

**TRENCH DETAIL
(IN NON-NYSDOT AREAS)**

NOT TO SCALE

**PIPE EMBEDMENT AND BACKFILL SCHEDULE
(FOR WORK IN NON-NYSDOT AREAS)**

APPLICATION	PIPE TYPE	EMBEDMENT				MINIMUM TOTAL PIPE COVER	BACKFILL IN ROADWAYS OR PAVED AREAS	
		TYPE	BEDDING MATERIAL	DEPTH UNDER PIPE (INCHES)	DEPTH OVER PIPE (INCHES)	DEPTH OVER PIPE (INCHES)	DEPTH OF COVER	TYPE OF BACKFILL
STORM DRAIN	HDPE (Hancor Sure-Lok)	-	#2 WASHED STONE	4	6	24"	LESS THAN 2' GREATER THAN 2'	#2 STONE ITEM 4 GRAVEL
PAVEMENT UNDERDRAIN	HDPE (Hancor AASHTO No. AHPF104)	-	#2 WASHED STONE	4	FROM TOP OF PIPE TO BOTTOM OF NEW HOT MIX ASPHALT	18"	ALL DEPTHS	#2 STONE
WATERMAIN	DUCTILE IRON	-	#1A STONE	4	6	52"	ALL DEPTHS	ITEM 4 GRAVEL
WATER SERVICE	TYPE K COPPER	-	ROB SAND	4	6	52"	ALL DEPTHS	ITEM 4 GRAVEL
SANITARY SEWER	PVC-SDR 35	-	#1A STONE	4	6	AS REQUIRED	ALL DEPTHS	ITEM 4 GRAVEL
SANITARY LATERAL	PVC-SDR 35	-	#1A STONE	4	6	AS REQUIRED	ALL DEPTHS	ITEM 4 GRAVEL

NOTES:

1. CONTRACTOR'S OPERATIONS SHALL CONFORM WITH OSHA REGULATIONS.
2. RESTORE SIDEWALKS, LAWNS, DRIVEWAYS, ETC., AS REQUIRED.
3. CONTRACTOR SHALL COMPLETE ALL PIPELINE INSTALLATION AND TRENCH RESTORATION WORK BEFORE GRINDING AND REPAVING THE EXISTING STREET BY OTHERS.
3. SEE DETAILS THIS SHEET FOR WORK IN NYSDOT R.O.W.'s.

JAMES F. SUOZZO, P.E.
NYS LIC.# 57185

STANDARD DETAILS

Scale: AS SHOWN



Project: CITY OF NORWICH

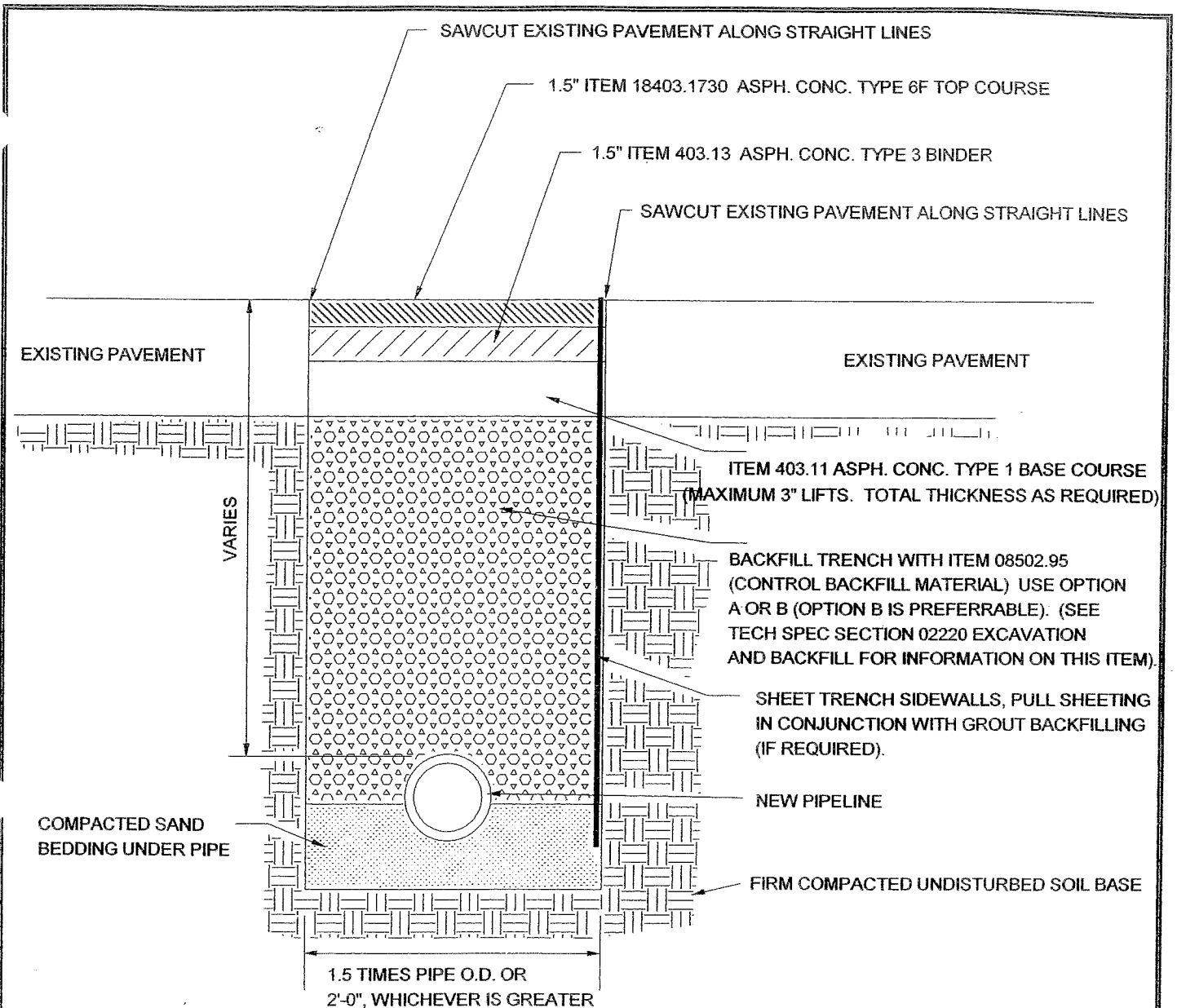
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Sheet No:

Subject: STANDARD DETAILS

By: DPW

File: D:\PIPELINE DETAILS\TRENCH DETAIL IN NON-NYSDOT AREA.dwg

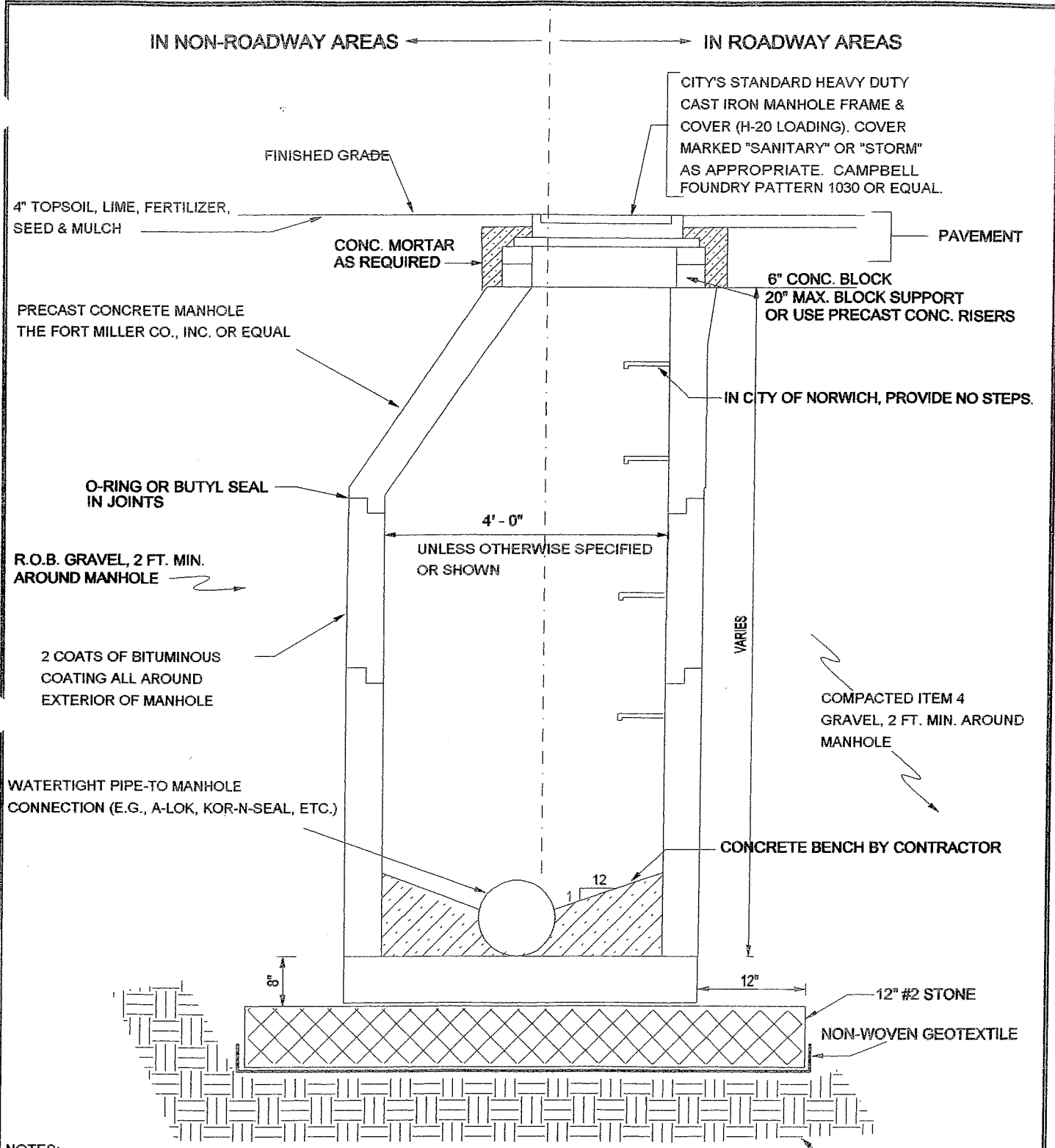


OPEN CUT - TRENCH SECTION DETAIL NYSDOT PAVED ROAD AREAS

NOT TO SCALE

NOTES:

1. WORK SHALL CONFORM WITH APPLICABLE NYSDOT STANDARDS.
2. CONTACT NYSDOT IN OXFORD AT 607-843-6884 IF YOU HAVE QUESTIONS ABOUT THE WORK REQUIREMENTS.



- NOTES:
1. PROVIDE JOINT IN PIPES CONNECTING TO MANHOLE 3 FEET MAX. FROM EXTERIOR OF MANHOLE
 2. ALL PIPE PENETRATIONS TO BE WATERTIGHT
 3. DETAILS APPLICABLE TO 4'-0" THROUGH 6'-0" DIAMETER MANHOLES.

MANHOLE DETAIL

NOT TO SCALE



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CORE BORE AND INSTALL
LINK SEAL (FROM INSIDE)
AND HYDRAULIC CEMENT
(FROM OUTSIDE).

4' - 0"

UNLESS OTHERWISE SPECIFIED
OR SHOWN

TEE FITTING WITH REMOVABLE
PLUG OR BLIND FLANGE.

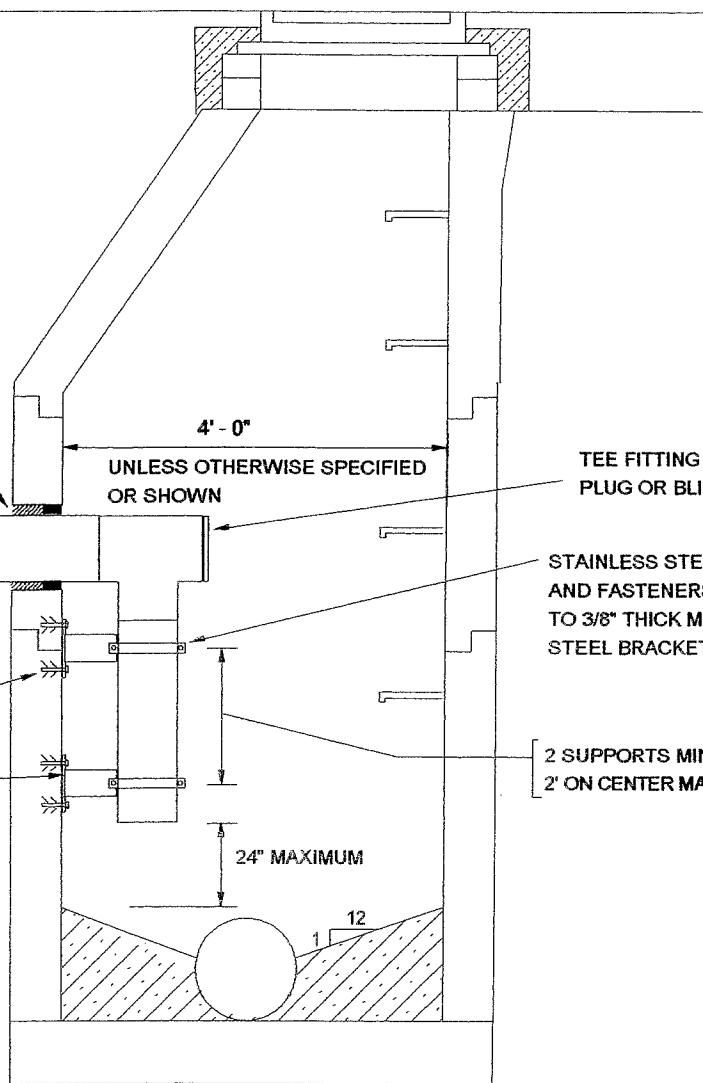
STAINLESS STEEL SPLIT RING
AND FASTENERS CONNECTED
TO 3/8" THICK MIN. PLATE
STEEL BRACKET.

EXPANSION ANCHORS
MINIMUM OF 4 PER BRACKET.

BEND 6" SQUARE
BRACKET BASE PLATE
TO CONFORM TO MANHOLE
CURVATURE BEFORE WELDING
SPLIT RING CONNECTOR
PLATE TO BASE PLATE.

2 SUPPORTS MINIMUM
2' ON CENTER MAXIMUM.

24" MAXIMUM

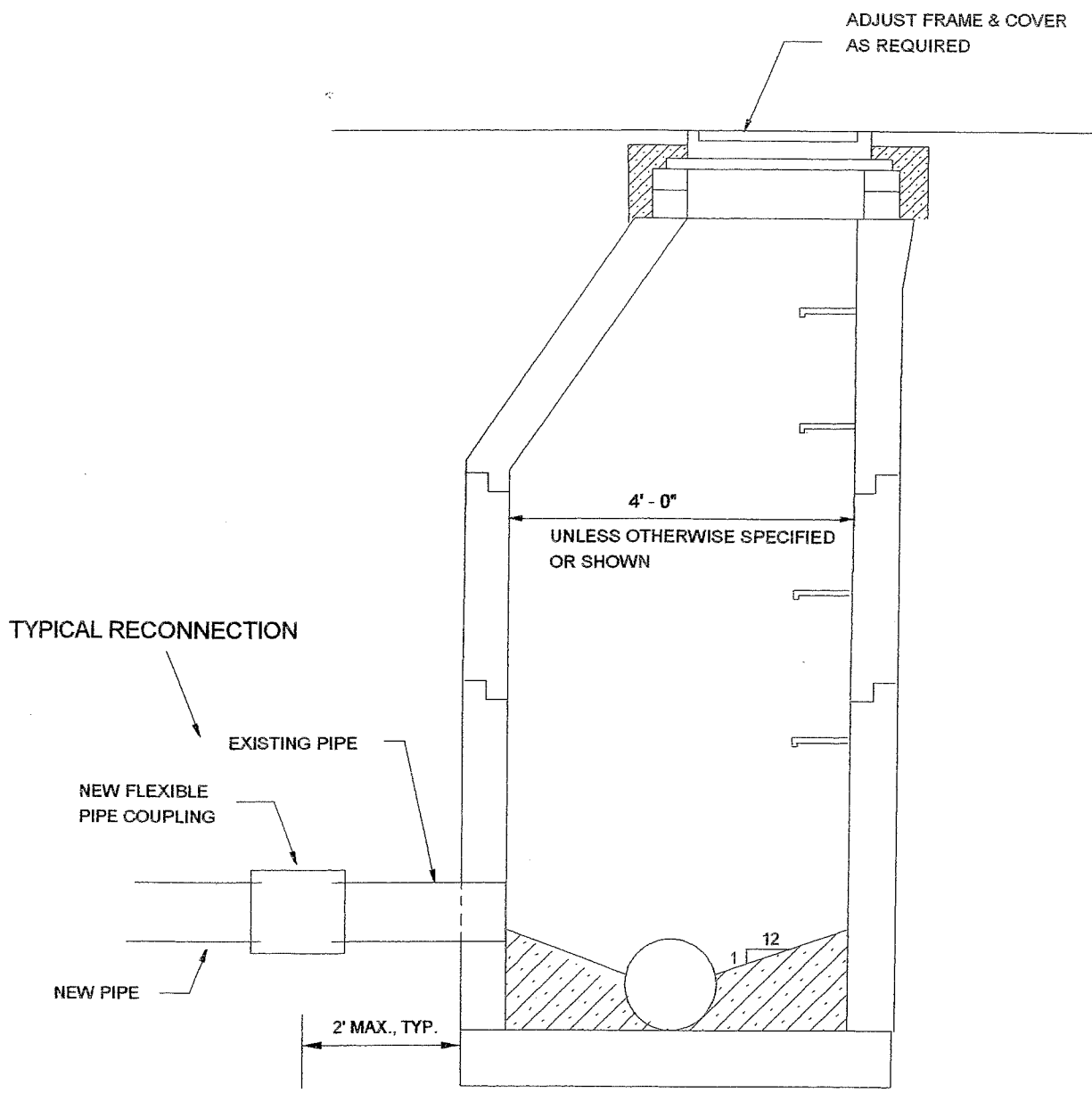


INTERIOR DROP MANHOLE DETAIL

NOT TO SCALE

NOTES:

1. ALL "MANHOLE DETAILS" APPLY TO DROP MANHOLES.
2. PROVIDE EXTERIOR, PRECAST DROP MANHOLES FOR NEW INSTALLATIONS (THE FORT MILLER COMPANY, INC. OR EQUAL).

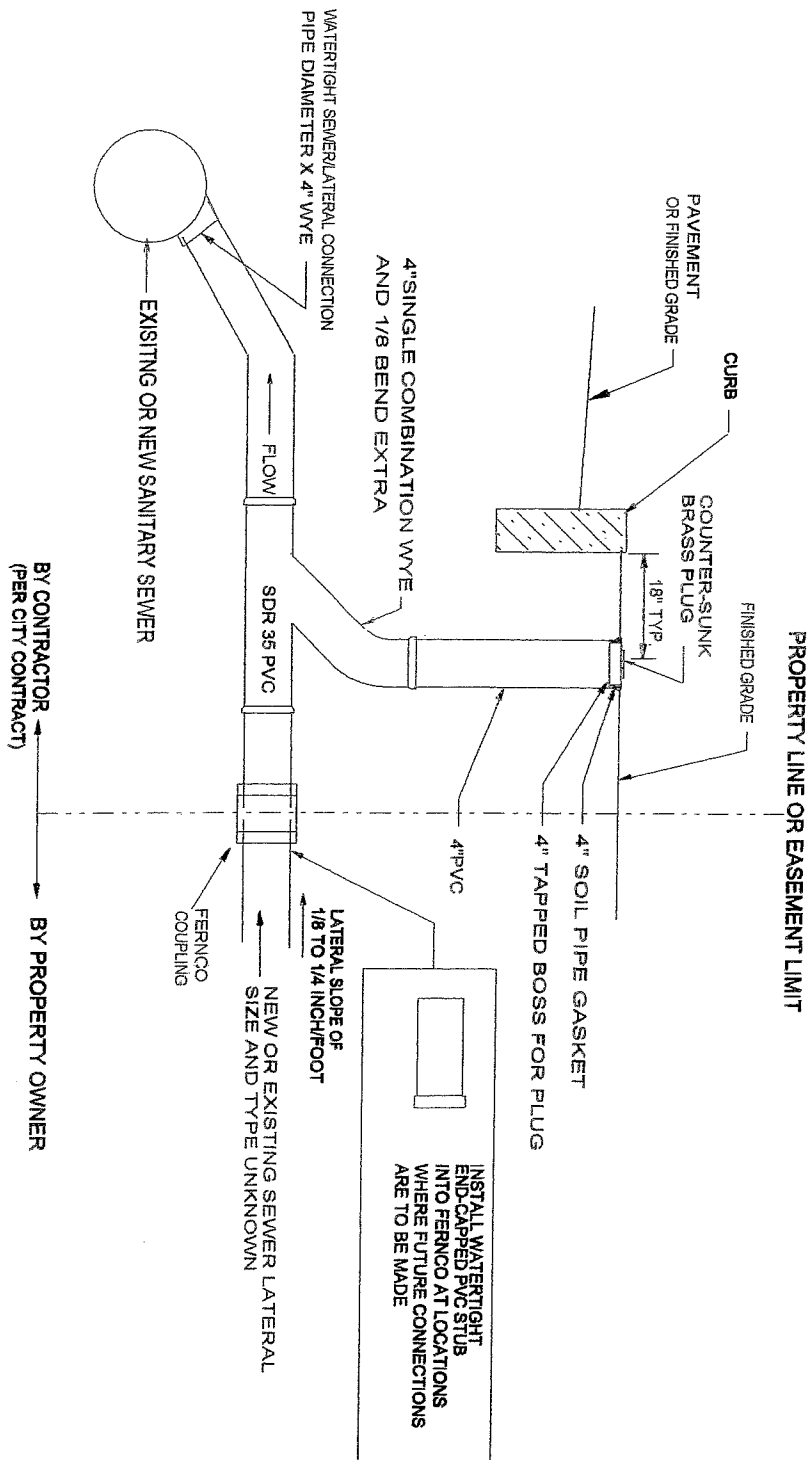


RECONNECTING TO EXISTING MANHOLE DETAIL

NOT TO SCALE

NOTES:

1. ALL "MANHOLE DETAILS" APPLY TO THIS DETAIL.

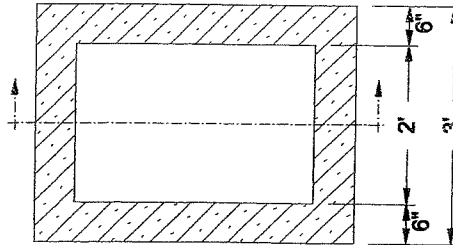


SANITARY LATERAL DETAIL

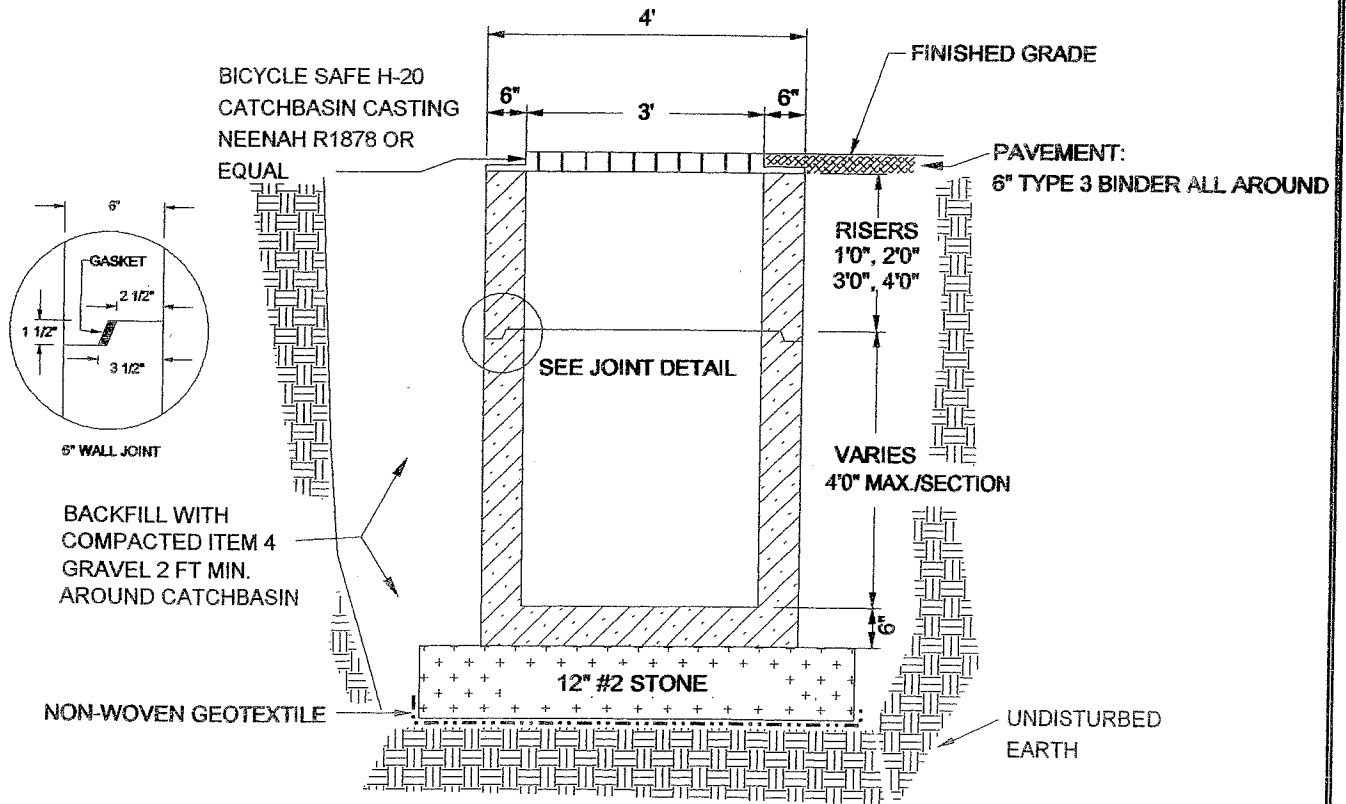
NOT TO SCALE

NOTES:

1. PIPE CONNECTIONS SIZE AND LOCATION AS SPECIFIED
2. PRECAST STRUCTURE SHALL MEET OR EXCEED AASHTO HS-20
3. ALTERNATE COVER SLAB AVAIL.
4. PRECAST KNOCKOUTS ALL SIDES
5. ALL PIPE PENETRATIONS TO BE WATERTIGHT.
6. PIPE PENETRATIONS TO BE AT LEAST 6" ABOVE FLOOR UNLESS OTHERWISE SPECIFIED OR AGREED TO BY THE OWNER.
7. FOR CATCHBASINS IN NYS DOT R.O.W.'s, SEE REQUIREMENTS AT END OF TECHNICAL SPEC SECTION 03350 - PRECAST CONCRETE STRUCTURES.



PLAN



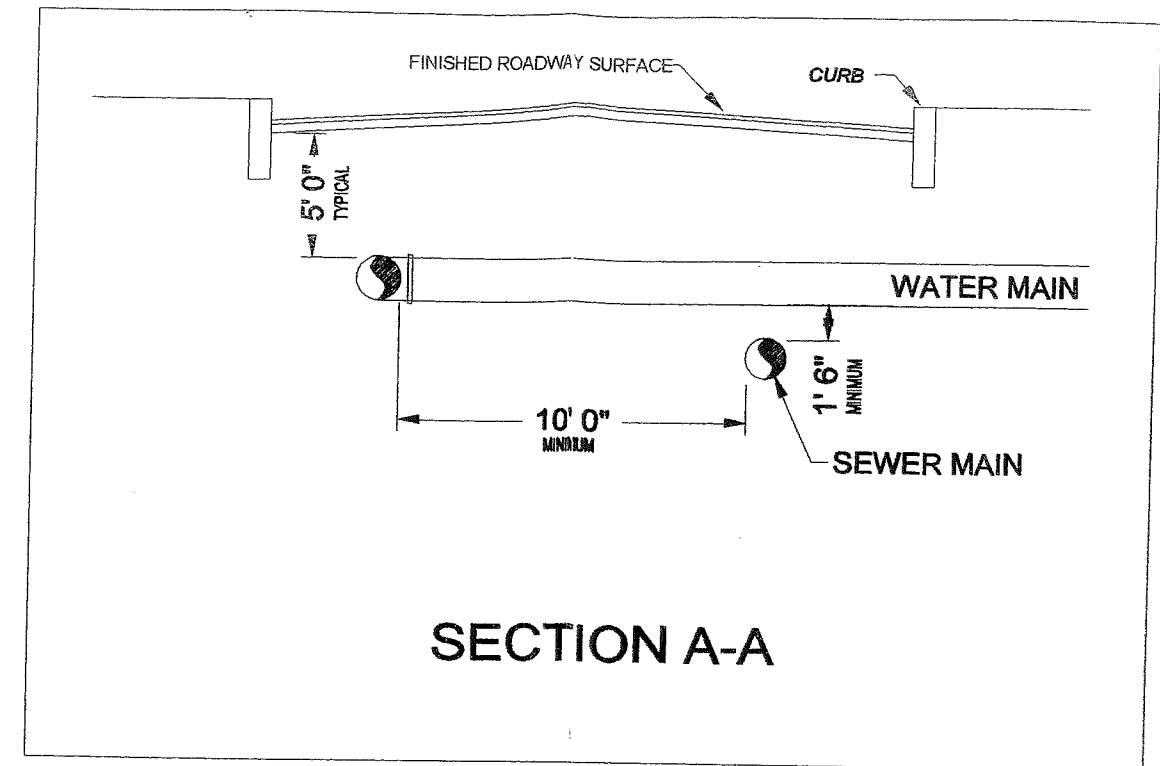
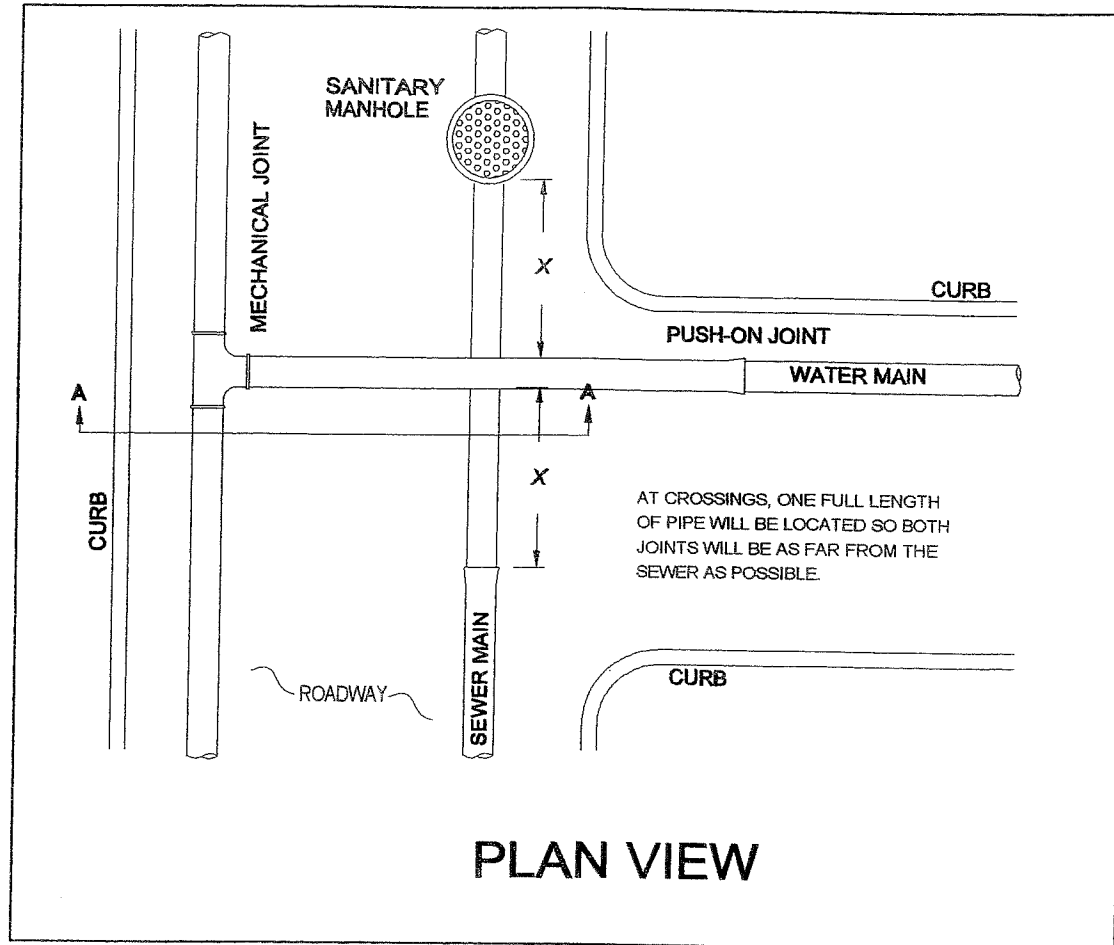
SECTION

STANDARD 2x3 CATCH BASIN DETAILS

NOT TO SCALE



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TYPICAL WATER/SEWER CROSSING DETAILS

NOT TO SCALE

NOTES:

1. IN CASES WHERE IT IS NOT POSSIBLE TO MAINTAIN THE 10 FOOT SEPARATION, THE WATER MAIN SHALL BE LAID IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER.
2. SEWER MATERIALS SHALL BE WATERWORKS GRADE 150 PSI PRESSURE RATED PIPE OR EQUIVALENT AND SHALL BE PRESSURE TESTED IN ACCORDANCE WITH PROTOCOLS SPECIFIED FOR PRESSURE PIPELINES WHERE SEWERS ARE BEING INSTALLED AND SPECIFIED SEPARATION DISTANCES CANNOT BE MET.
3. NO NEW WATER PIPE SHALL PASS THROUGH OR COME IN CONTACT WITH ANY PART OF A SEWER MANHOLE.
4. DETAILS ALSO APPLICABLE FOR WATER/GAS LINE CROSSINGS.

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NYS LIC.# 57185

STANDARD DETAILS

Scale: AS SHOWN

DELaware
ENGINEERING, P.C.
CIVIL AND ENVIRONMENTAL ENGINEERING

Project: CITY OF NORWICH

Date: 02-11-02

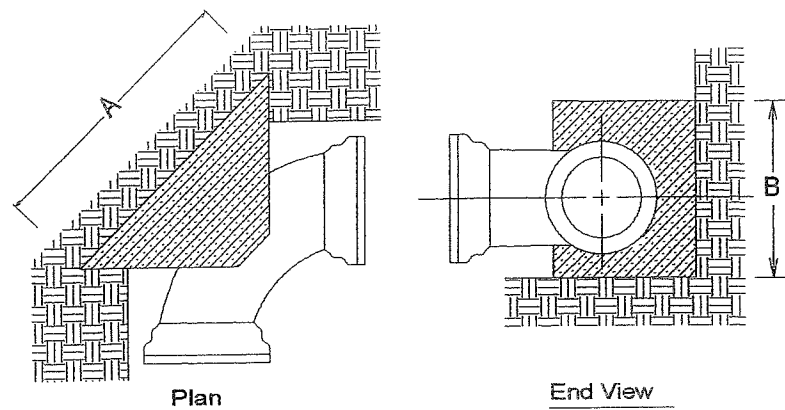
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By: DPW

File: D:\WATERLINE AND MISC. DETAILS\TYP WATER&SEWER CROSSING DETAILS.dwg

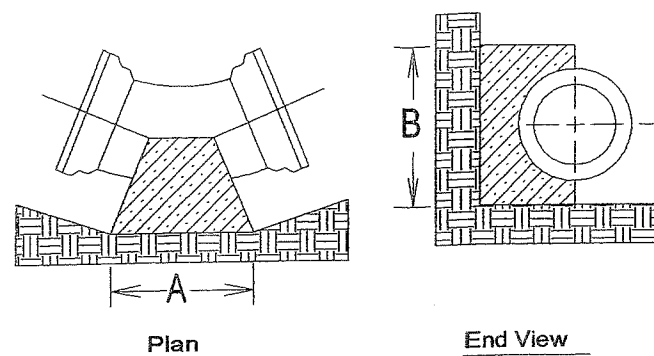
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90 Bend Anchor



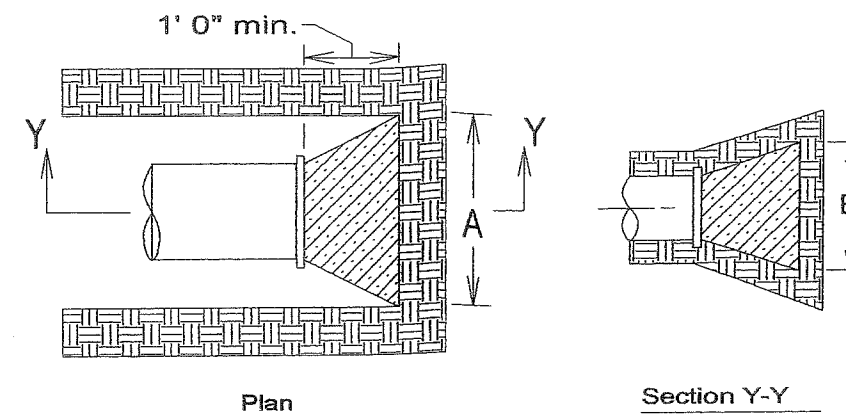
NOT TO SCALE

11.25, 22.5 & 45 Bend Anchor



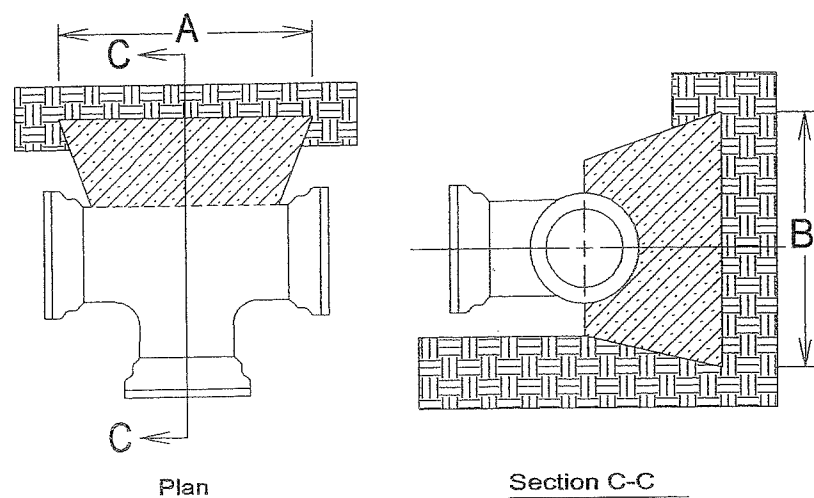
NOT TO SCALE

Plug Anchor





NOT TO SCALE

Tee or Tapping Sleeve Anchor



NOT TO SCALE

-  - Concrete Thrust Block
-  - Undisturbed Earth

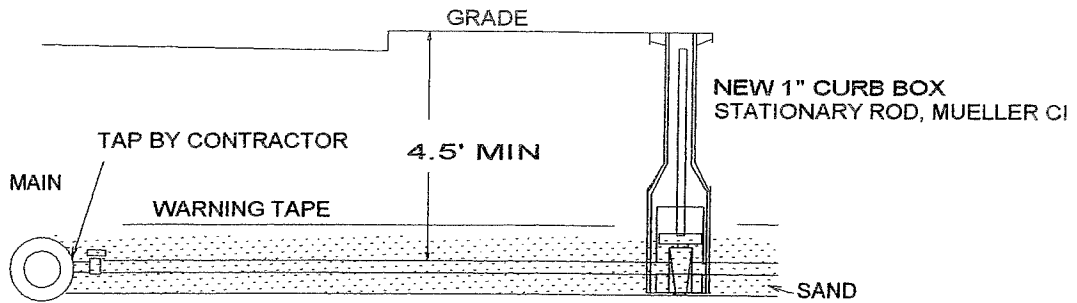
SIZE BEND

SIZE PIPE	11.5ø		22.5ø		45ø		90ø		*	
	A	B	A	B	A	B	A	B	A	B
4"	12"	12"	12"	12"	12"	12"	15"	15"	12"	12"
6"	12"	12"	12"	12"	16"	16"	22"	22"	22"	22"
8"	12"	12"	15"	15"	21"	21"	29"	29"	24"	24"
10"	14"	14"	20"	20"	27"	27"	35"	35"	30"	30"
12"	15"	15"	23"	23"	31"	31"	42"	42"	36"	36"

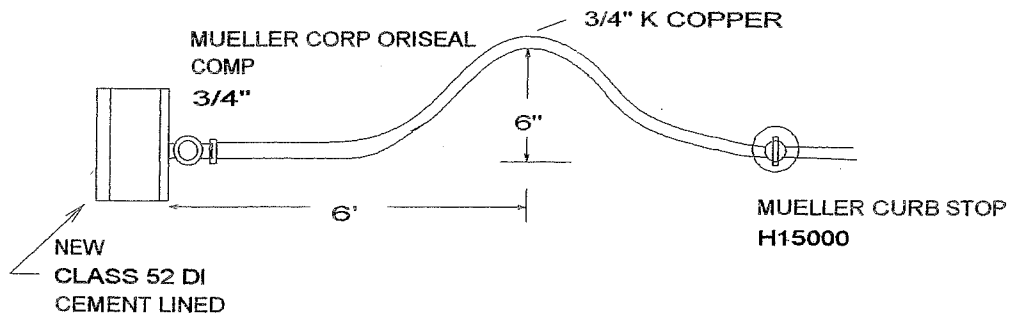
* CAP PLUG, TEE, OR TAP. SLEEVE

THRUST BLOCK DETAILS

NO SCALE



PROFILE



PLAN

NEW WATER SERVICE DETAILS

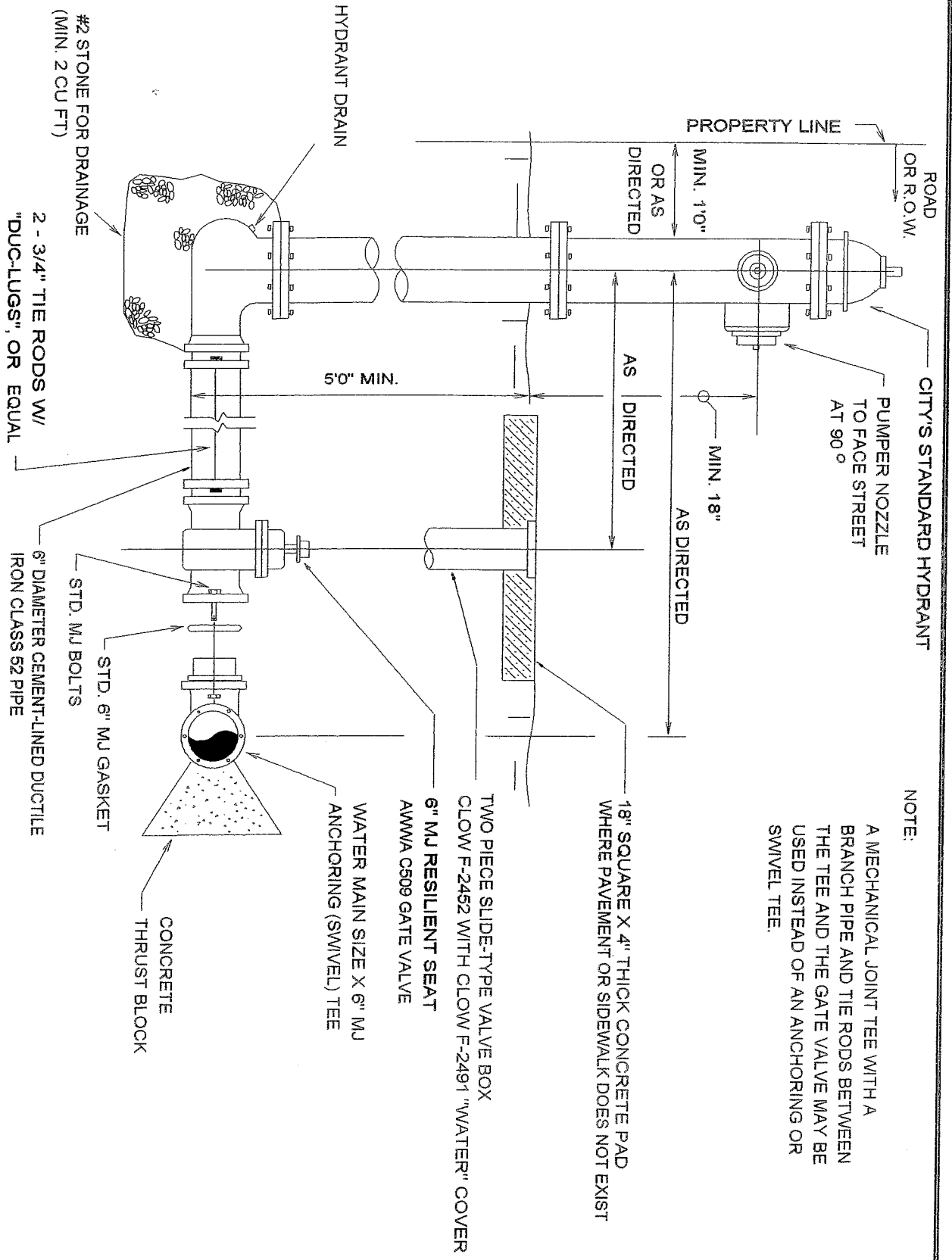
NO SCALE



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NOTE:

A MECHANICAL JOINT TEE WITH A BRANCH PIPE AND THE RODS BETWEEN THE TEE AND THE GATE VALVE MAY BE USED INSTEAD OF AN ANCHORING OR SWIVEL TEE.

18" SQUARE X 4" THICK CONCRETE PAD WHERE PAVEMENT OR SIDEWALK DOES NOT EXIST

TWO PIECE SLIDE-TYPE VALVE BOX CLOW F-2452 WITH CLOW F-2491 "WATER" COVER

6" MJ RESILIENT SEAT AWWA C509 GATE VALVE

WATER MAIN SIZE X 6" MJ ANCHORING (SWIVEL) TEE

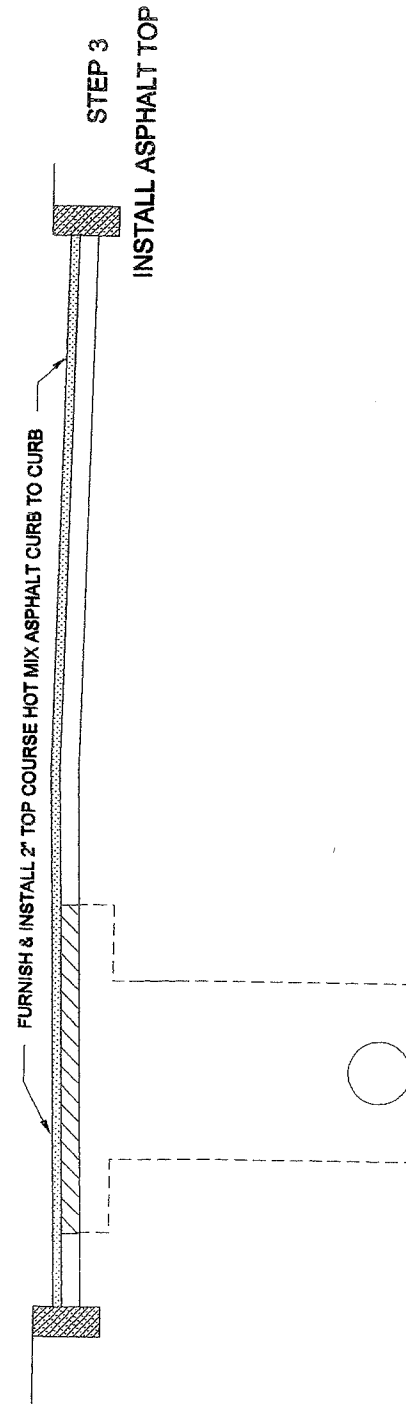
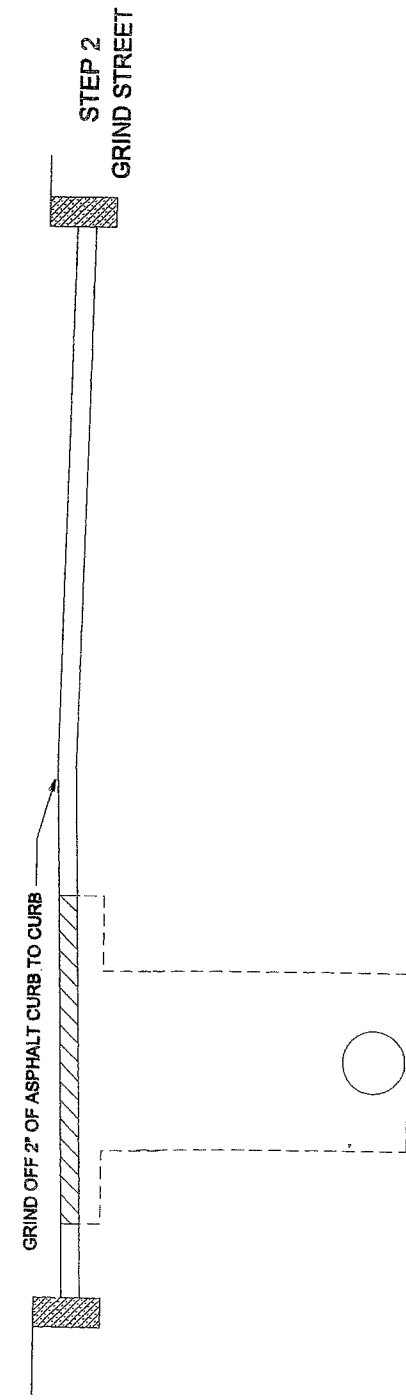
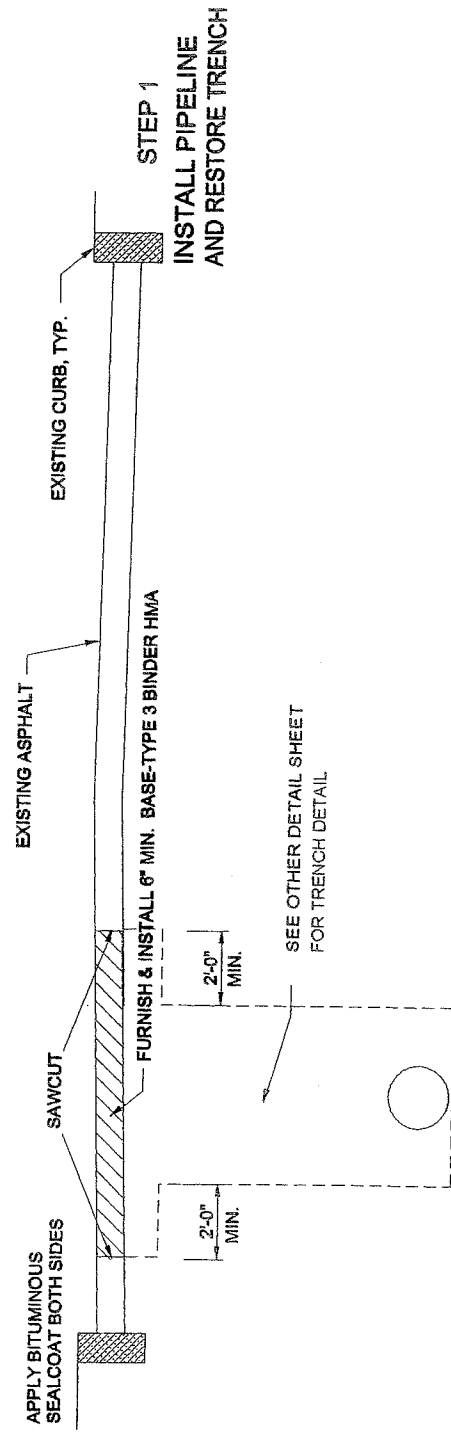
CONCRETE THRUST BLOCK

STD. 6" MJ GASKET
 STD. MJ BOLTS
 6" DIAMETER CEMENT-LINED DUCTILE IRON CLASS 52 PIPE
 2 - 3/4" TIE RODS W/ "DUC-LUGS", OR EQUAL
 #2 STONE FOR DRAINAGE (MIN. 2 CU FT)

HYDRANT DETAIL

NO SCALE

STREET WITH ASPHALT BASE



EXISTING STREET RECONSTRUCTION DETAILS

NOT TO SCALE

NOTE: Excavations by City indicate that asphalt pavement structure exists for all streets except those locations indicated in the below listed schedule. Contractor shall verify conditions and provide materials as required.

SCHEDULE OF STREETS WITH CONCRETE BASES:

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NYS LIC.# 57185

STANDARD DETAILS

Scale: AS SHOWN



Project: CITY OF NORWICH

Date: 04-10-02

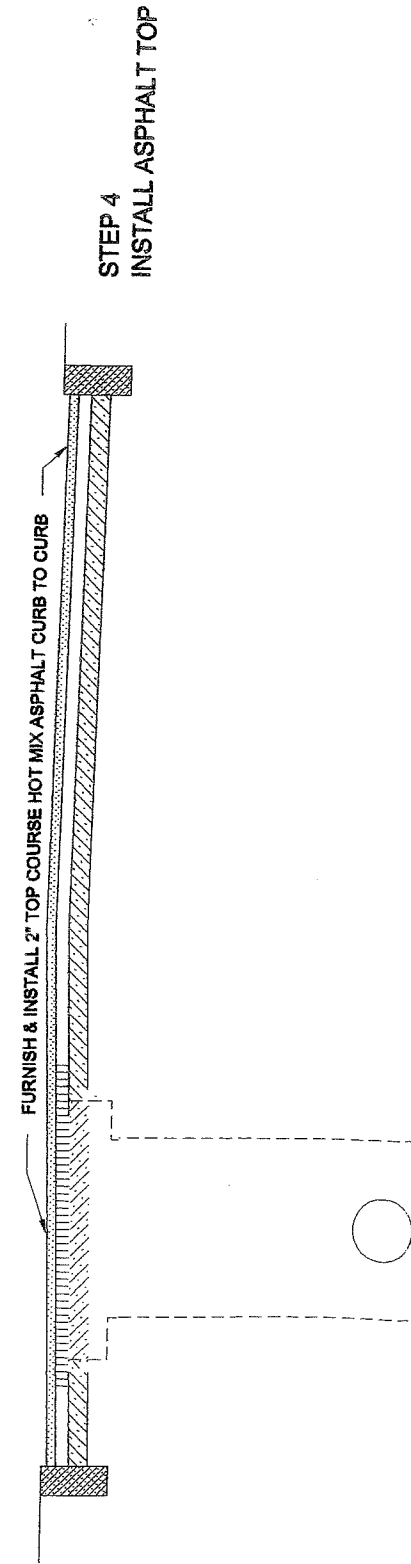
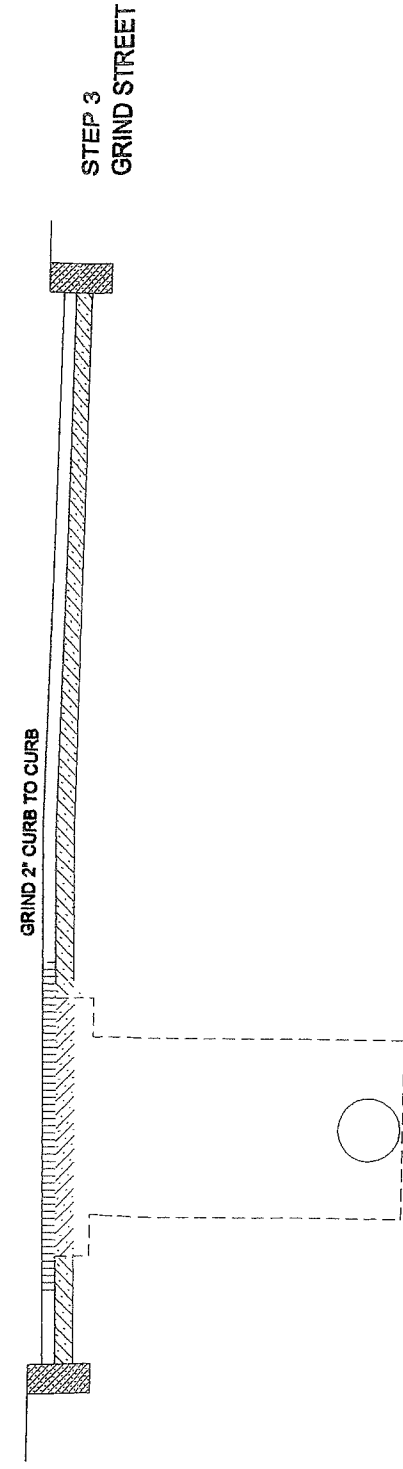
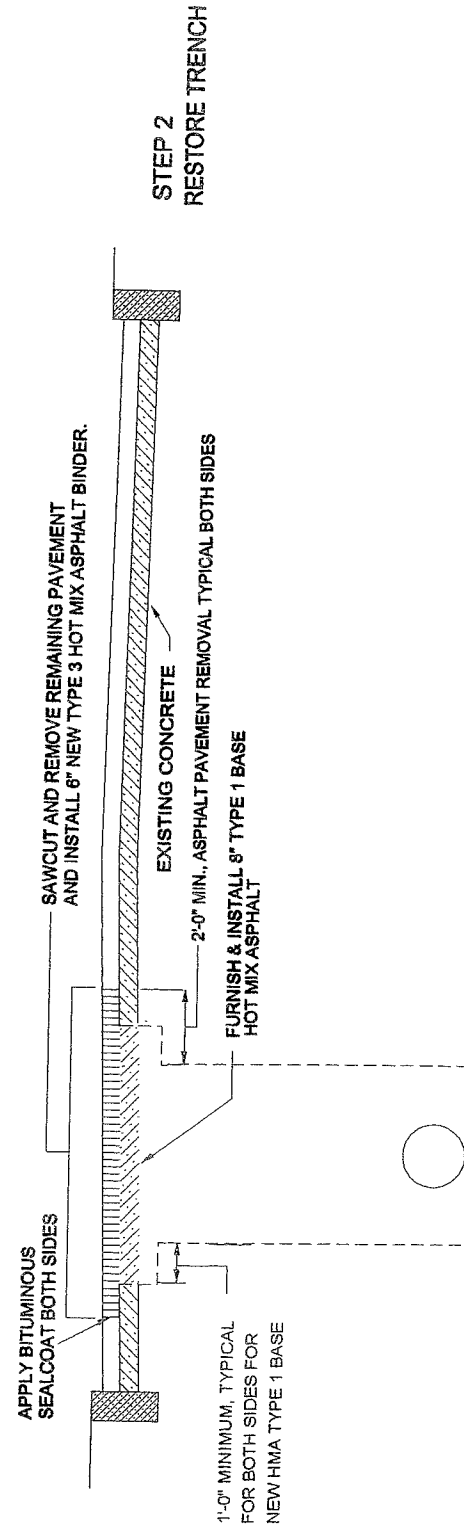
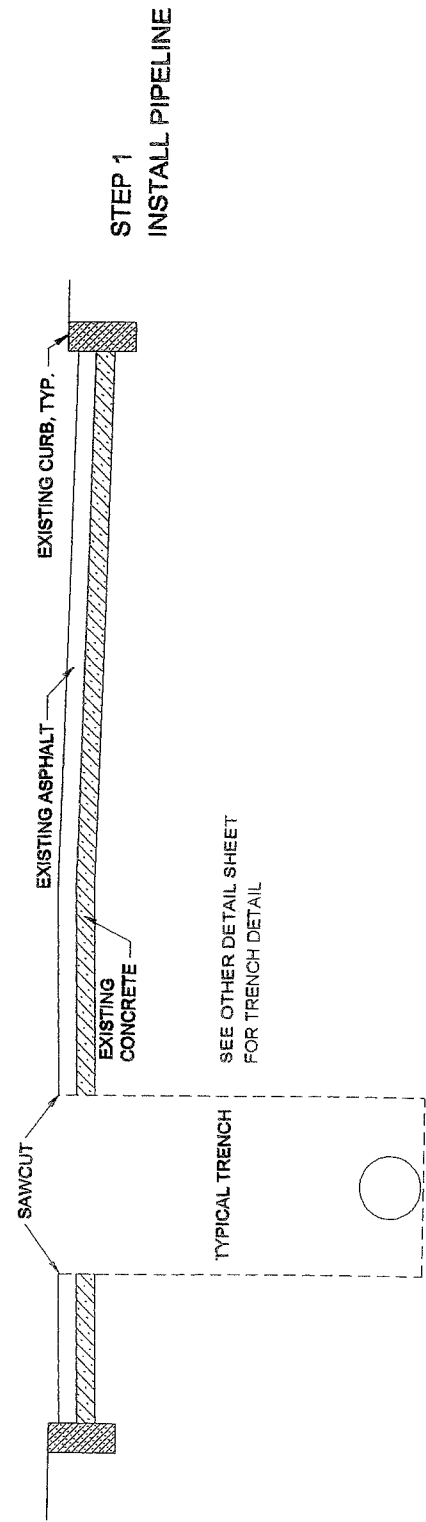
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By: DPW

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Sheet No:

STREET WITH CONCRETE BASE



EXISTING STREET RECONSTRUCTION DETAILS

NOT TO SCALE

JAMES F. SUOZZO, P.E.
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STANDARD DETAILS

Scale: AS SHOWN

DEL **DELAWARE ENGINEERING, P.C.**
CIVIL AND ENVIRONMENTAL ENGINEERING

Project: CITY OF NORWICH

Date: 04-10-02

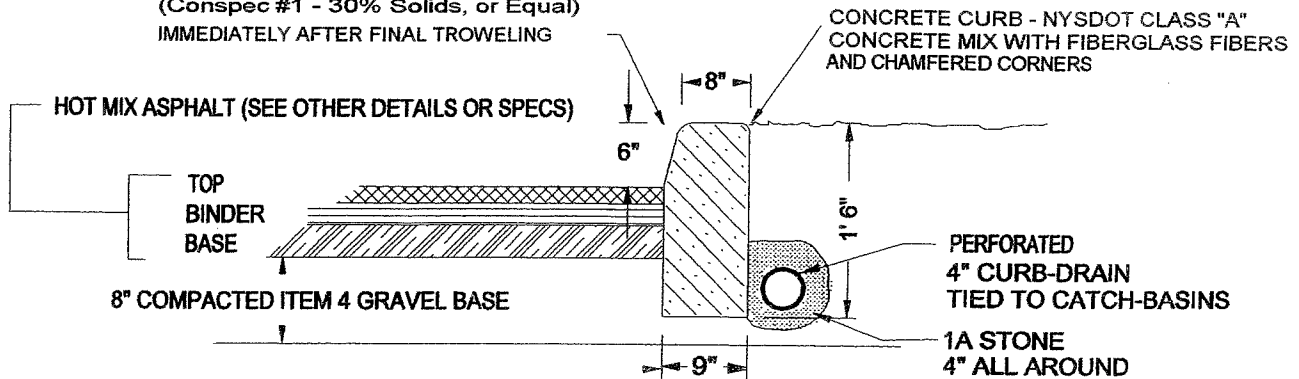
Subject: STANDARD DETAILS

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Sheet No:

APPLY CONCRETE SEALER,
(Conspec #1 - 30% Solids, or Equal)
IMMEDIATELY AFTER FINAL TROWELING

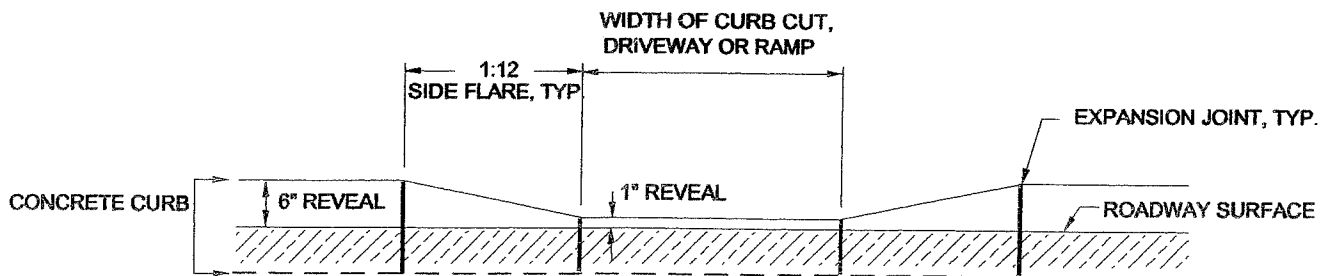


NOTES:

- 1) PROVIDE 1/2" FULL DEPTH EXPANSION JOINTS EVERY 30 LINEAL FEET
- 2) PROVIDE 1/2" DEEP TROWELED IN OR SAW CUT CONTROL JOINT EVERY 10 LINEAL FEET
- 3) CURB DIMENSIONS TO BE SAME AS NYSDOT TYPE BB CURB.

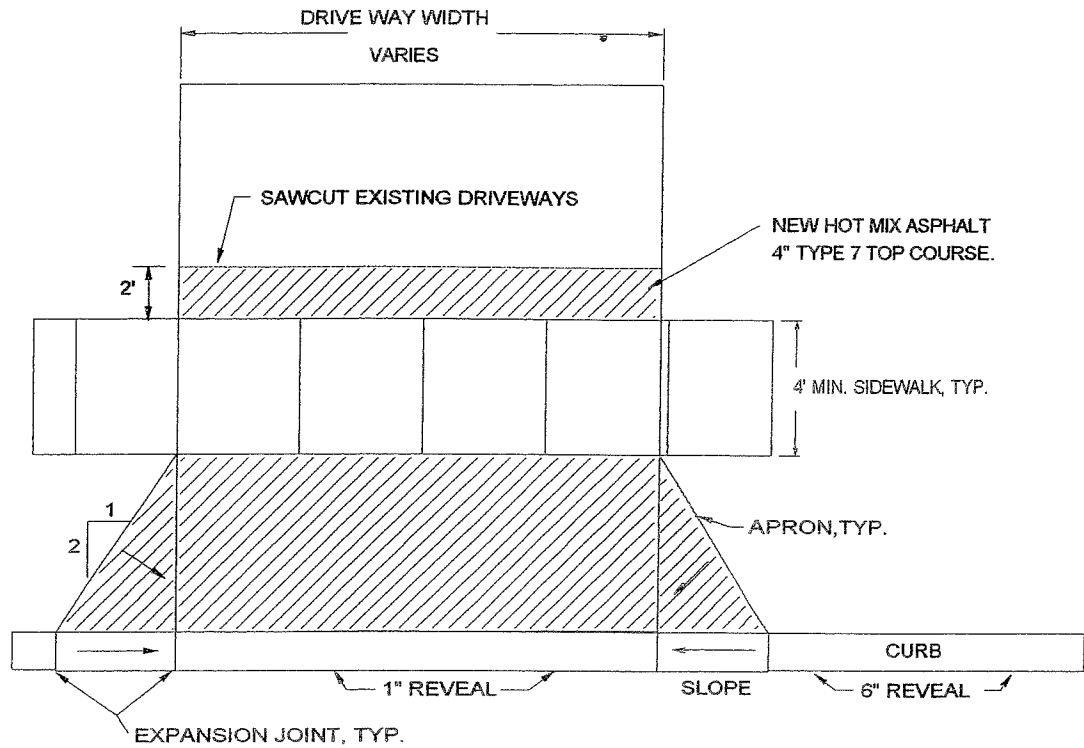
TYPICAL CURB SECTION

NOT TO SCALE



CURB CUT DETAIL

NOT TO SCALE



PLAN

DRIVEWAY APRON DETAIL

NO SCALE



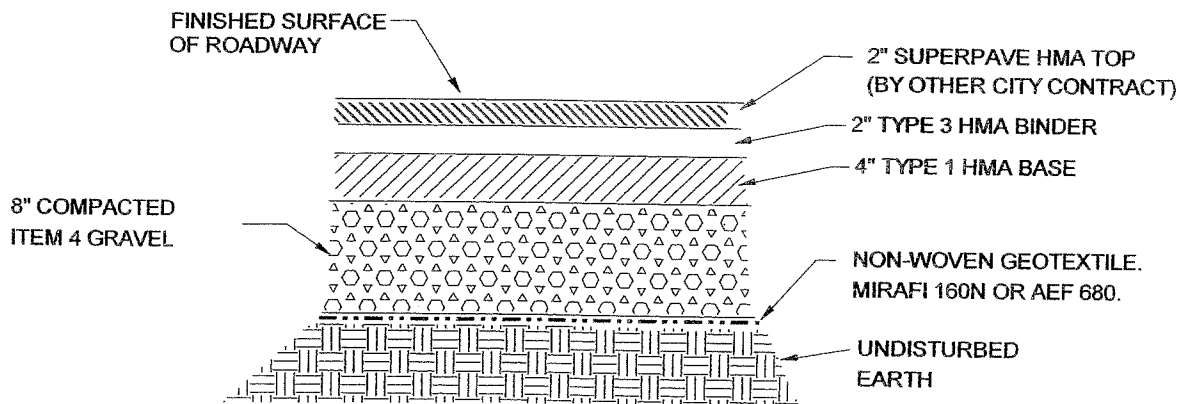
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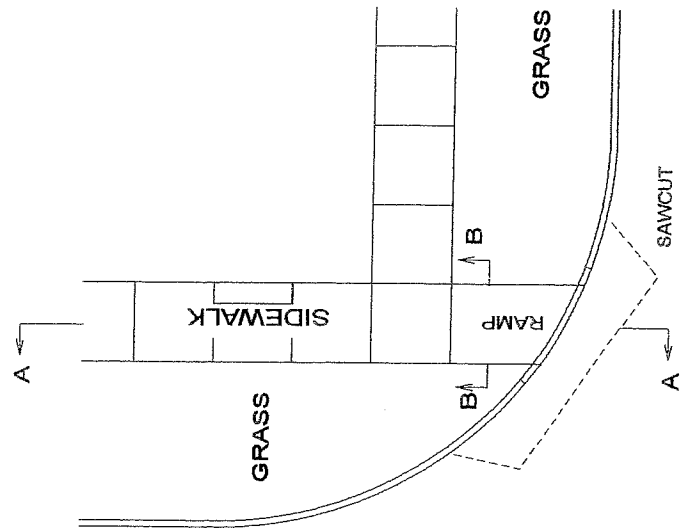
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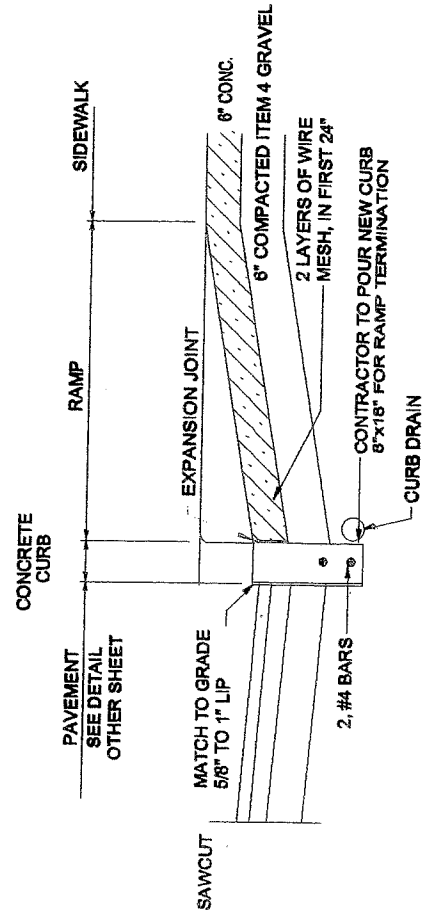
STREET BOX-OUT PAVEMENT DETAIL

NOT TO SCALE

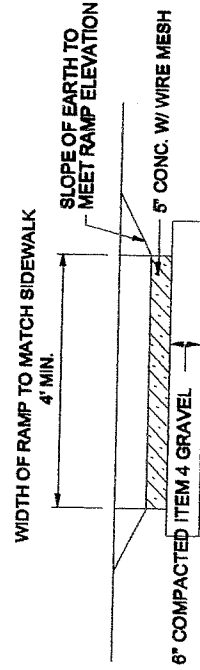
TYPE 1



DESIRED RAMP SLOPE 1/20
 MAXIMUM SLOPE 1/12
 ALONG SHORTEST RAMP LENGTH



SECTION A-A



SECTION B-B

HANDICAP RAMP DETAILS

NOT TO SCALE

NOTES:

- A) NO EXPANSION JOINT BETWEEN THE ROAD PAVEMENT AND THE RAMP MATERIAL OR BETWEEN THE TOP OF THE RAMP AND THE SIDEWALK
- B) TYPE 2 AND 3 RAMPS REQUIRE 1 ON 12 FLARE SLOPES IN ADDITION TO THE RAMP SLOPE. TYPE 2 RAMPS REQUIRE A 4 FOOT WIDE LANDING AT THE TOP OF THE RAMP.
- C) THE SIDEWALK CROSS SLOPE SHOULD NOT EXCEED 1/4 INCH PER FOOT (2%) EXCEPT AT RAMPS.
- D) TYPE 1 RAMPS REQUIRE A 1 ON 12 SLOPE MEASURED ALONG THE SHORTEST RAMP LENGTH.
- E) APPLY CONCRETE SEALER, SIKAGUARD 70 OR EQUAL TO CURB AND RAMP CONCRETE.

JAMES F. SUOZZO, P.E.
 NYS LIC.# 57185

STANDARD DETAILS

Scale: AS SHOWN



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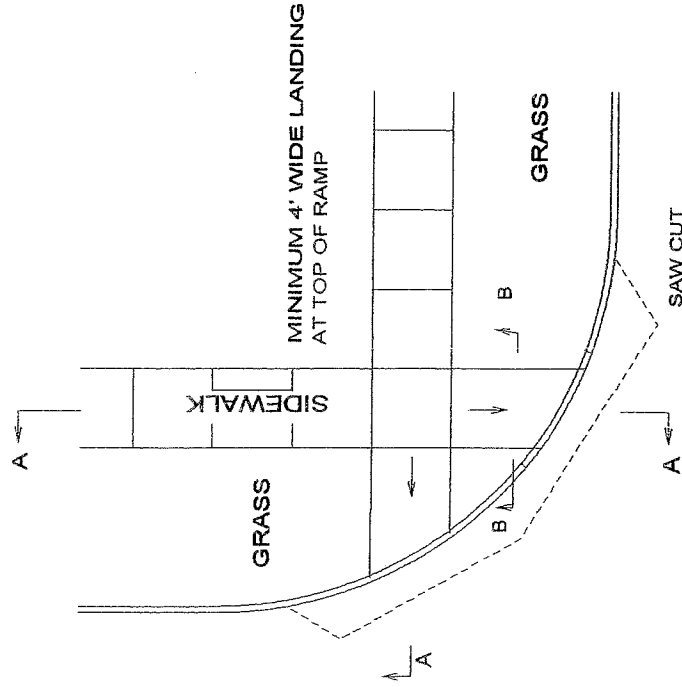
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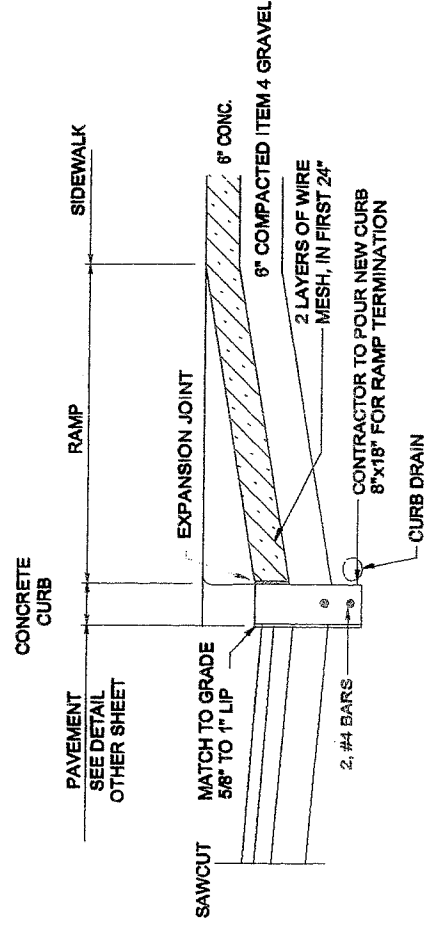
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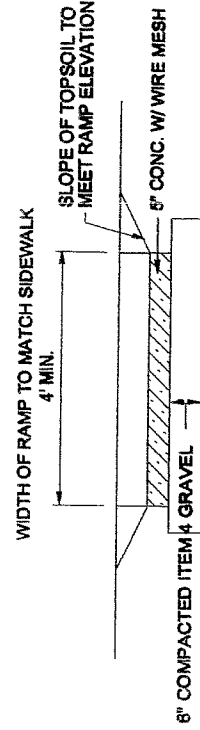
TYPE 2



DESIRED RAMP SLOPE 1/20
 MAXIMUM SLOPE 1/12



SECTION A-A



SECTION B-B

HANDICAP RAMP DETAILS

NOT TO SCALE

NOTES:

- A) NO EXPANSION JOINT BETWEEN THE ROAD PAVEMENT AND THE RAMP MATERIAL OR BETWEEN THE TOP OF THE RAMP AND THE SIDEWALK.
- B) TYPE 2 AND 3 RAMPS REQUIRE 1 ON 12 FLARE SLOPES IN ADDITION TO THE RAMP SLOPE. TYPE 2 RAMPS REQUIRE A 4 FOOT WIDE LANDING AT THE TOP OF THE RAMP.
- C) THE SIDEWALK CROSS SLOPE SHOULD NOT EXCEED 1/4 INCH PER FOOT (2%) EXCEPT AT RAMPS.
- D) TYPE 1 RAMPS REQUIRE A 1 ON 12 SLOPE MEASURED ALONG THE SHORTEST RAMP LENGTH.
- E) APPLY CONCRETE SEALER, SIKAGUARD 70 OR EQUAL TO CURB AND RAMP CONCRETE.

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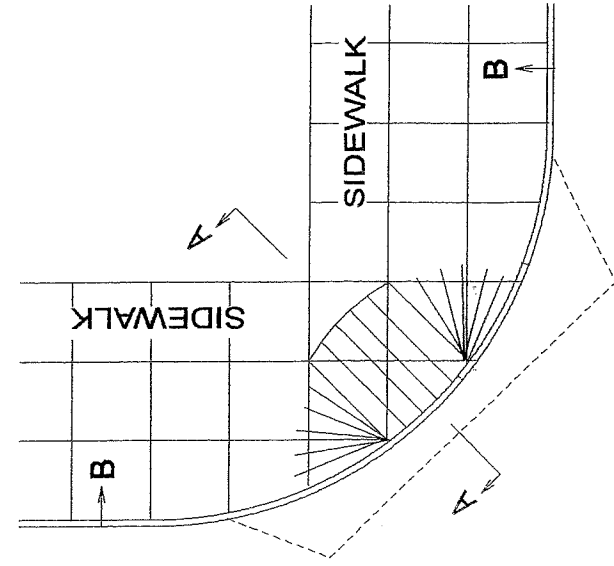
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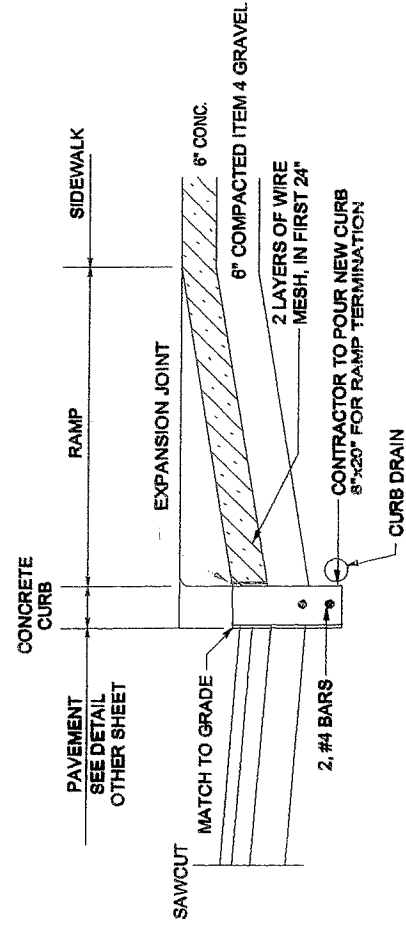
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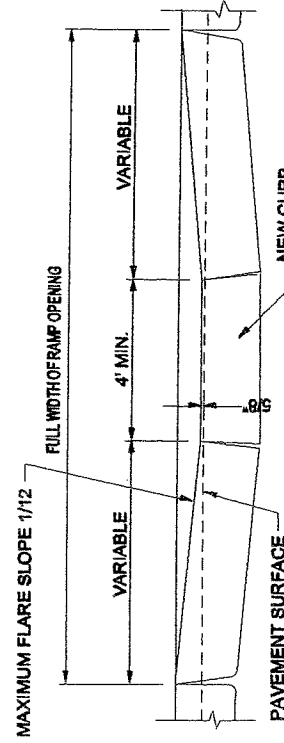
TYPE 3



MAXIMUM RAMP SLOPE 1 ON 12



SECTION A-A



SECTION B-B

HANDICAP RAMP DETAILS

NOT TO SCALE

NOTES:

- A) NO EXPANSION JOINT BETWEEN THE ROAD PAVEMENT AND THE RAMP MATERIAL OR BETWEEN THE TOP OF THE RAMP AND THE SIDEWALK.
- B) TYPE 2 AND 3 RAMPS REQUIRE 1 ON 12 FLARE SLOPES IN ADDITION TO THE RAMP SLOPE. TYPE 2 RAMPS REQUIRE A 4 FOOT WIDE LANDING AT THE TOPOF THE RAMP.
- C) THE SIDEWALK CROSS SLOPE SHOULD NOT EXCEED 1/4 INCH PER FOOT (2%) EXCEPT AT RAMPS.
- D) TYPE 1 RAMPS REQUIRES A 1 ON 12 SLOPE MEASURED ALONG THE SHORTEST RAMP LENGTH.
- E) APPLY CONCRETE SEALER, SIKAGUARD 70 OR EQUAL TO CURB AND RAMP CONCRETE.

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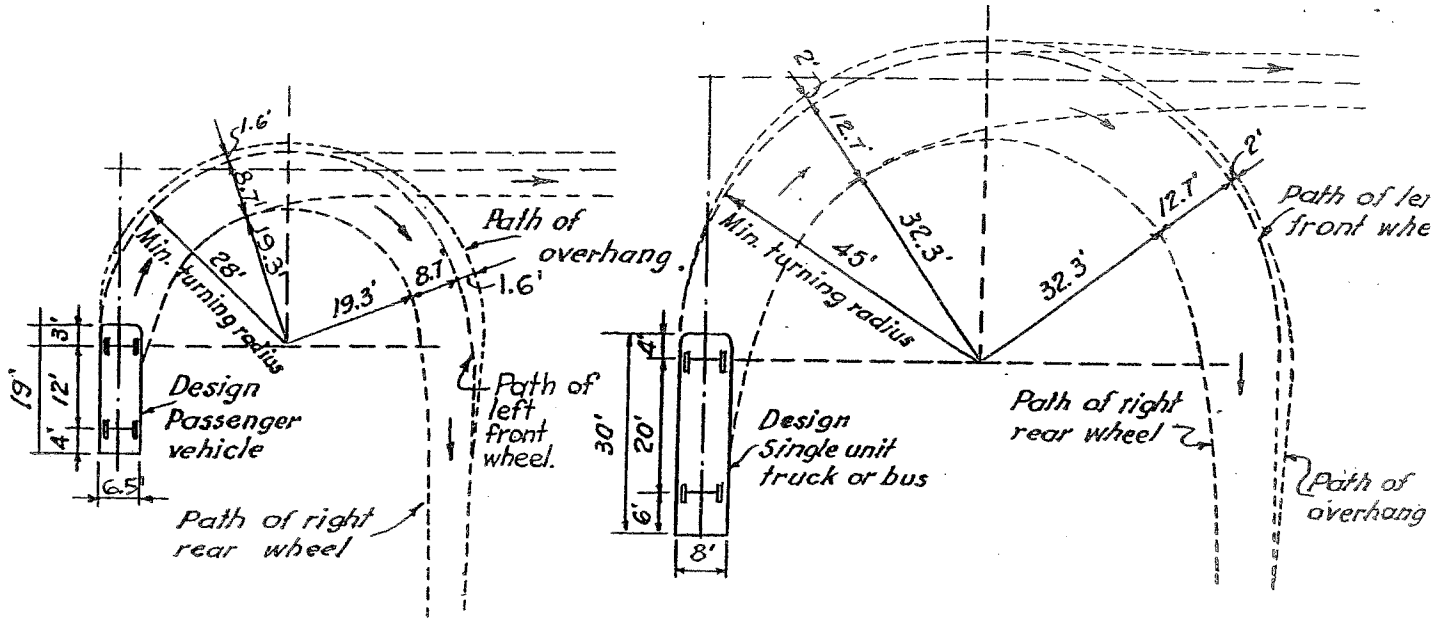
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DESIGN OF TURNING ROADWAY

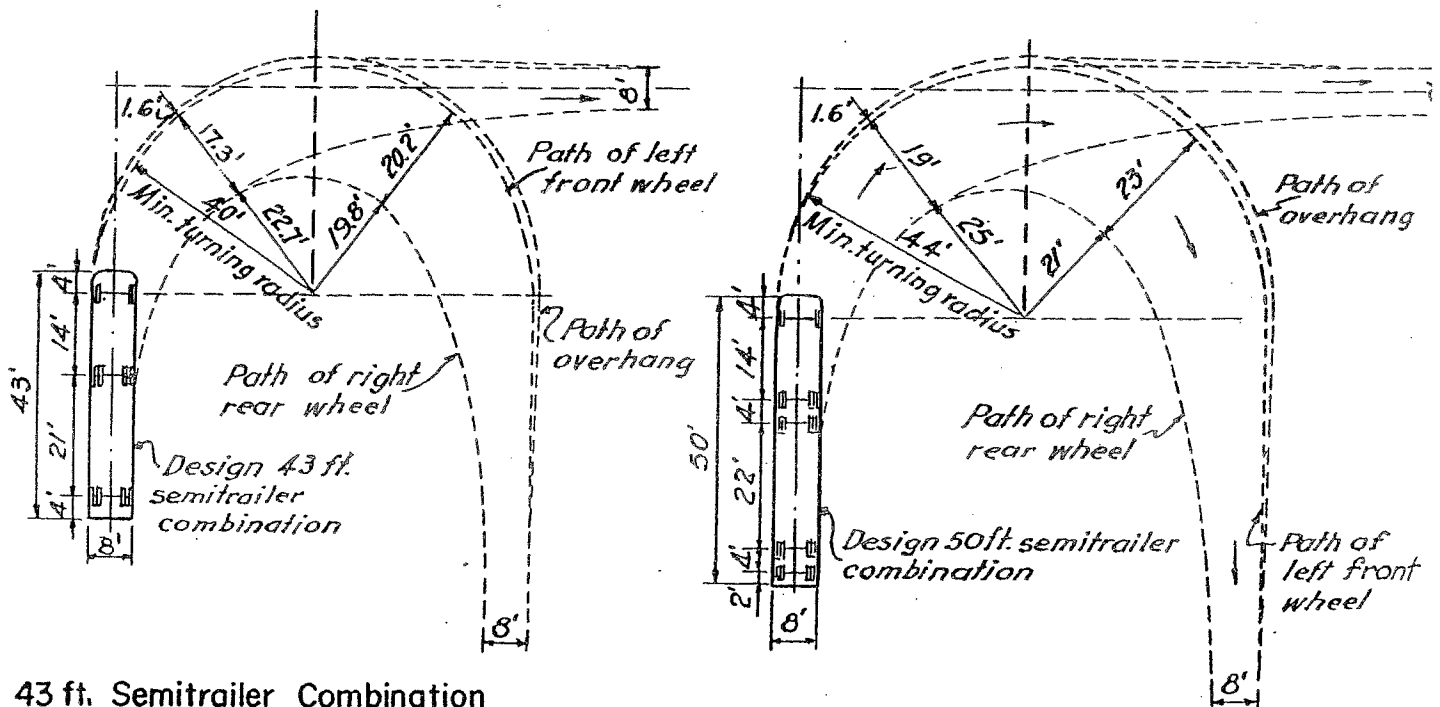
Design Vehicles - A design vehicle is a selected motor vehicle of a designated type, the weight, dimensions and operating characteristics of which are used to establish highway design controls to accommodate vehicles of that type. The dimensions and minimum turning path of a design vehicle is a design control that affects principally the radius and width of pavement in intersection areas.

DESIGN VEHICLES & MINIMUM TURNING PATHS



Passenger Design Vehicle⁽¹⁾

Single Unit Truck or Bus Design Vehicle⁽²⁾

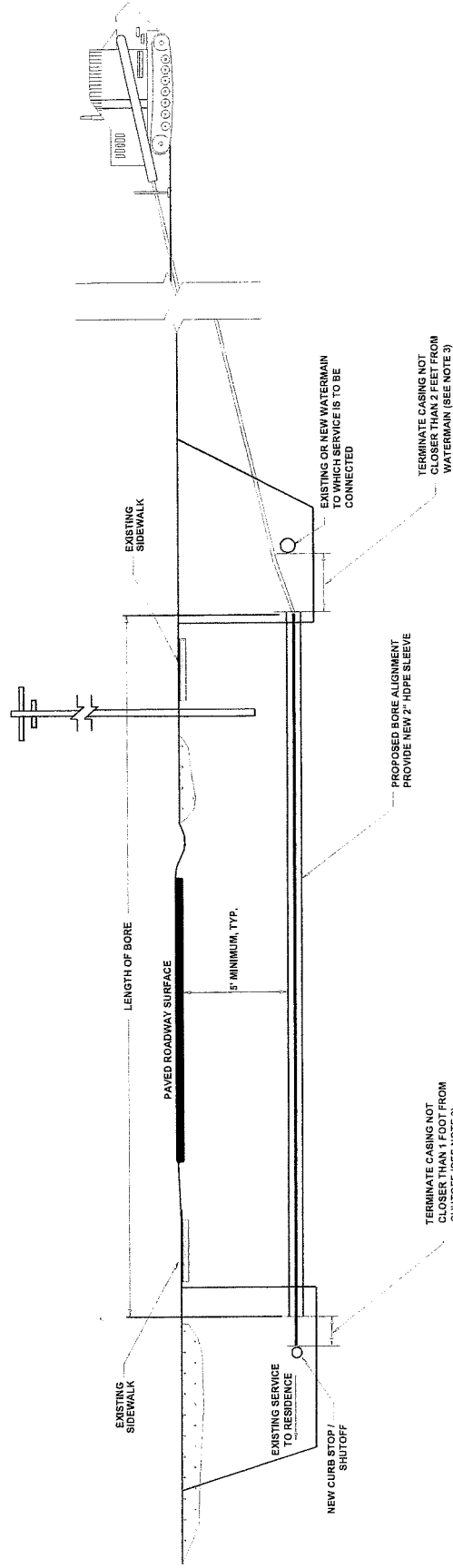
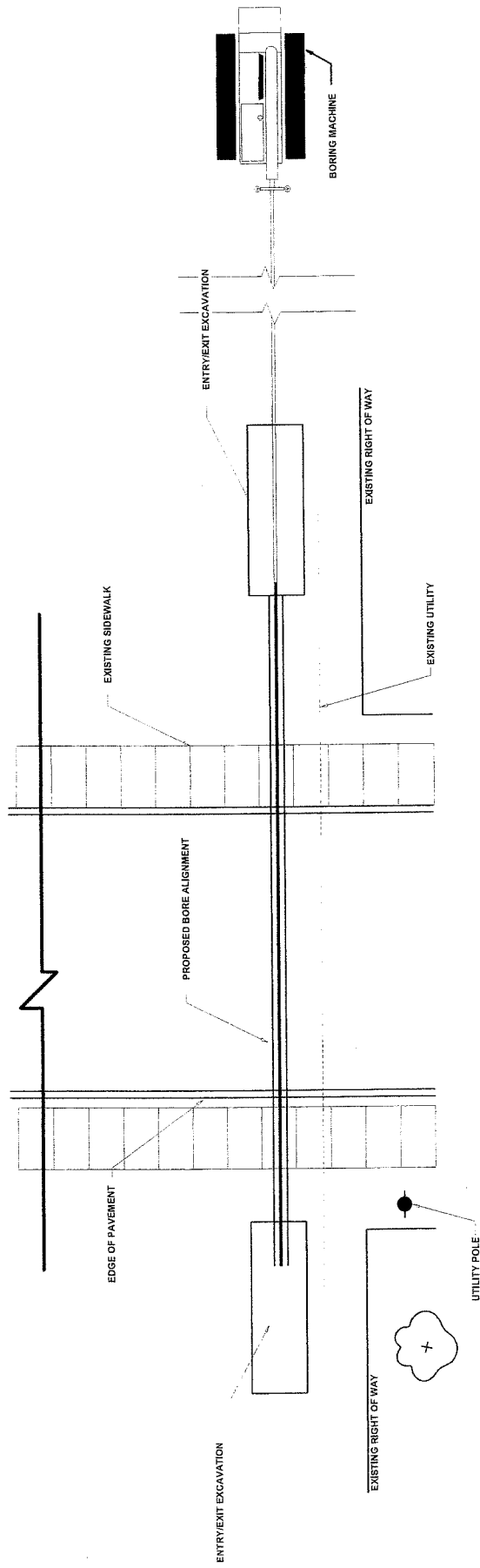


43 ft. Semitrailer Combination Design Vehicle⁽³⁾

50 ft. Semitrailer Combination Design Vehicle⁽⁴⁾

(1)- A.A.S.H.O. Designation = P
 (2)- A.A.S.H.O. Designation = S.U.

(3)- A.A.S.H.O. Designation = C-43
 (4)- A.A.S.H.O. Designation = C-50

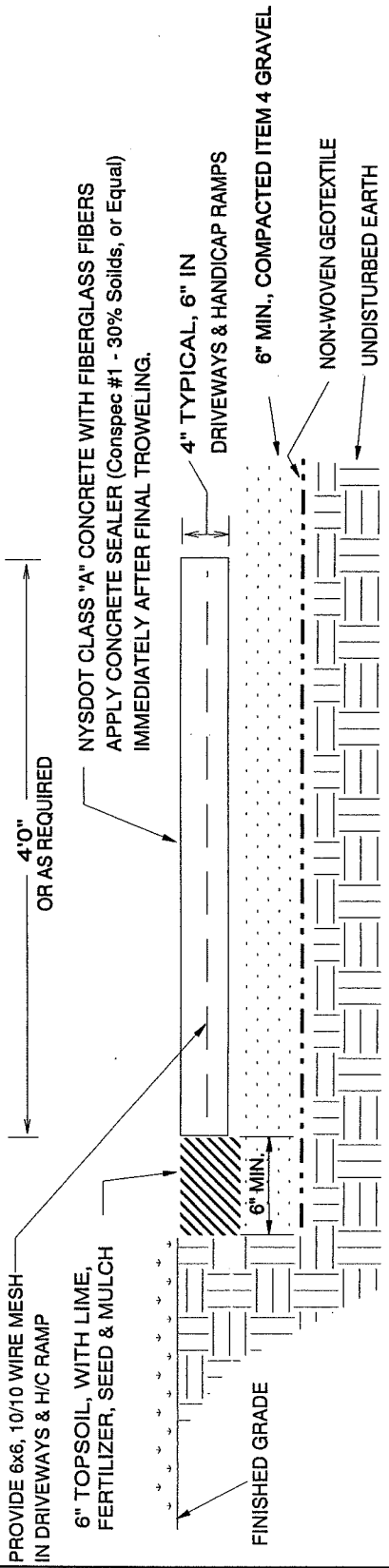


HORIZONTAL DIRECTIONAL BORING
(NOT TO SCALE)

- NOTES:
- 1) FURNISH AND INSTALL 2" HDPE PIPE CASING / SLEEVE TO WITHIN/ NOT CLOSER THAN ONE FOOT OF THE CURBSTOP/ SHUTOFF AND TWO FEET OF THE NEW / EXISTING WATERMAIN TO WHICH THE SERVICE IS TO BE CONNECTED.
 - 2) FURNISH AND INSTALL TYPE K COPPER SERVICE (AS REQUIRED) INSIDE THE CASING AND SEAL THE ENDS OF THE HDPE TO PREVENT BACKFILL FROM ENTERING THE CASING.
 - 3) WHERE SITE CONDITIONS DICTATE THAT THE BORING CANNOT BE TERMINATED NEAR THE CURB STOP/ SHUTOFF OR WATERMAIN (E.G. TO AVOID A TREE), THE CASING SHALL BE TERMINATED BEHIND THE SIDEWALK AREA AND COPPER ONLY SERVICE EXTENDED TO THE NECESSARY POINT OF CONNECTION.
 - 4) FURNISH AND INSTALL 2" HDPE CASING / SLEEVE FOR A NEW WATER SERVICE WHERE SHOWN IN THE WATER SERVICES SCHEDULE ON THE OTHER DRAWINGS (E.G. WHEN CROSSING UNDER A WYSDOT ROADWAY), OR WHEN REQUIRED BY THE VILLAGE AND/OR ENGINEER.

TERMINATE CASING NOT CLOSER THAN 1 FOOT FROM SHUTOFF (SEE NOTE 3)

TERMINATE CASING NOT CLOSER THAN 2 FEET FROM WATERMAIN (SEE NOTE 3)

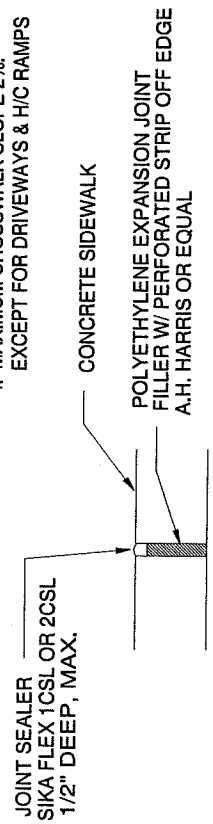


CONCRETE SIDEWALK DETAIL

NOT TO SCALE

NOTES:

1. PROVIDE 1/2" DEEP TROWELED IN OR SAW CUT CONTROL JOINT EVERY 5 LINEAL FEET.
2. PROVIDE EXPANSION JOINTS FULL DEPTH EVERY 20 LINEAL FEET
3. WIDTH OF SIDEWALKS AS REQUIRED FOR DRIVEWAYS & H/C RAMPS
4. MAXIMUM CROSSWALK SLOPE 2% EXCEPT FOR DRIVEWAYS & H/C RAMPS



EXPANSION JOINT DETAIL

NOT TO SCALE