

# PRIVATE STORM SEWER PLANS

TO SERVE



## MARKET STORE #5991-00

31st ST. & S. SENECA ST.

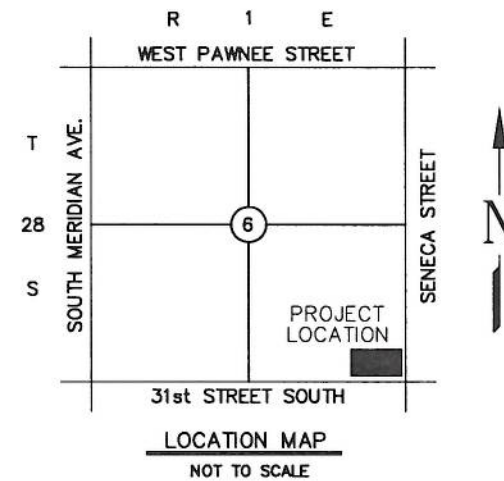
WICHITA, SEDGWICK COUNTY, KANSAS

CITY OF WICHITA PRIVATE PROJECT NO. 0014PPD(607861)

2011

APPROVED AS NOTED  
BY CITY ENGINEER OF WICHITA,  
BY WICHITA WATER & SEWER DEPARTMENT,  
& BY WICHITA FIRE DEPARTMENT

Public Works *Julianne Kallman 4-20-11*  
Water & Sewer *4/24/11*  
Fire



**NOTE TO CONTRACTORS**

**Public Property:**  
Inspection and testing for the waterline is to be provided by a Licensed Consulting Engineering Firm under contract with the Owner/Developer. Said inspection to be in accordance with the City of Wichita standard construction engineering practices and certified by a Professional Engineer Licensed in the state of Kansas. No work shall be performed in dedicated easements or public right-of-way by the Contractor without such inspection nor shall any work be commenced without written authorization by the City Engineer. All Construction and Materials shall comply with the City or Wichita Specifications and Standards (on file and available in the City Engineer's Office).

**Private Property:**  
Installation and testing for the fire protection line is to be performed by a City of Wichita licensed fire protection contractor in accordance with the fire codes as adopted by the City of Wichita. All material and construction practices for the fire protection line shall comply with the fire codes as adopted by the City of Wichita (available from the City of Wichita Fire Department). The Contractor shall not commence work without notification and approval of the Wichita Fire Department. Inspection of the fire protection line is to be provided by a licensed Engineering Firm under contract with the Owner/Developer and the Fire Department. The contractor shall not start work until the project inspector is assigned to the project and present on the site. Any work done without inspection will be required to be uncovered for inspection.

OWNER'S ADDRESS

WALMART STORES, INC.  
702 S.W. 8th STREET  
BENTONVILLE, AR 72716  
PH. (479) 273-4000

SHEET INDEX

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C-9.15	MANHOLE/INLET FRAME AND COVER (STORM SEWER)

EROSION CONTROL PLANS ARE PROVIDED IN THE SITE DEVELOPMENT PLANS MARKET STORE #5991-00 AND ARE AVAILABLE UPON REQUEST FROM THE ENGINEER

I, Terence L. Haynes, Kansas Professional Engineer, #14583, do hereby state that these Storm Sewer line plans, prepared by me or under my direct, responsible supervision, are in strict conformance with the applicable Codes of the City of Wichita and the sound principles and practice of the Civil Engineering profession

TERENCE L. HAYNES, P.E. #14583

CITY RESOURCE LIST

<b>CITY MANAGER</b> CITY MANAGER'S OFFICE CITY OF WICHITA 455 N. MAIN - CITY HALL WICHITA, KS 67202 CONTACT: ROBERT LAYTON PH: (316) 268-4351 FAX: (316) 858-7712	<b>CITY ENGINEER</b> PUBLIC WORKS CITY OF WICHITA 455 N. MAIN - CITY HALL WICHITA, KS 67202 CONTACT: JIM ARMOUR PH: (316) 268-4266 FAX: (316) 268-4114	<b>PLANNING / ZONING</b> METROPOLITAN AREA PLANNING DEPARTMENT CITY OF WICHITA 455 N. MAIN - CITY HALL WICHITA, KANSAS 67202 CONTACT: BILL LONGNECKER PH: (316) 268-4494 FAX: (316) 268-4390
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BENCH MARKS

BM #1 "a" CHISELED ON TOP OF CURB ELEV=1284.05 DATUM = NAVD 1988	BM #2 "a" CHISELED ON TOP OF CURB ELEV=1283.13 DATUM = NAVD 1988
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- (1) An effort has been made to locate and show approximate location of underground utility lines. Buried utilities are not necessarily shown. It is the Contractors responsibility to locate and preserve all utility services.
- (2) Proposed utility services have been coordinated with the local utility companies. Contractor is responsible for contacting all utility companies prior to construction.
- (3) All quantity estimates shown in this set of plans are the Engineer's estimate and are provided for general information only! The contractor is solely responsible for calculating his/her own quantities!
- (4) Contractor shall acquire Licensing to work in City of Wichita, shall maintain Insurance Verification per Walmart and City's requirements and shall submit necessary bonds to satisfy City of Wichita's requirements.

**NOTE TO CONTRACTOR**  
CALL KANSAS ONE  
1-800-522-6543

This number is to be used for information on the location of all underground utilities. Contact this number prior to any excavation.

**ALERT TO CONTRACTOR:**

1. THE SITEWORK FOR THE WALMART PORTION OF THIS PROJECT SHALL MEET OR EXCEED THE "SITE SPECIFIC SPECIFICATIONS."
2. ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO CONTRACT COMPLETION AND THE FINAL CONNECTION OF SERVICES.

**SMC Consulting Engineers, P.C.**

Oklahoma City, Oklahoma

TITLE SHEET  
PRIVATE STORM SEWER PLANS  
WALMART  
MARKET #5991-00  
31st STREET & S. SENECA STREET  
WICHITA, KANSAS

SMC Consulting Engineers, P.C.  
815 West Main - Oklahoma City, OK 73108  
PH: 405-232-7715 Fax: 405-232-7859



KANSAS CERTIFICATE OF AUTHORIZATION NO. E-335 EXP. Dec. 31, 2011

No.	Revised	By	Date
1	City review comments	MS	02/29/11
2	SMC review comments	MS	04/12/11

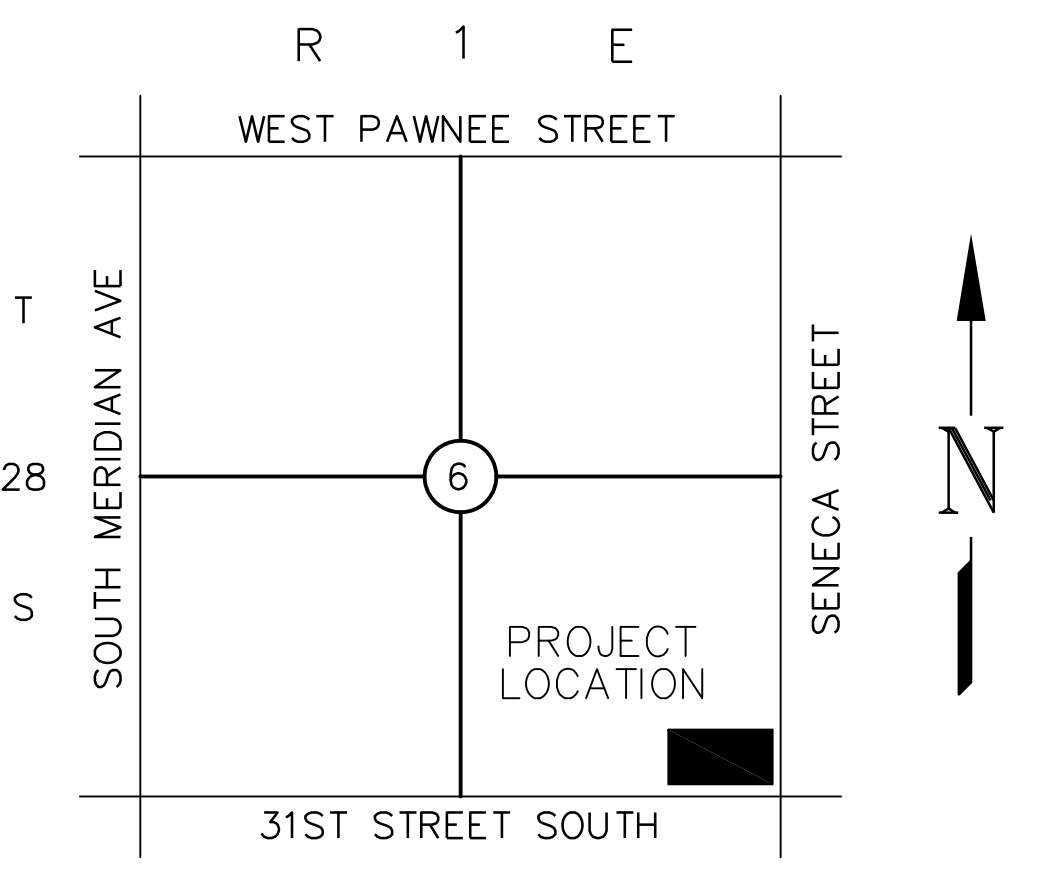
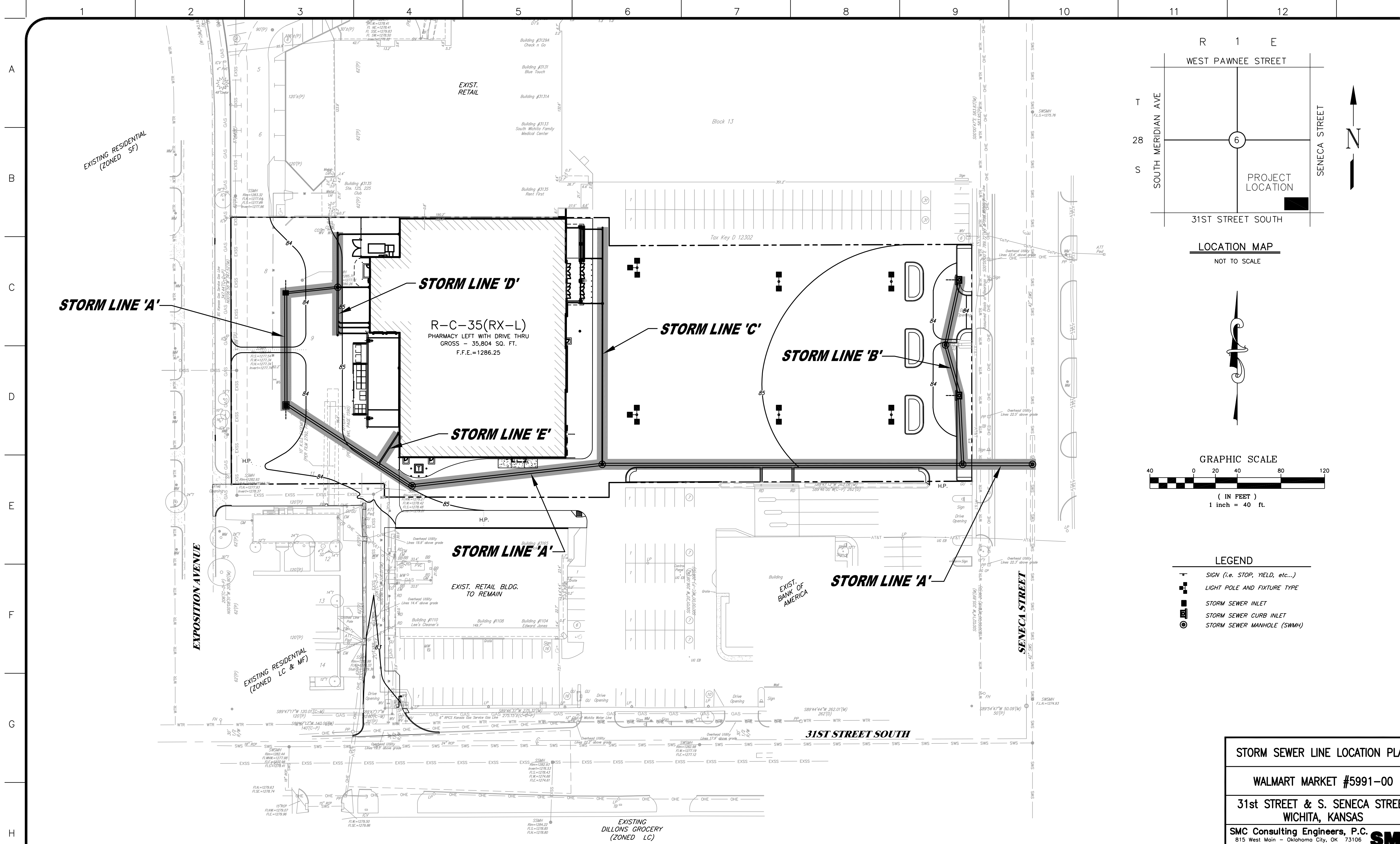
DATE: 03/01/11  
DRAWN BY: MS  
PROJECT NO.: 4958.00

SCALE: MS

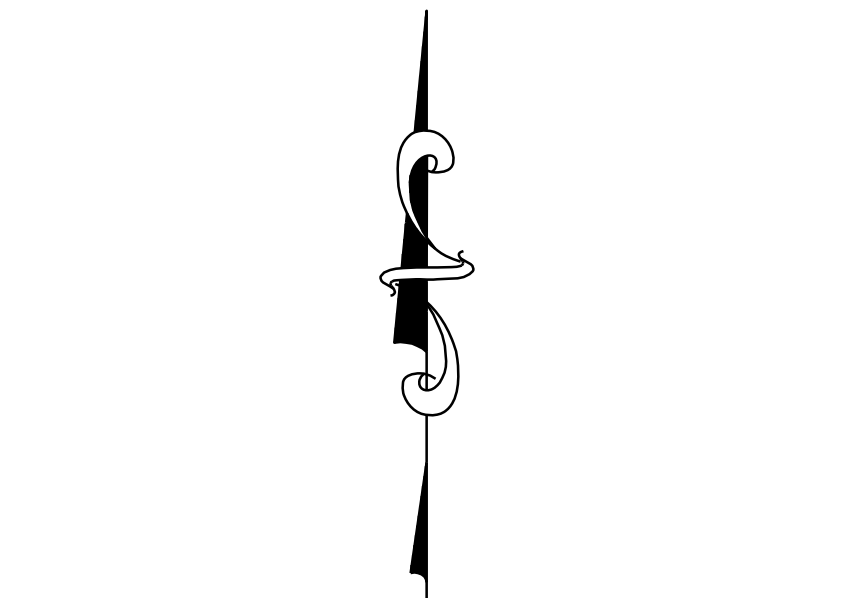
SHEET NO.  
C-9.0

ENGINEER: TERENCE L. HAYNES, P.E. #14583

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**LOCATION MAP**  
NOT TO SCALE



- LEGEND**
- SIGN (i.e. STOP, YIELD, etc...)
  - ⊕ LIGHT POLE AND FIXTURE TYPE
  - STORM SEWER INLET
  - ⊞ STORM SEWER CURB INLET
  - ⊙ STORM SEWER MANHOLE (SWMH)

**STORM SEWER LINE LOCATION PLAN**

**WALMART MARKET #5991-00**  
**31st STREET & S. SENECA STREET**  
**WICHITA, KANSAS**

**SMC Consulting Engineers, P.C.**  
 815 West Main - Oklahoma City, OK 73106  
 PH: 405-232-7715 Fax: 405-232-7859  
 KANSAS CERTIFICATE OF AUTHORIZATION NO. E-335 EXP. Dec. 31, 2011

No.	Revision	By	Date
1	MM review comments	MDS	03/01/11
2	MM review comments	MDS	04/12/11

DATE: 03/01/11	SCALE:	SHEET NO.
DRAWN BY: MDS	1"=40'	C-9.1
PROJECT NO.: 4966.00	ENGINEER: TERENCE L. HAYNES, P.E. #14583	

**UTILITY STATEMENT & CAUTION:**  
 THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON A COMBINATION OF FIELD SURVEY INFORMATION, EXISTING DRAWINGS AND RECORDS OF THE VARIOUS UTILITY COMPANIES. THE ENGINEER MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE ENGINEER FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE ENGINEER HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

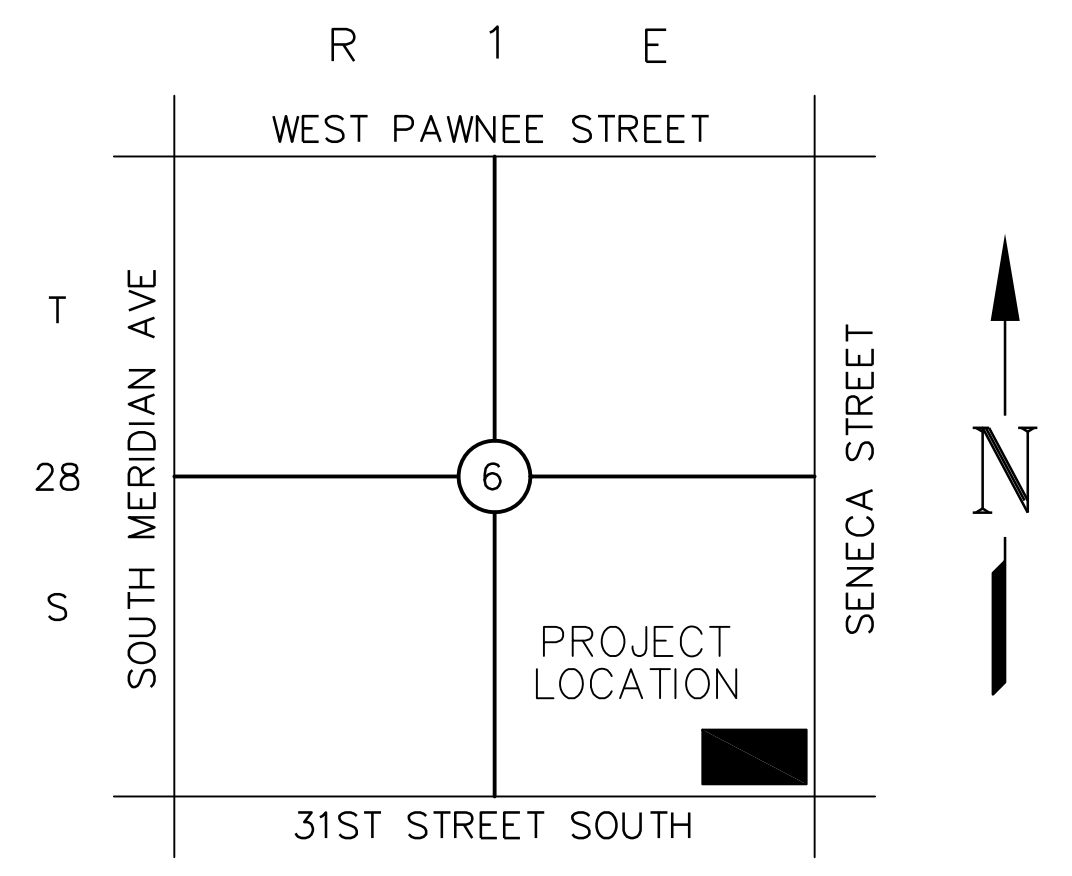
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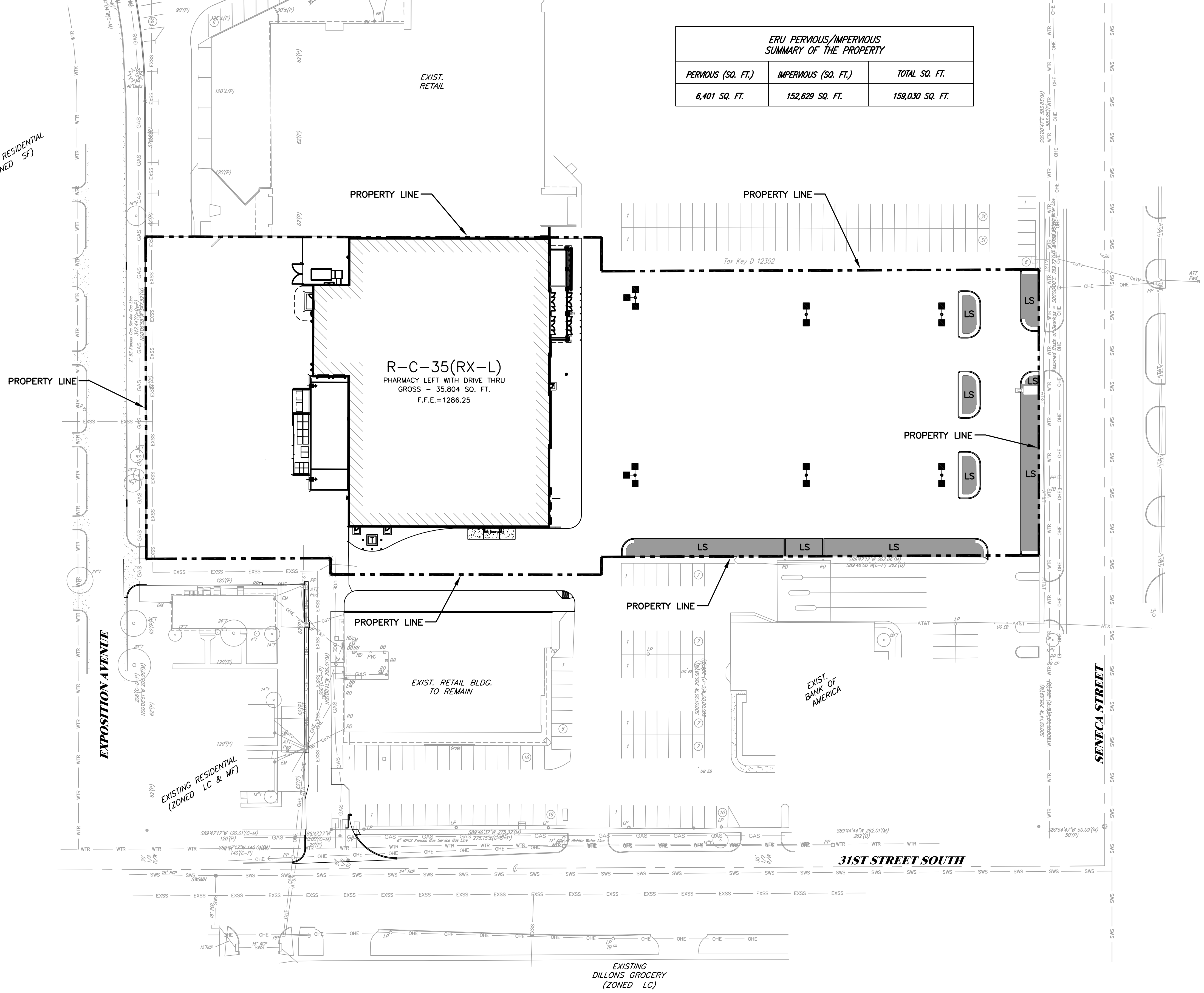
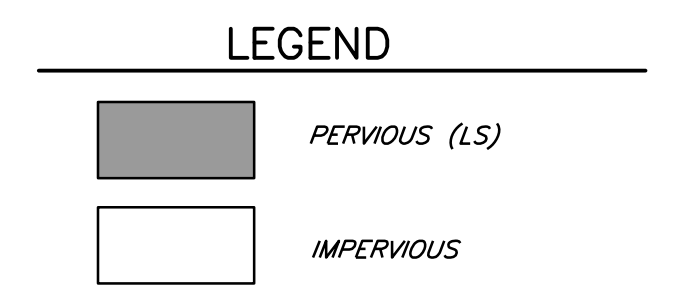
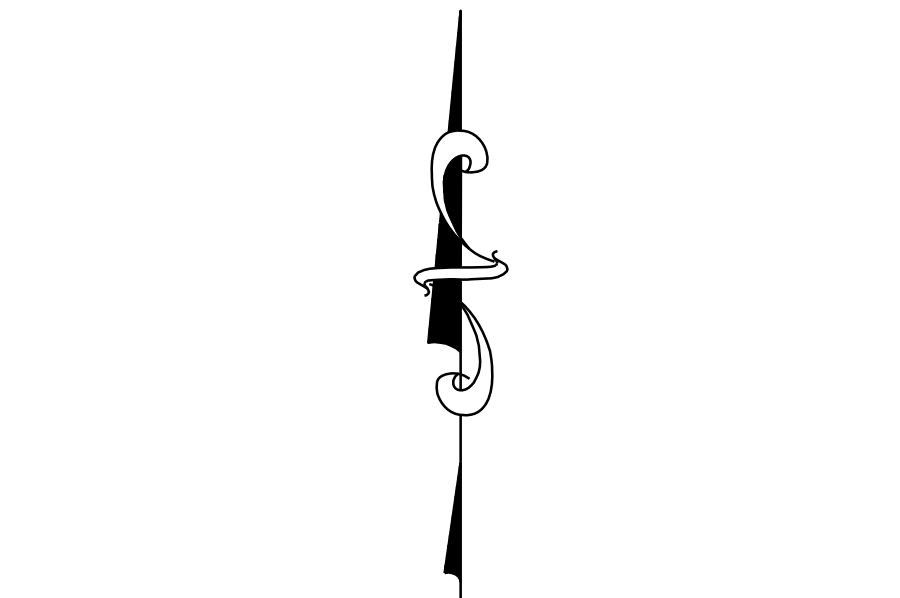
A  
B  
C  
D  
E  
F  
G  
H

**ERU PERVIOUS/IMPERVIOUS SUMMARY OF THE PROPERTY**

PERVIOUS (SQ. FT.)	IMPERVIOUS (SQ. FT.)	TOTAL SQ. FT.
6,401 SQ. FT.	152,629 SQ. FT.	159,030 SQ. FT.



LOCATION MAP  
NOT TO SCALE



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**ERU PLAN**

**WALMART MARKET #5991-00**

**31st STREET & S. SENECA STREET  
WICHITA, KANSAS**

**SMC Consulting Engineers, P.C.**  
815 West Main - Oklahoma City, OK 73106  
PH: 405-232-7715 Fax: 405-232-7859  
KANSAS CERTIFICATE OF AUTHORIZATION NO. E-335 EXP. Dec. 31, 2011

No.	Revision	By	Date

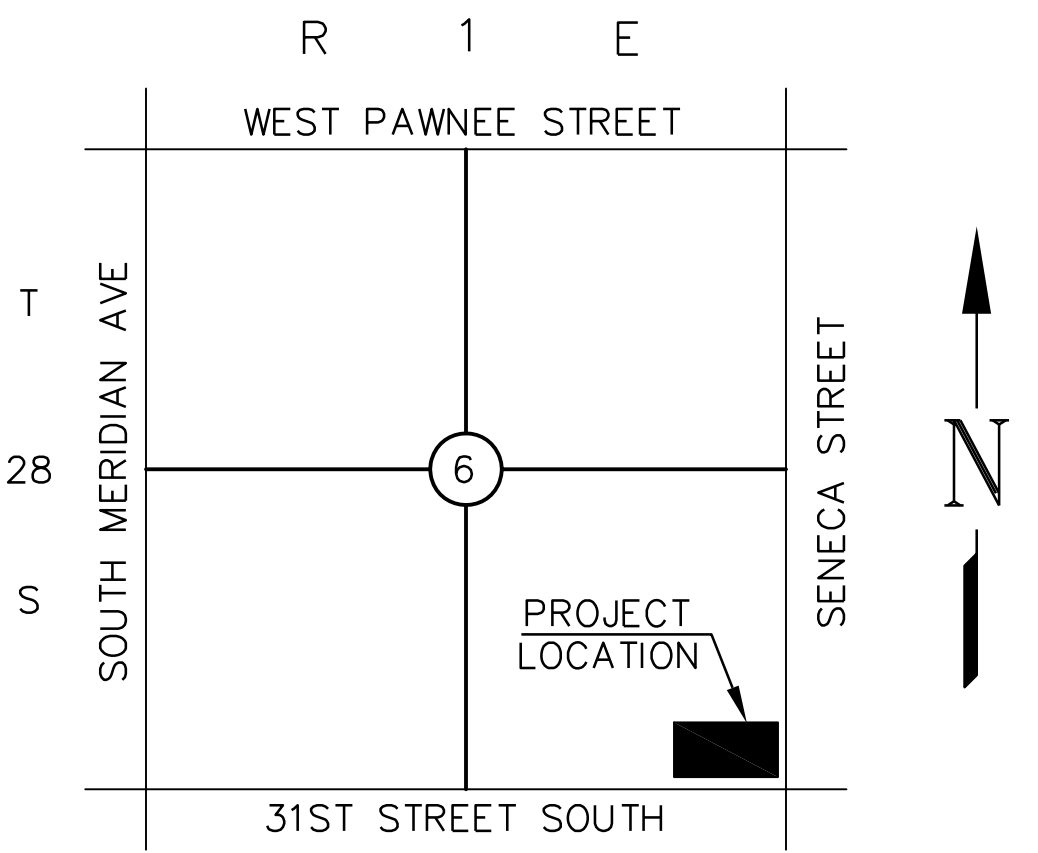
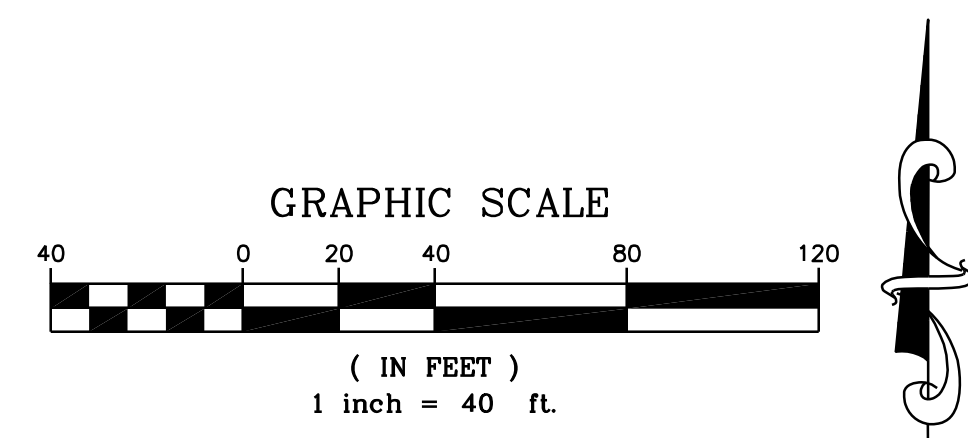
DATE: 04/12/11	SCALE:	SHEET NO. <b>C-9.2</b>
DRAWN BY: MDS	1"=40'	
PROJECT NO.: 4966.00	ENGINEER: TERENCE L. HAYNES, P.E. #14583	

NOT VALID FOR CONSTRUCTION UNLESS SIGNED IN THIS BLOCK

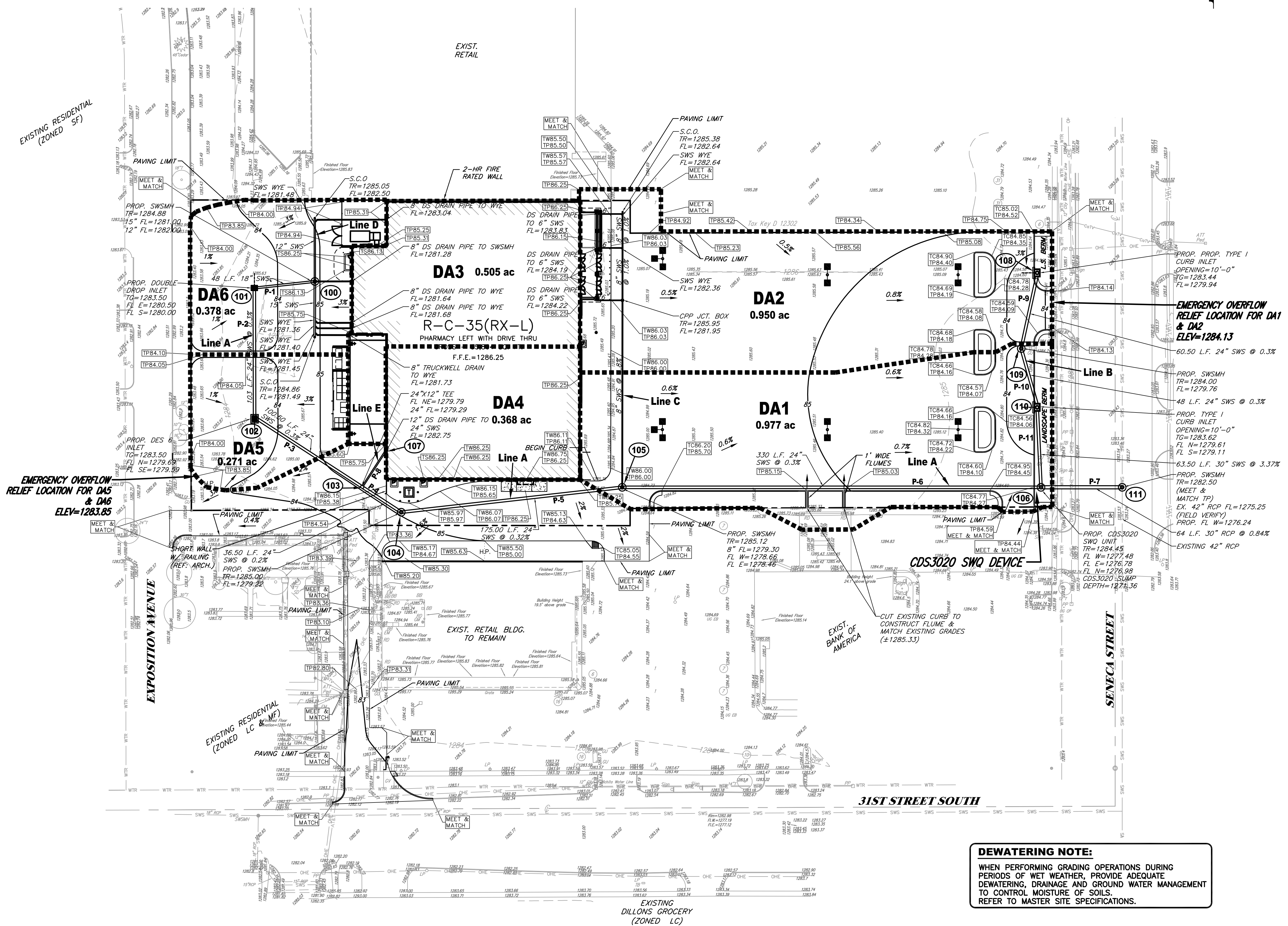
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**LEGEND**

- SIGN (i.e. STOP, YIELD, etc...)
- XX — PROPOSED CONTOUR & CONTOUR ELEVATION
- LIGHT POLE AND FIXTURE TYPE
- TCXX.XX / TPXX.XX — SPOT ELEVATION
- TC — TOP OF CURB
- TP — TOP OF PAVEMENT
- TW — TOP OF WALK
- FL — FLOW LINE
- SW — STORM SEWER INLET
- S.C.O. — STORM SEWER CURB INLET
- S.W.M.H. — STORM SEWER MANHOLE
- F.D. — FLOW DIRECTION
- T.C. — TOP OF GUTTER
- S.W. — SIDEWALK
- H.P. — HIGH POINT



- NOTES:**
- REFER ARCH. PLANS FOR LOCATION AND SIZE OF TRUCK WELL DRAIN.
  - CONTRACTOR SHALL MEET AND MATCH TOP OF JUNCTION BOXES/MANHOLES OR CLEAN OUTS WITH FINISHED PAVING GRADES.
  - STORM SEWERS LABELED AS "SWS" MAY BE OF HDPE (SMOOTH LINER)/ALUMINIZED CSP OR RCP MATERIAL AND SHALL MEET WALMART'S SITENETWORK SPECIFICATIONS. CONTRACTOR SHALL SUBMIT STORM PIPE PRODUCT DATA TO SMC CONSULTING ENGINEERS, P.C. FOR APPROVAL. CONTRACTOR SHALL SUBMIT PRECAST SHOP DRAWINGS OF THE STORM MANHOLES AND INLETS TO ENGINEER FOR VERIFICATION OF THE PIPE CONNECTION TO THESE STRUCTURES. ALUMINIZED CORRUGATED STEEL PIPES SHALL BE ULTRA FLOW OR W/ MANNINGS ROUGHNESS COEFFICIENT OF 0.013 OR BETTER.
  - THE SPOT ELEVATIONS AND CONTOUR ANNOTATIONS ARE BASED ON A F.F.E.=1286.25. THE SPOT ELEVATIONS AND CONTOUR ANNOTATIONS ARE PROTRACTED TO DOUBLE DIGITS FOR PLAN CLARITY.



**DRAINAGE SURFACE SUMMARY**

	TOTAL AREA	PERVIOUS	IMPERVIOUS
DRAINAGE AREA DA1	± 0.977 AC.	± 0.124 A.C.	± 0.853 A.C.
DRAINAGE AREA DA2	± 0.950 AC.	± 0.023 A.C.	± 0.927 A.C.
DRAINAGE AREA DA3	± 0.505 AC.	± 0.000 A.C.	± 0.505 A.C.
DRAINAGE AREA DA4	± 0.368 AC.	± 0.000 A.C.	± 0.368 A.C.
DRAINAGE AREA DA5	± 0.271 AC.	± 0.000 A.C.	± 0.271 A.C.
DRAINAGE AREA DA6	± 0.378 AC.	± 0.000 A.C.	± 0.378 A.C.

- DRAINAGE AREA I.D.**
- DA1 = CURB INLET, STA. 10+63.50 SWS LINE B
  - DA2 = CURB INLET, STA. 11+72.00 SWS LINE B
  - DA3 = DOWNSPOUTS FROM BUILDING TO SWSMH, STA. 18+57.00 SWS LINE A
  - DA4 = DOWNSPOUT FROM BUILDING TO SWS TEE, STA. 16+05.50 SWS LINE A
  - DA5 = DESIGN 6 AREA INLET, STA. 17+06.00 SWS LINE A
  - DA6 = DOUBLE DROP AREA INLET, STA. 18+09.00 SWS LINE A

**DEWATERING NOTE:**  
 WHEN PERFORMING GRADING OPERATIONS DURING PERIODS OF WET WEATHER, PROVIDE ADEQUATE DEWATERING, DRAINAGE AND GROUND WATER MANAGEMENT TO CONTROL MOISTURE OF SOILS. REFER TO MASTER SITE SPECIFICATIONS.

**PROPOSED DRAINAGE PLAN**  
**WALMART MARKET #5991-00**  
**31st STREET & S. SENECA STREET**  
**WICHITA, KANSAS**  
**SMC Consulting Engineers, P.C.**  
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 KANSAS CERTIFICATE OF AUTHORIZATION NO. E-335 Exp. Dec. 31, 2011

No.	Revision	By	Date
1	City & SMC review comments	MDS	03/29/11
2	SMC review comments	MDS	04/04/11
3	SMC review comments	MDS	04/12/11

DATE: 03/01/11 SCALE: 1"=40'  
 DRAWN BY: MDS PROJECT NO.: 4966.00 SHEET NO. C-9.3  
 ENGINEER: TERENCE L. HAYNES, P.E. #14583

NOT VALID FOR CONSTRUCTION UNLESS SIGNED IN THIS BLOCK

**Storm Sewer Chart for 5-year Design Storm**

	Pipe ID	Pipe Size	Mann 'n'	Up Node	Dn Node	Sys Flow Time (min)	Total Sys Flow (cfs)	Capacity (cfs)	Average Velocity (fps)	Length (ft)	Const Slope (ft/ft)	Up Invert Elev (ft)	Dn Invert Elev (ft)	Up Ground Elev (ft)	Dn Ground Elev (ft)	HGL In (ft)	HGL Out (ft)	EGL In (ft)	EGL Out (ft)
<b>LINE A</b>	P-1	18 inch	0.012	100	101	1.62	3.42	11.61	5.72	48.00	0.0104	1281.00	1280.50	1284.88	1283.50	1281.71	1281.48	1281.98	1281.60
	P-2	24 inch	0.012	101	102	1.760	6.00	13.42	4.15	103.00	0.0030	1280.00	1279.69	1283.50	1283.50	1281.31	1281.26	1281.42	1281.34
	P-3	24 inch	0.012	102	103	2.17	7.69	13.42	4.42	100.50	0.0030	1279.59	1279.29	1283.50	1285.00	1281.10	1281.03	1281.24	1281.14
	P-4	24 inch	0.012	103	104	2.55	9.91	11.00	3.96	36.50	0.0020	1279.29	1279.22	1285.00	1285.00	1280.80	1280.73	1281.03	1280.96
	P-5	24 inch	0.012	104	105	2.71	9.83	13.84	4.78	175.00	0.0032	1279.22	1278.66	1285.00	1285.12	1280.47	1280.04	1280.82	1280.32
	P-6	24 inch	0.012	105	106	3.32	9.52	13.36	4.62	330.00	0.0030	1278.46	1277.48	1285.12	1284.45	1279.71	1279.05	1280.04	1279.25
	P-7	30 inch	0.013	106	111	5.74	19.41	37.57	7.72	64.00	0.0084	1276.78	1276.24	1284.45	1282.50	1278.27	1277.53	1278.90	1278.43
<b>LINE E</b>	P-8	12 inch	0.012	107	103	1.46	2.52	11.47	11.71	33.50	0.0884	1282.75	1279.79	1285.75	1285.00	1283.43	1281.03	1283.73	1281.19
<b>LINE B</b>	P-9	24 inch	0.012	108	109	4.71	5.63	13.42	4.09	60.50	0.0030	1279.94	1279.76	1283.44	1284.00	1280.87	1280.77	1281.11	1280.97
	P-10	24 inch	0.012	109	110	4.96	5.57	13.42	4.07	48.00	0.0030	1279.76	1279.61	1284.00	1283.62	1280.66	1280.52	1280.91	1280.77
	P-11	30 inch	0.012	110	106	5.65	10.95	81.52	11.57	63.50	0.0337	1279.11	1276.98	1283.62	1284.45	1280.22	1279.05	1280.65	1279.15

**Storm Sewer Chart for 100-year Check Storm**

	Pipe ID	Pipe Size	Mann 'n'	Up Node	Dn Node	Sys Flow Time (min)	Total Sys Flow (cfs)	Capacity (cfs)	Average Velocity (fps)	Length (ft)	Const Slope (ft/ft)	Up Invert Elev (ft)	Dn Invert Elev (ft)	Up Ground Elev (ft)	Dn Ground Elev (ft)	HGL In (ft)	HGL Out (ft)	EGL In (ft)	EGL Out (ft)
<b>LINE A</b>	P-1	18 inch	0.012	100	101	1.62	5.26	11.61	2.98	48.00	0.0104	1281.00	1280.50	1284.88	1283.50	1283.57	1283.47	1283.71	1283.61
	P-2	24 inch	0.012	101	102	1.89	9.09	13.42	2.89	103.00	0.0030	1280.00	1279.69	1283.50	1283.50	1283.28	1283.13	1283.41	1283.26
	P-3	24 inch	0.012	102	103	2.48	11.57	13.42	3.68	100.50	0.0030	1279.59	1279.29	1283.50	1285.00	1282.90	1282.68	1283.11	1282.89
	P-4	24 inch	0.012	103	104	2.94	14.96	11.00	4.76	36.50	0.0020	1279.29	1279.22	1285.00	1285.00	1282.33	1282.19	1282.68	1282.54
	P-5	24 inch	0.012	104	105	3.06	14.88	13.84	4.74	175.00	0.0032	1279.22	1278.66	1285.00	1285.12	1281.93	1281.28	1282.28	1281.63
	P-6	24 inch	0.012	105	106	3.68	14.50	13.36	4.62	330.00	0.0030	1278.46	1277.48	1285.12	1284.45	1280.95	1279.80	1281.28	1280.13
	P-7	30 inch	0.012	106	111	5.73	30.33	37.57	8.52	64.00	0.0084	1276.78	1276.24	1284.45	1282.50	1278.65	1277.95	1279.57	1279.07
<b>LINE E</b>	P-8	18 inch	0.012	107	103	1.46	3.86	11.47	13.18	33.50	0.0884	1282.75	1279.79	1285.75	1285.00	1283.59	1282.68	1284.06	1283.06
<b>LINE B</b>	P-9	24 inch	0.012	108	109	4.71	8.68	13.42	4.54	60.50	0.0030	1279.94	1279.76	1283.44	1284.00	1281.21	1281.12	1281.47	1281.34
	P-10	24 inch	0.012	109	110	4.93	8.61	13.42	4.54	48.00	0.0030	1279.76	1279.61	1284.00	1283.62	1280.99	1280.91	1281.27	1281.16
	P-11	30 inch	0.012	110	106	5.65	17.00	81.52	13.12	63.50	0.0337	1279.11	1276.98	1283.62	1284.45	1280.51	1279.80	1281.08	1279.98

**DRAINAGE NOTES:**

1. THE WEIGHTED RUNOFF COEFFICIENTS FOR THE DRAINAGE AREAS ARE OBTAINED FROM APPENDIX C, VOLUME 2 OF THE CITY OF WICHITA STORM WATER MANUAL.
2. THE TIME OF CONCENTRATIONS FOR SHEET AND SHALLOW FLOWS ARE CALCULATED IN ACCORDANCE WITH THE METHOD SPECIFIED IN VOLUME 2, CHAPTER 4 OF THE CITY OF WICHITA STORM WATER MANUAL.
3. THE INTENSITY DURATION FREQUENCY DATA FOR THE SEDGWICK COUNTY IS OBTAINED FROM APPENDIX B, VOLUME 2 OF THE CITY OF WICHITA STORM WATER MANUAL.
4. THE RUNOFF VALUES FOR THE STORM SEWER DESIGN ARE CALCULATED PER RATIONAL FORMULA USING MANNING'S METHOD IN ACCORDANCE WITH THE CITY OF WICHITA STORM WATER MANUAL.
5. THE ALLOWABLE DEPTH OF RUNOFF AND THE CLOGGING FACTORS FOR THE CURB AND THE AREA INLETS ARE IN ACCORDANCE WITH HEC-22 CIRCULAR.
6. TYPE 1 CURB INLET AND THE DOUBLE DROP INLET ARE THE CITY OF WICHITA STANDARD INLETS. THE INLET CAPACITY IS CALCULATED PER HEC-22 CIRCULAR FOR CURB INLET IN SAG LOCATIONS.
7. DES. 6 INLET IS A GRATE INLET IN SAG LOCATION WITH 2 GRATES. REFER ATTACHED PLANS FOR DESIGN 6 INLET DETAILS. THE INLET CAPACITY IS CALCULATED PER HEC-22 CIRCULAR FOR GRATE INLET IN SAG LOCATIONS.
8. THE HYDRAULIC GRADE LINES OF THE STORM SEWER SYSTEM FOR THE 5-YEAR DESIGN STORM AND THE 100-YEAR CHECK STORM ARE BELOW THE PAVING GRADES.
9. THE STORM WATER RUNOFF FROM FRONT CANOPY OF THE BUILDING THRU THE STORM SEWER LINE 'C' ARE INCLUDED IN DESIGN OF THE STORM SEWER LINE 'A'.
10. THE STORM WATER RUNOFF FROM THE ROOF OF THE BUILDING THRU THE STORM SEWER LINE 'D' ARE INCLUDED IN DESIGN OF THE STORM SEWER LINE 'A'.

**PROPOSED CONDITIONS, DRAINAGE SUMMARY TABLE**

DRAINAGE AREA BASIN	RECEIVING STRUCTURE IDENTIFICATION	DRAINAGE AREA (ACRES)	WEIGHTED RUNOFF COEFFICIENT FOR 5-YEAR DESIGN STORM, C5	WEIGHTED RUNOFF COEFFICIENT FOR 100-YEAR CHECK STORM, C100	TIME OF CONCENTRATION OVERALL REACH LENGTH (FEET)	TIME OF CONCENTRATION OVERALL REACH SLOPE (%)	Tc (MINUTES) (SUM OF SHEET AND SHALLOW FLOWS)	RAINFALL INTENSITY, 5-YEAR, I5 (IN./HR.)	RAINFALL INTENSITY, 100-YEAR, I100 (IN./HR.)	RUNOFF, Q5 (CFS)	RUNOFF, Q100 (CFS)	% GROUND SLOPE AT INLET	ALLOWABLE DEPTH OF RUNOFF AT INLET FOR DESIGN STORM (FEET)	CALCULATED RUNOFF DEPTH AT INLET (FEET) FOR Q5	INLET CAPACITY AT 6" DEPTH OF RUNOFF AT INLET (CFS)	ALLOWABLE DEPTH OF RUNOFF AT INLET FOR CHECK STORM (FEET)	CALCULATED RUNOFF DEPTH AT INLET (FEET) FOR Q100	INLET CAPACITY AT 12" DEPTH OF RUNOFF AT INLET (CFS)	CLOGGING FACTOR	INLET DESIGN
DA3	100	0.505	0.85	0.93	180.00	2.00	1.62	7.91	11.62	3.42	5.26	SUMP	RUNOFF FROM ROOF THRU ROOF DRAINS TO MANHOLE							
DA6	101	0.378	0.87	0.89	104.00	1.68	1.73	7.87	11.56	2.61	3.92	SUMP	0.50	0.10	9.74	1.0	0.12	13.76	0.50	DOUBLE DROP INLET
DA5	102	0.271	0.87	0.89	71.00	1.00	1.57	7.94	11.65	1.89	2.83	SUMP	0.50	0.22	4.20	1.0	0.29	5.94	0.50	DES 6 INLET
DA4	107	0.368	0.85	0.93	153.00	2.00	1.46	7.99	11.71	2.52	3.86	SUMP	RUNOFF FROM ROOF THRU ROOF DRAINS TO 24" PIPE							
DA2	108	0.950	0.87	0.89	367.00	0.80	4.71	6.76	10.19	5.63	8.68	SUMP	0.50	0.32	10.81	0.50	0.43	10.81	0.50	TYPE 1 CURB INLET (L=10')
DA1	110	0.977	0.87	0.89	378.00	0.56	5.65	6.48	9.83	5.55	8.62	SUMP	0.50	0.32	10.81	0.50	0.43	10.81	0.50	TYPE 1 CURB INLET (L=10')

**PROPOSED WATERSHED & STORM SEWER SUMMARY**

**WALMART MARKET #5991-00**

**31st STREET & S. SENECA STREET  
WICHITA, KANSAS**

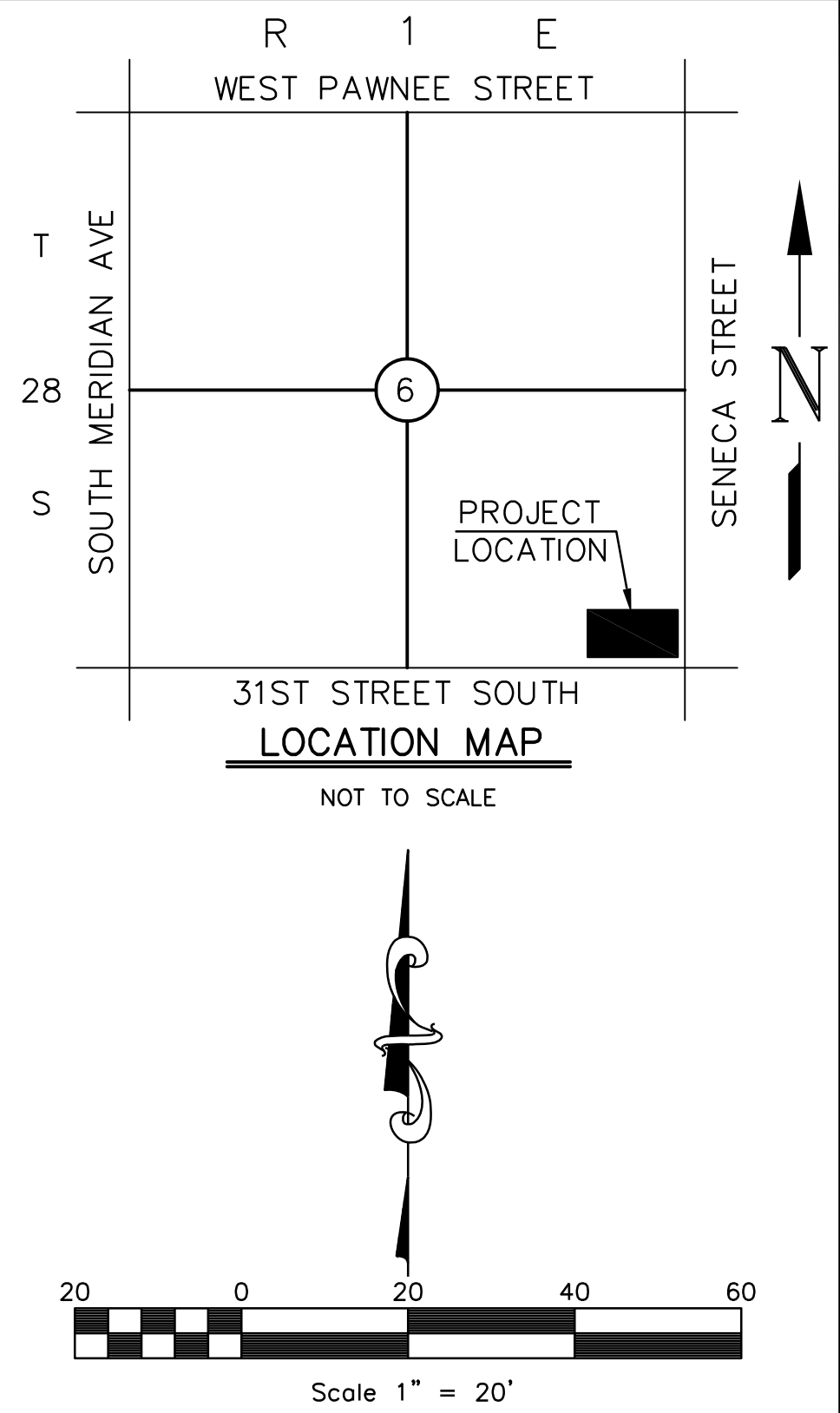
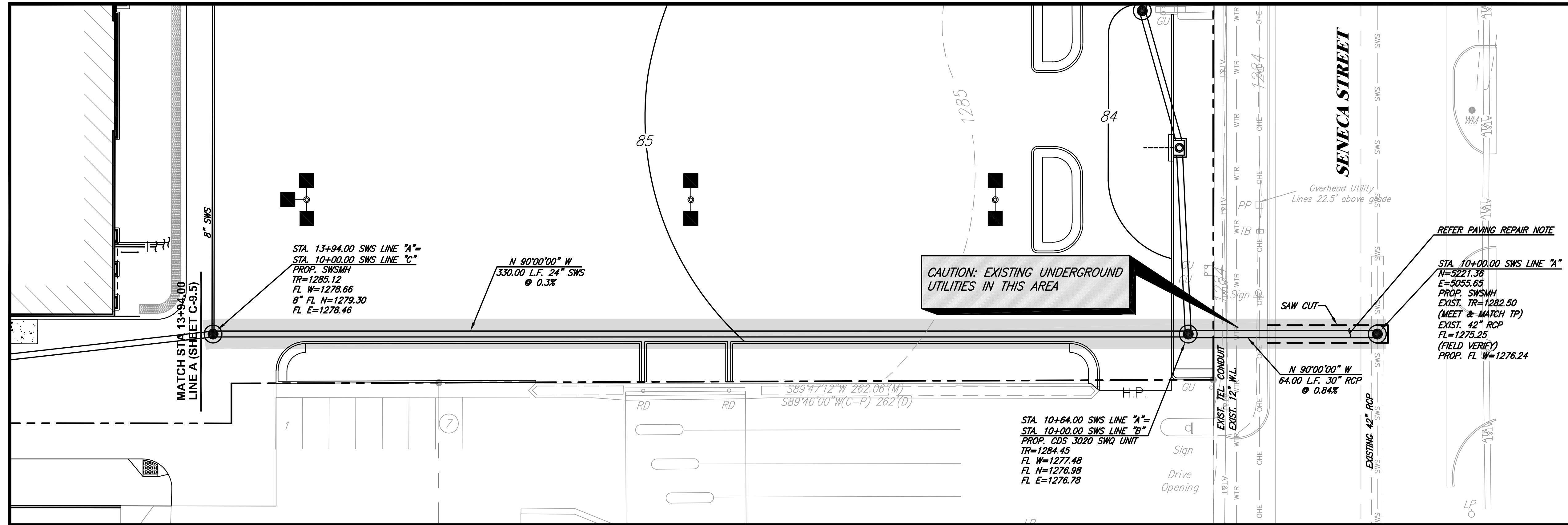
**SMC Consulting Engineers, P.C.**  
815 West Main - Oklahoma City, OK 73106  
PH: 405-232-7715 Fax: 405-232-7859  
KANSAS CERTIFICATE OF AUTHORIZATION NO. E-335 EXP. DEC. 2011

No.	Revision	By	Date
1	City review comments	MDS	03/29/11
2	SMC review comments	MDS	04/12/11

DATE: 03/01/11 SCALE: NTS SHEET NO. C-9.4

PROJECT NO.: 4966.00 ENGINEER: TERENCE L. HAYNES, P.E. #14583

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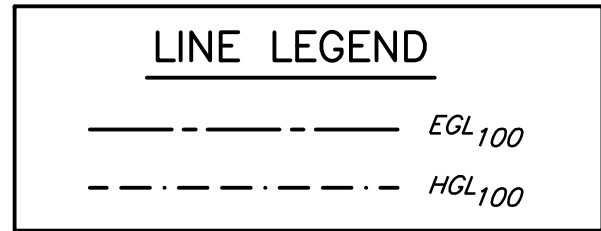


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**BEARING & STATIONING NOTE:**  
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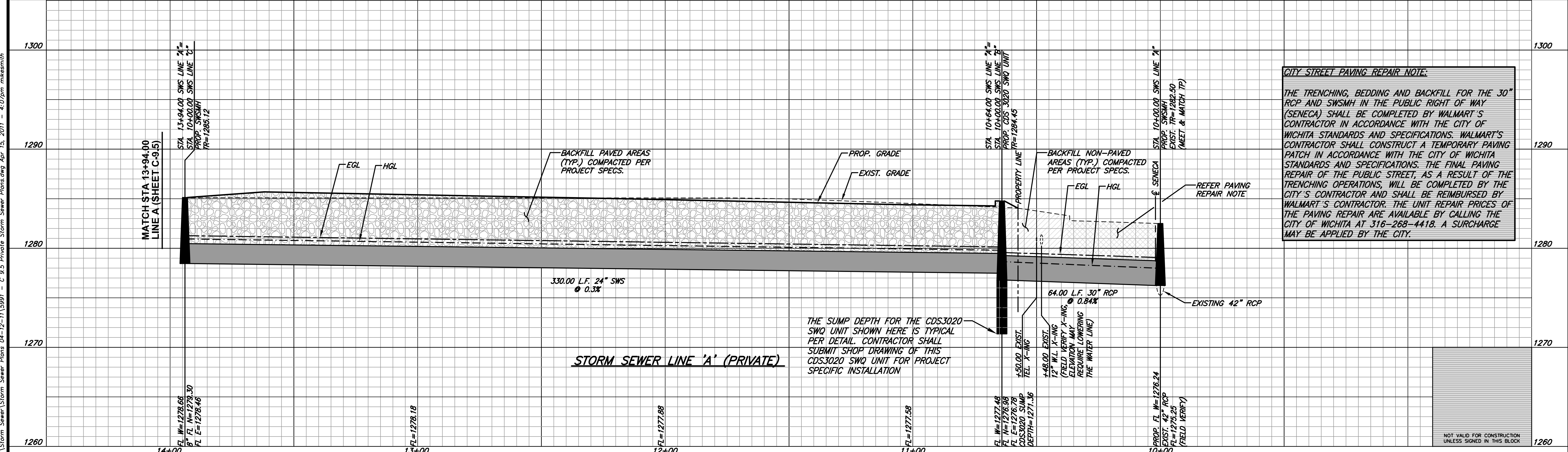
**NOTE: THE GENERAL CONTRACTOR IS RESPONSIBLE FOR MAKING ALL ADJUSTMENTS OF EXISTING UTILITIES TO ALLOW THE DESIGN TO BE BUILT.**

**TRAFFIC CONTROL NOTE:**  
 THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN TO THE CITY TRAFFIC ENGINEER AND GET APPROVAL BEFORE STARTING CONSTRUCTION OF THE STORM SEWER SYSTEM.



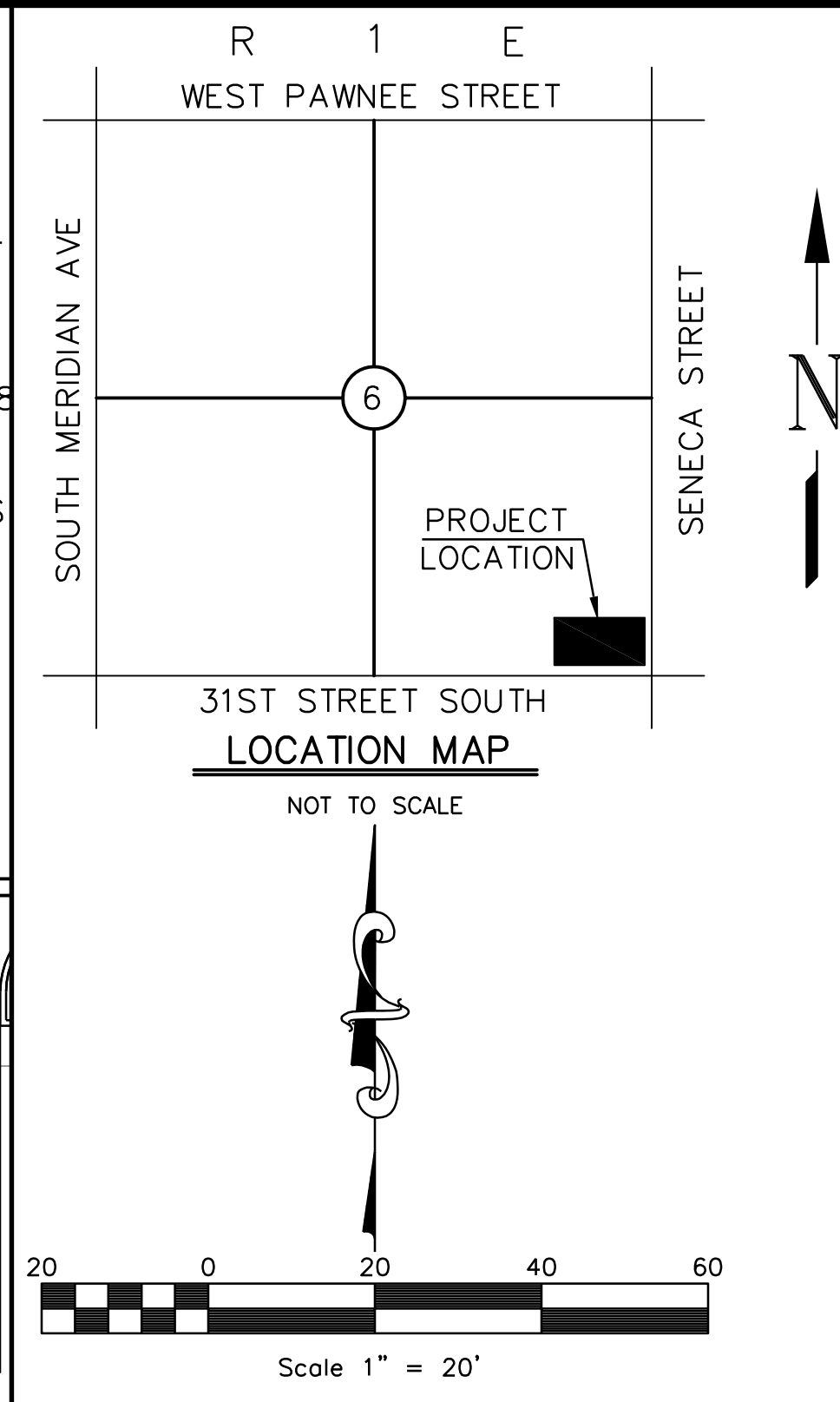
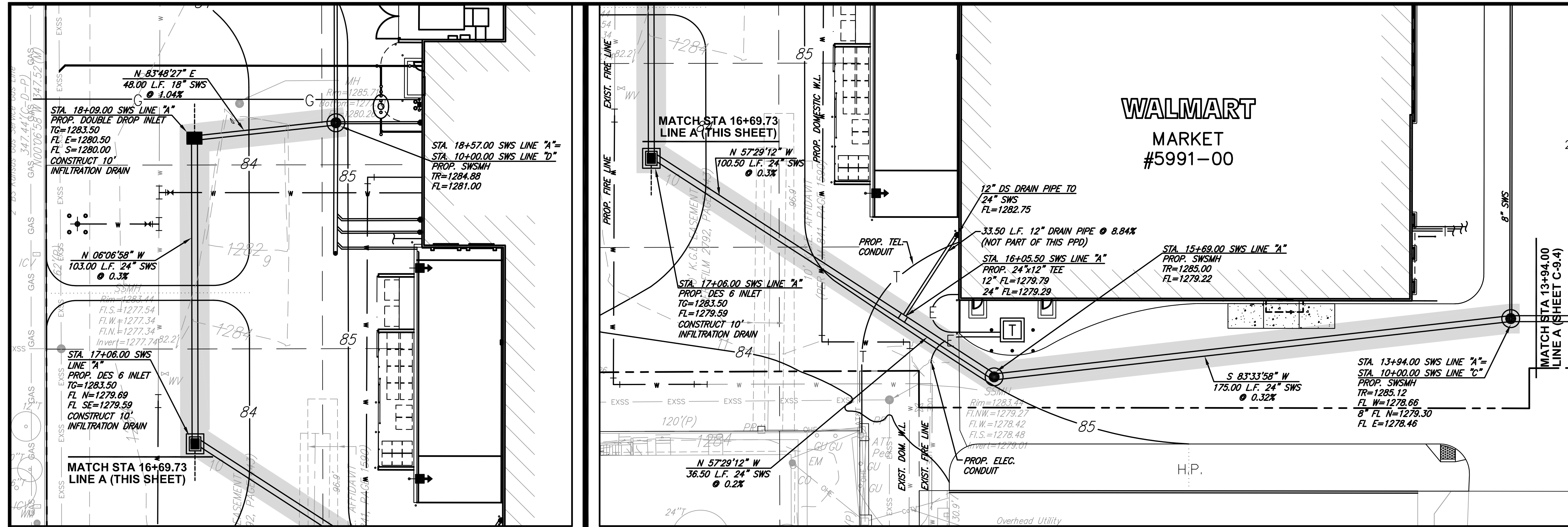
**LEGEND**

⊕	LIGHT POLE AND FIXTURE TYPE (REF: SITE PLAN FOR DETAILS)	— IRR	IRRIGATION WATER LINE
+	3 WAY FIRE HYDRANT	— UGE	POWER UNDERGROUND BY CONTRACTOR
—	W.L. TEE	— UGT	TELEPHONE UNDERGROUND (PER CITY STDS)
⋈	W.L. GATE VALVE (G.V.)	— G	GAS LINE
⋈	W.L. BENDS	— U/E	UTILITY EASEMENT
⊕	STORM SEWER INLET	SS	SANITARY SEWER
⊕	STORM SEWER CURB INLET	W.L.	WATER LINE
⊕	STORM SEWER MANHOLE (SWSMH)	DS	DOWNSPOUT
		SWS	STORM SEWER



**CITY STREET PAVING REPAIR NOTE:**  
 THE TRENCHING, BEDDING AND BACKFILL FOR THE 30" RCP AND SWSMH IN THE PUBLIC RIGHT OF WAY (SENECA) SHALL BE COMPLETED BY WALMART'S CONTRACTOR IN ACCORDANCE WITH THE CITY OF WICHITA STANDARDS AND SPECIFICATIONS. WALMART'S CONTRACTOR SHALL CONSTRUCT A TEMPORARY PAVING PATCH IN ACCORDANCE WITH THE CITY OF WICHITA STANDARDS AND SPECIFICATIONS. THE FINAL PAVING REPAIR OF THE PUBLIC STREET, AS A RESULT OF THE TRENCHING OPERATIONS, WILL BE COMPLETED BY THE CITY'S CONTRACTOR AND SHALL BE REIMBURSED BY WALMART'S CONTRACTOR. THE UNIT REPAIR PRICES OF THE PAVING REPAIR ARE AVAILABLE BY CALLING THE CITY OF WICHITA AT 316-268-4418. A SURCHARGE MAY BE APPLIED BY THE CITY.

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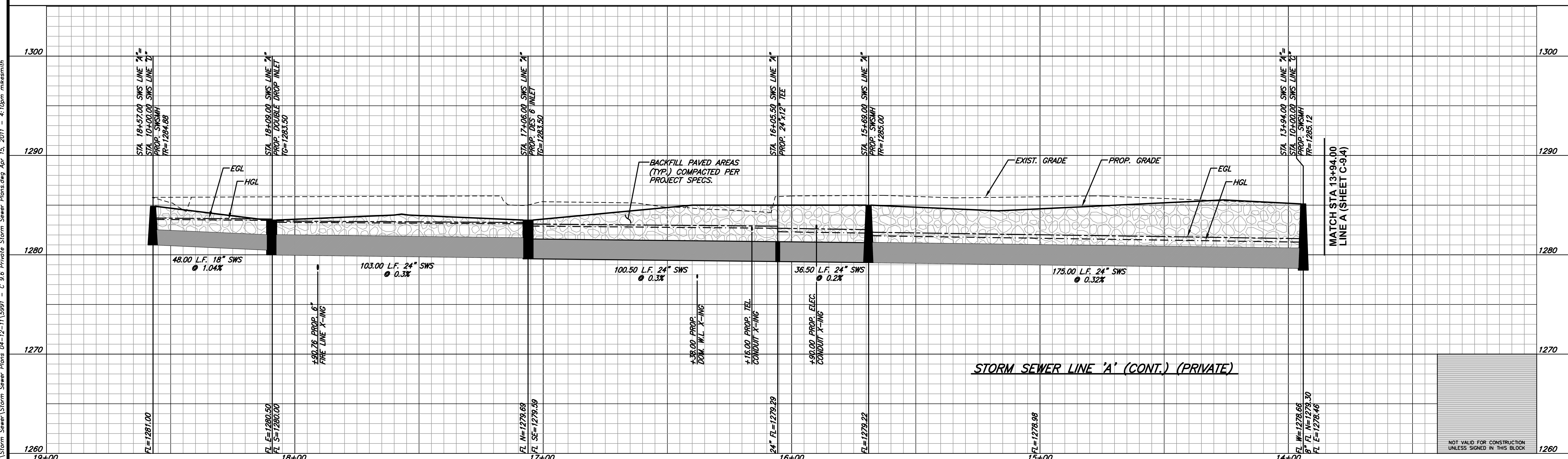
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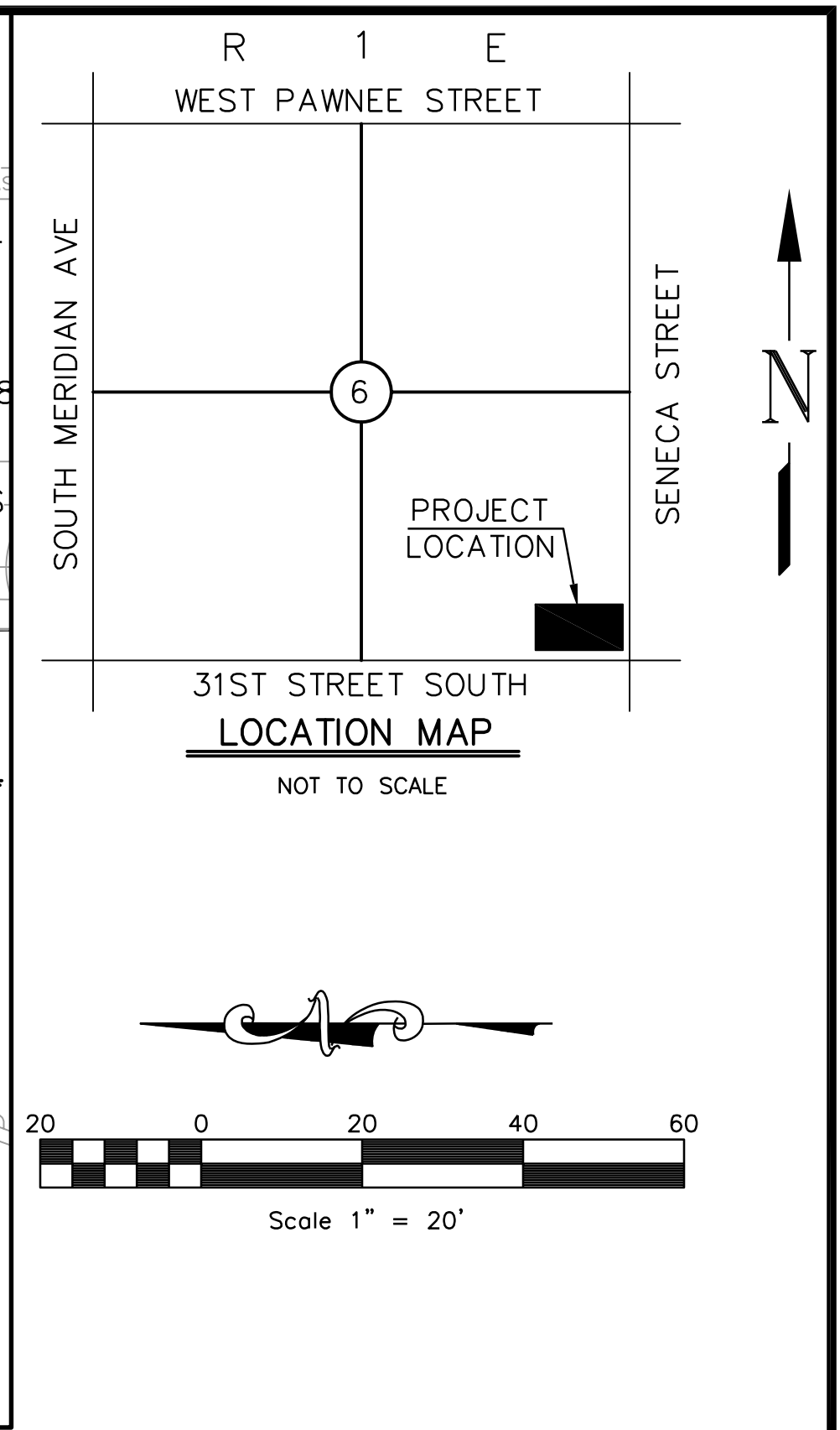
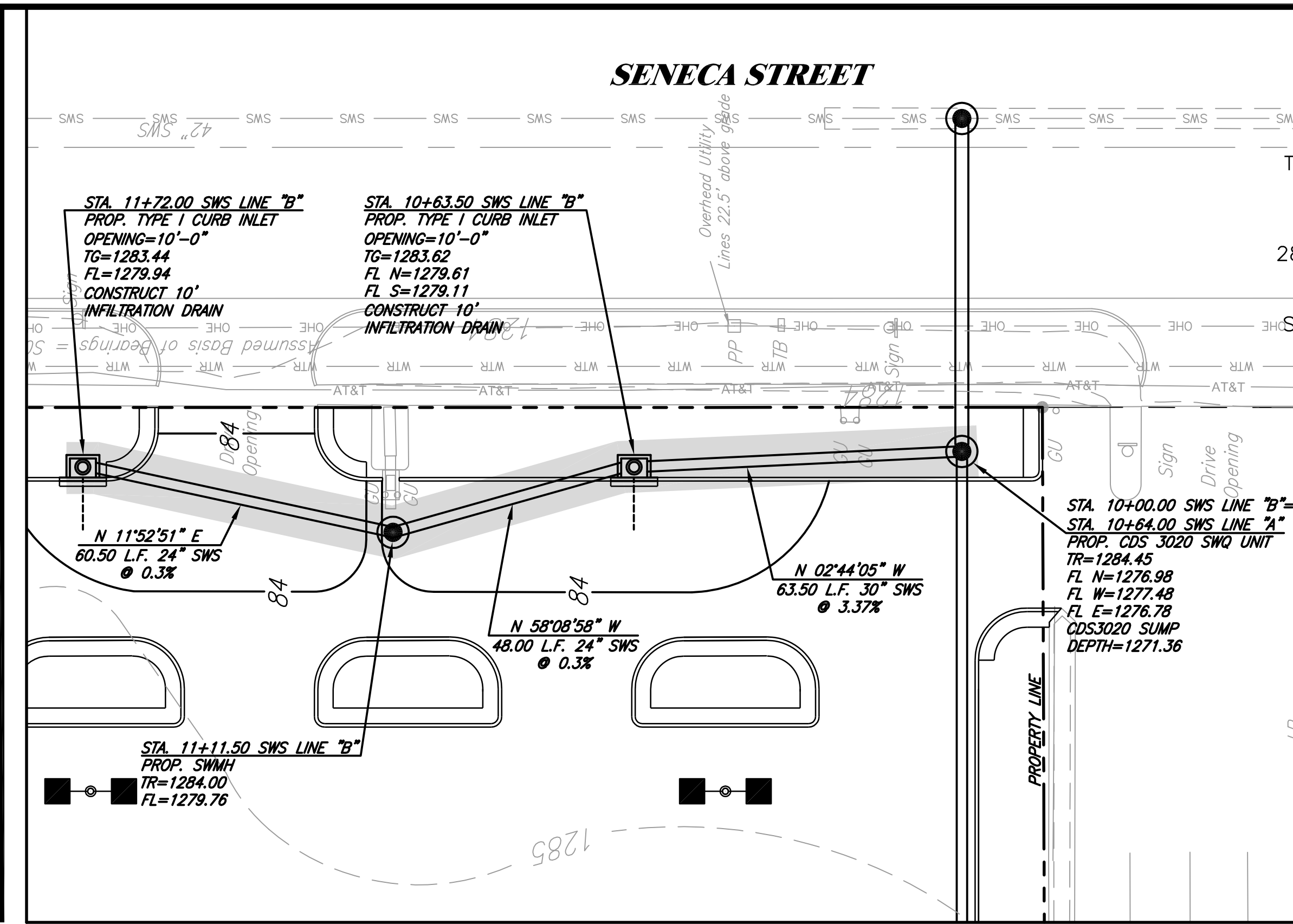
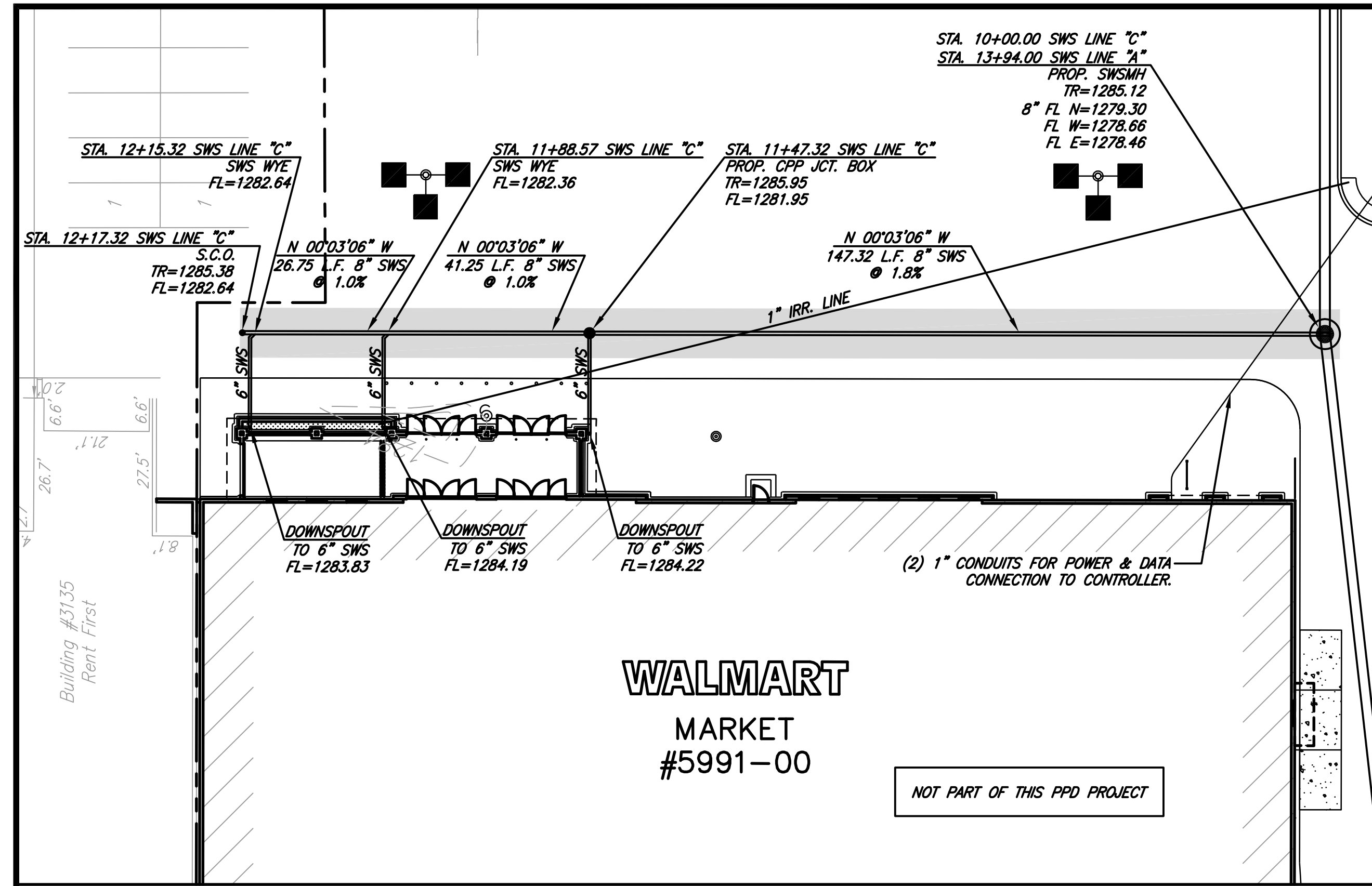
**LINE LEGEND**

---	EGL100
- - - - -	HGL100

**LEGEND**

KV	LIGHT POLE AND FIXTURE TYPE (REF: SITE PLAN FOR DETAILS)	IRR	IRRIGATION WATER LINE
+	3 WAY FIRE HYDRANT	UGE	POWER UNDERGROUND BY CONTRACTOR
T	W.L. TEE	UGT	TELEPHONE UNDERGROUND (PER CITY STDS)
V	W.L. GATE VALVE (G.V.)	G	GAS LINE
W	W.L. BENDS	U/E	UTILITY EASEMENT
⊙	STORM SEWER INLET	SS	SANITARY SEWER
⊙	STORM SEWER CURB INLET	W.L.	WATER LINE
⊙	STORM SEWER MANHOLE (SWMH)	DS	DOWNSPOUT
		SWS	STORM SEWER





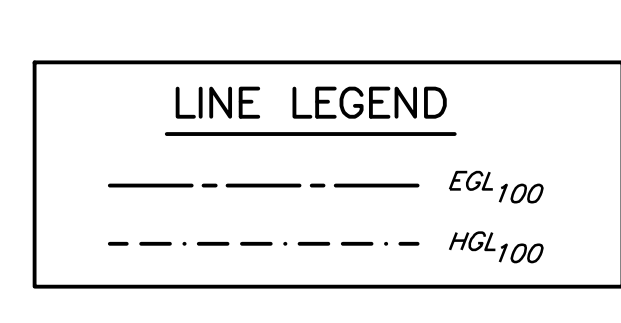
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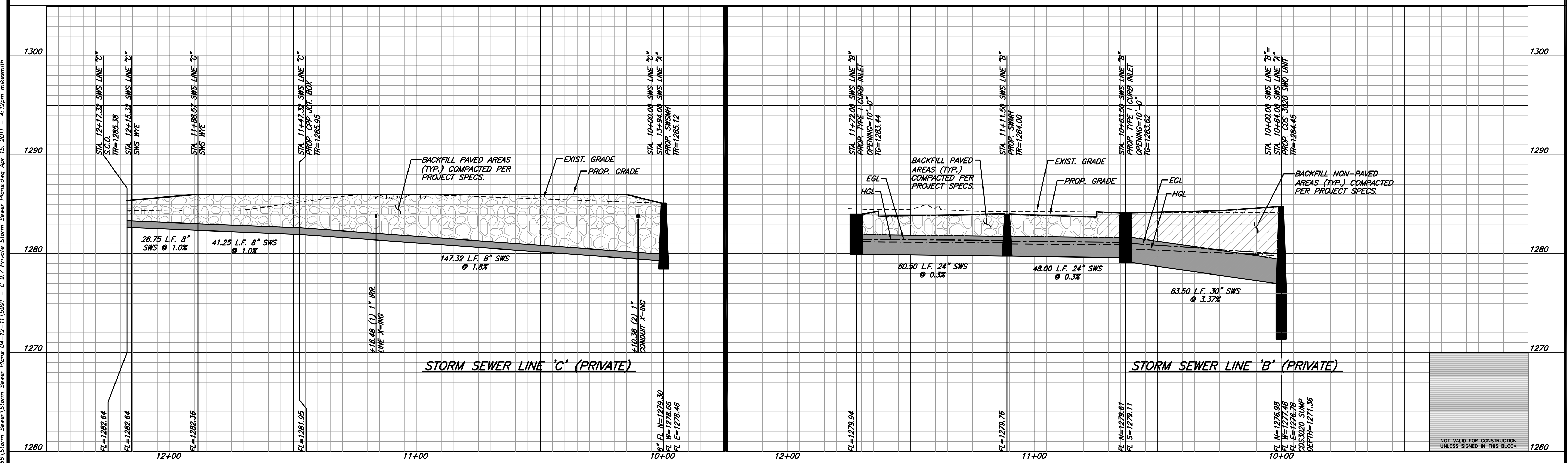
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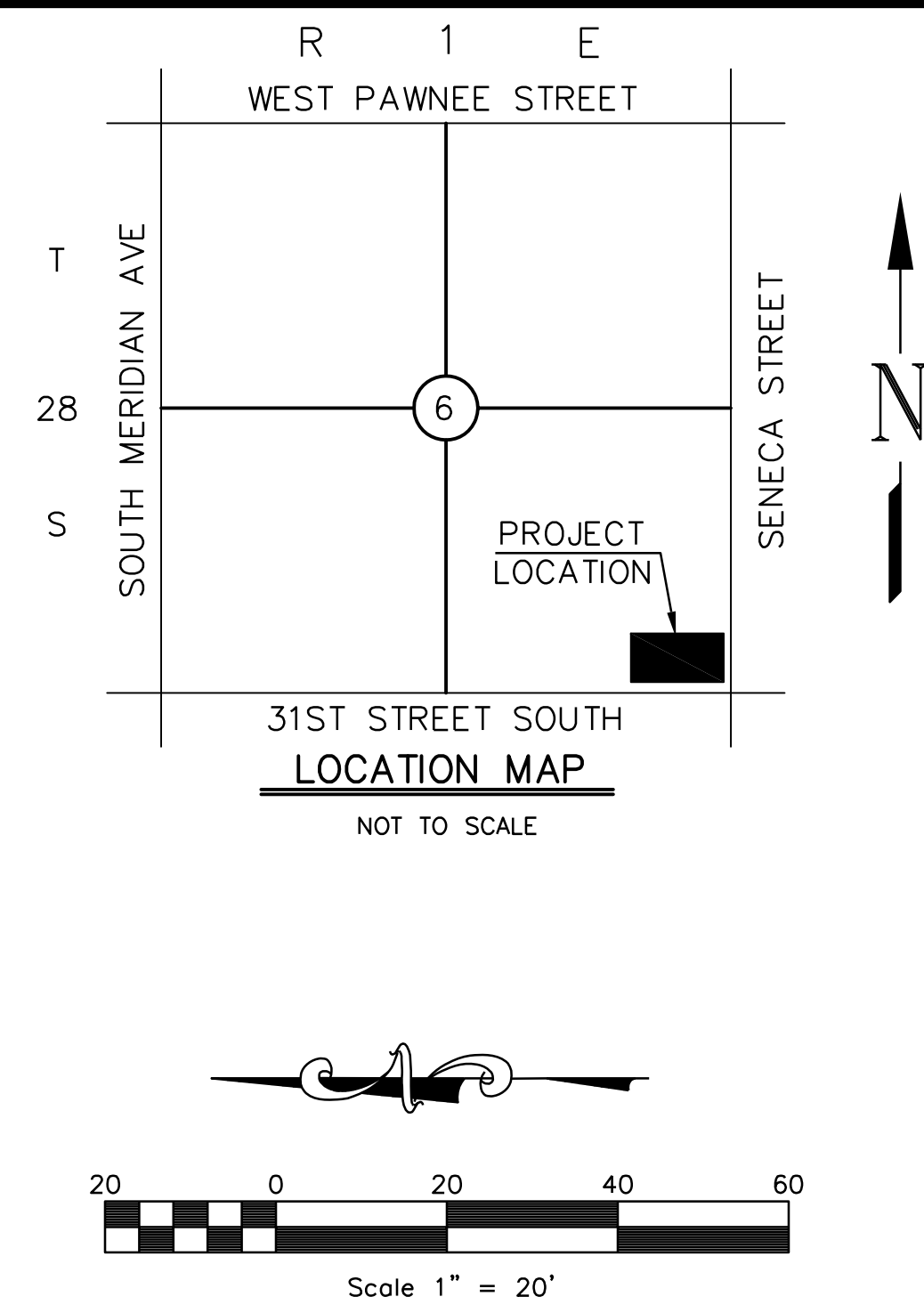
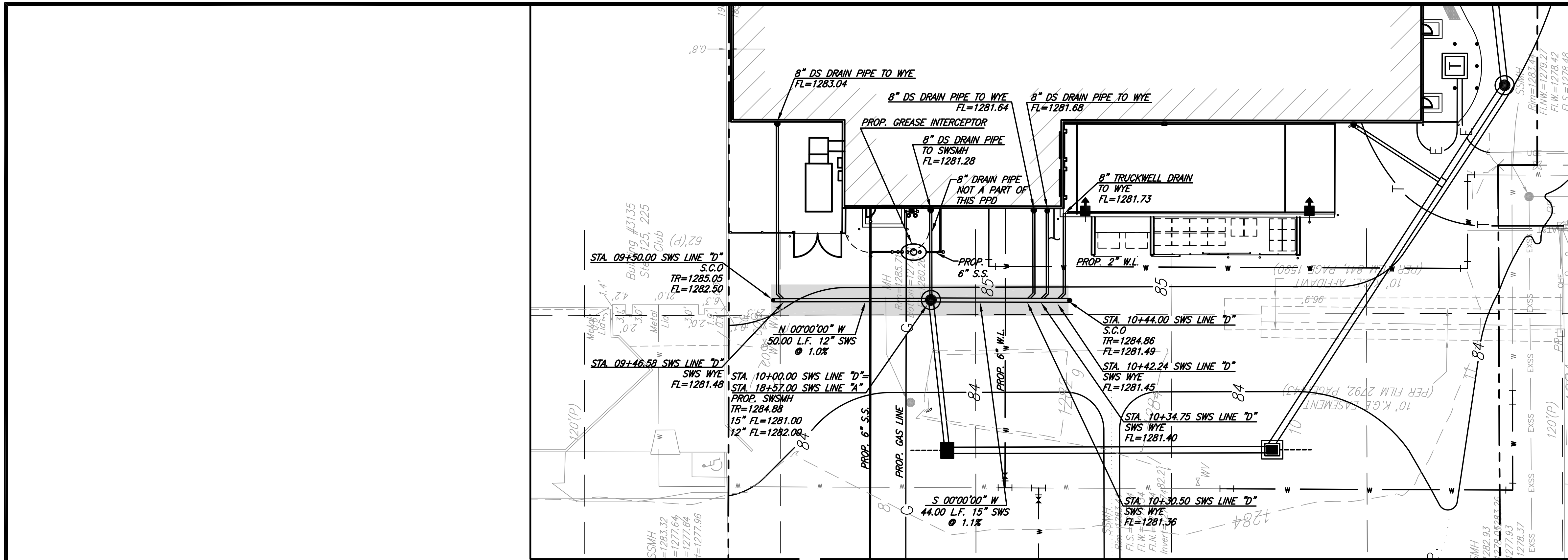


**LEGEND**

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V	W.L. GATE VALVE (G.V.)	C	GAS LINE
W	W.L. BENDS	U/E	UTILITY EASEMENT
SW	STORM SEWER INLET	SS	SANITARY SEWER
SWI	STORM SEWER CURB INLET	W.L.	WATER LINE
SMH	STORM SEWER MANHOLE (S.W.M.H.)	DS	DOWNSPOUT
		SWS	STORM SEWER







**LEGEND**

- |                        |  |      |                                       |
|------------------------|--|------|---------------------------------------|
| KV                     | LIGHT POLE AND FIXTURE TYPE (REF: SITE PLAN FOR DETAILS) | IRR  | IRRIGATION WATER LINE                 |
| SWS                    | STORM SEWER  | UGE  | POWER UNDERGROUND BY CONTRACTOR       |
| +                      | 3 WAY FIRE HYDRANT                                       | UGT  | TELEPHONE UNDERGROUND (PER CITY STDS) |
| W.L. TEE               | W.L. GATE VALVE (G.V.)                                   | G    | GAS LINE                              |
| W.L. BENDS             | STORM SEWER INLET  | U/E  | UTILITY EASEMENT                      |
| STORM SEWER CURB INLET | STORM SEWER MANHOLE (SWMH)                               | SS   | SANITARY SEWER                        |
| DS                     |  | W.L. | WATER LINE                            |
|                        |  | DS   | DOWNSPOUT                             |

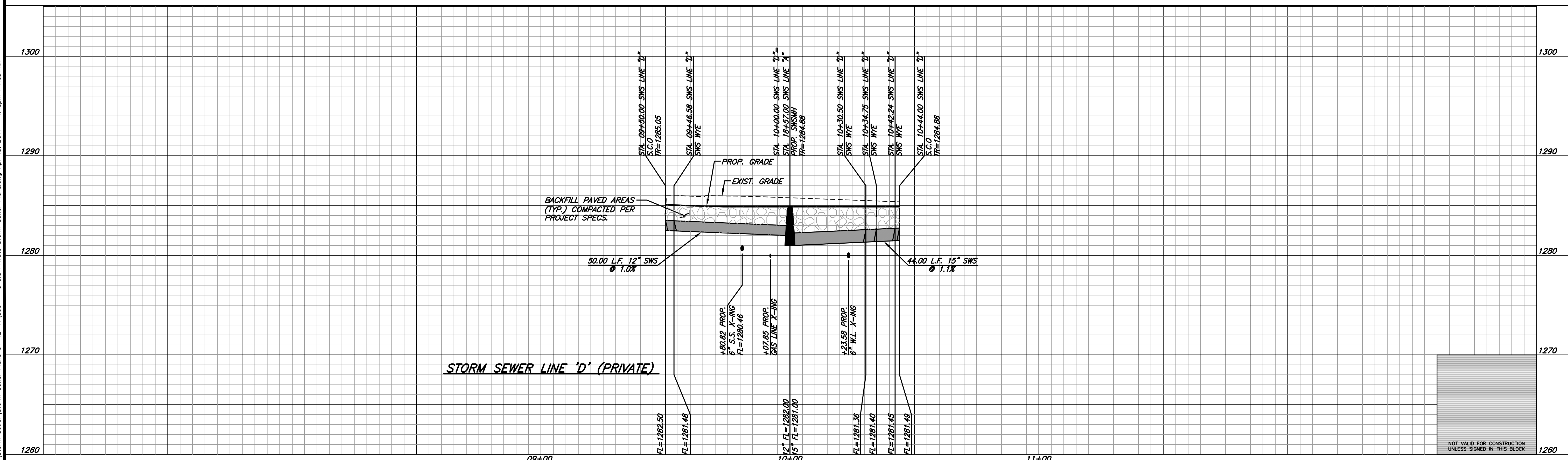
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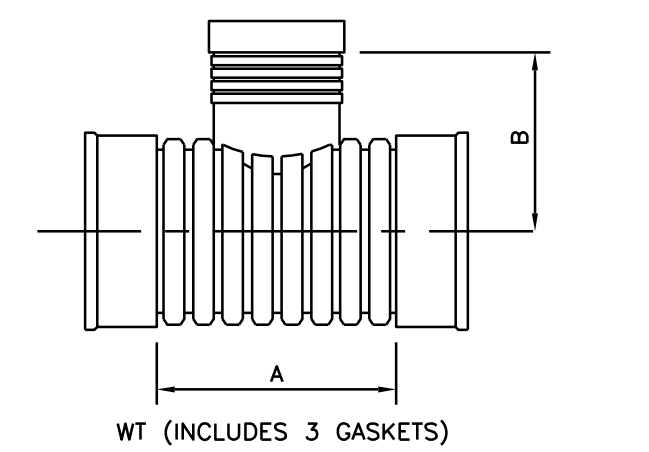


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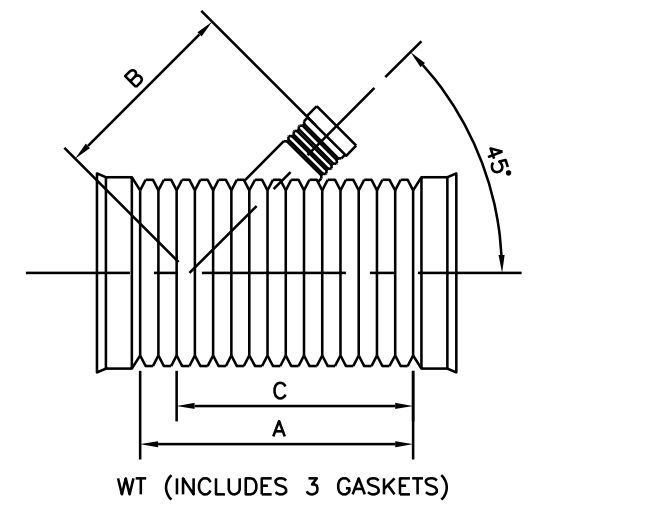
ADS PART #	PIPE SIZE	A	B	JOINT
1262AN65B	12"x8"	17.3"	15.1"	WT
1562AN65B	15"x8"	20.7"	16.9"	WT
2466AN65B	24"x12"	28.4"	19.3"	WT

**REDUCING TEE**



ADS PART #	PIPE SIZE	A	B	C	JOINT
1582AN65B	15"x8"	28.9"	24.5"	23.0"	WT
1282AN65B	12"x8"	28.5"	28.6"	23.0"	WT
0881AN65B	8"x6"	23.0"	17.3"	15.9"	WT

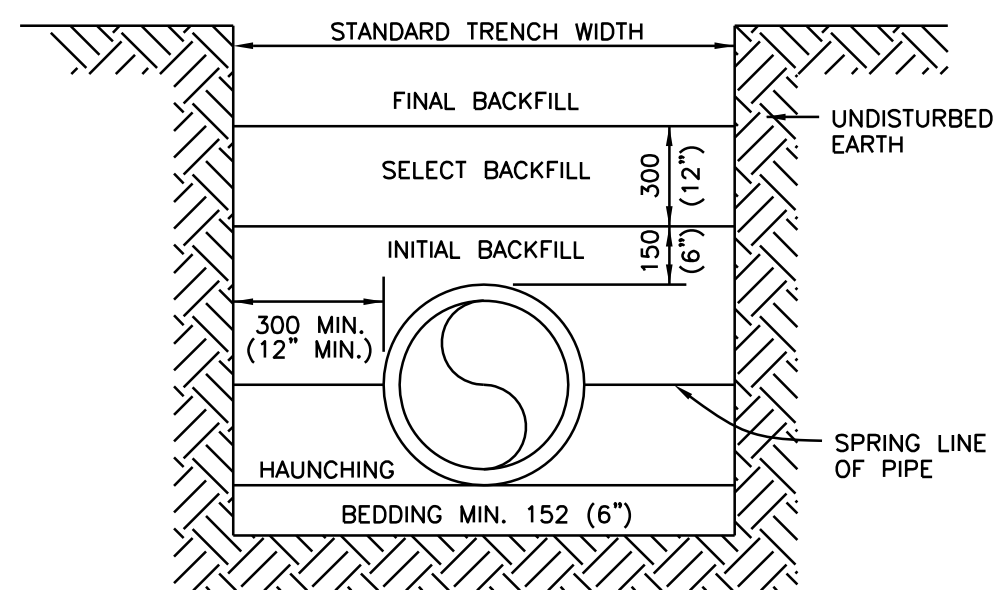
**REDUCING WYE**



NOTE: PLAIN END/SILT TIGHT/SOIL TIGHT FITTING ARE NOT ALLOWED.

**DUAL WALL FABRICATED REDUCING FITTINGS**

NTS



**BEDDING MATERIALS**

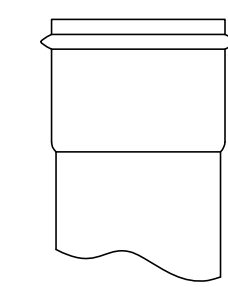
BACKFILL DESCRIPTION	NON-PAVED AREAS				PAVED AREAS (See Note 9)			
	CORRUGATED		CONCRETE	HDPE	CORRUGATED		CONCRETE	HDPE
	ALUMINUM	STEEL			ALUMINUM	STEEL		
FINAL BACKFILL	EXCAVATED MATERIAL	EXCAVATED MATERIAL	EXCAVATED MATERIAL	EXCAV. MAT.	SBM	SBM	SBM	SBM
SELECT BACKFILL	EXCAVATED MATERIAL	EXCAVATED MATERIAL	EXCAVATED MATERIAL	EXCAV. MAT.	SBM	SBM	SBM	SBM
INITIAL BACKFILL	SAND	SAND	SELECT FILL	SAND	SBM	SBM	SBM	SBM
HAUNCHING	SBM	SBM	SELECT FILL	SBM	SBM	SBM	SBM	SBM
BEDDING	SEE NOTE 5				SEE NOTE 5			

**NOTES:**

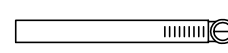
- INSTALLATION AND BACK FILLING SHALL MEET MANUFACTURERS RECOMMENDATIONS.
- SELECT FILL CONSISTS OF EXCAVATED MATERIALS CONTAINING NO MATERIAL LARGER THAN 50 MM (2") DIAMETER.
- STANDARD BEDDING MATERIAL (SBM) SHALL CONFORM TO KDOT TYPE AB-3 AGGREGATE BASE OR FLOWABLE FILL OR APPROVED EQUAL.
- COMPACTION REQUIREMENTS:  
95% MAXIMUM STANDARD PROCTOR DENSITY.
- IF TRENCH IS DRY BEDDING SHALL BE 152 MM (6") SAND OR TYPE AB-3 AGGREGATE BASE, AND IF WET SHALL BE NO. 57 OR NO. 67 ROCK PER ASTM D448.
- NO WATER JETTING ALLOWED.
- IN SANDY NON-PAVED AREAS, SAND CAN BE USED FOR ALL BACKFILL.
- FOR CONCRETE PIPE IN NON-PAVED AREAS, SAND CAN BE USED FOR ALL BACKFILL IF THE CONCRETE PIPE USES RUBBER O-RING JOINTS.
- THE BACKFILL MATERIAL SHALL EXTEND A MINIMUM OF 2- FEET BEHIND THE BACK OF CURB, OR THE EDGE OF PAVEMENT WHERE NO CURB EXISTS.
- ADDITIONAL BEDDING MAY BE REQUIRED FOR SOFT SOIL AND SHALLOW GROUNDWATER CONDITIONS.

(METRIC UNITS ARE IN MM WITH ENGLISH UNITS IN PARENTHESIS, UNLESS INDICATED OTHERWISE.)

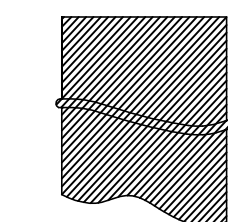
**STORM SEWER PIPE TRENCHING AND BEDDING**



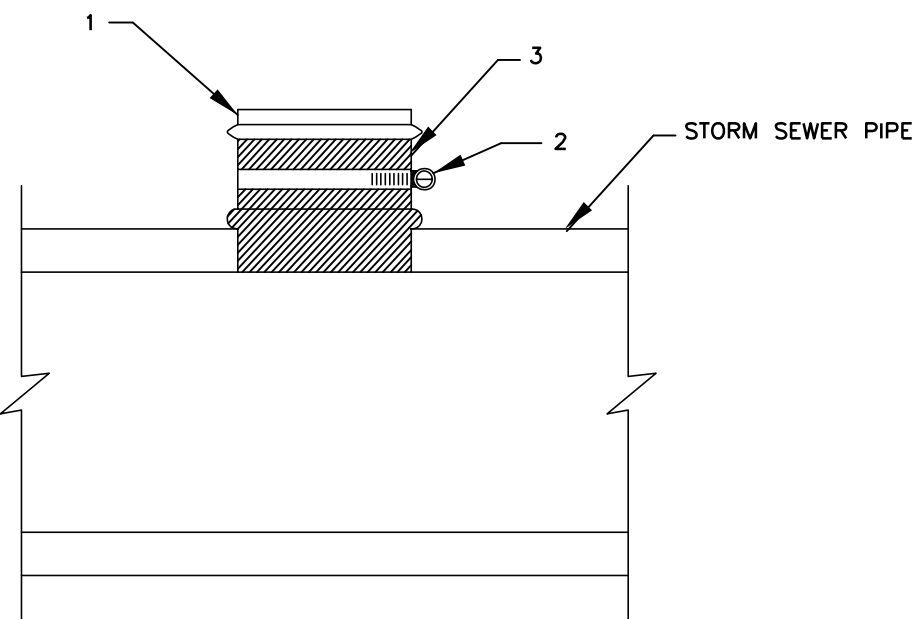
1. PVC HUB SHALL CONFORM TO ASTM 3034, SDR 35 DRIVE INTO CENTER OF RUBBER SLEEVE AFTER SLEEVE IS PLACED IN HOLE.



2. STAINLESS STEEL BAND SECURES UPPER HALF OF RUBBER SLEEVE TO THE PVC HUB. STAINLESS STEEL BAND SHALL BE 300 SERIES, 3/16" BAND WIDTH, CADMIUM PLATED CARBON STEEL, AND ATTACHED WITH HEX HEAD SLOTTED SCREW.



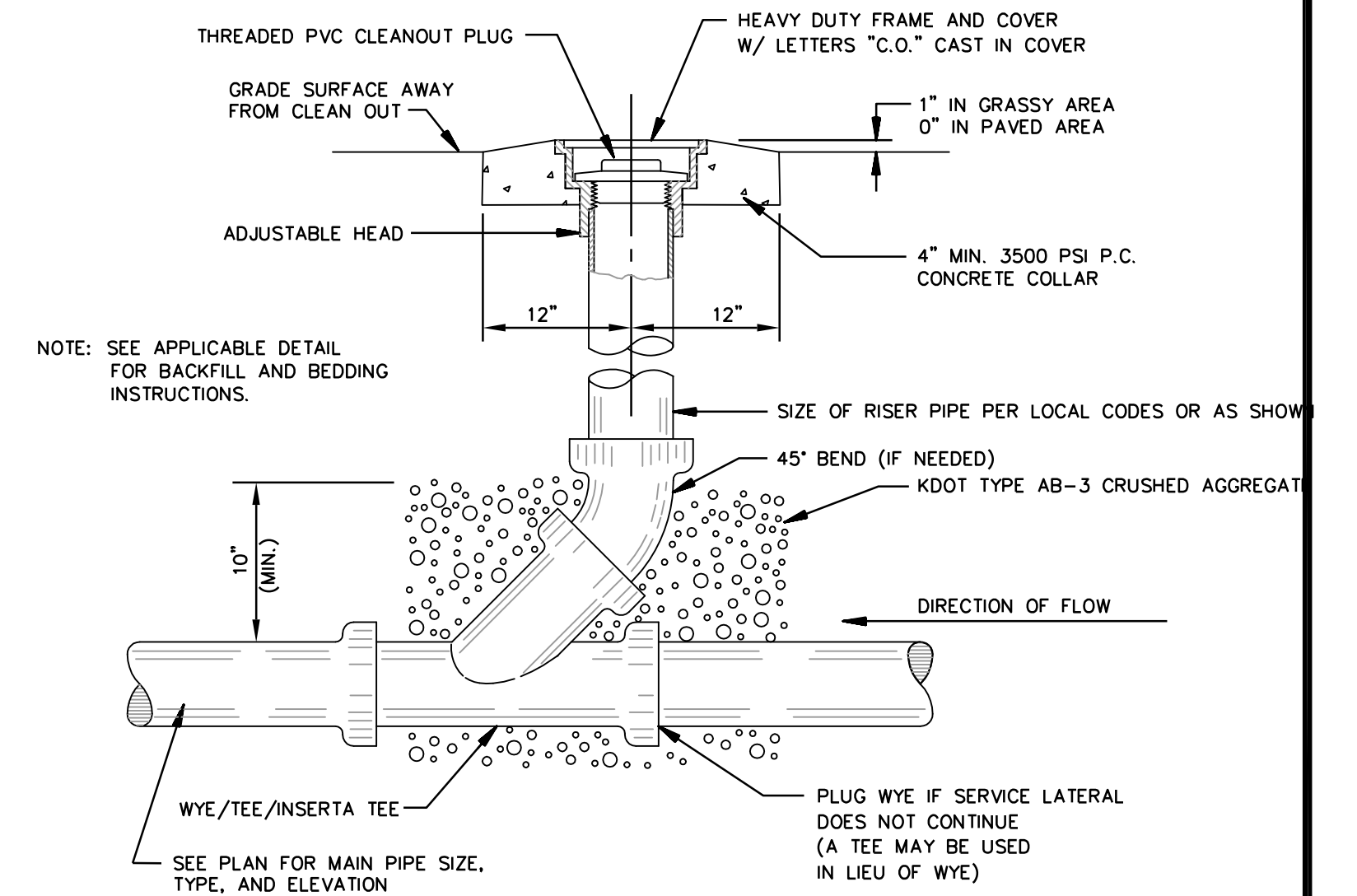
3. COMPLETE RUBBER SLEEVE INCLUDES A MOLDED SEGMENT THAT HOLDS IT IN PLACE.



- ALL INSERTA-TEE HOLES SHALL BE MACHINE DRILLED AND CORED. INSERTA-TEE ARE ALLOWED IN NEWLY CONSTRUCTED STORM SEWER 12" AND LARGER INSIDE DIAMETER (I.D.).
- STORM SEWER MAIN SHALL BE TWO SIZES (NOMINAL I.D.) LARGER THAN THE INSERTA-TEE.
- HOST PIPE SHALL BE MINIMUM .35" WALL THICKNESS.

**CPP JCT BOX (INSERTA-TEE) DETAIL**

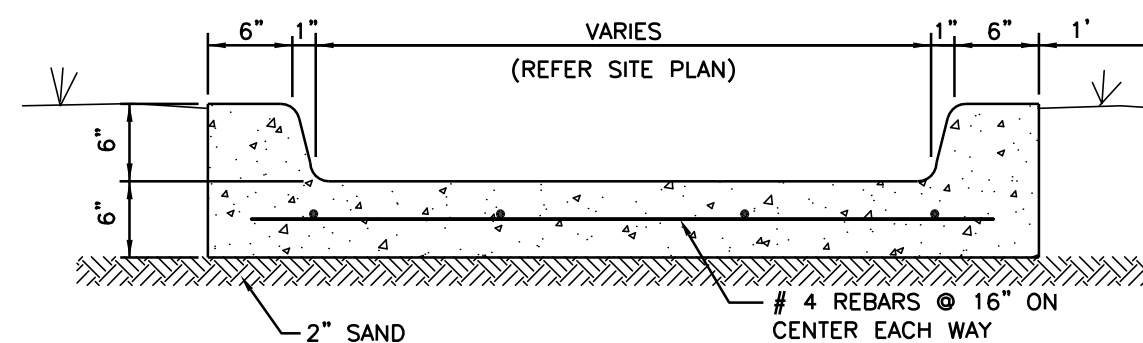
NTS



NOTE: SEE APPLICABLE DETAIL FOR BACKFILL AND BEDDING INSTRUCTIONS.

**CLEAN-OUT DETAIL**

NTS



**SECTION A-A**

- NOTE:
- PROVIDE CONTRACTION JOINTS @ 10' c/c.
  - CONCRETE SHALL BE AIR ENTRAINED CLASS 'A' PER KDOT SPECS.
  - ALL CONCRETE FLUMES SHALL BE CONSTRUCTED W/ CONTRACTION JOINTS @ 10' c/c AND CONSTRUCTION JOINTS @ 50' MAXIMUM. JOINTS SHALL BE SEALED PER CONCRETE JOINT DETAIL PROVIDED IN SITEWORK DETAILS.

**CURB FLUME DETAILS**

NTS

**STORM SEWER DETAILS**

**WALMART MARKET #5991-00**

**31st STREET & S. SENECA  
WICHITA, KANSAS**

**SMC Consulting Engineers, P.C.**

815 West Main - Oklahoma City, OK 73106  
PH: 405-232-7715 Fax: 405-232-7859



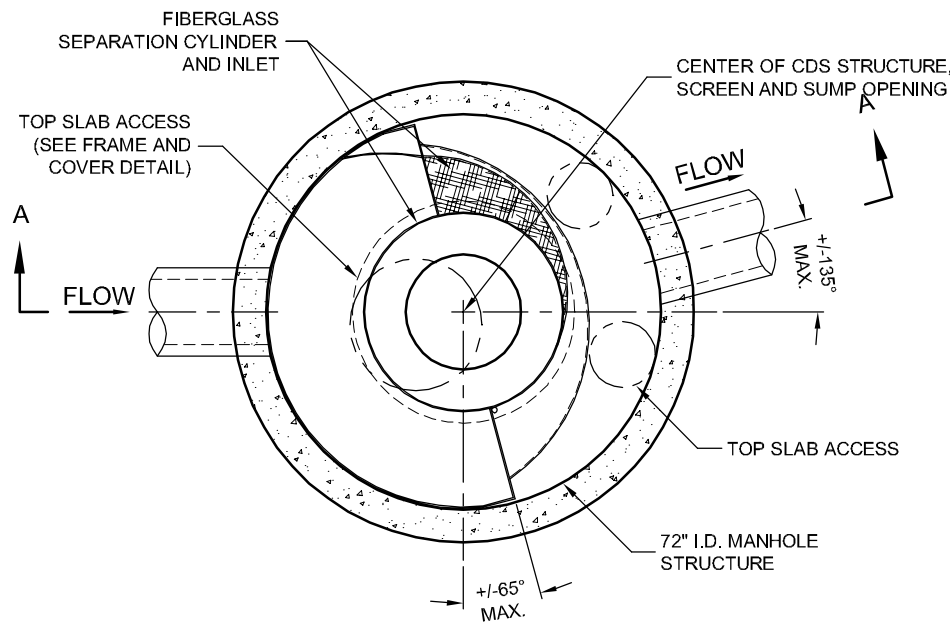
KANSAS CERTIFICATE OF AUTHORIZATION NO. E-335 EXP. DEC. 2011

No.	Revision	By	Date
1	Per SMC review	MDS	03/01/11
2	Per SMC review	MDS	03/29/11
3	Per SMC review	MDS	04/12/11

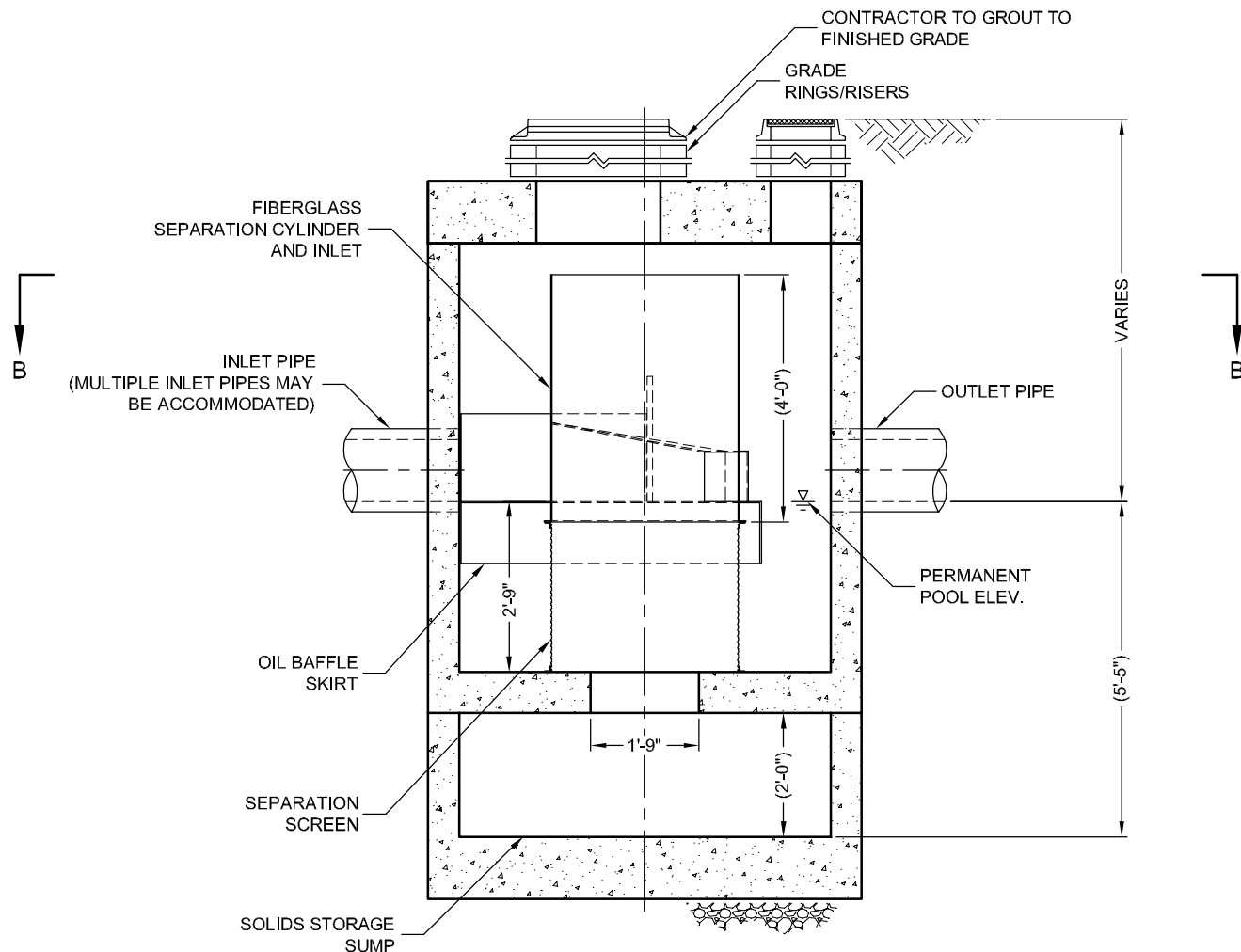
DATE: 01/20/11	SCALE:	SHEET NO.
DRAWN BY: MDS	NTS	C-9.9
PROJECT NO.: 4966.00		
ENGINEER: TERENCE L. HAYNES, P.E. #14583		

NOT VALID FOR CONSTRUCTION UNLESS SIGNED IN THIS BLOCK

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**PLAN VIEW B-B**  
N.T.S.



**ELEVATION A-A**  
N.T.S.



THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 5,748,848; 5,748,849; 5,748,850; 5,748,851; 5,748,852; 5,748,853; 5,748,854; 5,748,855; 5,748,856; 5,748,857; 5,748,858; 5,748,859; 5,748,860; 5,748,861; 5,748,862; 5,748,863; 5,748,864; 5,748,865; 5,748,866; 5,748,867; 5,748,868; 5,748,869; 5,748,870; 5,748,871; 5,748,872; 5,748,873; 5,748,874; 5,748,875; 5,748,876; 5,748,877; 5,748,878; 5,748,879; 5,748,880; 5,748,881; 5,748,882; 5,748,883; 5,748,884; 5,748,885; 5,748,886; 5,748,887; 5,748,888; 5,748,889; 5,748,890; 5,748,891; 5,748,892; 5,748,893; 5,748,894; 5,748,895; 5,748,896; 5,748,897; 5,748,898; 5,748,899; 5,748,900; 5,748,901; 5,748,902; 5,748,903; 5,748,904; 5,748,905; 5,748,906; 5,748,907; 5,748,908; 5,748,909; 5,748,910; 5,748,911; 5,748,912; 5,748,913; 5,748,914; 5,748,915; 5,748,916; 5,748,917; 5,748,918; 5,748,919; 5,748,920; 5,748,921; 5,748,922; 5,748,923; 5,748,924; 5,748,925; 5,748,926; 5,748,927; 5,748,928; 5,748,929; 5,748,930; 5,748,931; 5,748,932; 5,748,933; 5,748,934; 5,748,935; 5,748,936; 5,748,937; 5,748,938; 5,748,939; 5,748,940; 5,748,941; 5,748,942; 5,748,943; 5,748,944; 5,748,945; 5,748,946; 5,748,947; 5,748,948; 5,748,949; 5,748,950; 5,748,951; 5,748,952; 5,748,953; 5,748,954; 5,748,955; 5,748,956; 5,748,957; 5,748,958; 5,748,959; 5,748,960; 5,748,961; 5,748,962; 5,748,963; 5,748,964; 5,748,965; 5,748,966; 5,748,967; 5,748,968; 5,748,969; 5,748,970; 5,748,971; 5,748,972; 5,748,973; 5,748,974; 5,748,975; 5,748,976; 5,748,977; 5,748,978; 5,748,979; 5,748,980; 5,748,981; 5,748,982; 5,748,983; 5,748,984; 5,748,985; 5,748,986; 5,748,987; 5,748,988; 5,748,989; 5,748,990; 5,748,991; 5,748,992; 5,748,993; 5,748,994; 5,748,995; 5,748,996; 5,748,997; 5,748,998; 5,748,999; 5,749,000.

**CDS3020-6-C DESIGN NOTES**

CDS3020-6-C RATED TREATMENT CAPACITY IS 2.0 CFS, OR PER LOCAL REGULATIONS. MAXIMUM HYDRAULIC INTERNAL BYPASS CAPACITY IS 20.0 CFS. IF THE SITE CONDITIONS EXCEED 20.0 CFS, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

THE STANDARD CDS3020-6-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

**CONFIGURATION DESCRIPTION**

- GRATED INLET ONLY (NO INLET PIPE)
- GRATED INLET WITH INLET PIPE OR PIPES
- CURB INLET ONLY (NO INLET PIPE)
- CURB INLET WITH INLET PIPE OR PIPES
- SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)
- SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS



**FRAME AND COVER**  
(DIAMETER VARIES)  
N.T.S.

**SITE SPECIFIC DATA REQUIREMENTS**

STRUCTURE ID				
WATER QUALITY FLOW RATE (CFS)				*
PEAK FLOW RATE (CFS)				*
RETURN PERIOD OF PEAK FLOW (YRS)				*
SCREEN APERTURE (2400 OR 4700)				*
PIPE DATA:	I.E.	MATERIAL	DIAMETER	
INLET PIPE 1	*	*	*	
INLET PIPE 2	*	*	*	
OUTLET PIPE	*	*	*	
RIM ELEVATION				*
ANTI-FLOTATION BALLAST	WIDTH	HEIGHT		
	*	*		
NOTES/SPECIAL REQUIREMENTS:				
* PER ENGINEER OF RECORD				

**GENERAL NOTES**

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH CONSTRUCTION PRODUCTS REPRESENTATIVE. [www.contech-cpi.com](http://www.contech-cpi.com)
4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET AASHTO M306 LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.

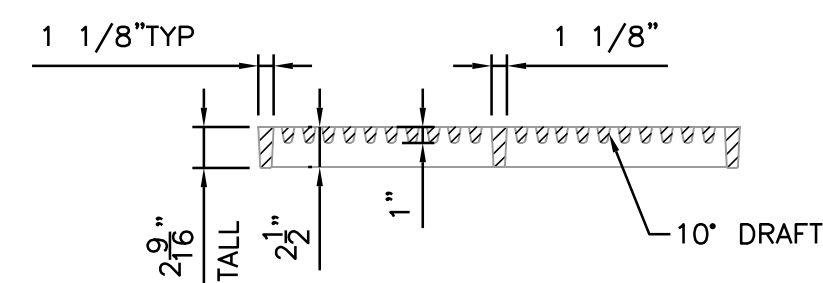
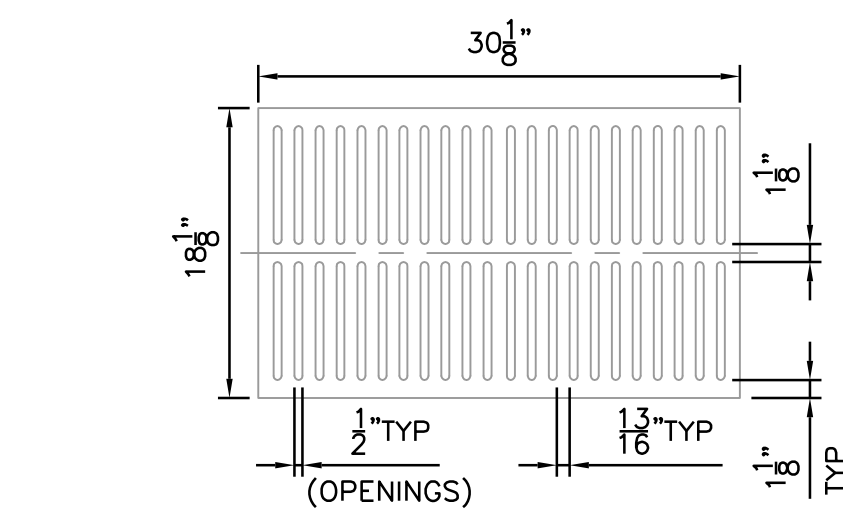
**INSTALLATION NOTES**

1. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
2. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
3. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
4. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
5. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

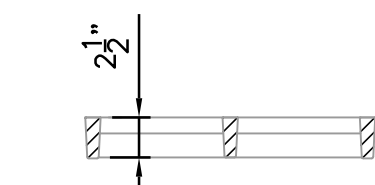


[www.contech-cpi.com](http://www.contech-cpi.com)  
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069  
800-338-1122 513-645-7000 513-645-7993 FAX

CDS3020-6-C  
INLINE CDS  
STANDARD DETAIL

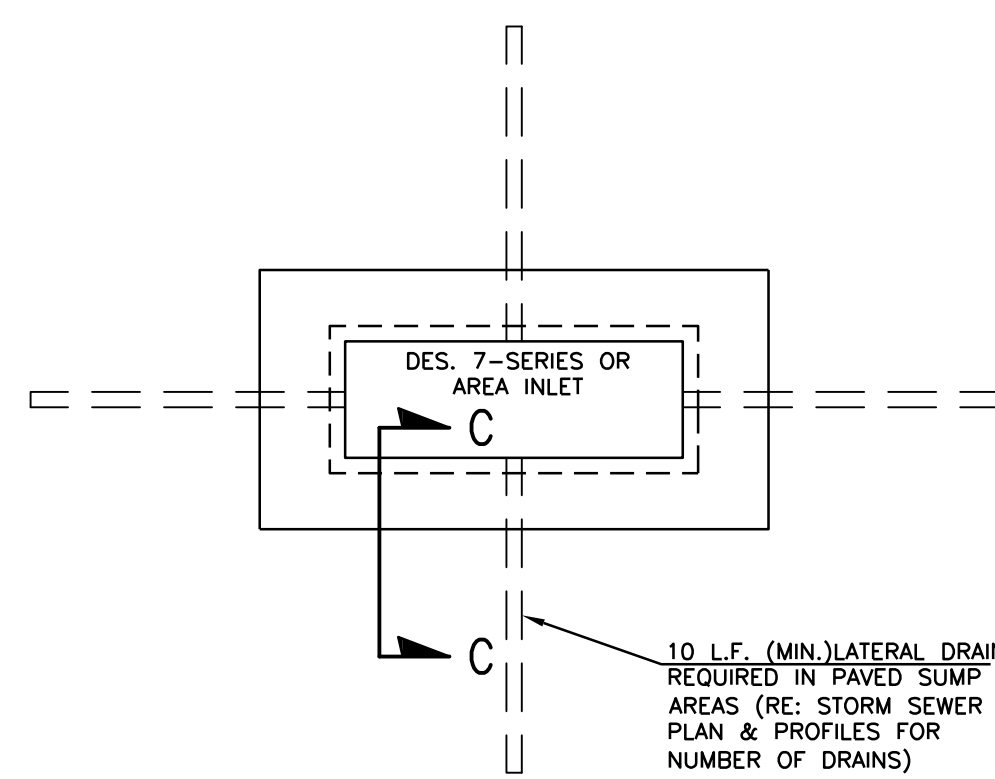


SIDE SECTION VIEW



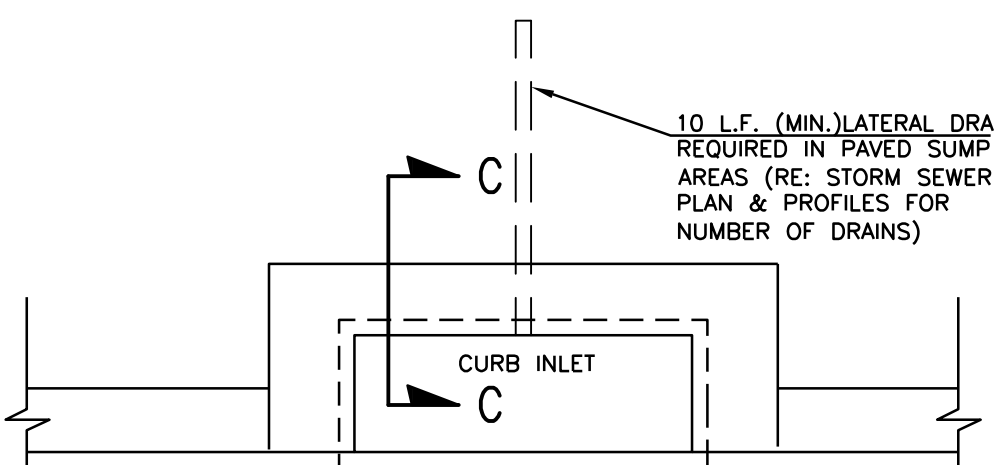
END SECTION VIEW

ADA GRATE, CATALOG NO. V-4230-1  
W/ SLOT OPENING WIDTH OF 1/2"  
EAST JORDAN IRON WORK FOUNDRY  
N.T.S.



INFILTRATION DRAINS AT AREA INLET

N.T.S.



INFILTRATION DRAINS AT CURB INLET

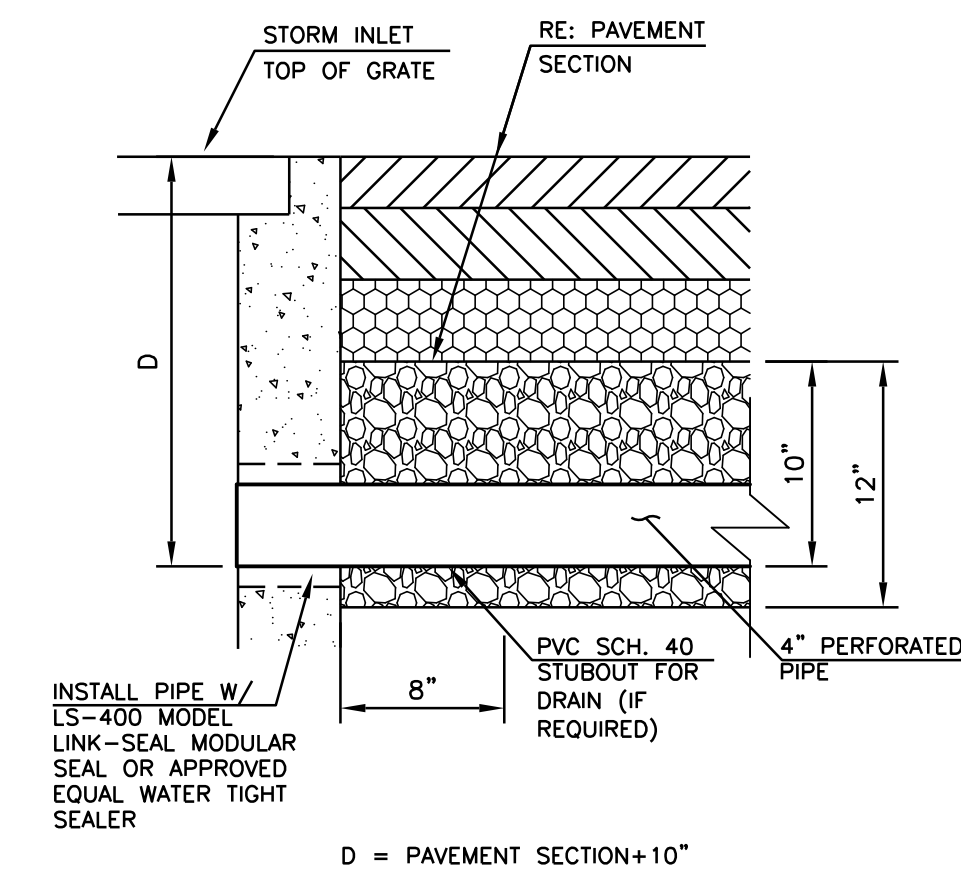
N.T.S.

GENERAL NOTES - INFILTRATION DRAINS

1. INFILTRATION DRAINS IN LANDSCAPE AREAS NOT REQUIRED.
2. STORM SEWER SYSTEM SHALL BE INSTALLED PRIOR TO THE INSTALLATION OF INFILTRATION DRAINS. CONTRACTOR SHALL ESTABLISHED LAYOUT OF THE INFILTRATION DRAINS WITHOUT CAUSING ANY CONFLICT WITH THE PROPOSED STORM SEWER SYSTEM AND OTHER UNDERGROUND UTILITIES. INFILTRATION DRAINS CAN BE INSTALLED NEXT TO THE STORM SEWER ENTERING/LEAVING THE INLET.

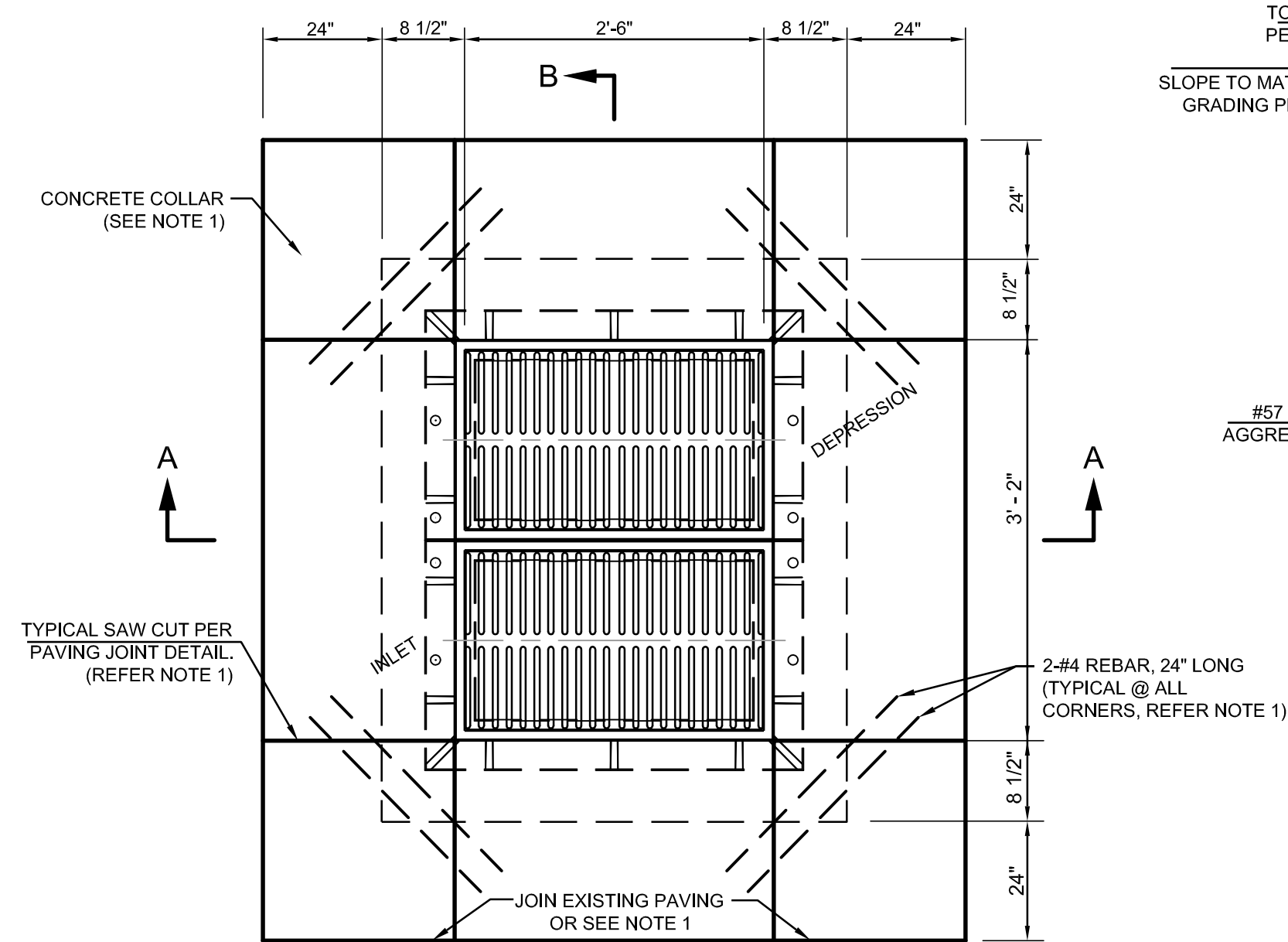
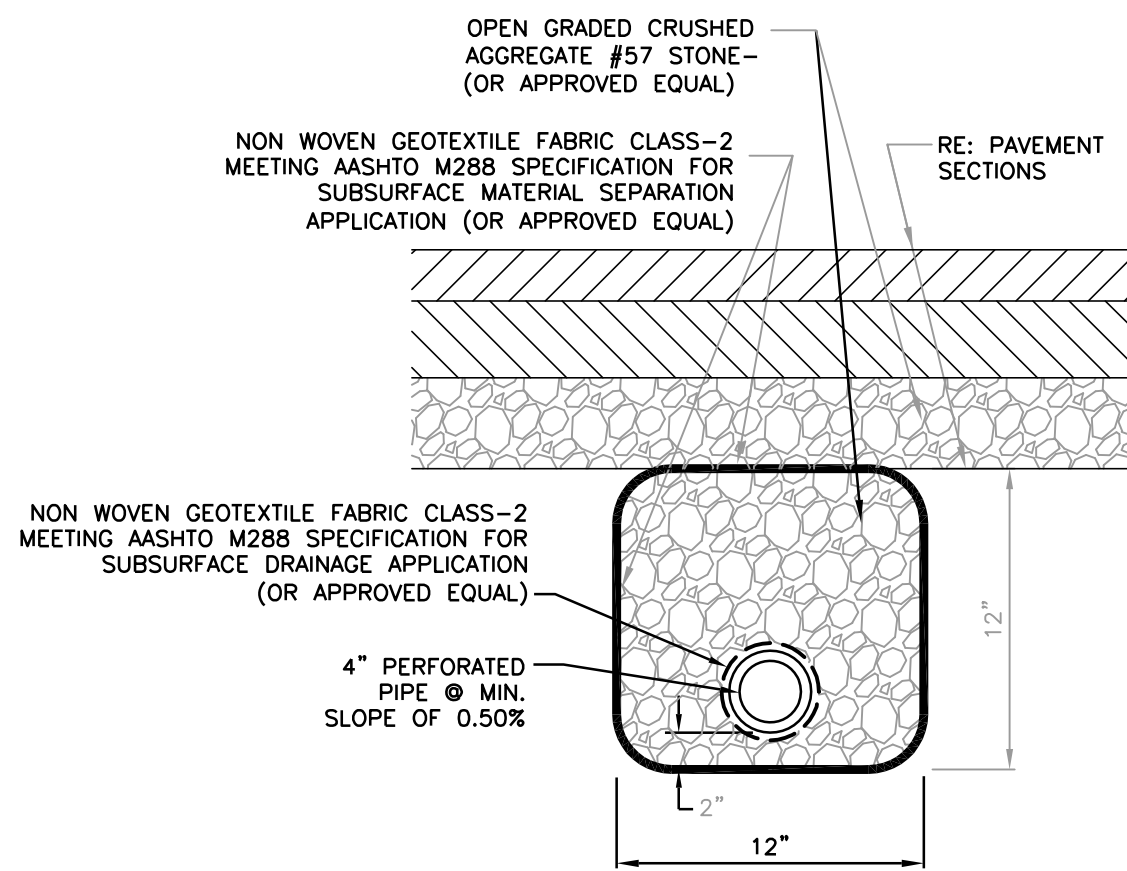
INFILTRATION DRAIN DETAIL

N.T.S.

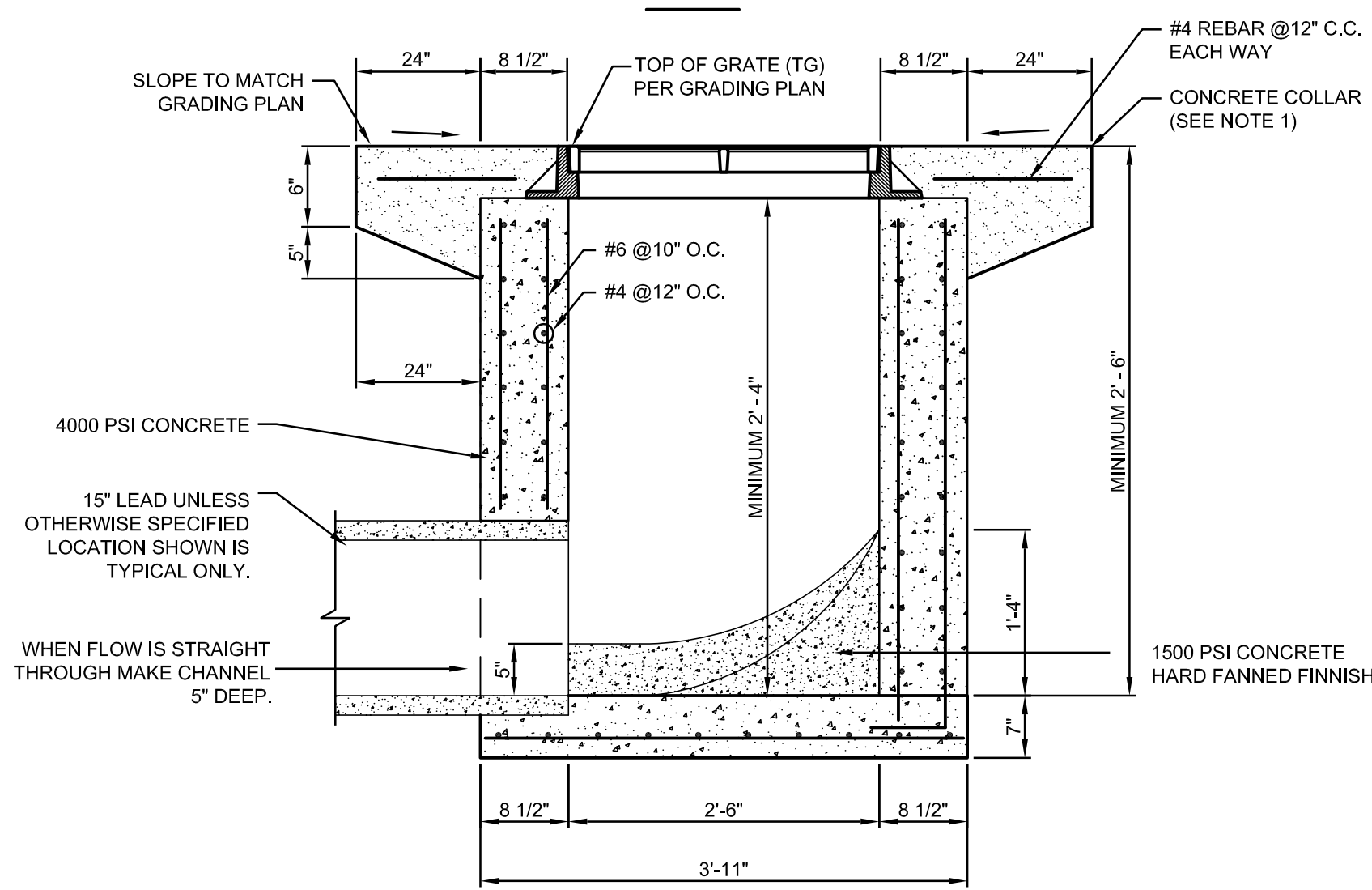


SECTION C-C

N.T.S.



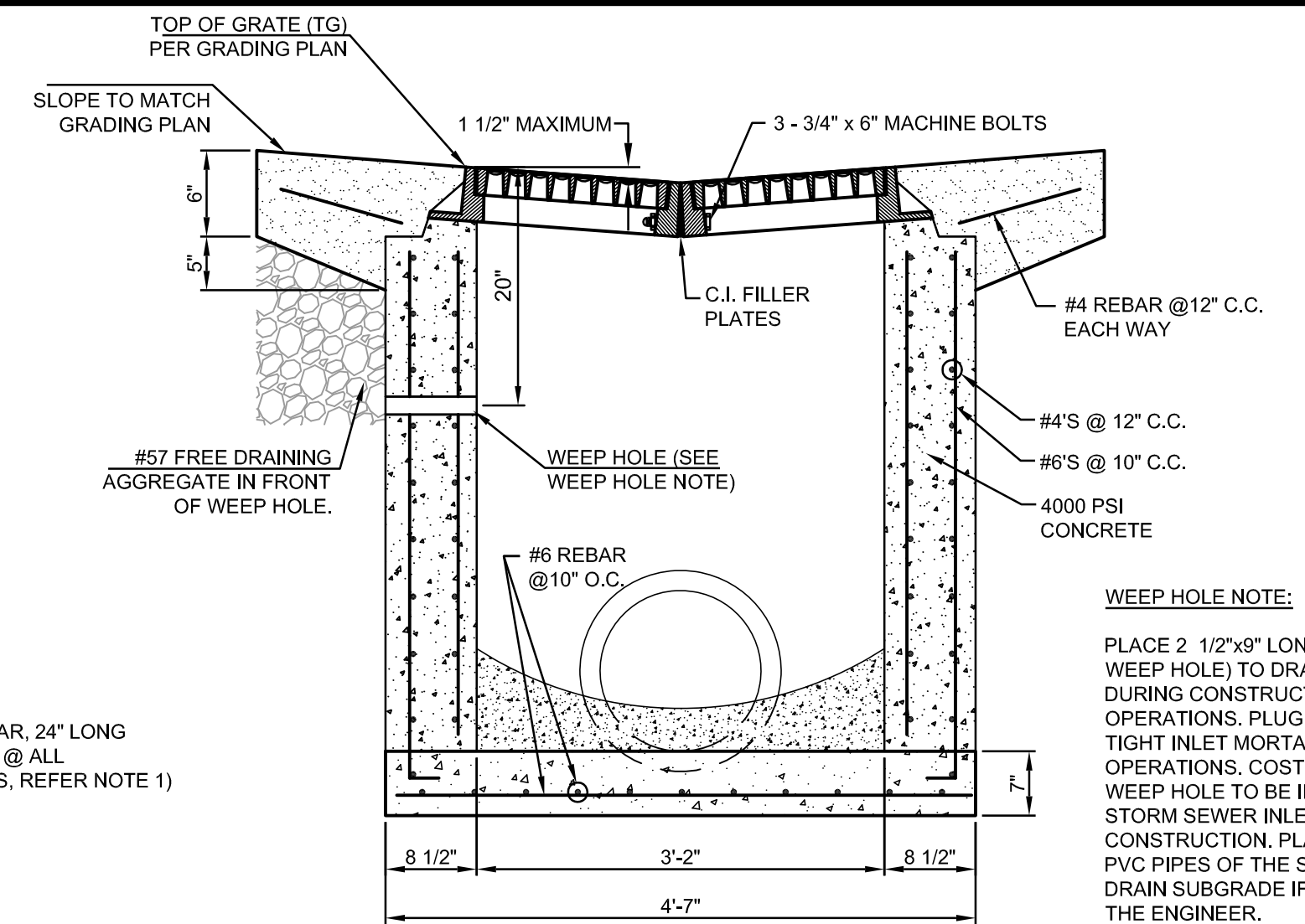
PLAN



SECTION A-A

DESIGN #6 INLET

N.T.S.



SECTION B-B

STORM SEWER INLET  
DESIGN #6 (DOUBLE GRATINGS)

GENERAL NOTES

- 1-a. WHEN INLET IS BUILT IN NEW CONCRETE PAVEMENT, THE INLET CONCRETE APRON SHALL BE MONOLITHIC WITH NEW CONCRETE PAVEMENT AND SHALL CONFORM TO PLANS AND SPECIFICATIONS THEREOF. THE SAW CUT LAYOUT FOR INLET CONCRETE APRON SHALL MATCH WITH THE MONOLITHIC CONCRETE PAVING. PROVIDE 2-#4, 24" LONG DIAGONAL REBARS AT ALL INLET CORNERS WHEN POURING CONCRETE MONOLITHIC PAVEMENT.
- 1-b. WHEN INLET IS BUILT IN NEW ASPHALT PAVEMENT, THE INLET CONCRETE APRON SHALL FLUSH WITH NEW ASPHALT PAVEMENT. THE NEW ASPHALT PAVEMENT SHALL BE 1/4" HIGHER THAN INLET CONCRETE APRON AT INTERFACE AND SHALL HAVE THICKENED EDGE AS PER DETAIL SHOWN HERE. PROVIDE SAW CUT IN INLET CONCRETE APRON AS PER DETAIL SHOWN HERE. CONCRETE SAW CUT SHALL BE SEALED IN ACCORDANCE WITH THE CONCRETE JOINT DETAILS SHOWN IN PROJECT PLANS.
- 1-c. WHEN INLET IS BUILT IN EXISTING CONCRETE OR ASPHALT PAVEMENT THE INLET CONCRETE APRON SHALL CONFORM TO NOTE 1-b.
2. CAST IRON STEPS SHALL BE PLACED IN ALL INLETS 3' OR MORE IN DEPTH IN CONFORMITY WITH STANDARD OSHA GUIDELINES.
3. GRATINGS TO BE USED IN THIS STRUCTURE WILL BE SHOWN ON THE PLANS OR DESIGNATED IN DETAILS.
4. BASIS OF PAYMENT FOR INLETS SHALL BE LUMP SUM INCLUDING REMOVAL AND REPLACEMENT OF EXISTING PAVEMENT.
5. CONCRETE SHALL BE AIR ENTRAINED PER PROJECT SPECS.
6. STORM SEWER STRUCTURES (JUNCTION BOX/MANHOLE/INLETS) SHALL BE PRE-CAST IN ACCORDANCE WITH ASTM STANDARDS. SUBMITTALS FOR PRE-CAST STRUCTURES WITH A WALL THICKNESS OTHER THAN SHOWN HERE SHALL BE SUPPORTED BY ENGINEER'S APPROVED SHOP DRAWINGS. NO BRICK CONSTRUCTION IS ALLOWED.
7. A MINIMUM OF 6" THICK 1 1/2" CLEAN ROCK/AGGREGATE BASE (ASTM #57) WILL BE REQUIRED UNDER STORM SEWER STRUCTURES (JUNCTION BOX/MANHOLE/INLETS).

DESIGN #6 INLET DETAILS

WALMART MARKET #5991-00

31st STREET & S. SENECA  
WICHITA, KANSAS

SMC Consulting Engineers, P.C.

815 West Main - Oklahoma City, OK 73106  
PH: 405-232-7715 Fax: 405-232-7859  
KANSAS CERTIFICATE OF AUTHORIZATION NO. E-335 EXP. DEC. 2011



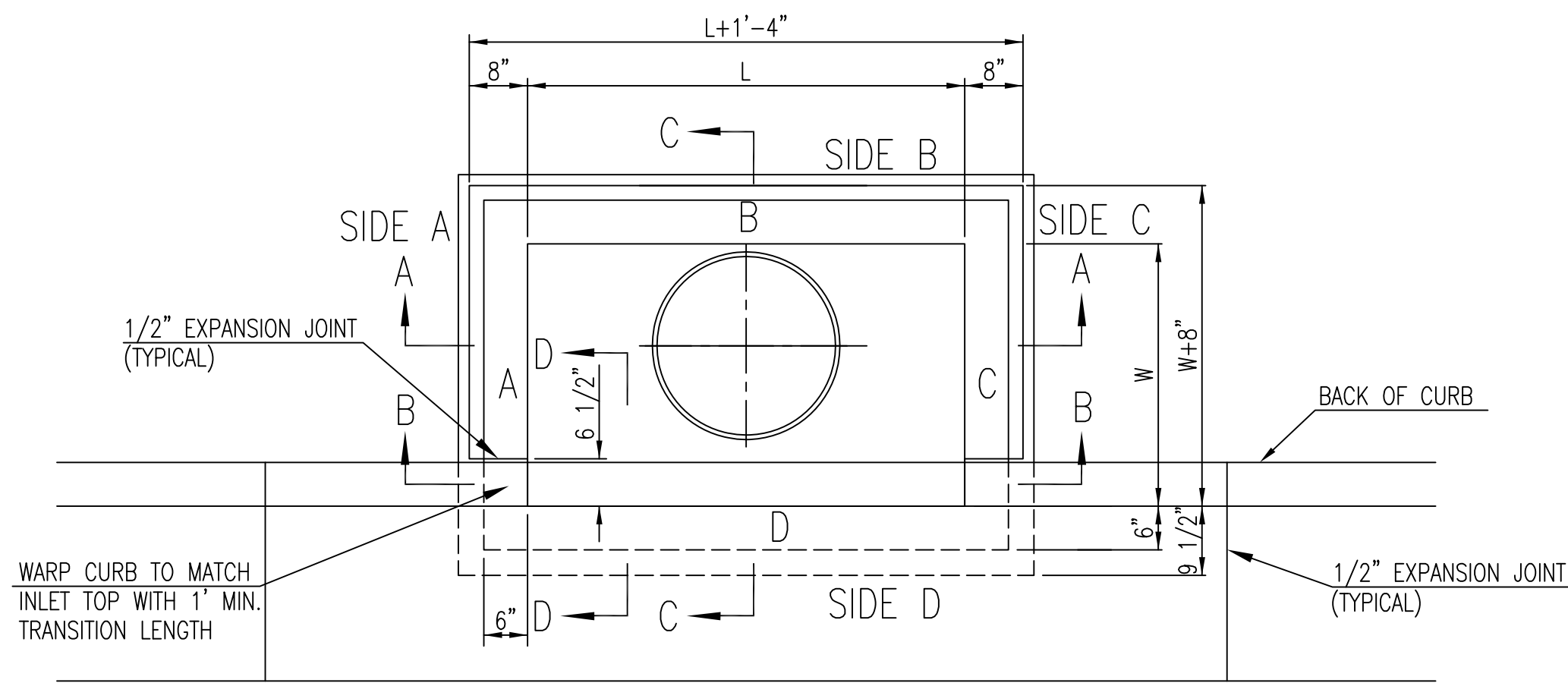
No.	Revision	By	Date

DATE: 04/12/11  
DRAWN BY: MDS  
PROJECT NO.: 4966.00

SCALE: NTS  
SHEET NO. C-9.11

ENGINEER: TERENCE L. HAYNES, P.E. #14583

NOT VALID FOR CONSTRUCTION UNLESS SIGNED IN THIS BLOCK



TOP VIEW

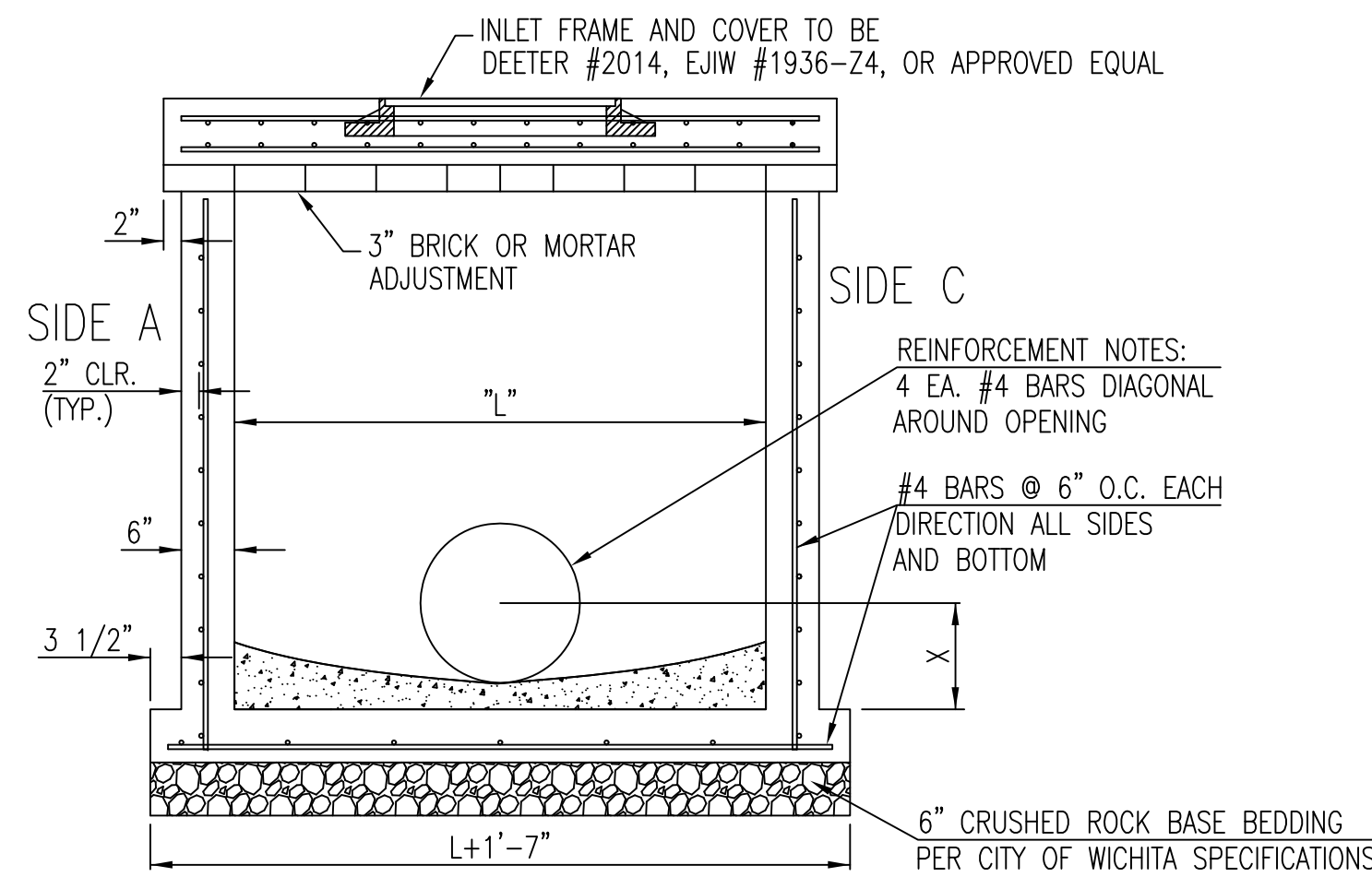
BAR SCHEDULE		
INLET OPENING	B1 BARS	SPACING
5'-0"	#4	4"
10'-0"	#6	3.5"

W	PRE-CAST TOP SIZE			PIPE DIA.**
	WIDTH	LENGTH	TOP	
3'-0"	W+8"	L+1'-4"	7 1/2"	21" & SMALLER
4'-0"	W+8"	L+1'-4"	7 1/2"	24" & 30"
5'-0"	W+8"	L+1'-4"	7 1/2"	36" & 42"
6'-0"	W+8"	L+1'-4"	7 1/2"	48" & 54"
7'-0"	W+8"	L+1'-4"	7 1/2"	60" & 66"

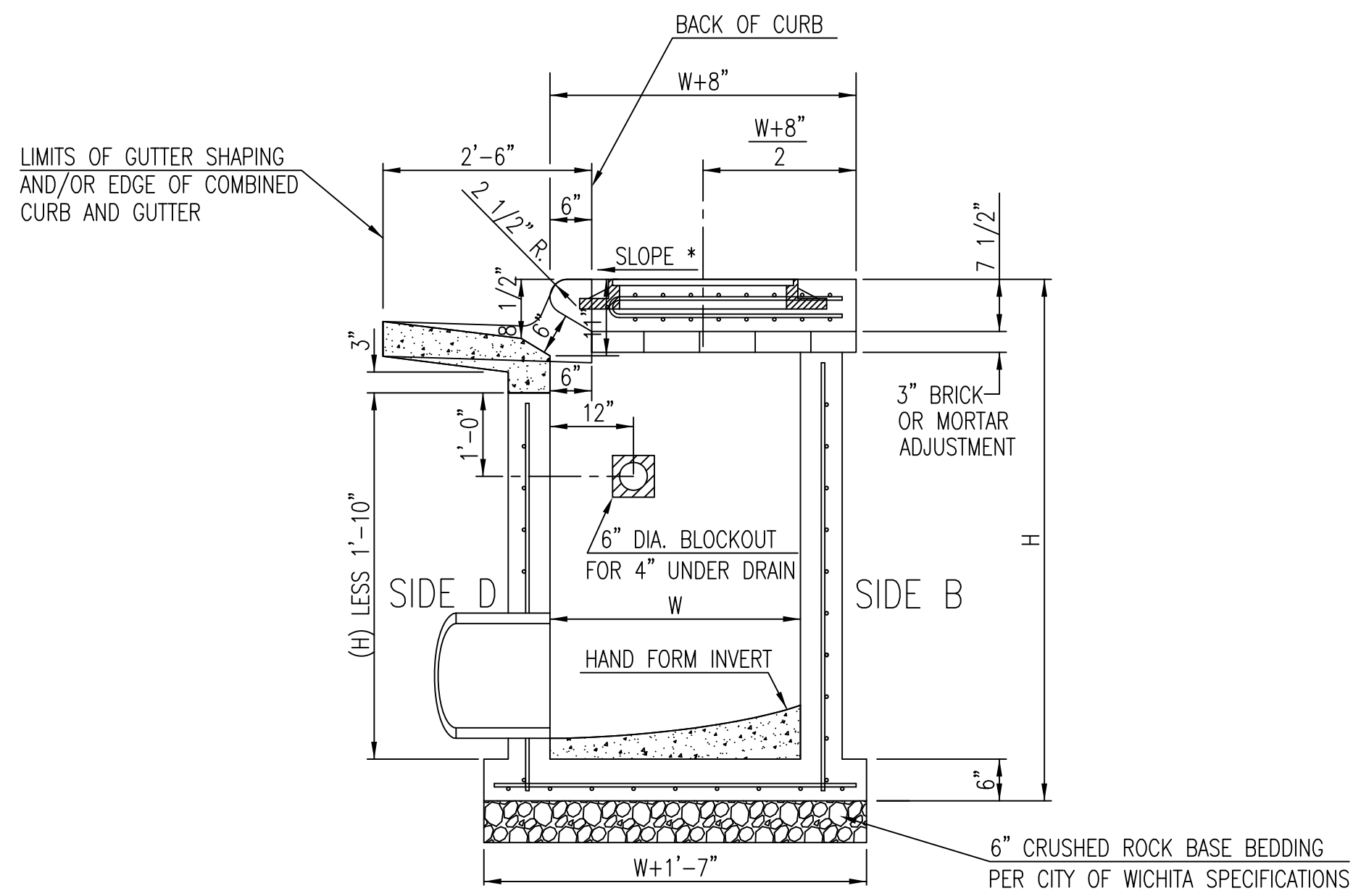
\*\* FOR PIPES PERPENDICULAR TO INLET WALL

GENERAL NOTES

- CONCRETE TOPS TO BE INSTALLED ON THIN MORTAR CUSHION TO INSURE FULL SUPPORT ALONG BRICK. CONCRETE TOPS MAY BE CAST IN PLACE OR PRECAST. CONCRETE USED FOR INLET CONSTRUCTION SHALL CONFORM TO CITY OF WICHITA SPECIFICATIONS FOR CONCRETE PAVEMENT MIX.
- CONTRACTOR SHALL HAVE THE OPTION OF CONSTRUCTING 8" BRICK MASONRY WALLS BETWEEN THE CONCRETE INLET BASE AND TOP OF THIS INLET WHEN W=5'-0" AND H=7'-0" OR LESS.
- INLET INVERT SHALL BE SHAPED WITH 8 SACK SAND MIX CONCRETE TO CREATE FLOW CHANNELS AND TO INCREASE HYDRAULIC EFFICIENCY SUCH THAT THE INLET WILL BE SELF-CLEANING BETWEEN ALL INLET AND/OR OUTLET PIPES.
- THE ENDS OF ALL PIPES INSTALLED IN INLETS SHALL BE CUT OFF FLUSH WITH THE INSIDE FACE OF THE INLET WALL.
- INLET FRAME AND COVER TO BE DEETER #2014, EJIW #1936 Z4, OR APPROVED EQUAL, SEE SW-303.
- CONTRACTOR SHALL REMOVE LIFTING HOOKS AFTER INSTALLATION. RECESSES IN INLET WALL SHALL BE GROUTED FLUSH TO THE INLET WALL WITH HYDRAULIC CEMENT AFTER THE INLET IS IN PLACE. LIFTING HOLES THRU THE INLET WALL WILL NOT BE ACCEPTED.

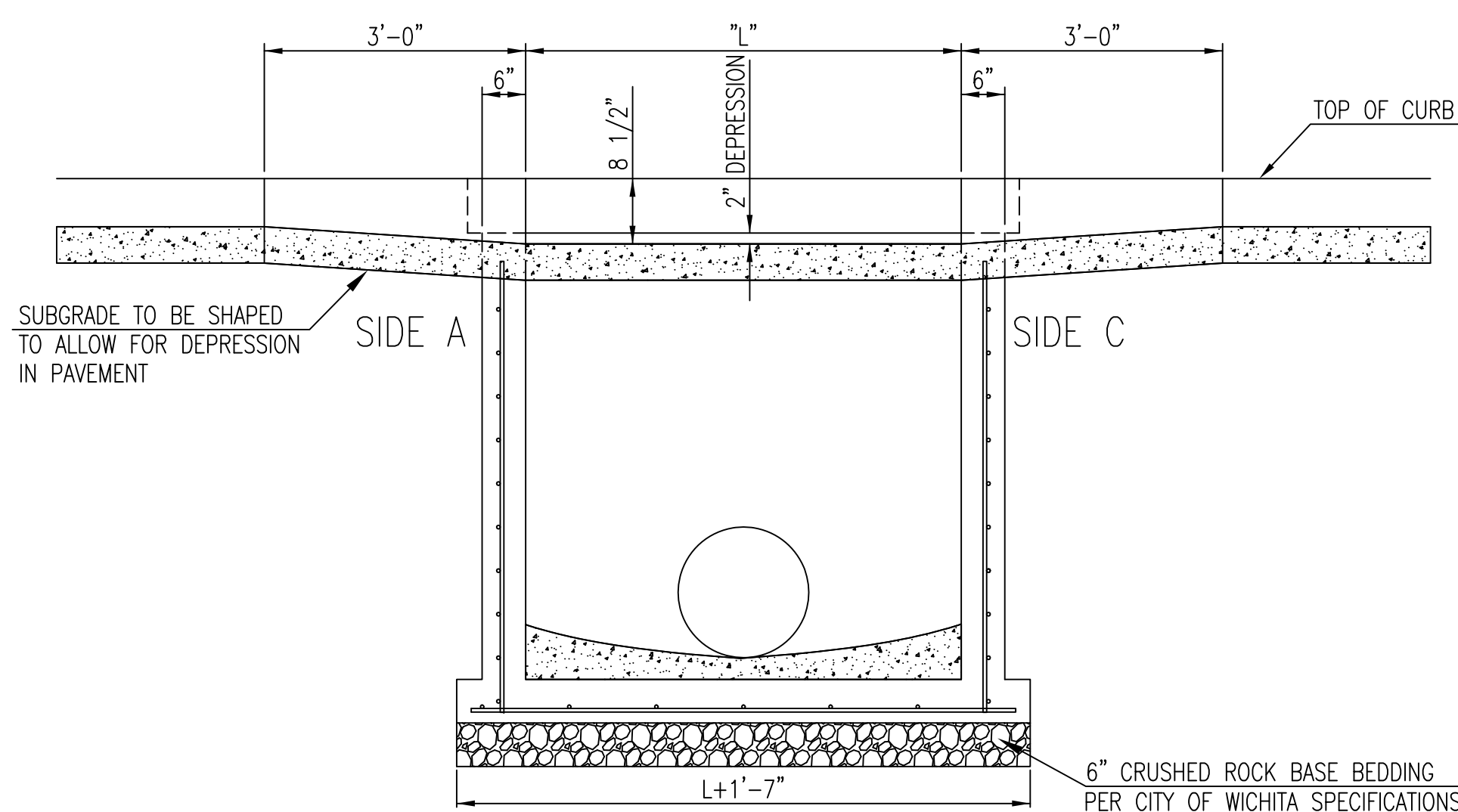
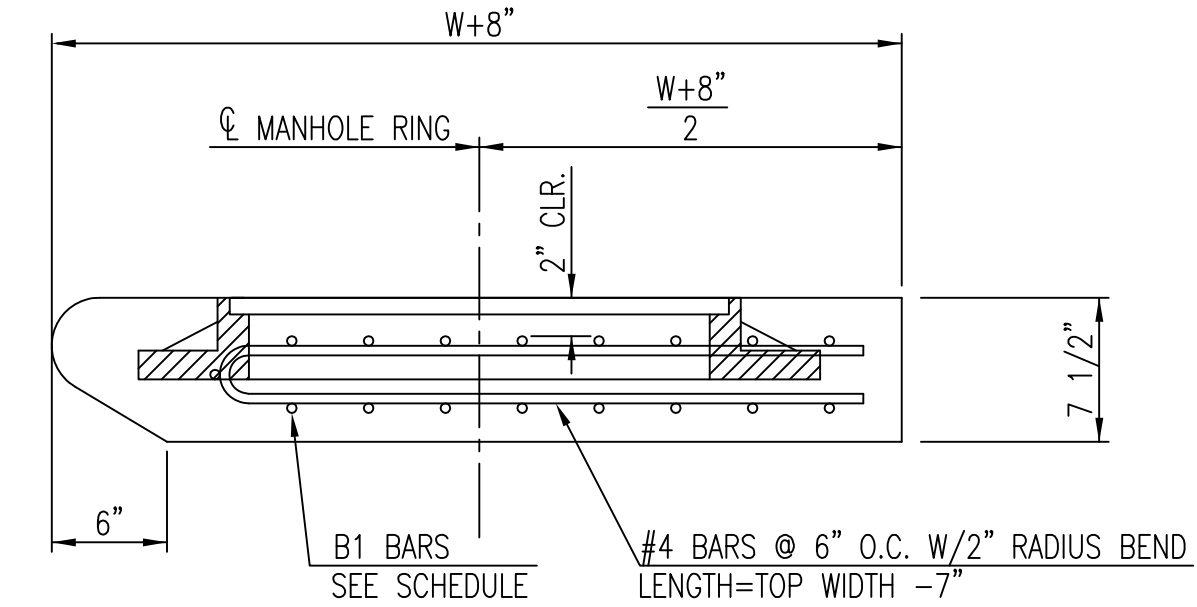


SECTION "A-A"

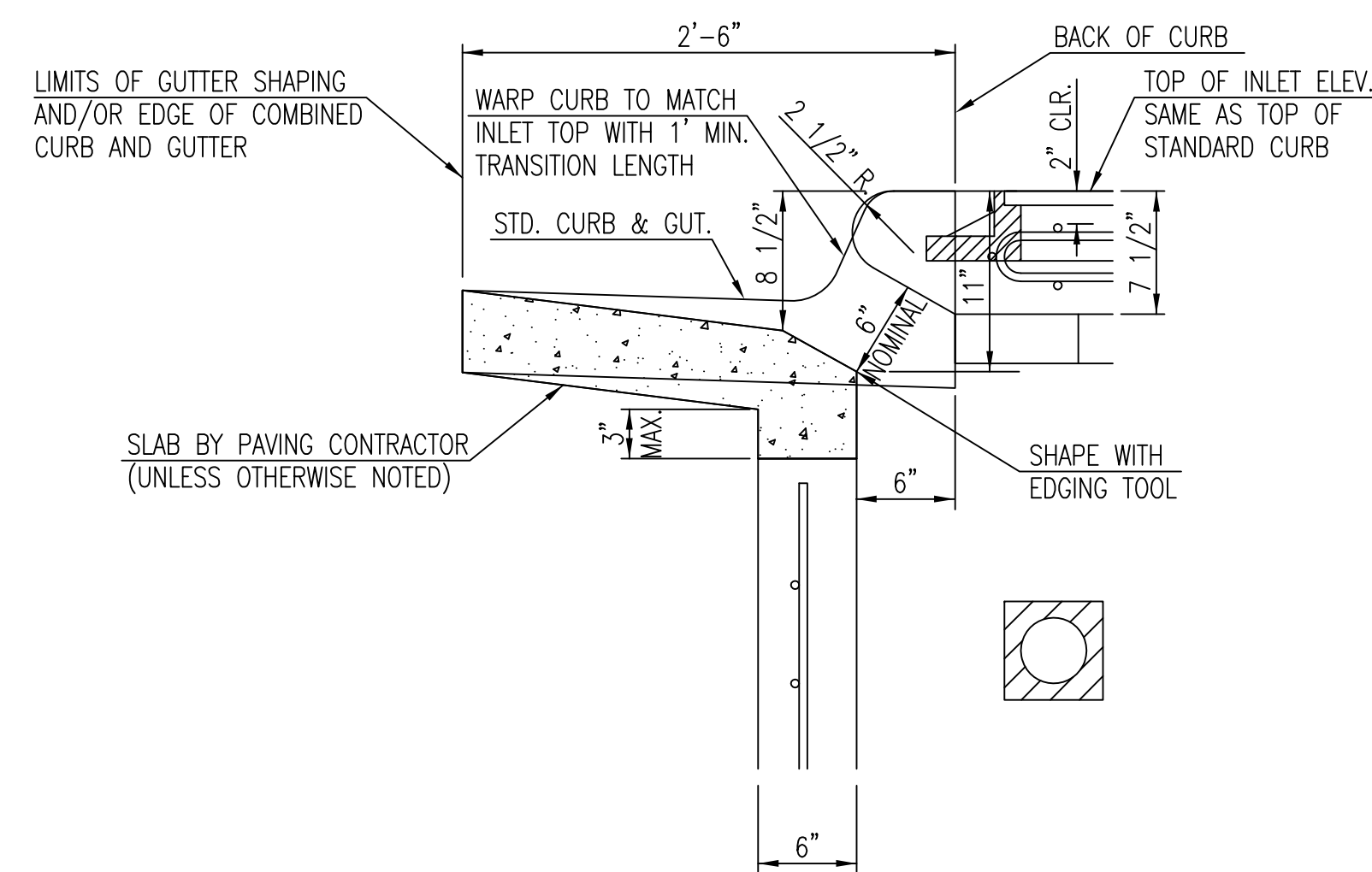


SECTION "C-C"

NOTES:  
 \* SLOPE OF INLET TOP TO MATCH SIDEWALK OR PARKING SLOPES WITHIN LIMITS INDICATED.



SECTION "B-B"



SECTION "D-D"

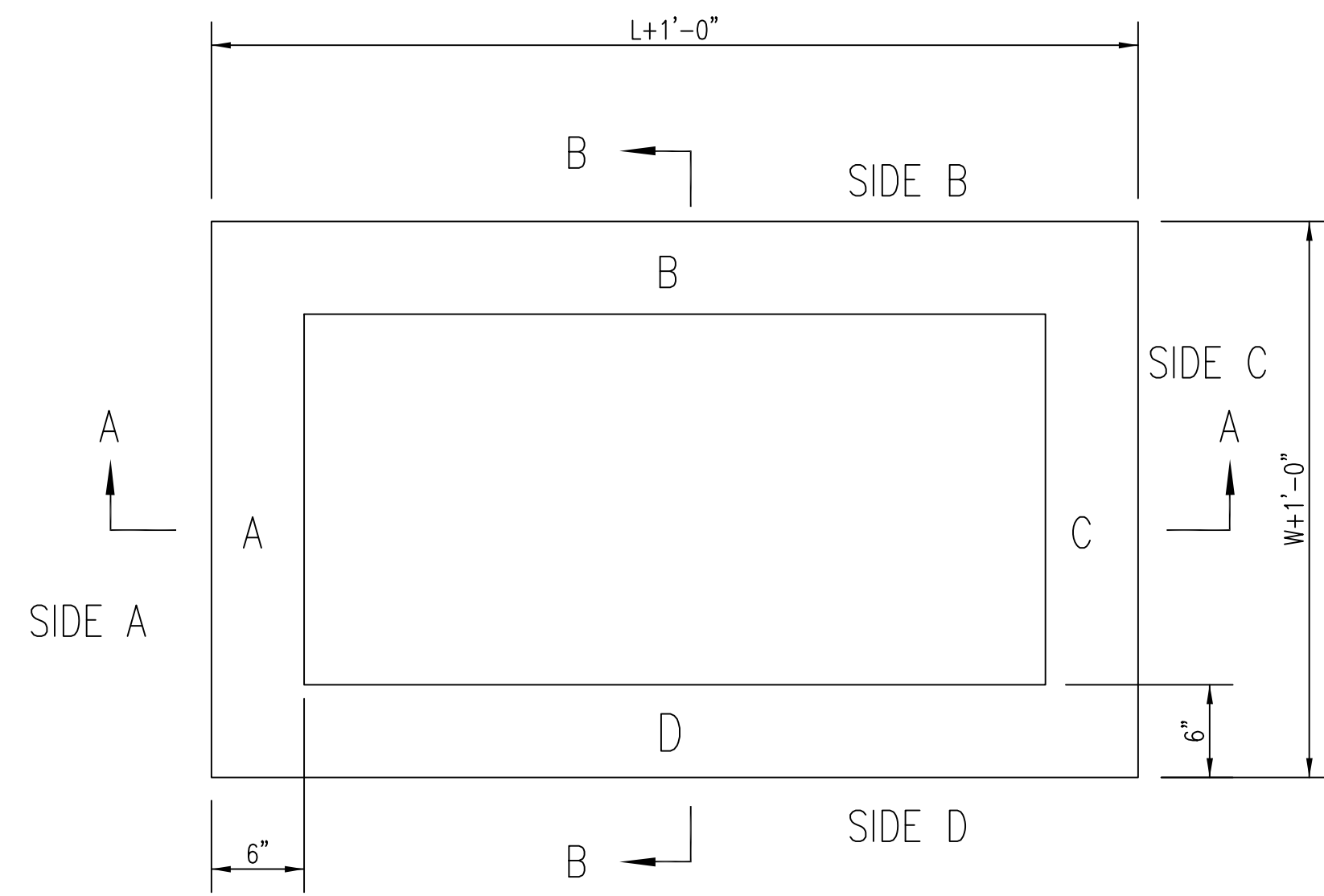
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 P:\1988 Storm Sewer\Storm Sewer Plans 04-12-11\3991 - C-9.12 Private Storm Sewer Plans



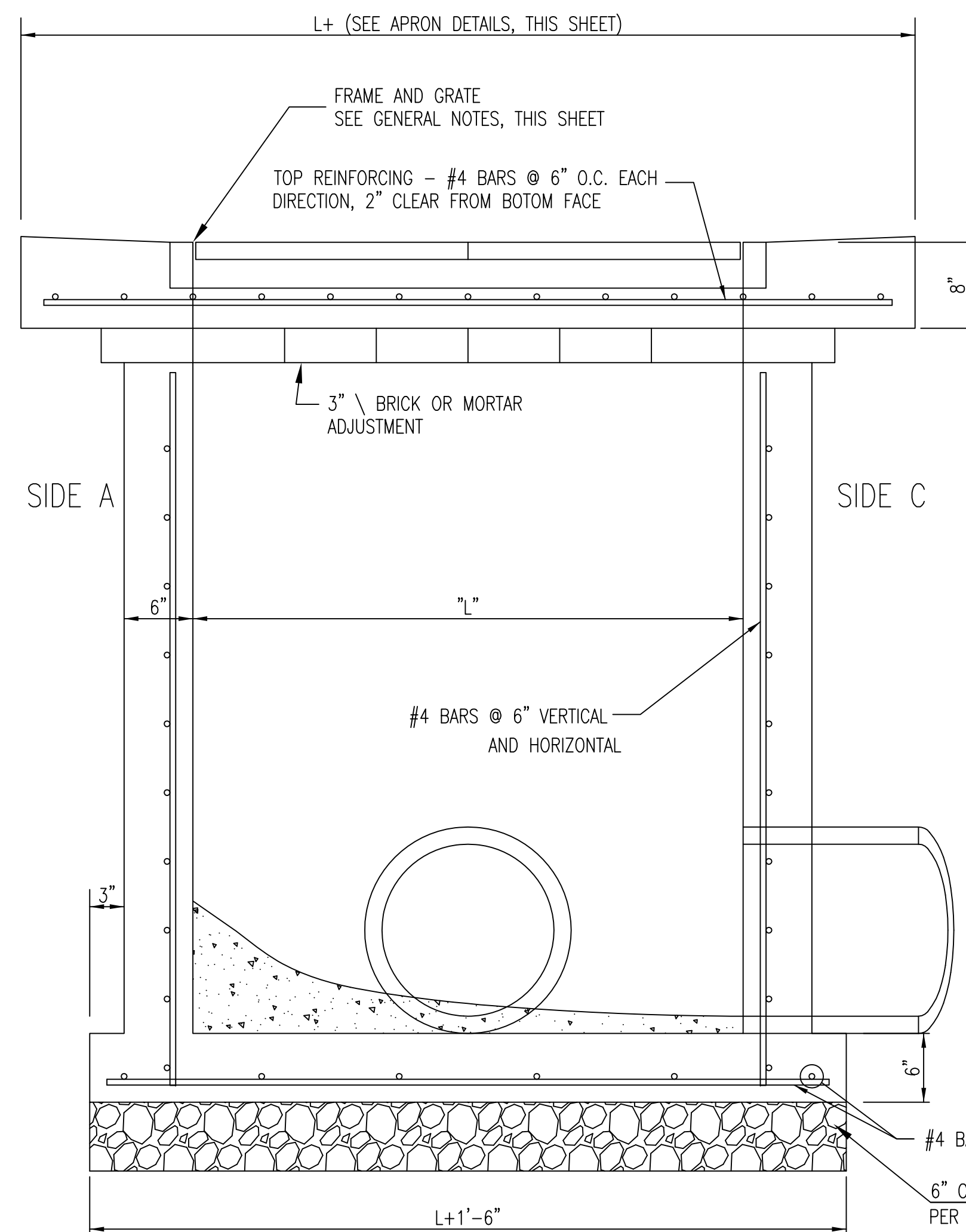
STANDARD TYPE 1  
 CURB INLET  
 5'-0" OR 10'-0" OPENING

CITY ENGINEER  
**JAMES L. ARMOUR, P.E., L.S.**

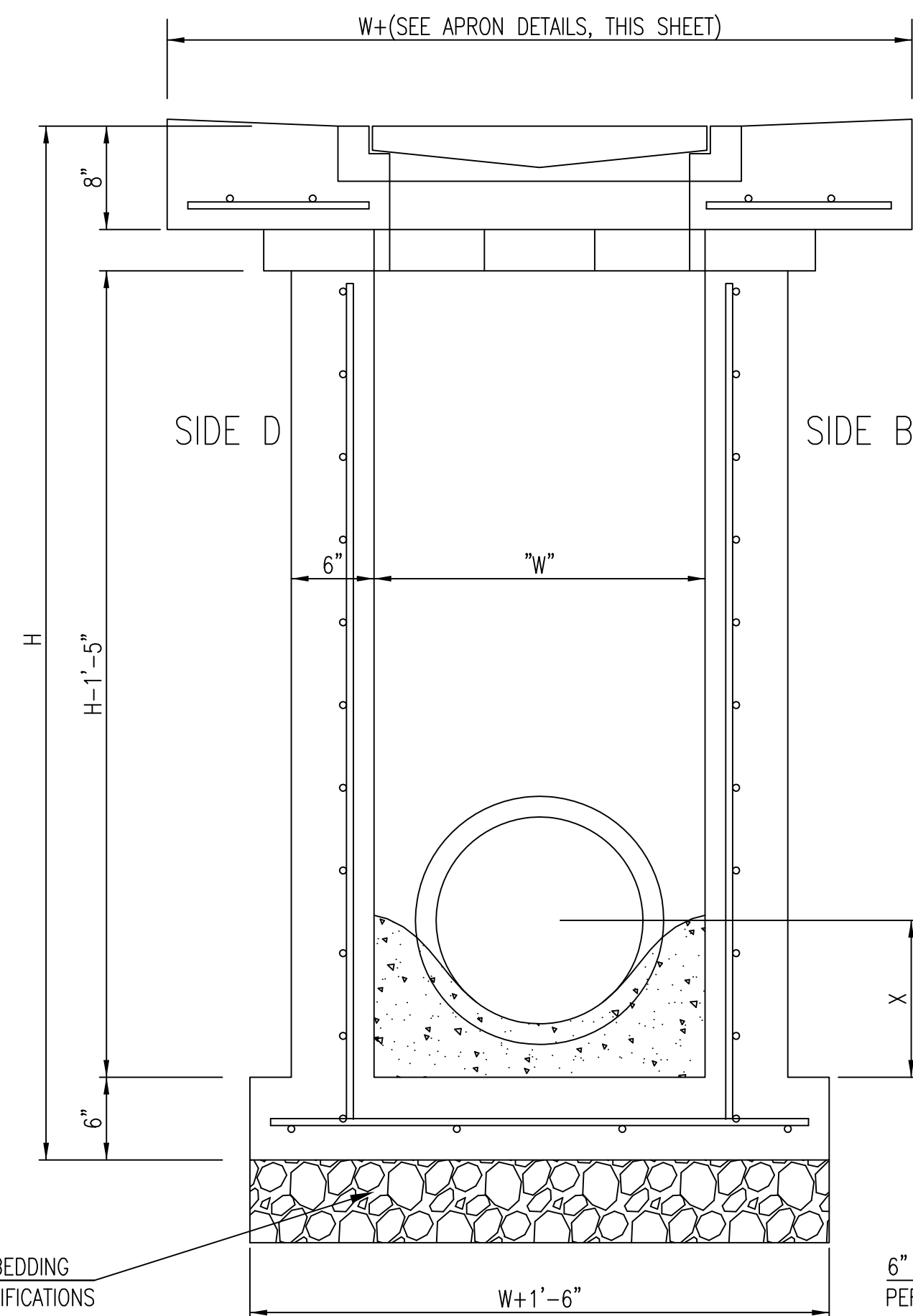
PROJECT NUMBER 0014PPD (607861)	OCA NUMBER ---	DATE 11/2010
CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501		DESIGN DRAWN SHEET <b>C-9.12</b>



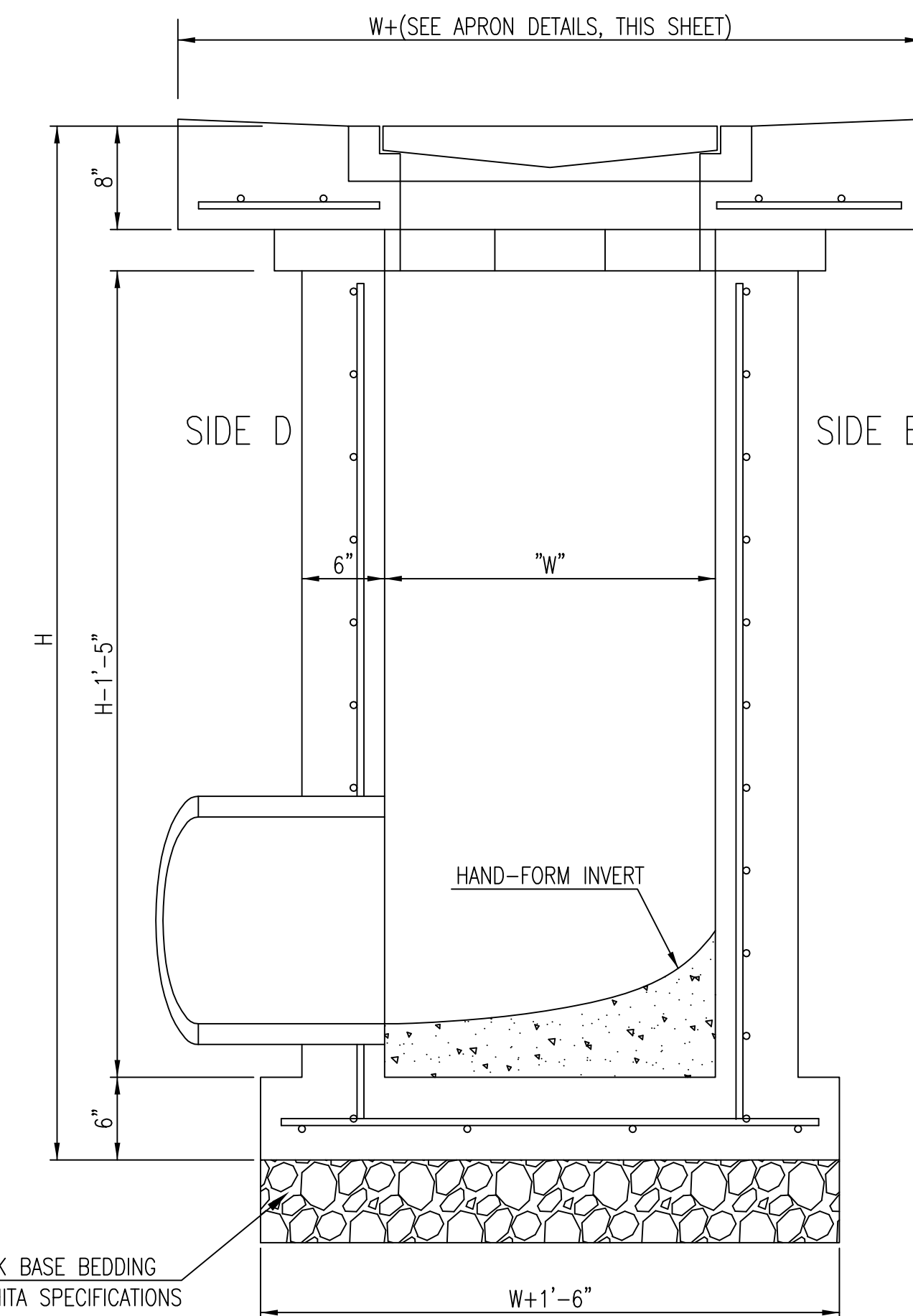
TOP VIEW



SECTION "A-A"

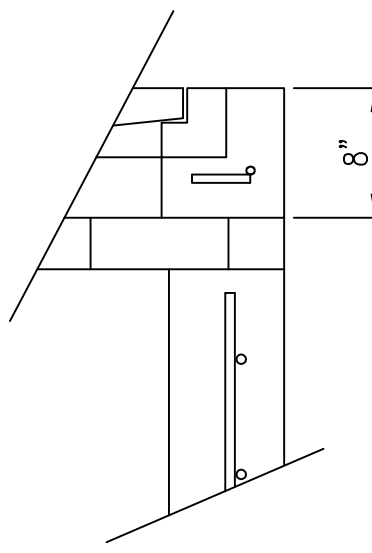


SECTION "B-B"  
END OUTLET

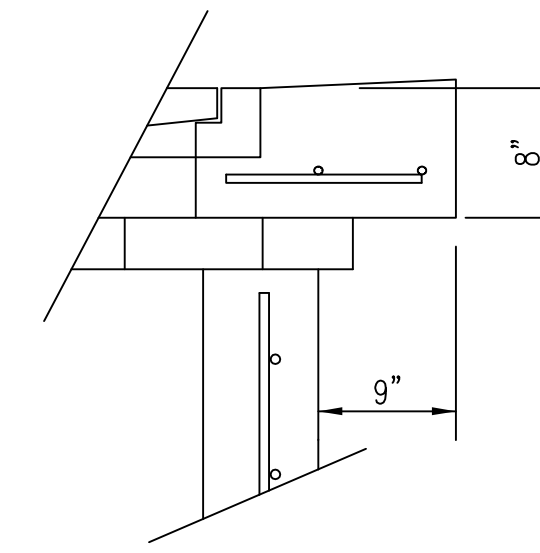


SECTION "B-B"  
SIDE OUTLET

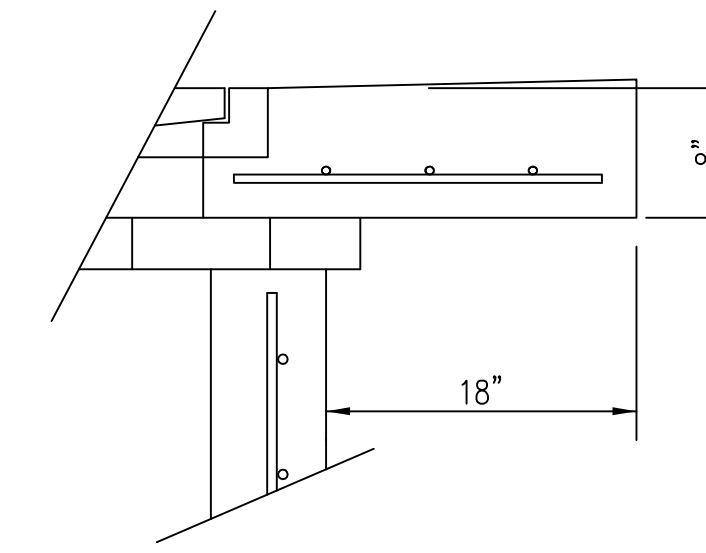
FLUSH STYLE TOP  
NO APRON



9" APRON



18" APRON

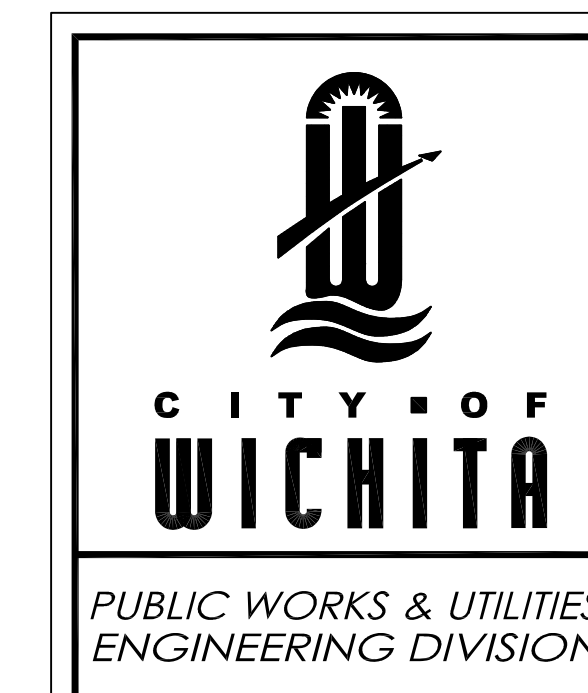


\* APRON TO EXTEND ON ALL 4 SIDES OF INLET.  
DESIGNER TO DESIGNATE APRON SIZE.

GENERAL NOTES

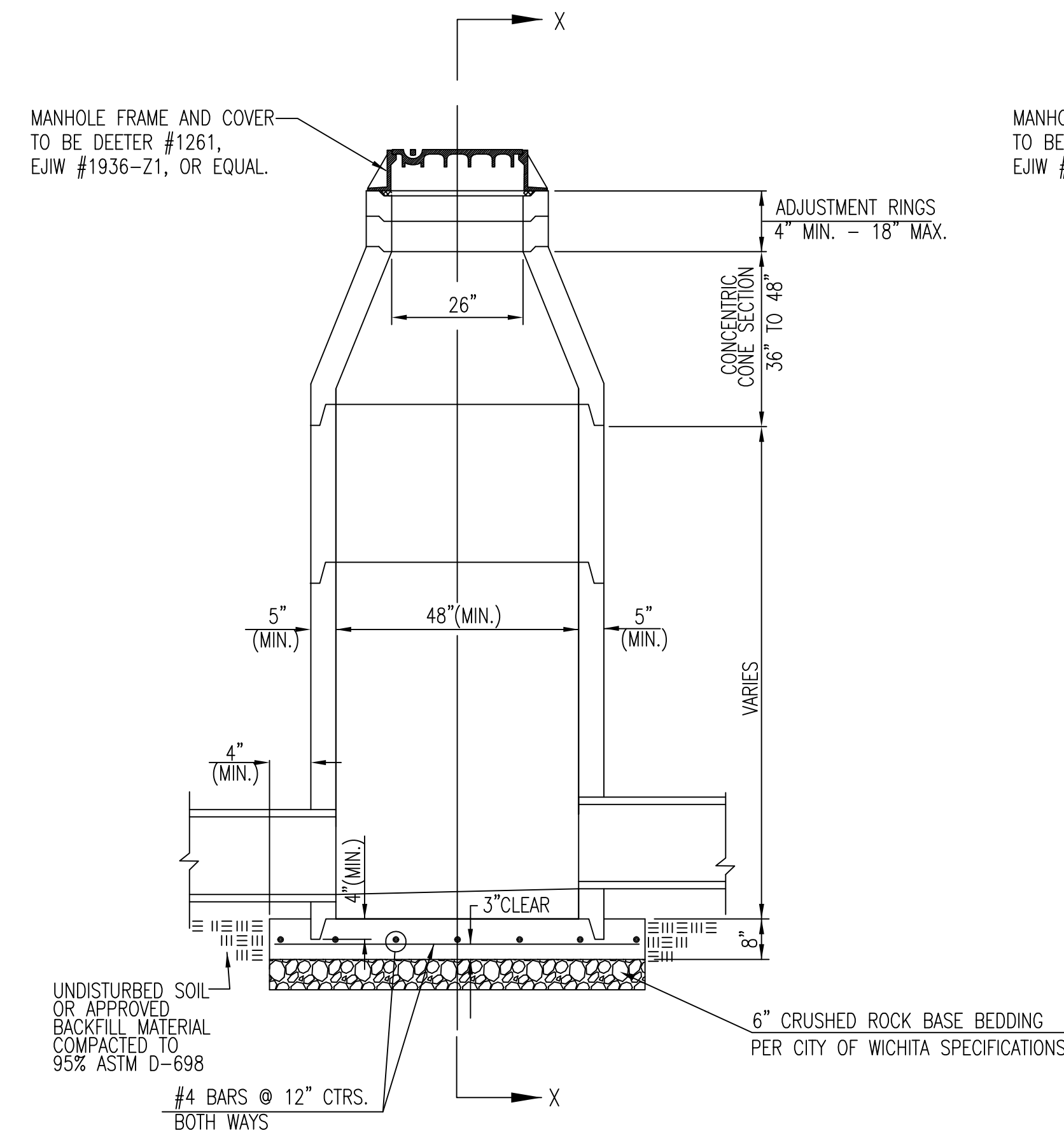
1. GRATE FRAME TO BE INSTALLED ON THIN MORTAR CUSHION TO INSURE FULL SUPPORT ALONG BRICK. CONCRETE USED FOR INLET CONSTRUCTION SHALL CONFORM TO CITY OF WICHITA SPECIFICATIONS FOR CONCRETE PAVEMENT MIX.
2. INLET INVERT SHALL BE SHAPED WITH 8 SACK SAND MIX CONCRETE TO CREATE FLOW CHANNELS AND TO INCREASE HYDRAULIC EFFICIENCY SUCH THAT THE INLET WILL BE SELF CLEANING BETWEEN ALL INLET AND/OR OUTLET PIPES.
3. THE ENDS OF ALL PIPES INSTALLED IN INLETS SHALL BE CUT OFF FLUSH WITH THE INSIDE FACE OF THE INLET WALL.
4. INLET FRAME AND GRATE TO BE DEETER #2433, EJIW #5391-21 OR APPROVED EQUAL FOR 2'x2' SINGLE DROP INLET AND DEETER #2434, EJIW #5391 23 OR APPROVED EQUAL FOR 2'x4' DOUBLE DROP INLET.
5. CONTRACTOR SHALL REMOVE LIFTING HOOKS AFTER INSTALLATION. RECESSES IN INLET WALL SHALL BE GROUTED FLUSH TO THE INLET WALL WITH HYDRAULIC CEMENT AFTER THE INLET IS IN PLACE. LIFTING HOLES THRU THE INLET WALL WILL NOT BE ACCEPTED.

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 City of Wichita  
 C:\988 Storm Sewer\Storm Sewer Plans 04-12-11\3991 - C 9.13 Private Storm Sewer Plans

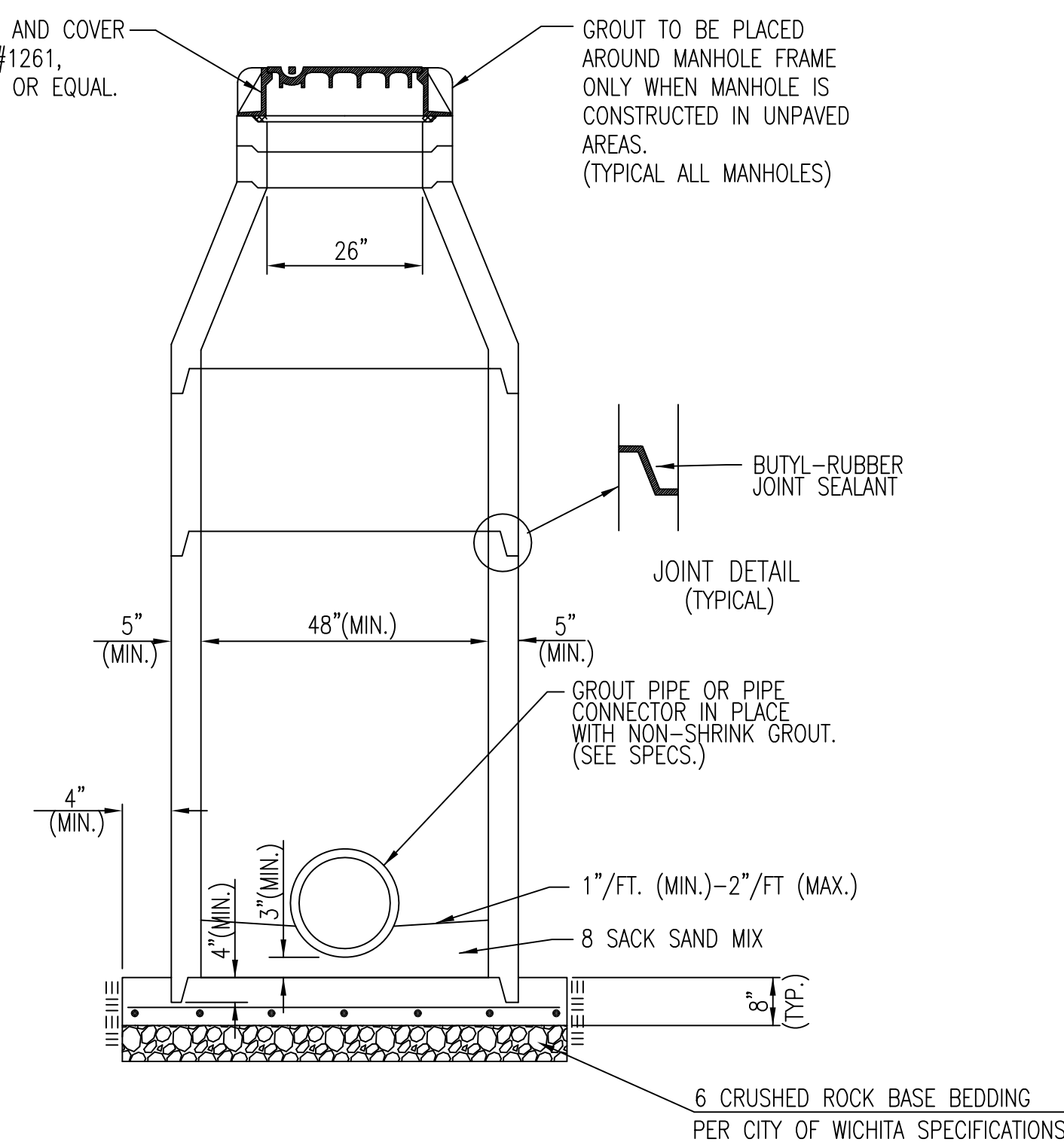


<b>SINGLE/DOUBLE DROP INLET</b>		
CITY ENGINEER <b>JAMES L. ARMOUR, P.E., L.S.</b>		
PROJECT NUMBER 0014PPD (607861)	OCA NUMBER _____	DATE 11/2010
CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501		DESIGN DRAWN SHEET <b>C-9.13</b>

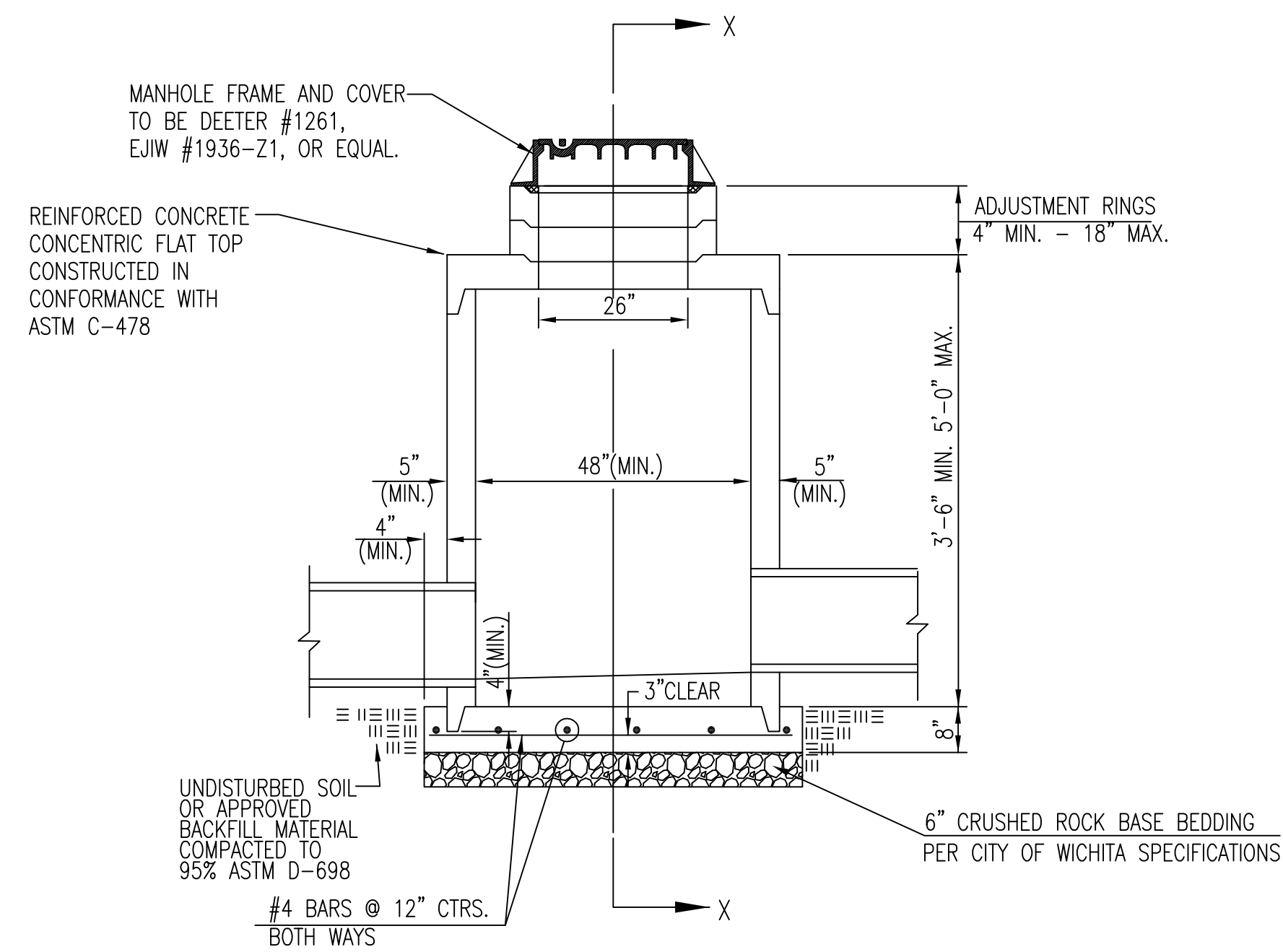
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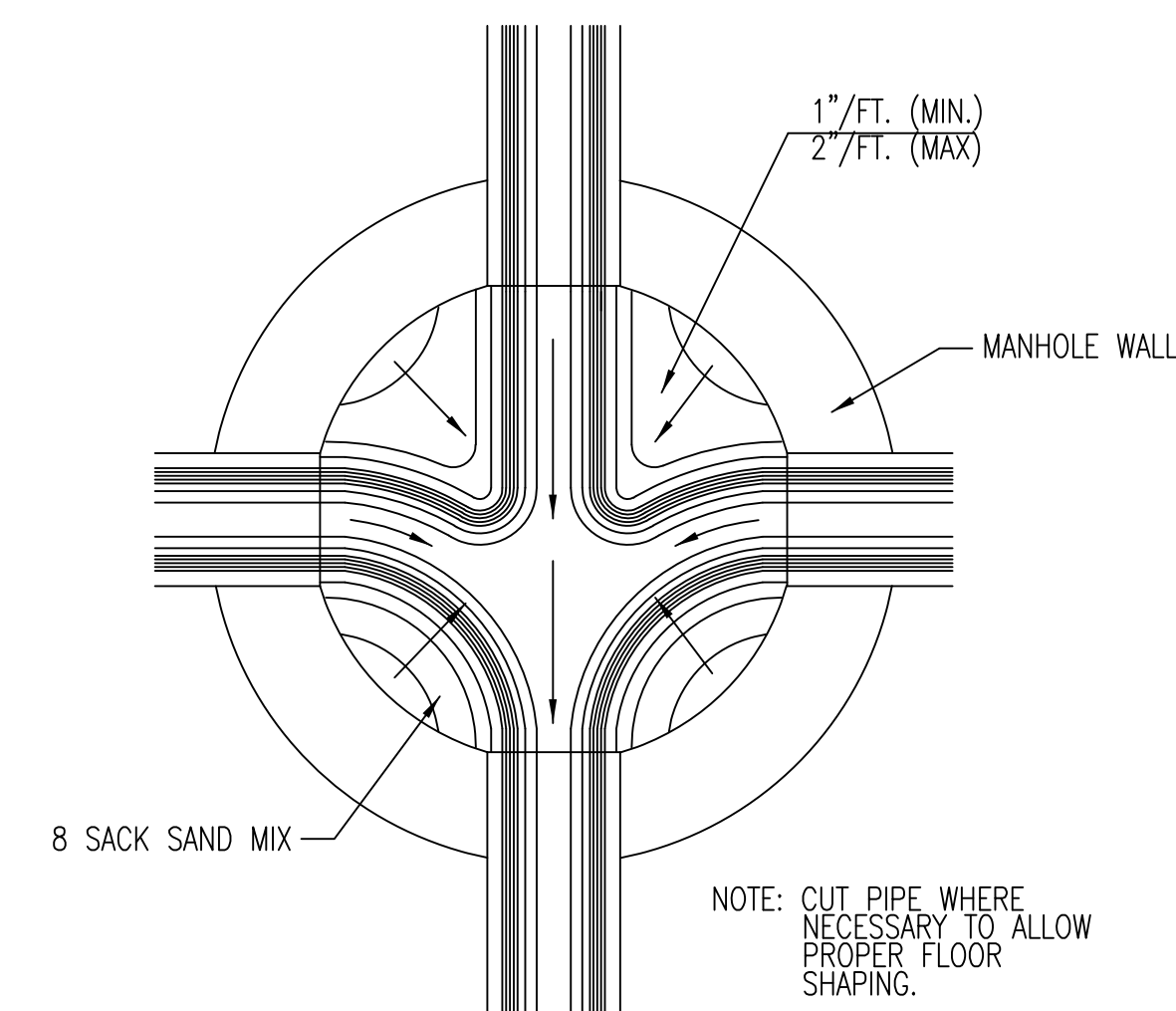
PRECAST  
STANDARD MANHOLE  
TYPE "A"



SECTION X-X  
(TYPICAL)




PRECAST  
SHALLOW MANHOLE  
TYPE "B"

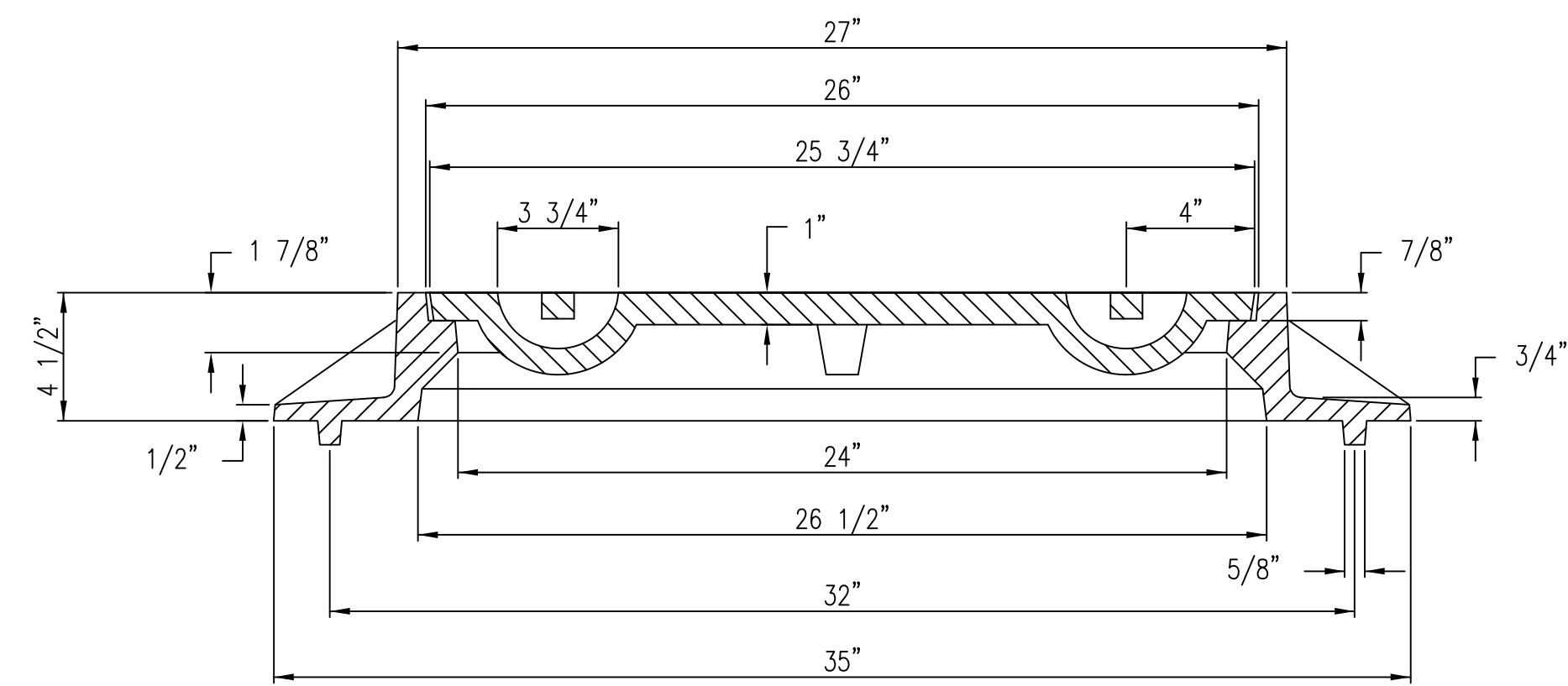
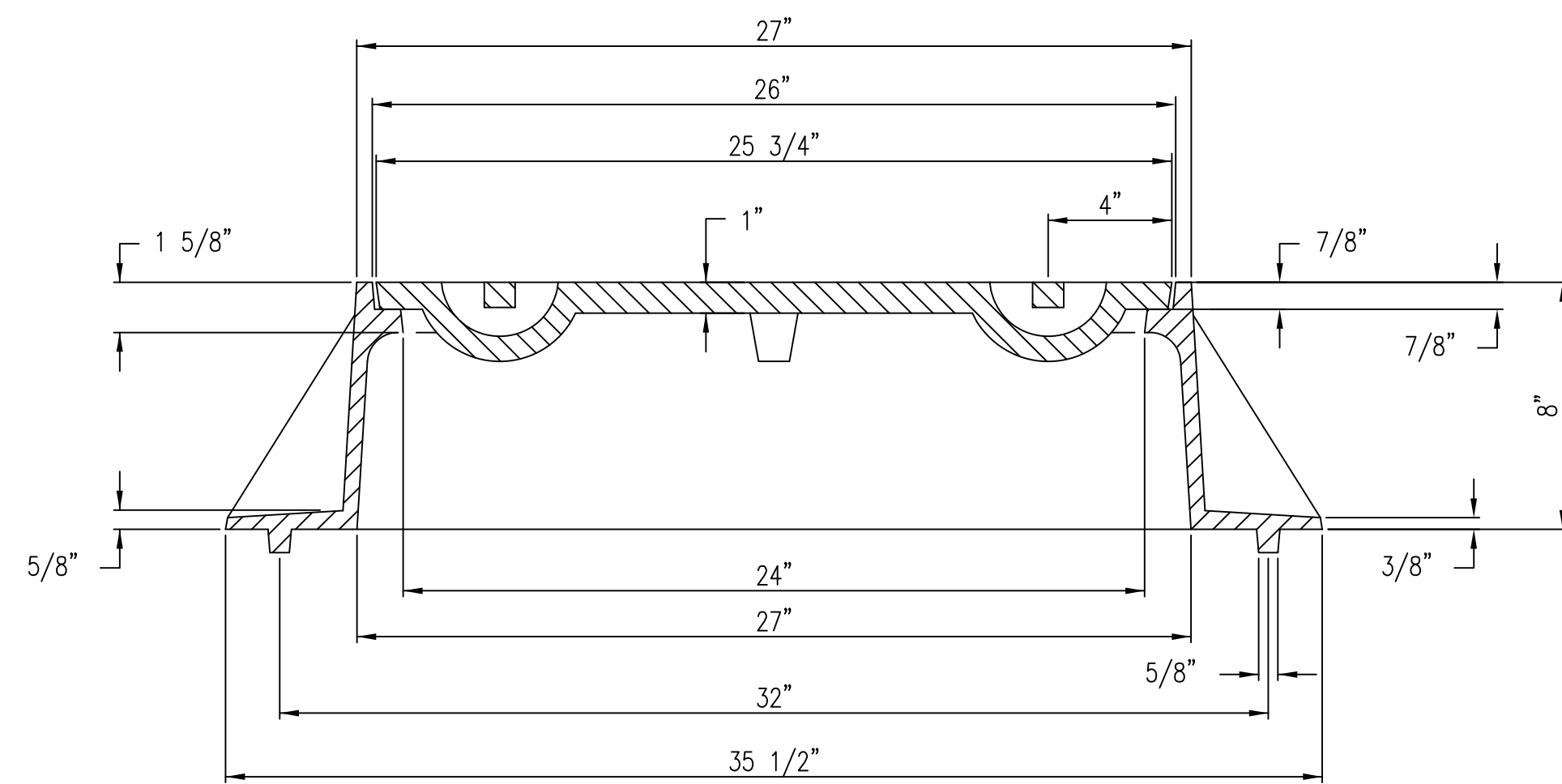
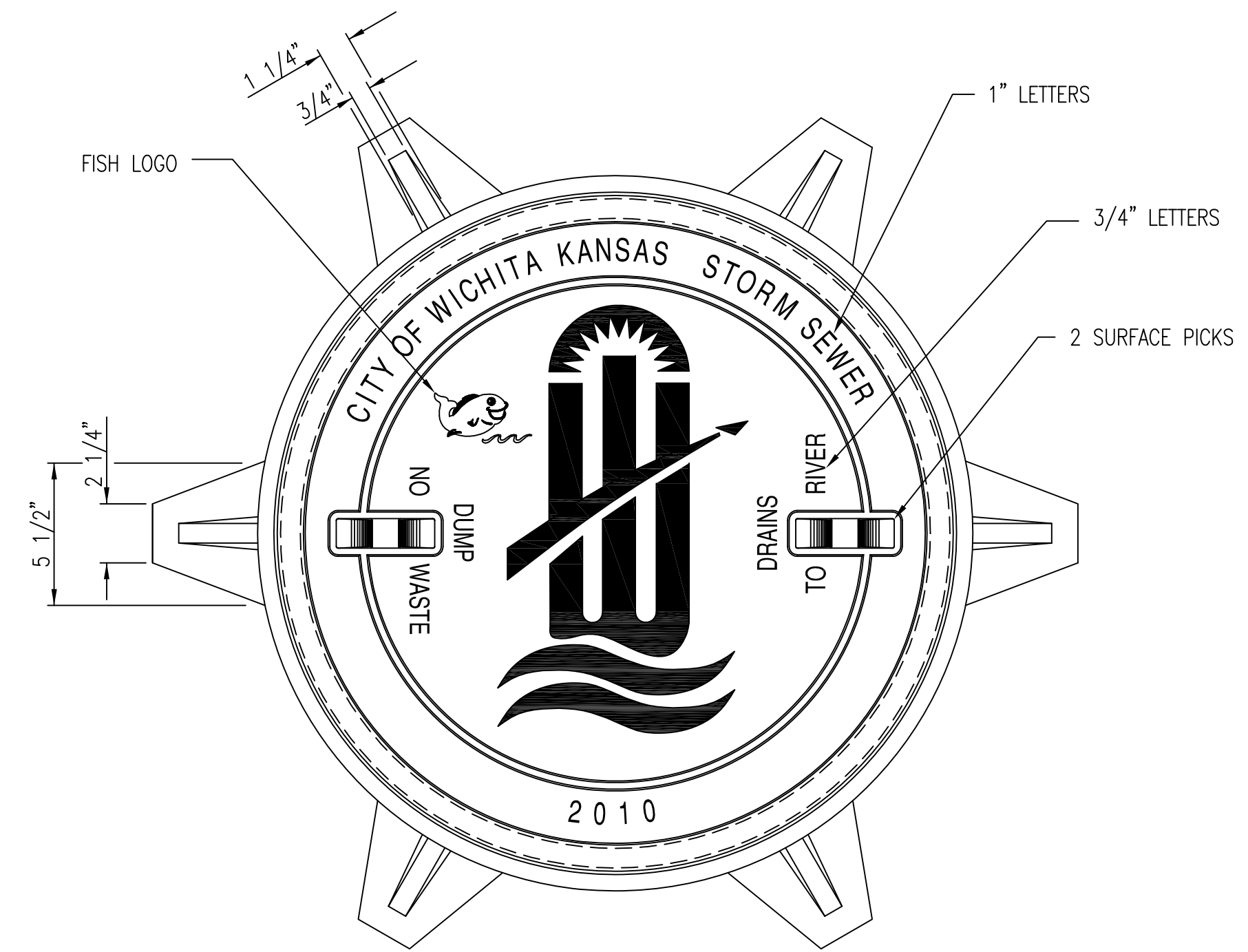
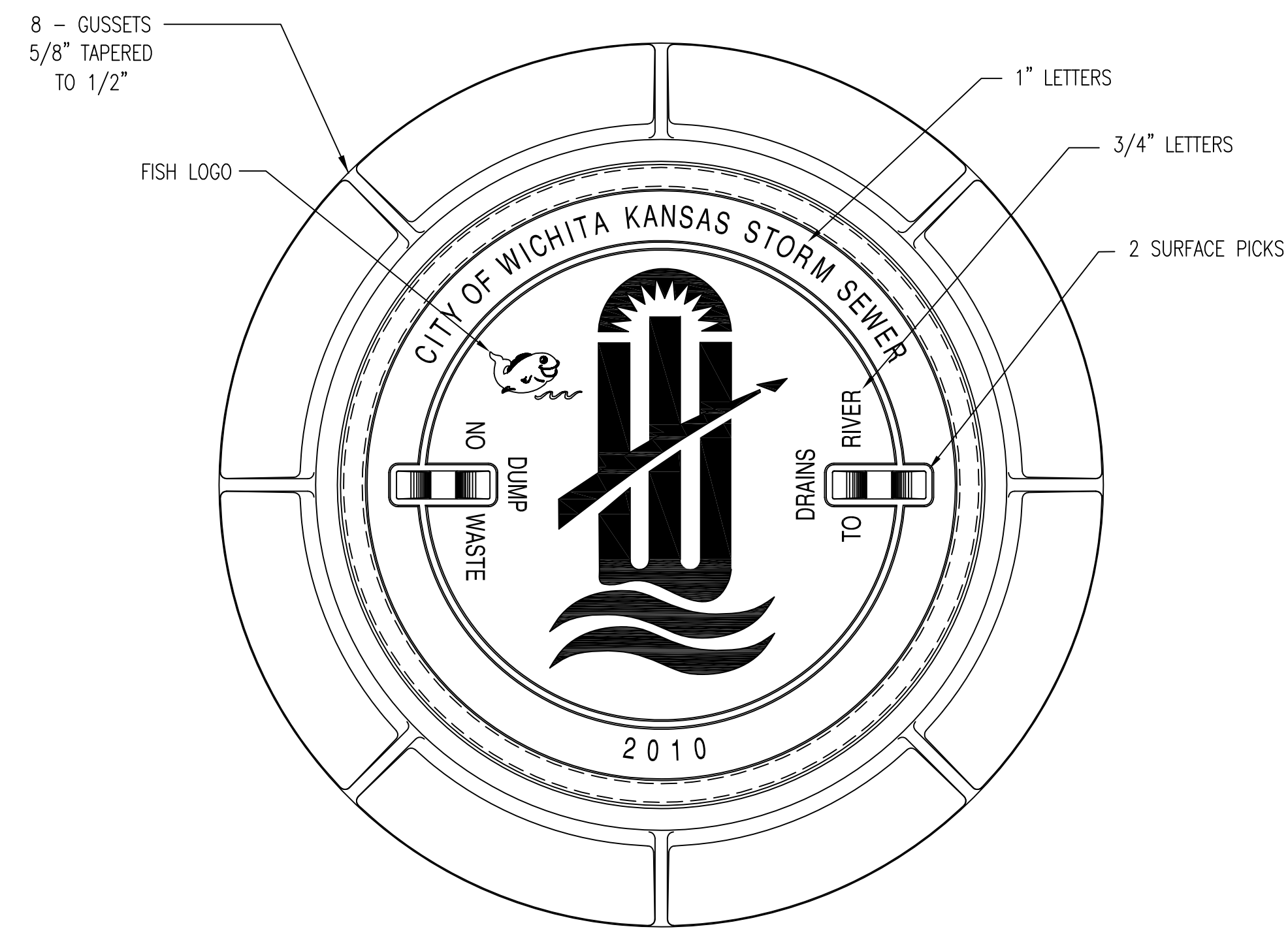


TYPICAL MANHOLE  
FLOOR SHAPING

GENERAL NOTES

1. IF, IN THE OPINION OF THE ENGINEER, THE MANHOLE SUBGRADE APPEARS UNSTABLE, THE CONTRACTOR WILL HAVE THE OPTION TO COMPACT SUBGRADE AS SHOWN OR INCREASE THE THICKNESS OF THE MANHOLE BASE AS DIRECTED BY THE ENGINEER.
2. STEEL REINFORCING WILL BE REQUIRED IN ALL MANHOLE BASES.
3. ALL MANHOLE CONSTRUCTION SHALL BE WATER TIGHT.
4. TOP OF MANHOLE FLOOR SLAB SHALL BE AT LEAST 3 INCHES BELOW THE FLOW LINE OF THE OUTLET PIPE TO INSURE SUFFICIENT MINIMUM THICKNESS OF SHAPED INVERT.
5. ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISION OF ASTM C-478 AS MODIFIED BY THE SPECIFICATIONS.
6. CONCRETE USED FOR MANHOLE CONSTRUCTION SHALL CONFORM TO CITY OF WICHITA SPECIFICATIONS FOR CONCRETE PAVEMENT MIX.
7. PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO MANHOLE BASE.
8. MANHOLES WITH PIPE SIZES 24" AND LARGER SHALL HAVE 5 FOOT INSIDE DIAMETER (MIN.)
9. MANHOLES WITH PRECAST BASES MAY BE USED AT THE CONTRACTORS OPTION. THESE MANHOLES SHALL HAVE AN 8" MINIMUM BASE THICKNESS AND SHALL BE PLACED ON AN 8" MIN. CRUSHED ROCK BASE. PIPES SHALL BE ENCASED WITH CRUSHED ROCK TO AT LEAST 3 FEET FROM THE MANHOLE WALL.
10. CONTRACTOR SHALL REMOVE LIFTING HOOKS AFTER INSTALLATION. RECESSES IN MANHOLE WALL SHALL BE GROUTED FLUSH TO THE MANHOLE WALL WITH HYDRAULIC CEMENT AFTER THE MANHOLE IS IN PLACE. LIFTING HOLES THRU THE MANHOLE WALL WILL NOT BE ACCEPTED.
11. THE ENDS OF ALL PIPES IN MANHOLES SHALL BE CUT OFF FLUSH WITH THE INSIDE FACE OF THE MANHOLE WALL.
12. MANHOLE INVERT SHALL BE SHAPED WITH 8 SACK SAND MIX CONCRETE TO CREATE FLOW CHANNELS AND TO INCREASE HYDRAULIC EFFICIENCY SUCH THAT THE MANHOLE WILL BE SELF CLEANING BETWEEN ALL INLET AND/OR OUTLET PIPES.
13. MANHOLE FRAME AND COVER TO BE DEETER #1261, EJIW #1936-Z1, OR APPROVED EQUAL, SEE SW-303.
14. FOR FLAT GRATED INLET APPLICATION, GRATE TO BE DEETER #1933, EJIW #1205 MDL, OR APPROVED EQUAL.
15. FOR BEEHIVE GRATE APPLICATION, GRATE TO BE DEETER #4495, EJIW #120545, OR APPROVED EQUAL.

 <p><b>CITY OF WICHITA</b> PUBLIC WORKS &amp; UTILITIES ENGINEERING DIVISION</p>			<p><b>PRECAST CONCRETE MANHOLE (STORM SEWER)</b></p>	
			<p>CITY ENGINEER <b>JAMES L. ARMOUR, P.E., L.S.</b></p>	
PROJECT NUMBER 0014PPD (607861)	OCA NUMBER	DATE 11/2010	DESIGN	DRAWN
<p>CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501</p>			<p>SHEET <b>C-9.14</b></p>	



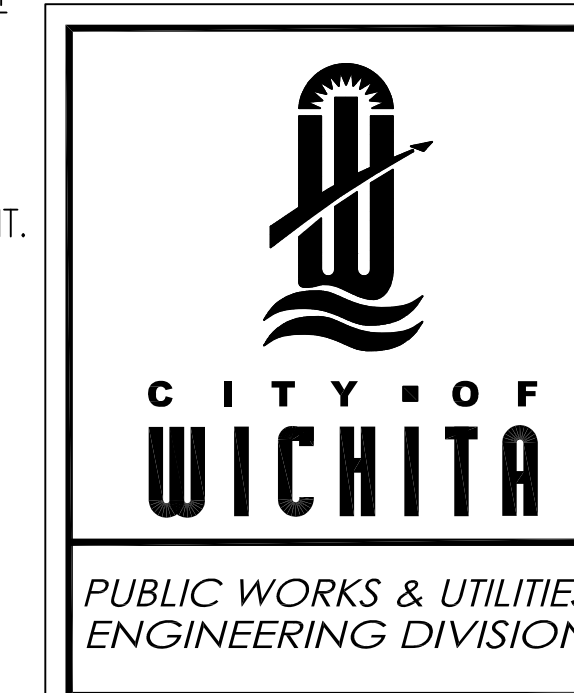
MANHOLE FRAME  
DEETER #1261 OR EJIW #1936-Z1

- NOTE:
1. FURNISHED WITH MACHINED HORIZONTAL BEARING SURFACE.
  2. COVER TO BE DEETER #1261 OR EJIW #1936A.

INLET FRAME  
DEETER #2014 OR EJIW #1936-Z4

- NOTE:
1. FURNISHED WITH MACHINED HORIZONTAL BEARING SURFACES.
  2. NOT TO BE USED UNDER PAVEMENT.
  3. COVER TO BE DEETER #1261 OR EJIW #1936A.

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<b>MANHOLE/INLET FRAME AND COVER (STORM SEWER)</b>			
CITY ENGINEER <b>JAMES L. ARMOUR, P.E., L.S.</b>			
PROJECT NUMBER 0014PPD (607861)	OCA NUMBER	DATE 11/2010	
CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501		DESIGN	DRAWN
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