = 108'$
 $L = 61.59'$

R/W CURVE DATA

$\Delta = 32^{\circ}40'34''$
 $R = 100'$
 $L = 57.03'$



CROSS HATCHED AREA = 12,142 SQ.FT.

CENTERLINE CURVE DATA

$\Delta = 23^{\circ}04'16''$
 $R = 325.08'$
 $L = 130.90'$
 $T = 66.35'$

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: TREZ

DRAWN: TREZ

CHECKED:

APPROVED:

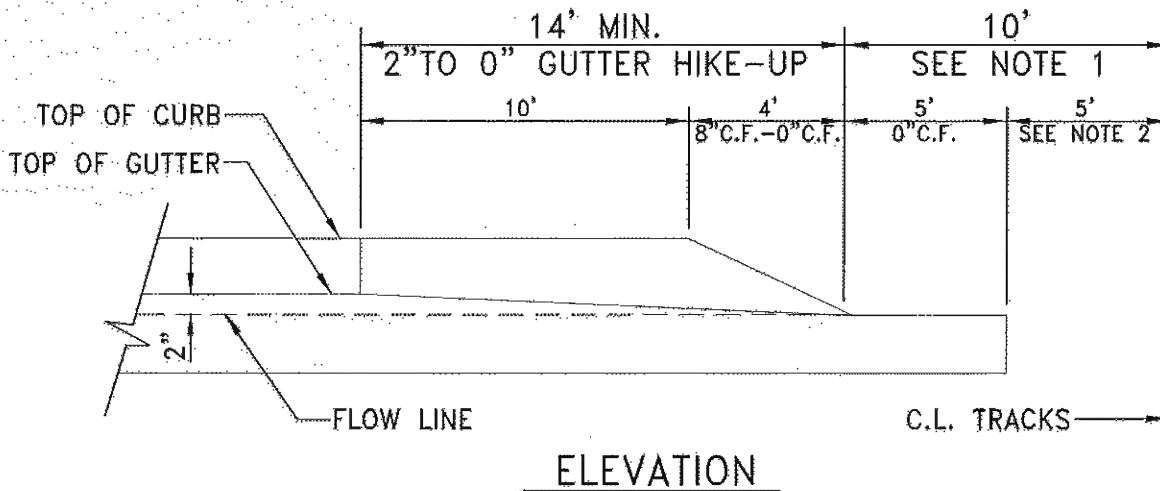
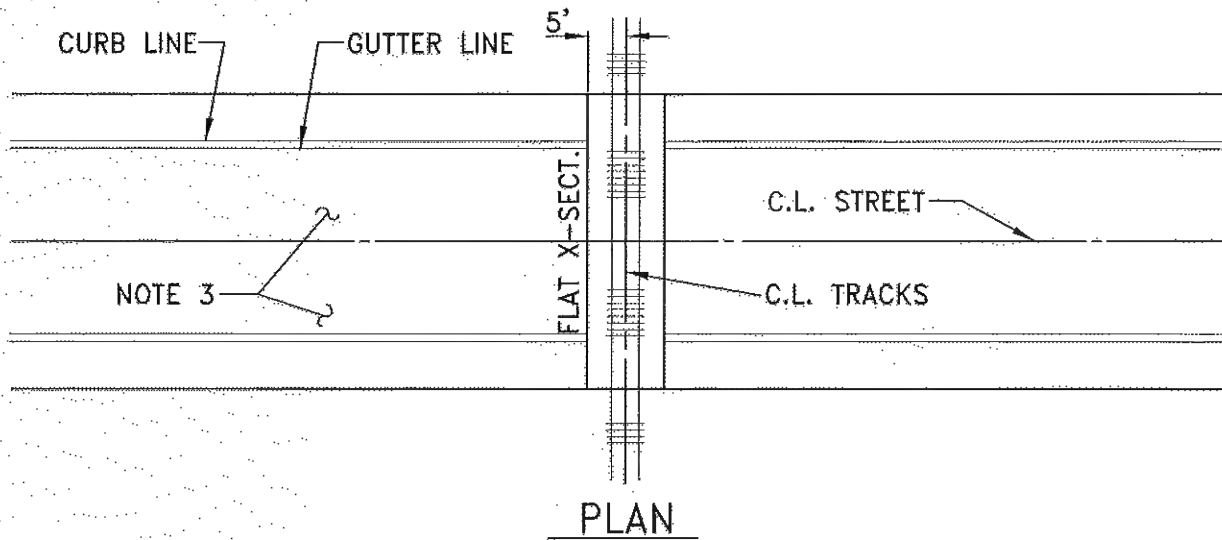
DATE: 7/13

CUL-DE-SACS
 FOR INDUSTRIAL STREETS

STANDARD NO.

R-8.1

REVISIONS:



NOTES:

1. NO STRUCTURES OR OBSTRUCTIONS ALLOWED ABOVE THE TOP OF PAVEMENT WITHIN 10' OF THE C.L. OF TRACKS.
2. STREET IMPROVEMENTS BY OTHERS WITHIN 5' OF THE C.L. OF TRACKS.
3. WARP PAVEMENT FROM STANDARD CROSS SECTION TO FLAT CROSS SECTION TO MATCH TOP OF RAIL.

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

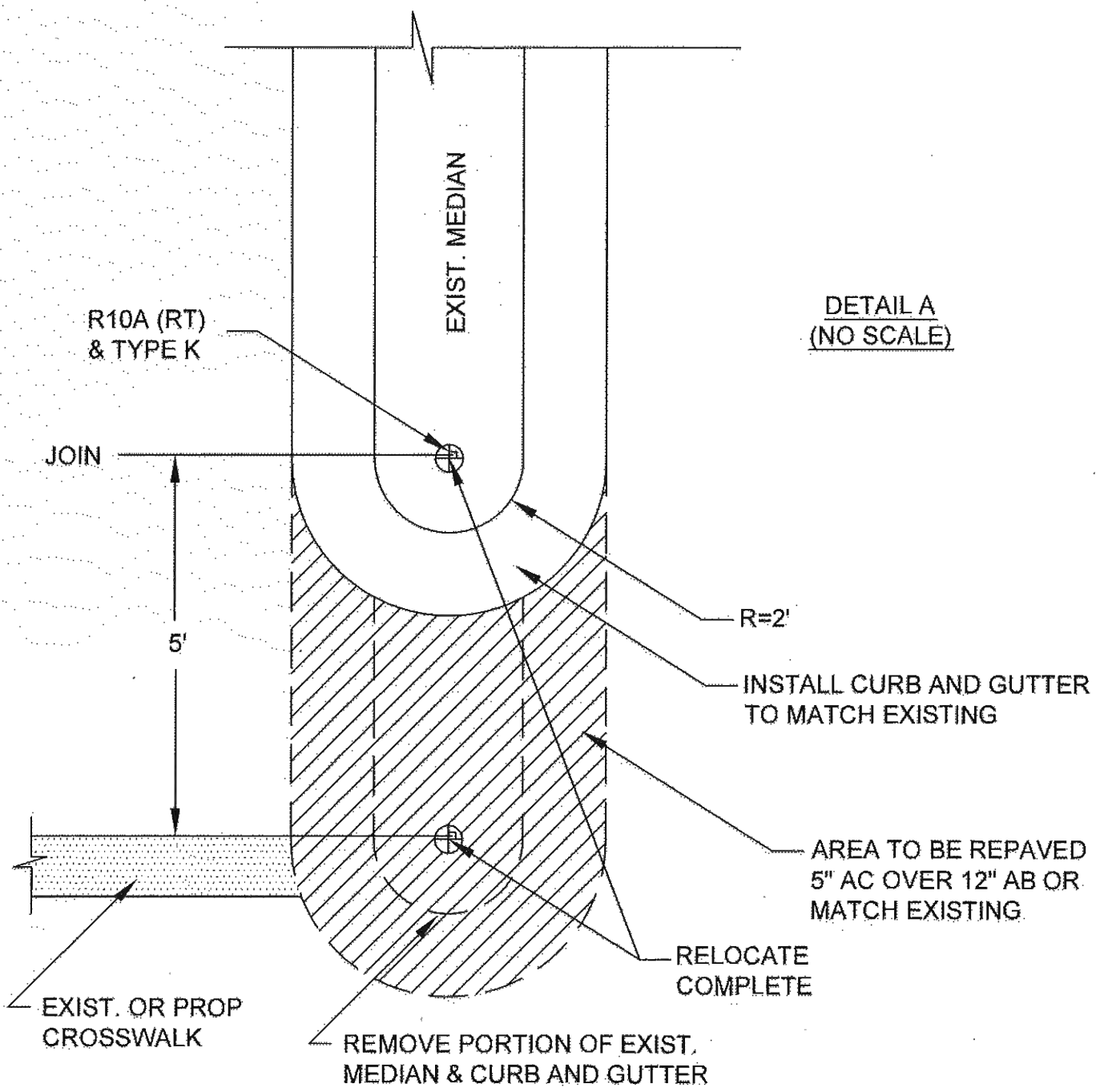
DESIGNED: TREZ
 DRAWN: TREZ
 CHECKED:
 APPROVED: *[Signature]*
 DATE: 7/13

**STREET TRANSITION
 at
 RAILROAD CROSSINGS**

STANDARD NO.

R-9

REVISIONS:



DETAIL A
(NO SCALE)

R10A (RT)
& TYPE K

JOIN

5'

R=2'

INSTALL CURB AND GUTTER
TO MATCH EXISTING

AREA TO BE REPAVED
5" AC OVER 12" AB OR
MATCH EXISTING

RELOCATE
COMPLETE

EXIST. OR PROP
CROSSWALK

REMOVE PORTION OF EXIST.
MEDIAN & CURB AND GUTTER

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED:	GARCIA
DRAWN:	GARCIA
CHECKED:	
APPROVED:	
DATE:	2/02

MEDIAN NOSE DETAIL FOR SIGNALIZED INTERSECTIONS

STANDARD NO.
R-10

REVISIONS:

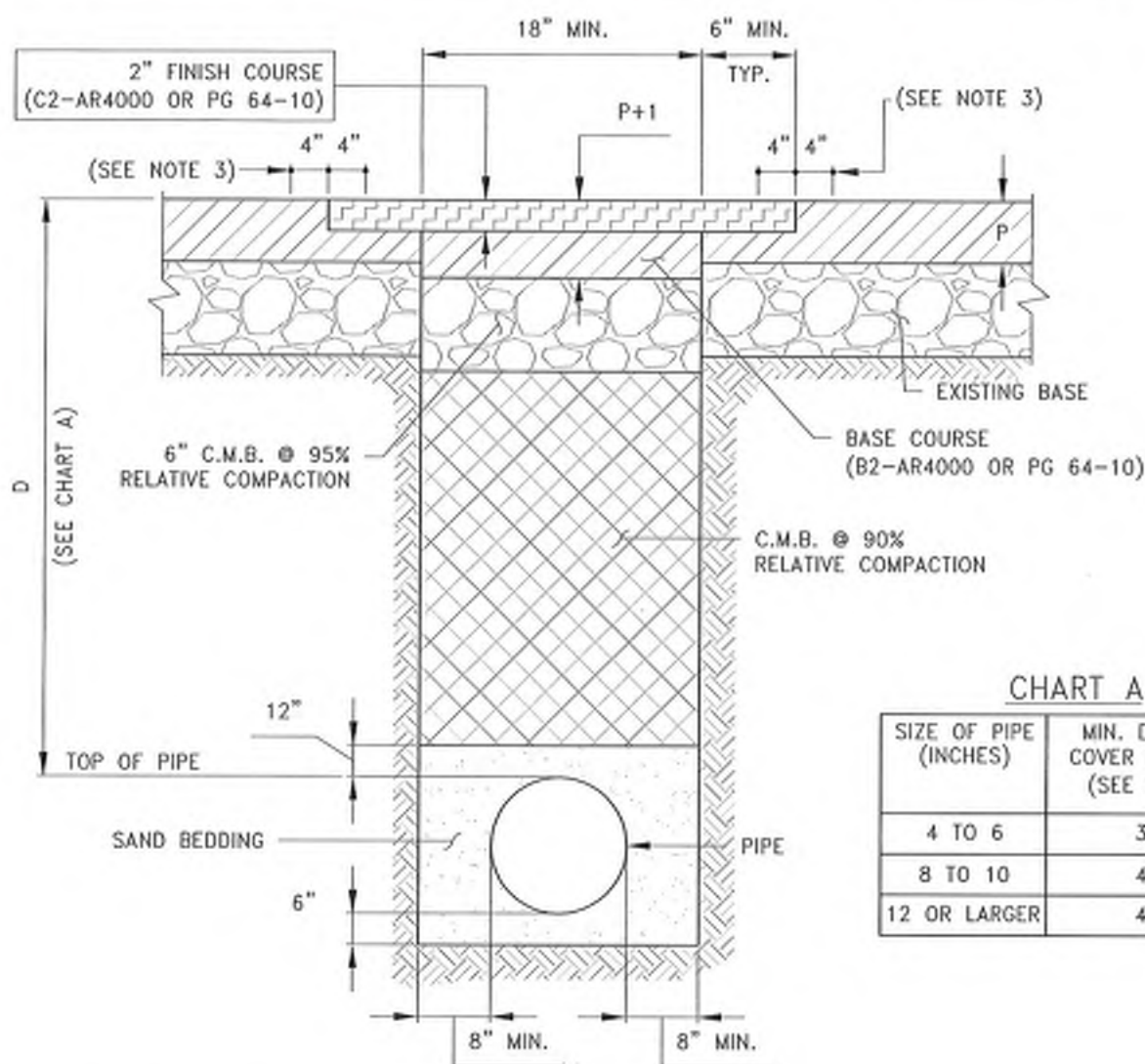


CHART A

SIZE OF PIPE (INCHES)	MIN. DEPTH OF COVER IN INCHES (SEE NOTE 5)
4 TO 6	36
8 TO 10	42
12 OR LARGER	48

NOTES:

1. NEW PAVEMENT THICKNESS SHALL BE EXISTING PLUS ONE INCH (P+1), BUT NOT LESS THAN FOUR INCHES (4").
2. PERMANENT PAVING SHALL BE COMPLETED WITHIN FIVE (5) DAYS AFTER EXCAVATION. TEMPORARY PAVING SHALL BE TWO-INCH (2") MINIMUM AC HOT MIX.
3. TRENCH PAVING CUT AREAS SHALL BE SEALED WITH SS 1-H ASPHALTIC EMULSION AT THE RATE OF 0.08 TO 0.10 GALLON PER SQUARE YARD, NOT SOONER THAN 24 HOURS AFTER PLACEMENT OF PAVEMENT 4" ON BOTH SIDES OF TRENCH CUT, 8" WIDE TOTAL.
4. PLACE TRENCH BACKFILL SLURRY UNDER ALL CURBS, GUTTERS AND NON-ACCESSIBLE AREAS.
5. THE DEPTH OF COVER OVER THE PIPE SHALL BE MEASURED VERTICALLY FROM THE TOP OF THE PIPE WITH REFERENCE TO AN APPROVED, IMPROVED GUTTER FLOWLINE. WHERE THERE IS NO IMPROVED GUTTER FLOWLINE, USE THE ELEVATION OF A PROPOSED ADJACENT FLOWLINE AS THE REFERENCE ELEVATION.
6. STREET SHALL BE SLURRY SEALED FROM EDGE OF TRENCH TO NEAREST GUTTER LIP WITH AN EMULSION AGGREGATE AS DETERMINED BY CITY ENGINEER.
7. ADDITIONAL PAVING AND GRADING MAY BE REQUIRED BY CITY ENGINEER.

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: NEGRETE

DRAWN: BAYAN

CHECKED:

APPROVED:

DATE: 7/13

TRENCH PAVING DETAIL

STANDARD NO.

R-11

REVISIONS:

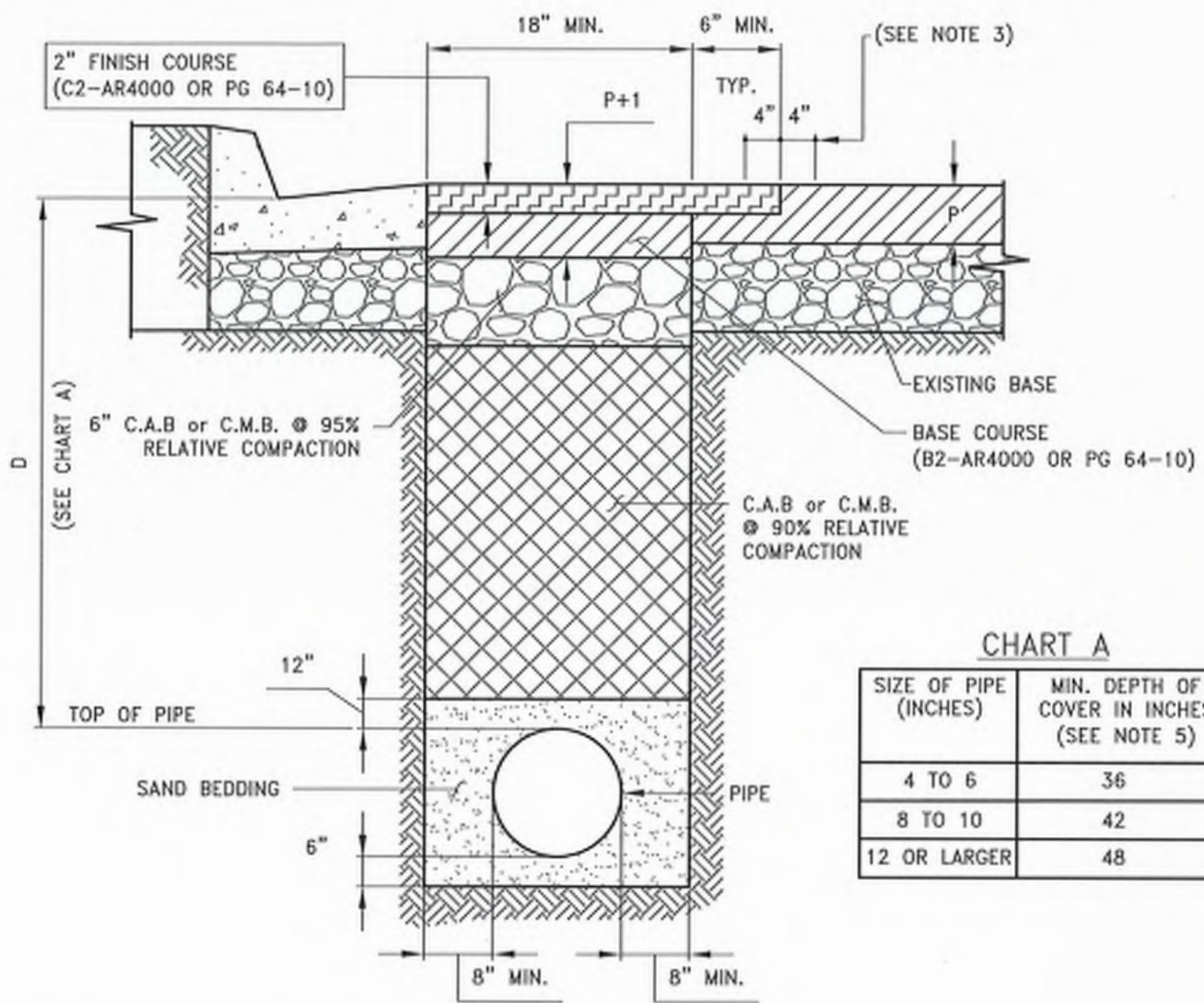


CHART A

SIZE OF PIPE (INCHES)	MIN. DEPTH OF COVER IN INCHES (SEE NOTE 5)
4 TO 6	36
8 TO 10	42
12 OR LARGER	48

NOTES:

1. NEW PAVEMENT THICKNESS SHALL BE EXISTING PLUS ONE INCH (P+1), BUT NOT LESS THAN FOUR INCHES (4").
2. PERMANENT PAVING SHALL BE COMPLETED WITHIN FIVE (5) DAYS AFTER EXCAVATION. TEMPORARY PAVING SHALL BE TWO-INCH (2") MINIMUM AC HOT MIX.
3. TRENCH PAVING CUT AREAS SHALL BE SEALED WITH SS 1-H ASPHALTIC EMULSION AT THE RATE OF 0.08 TO 0.10 GALLON PER SQUARE YARD, NOT SOONER THAN 24 HOURS AFTER PLACEMENT OF PAVEMENT 4" ON BOTH SIDES OF TRENCH CUT, 8" WIDE TOTAL.
4. PLACE TRENCH BACKFILL SLURRY UNDER ALL CURBS, GUTTERS AND NON-ACCESSIBLE AREAS.
5. THE DEPTH OF COVER OVER THE PIPE SHALL BE MEASURED VERTICALLY FROM THE TOP OF THE PIPE WITH REFERENCE TO AN APPROVED, IMPROVED GUTTER FLOWLINE. WHERE THERE IS NO IMPROVED GUTTER FLOWLINE, USE THE ELEVATION OF A PROPOSED ADJACENT FLOWLINE AS THE REFERENCE ELEVATION.
6. STREET SHALL BE SLURRY SEALED FROM EDGE OF TRENCH TO NEAREST GUTTER LIP WITH AN EMULSION AGGREGATE AS DETERMINED BY CITY ENGINEER.
7. ADDITIONAL PAVING AND GRADING MAY BE REQUIRED BY CITY ENGINEER.

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: NEGRETE

DRAWN: BAYAN

CHECKED:

APPROVED:

DATE: 10/18

TRENCH PAVING DETAIL

STANDARD NO.

R-11.1

REVISIONS:

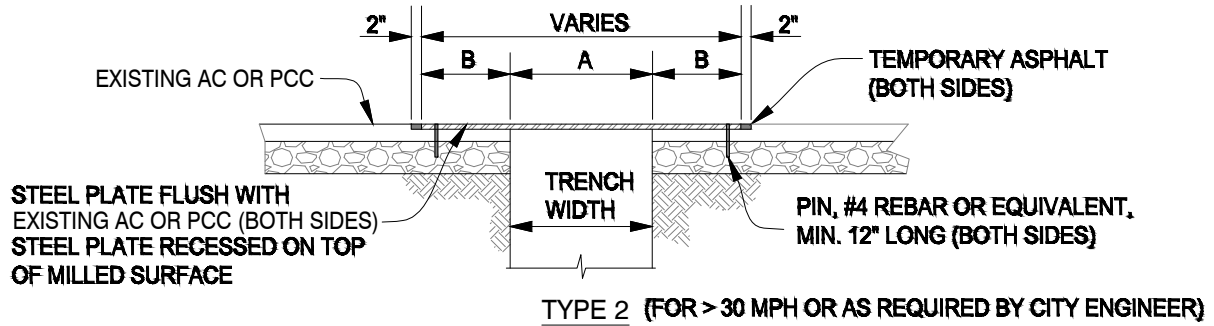
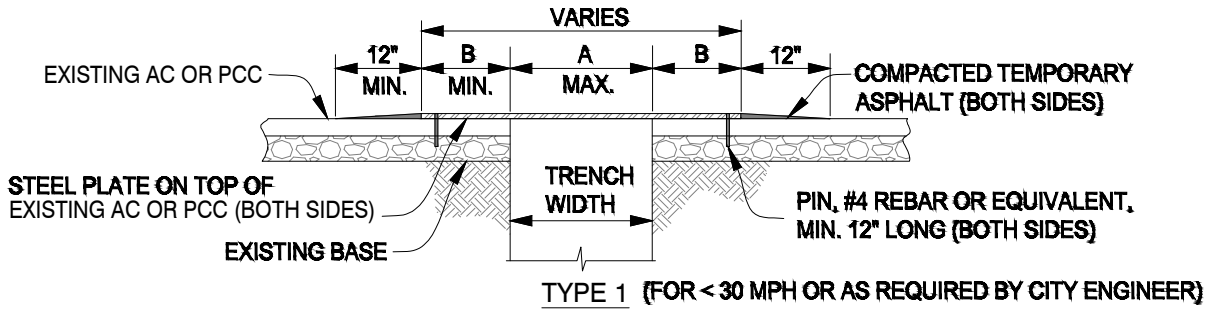
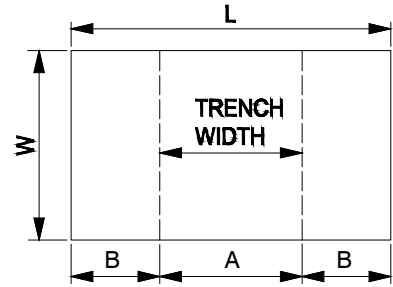


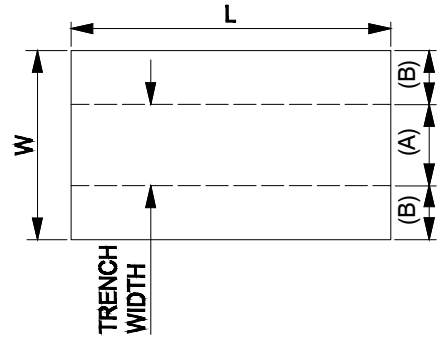
PLATE SIZE

* TRENCH WIDTHS GREATER THAN 63" WILL REQUIRE STRUCTURAL DESIGN BY CALIFORNIA REGISTERED STRUCTURAL ENGINEER, PER CALTRANS STANDARD.

LONGITUDINAL					TRANSVERSE	
(A)	(B)	THICK.	(W)	(L)	A	B
12"	18"	1"	4'	8'	58"	19"
12"	18"	1"	4'	10'	58"	31"
24"	18"	1"	5'	10'	*	*
36"	18"	1"	6'	10'	44"	38"
48"	18"	1"	7'	10'	52"	34"
60"	18"	1"	8'	10'	58"	31"
12"	18"	1-1/4"	4'	15'	*	*
24"	18"	1-1/4"	5'	12'	*	*
36"	18"	1-1/4"	6'	12'	*	*
36"	18"	1-1/4"	6'	16'	*	*
48"	18"	1-1/4"	7'	12'	*	*
48"	18"	1-1/4"	7'	16'	*	*
60"	18"	1-3/4"	8'	12'	*	*
60"	18"	1-3/4"	8'	15'	*	*
60"	18"	1-3/4"	8'	16'	*	*
60"	18"	1-3/4"	8'	20'	*	*
60"	18"	1-3/4"	8'	20'	*	*



TRANSVERSE STEEL PLATE



LONGITUDINAL STEEL PLATE

NOT TO SCALE

(SHEET 1 OF 2)

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: P. KIRANRAJ

DRAWN: R. BAYAN

CHECKED: R. GARCIA

APPROVED: *[Signature]*

DATE: 01/21

STANDARD NO.

TRENCH PLATING DETAIL

R-11.2A

REVISIONS:

NOTES:

1. USE TYPE 1 PLATE INSTALLATION WHERE POSTED SPEED LIMIT IS LESS THAN 30 MPH, USE TYPE 2 PLATE INSTALLATION WHERE POSTED SPEED LIMIT IS 30 MPH OR GREATER, OR AS DIRECTED BY CITY ENGINEER.
2. FOR TYPE 2 PLATE INSTALLATION, THE STEEL PLATE SHALL BE RECESSED BY MILLING INTO THE EXISTING ASPHALT OR CONCRETE PAVEMENT TO SET FLUSH WITH FINISHED GRADE. FULL DEPTH CUTTING OF PAVEMENT SECTION OUTSIDE OF TRENCH IS NOT PERMITTED. MILLING DEPTH SHALL MATCH THICKNESS OF THE PLATE. THE GAP BETWEEN THE EDGE OF THE PLATE AND THE ADJACENT EXISTING PAVEMENT MUST BE FILLED WITH PROPERLY COMPACTED TEMPORARY ASPHALT.
3. CONTRACTOR MUST PROVIDE CERTIFICATE OF COMPLIANCE FOR STEEL PLATES BEFORE TRENCHING CAN BEGIN.
4. TRENCH WIDTHS ARE BASED ON AN ANALYSIS PER THE LATEST EDITION OF STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES BY AASHTO. AN ASSUMED AXLE LOADING OF 12 TONS WITH A 30% IMPACT FACTOR WAS USED. THE AXLE LENGTH IS 6 FEET: THEREFORE THE NUMBER OF WHEELS CARRIED BY A PLATE DEPENDS ON THE ROADWAY WIDTH.
5. STEEL PLATE MUST BE ABLE TO WITHSTAND HS20-44 TRAFFIC LOADINGS WITHOUT ANY MOVEMENT.
6. PLATES SHALL BE FABRICATED FROM ASTM A36 STEEL (MINIMUM 36KSI), WITH A NON-SKID SURFACE WITH A NOMINAL COEFFICIENT OF FRICTION OF (COF) OF 0.35 PER CALIFORNIA TEST METHOD 342.
7. PLATES SHALL BE SECURED FROM LATERAL MOVEMENT AND VIBRATION (ASSOCIATED NOISE) WHILE IN USE BY TEMPORARY ASPHALT (COLD MIX).
8. NO TRENCHES IN THE PUBLIC RIGHT OF WAY SHALL BE LEFT OPEN OVERNIGHT OR OVER THE WEEKEND WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE CITY ENGINEER. TRENCHES SHALL BE EITHER BE PLATED OR BACKFILLED AND RESURFACED WITH TEMPORARY ASPHALT.
9. PINS MADE OF #4 REBAR, OR EQUIVALENT DIAMETER STEEL ROD, WITH A MINIMUM LENGTH OF 12" SHALL BE USED TO SECURE ALL TRENCH PLATES TO THE PAVEMENT OR SOIL TO ELIMINATE LATERAL MOVEMENT OF THE PLATE. PINS OR STEEL RODS SHOULD NOT RESTRICT THE VERTICAL MOVEMENT OF THE STEEL PLATE. SPACING AND PLACEMENT OF THE PIN SHALL BE AS DIRECTED BY CITY OFFICIAL.
10. WHEN TWO OR MORE PLATES ARE USED, THE PLATES SHALL BE TACK WELDED AT EACH CORNER OR AS REQUIRED BY PUBLIC WORKS INSPECTOR.
11. PLATES SHALL BE REMOVED THE FOLLOWING DAY, OR AS APPROVED BY THE PUBLIC WORKS INSPECTOR, AND THE TRENCH PAVED WITH TEMPORARY OR PERMANENT ASPHALT. PLATES SHALL NOT BE LEFT OVER THE WEEKEND WITHOUT THE APPROVAL OF THE CITY ENGINEER.
12. PLATES SHALL BE CHECKED AT LEAST TWICE A DAY BY THE PERMITEE TO MAKE SURE THEY ARE SECURE. UPON REQUEST, CONTRACTOR SHALL PROVIDE RECORD OF DATES & TIMES WHEN INSPECTIONS WERE DONE.
13. APPROPRIATE ADVANCED WARNING SIGNS (I.E. "ROAD PLATES AHEAD", W8-8 "ROUGH ROAD", & W8-24 "STEEL PLATE AHEAD") ARE REQUIRED FOR ALL STEEL PLATE CROSSINGS.
14. IN LIEU OF STEEL PLATE, SIDEWALKS OR OTHER NON-VEHICLE AREAS MAY BE SECURED WITH PLYWOOD. PLYWOOD USED IN PEDESTRIAN AREAS SHALL BE A MINIMUM $\frac{3}{4}$ " THICK, PROVIDE SMOOTH NON-SLIP SURFACE AND HAVE BEVELED EDGE. SECURING OF PLYWOOD TO BE THE RESPONSIBILITY OF THE CONTRACTOR AND IF DEEMED UNSAFE BY THE CITY AT ANYTIME, CONTRACTOR TO MAKE ADJUSTMENTS AS NEEDED. PENALTY FEES TO APPLY IF SAFETY ADJUSTMENTS NOT MADE WITHIN 24 HOURS.

PLYWOOD COVER (SEE NOTE 14)						
TRENCH WIDTHS GREATER THAN 60" - DEFER TO STEEL PLATING DETAILS.						
LONGITUDINAL				TRANSVERSE		
(A)	(B)	THICK.	(W)	(L)	(A)	(B)
12" - 24" MAX.	12"	3/4"	4'	8'	60" MAX.	18" MIN.

15. THE "CONTRACTOR'S DESIGNATED COMPETENT PERSON" WILL BE RESPONSIBLE FOR THE ENTIRE TRENCH OPERATION INCLUDING ROADWAY INTEGRITY AND SAFETY.

(SHEET 2 OF 2)

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: P. KIRANRAJ

DRAWN: R. BAYAN

CHECKED: R. GARCIA

APPROVED: 

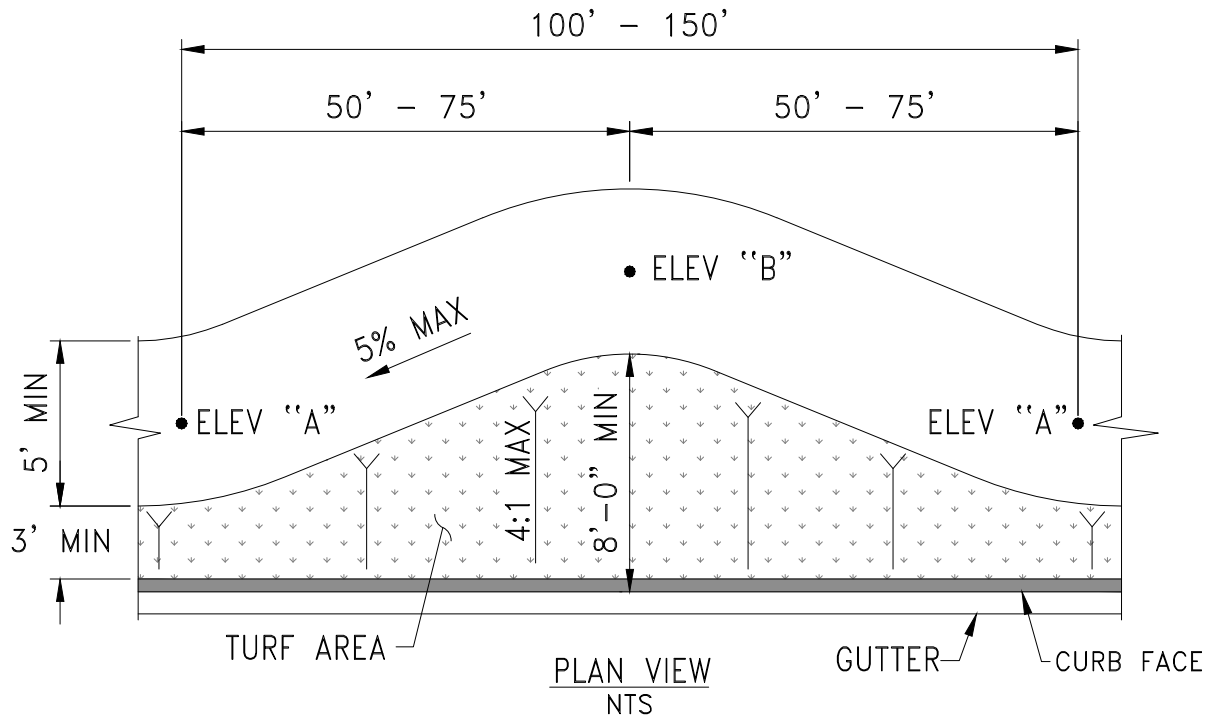
DATE: 01/21

STANDARD NO.

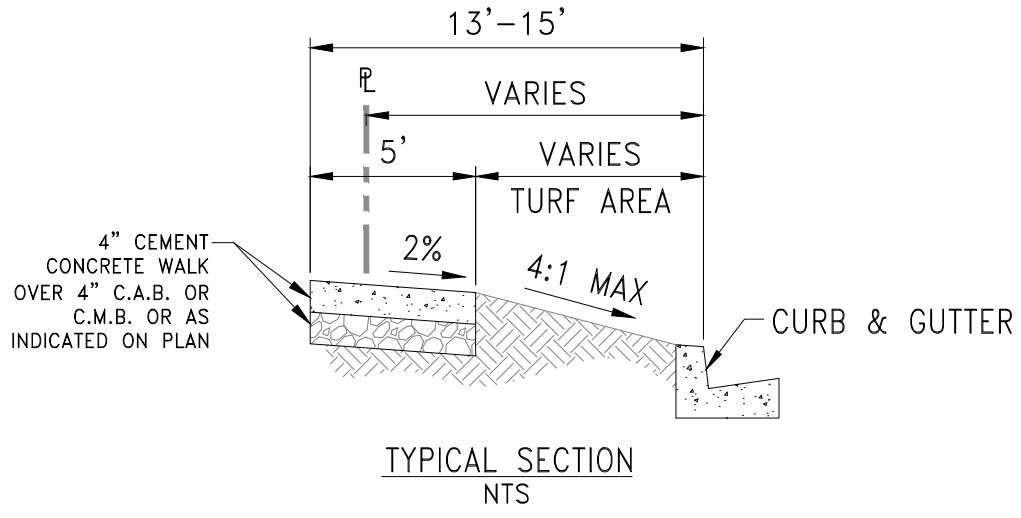
TRENCH PLATING DETAIL

R-11.2B

REVISIONS:



- △ VERTICAL = ELEV "A" - ELEV "B"
- △ VERTICAL = 12" MIN



- NOTE:
1. STREET TREES ARE PROHIBITED IN THE TURF AREA.
 2. MINIMUM SIDEWALK WIDTH IS 6 FEET IN THE FREEWAY OVERLAY ZONE.

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: NEGRETE

DRAWN: BAYAN

CHECKED: GARCIA

APPROVED: *[Signature]*

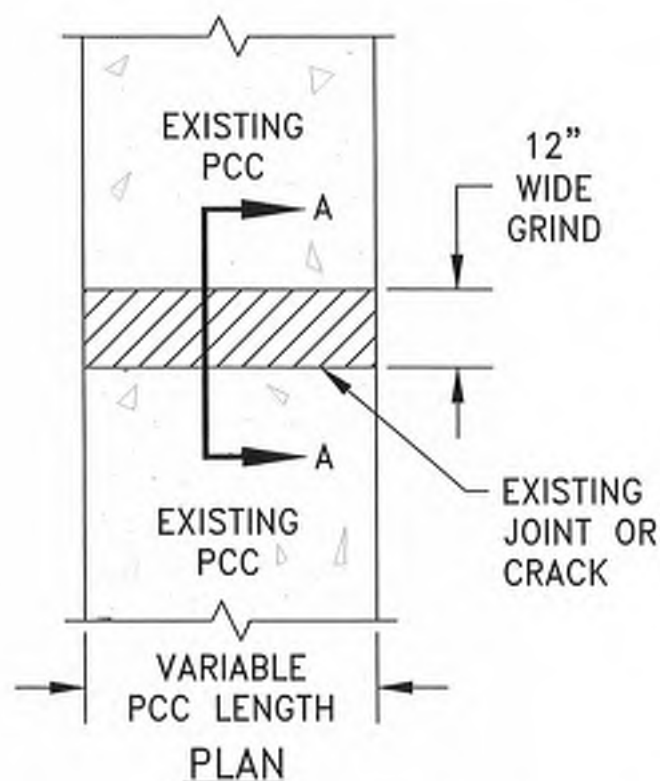
DATE: 3/21

MEANDERING SIDEWALK


STANDARD NO.

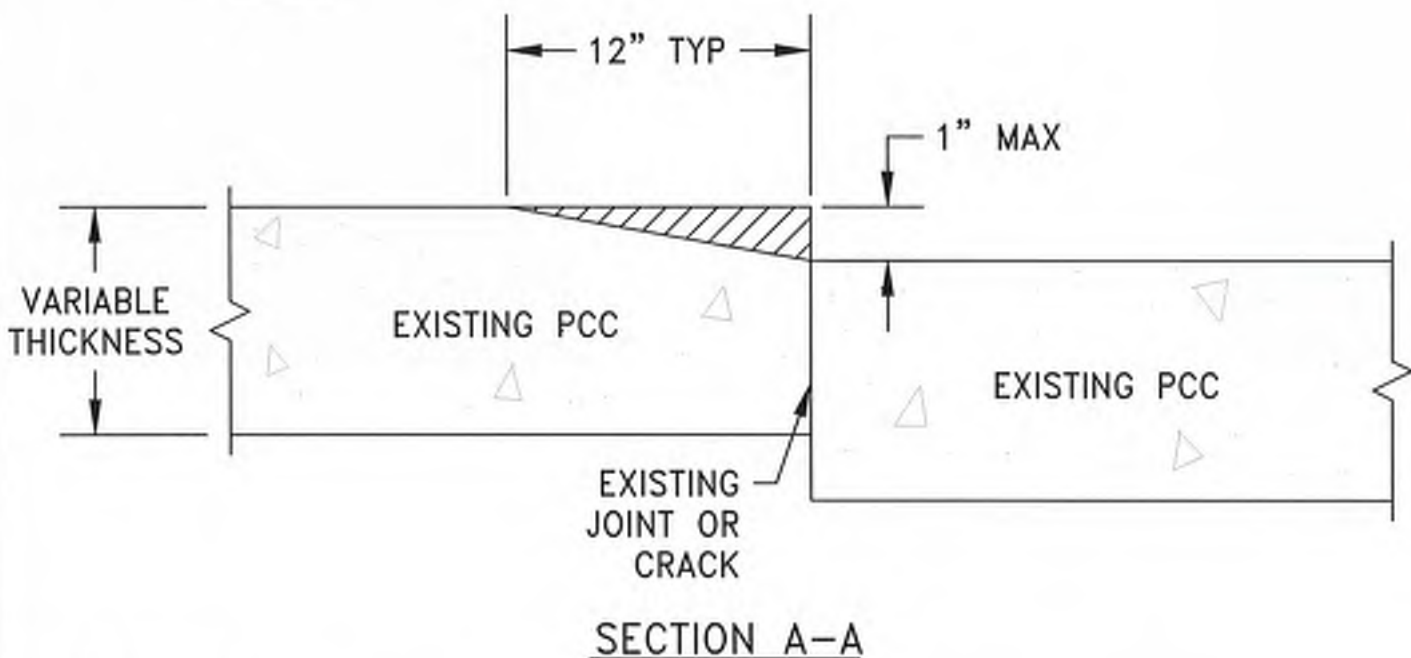
R-12

REVISIONS:



LEGEND:

-  - GRIND AREA FLUSH WITH EXISTING PCC LIMITS PER DIRECTION OF CITY ENGINEER
- GRIND WIDTH = 12"
- GRIND LENGTH = VARIABLE



*NOT TO SCALE

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED:

DRAWN: DA/AF

CHECKED: RG

APPROVED:

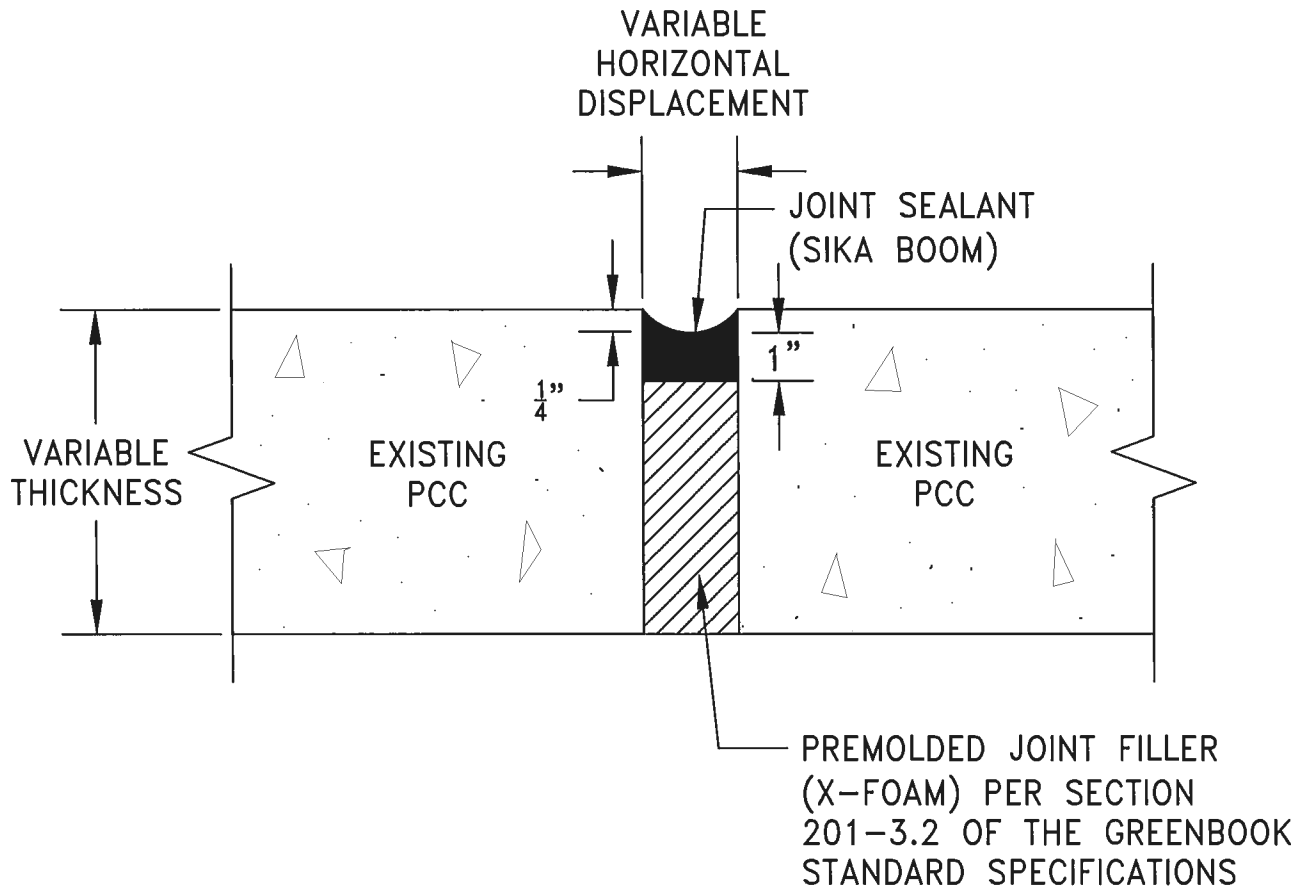
DATE: 11/22

STANDARD NO.

EXISTING PCC
GRINDING REPAIR

R-13

REVISIONS:



*Not to Scale

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED:

DRAWN: DA/AF

CHECKED: RG

APPROVED:

DATE: 11/22

EXISTING PCC PAVEMENT JOINT FILLER & SEALANT

STANDARD NO.

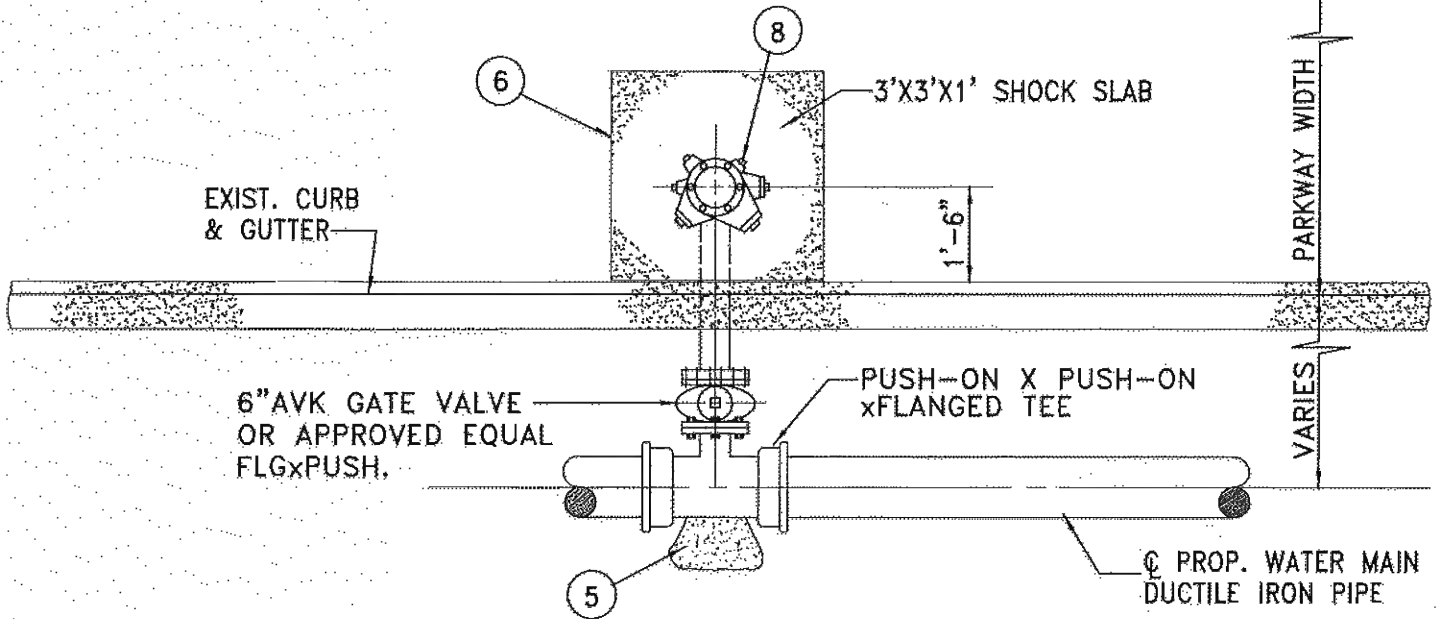
R-14

WATER

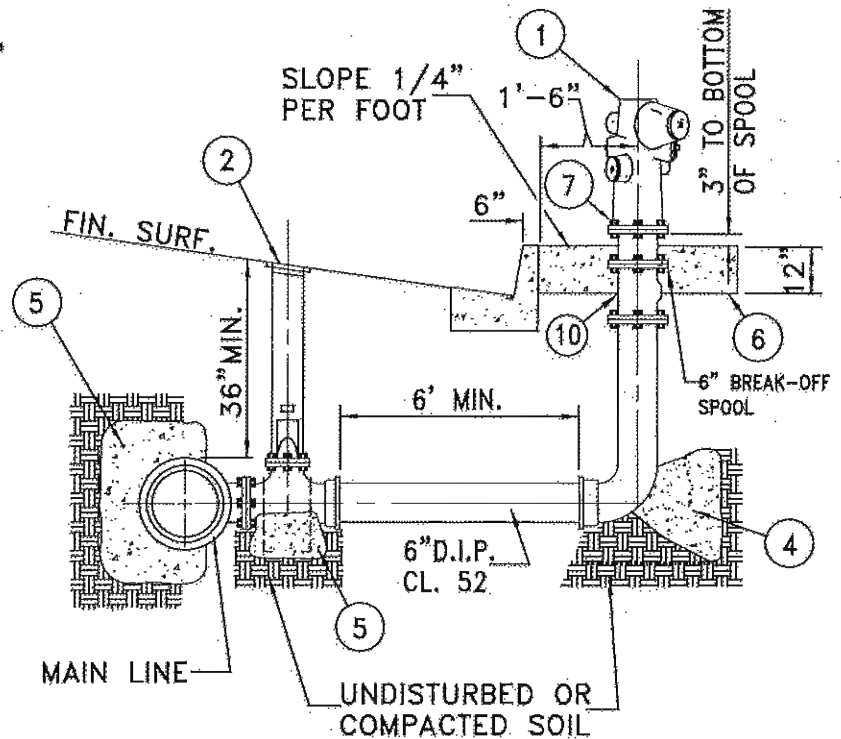
W-5.1 Type I	Fire Hydrant Assembly, Water Main in Street
W-5.2 Type II	Fire Hydrant Assembly, Water Main in Street
W-6.1 Type I	Fire Hydrant Assembly, Water Main in Parkway
W-6.2 Type II	Fire Hydrant Assembly, Water Main in Parkway
W-7	Gate Valve Box & Cover
W-7.1	Gate Valve Box & Cover
W-8	Thrust Blocks
W-9	Thrust Blocks
W-10	Air Vacuum & Air Release Valve Assembly
W-11.1 Type I	Fire Hydrant Assembly, Water Main in Street
W-11.2 Type II	Fire Hydrant Assembly, Water Main in Street
W-13	Casing Detail 12" A.C. Water Main
W-14	Service Connection for 3/4" - 1" Water Meters
W-15	Service Connection for 1-1/2" - 2" Water Meters
W-16	Guard Posts
W-17	2" Blow Off
W-18	Water Crossing Detail
W-20	Backflow Prevention Enclosure
W-23	3-Inch Water Service

REVISIONS:

PROPERTY LINE



- ① FIRE HYDRANT: YELLOW WITH 2-2 1/2" HOSE NOZZLE. 1-4" PUMPER NOZZLE. NATIONAL STD. WITH 6" DIA. BURY & 6 HOLES, OPEN LEFT, PAINT FIELD COAT AS SPECIFIED.
- ② VALVE BOX SHALL BE ADJUSTABLE WITH CAP. MARKED S.F.S. WATER, PER CITY STD. W-7.
- ③ WHERE NO CURB AND GUTTER EXISTS, THE RUN AND GRADE WILL BE SPECIFIED BY THE ENGINEER.
- ④ THRUST BLOCK MINIMUM BEARING AREA 5.5 SQ. FT.
- ⑤ THRUST BLOCK MINIMUM BEARING AREA PER S.F.S. STD. W-8 AND W-9.
- ⑥ INSTALL SHOCK SLAB.
- ⑦ SOLID BOLTS.
- ⑧ PROVIDE 1 1/2" NUTS ON ALL CAST IRON, CAPS & OPERATING STEMS ("DUMMY NUTS" ON STEMS).
- ⑨ ALL CAST IRON & DUCTILE IRON PIPE SHALL BE ENCASED WITH 8-MIL POLYETHYLENE.
- ⑩ BREAK-OFF CHECK VALVE LB400, AVK FLOWGUARD II OR CLOW MODEL LBI 400A.



TYPE I

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: BEACH

DRAWN: BAYAN

CHECKED: *RE*

APPROVED: *[Signature]*

DATE: 1/15

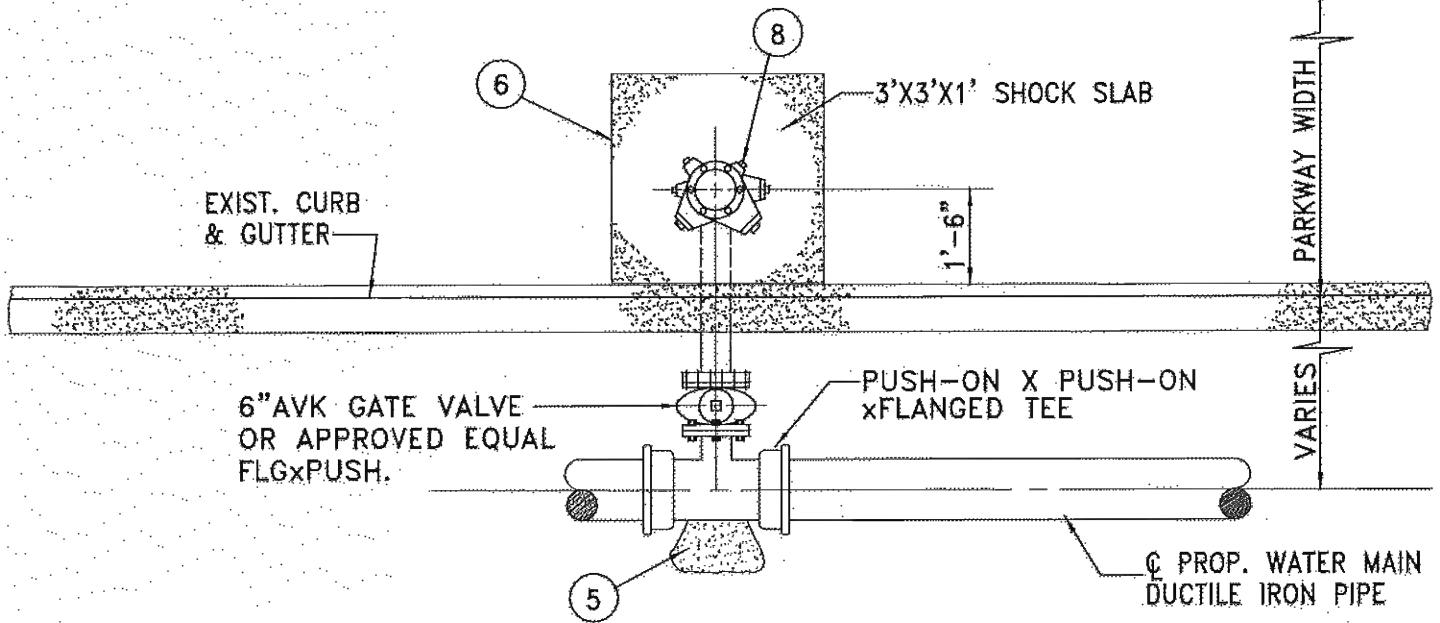
FIRE HYDRANT ASSEMBLY
WATER MAIN IN STREET

STANDARD NO.

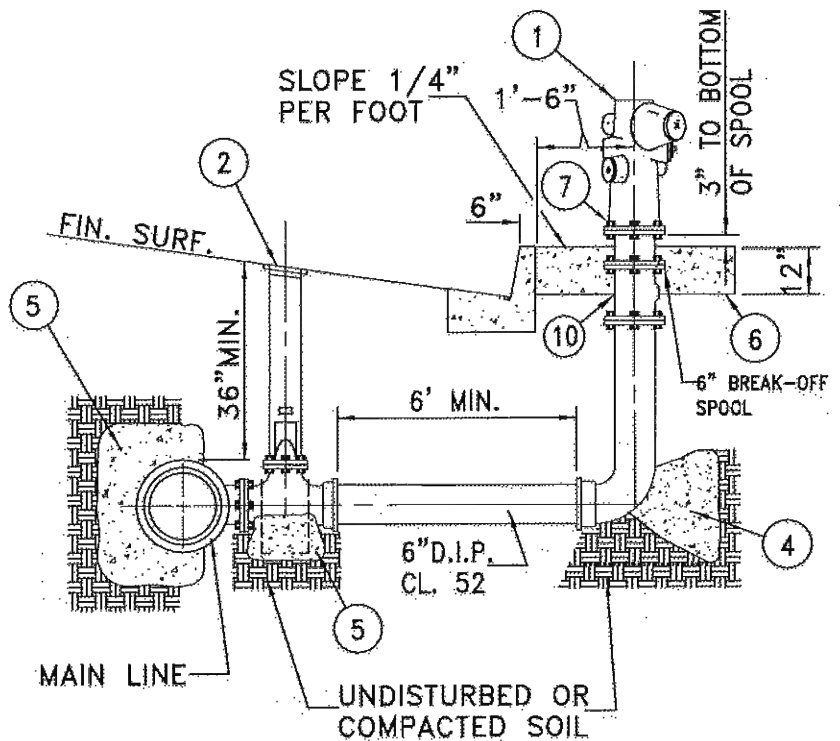
W-5.1

REVISIONS:

PROPERTY LINE



- ① FIRE HYDRANT: YELLOW WITH 1-2 1/2" HOSE NOZZLE. 1-4" PUMPER NOZZLE. NATIONAL STD. WITH 6" DIA. BURY & 6 HOLES, OPEN LEFT, PAINT FIELD COAT AS SPECIFIED.
- ② VALVE BOX SHALL BE ADJUSTABLE WITH CAP MARKED S.F.S. WATER, PER CITY STD. W-7.
- ③ WHERE NO CURB AND GUTTER EXISTS, THE RUN AND GRADE WILL BE SPECIFIED BY THE ENGINEER.
- ④ THRUST BLOCK MINIMUM BEARING AREA 5.5 SQ. FT.
- ⑤ THRUST BLOCK MINIMUM BEARING AREA PER S.F.S. STD. W-8 AND W-9.
- ⑥ INSTALL SHOCK SLAB.
- ⑦ SOLID BOLTS.
- ⑧ PROVIDE 1 1/2" NUTS ON ALL CAST IRON, CAPS & OPERATING STEMS ("DUMMY NUTS" ON STEMS).
- ⑨ ALL CAST IRON & DUCTILE IRON PIPE SHALL BE ENCASED WITH 8-MIL POLYETHYLENE.
- ⑩ BREAK-OFF CHECK VALVE LB400, AVK FLOWGUARD II OR CLOW MODEL LBI 400A.



TYPE II

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: BEACH

DRAWN: BAYAN

CHECKED: *FE*

APPROVED: *[Signature]*

DATE: 1/15

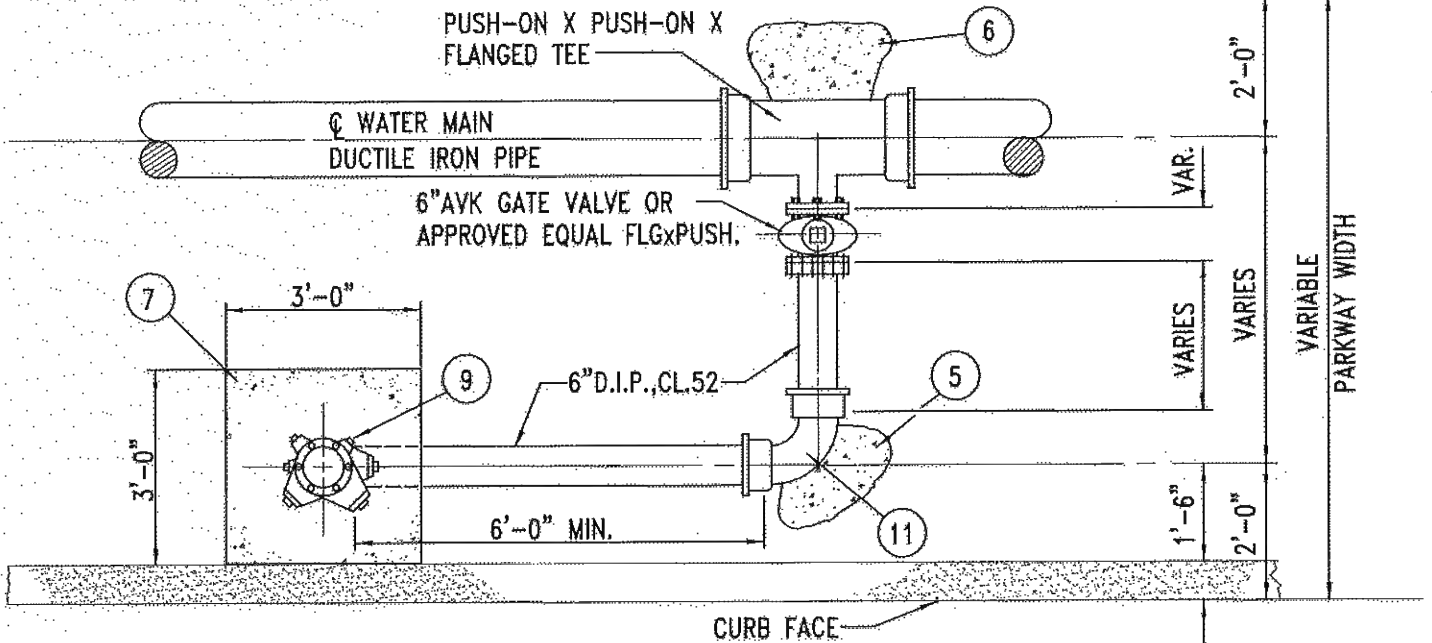
FIRE HYDRANT ASSEMBLY
WATER MAIN IN STREET

STANDARD NO.

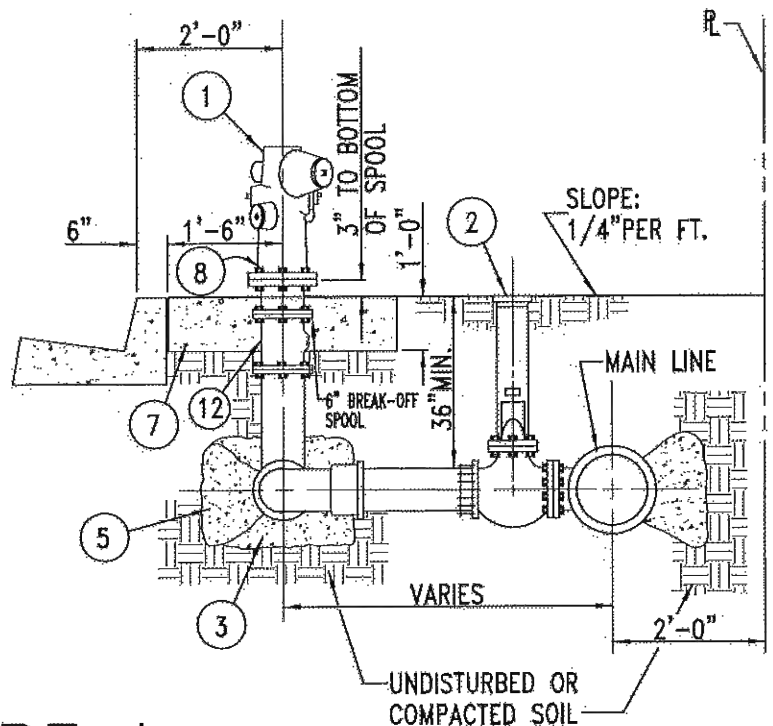
W-5.2

REVISIONS:

PROPERTY LINE



- ① FIRE HYDRANT: YELLOW WITH 2-2 1/2" HOSE NOZZLE. 1-4" PUMPER NOZZLE. NATIONAL STD. WITH 6" DIA. BURY & 6 HOLES, OPEN LEFT, PAINT FIELD COAT AS SPECIFIED.
- ② VALVE BOX SHALL BE ADJUSTABLE WITH CAP MARKED S.F.S. WATER, PER CITY STD. W-7.
- ③ THRUST BLOCK MINIMUM BEARING AREA 4 SQ. FT.
- ④ WHERE NO CURB AND GUTTER EXISTS, THE RUN AND GRADE WILL BE SPECIFIED BY THE ENGINEER.
- ⑤ THRUST BLOCK MINIMUM BEARING AREA 5.5 SQ. FT.
- ⑥ THRUST BLOCK MINIMUM BEARING AREA PER S.F.S. STD, W-8 AND W-9.
- ⑦ INSTALL 3'X3'X1' SHOCK SLAB.
- ⑧ SOLID BOLTS.
- ⑨ PROVIDE 1 1/2" NUTS ON ALL CAST IRON, CAPS & OPERATING STEMS ("DUMMY NUTS" ON STEMS).
- ⑩ ALL CAST IRON & DUCTILE IRON PIPE SHALL BE ENCASED WITH 8-MIL POLYETHYLENE.
- ⑪ 90° ELL SHALL BE 6"DIA. CAST IRON, CLASS D, CEMENT LINED WITH PUSH-ON ENDS.
- ⑫ BREAK-OFF CHECK VALVE LB400, AVK FLOWGUARD II OR CLOW MODEL LBI 400A.



TYPE I

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: TREZ
 DRAWN: TREZ/RED
 CHECKED: *FB*
 APPROVED: *[Signature]*
 DATE: 8/15

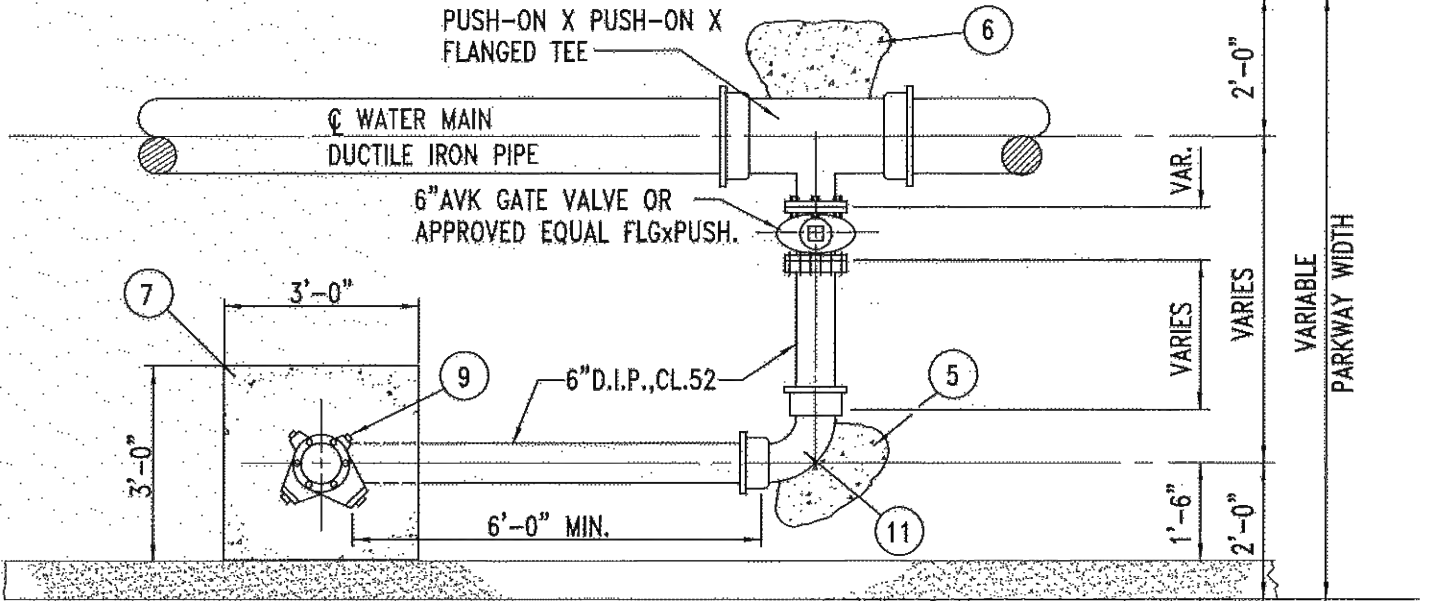
FIRE HYDRANT ASSEMBLY
 WATER MAIN IN PARKWAY

STANDARD NO.

W-6.1

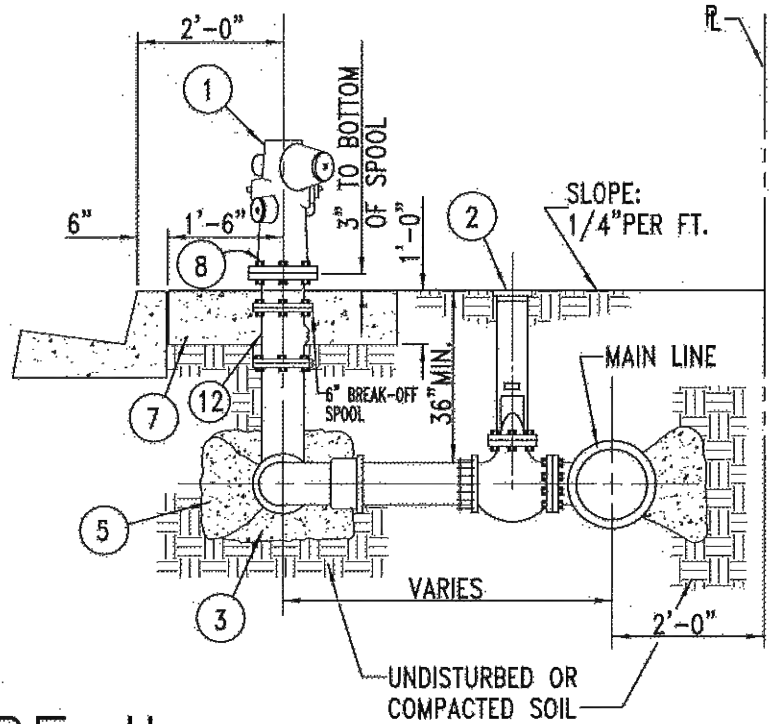
REVISIONS:

PROPERTY LINE



CURB FACE

- ① FIRE HYDRANT: YELLOW WITH 2-2 1/2" HOSE NOZZLE. 1-4" PUMPER NOZZLE. NATIONAL STD. WITH 6" DIA. BURY & 6 HOLES, OPEN LEFT, PAINT FIELD COAT AS SPECIFIED.
- ② VALVE BOX SHALL BE ADJUSTABLE WITH CAP MARKED S.F.S. WATER, PER CITY STD. W-7.
- ③ THRUST BLOCK MINIMUM BEARING AREA 4 SQ. FT.
- ④ WHERE NO CURB AND GUTTER EXISTS, THE RUN AND GRADE WILL BE SPECIFIED BY THE ENGINEER.
- ⑤ THRUST BLOCK MINIMUM BEARING AREA 5.5 SQ. FT.
- ⑥ THRUST BLOCK MINIMUM BEARING AREA PER S.F.S. STD. W-8 AND W-9.
- ⑦ INSTALL 3'X3'X1' SHOCK SLAB.
- ⑧ SOLID BOLTS.
- ⑨ PROVIDE 1 1/2" NUTS ON ALL CAST IRON, CAPS & OPERATING STEMS. ("DUMMY NUTS" ON STEMS).
- ⑩ ALL CAST IRON & DUCTILE IRON PIPE SHALL BE ENCASED WITH 8-MIL POLYETHYLENE.
- ⑪ 90° ELL SHALL BE 6"DIA. CAST IRON, CLASS D, CEMENT LINED WITH PUSH-ON ENDS.
- ⑫ BREAK-OFF CHECK VALVE LB400, AVK FLOWGUARD II OR CLOW MODEL LBI 400A.



TYPE II

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

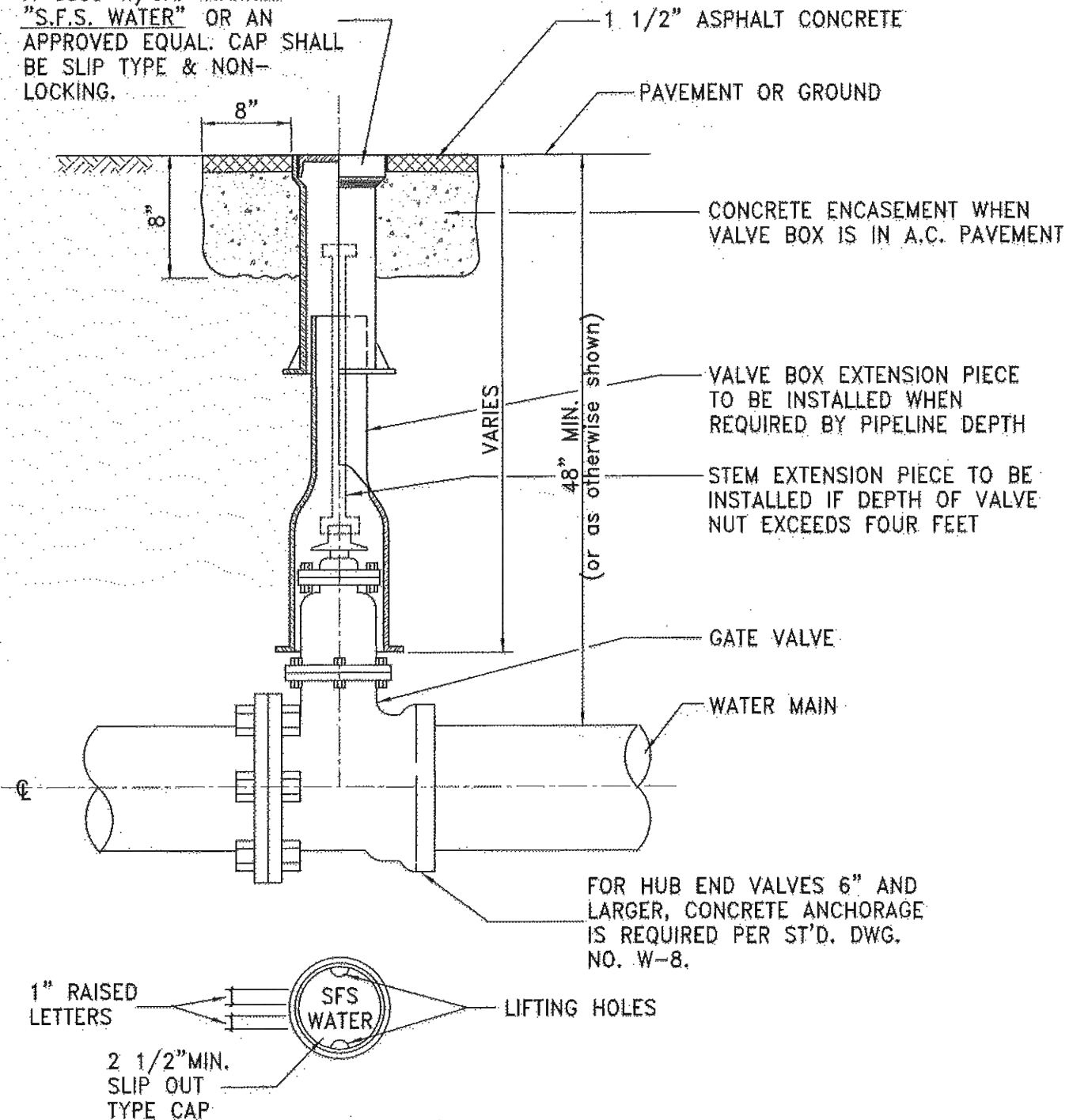
DESIGNED: TREZ
 DRAWN: TREZ/RED
 CHECKED: *FB*
 APPROVED: *[Signature]*
 DATE: 8/15

**FIRE HYDRANT ASSEMBLY
 WATER MAIN IN PARKWAY**

STANDARD NO.
W-6.2

REVISIONS:

ALHAMBRA FOUNDRY NO.
A-3009 W/CAP MARKED
"S.F.S. WATER" OR AN
APPROVED EQUAL. CAP SHALL
BE SLIP TYPE & NON-
LOCKING.



CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: TREZ

DRAWN: TREZ

CHECKED:

APPROVED: *J*

DATE: 7/13

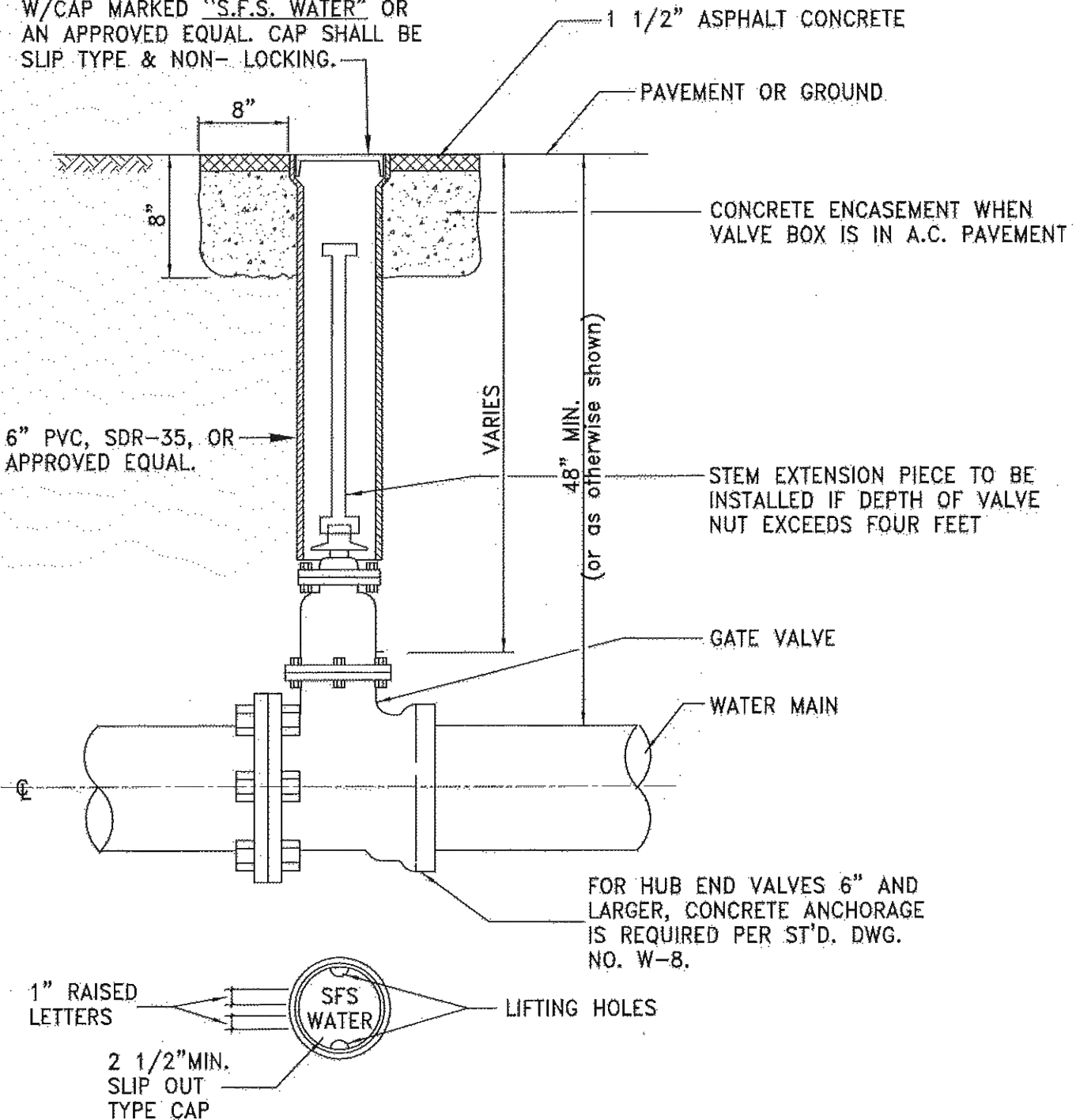
STANDARD NO.

GATE VALVE BOX and COVER

W-7

REVISIONS:

EISEL ENTERPRISES INC. - W10VB
VALVE BOX AND W106C COVER
W/CAP MARKED "S.F.S. WATER" OR
AN APPROVED EQUAL. CAP SHALL BE
SLIP TYPE & NON-LOCKING.



CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: BEACH

DRAWN: BAYAN

CHECKED: FB

APPROVED: *[Signature]*

DATE: 2/14

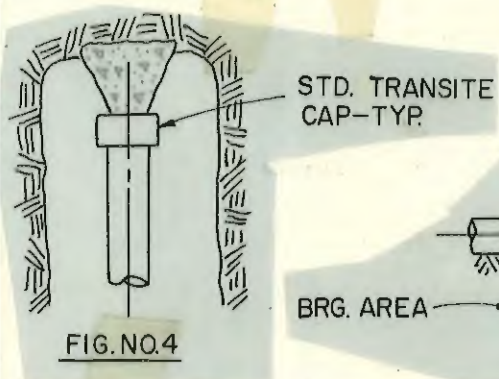
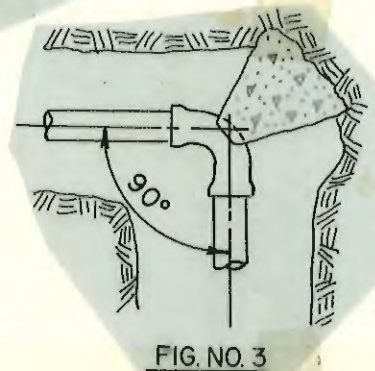
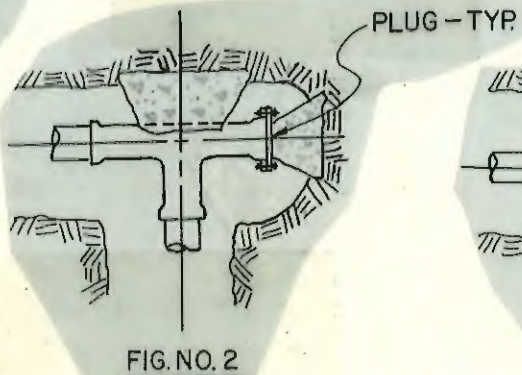
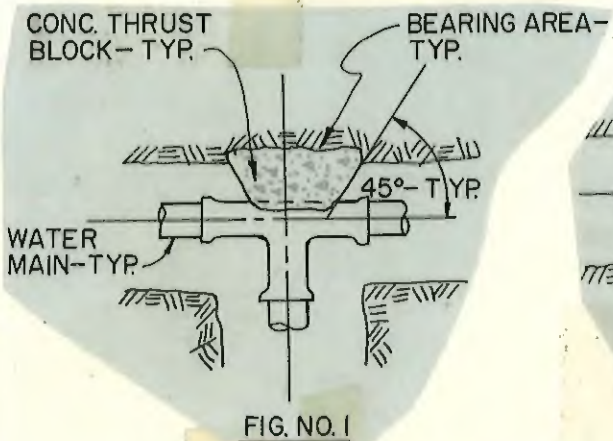
GATE VALVE BOX and COVER

STANDARD NO.

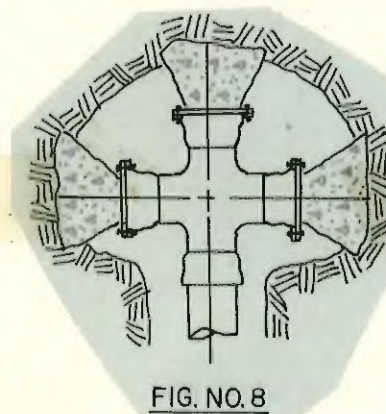
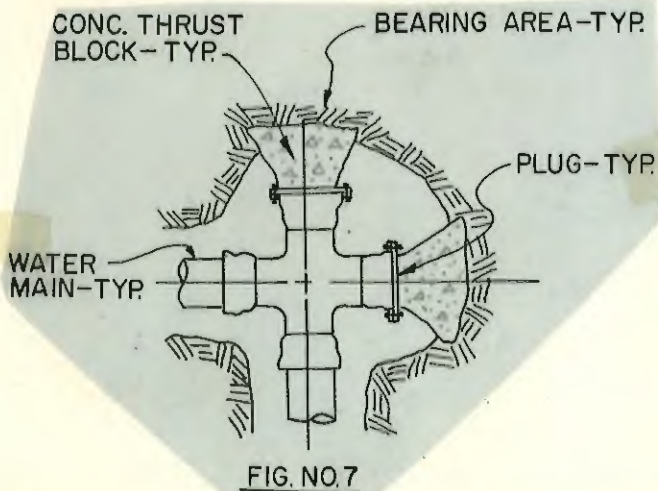
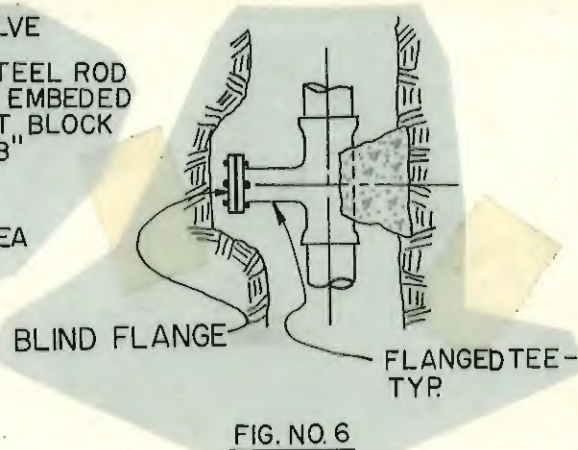
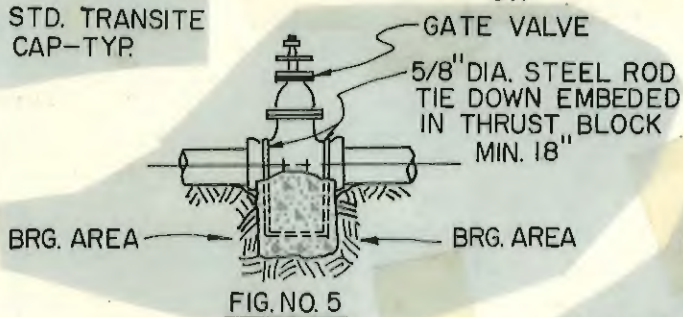
W-7.1

REVISIONS:

7-7-76



BUTTERFLY VALVE OR GATE VALVE



CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED *HO*

DRAWN *HO*

CHECKED *TP*

APPROVED *GED*

DATE *4-7-63*

STANDARD NO

THRUST BLOCKS

W-8

REVISIONS:

4-20-83

5-28-83

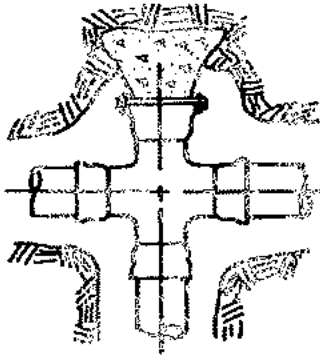


FIG. NO. 9

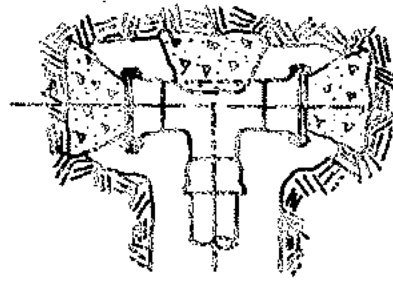


FIG. NO. 10

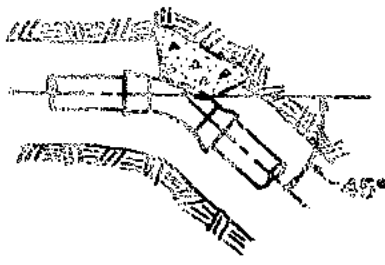


FIG. NO. 11

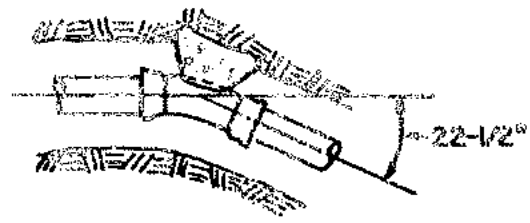


FIG. NO. 12

PIPE SIZE	BEARING AREA IN SQ. FT.					
	FIG. 1	FIG. 2	FIG. 3	FIG. 4	FIG. 5	FIG. 6
4"	2.0	2.0	3.0	2.0	—	2.0
6"	4.0	4.0	5.5	4.0	—	4.0
8"	7.0	7.0	9.5	7.0	—	7.0
10"	11.0	11.0	15.5	11.0	—	11.0
12"	15.5	15.5	22.0	15.5	15.5	15.5
14"	21.0	21.0	29.5	21.0	21.0	21.0
16"	27.0	27.0	39.0	27.0	27.0	27.0

PIPE SIZE	BEARING AREA IN SQ. FT.					
	FIG. 7	FIG. 8	FIG. 9	FIG. 10	FIG. 11	FIG. 12
8"	7.0	7.0	7.0	7.0	5.5	3.0
10"	11.0	11.0	11.0	11.0	6.5	4.5
12"	15.5	15.5	15.5	15.5	12.0	6.0
14"	21.0	21.0	21.0	21.0	16.0	8.5
16"	27.0	27.0	27.0	27.0	21.0	10.5

NOTES:

1. CONC. FOR THRUST BLOCKS SHALL BE L.A. CO. CLASS "C".
2. TABLE SHOWS INDIVIDUAL THRUST BLOCK AREAS.
3. ALL CONC. TO BE PLACED SO AS TO FORM A FLAT VERTICAL BEARING SURFACE AGAINST UNDISTURBED SOIL.

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

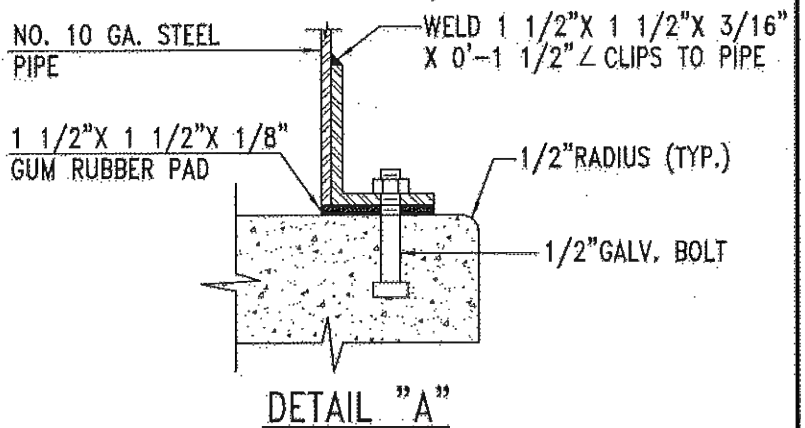
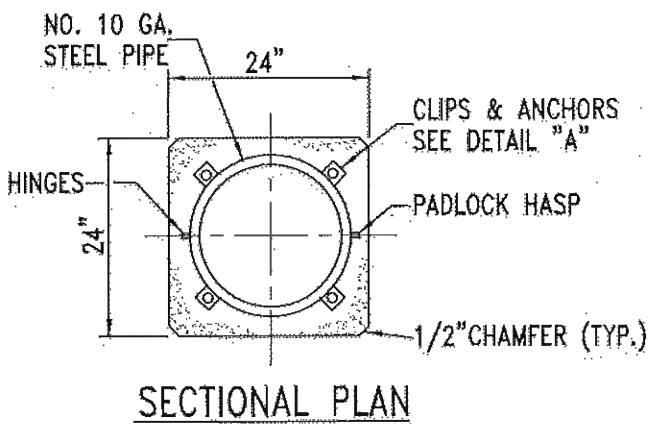
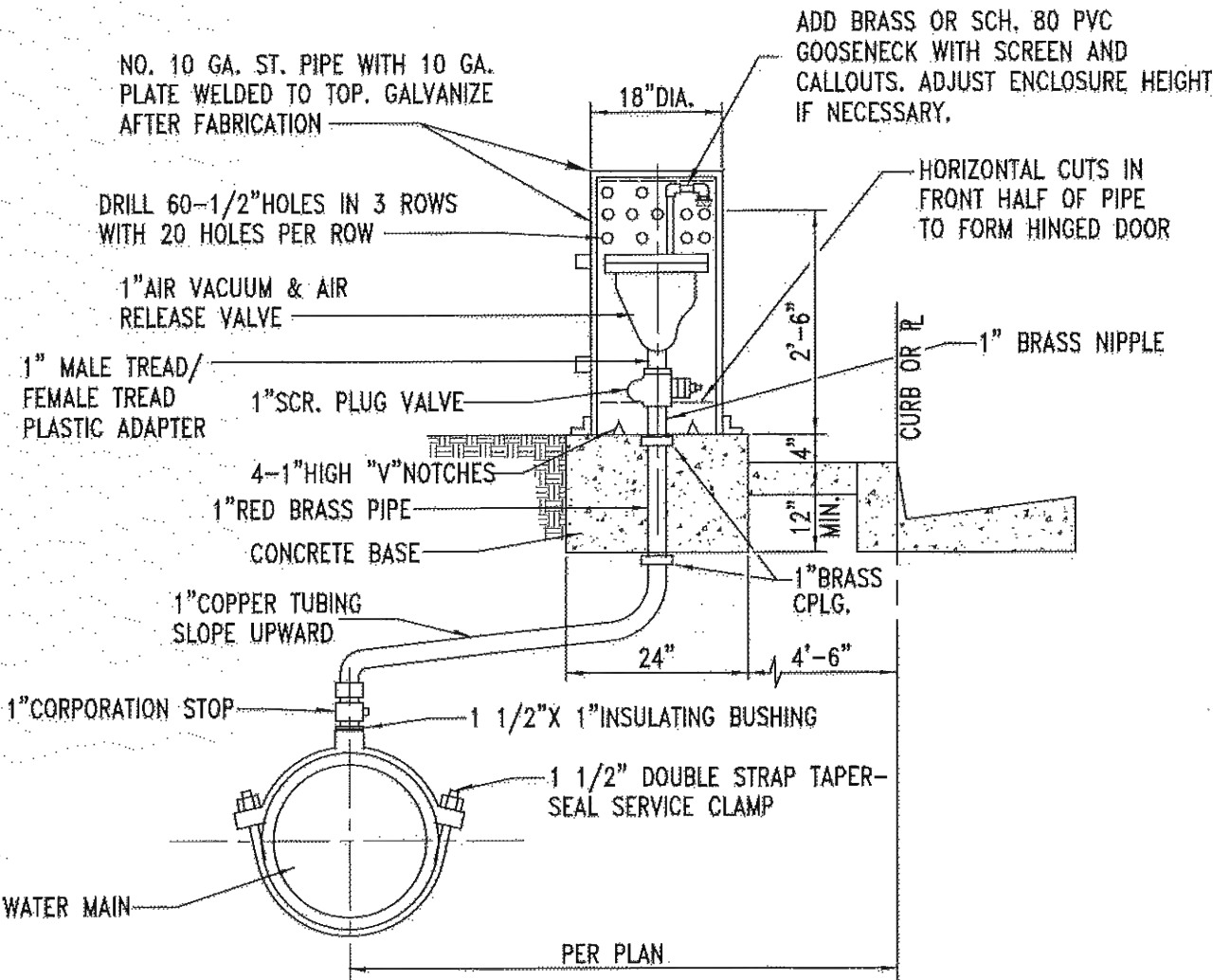
DESIGNED **HO**
 DRAWN **HO**
 CHECKED **TP**
 APPROVED **GED**
 DATE **8-7-63**

THRUST BLOCKS

STANDARD NO

W-9

REVISIONS:



CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: TREZ/ BEACH

DRAWN: TREZ/ RED

CHECKED: *TREZ*

APPROVED: *TREZ*

DATE: 1/15

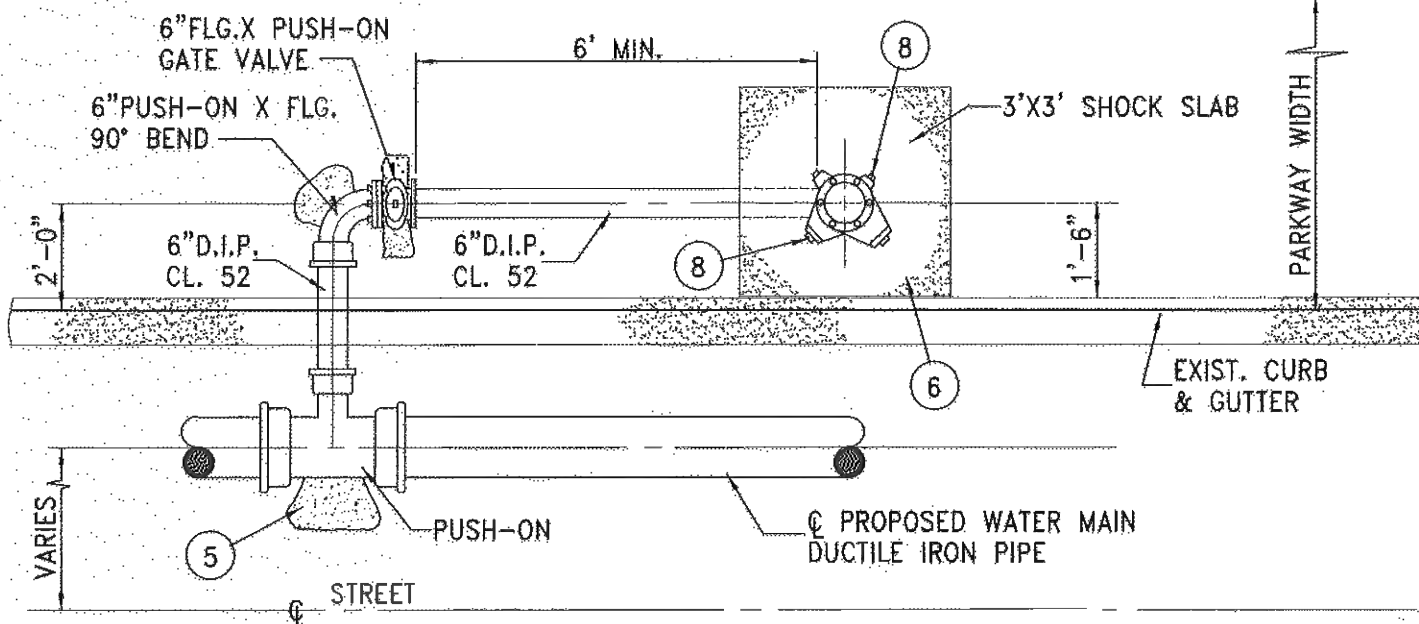
AIR VACUUM & AIR RELEASE VALVE ASSEMBLY

STANDARD NO.

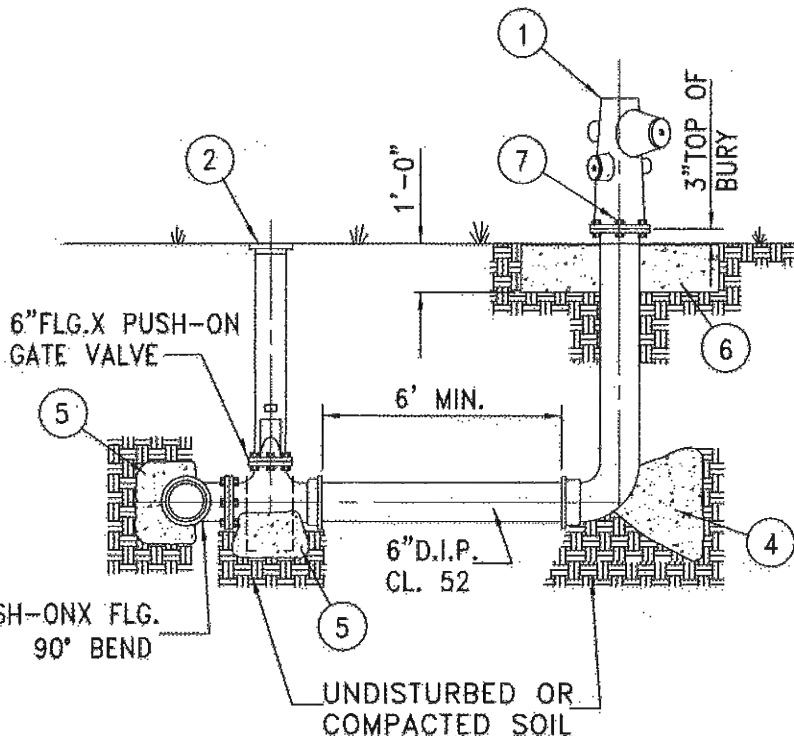
W-10

REVISIONS:

PROPERTY LINE



- ① FIRE HYDRANT: YELLOW WITH 1-2 1/2" & 1-4" HOSE NOZZLE, NATIONAL STD. WITH 6" DIA. BURY AND 6 HOLES, OPEN LEFT, PAINT FIELD COAT AS SPECIFIED.
- ② VALVE BOX SHALL BE ADJUSTABLE WITH CAP MARKED S.F.S. WATER, PER CITY STD. W-7.
- ③ WHERE NO CURB AND GUTTER EXISTS, THE RUN AND GRADE WILL BE SPECIFIED BY THE ENGINEER.
- ④ THRUST BLOCK MINIMUM BEARING AREA 5.5 SQ. FT.
- ⑤ THRUST BLOCK MINIMUM BEARING AREA PER S.F.S. STD. W-8 AND W-9.
- ⑥ INSTALL SHOCK SLAB.
- ⑦ BREAK-OFF BOLTS.
- ⑧ PROVIDE 1 1/2" NUTS ON ALL CAST IRON CAPS & OPERATING STEMS ("DUMMY NUTS" ON STEMS).
- ⑨ ALL CAST IRON & DUCTILE IRON PIPE SHALL BE ENCASED WITH 8-MIL POLYETHYLENE.



TYPE II

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: TREZ

DRAWN: TREZ

CHECKED:

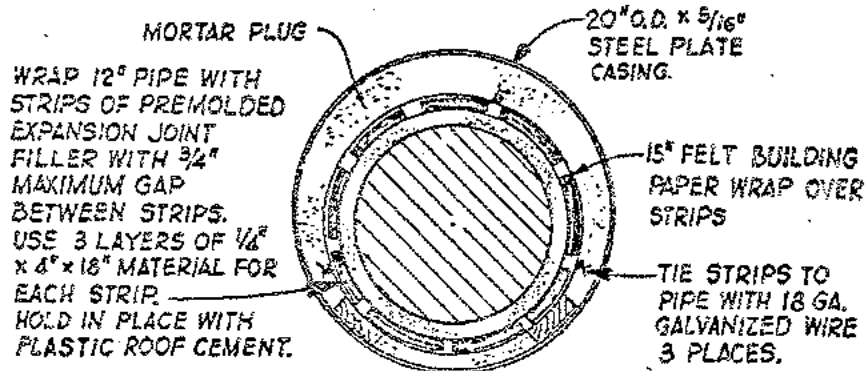
APPROVED: *[Signature]*

DATE: 7/13

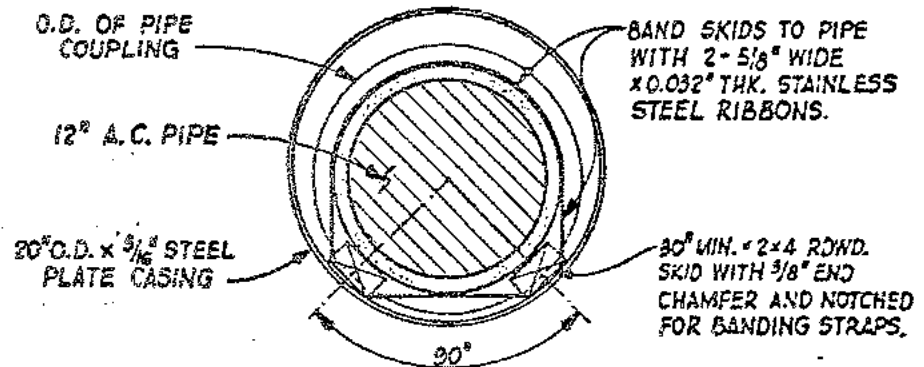
STANDARD NO.

**FIRE HYDRANT ASSEMBLY
WATER MAIN IN STREET**

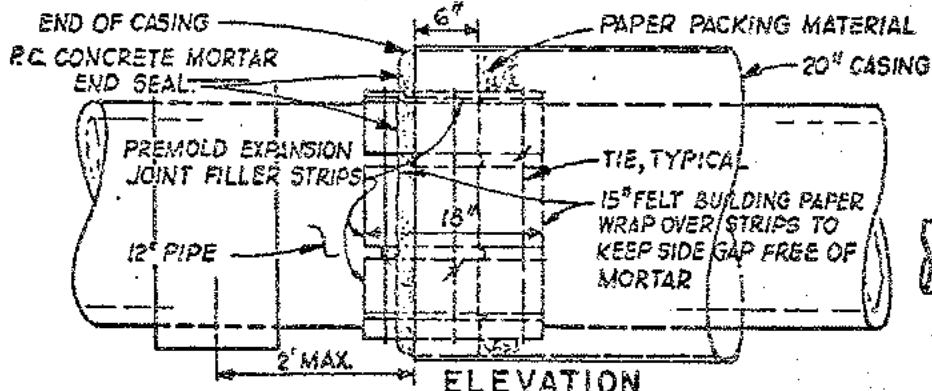
W-11.2



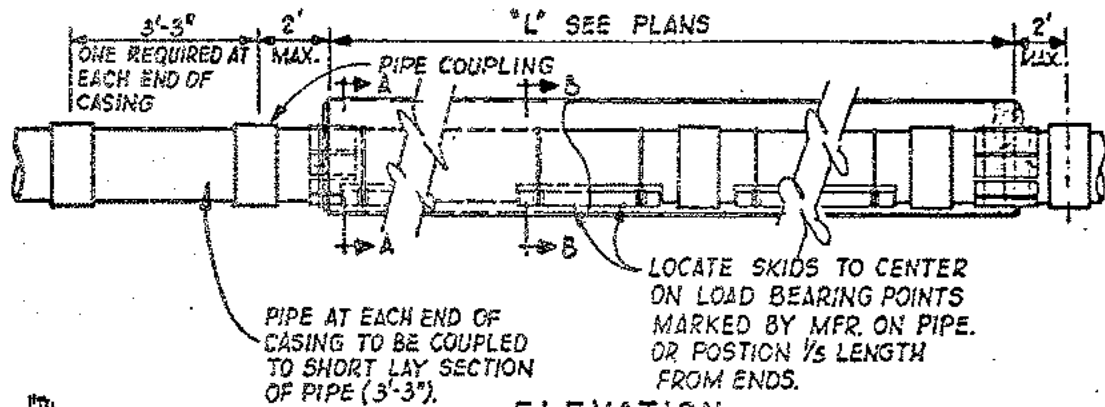
SECTION A-A



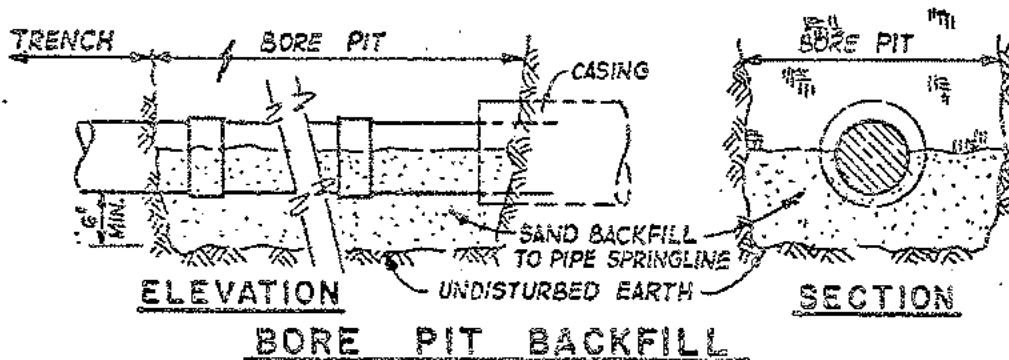
SECTION B-B



ELEVATION END SEAL



ELEVATION 12" PIPE SUPPORT



ELEVATION BORE PIT BACKFILL

REV. 5-2-67

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS IMPROVEMENT STANDARDS

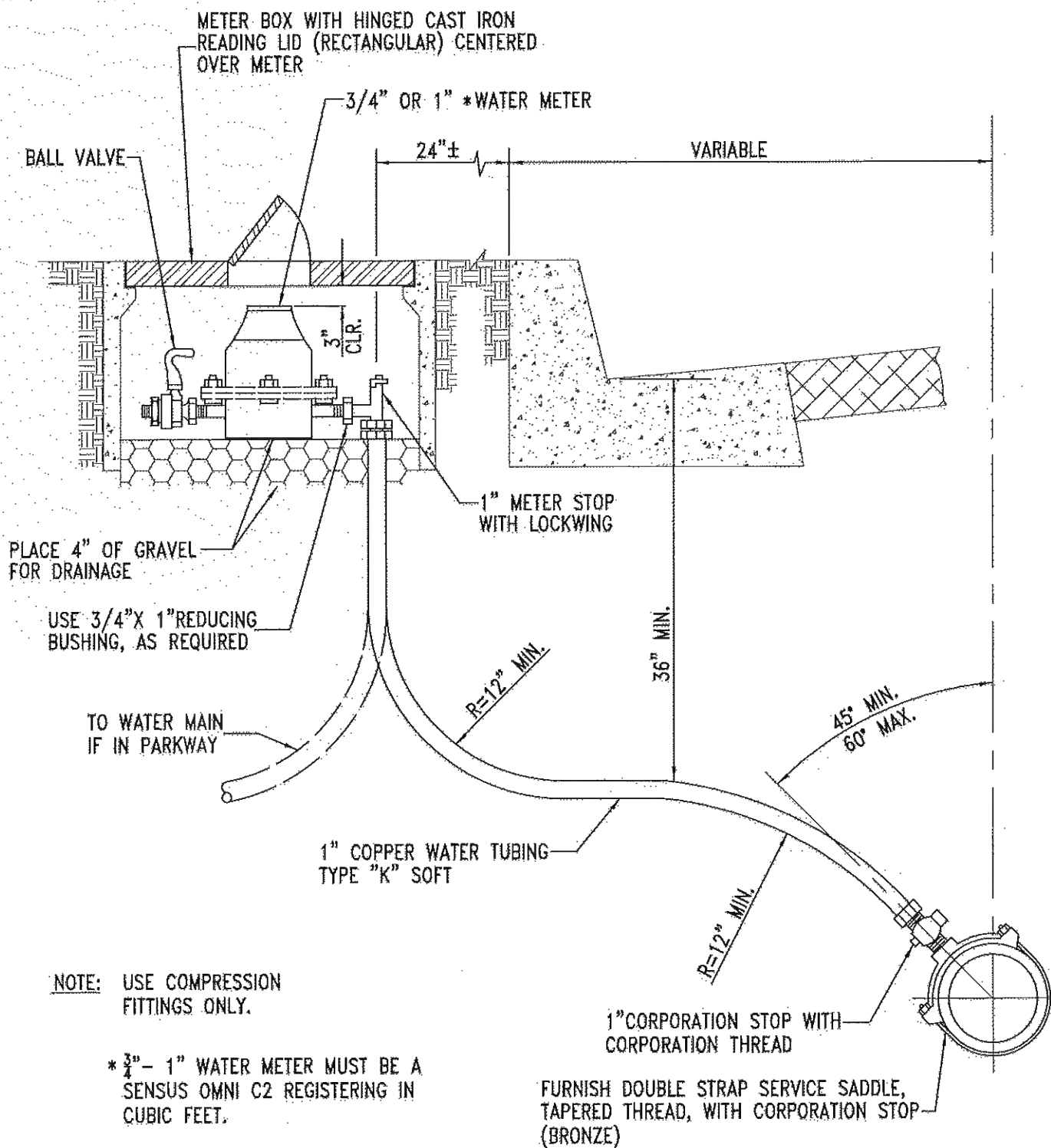
DESIGNED T.P.
 DRAWN J.H.
 CHECKED JBP
 APPROVED JHP
 DATE 1-30-67

CASING DETAIL
12" A.C. WATER MAIN

STANDARD NO

W-13

REVISIONS:



CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: BEACH

DRAWN: BAYAN

CHECKED: *FB*

APPROVED: *[Signature]*

DATE: 9/14

SERVICE CONNECTION FOR 3/4" - 1" WATER METERS

STANDARD NO.

W-14

REVISIONS:

METER BOX WITH HINGED CAST IRON READING LID (RECTANGULAR) CENTERED OVER METER.

1 1/2" OR 2" *WATER METER

BALL VALVE

24" ±

VARIABLE

3" ± CLR.

PLACE 4" OF GRAVEL FOR DRAINAGE

1 1/2" OR 2" METER STOP WITH LOCKWING

TO WATER MAIN IF IN PARKWAY

R=12" MIN.

36" MIN.

45° MIN. 60° MAX.

1 1/2" OR 2" COPPER WATER TUBING -TYPE "K" SOFT

R=12" MIN.

1 1/2" OR 2" CORPORATION STOP WITH CORPORATION THREAD

FURNISH DOUBLE STRAP SERVICE SADDLE, TAPERED THREAD, WITH CORPORATION STOP (BRONZE)

NOTE: USE COMPRESSION FITTINGS ONLY.

* 1 1/2" - 2" WATER METER MUST BE A SENSUS OMNI C2 REGISTERING IN CUBIC FEET. (ANY SIZE BIGGER THAN 2" USE OMNI "T2".)

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: BEACH

DRAWN: BAYAN

CHECKED: *FB*

APPROVED: *72*

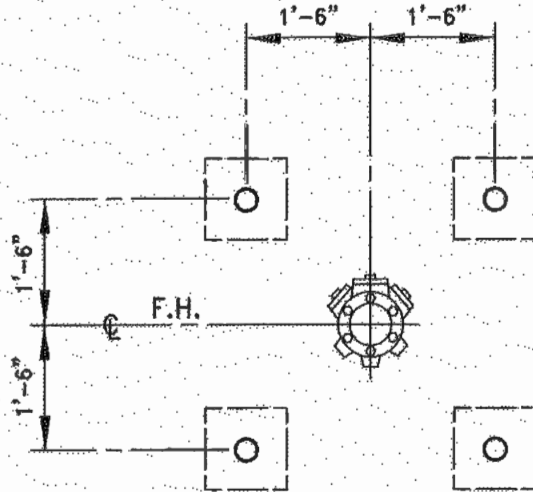
DATE: 9/14

SERVICE CONNECTION FOR 1 1/2" - 2" WATER METERS

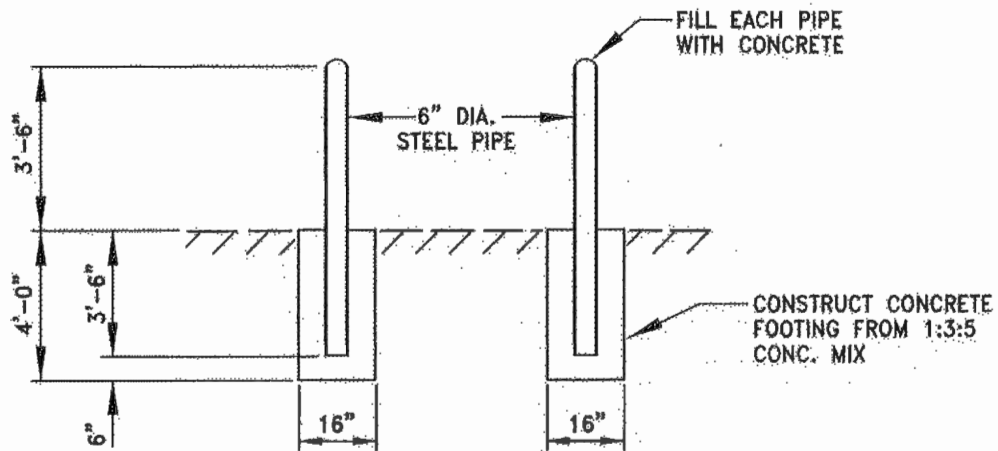
STANDARD NO.

W-15

REVISIONS:



PLAN VIEW



SECTION VIEW

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: TREZ

DRAWN: TREZ

CHECKED:

APPROVED: *[Signature]*

DATE: 7/13

STANDARD NO.

GUARD POSTS

W-16

REVISIONS:

1.5" METER BOX WITH HINGED CAST IRON READING LID (RECTANGULAR) CENTERED OVER VALVE

STRAIGHT BALL METER VALVE FOR COPPER & IRON PIPE (FORD BF 43-777W) WITH HANDLE

PLACE 4" OF GRAVEL FOR DRAINAGE

24"

VARIABLE

2" COPPER WATER TUBING -TYPE "K" SOFT

30" MIN.

R=12" MIN.

2" CORPORATION STOP WITH CORPORATION THREAD

90°

NOTE: USE COMPRESSION FITTINGS ONLY.

FURNISH DOUBLE STRAP SERVICE SADDLE, TAPERED THREAD, WITH CORPORATION STOP (BRONZE)

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: BEACH

DRAWN: BAYAN

CHECKED: *FJB*

APPROVED: *[Signature]*

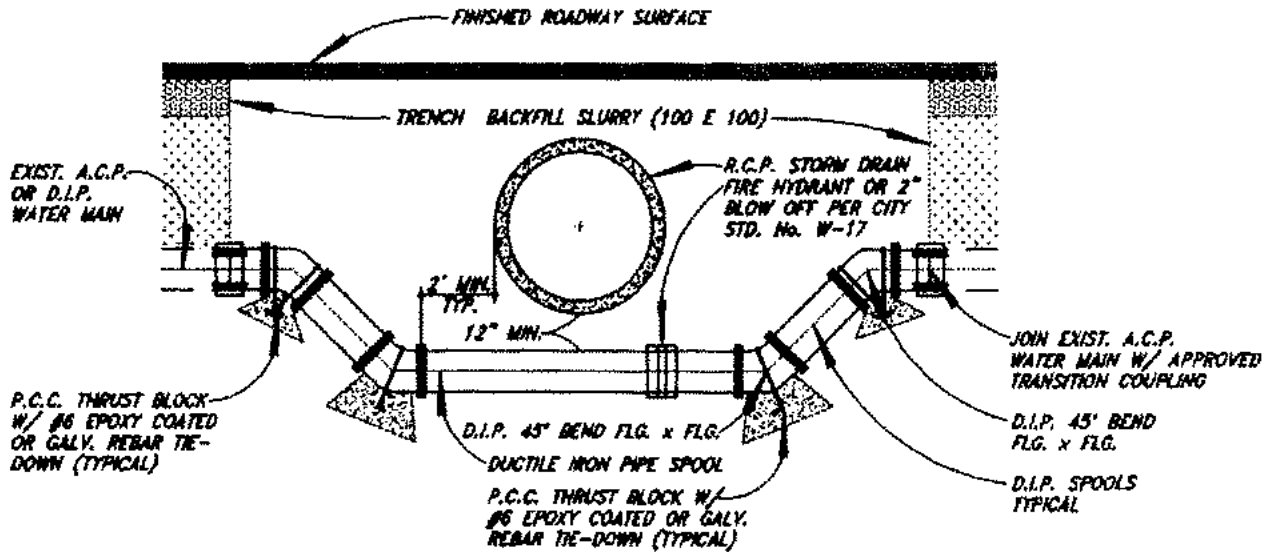
DATE: 12/17

2" BLOW OFF

STANDARD NO.

W-17

REVISIONS:



WATER CROSSING DETAIL
NO SCALE

ALL FITTINGS AND NEW PIPE SHALL BE DUCTILE IRON (CLASS 52).
INSTALL THRUST BLOCKS PER CITY STANDARD No.'s W-8 AND W-9
WITH 500-C-2300 CONCRETE (TYPICAL).

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS IMPROVEMENT STANDARDS

DESIGNED BY:

DRAWN BY: G. LOPEZ

CHECKED BY: *gmo*

APPROVED BY:

DATE: 10/15/09

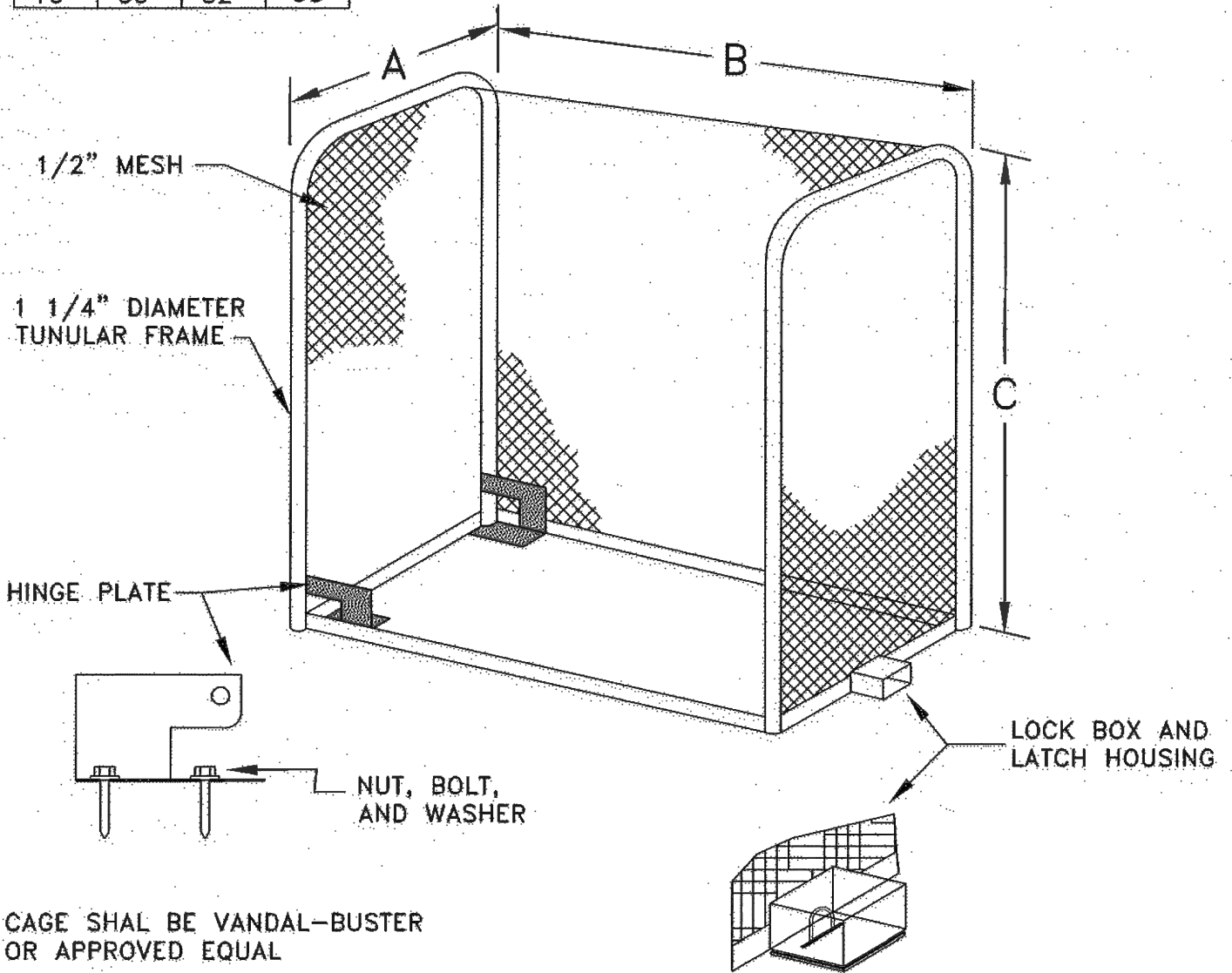
WATER CROSSING DETAIL

STANDARD NO.

W-18

REVISIONS:

STEEL			
A	B	C	WT #
12"	12"	18"	35
12"	24"	24"	40
12"	30"	30"	45
16"	30"	30"	51
16"	42"	30"	73
16"	48"	30"	78
16"	66"	32"	96



CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED:

DRAWN:

CHECKED:

APPROVED: *[Signature]*

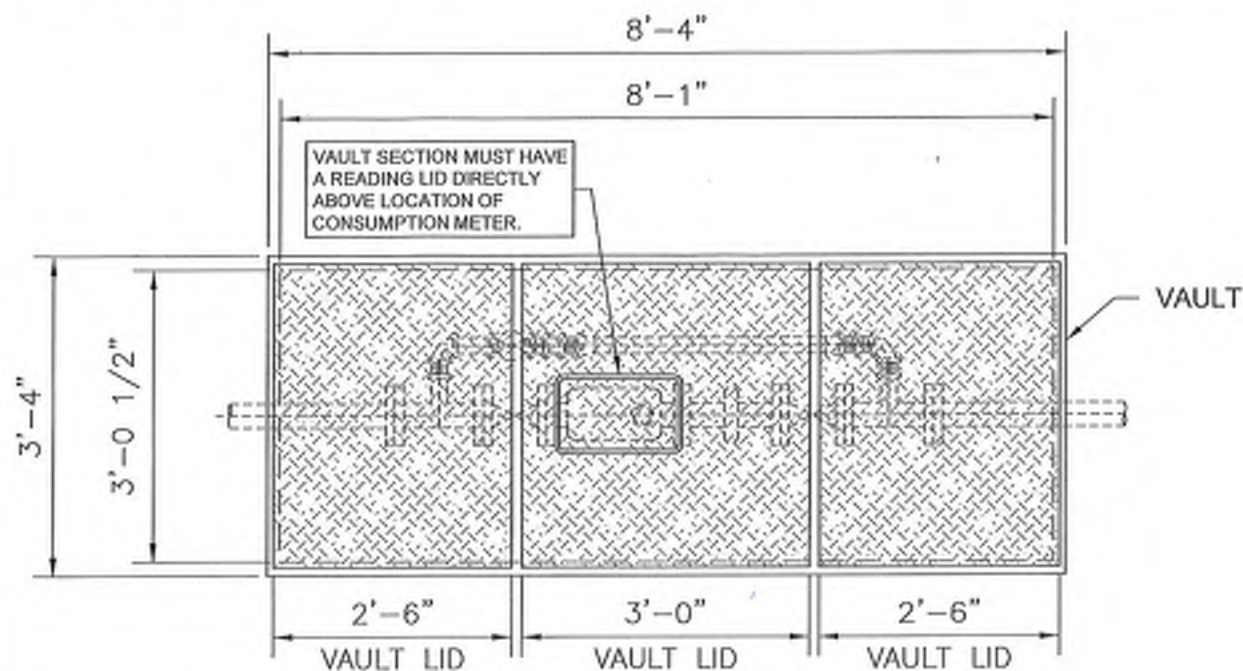
DATE: 7/13

BACKFLOW PREVENTION ENCLOSURE

STANDARD NO.

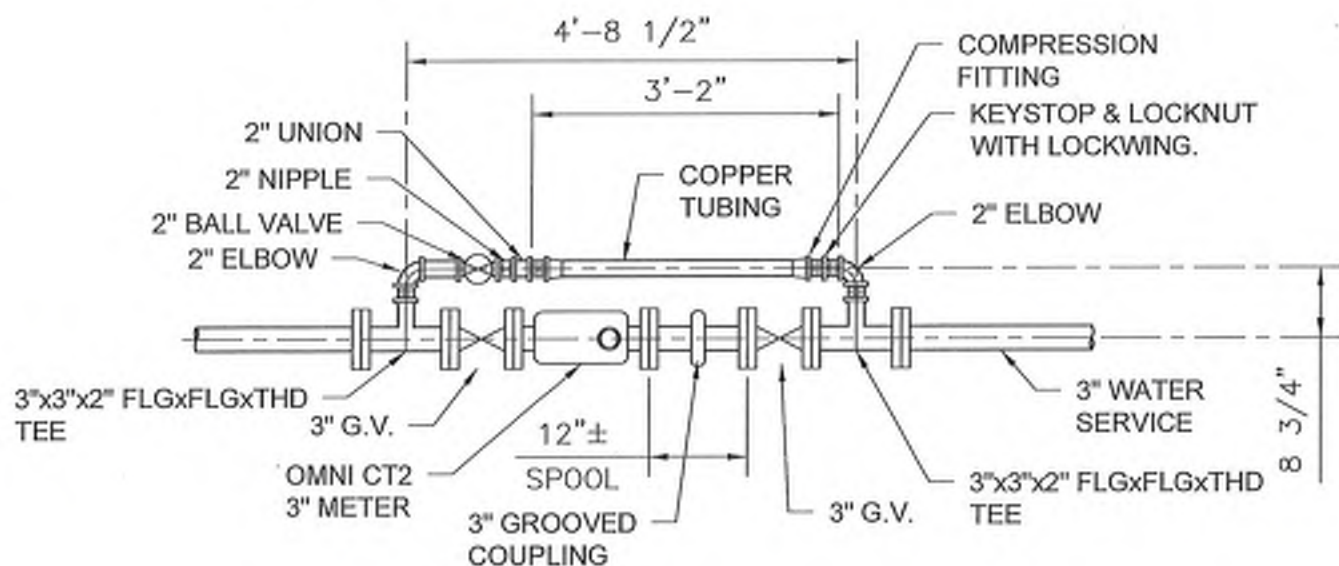
W - 20

REVISIONS:



3" WATER SERVICE VAULT - PLAN

SCALE: $\frac{1}{2}$ "=1'-0"



3" WATER SERVICE PIPING - PLAN

SCALE: $\frac{1}{2}$ "=1'-0"

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED: BEACH

DRAWN: BAYAN

CHECKED: *FDB*

APPROVED: *[Signature]*

DATE: 04/18

STANDARD NO.

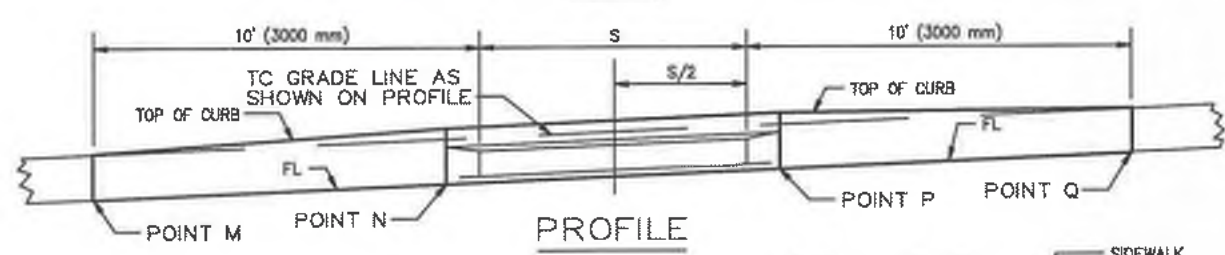
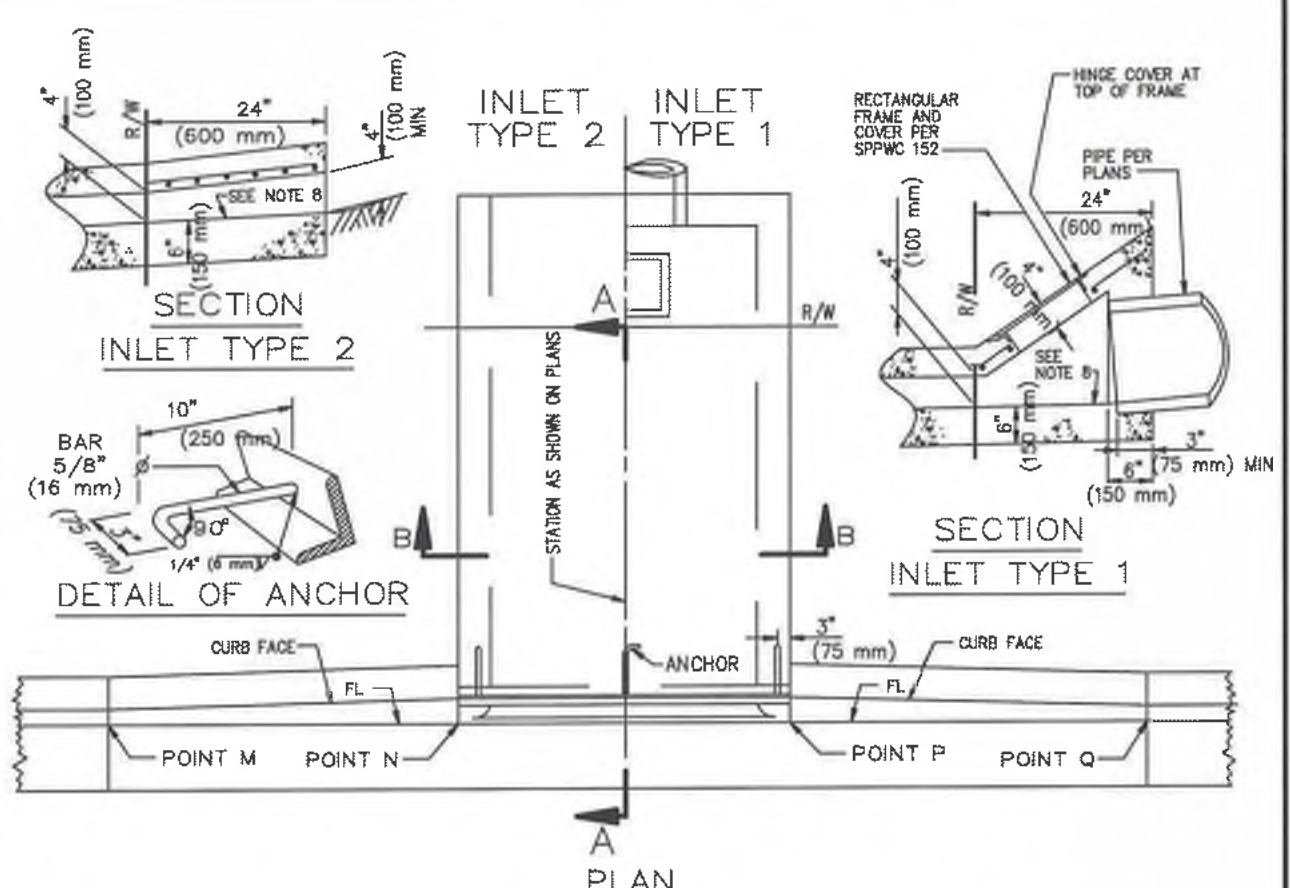
3-INCH WATER SERVICE

W-23

STORMDRAIN

151-2 PARKWAY DRAIN - DETAILS PER STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION (GREENBOOK) LATEST EDITION.

D-3 PARKWAY CULVERT



S, INCHES (mm)	J BAR SPACING
12" (300)	7" (240)
18" (450)	7" (240)
24" (600)	7" (240)
30" (750)	7" (240)
36" (900)	7" (240)
42" (1050)	8" (210)
48" (1200)	5" (180)
54" (1350)	6-1/2" (225)
60" (1500)	5" (180)
66" (1650)	4" (180)
72" (1800)	3-1/2" (120)

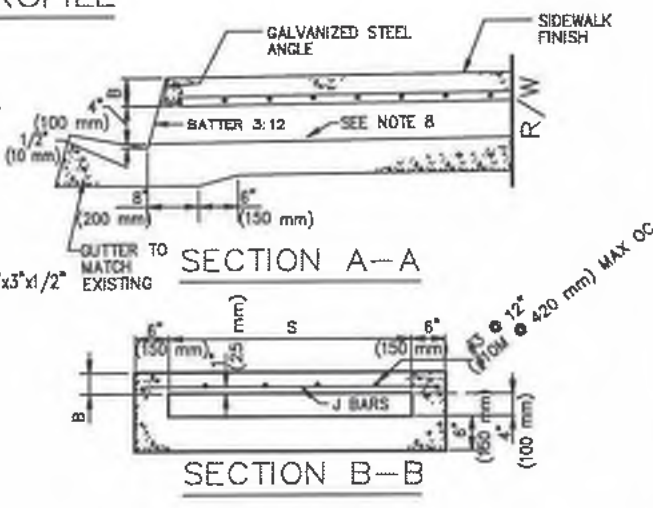
FOR S = 30" (750 mm) AND LESS, USE 2 ANCHORS. OTHERWISE, USE 3 ANCHORS.

FOR S = 48" (1200 mm) AND LESS, B = 3" (75 mm)

USE 2-1/2" x 2" x 3/8" (64x51x9.5) GALVANIZED STEEL ANGLE.

OTHERWISE, B = 4" (100 mm). USE 3-1/2" x 3" x 1/2" (89x76x12.7) GALVANIZED STEEL ANGLE.

J BARS ARE #3 (#10M).



NOTES

1. FLOOR OF BOX SHALL BE TROWELED SMOOTH.
2. IF THE TOE OF SLOPE IS ALLOWED WITHIN THE R/W, INLET TYPE 1 BEGINS AT THE TOE RATHER THAN AT THE R/W LINE.
3. FOR OPEN DITCH (TYPE 2), THE 24" (600 mm) EXTENSION BEYOND THE R/W LINE IS NOT REQUIRED WHEN BACK OF WALK IS 24" (600 mm) OR MORE FROM THE R/W LINE; HOWEVER, THE PIPE SHALL EXTEND TO THE R/W LINE IN ANY EVENT.
4. TOP OF INLET STRUCTURE (TYPE 1 & 2) SHALL BE FLUSH WITH ADJACENT SURFACE WHERE PRACTICAL.
5. A HEADED STEEL STUD 5/8" x 6-3/8" WITH A 1" HEAD (16 x 160 mm, 25 mm HEAD) ATTACHED BY A FULL PENETRATION BUTT WELD MAY BE USED AS AN ALTERNATE ANCHOR.
6. NORMAL CURB FACE AT POINT M AND Q. CURB FACE IS B + 5" (125 mm) AT POINT N AND P.
7. THE 3" (75 mm) LEG OF THE 5/8" (16 mm) DIA ANCHORS SHALL BE PARALLEL TO THE TOP OF SIDEWALK.
8. SLOPE = 2.0%.

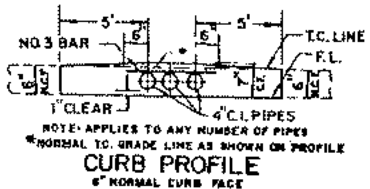
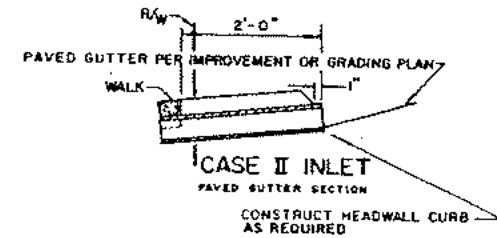
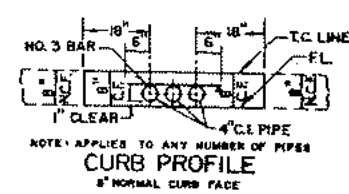
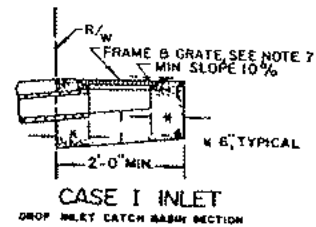
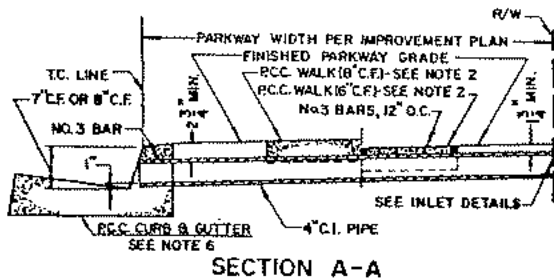
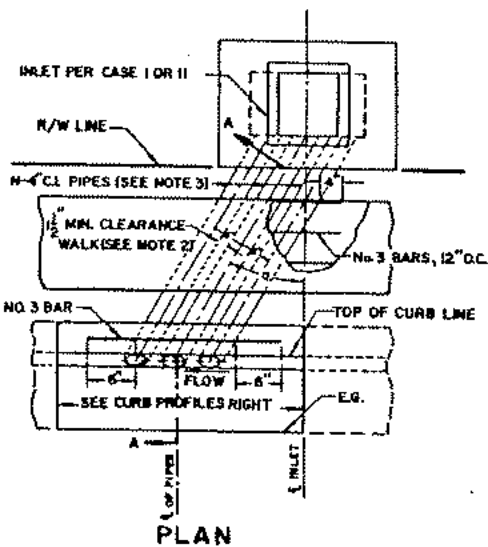
STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PARKWAY DRAIN

STANDARD PLAN

151-2

SHEET 2 OF 2



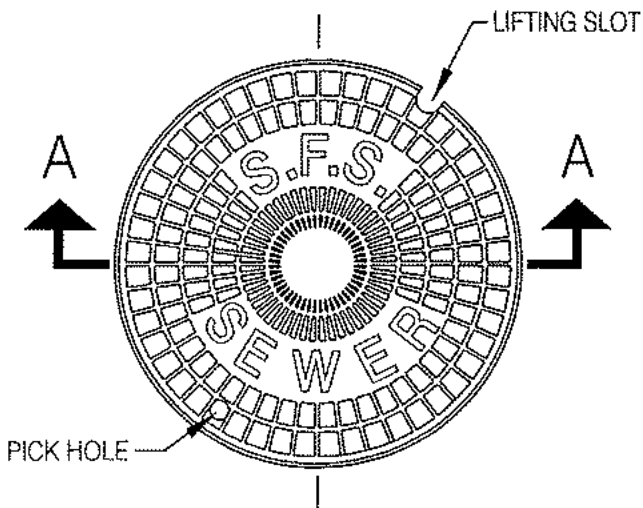
- NOTES:**
1. TOP OF INLET STRUCTURE (CASE I) TO BE FLUSH WITH ADJACENT SURFACE WHERE PRACTICABLE.
 2. CONSTRUCT P.C.C. WALK WHEN SPECIFIED ON PLAN. THE CONTRACT PRICE PAID FOR P.C.C. WALK ITEM SHALL INCLUDE WALK CONSTRUCTED IN CONNECTION WITH PARKWAY CULVERT.
 3. "N" EQUALS NUMBER OF PIPES (MAXIMUM OF FOUR) AS SPECIFIED ON PLAN.
 4. INLET CASE TO BE SPECIFIED ON IMPROVEMENT OR GRADING PLAN.
 5. ANGLE "o" EQUALS 0° UNLESS OTHERWISE SPECIFIED.
 6. TYPE, DIMENSIONS, AND ELEVATIONS OF P.C.C. CURB AND GUTTER PER IMPROVEMENT PLAN.
 7. UNLESS OTHERWISE SPECIFIED, FRAME AND GRATE FOR INLET CASE I SHALL BE ALHAMBRA FOUNDRY 14" X 24" TYPE A-2422 (GALVANIZED) OR EQUAL.
 8. EXISTING CURB SHALL BE SAWCUT OR CORED AS DIRECTED BY THE ENGINEER.

CITY OF SANTA FE SPRINGS		
DEPARTMENT OF PUBLIC WORKS		IMPROVEMENT STANDARDS
DESIGNED <i>AEK</i>	PARKWAY CULVERT	STANDARD NO
DRAWN <i>J.C.</i>		D-3
CHECKED <i>[Signature]</i>		
APPROVED <i>[Signature]</i>		
DATE <i>6-22-72</i>		

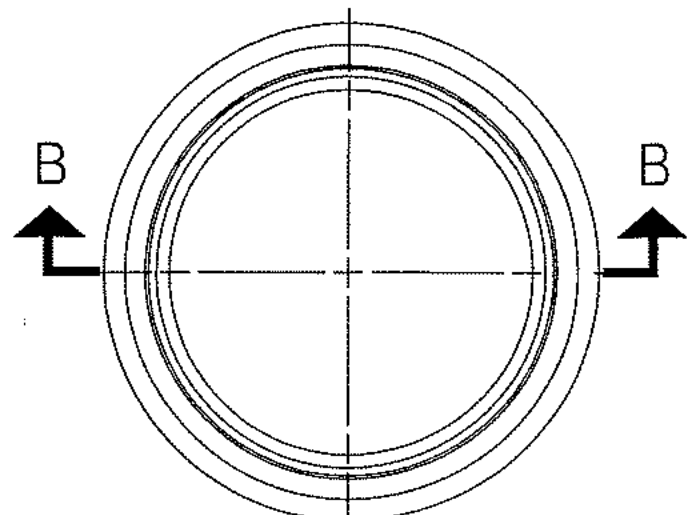
SEWER

SS-1	Standard Manhole Frame & Cover
SS-2	Brick Manhole
SS-3	Rectangular Shallow Manhole
SS-4	Siphon Manhole
SS-5	Rectangular Manhole Frame & Covers
SS-6	Standard Manhole Step
SS-7	Bedding For Sewer Pipe
SS-8	Special Support & Protection
SS-9	Cradling & Encasement
SS-10	Anchor Block
SS-12	Wye or Tee Support
SS-13	Saddles for House Laterals
SS-14	Allowable Trench Width
SS-15	Manhole Raising Rings
SS-16	Non-Reinforced Precast Concrete Manhole
SS-17	Jacking Pipe
SS-18	Precast Concrete Shallow Manhole
SS-19	Typical House Lateral

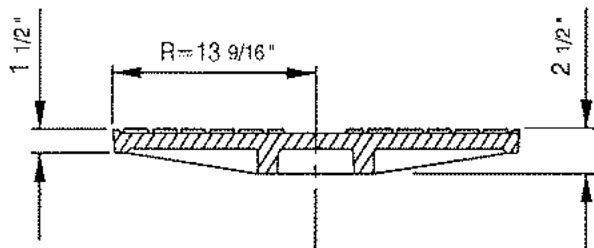
REVISIONS:



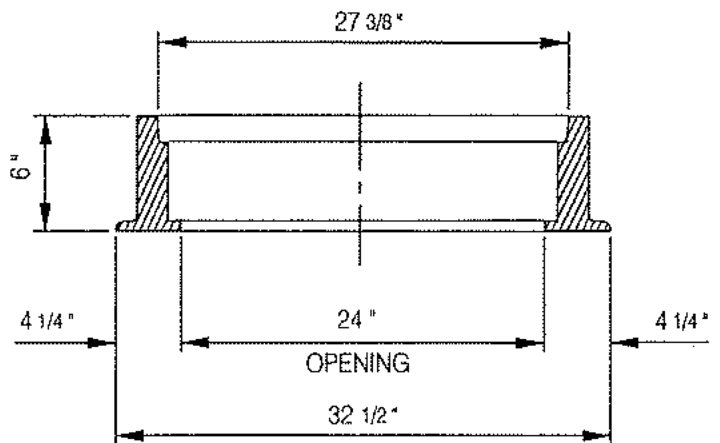
PLAN OF COVER
TOP VIEW



PLAN OF FRAME



SECTION A - A



SECTION B - B

NOTE :

1. MANHOLE FRAME AND COVER SHALL BE ALHAMBRA
FOUNDRY NO. A-1495 CONFORMING TO L.A.C.F.C.D. STD.
PLAN NO. 2-D472 DESIGN AND MARKED "S.F.S. SEWER" AS
SHOWN.

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED:

DRAWN: Trez

CHECKED:

APPROVED: *[Signature]*

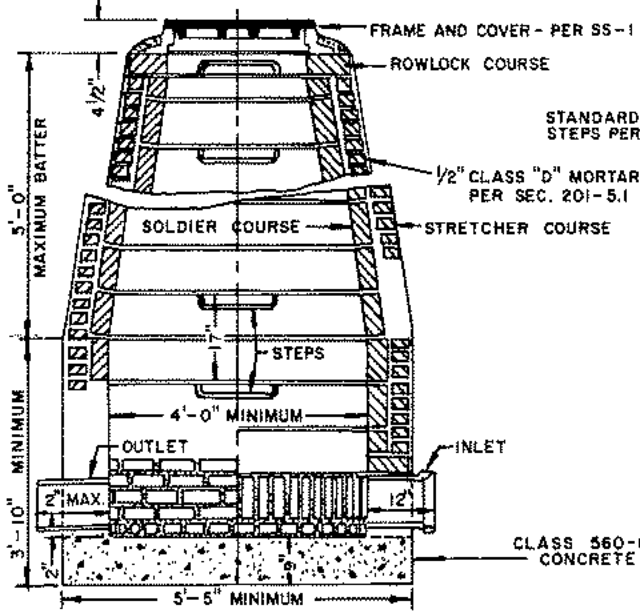
DATE: 9-5-01

STANDARD MANHOLE
FRAME & COVER

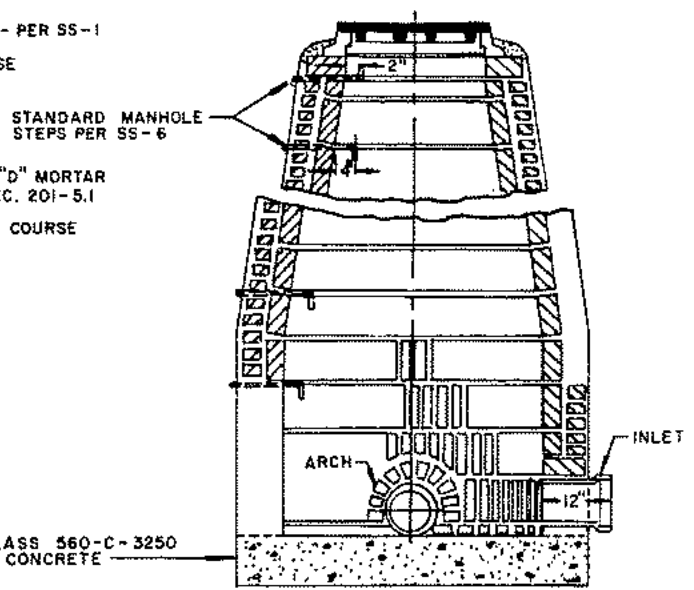
STANDARD NO.

SS - 1

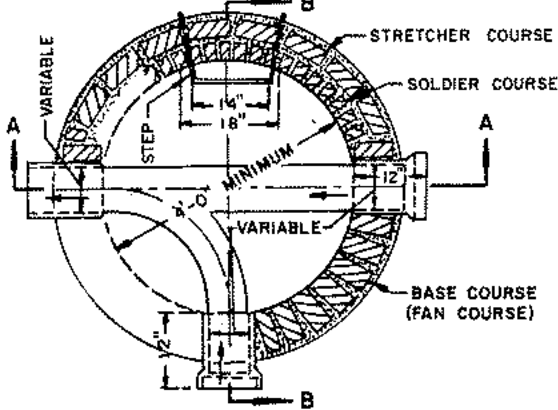
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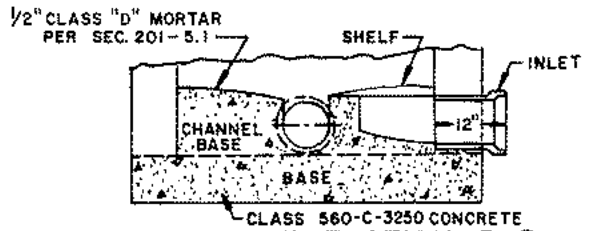
SECTIONAL ELEVATION A-A



SECTIONAL ELEVATION B-B



SECTIONAL PLAN OF BASE



SECTIONAL ELEVATION B-B
CHANNEL BASE

NOTES

1. CONCRETE BASE: DURING CONSTRUCTION, ALL PIPES SHALL BE RIGIDLY SUPPORTED BY BRICK PIERS ONE FOOT DEEP, LOCATED JUST OUTSIDE THE STRUCTURE. CONSTRUCT TOP OF CONCRETE BASE TWO INCHES BELOW INVERT OF LOWEST PIPE. FILL SPACE BENEATH PIPE WITH MORTAR AND SHOVE FROM BOTH SIDES WITH BASE COURSE BRICK TO FORM A WATER TIGHT JOINT. CONCRETE SHALL SET UNDISTURBED FOR 24 HOURS.
2. BASE OR FAN COURSE: LAY BRICK FLAT ON RADIAL LINES WITH TOPS TO SAME LEVEL.
3. ARCHES: LAY SPALLED BRICK ON EDGE TO FORM A TRUE RADIAL ARCH WITH FULL MORTAR JOINT AROUND ALL PIPE OPENINGS. TURN ARCH OF TWO SUCH COURSES OVER PIPES 15 INCH OR MORE IN DIAMETER.
4. SOLDIER COURSE: LAY INSIDE BRICK ON RADIAL LINES VERTICAL FROM THE BASE COURSE TO THE START OF THE BATTER. LAY SUCCEEDING COURSES WITH A UNIFORM BATTER TO OBTAIN AN INSIDE DIAMETER OF 1'-0" AT TOP OF LAST OR FRACTIONAL SOLDIER COURSE. USE SPLIT BRICK TO CLOSE SOLDIER COURSE.
5. STRETCHER COURSES: LAY OUTSIDE BRICK FLAT IN A DEEP BED OF MORTAR. SHOVE BRICK HARD TOGETHER AGAINST ADJACENT SOLDIER COURSE.
6. ROWLOCK COURSE: LAY LAST COURSE OF BRICK RADIAL ON EDGE ACROSS SOLDIER AND STRETCHER COURSES, WITH TOPS PARALLEL.
7. WALL THICKNESS: BRICKWORK SHALL BE 8 INCHES THICK EXCEPT AS OTHERWISE SPECIFIED, OR WHEN DEPTH EXCEEDS 22 FEET, WALLS BELOW 22 FEET SHALL BE 12 INCHES THICK AND THE CONCRETE BASE CORRESPONDINGLY EXTENDED.
8. STEPS: SET LOWER STEP ON TOP OF THIRD SOLDIER COURSE AND NOTCH BRICK ABOVE. PLACE UPPER STEP IMMEDIATELY BELOW ROWLOCK COURSE WITH TREAD OF STEP PROJECTING UPWARD AND SET TWO INCHES OUT FROM WALL. OUTSIDE PROJECTION OF TOP STEP TO BE BENT DOWN.
9. JOINTS: INSIDE JOINTS SHALL BE NEATLY STRUCK AND POINTED AND SHALL NOT EXCEED 3/8 INCH IN THICKNESS.
10. CHANNEL BASE: THE DEPTH OF CHANNEL IN CHANNEL-BASE SHALL EQUAL THE PIPE-DIAMETER FOR ALL SIZES OF PIPE. FOR SPECIAL CHANNELS IN TRAP OR GAUGING MANHOLES SEE

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED _____
 DRAWN *tree*
 CHECKED *ABV*
 APPROVED *AP*
 DATE 12-29-00

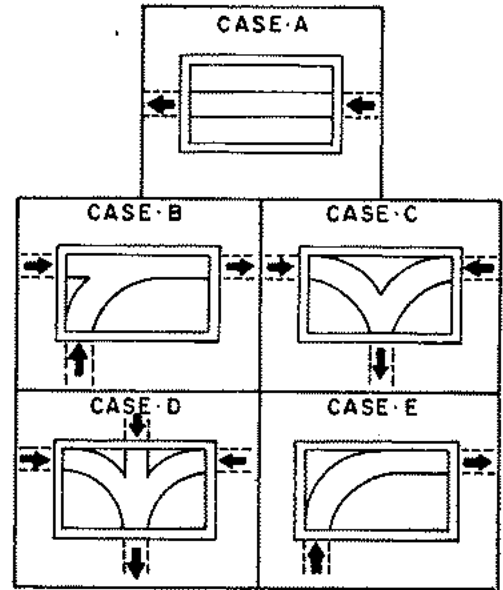
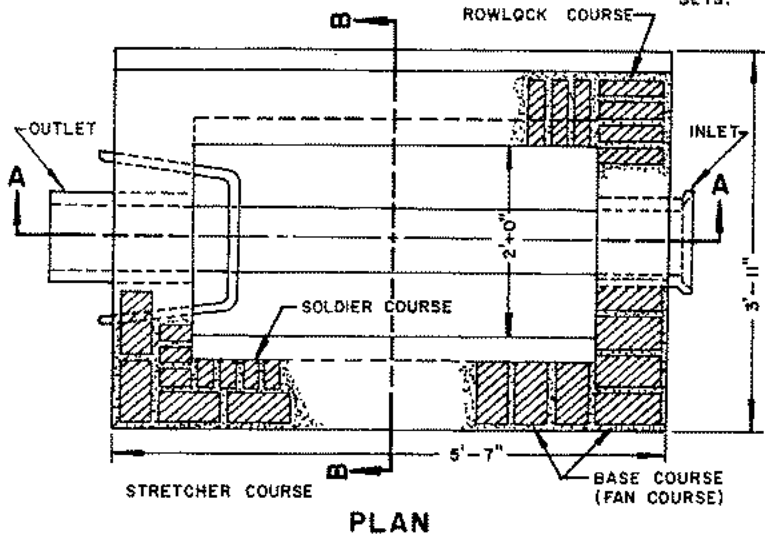
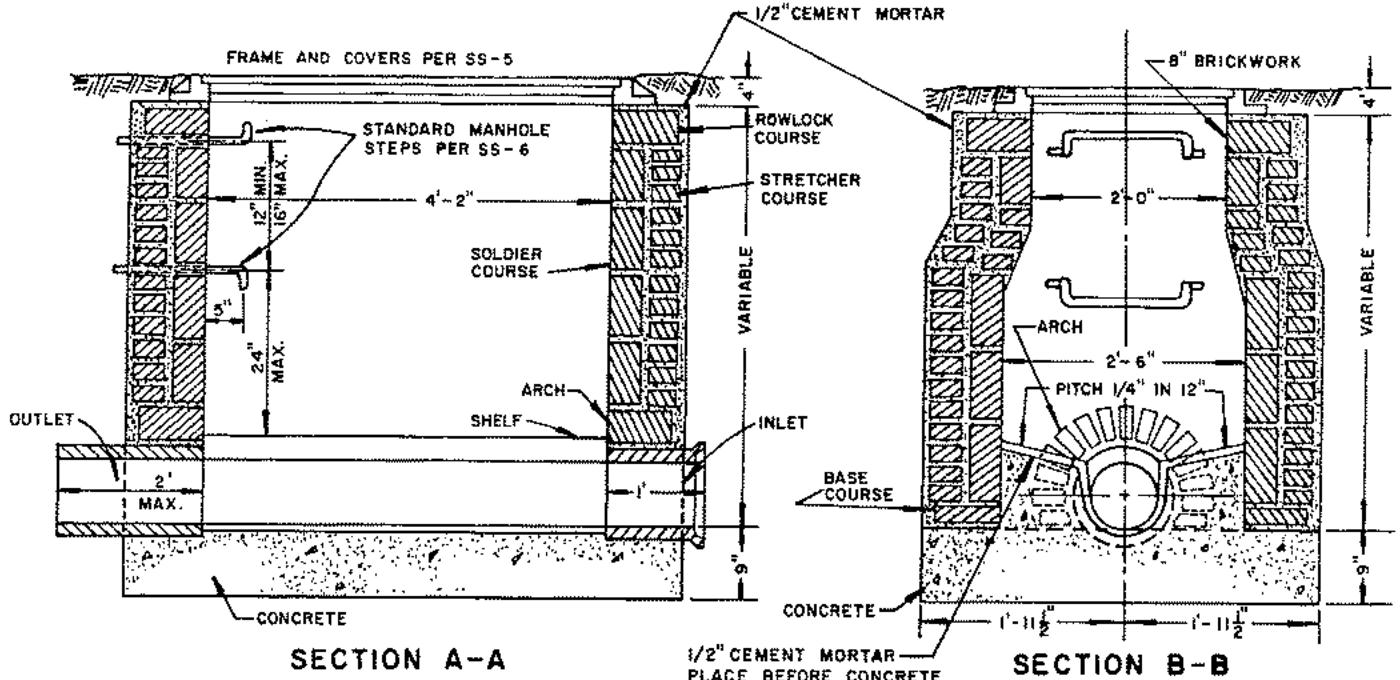
BRICK MANHOLE

STANDARD NO

SS-2

REVISIONS:

NOTE: TO BE USED FOR DEPTHS LESS THAN 5 FEET FROM THE TOP OF THE MANHOLE TO THE TOP OF THE SEWER PIPE.



- NOTES
- 1 THE DEPTH OF CHANNELS SHALL EQUAL THE PIPE DIAMETER FOR ALL SIZES OF PIPE.
 - 2 ALL CONCRETE TO BE CLASS 560-C-3250.
 - 3 ALL CEMENT MORTAR SHALL BE CLASS "D" PER SECTION 201-5.1.

PLACEMENT OF CHANNELS

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

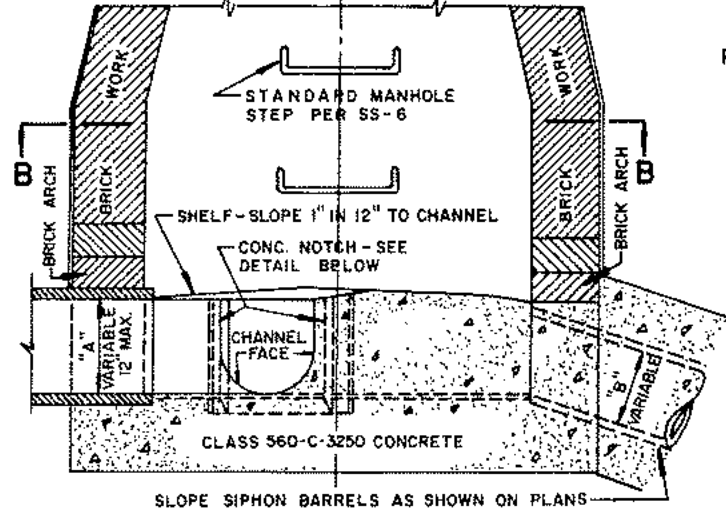
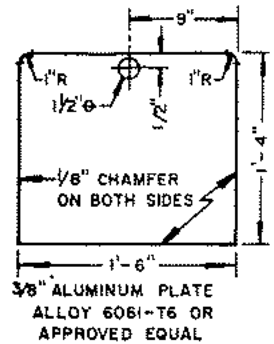
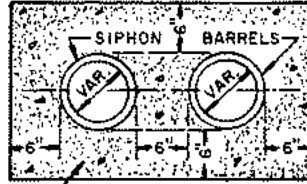
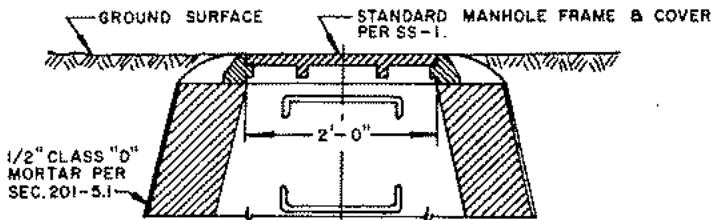
IMPROVEMENT STANDARDS

DESIGNED _____
DRAWN <i>lrae</i>
CHECKED <i>lrae</i>
APPROVED <i>[Signature]</i>
DATE 12-29-80

RECTANGULAR SHALLOW
MANHOLE

STANDARD NO
SS-3

REVISIONS:

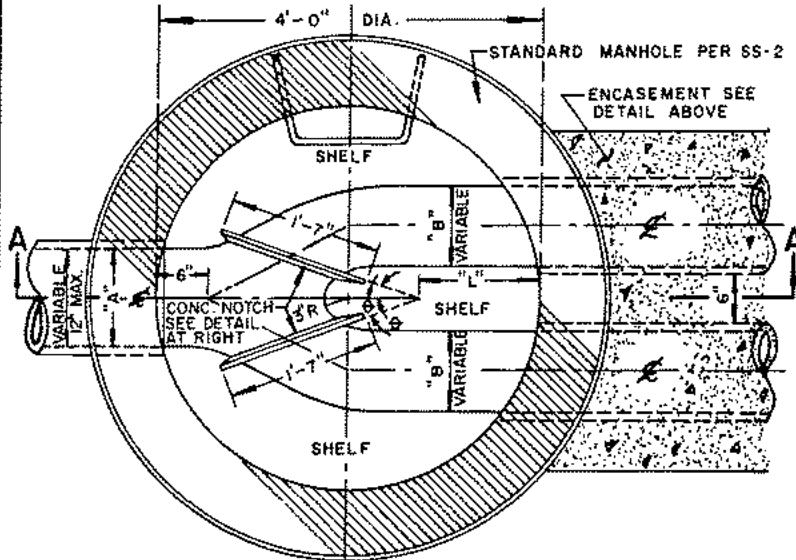


SLOPE SIPHON BARRELS AS SHOWN ON PLANS

SECTION A-A

NOTES

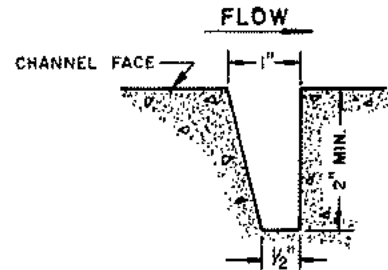
1. FOR OTHER MANHOLE DETAILS SEE STANDARD PLANS.
2. USE FOR ANY COMBINATION OF SIZES TO A MAXIMUM OF TWO 12" PIPES.
3. FOR PIPE DIAMETERS GREATER THAN 12" CONTACT CITY OF SANTA FE SPRINGS.
4. ENCASE SIPHON ONLY TO THE EXTENT SHOWN ON PLANS.
5. PROVIDE ONE ALUMINUM GATE WITH EACH SIPHON MANHOLE.
6. THE DOWNSTREAM LEGS OF SIPHON BARRELS SHALL NOT EXCEED A GRADE OF +30.00%.



SECTIONAL PLAN B-B

TABLE OF DIMENSIONS

A	B	L	Ø
8"	6"	1'-0 1/2"	13°
8"	8"	1'-0 1/2"	13°
10"	8"	1'-0 1/2"	13°
10"	10"	1'-3 1/4"	20°
12"	10"	1'-3 1/4"	20°
12"	12"	1'-6 3/8"	30°



CROSS SECTION OF NOTCH SIDES AND BOTTOM

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED _____
 DRAWN *ELAZ*
 CHECKED *ASZ*
 APPROVED *[Signature]*
 DATE *12-29-80*

SIPHON MANHOLE

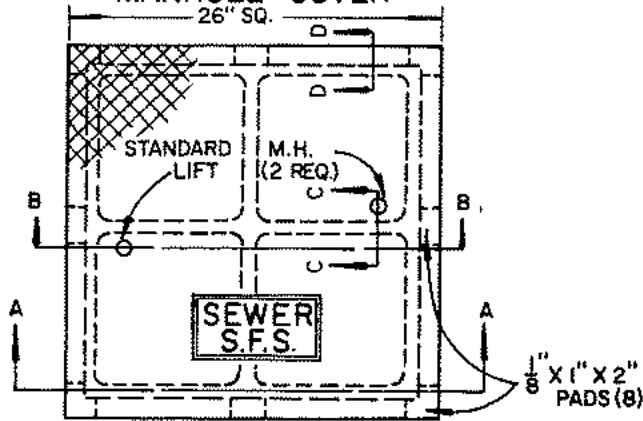
STANDARD NO

SS-4

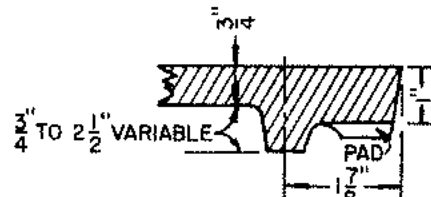
REVISIONS:

FOR USE WITH MANHOLES SS-3 & SS-18

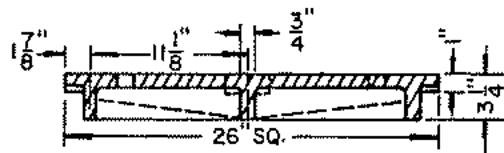
MANHOLE COVER



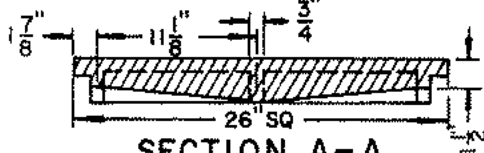
PLAN



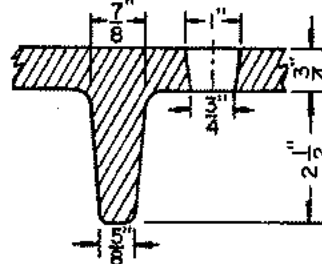
SECTION D-D



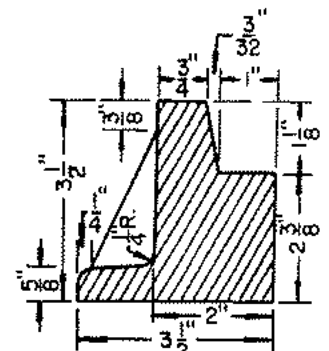
SECTION B-B



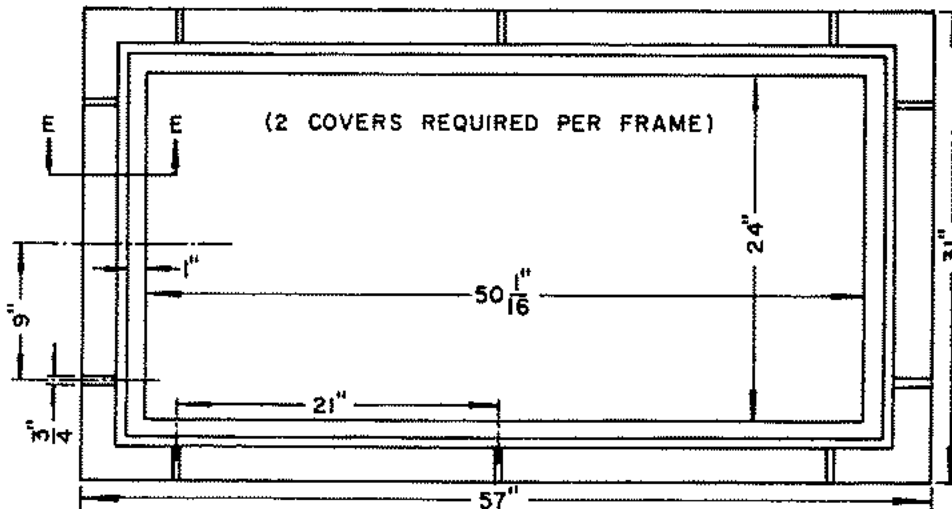
SECTION A-A



SECTION C-C



SECTION E-E



MANHOLE FRAME

NOTE: USE CAST IRON PER SEC. 206-3.3 OF THE STANDARD SPECIFICATIONS.
2 COVERS APPROX. WT. 195 LBS. EACH.

2 COVERS = 390 LBS.
FRAME = 270 LBS.
TOTAL = 660 LBS.

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED _____

DRAWN *trez*

CHECKED *RW2*

APPROVED *[Signature]*

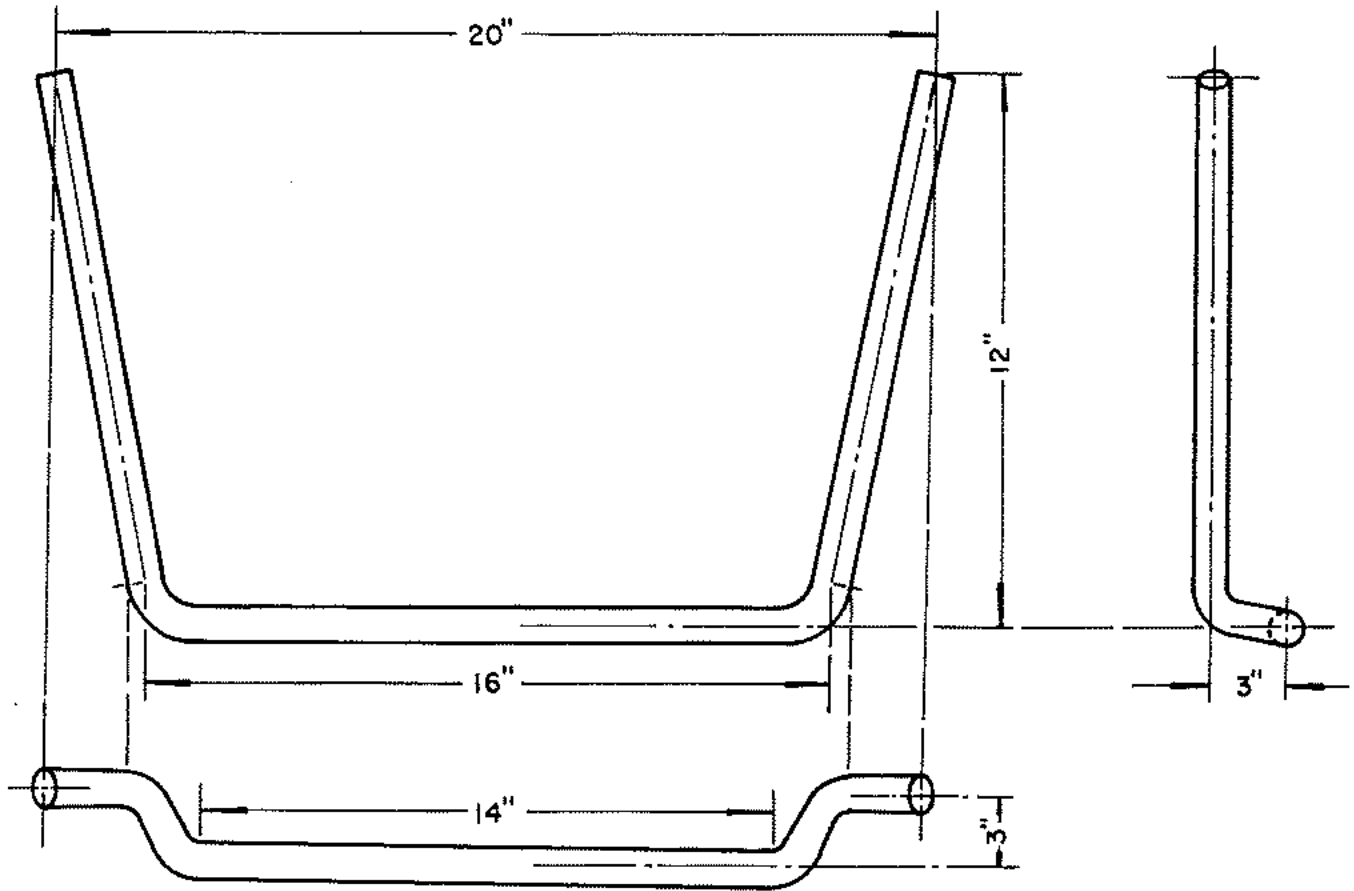
DATE 12-20-80

**RECTANGULAR MANHOLE
FRAME & COVERS**

STANDARD NO

SS-5

REVISIONS:



NOTE:

MATERIAL FOR THE STANDARD MANHOLE STEP SHALL BE ONE OF THE FOLLOWING:

1. 3/4" ϕ STEEL CONFORMING TO ASTM A15 OR A107 GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.
2. 3/4" ϕ ALUMINUM ALLOY 6061-T6 CONFORMING WITH ASTM B-211 OR B-221. THE PORTIONS OF THE ALUMINUM STEP TO BE EMBEDDED IN CONCRETE OR MORTAR SHALL BE GIVEN ONE COAT OF ZINC CHROMATE PRIMER. THE PRIMER SHALL BE ALLOWED TO DRY BEFORE THE STEP IS PLACED IN THE CONCRETE OR MORTAR.
3. 3/4" ϕ OR 3/4" SQUARE OR EQUIVALENT CROSS SECTIONAL AREA WROUGHT IRON CONFORMING TO ASTM A-207.

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED _____

DRAWN *trez*

CHECKED *ABZ*

APPROVED *JRD*

DATE 12-20-80

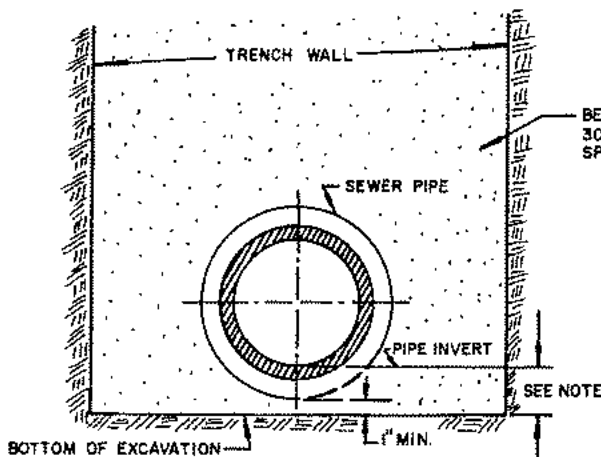
STANDARD NO

**STANDARD MANHOLE
STEP**

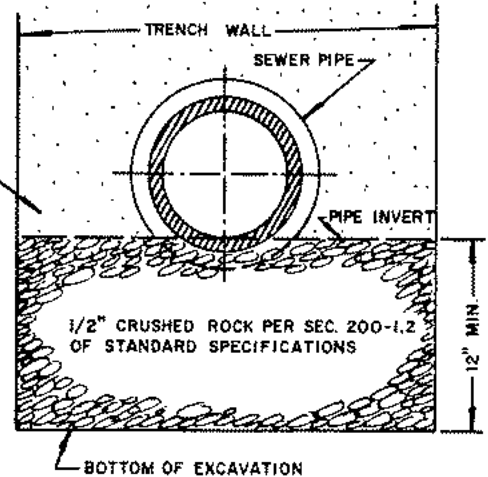
SS-6

REVISIONS:

("BEDDING" EXTENDS TO ONE FOOT OVER TOP OF PIPE PER SECTION 306-1.2.1 OF STANDARD SPECIFICATIONS)

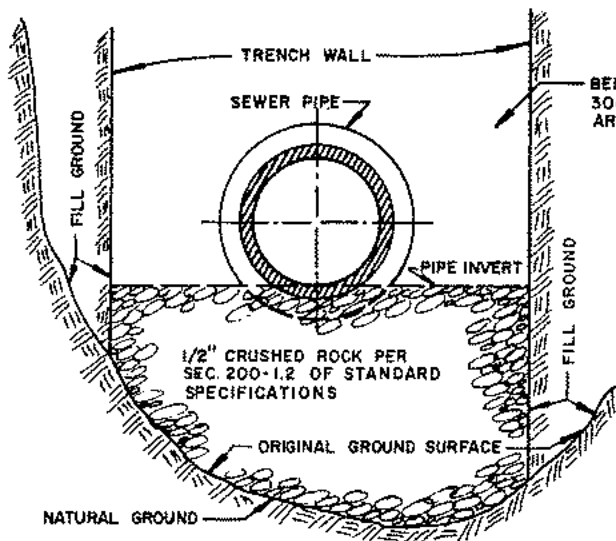


CASE I: NORMAL TRENCH



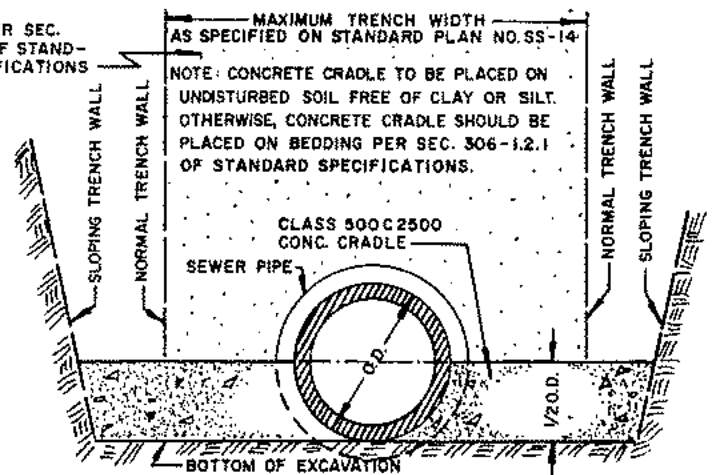
CASE II: WET, SPONGY GROUND

NOTE: BEDDING MATERIAL SUPPORTING THE PIPE OR CONDUIT SHALL BE GRAVEL, CRUSHED AGGREGATE OR NATIVE GRANULAR MATERIAL AS APPROVED BY THE ENGINEER.



CASE III: FILLED GROUND
(LESS THAN 95% COMPACTION)

NOTE: WHERE NATURAL GROUND IS AT AN EXCESSIVE DEPTH BELOW THE INVERT OF THE PIPE, CONSTRUCTION SHALL COMPLY WITH THE SPECIAL NOTES ON THE PLANS.



CASE IV: BOTTOM TRENCH WIDTH EXCEEDS THE WIDTH SPECIFIED ON STANDARD PLAN NO. SS-14

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED _____
DRAWN <i>Erez</i>
CHECKED <i>RP</i>
APPROVED <i>YRP</i>
DATE 12-29-80

BEDDING FOR SEWER PIPE

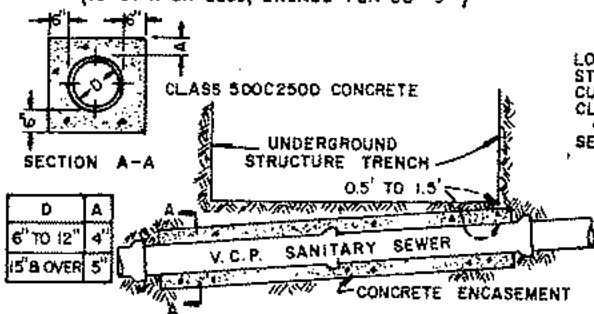
STANDARD NO

SS-7

REVISIONS:

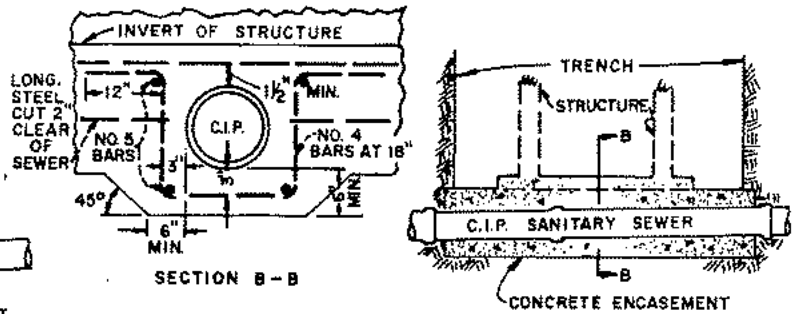
CASE I

WHERE CLEARANCE BETWEEN BOTTOM OF UNDERGROUND STRUCTURE AND TOP OF SEWER IS 0.5 TO 1.5 FEET.
(IF WIDTH OF UNDERGROUND STRUCTURE IS 5 FT. OR LESS, ENCASE PER SS-9)



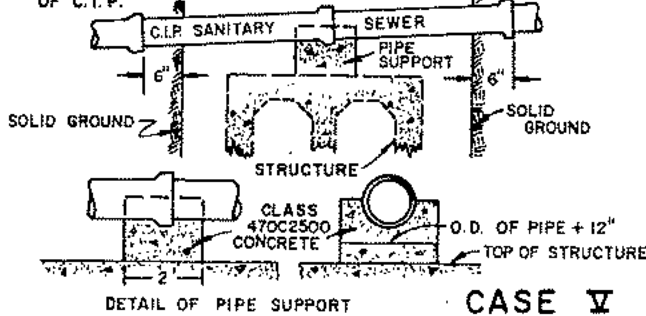
CASE II

WHERE CLEARANCE BETWEEN BOTTOM OF UNDERGROUND STRUCTURE AND TOP OF SEWER IS LESS THAN 0.5 FEET



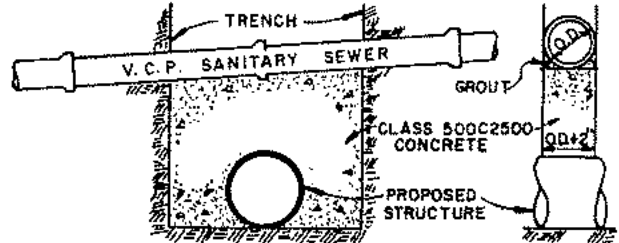
CASE III

WHERE UNDERGROUND STRUCTURE IS CONSTRUCTED UNDER SEWER - PIPE SUPPORT TO BE CONSTRUCTED UNDER PIPE JOINT WHERE CROSSING REQUIRES MORE THAN ONE LENGTH OF C.I.P.



CASE IV

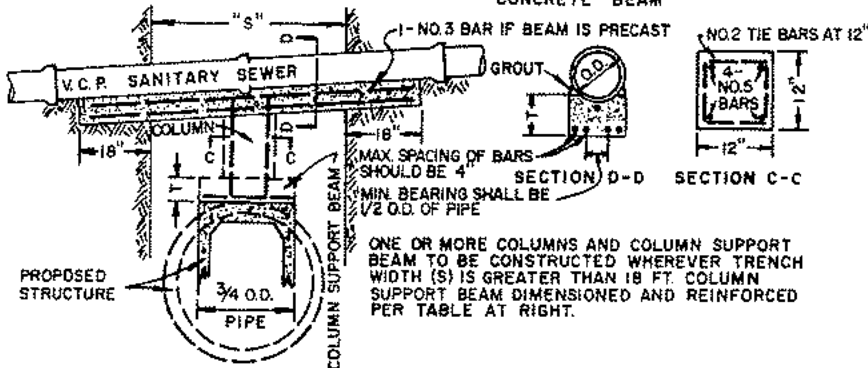
CONCRETE SUPPORT WALL



NOTES:

1. SUPPORT WALL SHALL HAVE A FIRM BEARING ON THE SUB-GRADE AND AGAINST THE SIDES OF THE EXCAVATION.
2. WALL SHALL BE AT LEAST 2 INCHES FREE AND CLEAR OF ANY GAS OR WATER MAIN OR OTHER CONDUIT OR DUCT.
3. WHENEVER SO DIRECTED BY ENGINEER, THE CONTRACTOR SHALL PROVIDE SUITABLE OPENING IN THE WALL TO PREVENT UNEQUAL PRESSURE RESULTING FROM FLOODING THE BACKFILL THE VOLUME OF THE PIERCED OPENING SHALL NOT EXCEED 1/3 THE VOLUME OF THE SUPPORTING WALL.

CASE V
CONCRETE BEAM



DIMENSIONS OF REINFORCED CONCRETE BEAM AND COLUMN SUPPORT BEAM

"S" (FT.)	DEPTH OF COVER					
	0' TO 8'-0"		8'-1" TO 16'-0"		16'-1" TO 25'-0"	
	"T" BAR NO.	"T" BAR NO.	"T" BAR NO.	"T" BAR NO.	"T" BAR NO.	"T" BAR NO.
4	8"	4	8"	4	9 1/2"	5
5	8"	4	9"	5	11"	5
6	8 1/2"	5	10 1/2"	5	12 1/2"	6
7	9"	5	11 1/2"	6	13 1/2"	6
8	10"	5	12 1/2"	6	15"	7
9	11"	6	13 1/2"	6	16 1/2"	7
10	12"	6	15"	7	18"	7
11	13"	6	16"	7	19 1/2"	8
12	13 1/2"	6	17"	7	21"	8
13	14 1/2"	7	18 1/2"	7		
14	15 1/2"	7	20"	8		
15	16 1/2"	7	21"	8		
16	17 1/2"	7				
17	18 1/2"	8				
18	19 1/2"	8				

GENERAL NOTES

1. EXTEND BOTH ENDS OF ENCASEMENT TO A POINT ONE INCH SHORT OF FIRST PIPE JOINT BEYOND LOCATIONS SPECIFIED ON PLANS. (SEE SS-9)
2. WHERE CLEARANCE BETWEEN BOTTOM OF STRUCTURE AND TOP OF SEWER IS LESS THAN 0.5 FEET, THE ENCASEMENT SHALL BE POURED MONOLITHIC WITH THE BASE OF THE UNDERGROUND STRUCTURE.
3. IF BEAMS OF CASE V ARE PRECAST, 18 INCHES AT ENDS OF BEAMS SHALL BE BEDDED IN CLASS 500C2500 CONCRETE.
4. GROUT SHALL BE PLACED BETWEEN TOP OF BEAMS AND BOTTOM OF PIPE TO GIVE BEARING AS PER SECTION D-D ABOVE. BEAM WIDTH TO BE O.D.+2"
5. ALL REINFORCING STEEL SHALL BE MINIMUM 2" CLEAR FROM SIDES, EDGES, AND BOTTOMS OF BEAMS AND COLUMNS.

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

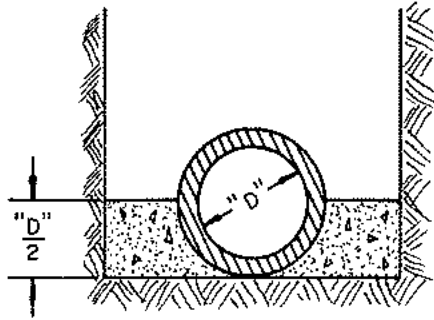
DESIGNED	
DRAWN	<i>trez</i>
CHECKED	<i>mtz</i>
APPROVED	<i>DRP</i>
DATE	12-29-80

SPECIAL SUPPORT & PROTECTION

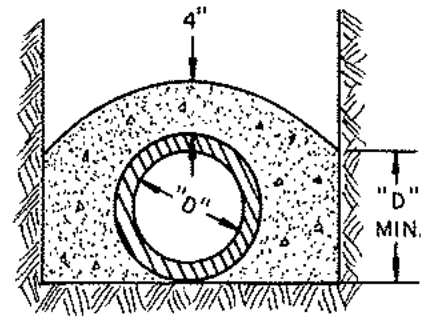
STANDARD NO

SS-8

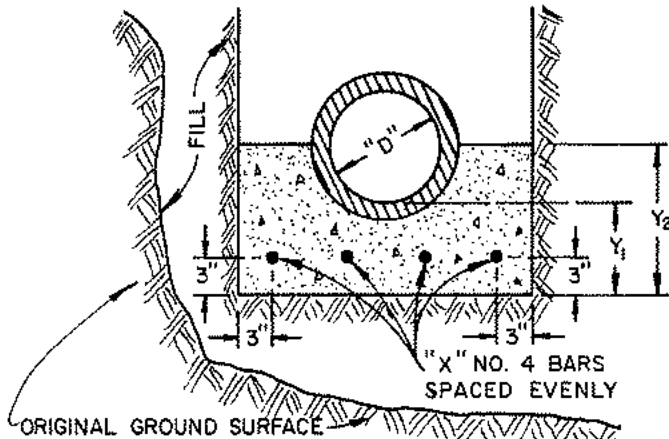
REVISIONS:



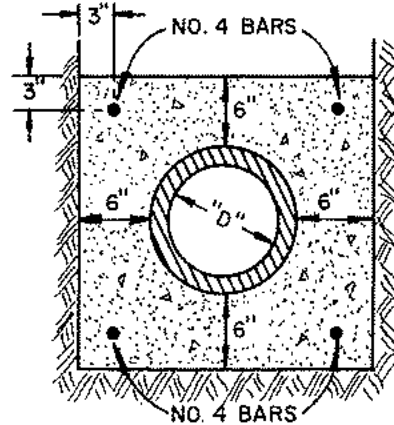
CASE I - CONCRETE CRADLE



CASE II - CONCRETE ENCASEMENT



CASE III - SPECIAL CRADLE



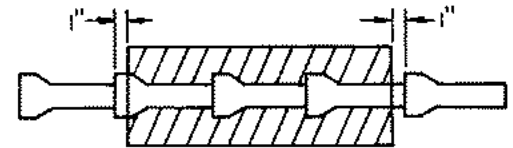
CASE IV - SPECIAL ENCASEMENT

SCHEDULE OF DIMENSIONS
AND REINFORCING BARS
FOR SPECIAL CRADLE
CASE III

"D" (DIAMETER)	"X" NO. OF NO. 4 BARS	THICKNESS	
		Y ₁	Y ₂
6"	2	4"	8"
8"	4	5"	10"
10"	4	6"	12"
12"	4	7"	15"
15"	5	9"	19"
18"	5	10"	22"
21"	6	12"	26"
24"	6	13"	28"

GENERAL NOTES:

1. EXTEND BOTH ENDS OF CRADLE OR ENCASEMENT TO A POINT ONE INCH SHORT OF FIRST PIPE JOINT BEYOND LOCATIONS SPECIFIED ON PLAN.



PLAN VIEW

2. APPLY FORM OIL, THIN PLASTIC SHEET, OR OTHER ACCEPTABLE MATERIAL TO PIPE, TO PREVENT BOND BETWEEN PIPE AND CONCRETE.
3. USE CLASS 500C2500 CONCRETE FOR ALL CASES.

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED _____

DRAWN *tree*

CHECKED *RWZ*

APPROVED *JAP*

DATE 12-29-80

**CRADLING
&
ENCASEMENT**

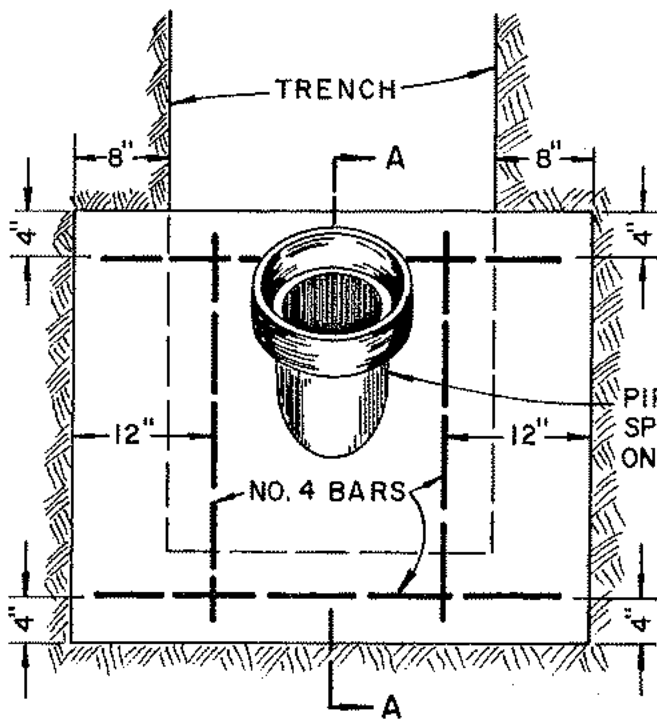
STANDARD NO

SS-9

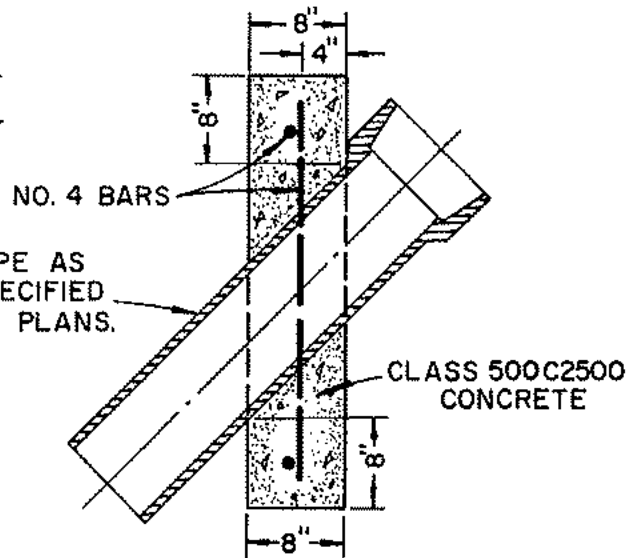
REVISIONS:

TO BE USED WHEN SEWER GRADE IS GREATER THAN 30%,
OR WHEN DESIGNATED ON THE PLAN.

THIS STANDARD APPLIES TO 8 INCH THROUGH 12 INCH PIPE
SIZES. LARGER SIZE PIPES WILL REQUIRE A SPECIAL DESIGN.



ELEVATION



SECTION A-A

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED _____

DRAWN *lrz*

CHECKED *RSP*

APPROVED *JSP*

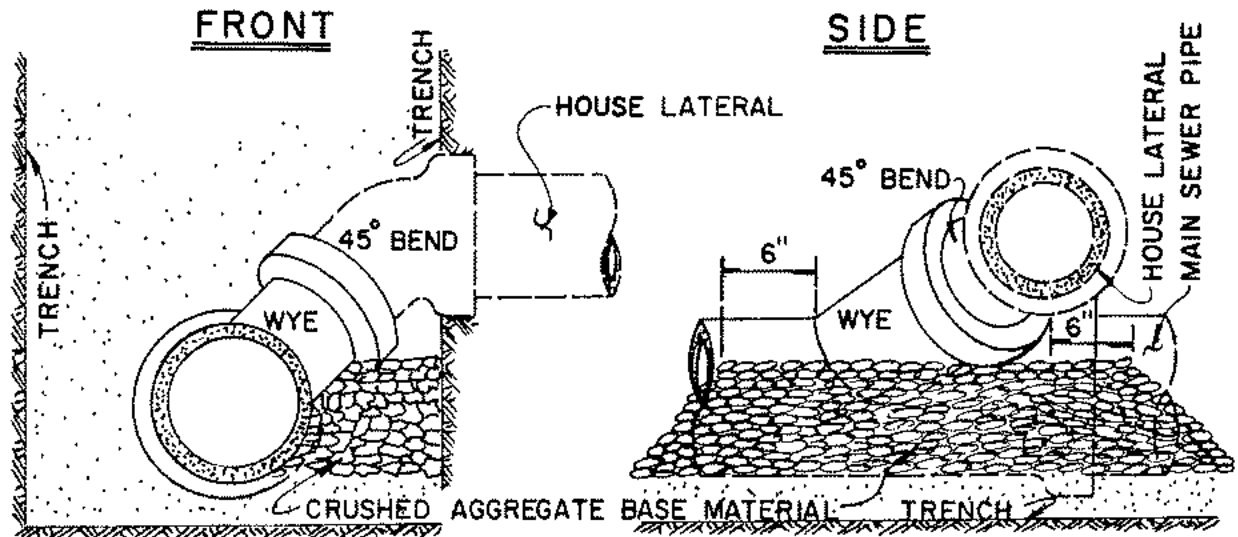
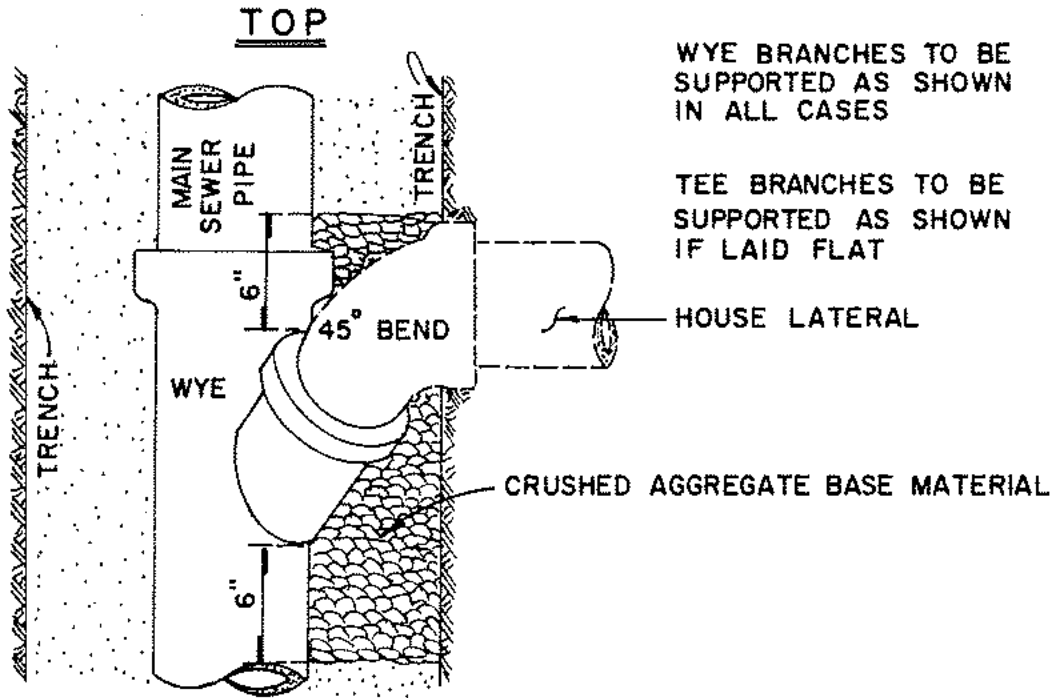
DATE 12-29-80

STANDARD NO

ANCHOR BLOCK

SS-10

REVISIONS:



AGGREGATE BASE MATERIAL TO BE "1/2" CRUSHED" ROCK PER SEC. 200-1.2 OF THE STANDARD SPECIFICATIONS

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED _____

DRAWN *treez*

CHECKED *Azm*

APPROVED *JRP*

DATE 12-20-80

WYE OR TEE SUPPORT

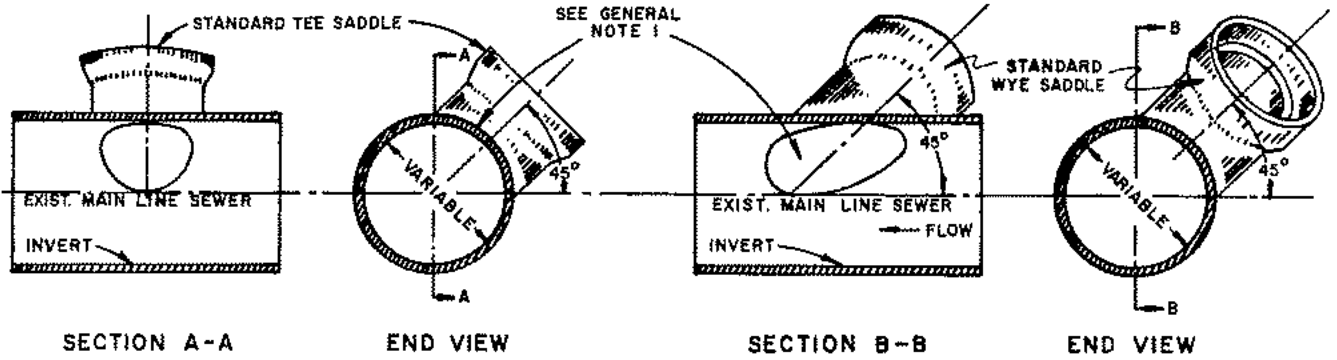
STANDARD NO

SS-II

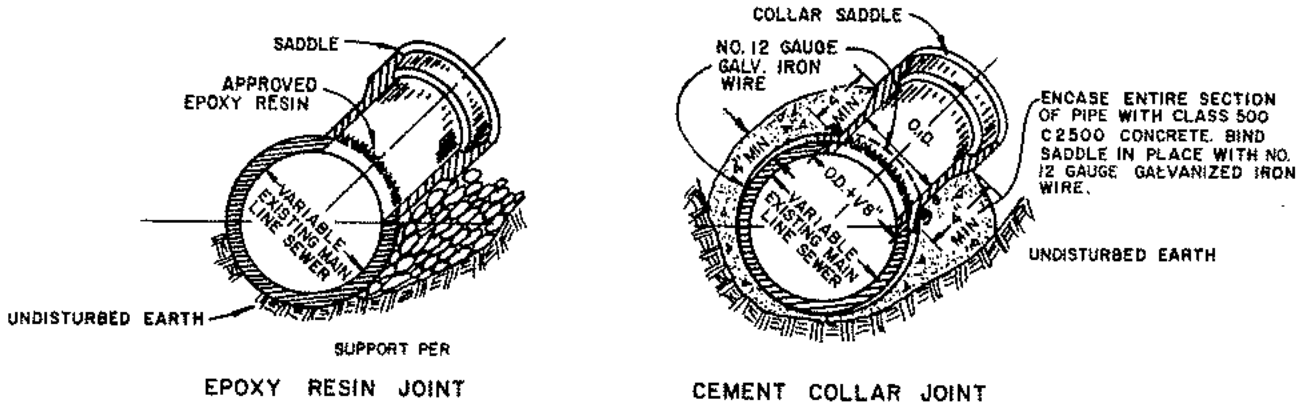
REVISIONS:

TEE SADDLE INSTALLATION

WYE SADDLE INSTALLATION



TEE OR WYE SADDLE JOINTS AND SUPPORT



GENERAL NOTES:

1. A WYE OR TEE SADDLE SHALL BE INSTALLED BY CUTTING A NEAT HOLE CONFORMING TO THE INSIDE DIAMETER OF THE SADDLE WHEN USING A SADDLE WITHOUT COLLAR AS SHOWN IN EPOXY RESIN JOINT DETAIL. WHEN USING A SADDLE WITH COLLAR THE DIAMETER OF THE HOLE SHALL BE OUTSIDE DIAMETER PLUS 1/8" AS SHOWN IN CEMENT COLLAR JOINT DETAIL.
2. BROKEN PIECES FROM CUTTING OF THE MAIN LINE SEWER MUST BE EXTRACTED CAREFULLY PRIOR TO PLACEMENT OF THE SADDLE.
3. THE SADDLE SHALL BE CEMENTED INTO PLACE USING CLASS "D" CEMENT MORTAR PER SECTION 201-5.1 OR OTHER CEMENTING AGENT APPROVED BY THE CITY ENGINEER. THE SADDLE SHALL BE HELD SECURELY IN PLACE WHILE THE CEMENT OR OTHER APPROVED CEMENTING AGENT SETS. THE INSIDE OF THE JOINT BETWEEN PIPE AND SADDLE SHALL BE FILLED WITH CEMENTING MATERIAL AND NEATLY ROUNDED.

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED _____

DRAWN *troz*

CHECKED *hiz*

APPROVED *JRP*

DATE 12-29-80

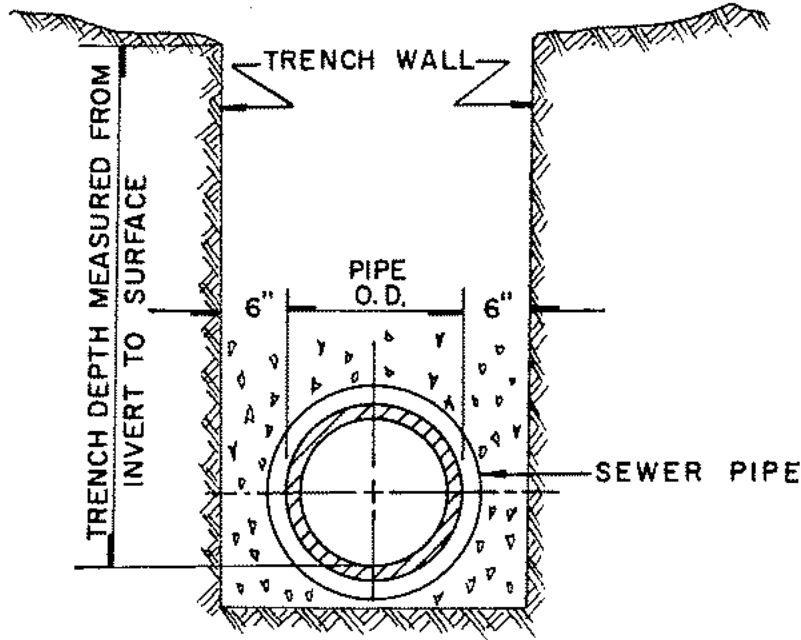
SADDLES
FOR
HOUSE LATERALS

STANDARD NO

SS-12

REVISIONS:

I. MINIMUM TRENCH WIDTH



II. MAXIMUM TRENCH WIDTH MEASURED AT TOP OF PIPE

PIPE SIZE	DEPTH OF TRENCH					LESS THAN 10'
	18'-20'	16'-18'	14'-16'	12'-14'	10'-12'	
4" & 6"	2'-2"	2'-2"	2'-2"	2'-2"	2'-2"	NONE
8"	2'-3"	2'-3"	2'-4"	2'-4"	2'-6"	"
10"	2'-5"	2'-6"	2'-7"	2'-8"	2'-9"	"
12"	2'-8"	2'-9"	2'-9"	2'-11"	3'-1"	"
15"	2'-11"	3'-0"	3'-2"	3'-3"	3'-6"	"
18"	3'-3"	3'-4"	3'-6"	3'-8"	4'-0"	"
21"	3'-7"	3'-8"	3'-10"	4'-1"	4'-6"	"
24"	3'-9"	3'-11"	4'-2"	4'-5"	4'-10"	"
27"	4'-1"	4'-3"	4'-6"	4'-10"	5'-4"	"
30"	4'-4"	4'-7"	4'-10"	5'-3"	5'-10"	"
33"	4'-8"	4'-11"	5'-2"	5'-8"	6'-5"	"
36"	4'-11"	5'-2"	5'-6"	6'-1"	6'-11"	"

IF MAXIMUM ALLOWABLE WIDTH SPECIFIED IS EXCEEDED, SPECIAL BEDDING & CRADLING MUST BE PROVIDED PER SS-7, AT CONTRACTOR'S EXPENSE.

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED _____

DRAWN *tree*

CHECKED *RW*

APPROVED *JRP*

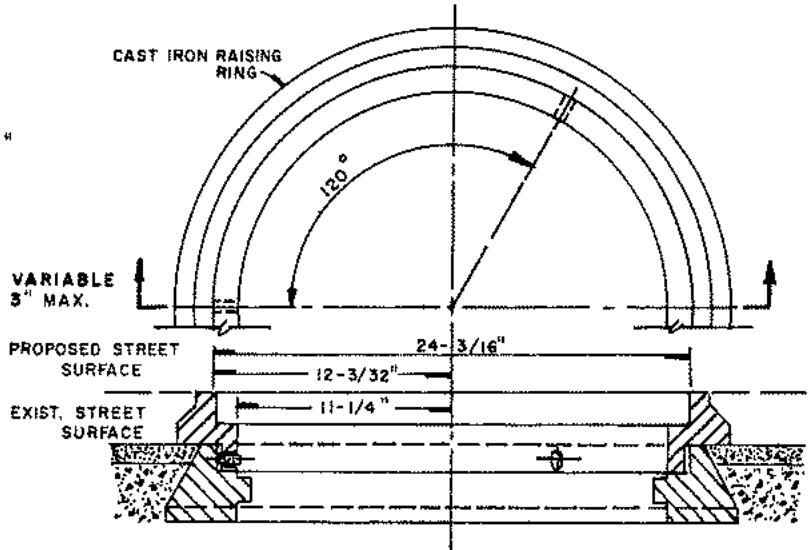
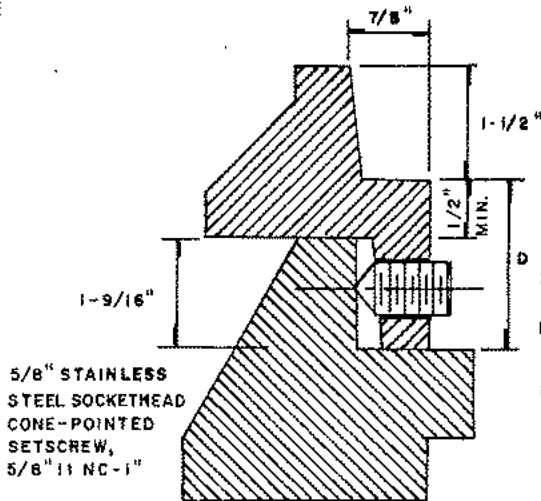
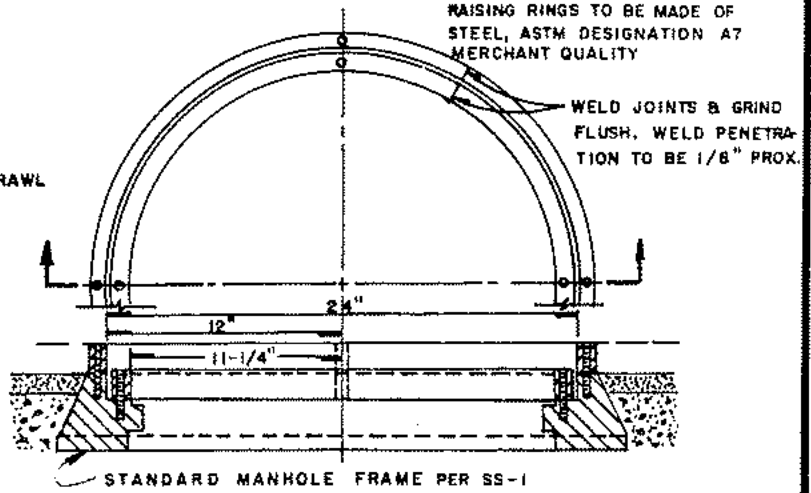
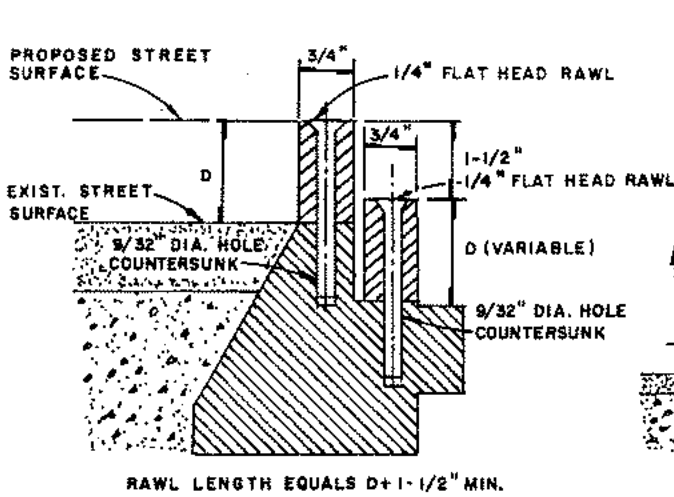
DATE 12-29-80

STANDARD NO

ALLOWABLE TRENCH WIDTH

SS-14

REVISIONS:



- NOTES:
1. MACHINE SEATS, OF CAST IRON RINGS.
 2. THE CAST IRON USED SHALL HAVE A TENSILE STRENGTH OF 30,000 LBS. PER SQUARE INCH.

- NOTES:
- THE METAL RAISING RINGS MAY BE USED IN LIEU OF THE REGULAR METHOD OF ADJUSTMENT UTILIZING MORTAR OR BRICK AND MORTAR UNDER THE FOLLOWING CONDITIONS.
1. RAISING RINGS MAY ONLY BE USED UPON WRITTEN APPROVAL OF THE CITY ENGINEER.
 2. ONLY ONE ADJUSTMENT WITH RAISING RINGS WILL BE ALLOWED ON ANY MANHOLE
 3. MAXIMUM "D" SHALL BE 3 INCHES

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED _____

DRAWN *tree*

CHECKED *AWZ*

APPROVED *JRP*

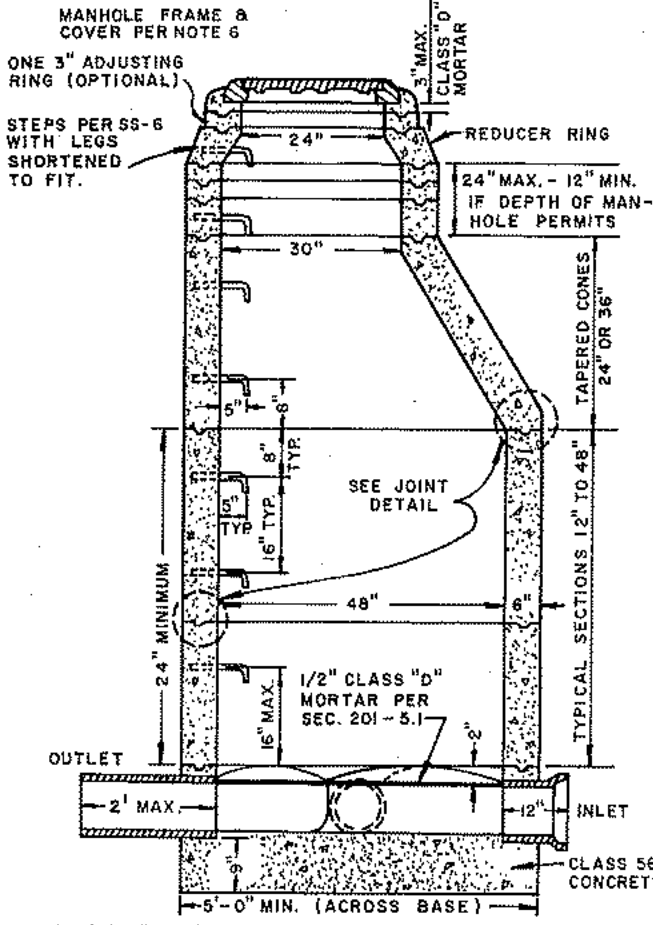
DATE 12-25-80

MANHOLE RAISING RINGS

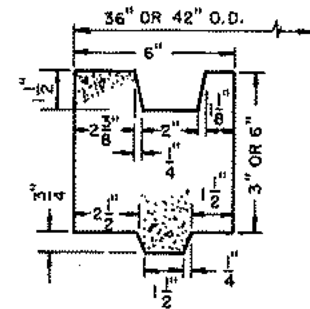
STANDARD NO

SS-15

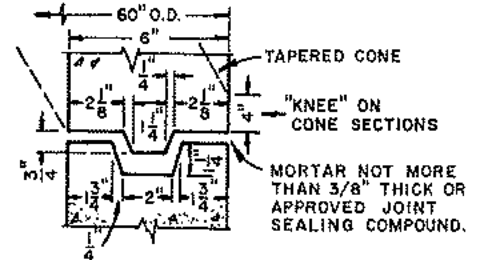
REVISIONS:



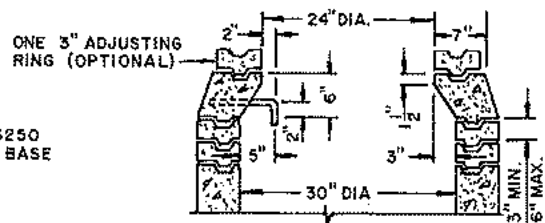
SECTIONAL ELEVATION A-A



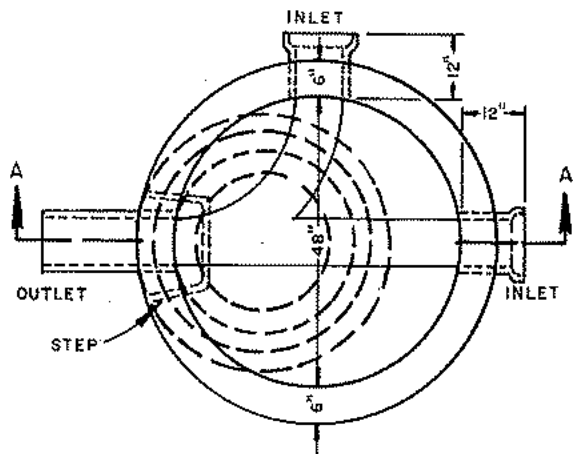
ADJUSTING RING DETAIL



JOINT DETAIL



REDUCER RING AND ADJUSTING RINGS



PLAN OF BASE

NOTES:

1. CONCRETE BASE AND STUB WALLS SHALL BE POURED IN ONE OPERATION TO A POINT 2 IN. ABOVE THE INLET AND OUTLET PIPES. ALL PIPES SHALL BE RIGIDLY SUPPORTED BY TEMPORARY PIERS DURING THIS OPERATION. CONCRETE SHALL SET FOR 24 HOURS BEFORE PLACING PRECAST UNITS.
2. CONCRETE FOR ALL PRECAST UNITS SHALL BE COMPACTLY VIBRATED IN THE FORMS. IT SHALL BE CURED ACCORDING TO APPROVED PRACTICE EITHER BY STEAM, SPRINKLING, MEMBRANE SOLUTION, OR A COMBINATION OF THESE. IT SHALL DEVELOP 3500 PSI OR GREATER STRENGTH IN 28 DAYS.
3. STEPS SHALL BE CAST IN PLACE AT TIME OF FABRICATION OR PLACED BETWEEN RINGS WITH 16 IN. MAXIMUM SPACING BETWEEN STEPS.
4. THE DEPTH OF CHANNEL SHALL EQUAL THE PIPE DIAMETER FOR ALL SIZES OF PIPE. FOR SPECIAL CHANNELS IN TRAP OR GAUGING MANHOLES, SEE SPECIAL PLANS.
5. THE TOP OF MANHOLE AND THE STEPS SHALL BE PLACED DIRECTLY OVER THE OUTLET OF THE STRUCTURE EXCEPT AS OTHERWISE NOTED ON PLANS.
6. MANHOLE FRAME AND COVER SHALL BE ALHAMBRA FOUNDRY NO. A-1495 OR APPROVED EQUAL, MARKED "S.F.S. SEWER."

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

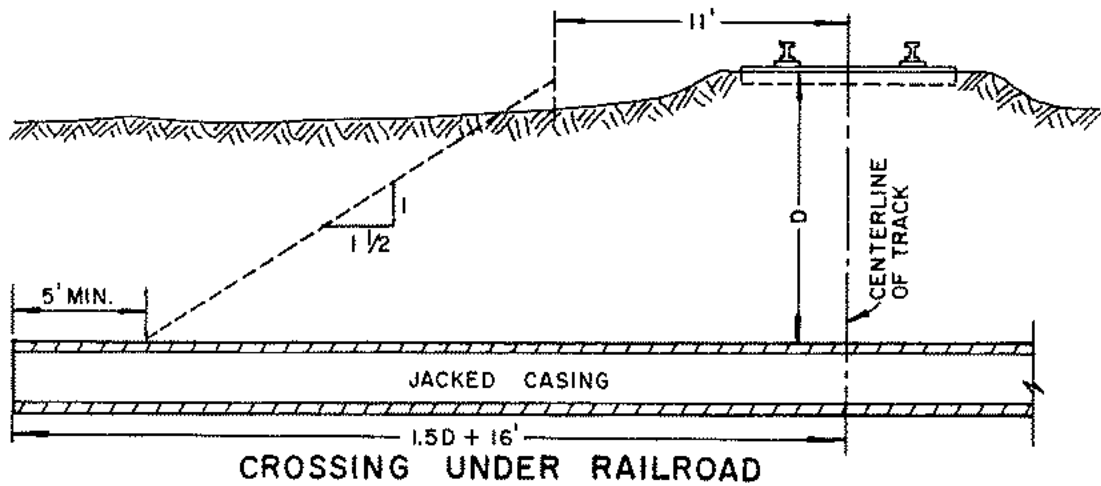
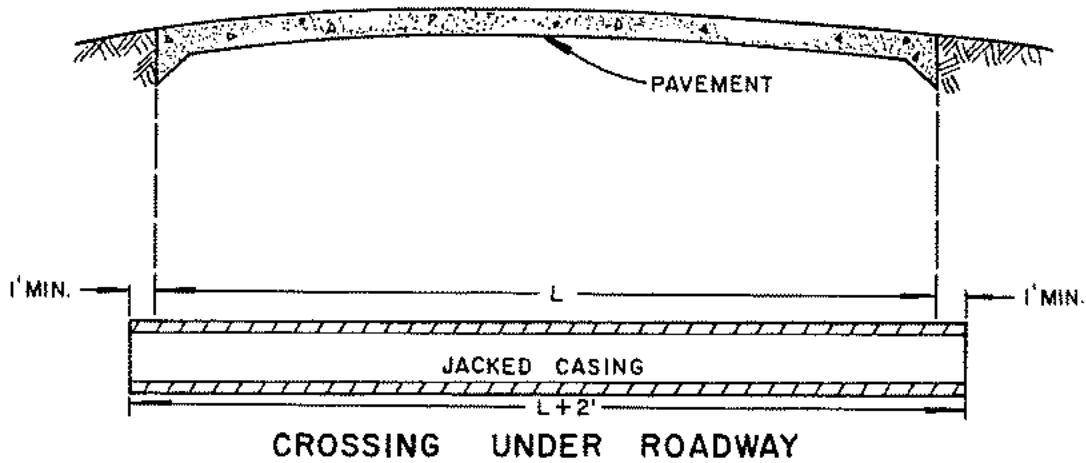
DESIGNED _____
DRAWN <i>trez</i>
CHECKED <i>RPZ</i>
APPROVED <i>JRP</i>
DATE <i>12-29-80</i>

**NON-REINFORCED PRECAST
CONCRETE MANHOLE**

STANDARD NO

SS-16

REVISIONS:



NOTES

1. JACKED STEEL CASING SHALL BE INSTALLED PER SECTION 306-2.3 OF THE STANDARD SPECIFICATIONS.
2. USE TYPE "D", "F" OR "G" JOINTS PER SECTION 208-2 OF THE STANDARD SPECIFICATIONS FOR V.C.P. PIPE INSTALLED IN CASING.
3. THE CASING THICKNESS SHALL BE NOT LESS THAN 3/8".
4. FOR PIPE SIZES 18" AND UP, CHECK WITH CITY ENGINEER FOR DIAMETER AND THICKNESS OF CASING.
5. THE LENGTH OF CASING SHALL BE AS SHOWN ABOVE EXCEPT AS OTHERWISE INDICATED ON PLANS.
6. ANY ALTERNATE MATERIALS, SIZES, OR CONSTRUCTION METHODS MUST BE SPECIFICALLY APPROVED BY THE CITY ENGINEER.

DIAMETER OF STEEL CASING	
PIPE SIZE	CASING DIAMETER
6"	30"
8"	30" — 36"
10"	33" — 36"
12"	36" — 42"
15"	42" — 48"

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED _____

DRAWN *free*

CHECKED *RLL*

APPROVED *JRP*

DATE *12-25-80*

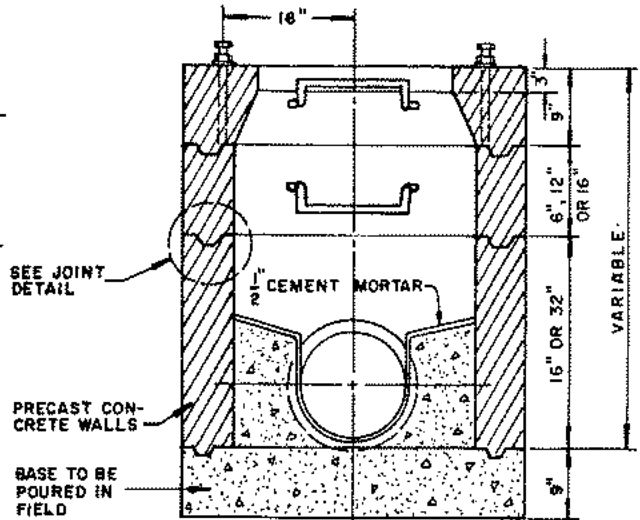
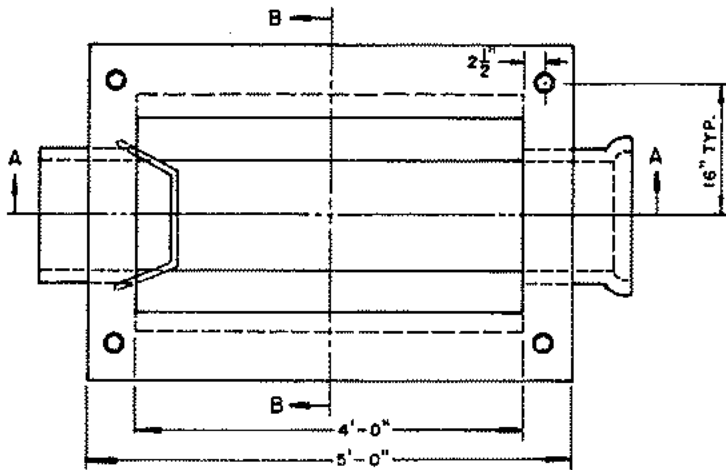
STANDARD NO

JACKING PIPE

SS-17

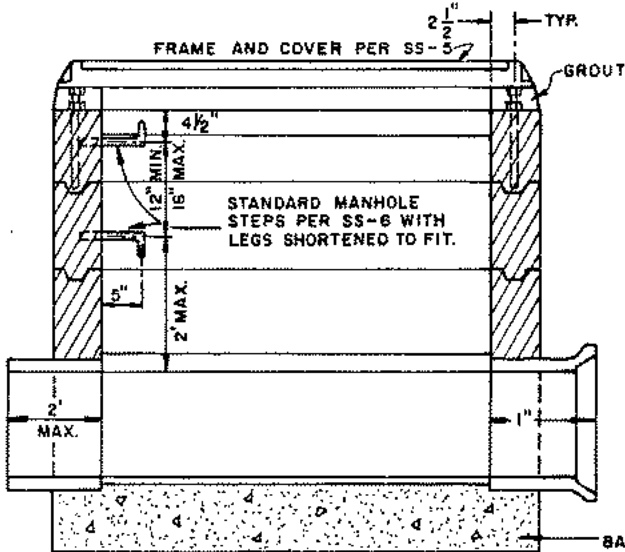
REVISIONS:

NOTE: TO BE USED FOR DEPTHS LESS THAN 5 FEET FROM THE TOP OF THE MANHOLE TO THE TOP OF THE SEWER PIPE.

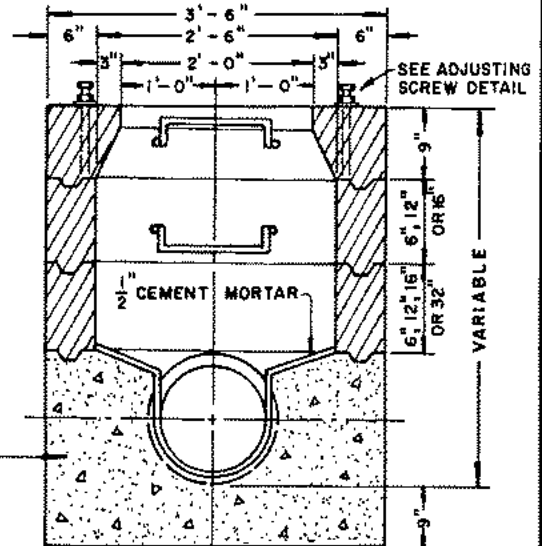


SECTION B-B
TYPE A

PRECAST BASE SECTION WITH OPENINGS PROVIDED



SECTION A-A

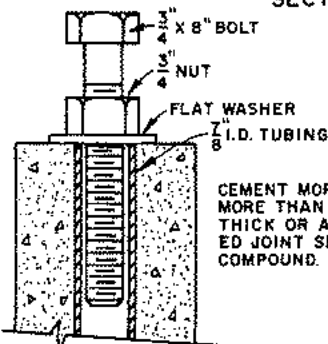


SECTION B-B
TYPE B

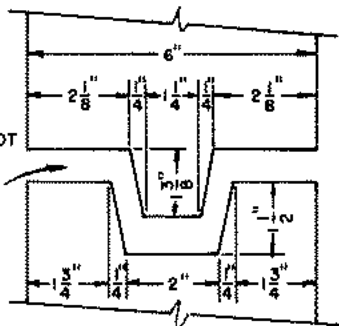
BASE AND CHANNELS POURED MONOLITHICALLY

NOTES

1. CONC. FOR ALL PRECAST UNITS SHALL BE COMPACTLY VIBRATED IN THE FORMS. IT SHALL BE CURED ACCORDING TO APPROVED PRACTICE EITHER BY STEAM, SPRINKLING, MEMBRANE SOLUTION, OR A COMBINATION OF THESE. IT SHALL DEVELOP 3500 PSI OR GREATER STRENGTH IN 28 DAYS.
2. THE DEPTH OF CHANNELS SHALL EQUAL THE PIPE DIA. FOR ALL SIZE PIPES.
3. CHANNEL LOCATIONS & OFFSETS TO BE PLACED AS SHOWN ON SS-3.
4. ALL FIELD POURED CONC. TO BE CL. 500C 2500 AND ALLOWED TO SET 24 HOURS BEFORE PLACING PRECAST UNITS.
5. ALL PRECAST UNITS SHALL BE REINFORCED FOR H-20 BRIDGE LOADING.
6. ALL CEMENT MORTAR SHOWN HEREON SHALL BE CLASS "D" PER SECTION 201-5 OF STANDARD SPECIFICATIONS.



ADJUSTING
SCREW DETAIL



JOINT DETAIL

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

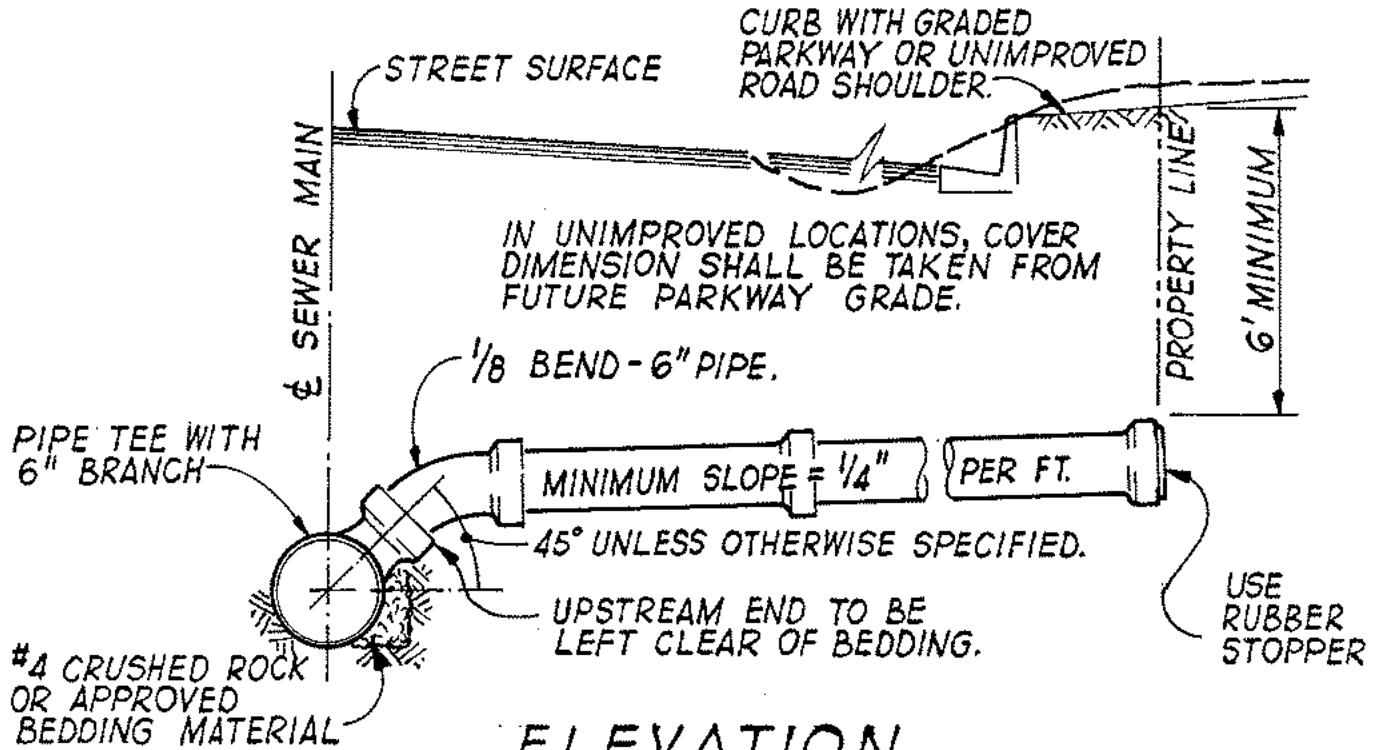
DESIGNED	
DRAWN	<i>teez</i>
CHECKED	<i>WEL</i>
APPROVED	<i>JRP</i>
DATE	12-25-00

**PRECAST CONCRETE
SHALLOW MANHOLE**

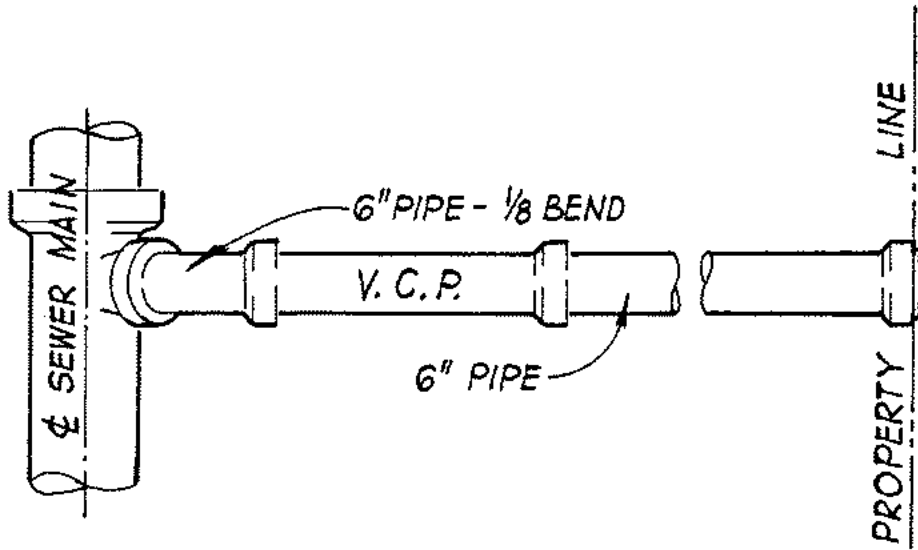
STANDARD NO

SS-18

REVISIONS:



ELEVATION



PLAN

Rev. 12/29/67 - Redrawn

CITY OF SANTA FE SPRINGS

DEPARTMENT OF PUBLIC WORKS

IMPROVEMENT STANDARDS

DESIGNED	J.H.
DRAWN	J.H.
CHECKED	F.A.V.
APPROVED	<i>[Signature]</i>
DATE	1-23-68

TYPICAL

HOUSE LATERAL

STANDARD NO
SS-19

STANDARD ABBREVIATIONS

Abandon	Aban.	Degree or degrees	Deg.
Abandoned	Aban'd	Department	Dept.
Aggregate	Agg.	Diameter	Dia.
American Society for Testing and Materials	ASTM	Diameter of pipe or inside height of semielliptical conduit or D-load	D
Asbestos Cement Pipe	ACP	Division	Div.
Asphalt	Asph.	Douglas Fir	DF
Asphalt Concrete	AC	Drawing	Dwg.
Asphaltic Concrete Base	ACB	Driveway	Dwy.
Assembly	Ass'y	Drop Manhole	DMH
Assessment District	A.D.		
Avenue	Ave.	Easement	Esmt.
		East	E
Begin	Beg.	Easterly	E'ly
Beginning of curb return	BCR	East of	E/O
Beginning of curve	BC	Edge of gutter	EG
Beginning of vertical curb	BVC	Edge of pavement	EP
Bench Mark	BM	Electrolier lighting conduit	ELC
Book	Bk.	Elliptical	Ellip
Bottom of Wall	BW	Elevation	Elev.
Boulevard	Blvd.	Embankment	Embk.
Boundary Line	Bdry. Line	End of curb return	ECR
Building	Bldg.	End of curve	EVC
		End of vertical curve	EC
Calculated	Calc.	Equation	Eq.
Cast Iron Pipe	CIP	Existing	Exist.
Catch Basin	CB		
Catch Basin frame and cover	CBF & C	Fahrenheit	F.
Cement	Cem.	Feet per second	fps
Center to Center	C/C	Field Book	FB
Center Line	C _L	Finished surface	FS
Centigrade	C	Fire Hydrant	FH
Chimney	Ch	Flange	flg.
Column	Col.	Flanged	flgd.
Concrete	Conc.	Flow line	FL
Construct	Const.	Flow line of pipe	FLP
Construction Center Line	Const. C _L	Foot or feet	ft
Corrugated metal pipe	CMP	Force Main	FM
Cubic	Cu.	Frame and Cover	F & C
Cubic Foot or Cubic Feet	Cu. Ft.	Freeway	Fwy.
Cubic feet per second	cfs		
Cubic Yard	Cu. Yd.	Galvanized	Galv.
Culvert	Culv.	Grade	Gr.
Curb and Gutter	C & G	Gram	g or gm.
Curb face	CF	Ground Line	G _L
		Gutter	Gut

STANDARD ABBREVIATIONS

Headwall	Hdwl.	Page	pg
High or height	H	Parts per million	Ppm
Highway	Hwy.	Pavement	Pvmt.
Horizontal	Horiz.	Plywood	Ply.
House connection sewer	HC	Pneumatically applied mortar	PAM
		Point of Compound Curve or Portland Cement Concrete	PCC
Inside diameter	ID	Point of compound vertical curve	PCVC
Inch	in.	Point of intersection	PI
Invert	inv.	Point of reverse curve	PRC
Iron Pipe	IP	Point of reverse vertical curve	PRVC
Intersection	Int.	Point on curve	POC
		Point of Tangency	POT
Junction Chamber	JC	Pounds per square inch	psi
Junction Structure	JS	Pounds per square foot	Psf
		Power pole	PP
Left	Lt.	Produced	Prod.
Length of curve	L	Property line	PL or PL
Linear	Lin.	Proposed or Property	Prop.
Linear Feet	LF		
Local Depression	LD		
Longitudinal	Long.	Radius or rate of grade (percent)	R
Los Angeles	L.A.	Railroad	RR
Los Angeles County Flood Control District	LACFCD	Railway	Ry.
		Rate of flow	Q
		Reinforced	Reinf.
Manhole	MH	Reinforced concrete	RC
Manhole frame and cover	MHF&C	Reinforced concrete box	RCB
Map or Maps	M	Reinforced concrete pipe	RCP
Map Book	MB	Release	Rel.
Maximum	Max	Remove	Rem.
Measured	Meas.	Retaining Wall	Ret. Wall
Minutes or Minimum	Min.	Right	Rt.
Miscellaneous Records of County	MR	Right-of-Way	R/W
Modified	Mod.	Road	Rd.
Monolithic or monument	Mon.	Roadway	Rdwy.
		Route	Rte.
Non-reinforced concrete pipe	NRCP	Saddle	Sdl.
North	N	Sanitary	San.
Northeast	NE	Sanitary Sewer	SS
Northerly	N'yly	Santa Fe Springs (City of)	SFS
North of	N/O	Seconds	Sec.
Northwest	NW	Section	Sect.
Number	No.	Semi-tangent	Semi-tan
		Sheet	sht
Official Records of County	OR	Sheets	shts.
On Center	OC	South or Slope	S
Opening	OPNG	Southeast	SE
Outside diameter	OD	Southerly	S'yly

STANDARD ABBREVIATIONS

South of	S/O
Southwest	SW
Special Manhole	Sp. MH
Specifications	Spec
Spike and Tin	S & T
Square	Sq.
Square Feet	Sq. Ft.
Square Yard	Sq. Yd.
Standard	Std.
Station	Sta.
Steel cylinder concrete pipe	SCCP
Storm Drain	SD
Straight grade	Str. gr.
Street	St.
Structure or structural	Str.
Survey	Surv.
Tangent distance	T.
Telephone	Te.
Terminal manhole	TMH
Test Hole	TH
Top of curb	TC
Top of rail	TR
Top of wall	TW
Trace	Tr
Traffic Signal or Transition structure	TS
Traffic Signal Conduit	TSC
Transition	Trans.
Trap Manhole	TMH
Typical	typ
United States of America Standards Institute	USASI
United States Coast & Geodetic Survey	USC&GS
United States Geological Survey	USGS
Vacuum	Vac.
Variable	Var.
Variable thickness	Var. Thick
Velocity of flow or depth of catch basin	V
Vertical	Vert.
Vertical Curve	VC
Vertex of vertical curve	V or PVI
Vitrified Clay Pipe	VCP

Walk or Sidewalk	wk.
Wearing surface or water surface	WS
West or Width	W
Westerly	W'ly
West of	W/O
With	W/
Wrought Iron	WI
Yard or Yards	Yd.

SYMBOLS

'	Feet or Minutes
"	Inches or Seconds
°	Degrees
Δ	Delta, the central angle or angle between tangents
#	Number
n	Manning's roughness coefficient
∅	Signal Phase