

APPENDIX A

APPENDIX A

SERIES 1 PAVEMENT

- 100 Local Residential Rural Street Section – 9 Ton
- 101 Local Residential Urban Street Section – 9 Ton
- 102 Local Commercial/Industrial Urban Street Section – 10 Ton
- 103 Residential Cul-De-Sac Rural Section
- 104 Residential Cul-De-Sac Urban Section
- 105 Typical Driveway Sections

SERIES 2 WATER SYSTEM AND APPURTENANCES

- 200 Water Service Detail (2" and Less)
- 201 Water Service Detail (Greater than 2")
- 202 Thrust Block Detail
- 203 Pacer Traffic Flange Hydrant
- 204 Hydrant & Hydrant Gate Valve Detail
- 205 Typical Resilient Wedge Valve & Box Installation – 10" & under Watermain
- 206 Typical Butterfly Valve & Box Installation – 12" & Over Watermain
- 207 Curb Stop Cover for Driveway Installation

SERIES 3 SANITARY SEWER AND APPURTENANCES

- 300 Sanitary Sewer Standard Manhole
- 301 Precast Mechanical Joint Sewer Manhole
- 302 Shallow Sanitary Main Service Connection
- 303 Deep Sanitary Main Service Connection
- 304 Insulation for Water & Sanitary Sewer Pipe & Services
- 305 Standard Drop Manhole
- 306 Pipe Jacking Detail
- 307 Waterproof Manhole Casting and Anchorage
- 308 Chimney Seal
- 309 Flex Seal Utility Sealant
- 310 Infi-Shield External Seal
- 311 Manhole Lid

SERIES 4 STORM SEWER APPURTENANCES

- 400 Slab-Top Manhole – Storm Sewer
- 401 Shallow Catchbasin
- 402 Skimmer Structure
- 403 Skimmer Structures with Weir
- 404 Typical Treatment Basin
- MnDOT4143E Stool Grate & Concrete Frame
- MnDOT 4180J Manhole or Catch Basin Step

SERIES 5 EROSION CONTROL AND LAND APPURTENANCES

- 500 Rip-Rap Placement at Outlets
- 501 Silt Fence Installation
- 502 Erosion Control Blanket Installation on Cut Slope
- 503 Straw/Hay Bale Barrier Placement
- 504 Straw Bale Drop Inlet Sediment Filter
- 505 Rock Construction Entrance

SERIES 6 WALLS OR MISCELLANEOUS STRUCTURES

SERIES 7 CURB AND GUTTER AND SIDEWALK

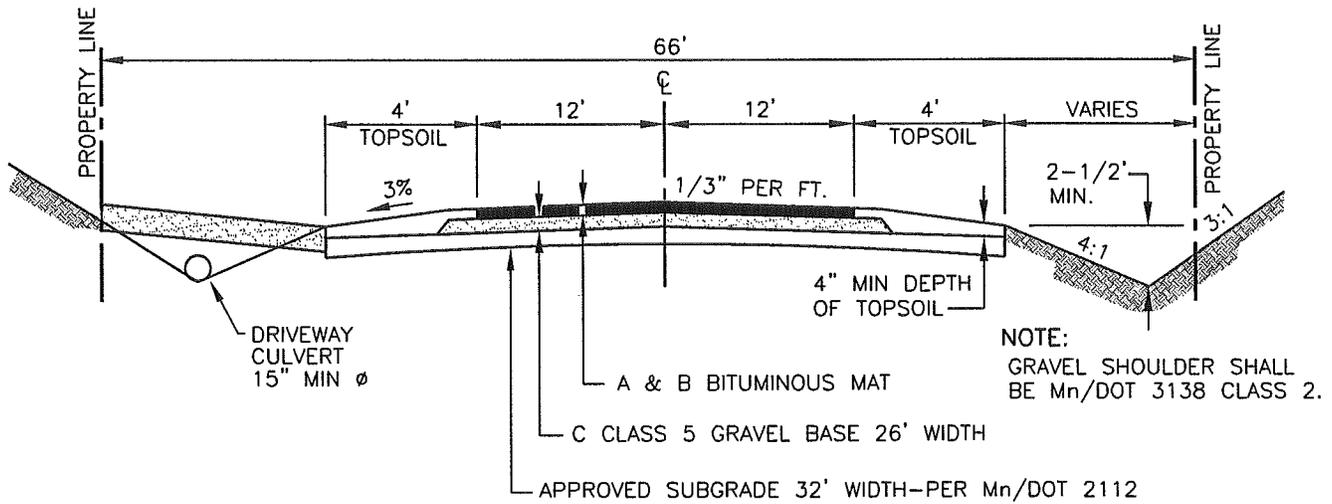
- 701 Pedestrian Curb Ramp
- 702 Concrete Driveway and Cross Gutter
- 703 Curb and Gutter Construction at Catch Basins
- 704 Surmountable Concrete Curb & Gutter
- 705 Inlet Casting
- 706 Paving Details
- MnDOT 7035L Concrete Walk & Curb Returns at Entrances
- MnDOT 7100 Concrete Curb & Gutter Design B & V

SERIES 8 BARRICADES, SIGNALS, MARKERS, ETC.

- MnDOT 8002 Permanent Barricade

SERIES 9 MISCELLANEOUS

- 900 Location of Public Utilities
- 901 Mail Box Support



LEGEND				
R VALUE	ESALS	BITUMINOUS SURFACE		AGGREGATE BASE
		WEAR MVWE45030B A*	BASE/BINDER LVNW35030B B*	CLASS 5/6 3138 C*
R-70 to R-35	≤ 200,000	** 1 1/2"	** 2"	** 4"
R-30	≤ 175,000	1 1/2"	2"	4"
R-20	≤ 40,000	1 1/2"	2"	4"
R-15	≤ 20,000	1 1/2"	2"	4"
R-10	≤ 20,000	1 1/2"	2"	6"
R-5	≤ 10,000	1 1/2"	2"	10"

* SUBJECT TO REVIEW BY QUALIFIED SOILS ENGINEER

** MINIMUM ALLOWABLE DESIGN THICKNESS

NOTES: R VALUE IS A MEASURE OF EMBANKMENT SOIL RESISTANCE STRENGTH AS DETERMINED BY THE HVEEM STABILOMETER METHOD

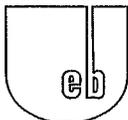
CUMULATIVE DESIGN LANE 18 KIP ESAL'S IS THE CUMULATIVE DAMAGE EFFECT OF VEHICLES DURING THE DESIGN LIFE OF A FLEXIBLE PAVEMENT.

LOCAL RESIDENTIAL RURAL STREET SECTION - 9 TON

NO SCALE

APPROVED
3-02-05

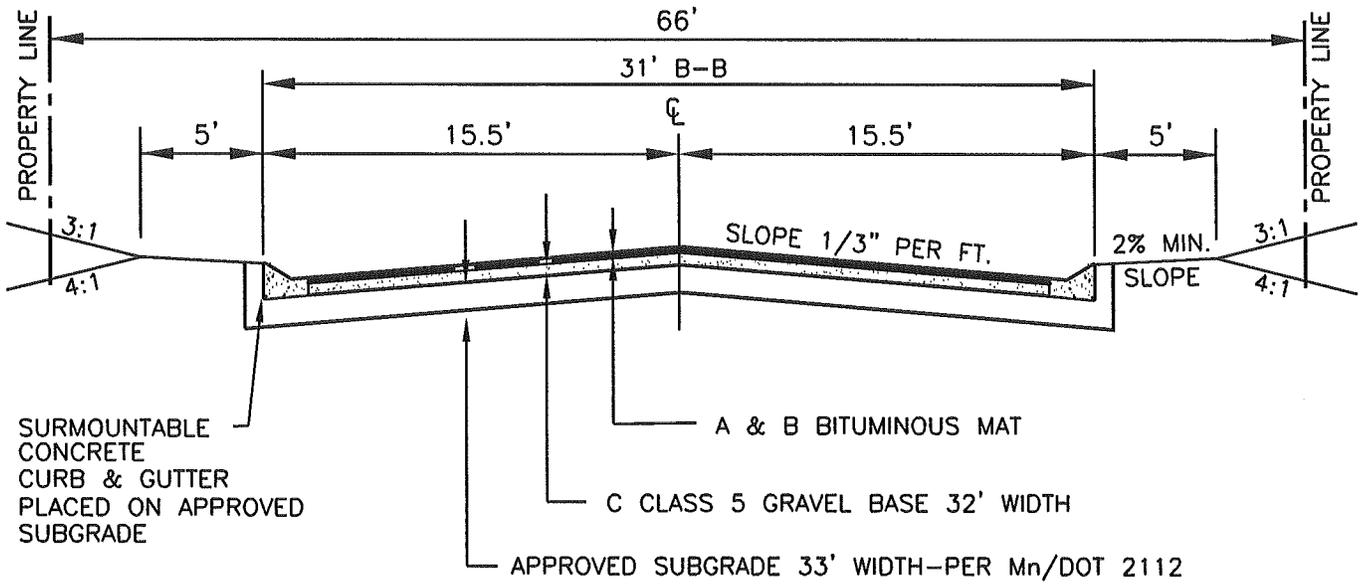
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CITY OF
EAST BETHEL

STANDARD PLATE No.

100



TRANSITION TO B618 CONCRETE CURB AND GUTTER
5' ON EACH SIDE OF ALL INLET STRUCTURES

LEGEND				
R VALUE	ESALS	BITUMINOUS SURFACE		AGGREGATE BASE
		WEAR MVWE45030B A*	BASE/BINDER LVNW35030B B*	CLASS 5/6 3138 C*
R-70 to R-35	< 200,000	** 1 1/2"	** 2"	** 4"
R-30	175,000	1 1/2"	2"	4"
R-20	40,000	1 1/2"	2"	4"
R-15	20,000	1 1/2"	2"	4"
R-10	20,000	1 1/2"	2"	6"
R-5	10,000	1 1/2"	2"	10"

* SUBJECT TO REVIEW BY QUALIFIED SOILS ENGINEER

** MINIMUM ALLOWABLE DESIGN THICKNESS

NOTES: R VALUE IS A MEASURE OF EMBANKMENT SOIL RESISTANCE STRENGTH AS DETERMINED BY THE HVEEM STABILOMETER METHOD

CUMULATIVE DESIGN LANE 18 KIP ESAL'S IS THE CUMULATIVE DAMAGE EFFECT OF VEHICLES DURING THE DESIGN LIFE OF A FLEXIBLE PAVEMENT.

LOCAL RESIDENTIAL URBAN STREET SECTION — 9 TON

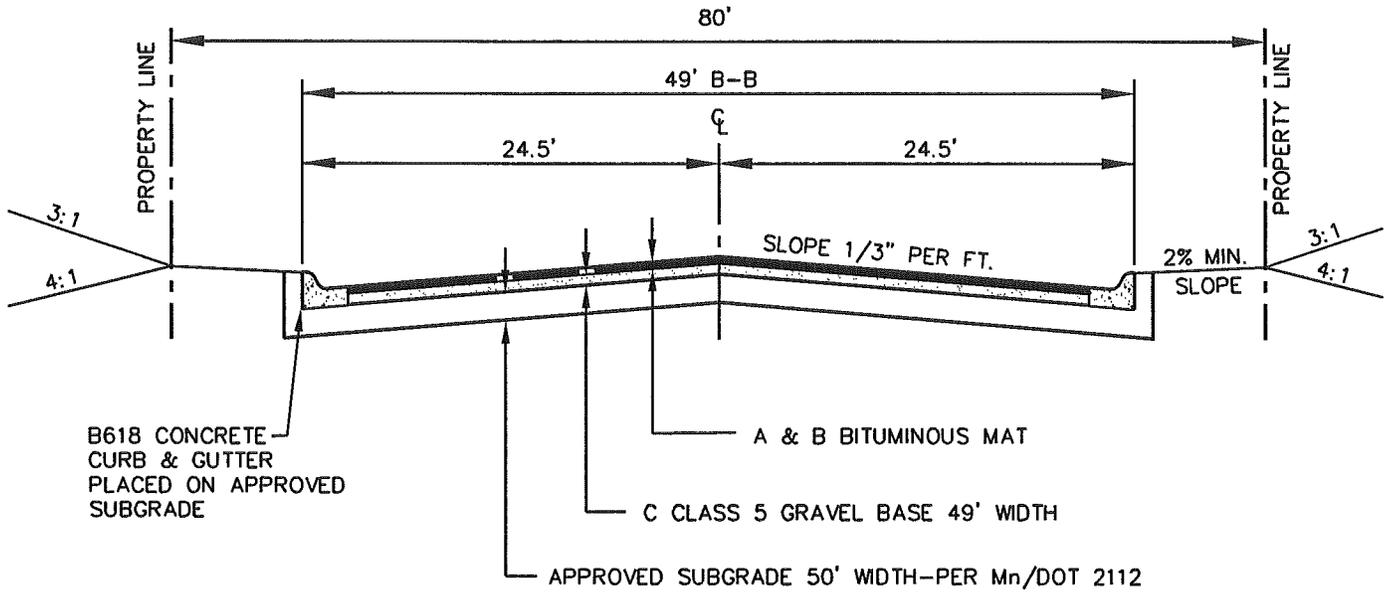
NO SCALE

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3-02-05
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STANDARD PLATE No.
101



B618 CONCRETE CURB & GUTTER PLACED ON APPROVED SUBGRADE

A & B BITUMINOUS MAT

C CLASS 5 GRAVEL BASE 49' WIDTH

APPROVED SUBGRADE 50' WIDTH—PER Mn/DOT 2112

LEGEND				
R VALUE	ESALS	BITUMINOUS SURFACE		AGGREGATE BASE
		WEAR MVWE45030B A*	BASE/BINDER LVNW35030B B*	CLASS 5/6 3138 C*
R-70 to R-35	≤ 200,000	** 2"	** 2"	** 4"
R-30	175,000	2"	2"	4"
R-20	40,000	2"	2"	4"
R-15	20,000	2"	2"	4"
R-10	20,000	2"	2"	6"
R-5	10,000	2"	2"	10"

* SUBJECT TO REVIEW BY QUALIFIED SOILS ENGINEER

** MINIMUM ALLOWABLE DESIGN THICKNESS

NOTES: R VALUE IS A MEASURE OF EMBANKMENT SOIL RESISTANCE STRENGTH AS DETERMINED BY THE HVEEM STABILOMETER METHOD

CUMULATIVE DESIGN LANE 18 KIP ESAL'S IS THE CUMULATIVE DAMAGE EFFECT OF VEHICLES DURING THE DESIGN LIFE OF A FLEXIBLE PAVEMENT.

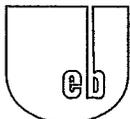
LOCAL COMMERCIAL/INDUSTRIAL URBAN STREET SECTION — 10 TON

NO SCALE

APPROVED

3-02-05

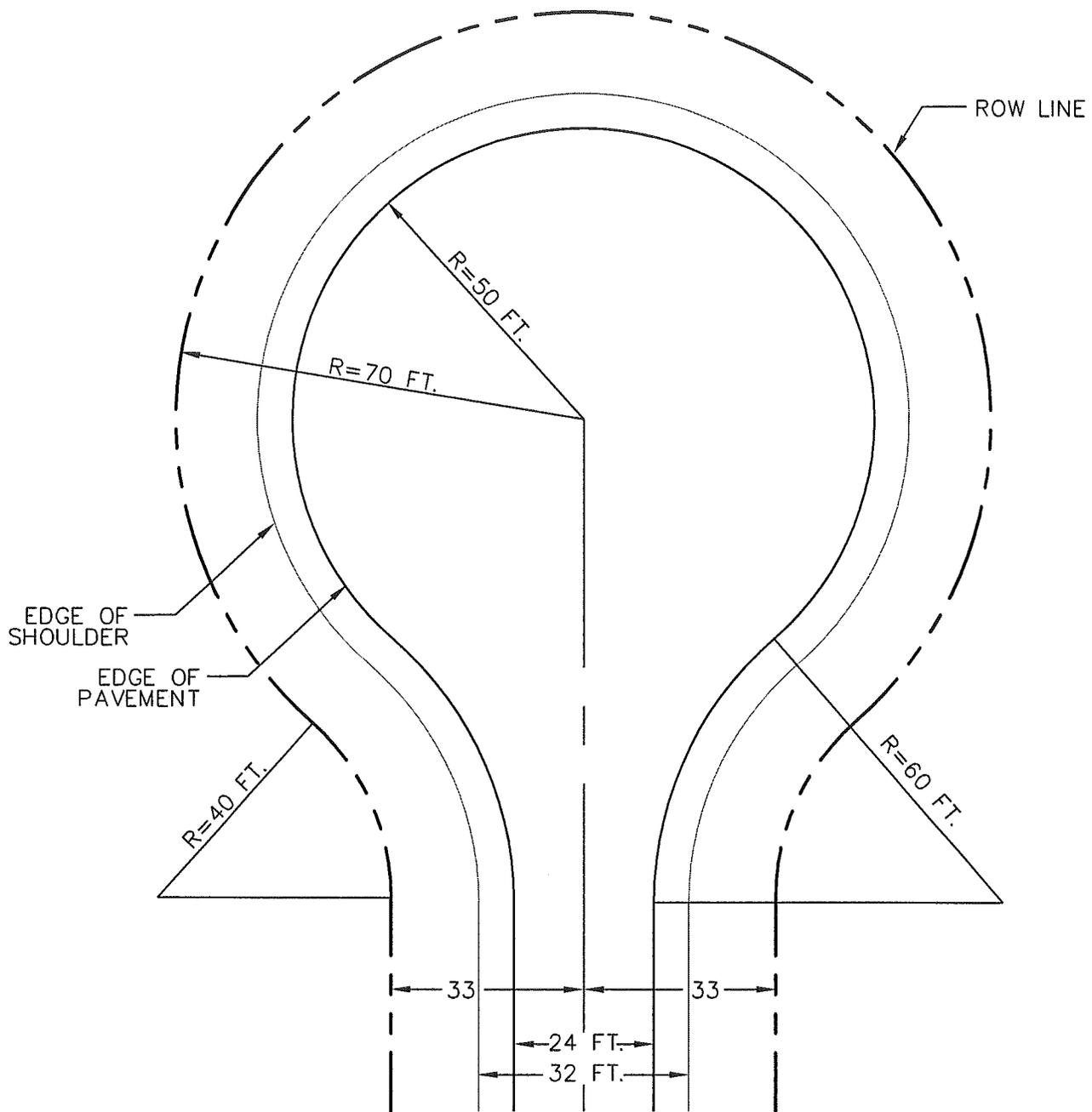
REVISED



**CITY OF
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STANDARD PLATE No.

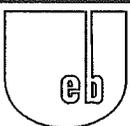
102



RESIDENTIAL CUL DE SAC
RURAL SECTION

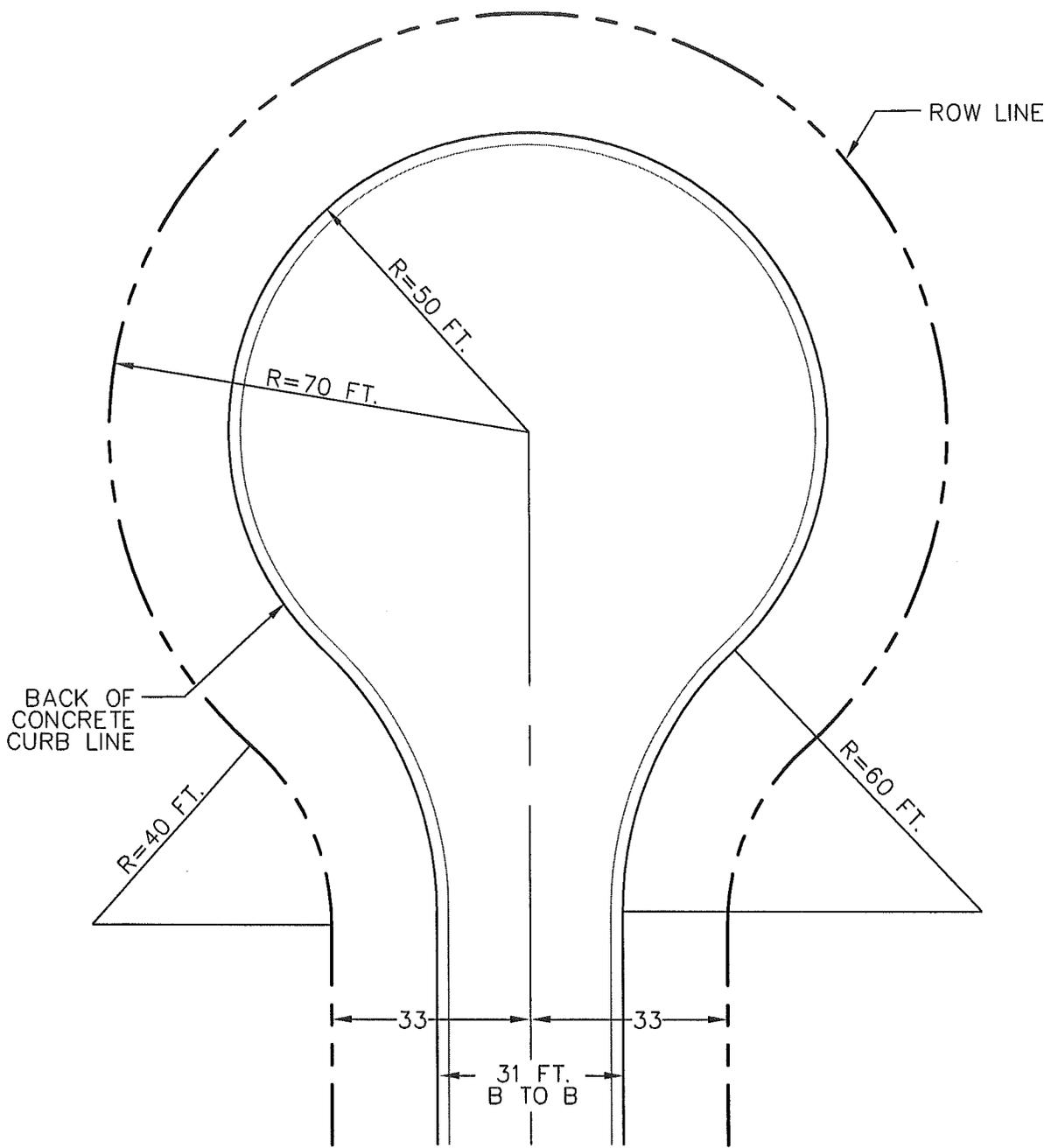
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3-02-05
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CITY OF
EAST BETHEL

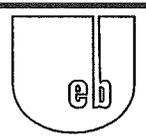
STANDARD PLATE No.
103



RESIDENTIAL CUL DE SAC
URBAN SECTION

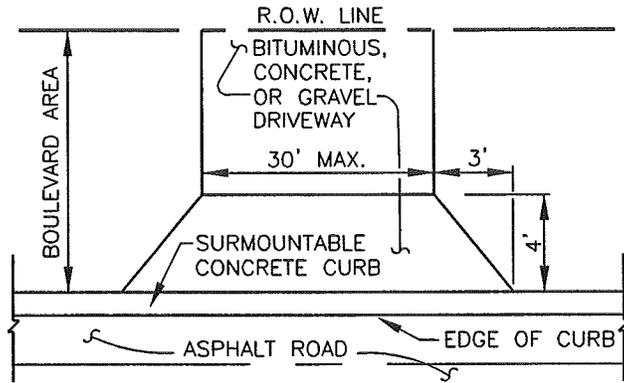
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APPROVED
3-02-05
REVISED

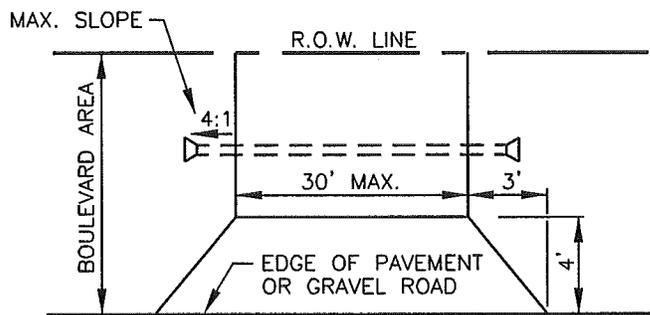


CITY OF
EAST BETHEL

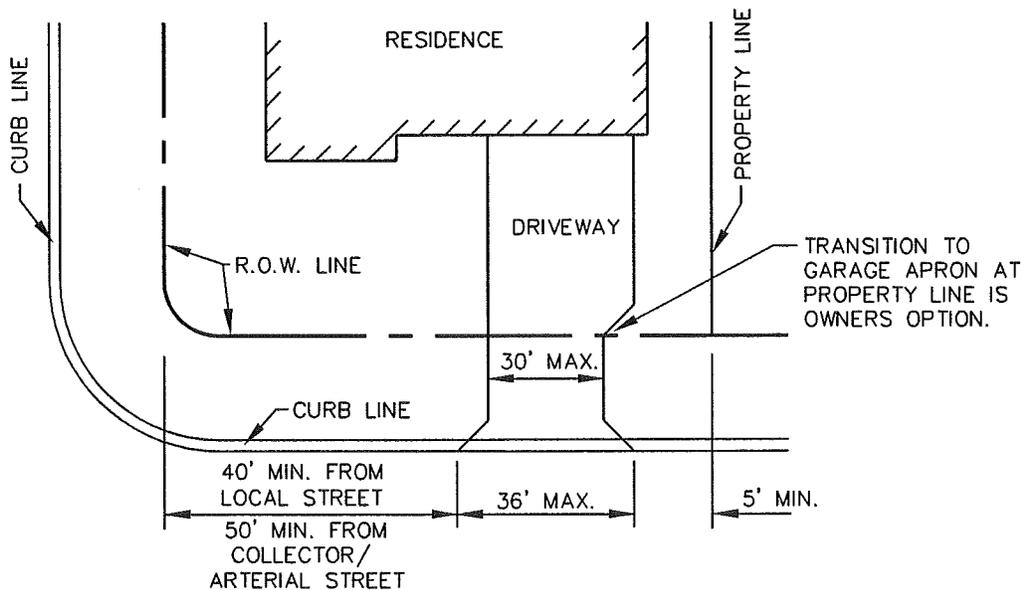
STANDARD PLATE No.
104



URBAN DRIVEWAY SECTION



RURAL DRIVEWAY SECTION



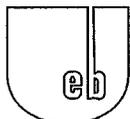
TYPICAL DRIVEWAY SECTIONS

NTS

APPROVED

3-02-05

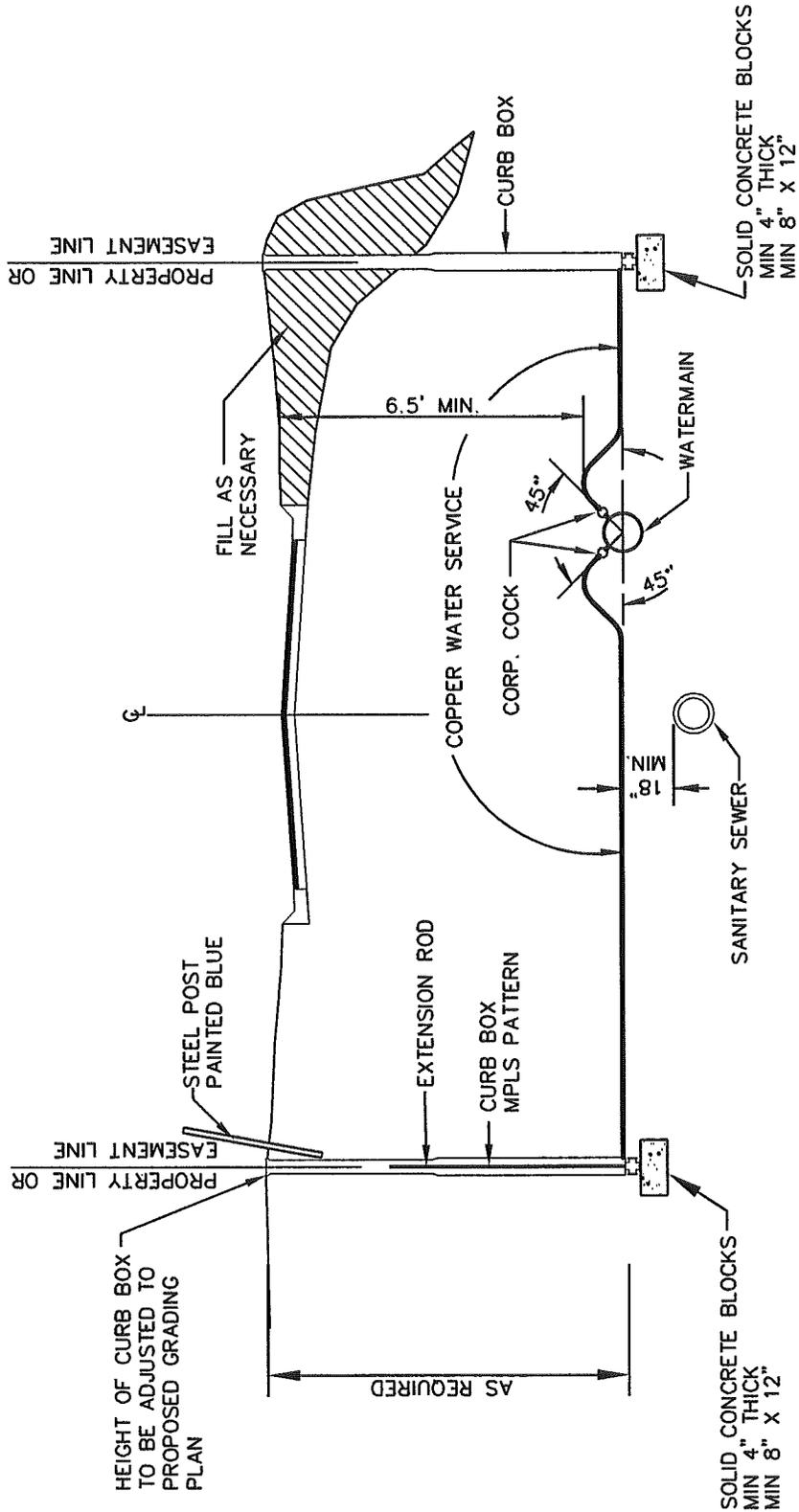
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**CITY OF
EAST BETHEL**

STANDARD PLATE No.

105

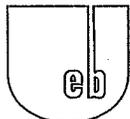


**2" AND LESS
WATER SERVICE DETAIL**
NO SCALE

APPROVED

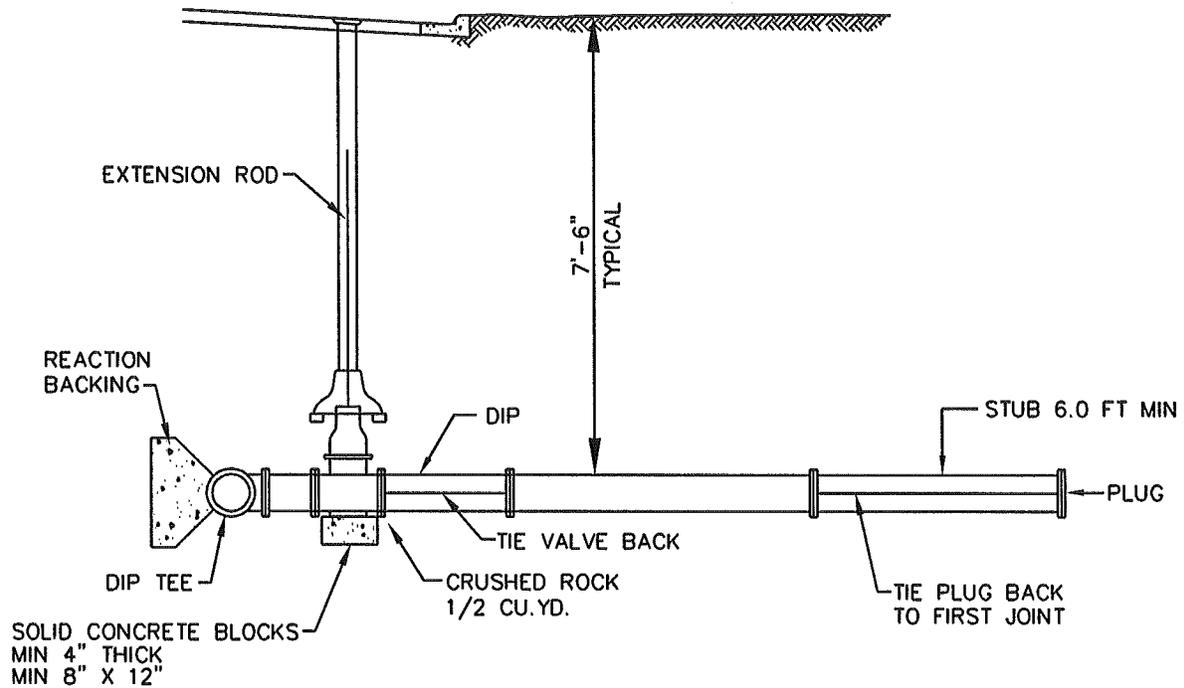
3-02-05

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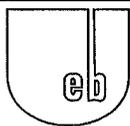
**CITY OF
EAST BETHEL**

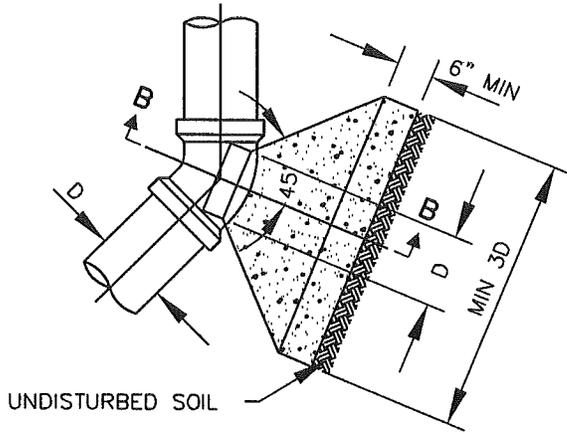
**STANDARD PLATE No.
200**



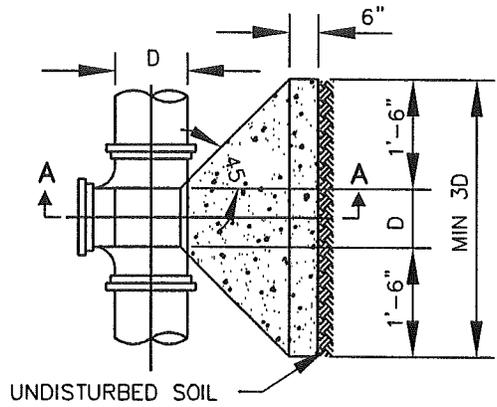
**GREATER THAN 2" SERVICES
WATER SERVICE DETAIL**

NO SCALE

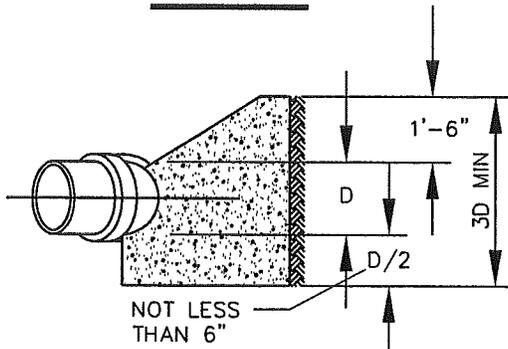
APPROVED 3-02-05	 CITY OF EAST BETHEL	STANDARD PLATE No. 201
REVISED		



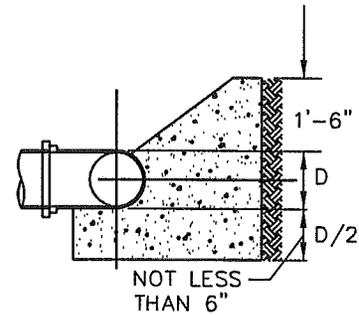
PLAN 'B'
AT BEND



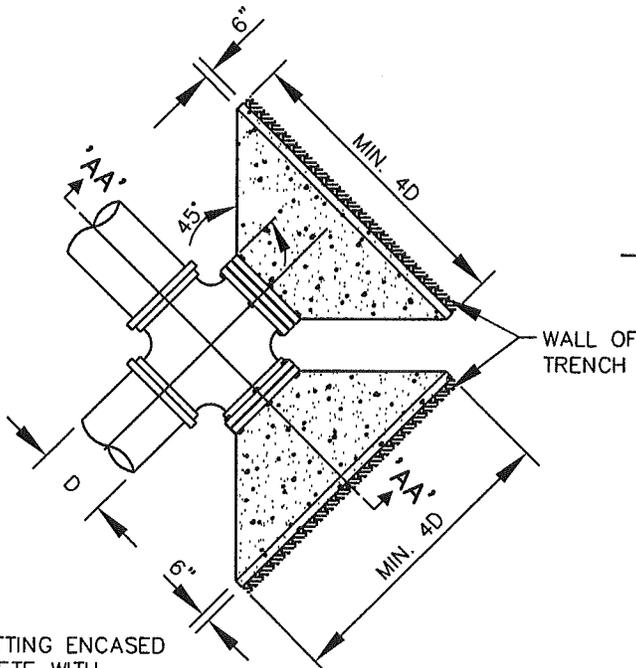
PLAN 'A'



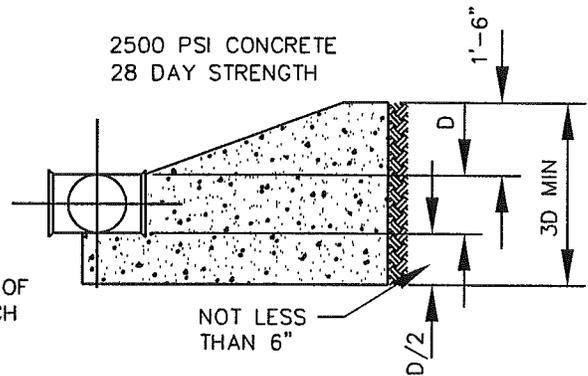
SECTION 'B'
AT BEND



SECTION 'A'



PLAN 'AA'



SECTION 'AA'

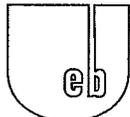
COVER FITTING ENCASED
IN CONCRETE WITH
POLYETHYLENE OR
BUILDING PAPER PRIOR
TO POURING

THRUST BLOCK DETAIL

NO SCALE

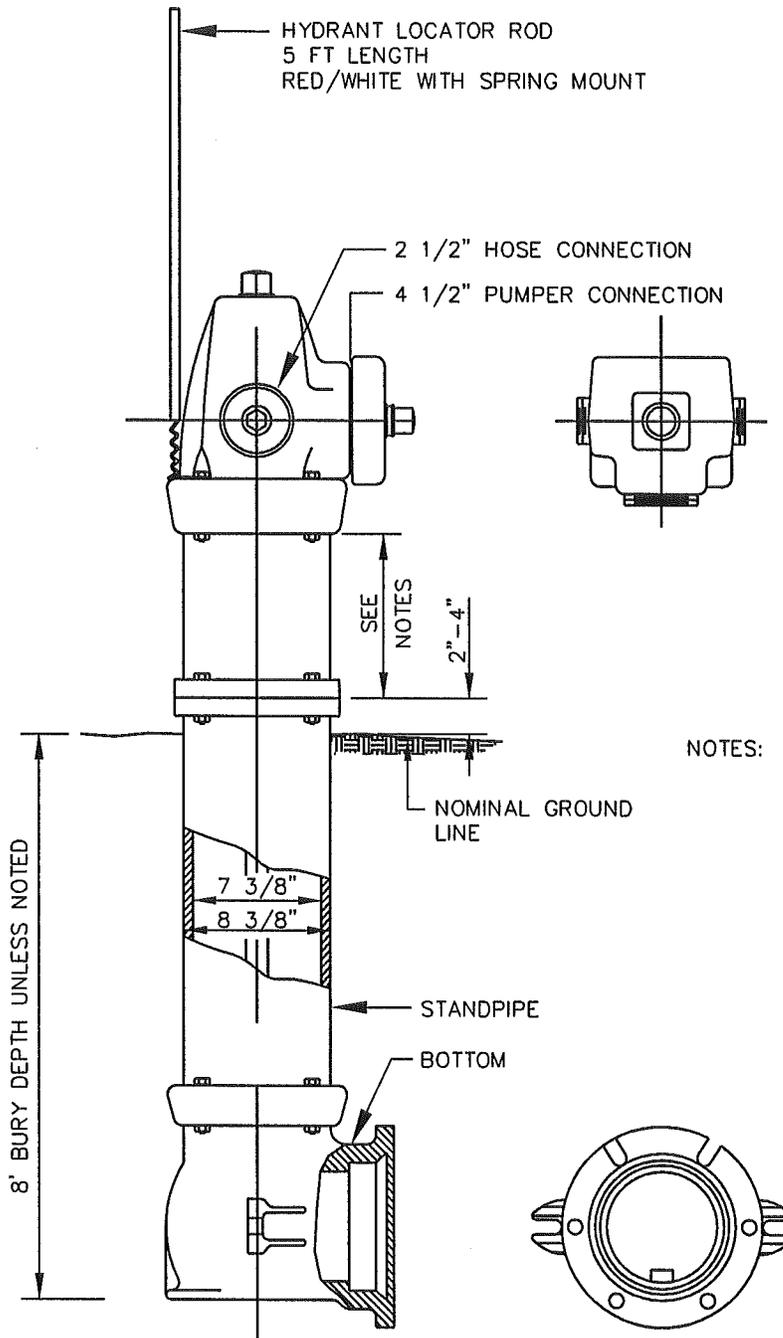
APPROVED
3-02-05

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**CITY OF
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**STANDARD PLATE No.
202**



- NOTES:
1. 22" BREAKOFF SECTION
 2. LEFT HAND OPERATING NUT
 3. PAINT BARREL SECTION RED TO GRADE
 4. DRAIN HOLES ABOVE NORMAL WATER TABLE TO BE OPEN, DRAIN HOLES BELOW NORMAL WATER TABLE TO BE PLUGGED. HYDRANTS WITH PLUGGED DRAIN HOLES SHALL BE TAGGED WITH A METAL STRIP AND PUMPER CONNECTION PAINTED GREEN.
 5. ALL CAPS SHALL BE FITTED WITH CHAINS.

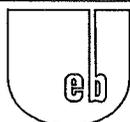
PACER TRAFFIC FLANGE HYDRANT (OR APPROVED EQUAL)

NO SCALE

APPROVED

3-02-05

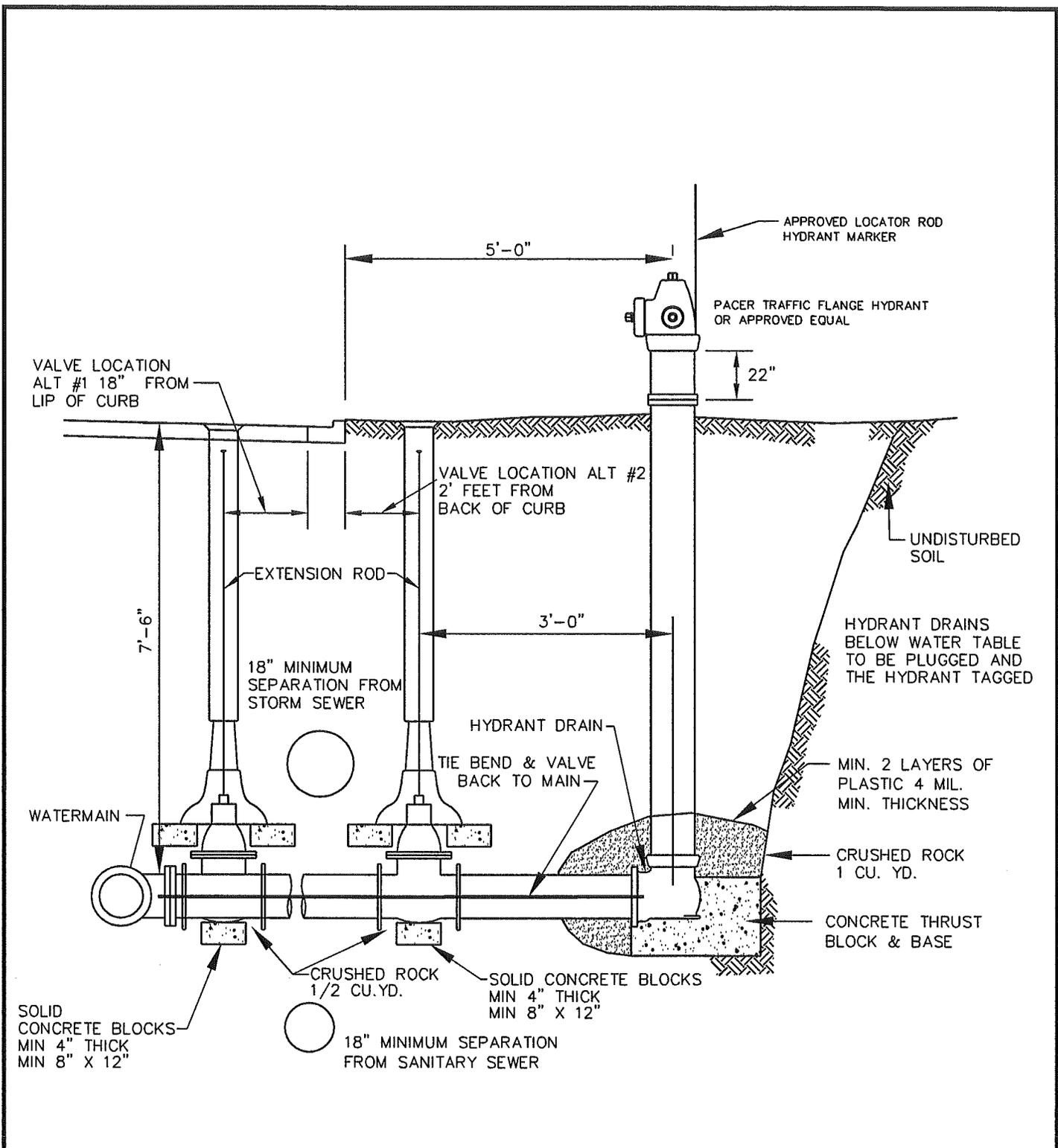
REVISED



**CITY OF
EAST BETHEL**

STANDARD PLATE No.

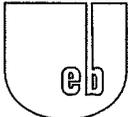
203



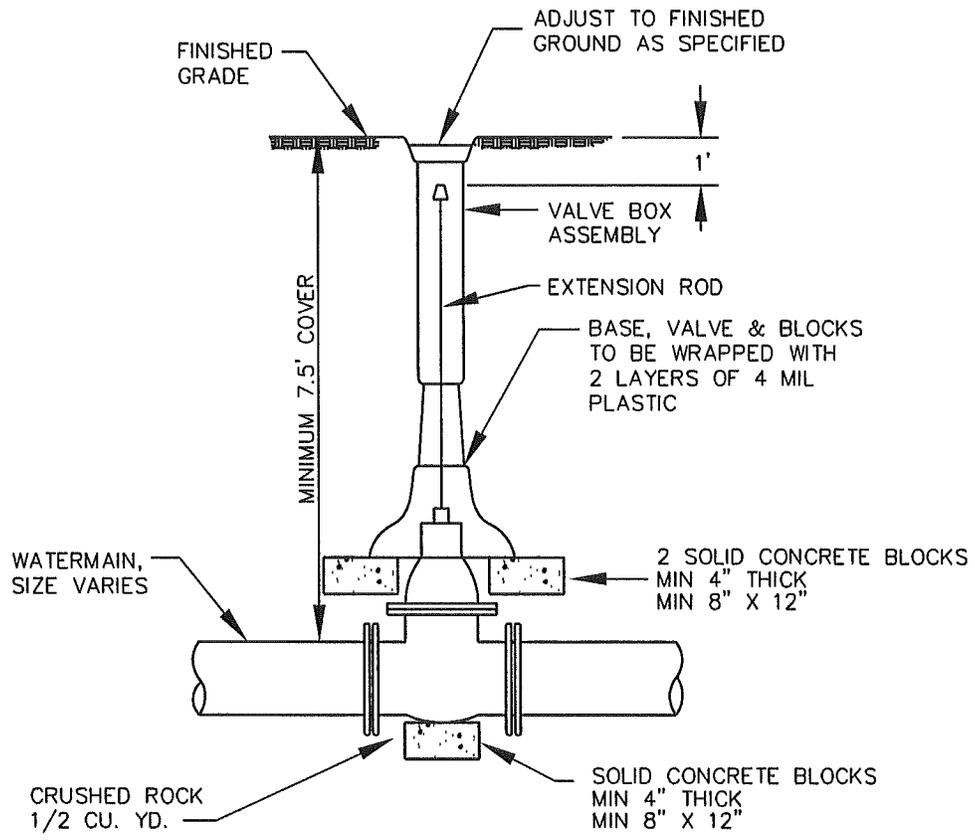
HYDRANT AND HYDRANT GATE VALVE DETAIL

NO SCALE

APPROVED
3-02-05
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**CITY OF
EAST BETHEL**

STANDARD PLATE No.
204

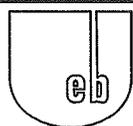


NOTES: ALL VALVES SHALL BE FITTED WITH EXTENSION RODS TO 1' BELOW FINISHED GRADE.

**TYPICAL RESILIENT WEDGE VALVE AND BOX INSTALLATION
10" AND UNDER WATERMAIN**

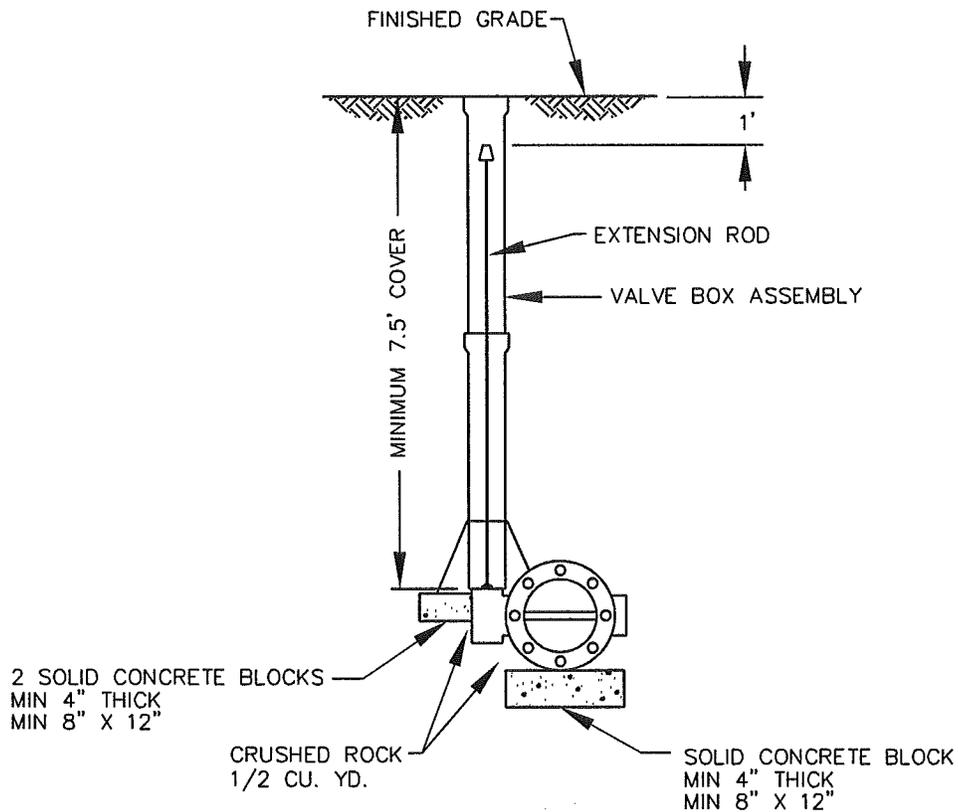
NO SCALE

APPROVED
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**CITY OF
EAST BETHEL**

**STANDARD PLATE No.
205**



NOTES: ALL VALVES SHALL BE FITTED WITH EXTENSION RODS TO 1' BELOW FINISHED GRADE.

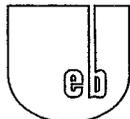
TYPICAL BUTTERFLY VALVE AND BOX INSTALLATION 12" & OVER WATERMAIN

NO SCALE

APPROVED

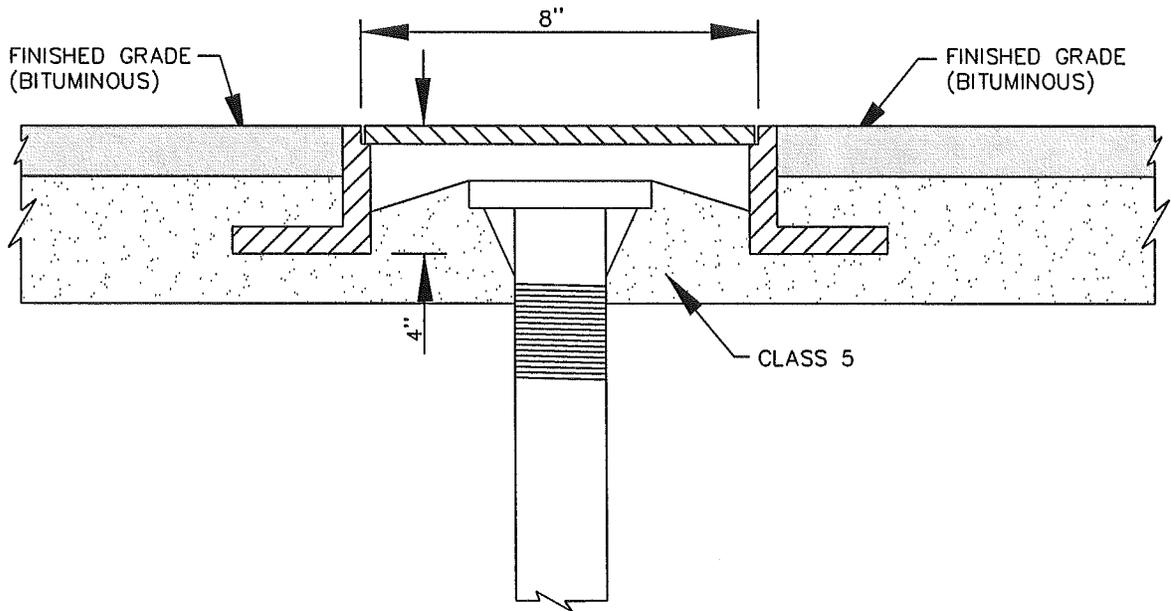
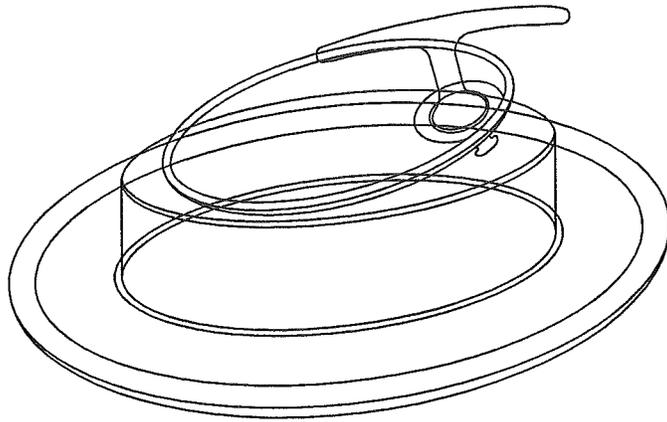
3-02-05

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**CITY OF
EAST BETHEL**

**STANDARD PLATE No.
206**



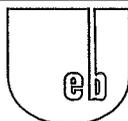
**CURB STOP COVER FOR
DRIVEWAY INSTALLATION**

NO SCALE

APPROVED

3-02-05

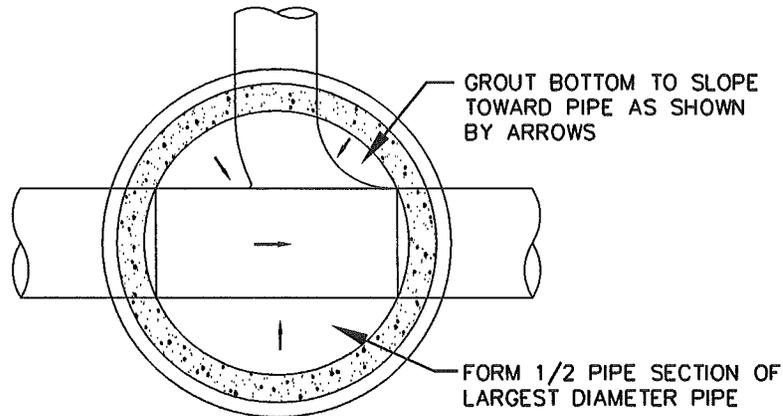
REVISED



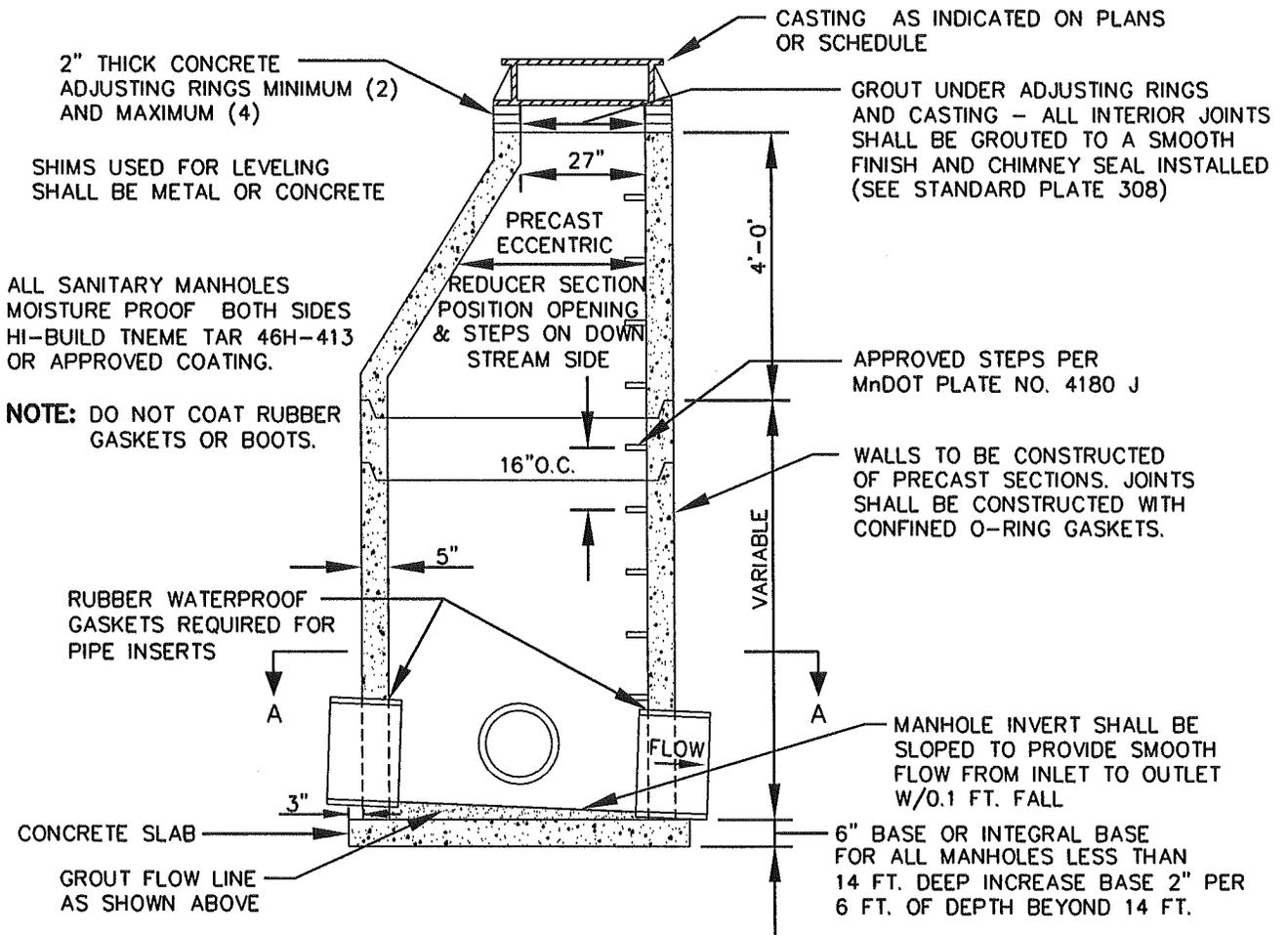
**CITY OF
EAST BETHEL**

STANDARD PLATE No.

207



SECTION A-A



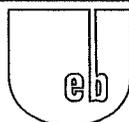
**SANITARY SEWER
STANDARD MANHOLE**

NO SCALE

APPROVED

3-02-05

REVISED



**CITY OF
EAST BETHEL**

STANDARD PLATE No.

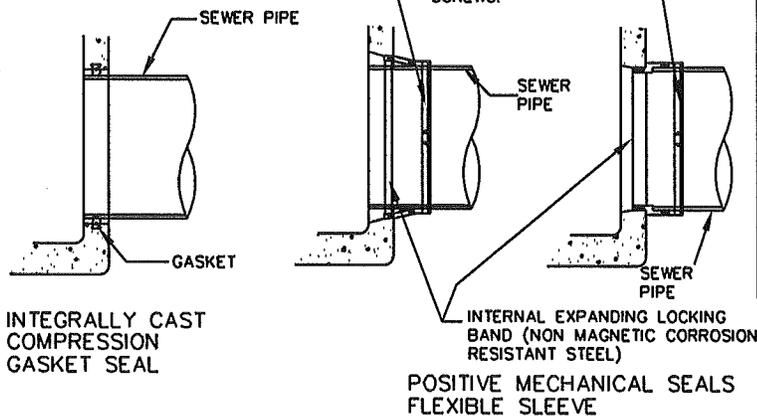
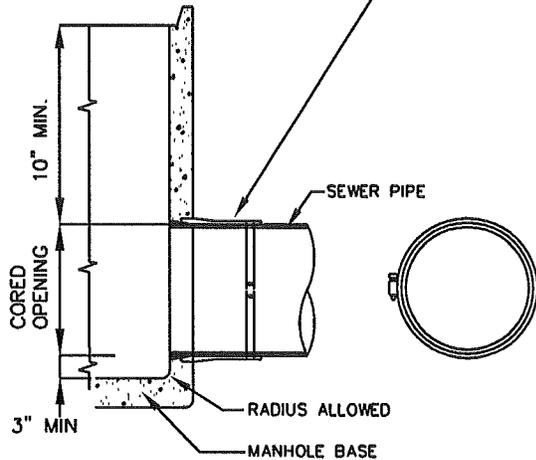
300

REFER TO PLANS FOR CASTINGS
REQUIRED. MINIMUM 2 - 2" RINGS
MAXIMUM 4 - 2" RINGS

GASKET (SPEC. 3726
TYPE B) OR APPROVED
EQUAL

CHIMNEY SEAL
(SEE STANDARD
PLATE NO. 308)

WATER TIGHT SEAL APPROVED
BY ENGINEER AND INSTALLED
ACCORDING TO THE MANUFACTURER'S
INSTRUCTIONS. SEE TYPICALS BELOW.

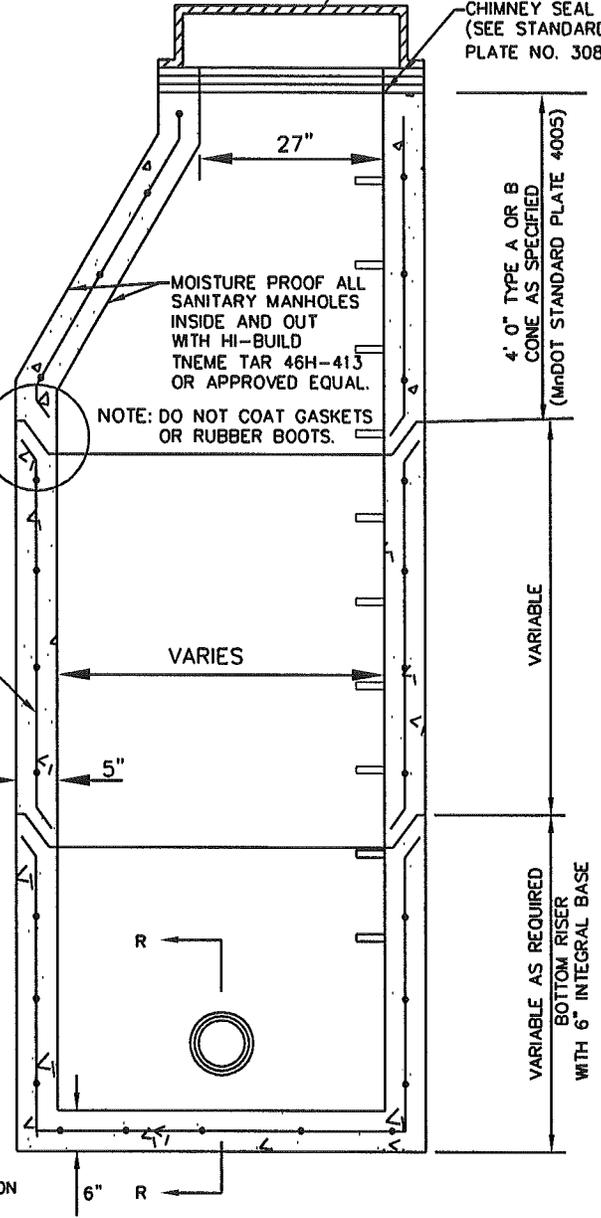


TYPICAL WATER TIGHT SEALS

SLEEVE NOTES:

FLEXIBLE SLEEVE SHALL BE NEOPRENE MATERIAL
MEETING THE REQUIREMENTS OF ASTM C-443
OR AS APPROVED

FLEXIBLE SLEEVE DIMENSIONS SHALL CONFORM TO PRODUCERS STANDARDS.



SECTION THRU TYPICAL MANHOLE

MANHOLE NOTES:

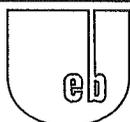
REFER TO PLANS FOR STEP REQUIREMENTS.

- ① REINFORCING SHALL BE A MINIMUM OF A SINGLE LINE WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FT. OF HEIGHT.
- ② CASTING AND PRECAST RINGS SHALL BE SET ON A FULL MORTAR BED.

PRECAST MECHANICAL JOINT SEWER MANHOLE

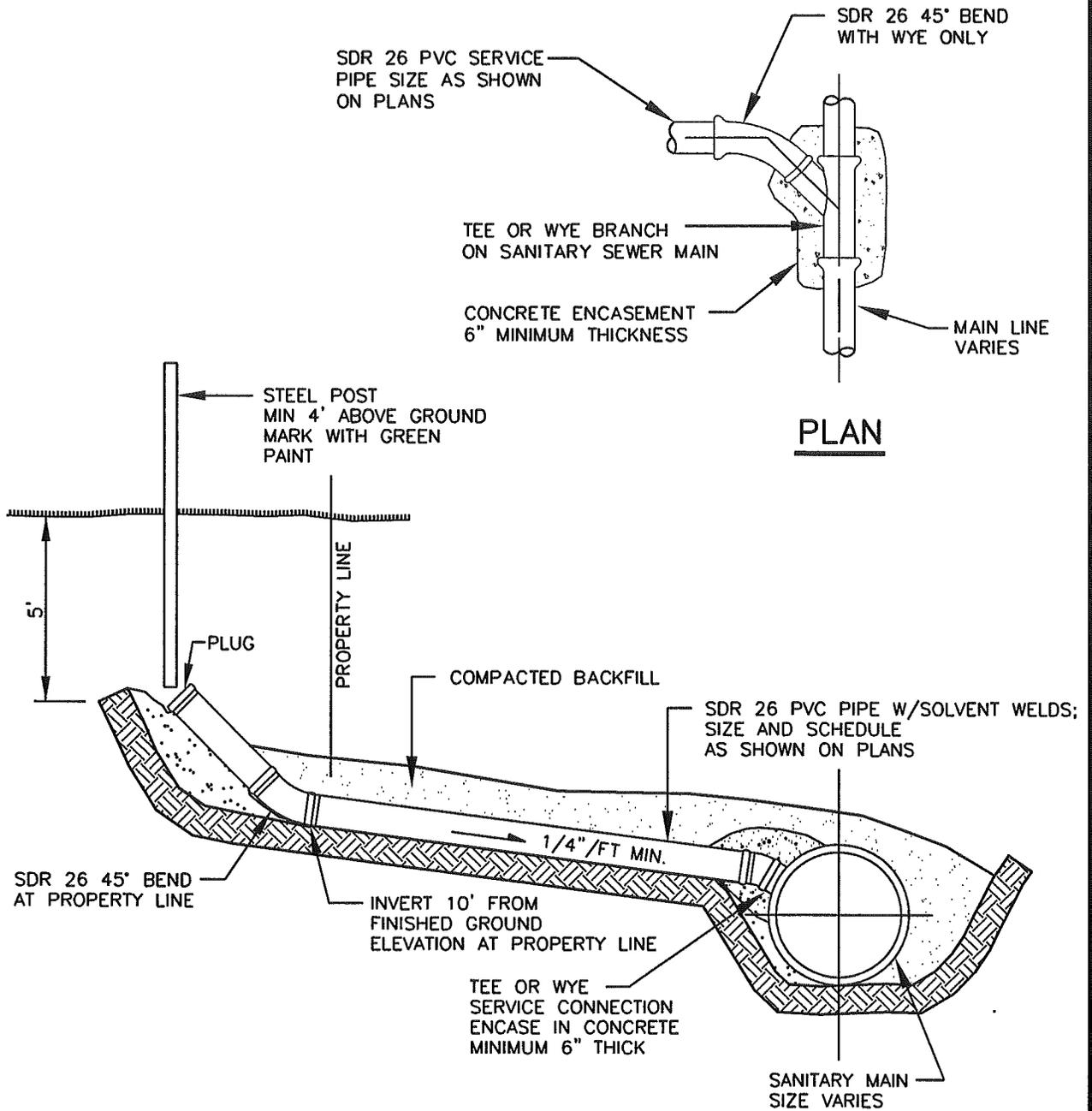
NO SCALE

APPROVED
3-02-05
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**CITY OF
EAST BETHEL**

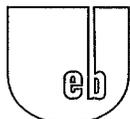
**STANDARD PLATE No.
301**



SHALLOW SANITARY MAIN SERVICE CONNECTION

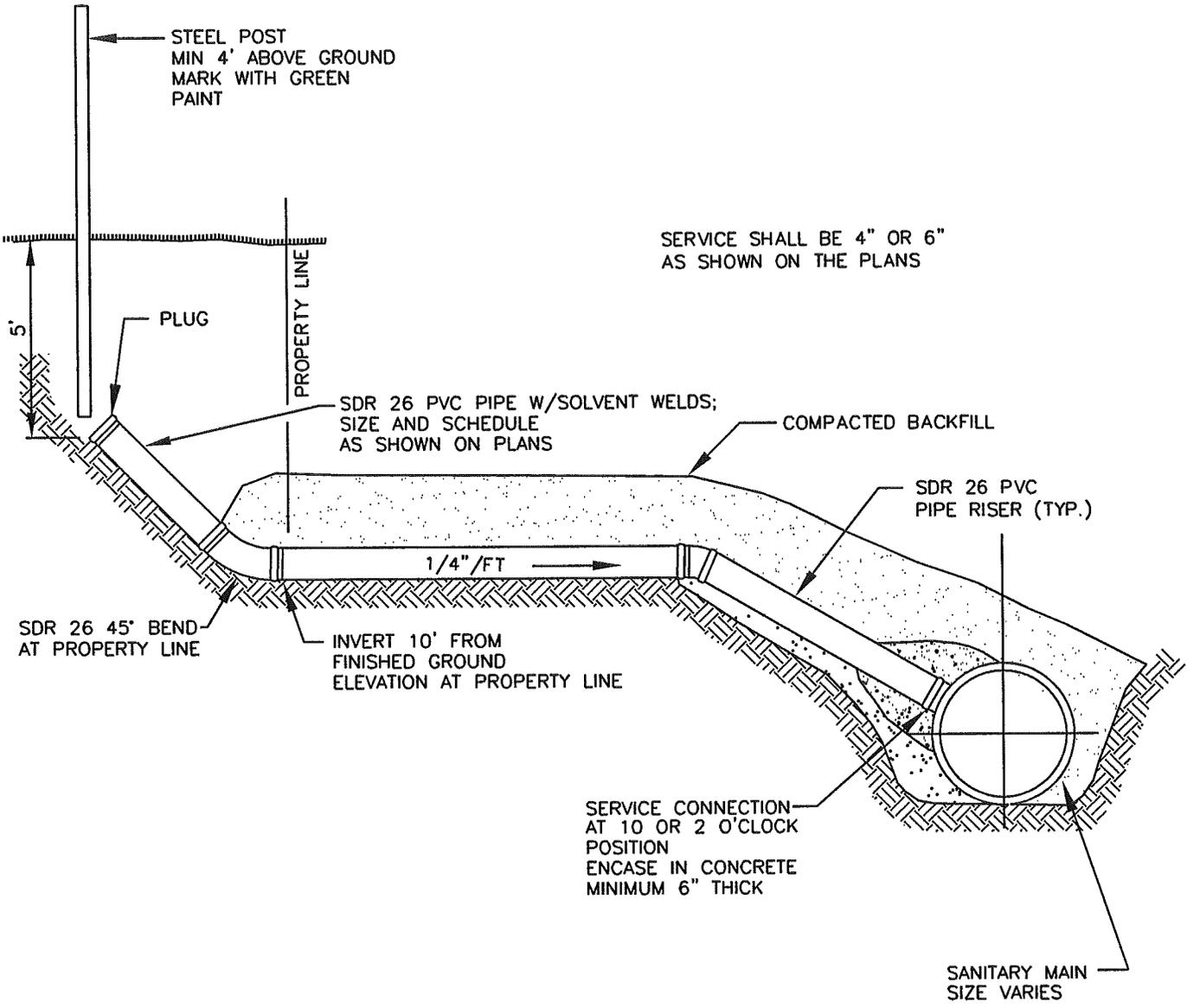
NO SCALE

APPROVED
3-02-05
REVISED



**CITY OF
EAST BETHEL**

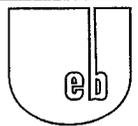
**STANDARD PLATE No.
302**



DEEP SANITARY MAIN SERVICE CONNECTION

NO SCALE

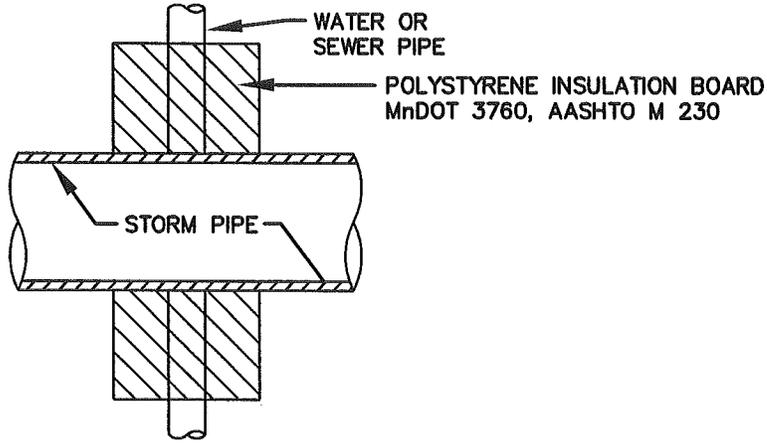
APPROVED
3-02-05
REVISED



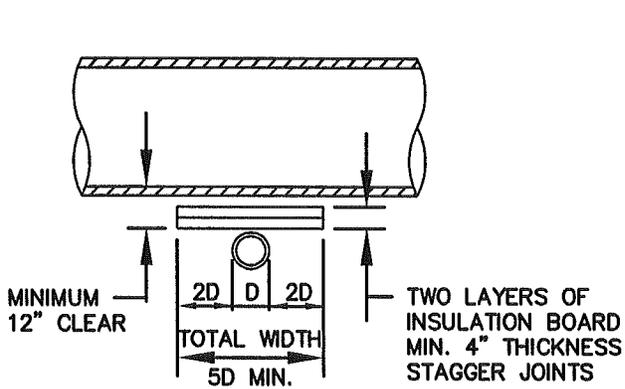
CITY OF
EAST BETHEL

STANDARD PLATE No.
303

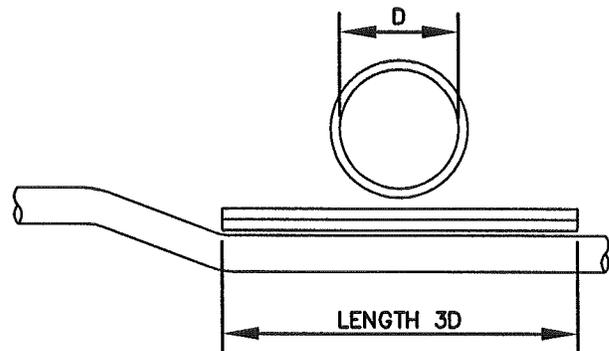
NOTE: INSULATE ALL WATER OR SEWER PIPE CROSSINGS
WITHIN 2' OF STORM SEWER PIPE



PLAN



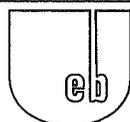
PROFILE



INSULATION FOR WATER AND
SANITARY SEWER PIPE & SERVICES

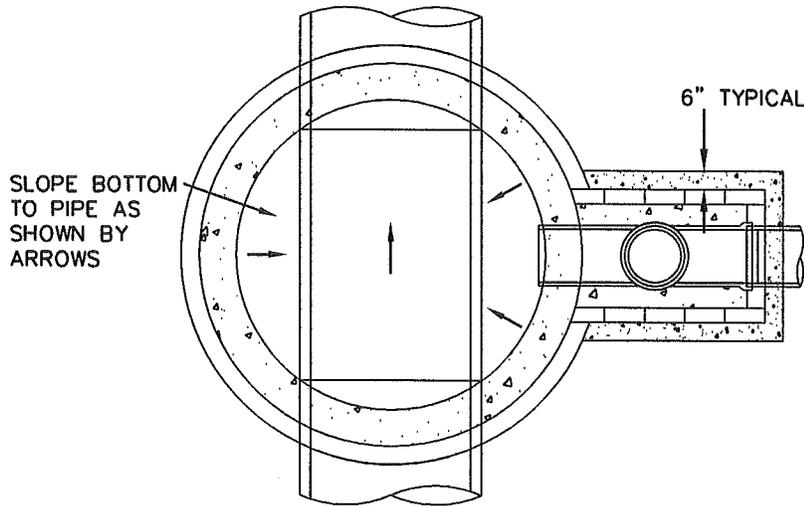
NO SCALE

APPROVED
3-02-05
REVISED

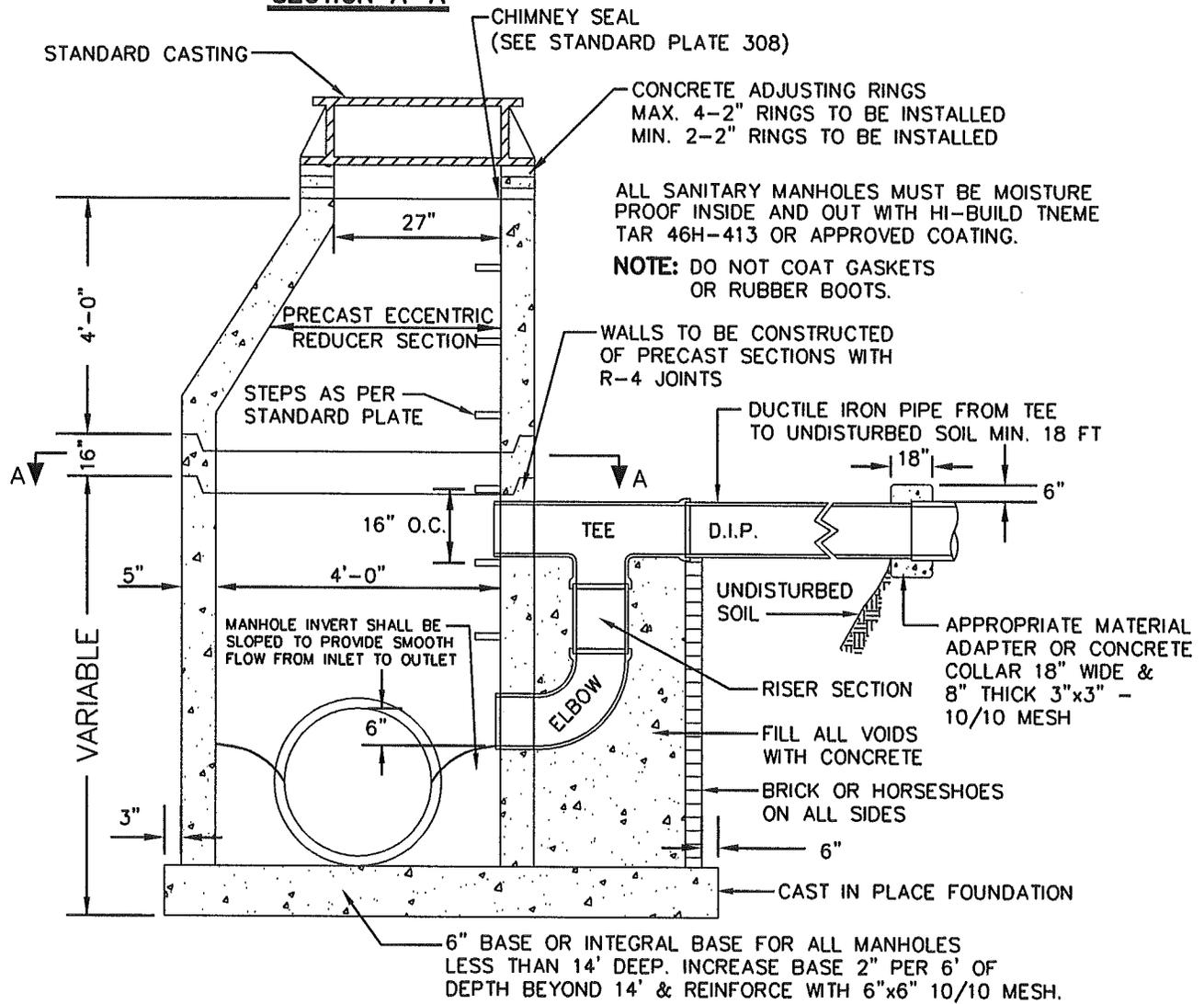


**CITY OF
EAST BETHEL**

**STANDARD PLATE No.
304**



SECTION A-A



STANDARD DROP MANHOLE

NO SCALE

APPROVED

3-02-05

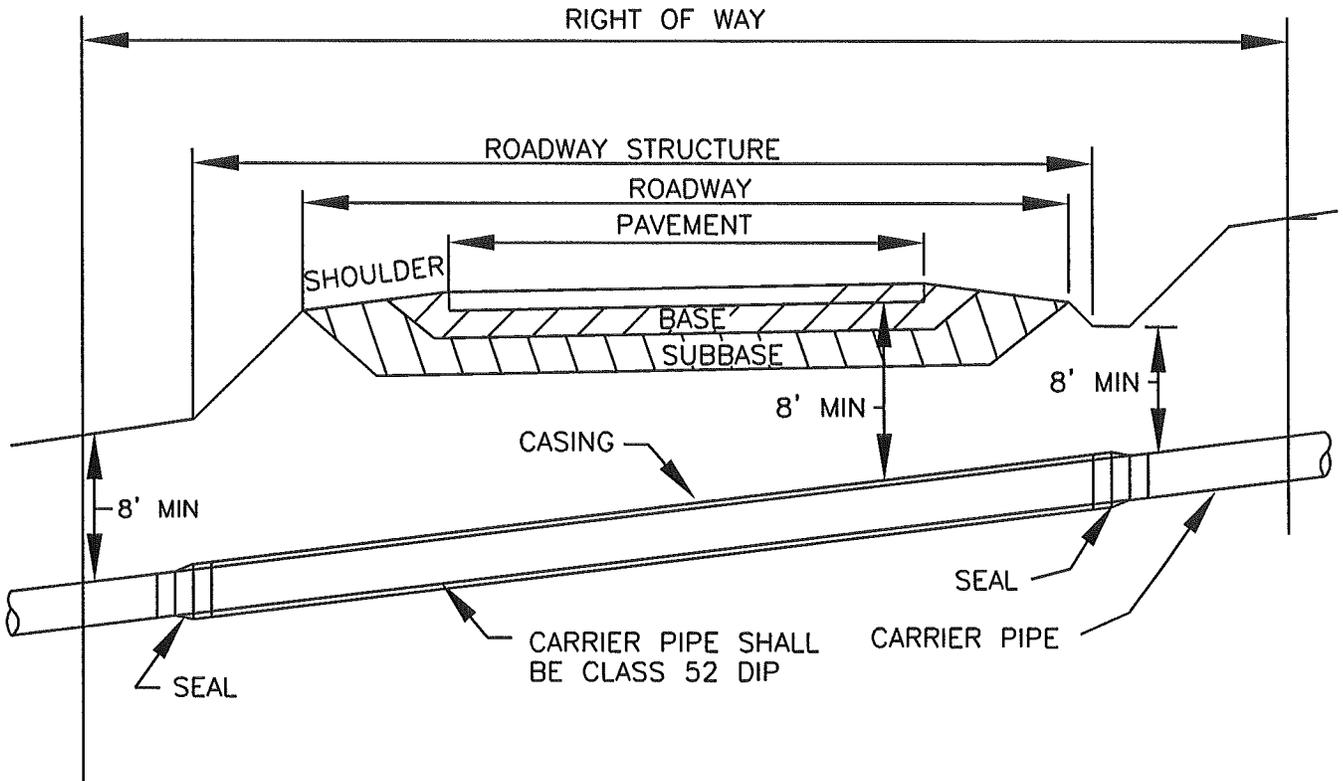
REVISED



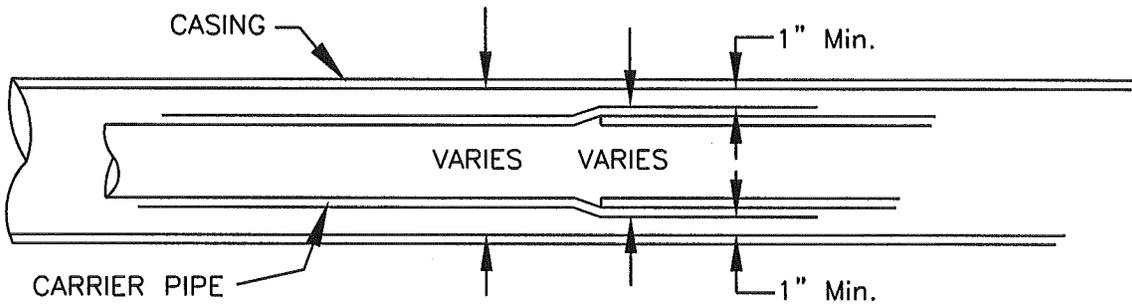
**CITY OF
EAST BETHEL**

STANDARD PLATE No.

305



Casing pipe shall be welded steel pipe, new material, with a minimum yield strength of 35,000 PSIG (pounds per square inch gauge). The following minimum wall thickness shall be used:



Inside Diameter of Casing Min 2" greater than Outside Diameter of Carrier.

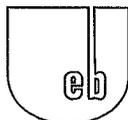
PIPE JACKING DETAIL

NO SCALE

APPROVED

3-02-05

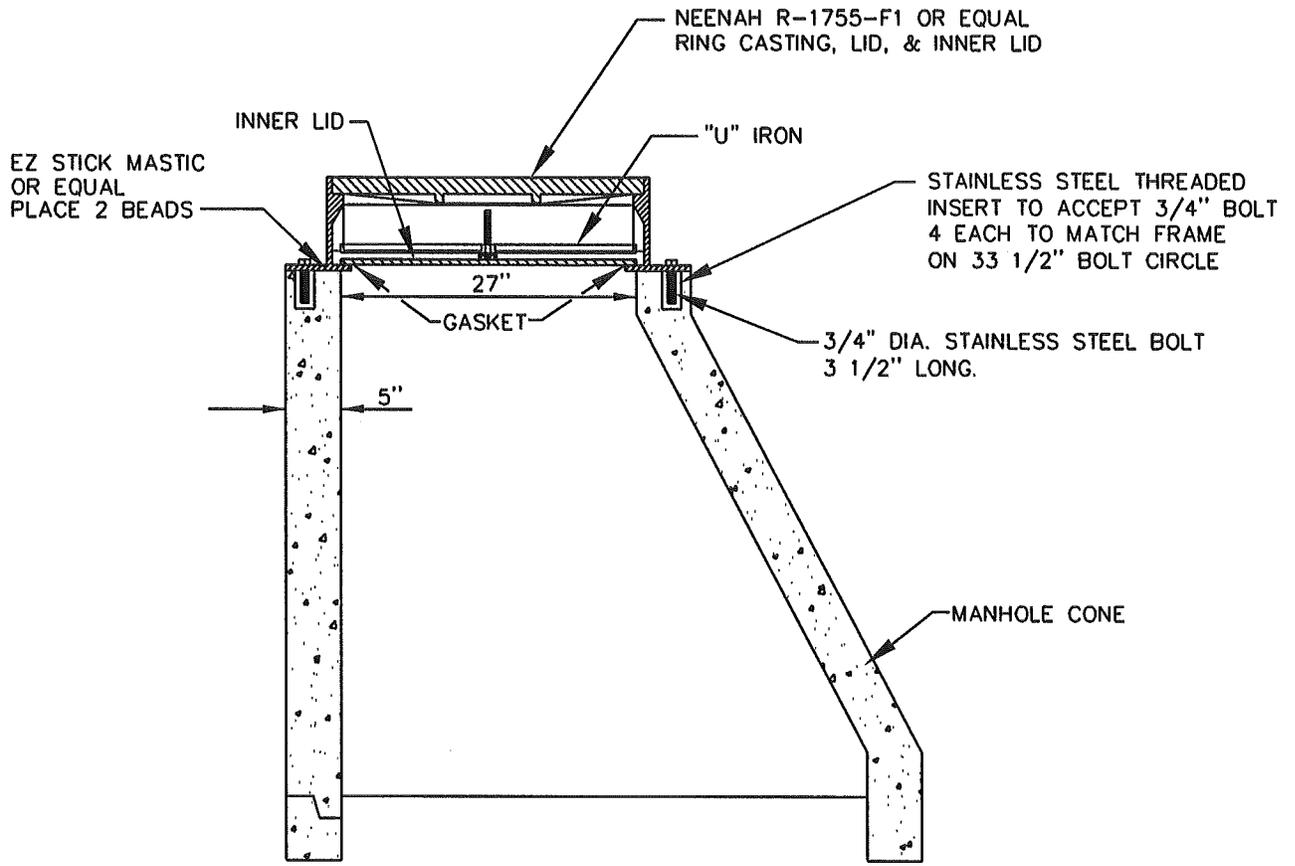
REVISED



**CITY OF
EAST BETHEL**

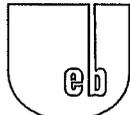
STANDARD PLATE No.

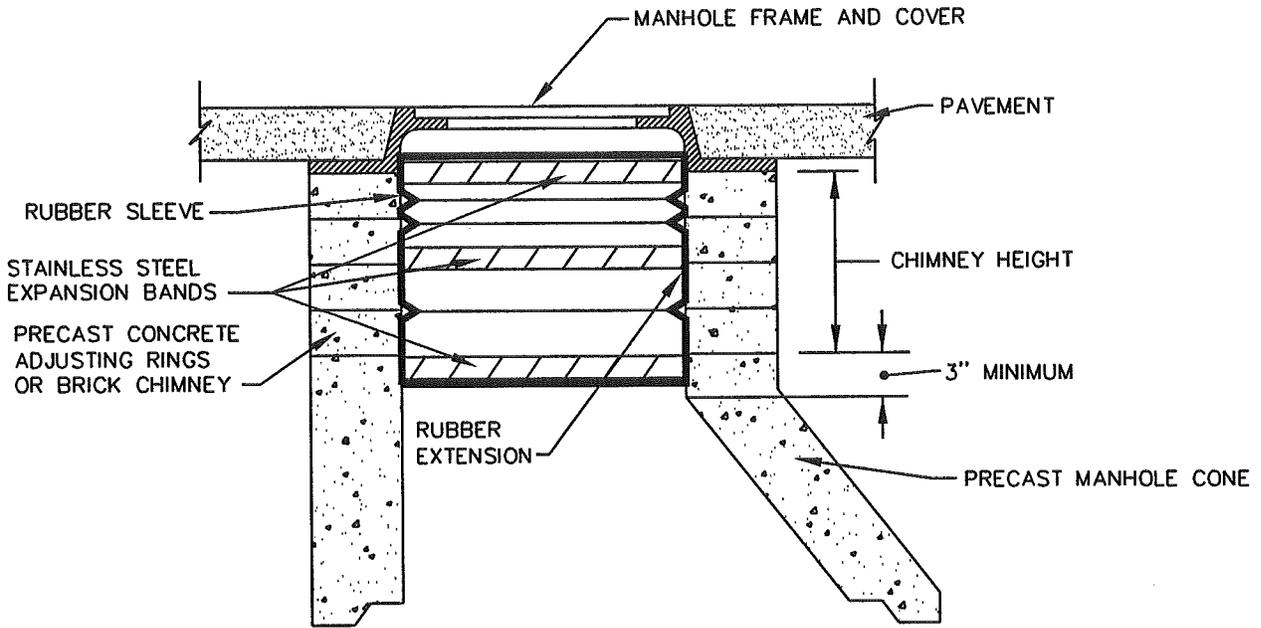
306



**WATER PROOF MANHOLE
CASTING AND ANCHORAGE**

NO SCALE

APPROVED 3-02-05	 <p>CITY OF EAST BETHEL</p>	<p>STANDARD PLATE No. 307</p>
REVISED		



NOTES:

1. THE RUBBER SLEEVE IS AVAILABLE IN BOTH STANDARD, A 8.5" WIDE DOUBLE PLEATED, OR WIDE, A 10" WIDE TRIPLE PLEATED, CROSS SECTION. THE SAME EXPANSION BANDS AND EXTENTIONS ARE USED ON BOTH.
2. SEE CHIMNEY HEIGHT TABLE FOR SEAL AND EXTENSION COMBINATIONS NEEDED TO SPAN FROM THE FRAME TO THE TOP OF THE CONE ON MANHOLES WITH VARIOUS CHIMNEY HEIGHTS. FRAME OFFSETS OR DIAMETER DIFFERENTIALS WILL REDUCE THESE SPAN HEIGHTS.
3. THE TOP OF THE CONE MUST HAVE A MINIMUM 3" HIGH VERTICAL SURFACE THAT IS SMOOTH AND FREE OF ANY FORM OFFSETS OR EXCESSIVE HONEYCOMB. IF A 3" HIGH VERTICAL SURFACE IS NOT AVAILABLE DUE TO THE EXISTING CONFIGURATION OF THE EXISTING MANHOLE CONE, ONE MAY BE CREATED USING A CONE DISK FORM AND A NON SHRINK PATCHING MORTAR. PLANS FOR A FORM DISK CONE ARE AVAILABLE FROM CRETEX SPECIALTY PRODUCTS.
4. ALTERNATE SEALS: STANDARD PLATE NO.'S 309, 310 OR MULTI-PURPOSE MANHOLE AND SEPTIC JOINT SEAL AS MANUFACTURED BY AMERICAN INFRASTRUCTURE TECHNOLOGIES (952-471-2545) OR APPROVED EQUAL MAY BE USED AS CHIMNEY SEAL.

CHIMNEY HEIGHT TABLE

COMBINATIONS OF SEALS AND EXTENSIONS	TO SPAN HEIGHT OF	
	W / STANDARD SEAL	W / WIDE SEAL
SEAL ONLY	0"-4.5"	2"-7.5"
SEAL + 7" EXTENSION	OVER 4.5"-10.5"	OVER 7.5"-13.5"
SEAL + 10" EXTENSION	OVER 10.5"-13"	OVER 13.5"-16"
SEAL + MULT. EXTENSION	OVER 13"	OVER 16"

ADD 6" OF COVERAGE FOR EACH ADDITIONAL 7" EXTENSION
 ADD 8.5" OF COVERAGE FOR EACH ADDITIONAL 10" EXTENSION

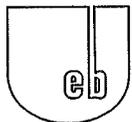
CHIMNEY SEAL

NO SCALE

APPROVED

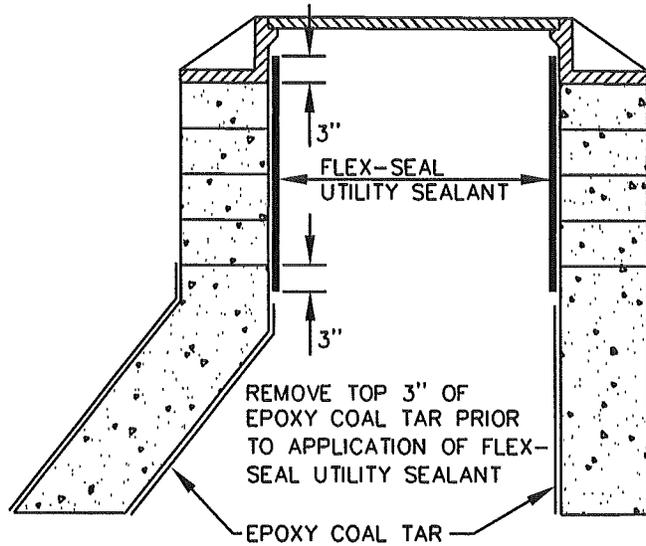
3-02-05

REVISED



**CITY OF
EAST BETHEL**

**STANDARD PLATE No.
308**



NOTES:

1. APPLY THE FLEX-SEAL UTILITY SEALANT ON THE INSIDE SURFACE OF THE ADJUSTMENT RING AREA FROM 3" ABOVE THE BOTTOM OF THE MANHOLE FRAME TO 3" BELOW THE BOTTOM ADJUSTMENT RING.
2. APPLY THE FLEX-SEAL UTILITY SEALANT ON THE ADJUSTMENT RING SECTION TO A MINIMUM THICKNESS OF 1/4".

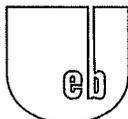
FLEX SEAL UTILITY SEALANT

NO SCALE

APPROVED

3-02-05

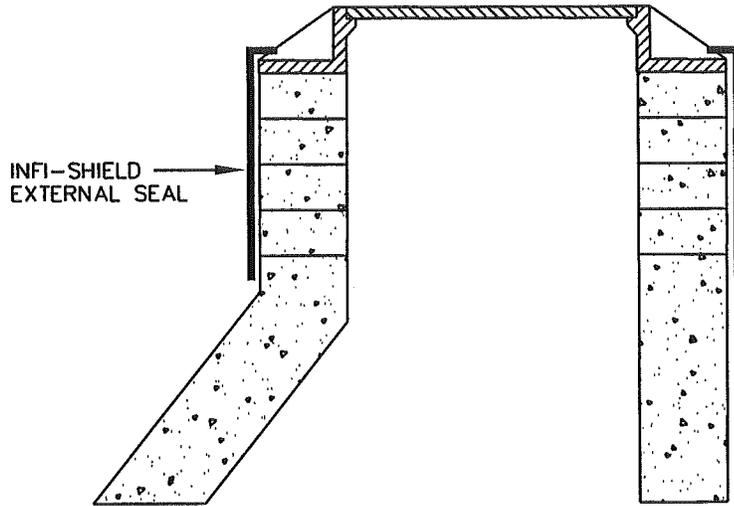
REVISED



**CITY OF
EAST BETHEL**

STANDARD PLATE No.

309



NOTES:

1. THE ADJUSTMENT RINGS AND FRAME SHALL BE SEALED WITH AN EXTERNAL RUBBER SEALING SLEEVE AS MANUFACTURED BY INFI-SHIELD™ OR APPROVED EQUAL.
2. THE SEAL SHALL BE MADE OF EPDM RUBBER WITH A MINIMUM THICKNESS OF 60 MILS AND SEALED WITH A NON-HARDENING BUTYL RUBBER MASTIC.

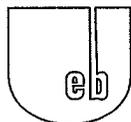
INFI-SHIELD EXTERNAL SEAL

NO SCALE

APPROVED

3-02-05

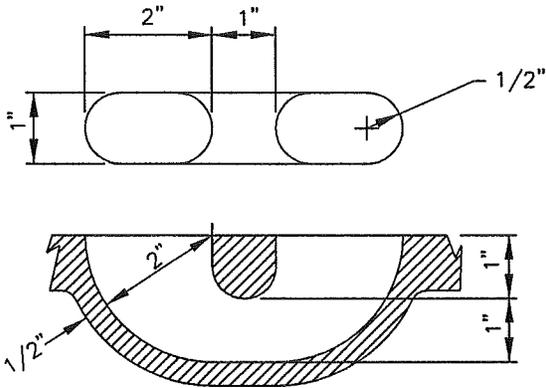
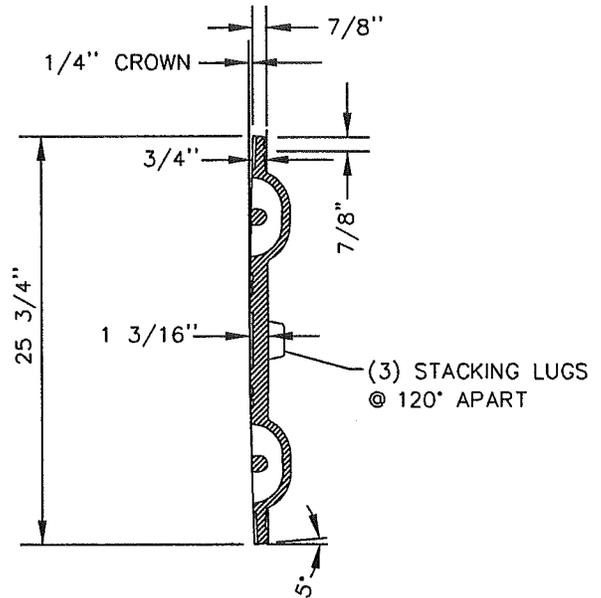
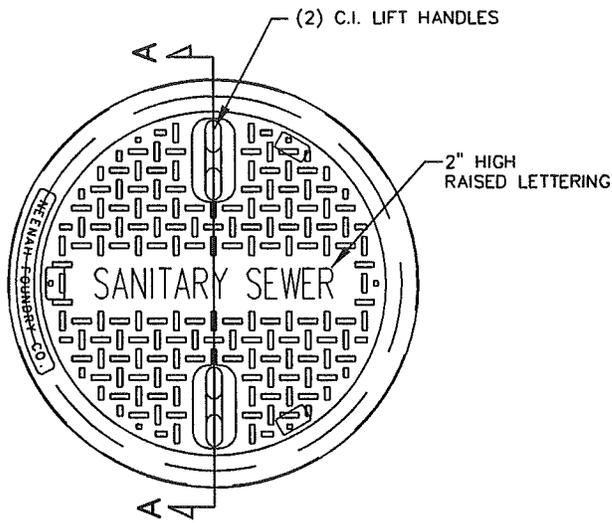
REVISED



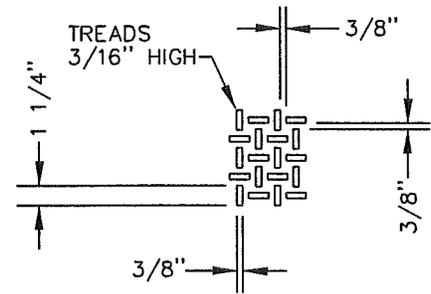
**CITY OF
EAST BETHEL**

STANDARD PLATE No.

310



SECTION B-B

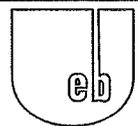


SURFACE DESIGN

NOTE: ALL DIMENSIONS SHOWN ARE IN ENGLISH
 MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
 FINISH: NO PAINT
 WEIGHT: 122#

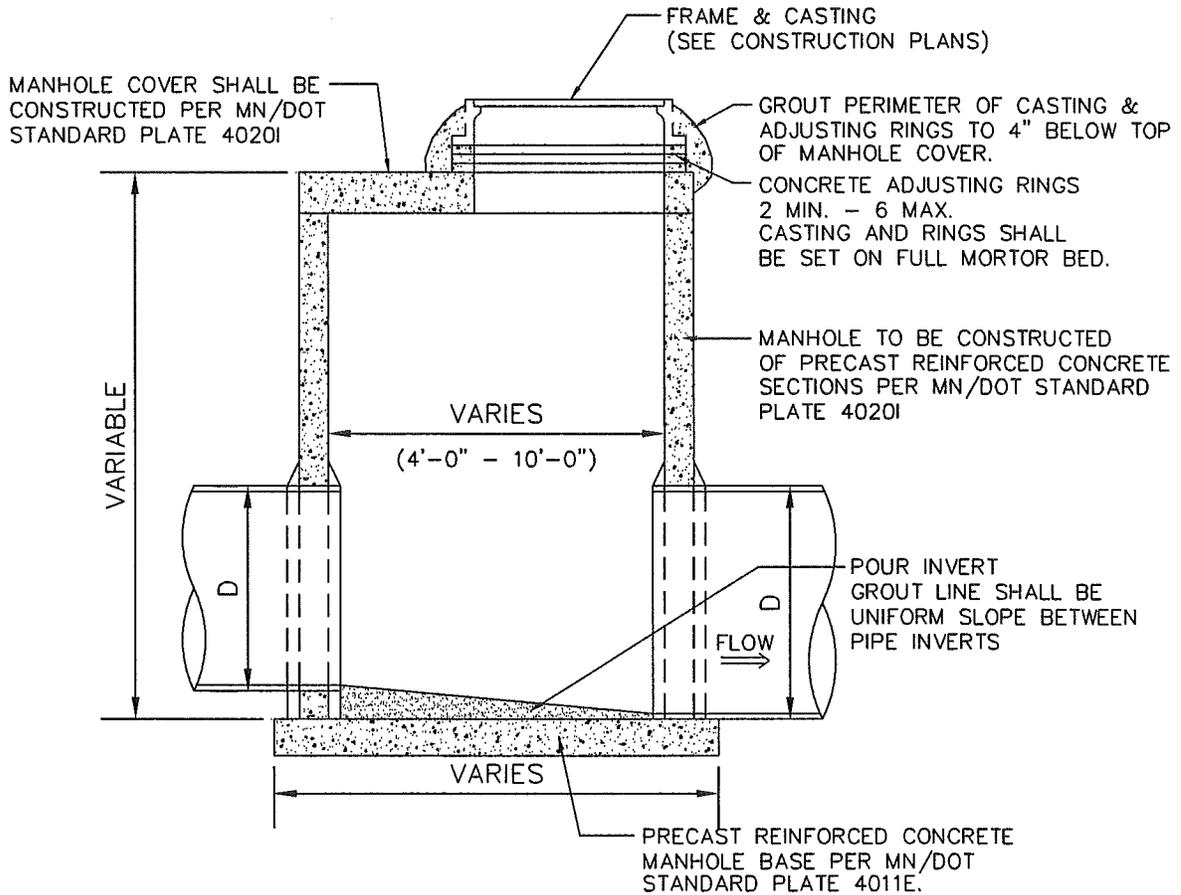
MANHOLE LID
NO SCALE

APPROVED
3-02-05
REVISED



**CITY OF
EAST BETHEL**

STANDARD PLATE No.
311

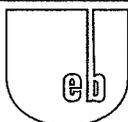


MANHOLE STEPS SHALL BE TYPICAL REINFORCED PLASTIC STEPS PER MN/DOT STANDARD PLATE 4180J.

SLAB TOP MANHOLE
(STORM SEWER)
4'-0" THROUGH 10'-0" INSIDE DIAMETER

NO SCALE

APPROVED
3-02-05
REVISED



CITY OF
EAST BETHEL

STANDARD PLATE No.
400

PRECAST CONCRETE ADJUSTING RINGS 2-MIN. - 6-MAX. CASTING AND RINGS SHALL BE SET ON FULL MORTAR BEDS.

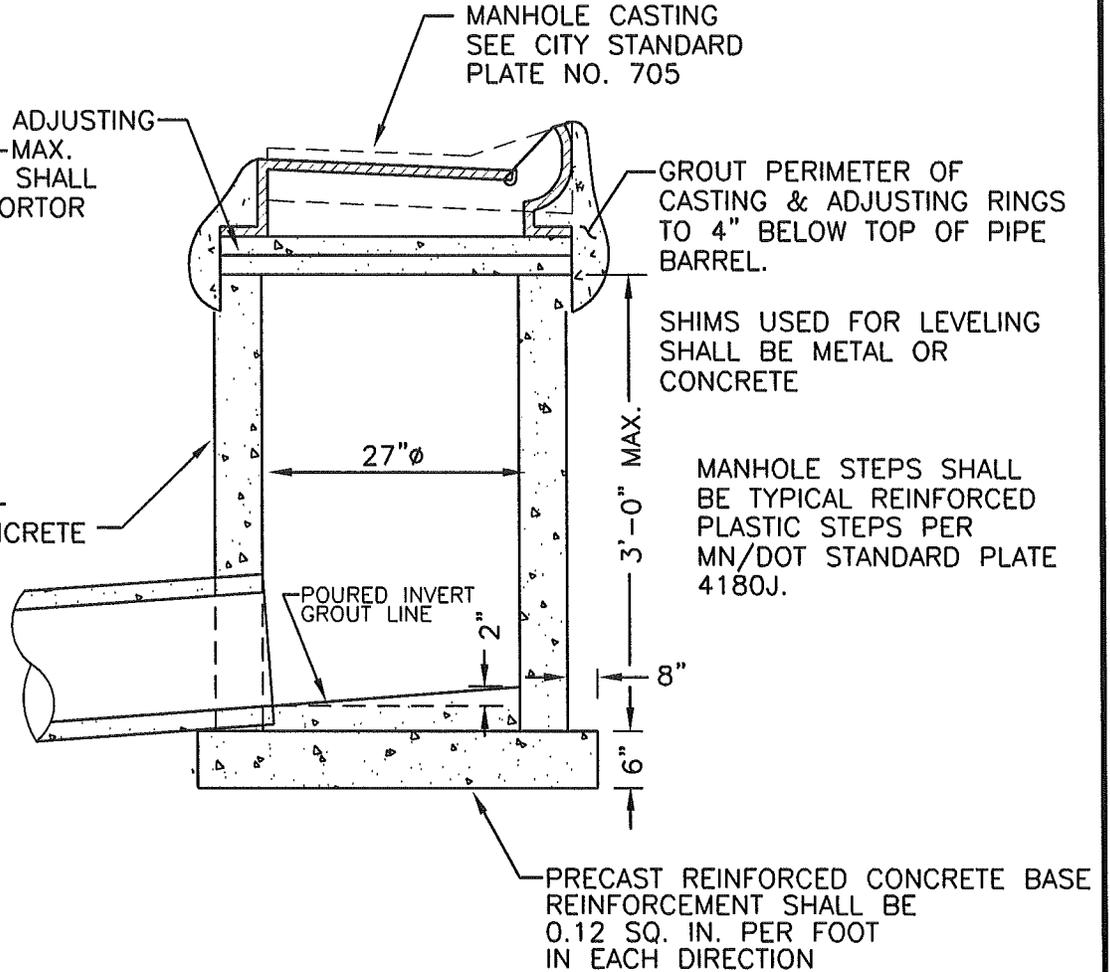
MANHOLE CASTING SEE CITY STANDARD PLATE NO. 705

GROUT PERIMETER OF CASTING & ADJUSTING RINGS TO 4" BELOW TOP OF PIPE BARREL.

SHIMS USED FOR LEVELING SHALL BE METAL OR CONCRETE

RISER SECTION - REINFORCED CONCRETE PIPE (CLASS II)

MANHOLE STEPS SHALL BE TYPICAL REINFORCED PLASTIC STEPS PER MN/DOT STANDARD PLATE 4180J.



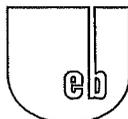
SHALLOW CATCH BASIN

NO SCALE

APPROVED

3-02-05

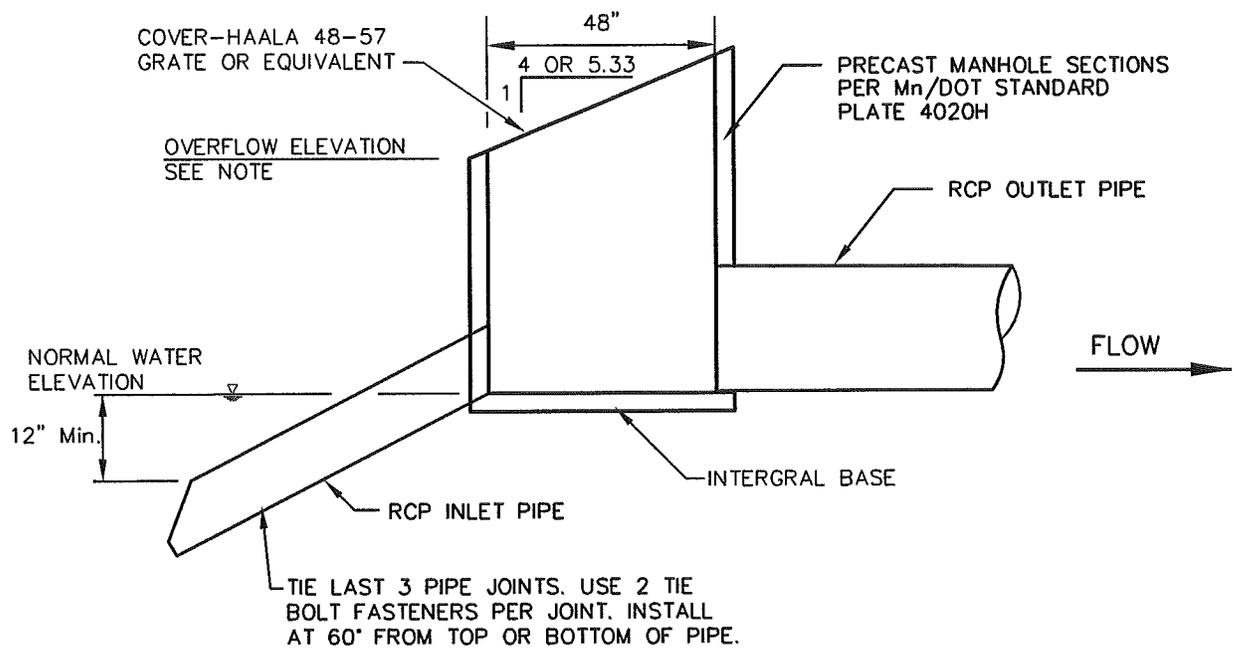
REVISED



CITY OF
EAST BETHEL

STANDARD PLATE No.

401



NOTE:
THE OVERFLOW ELEVATION SHALL BE AT OR
ABOVE THE PEAK 10-YEAR STORM EVENT ELEVATION

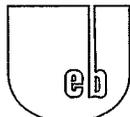
SKIMMER STRUCTURE (PREFERRED DESIGN)

NO SCALE

APPROVED

3-02-05

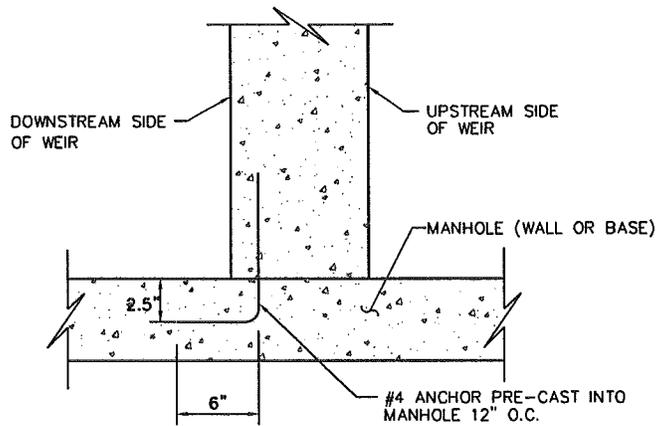
REVISED



**CITY OF
EAST BETHEL**

STANDARD PLATE No.

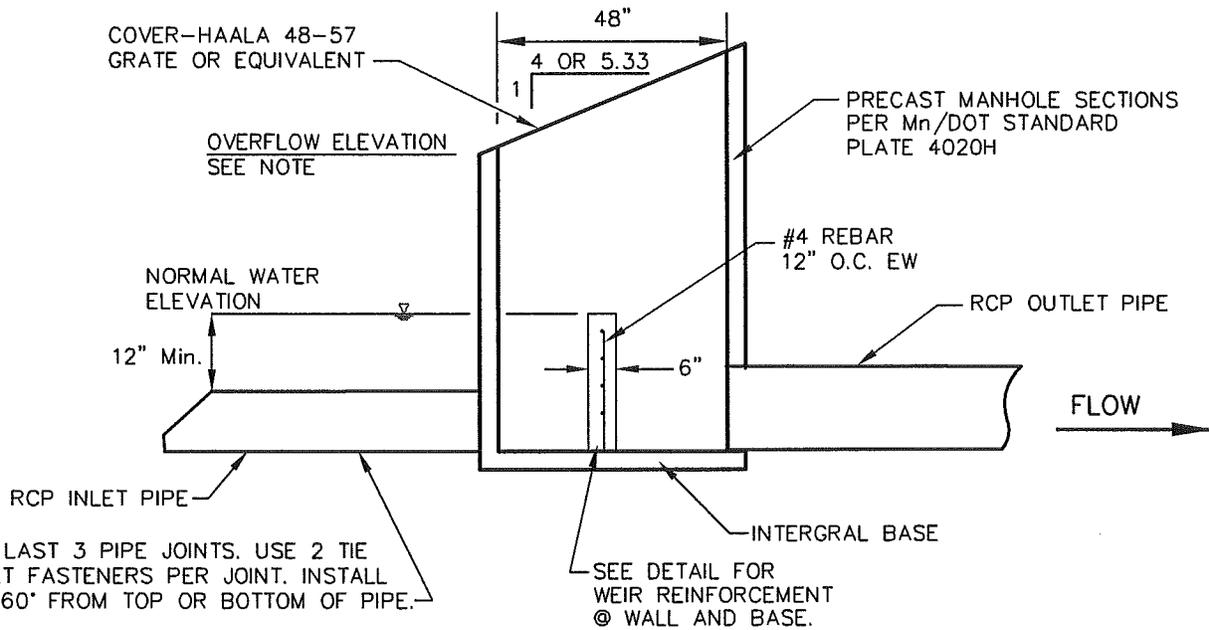
402



NOTE:

1. THE FOLLOWING MAY BE USED AS AN ALTERNATIVE TO THE PRE-CAST ANCHORS: HVA ADHESIVE ANCHOR SYSTEM, WITH HVA ADHESIVE CAPSULES AND #5 REBAR, AS MANUFACTURED BY HILTI CORP OR APPROVED EQUAL.
2. REINFORCEMENT BARS IN WEIR NOT SHOWN.

**WEIR REINFORCEMENT
@ WALL AND BASE**



TIE LAST 3 PIPE JOINTS. USE 2 TIE BOLT FASTENERS PER JOINT. INSTALL AT 60° FROM TOP OR BOTTOM OF PIPE.

NOTE:
THE OVERFLOW ELEVATION SHALL BE AT OR ABOVE THE PEAK 10-YEAR STORM EVENT ELEVATION

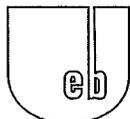
SKIMMER STRUCTURE WITH WEIR

NO SCALE

APPROVED

3-02-05

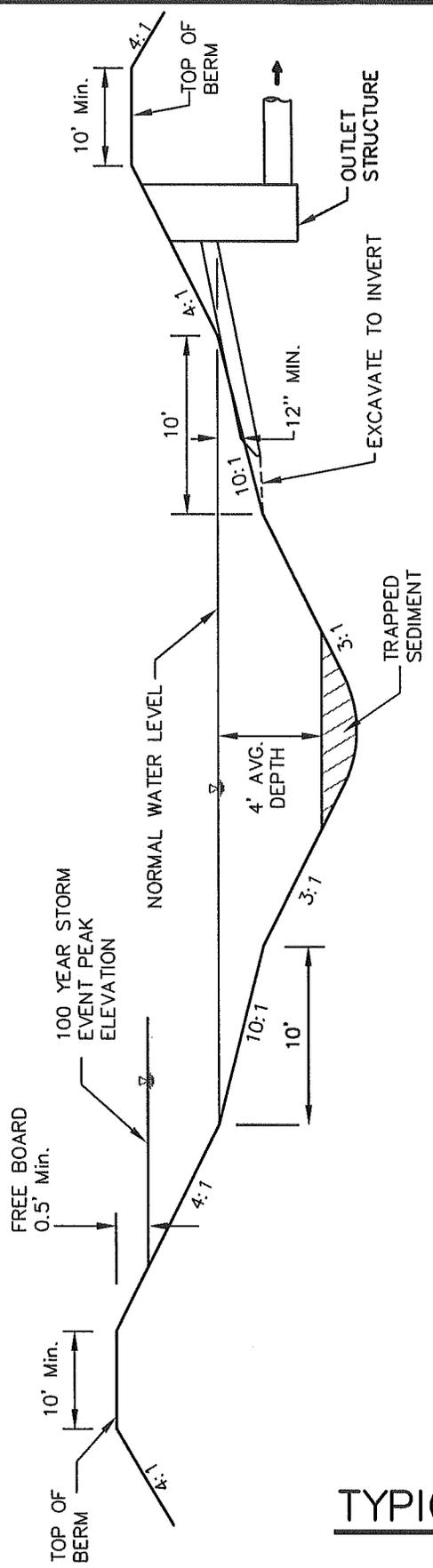
REVISED



**CITY OF
EAST BETHEL**

STANDARD PLATE No.

403

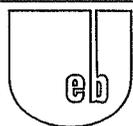


SLOPES SHALL BE NO STEEPER THAN THOSE SHOWN.

TYPICAL TREATMENT BASIN

NO SCALE

APPROVED
 3-02-05
 REVISED

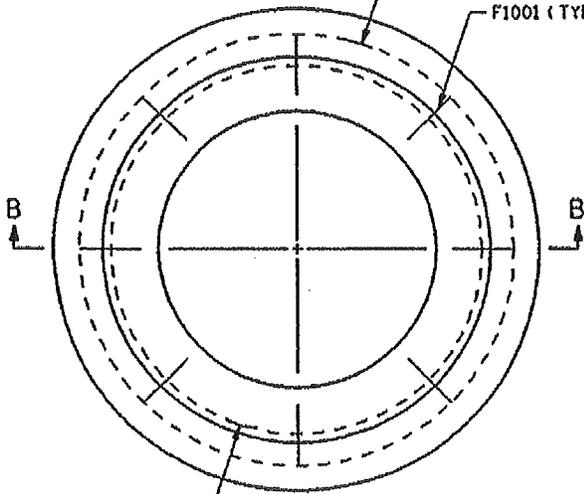


**CITY OF
 EAST BETHEL**

**STANDARD PLATE No.
 404**

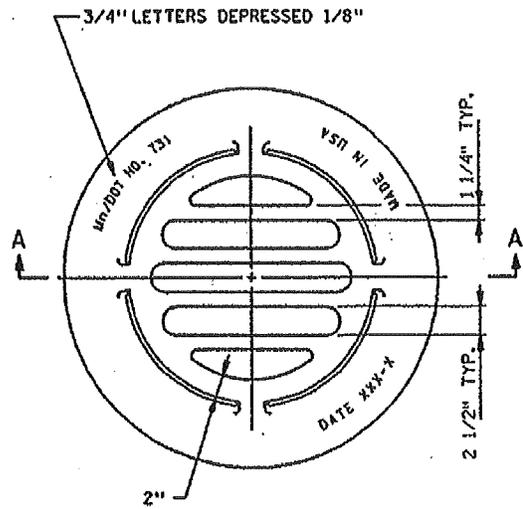
F1003 CIRCULAR REINFORCEMENT BAR, APPROX. 3' 2" DIA.

F1001 (TYP.)

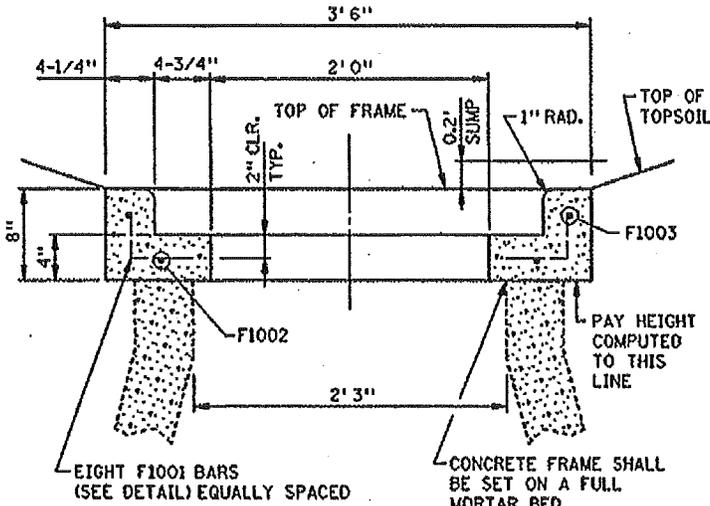


F1002 CIRCULAR REINFORCEMENT BAR, APPROX. 2' 9" DIA.

TOP VIEW

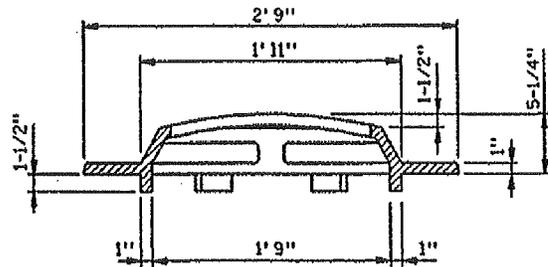


TOP VIEW



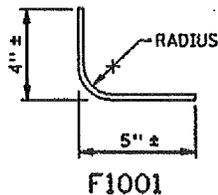
SECTION B-B

REINFORCED CONCRETE FRAME
(FOR CASTING NO. 731)



SECTION A-A

STOOL TYPE GRATE
(CASTING NO. 731)
APPROX. WEIGHT 200 LBS.



F1001

NOTES:

- ALL REBARS ARE IN METRIC DESIGNATIONS
- FRAME MAY BE PRECAST OR CAST-IN-PLACE.

CASTING NO. 731 & FRAME

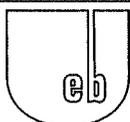
STOOL GRATE AND CONCRETE FRAME
(MEDIAN DRAINS)

NO SCALE

APPROVED

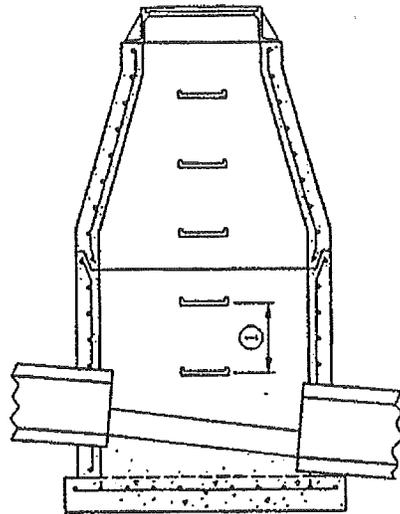
3-02-05

REVISED

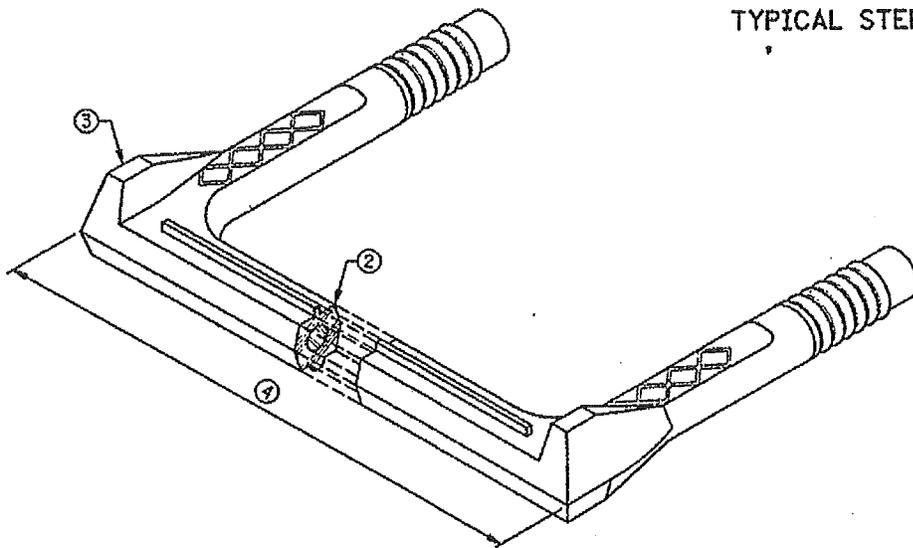


CITY OF
EAST BETHEL

STANDARD PLATE No.
MnDOT 4143E



TYPICAL STEP ALIGNMENT



TYPICAL REINFORCED PLASTIC STEP

NOTES:

STEP SHOWN IS BASIC DESIGN ONLY.
FINAL CONFIGURATION MAY VARY FROM THESE DRAWINGS.

VARIATIONS IN THE ABOVE DESIGN WHICH WILL NOT DECREASE STRENGTH WILL BE PERMITTED.

THE OFFICE OF MATERIALS, RESEARCH AND ENGINEERING WILL MAINTAIN A LISTING OF APPROVED MANHOLE STEPS. CURRENTLY APPROVED STEPS ARE STEEL REINFORCED PLASTIC.

EMBEDDED LEG SECTIONS SHALL BE GIVEN A NEOPRENE PROTECTIVE COATING OR EQUIVALENT FOR CORROSION PROTECTION. COATINGS SHALL BE APPROVED BY MATERIALS ENGINEERING.

EXCEPT AS OTHERWISE NOTED ON THIS PLATE, STEPS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C478.

STEPS SHALL BE EMBEDDED IN THE RISER OR CONICAL TOP SECTION WALL A MINIMUM DISTANCE OF 3 IN.

THE RUNG OR CLEAT SHALL PROJECT A MINIMUM CLEAR DISTANCE OF 4 IN. FROM THE WALL OF THE RISER OR CONE SECTION MEASURED FROM THE POINT OF EMBEDMENT.

THE MIN. CLEAR DISTANCE BETWEEN THE RUNG OR CLEAT AND THE OPPOSITE WALL OF THE MANHOLE RISER OR CONE SHALL BE 18 IN. MEASURED AT THE CENTER FACE OF THE STEP.

- ① STEPS SHALL BE SPACED AT A MAXIMUM DESIGN DISTANCE OF 16 IN. APART.
- ② STEPS SHALL HAVE A MINIMUM CROSS SECTION DIMENSION OF 1 IN.
- ③ MINIMUM VERTICAL SIDE DIMENSION TO PREVENT FOOT FROM SLIPPING OFF IS 1/2".
- ④ THE MINIMUM WIDTH OF THE RUNGS OR CLEATS SHALL BE 10 IN.

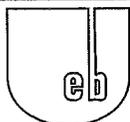
MANHOLE AND CATCH BASIN STEP

NO SCALE

APPROVED

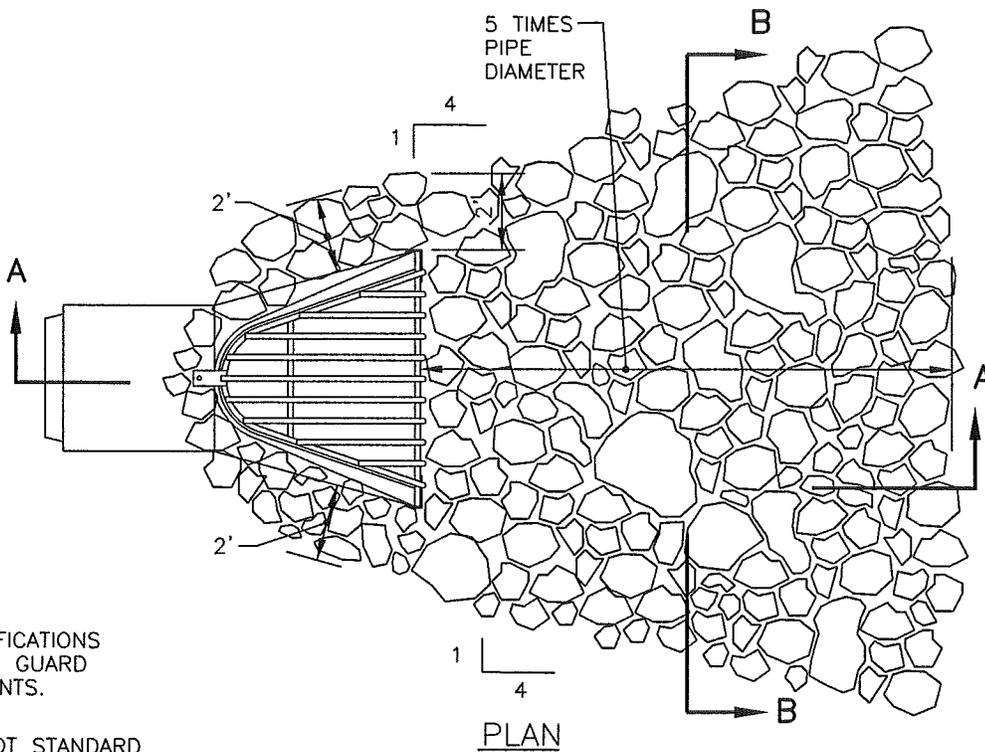
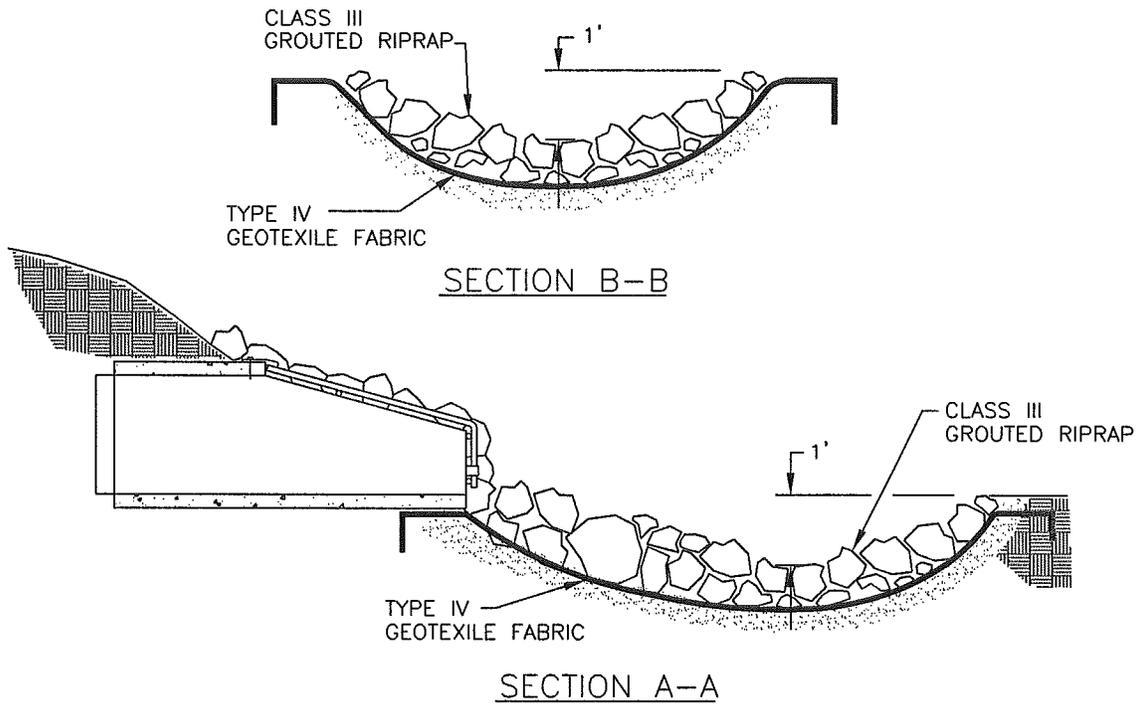
3-02-05

REVISED



**CITY OF
EAST BETHEL**

**STANDARD PLATE No.
MnDOT 4180J**



NOTE:

1. SEE SPECIFICATIONS FOR TRASH GUARD REQUIREMENTS.
2. SEE MN/DOT STANDARD PLATE 3133 FOR RIPRAP QUANTITIES.

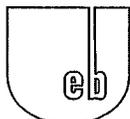
RIPRAP PLACEMENT AT OUTLETS

NO SCALE

APPROVED

3-02-05

REVISED

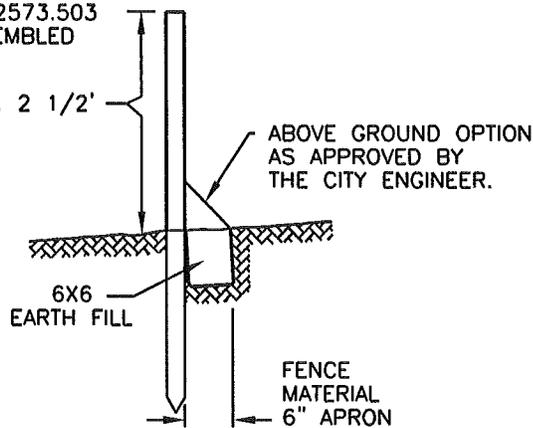


**CITY OF
EAST BETHEL**

**STANDARD PLATE No.
500**

MnDOT 2573.503
PREASSEMBLED

MIN. 2 1/2'



5' POSTS - 8' MAX. ON CENTER
MINIMUM 2' PENETRATION

REF. MnDOT 3886

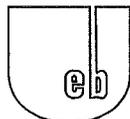
SILT FENCE INSTALLATION

NO SCALE

APPROVED

3-02-05

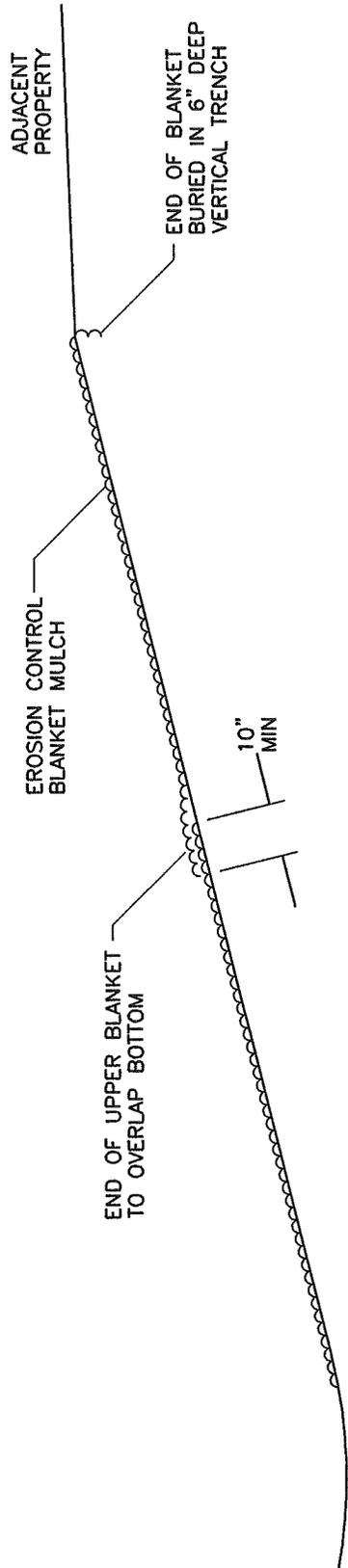
REVISED



**CITY OF
EAST BETHEL**

STANDARD PLATE No.

501



NOTE:

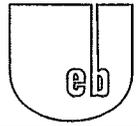
EROSION CONTROL BLANKET SHALL BE PLACED AND STAPLED ACCORDING TO Mn/DOT SPECIFICATION 2575.3K2 WITH THE FOLLOWING EXCEPTIONS. ADJACENT STRIP EDGES SHALL BE OVERLAPPED A MINIMUM OF 6".

PLASTIC BIODEGRADABLE STAPLES SHALL BE USED IN PLACE OF METAL WIRE STAPLES.

EROSION CONTROL BLANKET INSTALLATION ON A CUT SLOPE

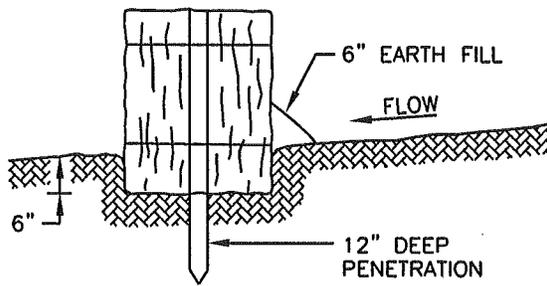
NO SCALE

APPROVED
3-02-05
REVISED



**CITY OF
EAST BETHEL**

**STANDARD PLATE No.
502**



MINIMUM 2 STAKES PER BALE

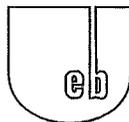
STRAW/HAY BALE BARRIER PLACEMENT

NO SCALE

APPROVED

3-02-05

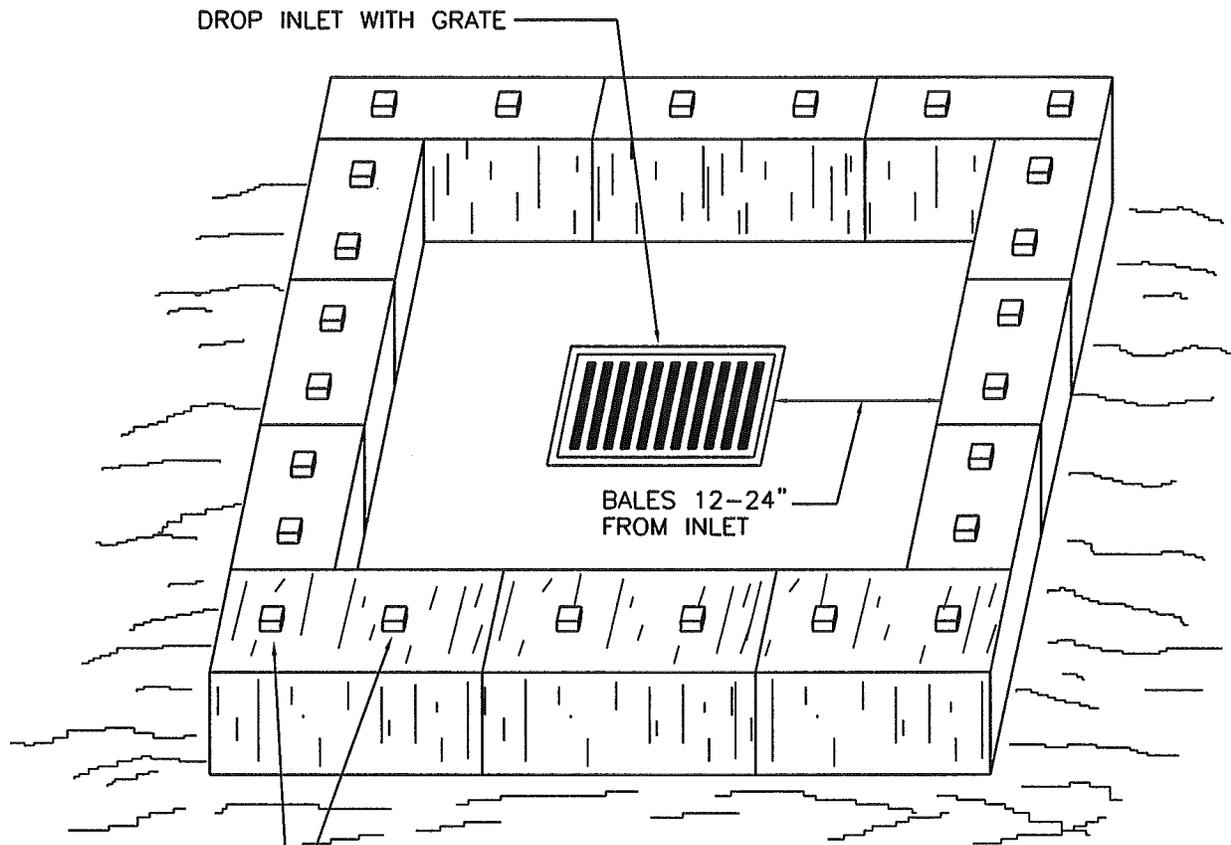
REVISED



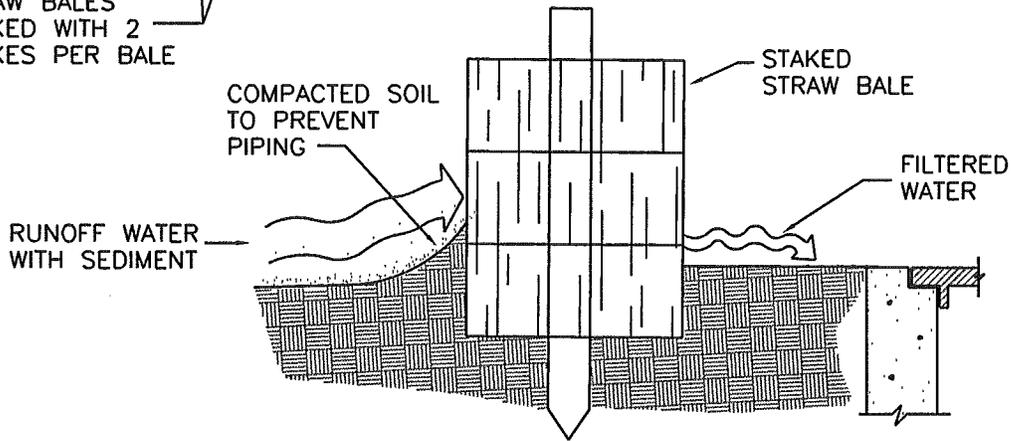
**CITY OF
EAST BETHEL**

STANDARD PLATE No.

503



STRAW BALES
STAKED WITH 2
STAKES PER BALE



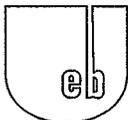
STRAW BALE DROP INLET SEDIMENT FILTER

NO SCALE

APPROVED

3-02-05

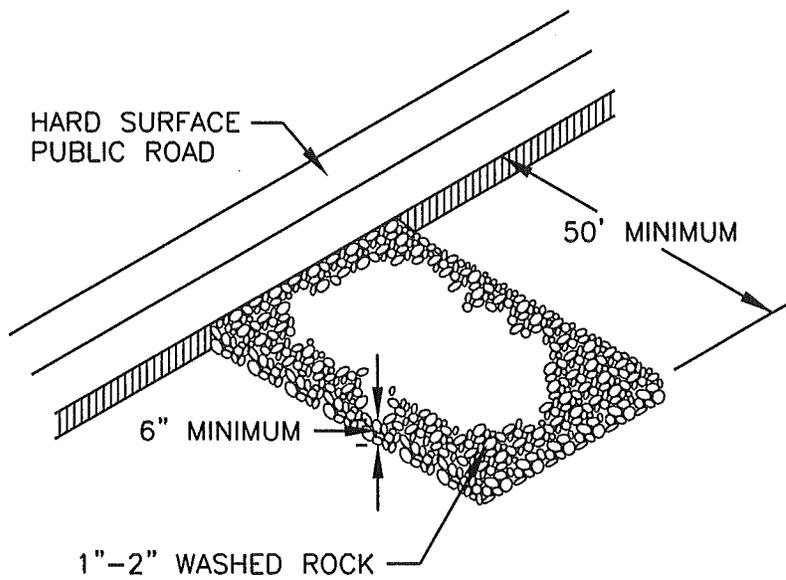
REVISED



**CITY OF
EAST BETHEL**

STANDARD PLATE No.

504



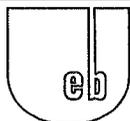
ROCK CONSTRUCTION ENTRANCE

NO SCALE

APPROVED

3-02-05

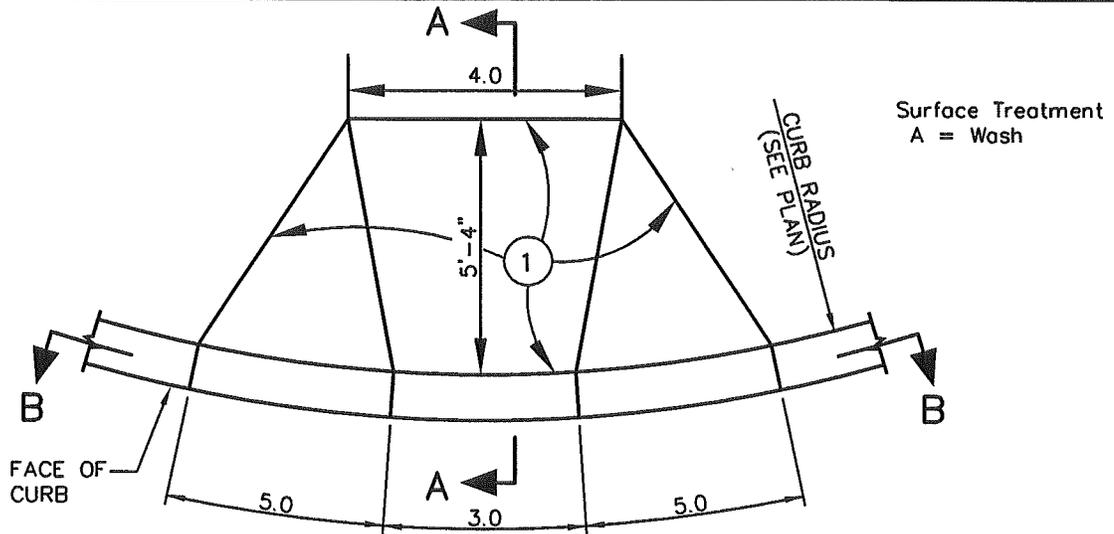
REVISED



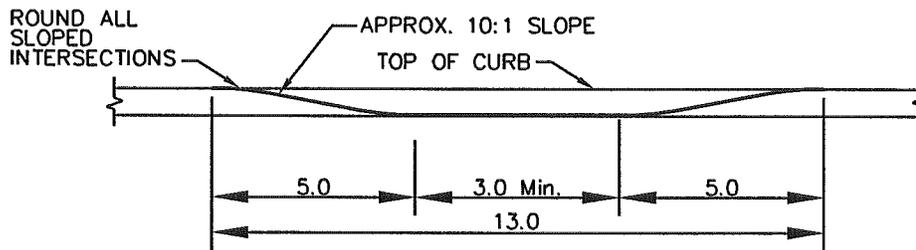
**CITY OF
EAST BETHEL**

STANDARD PLATE No.

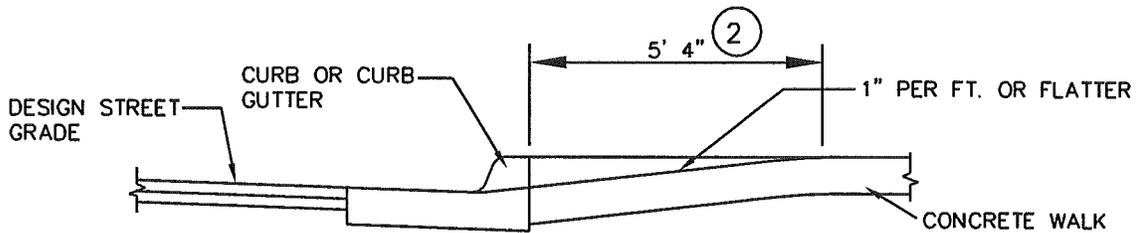
505



PLAN VIEW OF RAMP



ELEVATION OF RAMP



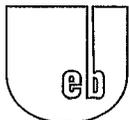
SECTION A-A

1. Surface Treatment A - The concrete mix for Surface Treatment A only, shall conform to mix 3A37EX. Immediately after concrete placement and finishing, and after contraction joints are formed, an approved surface retarder shall be applied to the area required to be exposed. After adequate cure with 3752 Waterproof Curing Paper or 3756 Plastic Curing Blankets, the surface shall be lightly rinsed to wash mortar and expose the aggregate.
2. Varies with curb height. Example shown is for 6" curb heights.

PEDESTRIAN CURB RAMP

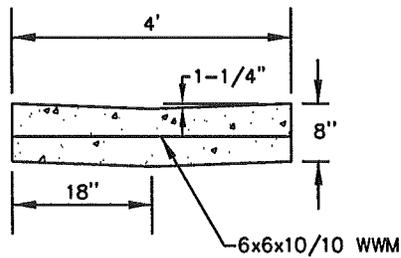
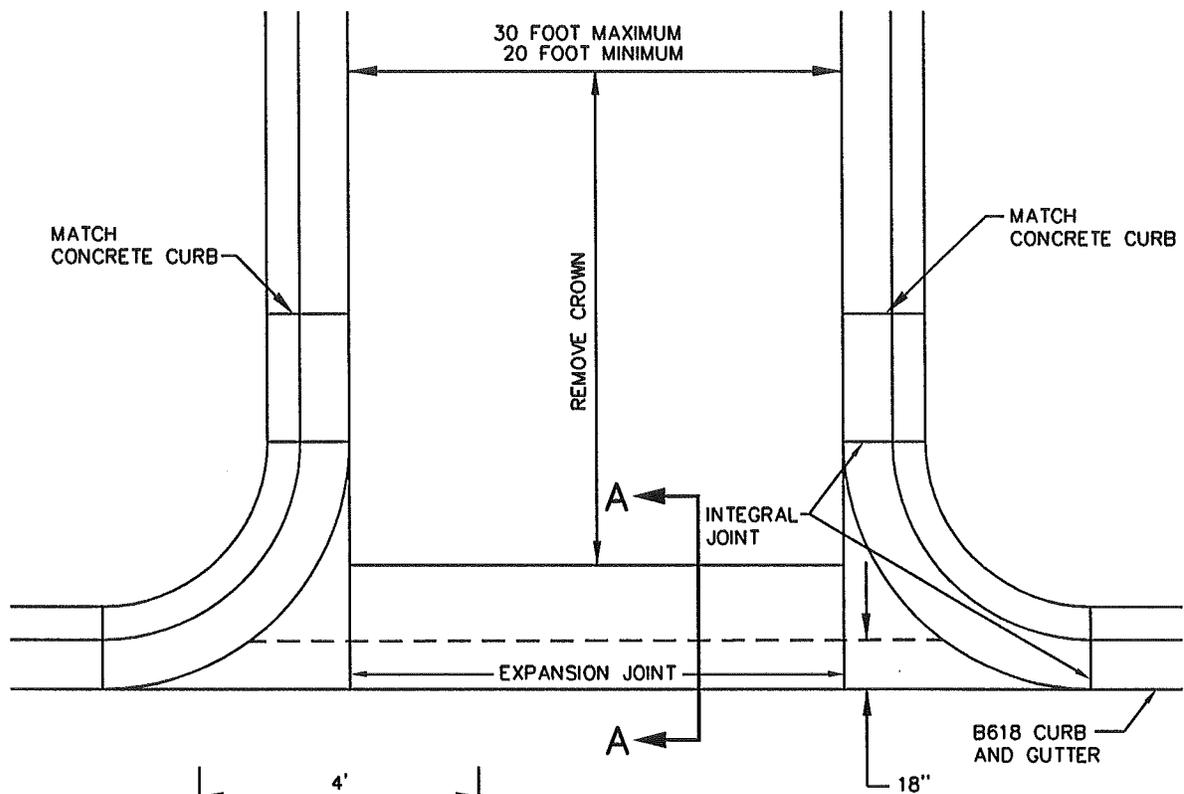
NO SCALE

APPROVED
3-02-05
REVISED



**CITY OF
EAST BETHEL**

**STANDARD PLATE No.
701**



SECTION A-A

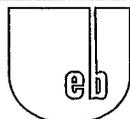
**CONCRETE DRIVEWAY
AND CROSS GUTTER**

NO SCALE

APPROVED

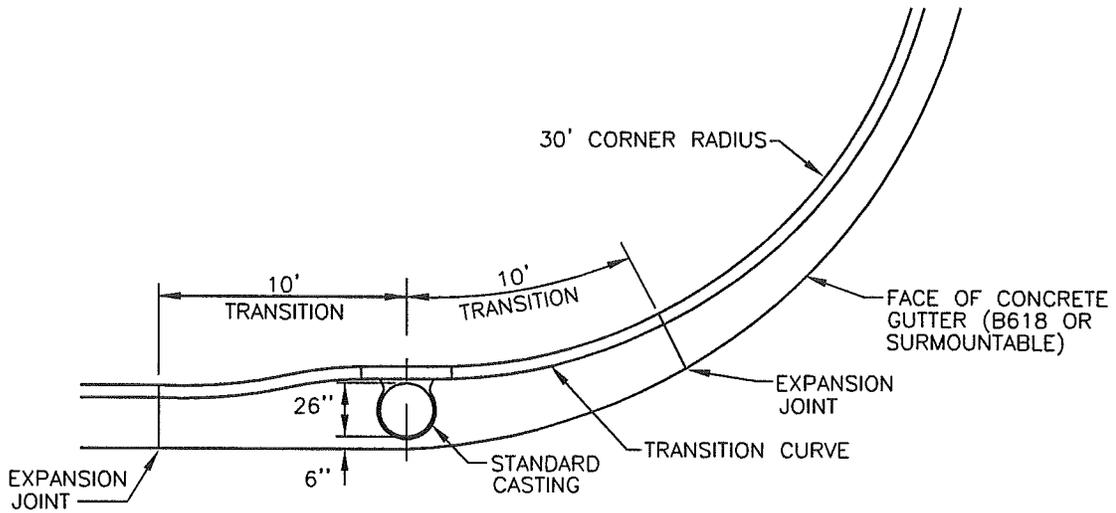
3-02-05

REVISED

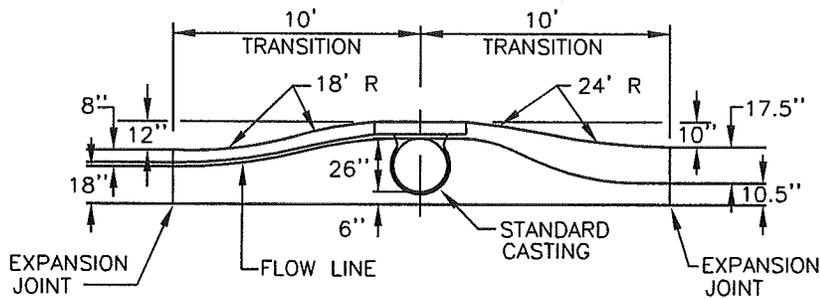


**CITY OF
EAST BETHEL**

**STANDARD PLATE No.
702**



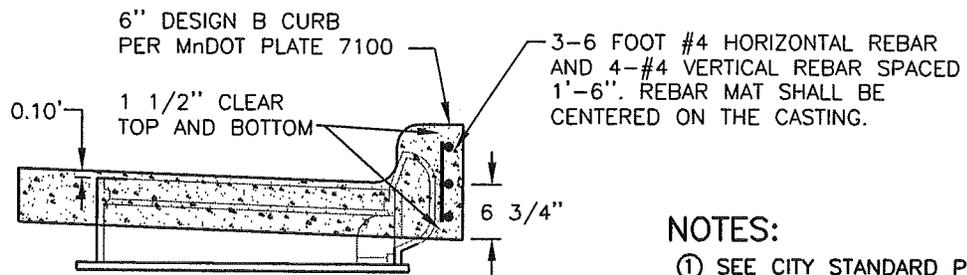
**PLAN
(RADIUS CURB)**



**B618
CURB AND GUTTER**

**SURMOUNTABLE
CURB AND GUTTER**

**PLAN
(STRAIGHT CURB)**



**CURB REINFORCING
(DESIGN B CURB)**

NOTES:

- ① SEE CITY STANDARD PLATE NO. 705 FOR INLET CASTING.
- ② PERIMETER GROUT NOT SHOWN. SEE CITY STANDARD PLATE NO. 400 AND 401.

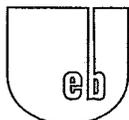
**CURB AND GUTTER CONSTRUCTION
AT CATCH BASIN**

NO SCALE

APPROVED

3-02-05

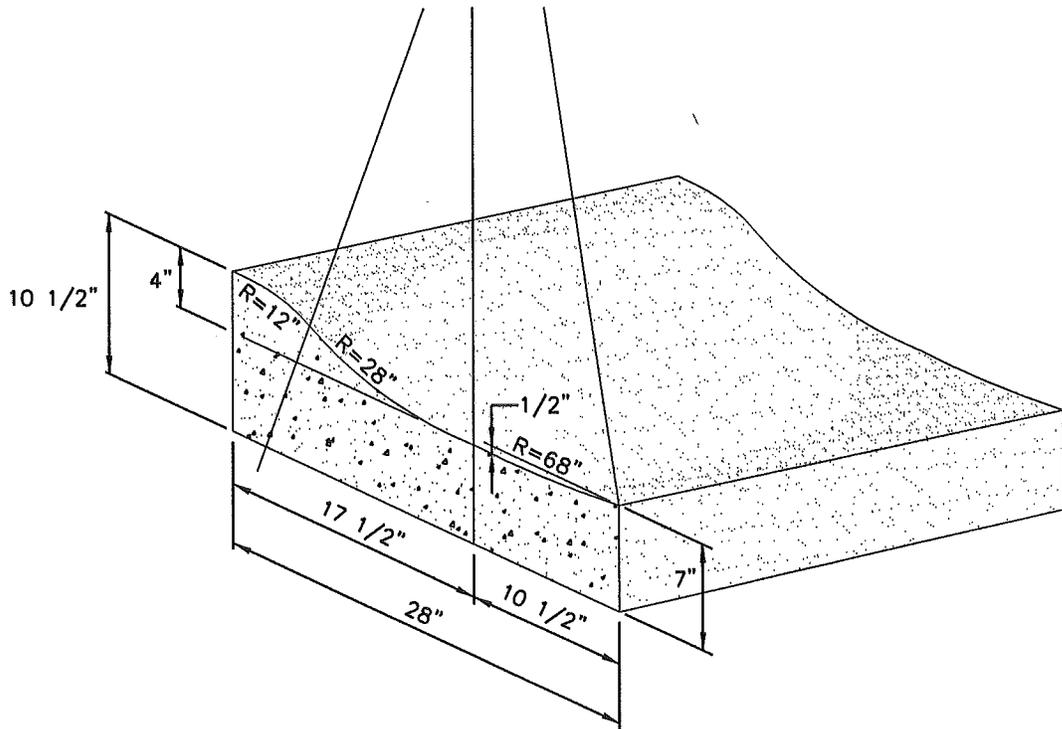
REVISED



**CITY OF
EAST BETHEL**

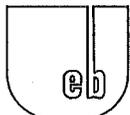
STANDARD PLATE No.

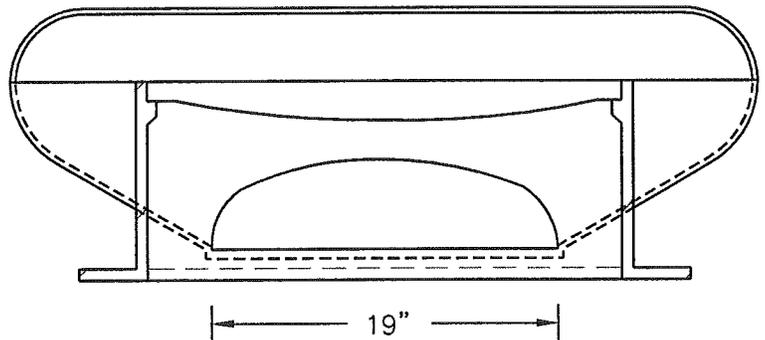
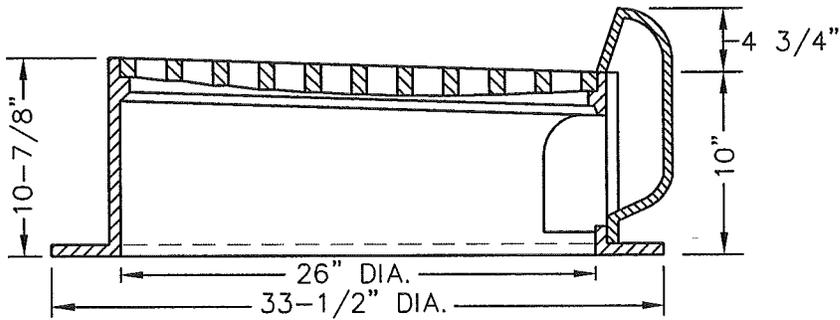
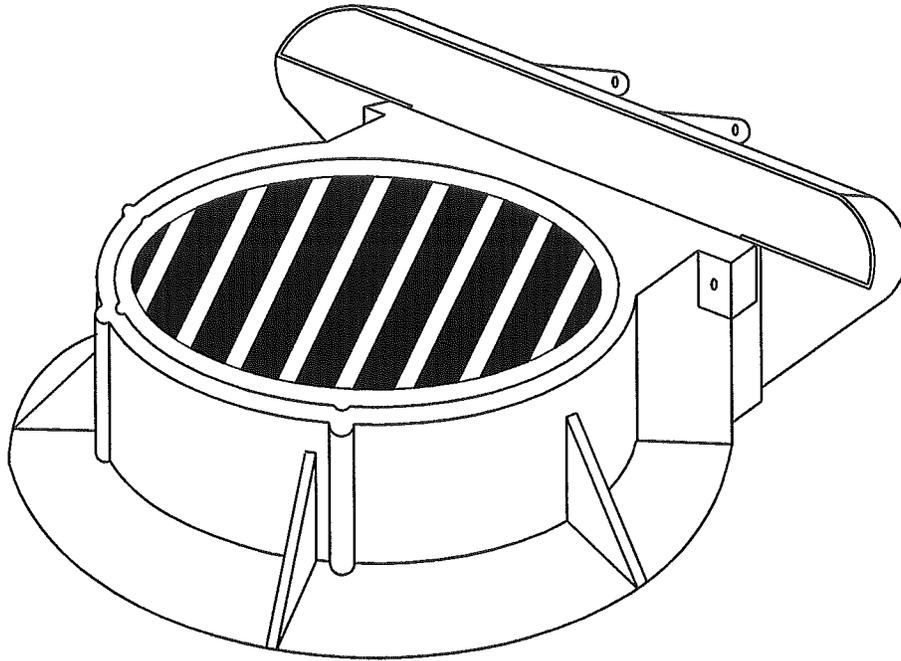
703



**SURMOUNTABLE CONCRETE
CURB AND GUTTER**

NO SCALE

APPROVED 3-02-05	 <p>CITY OF EAST BETHEL</p>	<p>STANDARD PLATE No. <u>704</u></p>
REVISED		



INLET ASSEMBLY

NEENAH FOUNDRY NO. R-3250-1
OR APPROVED EQUAL.

SEE CITY STANDARD PLATE 703 FOR
CURB & GUTTER CONSTRUCTION
AT CATCH BASIN.

ESS BROTHERS CASTING 801M
MODIFIED IS AN APPROVED EQUAL.

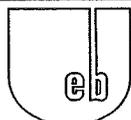
INLET CASTING

NO SCALE

APPROVED

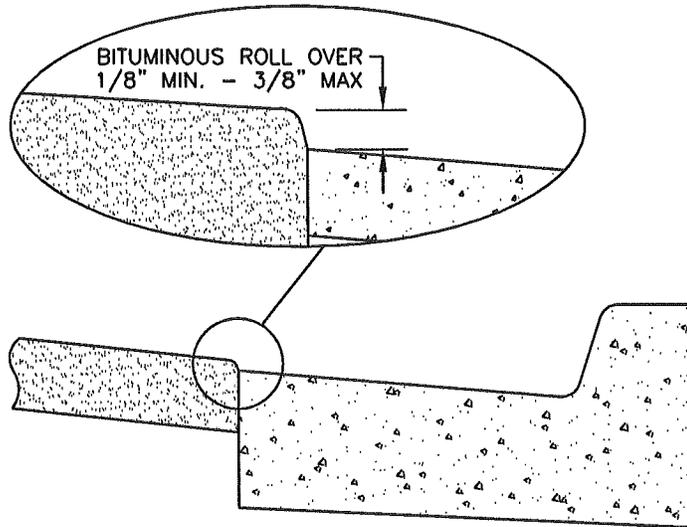
3-02-05

REVISED



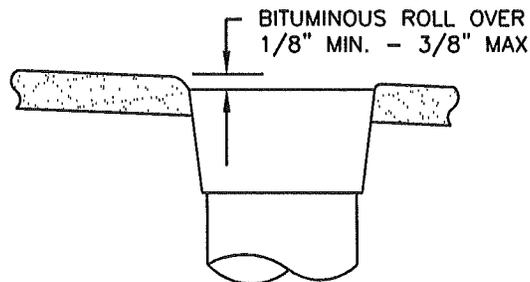
**CITY OF
EAST BETHEL**

STANDARD PLATE No.
705



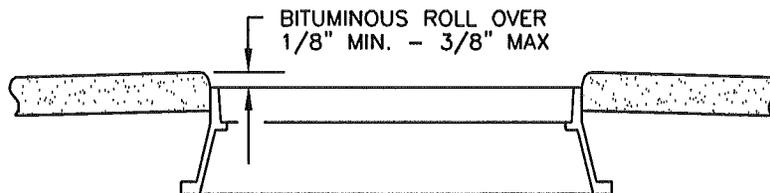
PAVING AT CURB DETAIL

NO SCALE



PAVING AT VALVE BOX DETAIL

NO SCALE



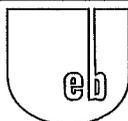
PAVING AT MANHOLE DETAIL

NO SCALE

APPROVED

3-02-05

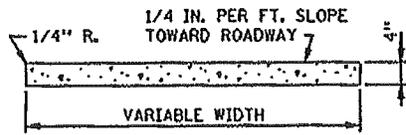
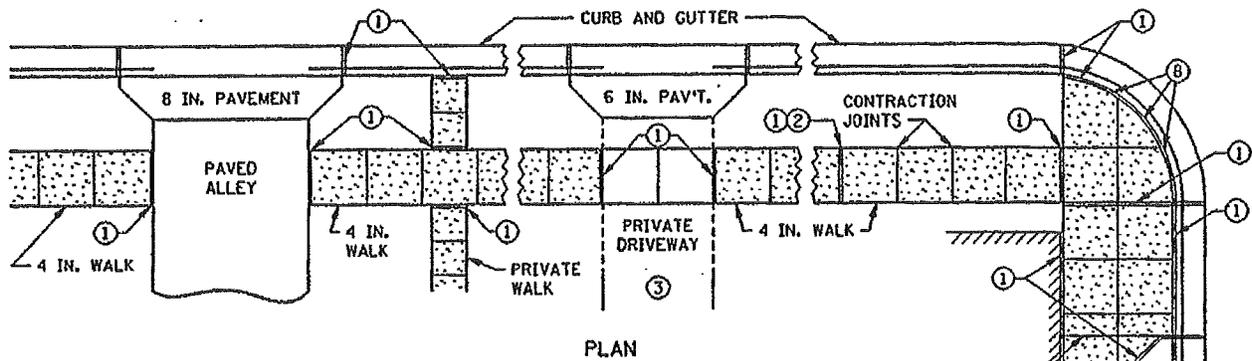
REVISED



**CITY OF
EAST BETHEL**

STANDARD PLATE No.

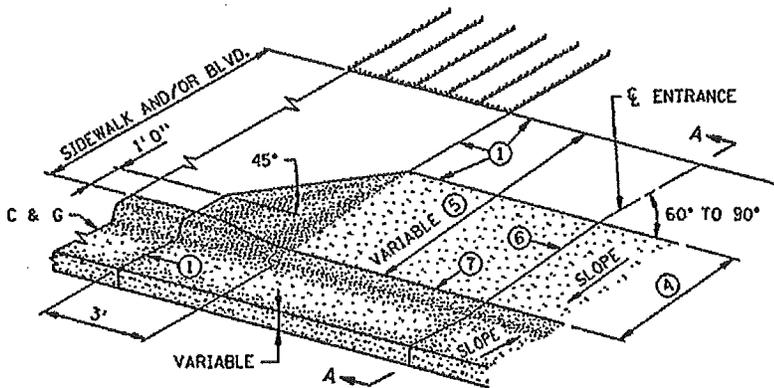
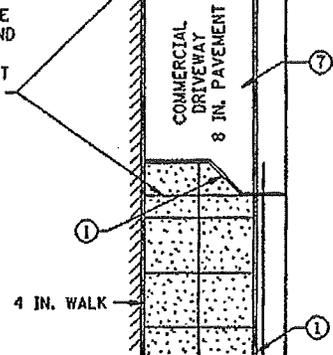
706



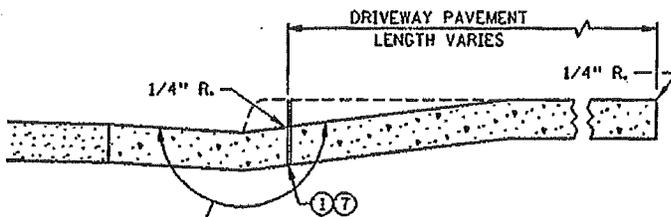
SECTION THRU WALK

CONCRETE WALK

PROVIDE INTERMEDIATE JOINT AT SQUARED END IN SIDEWALK, WHEN SIDEWALK IS ADJACENT TO CURB AND GUTTER



HALF PLAN PERSPECTIVE



5 - 10% DESIRABLE, 15% MAX. DIFFERENCE

SECTION A-A

CURB RETURN

NOTES:

- SEE ROAD DESIGN MANUAL, CHAPTER 5, FOR GEOMETRIC DESIGN OF ENTRANCES.
- WHERE THE MAX. ALLOWABLE ENTRANCE GRADIENT WOULD BE EXCEEDED, DUE TO THE POSITION OF THE EXISTING WALK, THE WALK SHALL BE REMOVED AND REPLACED, OR THE PAVEMENT WARPED TO PROVIDE THE REQUIRED ENTRANCE SLOPE.
- SEE PLANS FOR PLACEMENT OF WALK AND DIMENSIONS FOR CONSTRUCTION OF DRIVEWAYS.
- NO DEDUCTION SHALL BE MADE IN CURB & GUTTER FOR ENTRANCE.
- ① 1/2 INCH EXPANSION JOINT. 1/2 IN. PREFORMED JOINT FILLER MATERIAL, AASHTO M 213 (NOT REQUIRED UNLESS 2 CONCRETE AREAS ARE POURED SEPARATELY).
- ② 1/2 IN. EXPANSION JOINTS AT 60 FT. (APPROX.) MAXIMUM INTERVALS.
- ③ MATCH DRIVEWAY THICKNESS AND WIDTH.
- ④ WITHOUT SIDEWALK, PAVE ONLY TO THE END OF CURB RETURN WHEN ENTRANCE IS UNSURFACED OR CONSTRUCTION IS NOT NEEDED BEYOND THIS POINT.
- ⑤ WITH SIDEWALK, PAVE TO THE BACK OF SIDEWALK. PAID FOR AS CONCRETE DRIVEWAY PAVEMENT.
- ⑥ CONTRACTION JOINT (FORMED OR SAWED).
- ⑦ DRIVEWAY NEED NOT BE POURED MONOLITHICALLY WITH CURB AND GUTTER.
- ⑧ SEE PLANS FOR PLACEMENT OF PEDESTRIAN CURB RAMP.

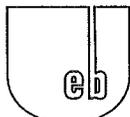
CONCRETE WALK AND CURB RETURNS AT ENTRANCES

NO SCALE

APPROVED

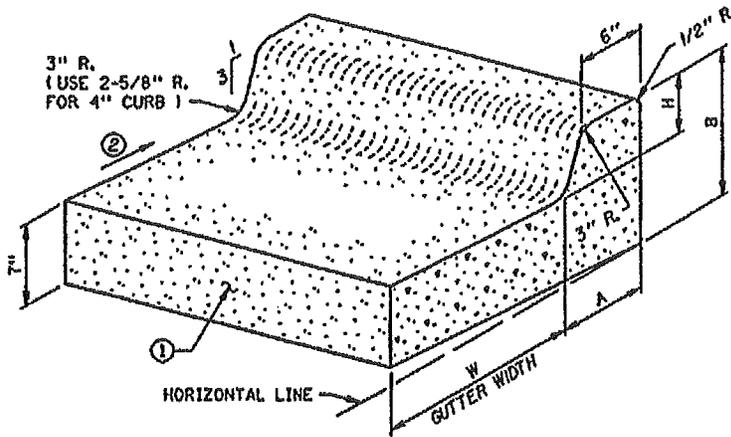
3-02-05

REVISED

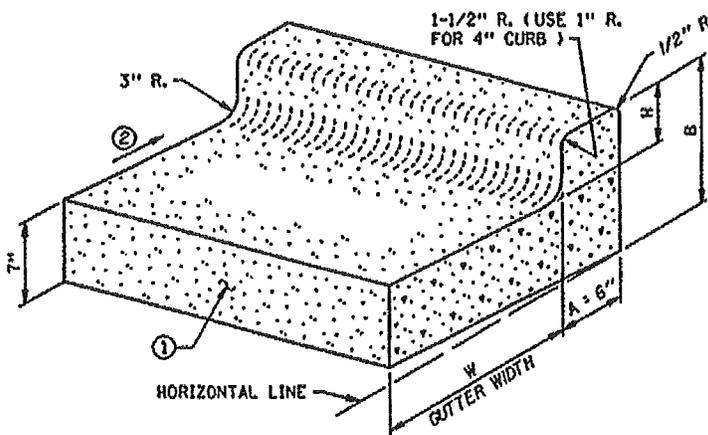


**CITY OF
EAST BETHEL**

**STANDARD PLATE No.
MnDOT 7035L**



DESIGN B



DESIGN V

NOTES:

- ① LONGITUDINAL JOINT WHEN ADJACENT TO RIGID PAVEMENT OR BASE.
SEE STANDARD PLANS MANUAL FOR JOINT INFORMATION.
- ② SLOPE 3/4" PER FOOT NORMAL, UNLESS OTHERWISE SPECIFIED. IF A DIFFERENT GUTTER SLOPE IS PERMITTED, THE FORM MAY BE TILTED.

DESIGN B			W = 12"				W = 18"				W = 24"				W = 30"				W = 36"			
			DESIGN NO.		CONCRETE		DESIGN NO.		CONCRETE		DESIGN NO.		CONCRETE		DESIGN NO.		CONCRETE		DESIGN NO.		CONCRETE	
DIMENSIONS			DESIGN NO.	CU. YDS. PER LIN. FT.	LIN. FT. PER CU. YD.	DESIGN NO.	CU. YDS. PER LIN. FT.	LIN. FT. PER CU. YD.	DESIGN NO.	CU. YDS. PER LIN. FT.	LIN. FT. PER CU. YD.	DESIGN NO.	CU. YDS. PER LIN. FT.	LIN. FT. PER CU. YD.	DESIGN NO.	CU. YDS. PER LIN. FT.	LIN. FT. PER CU. YD.	DESIGN NO.	CU. YDS. PER LIN. FT.	LIN. FT. PER CU. YD.		
H	A	B																				
4	7-3/8"	11-1/2"	B412	0.0421	23.8	B418	0.0529	18.9	B424	0.0637	15.7	B430	0.0745	13.4	B436	0.0853	11.7					
6	8"	13-1/2"	B612	0.0474	21.1	B618	0.0582	17.2	B624	0.0690	14.5	B630	0.0798	12.5	B636	0.0906	11.0					
8	8-5/8"	15-1/2"	B812	0.0529	18.9	B818	0.0637	15.7	B824	0.0745	13.4	B830	0.0853	11.7	B836	0.0962	10.4					
9	9"	16-5/8"	B912	0.0559	17.9	B918	0.0667	15.0	B924	0.0775	12.9	B930	0.0883	11.3	B936	0.0991	10.1					
10	9-3/8"	17-5/8"	B1012	0.0589	17.0	B1018	0.0697	14.4	B1024	0.0805	12.4	B1030	0.0913	11.0	B1036	0.1021	9.8					

DESIGN V			W = 12"				W = 18"				W = 24"				W = 30"				W = 36"			
			DESIGN NO.		CONCRETE		DESIGN NO.		CONCRETE		DESIGN NO.		CONCRETE		DESIGN NO.		CONCRETE		DESIGN NO.		CONCRETE	
DIMENSIONS			DESIGN NO.	CU. YDS. PER LIN. FT.	LIN. FT. PER CU. YD.	DESIGN NO.	CU. YDS. PER LIN. FT.	LIN. FT. PER CU. YD.	DESIGN NO.	CU. YDS. PER LIN. FT.	LIN. FT. PER CU. YD.	DESIGN NO.	CU. YDS. PER LIN. FT.	LIN. FT. PER CU. YD.	DESIGN NO.	CU. YDS. PER LIN. FT.	LIN. FT. PER CU. YD.	DESIGN NO.	CU. YDS. PER LIN. FT.	LIN. FT. PER CU. YD.		
H	A	B																				
4	6"	11-3/8"	V412	0.0396	25.3	V418	0.0504	19.9	V424	0.0612	16.4	V430	0.0720	13.9	V436	0.0828	12.1					
6	6"	13-3/8"	V612	0.0426	23.5	V618	0.0534	18.7	V624	0.0642	15.6	V630	0.0750	13.4	V636	0.0858	11.7					
8	6"	15-3/8"	V812	0.0457	21.9	V818	0.0565	17.7	V824	0.0673	14.9	V830	0.0781	12.8	V836	0.0889	11.3					
9	6"	16-3/8"	V912	0.0472	21.2	V918	0.0580	17.2	V924	0.0688	14.5	V930	0.0796	12.6	V936	0.0904	11.1					
10	6"	17-3/8"	V1012	0.0487	20.5	V1018	0.0595	16.8	V1024	0.0703	14.2	V1030	0.0811	12.4	V1036	0.0919	10.9					

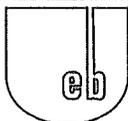
CONCRETE CURB AND GUTTER
DESIGN B AND DESIGN V

NO SCALE

APPROVED

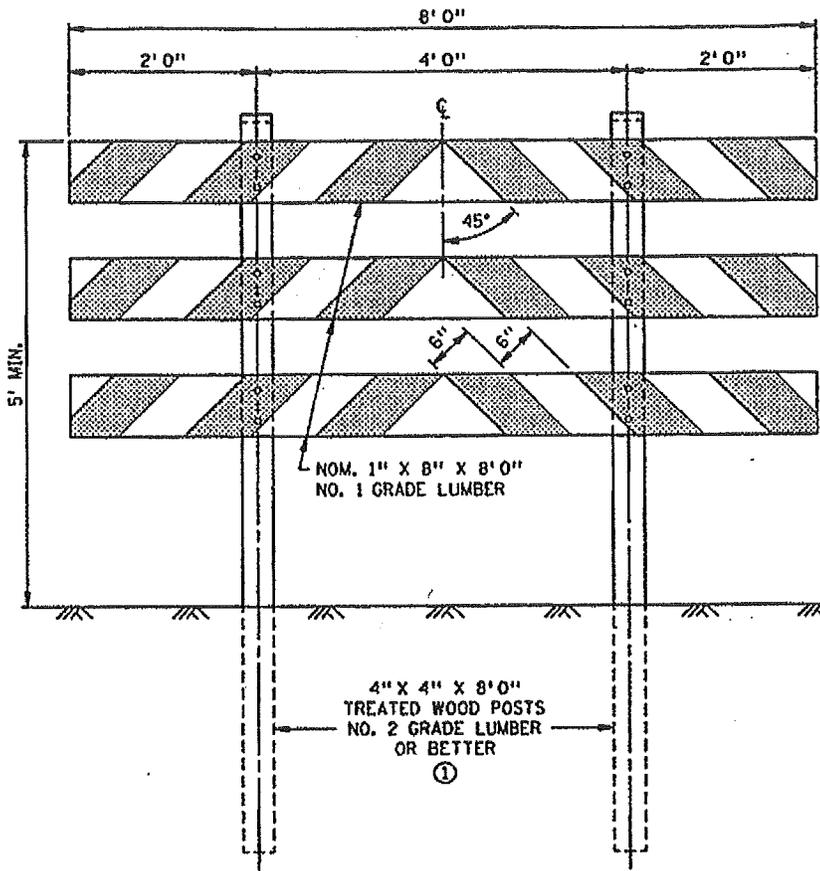
3-02-05

REVISED

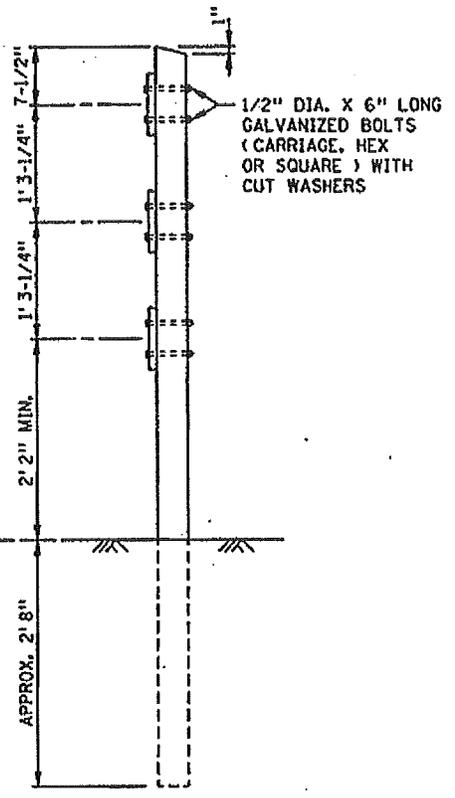


CITY OF
EAST BETHEL

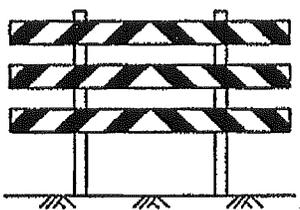
STANDARD PLATE No.
MnDOT 7100



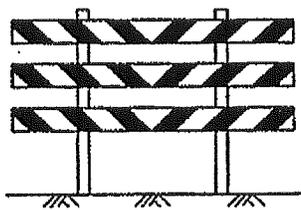
ELEVATION
(TURNS PERMITTED SHOWN)



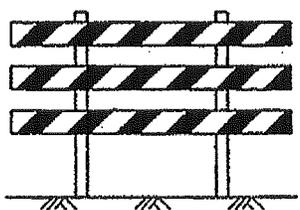
END VIEW



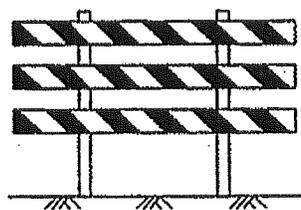
TOTALLY CLOSED ROADWAY
TURNS PERMITTED



TOTALLY CLOSED ROADWAY
NO TURNS PERMITTED



TOTALLY CLOSED ROADWAY
LEFT TURN ONLY



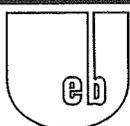
TOTALLY CLOSED ROADWAY
RIGHT TURN ONLY

NOTES:
 THE BARRICADE BOARD FACE SURFACES SHALL BE FULLY REFLECTORIZED IN ALTERNATE SILVER-WHITE AND RED STRIPING, USING REFLECTIVE SHEETING CONFORMING TO THE REQUIREMENTS OF SPEC. 3352.2A2b, STANDARD NO. 2.
 PRIOR TO INSTALLING THE REFLECTIVE SHEETING, THE BARRICADE BOARDS SHALL BE GIVEN A COMPLETE COATING OF WHITE WOOD PRIMER PAINT FOLLOWED BY A SECOND COAT OF WHITE EXTERIOR PAINT APPLIED ONLY TO THE SURFACES NOT COVERED WITH REFLECTIVE SHEETING.
 THE BARRICADE BOARDS SHALL BE COMPLETELY PAINTED AND REFLECTORIZED SHEETING APPLIED BEFORE BEING INSTALLED ON THE POSTS.
 ① ALTERNATE MATERIALS FOR POSTS MAY BE USED WHEN APPROVED BY THE OFFICE OF TRAFFIC ENGINEERING.

PERMANENT BARRICADE

NO SCALE

APPROVED
 3-02-05
 REVISED



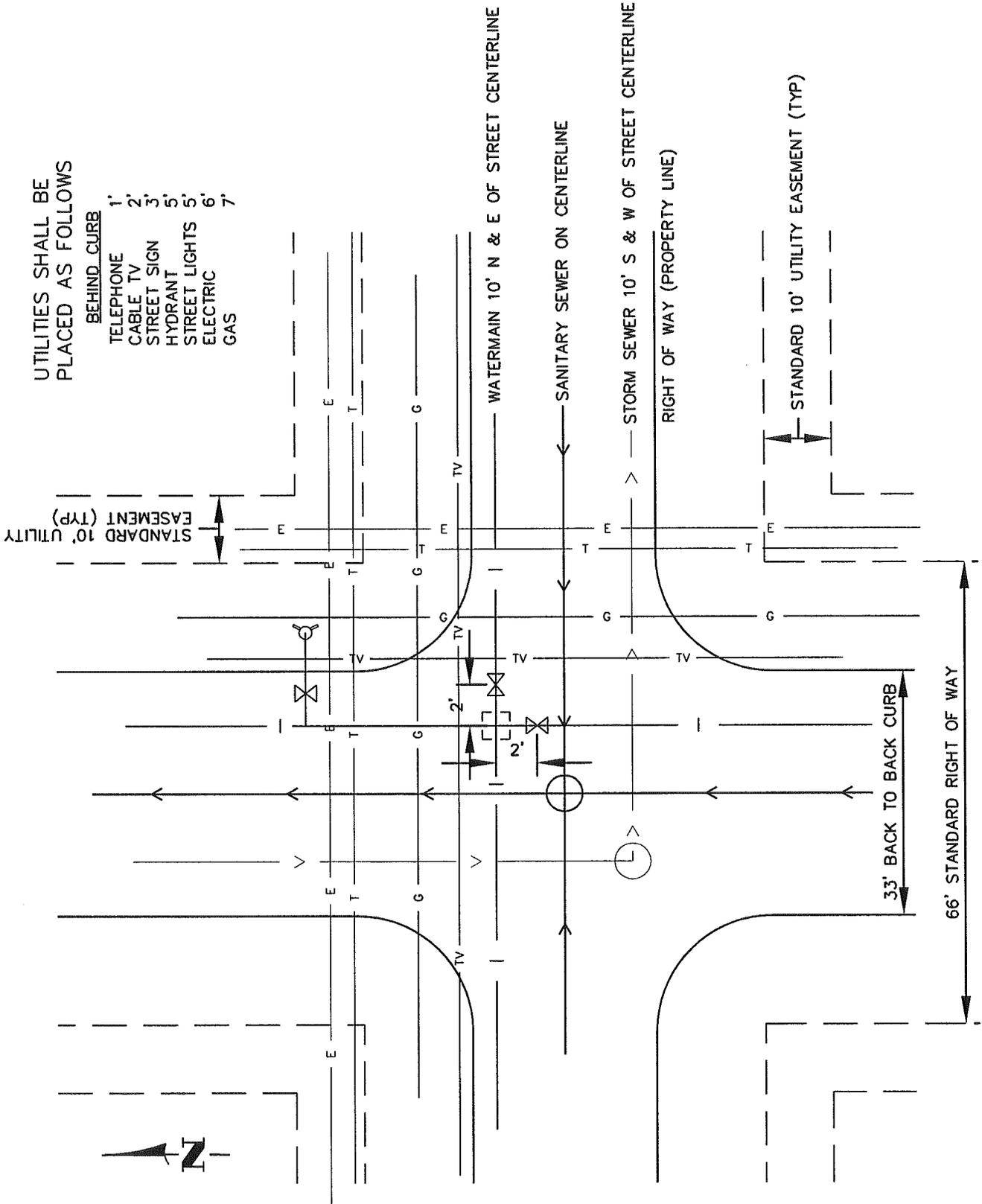
CITY OF
EAST BETHEL

STANDARD PLATE No.
MnDOT 8002

UTILITIES SHALL BE
PLACED AS FOLLOWS

BEHIND CURB

- 1' TELEPHONE
- 2' CABLE TV
- 3' STREET SIGN
- 5' HYDRANT
- 5' STREET LIGHTS
- 6' ELECTRIC
- 7' GAS



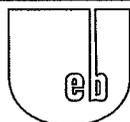
LOCATION OF PUBLIC UTILITIES

NO SCALE

APPROVED

3-02-05

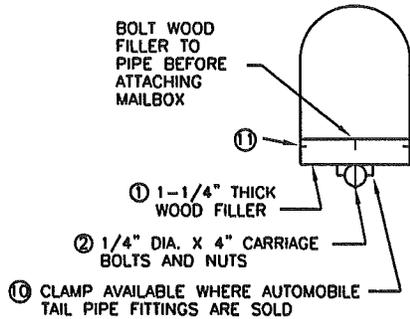
REVISED



**CITY OF
EAST BETHEL**

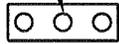
STANDARD PLATE No.

900

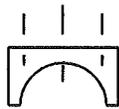


SECTION A-A

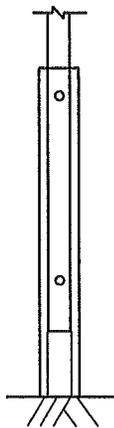
DRILL 5/16" DIA. HOLES FOR 1/4" DIA. CARRIAGE BOLTS



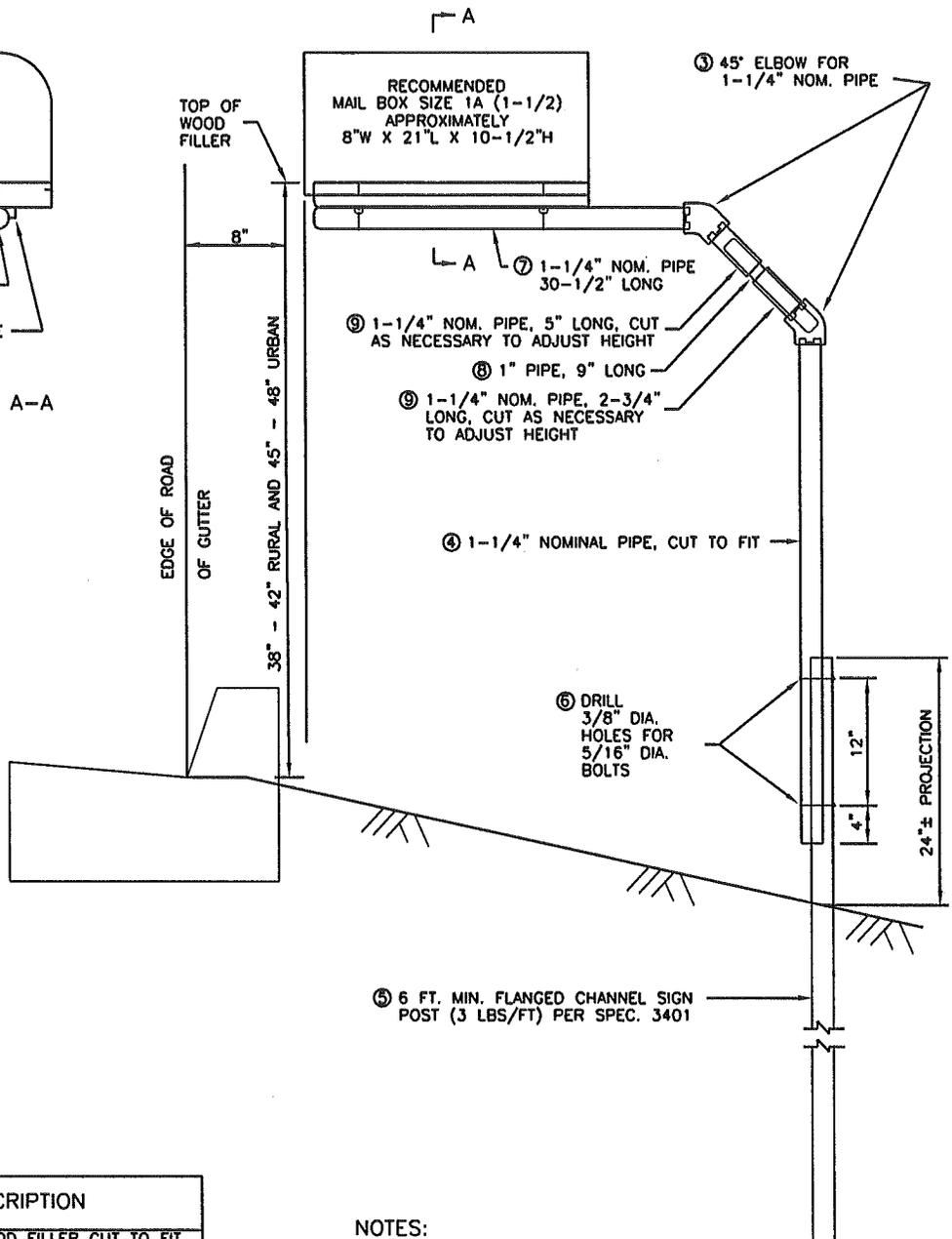
TOP VIEW



TAIL PIPE CLAMP DETAIL



ROADWAY VIEW
PIPE/POST CONNECTION



ITEM NO.	NUMBER REQUIRED	DESCRIPTION
1	1	1-1/2" THICK WOOD FILLER CUT TO FIT SNUG UNDER MAILBOX
2	2	1/4" DIA. X 4" LONG CARRIAGE BOLTS AND NUTS
3	2	45° ELBOW FOR 1-1/4" NOMINAL PIPE
4	1	1-1/4" NOMINAL PIPE, CUT TO FIT
5	1	6 FT. MIN. SIGN POST (3 LBS./FT.)
6	2	5/16" DIA. BOLT, NUT & LOCKWASHER
7	1	1-1/4" NOMINAL PIPE, 30-1/2" LONG
8	1	1" PIPE, 9" LONG
9	1	1-1/4" NOMINAL PIPE, 5" LONG
		1-1/4" NOMINAL PIPE, 2-3/4" LONG
10	2	1-1/2" TAIL PIPE CLAMP
11	9	NO. 10 X 1" SHEET METAL SCREWS

NOTES:

ALL PIPE AND PIPE FITTINGS SHALL CONFORM TO SPEC. 3362

ALL FASTENERS SHALL CONFORM TO SPEC. 3391

ALL MATERIALS SHALL BE GALVANIZED PER SPEC. 3392

MAIL BOX LOCATIONS SHOULD BE STAKED BEFORE INSTALLATION FOR PROPER HEIGHT AND DISTANCE FROM THE ROADWAY. ONCE STAKED, THE INSTALLER MUST NOTIFY THE ENGINEER THE ENGINEER WILL BE ALLOWED 48 HOURS TO REVIEW AND MODIFY THE STAKED LOCATIONS PRIOR TO FINAL INSTALLATION.

OTHER MN/DOT APPROVED MAILBOX SUPPORTS MAY ALSO BE USED.

THE MAILBOX TO BE 8 INCHES TO 12 INCHES OUTSIDE THE EDGE OF SHOULDER OR 6 INCHES TO 12 INCHES FROM FACE OF CURB.

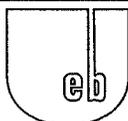
MAILBOX SUPPORT
STEEL PIPE WITH FITTINGS AND STEEL FENCE POST
(SINGLE SUPPORT)

NO SCALE

APPROVED

3-02-05

REVISED



**CITY OF
EAST BETHEL**

STANDARD PLATE No.

901