CITY OF WASHINGTON, ILLINOIS
Public Works Committee Agenda Communication

Meeting Date: November 2, 2020

Prepared By: Dennis Carr – City Engineer

Agenda Item: Construction Standards Update

Explanation: The last pdf file of the City's Construction Standards I found while going through Ed's files was a from 2008. The set has a standard that has been marked removed and some language that is redundant. The standards are still in pretty good shape design wise, but I would like to recommend some tweaks. The most common recommendations are as follows:

1. The existing typicals show a ¼" per foot slope on sidewalk. This equates to 2% which is the absolute maximum allowed per ADA requirements. I recommend that we change ¼" to 3/16" which would adjust the slope to 1.5%. This minor adjust will make inspection a lot easier and reduce confrontations for when sidewalks forms are set at 2% but the finishing creates a 2.1% slope which needs to be removed.
2. IDOT's minimum lift thickness for the state specified IL 19.0 Binder course is 2 ¼". This minimum thickness is based off the nominal diameter of the aggregate to help prevent fracturing of the aggregate while being compacted. A few of the city typicals show 1 ½" of Binder Course which should be increased or the asphalt type changed. For these standards, the City can do one of the following:
    a. Reduce the surface lift thickness to 1 ¼" which is the minimum for IL9.5 and increase the binder thickness to the minimum of 2 ¼"
    b. Replace the Binder Course with a 1 ½" lift of surface course.

    *For a 1000 ft by 36 ft wide road, option 1 is $8,000 cheaper but is also ½" thinner.
3. The existing typicals show the aggregate subbase as only being underneath the asphalt. I would recommend that this aggregate be extended under the curb as well as added under the sidewalk. The aggregate gives a nice working platform as well as allows any water that gets to the subgrade to drain to the back of curb instead of the edge of pavement. The aggregate under the sidewalk helps prevent some heaving that can be caused by water washing out the fines of the bare earth underneath the
4. The callouts for the asphalt and aggregate call out "Compacted". The general notes say that everything is to be constructed in accordance with IDOT's standard specifications. The IDOT specs are very clear in what percent compaction needs to be achieved for each material.
5. The minimum width for sidewalk to meet ADA requirements is 4 ft. IDOT recommends 5 ft wide sidewalks and sidewalks along the back of curb should be 6 ft. This additional width is to accommodate for any type of intrusions into the accessible window (planter edge, bush, handrail extensions). A standard for sidewalk that shows slope, depth, and aggregate for sidewalks at back of curb and with greenspace would help. Could give all jointing notes and expansion at property lines note on this sheet.

Action Requested: Discussion. Direction to move forward with standards.

CONSTRUCTION STANDARDS

FOR THE

CITY OF WASHINGTON, ILLINOIS

City Hall
115 W. Jefferson Street
Washington, IL 61571
Phone: 309-444-3196
Fax: 309-444-9779
Email: cityhall@ci.washington.il.us
URL: http://www.washington-illinois.org

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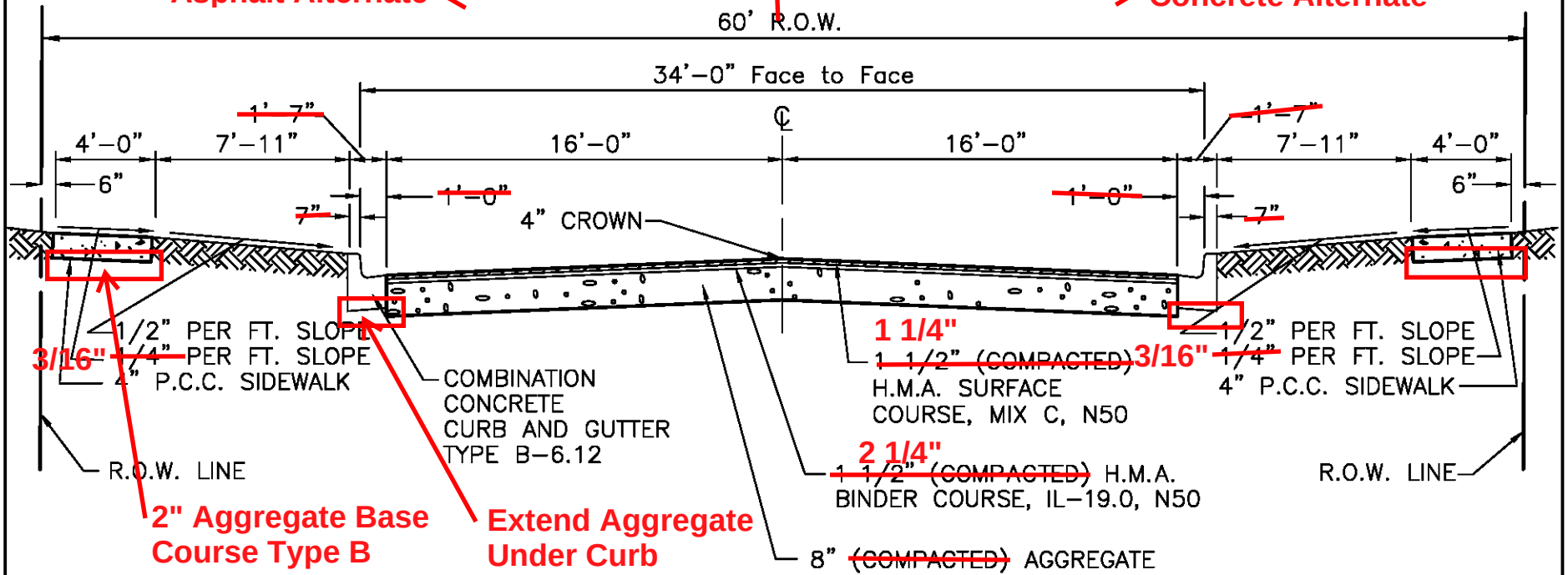
Is there a desire to add a concrete pavement alternate to residential streets? If so, I recommend 7" concrete on 4" aggregate base. More contractors do concrete paving, so there is potential for a more competitive bid. Also gives oppurtunity to allow for alternative bids where the contractor has to bid both asphalt and concrete which gives the City the best of both worlds to pick from.

ROADWAY TYPICAL SECTION

RESIDENTIAL STREET ~~(ASPHALT)~~ (Minor)

Asphalt Alternate ← → Concrete Alternate



2" Aggregate Base Course Type B

Extend Aggregate Under Curb

Removing dimensions from the curb on this detail because there is a curb detail that shows them

Adjusting sidewalk slope from 1/4" per ft to 3/16" per ft is changing from 2% to 1.5%. This will help contractors from forming at 2% and accidentally exceeding causing them to tear out and redo.

Aggregate under sidewalk will help reduce future settlement and give a better working platform.

Aggregate under curb will help carry water that gets in subbase all the way to the edge of curb instead of it potentially ponding at edge of pavement.

IL-19.0 Binder placed at 1 1/2" results in cracked aggregate due to the minimal lift thickness. IDOT's recommended minimum for IL 19.0 is 2 1/4".

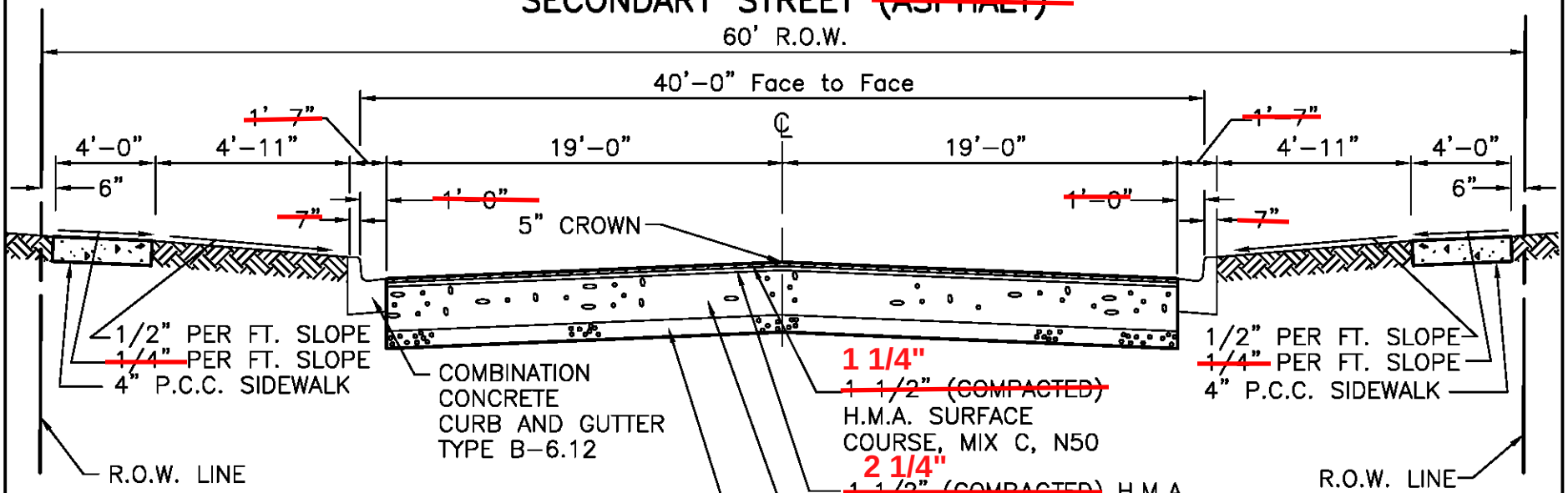
GENERAL NOTES:

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" CURRENT EDITION AND SUPPLEMENTAL SPECIFICATIONS, UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.
2. EXPANSION JOINTS SHALL BE INSTALLED IN SIDEWALKS AT ALL PROPERTY LINES.
3. PROOF-ROLL SUBGRADE AND AGGREGATE BASE COURSE IN THE PRESENCE OF THE CITY ENGINEER.

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	001

Is there a desire to add a concrete pavement alternate to residential streets? If so, I recommend 8" concrete on 4" aggregate base. More contractors do concrete paving, so there is potential for a more competitive bid. Also gives oppurtunity to allow for alternative bids where the contractor has to bid both asphalt and concrete which gives the City the best of both worlds to pick from.

ROADWAY TYPICAL SECTION
SECONDARY STREET ~~(ASPHALT)~~



Same Comments as Previous Standard for Sidewalk slope, Aggregate under curb and sidewalk, thicken HMA Binder, and concrete alternate.

GENERAL NOTES:

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" CURRENT EDITION AND SUPPLEMENTAL SPECIFICATIONS, UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.
2. EXPANSION JOINTS SHALL BE INSTALLED IN SIDEWALKS AT ALL PROPERTY LINES.
3. PROOF-ROLL SUBGRADE AND AGGREGATE BASE COURSE IN THE PRESENCE OF THE CITY ENGINEER.

NOTE: ALTERNATE

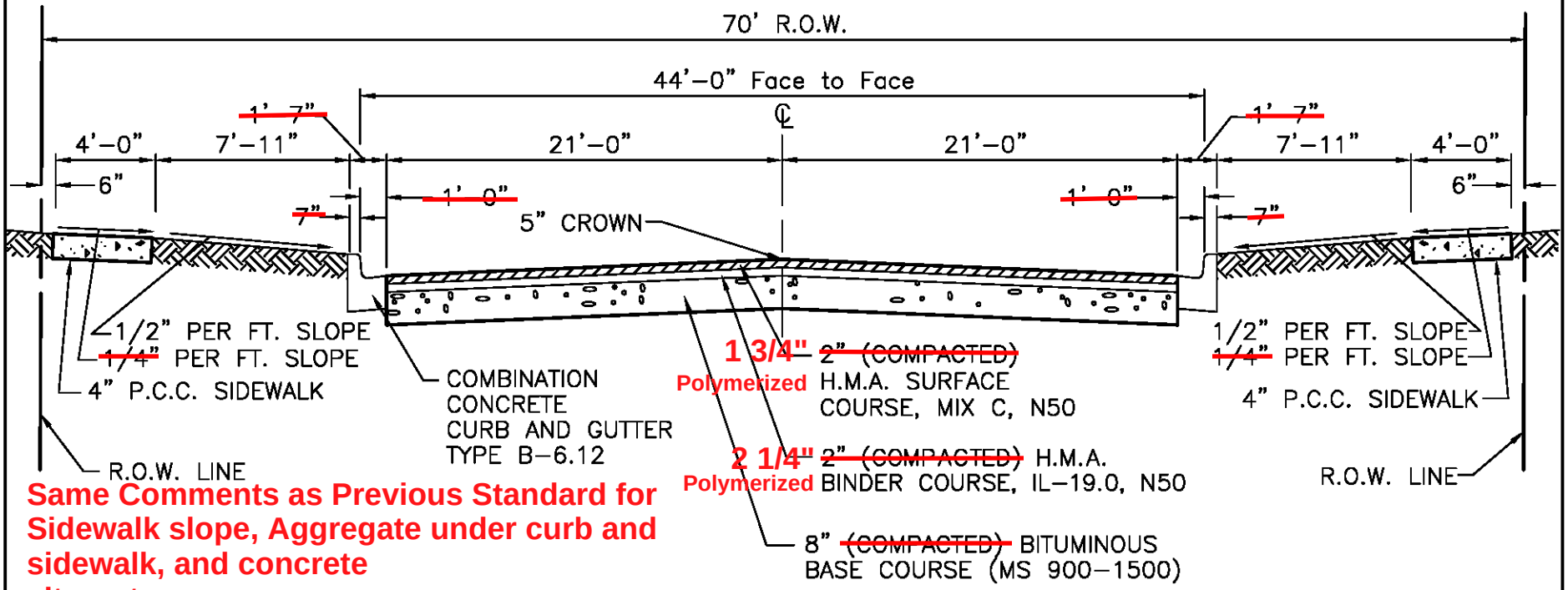
1 1/4" ~~1 1/2" (COMPACTED)~~ H.M.A. SURFACE COURSE, MIX C, N50,

2 1/4" ~~1 1/2"~~ H.M.A. ~~(COMPACTED)~~ BINDER COURSE, IL-19.0, N50

7" ~~(COMPACTED)~~ BITUMINOUS BASE COURSE (MS 1000-1200)

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	002

ROADWAY TYPICAL SECTION
COLLECTOR/DISTRIBUTOR STREET ~~(ASPHALT)~~



Same Comments as Previous Standard for Sidewalk slope, Aggregate under curb and sidewalk, and concrete alternate.

GENERAL NOTES:

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" CURRENT EDITION AND SUPPLEMENTAL SPECIFICATIONS, UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.
2. EXPANSION JOINTS SHALL BE INSTALLED IN SIDEWALKS AT ALL PROPERTY LINES.
3. PROOF-ROLL SUBGRADE IN THE PRESENCE OF THE CITY ENGINEER.

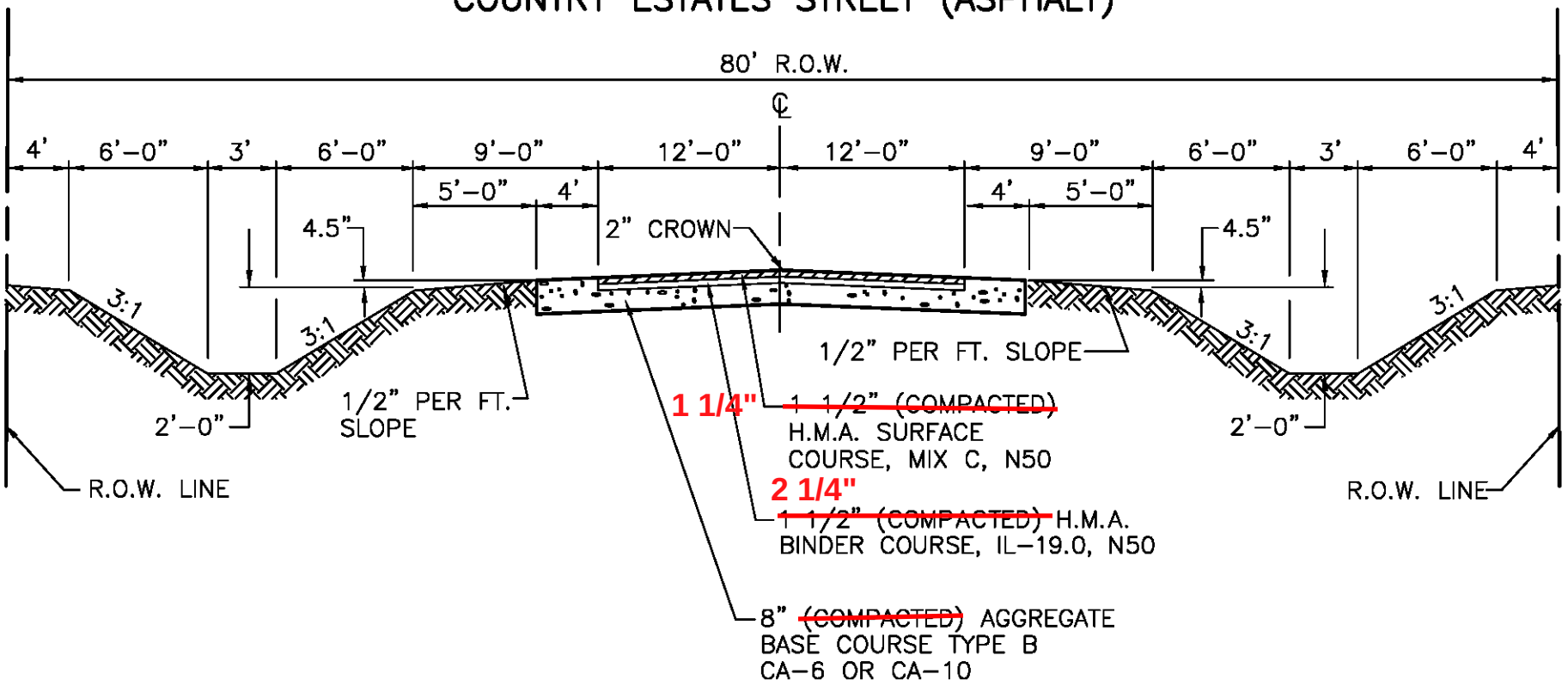
Due to higher traffic and truck loads on collectors, Polymerized Hot-Mix Asphalt Surface would hold up better in the long run.

The 8" Bituminous Base Course is essentially the same as the layer above. We should rename it to 8" Hot-Mix ASphalt Binder Course, IL-19.0, N50. The top lift of binder in a polymerized pavement needs to be polymerized.

We should look at adding atleast 4" of Aggregate to give a better subgrade to build off of.

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	003

ROADWAY TYPICAL SECTION
COUNTRY ESTATES STREET (ASPHALT)



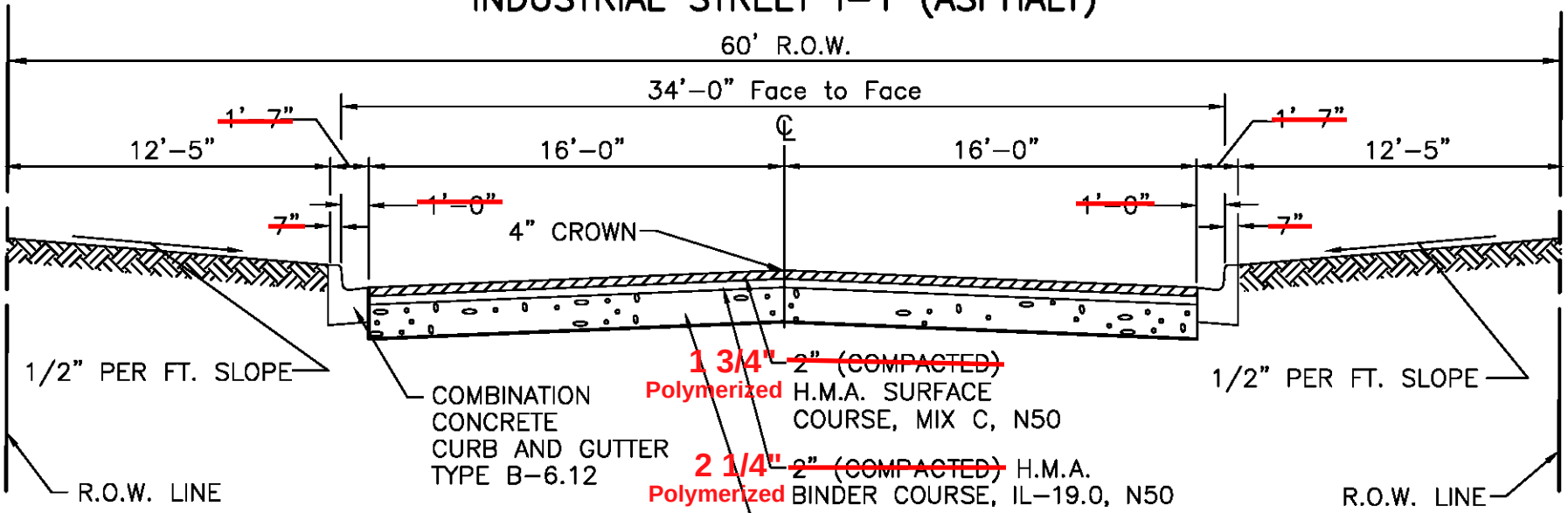
GENERAL NOTES:

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" CURRENT EDITION AND SUPPLEMENTAL SPECIFICATIONS, UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.
2. DITCH AND BACK SLOPES MAY VARY WITH APPROVAL OF THE CITY ENGINEER.
3. PROOF–ROLL SUBGRADE AND AGGREGATE BASE COURSE IN THE PRESENCE OF THE CITY ENGINEER.

I would like to add a detail for a "Safety Edge" for asphalt with aggregate shoulders. This would essentially show the edge look more like a pyramid. The aggregate shoulder would cover this wedge of asphalt, but it helps with overstearing accidents when people drift off the roadway.

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	004

ROADWAY TYPICAL SECTION
INDUSTRIAL STREET I–1 (ASPHALT)



Polymerized Hot-Mix Asphalt Surface would hold up better in the long run.

The Bituminous Base Course should be renamed to Hot-Mix Asphalt Binder Course, IL-19.0, N50

Why is there no sidewalk?

We should look at adding atleast 4" of Aggregate to give a better subgrade to build off of.

NOTE: ALTERNATE

6" (COMPACTED) BITUMINOUS BASE COURSE *

4" (COMPACTED) AGGREGATE SUBBASE, CA–6 OR CA–10

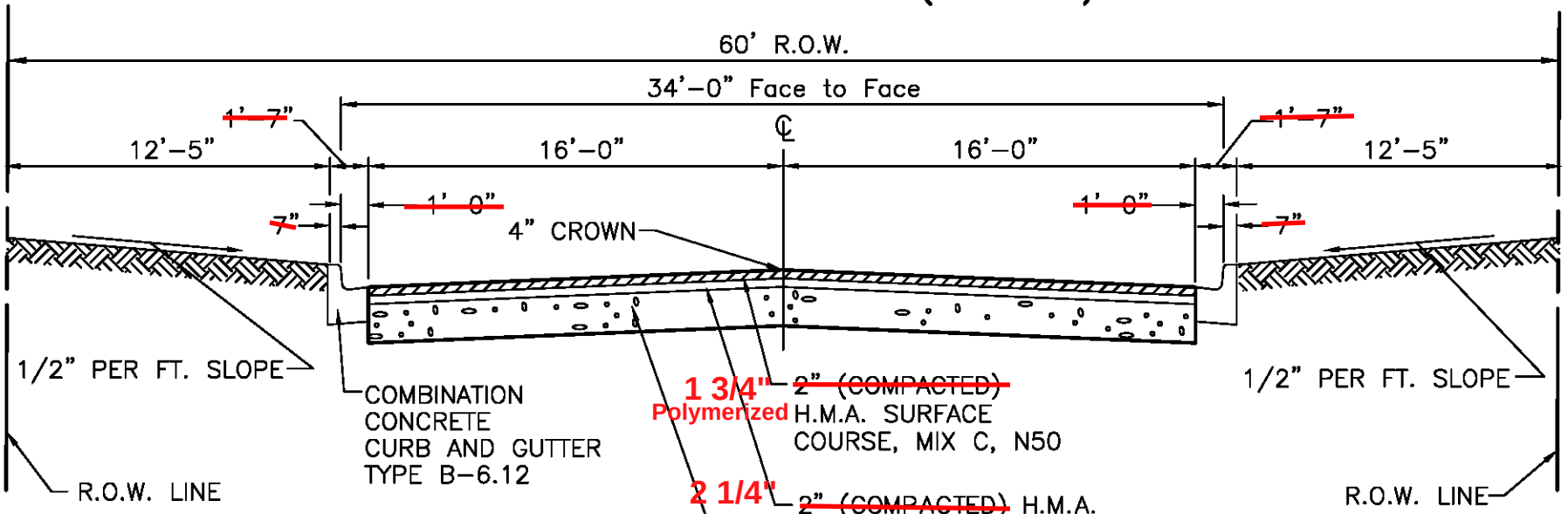
* MINIMUM MARSHALL STABILITY (MS 1200)

GENERAL NOTES:

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" CURRENT EDITION AND SUPPLEMENTAL SPECIFICATIONS, UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.
2. PROOF–ROLL SUBGRADE AND AGGREGATE BASE COURSE IN THE PRESENCE OF THE CITY ENGINEER.

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	005

ROADWAY TYPICAL SECTION
INDUSTRIAL STREET I–2 (ASPHALT)



NOTE ALTERNATE:
6" P.C.C. BASE COURSE

Polymerized Hot-Mix Asphalt Surface would hold up better in the long run.

Why is there no sidewalk?

We should look at adding atleast 4" of Aggregate to give a better subgrade to build off of.

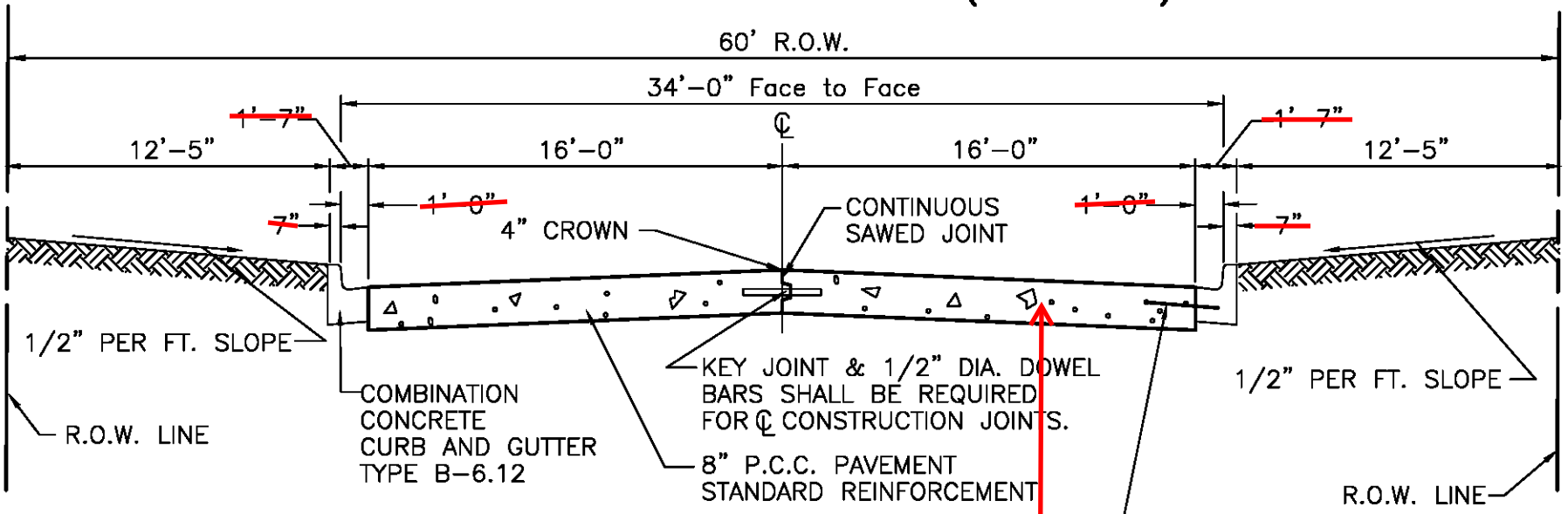
Bituminous Base Course renamed Hot-Mix Asphalt Binder Course, IL-19.0, N50 and add an * before it denoting this and the PCC Base Course are Alternates.

GENERAL NOTES:

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" CURRENT EDITION AND SUPPLEMENTAL SPECIFICATIONS, UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.
2. PROOF–ROLL SUBGRADE IN THE PRESENCE OF THE CITY ENGINEER.

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	006

ROADWAY TYPICAL SECTION
INDUSTRIAL STREET I–1 & I–2 (CONCRETE)



GENERAL NOTES:

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" CURRENT EDITION AND SUPPLEMENTAL SPECIFICATIONS, UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.
2. TRANSVERSE CONTRACTION JOINTS AND LONGITUDINAL CONSTRUCTION JOINTS SHALL BE INSTALLED PER IDOT STANDARD 2323, PORTLAND CEMENT CONCRETE (P.C.C.) PAVEMENT SHALL ADHERE TO IDOT STANDARD 2179.
3. SUBGRADE SHALL BE PREPARED IN ACCORDANCE WITH SECTION 301 OF THE STANDARD SPECIFICATIONS. WHERE– EVER REQUIRED SUBGRADE REQUIREMENTS CANNOT BE MET. 4" OF AGGREGATE BASE CA–6 OR CA–10 WILL BE REQUIRED.
4. SAWED JOINTS SHALL BE SEALED WITH HOT POURED MATERIAL MEETING THE REQUIREMENTS OF ARTICLE 750,02 OF THE STANDARD SPECIFICATIONS.
5. PROOF–ROLL SUBGRADE IN THE PRESENCE OF THE CITY ENGINEER.

Update with most recent IDOT information

We should show another dowel bar here with a sawed Joint. Getting widths longer than 12' starts to increase the chance of uncontrolled longitudinal cracks.

We should also look to add a standard for non-reinforced concrete pavement as well as a joint detail for that. or We can add to the general notes to follow IDOTs Standards BLR 10-7 and BLR 14-12

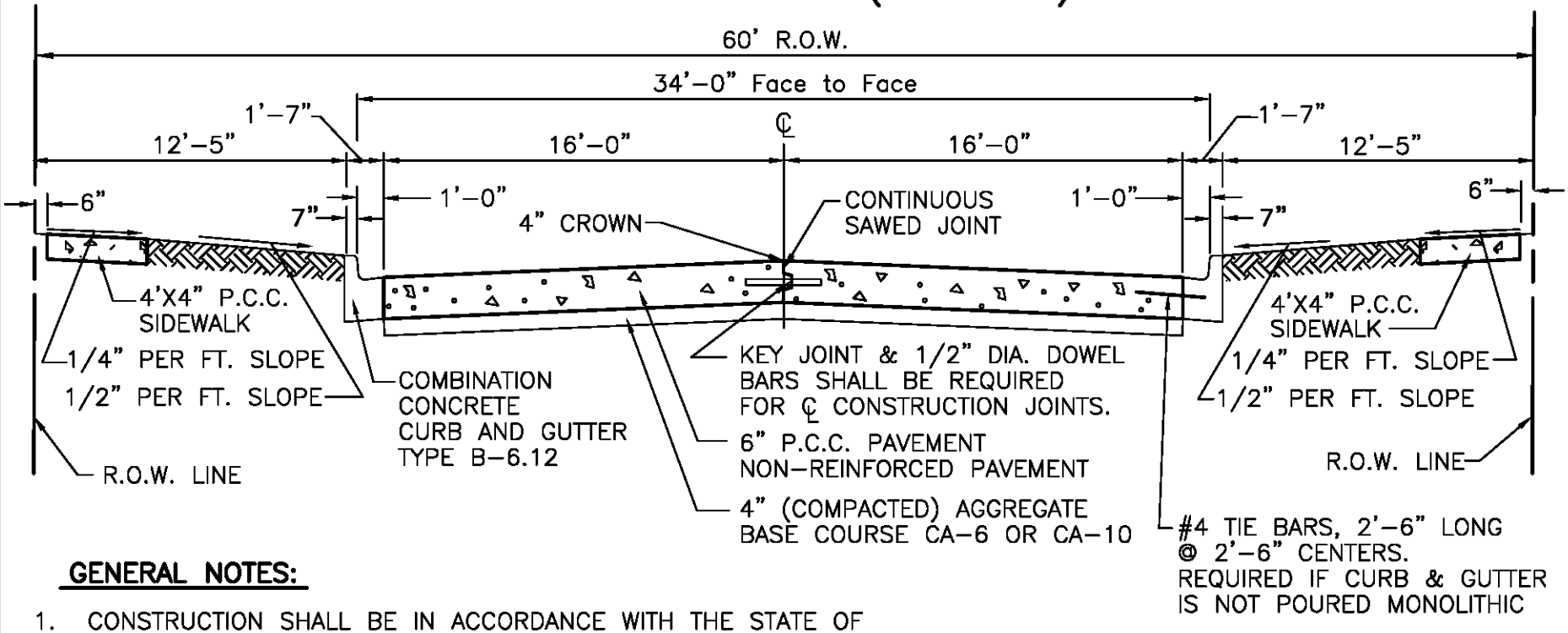
We should also look to add a standard for reinforced concrete pavement as well as a joint detail for that.

Should there be sidewalk added to this?

Add 4" aggregate under pavement extended under curb as well.

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	007

ROADWAY TYPICAL SECTION
RESIDENTIAL STREET (CONCRETE)



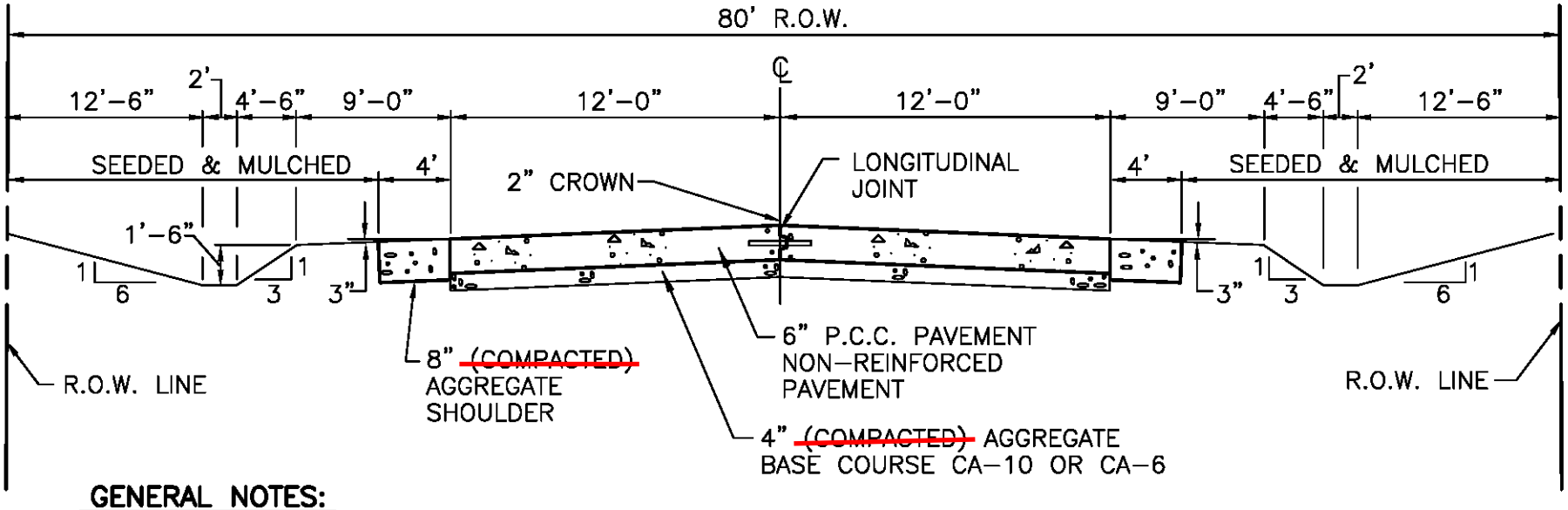
GENERAL NOTES:

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" CURRENT EDITION AND SUPPLEMENTAL SPECIFICATIONS UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.
2. TRANSVERSE CONTRACTION JOINTS AND LONGITUDINAL CONSTRUCTION JOINTS SHALL BE INSTALLED PER B.L.R.-10.
3. SUBGRADE SHALL BE PREPARED IN ACCORDANCE WITH SECTION 301 OF THE STANDARD SPECIFICATIONS.
4. SAWED JOINTS SHALL BE SEALED WITH HOT POURED MATERIAL MEETING THE REQUIREMENTS OF ARTICLE 750.02 OF THE STANDARD SPECIFICATIONS.
5. PROOF-ROLL SUBGRADE AND AGGREGATE BASE COURSE IN THE PRESENCE OF THE CITY ENGINEER.

THIS STANDARD HAS BEEN WITHDRAWN

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	008

ROADWAY TYPICAL SECTION
COUNTRY ESTATES STREET (CONCRETE)



GENERAL NOTES:

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" CURRENT EDITION AND SUPPLEMENTAL SPECIFICATIONS UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.
2. TRANSVERSE CONTRACTION JOINTS AND LONGITUDINAL CONSTRUCTION JOINT SHALL BE PLACED INSTALLED IN ACCORDANCE WITH B.L.R.-10.
3. SAWED JOINTS WILL BE SEALED WITH HOT POURED MATERIAL MEETING THE REQUIREMENTS OF ARTICLE 750.02 OF THE STANDARD SPECIFICATIONS.
4. A SAWED LONGITUDINAL JOINT SHALL BE USED ONLY WHEN THE PAVEMENT IS POURED MONOLITHIC FULL WIDTH.
5. ~~SUBGRADE SHALL BE PREPARED IN ACCORDANCE WITH SECTION 301 OF THE STANDARD SPECIFICATIONS.~~
6. PROOF-ROLL SUBGRADE AND AGGREGATE BASE COURSE IN THE PRESENCE OF THE CITY ENGINEER.

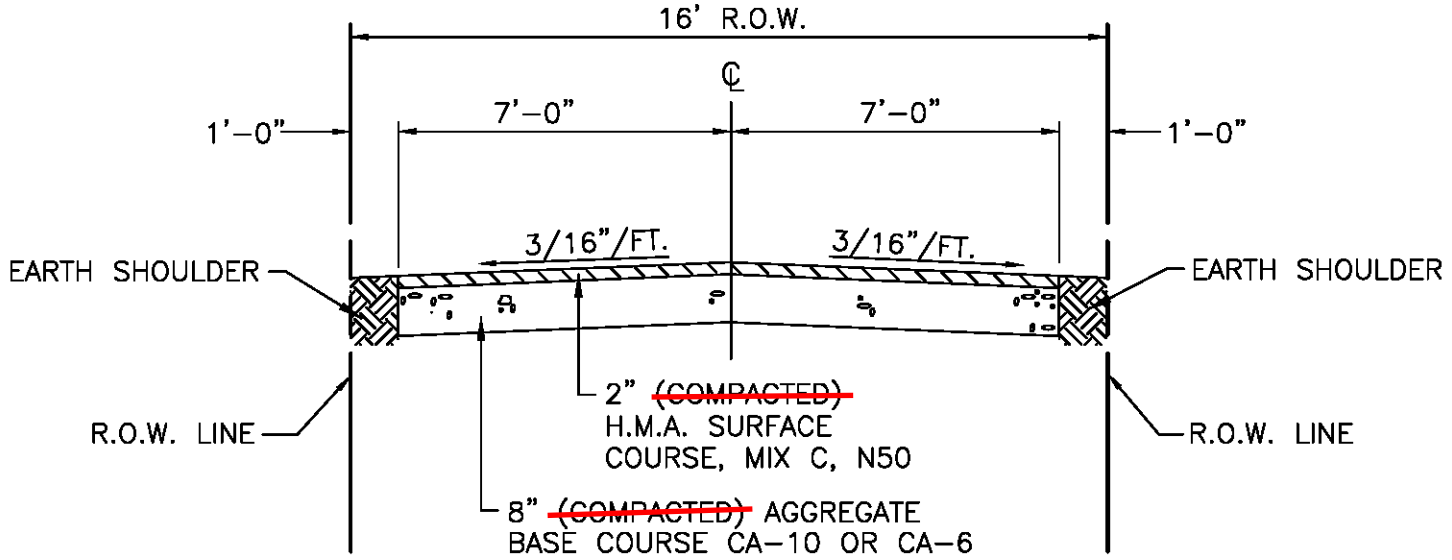
Extend aggregate through the shoulder to maintain subgrade drainage.

Add 4" topsoil to the callout for the ditch section.

Add General note that Fertilizer shall be applied according to Section 250 of the Standard Specifications.

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	009

ALLEY TYPICAL SECTION

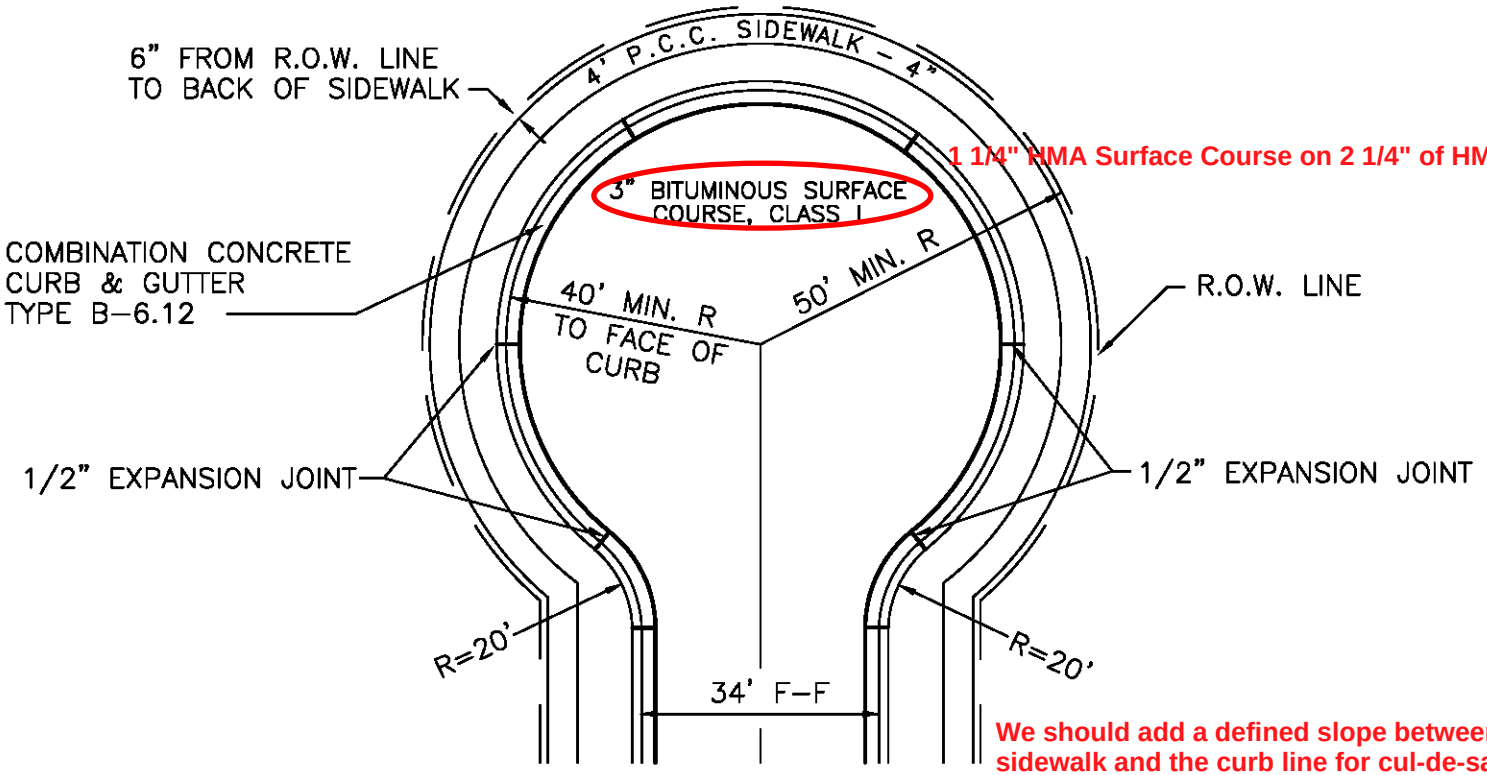


GENERAL NOTE:

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" CURRENT EDITION AND SUPPLEMENTAL SPECIFICATIONS UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.
2. PROOF–ROLL SUBGRADE AND AGGREGATE BASE COURSE IN THE PRESENCE OF THE CITY ENGINEER.

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	010

CUL–DE–SAC TYPICAL PLAN



1 1/4" HMA Surface Course on 2 1/4" of HMA Binder Course.

We should add a defined slope between the sidewalk and the curb line for cul-de-sacs (Match Residential XS)

GENERAL NOTES:

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" CURRENT EDITION AND SUPPLEMENTAL SPECIFICATIONS, UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.
2. ALL RADII SHALL BE FORMED WITH FLEXIBLE FORMS.
3. EXPANSION JOINTS ON CUL–DE–SAC SHALL BE INSTALLED AT A MAXIMUM OF 40 FEET APART.
4. CONTRACTION JOINTS SHALL NOT BE INSTALLED IN CUL–DE–SAC.
5. SIDEWALK SHALL HAVE A SLOPE OF ~~1/4~~" PER FT. TOWARD THE CURB.

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		JAN. 1995	011

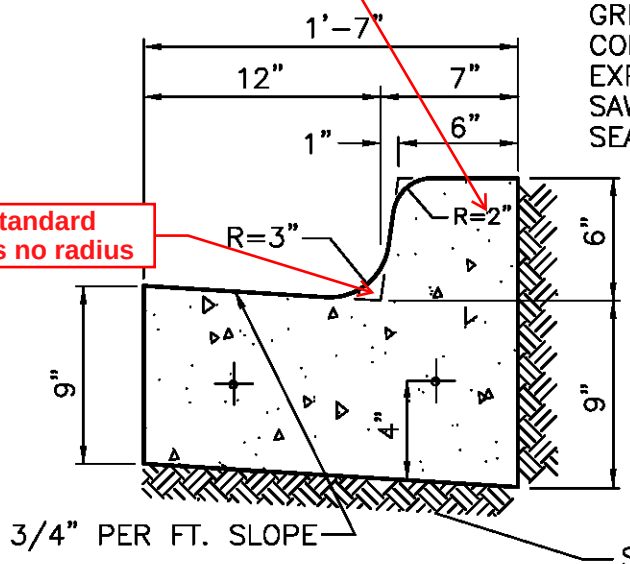
COMBINATION CONCRETE CURB AND GUTTER
CITY STANDARD TYPE B-6.12

Differing the curb shape from IDOT's requires contractor's to create a new mold for their curb machines.Most of the local firms already have one made if they have done work in either Washington or Morton.

IDOT's Standard Curb is 1" Radius

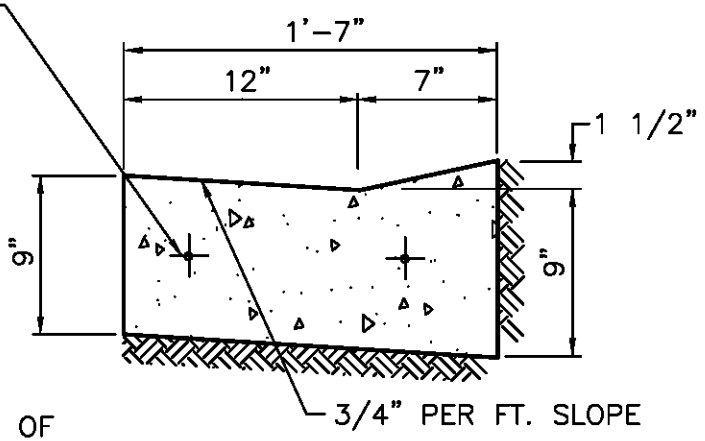
IDOT's standard Curb has no radius

PROVIDE EXPANSION JOINTS AT INTERSECTION RETURNS, INLET BOXOUTS, WORK STOPPAGE POINTS AND AT A MAXIMUM OF 200' O.C. USE #6 BARS, SMOOTH, 30" LONG WITH A METALLIC EXPANSION SLEEVE ON ONE END. GREASE ENTIRE BAR. PROVIDE SAWED CONTRACTION JOINTS AT 15' O.C. FILL EXPANSION & CONTRACTION JOINTS AND SAW CUTS WITH SONOLASTIC POLYURETHANE SEALANT OR APPROVED EQUAL.



BARRIER CURB

SUBGRADE COMPACTED TO 95% OF MAXIMUM DENSITY, STANDARD PROCTOR. IF FILL IS REQUIRED, USE COMPACTED CA-6 GRAVEL.

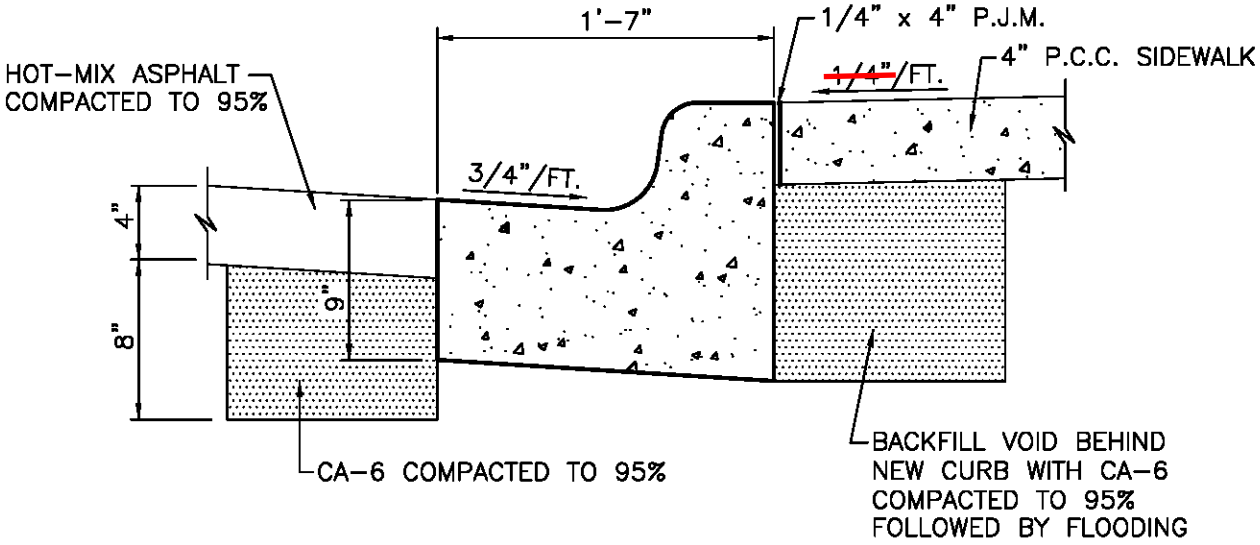


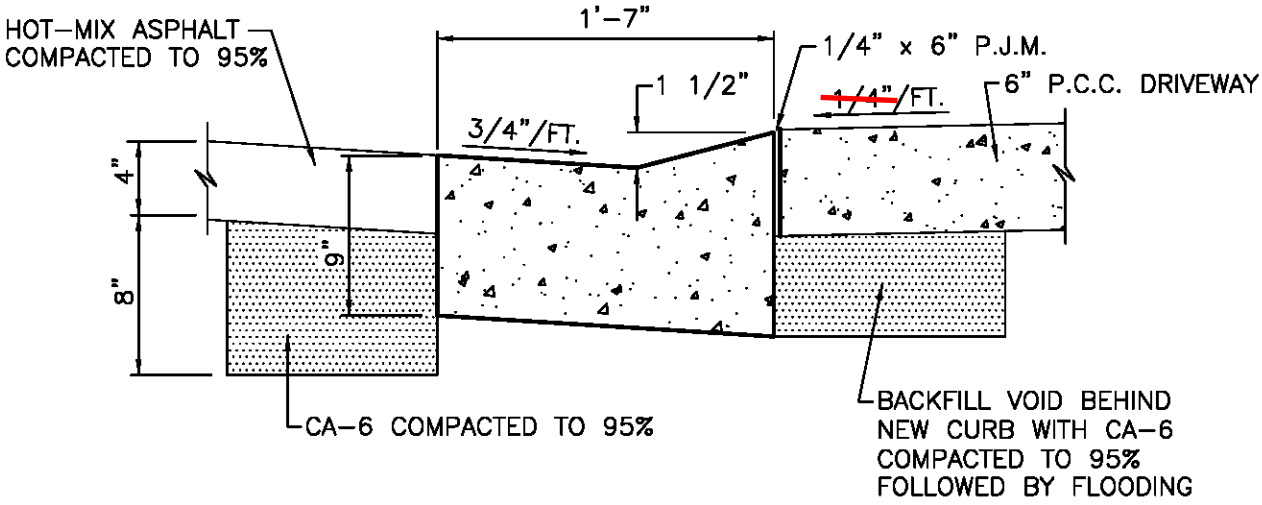
DEPRESSED CURB

GENERAL NOTES:

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" CURRENT EDITION AND SUPPLEMENTAL SPECIFICATIONS, UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.
2. REFER TO SECTION 420 OF THE STANDARD SPECIFICATIONS.

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	012



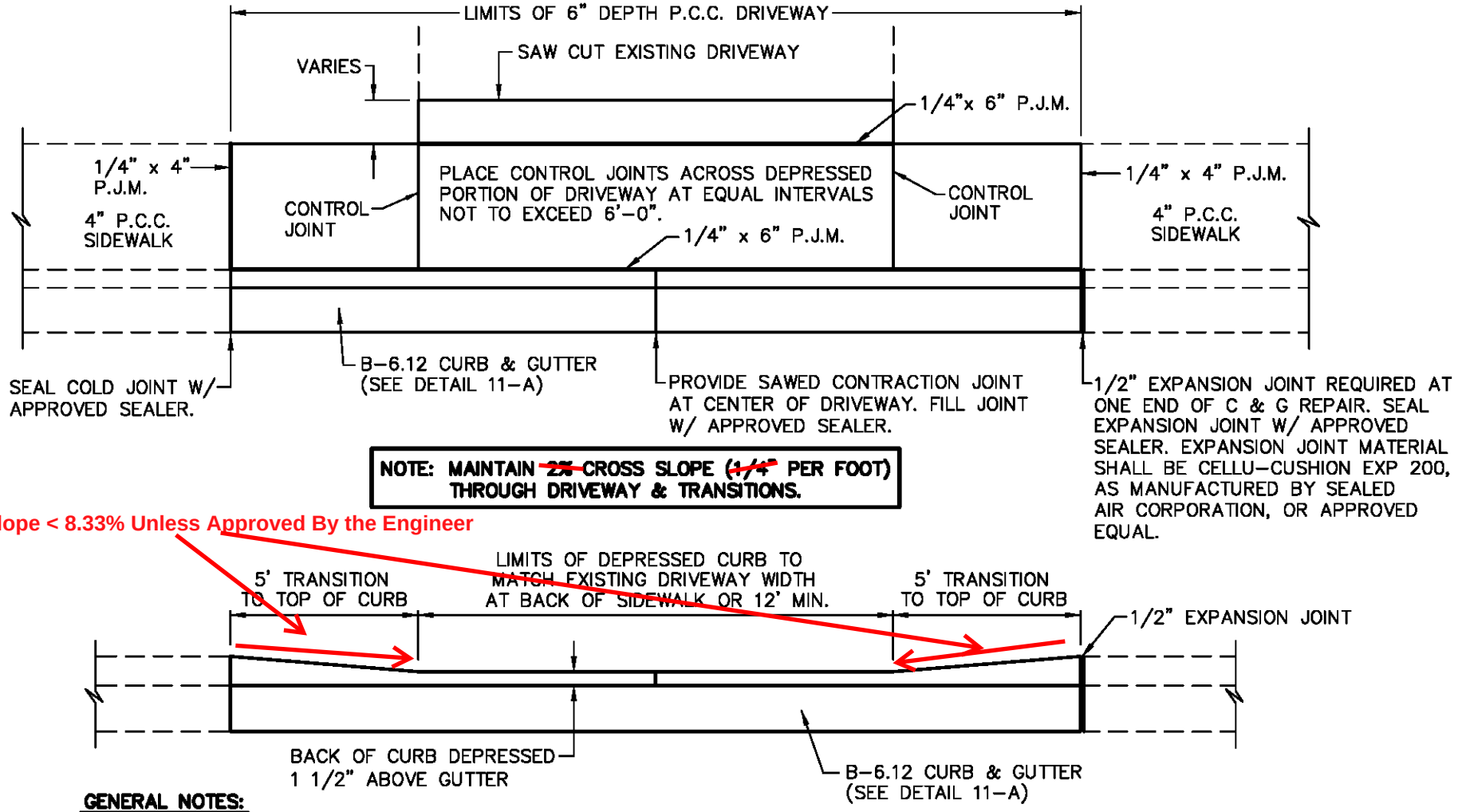


GENERAL NOTES:

1. ALL DISTURBED SUBGRADE SHALL BE MECHANICALLY COMPACTED TO 95% PRIOR TO PLACEMENT OF CONCRETE. IF FILL IS REQUIRED, USE COMPACTED CA-6.
2. HAND PLACED CURB & GUTTER SHALL BE FORMED ON FRONT AND BACK.
3. CONCRETE SHALL BE PLACED IN A MANNER TO AVOID EXCESSIVE HONEY COMBING.
4. P.J.M. SHALL BE REFLEX RUBBER EXPANSION MATERIAL AS MANUFACTURED BY THE J.D. RUSSELL COMPANY OR APPROVED EQUAL.

COMBINATION CONCRETE CURB AND GUTTER REPLACEMENT WITH CURBLINE SIDEWALK

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	013



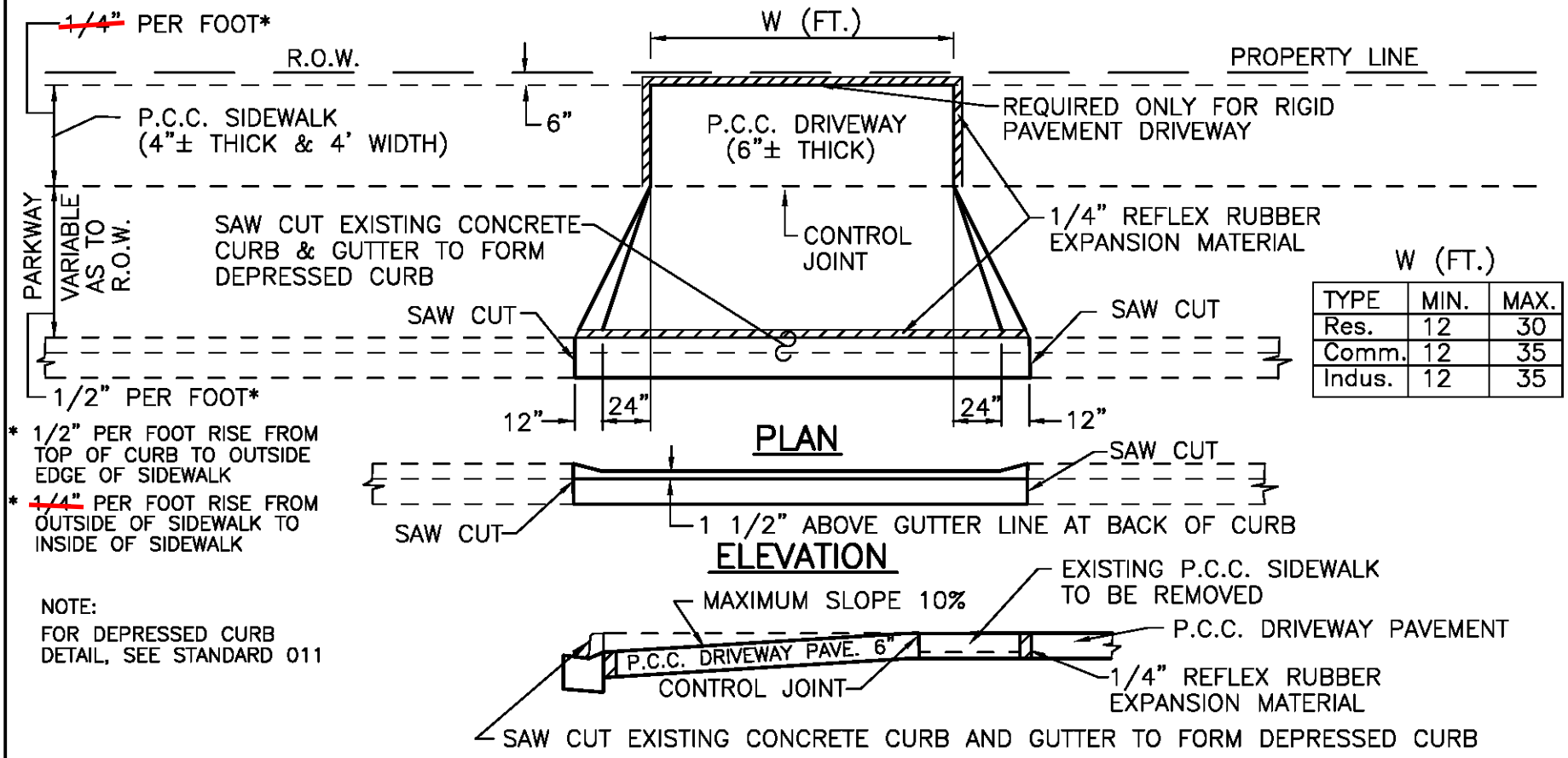
GENERAL NOTES:

1. CURB & GUTTER AND SIDEWALK SHALL BE SAWED TO FULL DEPTH AT BEGINNING AND END OF ANY REMOVAL SECTION.
2. LIMITS OF DRIVEWAY REMOVAL BEYOND SIDEWALK WILL VARY DEPENDING ON GRADE.
3. P.J.M. SHALL BE REFLEX RUBBER EXPANSION MATERIAL AS MANUFACTURED BY THE J.D. RUSSELL COMPANY OR APPROVED EQUAL.
4. JOINT SEALER SHALL BE SONOLASTIC POLYURETHANE SEALANT OR APPROVED EQUAL.

DRIVEWAY ENTRANCE REPLACEMENT
FOR CURBLINE SIDEWALK

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	014

DRIVEWAY ENTRANCE DETAIL FOR CURB OPENINGS WITH SIDEWALK/PARKWAY



W (FT.)

TYPE	MIN.	MAX.
Res.	12	30
Comm.	12	35
Indus.	12	35

* 1/2" PER FOOT RISE FROM TOP OF CURB TO OUTSIDE EDGE OF SIDEWALK

* ~~1/4"~~ PER FOOT RISE FROM OUTSIDE OF SIDEWALK TO INSIDE OF SIDEWALK

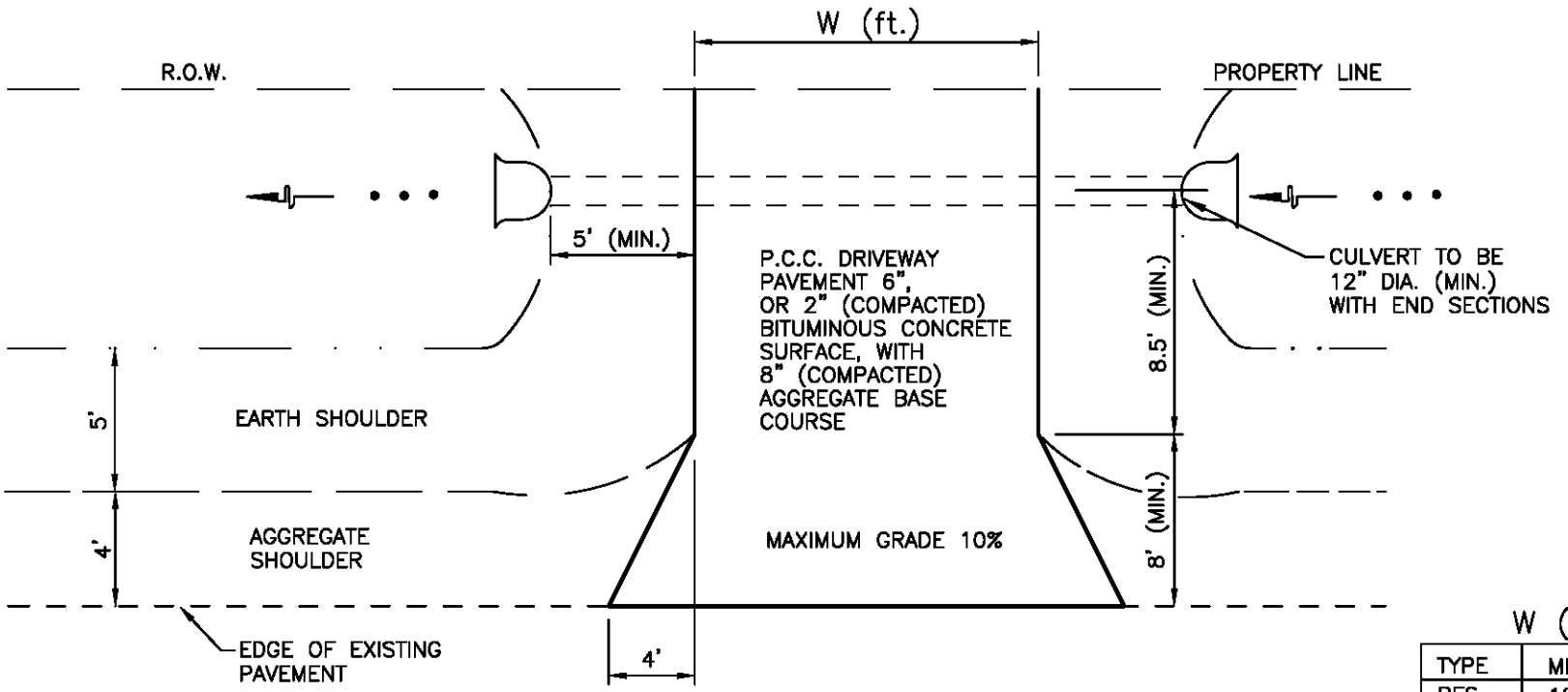
NOTE:
FOR DEPRESSED CURB DETAIL, SEE STANDARD 011

GENERAL NOTES:

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" CURRENT EDITION AND SUPPLEMENTAL SPECIFICATIONS, UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.
2. 2% CROSS SLOPE MUST BE MAINTAINED THROUGH SIDEWALK PORTION OF DRIVEWAY.
3. SIDEWALK AND CURB & GUTTER SHALL BE SAWED AT THE BEGINNING AND END OF THE REMOVAL SECTION.
4. WHERE NO SIDEWALK EXISTS, THE DRIVE SHALL BE CONSTRUCTED AS SHOWN TO ACCOMMODATE FUTURE SIDEWALK.
5. WHEN DRIVEWAY OPENING IS PROVIDED AT THE TIME OF CURB CONSTRUCTION, CONTRACTION JOINTS SHALL BE PLACED AT THE LOCATION OF THE SAW CUTS AS SHOWN.
6. ALL SAW CUTS MUST BE A MINIMUM OF 1" DEEP.
7. IN NO CASE SHALL CURB OPENING BE CONSTRUCTED BEYOND EXTENDED PROPERTY LINE OF ADJOINING PROPERTY.

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		DEC. 1999	015

DRIVEWAY ENTRANCE DETAIL
WITHOUT CURB AND GUTTER (DITCH SECTION)



PLAN

W (ft.)

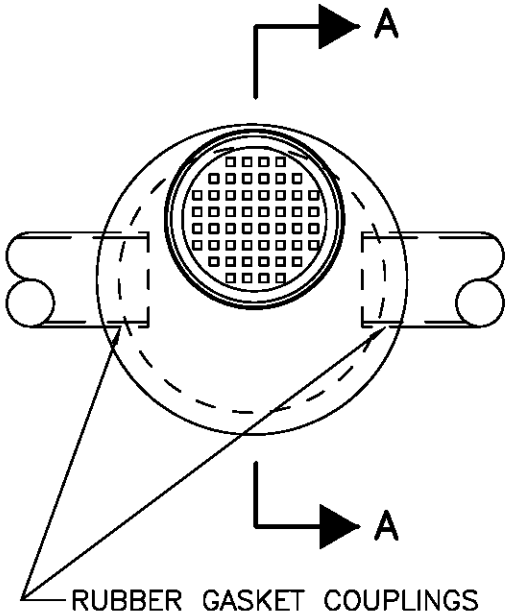
TYPE	MIN.	MAX.
RES.	12	30
COMM.	12	35
INDUS.	12	35

GENERAL NOTES:

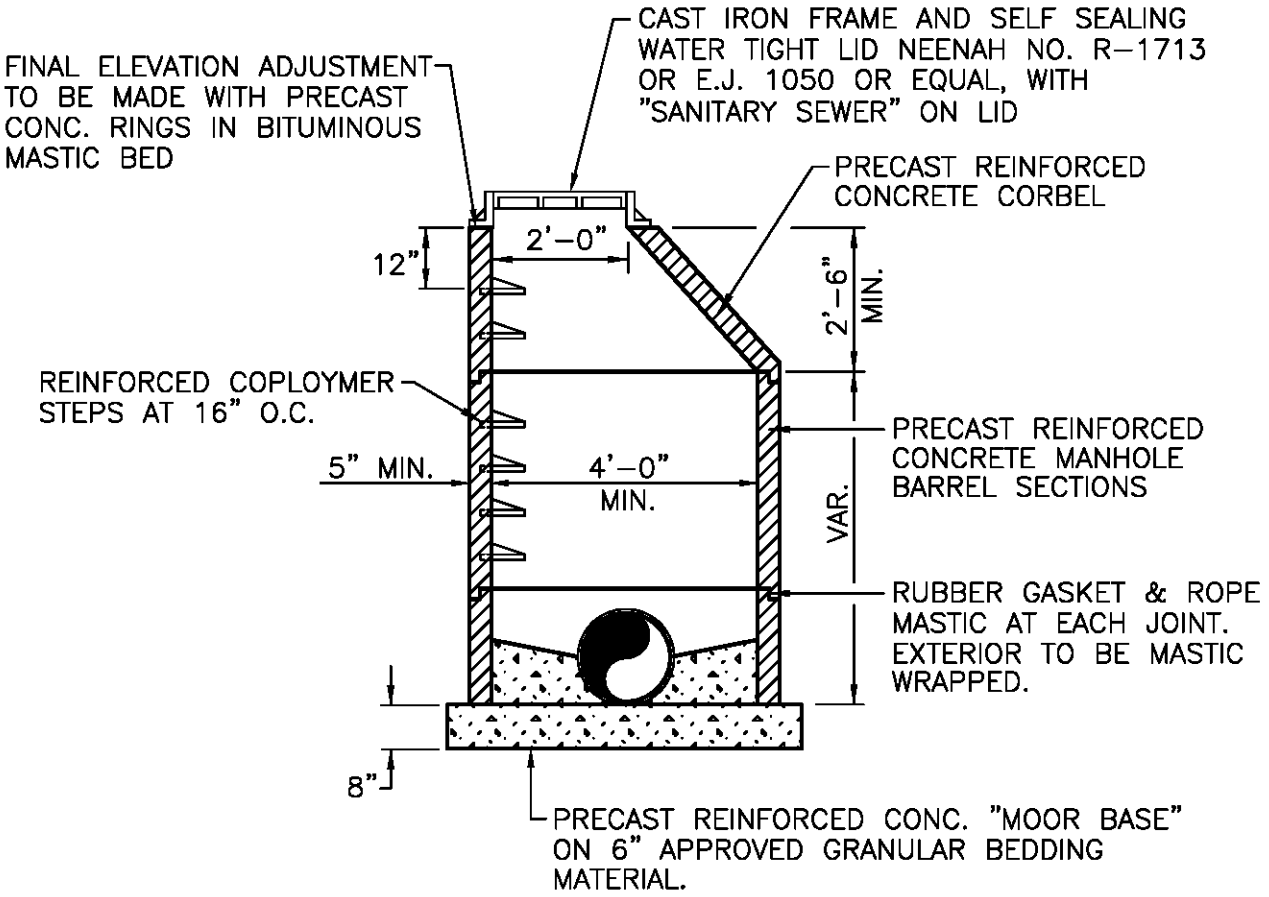
1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION" CURRENT EDITION AND SUPPLEMENTAL SPECIFICATIONS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. IN NO CASE SHALL THE DRIVEWAY PAVEMENT BE CONSTRUCTED BEYOND EXTENDED PROPERTY LINE OF ADJOINING PROPERTY.
3. THE CULVERT SHALL BE CONSTRUCTED TO MEET THE EXISTING DITCH GRADES.
4. THE SHOULDER AND DITCH LINES SHOWN ARE BASED ON THE CITY SUBDIVISION STANDARD FOR COUNTRY ESTATES. OTHER SECTIONS SHOULD MATCH THE INDICATED ALIGNMENT.
5. CULVERT PIPE SHALL BE EITHER BITUMINOUS COATED CORRUGATED STEEL PIPE OR SMOOTH WALL CORRUGATED POLYETHYLENE PIPE WITH APPROPRIATE STEEL OR POLYETHYLENE END SECTIONS.

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	016

SANITARY SEWER
CORBEL TOP MANHOLE



PLAN VIEW



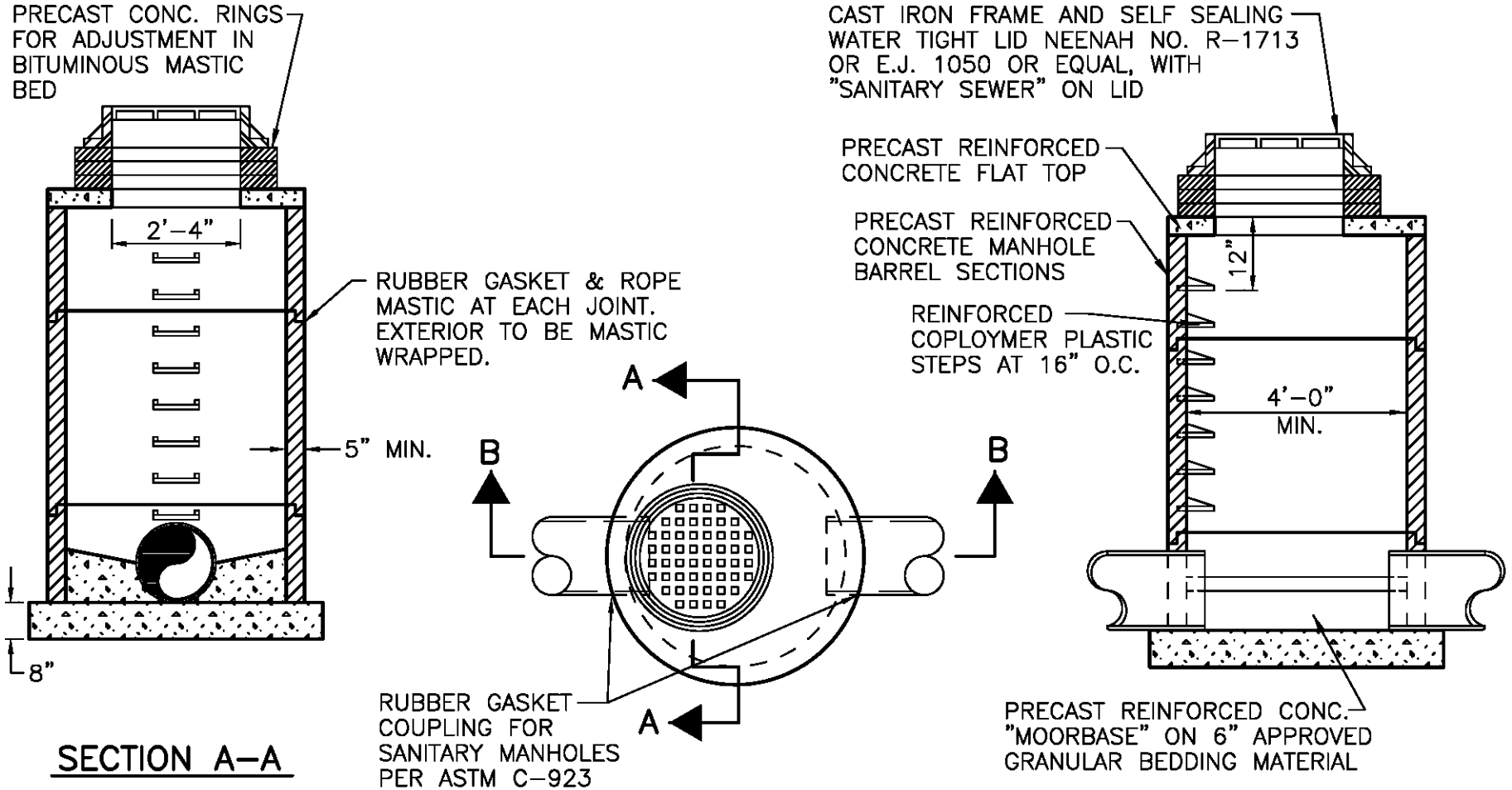
SECTION A-A

GENERAL NOTE:

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS" CURRENT EDITION AND SUPPLEMENTAL SPECIFICATIONS, UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	017

SANITARY SEWER
FLAT TOP MANHOLE



SECTION A-A

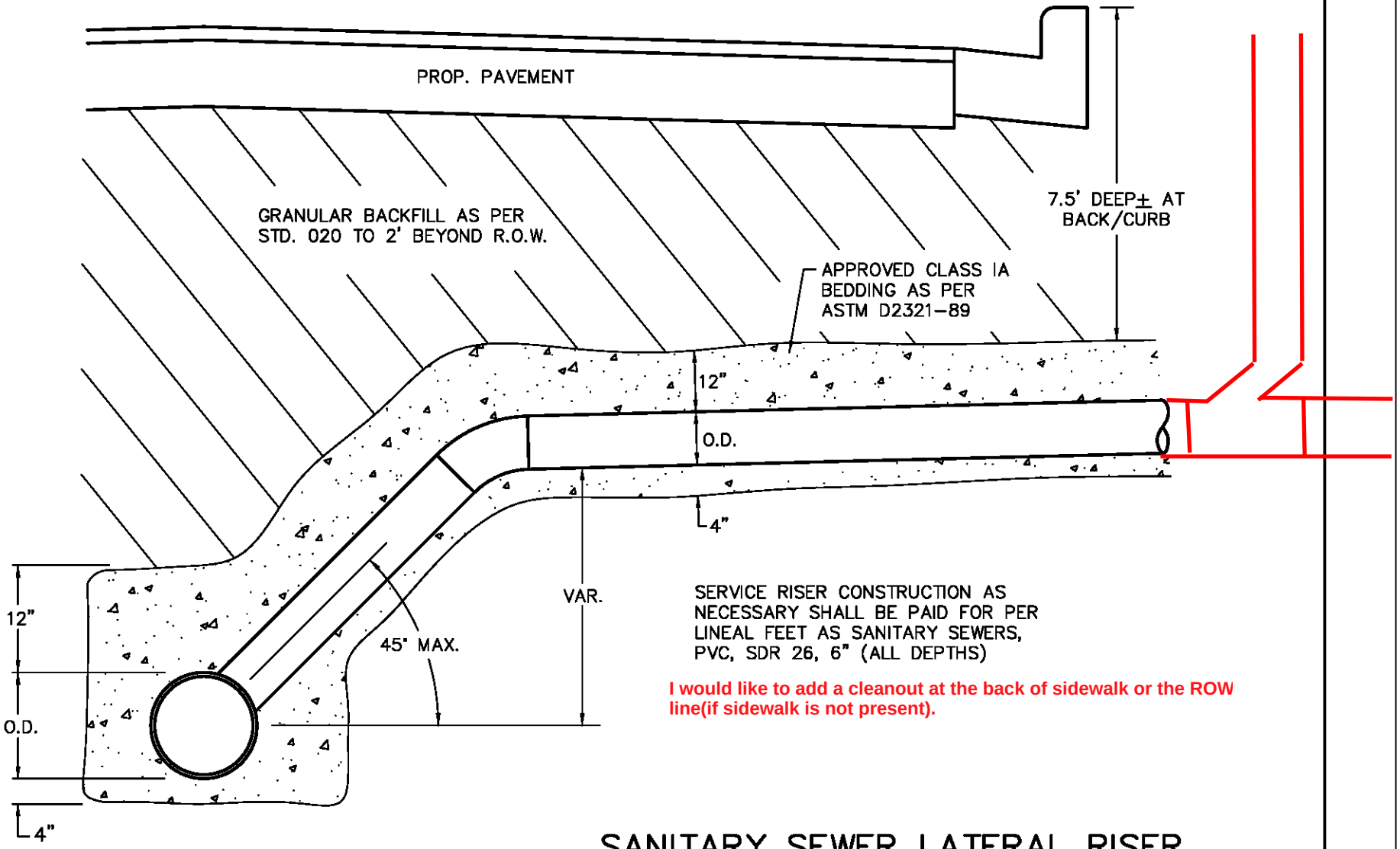
PLAN VIEW

SECTION B-B

GENERAL NOTE:

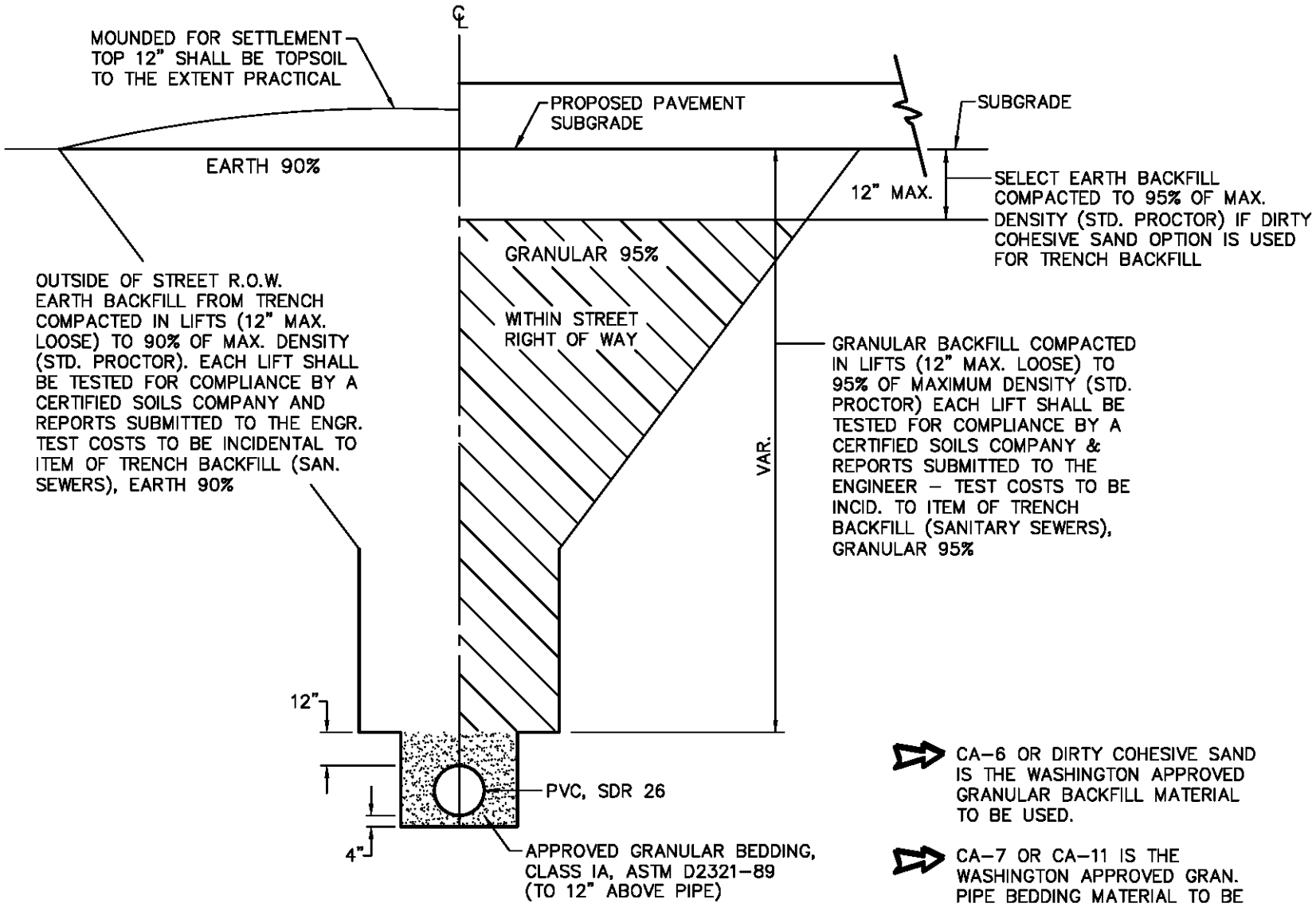
1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS" CURRENT EDITION AND SUPPLEMENTAL SPECIFICATIONS, UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	018



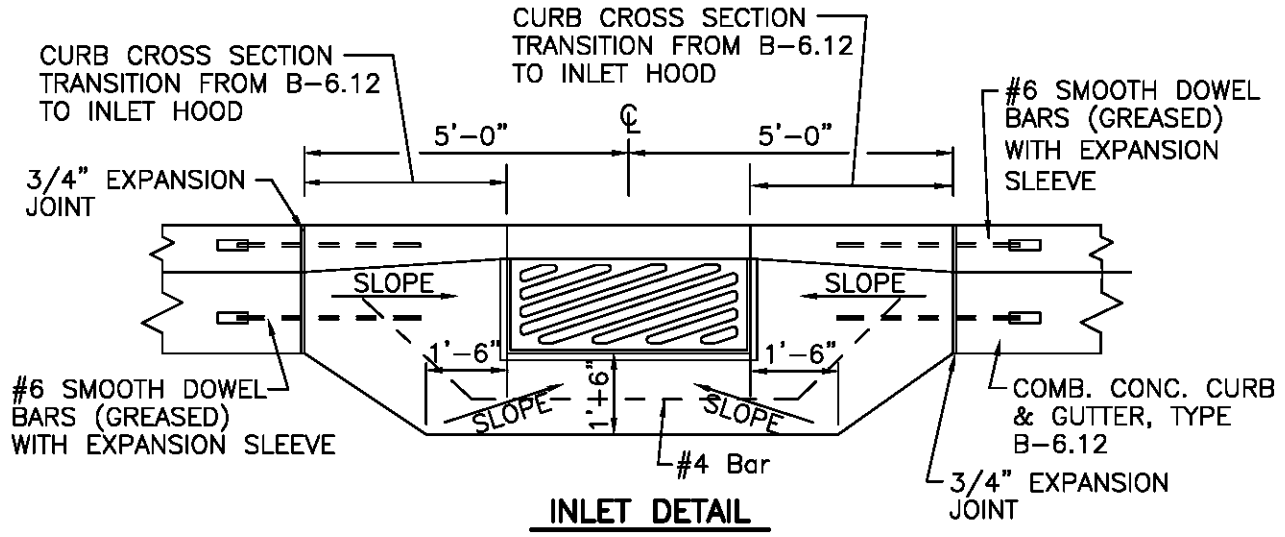
SANITARY SEWER LATERAL RISER

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	019

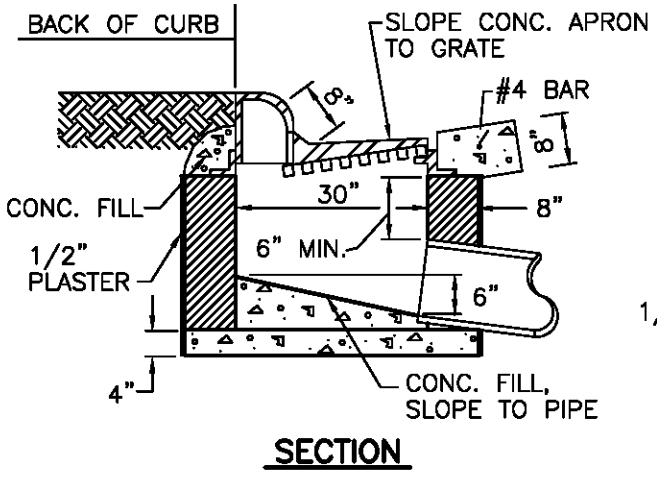


TYPICAL SANITARY SEWER TRENCH BACKFILL
EARTH – 90% AND GRANULAR – 95%

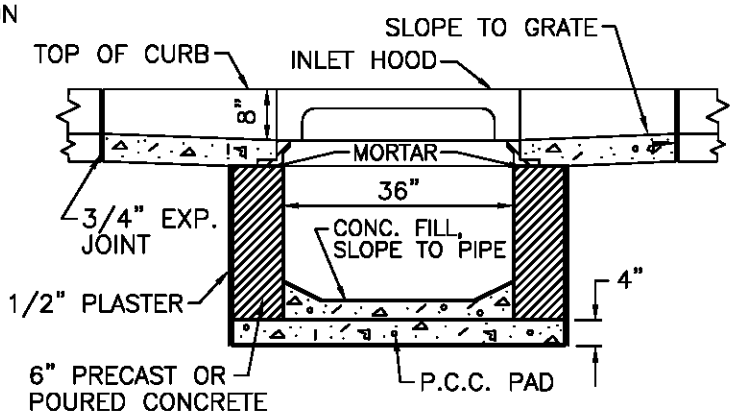
City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	020



INLET DETAIL



SECTION



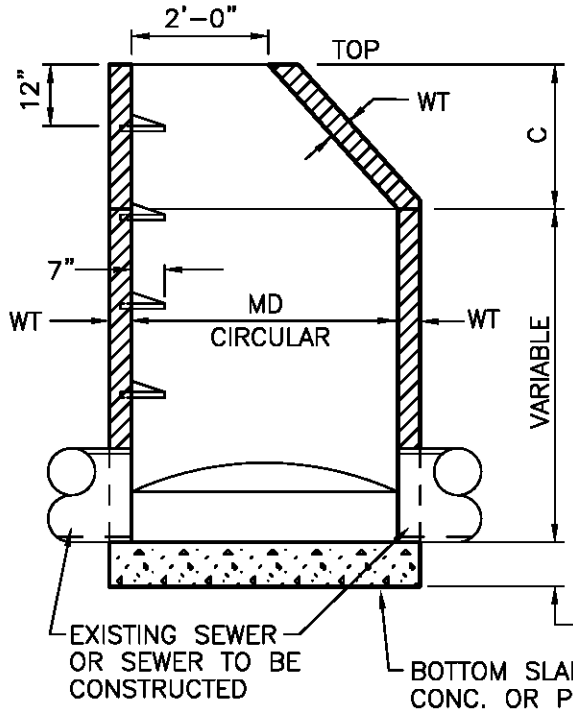
ELEVATION

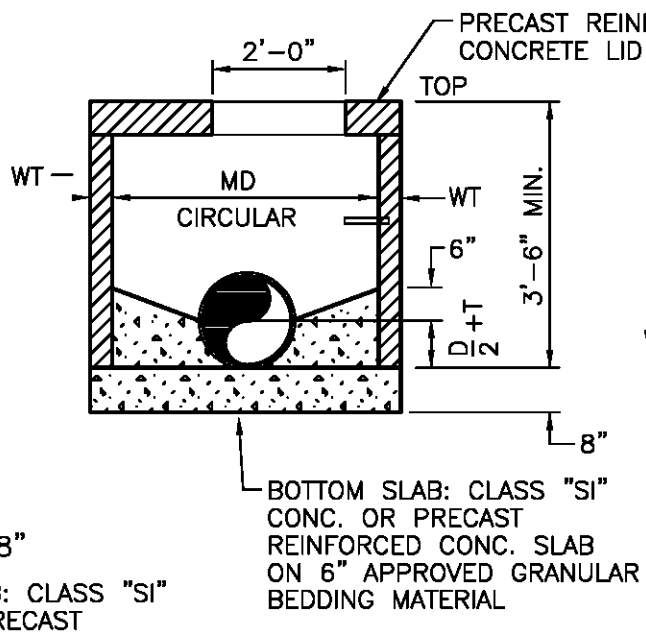
GENERAL NOTES:

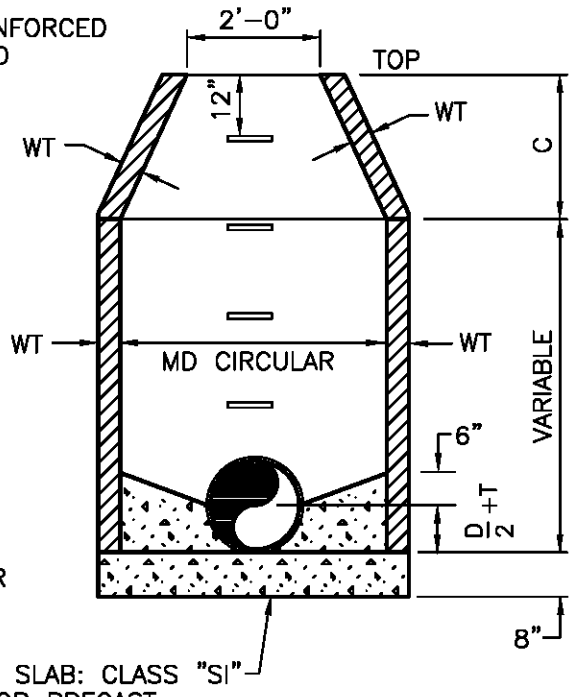
1. THE CURB INLET FRAME, HOOD & GRATE SHALL BE EQUAL TO EAST JORDAN IRONWORKS #7510 OR NEENAH FOUNDRY R-3246-A, HEAVY DUTY CURB INLET WITH DIAGONAL BAR GRATE. TYPE T1 BACK TO BE CAST W/ A "FISH EMBLEM" AND MARKED "DUMP NO WASTE - DRAINS TO WATERWAY". CASTING AND GRATE TO BE COATED WITH A WATER BASE ASPHALT PAINT.
2. BOLTS FOR THE HOOD SHALL BE PROVIDED WITH PROPER NUTS, WASHERS AND 1/4" MIN. STEEL PLATES TO COVER SLOTTED OPENINGS.
3. GROUT INLET BOTTOMS TO DRAIN TO OUTLET PIPE.
4. CASTING SHALL BE SET IN A FULL BED OF MORTAR.
5. IF BRICK CONSTRUCTION, THE INSIDE AND OUTSIDE OF INLET WALLS SHALL BE MORTAR COATED.
6. CUT ALL SEWER PIPES FLUSH WITH INTERIOR WALL OF INLET.
7. MAINTAIN 8" MAXIMUM HOOD OPENING.
8. THE 3" PVC DRAIN PIPE TO BE PLUGGED AT BOTH ENDS WITH NON-SHINK GROUT PRIOR TO PLACING FINAL PAVEMENT.
9. THE 3/4" EXPANSION JOINT MATERIAL SHALL BE CELLU-CUSHION EXP 200, AS MANUFACTURED BY THE SEALED AIR CORPORATION, OR APPROVED EQUAL.
10. INLET BOXES SHALL BE PLACED ACCURATELY. THE INSIDE BACK OF THE INLET BOX IS TO BE IN LINE WITH THE BACK OF THE PROPOSED OR EXISTING CURB & GUTTER. INLET BOXES THAT ARE MORE THAN 2" OUT OF ALIGNMENT, SHALL BE REMOVED AND RESET AT THE CONTRACTOR'S EXPENSE.
11. INLET BOXES MAY BE EITHER CONSTRUCTED IN THE FIELD, USING 8" BRICK WALLS OR PRECAST BOXES WITH 6" WALLS. IN EITHER CASE, THE INLET BOXES SHALL BE CONSTRUCTED SO THE MAXIMUM ADJUSTMENT HEIGHT BETWEEN THE TOP OF THE MASONRY AND THE BOTTOM OF THE INLET CASTING SHALL NOT EXCEED 3". PRECAST ADJUSTING RINGS SET IN ROPE MASTIC ARE ALLOWED.

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	021

MANHOLE – TYPE I
STORM SEWER







GENERAL NOTES:

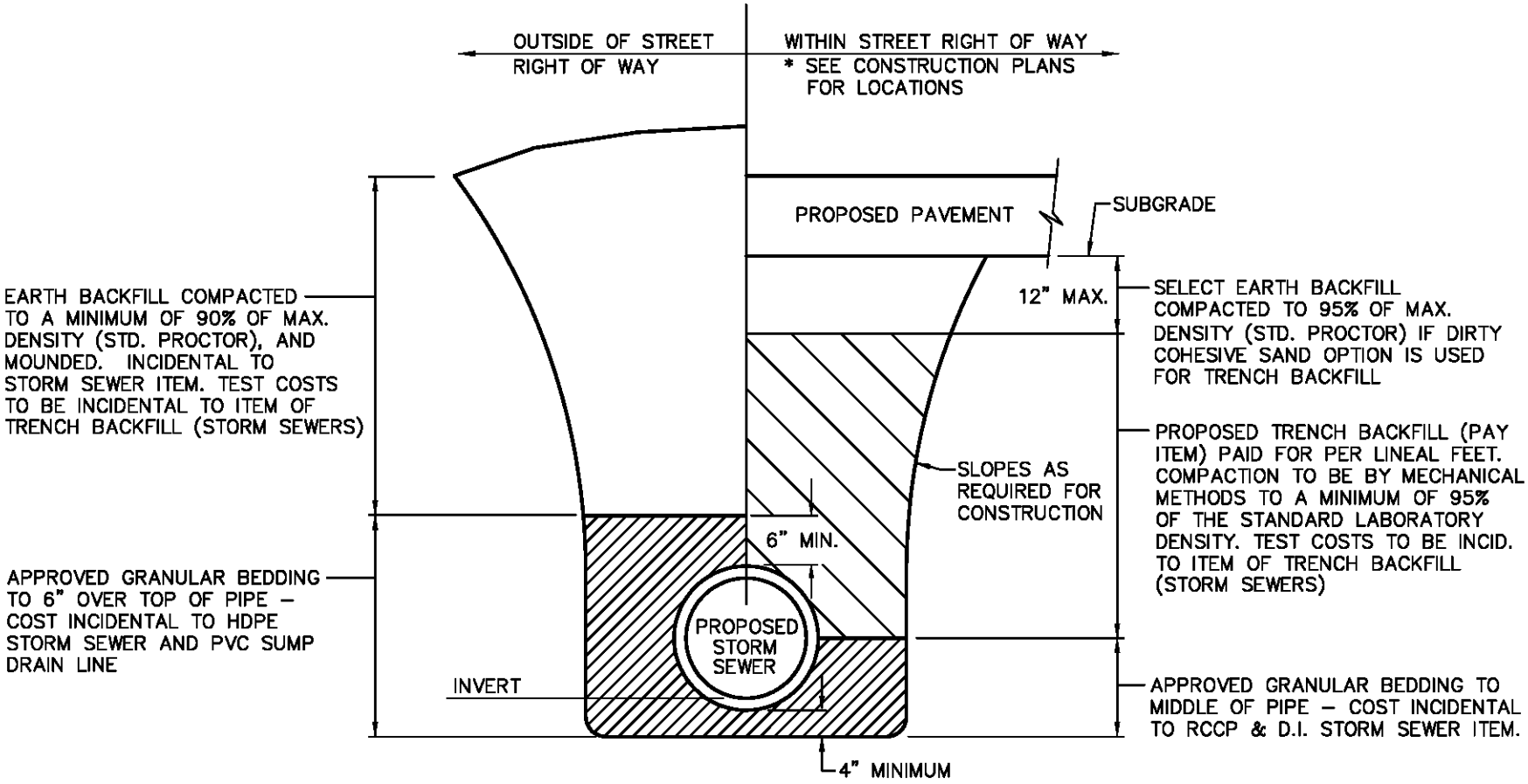
1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" CURRENT EDITION AND SUPPLEMENTAL SPECIFICATIONS, UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.
2. DIMENSION "C" FOR PRECAST REINFORCED CONCRETE RISERS MAY VARY FROM THE DIMENSION GIVEN TO PLUS 6".
3. MANHOLE TYPE I FOR STORM SEWERS SHALL HAVE A NEENAH NO. R–1713 FRAME WITH A TYPE D LID, E.J. 1050 WITH A TYPE MI LID OR EQUAL, "DUMP NO WASTE" SHALL BE ON LID.
4. PIPES INSIDE MANHOLE MUST BE CUT FLUSH WITH INTERIOR WALLS AFTER MANHOLE IS COMPLETE.
5. REINFORCED COPLOYMER PLASTIC STEPS SHALL BE INSTALLED AT 16" O.C.

ALTERNATE MATERIALS FOR WALLS	MD	C	WT
CONCRETE MASONRY UNITS	4'–0"	2'–6"	5"
	5'–0"	3'–9"	5"
PRECAST REINFORCED CONCRETE RISERS	4'–0"	2'–6"	4"
	5'–0"	3'–9"	5"
MONOLITHIC CONCRETE	4'–0"	2'–6"	6"
	5'–0"	3'–9"	6"

DIAMETER OF MAIN SEWER	MD
18" AND UNDER	4'–0"
21" TO 42" INCLUSIVE	5'–0"

MD=INSIDE DIA. MANHOLE
WT=WALL THICKNESS (MIN.)
D=DIAMETER OF PIPE
T=THICKNESS OF PIPE

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	022

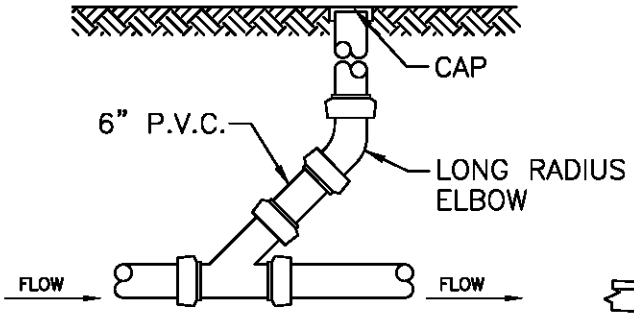


CA–6 OR DIRTY COHESIVE SAND IS THE WASHINGTON APPROVED GRANULAR BACKFILL MATERIAL TO BE USED.

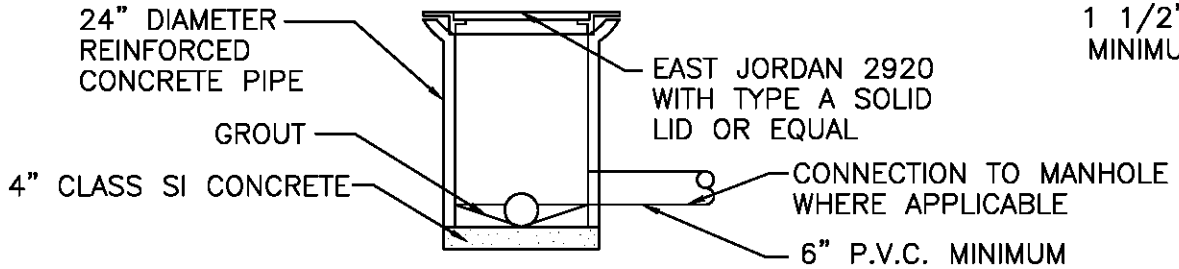
CA–7 OR CA–11 IS THE WASHINGTON APPROVED GRANULAR PIPE BEDDING MATERIAL; HOWEVER, WHITE FRACTURED CA–11 SHALL BE USED TO BED HDPE STORM SEWER PIPE.

STORM SEWER & SUMP DRAIN LINE TRENCH DETAILS

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	023

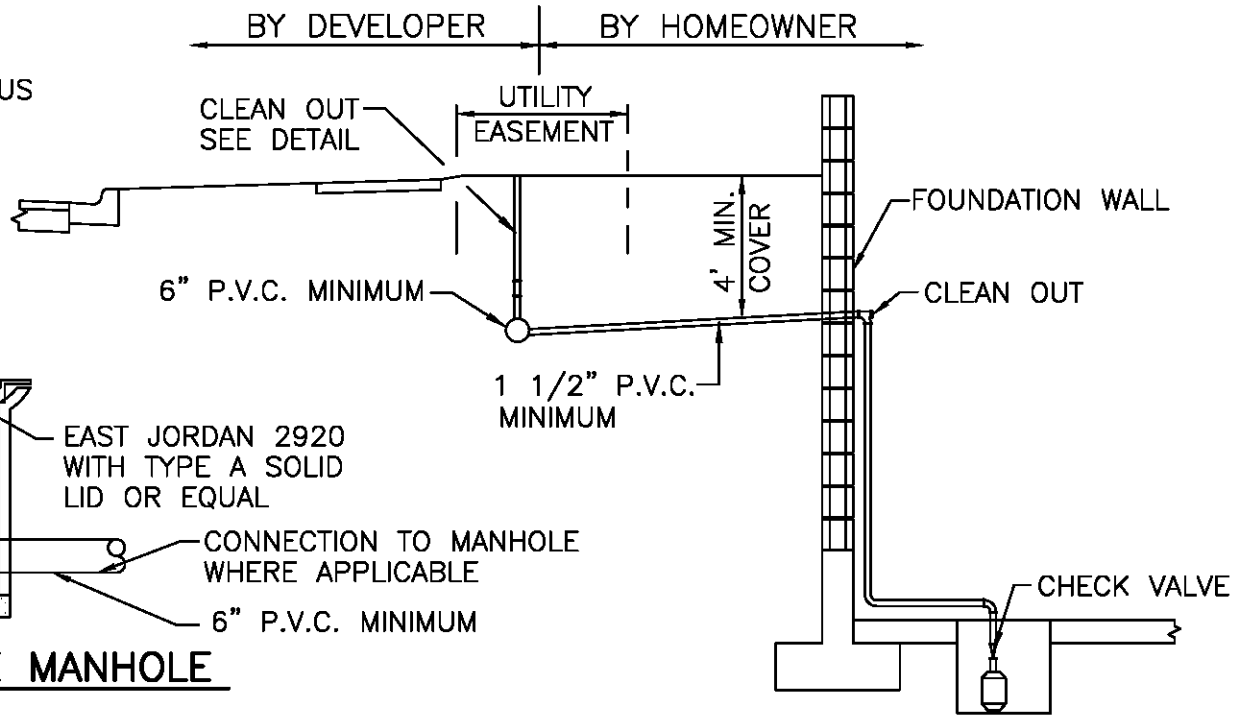


CLEAN OUT DETAIL



SUMP DRAIN LINE MANHOLE

SUMP DRAIN LINE DETAIL

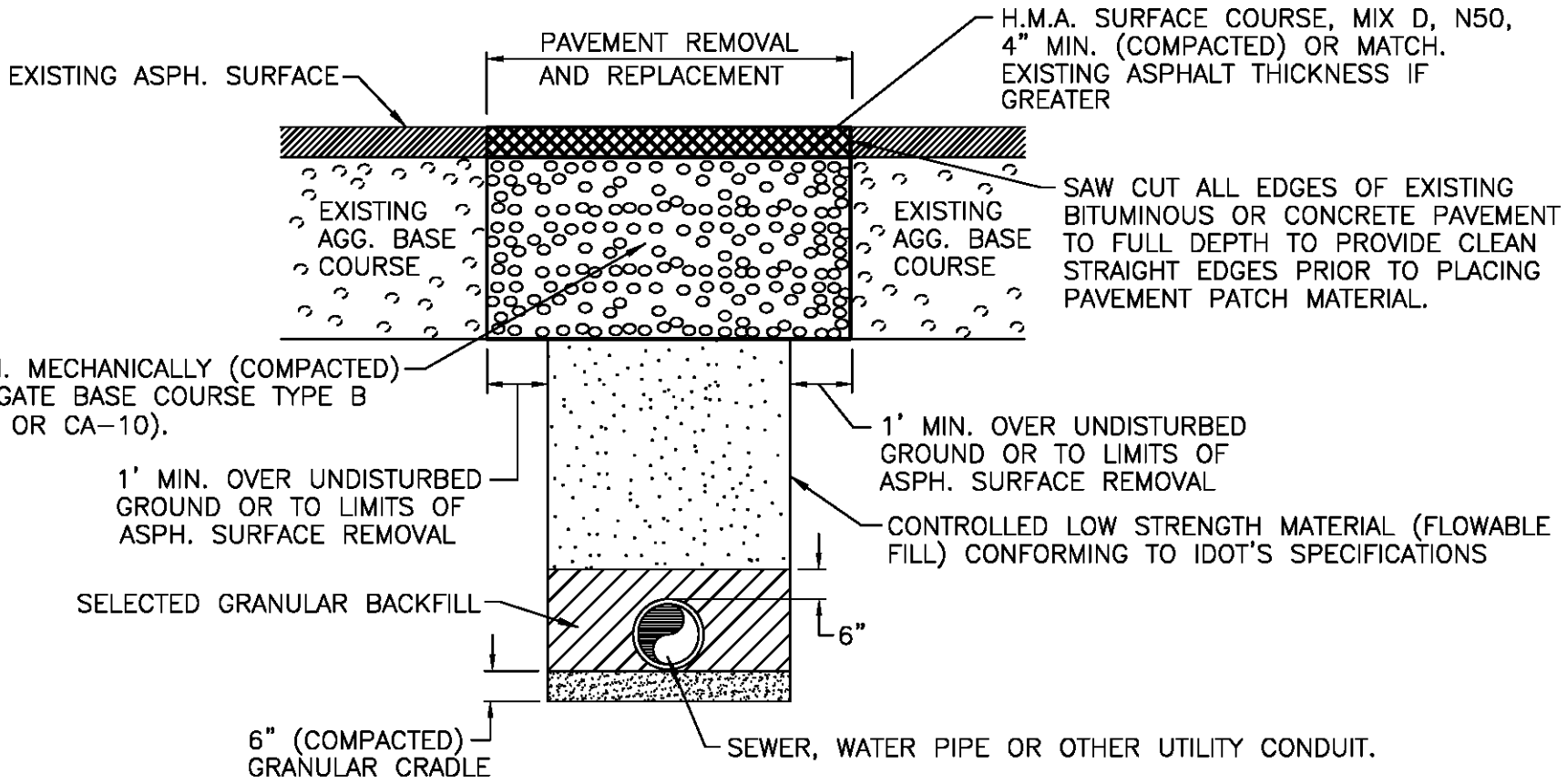


GENERAL NOTES:

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE APPLICABLE PORTIONS OF SECTION 601 OF THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" CURRENT EDITION AND SUPPLEMENTAL SPECIFICATIONS, UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.
2. SUMP DRAIN LINES SHALL BE DRAINED TO STORM SEWER INLETS, MANHOLES OR DRAINAGE DITCHES.
3. P.V.C. PIPE SHALL MEET THE REQUIREMENTS OF A.S.T.M. D–2241, SDR 26.
4. MANHOLES OR CLEAN OUTS SHALL BE PROVIDED AT A MAXIMUM SPACING OF 400' AND AT ALL CHANGES IN THE DIRECTION OF THE MAIN. MANHOLES SHALL BE PROVIDED AT THE END OF ALL MAIN LINES.
5. LATERAL CONNECTIONS TO THE MAIN LINE SHALL BE MADE WITH APPROVED FACTORY FITTINGS.

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	024

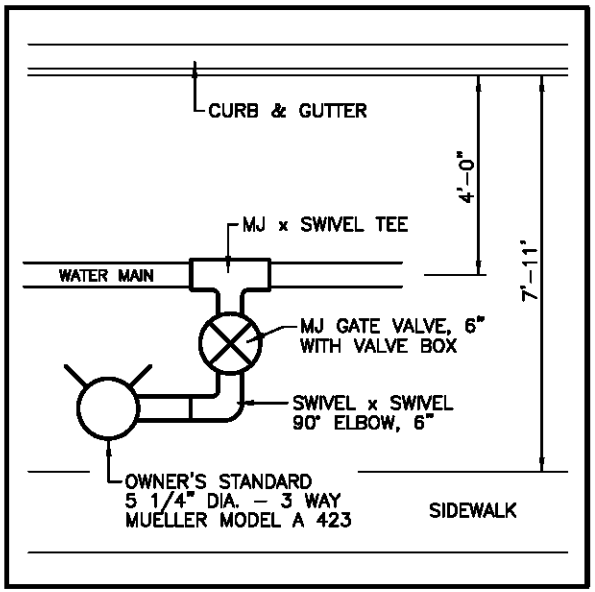
TYPICAL STREET REPAIR FOR UNDERGROUND UTILITY INSTALLATION



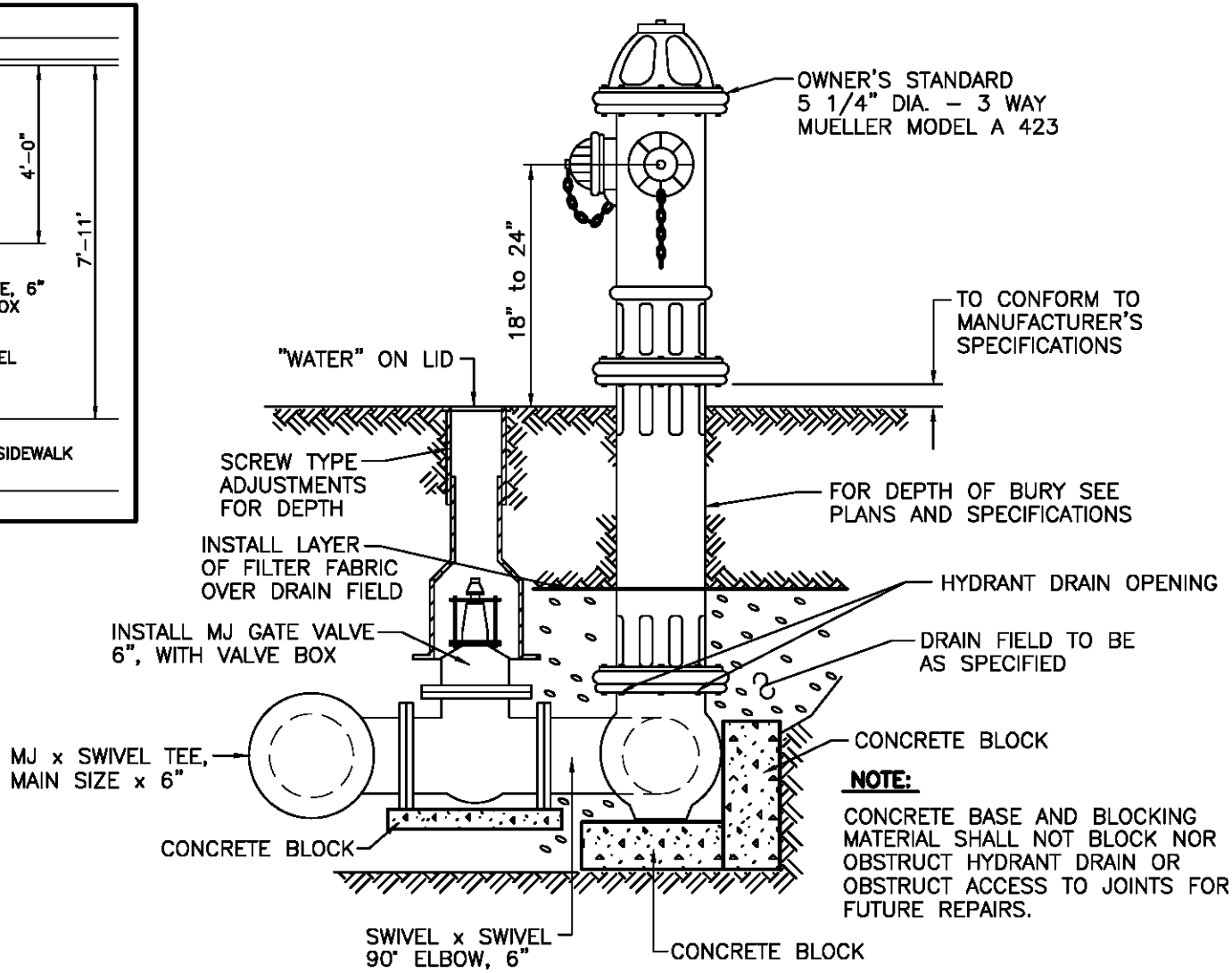
GENERAL NOTES:

1. FOR CONCRETE OR BRICK PAVEMENTS, THE SURFACE SHALL BE REPLACED TO MATCH THE EXISTING PAVEMENT.
2. PRIOR TO PLACING THE H.M.A., CONCRETE OR BRICK PAVEMENT, THE BASE COURSE SHALL BE INSPECTED BY THE CITY ENGINEER. THE FLOWABLE FILL AND BASE COURSE SHALL BE ALLOWED TO SET IN PLACE A MINIMUM OF 24 HOURS PRIOR TO PLACING THE PAVEMENT SURFACE.
3. IF THE BITUMINOUS CONCRETE MATERIAL IS NOT AVAILABLE DUE TO SEASONAL CLOSING OF THE BATCH PLANTS, THEN A TEMPORARY SURFACE CONSISTING OF COLD MIX ASPHALT SHALL BE APPLIED UNTIL THE "HOT MIX" ASPHALT MATERIAL IS AVAILABLE.

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	025



PLAN VIEW
N.T.S.

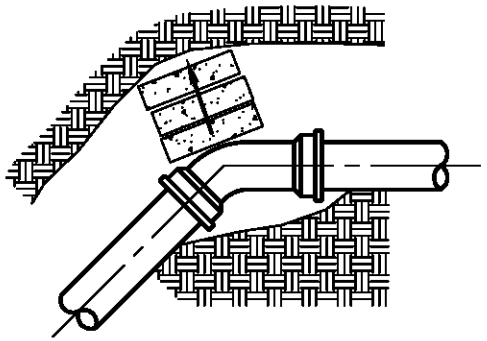


GENERAL NOTE:

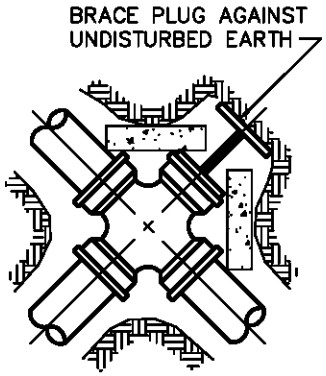
1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS" CURRENT EDITION AND SUPPLEMENTAL SPECIFICATIONS, UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.

TYPICAL HYDRANT INSTALLATION

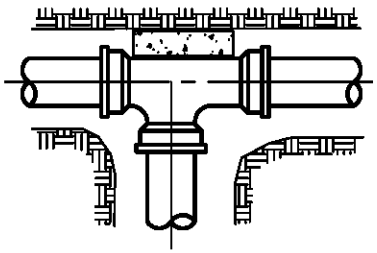
City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	026



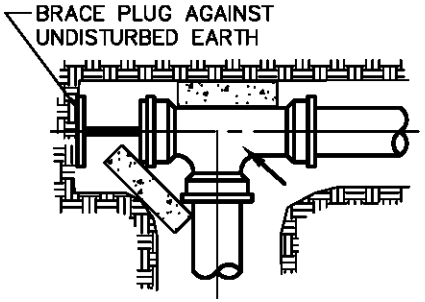
VERTICAL BEND



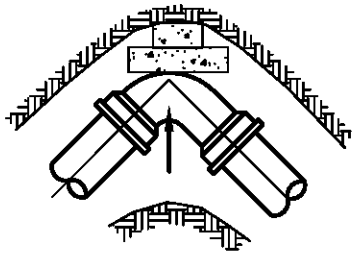
PLUGGED CROSS



TEE



PLUGGED TEE



90° ELBOW

NOTES:

CONTRACTOR STALL INSTALL SOLID CONCRETE BLOCKS AGAINST UNDISTURBED EARTH FOR THRUST BLOCKS.

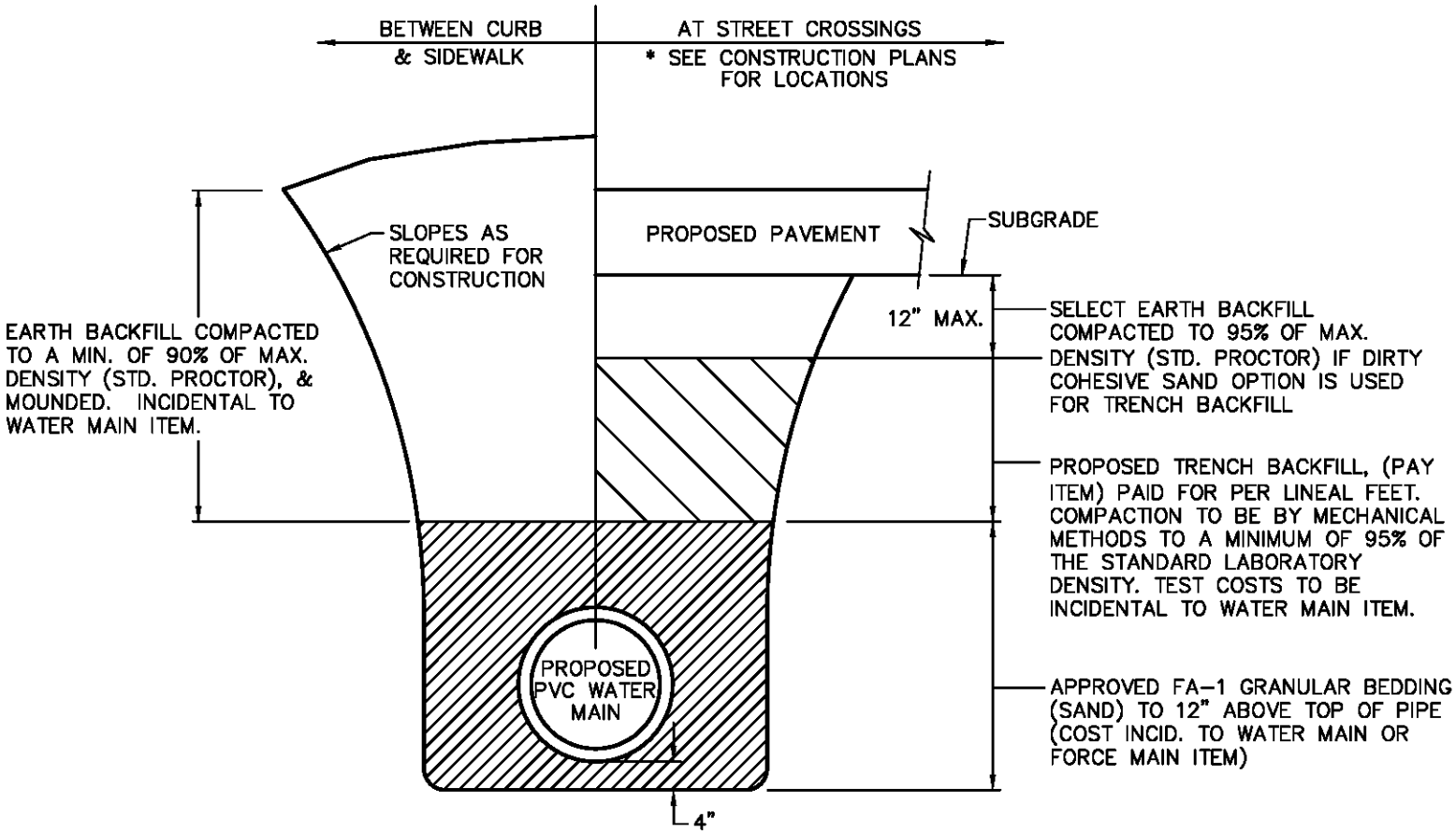
ARROWS INDICATE DIRECTION OF THRUST.

ALL BLOCKS TO BE 3000 P.S.I. CONCRETE.

ALL FITTINGS SHOWN IN PLAN EXCEPT VERTICAL BEND.

TYPICAL THRUST BLOCK INSTALLATIONS

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	027



WATER MAIN TRENCH DETAILS

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	028

JOINT RESTRAINT

THE CITY OF WASHINGTON REQUIRES THAT ALL MECHANICAL FITTINGS (VALVES, HYDRANTS, TEES, BENDS, ETC.) MUST BE INSTALLED USING APPROVED RETAINER FITTINGS.

IN ADDITION, THE CITY OF WASHINGTON REQUIRES THAT AN ADDITIONAL LENGTH OF PIPE MUST BE RESTRAINED ON EACH SIDE OF BENDS OR VERTICAL OFFSETS, BRANCH OUTLETS OF TEES, BEFORE REDUCERS, AND BEFORE DEAD–ENDS (VALVES OR HYDRANTS). IN ADDITION TO RETAINING THE FITTINGS THEMSELVES, ANY PIPE THAT CONTAINS JOINTS (BELL AND SPIGOT, BOLTED COUPLINGS) THAT FALL WITHIN THESE LENGTHS MUST BE RESTRAINED.

THESE RESTRAINED LENGTHS OF PIPE VARY ACCORDING TO THE PARAMETERS OF THE JOB PIPE SIZE AND TYPE, TEST PRESSURES, DEPTH OF BURY, SOIL CONDITIONS, AND TRENCH PREPARATION. FOLLOWING IS A THRUST RESTRAINT CHART THAT SHOWS THESE RECOMMENDED RESTRAINT LENGTHS BASED UPON PARAMETERS THAT ARE MOST COMMON IN THE CITY OF WASHINGTON:

THRUST RESTRAINT CHART

RECOMMENDED RESTRAINED LENGTHS

NOMINAL PIPE SIZE (IN.)	90° ELBOW	45° ELBOW	22.5° ELBOW	11.25° ELBOW	SIZE x SIZE TEE	VALVE HYDRANT OR DEAD–END
4 in.	9 ft.	4 ft.	2 ft.	1 ft.	7 ft.	13 ft.
6 in.	13 ft.	6 ft.	3 ft.	2 ft.	12 ft.	18 ft.
8 in.	16 ft.	7 ft.	4 ft.	2 ft.	18 ft.	24 ft.
10 in.	20 ft.	9 ft.	4 ft.	2 ft.	23 ft.	28 ft.
12 in.	23 ft.	10 ft.	5 ft.	3 ft.	28 ft.	34 ft.

RECOMMENDED RESTRAINED LENGTH FOR TEES ARE FOR THE BRANCH OUTLET AND ASSUME A MINIMUM ATTACHED LENGTH OF PIPE OF 10 FT. ON EACH SIDE OF THE RUN.

THRUST RESTRAINT CHART BASED UPON PARAMETERS SHOWN BELOW AND BY USE OF UNI–FLANGE THRUST RESTRAINT SOFTWARE. OTHER PARAMETERS CAN BE RUN ON THIS PROGRAM.

PIPE	CLASS 50 DUCTILE IRON PIPE
SOIL	CL (NORMAL)
AVG. DEPTH OF BURY	4.5. FT.
TRENCH TYPE	TYPE 3
TEST PRESSURE	100 PSI
SAFETY FACTOR	2 :1

City Of Washington	CONSTRUCTION STANDARD	DATE:	STANDARD NO.
		FEB. 2008	029