



DATE: November 10, 2020

TO: Chairman and Members of the Planning and Zoning Commission

FROM: Rick Trice, P.E., Director of Public Works

SUBJECT: Consideration and Action Regarding Subdivision Ordinance Amendment for Article 9 Construction Standards Details

During the last several months City staff and Kimley-Horn and Associates have reviewed the Construction Standard Details provided in Article 9 of the Subdivision Ordinance. The review provided updated details that are more consistent with the region and existing practice.

Attached is a summary of changes to the details along with the proposed ordinance revision.

If there are any questions, please let me know.

Previous Detail No.	Current Detail No.	Detail Title	Revision
All	All	N/A	Update revision date to August 2020.
All	All	N/A	Renumber details. Roadway to be RD-XX Storm to be SD-XX Water to be W-XX Waste Water to be WW-XX
RD (All)	RD (All)	N/A	All rebar to be size minimum #4.
SD-01	RD-01	Concrete Paving	Make joints bolder to stand out against background.
SD-02	RD-02	Concrete Paving Joint Details	Refer to Joint Sealant detail.
SD-03	RD-03	Concrete Paving Joint Sealants	Refer to TxDOT specifications.
SD-04	RD-04	Pavement Intersection Joint Spacing	Add sympathy jointing details around inlets, valves, and manholes. Specify minimum joint spacing.
SD-05	RD-05	Standard 6-inch Curb and Gutter and 18-inch Gutter	Change rebar spacing to 48" and remove rebar at bottom of curb.
SD-06	RD-06	Reinforced Concrete Pavement Six Lane Divided Thoroughfare	Update cross section to match MTP.
SD-07	RD-07	Reinforced Concrete Pavement Four Lane Divided Thoroughfare	Update cross section to match MTP.
N/A	RD-08	Monolithic Median Nose - Type 1	Create detail.
N/A	RD-09	Monolithic Median Nose - Type 2	Create detail.
N/A	RD-10	Stamped Concrete	Create detail.
SD-09	RD-12	Commercial-Industrial Driveway	Combine to be Commercial-Industrial Driveway detail. Add note "Match existing driveway thickness or as dictated by geotechnical report."
SD-10	N/A	Industrial Driveway	Delete detail.
SD-11	RD-13	Concrete Sidewalk	Subgrade of sidewalk to be 2" of sand.
N/A	RD-14	Concrete Sidewalk with Wall	Create detail.
SD-12	RD-15	Barrier Free Ramp	Add note: "Prior approval required to use this detail". Refer to TxDOT standards.
SD-13	N/A	Concrete Valley	Delete detail.
SD-19	SD-04	Standard Drop Inlet	Change to 2' apron on all sides of inlet.
SD-21	SD-06	Manhole Cover River Logo	Add manufacturer information.
SD-23	N/A	Concrete Rip-Rap	Delete detail.
SD-24A	SD-08	Standard Storm Drain Embedment and Backfill	Renumber detail
SD-24B	N/A	Standard Storm Drain Embedment and Backfill	Delete detail.
SD-25	RD-18	Street Sign	Add mast arm sign detail. Add sign detail to match MUTCD.
N/A	RD-19A	Sign Post Installation	Create detail.
N/A	RD-19B	Sign Post Installation	Create detail.

ORDINANCE NO. 2020-25

AN ORDINANCE OF THE CITY OF SAGINAW, TEXAS ADOPTING REVISIONS TO ARTICLE 9 OF THE SUBDIVISION ORDINANCE OF THE CITY OF SAGINAW; INCORPORATING REVISED CONSTRUCTION STANDARD DETAILS; PROVIDING THAT THESE AMENDMENTS ARE ADOPTED TO PROTECT THE PUBLIC HEALTH, SAFETY AND WELFARE; PROVIDING FOR THE ADMINISTRATION AND ENFORCEMENT OF THIS ORDINANCE; PROVIDING THAT THIS ORDINANCE SHALL BE CUMULATIVE OF ALL ORDINANCES; PROVIDING A SEVERABILITY CLAUSE; PROVIDING FOR A PENALTY FOR VIOLATIONS HEREOF; PROVIDING A SAVINGS CLAUSE; PROVIDING FOR PUBLICATION IN PAMPHLET FORM; PROVIDING FOR PUBLICATION IN THE OFFICIAL NEWSPAPER; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the City of Saginaw is a home rule city acting under its charter adopted by the electorate pursuant to Article XI, Section 5 of the Texas Constitution and Chapter 9 of the Local Government Code; and

WHEREAS, Chapter 212 of the Texas Local Government Code authorizes a municipality to adopt rules and regulations governing plats and subdivisions of land within the municipality's jurisdiction to promote the health, safety, morals and general welfare of the municipality and the safe, orderly and healthful development of the municipality; and

WHEREAS, after due and careful consideration, the planning and zoning commission has recommended that the city council adopt revisions to the subdivision ordinance to incorporate a new Article 9 - Construction Standard Details; and

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF SAGINAW, TEXAS:

SECTION 1.

That the Subdivision Ordinance of the City of Saginaw, is hereby amended by replacing Article 9 – Construction Standard Details with the attached as shown as Exhibit "A," a copy of which is on file with the office of the City Secretary.

SECTION 2.

This ordinance shall be cumulative of all provisions of ordinances and of the Saginaw City Code, as amended, and the Subdivision Ordinance of the City of Saginaw, as amended, except where the provisions of this ordinance are in direct conflict with the provisions of such ordinances and such Code, in which event the conflicting provisions of such ordinances and such Code are hereby repealed.

SECTION 3.

It is hereby declared to be the intention of the City Council that the phrases, clauses, sentences, paragraphs, and sections of this ordinance are severable, and if any phrase, clause, sentence, paragraph, or section of this ordinance shall be declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such unconstitutionality shall not affect any of the remaining phrases, clauses, sentences, paragraphs, and sections of this ordinance, since the same would have been enacted by the City Council without the incorporation in this ordinance of any such unconstitutional phrase, clause, sentence, paragraph or section.

SECTION 4.

Any person, firm or corporation who violates, disobeys, omits, neglects or refuses to comply with or who resists the enforcement of any of the provisions of this ordinance shall be fined not more than Five Hundred Dollars (\$500.00) for each offense. Each day that a violation is permitted to exist shall constitute a separate offense.

SECTION 5.

All rights and remedies of the City of Saginaw are expressly saved as to any and all violations of the provisions of the Subdivision Ordinance of the City of Saginaw, or any other ordinances affecting subdivisions, platting or land development which have accrued at the time of the effective date of this ordinance; and, as to such accrued violations and all pending litigation, both civil and criminal, whether pending in court or not, under such ordinances, same shall not be affected by this ordinance, but may be prosecuted until final disposition by the courts.

SECTION 6.

The City Secretary of the City of Saginaw is hereby authorized to publish this ordinance in book or pamphlet form for general distribution among the public, and the operative provisions of this ordinance as so published shall be admissible in evidence in all courts without further proof than the production thereof.

SECTION 7.

The City Secretary of the City of Saginaw is hereby directed to publish at least twice in the official newspaper of the City of Saginaw, the caption and the penalty clause of this ordinance in accordance with Section 52.013(b) of the Local Government Code.

SECTION 8.

This ordinance shall be in full force and effect from and after its passage and publication as required by law, and it is so ordained.

PASSED AND APPROVED THIS 17th DAY OF NOVEMBER, 2020.

Todd Flippo, Mayor

ATTEST:

Janice England, City Secretary

EFFECTIVE:
APPROVED AS TO FORM AND LEGALITY:

Bryn Meredith, City Attorney

Article 9 – Construction Standard Details

CITY OF SAGINAW CONSTRUCTION STANDARDS TABLE OF CONTENTS

WATER

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
W-01	STANDARD WATER LINE EMBEDMENT AND BACKFILL
W-02	WATER SERVICE CONNECTION
W-03	WATER VALVE AND BOX INSTALLATION
W-04	BUTTERFLY VALVE AND INSTALLATION
W-05	FIRE HYDRANT INSTALLATION
W-06	HORIZONTAL BLOCKING
W-07	CONCRETE CRADLE AT VERTICAL BENDS
W-08	VERTICAL THRUST BLOCKING
W-09	AIR RELEASE VALVE
W-10	DOUBLE CHECK DETECTOR VAULT
W-11	LADDER AND PIPE SUPPORT
W-12	TYPICAL RING CONNECTION
W-13	WATER LINE BORE AND CASING

WASTE WATER

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
WW-01	STANDARD SANITARY SEWER EMBEDMENT AND BACKFILL
WW-02	PRECAST AND CAST-IN-PLACE SANITARY SEWER MANHOLE
WW-03	SANITARY SEWER MANHOLE DROP CONNECTIONS
WW-04	EXTENSION RING INSTALLATION FRAME AND COVER PLACEMENT
WW-05	MANHOLE RING AND COVER
WW-06	SANITARY SEWER MAIN CLEANOUT
WW-07	CLEANOUT CAP
WW-08	SANITARY SEWER SERVICE
WW-09	SANITARY SEWER LINE BORE AND CASING
WW-10	MANHOLE ABANDONMENT
WW-11	CONCRETE ENCASEMENT

NOTE:

ALL SPEC ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.



City of Saginaw
Construction Standards

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ROADWAY

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
RD-01	CONCRETE PAVING
RD-02	CONCRETE PAVING JOINT DETAILS
RD-03	CONCRETE PAVING JOINT SEALANTS
RD-04	PAVEMENT INTERSECTION JOINT SPACING
RD-05	STANDARD 6-INCH CURB AND 18-INCH GUTTER
RD-06	REINFORCED CONCRETE PAVEMENT SIX LANE DIVIDED THOROUGHFARE
RD-07	REINFORCED CONCRETE PAVEMENT FOUR LANE DIVIDED THOROUGHFARE
RD-08	MONOLITHIC MEDIAN NOSE - TYPE 1
RD-09	MONOLITHIC MEDIAN NOSE - TYPE 2
RD-10	STAMPED CONCRETE
RD-11	RESIDENTIAL DRIVEWAY
RD-12	COMMERCIAL-INDUSTRIAL DRIVEWAY
RD-13	CONCRETE SIDEWALK
RD-14	CONCRETE SIDEWALK WITH WALL
RD-15	BARRIER FREE RAMP
RD-16	WOOD SCREENING DETAIL
RD-17	MASONRY SCREENING DETAIL
RD-18	STREET SIGN
RD-19A	SIGN POST - INSTALLATION
RD-19B	SIGN POST - SQUARE TUBING

NOTE:

ALL SPEC ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.



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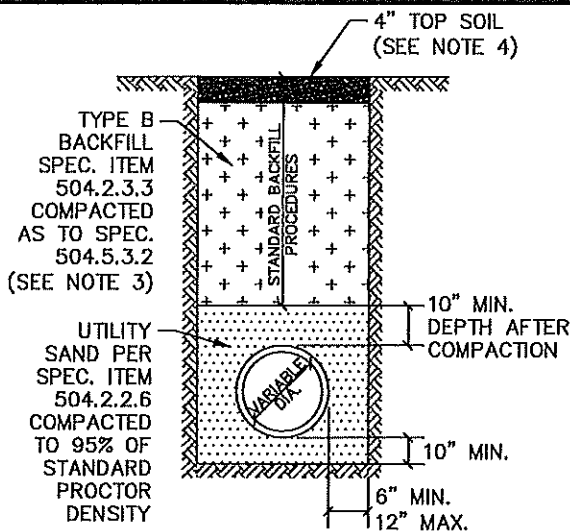
STORM DRAIN

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
SD-01A	STANDARD STORM DRAIN CURB INLET
SD-01B	STANDARD CURB INLET THROAT
SD-02A	RECESSED CURB INLET
SD-02B	RECESSED CURB INLET THROAT
SD-03	INLET REINFORCEMENT
SD-04	STANDARD DROP INLET
SD-05	STANDARD 4-FOOT SQUARE STORM DRAIN MANHOLE
SD-06	MANHOLE COVER RIVER LOGO
SD-07	REINFORCED CONCRETE COLLAR AND MISCELLANEOUS DETAILS
SD-08	STANDARD STORM DRAIN EMBEDMENT AND BACKFILL

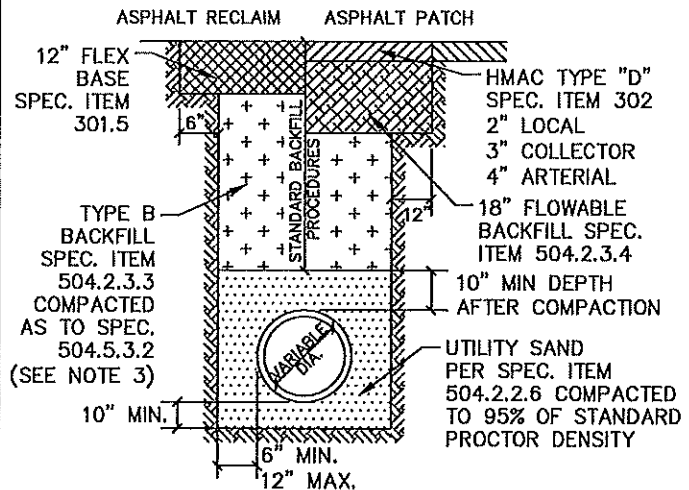
NOTE:

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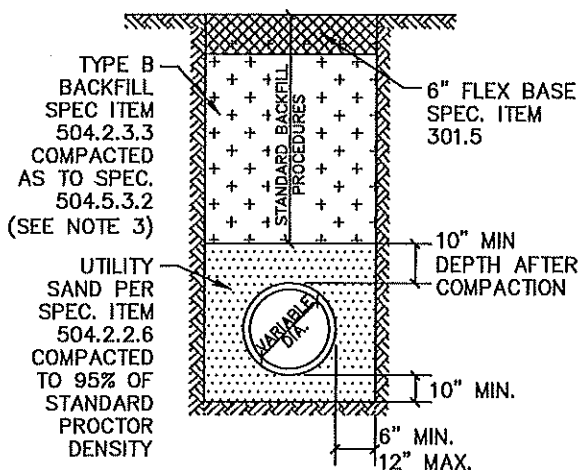


UNPAVED AREA

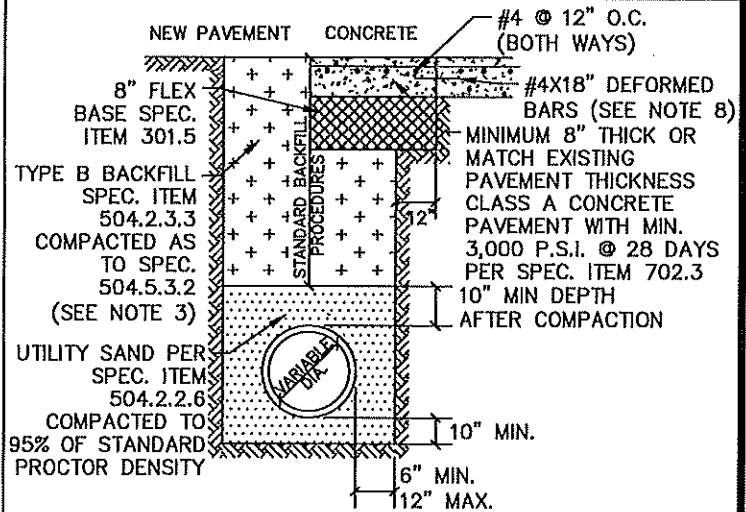


NOTE: FOR NEW STREETS, BACKFILL MAY BE
EXTENDED TO THE TOP OF THE TRENCH

ASPHALT PAVEMENT



GRAVEL SURFACE



CONCRETE PAVEMENT

NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. AT THE END OF EACH WORK DAY ALL SPOILS SHALL BE REMOVED FROM THE CITY R.O.W. UNLESS PRIOR WRITTEN PERMISSION IS OBTAINED FROM THE CITY TO STORE SPOILS IN DESIGNATED SPOIL STORAGE AREAS THAT DO NOT OBSTRUCT AUTOMOBILE OR PEDESTRIAN TRAFFIC.
3. ROCKS GREATER THAN 4" IN DIAMETER SHALL BE REMOVED FROM ANY NATIVE MATERIAL USED AS BACKFILL.
4. TOPSOIL SHALL BE 4" IN DEPTH AND SHALL BE LOOSE AND FREE OF ROCKS OR CLODS GREATER THAN 1/4" IN DIAMETER. ALL TOPSOIL SHALL BE APPROVED BY THE CITY PRIOR TO INSTALLATION.
5. ALL PAVEMENT SHALL BE REMOVED ALONG NEAT SAW CUT LINES PER SPEC. ITEM 402.3.
6. BLUE UNDERGROUND WATER LINE WARNING TAPE OF MIN 4" WIDTH SHALL BE INSTALLED ABOVE THE EMBEDMENT MATERIAL.
7. A MAXIMUM OF 50 FT OF OPEN TRENCH WILL BE ALLOWED AT ANY TIME, UNLESS APPROVED BY THE CITY.
8. DEFORMED BARS DOWELED AND EPOXYED MIN. 6" INTO EXISTING PAVEMENT @ 12" O.C. (TYP).

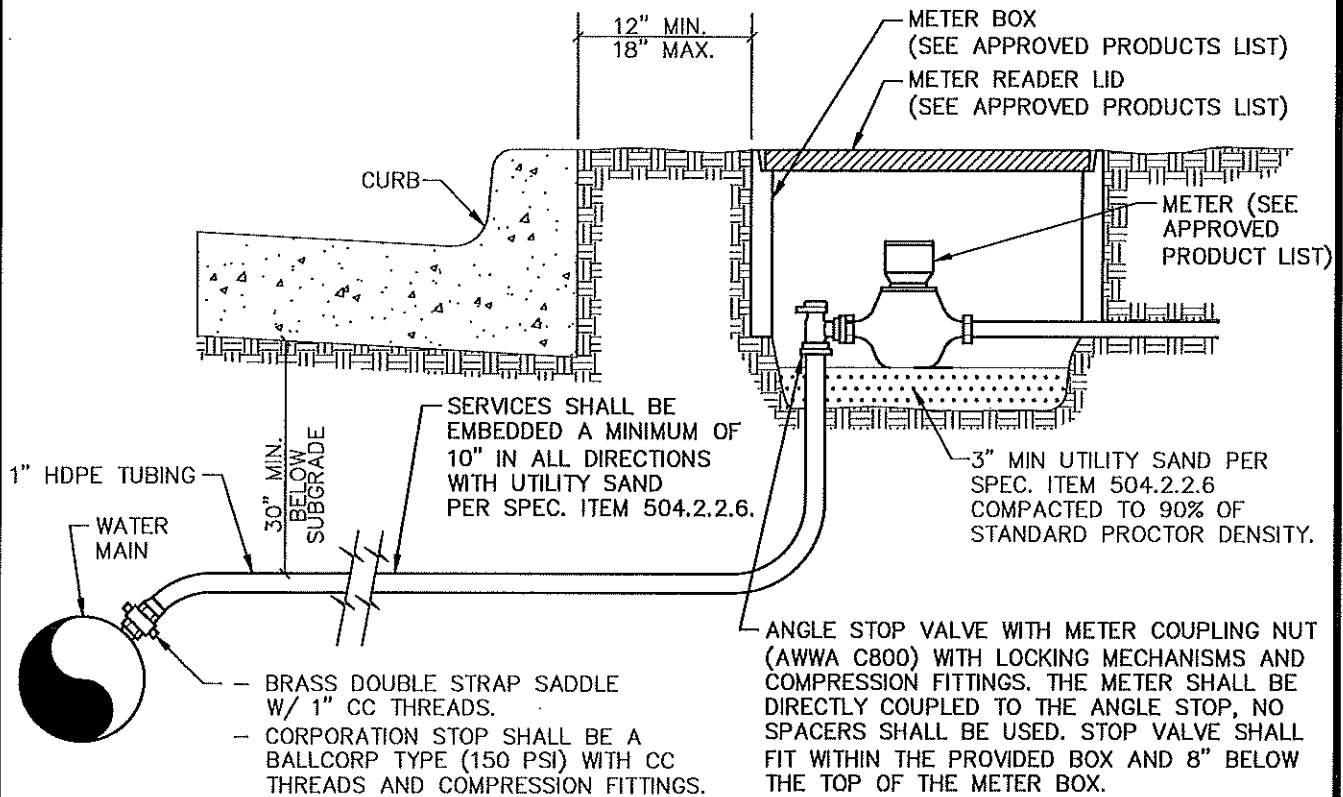


City of Saginaw
Construction Standards

STANDARD WATER LINE
EMBEDMENT AND BACKFILL

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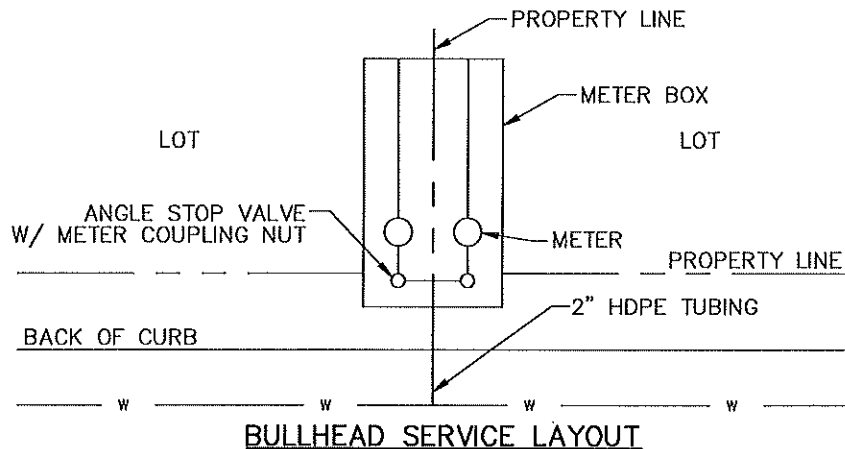
W-01



SINGLE METER SERVICE LAYOUT

NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. 1-1/2" METERS SHALL NOT BE ACCEPTED.
3. ALL RESIDENTIAL SERVICES SHALL BE 3/4" BULLHEAD ASSEMBLY SET ON PROPERTY LINE.
4. NO FLARED FITTINGS ALLOWED.
5. DO NOT USE PIPE DOPE OR GLUE.
6. INDICATE LOCATION OF WATER SERVICE WITH A 3" TALL "W" INSCRIBED IN THE FACE OF THE CURB.
7. BULLHEAD CONNECTIONS SHALL BE APPROVED BY THE CITY PRIOR TO INSTALLATION.
8. METER BOX SHALL BE H-20 RATED IF IN DRIVEWAY.



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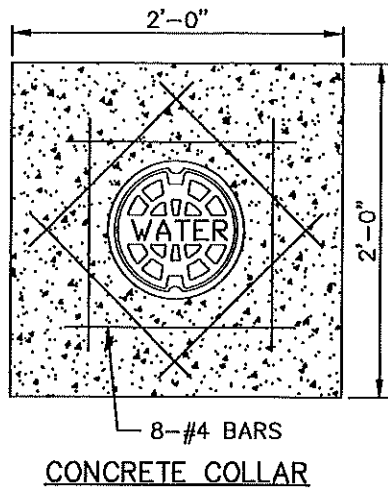
WATER SERVICE CONNECTION

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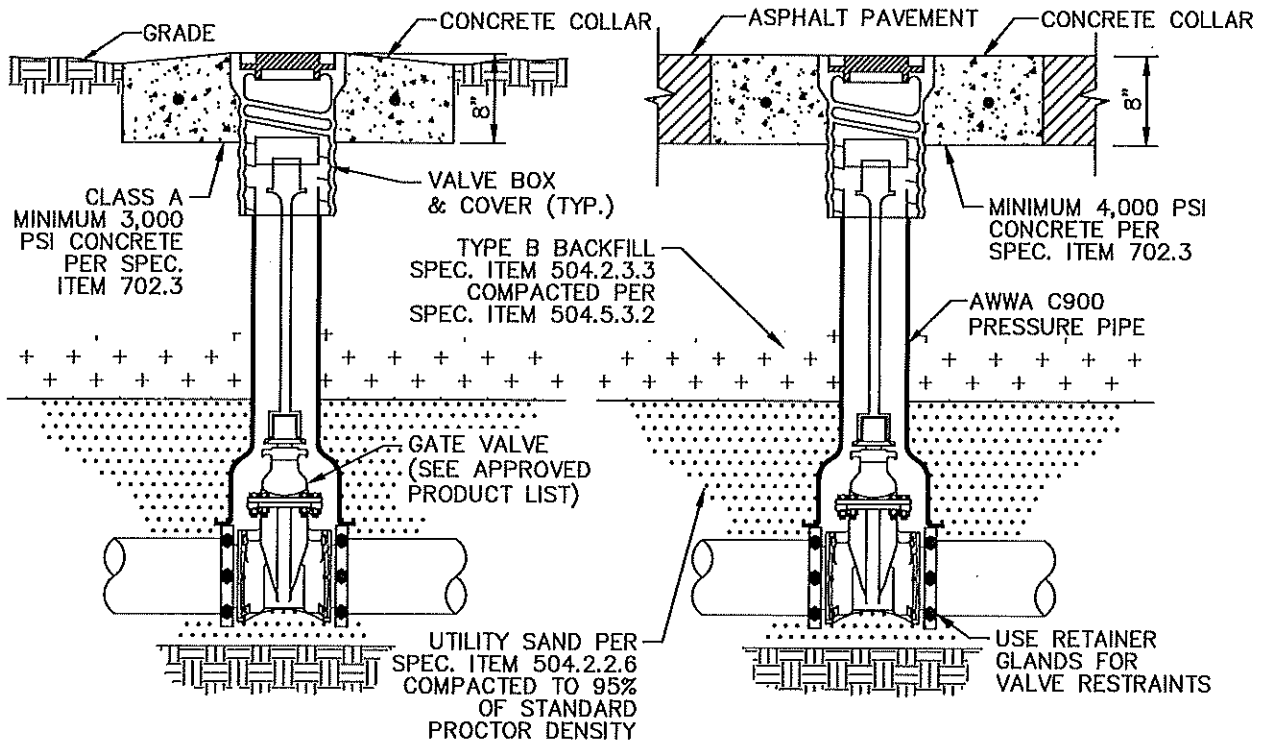
W-02

NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. GATE VALVE SHALL BE RESILIENT SEAT TYPE WITH A NON RISING STEM, A 2-INCH SQUARE OPERATOR, AND A FULLY ENCAPSULATED WEDGE. RESILIENT SEAT GATE VALVE SHALL CONFORM TO AWWA C509.
3. THE VALVE AND JOINT ASSEMBLIES SHALL BE WRAPPED IN POLYETHYLENE ACCORDING TO AWWA C105.
4. THE JOINT TYPE SHALL BE MECHANICAL JOINT UNLESS OTHERWISE SPECIFIED IN THE PLANS.
5. STEM EXTENSIONS ARE REQUIRED WHEN THE DEPTH TO THE TOP OF THE OPERATING NUT EQUALS OR EXCEEDS 3 FEET.
6. BOX TOP INSETS ARE REQUIRED IN ALL BOX INSTALLATIONS.
7. 16" AND LARGER GATE VALVES REQUIRE CONCRETE BLOCK UNDER THE VALVE BODY. CONCRETE BLOCK SHALL BE 12"x12"x6" CLASS B MINIMUM 2,000 P.S.I. CONCRETE BASE PER SPEC. ITEM 702.3.
8. MARK LINE SIZE AND DIRECTION IN BASE BLOCK WITH LETTERS A MINIMUM OF 1-INCH IN HEIGHT.
9. GATE VALVE SHALL BE OPEN LEFT, COUNTER-CLOCKWISE.
10. CONCRETE COLLARS ARE NOT REQUIRED IN CONCRETE PAVEMENT.



CONCRETE COLLAR



VALVES IN YARDS OR OTHER AREAS NOT SUBJECT TO TRAFFIC

VALVES WITHIN ROADWAYS OR OTHER PAVED OR SURFACED AREAS



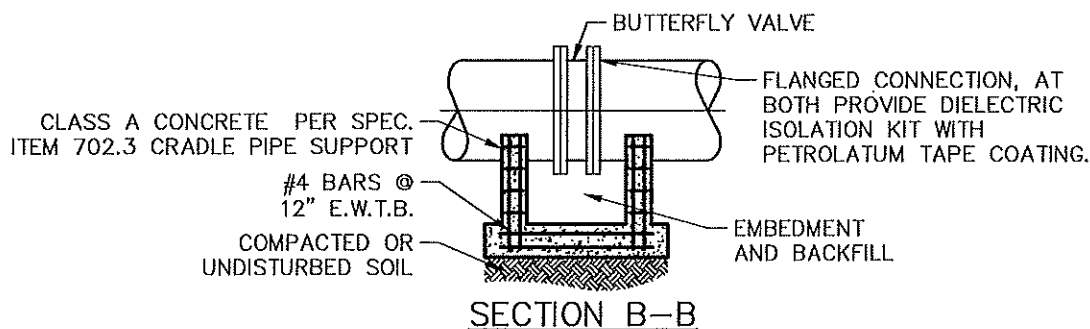
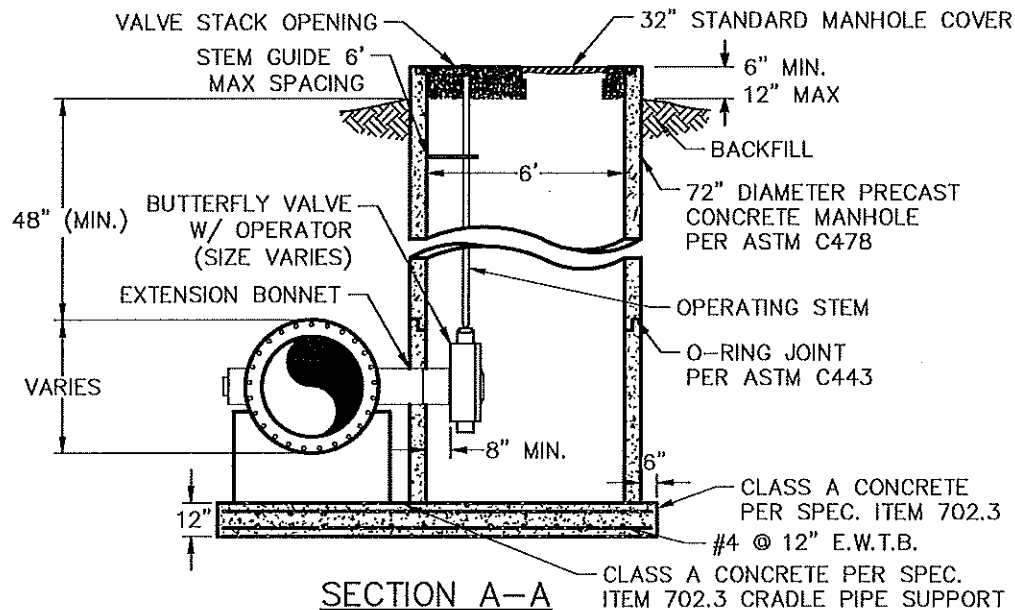
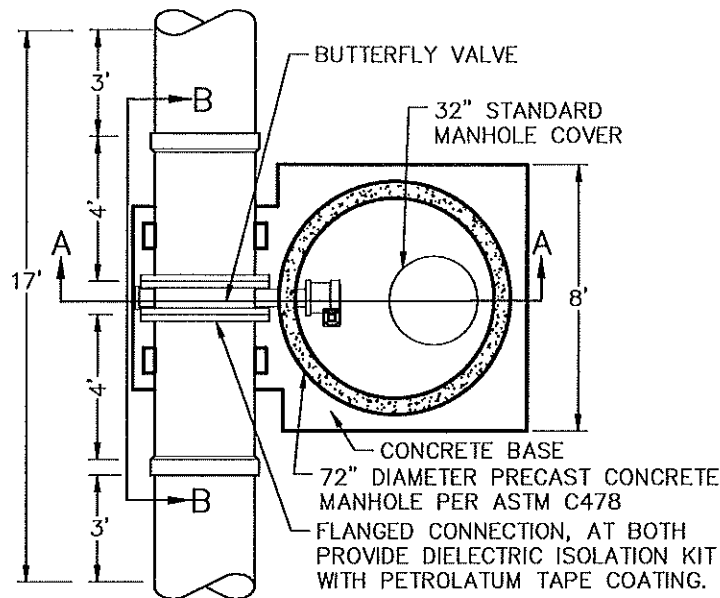
City of Saginaw
Construction Standards

WATER VALVE AND BOX
INSTALLATION

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W-03

NOTE:
ALL SPEC. ITEM
NUMBER REFERENCES
SHALL REFERENCE
THE 5TH EDITION OF
NCTCOG STANDARD
SPECIFICATIONS FOR
PUBLIC WORKS
CONSTRUCTION.

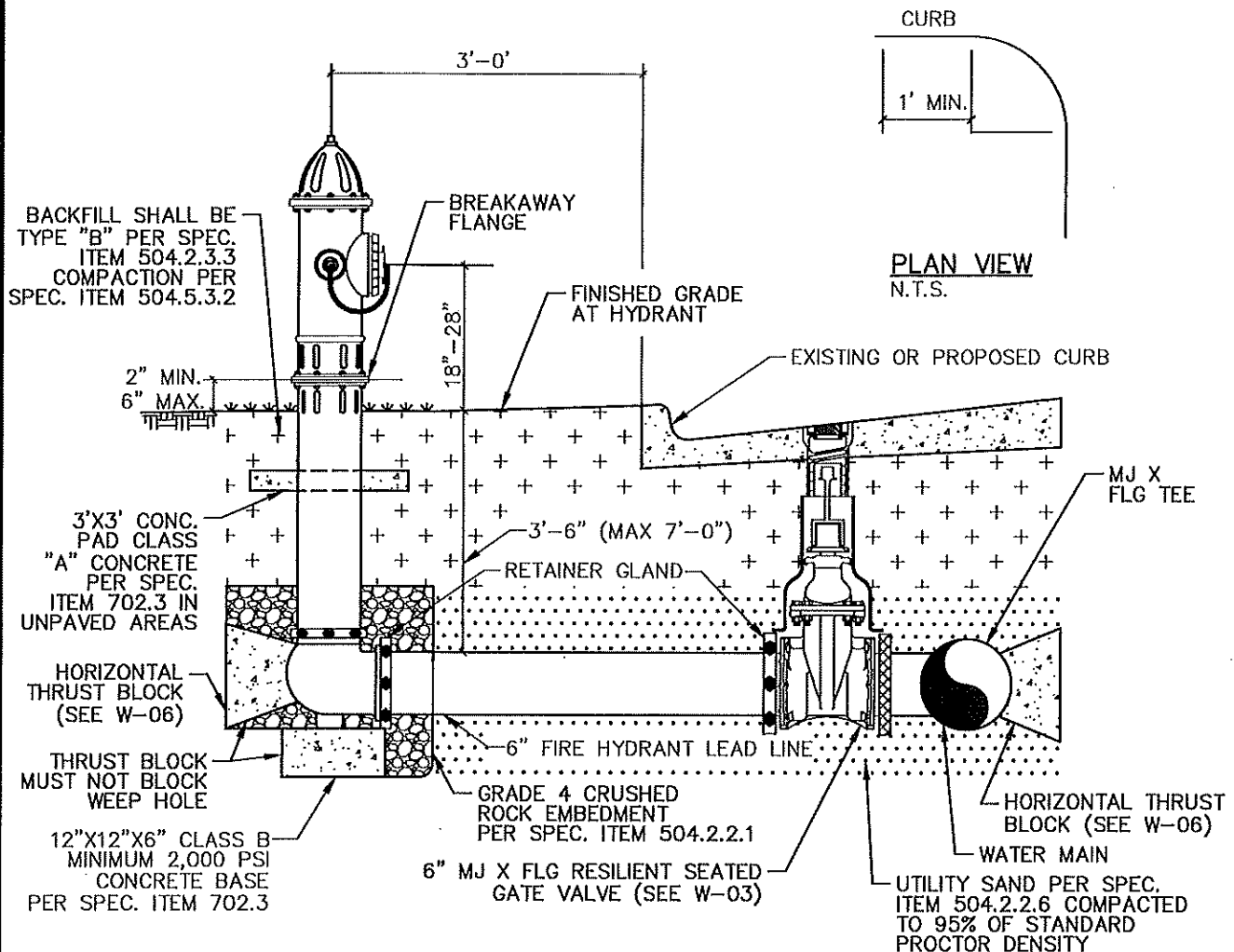


City of Saginaw
Construction Standards

BUTTERFLY VALVE AND
INSTALLATION

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W-04



NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. ALL FIRE HYDRANTS SHALL CONFORM TO AWWA C502. FIRE HYDRANTS SHALL HAVE A 5 1/4" MIN VALVE OPENING AND AN INSIDE BARREL DIAMETER OF APPROXIMATELY 7". ALL HYDRANTS SHALL BE EQUIPPED WITH A BREAKAWAY FLANGE.
3. ALL BELOW GROUND IRON ASSEMBLES SHALL BE WRAPPED IN POLYETHYLENE ACCORDING TO AWWA C105.
4. RESILIENT SEATED GATE VALVE SHALL CONFORM TO AWWA C509.
5. FIRE HYDRANT LEADS GREATER THAN A SINGLE PIPE JOINT REQUIRE JOINT THRUST RETAINERS.
6. FIRE HYDRANT SHALL BE PLACED ON THE EXTENDED LOT LINE WHEN POSSIBLE.
7. FIRE HYDRANT SHALL BE LOCATED A MINIMUM 1 FT. OUTSIDE OF THE AREA BETWEEN THE P.C.'S OF THE CORNER TURNING RADIS AT THE INTERSECTIONS. (SEE PLAN VIEW)
8. FIRE HYDRANT NO CLOSER THAN 12" TO EXISTING OR PROPOSED SIDEWALKS.
9. ALL FIRE HYDRANTS SHALL BE AT LEAST 42 INCHES FROM ANY ABOVE GROUND OBSTRUCTIONS, SUCH AS GUARDRAILS, RETAINING WALLS, BOLLARDS, ETC.
10. SEE APPROVED PRODUCTS LIST FOR ACCEPTABLE FIRE HYDRANT MANUFACTURERS.
11. FIRE HYDRANT SHALL BE PAINTED SAFETY RED. PAINT MUST BE BRUSHED ON, IT MAY NOT BE SPRAYED. SEE APPROVED PRODUCTS LIST.
12. FIRE HYDRANT SHALL BE OPEN LEFT, COUNTER-CLOCKWISE.

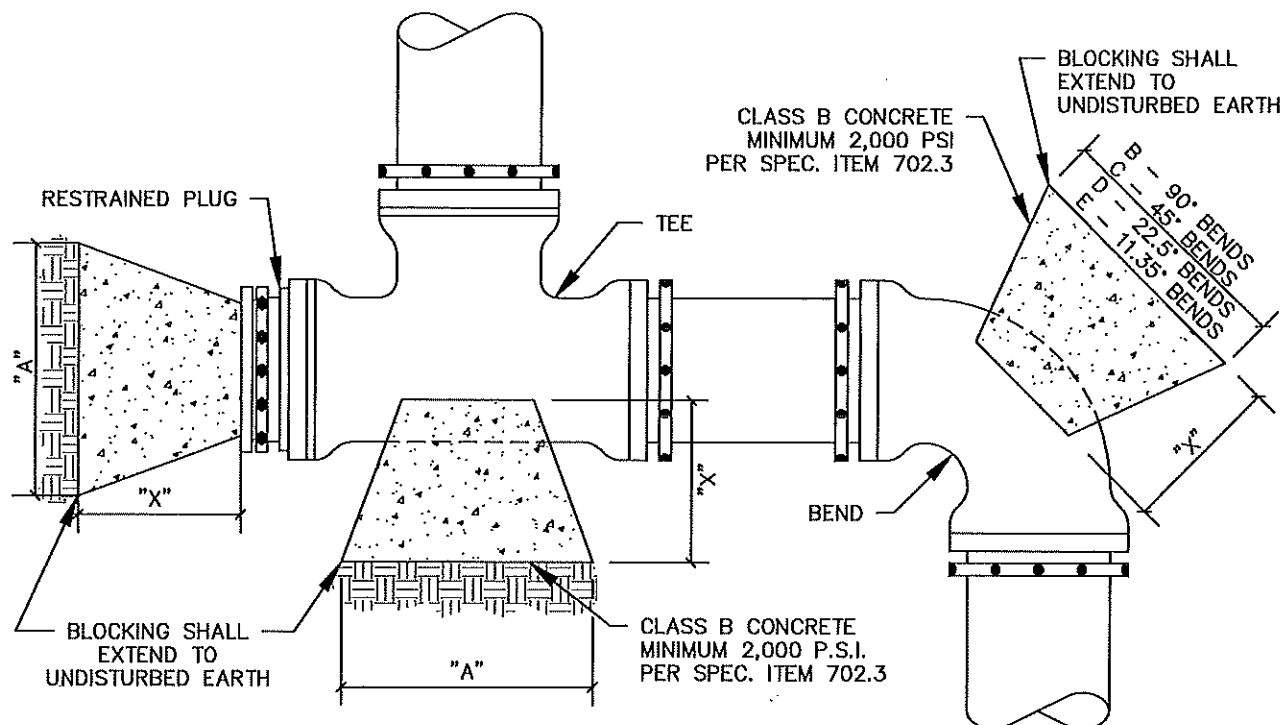


City of Saginaw
Construction Standards

FIRE HYDRANT INSTALLATION

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W-05



HORIZONTAL BLOCKING TABLE

PIPE SIZE	"X" DIM.	PLUGS & TEES		90° BENDS		45° BENDS		22.50° BENDS		11.25° BENDS	
		"A"	MIN. AREA (sf)	"B"	MIN. AREA (sf)	"C"	MIN. AREA (sf)	"D"	MIN. AREA (sf)	"E"	MIN. AREA (sf)
6"	1'-6"	1'-9"	3.18	2'-1"	4.50	1'-7"	2.43	1'-1"	1.24	1'-0"	1.00
8"	1'-6"	2'-5"	5.65	2'-10"	8.00	2'-1"	4.33	1'-6"	2.21	1'-1"	1.11
10"	1'-6"	3'-0"	8.84	3'-6"	12.50	2'-7"	6.76	1'-10"	3.45	1'-4"	1.73
12"	1'-6"	3'-7"	12.72	4'-3"	17.99	3'-1"	9.74	2'-3"	4.96	1'-7"	2.49
16"	2'-0"	4'-9"	22.62	5'-8"	31.99	4'-2"	17.31	2'-12"	8.83	2'-1"	4.43

DIMENSION "X" TO BE A MINIMUM OF 1'-6", BUT IS TO BE INCREASED WHERE NECESSARY TO PROVIDE BEARING AGAINST UNDISTURBED TRENCH WALL.

NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. BEARING AREAS SHOWN ARE BASED ON 225 PSI TEST PRESSURE, 3,000 PSF ALLOWABLE SOIL BEARING PRESSURE, AND 1.5 SAFETY FACTOR.
3. THE ENGINEER SHALL PROVIDE A SEPARATE BLOCKING TABLE WHEN THE CONDITIONS DO NOT MEET THE ABOVE ASSUMPTIONS.
4. WRAP ALL BELOW GROUND IRON ASSEMBLIES IN POLYETHYLENE ACCORDING TO AWWA C105.
5. ALL TEES, BENDS, PLUGS, ETC. SHALL BE MECHANICALLY RESTRAINED.
6. BLOCKING FOR LINES LARGER THAN 16" SHALL BE DESIGNED FOR THE SPECIFIC LOCATION AND SHOWN ON THE DRAWINGS.

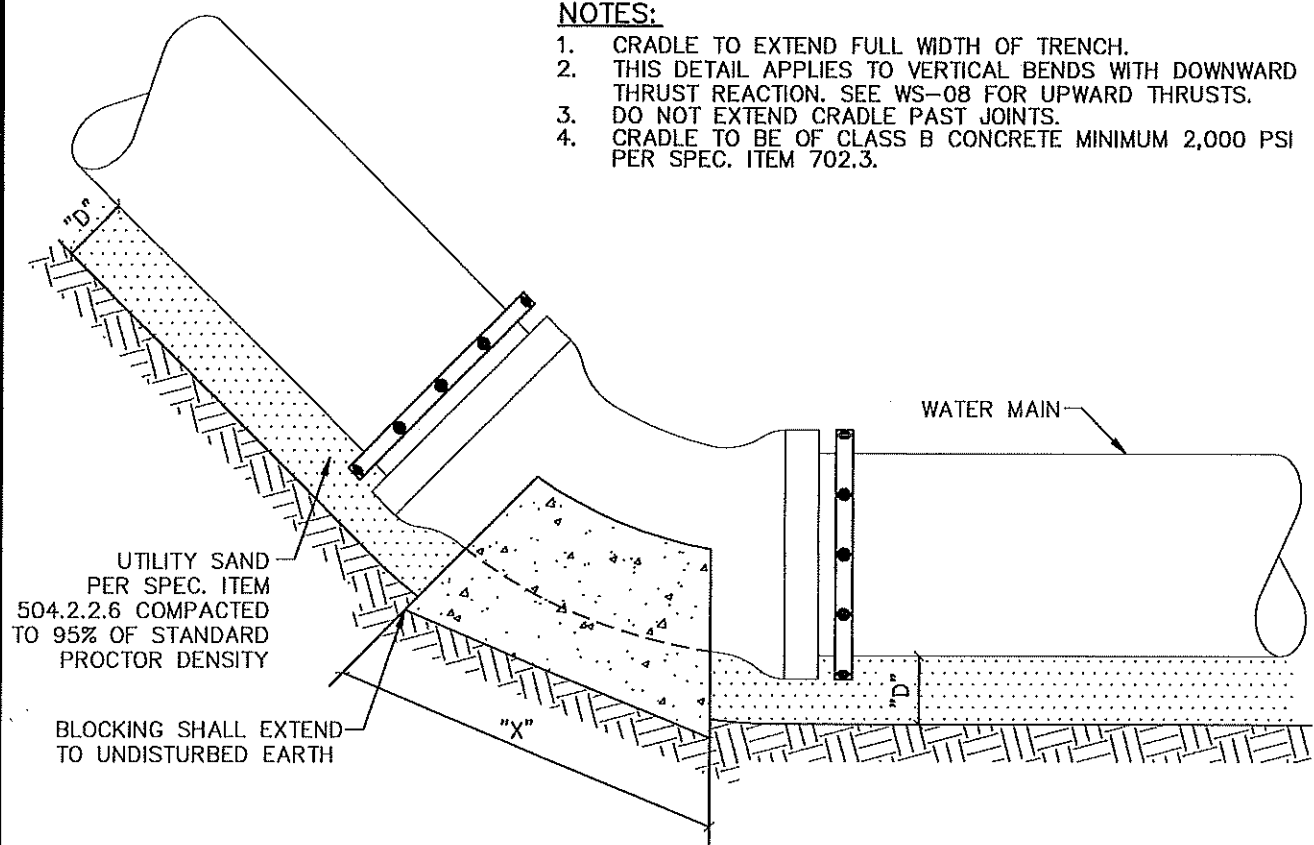


City of Saginaw
Construction Standards

HORIZONTAL BLOCKING

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W-06



NOTES:

1. CRADLE TO EXTEND FULL WIDTH OF TRENCH.
2. THIS DETAIL APPLIES TO VERTICAL BENDS WITH DOWNWARD THRUST REACTION. SEE WS-08 FOR UPWARD THRUSTS.
3. DO NOT EXTEND CRADLE PAST JOINTS.
4. CRADLE TO BE OF CLASS B CONCRETE MINIMUM 2,000 PSI PER SPEC. ITEM 702.3.

CONCRETE CRADLE TABLE

"D" = 6" MINIMUM OR TO UNDISTURBED SOIL

PIPE SIZE	90° BENDS		45° BENDS		22.50° BENDS		11.25° BENDS	
	"X"	MIN. AREA (sf)	"X"	MIN. AREA (sf)	"X"	MIN. AREA (sf)	"X"	MIN. AREA (sf)
6"	2'-1"	4.50	1'-7"	2.43	1'-1"	1.24	1'-0"	1.00
8"	2'-10"	8.00	2'-1"	4.33	1'-6"	2.21	1'-1"	1.11
10"	3'-6"	12.50	2'-7"	6.76	1'-10"	3.45	1'-4"	1.73
12"	4'-3"	17.99	3'-1"	9.74	2'-3"	4.96	1'-7"	2.49
16"	5'-8"	31.99	4'-2"	17.31	3'-0"	8.83	2'-2"	4.43

NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. BEARING AREAS SHOWN ARE BASED ON 225 PSI TEST PRESSURE, 3,000 PSF ALLOWABLE SOIL BEARING PRESSURE, AND 1.5 SAFETY FACTOR.
3. THE ENGINEER SHALL PROVIDE A SEPARATE BLOCKING TABLE WHEN THE CONDITIONS DO NOT MEET THE ABOVE ASSUMPTIONS.
4. WRAP ALL BELOW GROUND IRON ASSEMBLIES IN POLYETHYLENE ACCORDING TO AWWA C105.
5. ALL TEES, BENDS, PLUGS, ETC. SHALL BE MECHANICALLY RESTRAINED BY MEGALUG OR APPROVED EQUAL.
6. BLOCKING FOR LINES LARGER THAN 16" SHALL BE DESIGNED FOR THE SPECIFIC LOCATION AND SHOWN ON THE DRAWINGS.

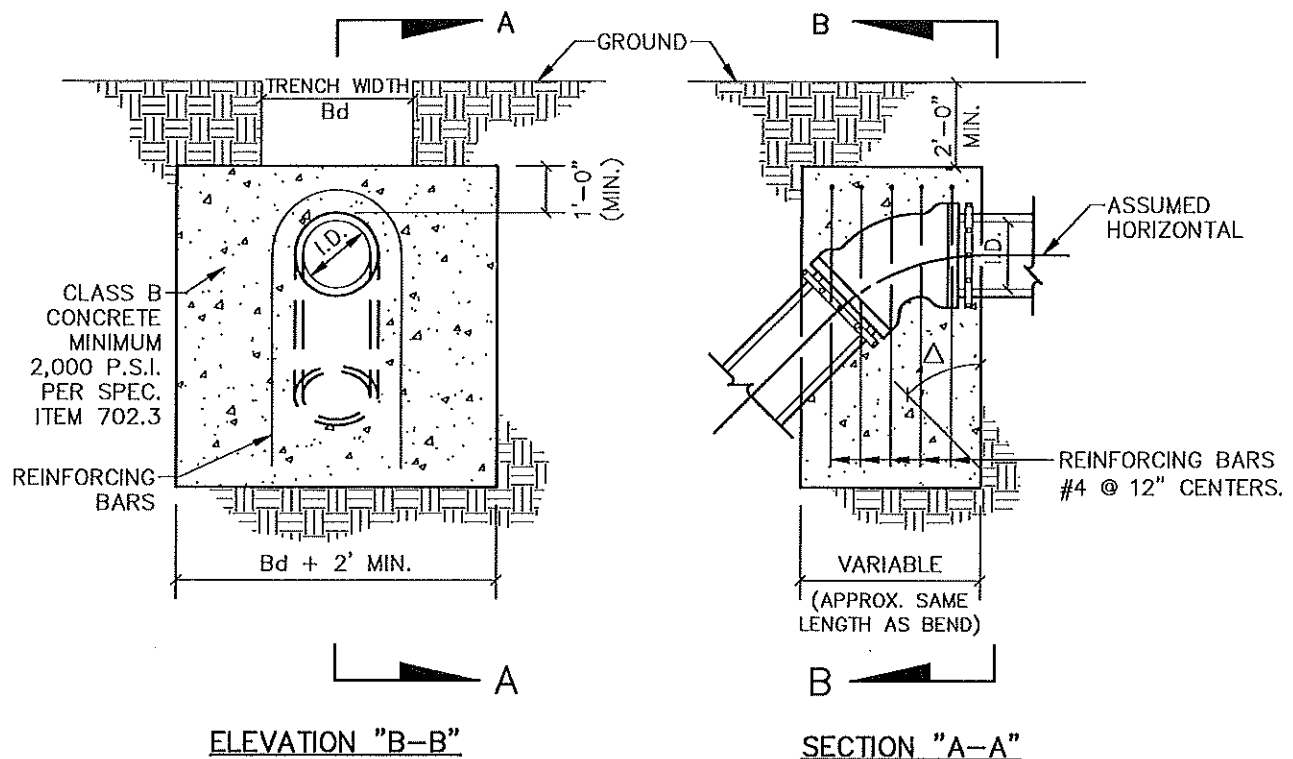


City of Saginaw
Construction Standards

CONCRETE CRADLE AT VERTICAL
BENDS

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AUG 2020

W-07



VERTICAL THRUST BLOCK TABLE

△ →	11.25'		22.50'		45.00'		90.00'	
I.D. (IN.)	MIN #4 BARS	VOL. (C.Y.)	MIN #4 BARS	VOL. (C.Y.)	MIN #4 BARS	VOL. (C.Y.)	MIN #4 BARS	VOL. (C.Y.)
6	1	0.5	1	1.0	1	1.8	2	2.5
8	1	0.5	1	1.0	2	1.8	3	2.5
10	1	1.1	2	2.2	3	4.0	5	5.7
12	1	1.1	2	2.2	4	4.0	7	5.7
16	1	2.5	4	4.9	7	9.0	12	12.7

NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. CONCRETE VOLUMES SHOWN ARE BASED ON 225 PSI TEST PRESSURE, 3,000 PSF ALLOWABLE SOIL BEARING PRESSURE, AND 1.5 SAFETY FACTOR.
3. BAR QUANTITIES ARE BASED ON 30 KSI #4 STEEL REINFORCEMENT BAR AND A SAFETY FACTOR OF 1.5.
4. THE ENGINEER SHALL PROVIDE A SEPARATE BLOCKING TABLE WHEN THE CONDITIONS DO NOT MEET THE ABOVE ASSUMPTIONS.
5. WRAP ALL BELOW GROUND IRON ASSEMBLIES IN POLYETHYLENE ACCORDING TO AWWA C105.
6. ALL TEES, BENDS, PLUGS, ETC. SHALL BE MECHANICALLY RESTRAINED.
7. BLOCKING FOR LINES LARGER THAN 16" SHALL BE DESIGNED FOR THE SPECIFIC LOCATION AND SHOWN ON THE DRAWINGS.



36" X 36" BILCO ALUMINUM DIAMOND PLATE DOOR OR APPROVED EQUAL CAST INTO CONCRETE LID

PRE-CAST CONCRETE STRUCTURE

LADDER (SEE W-11)

OS&Y GATE VALVE (TYP-2)

DIMENSIONS		
SIZE	L1	W1
3"	6'-6"	4'-2"
4"	6'-6"	4'-2"
6"	8'-0"	6'-0"
8"	9'-0"	6'-0"

3/4" DETECTOR METER W/ 2 SHUT-OFFS VALVES AND BACKFLOW PREVENTER

PLAN VIEW

FIRE DEPARTMENT CONNECTION (FOR 6' AND LARGER CONNECTIONS ONLY)

36" X 36" BILCO ALUMINUM DIAMOND PLATE DOOR OR APPROVED EQUAL CAST INTO CONCRETE LID

FLEXIBLE COUPLING WITH RESTRAINT HARNESS

LINK-SEAL WALL PENETRATION

DOUBLE CHECK DETECTOR BACKFLOW PREVENTER

GRADE 4 CRUSHED ROCK EMBEDMENT PER SPEC. ITEM 504.2.2.1

PIPE SUPPORT (SEE W-11)

ELEVATION

12" SQUARE SUMP WITH CAST IRON GRATE AND DRAIN

PIPE SADDLE SUPPORT (SEE W-11)

NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. NOTIFY THE CITY PRIOR TO CONSTRUCTION OF METER VAULT OR BY-PASS ASSEMBLY.
3. THE VAULT SHALL NOT BE INSTALLED IN ANY DRIVING OR PARKING AREAS AND MUST BE LOCATED IN A UTILITY EASEMENT DEDICATED TO THE CITY OF SAGINAW.
4. THE CONTRACTOR MAY HAVE THE WALL CORED BEFORE INSTALLATION OF VAULT AND PIPING. BREAKING OF THE WALL WITH A JACKHAMMER IS NOT PERMITTED.
5. ALL PIPING SHALL BE DUCTILE IRON. ALL PIPING AND EQUIPMENT IN VAULT SHALL BE COATED PER MANUFACTURER FOR THE INTENDED USE.



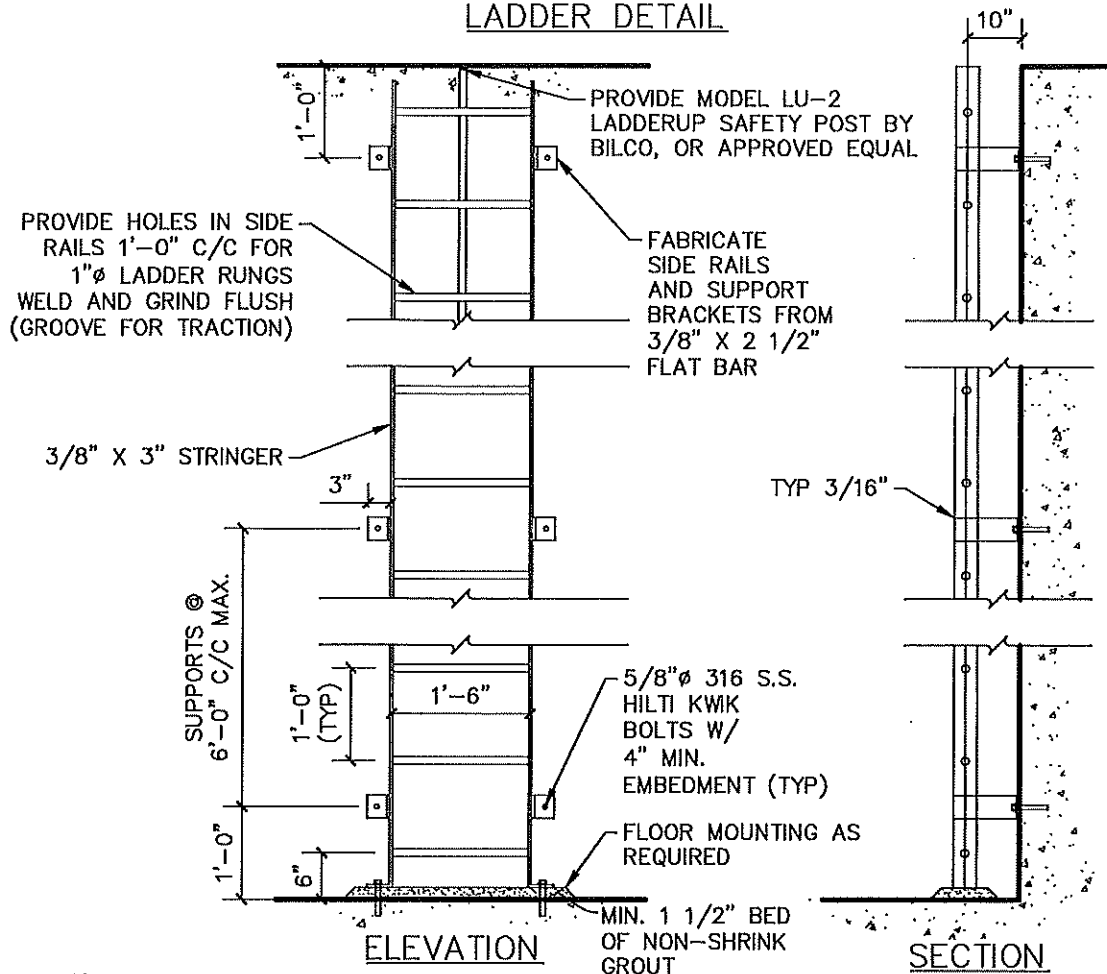
City of Saginaw
Construction Standards

DOUBLE CHECK DETECTOR VAULT

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W-10

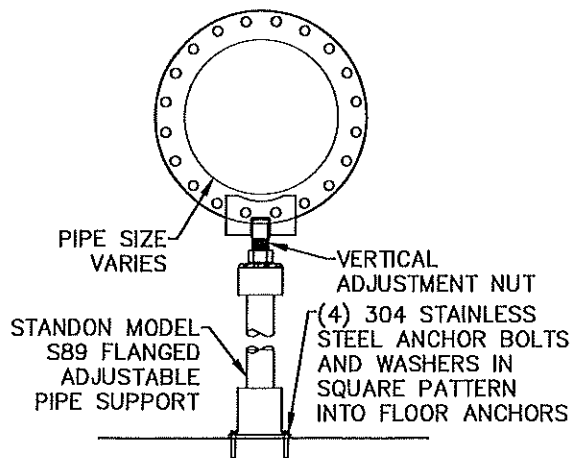
LADDER DETAIL



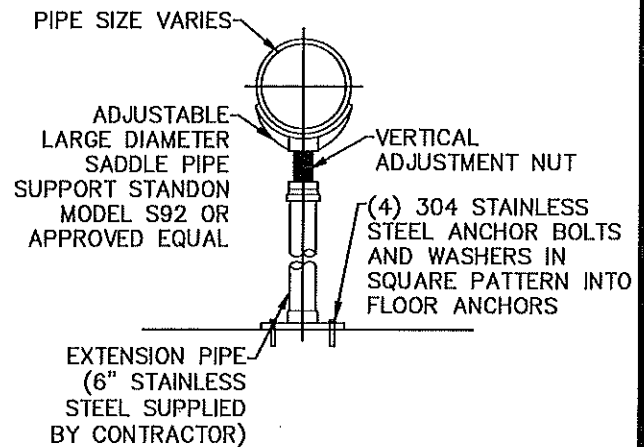
NOTES:

1. ALL STEEL MEMBERS SHALL BE GALVANIZED UNLESS OTHERWISE NOTED.

ADJUSTABLE FLANGE PIPE SUPPORT DETAIL



ADJUSTABLE SADDLE PIPE SUPPORT DETAIL

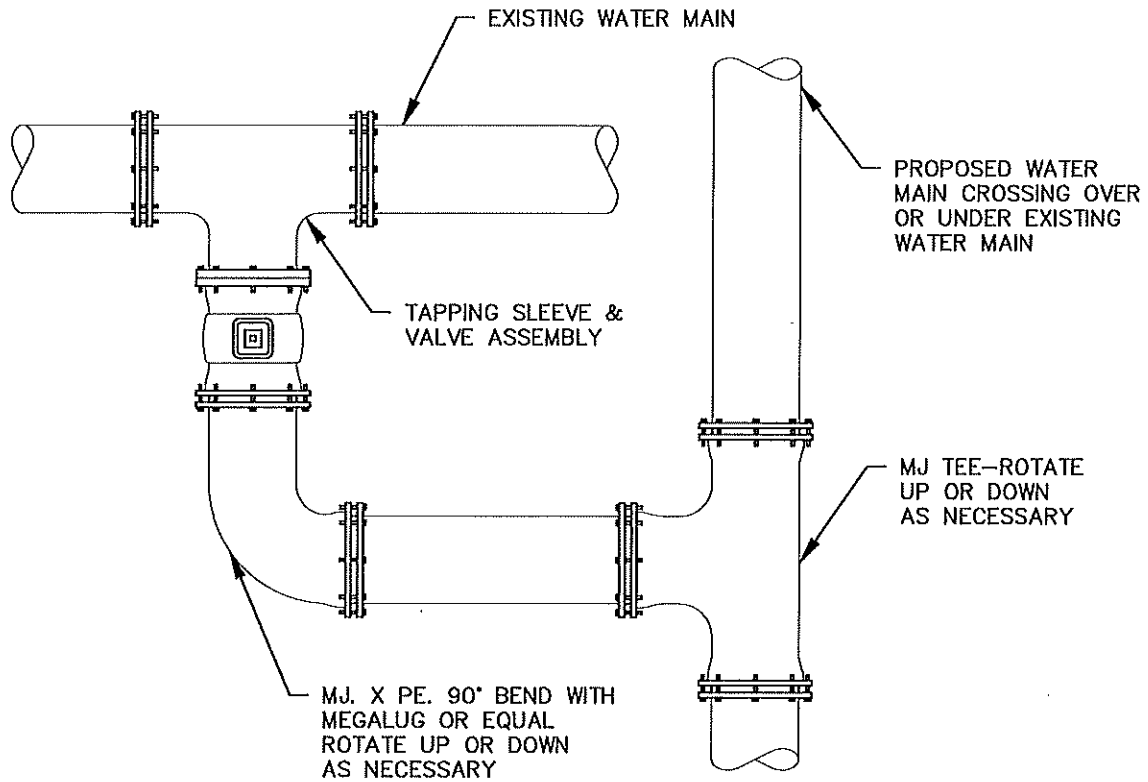


City of Saginaw
Construction Standards

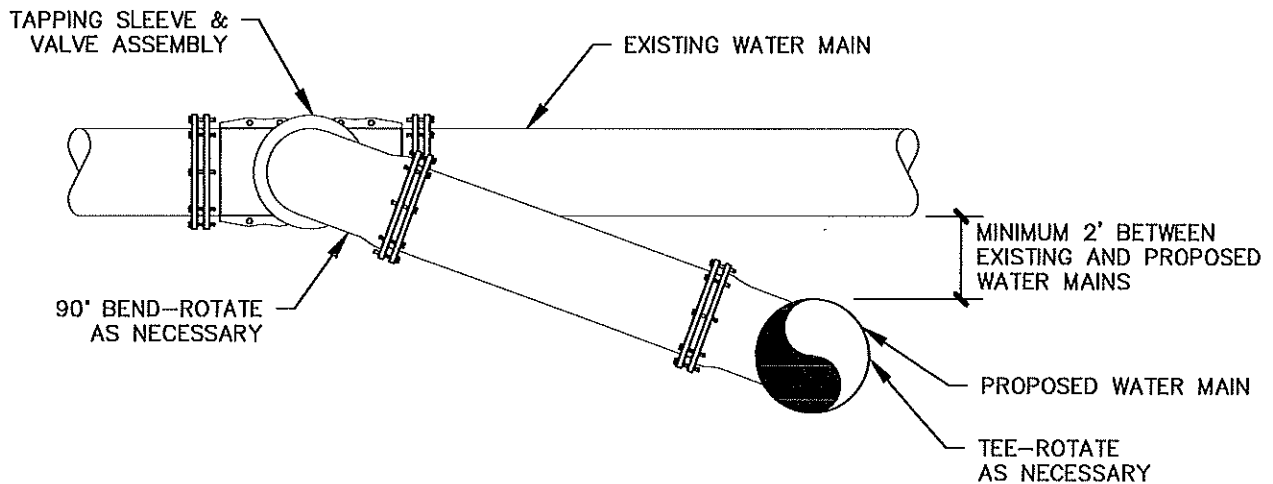
LADDER AND PIPE SUPPORT

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AUG 2020

W-11



PLAN



SECTION

NOTES:

1. WRAP ALL BELOW GROUND ASSEMBLIES IN POLYETHYLENE ACCORDING TO AWWA C105.
2. THE DIAMETER OF THE CONNECTING PIPE BETWEEN THE PROPOSED AND EXISTING WATER MAINS SHALL HAVE A DIAMETER EQUAL TO THE SMALLER OF THE TWO MAINS TO BE CONNECTED THROUGH THE PROPOSED RING CONNECTION.

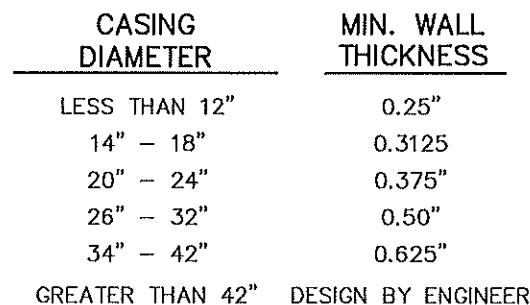


City of Saginaw
Construction Standards

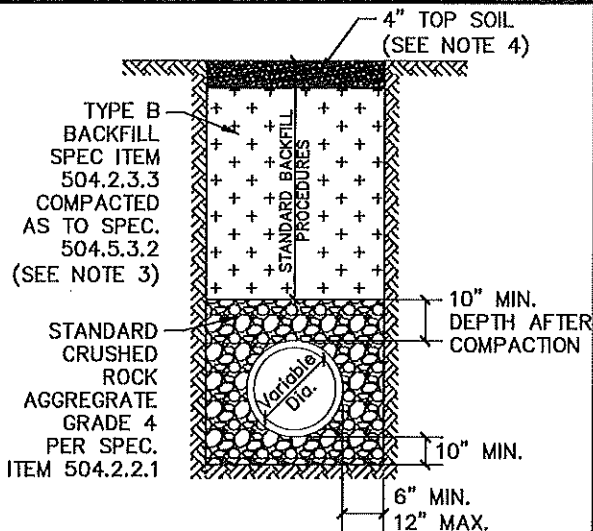
TYPICAL RING CONNECTION

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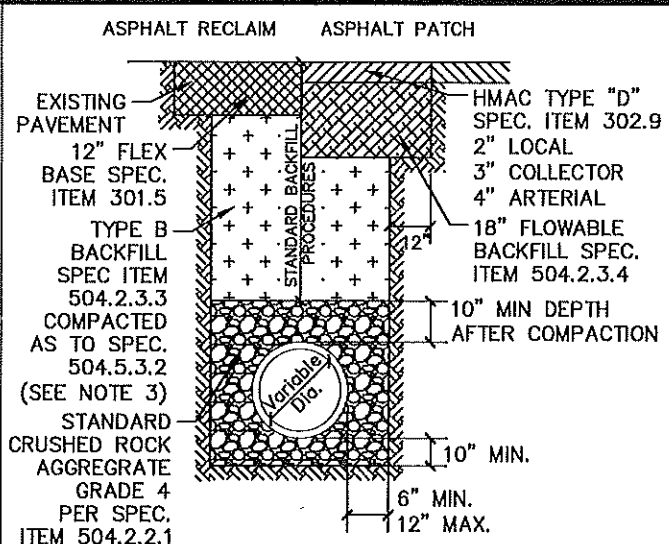
W-12



1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. BORE PIT SHALL MEET OSHA AND STATE REQUIREMENTS.
3. WHERE A BORE IS TO BE PARTIALLY OR COMPLETELY ABANDONED, SAID BORE SHALL BE COMPLETELY FILLED WITH HYDRAULICALLY PLACED CEMENT GROUT.
4. THE EDGE OF BORE PIT SHALL BE A MINIMUM OF 4' BEHIND THE BACK OF CURB OR EDGE OF PAVEMENT.
5. STEEL CASING PIPE SHALL BE MINIMUM 35 KSI ASTM A139, GRADE B CARBON STEEL, AND SHALL HAVE A TAR-COAL EXPOXY COATING IN ACCORDANCE WITH AWWA C210.
6. CASING PIPE SHALL BE PLACED AT THE SAME SLOPE AS THE CARRIER PIPE TO ENSURE THAT THE CARRIER PIPE IS PLACED ALONG THE SPECIFIED GRADE. IF THE PROPER SLOPE CANNOT BE MAINTAINED, THE CASING SPACERS SHALL BE ADJUSTED SO THAT THE CARRIER PIPE IS PLACED AT THE SPECIFIED GRADE.

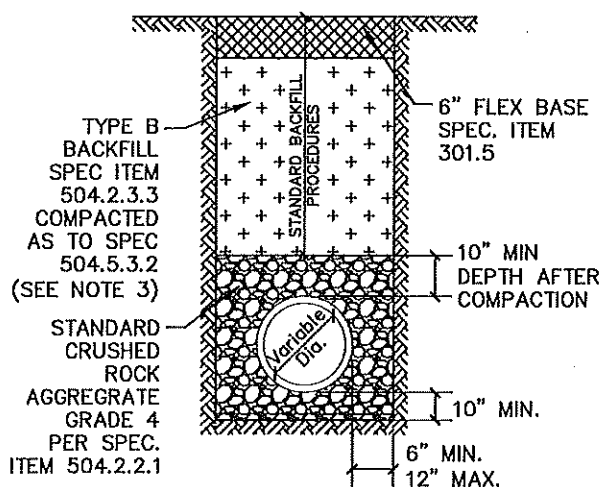


UNPAVED AREA

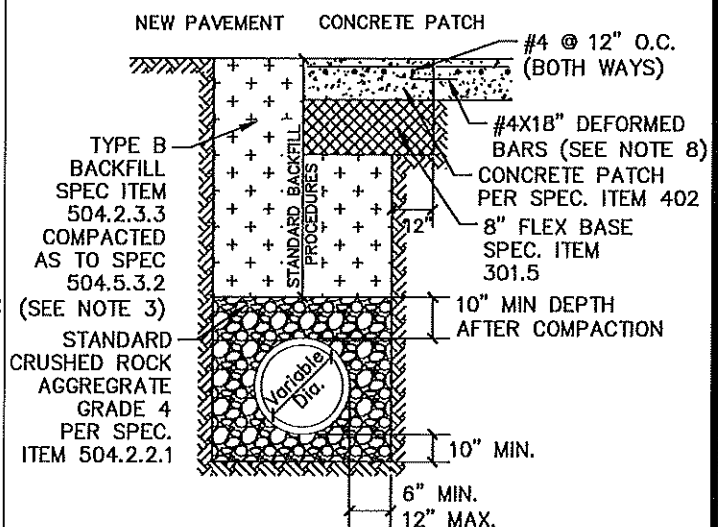


NOTE: FOR NEW STREETS, BACKFILL MAY BE EXTENDED TO THE TOP OF THE TRENCH

ASPHALT PAVEMENT



GRAVEL SURFACE



CONCRETE PAVEMENT

NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. AT THE END OF EACH WORK DAY ALL SPOILS SHALL BE REMOVED FROM THE CITY R.O.W. UNLESS PRIOR WRITTEN PERMISSION IS OBTAINED FROM THE CITY TO STORE SPOILS IN DESIGNATED SPOIL STORAGE AREAS THAT DO NOT OBSTRUCT AUTOMOBILE OR PEDESTRIAN TRAFFIC.
3. ROCKS GREATER THAN 4" IN DIAMETER SHALL BE REMOVED FROM ANY NATIVE MATERIAL USED AS BACKFILL.
4. TOPSOIL SHALL BE 4" IN DEPTH AND SHALL BE LOOSE AND FREE OF ROCKS OR CLODS GREATER THAN 1/4" IN DIAMETER. ALL TOPSOIL SHALL BE APPROVED BY THE CITY PRIOR TO INSTALLATION.
5. ALL PAVEMENT SHALL BE REMOVED ALONG NEAT SAW CUT LINES PER SPEC. ITEM 402.3.
6. SEWER LINE WARNING TAPE OF MIN 4" WIDTH SHALL BE INSTALLED ABOVE THE EMBEDMENT MATERIAL.
7. A MAXIMUM OF 50 FT OF OPEN TRENCH WILL BE ALLOWED AT ANY TIME, UNLESS APPROVED BY THE CITY.
8. DEFORMED BARS DOWELED AND EPOXYED MIN. 6" INTO EXISTING PAVEMENT @ 12" O.C. (TYP).

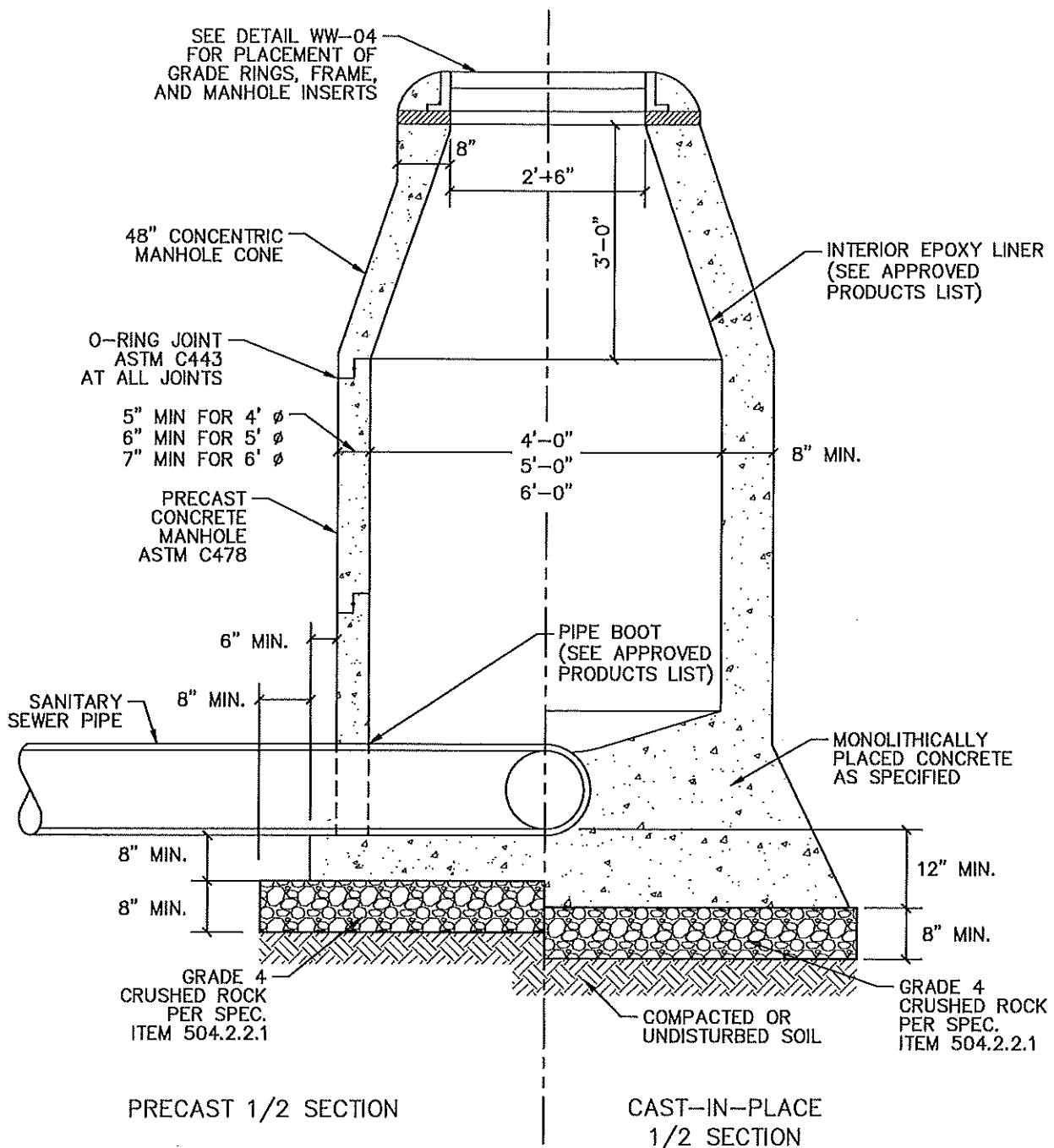


City of Saginaw
Construction Standards

STANDARD SANITARY SEWER
EMBEDMENT AND BACKFILL

REVISED
AUG 2020

WWV-01



NOTES:

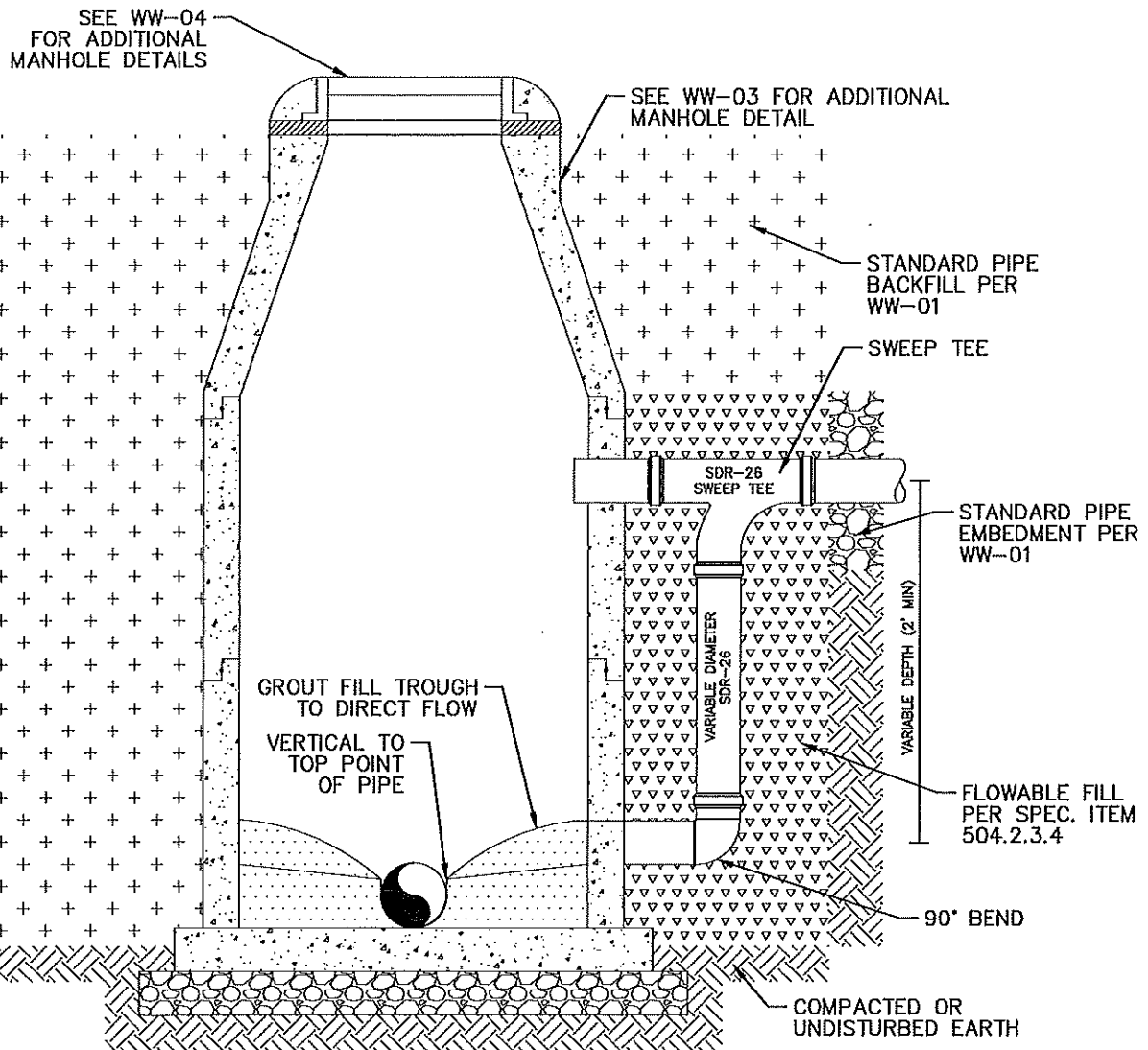
1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. MANHOLES SHALL BE CONCENTRIC UNLESS OTHERWISE APPROVED BY THE CITY.
3. 4'X4' PAVEMENT INSERTS OF 6" 3000 PSI CONCRETE SHALL BE PROVIDED FOR MANHOLE LIDS.
4. INVERTS SHALL BE EQUAL TO OR GREATER THAN THE PIPE DIAMETER.



City of Saginaw
Construction Standards

PRECAST AND CAST-IN-PLACE
SANITARY SEWER MANHOLE

REVISED
AUG 2020
WWW-02



ELEVATION A

NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. FLOWABLE FILL AROUND DROP PIPING SHALL BE A MINIMUM OF 24" IN ALL DIRECTIONS.
3. LOCATE FLOWLINE OF DROP LINE AT TOP OF EXISTING WASTEWATER LINE UNLESS NOTED OTHERWISE ON PLANS.

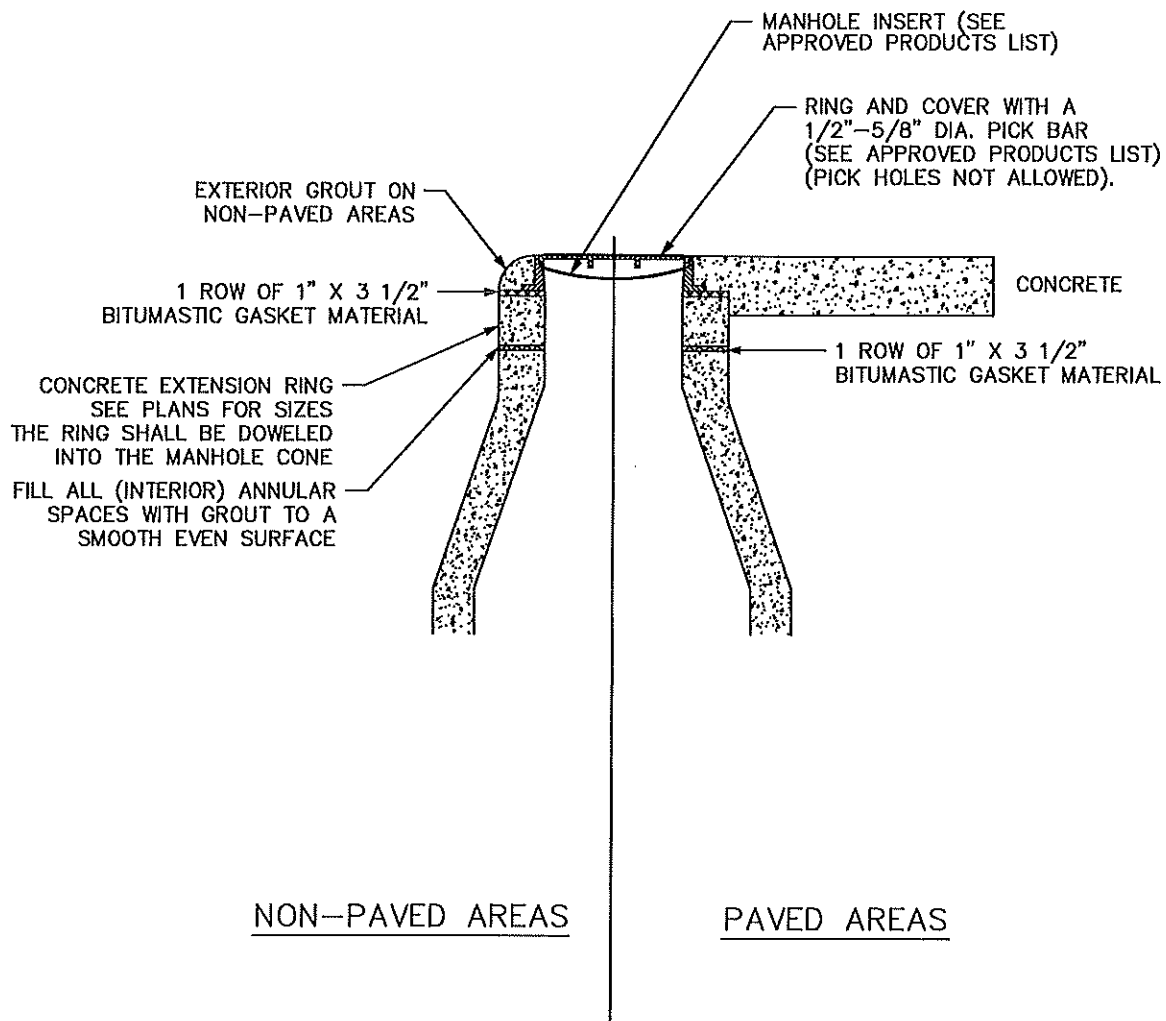


City of Saginaw
Construction Standards

SANITARY SEWER MANHOLE DROP
CONNECTIONS

REVISED
AUG 2020

WW-03



NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. NO GAPS WILL BE ALLOWED IN BITUMASTIC GASKET.
3. MANHOLE OPENING SHALL BE A MINIMUM OF 30".
4. THERE SHALL BE A SMOOTH TRANSITION BETWEEN THE FRAME AND CONE OR GRADE RING, OR THE GRADE RING AND THE CONE.
5. MANHOLE INSERTS SHALL BE MADE OF HIGH-DENSITY POLYETHYLENE THAT MEETS ASTM D-1248, CLASS A, CATEGORY 5, TYPE 111 STANDARDS AND IS A UNIFORM THICKNESS OF 1/8" OR GREATER. AN ENVELOPE-STYLE GASKET, RIBBED ON ONE SIDE TO ENSURE A POSITIVE SEAL AND DESIGNATED NOT TO SEPARATE FROM THE INSERT DURING INSTALLATION AND REMOVAL, SHALL BE FURNISHED. INSERTS SHOULD PROVIDE A GAS RELEASE HOLE (1.8") HAVING A WATER LEAKAGE RATE NOT TO EXCEED 1.2 GPH TWO 1" WIDE NYLON LIFT STRAPS ATTACHED TO THE INSERT WITH TWO HIGH GRADE STAINLESS STEEL RIVETS WITH WASHERS ARE REQUIRED.

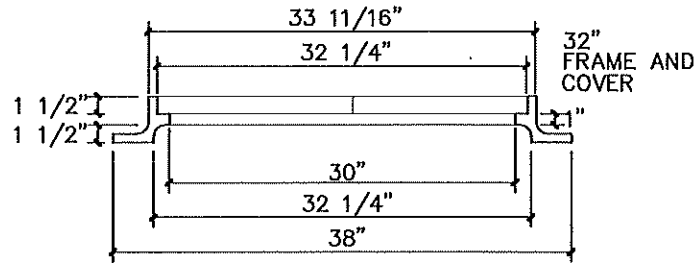
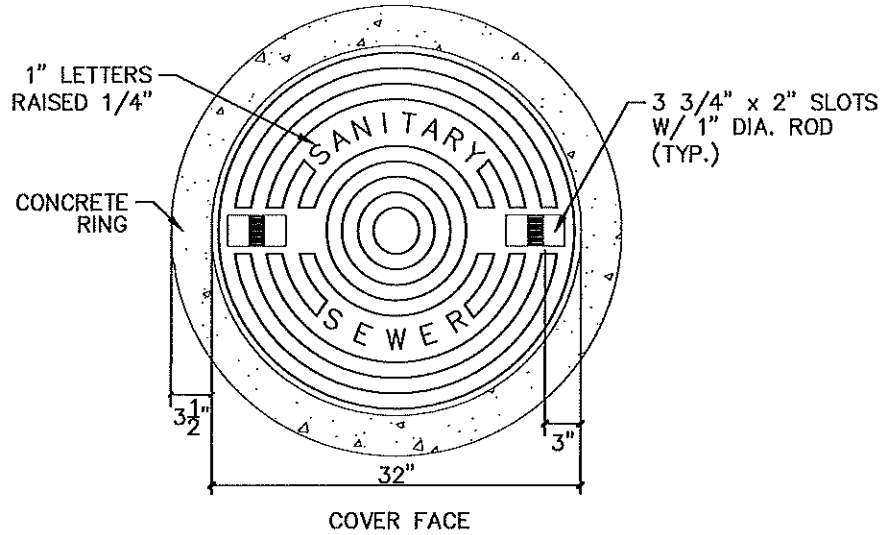


City of Saginaw
Construction Standards

EXTENSION RING INSTALLATION
FRAME AND COVER PLACEMENT

REVISED
AUG 2020

WWW-04



CLEANOUT CASTING OPENING TO BE INSTALLED
CENTERED OVER THE CENTERLINE OF THE
CLEANOUT STACK EXTENDED TO GROUND LEVEL

CLEANOUT CASTING

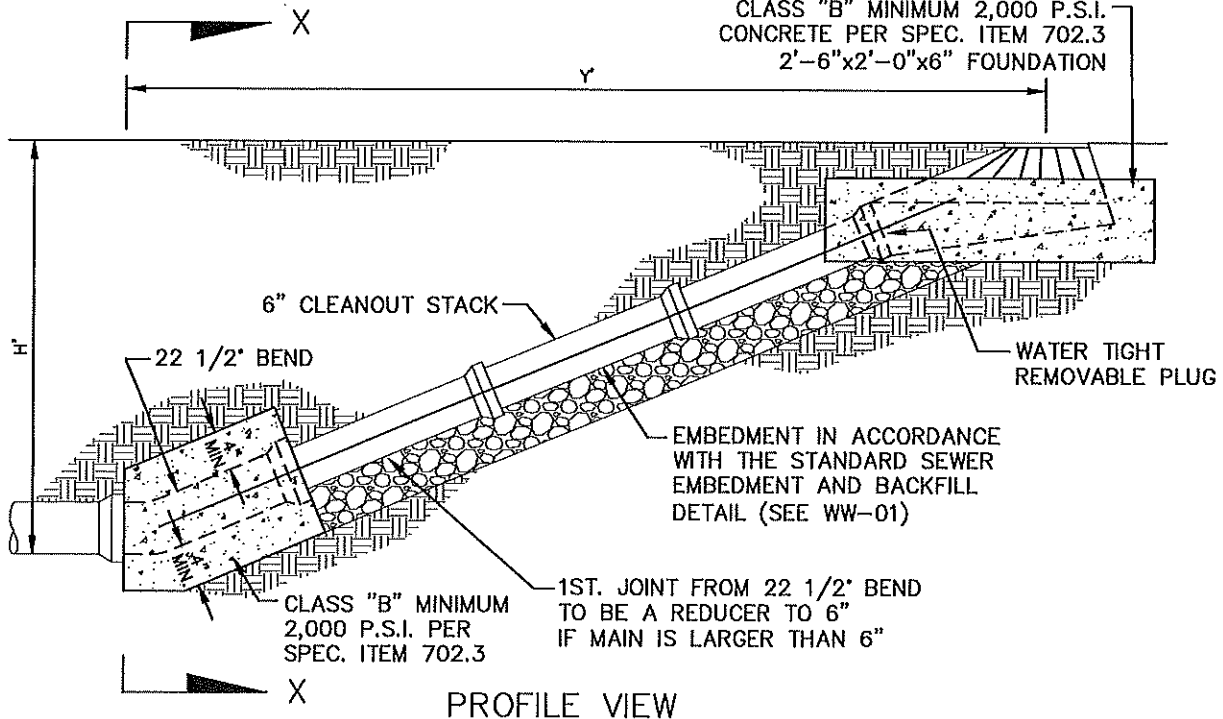
WATER TIGHT
REMOVABLE PLUG

CLASS "B" MINIMUM
2,000 P.S.I. PER
SPEC. ITEM 702.3

CLASS "B" MINIMUM
2,000 P.S.I. CONCRETE
PER SPEC. ITEM 702.3

SECTION "X-X"

CLASS "B" MINIMUM 2,000 P.S.I.
CONCRETE PER SPEC. ITEM 702.3
2'-6"x2'-0"x6" FOUNDATION



H'	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	H'
Y'	10	12	14	17	19	22	24	27	29	31	34	36	39	41	43	46	48	Y'

NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. IF CLEAN OUT IS PLACE IN ADVANCE OF PLACEMENT PLACE SAND AROUND CLEANOUT CASTING IN LIEU OF CLASS "B" CONCRETE PER ITEM 702.3.

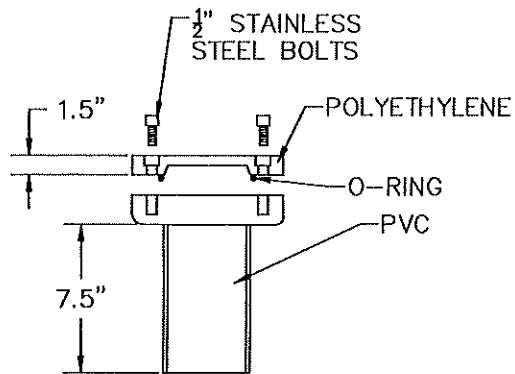


City of Saginaw
Construction Standards

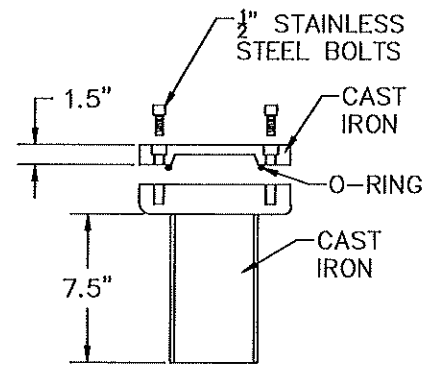
SANITARY SEWER MAIN CLEANOUT

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AUG 2020

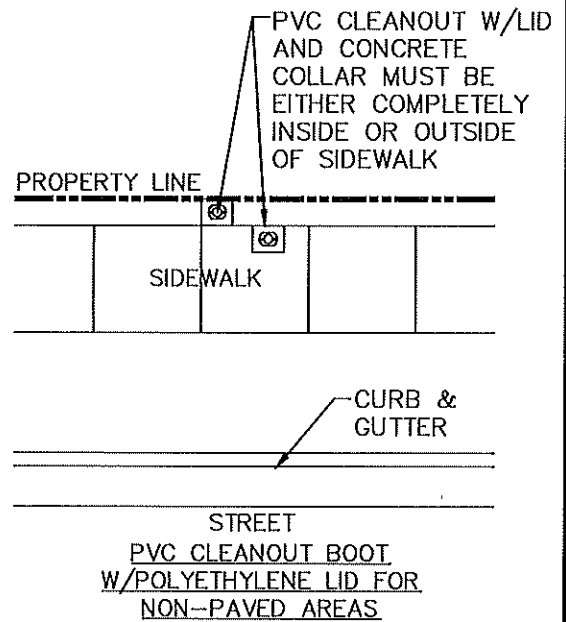
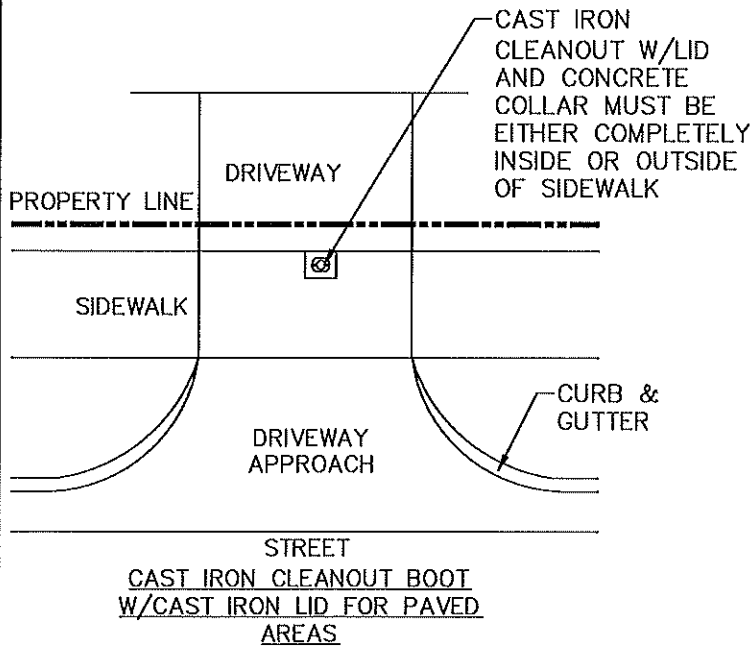
WW-06

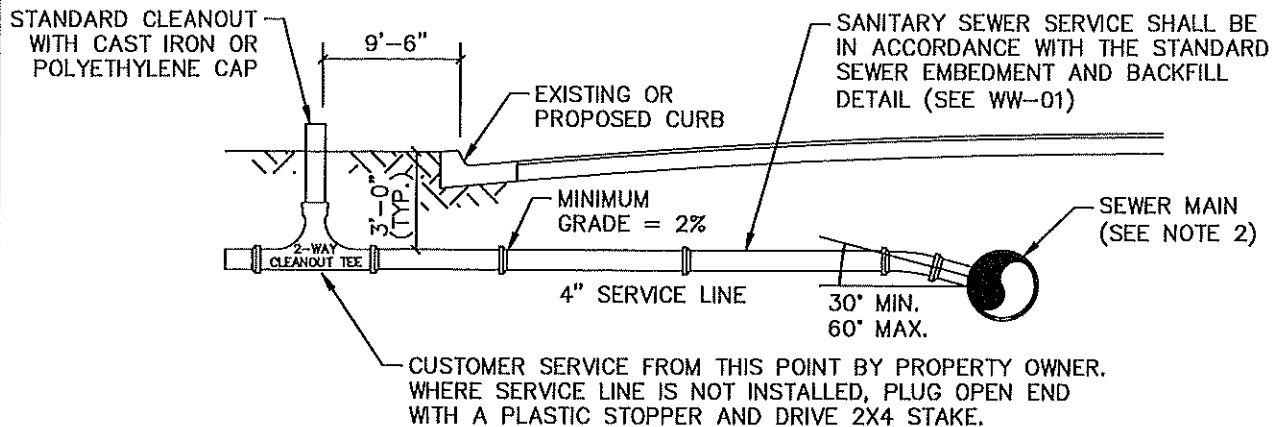


PVC CLEANOUT W/S.S. BOLTS
AND POLYETHYLENE LID
FOR UN-PAVED AREAS

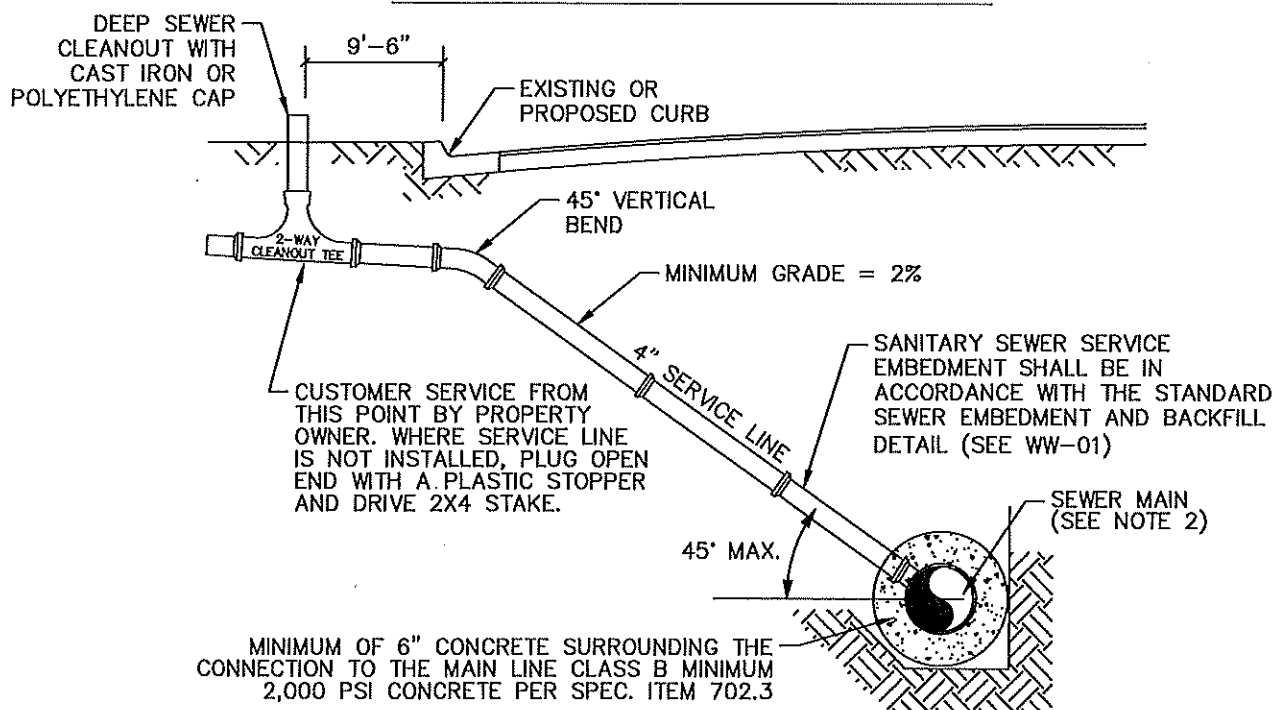


CAST IRON CLEANOUT W/S.S.
BOLTS AND C.I. LID
FOR PAVED AREAS





STANDARD SEWER SERVICE DETAIL



DEEP SEWER SERVICE DETAIL

NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. EITHER A WYE FITTING OR A TEE WYE FITTING MAY BE USED FOR CONNECTION TO SEWER MAIN. NO TEES OR WYE SADDLES WILL BE ALLOWED. ALL CONNECTIONS TO BE MADE AT THE TWO O'CLOCK OR TEN O'CLOCK POSITION.
3. CONNECTIONS TO SEWER MAINS FROM 0' TO 7' DEEP SHALL CONFORM TO THE STANDARD SEWER CONNECTION DETAIL. CONNECTIONS TO SEWER MAINS DEEPER THAN 7' SHALL CONFORM TO THE DEEP SEWER CONNECTION DETAILS.
4. MARK SEWER SERVICE LINE LOCATION WITH RED VINYL TAPE AT LEAST 3" WIDE AND 10 MIL THICK. ATTACH TAPE TO THE END OF THE SERVICE AND EXTEND THROUGH THE BACKFILL AT THE POINT OF THE HOUSE SERVICE CONNECTION BEHIND THE CURB.

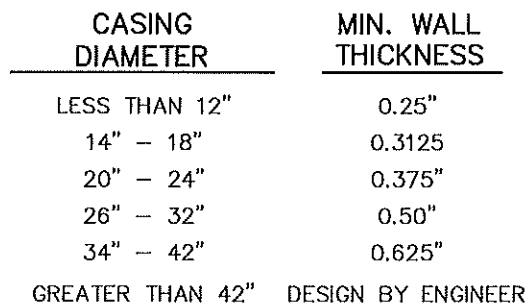


City of Saginaw
Construction Standards

SANITARY SEWER SERVICE

REVISED
AUG 2020

WW-08



1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. BORE PIT SHALL MEET OSHA AND STATE REQUIREMENTS.
3. WHERE A BORE IS TO BE PARTIALLY OR COMPLETELY ABANDONED, SAID BORE SHALL BE COMPLETELY FILLED WITH HYDRAULICALLY PLACED CEMENT GROUT.
4. THE EDGE OF BORE PIT SHALL BE A MINIMUM OF 4' BEHIND THE BACK OF CURB OR EDGE OF PAVEMENT.
5. STEEL CASING PIPE SHALL BE MINIMUM 35 KSI ASTM A139, GRADE B CARBON STEEL, AND SHALL HAVE A COAL-TAR EXPOXY COATING IN ACCORDANCE WITH AWWA C210.
6. CASING PIPE SHALL BE PLACED AT THE SAME SLOPE AS THE CARRIER PIPE, TO ENSURE THAT THE CARRIER PIPE IS PLACED ALONG THE SPECIFIED GRADE. IF THE PROPER SLOPE CANNOT BE MAINTAINED, THE CASING SPACERS SHALL BE ADJUSTED SO THAT THE CARRIER PIPE IS PLACED AT THE SPECIFIED GRADE.

EXISTING MANHOLE
FRAME, COVER & CONE
TO BE REMOVED AND
DISPOSED OF AND
BACKFILL IN
ACCORDANCE WITH
WW-01

UTILITY SAND PER W-01
OR CRUSHED ROCK PER
WW-01 COMPACTED TO
90% (95% UNDER
PAVEMENT) STANDARD
PROCTOR DENSITY

POUR CLASS B CONCRETE
MINIMUM 2,000 P.S.I. (PER
SPEC. ITEM 702.3) TO 6"
ABOVE TOP OF PIPE

PLUG WITH CLASS "B"
CONCRETE MINIMUM 2,000
P.S.I. (PER SPEC. ITEM
702.3) PRIOR TO POURING
2,000 PSI CONCRETE

PLUG WITH CLASS "B"
CONCRETE MINIMUM
2,000 PSI (PER SPEC.
ITEM 702.3)

SDR-26
SWEEP TEE

VARIABLE DIAMETER
SDR-26

TO BE
PLUGGED
PRIOR TO
POURING
2,000 PSI
CONCRETE

EXISTING
CONCRETE BASE

EXISTING PVC
SEWER PIPE

EXISTING GROUND

NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION.

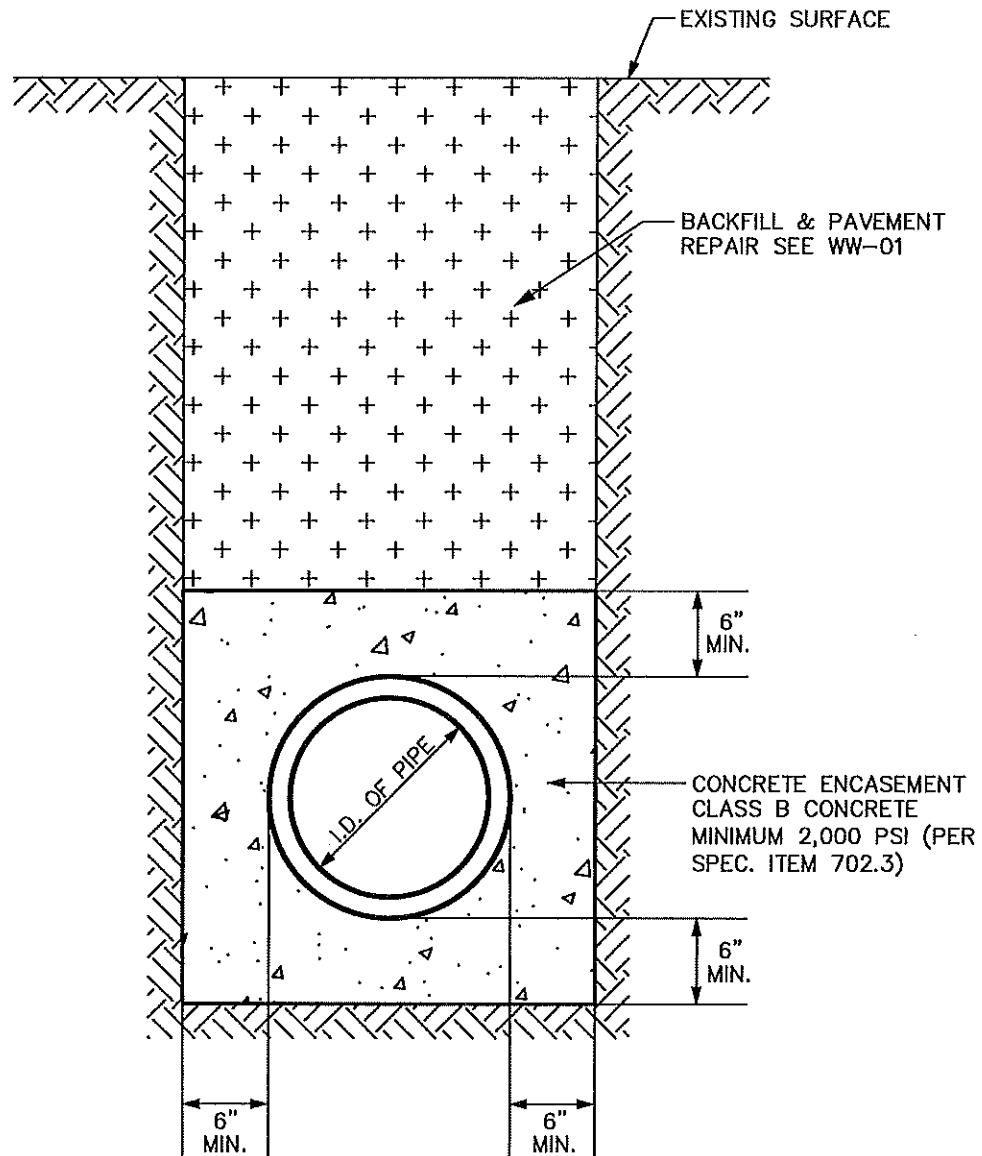


City of Saginaw
Construction Standards

MANHOLE ABANDONMENT

REVISED
AUG 2020

WW-10



NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION.

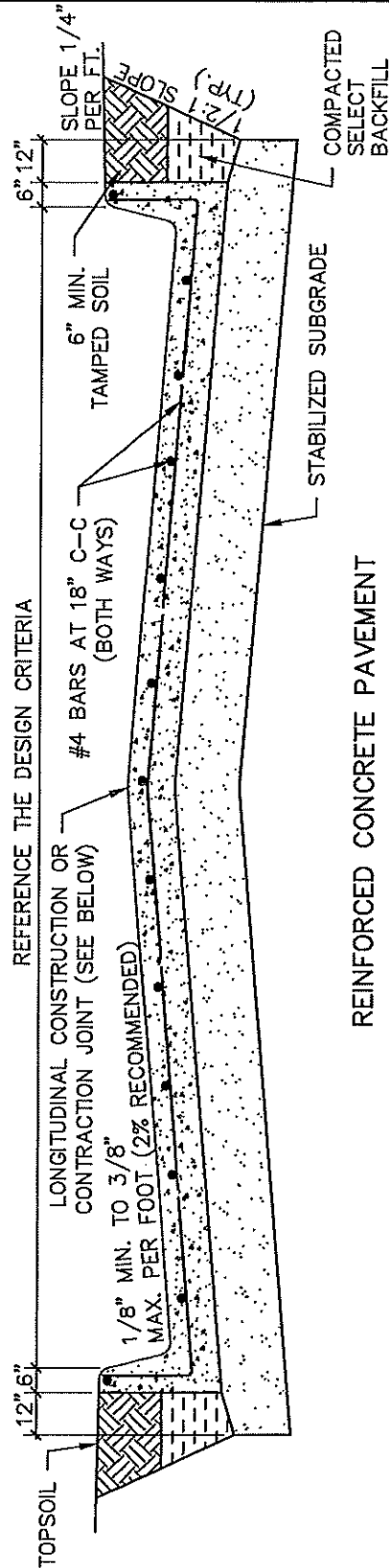


City of Saginaw
Construction Standards

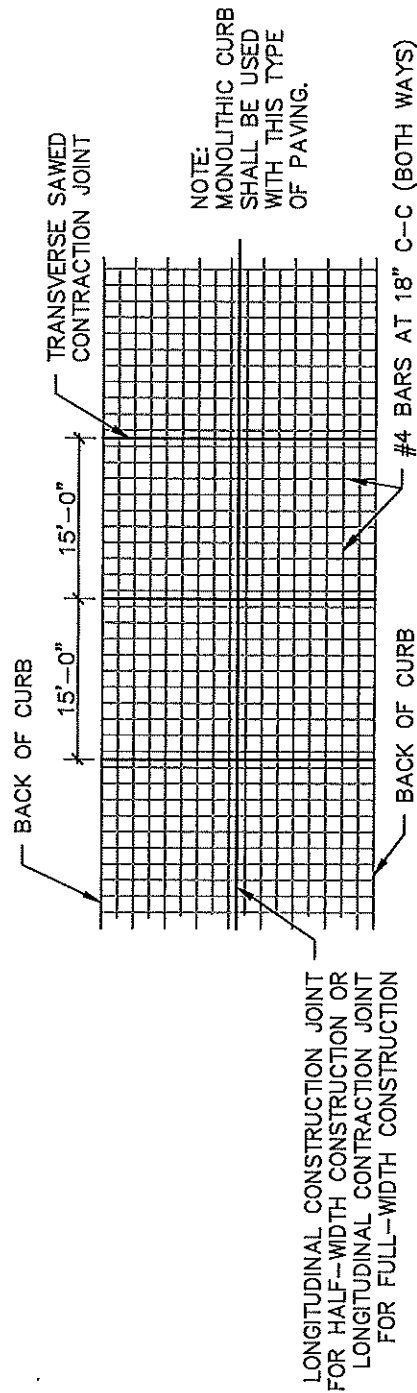
CONCRETE ENCASEMENT

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AUG 2020

WW-11



REINFORCED CONCRETE PAVEMENT

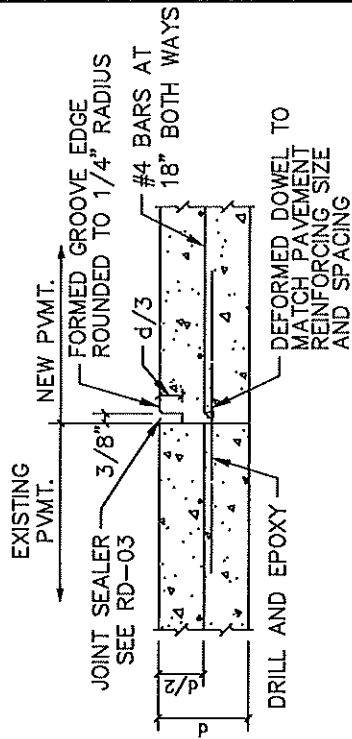


NOTE:
MONOLITHIC CURB
SHALL BE USED
WITH THIS TYPE
OF PAVING.

STEEL LAYOUT PLAN

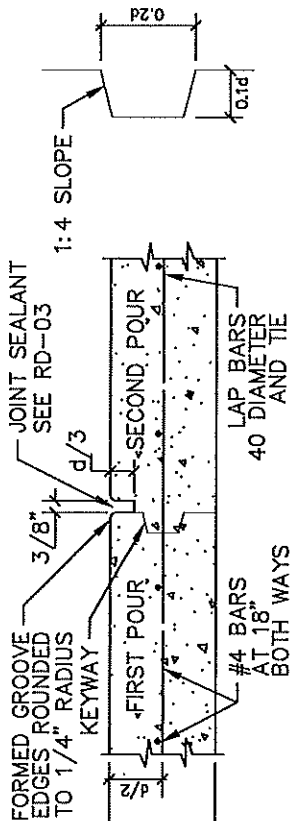
NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. MINIMUM PAVEMENT DEPTH SHALL BE 8".
3. ALL CONCRETE PAVEMENT SHALL BE CLASS "A" (PER ITEM 702.3) OR AS SPECIFIED BY THE OWNER.
4. A GEOTECHNICAL REPORT SEALED BY A LICENSED PROFESSIONAL ENGINEER IS REQUIRED TO PROVIDE RECOMMENDATIONS FOR LIME OR CEMENT CONTENT AND SUBGRADE THICKNESS.
5. MONOLITHIC CURB SHALL BE USED WITH THIS TYPE OF PAVING.

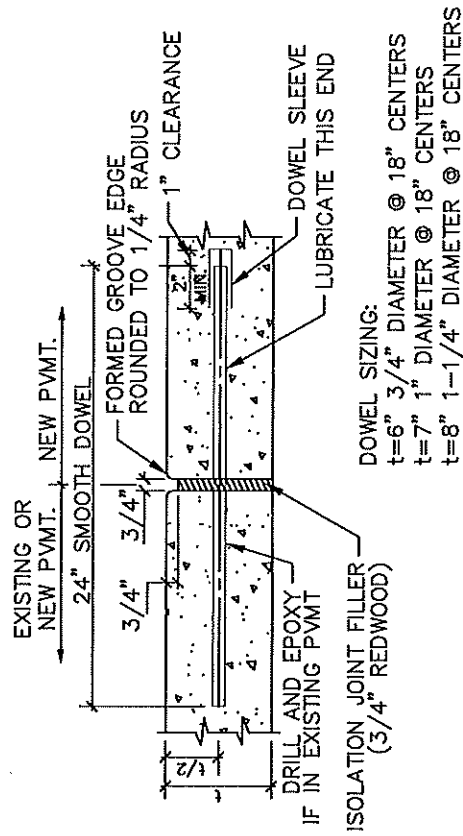


SAWED CONSTRUCTION JOINT

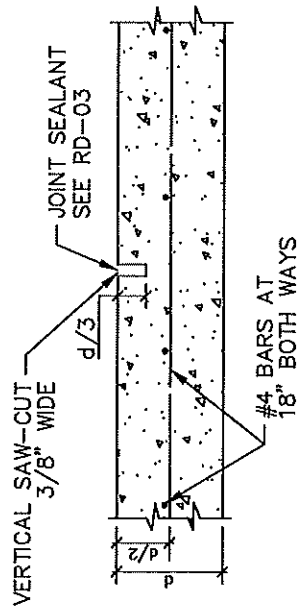
KEYWAY
DIMENSIONS



TRANSVERSE OR LONGITUDINAL
CONSTRUCTION JOINT



EXPANSION JOINT

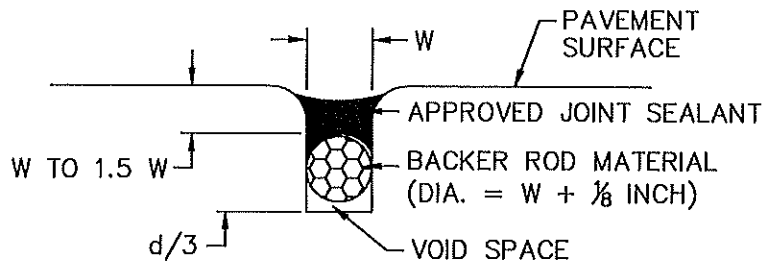


TRANSVERSE OR LONGITUDINAL
SAWED CONSTRUCTION JOINT

NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. ALL ISOLATION JOINTS SHALL EXTEND THROUGH THE CURB SECTION.
3. THE SAW-CUT OF ALL TRANSVERSE CONTRACTION JOINTS SHALL EXTEND THROUGH THE CURB SECTION.
4. AT ALL TRANSVERSE CONSTRUCTION JOINTS THE CURB SECTION SHALL BE SAW-CUT.
5. DOWEL SUPPORT SHALL BE PROVIDED TO ENSURE SPECIFIED DEPTH AND ORIENTATION.

DOWEL SIZING:
t=6" 3/4" DIAMETER @ 18" CENTERS
t=7" 1" DIAMETER @ 18" CENTERS
t=8" 1-1/4" DIAMETER @ 18" CENTERS



NOTES:

1. d = THICKNESS OF PAVEMENT
2. METHODS AND MATERIALS FOR JOINT CLEANING AND SEALING TO FOLLOW TXDOT ITEM SPECIFICATION 713.
3. TXDOT CLASS 8 JOINT SEALANT TO BE USED PER TXDOT DMS-6310.

SILICONE JOINT SEALANT (COLD POUR)

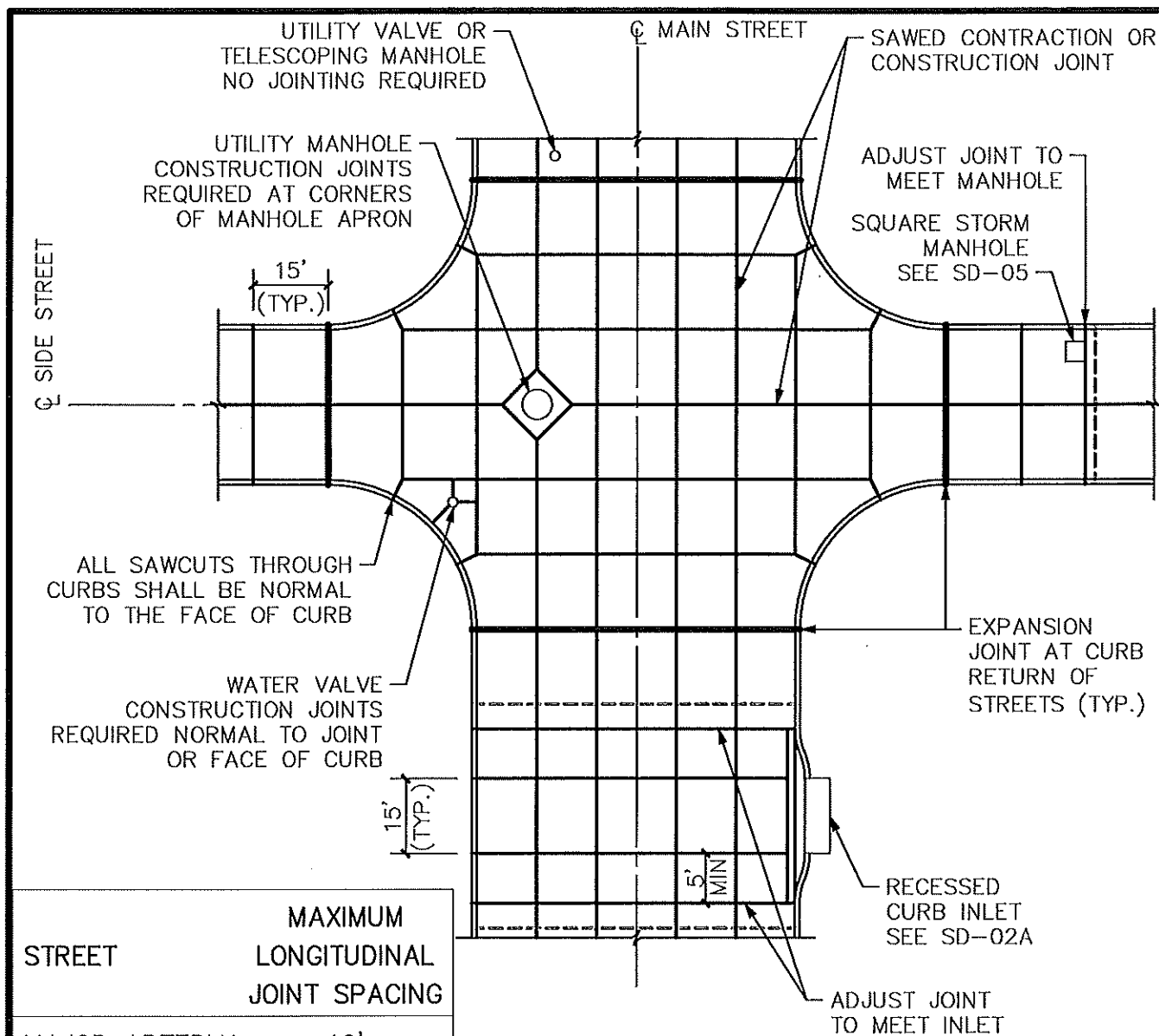


City of Saginaw
Construction Standards

CONCRETE PAVING
JOINT SEALANTS

REVISED
AUG 2020

RD-03



STREET	MAXIMUM LONGITUDINAL JOINT SPACING
MAJOR ARTERIAL	12'
DIVIDED/COLLECTOR	13'
LOCAL	15'

NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. REFER TO NCTCOG ITEM 702.3 FOR CONCRETE PAVEMENT.
3. MAXIMUM TRANSVERSE JOINT SPACING IS 15'.
4. LONGITUDINAL JOINT SPACING SHALL MATCH LANE LINES UNLESS NOTED OTHERWISE.
5. ALL PAVEMENT JOINTS SHALL BE SEALED IN ACCORDANCE WITH RD-03.
6. MINIMUM 5' JOINT SPACING.

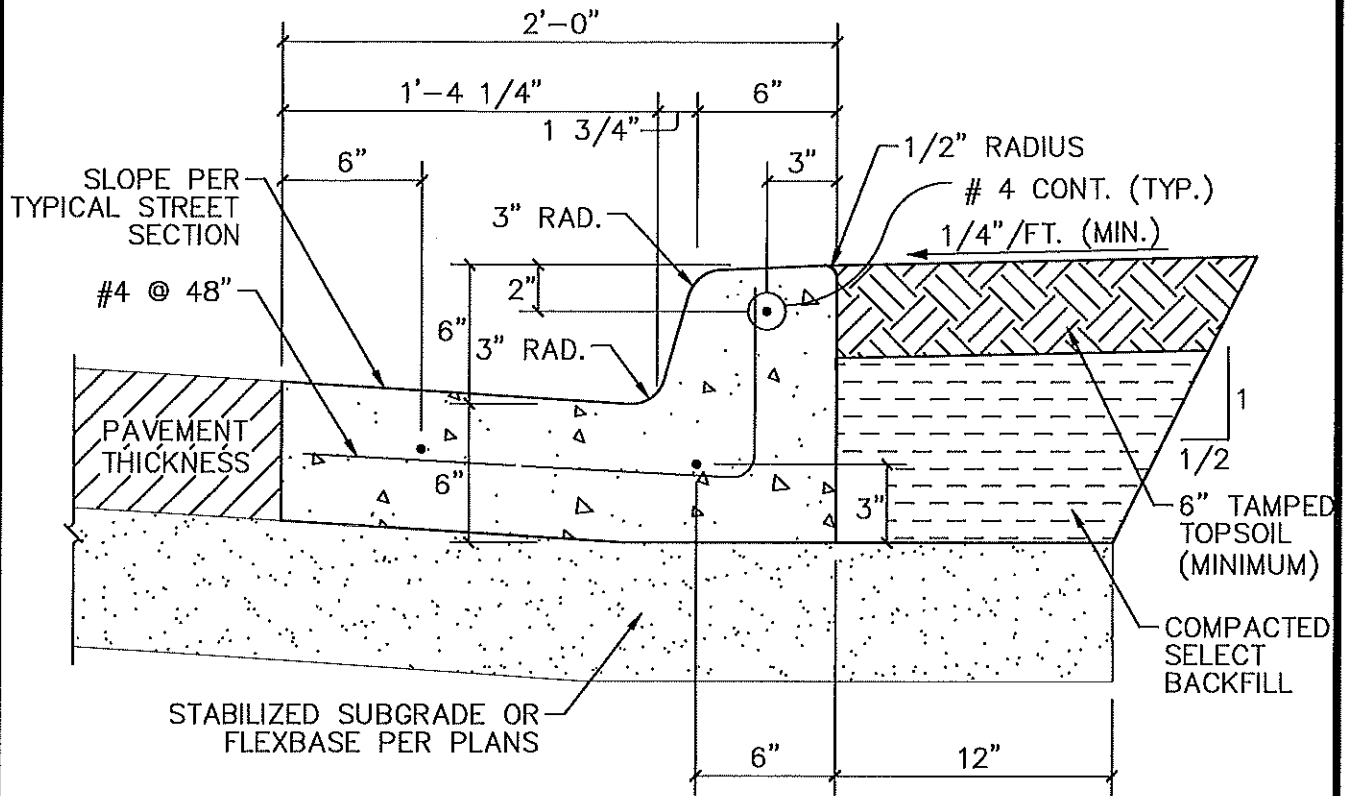


City of Saginaw
Construction Standards

PAVEMENT INTERSECTION JOINT
SPACING

REVISED
AUG 2020

RD-04



NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. ROCKS GREATER THAN 4" IN DIAMETER SHALL BE REMOVED FROM ANY NATIVE MATERIAL USED AS BACKFILL.

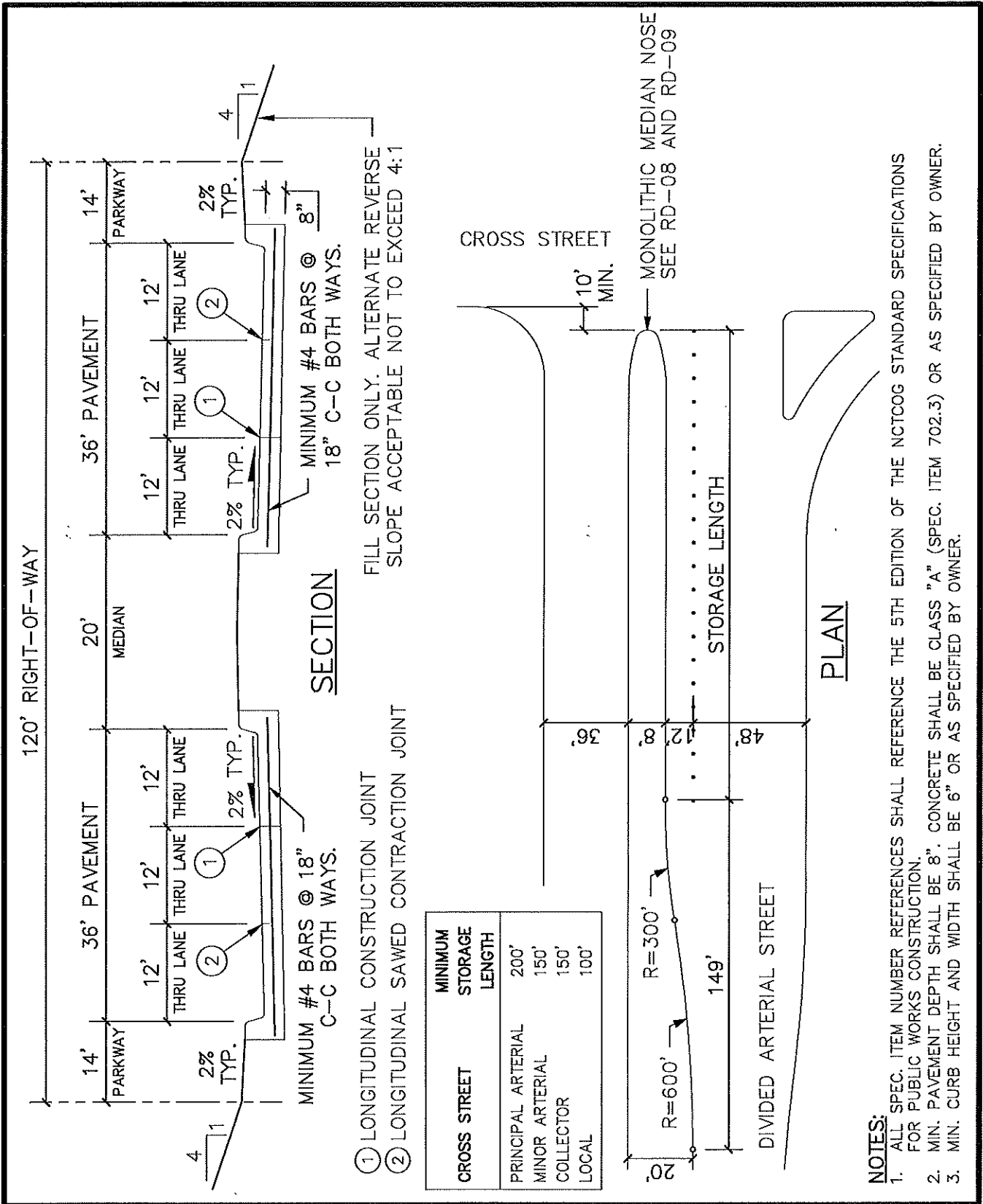


City of Saginaw
Construction Standards

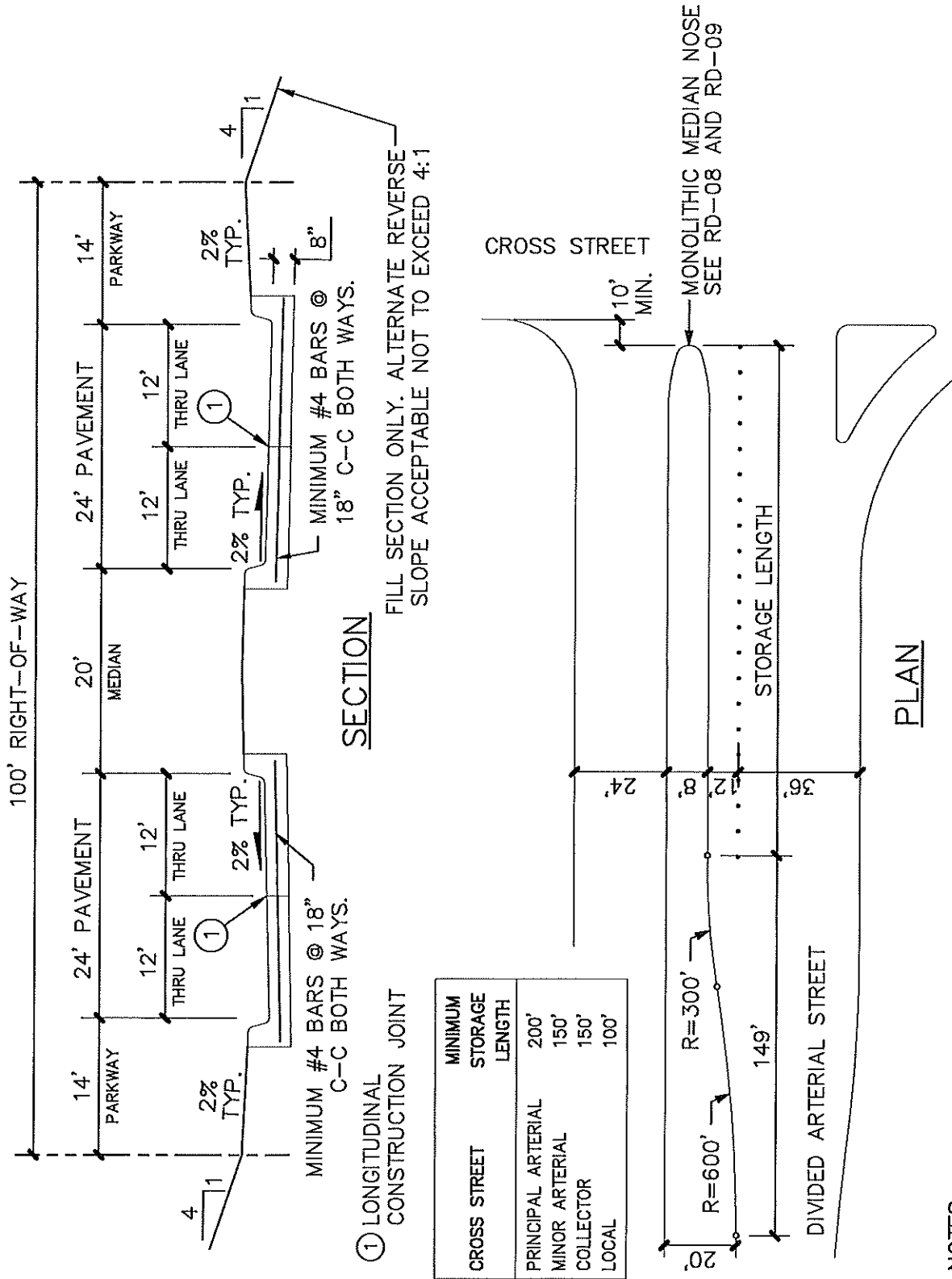
STANDARD 6-INCH CURB AND
18-INCH GUTTER

REVISED
AUG 2020

RD-05



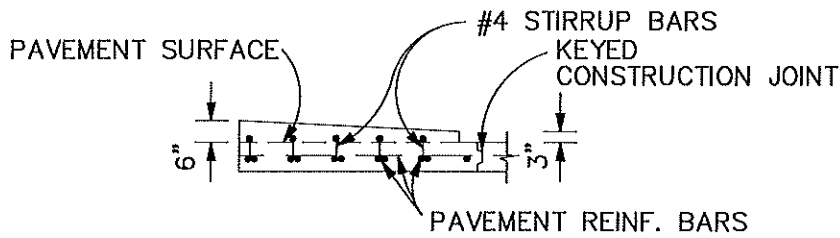
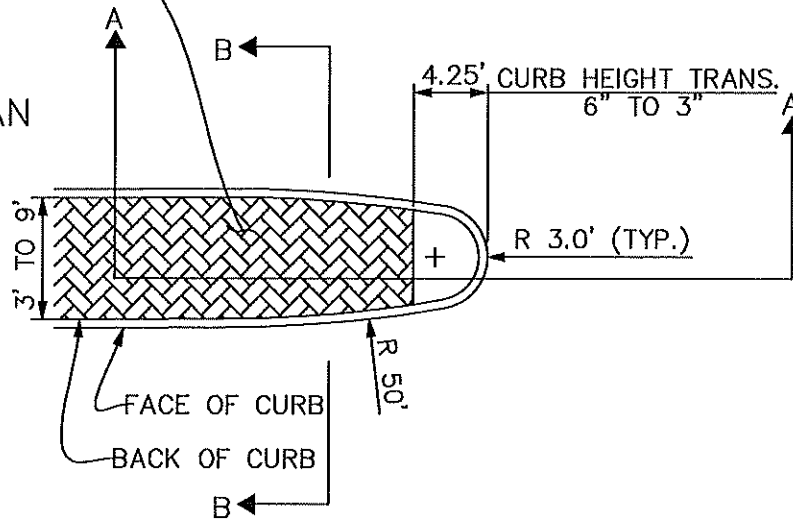
- NOTES:**
1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
 2. MIN. PAVEMENT DEPTH SHALL BE 8". CONCRETE SHALL BE CLASS "A" (SPEC. ITEM 702.3) OR AS SPECIFIED BY OWNER.
 3. MIN. CURB HEIGHT AND WIDTH SHALL BE 6" OR AS SPECIFIED BY OWNER.



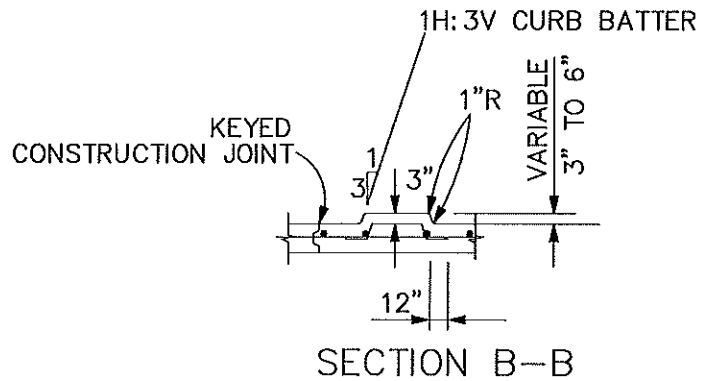
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 3. MIN. CURB HEIGHT AND WIDTH SHALL BE 6" OR AS SPECIFIED BY OWNER.

4" STAMPED CONC.
SEE RD-10

PLAN



SECTION A-A



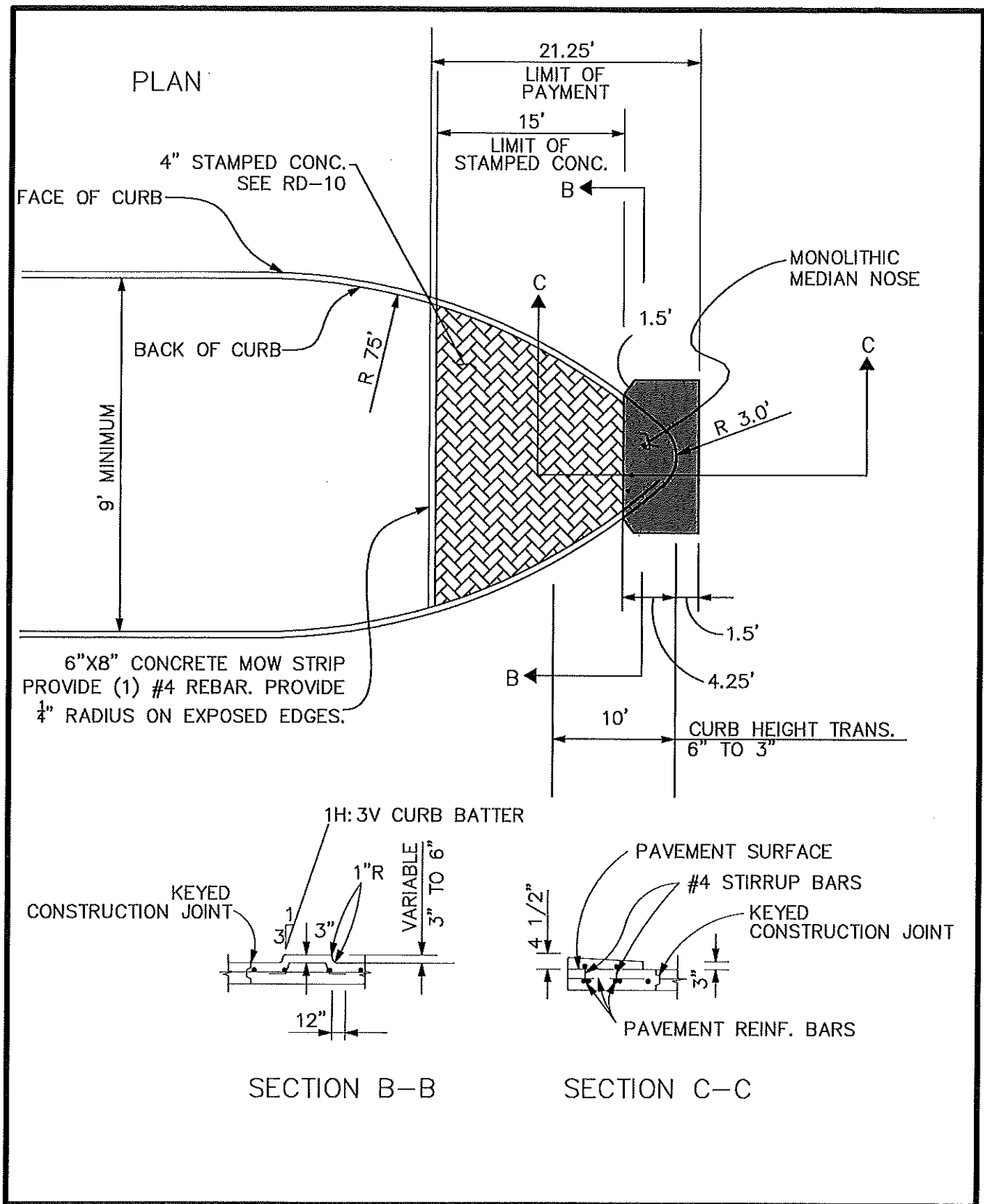
SECTION B-B

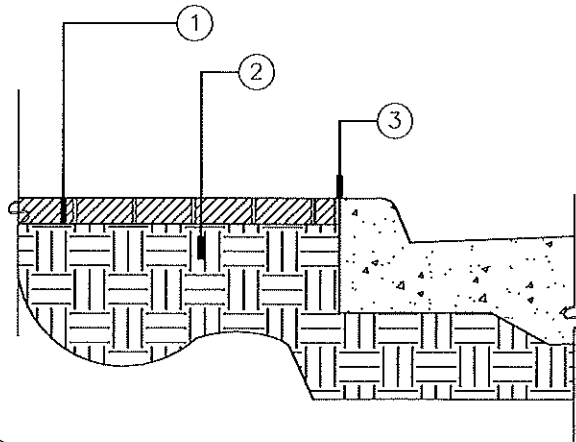


City of Saginaw
Construction Standards

MONOLITHIC MEDIAN NOSE
TYPE 1

REVISED
AUG 2020
RD-08





- ① 4" CONCRETE PAVEMENT REINFORCED WITH #4 BARS @ 18" SPACING
- ② IN SITU MATERIAL COMPACTED TO 95% PROCTOR DENSITY
- ③ JOINT SEALER (SEE RD-03)

COLORED TEXTURED CONCRETE

PLACE COLORED TEXTURED CONCRETE USING STAMPS.

PATTERN ONLY THE CONCRETE ISLANDS, REFERENCE THIS SHEET AND CITY OF SAGINAW STANDARD SPLITTER ISLAND DETAIL. DIMENSIONS SHOWN ARE NOMINAL. BASE ACTUAL DIMENSIONS ON TEXTURE MODULES.

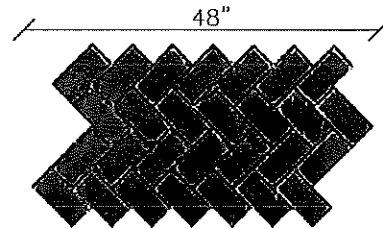
TEXTURED SURFACES SHALL HAVE AN ANTIQUE FINISH ATTAINED BY APPLICATION OF CONCRETE COLORS OF TEXAS LLC INTEGRAL COLOR AND ANTIQUING RELEASE*.

BASE COLOR SHALL BE ATTAINED WITH CONCRETE COLORS OF TEXAS LLC INTEGRAL COLOR, SEE DETAIL FOR COLOR. ANTIQUE BY APPLYING ANTIQUING RELEASE, SEE DETAIL FOR COLOR. SEAL ALL COLORED TEXTURED CONCRETE WITH A CLEAR SEALER APPROVED BY THE COLOR HARDENER MANUFACTURER.

- FOR CONTRACTORS INFORMATION ONLY.
- * OR APPROVED EQUAL.

INTEGRAL COLORED AND TEXTURED CONCRETE MOUNTABLE CURB STAMP TOOL

- Scofield LITHOTEX Pavecrafters Skins
Used Brick Herringbone Pattern - 2570*
- For contractors information only.
* Or approved equal.



INTEGRAL COLORED AND TEXTURED MOUNTABLE CURB COLOR PALETTE

CONCRETE COLORS OF TEXAS LLC INTEGRAL COLOR*:	224 - 2 RED SNAPPER
CONCRETE COLORS OF TEXAS LLC ANTIQUING RELEASE*:	102 - A BARN RED
SCOFIELD CURESEAL-W SEMIGLOSS*	

- FOR CONTRACTORS INFORMATION ONLY.
- * OR APPROVED EQUAL.

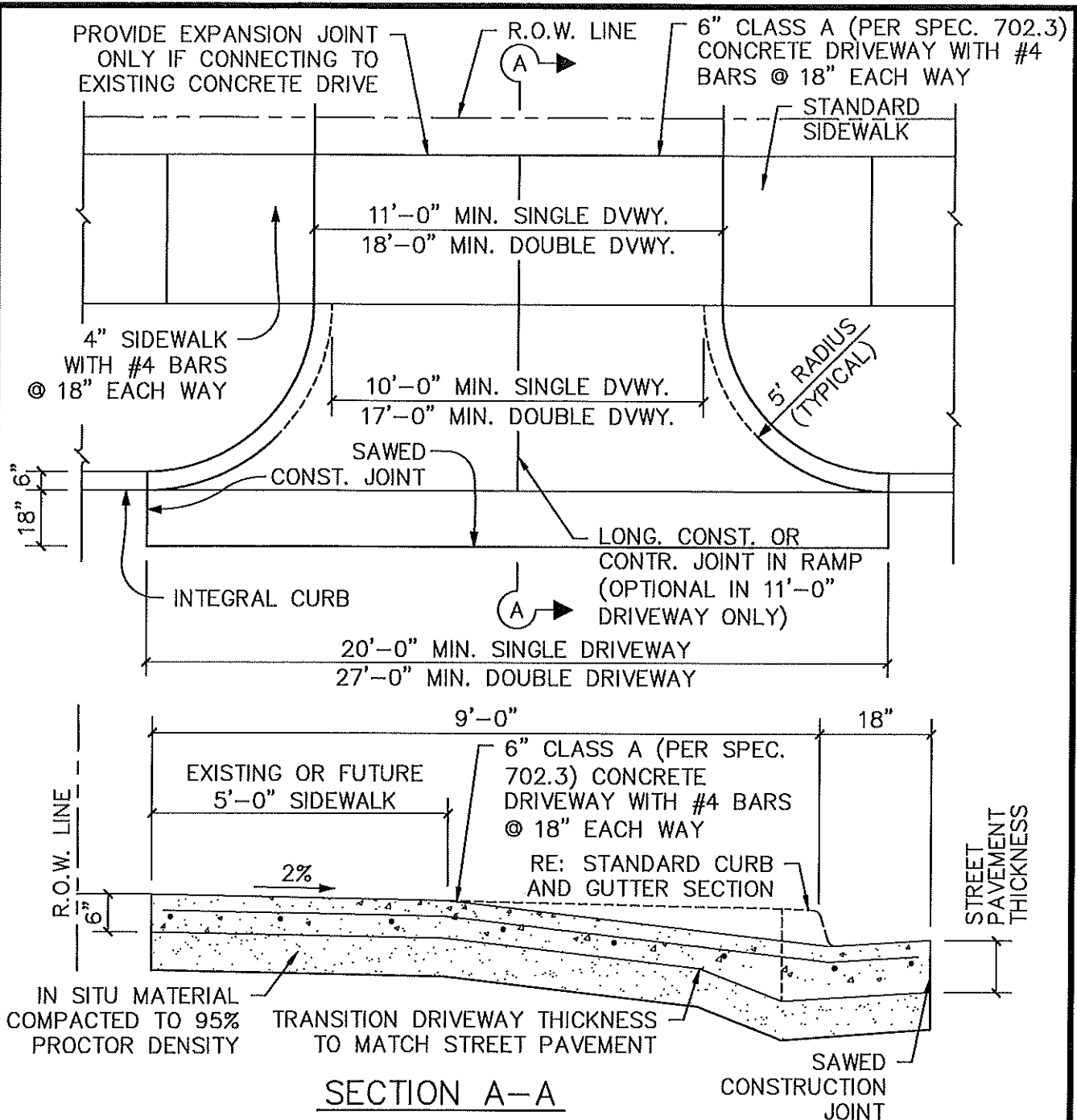


City of Saginaw
Construction Standards

STAMPED CONCRETE

REVISED
AUG 2020

RD-10



NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. SIDEWALK SECTION THROUGH DRIVEWAY SHALL BE POURED SAME THICKNESS AS DRIVEWAY APPROACH (EXISTING SIDEWALK, IF ANY, SHALL BE REMOVED AND REPLACED).
3. EXISTING CURB AND GUTTER SHALL BE VERTICALLY SAWCUT. HORIZONTAL SAWCUTTING OF CURB NOT ALLOWED.

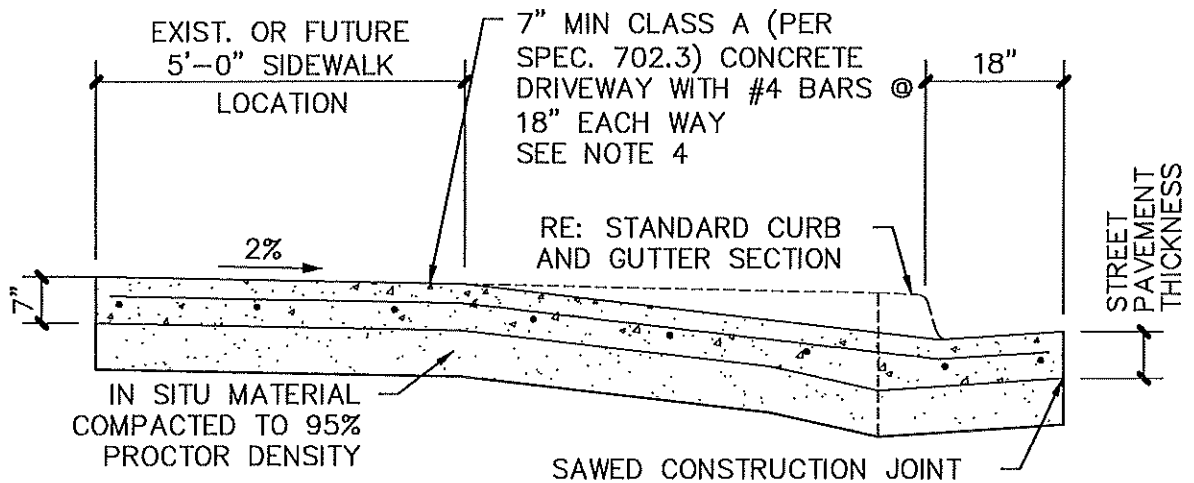
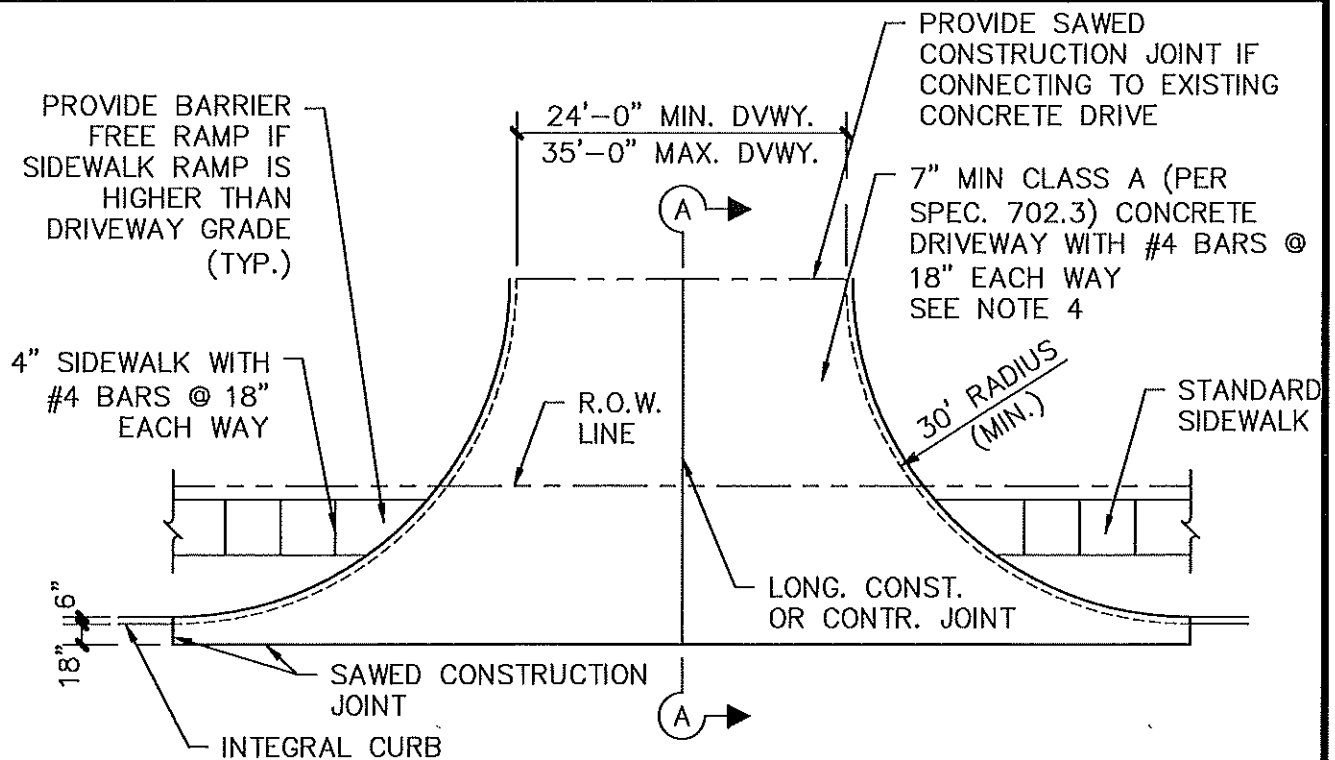


City of Saginaw
Construction Standards

RESIDENTIAL DRIVEWAY

REVISED
AUG 2020

RD-11



SECTION A-A

NOTES:

1. EXISTING CURB AND GUTTER SHALL BE VERTICALLY SAWCUT. HORIZONTAL SAWCUTTING OF CURB NOT ALLOWED
2. SIDEWALK SECTION THROUGH DRIVEWAY SHALL BE POURED SAME THICKNESS AS DRIVEWAY APPROACH (EXISTING SIDEWALK, IF ANY, SHALL BE REMOVED AND REPLACED).
3. MATCH EXISTING DRIVEWAY THICKNESS OR AS DICTATED BY GEOTECHNICAL REPORT.

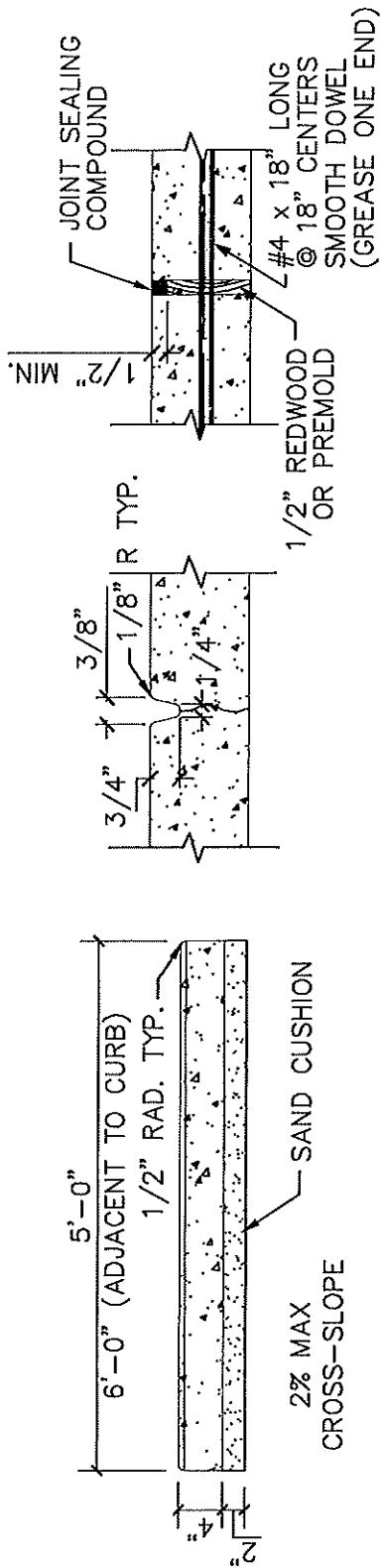


City of Saginaw
Construction Standards

COMMERCIAL-INDUSTRIAL
DRIVEWAY

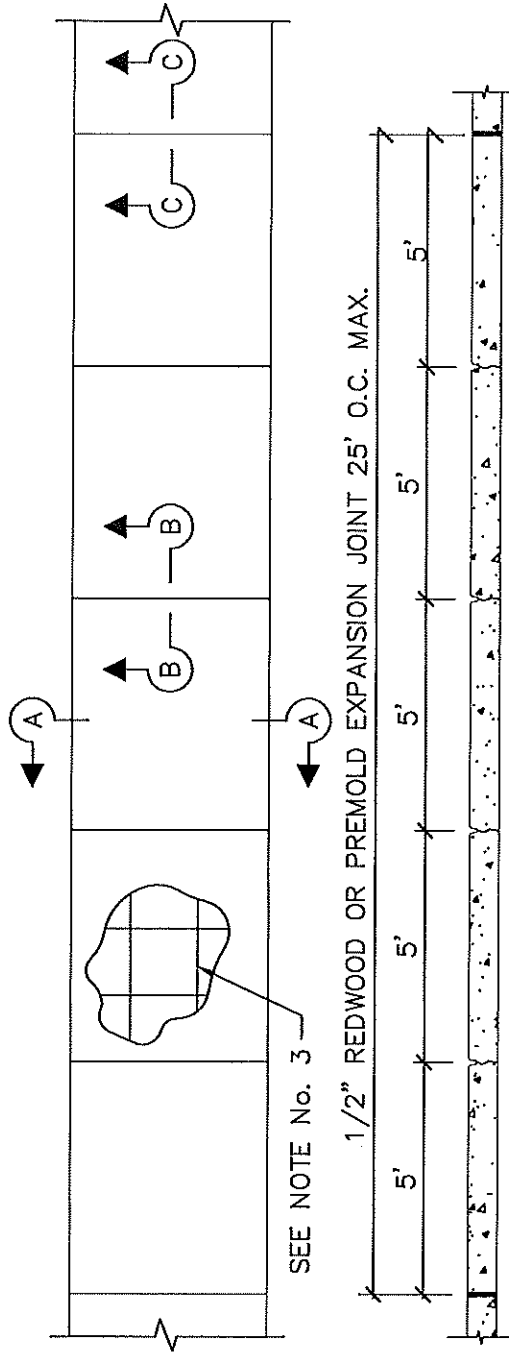
REVISED
AUG 2020

RD-12



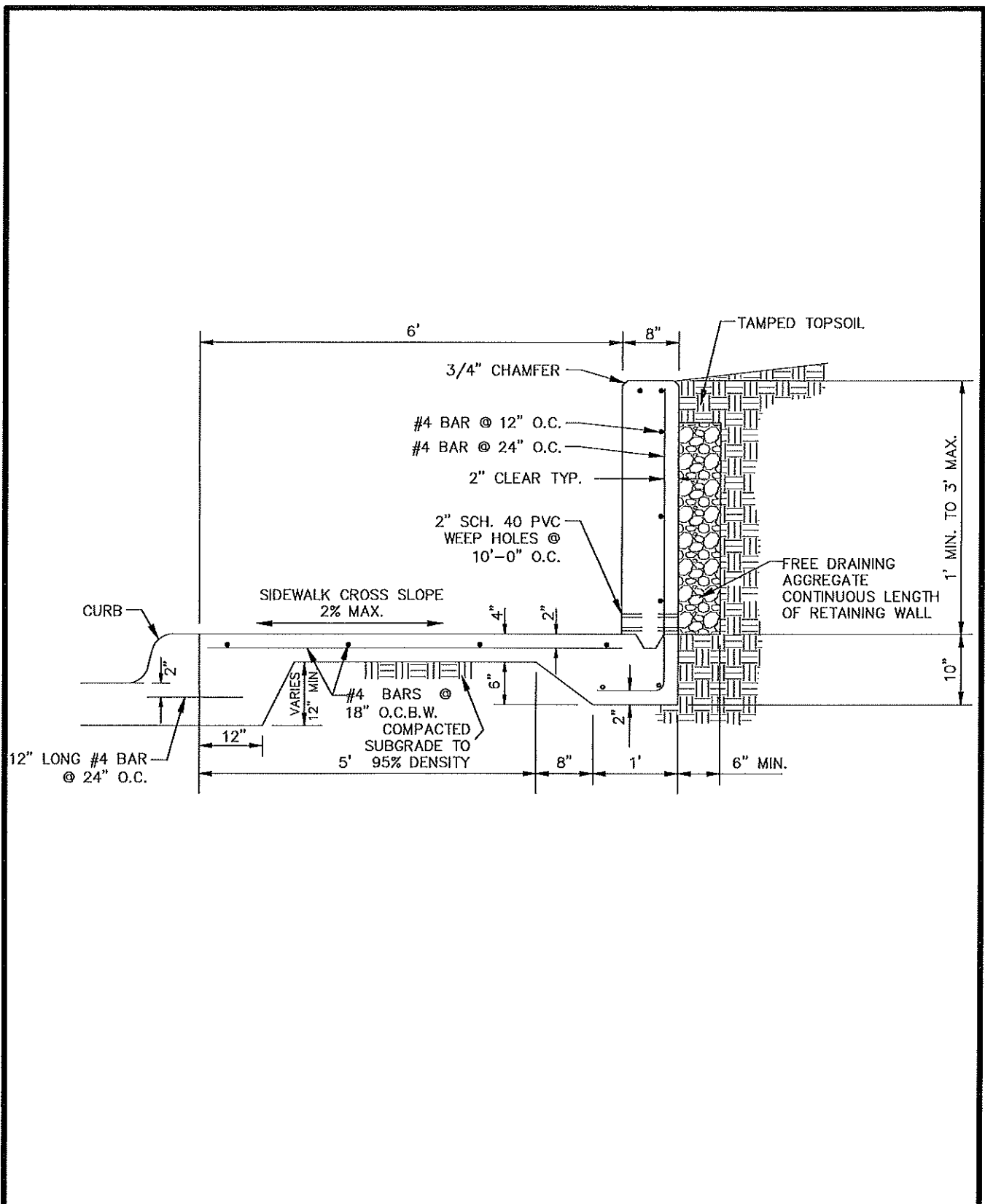
SECTION C-C

SECTION B-B



NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. CONCRETE SHALL BE CLASS A PER SPEC. 702.3.
3. REINFORCEMENT SHALL BE #4 BARS @ 18" EACH WAY.
4. PROVIDE EXPANSION JOINTS ALSO WHEN CONNECTING TO EXISTING SIDEWALKS, DRIVEWAYS, CURBS, AND GUTTER.



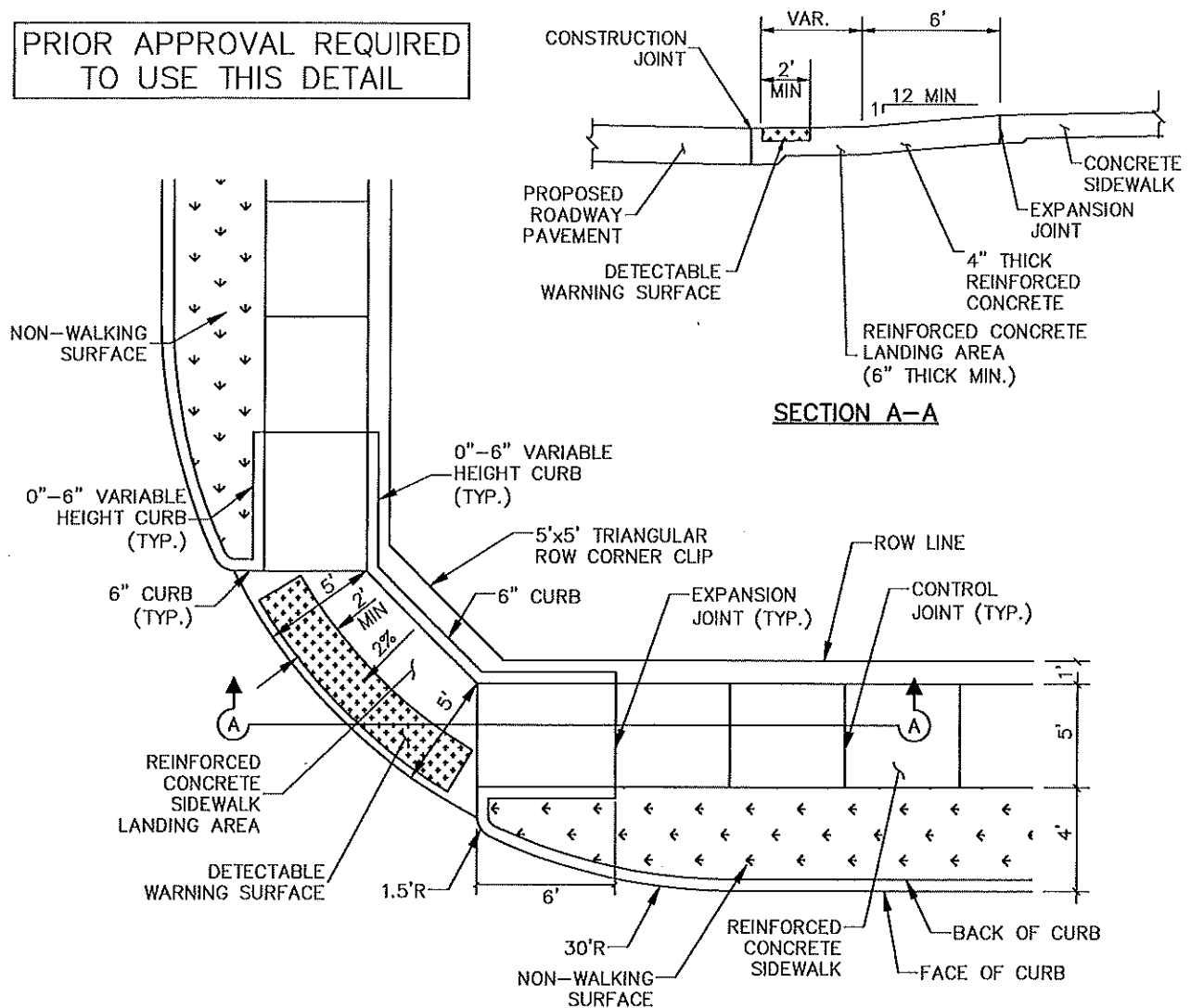
City of Saginaw
Construction Standards

CONCRETE SIDEWALK WITH WALL

REVISED
AUG 2020

RD-14

PRIOR APPROVAL REQUIRED
TO USE THIS DETAIL



NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. CURB RAMPS MUST CONTAIN A DETECTABLE WARNING SURFACE THAT CONSISTS OF RAISED TRUNCATED DOMES COMPLYING WITH SECTION 705 OF THE TAS.

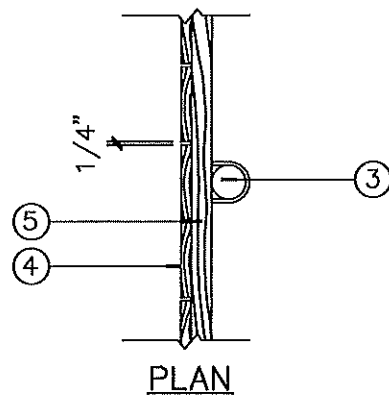
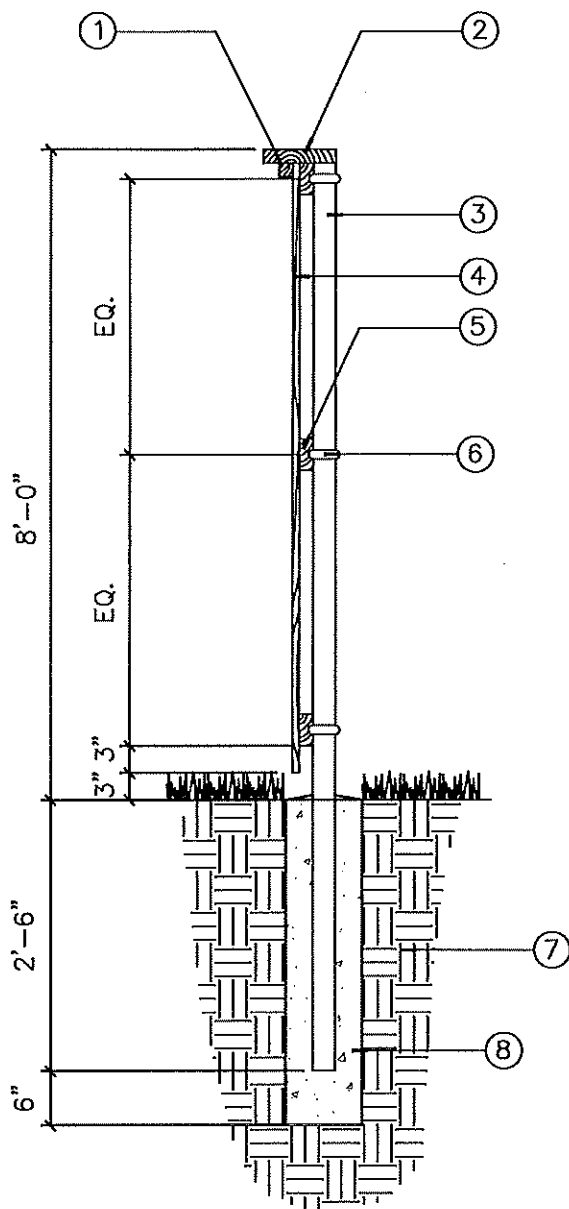


City of Saginaw
Construction Standards

BARRIER FREE RAMP
(IF APPROVED)

REVISED
AUG 2020

RD-15



- ① 2"x2" TRIM
- ② 2"x8" CAP (TOP OF FENCE TO BE LEVEL)
- ③ 2" DIA. GALV. STEEL POST. POST SHALL BE FLUSH WITH BOTTOM OF 2"x8" CAP.
- ④ 1"x6" PICKET
NOTE: TO BE 3" ABOVE FINISH GRADE (TYP.)
- ⑤ (3) 2"x4" RAILS
- ⑥ (3) WACKER CLAMPS WITH COUNTER-SINK NUTS
- ⑦ COMPACTED SOIL
- ⑧ 12" DIA. CLASS A (PER SPEC. 702.3) CONCRETE FOOTING

NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. WOOD FENCE MATERIAL AS SPECIFIED IN ZONING ORDINANCE 2002-04.
3. GALVANIZED STEEL POSTS SHALL BE SPACED AT 8' ON CENTER MAX.
4. HARDWARE TO BE HOT DIPPED GALV.
5. FENCE STAIN TO BE DETERMINED.

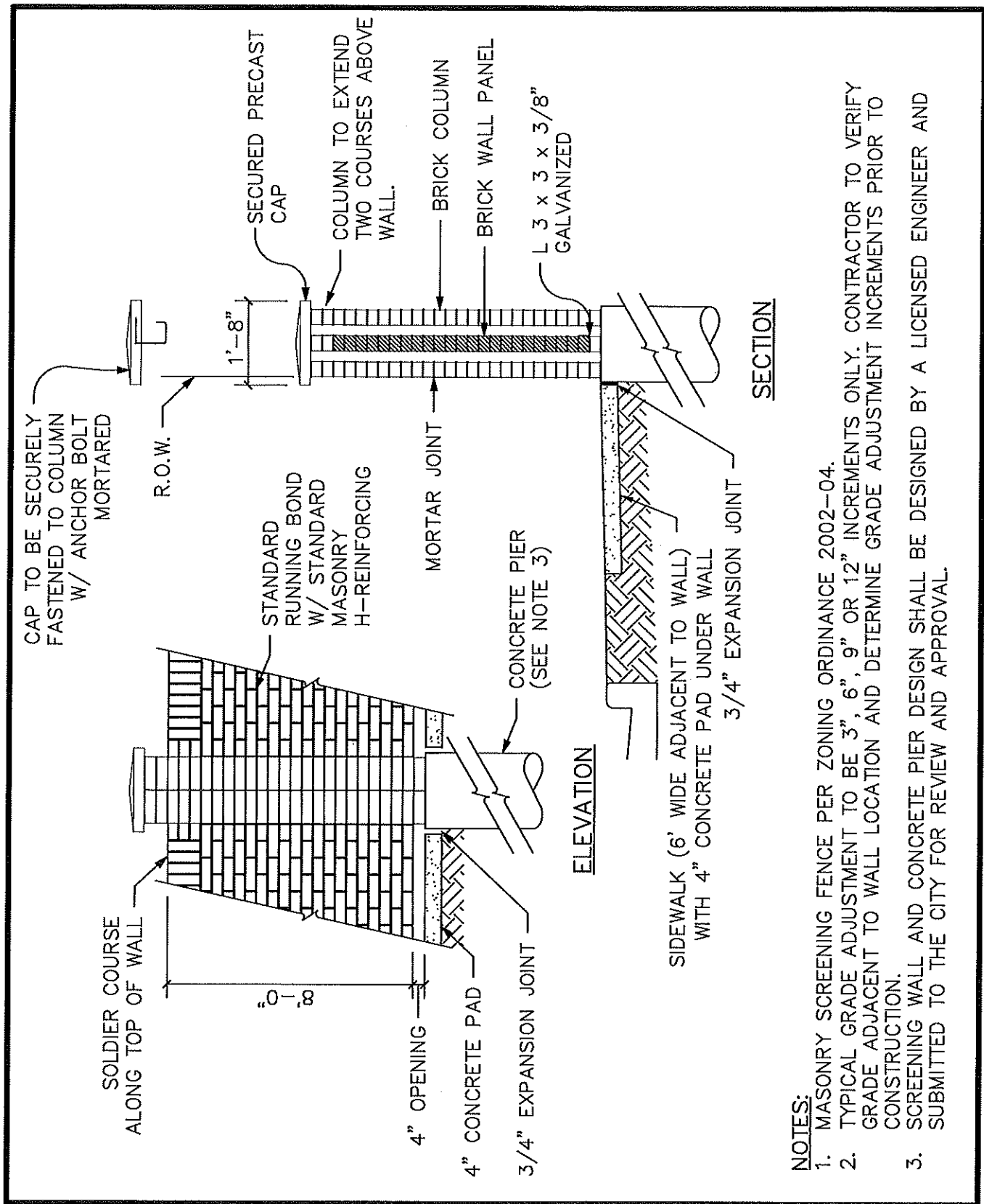


City of Saginaw
Construction Standards

WOOD SCREENING DETAIL

REVISED
AUG 2020

RD-16



NOTES:

1. MASONRY SCREENING FENCE PER ZONING ORDINANCE 2002-04.
2. TYPICAL GRADE ADJUSTMENT TO BE 3", 6", 9" OR 12" INCREMENTS ONLY. CONTRACTOR TO VERIFY GRADE ADJACENT TO WALL LOCATION AND DETERMINE GRADE ADJUSTMENT INCREMENTS PRIOR TO CONSTRUCTION.
3. SCREENING WALL AND CONCRETE PIER DESIGN SHALL BE DESIGNED BY A LICENSED ENGINEER AND SUBMITTED TO THE CITY FOR REVIEW AND APPROVAL.



City of Saginaw
Construction Standards

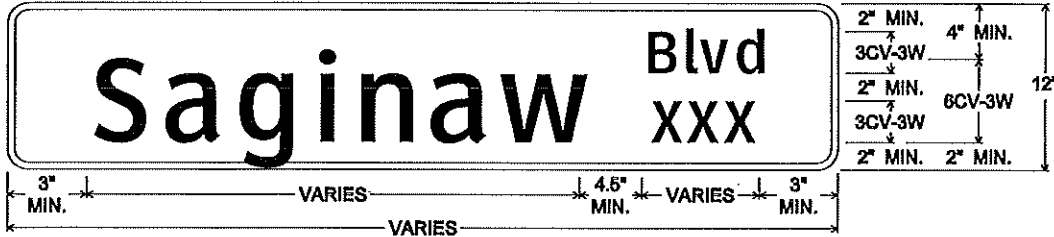
MASONRY SCREENING DETAIL

REVISED
AUG 2020

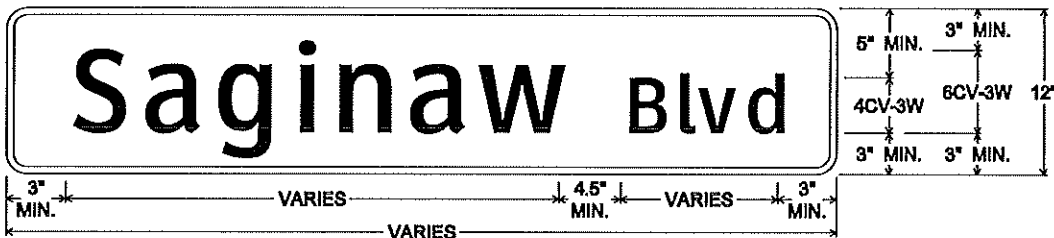
RD-17



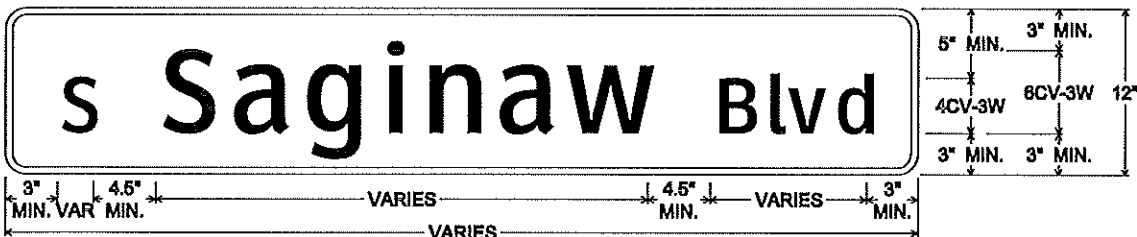
1.5" Radius, 0.5" Border, White on Green;



1.5" Radius, 0.5" Border, White on Green;



1.5" Radius, 0.5" Border, White on Green;



1.5" Radius, 0.5" Border, White on Green;

1. SIGN BLANK FOR 2 INCH POST INSTALL: 0.08 FEDERAL SPEC. ALUM. (LP/SP INSTALL 0.125 UNDRILLED)
2. FONT: HIGHWAY GOTHIC 'C' OR 'B' (DEPENDING ON LENGTH OF NAME)
3. STREET NAME SIGN SHEETING SHALL BE WHITE 3M DIAMOND GRADE CUBED (DG3) WITH GREEN ELECTRO-CUT (EC) TRANSPARENT FILM AS AN OVERLAY OR AN APPROVED EQUAL.
4. REFER TO DETAIL D3-1G OF THE TEXAS STANDARD HIGHWAY SIGN DESIGN MANUAL FOR ADDITIONAL SPACING REQUIREMENTS.

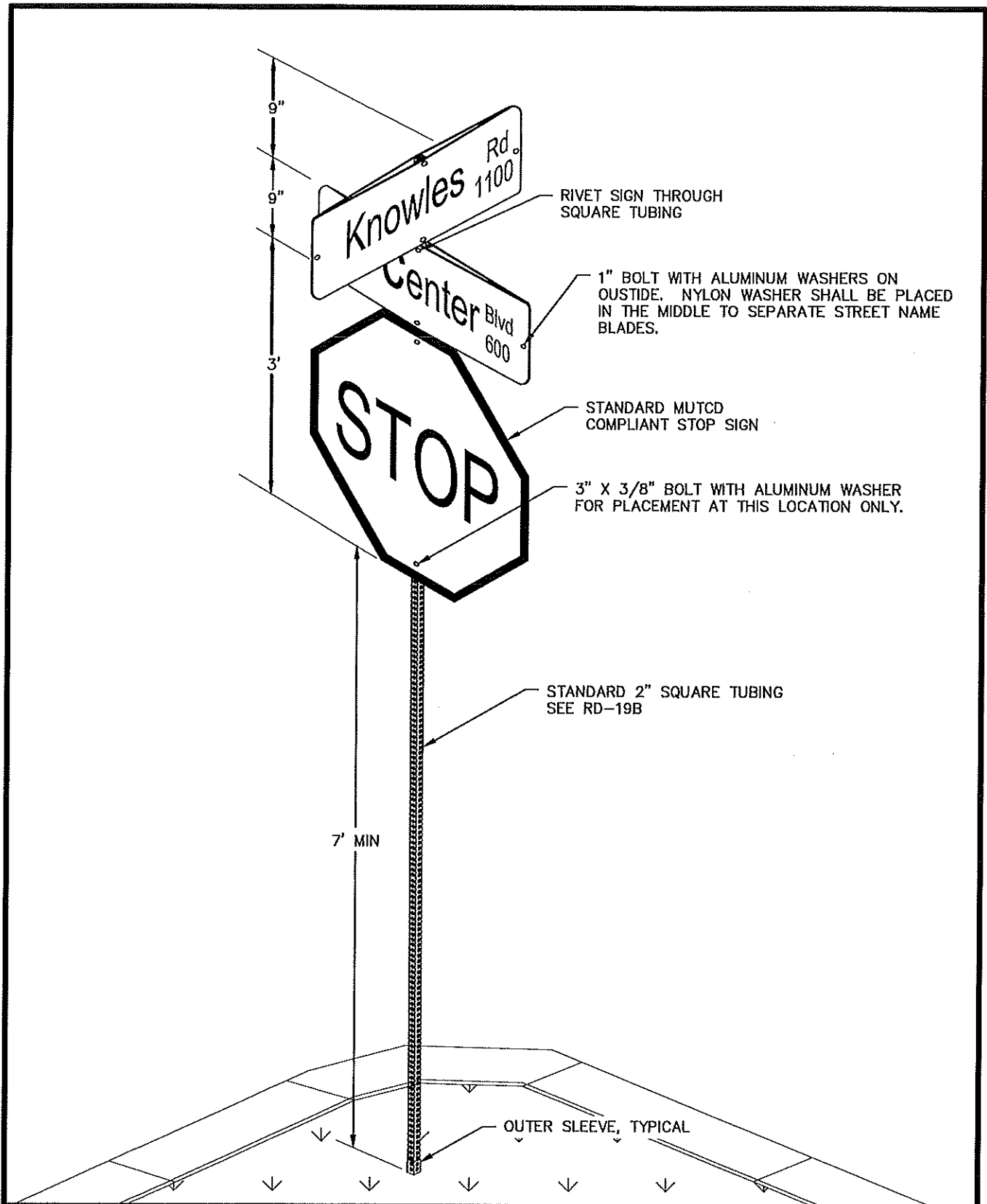


City of Saginaw
Construction Standards

STREET SIGN

REVISED
AUG 2020

RD-18

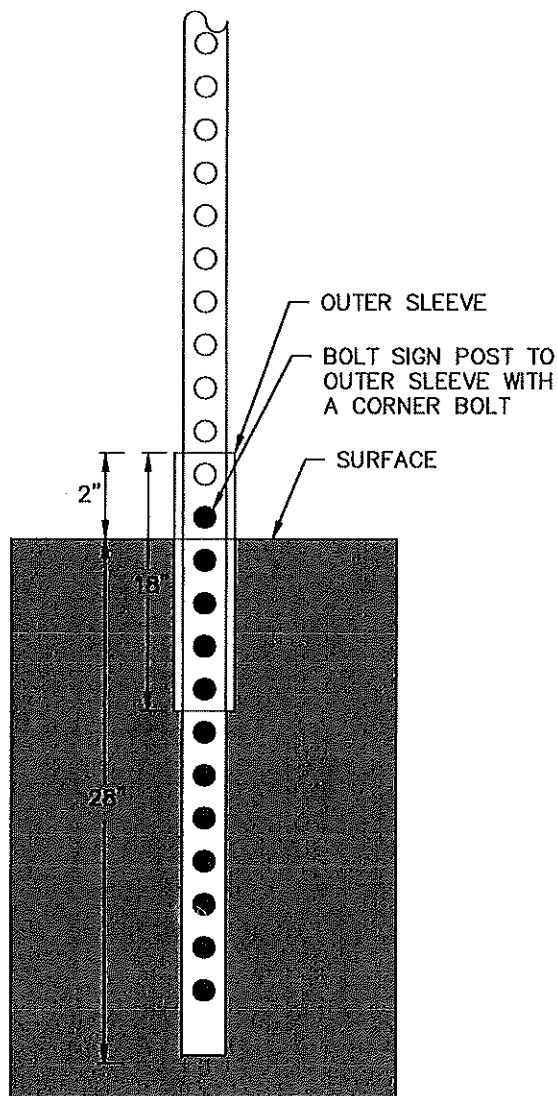


City of Saginaw
Construction Standards

SIGN POST
INSTALLATION

REVISED
AUG 2020

RD-19A



NOTES:

1. ALL POSTS AND ANCHORS SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR HOT ROLLED CARBON SHEET STEEL, STRUCTURAL QUALITY ASTM DESIGNATION A570-79.
2. ALL POSTS AND ANCHORS SHALL CARRY MINIMUM CERTIFIABLE 60,000 PSI YIELD STRENGTH.
3. ALL POSTS AND ANCHORS SHALL BE MANUFACTURED FROM RAW STEEL, FORMED AND WELDED ON THE CORNER PRIOR TO RECEIVING A TRIPLE COAT PROTECTION OF INLINE HOT-DIPPED, GALVANIZED ZINC PER AASHTO M-120 (0.8 OZ. PER SQUARE FOOT) FOLLOWED BY A CHROMATE CONVERSION COATING AND A CROSS-LINKED POLYURETHANE ACRYLIC EXTERIOR COATING. THE INTERIOR SHALL RECEIVE A DOUBLE COAT OF ZINC BASED ORGANIC COATING, TESTED IN ACCORDANCE WITH ASTM B-117.
4. ALL TOP POSTS MUST BE CAPABLE OF FRACTURING AT THE POINT OF CONNECTION WITH A SINGLE ANCHOR, WHEN IMPACTED, IN SUCH A MANNER THAT THE PIECE INSIDE OF THE ANCHOR CAN BE REMOVED SO AS TO ALLOW TO RECEIVE A NEW TOP POST.
5. THE SHAPE OF ALL POSTS AND ANCHORS SHALL BE SQUARE AND STRAIGHT WITH SMOOTH TUBING WELDED IN ONE CORNER WITH A TOLERANCE THAT PERMITS TELESOPING OF THE NEXT LARGER OR SMALL SIZE, IN $\frac{1}{4}$ " INCREMENTS.
6. ALL ANCHORS SHALL BE 12 GAUGE WITH HOLES THAT ARE FULLY PERFORATED $\frac{7}{16}$ " DIAMETER ON 1" CENTERS FOR AT LEAST THE TOP 4" OF THE ANCHOR WHILE BEING TRULY ALIGNED IN THE CENTER OF THE SECTION.
7. ALL TOP POSTS SHALL BE 14 GAUGE WITH HOLES THAT ARE PRE PUNCHED ON 1" CENTERS FOR THE ENTIRE LENGTH OF THE POST AND TRULY ALIGNED IN THE CENTER OF SECTION.
8. STANDARD OUTSIDE CORNER RADII SHALL BE $\frac{5}{32}$ " PLUS OR MINUS $\frac{1}{32}$ ".
9. SIGNS TO BE ATTACHED TO POST AT THE DESIRED HEIGHT WITH BOLTS.



City of Saginaw
Construction Standards

SIGN POST
SQUARE TUBING

REVISED
AUG 2020

RD-19B



1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. CONCRETE SHALL BE 4,200 PSI, CLASS F (PER SPEC. 702.3).
3. TOP OF INLET TO SLOPE 2% TOWARDS STREET OR PER PLAN.
4. CENTER SUPPORT BEAM REQUIRED FOR 15' AND 20' STANDARD CURB INLETS.
5. ADDITIONAL REINFORCING STEEL TO BE PLACED AROUND MANHOLE OPENING.
6. WING LENGTH MAY BE DECREASED BASED UPON SITE SPECIFIC CONDITIONS. CITY MUST APPROVE SHORTER LENGTH.
7. PIPE SHALL BE PLACED AT DOWNSTREAM END INLET. MANHOLE SHALL BE PLACED AT UPSTREAM END AT INLET.
8. MANHOLE COVERS INSIDE OPENING SHALL BE 30". INLET TOP WILL NEED TO BE CAST IN PLACE IN ORDER TO ACCOMMODATE 30" OPENING/COVER.
9. TWO MANHOLES ARE REQUIRED ON 15' AND 20' INLETS.

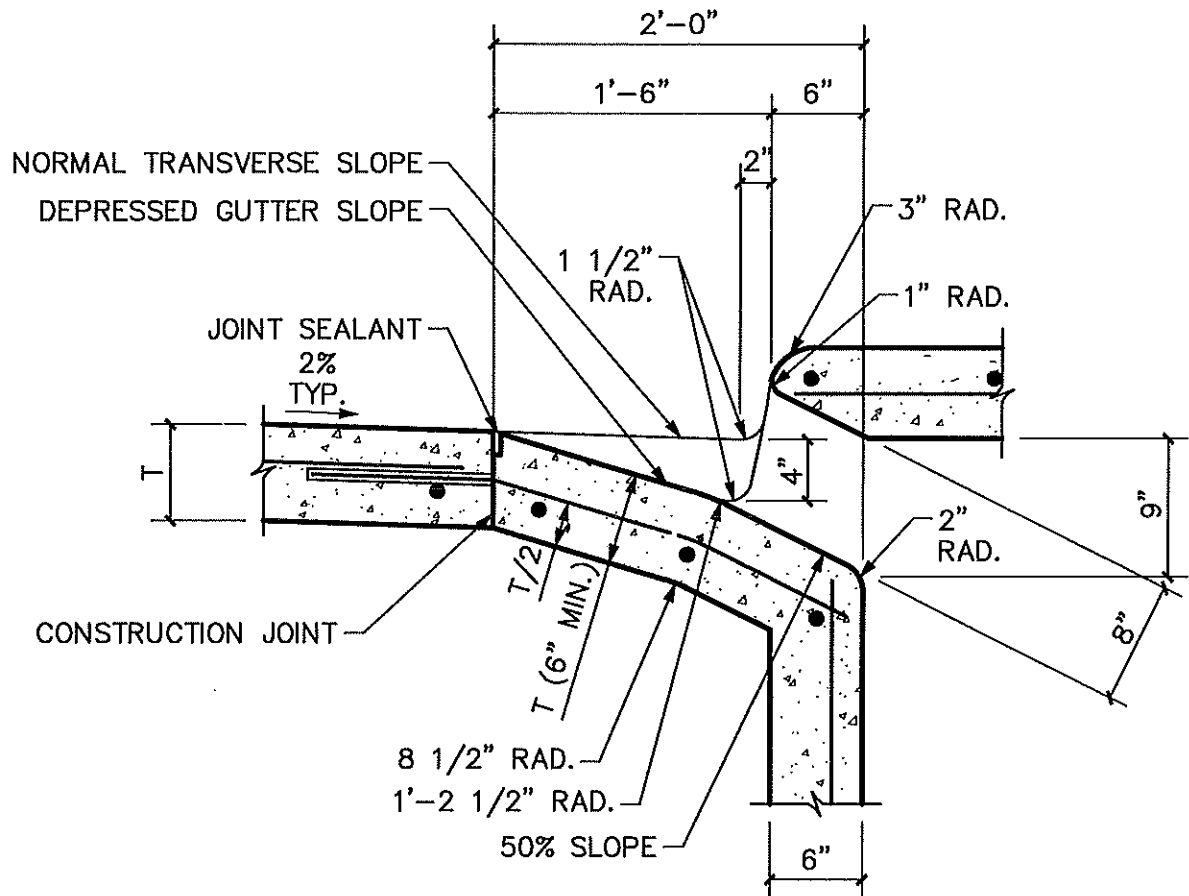


City of Saginaw

Construction Standards

STANDARD STORM DRAIN CURB INLET

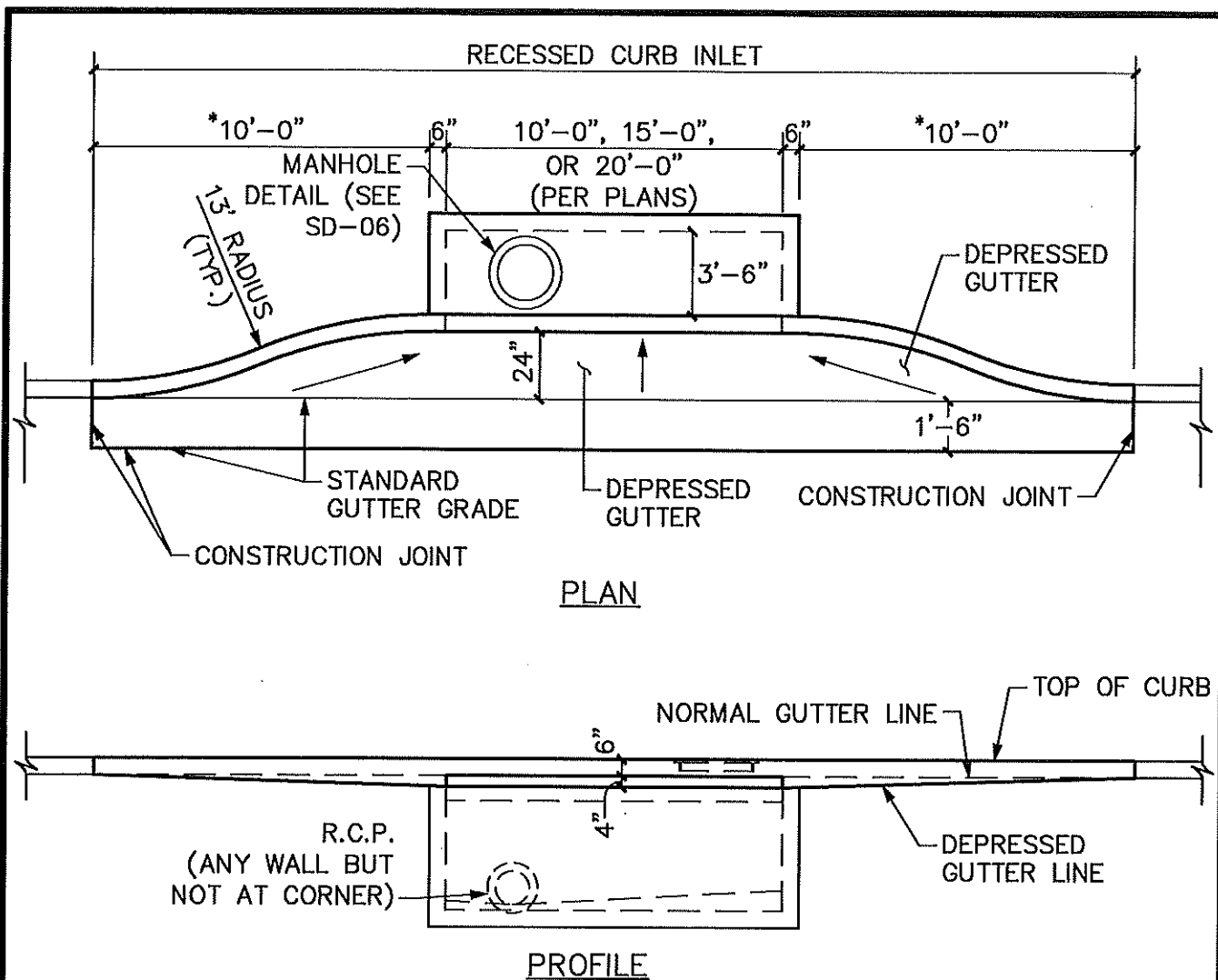
REVISED
AUG 2020
SD-01A



City of Saginaw
Construction Standards

STANDARD CURB INLET THROAT

REVISED
AUG 2020
SD-01B



NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. CONCRETE SHALL BE 4,200 PSI, CLASS F (PER SPEC. 702.3).
3. TOP OF INLET TO SLOPE 2% TOWARDS STREET OR PER PLAN.
4. CENTER SUPPORT BEAM REQUIRED FOR 15' AND 20' STANDARD CURB INLETS.
5. ADDITIONAL REINFORCING STEEL TO BE PLACED AROUND MANHOLE OPENING.
6. WING LENGTH MAY BE DECREASED BASED UPON SITE SPECIFIC CONDITIONS. CITY MUST APPROVE SHORTER LENGTH.
7. MANHOLE COVERS INSIDE OPENING SHALL BE 30". INLET TOP WILL NEED TO BE CAST IN PLACE IN ORDER TO ACCOMMODATE 30" OPENING/COVER.
8. TWO MANHOLES ARE REQUIRED ON 15' AND 20' INLETS.

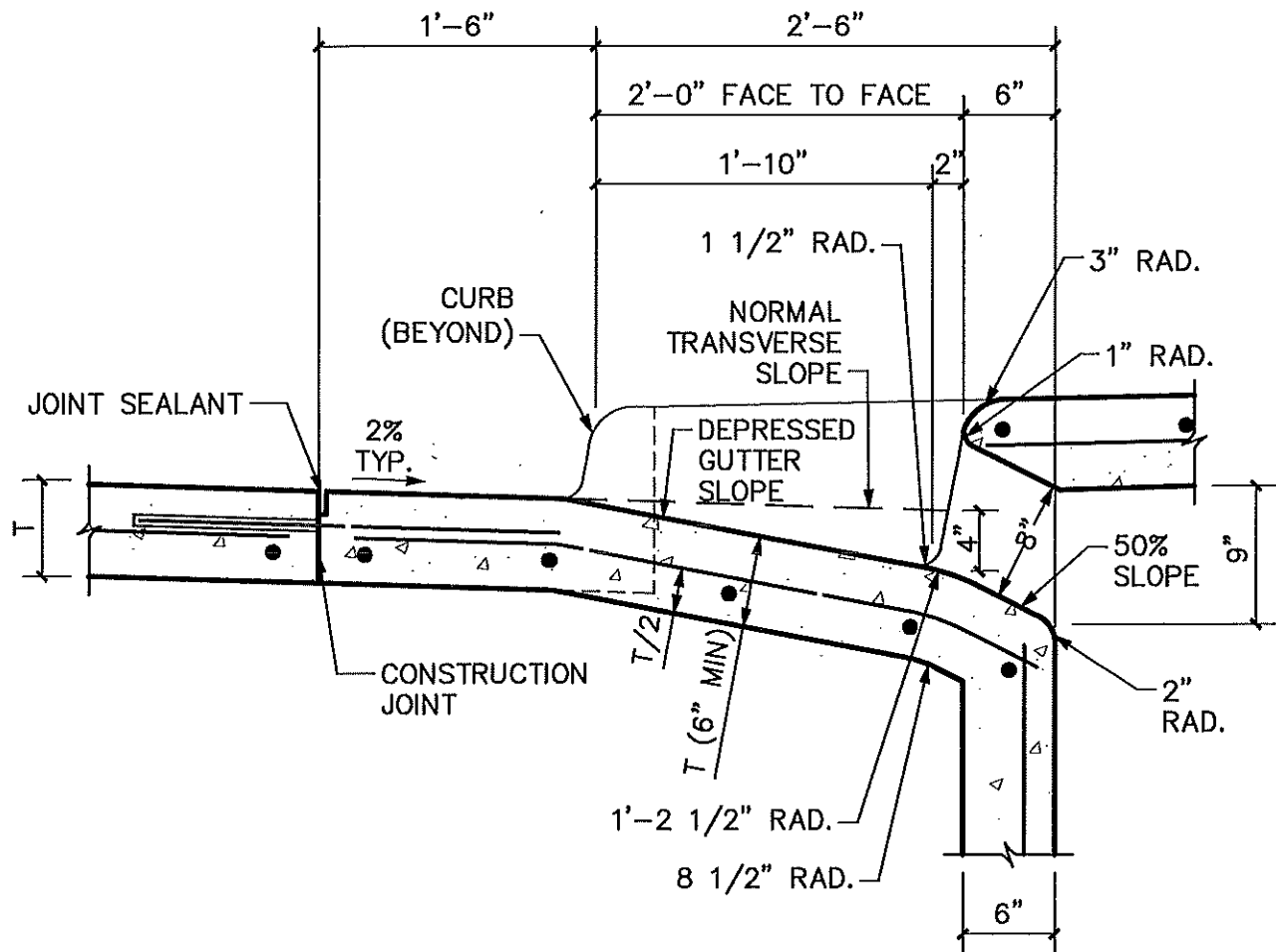


City of Saginaw
Construction Standards

RECESSED CURB INLET

REVISED
AUG 2020

SD-02A

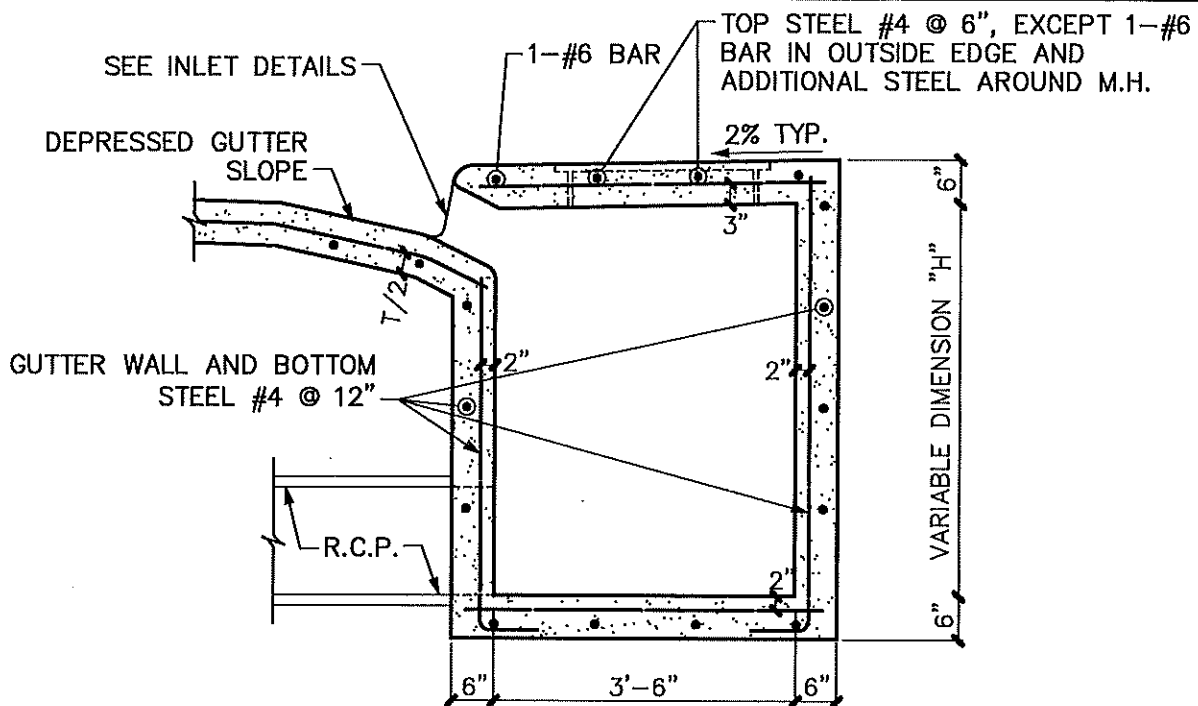


City of Saginaw
Construction Standards

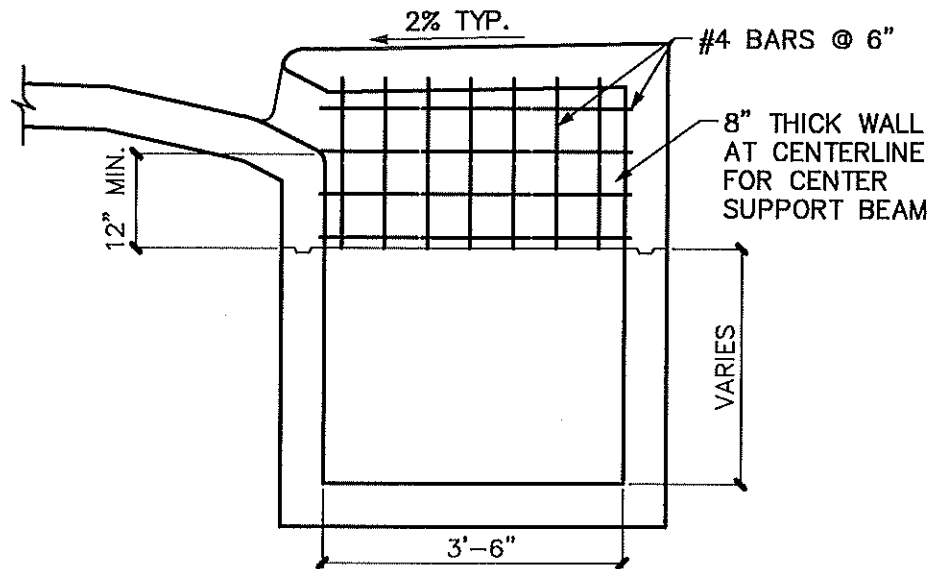
RECESSED CURB INLET THROAT

REVISED
AUG 2020

SD-02B



INLET SECTION FOR RECESSED AND STANDARD INLETS



CENTER SUPPORT BEAM FOR 15' AND 20' RECESSED AND STANDARD INLETS

NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. CONCRETE SHALL BE 4,200 PSI, CLASS F (PER SPEC. 702.3).
3. TOP OF INLET TO SLOPE 2% TOWARDS STREET OR PER PLAN.
4. REINFORCING STEEL LAYOUT APPLICABLE TO BOTH RECESSED AND ON-GRADE CURB INLETS.

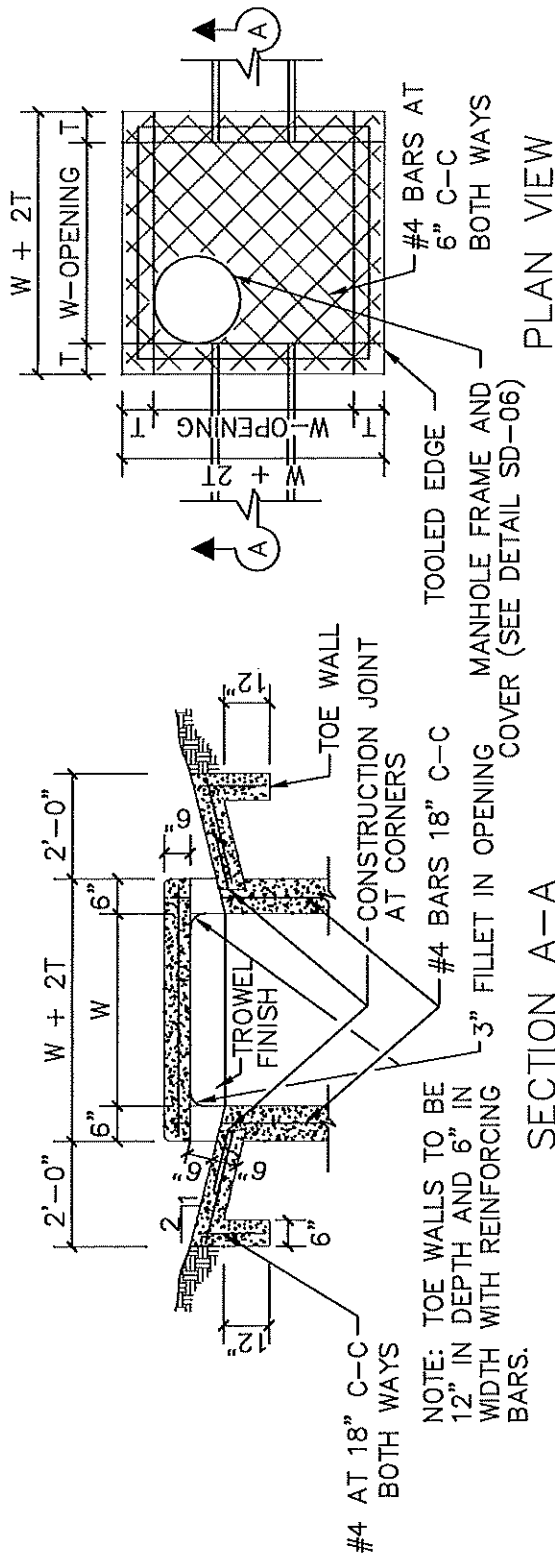


City of Saginaw
Construction Standards

INLET REINFORCEMENT

REVISED
AUG 2020

SD-03

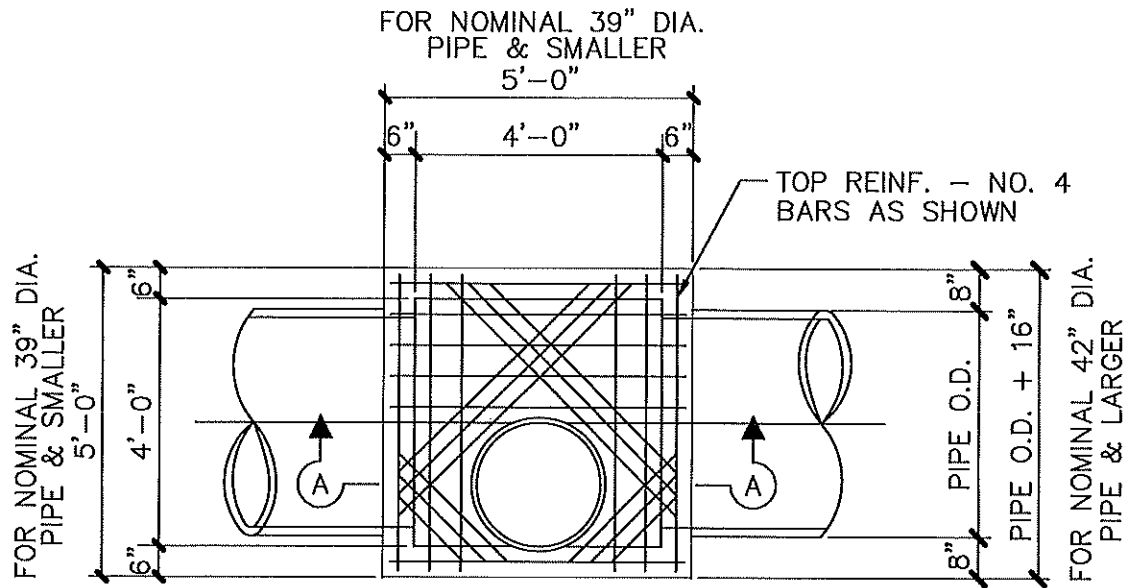


NOTES:

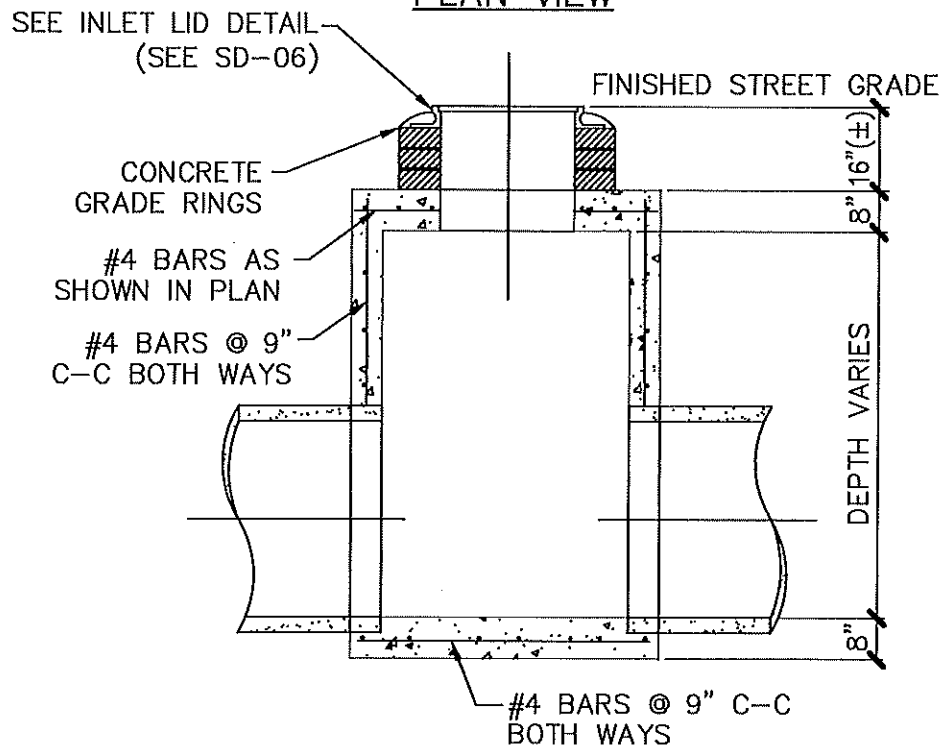
1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. CONCRETE FOR DROP INLETS SHALL BE CLASS F (PER SPEC. ITEM 702.3).
3. LAYERS OF REINFORCING STEEL NEAREST THE INTERIOR AND EXTERIOR SURFACES SHALL HAVE A COVER OF 2" TO THE CENTER OF BARS, UNLESS OTHERWISE NOTED.
4. FOR DETAILS OF REINFORCING TO LOWER PORTIONS OF INLET, SEE APPROPRIATE SQUARE MANHOLE DETAILS.
5. DEPTH OF DROP INLET FROM FINISHED GRADE TO FLOW LINE OF INLET IS VARIABLE. APPROXIMATE DEPTH SHALL BE SHOWN ON PLANS AT LOCATION OF INLET.
6. ALL STANDARD DROP INLETS SHALL HAVE ONE OPENING ON EACH SIDE UNLESS SHOWN ON PLANS.
7. DECK MAY BE REINFORCED THE SAME AS STANDARD SQUARE STORM DRAIN MANHOLE.
8. CAST IRON FRAME AND COVER, TV&S #679 WITH 1/2" TO 5/8" DIAMETER PICK BAR, OR APPROVED EQUAL.
9. MANHOLE LIDS SHALL BE BOLTED AND CHAINED TO THE INLET BOX USING 2' OF 3/8" STOCK CHAIN AND 3/8" CARRIAGE BOLTS.

INLET SIZE	T	W
2' SQUARE	7"	2'-0"
4' SQUARE	7"	4'-0"
5' SQUARE	8"	5'-0"
6' SQUARE	9"	6'-0"
7' SQUARE	9"	7'-0"
8' SQUARE	9"	8'-0"

FOR LOWER PORTION OF 2' SQUARE DROP INLET USE REINF. STEEL DETAILS OF 4' SQUARE MANHOLE AND ELIMINATE INLET RING AND COVER.



PLAN VIEW



SECTION A-A

NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. CONCRETE SHALL BE CLASS F (PER SPEC. ITEM 702.3).

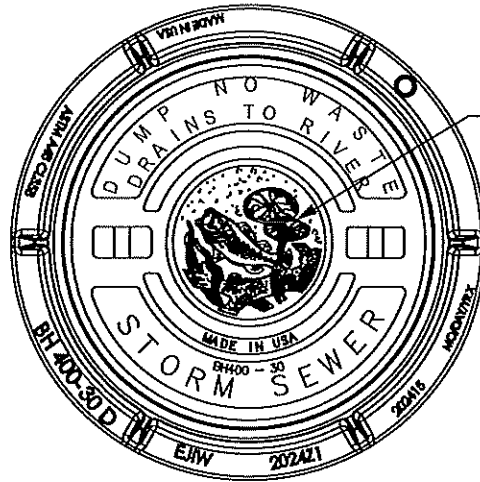


City of Saginaw
Construction Standards

STANDARD 4-FOOT SQUARE STORM
DRAIN MANHOLE

REVISED
AUG 2020

SD-05



SPECIAL LOGO INSERT
PER CITY REQUIREMENT

NOTES:

1. MANHOLE LID AND RIM SHOULD BE BASS AND HAYS FOUNDRY, INC. PRODUCT OR APPROVED EQUAL BY CITY.

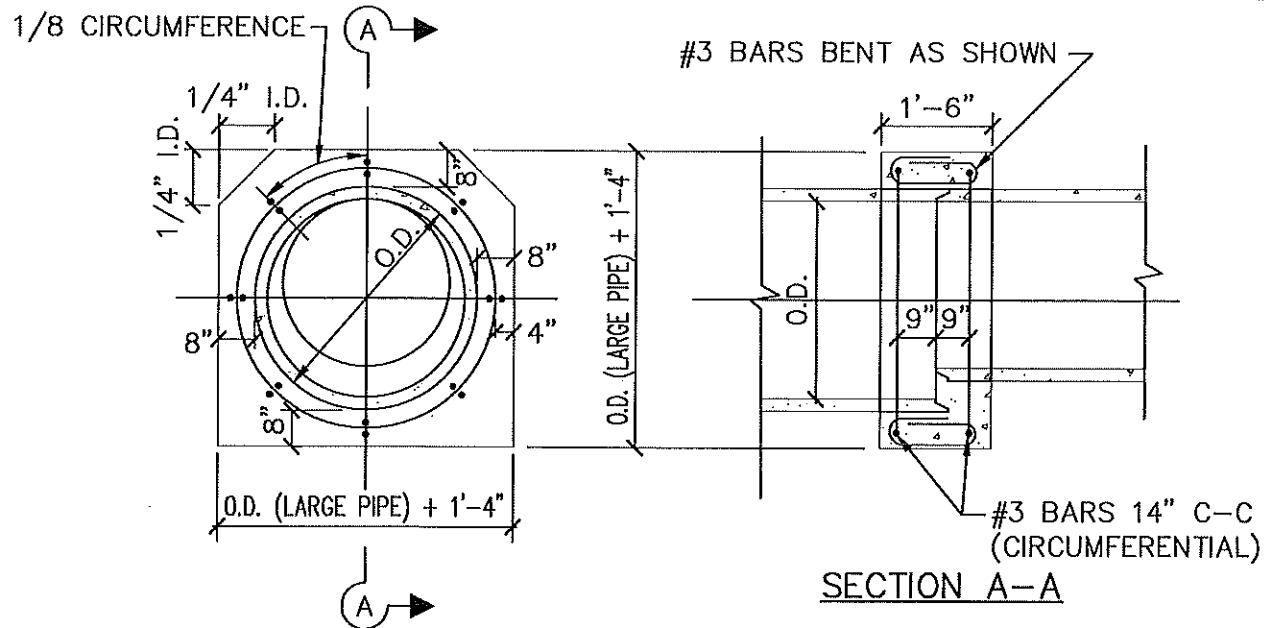


City of Saginaw
Construction Standards

MANHOLE COVER RIVER LOGO

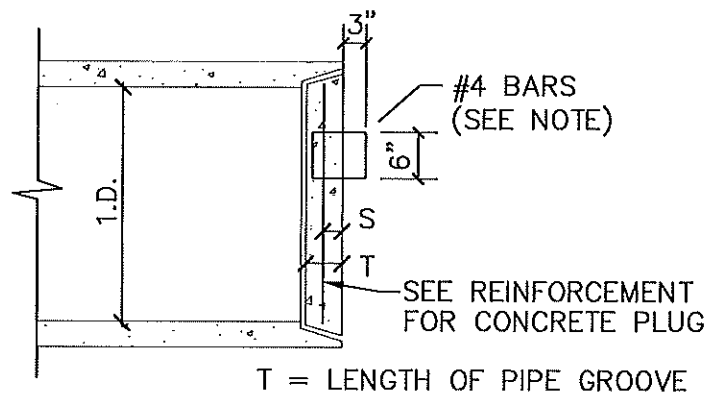
REVISED
AUG 2020

SD-06



REINFORCED CONCRETE COLLAR

PIPE SIZE	REINF. BAR	DISTANCE C-C BOTH WAYS	S
18"-33"	# 3	12"	1/2 T
36"-54"	# 3	12"	1/3 T
60"-84"	# 4	12"	1/4 T



REINFORCED CONCRETE PIPE PLUG

NOTES:

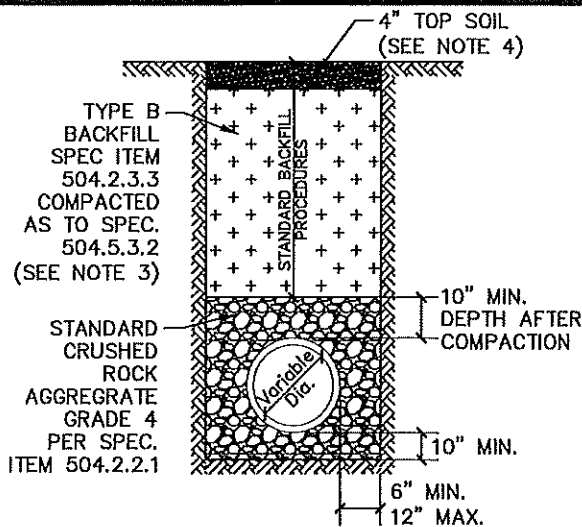
1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF THE NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. CONCRETE SHALL BE CLASS A (PER SPEC. ITEM 702.3).
3. STEEL HANDLE FOR REINFORCED CONCRETE PIPE PLUG SHALL BE LOCATED 1/4 I.D. ABOVE CENTER POINT OF PLUG. TWO (2) STEEL HANDLES WILL BE REQUIRED ON PLUGS OF 36" DIA. PIPES OR LARGER AND SHALL BE PLACED 1/4 I.D. APART AND 1/4 I.D. ABOVE CENTER OF PLUG.
4. COLLARS MAY ONLY BE USED TO REDUCE THE DIAMETER ONE PIPE SIZE. A JUNCTION BOX IS REQUIRED FOR REDUCING MORE THAN ONE PIPE SIZE.



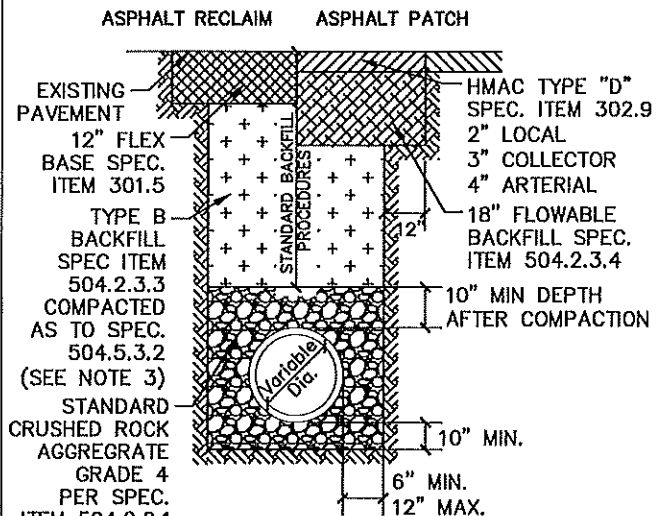
City of Saginaw
Construction Standards

REINFORCED CONCRETE COLLAR
AND MISCELLANEOUS DETAILS

REVISED
AUG 2020
SD-07

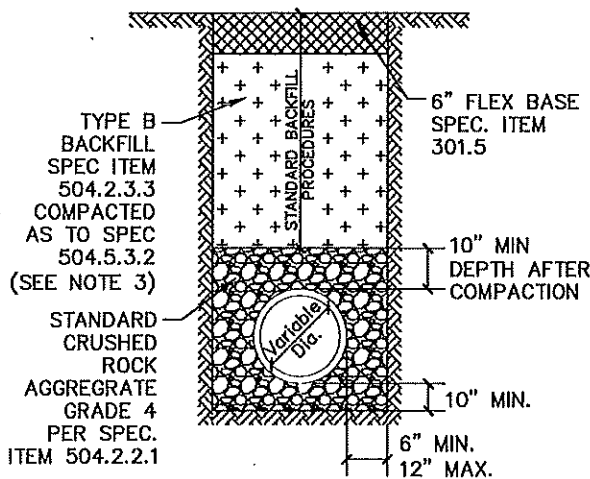


UNPAVED AREA

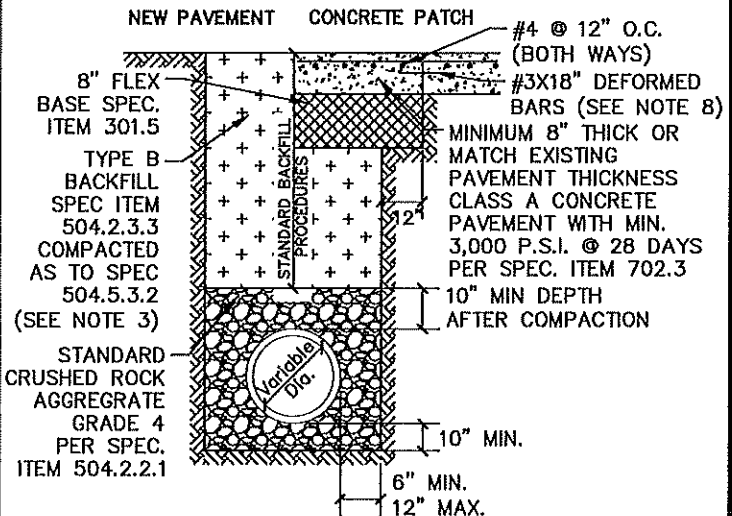


NOTE: FOR NEW STREETS, BACKFILL MAY BE EXTENDED TO THE TOP OF THE TRENCH

ASPHALT PAVEMENT



GRAVEL SURFACE



CONCRETE PAVEMENT

NOTES:

1. ALL SPEC. ITEM NUMBER REFERENCES SHALL REFERENCE THE 5TH EDITION OF NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. AT THE END OF EACH WORK DAY ALL SPOILS SHALL BE REMOVED FROM THE CITY R.O.W. UNLESS PRIOR WRITTEN PERMISSION IS OBTAINED FROM THE CITY TO STORE SPOILS IN DESIGNATED SPOIL STORAGE AREAS THAT DO NOT OBSTRUCT AUTOMOBILE OR PEDESTRIAN TRAFFIC.
3. ROCKS GREATER THAN 4" IN DIAMETER SHALL BE REMOVED FROM ANY NATIVE MATERIAL USED AS BACKFILL.
4. TOPSOIL SHALL BE 4" IN DEPTH AND SHALL BE LOOSE AND FREE OF ROCKS OR CLODS GREATER THAN 1/4" IN DIAMETER. ALL TOPSOIL SHALL BE APPROVED BY THE CITY PRIOR TO INSTALLATION.
5. ALL PAVEMENT SHALL BE REMOVED ALONG NEAT SAW CUT LINES PER SPEC. ITEM 402.3.
6. STORM LINE WARNING TAPE OF MIN 4" WIDTH SHALL BE INSTALLED ABOVE THE EMBEDMENT MATERIAL.
7. A MAXIMUM OF 50 FT OF OPEN TRENCH WILL BE ALLOWED AT ANY TIME, UNLESS APPROVED BY THE CITY.
8. DEFORMED BARS DOWELED AND EPOXYED MIN. 6" INTO EXISTING PAVEMENT @ 12" O.C. (TYP).



City of Saginaw
Construction Standards

STANDARD STORM DRAIN
EMBEDMENT AND BACKFILL

REVISED
AUG 2020

SD-08