

SIOUXTM CITY

**Supplement
to
Iowa SUDAS
Standard Specifications**



2024 Edition

**City of Sioux City Supplement to Iowa SUDAS Standard
Specifications Manual – 2024 Edition**

ENGINEER'S CERTIFICATION

	<p>I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.</p>
	<p align="center"> Date: <u>2/14/24</u></p> <p align="center">Gordon L. Phair , P.E.</p> <p>License No. 23974 My renewal date is December 31, 2024</p> <p>Pages or sheets covered by this seal: Entire Document</p>

RESOLUTION NO. 2024 - 0166
with attachments

RESOLUTION ADOPTING THE 2024 SIOUX CITY SUPPLEMENT TO THE IOWA STATEWIDE URBAN DESIGN AND SPECIFICATIONS (SUDAS) STANDARD SPECIFICATIONS AND THE 2024 SIOUX CITY SUPPLEMENT TO THE IOWA SUDAS DESIGN MANUAL.

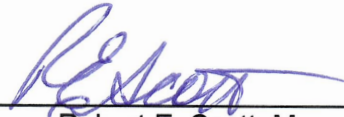
WHEREAS, the Institute for Transportation (InTrans) of Ames, Iowa maintains and updates the Iowa Statewide Urban Design and Specifications (SUDAS); and

WHEREAS, on February 14, 2005, pursuant to Resolution 2005-0141, the City Council adopted the Iowa Statewide Urban Design Standards for Public Improvements, now known as the Iowa Statewide Urban Design and Specifications; and

WHEREAS, the City Council is advised and does believe the 2024 Sioux City Supplement to the Iowa SUDAS Standard Specifications and the 2024 Sioux City Supplement to the Iowa SUDAS Design should be approved as to form and content.

NOW, THEREFORE, BE, AND IT IS HEREBY RESOLVED BY THE CITY COUNCIL OF THE CITY OF SIOUX CITY, IOWA that the 2024 Sioux City Supplement to the Iowa Statewide Urban Design and Specifications Standard Specifications and the 2024 Sioux City Supplement to the Iowa Statewide Urban Design and Specifications Design be and the same are hereby adopted effective February 26, 2024.

PASSED AND APPROVED: February 26, 2024



Robert E. Scott, Mayor

ATTEST: Heidi Fartens
Heidi Fartens, City Clerk

**Iowa Department of Natural Resources Wastewater
Approval Date:**

March 1, 2024

**Iowa Department of Natural Resources Water Supply
Engineering Section Approval Date:**

March 11, 2024 (Project No. W2024-0238)

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KEY

(ADD; YEAR) – The following information is an addition to Sioux City Supplement. The year represents the year that it was added to the Sioux City Supplement

(REPLACE; YEAR) – The following information is replacing what is in SUDAS, the year represents the year that the replacement was included in the Sioux City Supplement.

(DELETE; YEAR) – The following information is deleting what is in SUDAS. The year represents the year that the deletion was included in the Sioux City Supplement.

(REV; YEAR) – Information was included in a previous supplement as an addition, replacement, or addition and has been revised. Revised information will be highlighted accordingly. The year represents the year that a revision was made to the Sioux City Supplement from the previous version.

DIVISION 1 GENERAL PROVISIONS AND COVENANTS

SECTION 1050 – CONTROL OF WORK

1.02 AUTHORITY AND DUTIES OF THE ENGINEER'S AUTHORIZED REPRESENTATIVE

- A. (*REPLACE; 2020*) The Engineer may appoint a representative to monitor any or all materials used, and work done. Such observation may extend to any or all parts of the work and to the preparation or manufacture of the materials to be used. The Engineer's authorized representative will not be authorized to revoke, alter, enlarge, or relax the provisions of these specifications. When placed on the work, the Engineer's authorized representative will keep the Engineer informed as to the progress and quality of the work and the manner in which it is being done. Private inspections for private developments are not allowed.

1.12 SALVAGE

- C. (*ADD; 2017*) All existing hydrants, manhole lids, traffic signal equipment, street signs, asphalt millings, and excess soil shall be salvaged and delivered to the City's Field Services Division at 1921 18th Street, Sioux City, IA 51105. Arrangements for drop offs should be made ahead of time by calling (712) 279-6164. (*REV; 2020*)

SECTION 1070 – LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

PART 2 – RESPONSIBILITIES TO THE PUBLIC

2.06 TRAFFIC CONTROL

B. Closing Streets to Traffic:

2. (*REPLACE; 2021*) The Contractor shall notify the Engineer 48 hours in advance (excluding weekends) of closing any roads, streets, or public thoroughfares. No road or street shall be closed without prior approval from the Engineer. The Contractor shall also notify Iowa 511 ten days in advance (excluding weekends) prior to any closure in the Iowa DOT right-of-way on behalf of the City.

PART 3 – BONDS AND INSURANCE

3.01 PERFORMANCE, PAYMENT, AND MAINTENANCE BOND

- D. (*ADD; 2020*) Private developments that will be the responsibility of the City's to maintain once complete shall have a Maintenance Bond for a period of 24 months made out to the City prior to City Acceptance of the Private development.

SECTION 1080 – PROSECUTION AND PROGRESS

1.03 WORK PROGRESS AND SCHEDULE

- B. (*REPLACE; 2021*) At the preconstruction conference, furnish the Engineer with a preliminary schedule. At least 5 calendar days prior to starting work; provide the Engineer with three copies of a satisfactory construction progress schedule. In the schedule include, as a minimum, a chronologically sequenced bar chart showing the proposed starting dates and durations, including the estimated number of weather delay days, for each item of work. Also, in the schedule: 1) clearly show the controlling

- item of work for each day of the schedule, and the intended rate of production for each item of work; and 2) include project staging, project required milestones, and project suspensions that are 3 working days or longer.
- C. *(REPLACE; 2021)* Base the progress schedule on an adequate daily working hour schedule, with sufficient materials, equipment, and labor being furnished to ensure completion of the contract within the contract period. Commence and prosecute the work according to the accepted progress schedule, with forces and equipment adequate to complete the controlling operations on schedule.
 - D. *(ADD; 2021)* The Engineer will use the progress schedule to identify controlling operations and as a check on the rate of progress. The Engineer will jointly review the schedule with the Contractor at least every 2 weeks to determine if progress is satisfactory. The Engineer may also request the Contractor revise the schedule for any of the following reasons:
 - a. The project completion or intermediate completion targets are delayed 10 working days or more.
 - b. The Engineer determines that the progress of the work differs significantly from the current schedule such that it is unlikely the project will be completed within the contract period.
 - c. A contract change order requires a revision of the Contractor's work sequence or the method of performing the work.
 - E. *(ADD; 2021)* Prepare and submit revised progress schedules to the Engineer within 5 business days after the request.
 - F. *(ADD; 2021)* The Engineer's acceptance of the Contractor's progress schedules does not waive any contract requirements.
 - G. *(ADD; 2021)* Failure to supply the Engineer a satisfactory schedule or any revised schedule, progress payments may be withheld until a schedule has been submitted and accepted.
 - H. *(ADD; 2021)* No direct payment will be made for furnishing construction progress schedules or revisions. The cost of the schedule is included in the cost of mobilization.

1.12 LIQUIDATED DAMAGES

- B. *(REPLACE; 2020)* The liquidated damages rate specified in the contract documents is hereby agreed upon as the true and actual damages due the Jurisdiction for loss to the Jurisdiction and to the public due to obstruction of traffic, interference with business, and/or increased costs to the Jurisdiction such as engineering, administration, and inspection after the expiration of the contract time, or extension thereof. Such liquidated damages may be deducted from any money due or to become due the Contractor under the contract, and the Contractor and its surety shall be liable for any liquidated damages in excess of the amount due the Contractor. Liquidated damages rates specified in the contract documents are determined according to the project. Liquidated damages will be charged on Saturday's the contractor is working and are deemed workable by the City's project observer or authorized representative. *(REV; 2021) (REV; 2024)*

DIVISION 2 EARTHWORK

SECTION 2010 – EARTHWORK, SUBGRADE, AND SUBBASE

PART 1 – GENERAL

1.08 MEASUREMENT AND PAYMENT

M. Compaction Testing:

3. (REPLACE, 2017) The owner shall pay for all testing with any retesting charged to the Contractor. The independent testing lab will invoice the Contractor directly for the cost of the re-tests. Any invoices remaining unpaid by the Contractor shall be withheld at twice the billed amount by the City until paid by the Contractor. (REV; 2024)

PART 3 – EXECUTION

3.03 EXCAVATION

- A. (REPLACE, 2020) **Notification:** Notify the Engineer prior to the start of excavation activities. Following initial excavation, the Contractor is to notify the City immediately should unsuitable soils be discovered. Should the grade become wet after excavation and soils become unsuitable, the costs to remove and replace the unsuitable soils shall be the Contractors.

3.09 FIELD QUALITY CONTROL

B. Moisture Content and Density:

1. (REPLACE; 2017) Ensure that moisture content of cohesive materials falls within the ranges detailed in Table 2010.03A and Table 2010.03B as determined in general accordance with ASTM D698. (REV; 2021)

TABLE 2010.03A: Trench Moisture Content Requirements
 (Top Three Feet below paving)

Soil Type	Soil Classification	Moisture Requirement
Lean Clays	cohesive	Optimum ± 3%
Silts	cohesive	-5% Optimum to +2%
Fat Clays	cohesive	Optimum to 4%

*(ADD; 2021)

TABLE 2010.03B: Subgrade Preparation Moisture Content Requirements

Soil Type	Soil Classification	Subgrade Treatment	Moisture Requirement
Lean Clays	cohesive	None	Optimum ± 3%
		Fly Ash or Portland	
Silts	cohesive	None	-5% Optimum to +2%
		Fly Ash or Portland	-3% Optimum to +2%
Fat Clays	cohesive	None	Optimum to 4%
		Fly Ash or Portland	

*(ADD; 2021)

2. (REPLACE; 2017) Compact cohesive soils to no less than 95% of maximum Standard Proctor Density. If a standard proctor curve cannot be generated on

cohesionless soils, compact to no less than 70% of Relative Density as determined by ASTM D4253 and ASTM D4254. Fill under turf area shall be filled to six inches below finish grade and compacted to 90% then filled to finish grade with native topsoil or engineer approved equal imported topsoil if native is not available and compacted to 85%. Fill under roadways, sidewalks or drives shall be compacted to 95%. (REV; 2020) (REV; 2021)

3. (ADD; 2017) There is no moisture control for granular material.

DIVISION 3 TRENCH AND TRENCHLESS CONSTRUCTION

SECTION 3010 – TRENCH EXCAVATION AND BACKFILL

PART 1 – GENERAL

1.08 MEASUREMENT AND PAYMENT

D. Replacement of Unsuitable Backfill Material:

1. (REPLACE, 2020) **Measurement:** Measurement will be in cubic yards for the quantity of backfill material required to replace unsuitable backfill material removed during standard trench excavation. Measurement will be based on compacted material in place. Soils that become wet after removal from the trench shall be ineligible for payment under this bid item.

PART 3 – EXECUTION

3.05 PIPE BEDDING AND BACKFILL

A. General:

7. (ADD; 2021) **Compaction:** Unless otherwise specified by contract documents, compaction in trenches within public right-of-way should be compacted to a minimum of 95% Standard Proctor Density for the top three feet and a minimum of 92% Standard Proctor Density three feet below the top three feet to the top of pipe. Material shall be compacted to a moisture content as specified below:
 - a. Moisture requirements for the top three feet of cohesive soils can be found in Table 2010.03A.
 - b. Moisture requirements for below the top three feet to the top of pipe of cohesive soils shall be such that proper compaction can be achieved and moisture content falls within +6% or less than optimum.
 - c. There is no moisture control for granular material.

B. Pipe Bedding:

1. Granular Material:

- a. (REPLACE; 2020) Class I granular bedding material is required for all gravity mains. Use when specified for pressure pipes. All flexible gravity pipe within the public right-of-way shall have Class F-3 Bedding. (REV; 2021)

DIVISION 4 SEWERS AND DRAINS

SECTION 4010 – SANITARY SEWERS

PART 2 – PRODUCTS

2.01 SANITARY SEWER (GRAVITY MAINS)

- A. Solid Wall Polyvinyl Chloride Pipe (PVC) 8 inch to 15 inch:**
 - 1. *(REPLACE; 2017)* Comply with ASTM D 3034, SDR 26. SDR-35 is not an approved construction material in Sioux City.
- B. *(REPLACE; 2020)* Solid Wall Polyvinyl Chloride Pipe (PVC) 18 inch to 27 inch:** Product is allowed by the City of Sioux City. *(REV; 2021) (REV; 2024)*
- C. *(REPLACE; 2020)* Corrugated Polyvinyl Chloride Pipe (PVC) 8 inch to 36 inch:** Product is not allowed by the City of Sioux City unless otherwise approved by the City Engineer.
- D. *(REPLACE; 2020)* Closed Profile Polyvinyl Chloride Pipe (PVC) 21 inch to 36 inch:** Product is not allowed by the City of Sioux City unless otherwise approved by the City Engineer.
- E. *(REPLACE; 2021)* Polyvinyl Chloride Composite Pipe (truss type PVC) 8 inch to 15 inch:** Product is not allowed by the City of Sioux City unless otherwise approved by the City Engineer.
- F. *(REPLACE; 2020)* Reinforced Concrete Pipe (RCP) 18 inch to 144 inch:** Product is allowed by the City of Sioux City. *(REV; 2024)*
- G. *(REPLACE; 2020)* Ductile Iron Pipe (DIP) 8 inch to 54 inch:** Product is not allowed by the City of Sioux City unless otherwise approved by the City Engineer.
- H. *(REPLACE; 2020)* Vitrified Clay Pipe (VCP) 8 inch to 42 inch:** Product is allowed by the City of Sioux City. *(REV; 2021)*
- I. *(REPLACE; 2021)* Double Walled Polypropylene Pipe 12 inch to 30 inch:** Product is allowed by the City of Sioux City. *(REV; 2024)*
- J. *(REPLACE; 2021)* Triple Walled Polypropylene Pipe 30 inch to 36 inch:** Product is allowed by the City of Sioux City. *(REV; 2024)*

2.04 SANITARY SEWER SERVICE

- C. Service Pipe:** *(REPLACE; 2017)* Use products as required by local plumbing code or regulations, if applicable, otherwise use the following *(REV; 2020)*:
 - 1. PVC:**
 - a. *(REPLACE; 2017)* Comply with ASTM D 3034, minimum thickness SDR 23.5 minimum pipe stiffness of 153 psi as per ASTM D 2412. Approved materials also include SDR 26, and Schedule 40 as specified for sanitary sewers (gravity).

PART 3 – EXECUTION

3.02 GRAVITY SEWER INSTALLATION

B. Trenched

- 8. *(ADD; 2017)* When connecting sanitary sewers of differing sizes or materials, these connections shall be made at a manhole. *(REV; 2020)*

9. (ADD; 2020) All pipes shall be pushed fully home according to the manufacturer's specifications so there are no sags caused by the joints in the pipe.
10. (ADD; 2020) Pipes that become separated are not allowed to be grouted closed, they will need to be pushed fully home. This may require the removal of paving.
11. (ADD; 2020) Limit joint deflection to one degree less than pipe manufacturer's limits.

3.06 SANITARY SEWER SERVICE STUB

- C. (REPLACE; 2017) Install new service stub from sewer main to location 2 feet beyond the right-of-way or as specified in the contract documents. Comply with SUDAS Figure 4010. 201. (REV; 2020)
 6. (REPLACE; 2017) For reconnection of new service pipe with existing service pipe, comply with the Jurisdiction's plumbing code. When connecting new service pipes to existing service pipes a non-shear adjustable repair coupling is required.
 7. (ADD; 2017) Sanitary sewer services shall be verified with the City's Authorized Representative on site. Additionally, the length of the service and location of any bends, must be verified and visible for recording by the City's Authorized Representative prior to burial. (REV; 2024)

3.14 SANITARY SEWER SERVICE ABANDONMENT

- A. (ADD; 2021) Sanitary sewer services connected to gravity mains are preferred to be abandoned at the main but may be abandoned at the property line. Sanitary sewer services connected to force mains are to be abandoned at the main.

SECTION 4020 – STORM SEWERS

PART 2 – PRODUCTS

2.01 STORM SEWERS

E. Polyvinyl Chloride Pipe (PVC):

1. Use pipe complying with the following:
 - c. (REPLACE; 2017) Minimum pipe stiffness of 115 psi.

G. (REPLACE; 2020) **Corrugated Metal Pipe (CMP):** Product is not allowed by the City of Sioux City unless otherwise approved by the City Engineer.

P. (ADD; 2021) **Vitrified Clay Pipe (VCP):** Product is not allowed by the City of Sioux City as a storm sewer material.

PART 3 – EXECUTION

3.02 PIPE INSTALLATION

A. General:

8. (ADD; 2020) There shall be no bends, flexing, or roping. Bends or directional changes shall be accomplished with fittings.

B. Trenched

7. (ADD; 2020) When connecting storm sewers of differing sizes or materials, these connections shall be made at a manhole.

8. (ADD; 2020) All pipes shall be pushed fully home according to the manufacture's specifications so there are no sags caused by the joints in the pipe.
9. (ADD; 2020) Pipes that become separated are not allowed to be grouted closed, they will need to be pushed fully home. This may require the removal of paving.
10. (ADD; 2020) Limit joint deflection to one degree less than pipe manufacturer's limits.

SECTION 4050 – PIPE REHABILITATION

PART 2 – PRODUCTS

2.06 PIPE REPAIR COUPLINGS FOR SPOT REPAIRS BY PIPE REPLACEMENT

- A. (REPLACE; 2020) **Style:** Full circle, fully lined, bolted, non-shear.

SECTION 4060 – CLEANING, INSPECTION, AND TESTING OF SEWERS

PART 1 – GENERAL

1.07 SPECIAL REQUIREMENTS

- A. (REPLACE; 2021) Contractor shall provide notice of work and public information related to the work at least 48 hours prior to the commencement of the lining work. The Contractor shall also notify Iowa 511 ten days in advance (excluding weekends) prior to any closure in the Iowa DOT right-of-way on behalf of the City. Additionally, Contractor shall obtain, record, and provide copies to City authorized Representative notified of the work at that time. (REV; 2020) (REV;2021)

1.08 MEASUREMENT AND PAYMENT

(REPLACE; 2021) Cleaning, inspecting, and testing sanitary sewers, storm sewers, pipe culverts, and rehabilitated pipes (including video inspection) are incidental to other project costs and will not be paid for separately unless specified otherwise in the contract documents.

PART 3 – EXECUTION

3.02 VIDEO INSPECTION

A. General

1. (REPLACE; 2017) Conduct video inspection of all new, rehabilitated, or repaired sanitary and storm sewers after all backfill and paving operations are completed. It is no longer required, but highly suggested that the sewers be inspected after backfilling and compaction operations are completed prior to paving. The video inspection shall begin at the sewer run and continue to the end of the sewer run, regardless of the presence of paving above the sewer.
2. (REPLACE; 2017) Notify the Engineer the day prior to inspection so the Engineer or Project Observer may be present during the inspection. Video inspection may be completed by the Contractor if approved by the Engineer and if the Project Observer is present for inspection/observation of the videoing of the sanitary and storm sewer. (REV; 2024)
5. (ADD; 2017) Video inspection shall be completed using NASSCO specifications and shall be PACP compliant. The operator of the video inspection equipment

must be NASSCO certified and provide proof of certification to the City's Project Engineer before commencement of video inspection. *(REV; 2020) (REV; 2024)*

6. *(ADD; 2024)* The City reserves the right to require a third-party to provide video inspection at the contractors cost if there are discrepancies with the provided video.

B. Inspection Procedure

1. *(REPLACE; 2024)* Prior to video inspection, the contractor or contractors' sub shall complete the following.
 - a. Run sufficient water through the pipe to saturate potential low spots so they may be detected during inspection.
 - b. Label manhole above the inlet/outlet pipe with first four (4) digits of project number, MH#. Invert in/out using a paint pen to be visible by the camera. When going into a structure without a MH name assigned to it, get with the inspector to coordinate a name/number Example:

1234
SAN MH1
INV IN/OUT

2. *(ADD, 2024)* Pan camera to around the circumference of each joint as required per the NASSCO requirements.

C. Inspection Reporting

2. *(REPLACE; 2017)* Provide a written report of the inspection. In the report, include true-to-scale drawings of all sewer defects and observation locations. Reference the time stamp on each line-item entry on the written report. Copies shall be provided to the City Engineering Division, the Utilities Field Office, and the consulting engineering firms involved in the design of the project. *(REV; 2020)*
3. *(ADD; 2017)* Video inspection shall be completed using NASSCO specifications and shall be PACP compliant. *(REV; 2020)*
4. *(ADD; 2017)* Video shall have the following marked fields shown within the video for each sewer reach and the CCTV reports. *(REV; 2020)*

Field #	Header Field	Mandatory	Required for this Project (THIS COLUMN SHALL BE COMPLETED BY THE DESIGN ENGINEER PRIOR TO THE ADOPTION OF CONTRACT DOCUMENTS AND SHALL BE INCLUDED IF NEEDED)
1	Surveyed By	X	
1a	Certificate No.	X	
2	Owner		
3	Customer		
4	Drainage Area		
5	Sheet Number	X	
6	P/O Number		
7	Pipe Segment Ref.	X	
8	Date	X	
9	Time	X	
10	Street	X	
10a	City	X	
11	Location Details		
12	Upstream MH No.	X	
13	Upstream MH Rim to Invert		
14	Upstream MH Grade to Invert		
15	Upstream MH Rim to Grade		
16	Downstream MH No.	X	
17	Downstream MH Rim to Invert		
18	Downstream MH Grade to Invert		
19	Downstream MH Rim to Grade		
20	Sewer Use		
21	Direction	X	
22	Flow Control		
23	Height	X	
24	Width	X	
25	Shape	X	
26	Material	X	
27	Lining Method		
28	Pipe Joint Length		
29	Total Length		
30	Length Surveyed		
31	Year Laid		
32	Year Renewed		
33	Media Label		
34	Purpose		
35	Sewer Category	X	
36	Pre-Cleaning	X	
36a	Date Cleaned	X	
37	Weather		
38	Location		
39	Additional Info.		
40	W/O #		
41	Project		
42	Pressure V		

*(add; 2017) (REV; 2020) (REV; 2021)

3.04 DEFLECTION TESTING

- A. *(REPLACE; 2020)* Perform deflection tests on all flexible pipe; excluding ductile iron pipe. Pipes 36-inches or larger may be directly measured provided all required safety equipment and certifications are used and held by the Contractor.

DIVISION 5 WATER MAINS AND APPURTENANCES

SECTION 5010 – PIPE AND FITTINGS

PART 2 – PRODUCTS

2.01 WATER MAIN

A. Polyvinyl Chloride (PVC) Pipe:

1. Minimum Wall Thickness:

- a. *(REPLACE; 2017)* 8 inch through 24-inch sizes: C900 - DR 14.

B. Ductile Iron Pipe (DIP):

1. Minimum Thickness Class:

- a. *(REPLACE; 2017)* 8 inch through 24-inch sizes: Pressure Class 350 per ANSI/AWWA C151/A21.51.

- C. *(ADD; 2020)* **Prestressed Concrete Cylinder Pipe:** Product is not allowed by the City unless otherwise approved by the City Engineer *(REV; 2024)*

2.05 PIPELINE ACCESSORIES

A. Polyethylene Wrap:

3. *(ADD; 2017)* Polyethylene wrap on Ductile Iron Pipe (DIP) shall be required with any installation of Ductile Iron Pipe (DIP).

B. Tracer System:

2. *(REPLACE; 2017)* **Ground Rod:** 1/2 inch 1/2-inch diameter, 60-inch steel rod uniformly coated with metallicly bonded electrolytic copper. *(REV; 2024)*
5. *(REPLACE; 2017)* **Tracer Wire Station:** Stations shall be Rhino TriView Marker Post Tracer Wire Test Stations (blue in color, 60” in length, and labeled “Warning water pipeline on all three sides) or City Engineer approved equal. The stations shall be placed as shown in FIGURE SC 5020.301 / DETAIL 04.4C.02 at the end of the City Supplemental Specifications and City Supplemental Design Manual. *(REV; 2020) (REV; 2024)*

2.06 SPECIAL GASKETS

- D. *(ADD; 2020)* Nitrile Gaskets shall be required with any installation of Ductile Iron Pipe (DIP).

2.07 WATER SERVICE PIPE AND APPURTENANCES

- C. *(REPLACE; 2017)* **Corporations, Stops, and Stop Boxes:** City of Sioux City Requirements *(REV; 2020) (REV; 2024)*

1. Corporation Stop:

- a. 1-inch minimum ball valve with 300 psi rating.
- b. ¼ turn open

- c. AWWA taper thread on the inlet side
 - d. Compression fitting for CTS OD Tubing on the outlet
 - e. Manufacturer and Model:
 - 1) AY McDonald #74701B-3Q
 - 2) Mueller B25008
 - 3) City Engineer approved equal
- 2. Curb Stop**
- a. 1-inch minimum ball valve with 300 psi rating
 - b. ¼ turn check
 - c. Compression fitting for CTS tubing on each end
 - d. No reduced port valves
 - e. Manufacturer and Model:
 - 1) AY McDonald 76104 Q
 - 2) Mueller B25155N
 - 3) City Engineer approved equal
- 3. Curb Stop Box:**
- a. 2 ½" curb service box (material shall be a rigid combination of polyolefin with fibrous inorganic component reinforcing and UV stabilizer additives to assure resistance to material degradation from ultraviolet light)
 - b. telescoping two-piece (Screw style) with polycarbonate ring, pentagon bolt and Superflexon cover that is adjustable to 84"
 - c. Upper section shall be locatable electronically and magnetically with ring riveted to the top section.
 - d. Lower section shall be full threaded shaft 2 11/32" DOA over a a Buffalo style arch, 4" wide by 7" high and saddle, 3 1/3" wide by 4" high
 - e. Manufacturer and Model:
 - 1) AY McDonald #5614A
 - 2) Old Castle - Highline #110185-14 (2-1/2" Curb Service Box)
 - 3) Mueller
 - 4) City Engineer approved equal

PART 3 – EXECUTION

3.04 POLYETHYLENE ENCASEMENT INSTALLATION

- G. (ADD; 2024) At all tap locations, repair the wrap with a second layer of wrap over the saddle and extending 12 inches each way from the center of the saddle.

3.05 TRACER SYSTEM INSTALLATION

- G. (REPLACE; 2017) Final inspection of the tracer system will be conducted at the completion of the project and prior to acceptance by the owner. City personnel shall verify the electrical continuity of the tracer system and any discontinuities in the system shall be repaired by the Contractor.
- H. (ADD; 2017) Ground rods shall be installed to a depth of 8 feet.
- I. (ADD; 2020) Removals shall not be completed until after one-call information has been received. The City will not pay for damage to existing services damaged during

construction. Repairs shall be the Contractor’s responsibility as detailed in Section 1070 2.07 A. – C.

3.06 CONFLICTS

- E. (ADD; 2024) Surface Water Crossings: Comply with the Recommended Standards for Water Works, 2012 Edition.
 - 1. **Above-water Crossings:** Ensure the pipe is adequately supported and anchored; protected from vandalism, damage, and freezing; and accessible for repair or replacement.
 - 2. **Underwater Crossings:** Provide a minimum cover of 5 feet over the pipe unless otherwise specified in the contract documents. When crossing water courses that are greater than 15 feet in width, provide the following.
 - a. pipe with flexible, restrained, or welded watertight joints,
 - b. valves at both ends of water crossings so the section can be isolated for testing or repair; ensure the valves are easily accessible and not subject to flooding, and
 - c. permanent taps or other provisions to allow insertion of a small meter to determine leakage and obtain water samples on each side of the valve closest to the supply source.

3.09 WATER SERVICE STUB

- D. (ADD; 2017) City water staff / Utilities Staff shall observe all taps on all water mains except on projects that are being administered by the City’s Public Works Department. All services shall require a tapping saddle. All tapping saddles need to be an epoxy coated body, double stainless-steel strap, or full wrap stainless steel with a corp bung. Size on size taps are not allowed. Taps must be a minimum of one size smaller than the existing main and consistent with the table below. (REV; 2024)

Allowable Taps Per Main Size

		Main Size			
		2"	4"	6"	8" and Larger
Tap Size	3/4"	Saddle	Saddle	Saddle	Saddle
	1"	None	Saddle	Saddle	Saddle
	1 1/4"	None	None	Saddle	Saddle
	1 1/2"	None	None	Saddle	Saddle
	2"	None	None	None	Saddle

*(add; 2017) (REV; 2020)

- E. (ADD; 2017) Stop box: distance to back of curb is to be 8.5 feet and boxes are to be placed outside of paving, unless otherwise shown on plans. Should the stop box have to be placed in the paving, refer to FIGURE SC 5020.302 / DETAIL 04.4C.03 at the end of the City Supplemental Specifications and City Supplemental Design Manual. (REV; 2020) (REV; 2021)

- F. (ADD; 2020) All water services 2" in size or smaller shall be copper up to stop box. Material for water services from the stop box to the meter is at the owner's discretion.
- G. (ADD; 2024) For Typical Water Service Connections, refer to FIGURE SC 5010.202 / DETAIL 04.4C.04 at the end of the City Supplemental Specifications and City Supplemental Design Manual.

3.13 WATER SERVICE ABANDONMENT

- A. (ADD; 2021) Water services are to be abandoned at the main. (REV; 2024)

SECTION 5020 – VALVES, FIRE HYDRANTS, AND APPURTENANCES

PART 2 – PRODUCTS

2.01 VALVES

A. General:

- 2. (REPLACE; 2017) **Direction of Opening:** All valves, including service line valves, must open clockwise. (REV; 2020)

B. Gate Valves

- 1. (REPLACE; 2017) **Standards:** Comply with AWWA C509 (gray iron or ductile iron) or AWWA C515 (ductile iron) and NSF 61. These shall be required for water mains less than 16 inches. (2017) (REV; 2021)

C. Butterfly Valves

- 1. (REPLACE; 2017) **Standards:** Comply with AWWA C504 class 150B (gray iron or ductile iron) and NSF 61. These shall be required for water main larger than or equal to 16 inches. Butterfly Valves must have 250 PSI operating pressure. (REV; 2021)
- 3. (REPLACE; 2017) **For Seat on Disc Valves (a-b):** The City of Sioux City does not allow butterfly valves with seat on disc valves. (REV; 2021)

2.02 FIRE HYDRANT ASSEMBLY

(ADD; 2017) Fire Hydrant Assembly shall be constructed as shown in FIGURE SC 5020.301 / DETAIL 04.4C.02 at the end of the City Supplemental Specifications and City Supplemental Design Manual. (REV; 2020)

- B. (REPLACE; 2017) **Manufacturers:** City of Sioux City approved manufacturers and models are as follows (REV; 2020) (REV; 2021) (REV;2024)

- 1. (ADD; 2017) Clow Medallion
- 2. (ADD; 2021) Kennedy K81 (REV; 2024)
- 3. (ADD; 2024) AVK 2700 Modern

C. Features:

- 6. (REPLACE; 2017) **Items to be Specified:** City of Sioux City Requirements
 - a. Operating nut: 1.5 inch pentagonal
 - b. Pumper nozzle: 4 inch with 5-inch Storz Quick Connect on all new hydrants public and private
 - c. Nozzle threads:
 - 1) Hose thread
 - a) Male Dia. – 3.290

- b) Pitch Dia. – 3.146
 - c) Root Dia. – 3.002
 - d) Female OD – 3.340
 - e) Pitch Dia. – 3.196
 - f) Root Dia. – 3.052
 - g) 60 Degree Sharp V Thread
- d. Main valve nominal opening size: 6 inch.

D. Painting:

- 2. *(REPLACE; 2017)* Above grade exterior coating: City of Sioux City requirements *(REV; 2020) (REV; 2021)*
 - a. Public – safety yellow
 - b. Private – red

2.03 APPURTENANCES

B. Valve Box:

- 2. *(REPLACE; 2017)* **Manufacturer:** City of Sioux City approved manufactures and models are as follows *(REV; 2020) (REV; 2021) (REV; 2024)*
 - a. Old Castle – Highline 111140-03 (5-1/4” poly roadway valve box)
 - b. Bingham & Taylor Bison Valve Box
 - c. SIP Industries
 - d. Tyler Union 6860 Screw Type
 - e. City Engineer approved equal
- 3. *(REPLACE; 2017)* **Type:** Use screw extension type in all areas. *(REV; 2024)*
- 4. *(REPLACE; 2024)* **Material:** Gray Cast Iron per ASTM A48 Class 35, or plastic

D. *(ADD; 2017)* Adjustment Rings and Covers:

- 1. Adjustment rings and covers shall be those produced at the Sioux City Foundry or City Engineer approved equal. Rings and covers produced at the Sioux City Foundry shall be used on Old Castle – Highline 111140-03 valve boxes. *(REV; 2024)*

PART 3 – EXECUTION

3.01 GENERAL

- C. *(REPLACE; 2017)* The Valve Box and Cover must match the new or existing surface elevation (0.25” below to 0” above).

3.03 FIRE HYDRANT

- F. *(REPLACE; 2017)* Orient fire hydrant pumper nozzle towards the nearest roadway. When the distance is equal orient towards higher volume roadway. *(REV; 2020)*

SECTION 5030 – TESTING AND DISINFECTION

PART 3 – EXECUTION

3.04 PRESSURE AND LEAK TESTING

F. (*REPLACE; 2020*) Test and monitor the completed piping system at 1.5 times the system working pressure or 150 psi, whichever is greater, for 2 continuous hours. The gauge used for testing shall have 1 PSI increments from 100psi to 250psi.

3.06 FINAL FLUSHING

C. (*ADD; 2017*) The Contractor shall be responsible to reimburse the City for any financial penalties imposed on the City by state or federal regulatory agencies as a result of improper disposal. (*REV; 2021*)

3.07 BACTERIA SAMPLING

(*REPLACE; 2017*) Test water mains according to AWWA C651, including collection of two consecutive sets of acceptable bacteria samples 24 hours apart. If the initial disinfection procedure fails to produce satisfactory bacteriological results or if other water quality is affected, repeat the disinfection procedure. City personnel will perform this testing.

After final flushing, two consecutive samples taken 24 Hrs. apart shall be collected from the new main after the final flushing water has set in the new main at least 16 Hrs. and the chlorine residual is within the allowable levels. One sample must be collected from each hydrant located on the new main. The maximum distance between sample sites is 1200' and samples must also be collected from each end of the line and each branch. If trench water entered the new main during construction, or if excessive quantities of dirt and debris entered the main, the Engineer may reduce the sampling interval to every 200 feet of new main. Bacteriological samples shall be collected in sterile bottles containing sodium thiosulfate to neutralize the Chlorine in the sample.

Sampling Procedures:

Take care to safeguard the sample bottles and the sample from becoming contaminated before, during, and after the time of collection. Keep the sterile sample bottles closed until ready to take the sample. Do not use a hose to take the sample. The water should be allowed to run to waste for at least 2 to 3 minutes before sampling. The sample shall be collected directly into the sample bottle and taken from a flow of water that will allow filling of the bottle without splashing. Replace the cap immediately after sampling and label the sample with the location, time, and date of sample. Samples should be delivered to the laboratory within 1 Hr. of sampling or the water sample should be kept in an iced cooler or refrigerated until delivered. The time between collection and examination should never exceed 30 Hrs. (*REV; 2021*)

DIVISION 6 STRUCTURES FOR SANITARY AND STORM SEWERS

SECTION 6010 – STRUCTURES FOR SANITARY AND STORM SEWERS

PART 2 – PRODUCTS

2.02 PRECAST

(ADD; 2024) See Section 6010. 2.03. C. in the Sioux City Supplement for admixture requirements for Sanitary Sewer Manholes.

2.03 CAST-IN-PLACE

C. (ADD; 2024) **Admixture Requirements for Sanitary Sewer Manholes:** Precast and cast in place manholes may utilize any of the following approved admixtures in lieu of an interior manhole lining. The admixture shall be applied at the manufacturer's recommended rate. The Contractor shall provide to the Engineer copies of the tickets/material cut sheets for the sanitary sewer manholes that will be used on the project, no less than 7 working days prior to starting the sanitary sewer work.

- a. Xpex Bio-San C500
- b. ConBlock™ MIC
- c. ConShield®
- d. City Engineer Approved Equal

2.05 PRECAST RISER JOINTS

B. Joint Sealant:

1. Sanitary Sewers

- d. (ADD; 2017) **Joint Wrap:** Apply a 9-inch Cretex wrap or approved equal to all exterior joints.

2.09 MANHOLE OR INTAKE ADJUSTMENT RINGS (GRADE RINGS)

C. (ADD; 2017) Adjustment ring stack heights:

1. Maximum: The maximum height for existing manholes shall be 24 inches.
- D. (ADD; 2017) Grout the inside of manhole between ring and stack.

2.10 CASTINGS (RING, COVER, GRATE, AND EXTENSIONS)

E. Casting Types:

1. (REPLACE; 2017) **Manholes:** The following table lists the manhole casting types. All manhole castings shall be self-sealing. Use bolted cover when specified in the plans or when manhole is outside of the City ROW.

- a. (ADD; 2017) Approved manhole castings:
 - 1) Floating Castings
 - a) Neenah R-1673-B
 - b) East Jordan 3025 for Concrete or East Jordan 3024 for Asphalt with East Jordan 1040 cover
 - c) Deeter 1188
 - d) City Engineer Approved Equal
 - 2) Fixed Castings

- a) Neenah R-1642-A (Type A lid)
- b) East Jordan 1045Z with East Jordan 1040 cover
- c) Deeter 1247
- d) City Engineer Approved Equal

2. Intakes:

- b. (REPLACE; 2017) (REV; 2021) All inlets shall be labeled with “DUMP NO WASTE, DRAINS TO RIVER” or other wording approved by the engineer. For area intakes, alley drop inlets, or curb type inlets the label may be ordered as part of the grate or casting from the manufacturer. For concrete top inlets the label can be either on the manhole cover or by plates embedded into the concrete facing and near the street. The cost to label the inlets shall be included in the cost to construct the inlet. Approved plates are:
 - 1) Neenah R-3000-A
 - 2) East Jordan 7030 3-piece
- c. (ADD; 2017) SW-603 Type R and Type S grates shall be flat grates with rectangular or square openings. All grates shall be vane grates and bicycle safe. (REV; 2020)

2.11 ADDITIONAL MATERIALS FOR SANITARY SEWER MANHOLES

A. Infiltration Barrier:

- 1. **External Chimney Seal:** (ADD; 2017) These are required in the City of Sioux City.
- 2. (REPLACE; 2017) **Internal Chimney Seal:** Cretex LSS are allowed by the City of Sioux City when an external chimney seal cannot be installed. All other internal chimney seals must be first approved by the City Engineer. (REV; 2021) (REV; 2024)

B. Riser Section Coating:

- 2. (REPLACE; 2017) **Interior:** Interior manhole lining or the use of H₂S resistant admixtures are required in all sanitary manholes. Lining shall be in accordance with Section 4010, 2.01. (lined, reinforced concrete pipe). Refer to Section 6010. 2.02 and 2.03 of the Sioux City Supplement for admixture requirements for Sanitary Sewer Manholes. (REV; 2024)

2.12 CONCRETE FILLET

- A. (REPLACE; 2017) **Cast-in-place Base:** Provide a cast-in-place concrete fillet with concrete complying with the requirements of Section 6010, 2.03. Cast-in-place inverts shall be smooth, finished by steel trowel or mag. Broomed finish will not be accepted.

2.18 (ADD; 2017) MANHOLE / INTAKE MARKER

- A. When manholes or intakes are not located in or with-in 10 feet of pavement they shall be marked. The marker shall be constructed as shown in FIGURE SC 6010.407 / DETAIL 02.2C.01 at the end of the City Supplemental Specifications and City Supplemental Design Manual. The cost for the marker shall be incidental to the manhole or intake.

2.19 (ADD; 2017) ADDITIONAL MATERIAL FOR STORM SEWER MANHOLES

- A. External chimney seals must be installed on all storm sewer manholes. Refer to SUDAS 6010 2.11 A.1. for details.

DIVISION 7 STREETS AND RELATED WORK

SECTION 7010 – PORTLAND CEMENT CONCRETE PAVEMENT

PART 1 – GENERAL

1.06 SCHEDULING AND CONFLICTS

(ADD; 2021) For concrete pours larger than 300 feet in length a pre-pour meeting shall be scheduled at least 48 hours in advance of machine paving and at least 24 hours in advance for hand paving. The pre-pour meeting shall be between the City, Contractor (prime Contractor is optional if paving is sub-contracted out), independent testing laboratory, and ready-mix company.

Notification to the independent testing laboratory shall be the sole responsibility of the Contractor. (REV; 2020)

1.07 SPECIAL REQUIREMENTS

- A. (ADD; 2020) Refer to FIGURE 7010.701 / DETAIL 09.9A.01 for the Standard Utility Location for 60' Residential R.O.W. at the end of the City Supplemental Specifications and City Supplemental Design Manual.
- B. (ADD; 2024) At joint intersection, offset at joint intersection, and circular manhole boxouts per 7010.103 can be used in the City of Sioux City.

1.08 MEASUREMENT AND PAYMENT

- F. (DELETE; 2017) **Beam Curb**

PART 2 – PRODUCTS

2.02 CONCRETE MIXES

A. Mix Design:

3. (ADD; 2017) River rock will not be allowed within the City of Sioux City for pavement. (REV; 2020)
4. (ADD; 2021) For Bridge Decks only, Limestone is to be used in the concrete mix. Quartzite is not allowed by the City of Sioux City.

PART 3 – EXECUTION

3.07 QUALITY CONTROL

A. Testing: (ADD; 2021) The following material certifications and testing requirements in place of the Plastic Concrete tests in Table 7010.02

TESTING FREQUENCIES FOR PORTLAND CEMENT CONCRETE (Minimum Frequencies)

Material or Construction Item	Tests	Applicable Standard	Methods of Acceptance of Sampling and Testing	Field Sampling and Testing	
				Frequency (minimum)	Responsible Party
Plastic Concrete	Air Content	I.M. 318.327	Field Test	1/100 CY or min. (3)	Engineer
	Slump	I.M. 317	Field Test	1/100 CY min. (3)	
	Cylinders (2)	I.M. 315	Field Test	1 Set/100 CY (3)	
	Beams	I.M. 316, 327, 328	Field Test	1 Set/100 CY (3)	
	Strength	I.M. 383	Maturity Tests	Each Placement or During Placement	

(1) This table replaces the Plastic Concrete section of the table in Division 7 Section 7010 Sub-section 3.07.

(2) Cylinders may be 4" by 8" or 6" by 12"

(3) For small pours, a minimum of one per week as required by the inspector or engineer

SECTION 7020 – ASPHALT PAVEMENT

PART 3 – EXECUTION

3.01 ASPHALT PAVEMENT

H. (ADD; 2024) The paver shall be capable of paving a minimum continuous width of twenty (20) foot wide strip without seam. Pavers in tandem will be acceptable; however, an adequate number of personnel shall be available to operate both pavers simultaneously.

3.06 QUALITY CONTROL

C. (ADD; 2021) City of Sioux City Requirements

1. For Testing frequencies see Table 7020.01A
2. Core Samples shall be taken at points designated by the Jurisdictional Engineer by drilling with a 4-inch diameter core drill.
3. Surfaces from which core samples have been taken shall be restored by Contractor on next succeeding day of plant operation.
4. Area represented by each cores in 1/2 of distance to next core or to the end of pavement.

5. Additional core samples specified by the Jurisdictional Engineer may be made and measured at the Contractor’s expense to determine extent and severity of pavement thickness and density.

Table 7020.01 A: Hot Mix Asphalt (Minimum Frequencies)

Material or Construction Item	Tests (As Per IDOT Requirements)	Methods of Acceptance, of Sampling, & Testing	Field Sampling and Testing		
			Frequency (Minimum)	Designated Responsible Agent	Report
Uncompacted Mixture	AC Content	Laboratory Test	1/day or 1/1000 ton (2)	Contractor	Lab Report
	Lab Density (Gyratory)	Laboratory Test	1/day or 1/1000 ton (2)		
	Lab Voids	Laboratory Test	1/day or 1/1000 ton (2)		

(1) Gradation submittal may be required by the Jurisdictional Engineer

(2) Use most restrictive frequency

(3) Lot is defined as days operation greater than 250 ton. Use lot determination for federal, state, or county projects.

SECTION 7021 – ASPHALT OVERLAYS

PART 3 – EXECUTION

3.01 ASPHALT OVERLAY

- C. (ADD; 2024) The paver shall be capable of paving a minimum continuous width of twenty (20) foot wide strip without seam. Pavers in tandem will be acceptable; however, an adequate number of personnel shall be available to operate both pavers simultaneously.

SECTION 7030 – SIDEWALKS, SHARED USE PATHS, AND DRIVEWAYS

PART 2 – PRODUCTS

2.01 PORTLAND CEMENT CONCRETE

- A. (REPLACE; 2020) Class B or C concrete with materials complying with Section 7010. Use coarse aggregate of Class 2 durability or better. River rock shall be allowed for sidewalks, shared use paths, and driveways.

2.07 DETECTABLE WARNINGS

(REPLACE; 2017) Use manufactured detectable warning panels with a non-slip surface and raised truncated domes. Comply with the Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (also known as PROWAG) for contrast and dimension requirements. Also comply with Iowa DOT Materials I.M. 411.

The truncated domes shall be the sizes called out on the plans and yellow in color produced by ADA Solutions, Inc., Armor-Tile by Engineered Plastics, supplied by Traffic Control Corporation, or Neenah Foundry. (REV; 2024)

PART 3 - EXECUTION

3.01 REMOVALS

- B. (ADD; 2021) No less than full sized sidewalk panels shall be removed and replaced.

3.02 SUBGRADE PREPARATION

A. Shared Use Paths:

- 1. (REPLACE; 2020) **Subgrade Preparation:** Comply with City of Sioux City Supplement Section 2010 3.09 B. 2.

3.04 PCC SIDEWALKS, SHARED USE PATHS, AND DRIVEWAYS

B. Concrete Pavement Placement:

2. Sidewalk:

- g. (ADD; 2021) For sidewalk construction in front of building entrances, refer to FIGURE 7030.504/DETAIL 12.12A.01 at the end of the City Supplemental Specifications and City Supplemental Design Manual.

- 3. (REPLACE; 2017) **Driveways:** Comply with Section 7010. Driveways shall be shaped in such a way to carry water across the sidewalk and out into the street. Driveways shall not be dowelled into the street. FIGURE 7030.503 / DETAIL 05.5L.01 at the end of the City Supplemental Specifications and City Supplemental Design Manual is a suggested way to do this. The use of a paving machine is not required. (REV; 2020)

- a. (ADD; 2021) New or replacement driveways that are not being completed as part of a City project shall not cut into the street to install the driveway approach. The driveway approach may only be installed starting at the back of curb. If full curb exists, the curb must be ground down for the driveway approach.
- b. (ADD; 2021) City reconstruction projects shall have a minimum subbase depth of 4 inches with geotextile lining or a depth of 6 inches without under rebuilt driveway approaches and a minimum of 12" of subgrade prep.
- c. (ADD; 2021) Driveway flares shall be doweled into the driveway approach with 24-inch epoxy coated rebar spaced every 24 inches.

- G. (ADD; 2020) **Winter Weather Protection:** Pavement protection for sidewalks, shared use paths, and driveways are required per Section 7010.

SECTION 7040 – PAVEMENT REHABILITATION

PART 1 – GENERAL

1.08 MEASUREMENT AND PAYMENT

- C. (DELETE; 2017) **Partial Depth Patches**

PART 3 – EXECUTION

3.01 GENERAL

- H. (ADD; 2021) The Iowa DOT Construction Manual Appendix 9-6 shall be used as standard guide for repairs to be made to cracking in PCC pavement at the time of the

final walkthrough. Additional deficiencies encountered and corresponding required repair are outlined below.

a. Ponding Water

Any areas that pond water for more than 24 hours, should be removed and replaced unless grinding is determined to be acceptable by the project observer and the project manager.

b. Manhole Box Outs

Manhole boxouts that are lower than surrounding pavement can only be ground if they are less than ½ inch. If they are greater than or equal to ½ inch, the box out will have to be replaced. Should the condition of the manhole box out change during the warranty period, the City reserves the right to require the contractor to remove and replace such box out.

c. Miscellaneous Markings in concrete (animal tracks, footprints, writing, etc.)

Grinding of markings of miscellaneous markings shall only be acceptable if it does not create a ponding issue. If the grinding of the markings is unsuccessful and the markings are still visible, the City reserves the right to require the contractor to remove and replace the corresponding pavement.

d. Surface Texture

If the surface texture is deemed undesirable, the corresponding pavement should be ground down or removed and replaced.

3.02 FULL DEPTH PATCHING

A. Pavement Removal:

1. (Add; 2021) No less than full panels shall be removed and replaced in the streets.

B. Restoring Subgrade or Subbase:

1. (REPLACE; 2024) Excavate 8 inches below the bottom of the existing pavement for the placement of 6 inches of modified or granular subbase. If more than 8 inches is excavated place and compact new modified or granular subbase material as required to bring the subbase to a level of 2 inches below the bottom of the existing pavement. Correct unauthorized over-excavation at no cost to the contracting authority. All patches done in the City of Sioux City must meet this requirement.
4. (ADD; 2021) All pavement patches shall be paved on 6 inches of modified subbase.

C. Placing PCC Patches:

2. Tie Bars and Dowel Bars:

- c. (ADD; 2021) **City of Sioux City Requirements:** Dowel bars are to be 24" epoxy coated bars spaced at 24" centers and doweled in 9" per RT joint detail shown in Figure 7010.101 (PV-101) Joints.

3.03 (DELETE; 2017) PARTIAL DEPTH PATCHING

All partial depth patching work is to be completed with the approval of the City Engineer.
(REV; 2020) (REV; 2021)

3.04 DIAMOND GRINDING

- D. (*REPLACE; 2024*) Except at joints and cracks, ensure grinding depth does not exceed 1/2 inch. At joints and cracks, ensure grinding depth does not exceed 3/4 inch. Grinding a drainage channel through concrete is not allowed.

DIVISION 8 TRAFFIC CONTROL

SECTION 8010 – TRAFFIC SIGNALS

PART 2 – PRODUCTS

2.01 UNDERGROUND

A. Handhole:

5. (*ADD; 2021*) Approved Fiber Optics Handhole box:
 - e. Quazite PG3048BA36 Box open bottom box (30x48x36)
 - f. Engineer approved equal
6. (*ADD; 2021*) Approved Fiber Optics Handhole Cover:
 - e. Quazite PG3048HH0021 (Tier 22) extra heavy-duty cover stamped with "FIBER OPTICS"
 - f. Engineer approved equal
7. (*ADD; 2021*) For installation of conduit and precast handhole boxes in the pavement or sidewalk, refer to FIGURE SC 7030.505/DETAIL 12.12A.02 at the end of the City Supplemental Specifications and City Supplemental Design Manual.

PART 3 – EXECUTION

3.01 UNDERGROUND

B. Conduit:

1. General:

- f. (*REPLACE; 2024*) Pull Tape shall not be installed on Future path conduit. For conventional conduit, install pull tape in each conduit segment, including empty conduits, and secure to duct plugs at each end.

SECTION 8020 – PAVEMENT MARKINGS

PART 1 – GENERAL

1.08 MEASUREMENT AND PAYMENT

O. (*ADD; 2017*) Temporary Striping:

1. **Measurement:** Temporary pavement striping will be measured in stations. (*REV; 2020*)
2. **Payment:** Payment will be made at the unit price for each type of pavement marking.
3. **Includes:** Unit price includes, but is not limited to layout, surface preparation, application of marking paint or tape, and removal of Temporary Striping.

PART 2 – PRODUCTS

2.01 MATERIALS

B. Pavement marking materials include:

2. *(REPLACE; 2021)* Painted Pavement Markings:
 - a. Waterborne and solvent based pavement markings: Product is not allowed by the City of Sioux City unless otherwise approved by the City Engineer or specified in the contract documents.
 - b. Durable paint pavement markings: Product is not allowed by the City of Sioux City unless otherwise approved by the City Engineer or specified in the contract documents.
 - c. High-build waterborne paint pavement markings: Product is allowed by the City of Sioux City.

PART 3 – EXECUTION

3.02 CONSTRUCTION

L. *(ADD; 2017)* Temporary Striping *(REV; 2021)*:

1. Temporary pavement striping shall be utilized solely to provide striping over the winter months if permanent striping cannot be established prior to the winter shutdown.
2. Temporary pavement striping accomplished without the prior written permission of the engineer will not be eligible for payment. Any temporary striping work occurring after the expiration of the current contract time also will not be eligible for payment but will be required prior to the issuance of winter shutdown orders.
3. If portions of the project have been previously completed and can be striped, but have not been prior to the winter shut down, these areas shall receive temporary pavement striping at no cost to the City.

SECTION 8030 – TEMPORARY TRAFFIC CONTROL

PART 1 – GENERAL

1.07 SPECIAL REQUIREMENTS

- C. *(ADD; 2020)* No less than 5 business days prior to the Contractor blocking any parking meters the Contractor shall contact the City's Parking Division at (712) 279-6381 to coordinate the bagging or removal of parking meters. The Contractor shall only park vehicles in bagged stalls that prominently display the Contractor's logo. Personal vehicles shall not be parked in these bagged meters.
- D. *(ADD; 2020)* The Contractor shall be responsible for necessary temporary traffic control placement unless otherwise shown on plans to accommodate their operations.
- E. *(ADD; 2020)* The Contractor shall ensure that one sidewalk path on either side of the street always remains open during construction or a temporary diversion path that is ADA accessible is installed for residents to access homes and businesses. *(REV; 2021)*
- F. *(ADD; 2020)* **Restricting Parking:**
The Contractor is responsible for installing, maintaining, and removing temporary "No Parking" signage for the project at all locations where on-street parking needs to be

restricted. This includes posting the temporary “No Parking” signs prior to beginning work on streets or rights-of-way within the construction zone. It also includes posting signage along all detour routes where on-street parking needs to be removed to allow a two-lane traffic facility. The temporary “No Parking” signage (i.e. 18” x 18” - No Parking/Police Order) shall be picked up at the Traffic Sign Shop at 715 Omaha Street after contacting the Traffic Supervisor, Kurt Frank, at least 24 hours prior to pick up. These temporary “No Parking” signs shall be placed at least 48 hours prior to construction. The Contractor must work with the supervisor to draft proper verbiage on the temporary sign that includes the time and date for the restriction.

The temporary “No Parking” shall be placed on a 4’ wood lathe and shall be oriented to be readily visible for on-street parking users. The signage shall be posted at a 100’ – 150’ spacing along one or both sides of the street where parking will be restricted. The Contractor will be responsible for maintaining signage needed along the detour routes and construction zone for the duration of the project. The temporary “No Parking” signs shall be removed, by the Contractor, within 48 hours after all construction activities have been completed and equipment has been removed from the site. The Contractor shall replace any destroyed, damaged, or missing temporary “No Parking” signs as needed.

The temporary no parking signage shall be included in the general traffic control bid item. This signage shall be posted as needed on side streets during the appropriate construction phase.

1. If there is no traffic control bid item, the costs for all required temporary traffic control shall be incidental to the project costs.

DIVISION 9 SITE WORK AND LANDSCAPING

SECTION 9010 – SEEDING

PART 1 – GENERAL

1.08 MEASUREMENT AND PAYMENT

F. (ADD; 2021) Mowing and Trimming:

- a. **Measurement:** All mowing, and trimming shall be incidental to the project and is required for all disturbed areas until the acceptance of seed.
- b. **Payment:** All mowing, and trimming shall be incidental to the project.

SECTION 9020 – (DELETE; 2020) SODDING

SECTION 9040 – EROSION AND SEDIMENT CONTROL

PART 1 – GENERAL

1.08 MEASUREMENT AND PAYMENT

P. Dust Control:

1. **Water for Dust Control:**

- a. *(REPLACE; 2017)* **Measurement:** All watering for dust control shall be incidental to the project.
- b. *(REPLACE; 2017)* **Payment:** All watering for dust control shall be incidental to the project.

PART 3 – EXECUTION

3.03 EROSION AND SEDIMENT CONTROL INSPECTION

- E. *(ADD; 2017)* At the Pre-Construction meeting, the City and Contractor shall set a regularly scheduled time to conduct the required inspections. Emergency inspections shall occur as needed.

DIVISION 10 DEMOLITION

SECTION 10,010 – DEMOLITION OF BUILDING STRUCTURES

PART 1 – GENERAL

1.03 SUBMITTALS

(ADD; 2017) Written confirmation from all known utilities that they have been disconnected from the site.

1.06 SCHEDULING AND CONFLICTS

- C. *(REPLACE; 2017)* The Contractor shall submit a traffic control plan and right-of-way permit to the Engineer ten (10) days in advance of any lane or road closures indicating the area of closure and the signs and traffic control devices to be used to set up the closure. *(REV; 2020)*

1.08 SCHEDULING AND CONFLICTS

A. Demolition Work:

3. *(REPLACE; 2017)* **Includes:** Unit price includes, but is not limited to, removal of trees, brush, vegetation, buildings, building materials, contents of buildings, appliances, trash, rubbish, basement walls, foundations, sidewalks, steps, fences, retaining walls, and driveways from the site; disconnection of utilities; furnishing and compaction of backfill material; furnishing and placing topsoil; finish grading of disturbed areas; placing and removing safety fencing; removal of fuel and septic tanks and cisterns; seeding; and payment of any permit or disposal fees. *(REV; 2020)*

DIVISION 11 MISCELLANEOUS

SECTION 11,010 – CONSTRUCTION SURVEY

PART 1 – GENERAL

1.08 MEASUREMENT AND PAYMENT

A. Construction Survey

3. *(REPLACE; 2017)* **Includes:** Lump sum price includes, but is not limited to, ensuring positive drainage of all pavement placed including staking for pavement

replacement and rechecking replaced concrete for positive drainage, the costs of resetting project control points, re-staking, and any additional staking requested beyond the requirements of this section. This price also includes the costs for Monument Preservation and Replacement which includes, but is not limited to, property research and documentation, locating monuments prior to construction, replacement of disturbed monuments, and preparation and filing of the monument preservation certificate. Additionally, the price also includes certifying all ADA Ramps are compliant with a smart level or other measuring tool as approved by the engineer. *(REV; 2020)*

B. *(REPLACE; 2017)* Monument Preservation and Replacement

1. **Measurement:** No measurement will be made.
2. **Payment:** Payment is incidental to Construction Survey.
3. **Includes:** Price includes, but is not limited to, property research and documentation, locating monuments prior to construction, replacement of disturbed monuments, and preparation and filing of the monument preservation certificate.

PART 3 – EXECUTION

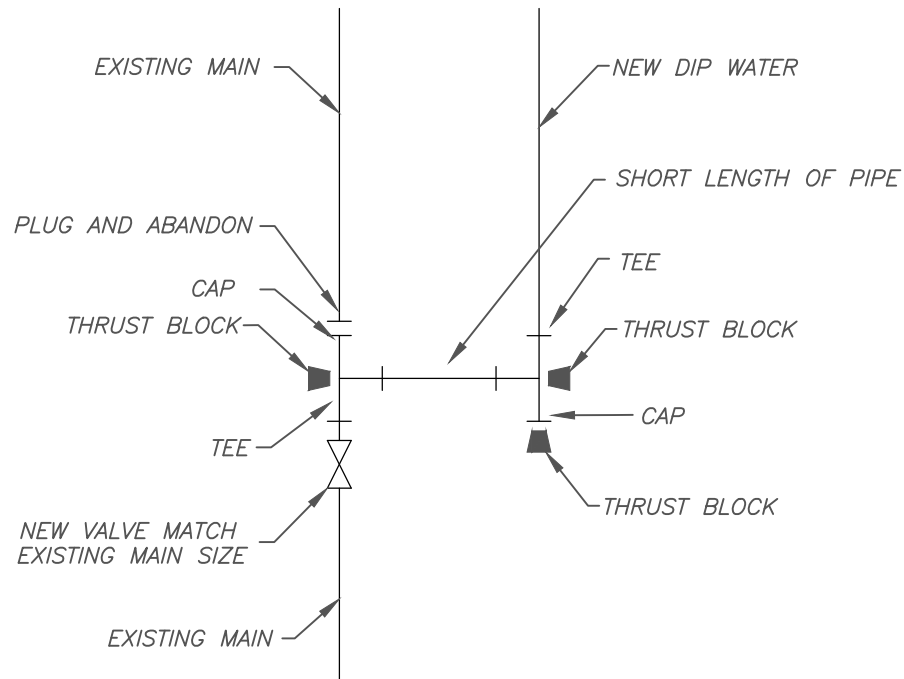
3.04 MONUMENT PRESERVATION AND REPLACEMENT

(REPLACE; 2017) Comply with the requirements of Iowa Code Section 355 and the Iowa Administrative Code Section 193C for the replacement of all disturbed monuments within the project area. The Surveyor is required to record the Monument Preservation Certificate and provide the Engineer with a copy of the recorded certificate.

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TYPICAL WATER OFFSET INTERSECTION CONNECTION

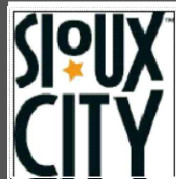


NOTE:

1. THIS CONNECTION CAN BE REVERSED DEPENDING ON WHICH SIDE OF THE EXISTING MAIN THE NEW MAIN IS LAID.
2. THIS CONNECTION ALLOWS NEW MAINS TO BE TESTED AND THEN PUT INTO SERVICE BY INSTALLING TWO PLUGS AND ABANDONING THE EXISTING WATER MAIN.
3. THIS CONNECTION INCLUDES CONNECTIONS TO THE EXISTING MAIN BEYOND THE NEW VALVE.
4. THIS CONNECTION WILL BE PAID FOR BY THE APPROPRIATE BID ITEMS FOR VALVES, FITTINGS, AND LENGTH OF PIPE FOR FLUSHING AND SAMPLING.

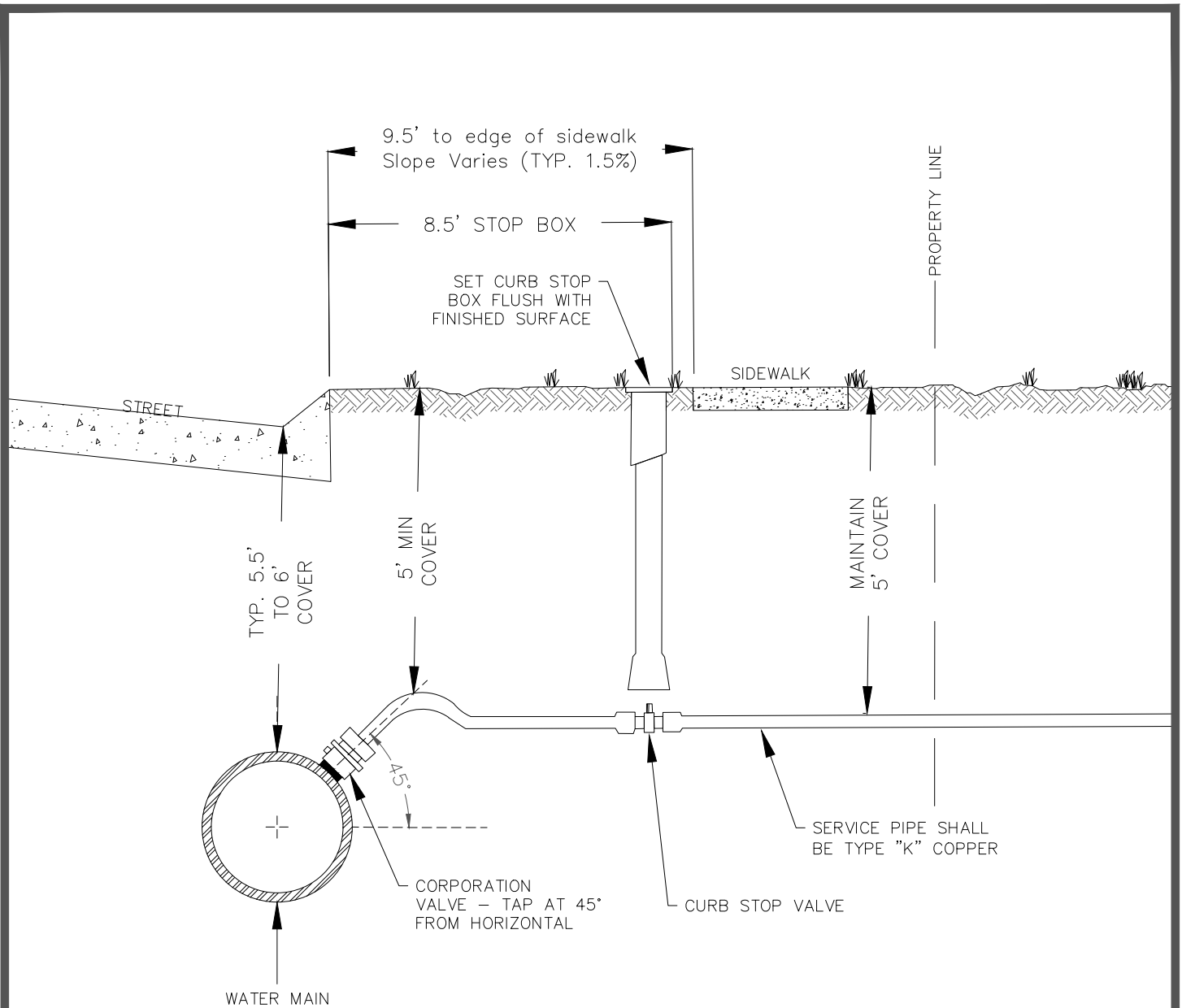
REVISION DATE: 9/21/2021

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PHONE: (712) 279-6324



TYPICAL WATER OFFSET
INTERSECTION CONNECTION

FIGURE SC 5010.201 / DETAIL 04.4C.01

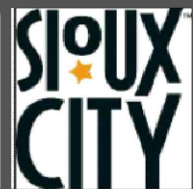


NOTES

1. SEE SUDAS SECTION 5010 AND CITY OF SIOUX CITY SUPPLEMENT FOR WATER SERVICE PIPE MATERIALS AND INSTALLATION REQUIREMENTS.
2. AVOID INSTALLING THE CURB VALVE BOX IN SIDEWALKS AND DRIVEWAYS WHEN POSSIBLE. WHEN NOT POSSIBLE, SEE FIGURE SC 5020.302 / DETAIL 04.4C.03 IN THE SIOUX CITY SUPPLEMENT.

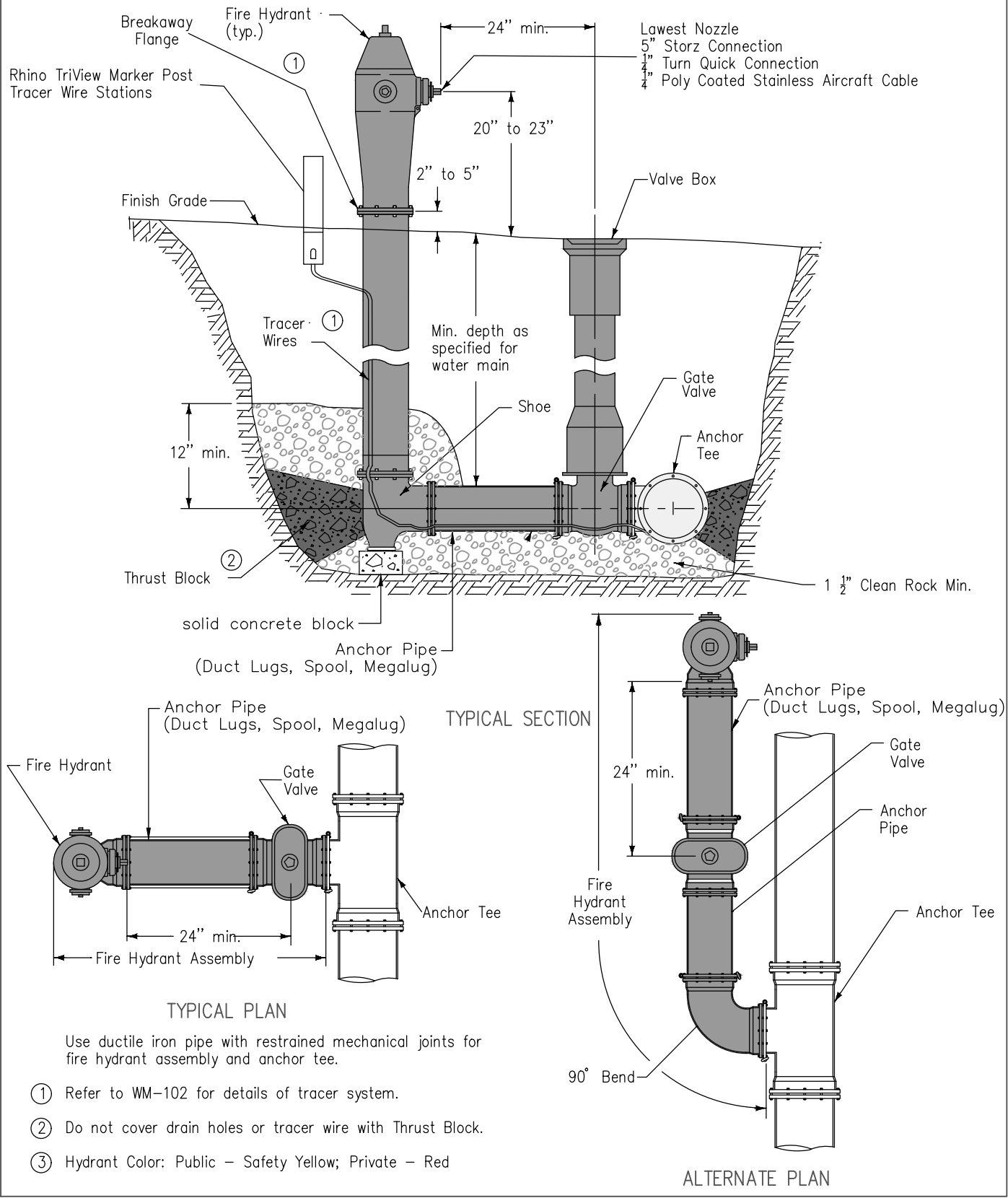
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TYPICAL WATER SERVICE CONNECTION

FIGURE SC 5010.202 / DETAIL 04.4C.04



Use ductile iron pipe with restrained mechanical joints for fire hydrant assembly and anchor tee.

- ① Refer to WM-102 for details of tracer system.
- ② Do not cover drain holes or tracer wire with Thrust Block.
- ③ Hydrant Color: Public – Safety Yellow; Private – Red

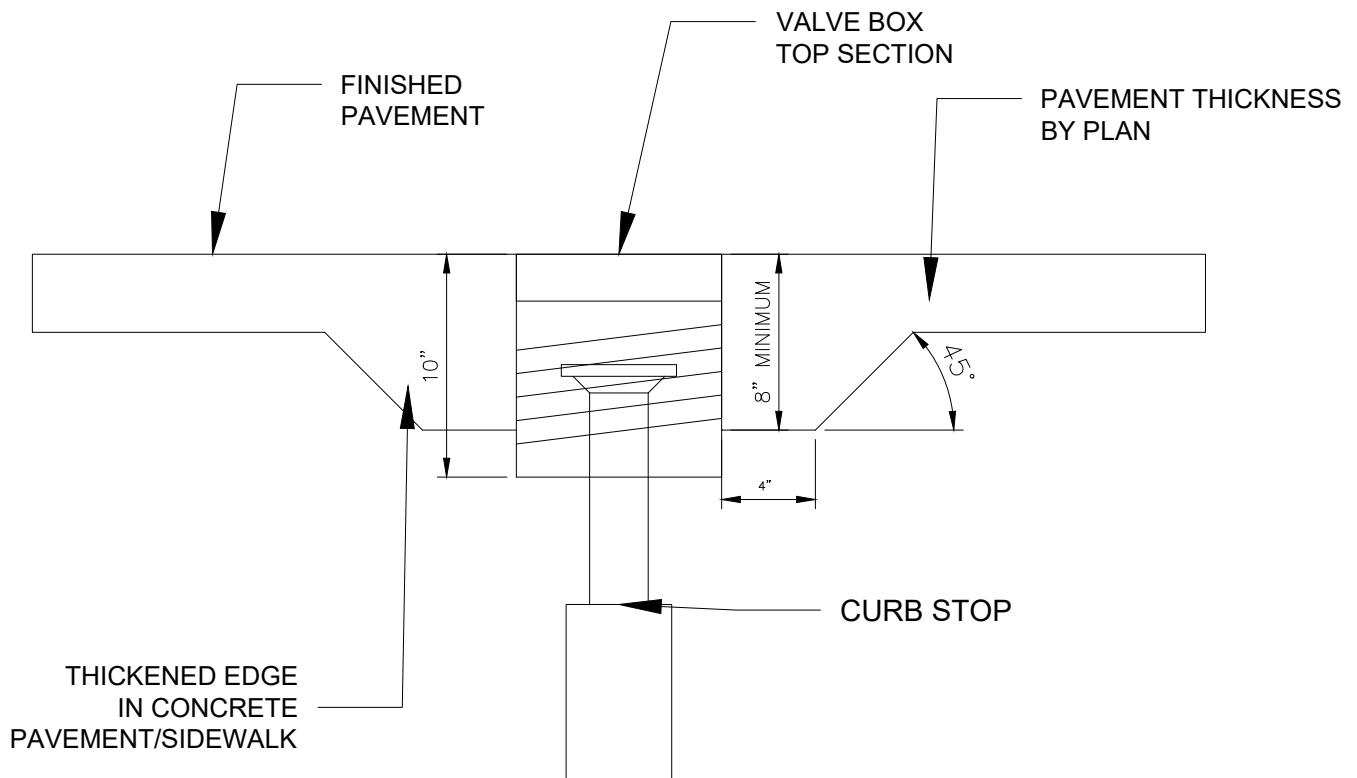
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FIRE HYDRANT
ASSEMBLY

FIGURE SC 5020.301 / DETAIL 04.4C.02



1. A VALVE BOX TOP SECTION SHALL BE USED AS A CURB BOX COVER WHENEVER THE BOX COVER FALLS INTO NEW OR REPLACED CONCRETE SIDEWALK, DRIVE APPROACH, OR BITUMINOUS PAVEMENT AREAS.
2. VALVE BOX TOP SECTION SHALL BE OF THE SCREW TYPE, HAVE A MINIMUM INSIDE SHAFT DIAMETER OF 5-1/4 INCHES, AND HAVE A CAP WITH THE WORD "WATER" PLAINLY MARKED ON TOP.
3. IN ALL RESPECTS THE VALVE BOX SHALL COMPLY WITH THE REQUIREMENTS OF SUDAS 5020-2.03-B.
4. VALVE BOX COVER SHALL BE OF THE LOCKING TYPE TO COMPLY WITH THE REQUIREMENTS OF SUDAS 5020-2.03-B.
5. CURB BOX RISER CAP IS TO BE A MINIMUM OF 4 INCHES AND A MAXIMUM OF 6 INCHES BELOW THE FINISHED PAVEMENT GRADE.
6. COMPLY WITH PLANS FOR MODIFIED SUBBASE THICKNESS AND SUBGRADE PREPARATION REQUIREMENTS.

REVISION DATE: 9/24/2021

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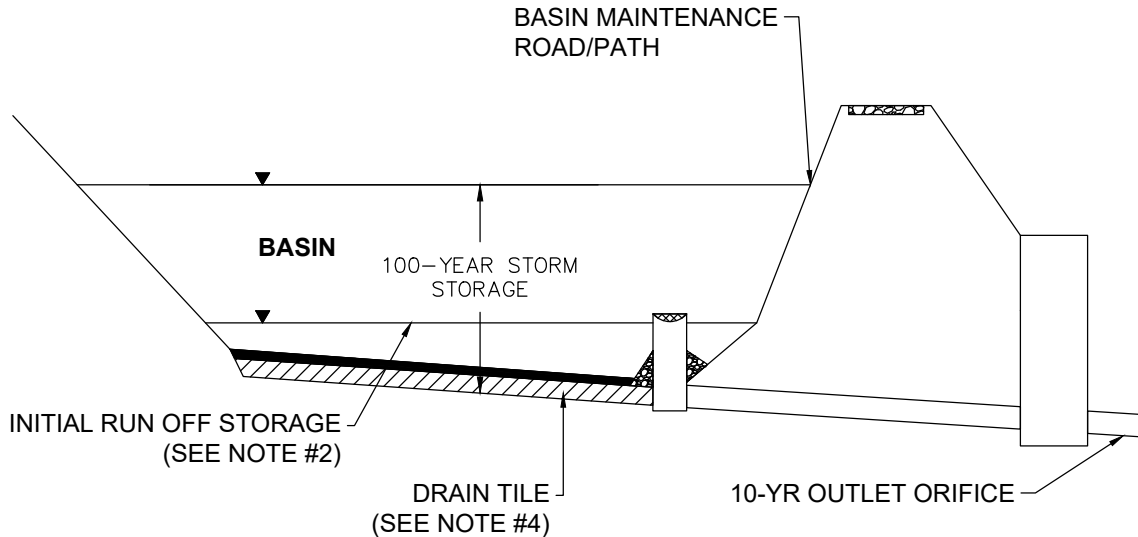
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**WATER SERVICE SHUTOFF
IN PAVING OR SIDEWALKS**

FIGURE SC 5020.302 / DETAIL 04.4C.03

TYPICAL DETENTION BASIN CROSS SECTION



NOTES

1. THE FIRST 0.5 INCH OF RAIN RUNOFF FROM THE SITE MUST BE STORED TO PERCOLATE OR FILTER THROUGH DRAIN SYSTEM WITHIN THE RETENTION BASIN FOR WATER QUALITY.
2. CALCULATION FOR REQUIRED STORAGE VOLUME FOR INITIAL 0.5 INCHES OF RAIN RUNOFF

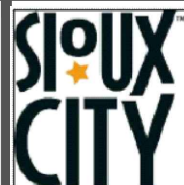
$$\frac{0.5 \text{ INCH}}{12 \text{ INCH}} \times \text{SITE SF} = \text{CF OF LOW FLOW STORAGE}$$

3. 100-YEAR STORAGE VOLUME CAN BE CALCULATED BY ANY METHOD DETAILED IN THE SUDAS DESIGN MANUAL, THE CITY'S PREFERRED METHOD OR ANY METHOD THAT IS APPROVED BY THE CITY ENGINEER.
4. DRAIN TILES ARE CAN BE INSTALLED IN ORDER TO MEET PERCOLATION REQUIREMENTS. DRAIN TILE SIZING INFORMATION CAN BE FOUND IN CHAPTER 14 - WATER MANAGEMENT (DRAINAGE) IN NEH PART 650 (FEH) FOUND UNDER THE TECHNICAL RESOURCES FOR ENGINEERING ON THE USDA NRCS IOWA WEBSITE.

REVISION DATE: 11/10/2021

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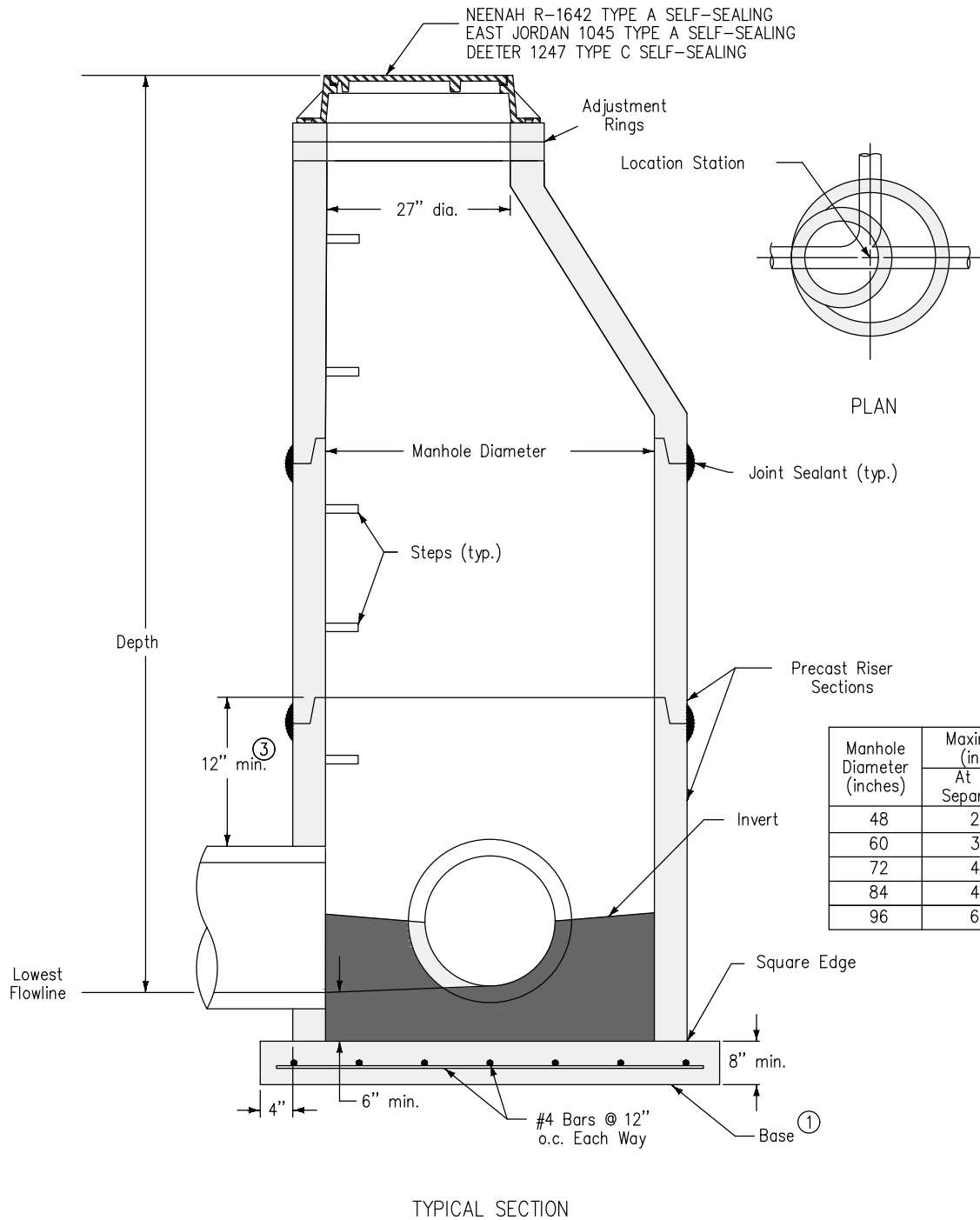
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TYPICAL DETENTION BASIN
CROSS SECTION

FIGURE SC 6010.001 / DETAIL 02.2G.01

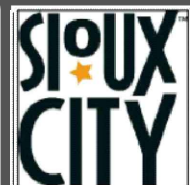
- ① Cast-in-place base shown. If base is precast integral with bottom riser, the footprint of the base is not required to extend beyond the outer edge of the riser.
- ② For additional configurations, maintain a minimum of 12 inches of concrete between vertical edges of pipe openings.
- ③ 12 inch minimum riser height above all pipe openings.



Manhole Diameter (inches)	Maximum Pipe Diameter (inches) for 2 Pipes ②	
	At 180° Separation	At 90° Separation
48	24	18
60	36	24
72	42	30
84	48	36
96	60	42

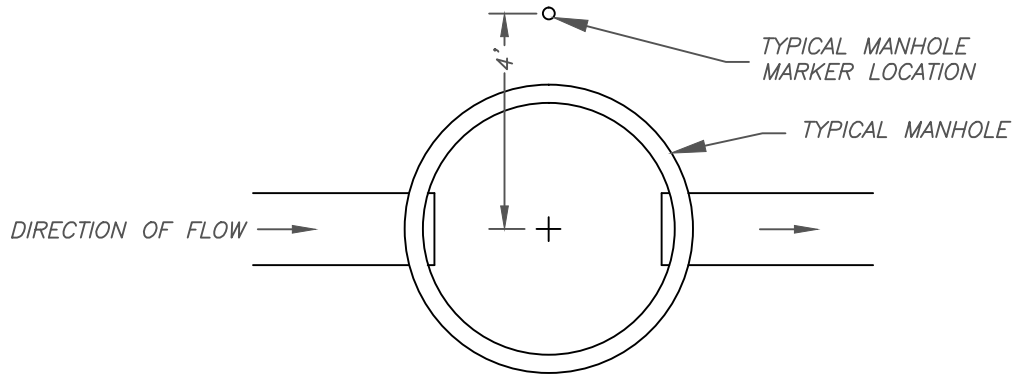
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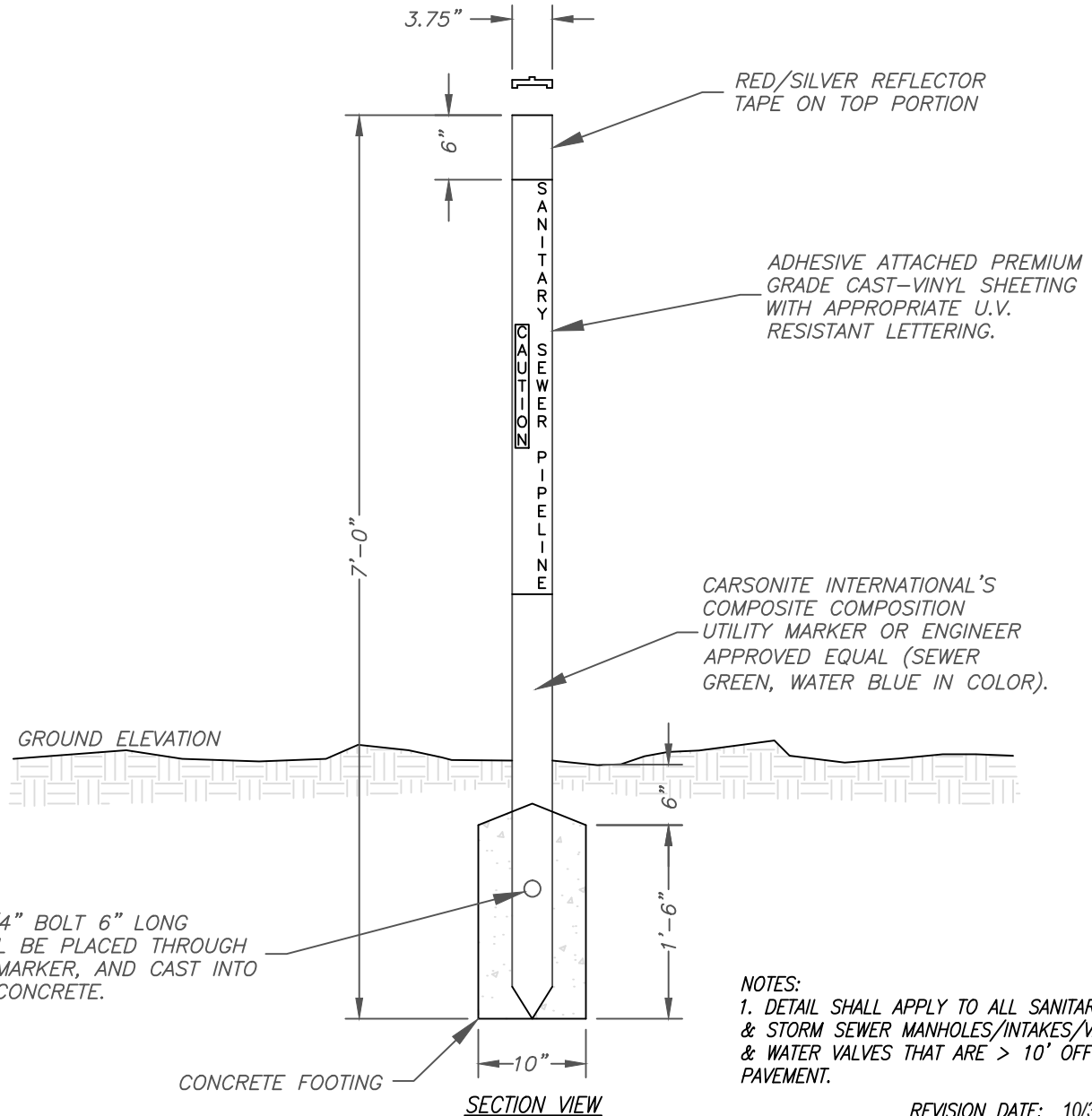


CIRCULAR STORM
SEWER MANHOLE

FIGURE SC 6010.401 / DETAIL 03.3C.01



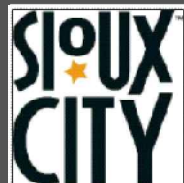
PLAN VIEW
 MANHOLE MARKER LOCATIONS WILL VARY
 VERIFY LOCATION WITH ENGINEER IN THE FIELD



NOTES:
 1. DETAIL SHALL APPLY TO ALL SANITARY & STORM SEWER MANHOLES/INTAKES/VALVES & WATER VALVES THAT ARE > 10' OFF PAVEMENT.

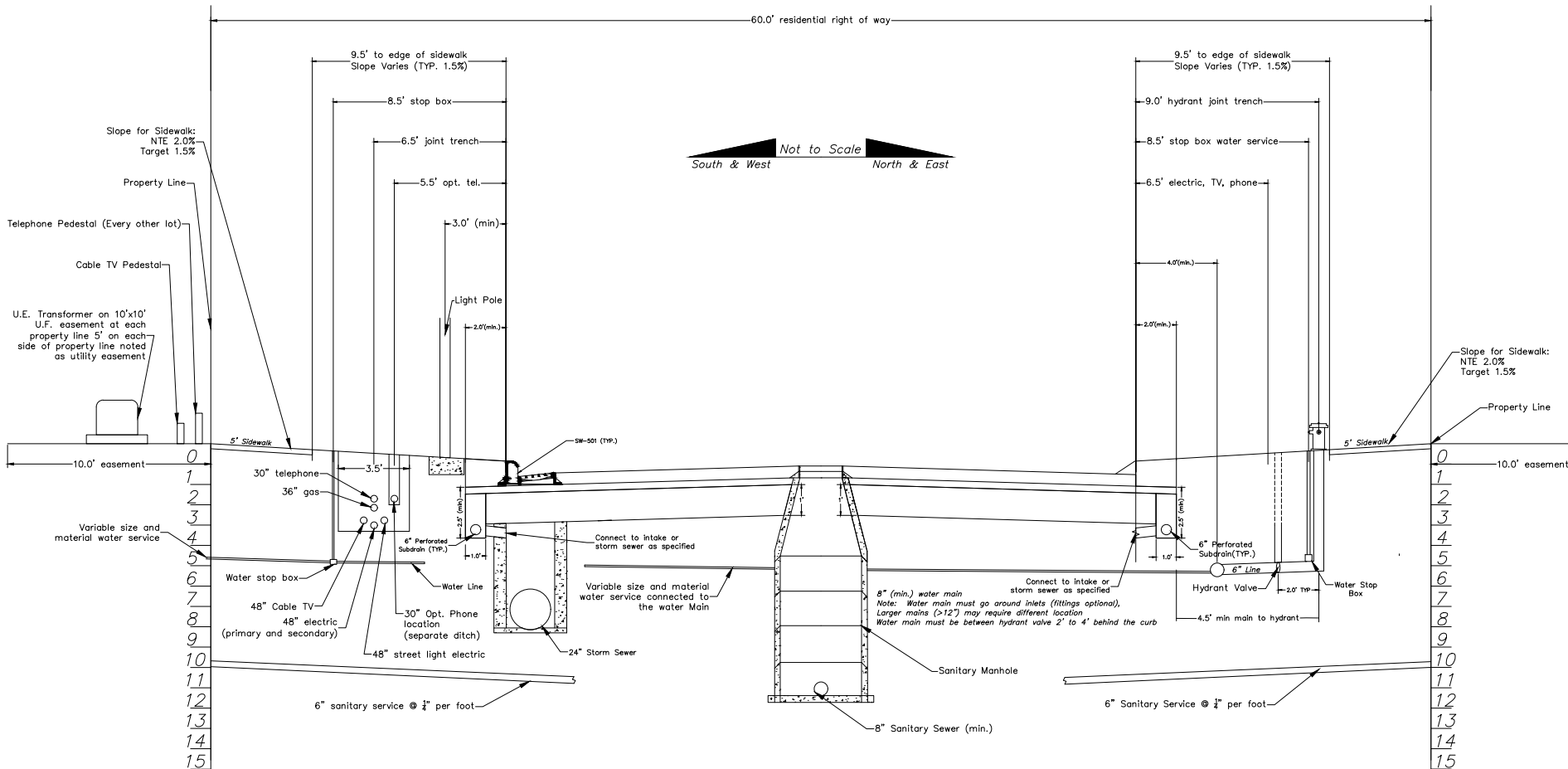
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TYPICAL
MANHOLE/INTAKE/VALVE
MARKER

FIGURE SC 6010.407 / DETAIL 02.2C.01



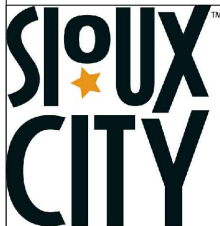
95% STANDARD PROCTOR COMPACTION—TOP THREE FEET REQUIRED FOR ALL UTILITY TRENCHES
 92% STANDARD PROCTOR COMPACTION—BELOW TOP THREE FOOT TO TOP OF PIPE REQUIRED
 FOR ALL UTILITY TRENCHES

NOTES:

1. SLEEVES ARE OPTIONAL FOR ELECTRIC, GAS, AND PHONE UNDER PAVING. CONSTRUCTION INSTALLATION BY UTILITY COMPANY. (PAID BY DEVELOPER)
2. WATER SERVICES TO THE STOP BOX MUST BE INSTALLED FOR ALL LOTS AROUND THE 70' DIAMETER PAVED CUL-DE-SAC. (WHEN CUL-DE-SAC IS BUILT) OR CONSTRUCT MAIN AROUND CUL-DE-SAC WITH FITTINGS OUTSIDE OF PAVING.
3. STOP BOX MUST BE INSTALLED OUTSIDE OF PAVED SURFACE OR SIDEWALKS IF POSSIBLE.

HYDRANTS:

4. MUST HAVE 3' CIRCULAR SPACE ON ALL SIDES OF HYDRANT.
5. MUST BE 18" FROM FACE OF CURB.
6. 18" CENTERLINE STEAMER CONNECTION TO FINISHED GRADE.
7. ALL WATER MAINS TO BE ON THE NORTH AND EAST SIDES OF THE STREETS.
8. ALL STORM SEWERS TO BE ON THE SOUTH AND WEST SIDES OF THE STREETS.



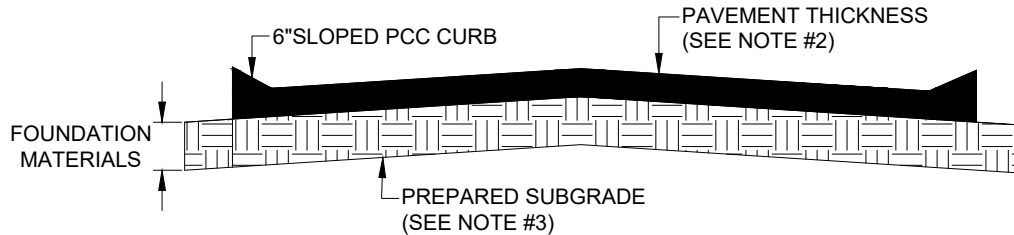
STANDARD UTILITY LOCATION FOR 60' RESIDENTIAL R.O.W.

FIGURE 7010.701/Detail 09.9A.01

REVISION DATE: 11/10/2021

FIGURE 6C-1.01-A

SIoux CITY STANDARD PAVEMENT SYSTEM CROSS-SECTION FOR LOCAL PRIVATE DEVELOPMENT STREETS (WITHOUT SUBBASE)

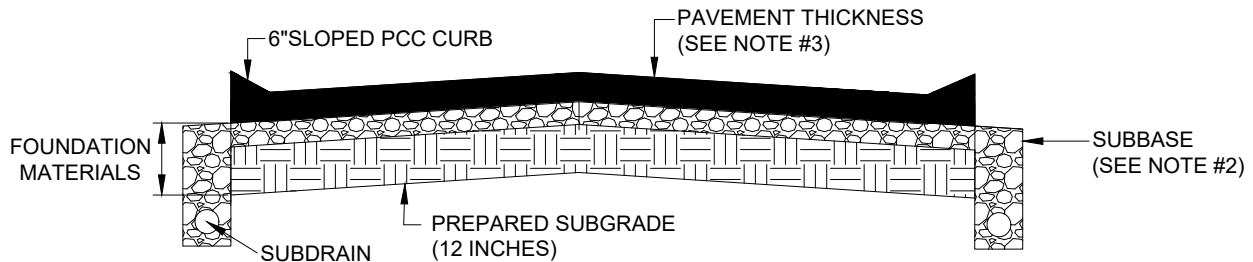


NOTES

1. CROSS SECTION APPLIES TO LOCAL STREETS THAT HAVE AN EXISTING OR PROPOSED CENTERLINE GRADES LESS THAN 7%.
2. SEE SECTION 5C-2, R. PAVEMENT THICKNESS FOR THICKNESS DESIGN REQUIREMENTS.
3. PREPARED SUBGRADE SHALL BE A MINIMUM OF 12" OR PER SOILS REPORT, WHICHEVER IS GREATER.

FIGURE 6C-1.01-B

SIoux CITY STANDARD PAVEMENT SYSTEM CROSS-SECTION (WITH SUBBASE)



NOTES

1. CROSS SECTION APPLIES TO ALL COLLECTOR AND ARTERIAL ROADWAYS. THIS CROSS SECTION ALSO APPLIES TO LOCAL ROADWAYS WITH EXISTING AND OR PROPOSED CENTERLINE PROFILE GRADES IN EXCESS OF 7%.
2. SUBBASE THICKNESS REQUIREMENTS PER SECTION 6F-1.B.5 OF THE CITY OF SIOUX CITY SUPPLEMENT TO THE IOWA SUDAS DESIGN MANUAL
3. SEE SECTION 5C-2, R. PAVEMENT THICKNESS FOR THICKNESS DESIGN REQUIREMENTS.
4. PREPARED SUBGRADE SHALL BE A MINIMUM OF 12" OR PER SOILS REPORT, WHICHEVER IS GREATER.

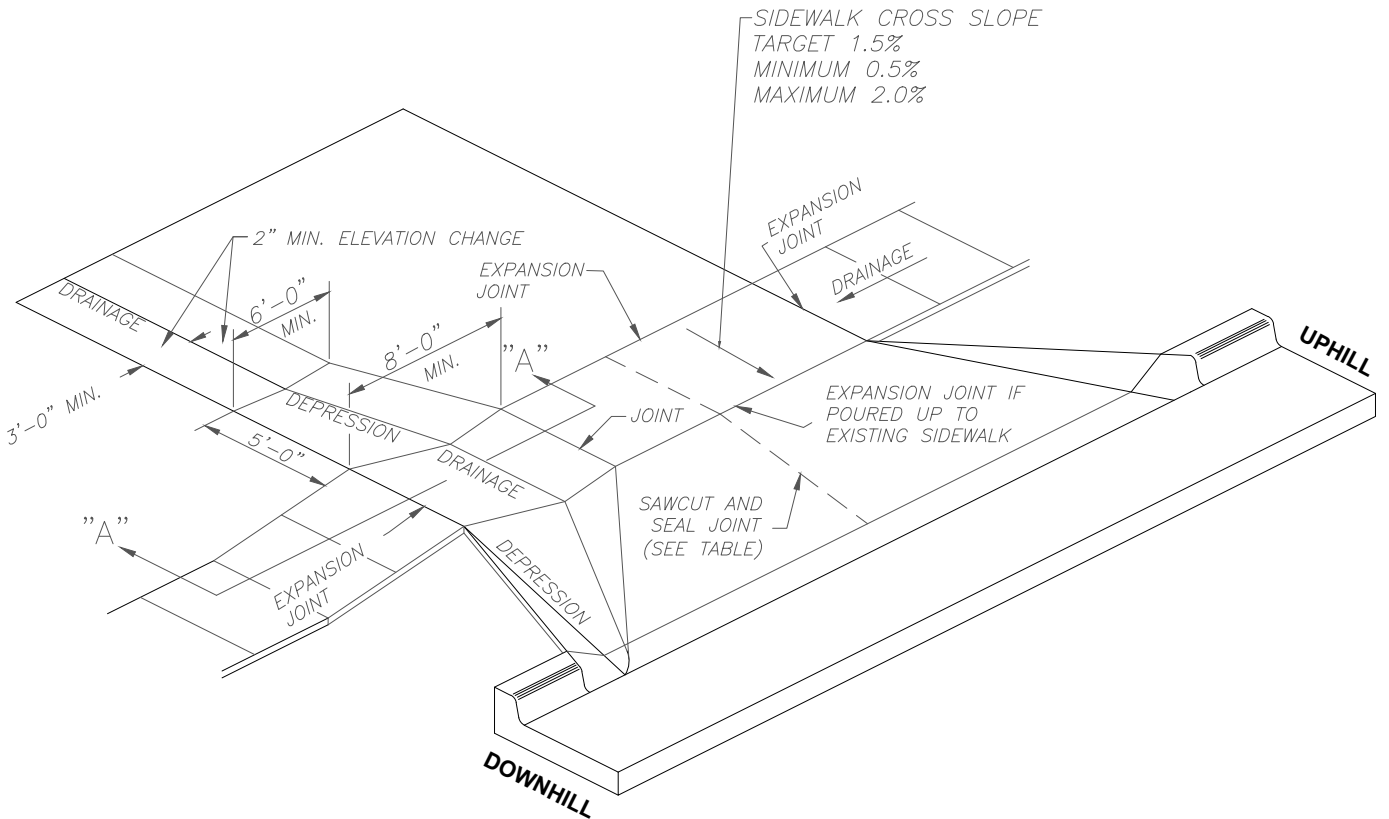
REVISED: 11/10/2021

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SIoux CITY STANDARD
PAVEMENT CROSS-SECTIONS

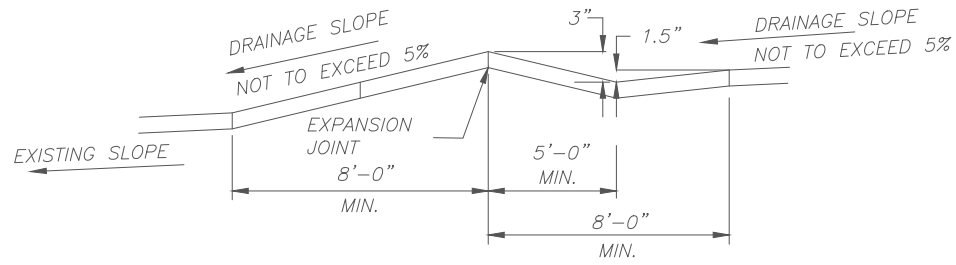
Figure SC 7010.702/ Detail 05.5A.01



SIDEWALK CROSS SLOPE
 TARGET 1.5%
 MINIMUM 0.5%
 MAXIMUM 2.0%

DRIVEWAY APPROACH

SIDEWALK AND DRIVEWAY CONSTRUCTION TO ACCOMMODATE PROPER DRAINAGE
 N.T.S.



SECTION "A"-"A"

N.T.S.

NOTES:

1. In no case shall the curb opening at any point be beyond the extended property line of the property served by the driveway.
2. In no case shall the drainage (running) slopes exceed 5.0% for the drainage depression.

SAWCUT TABLE		
PAVING THICKNESS	SPACING	DEPTH
RESIDENTIAL-6"	10.5'	2"
COMMERCIAL-6"	10.5'	2"

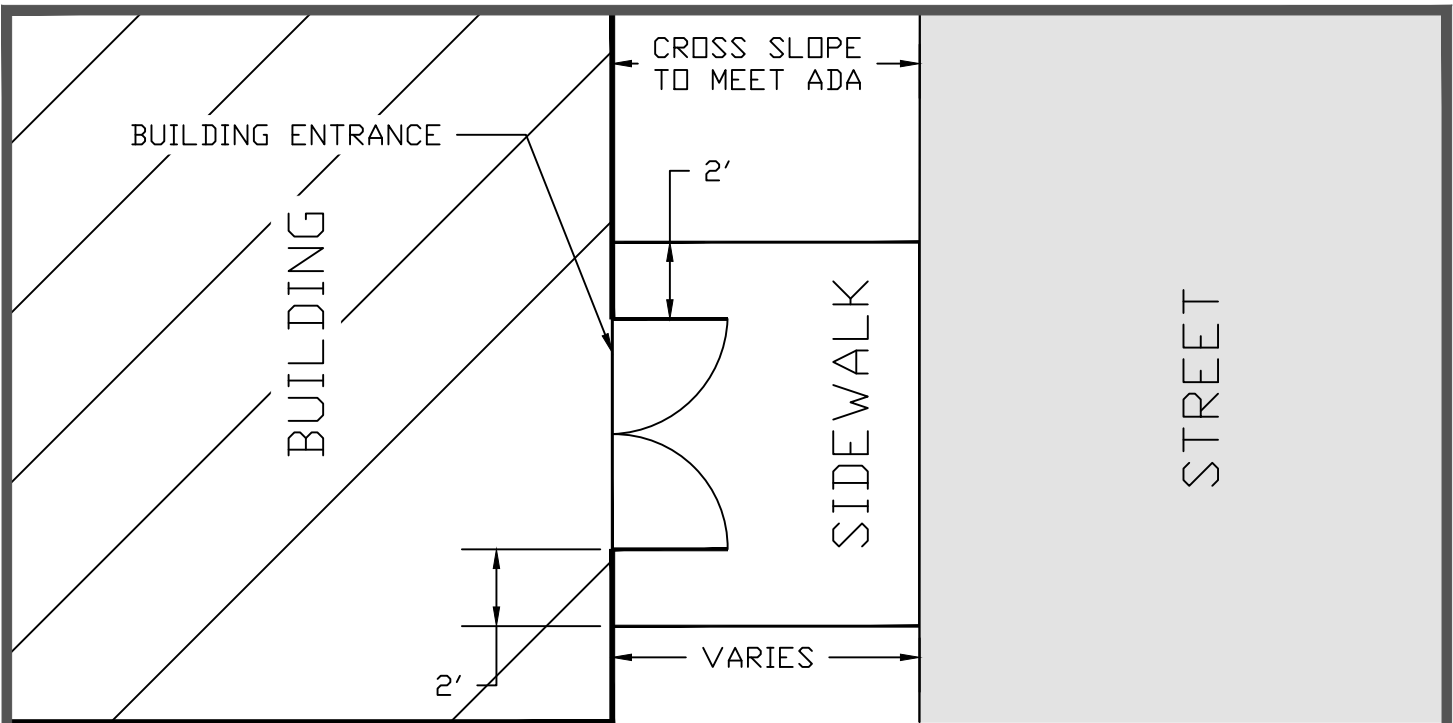
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DRIVEWAY APPROACH WITH PROPER DRAINAGE

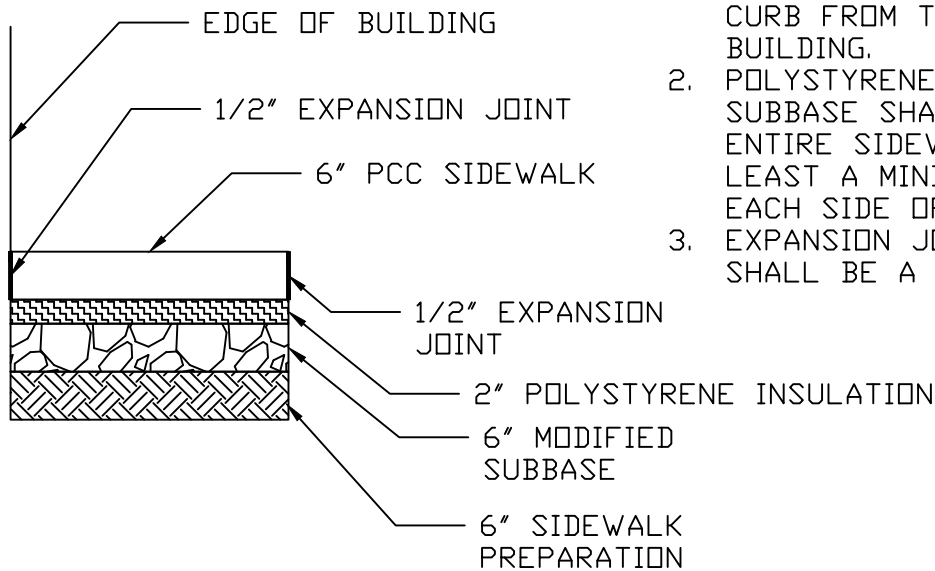
FIGURE SC 7030.503 /DETAIL 05.51.01



PLAN VIEW (NTS)

NOTES:

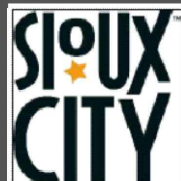
1. SUBBASE AT BUILDING ENTRANCES SHALL EXTEND TO THE BACK OF CURB FROM THE FACE OF THE BUILDING.
2. POLYSTYRENE INSULATION AND SUBBASE SHALL EXTEND FOR THE ENTIRE SIDEWALK PANEL AND AT LEAST A MINIMUM OF 2 FEET FROM EACH SIDE OF BUILDING ENTRANCE.
3. EXPANSION JOINTS OR INSULATION SHALL BE A MINIMUM OF 1/2"



PROFILE VIEW (NTS)

REVISION DATE: 09/01/2021

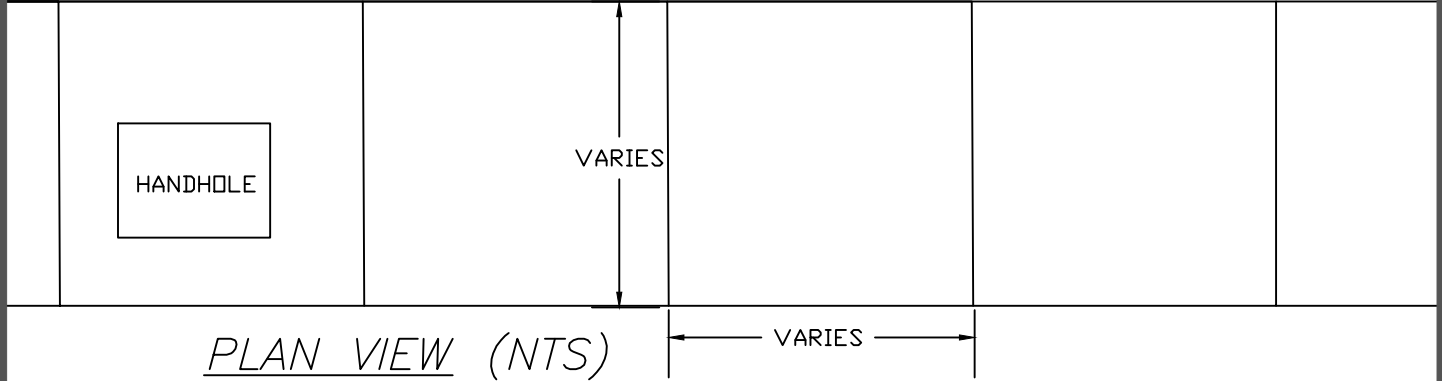
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SIDEWALK AT BUILDING
ENTRANCE

FIGURE SC 7030.50X/DETAIL12.12A.01

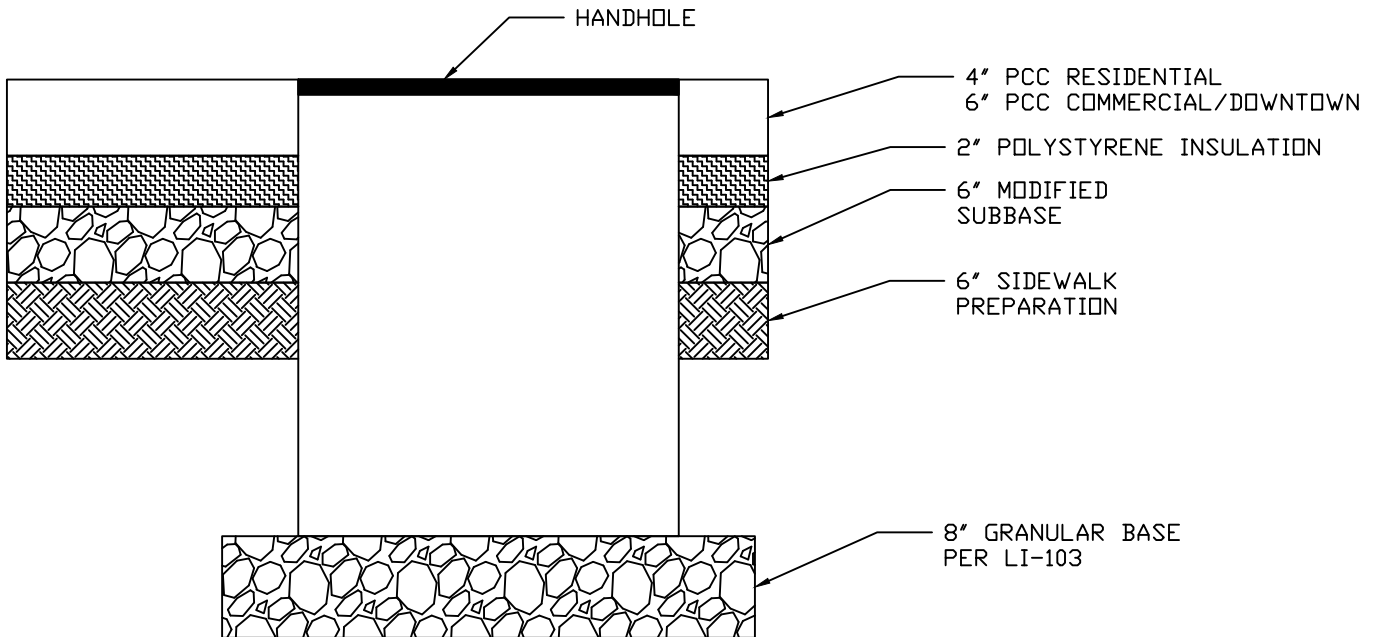
TYPICAL SIDEWALK



NOTES:

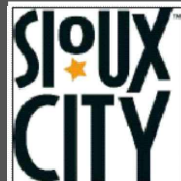
1. FOR TYPE A, B, OR C SIDEWALK.
2. POLYSTYRENE INSULATION AND SUBBASE SHALL EXTEND FOR THE ENTIRE SIDEWALK PANEL SURROUNDING THE HANDHOLE.

PROFILE VIEW (NTS)



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**CONDUIT AND PRECAST
HANDHOLES IN SIDEWALK**

FIGURE SC 7030.50x/DETAIL 12.12A.01