

PRIVATE STORM WATER SEWER EXTENSION

TO SERVE

BOMBARDIER LEARJET SITE EXPANSION

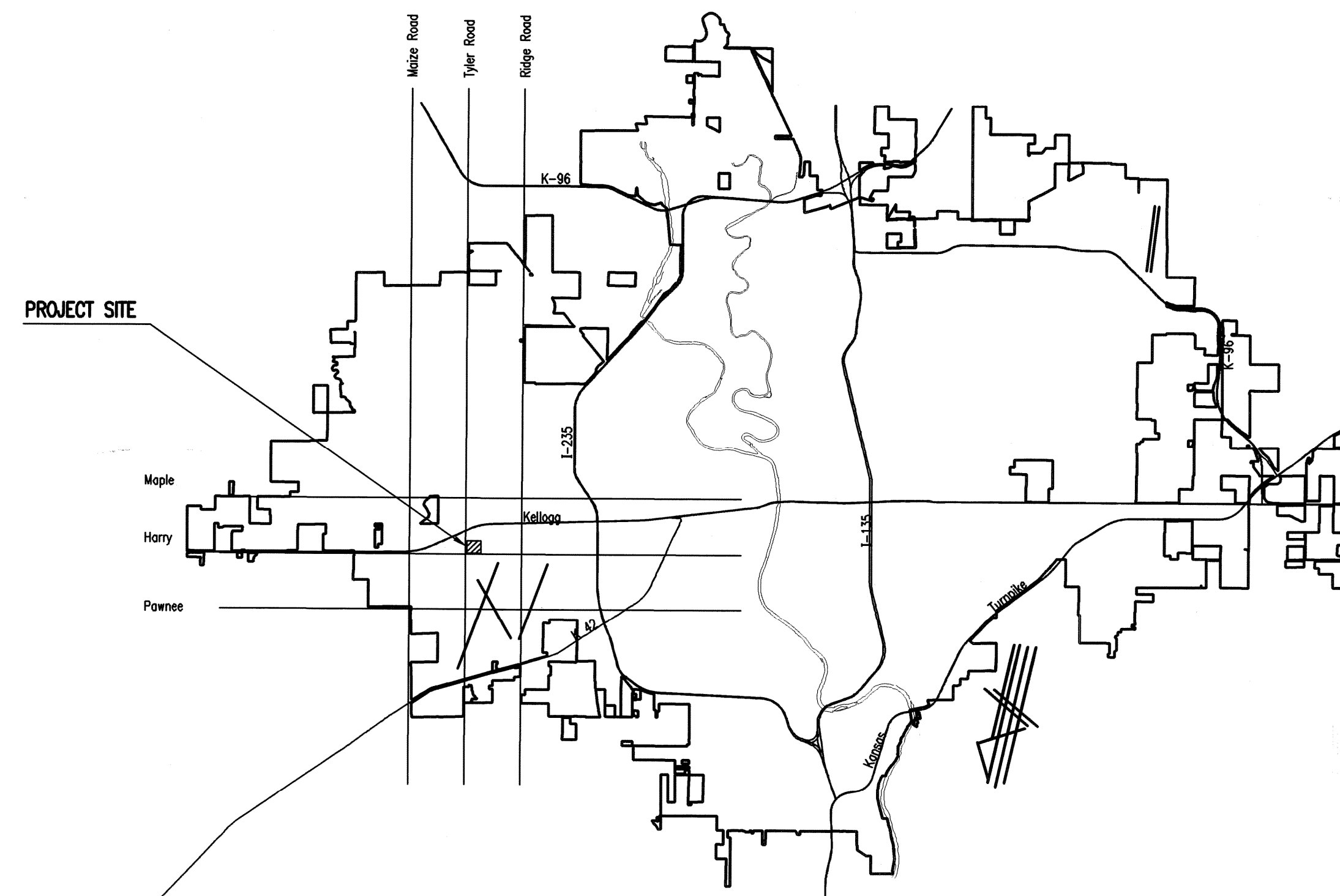
PRIVATE PROJECT NO. 105 PPD (607861)

CITY OF WICHITA, KANSAS

GARY JANZEN, P.E.- INTERIM CITY ENGINEER

INDEX OF SHEETS

SHEET NO. C8.1	TITLE SHEET
SHEET NO. C8.2	KEY MAP AND GENERAL NOTES
SHEET NO. C8.3-C8.20	PLAN/PROFILE
SHEET NO. C8.21	TYPE "P" MANHOLE DETAILS
SHEET NO. C8.22	FRAME & COVER DETAILS
SHEET NO. C8.23	TYPE I INLET DETAILS
SHEET NO. C8.24	SINGLE/DOUBLE DROP INLET DETAILS
SHEET NO. C8.25	SPECIAL INLET DETAIL
SHEET NO. C8.26	HEADWALL DETAILS FOR 15", 18" AND 24"
SHEET NO. C8.27 c8.31	HEADWALL DETAILS 42" AND 48"
SHEET NO. C8.28- C8.30	MANHOLE DETAILS
SHEET NO. C11.3-C11.5	SOIL EROSION BMP DETAILS



LOCATION MAP

APPROVED AS NOTED
BY CITY ENGINEER OF WICHITA

Engineering

Julian Kellman 7-31-12

Stormwater

[Signature] 07/31/12

NOTE TO CONTRACTORS

Inspection and testing for this project are 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 Licensed Professional Engineer. 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.

JULY 2012

PLANS PREPARED BY

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.

ENGINEERS

WICHITA, KANSAS

As-Built Plans

Contractor:

Mies Construction, Inc.

Superintendent:

Albert Williams

Company:

City of Wichita

Inspector:

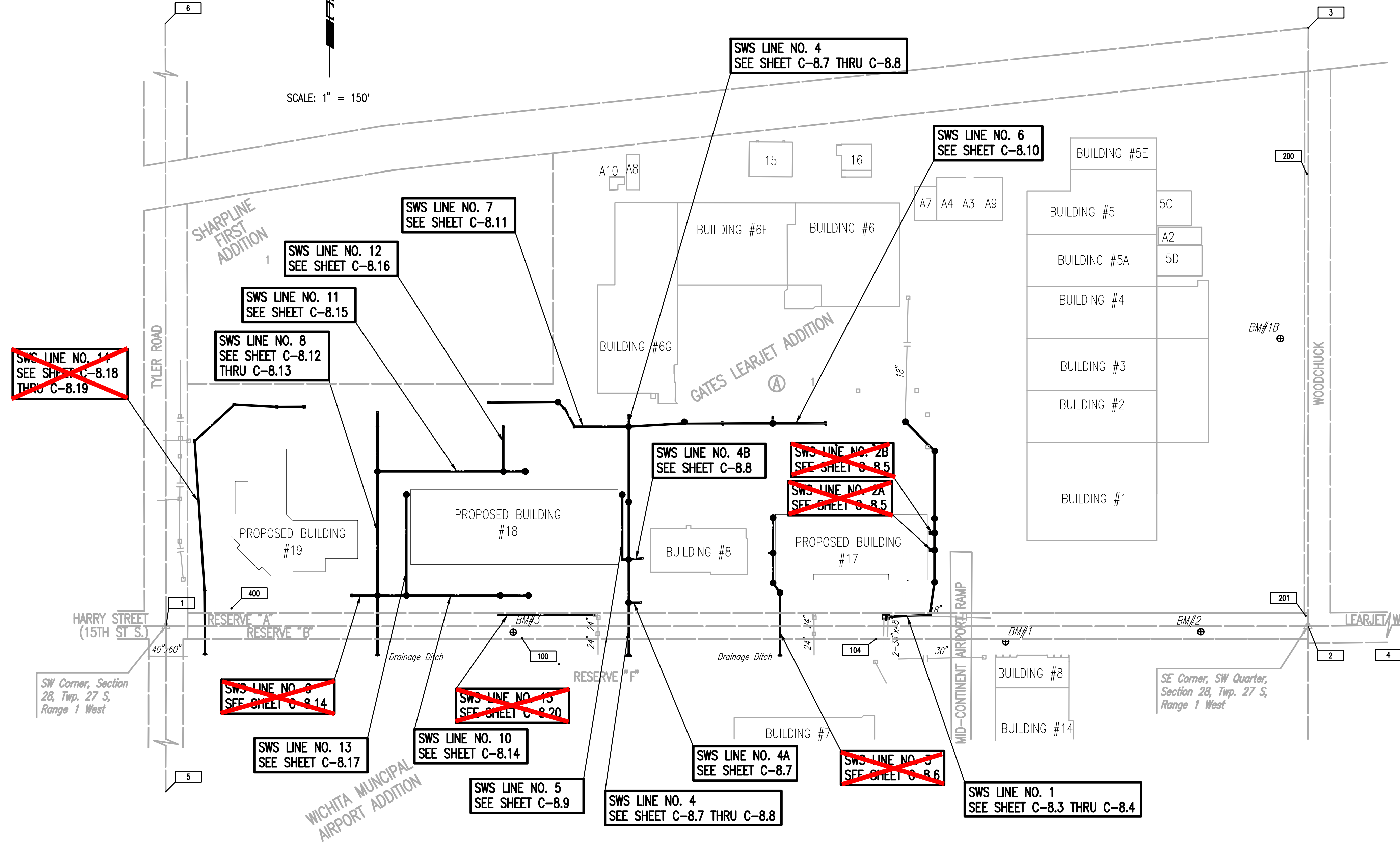
Eric Strecker, Schwab-Eaton, PA

PDF by:

ELS, 12/09/13



SCALE: 1" = 150'



GENERAL NOTES

- ALL CONSTRUCTION AND MATERIALS TO COMPLY WITH CITY OF WICHITA SPECIFICATIONS AND STANDARDS.
- CONTRACTOR WILL BE REQUIRED TO PROVIDE A MINIMUM ADVANCE NOTICE OF SEVENTY-TWO (72) HOURS TO UTILITY COMPANIES PRIOR TO STARTING ANY EXCAVATION AS FOLLOWS:
 KANSAS ONE-CALL 687-2470
 CITY OF WICHITA UTILITY LOCATES WWW.WICHITA.GOV\LOCATE (268-4260)
 THE CONTRACTOR MUST NOTIFY THE FOLLOWING IN CASE OF AN EMERGENCY:
 PRIVATE UTILITY CONTACTS:
 BOMBARDIER LEARJET 687-2470
 MIKE AYRES, PLANT ENGINEER WWW.WICHITA.GOV\LOCATE (268-4260)
 316-964-3194
 PUBLIC UTILITY CONTACTS:
 COX COMMUNICATIONS 262-0661
 KANSAS GAS SERVICE 1(888)-482-4950
 WESTAR ENERGY 383-8600
 BLACK HILLS ENERGY 1(800)-527-0357
 AT&T 1(800)-870-8390
 CITY OF WICHITA WATER DEPARTMENT 262-6000
 CITY OF WICHITA SEWER MAINTENANCE 262-6000
- ALL ELEVATIONS SHOWN ARE NGVD29 DATUM.
- THE CONTRACTOR SHALL LIMIT THE EXTENT OF TRENCH TO REMAIN OPEN OVERNIGHT AND WEEKENDS TO LESS THAN 50 FEET.
- UNDERGROUND UTILITY SERVICE LINES AND OVERHEAD UTILITY POLE LINES ARE TO BE ADJUSTED AS NECESSARY BY OTHERS PRIOR TO CONSTRUCTION UNLESS THE PLANS SPECIFICALLY CALL FOR THEIR ADJUSTMENT BY THE CONTRACTOR OR UNLESS THE PLANS SPECIFICALLY IDENTIFY A UTILITY TO BE ADJUSTED BY ITS OWNER DURING CONSTRUCTION. EXISTING UTILITIES AND THEIR LOCATIONS, AS SHOWN ON THE PLANS, REPRESENT THE BEST INFORMATION OBTAINABLE FOR THE DESIGN. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY WHICH DO NOT CONFLICT WITH PROPOSED CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING PROPERTY IRONS. THE CONTRACTOR WILL BE REQUIRED TO RE-ESTABLISH ANY PROPERTY IRONS WHICH ARE DAMAGED OR DESTROYED BY HIS CONSTRUCTION OPERATIONS. SUCH IRONS SHALL BE RE-ESTABLISHED BY A LICENSED LAND SURVEYOR IN ACCORDANCE WITH STATE LAWS.
- CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL MANHOLE COVERS UNLESS OTHERWISE NOTED ON THE GRADING PLAN.
- RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES INCLUDING ANY TREES REMOVED, TREE TRIMMINGS, AND EXCESS EXCAVATION WHICH IS TO BE WASTED SHALL BE DISPOSED ON SITES PROVIDED BY THE CONTRACTOR. THESE SITES SHALL ALSO BE APPROVED BY THE ENGINEER AS TO SUITABILITY, APPEARANCE, AND SITE LOCATION. LOCATIONS THAT, IN THE OPINION OF THE ENGINEER, WILL LEAVE AN UNSIGHTLY APPEARANCE WILL NOT BE APPROVED. ALL DISPOSAL SITES MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT. MATERIAL EITHER STOCKPILED OR DISPOSED OF IN A FLOOD PLAIN WILL REQUIRE A KANSAS STATE BOARD OF AGRICULTURE PERMIT. ANY MATERIAL DUMPED IN WATERS OF THE UNITED STATES OR WETLANDS IS SUBJECT TO U.S. CORPS OF ENGINEERS PERMITTING REGULATIONS. ANY MATERIAL BURIED OR STOCKPILED BEYOND APPROVED CONSTRUCTION LIMITS MAY REQUIRE ARCHAEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED DISPOSAL LOCATION.
- ALL APPROVED EXCESS EXCAVATION WHICH IS TO BE WASTED SHALL BE STOCKPILED AT NO ADDITIONAL COST TO THE OWNER. STOCKPILE LOCATIONS SHALL BE AS DIRECTED BY LEARJET AND IN ACCORDANCE WITH GENERAL NOTE NO. 8 ABOVE.
- ALL LAWN/TURF AREAS DISTURBED BY CONSTRUCTION OF THE PROPOSED IMPROVEMENTS SHALL BE RESTORED WITH THE SAME GRASS/SOD AS EXISTING. RESTORATION OF DISTURBED AREAS SHALL INCLUDE, BUT NOT BE LIMITED TO, TOP SOIL PREPARATION, SEEDING, MULCH, AND/OR RESEEDING. ALL SEEDING/SODDING WORK SHALL BE IN ACCORDANCE WITH THE CITY OF WICHITA STANDARD SPECIFICATIONS AND THE CITY OF WICHITA ADMINISTRATIVE REGULATION NO. AR6.5 WHICH GOVERNS CLEANUP AND RESTORATION OR REPLACEMENT FOLLOWING CONSTRUCTION.
- THE CONTRACTOR SHALL SEED ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES WITH TEMPORARY RYE GRASS. RYE GRASS SEED SHALL BE PLANTED AT A MINIMUM RATE OF SIX (6) POUNDS PER ONE THOUSAND (1,000) SQUARE FEET. THIS TEMPORARY SEEDING MAY BE OMITTED ONLY IF OTHER SEEDING IS REQUIRED IN ACCORDANCE WITH GENERAL NOTE NO. 11 ABOVE. TEMPORARY SEEDING OR PERMANENT SEEDING/SODDING SHALL BE APPLIED WITHIN 14 DAYS AFTER THE AREA HAS BEEN DISTURBED.
- THE CONTRACTOR SHALL AVOID REMOVAL OR TRIMMING OF ANY TREES OR SHRUBS WHERE POSSIBLE. WHERE THE CONTRACTOR BELIEVES THE REMOVAL OR TRIMMING IS UNAVOIDABLE, HE SHALL COORDINATE SUCH WORK WITH THE ENGINEER.
- THE CONTRACTOR SHALL GIVE ALL PROPERTY OWNERS AND/OR TENANTS OF DEVELOPED PROPERTY ADJACENT TO THE CONSTRUCTION OF THIS PROJECT A MINIMUM OF TEN (10) DAYS ADVANCE NOTICE PRIOR TO START OF CONSTRUCTION.
- THE CONTRACTOR SHALL PREVENT ANY CONSTRUCTION DEBRIS FROM ENTERING THE EXISTING STORM SEWER DURING CONSTRUCTION.
- THE CONTRACTOR SHALL NOT BURY MANHOLES THAT HAVE RIM ELEVATIONS WHICH ARE LOWER THAN EXISTING GROUND AT THE MANHOLE. THE GROUND AROUND SUCH MANHOLES AND ALONG THE SEWER ALIGNMENT SHALL BE BACKFILLED TO THE APPROXIMATE ELEVATION OF THE PROPOSED GROUND ELEVATION SHOWN ON THE PLAN/PROFILE SHEETS. THE CONTRACTOR SHALL PROVIDE DRAINAGE AWAY FROM THESE MANHOLES AND SEWER LINES BY CONSTRUCTION OF TEMPORARY DITCHES OR SLOPING THE GROUND AS REQUIRED.
- THE CONTRACTOR SHALL PROVIDE MOUNDED EARTH AT MANHOLES AND CLEANOUTS THAT HAVE TOP ELEVATIONS GREATER THAN 1 FOOT ABOVE EXISTING GRADE, AS SHOWN ON THE PLANS. COSTS FOR MOUNDED SHALL BE CONSIDERED SUBSIDIARY TO THE PRICE BID PER EACH FOR MANHOLES.
- INTERURBAN TRAFFIC GENERATED OUTSIDE THE PROJECT AREA AND LOCAL BUSINESS OR RESIDENTIAL TRAFFIC GENERATED WITHIN THE PROJECT AREA ARE TO BE CARRIED THROUGH CONSTRUCTION AS FURTHER PROMULGATED BY PROJECT SPECIAL PROVISIONS. THE CONTRACTOR SHALL UTILIZE BARRICADES, SIGNS, GUARDS, AND FLAGMEN IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- THE CONTRACTOR SHALL INSTALL AND/OR MAINTAIN EROSION CONTROL METHODS AS SPECIFIED. THE GENERAL LOCATION OF THE REQUIRED EROSION CONTROL IS ILLUSTRATED ON THE EROSION CONTROL PLAN. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE EROSION CONTROL SHOWN THROUGH THE COMPLETION OF THIS PROJECT. INSTALLATION OF THESE BMP'S DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF ABATING SOIL EROSION.

BENCHMARK LIST		SECTION CORNERS	
BM #1 - Chiseled "d" on Top of Light Pole Base. Elevation=1330.85 (NGVD 29)		Pt. No. 1 N: 5,000.0000, E: 10,000.0000 Metal Cap in Thimble Found Southwest Corner Section 8, Township 27 South, Range 1 West	
BM #1B - Chiseled "d" on Top of Concrete. Elevation=1333.08 (NGVD 29)		Pt. No. 2 N: 5,000.0000, E: 12,643.2200 1/2" Iron Pipe in Thimble Found South Quarter Corner Section 8, Township 27 South, Range 1 West	
BM #2 - Chiseled "d" on Top of Curb. Elevation=1330.69 (NGVD 29)		Pt. No. 3 N: 6,384.5900, E: 12,643.9600 1/2" Iron Pipe in Thimble Found Center of Woodchuck	
BM #3 - Chiseled "d" on Top of Curb. Elevation=1330.93 (NGVD 29)		Pt. No. 4 N: 5,028.3200, E: 15,285.7200 1" Iron Pipe in Thimble Found Southeast Corner Section 8, Township 27 South, Range 1 West	
CONTROL POINTS		Pt. No. 5 N: 2,364.9700, E: 9,994.6600 1" Iron Pipe Found West Quarter Corner Section 33, Township 27 South, Range 1 West	
Pt. No. 100 N: 4,971.6400, E: 10,823.7600		Pt. No. 6 N: 7,639.5800, E: 9,997.4200 3/4" Iron Pipe Found West Quarter Corner Section 8, Township 27 South, Range 1 West	
Pt. No. 104 N: 4,970.0300, E: 11,643.8700			
Pt. No. 200 N: 6,046.3900, E: 12,640.5500			
Pt. No. 201 N: 5,023.6100, E: 12,638.0700			
Pt. No. 400 N: 5,040.5500, E: 10,151.3900			

LEGEND

EXISTING STORM WATER SEWER	
PROPOSED STORM WATER SEWER	
EXISTING STORM WATER SEWER w/STRUCTURE	
PROPOSED STORM WATER SEWER w/STRUCTURE	

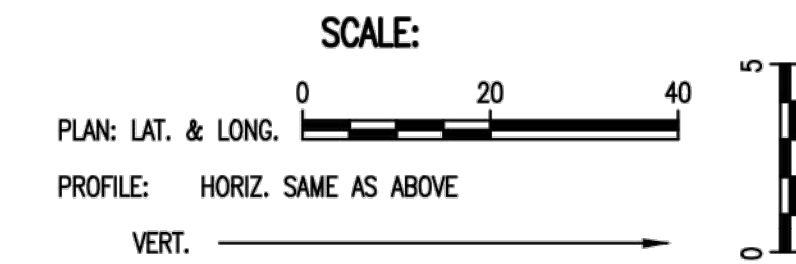
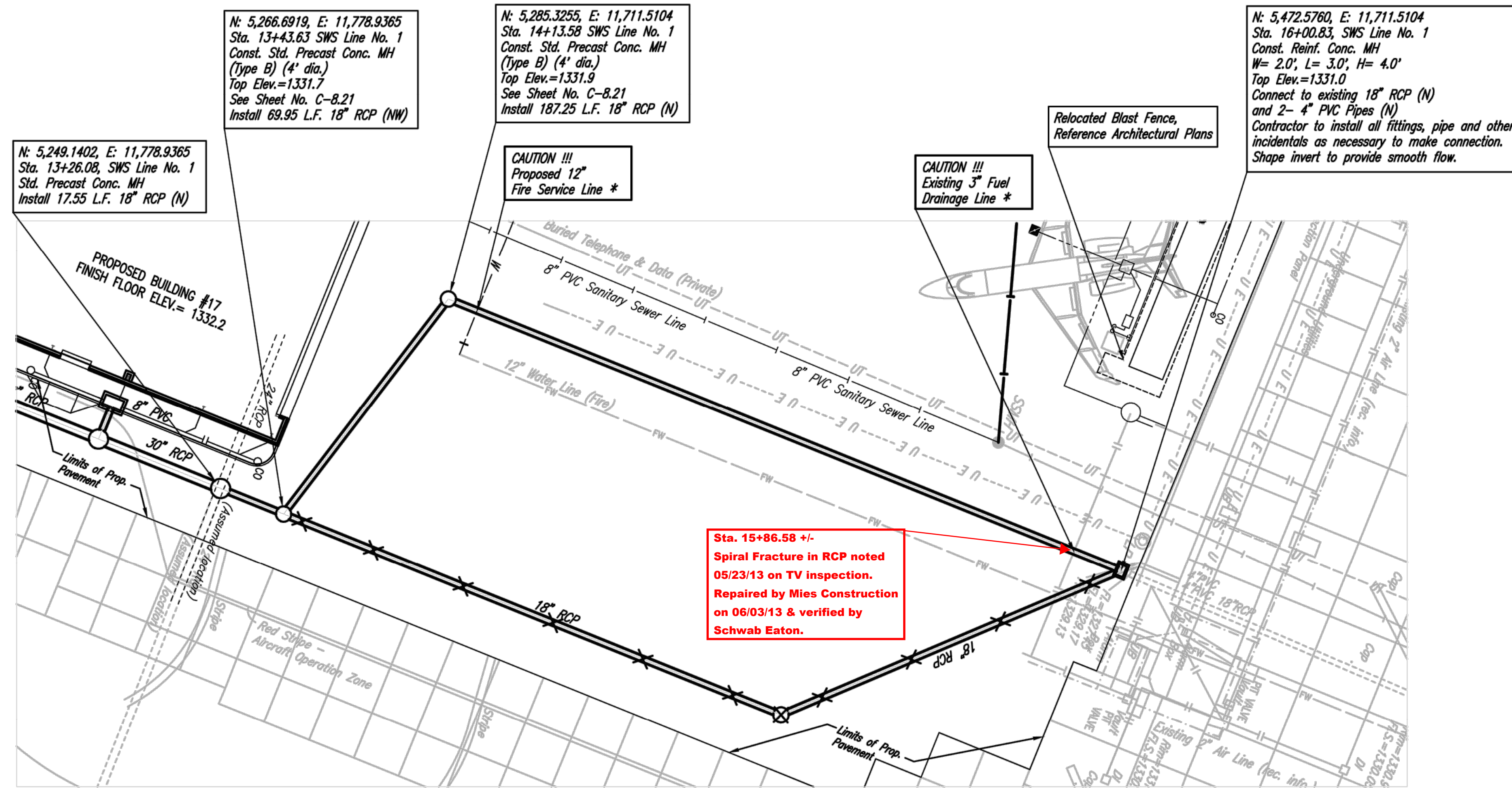
PROPOSED STORM WATER SEWER TO BE PRIVATELY OWNED AND MAINTAINED.

SURVEY PROVIDED BY: BAUGHMAN COMPANY P.A.
315 S. ELLIS
WICHITA, KS. 67211
316-262-7271
www.baughmanco.com
JANUARY 2012

No.	Revision	By	Date
BOMBARDIER LEARJET SITE EXPANSION PRIVATE STORM WATER SEWER EXTENSION KEY MAP AND GENERAL NOTES GARY JANZEN, P.E. - INTERIM CITY ENGINEER PRIVATE PROJECT NO. 105 PPD (607861)			
PROFESSIONAL ENGINEERING CONSULTANTS, P.A. 303 SOUTH TOPEKA WICHITA, KS 67202 316-262-2691 www.pec1.com			
Designed by	MEB, JSM	Job No.	35-11394-5-0534
Drawn by	CSL	Date	JANUARY 2012

S:\swd 08-01-2012 9:15:57 AM by JSM
Plot Scale 1:150 08-01-2012 9:21:20 AM by JSM
C:\2011\11394\0534\Site Civil\PPD\11394-005-PPD-C-PPD KEY MAP

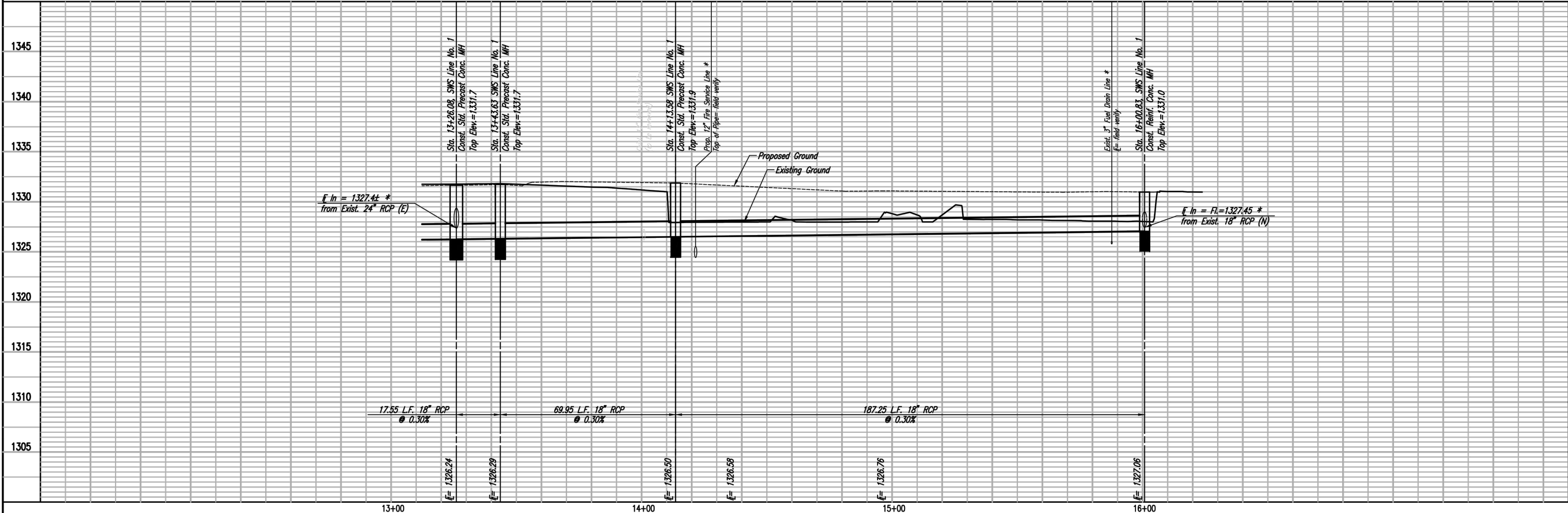
PLAN	CHECKED	CHECKED
BY		
DATE		



* PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE THE EXISTING UTILITY TO VERIFY PIPE SIZE, TYPE, FITTINGS, AND HORIZONTAL AND VERTICAL LOCATION. THE CONTRACTOR SHALL RELOCATE ANY EXISTING UTILITY THAT DOES NOT HAVE PROPER CLEARANCES BETWEEN PROPOSED AND EXISTING UTILITY. CONTRACTOR SHALL RELOCATE AND MAINTAIN MINIMUM COVER AND CLEARANCE REQUIREMENTS FOR EXISTING UTILITY BASED ON STATE AND LOCAL REGULATIONS.

STORM WATER SEWER LINE NO. 1

PROFILE	CHECKED	CHECKED
BY		
DATE		



BOMBARDIER LEARJET SITE EXPANSION
PRIVATE STORM WATER SEWER EXTENSION
STORM WATER SEWER LINE NO. 1

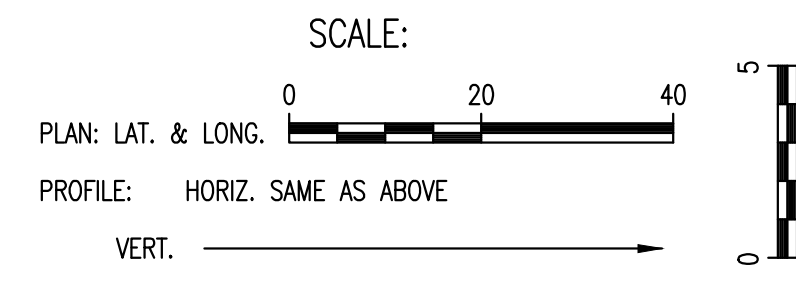
DESIGNED BY: MEB, JSM
 DRAWN BY: CSL

PROFESSIONAL ENGINEERING CONSULTANTS P.A.
 303 SOUTH DOPEKA WICHITA, KS 67202
 316-262-2681 www.pec.com

Job No. 35-11394-005-1353
 Date JUNE 2012

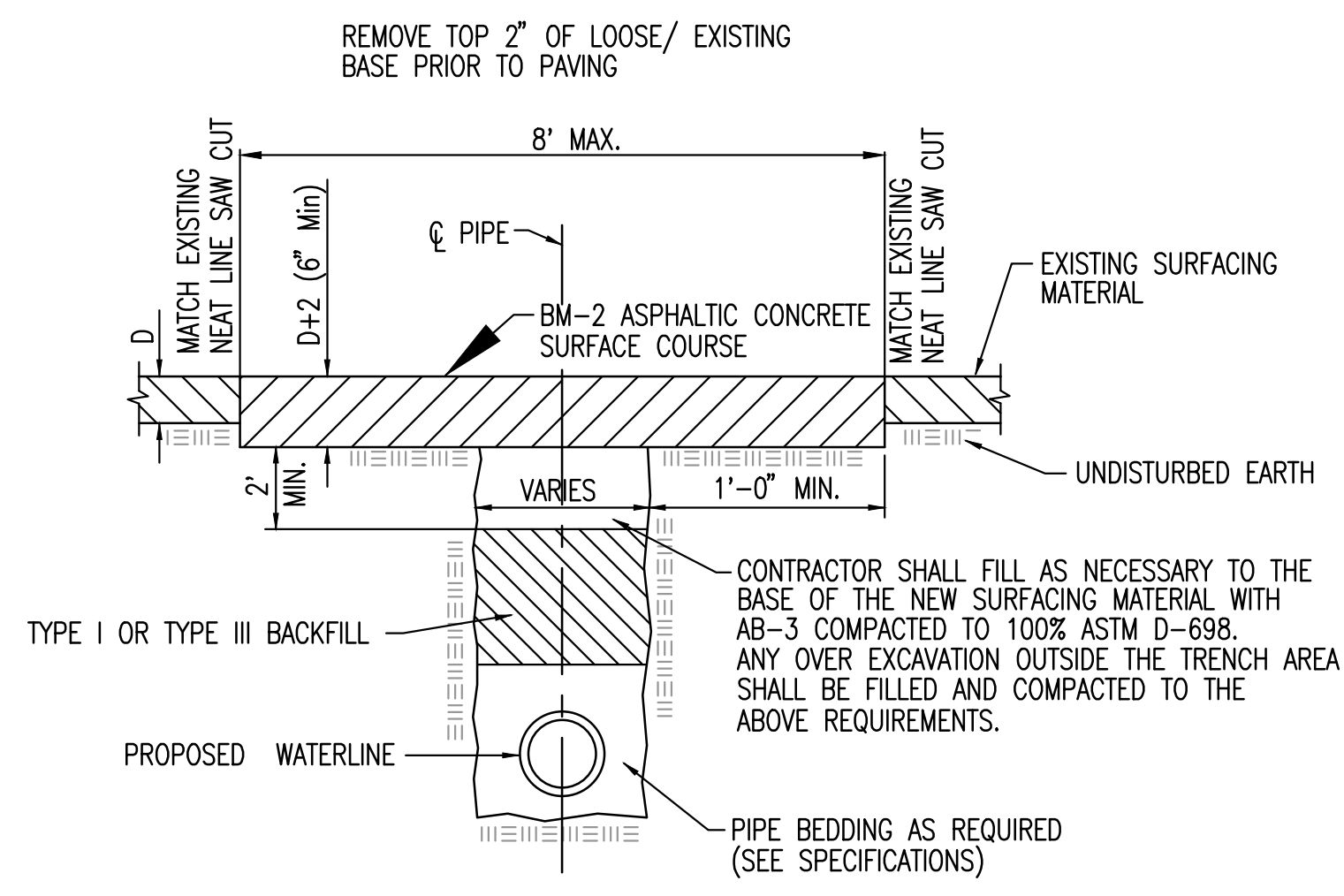
GARY JANZEN, P.E. - INTERIM CITY ENGINEER
 PRIVATE PROJECT NO. 105 PPD (607861)

Sheet C-8.4 of 33



PLAN	CHECKED	DATE
	CHECKED	

PROFILE	CHECKED	DATE
	CHECKED	



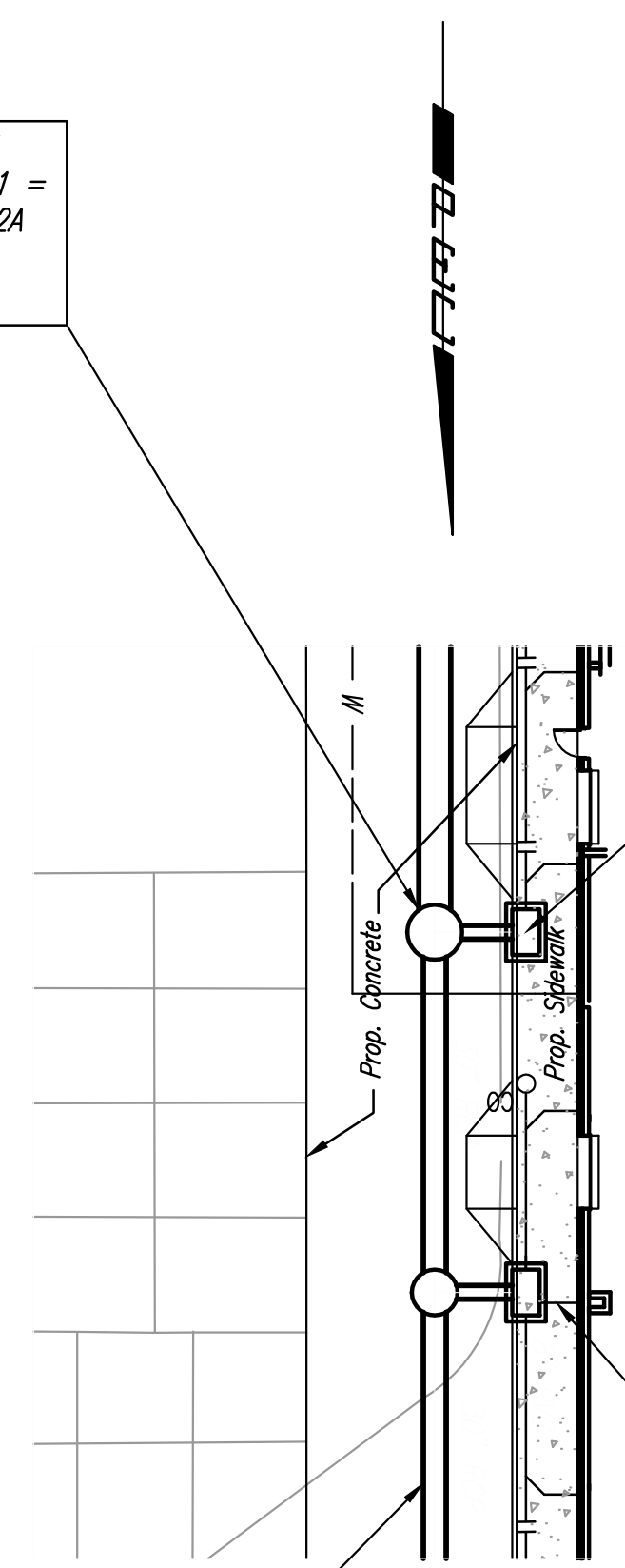
PAVEMENT REMOVAL AND REPLACEMENT DETAIL

N: 5,175.7417, E: 11,768.9365
 Sta. 12+14.20, SWS Line No. 1 =
 Sta. 10+00.00, SWS Line No. 2A
 Std. Precast Conc. MH
 Install 10.00 L.F. 18" RCP (W)

N: 5,175.7417, E: 11,778.9365
 Sta. 10+10.00 SWS Line No. 2A
 Const. Standard Type 1 Curb Inlet
 W= 3'-0", L= 5'-0"
 Top Elev.= 1332.0
 See Sheet No. C-8.23
 Install 10" R.L. (S) See Sheet C-6.4

N: 5,215.1631, E: 11,768.9365
 Sta. 12+53.62, SWS Line No. 1 =
 Sta. 10+00.00, SWS Line No. 2B
 Std. Precast Conc. MH
 Install 10.00 L.F. 18" RCP (W)

N: 5,215.1631, E: 11,778.9365
 Sta. 10+00.00, SWS Line No. 2B
 Const. Standard Type 1 Curb Inlet
 W= 3'-0", L= 5'-0"
 Top Elev.= 1332.0
 See Sheet No. C-8.23
 Install 4" R.L. (E) See Sheet C-6.4
 Install 8" R.L. (N) See Sheet C-6.4
 Install 8" R.L. (S) See Sheet C-6.4

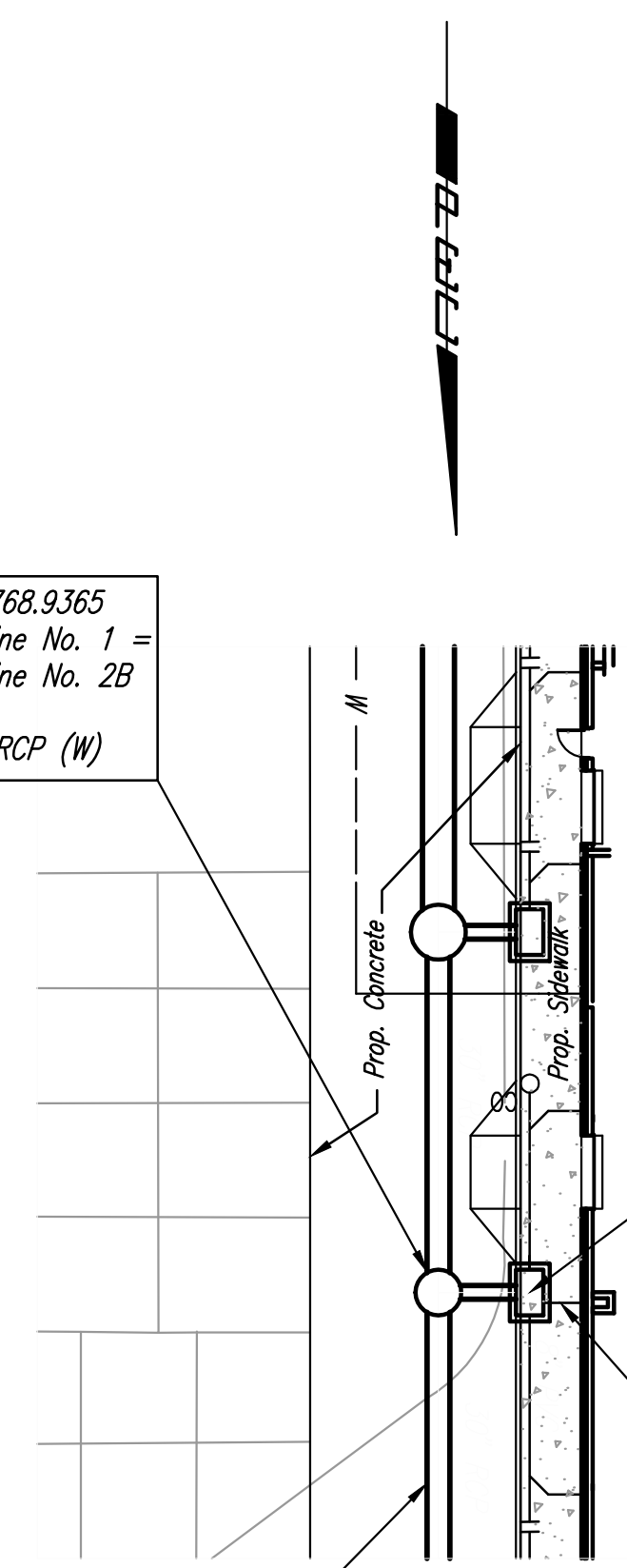


STORM WATER SEWER LINE NO. 2A

Proposed Rain Leader (typical)
 Reference Bldg #17 Site Utility Plans

STORM WATER SEWER
 LINE NO. 1
 See sheet no. C-8.3

Line No. 2A not built at the time of As-built submittal.
 Line to be completed at a later date in time.

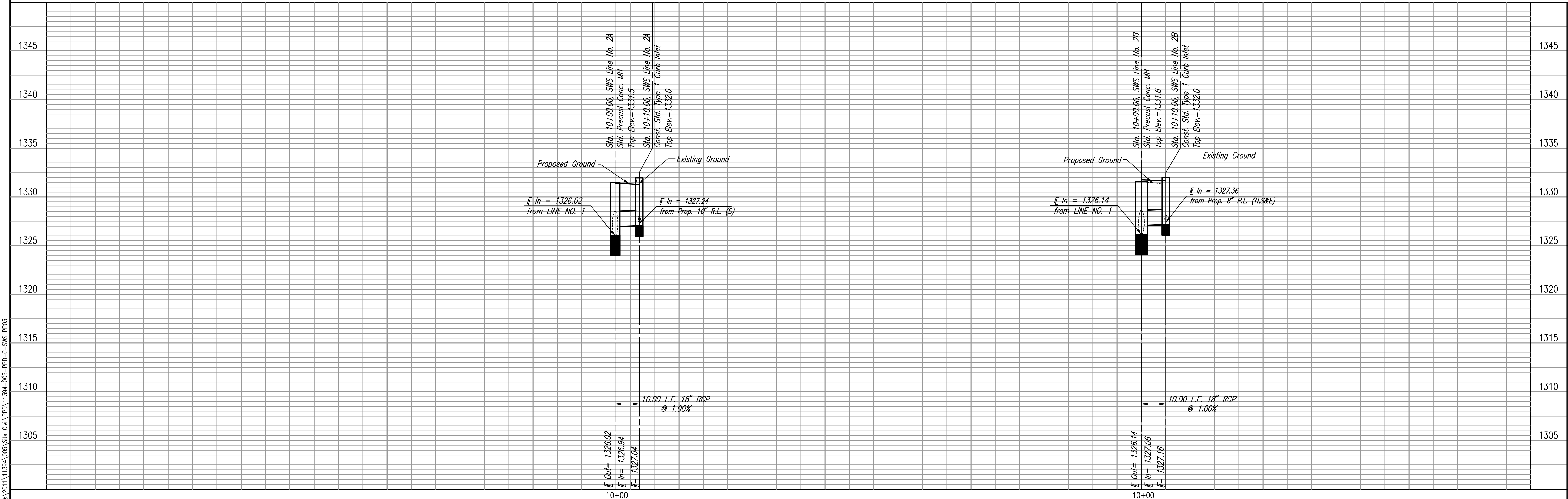


STORM WATER SEWER LINE NO. 2B

Proposed Rain Leader (typical)
 Reference Bldg #17 Site Utility Plans

STORM WATER SEWER
 LINE NO. 1
 See sheet no. C-8.3

Line No. 2B not built at the time of As-built submittal.
 Line to be completed at a later date in time.



Drawn: 07-26-2012 3:46:00 PM by: CSL
 Plot Scale: 1:20 07-31-2012 1:56:51 PM by: CSL
 07/2011\1394\005\Site Civil\PPD\11394-005-PPD-C-SWS PPD3

BOMBARDIER LEARJET SITE EXPANSION
 PRIVATE STORM WATER SEWER EXTENSION
**STORM WATER SEWER LINE NO. 2A
 AND LINE NO. 2B**

PROFESSIONAL ENGINEERING CONSULTANTS P.A.
 303 SOUTH TOPEKA WICHITA, KS 67202
 316-262-2691 www.pec1.com

Designed By: MEB, JSM
 Drawn By: CSL

Job No.: 55-11394-005-1353
 Date: JUNE 2012

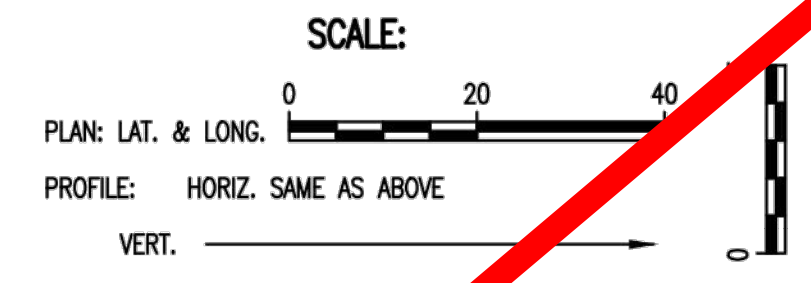
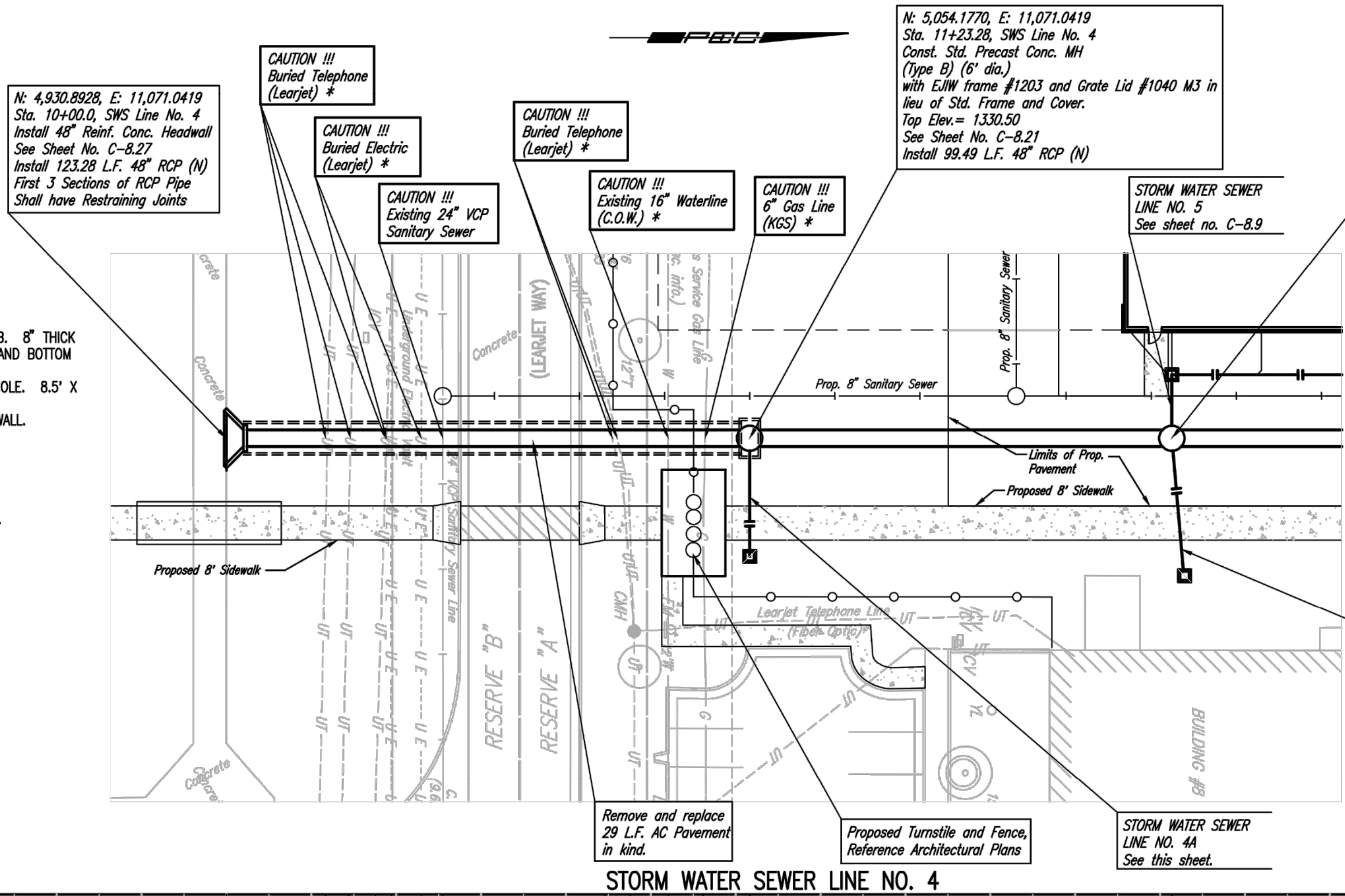
GARY JANZEN, P.E. - INTERIM CITY ENGINEER
 PRIVATE PROJECT NO. 105 PPD (607861)

Sheet C-8.5 of 33

DATE	
BY	
CHECKED	
CHECKED	
PLAN	

ADD:
 125 LF OF 2' X 7' RCB, 8" THICK TOP SLAB, 6" WALLS AND BOTTOM SLAB.
 (1) RECTANGULAR MANHOLE, 8.5' X 4' INSIDE DIMENSIONS.
 (1) 2' X 7' RCB HEADWALL.

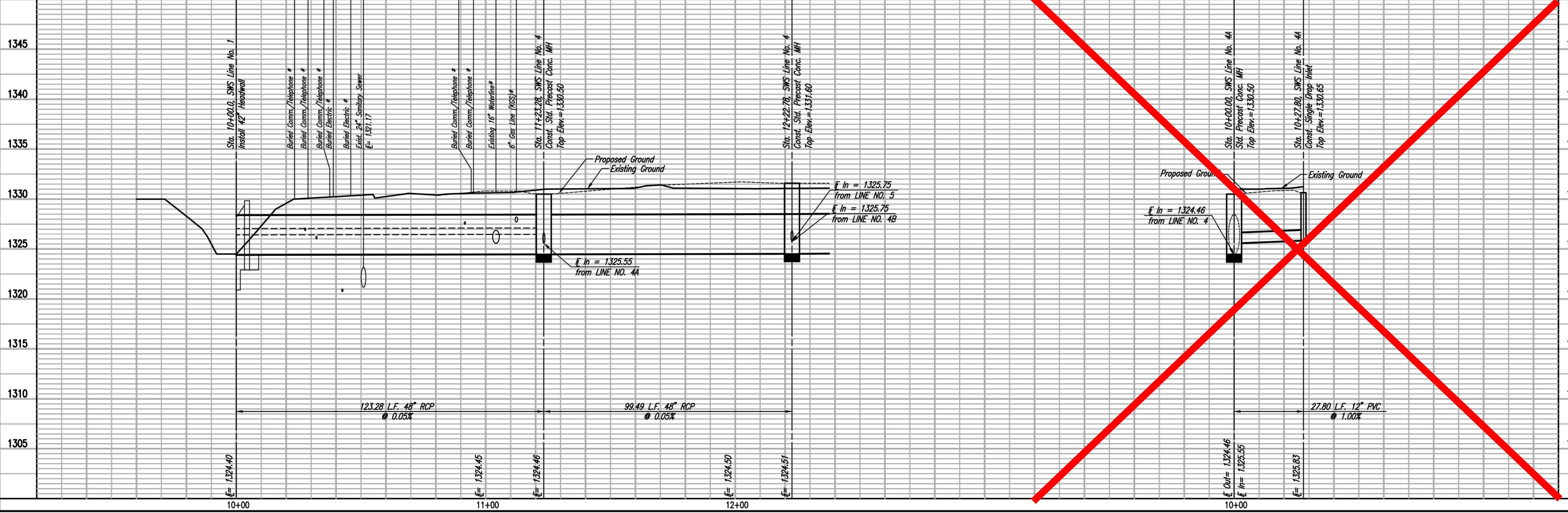
SUBTRACT:
 125 LF OF 48" RCP.
 (1) 6 FOOT MH.
 (1) 48" RCP HEADWALL.



* PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE THE EXISTING UTILITY TO VERIFY PIPE SIZE, TYPE, FITTINGS, AND HORIZONTAL AND VERTICAL LOCATION. THE CONTRACTOR SHALL RELOCATE ANY EXISTING UTILITY TO BE FOUND IN CONFLICT WITH PROPOSED UTILITY. THE CONTRACTOR SHALL ALSO RELOCATE ANY EXISTING UTILITY THAT DOES NOT HAVE PROPER CLEARANCES BETWEEN PROPOSED AND EXISTING UTILITY. CONTRACTOR SHALL RELOCATE AND MAINTAIN MINIMUM COVER AND CLEARANCE REQUIREMENTS FOR EXISTING UTILITY BASED ON STATE AND LOCAL REGULATIONS.

DATE	
BY	
CHECKED	
CHECKED	
PROFILE	

Sheet 10-01-2012, 11:55:22 AM by JSM
 Plot Scale: 1/4"=1'-0" (10'-0"=10'-0")
 Job No. 11394-005-03-7-SWS LINE NO. 4 & 4A-RFI 2-01



PEC
 PROFESSIONAL ENGINEERING CONSULTANTS P.A.
 303 SOUTH DOPEKA, WICHITA, KS 67202
 316-262-2681 www.pec.com

Designed By: MEB, JSM
 Drawn By: CSL

Job No. 35-11394-005-1353
 Date: JUNE 2012

**BOMBARDIER LEARJET SITE EXPANSION
 PRIVATE STORM WATER SEWER EXPANSION
 STORM WATER SEWER LINE NO. 4
 AND LINE NO. 4A**

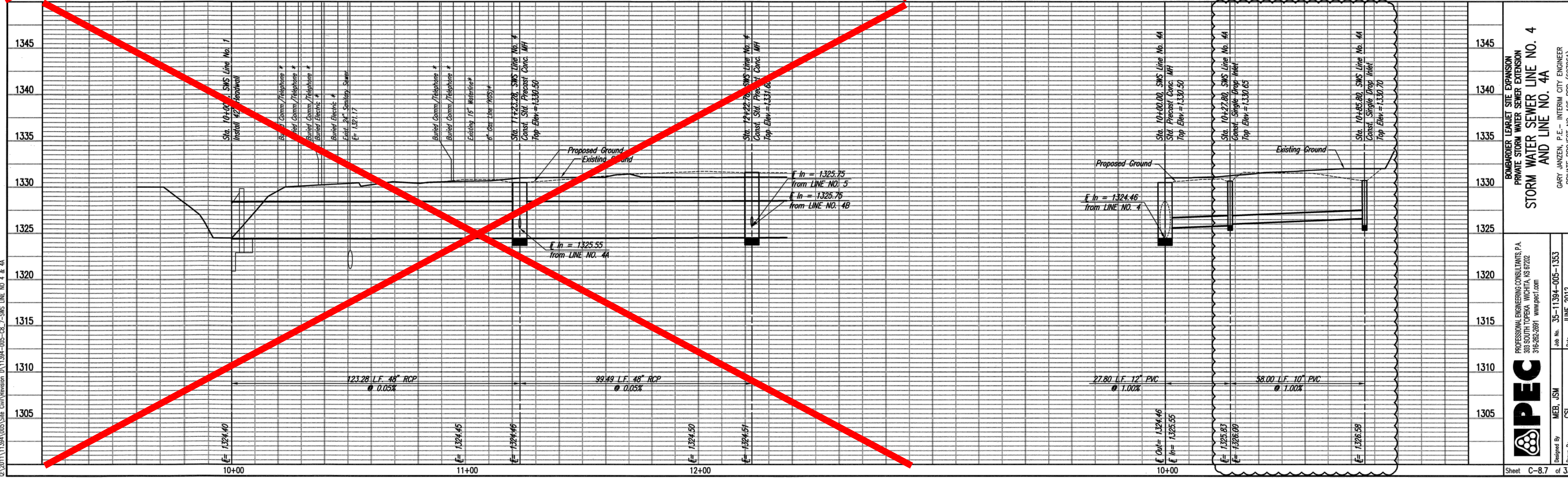
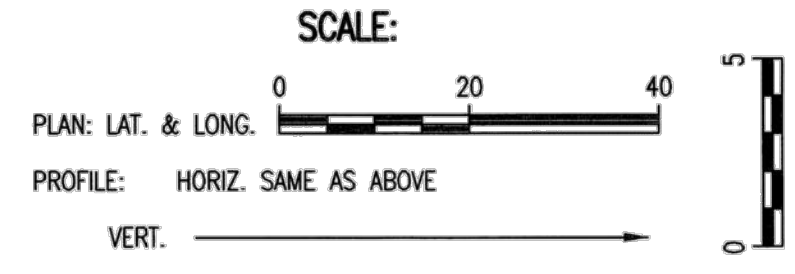
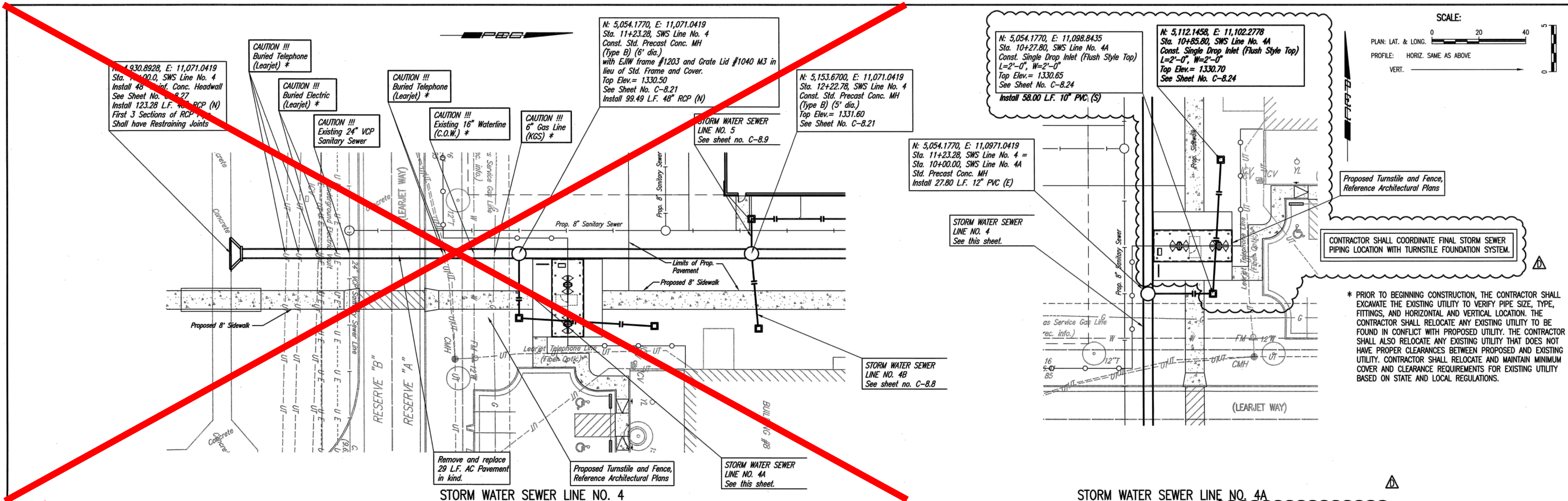
GARY JANZEN, P.E. - INTERIM CITY ENGINEER
 PRIVATE PROJECT NO. 105 PPD (607861)

Sheet C-8.7 of 33

PLAN	CHECKED	CHECKED
DATE		
BY		

PROFILE	CHECKED	CHECKED
DATE		
BY		

Sheet 06-21-2013 1:53:16 PM by CSI
 Plot Scale 1:20 06-21-2013 1:54:00 PM by CSI
 C:\2011\11394\005\Site Civil\Revision D\11394-005-08-7-SWS LINE NO 4 & 4A



* PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE THE EXISTING UTILITY TO VERIFY PIPE SIZE, TYPE, FITTINGS, AND HORIZONTAL AND VERTICAL LOCATION. THE CONTRACTOR SHALL RELOCATE ANY EXISTING UTILITY THAT IS FOUND IN CONFLICT WITH PROPOSED UTILITY. THE CONTRACTOR SHALL ALSO RELOCATE ANY EXISTING UTILITY THAT DOES NOT HAVE PROPER CLEARANCES BETWEEN PROPOSED AND EXISTING UTILITY. CONTRACTOR SHALL RELOCATE AND MAINTAIN MINIMUM COVER AND CLEARANCE REQUIREMENTS FOR EXISTING UTILITY BASED ON STATE AND LOCAL REGULATIONS.

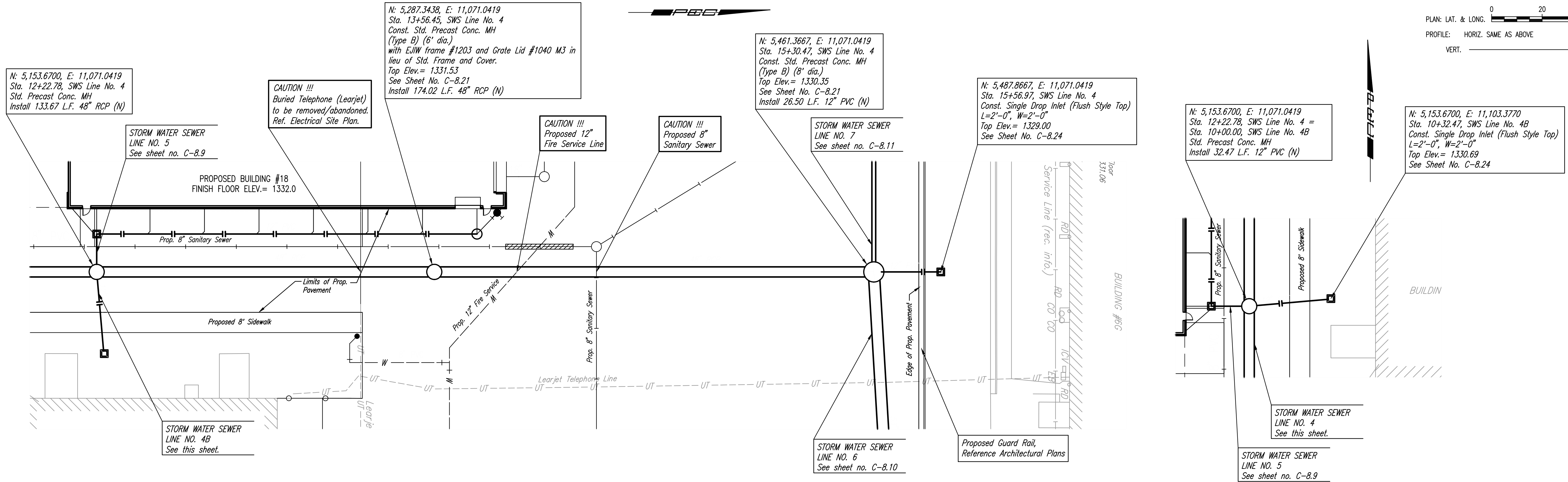
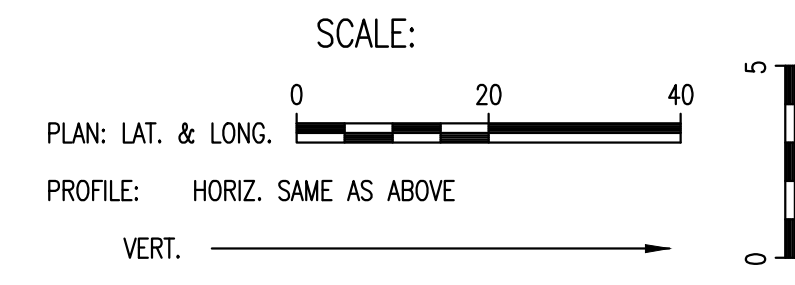
BOMBARDIER LEARJET SITE EXPANSION
PRIVATE STORM WATER SEWER EXTENSION
STORM WATER SEWER LINE NO. 4
AND LINE NO. 4A

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
 380 SOUTH TOPEKA WICHITA, KS 67202
 316-262-2861 www.pec.com

Designed By: MEB, JSM
 Drawn By: CSL
 Job No. 35-11394-005-1353
 Date: JUNE 2012

GARY JANZEN, P.E. - INTERIM CITY ENGINEER
 PRIVATE PROJECT NO. US-FPD (607861)

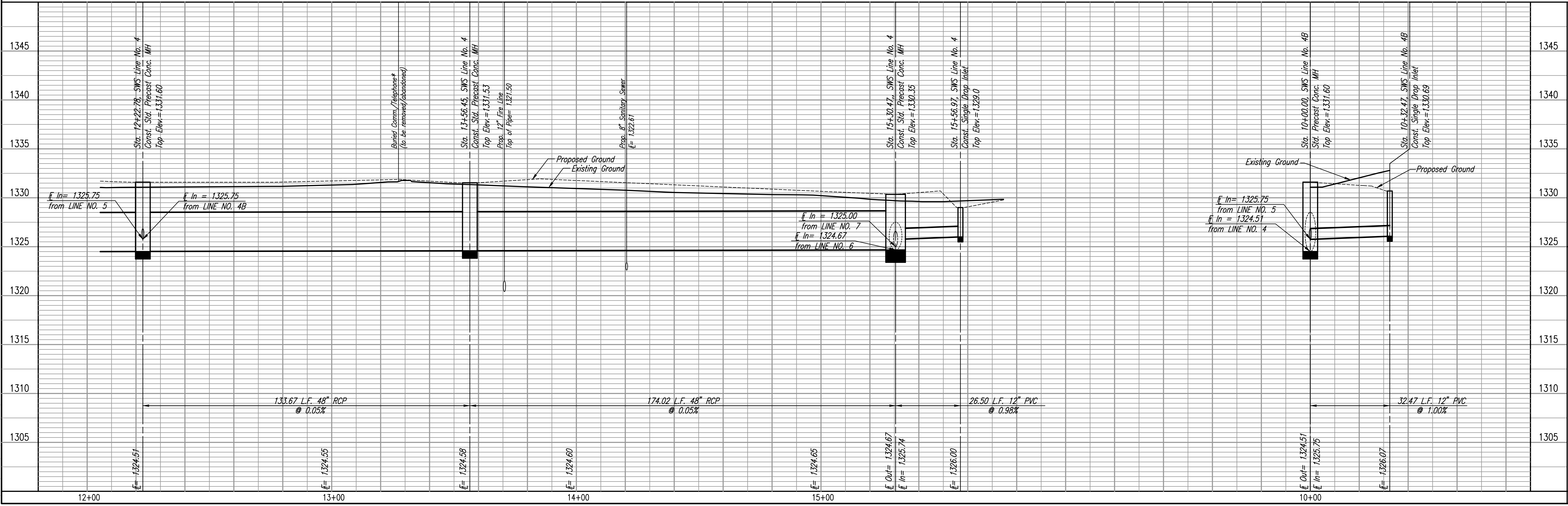
PLAN	CHECKED	DATE
	CHECKED	
BY		



STORM WATER SEWER LINE NO. 4

STORM WATER SEWER LINE NO. 4B

PROFILE	CHECKED	DATE
	CHECKED	
BY		



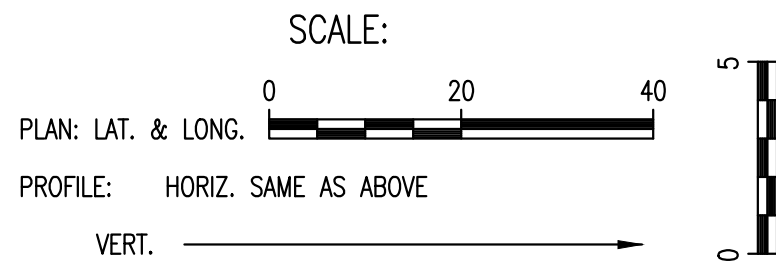
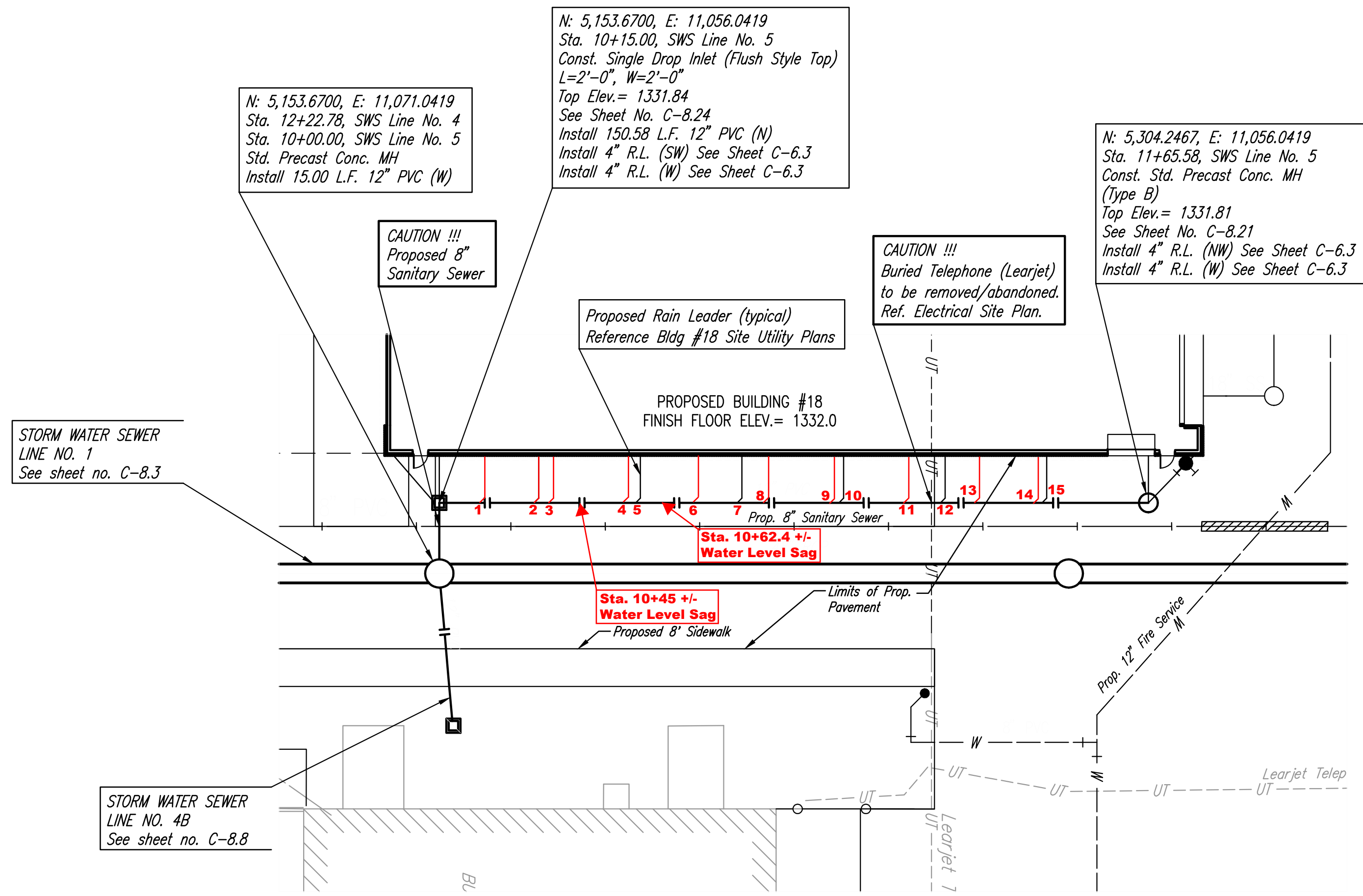
Saved: 07-26-2012 3:55:57 PM by: CSJ
 Plot Scale: 1:20 (07-31-2012 2:02:31 PM by: CSJ)
 C:\2011\1394\005\Site Civil\PPD\11394-005-PPD-C-SWS-PP06

PROFESSIONAL ENGINEERING CONSULTANTS P.A.
 303 SOUTH TOPEKA WICHITA, KS 67202
 316-262-2691 www.pec.com
 Job No. 55-11394-005-1353
 Date JUNE 2012
 Designed By MEB, JSM
 Drawn By CSJ
 BOMBARDIER LEARJET SITE EXPANSION
 PRIVATE STORM WATER SEWER EXTENSION
**STORM WATER SEWER LINE NO. 4
 AND LINE NO. 4B**
 GARY JANZEN, P.E. - INTERIM CITY ENGINEER
 PRIVATE PROJECT NO. 105 PPD (607861)
 Sheet C-8.8 of 33

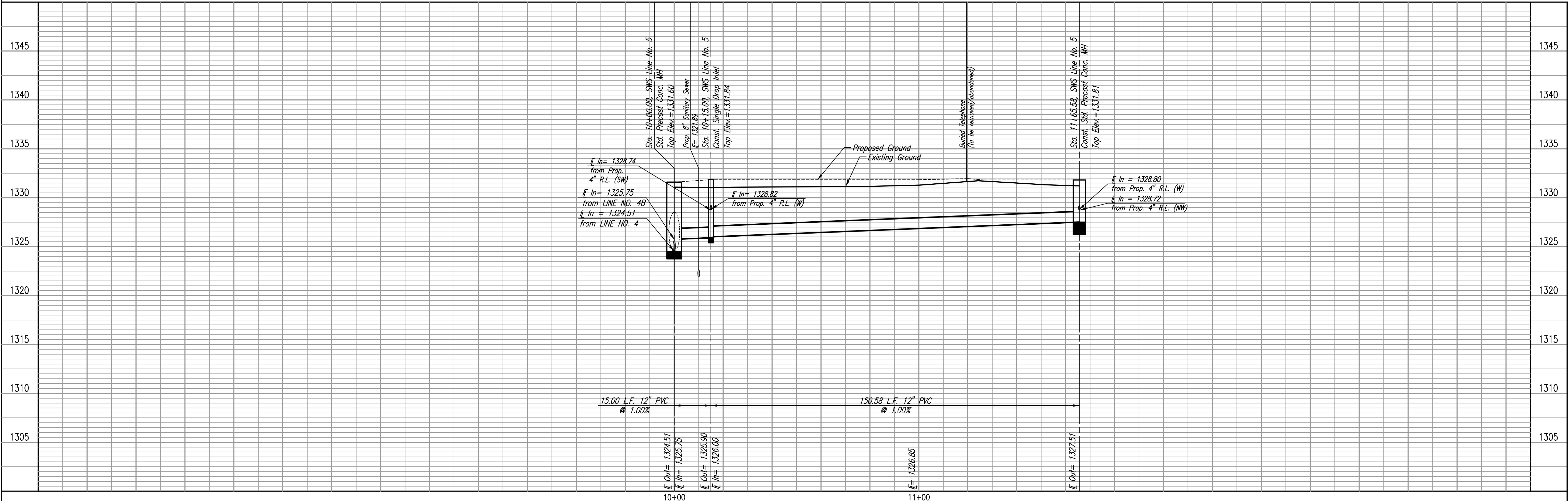
PLAN
 CHECKED
 CHECKED
 BY
 DATE

PROFILE
 CHECKED
 CHECKED
 BY
 DATE

SWS LINE 5 TAP LOCATIONS	STATION
#1	10+23.5
#2	10+36
#3	10+38.3
#4	10+53.9
#5	10+58.5
#6	10+51
#7	10+79
#8	10+83.7
#9	10+97.6
#10	10+99.7
#11	11+13.6
#12	11+22.7
#13	11+28.7
#14	11+42.2
#15	11+44.2



STORM WATER SEWER LINE NO. 5



Saved: 07-31-2012 2:03:36 PM by: CSL
 Plot Scale: 1/20 07-31-2012 2:04:17 PM by: CSL
 G:\2011\1394\005\Site Civil\PPD\11394-005-PPD-C-SWS PPD7

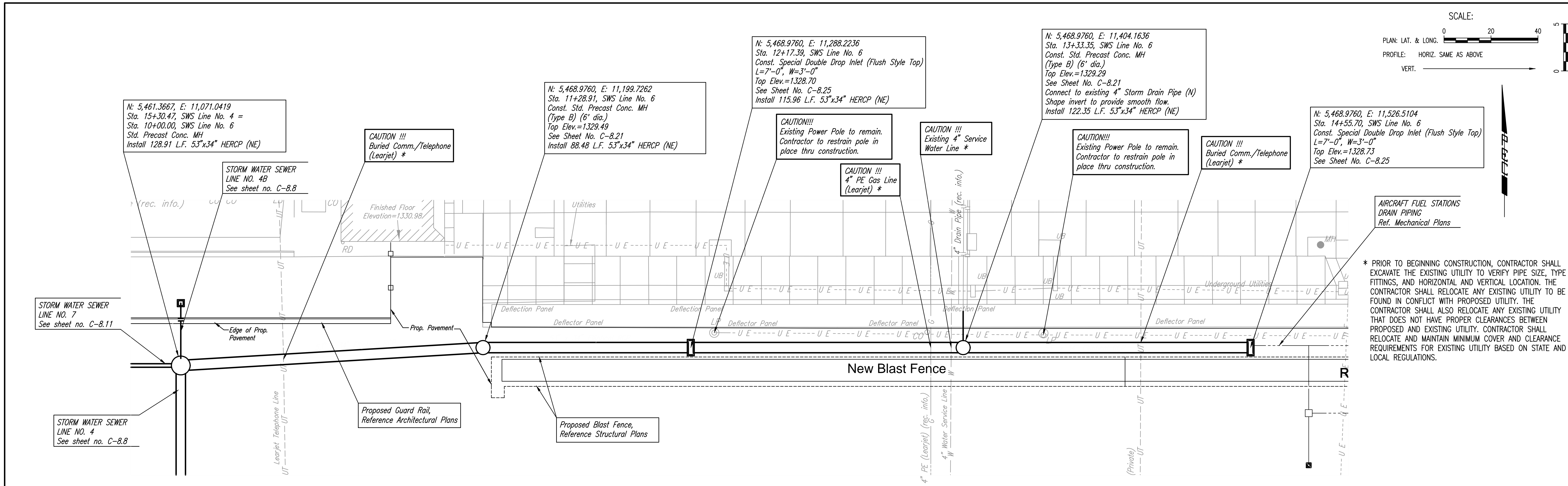
BOMBARDIER LEARJET SITE EXPANSION
 PRIVATE STORM WATER SEWER EXTENSION
STORM WATER SEWER LINE NO. 5
 GARY JANZEN, P.E. - INTERIM CITY ENGINEER
 PRIVATE PROJECT NO. 105 PPD (607861)

PEC
 PROFESSIONAL ENGINEERING CONSULTANTS P.A.
 303 SOUTH TOPEKA WICHITA, KS 67202
 316-262-2691 www.pec1.com
 Designed By: MEB, JSM
 Drawn By: CSL
 Job No.: 55-11394-005-1353
 Date: JUNE 2012
 Sheet C-8.9 of 33

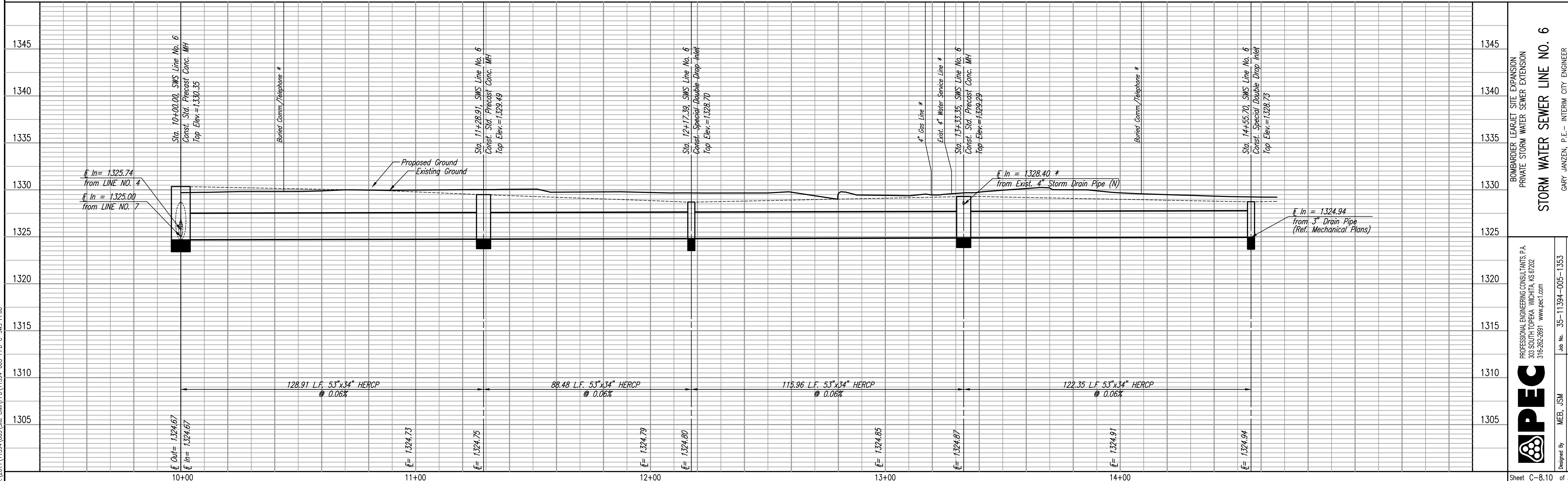
PLAN	CHECKED	DATE
	CHECKED	

PROFILE	CHECKED	DATE
	CHECKED	

Saved: 07-26-2012 3:56:02 PM by: CSL
 Plot Scale: 1:20 07-31-2012 2:06:05 PM by: CSL
 G:\2011\1394\005\Site Civil\PPD\11394-005-PPD-C-SWS-PP08



STORM WATER SEWER LINE NO. 6



PEC
 PROFESSIONAL ENGINEERING CONSULTANTS P.A.
 303 SOUTH TOPEKA WICHITA, KS 67202
 316-262-2691 www.pec1.com

Job No. 35-11394-005-1353
 Date JUNE 2012

Designed By MEB, JSM
 Drawn By CSL

**BOMBARDIER LEARJET SITE EXPANSION
 PRIVATE STORM WATER SEWER EXTENSION**

STORM WATER SEWER LINE NO. 6

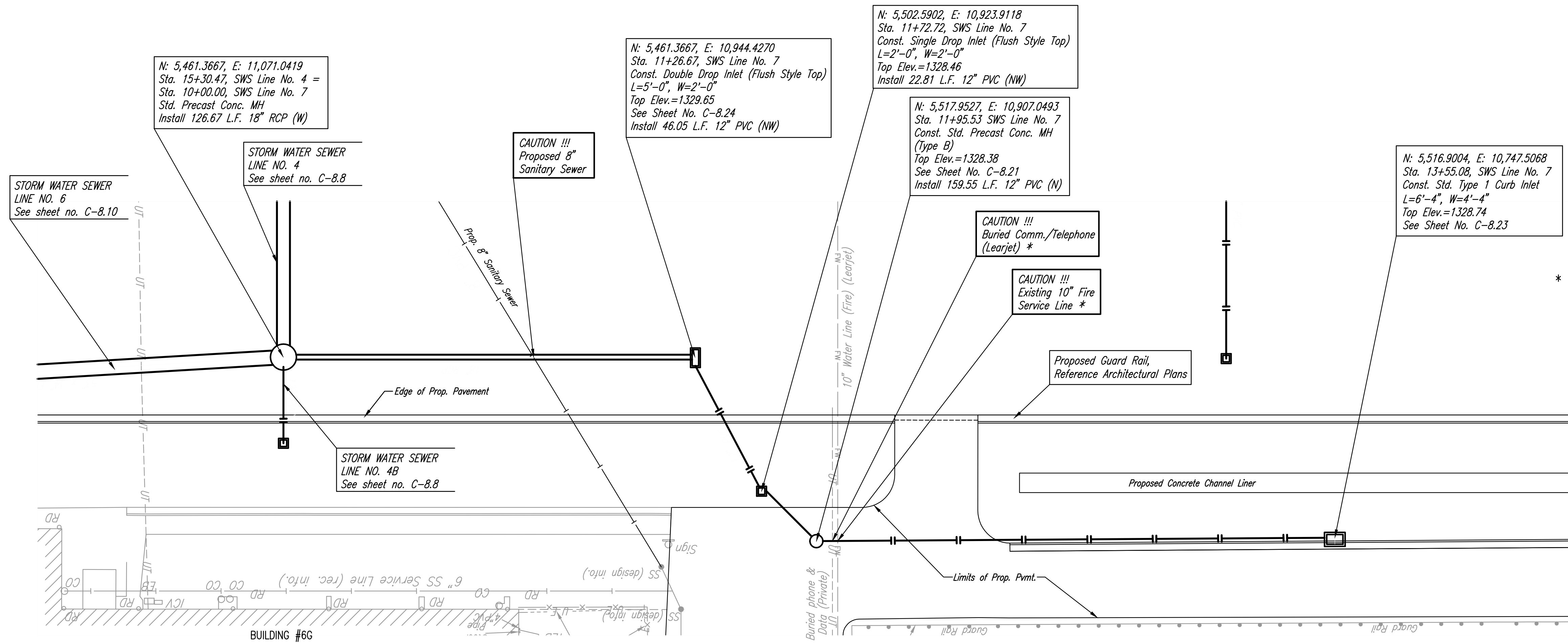
GARY JANZEN, P.E. - INTERIM CITY ENGINEER
 PRIVATE PROJECT NO. 105 PPD (607861)

Sheet C-8.10 of 33

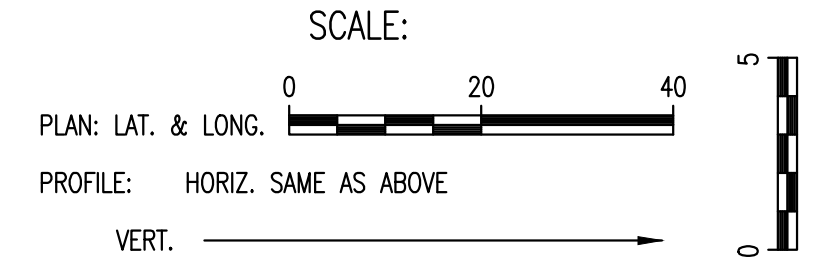
PLAN	CHECKED	DATE
	CHECKED	
BY		

PROFILE	CHECKED	DATE
	CHECKED	
BY		

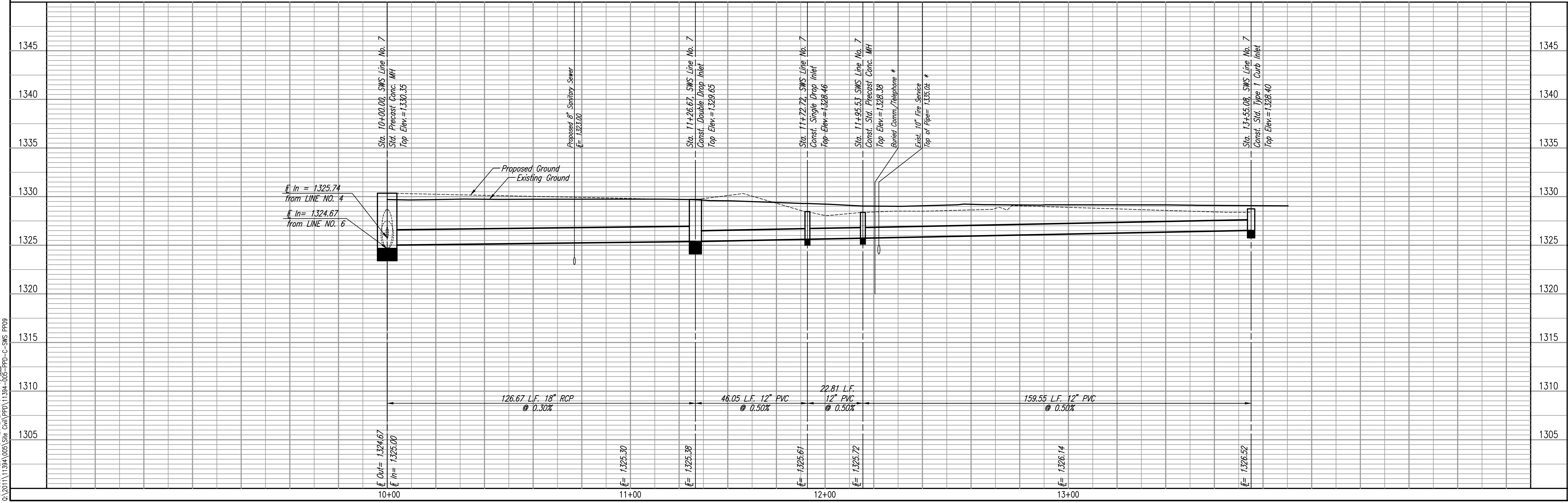
Served 07-26-2012 3:57:09 PM by CSL
 Plot Scale 1:20 07-31-2012 2:07:13 PM by CSL
 G:\2011\1394\005\Site Civil\PPD\11394-005-PPD-C-SWS-PP09



* PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE THE EXISTING UTILITY TO VERIFY PIPE SIZE, TYPE, FITTINGS, AND HORIZONTAL AND VERTICAL LOCATION. THE CONTRACTOR SHALL RELOCATE ANY EXISTING UTILITY TO BE FOUND IN CONFLICT WITH PROPOSED UTILITY. THE CONTRACTOR SHALL ALSO RELOCATE ANY EXISTING UTILITY THAT DOES NOT HAVE PROPER CLEARANCES BETWEEN PROPOSED AND EXISTING UTILITY. CONTRACTOR SHALL RELOCATE AND MAINTAIN MINIMUM COVER AND CLEARANCE REQUIREMENTS FOR EXISTING UTILITY BASED ON STATE AND LOCAL REGULATIONS.



STORM WATER SEWER LINE NO. 7



BOMBARDIER LEARJET SITE EXPANSION
 PRIVATE STORM WATER SEWER EXTENSION
STORM WATER SEWER LINE NO. 7
 GARY JANZEN, P.E. - INTERIM CITY ENGINEER
 PRIVATE PROJECT NO. 105 PPD (607861)

PEC
 PROFESSIONAL ENGINEERING CONSULTANTS P.A.
 303 SOUTH TOPEKA WICHITA, KS 67202
 316-262-2691 www.pec1.com

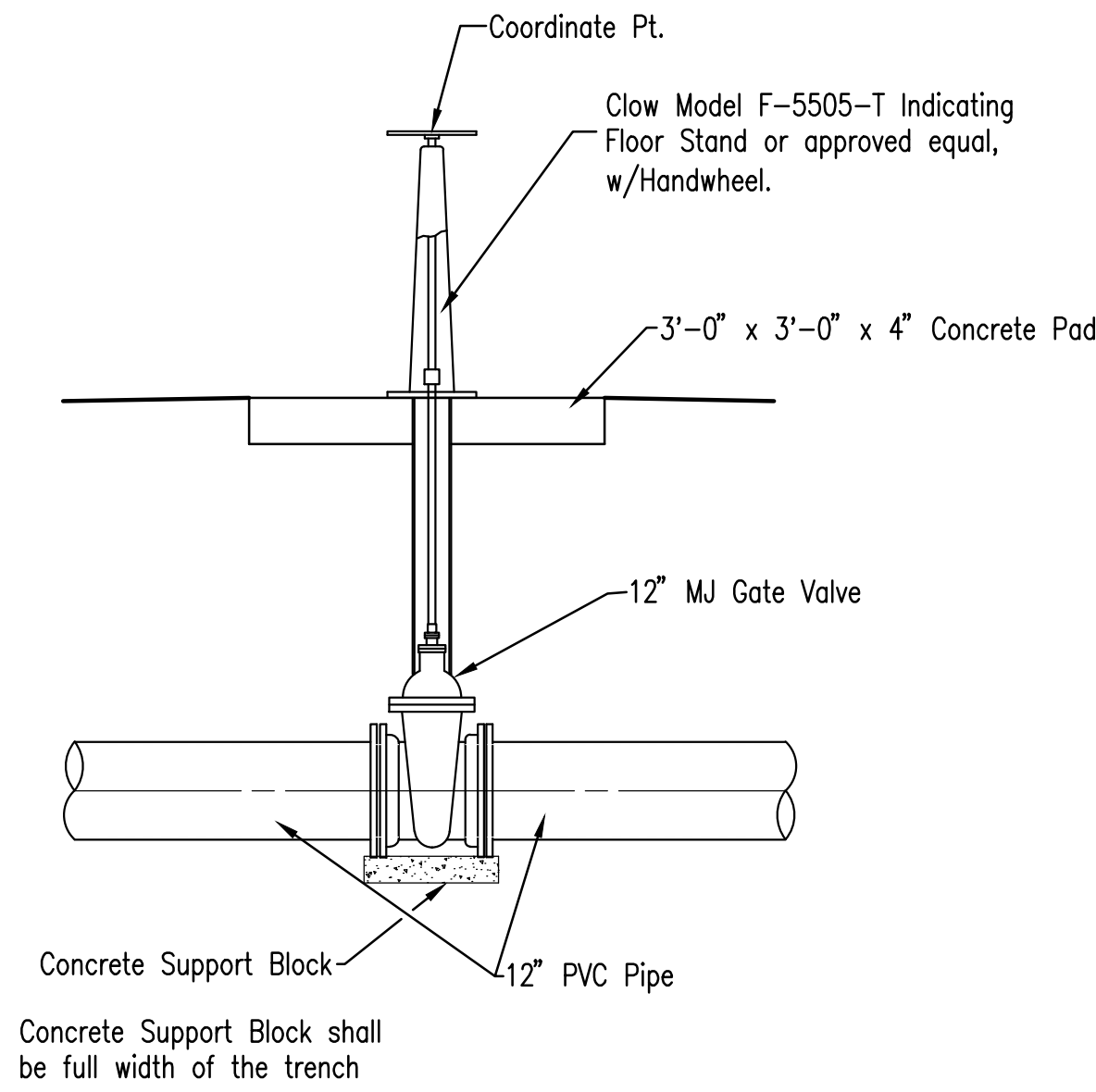
Job No. 55-11394-005-1353
 Date JUNE 2012

Designed By MEB, JSM
 Drawn By CSL

Sheet C-8.11 of 33

PLAN	CHECKED	CHECKED
BY		
DATE		

PROFILE	CHECKED	CHECKED
BY		
DATE		



STORM SEWER VALVE INSTALLATION DETAIL

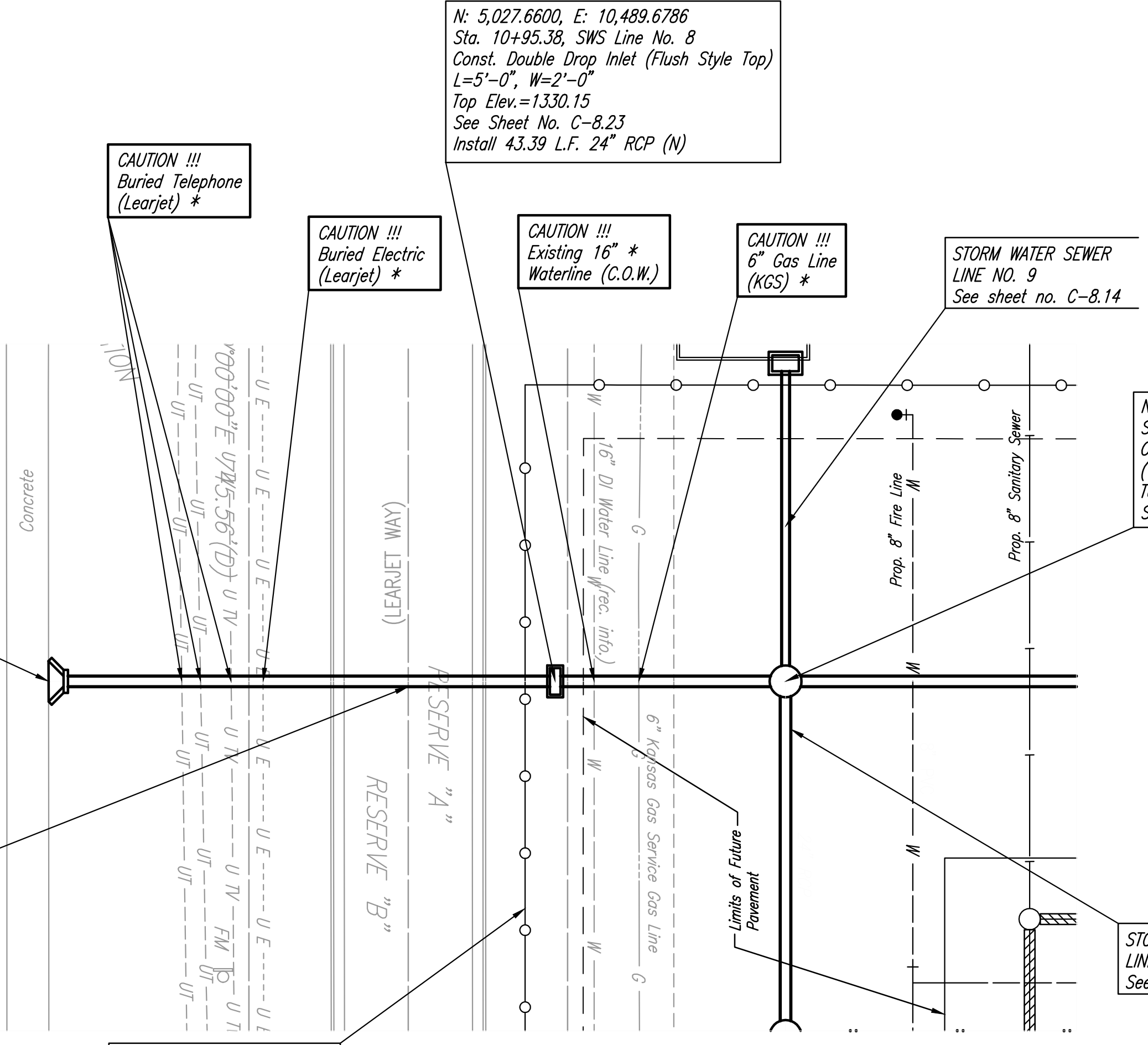
N: 4,932.2784, E: 10,489.6786
Sta. 10+00.0, SWS Line No. 8
Install 24" Reinf. Conc. Headwall
See Sheet No. C-8.26
Install 95.38 L.F. 24" RCP (N)
First 3 Sections of RCP Pipe
Shall have Restraining Joints

N: 5,027.6600, E: 10,489.6786
Sta. 10+95.38, SWS Line No. 8
Const. Double Drop Inlet (Flush Style Top)
L=5'-0", W=2'-0"
Top Elev.=1330.15
See Sheet No. C-8.23
Install 43.39 L.F. 24" RCP (N)

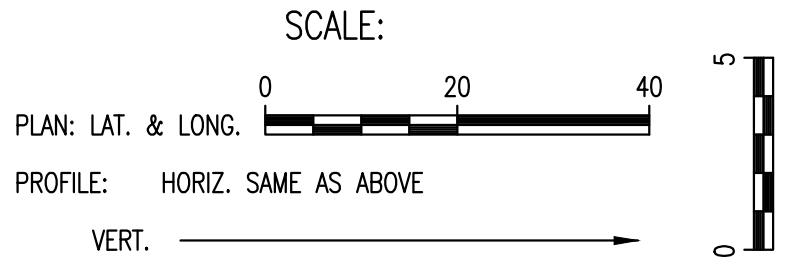
N: 5,071.0434, E: 10,489.6786
Sta. 11+38.77, SWS Line No. 8 (Match Point)
Const. Std. Precast Conc. MH
(Type B) (5' Dia.)
Top Elev.=1330.95
See Sheet No. C-8.21

Remove and replace
29 L.F. AC Pavement
in kind.

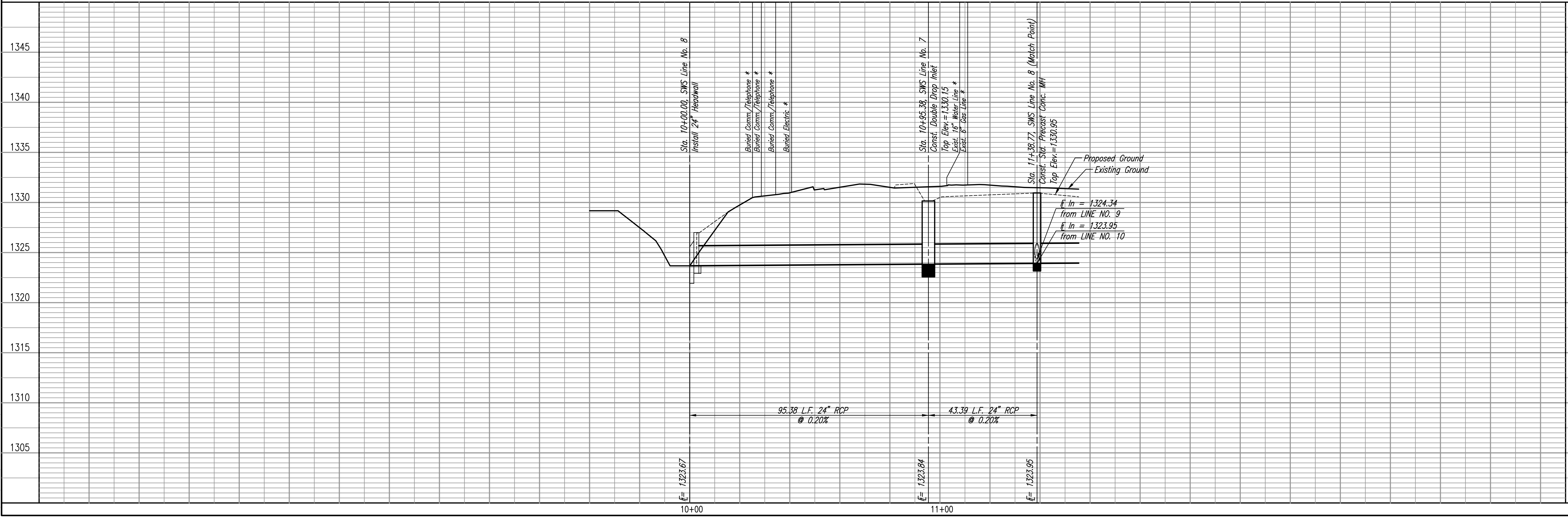
Proposed Fence,
Reference Architectural Plans



* PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE THE EXISTING UTILITY TO VERIFY PIPE SIZE, TYPE, FITTINGS, AND HORIZONTAL AND VERTICAL LOCATION. THE CONTRACTOR SHALL RELOCATE ANY EXISTING UTILITY TO BE FOUND IN CONFLICT WITH PROPOSED UTILITY. THE CONTRACTOR SHALL ALSO RELOCATE ANY EXISTING UTILITY THAT DOES NOT HAVE PROPER CLEARANCES BETWEEN PROPOSED AND EXISTING UTILITY. CONTRACTOR SHALL RELOCATE AND MAINTAIN MINIMUM COVER AND CLEARANCE REQUIREMENTS FOR EXISTING UTILITY BASED ON STATE AND LOCAL REGULATIONS.



Saved: 07-26-2012 3:58:42 PM by: CSL
Plot Scale: 1:20 07-31-2012 2:08:32 PM by: CSL
C:\2011\1394\005\Site Civil\PPD\11394-005-PPD-C-SWS PFD10



**BOMBARDIER LEARJET SITE EXPANSION
PRIVATE STORM WATER SEWER EXTENSION**
STORM WATER SEWER LINE NO. 8

PROFESSIONAL ENGINEERING CONSULTANTS P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com
PEC
Designed By: MEB, JSM
Drawn By: CSL
Job No.: 35-11394-005-1353
Date: JUNE 2012
GARY JANZEN, P.E. - INTERIM CITY ENGINEER
PRIVATE PROJECT NO. 105 PPD (607861)

PLAN	CHECKED	CHECKED
BY		
DATE		

PROFILE	CHECKED	CHECKED
BY		
DATE		

Saved: 07-25-2012 7:52:59 PM by: CSJ
 Plot Scale: 1:20 07-31-2012 2:10:23 PM by: CSJ
 G:\2011\1394\005\Site Civil\PPD\11394-005-PPD-C-SWS-PP11

N: 5,071.0434, E: 10,489.6786
 Sta. 11+38.77, SWS Line No. 8 (Match Point)
 Std. Precast Conc. MH
 Install 286.87 L.F. 24" RCP (N)

STORM WATER SEWER
 LINE NO. 9
 See sheet no. C-8.15

CAUTION !!!
 Proposed 8" Fire Service Line

CAUTION !!!
 Proposed 12" Sanitary Sewer

Proposed Fence,
 Reference Architectural Plans

CAUTION !!!
 Proposed 12" Fire Service Line

PROPOSED BUILDING #19
 FINISH FLOOR ELEV. = 1332.0

CAUTION !!!
 Proposed 24" Process Sanitary Sewer

N: 5,357.9167, E: 10,489.6786
 Sta. 14+25.64, SWS Line No. 8
 Const. Std. Precast Conc. MH (Type B) (5' Dia.)
 Top Elev. = 1330.64
 See Sheet No. C-8.21
 Install 103.92 L.F. 24" RCP (N)

N: 5,461.8367, E: 10,489.6786
 Sta. 15+29.56, SWS Line No. 8
 Const. Double Drop Inlet (Flush Style Top)
 L=5'-0", W=2'-0"
 Top Elev. = 1329.37
 See Sheet No. C-8.24
 Install 19.33 L.F. 12" PVC (N)

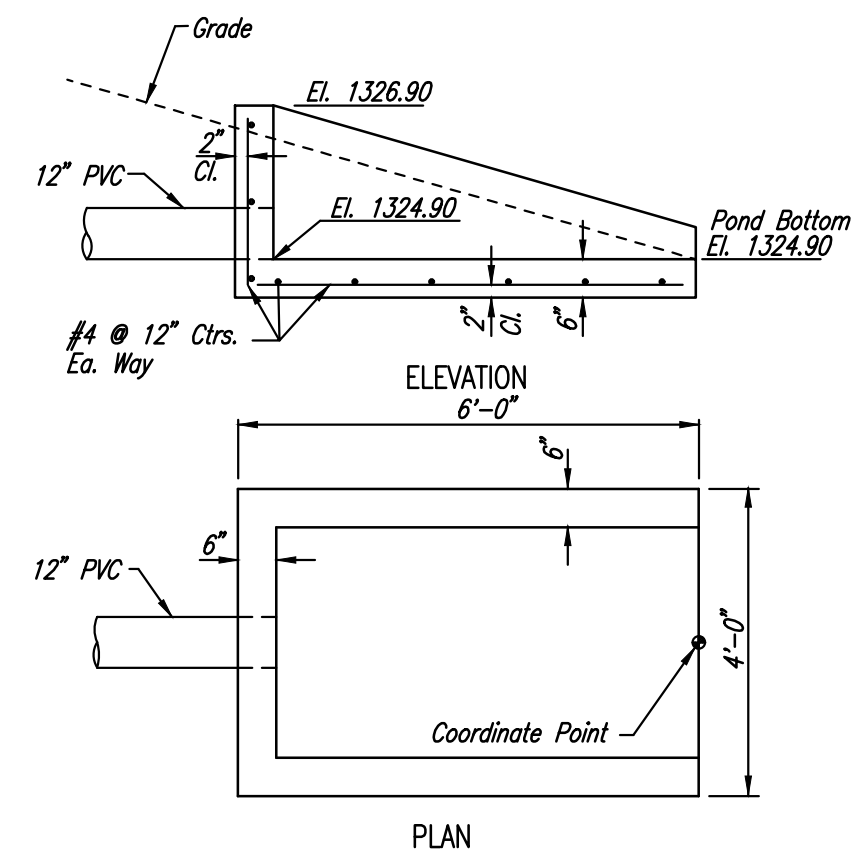
N: 5,481.1667, E: 10,489.6786
 Sta. 15+48.89 SWS Line No. 8
 Install 12" Gate Valve See detail sheet no. C-8.12
 Install 15.55 L.F. 12" PVC (N)

N: 5,496.7190, E: 10,489.6786
 Sta. 15+64.44 SWS Line No. 8
 Install End Structure

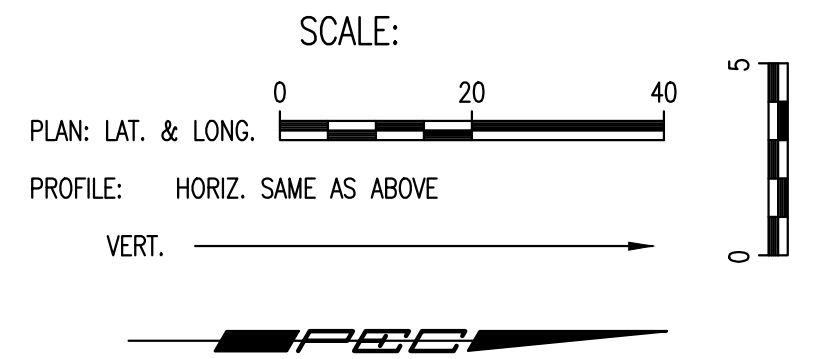
STORM WATER SEWER
 LINE NO. 10
 See sheet no. C-8.14

STORM WATER SEWER
 LINE NO. 11
 See sheet no. C-8.15

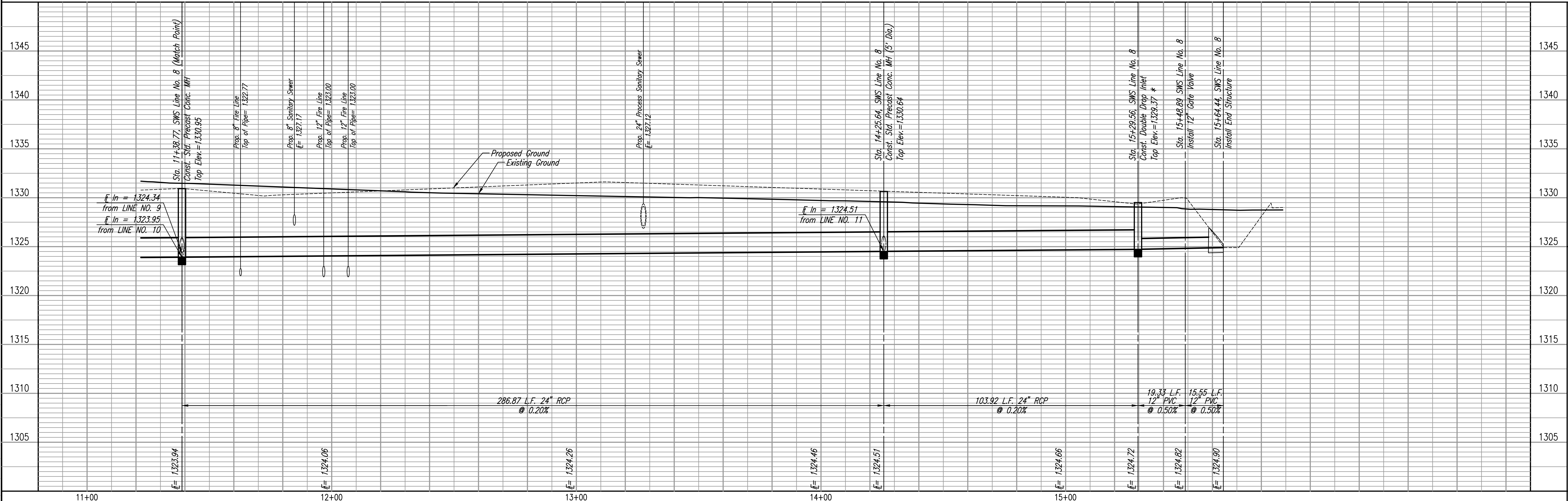
Proposed Guard Rail,
 Reference Architectural Plans



INLET STRUCTURE DETAIL
 No Scale



STORM WATER SEWER LINE NO. 8



BOMBARDIER LEARJET SITE EXPANSION
 PRIVATE STORM WATER SEWER EXTENSION
STORM WATER SEWER LINE NO. 8
 GARY JANZEN, P.E. - INTERIM CITY ENGINEER
 PRIVATE PROJECT NO. 105 PPD (607861)

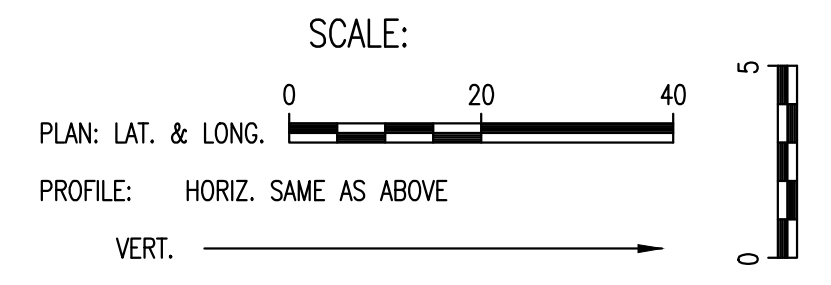
PROFESSIONAL ENGINEERING CONSULTANTS P.A.
 303 SOUTH TOPEKA WICHITA, KS 67202
 316-262-2691 www.pec.com

Designed By: MEB, JSM
 Drawn By: CSJ

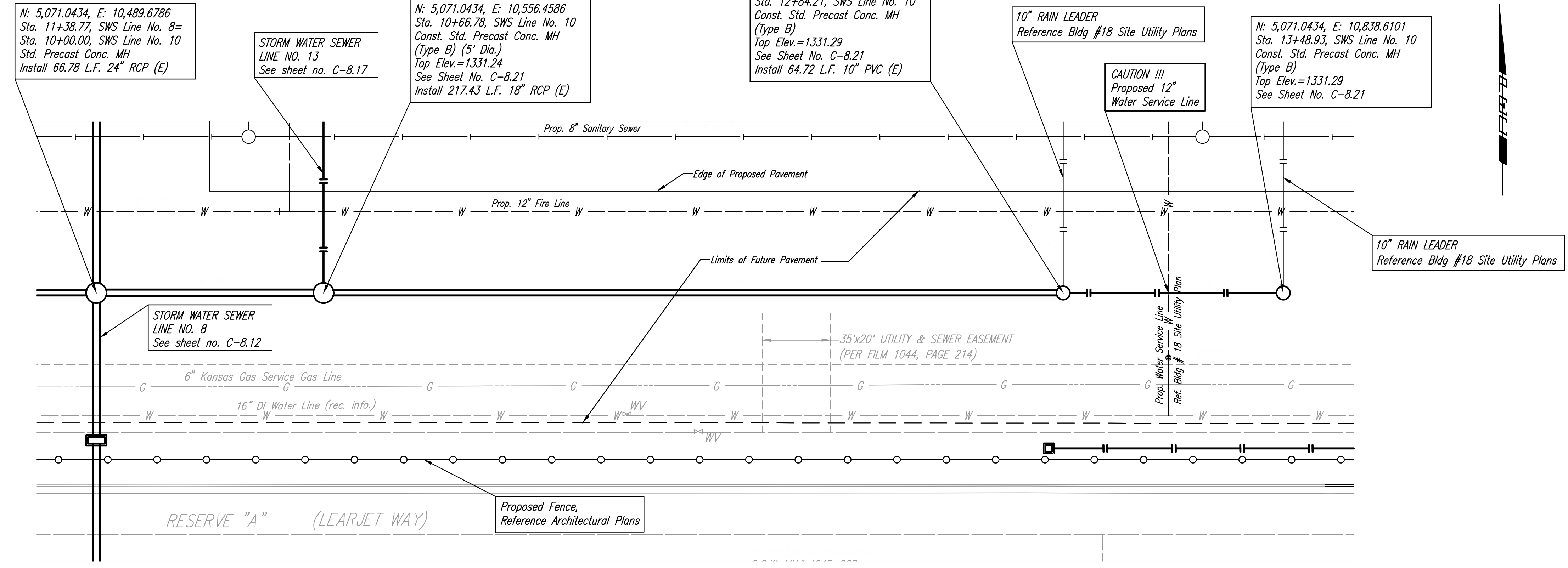
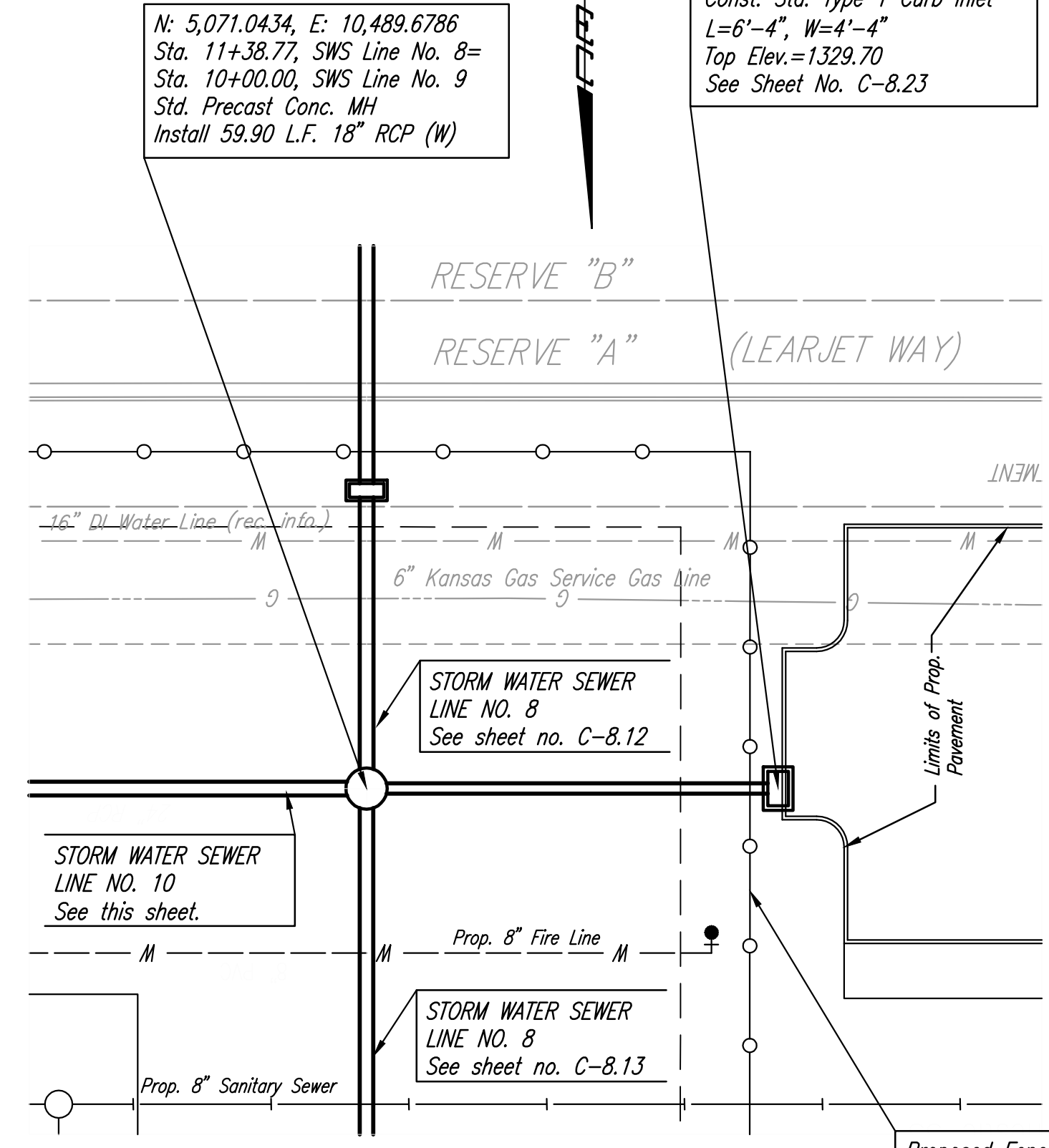
Job No. 35-11394-005-1353
 Date: JUNE 2012

Sheet C-8.13 of 33

Line No. 9 not built at time of As-built submittal
Line to be completed at a later date in time.



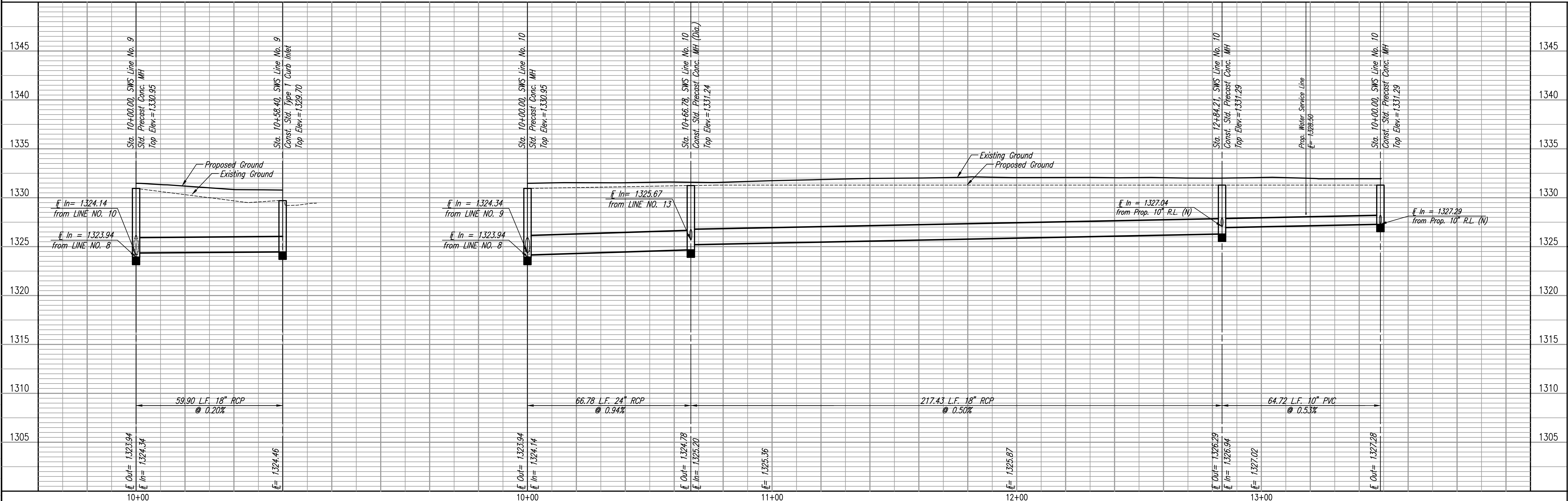
DATE
BY
CHECKED
PLAN



STORM WATER SEWER LINE NO. 9

STORM WATER SEWER LINE NO. 10

DATE
BY
CHECKED
PROFILE



STORM WATER SEWER LINE NO. 9 AND LINE NO. 10

PEC
 PROFESSIONAL ENGINEERING CONSULTANTS P.A.
 303 SOUTH TOPEKA WICHITA, KS 67202
 316-262-2691 www.pec1.com

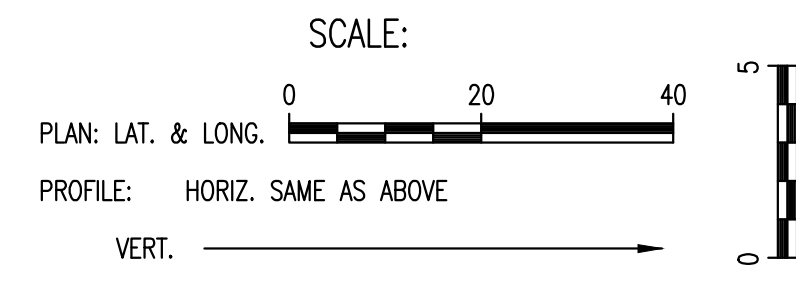
Job No. 35-11394-005-1353
 Date JUNE 2012

Designed By MEB, JSM
 Drawn By CSL

BOMBARDIER LEARJET SITE EXPANSION
 PRIVATE STORM WATER SEWER EXTENSION

GARY JANZEN, P.E. - INTERIM CITY ENGINEER
 PRIVATE PROJECT NO. 105 PPD (607861)

Saved: 07-26-2012 4:00:06 PM by: CSL
 Plot Scale: 1:20 07-31-2012 2:15:48 PM by: CSL
 G:\2011\1394\005\Site Civil\PPD\11394-005-PPD-C-SWS PFI2



PLAN	CHECKED	BY	DATE
	CHECKED		

PROFILE	CHECKED	BY	DATE
	CHECKED		

N: 5,357.9167, E: 10,489.6786
Sta. 14+25.64, SWS Line No. 8=
Sta. 10+00.00, SWS Line No. 11
Std. Precast Conc. MH
Install 291.28 L.F. 18" RCP (E)

CAUTION !!!
Proposed 24"
Process Sanitary
Sewer

STORM WATER SEWER
LINE NO. 12
See sheet no. C-8.16

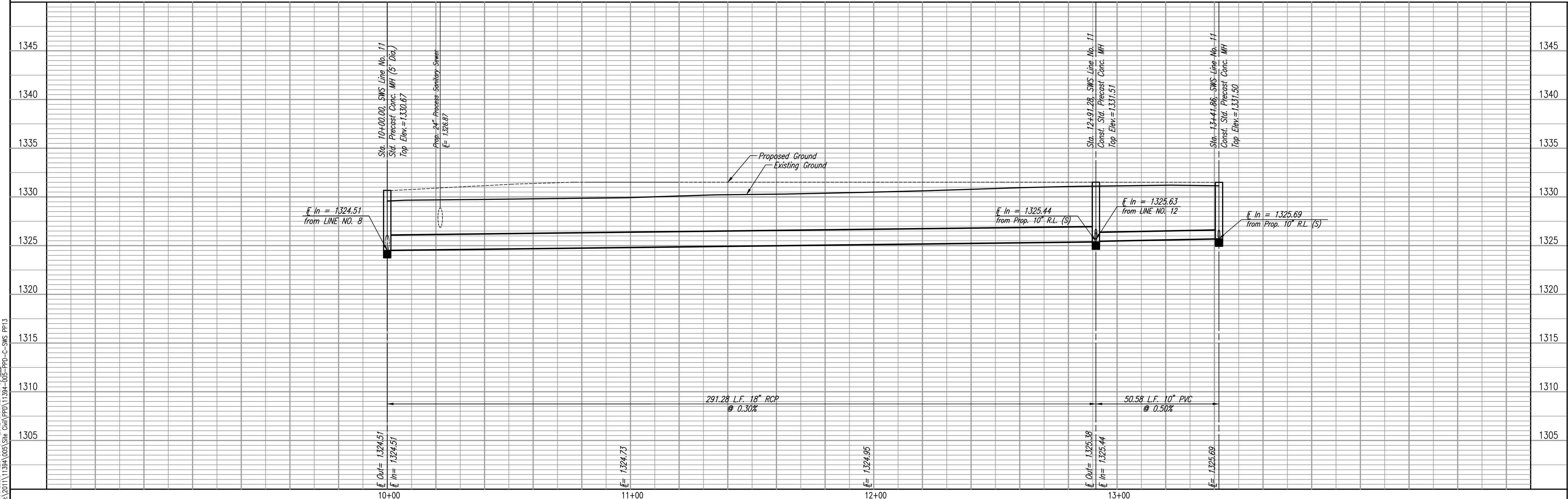
N: 5,357.9167, E: 10,780.9588
Sta. 12+91.28, SWS Line No. 11
Const. Std. Precast Conc. MH
(Type B)
Top Elev.=1331.51
See Sheet No. C-8.21
Install 50.58 L.F. 10" PVC (E)
Install 10" R.L. (S) See Sheet C-6.3

N: 5,357.9167, E: 10,831.5417
Sta. 13+41.86, SWS Line No. 11
Const. Std. Precast Conc. MH
(Type B)
Top Elev.=1331.50
See Sheet No. C-8.21
Install 10" R.L. (S) See Sheet C-6.3

STORM WATER SEWER
LINE NO. 8
See sheet no. C-8.12

PROPOSED BUILDING #18
FINISH FLOOR ELEV.= 1332.0

STORM WATER SEWER LINE NO. 11



Saved: 07-26-2012 2:19:09 PM by: CSL
Plot Scale: 1:20 07-31-2012 3:31:52 PM by: CSL
C:\2011\1394\005\Site Civil\PPD\11394-005-PPD-C-SWS PPI3

BOMBARDIER LEARJET SITE EXPANSION
PRIVATE STORM WATER SEWER EXTENSION
STORM WATER SEWER LINE NO. 11

PROFESSIONAL ENGINEERING CONSULTANTS P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec.com

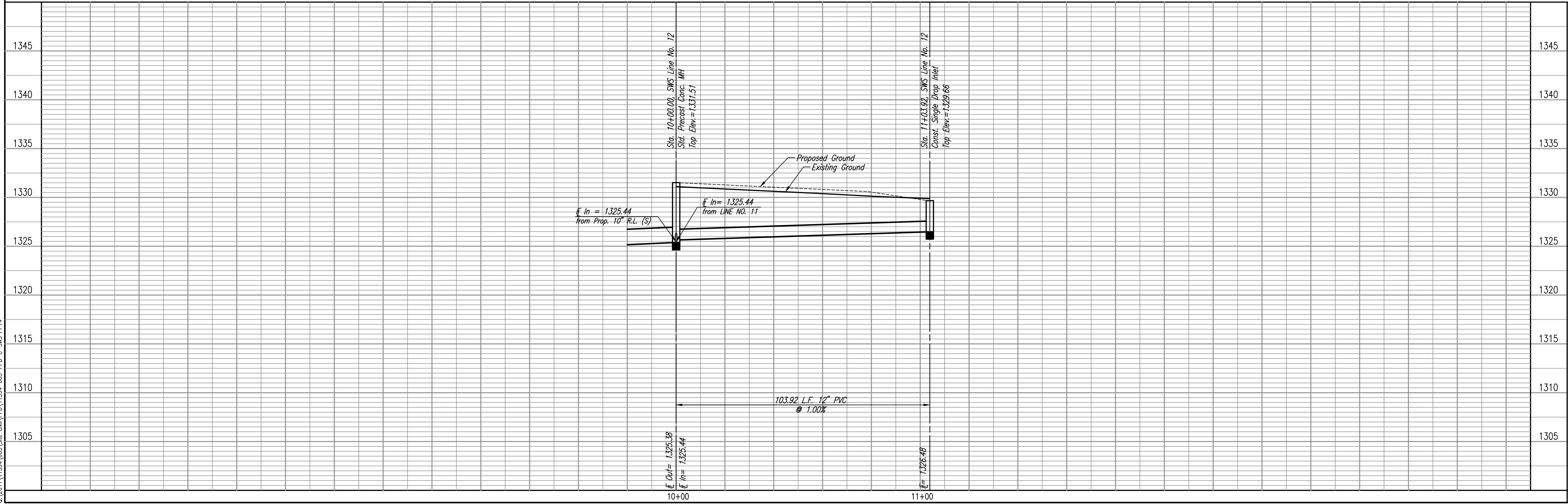
Designed By: MEB, JSM
Drawn By: CSL

Job No.: 55-11394-005-1353
Date: JUNE 2012

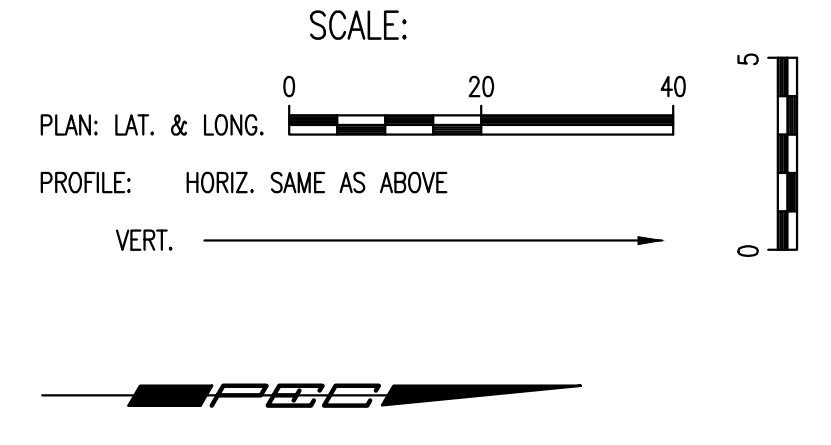
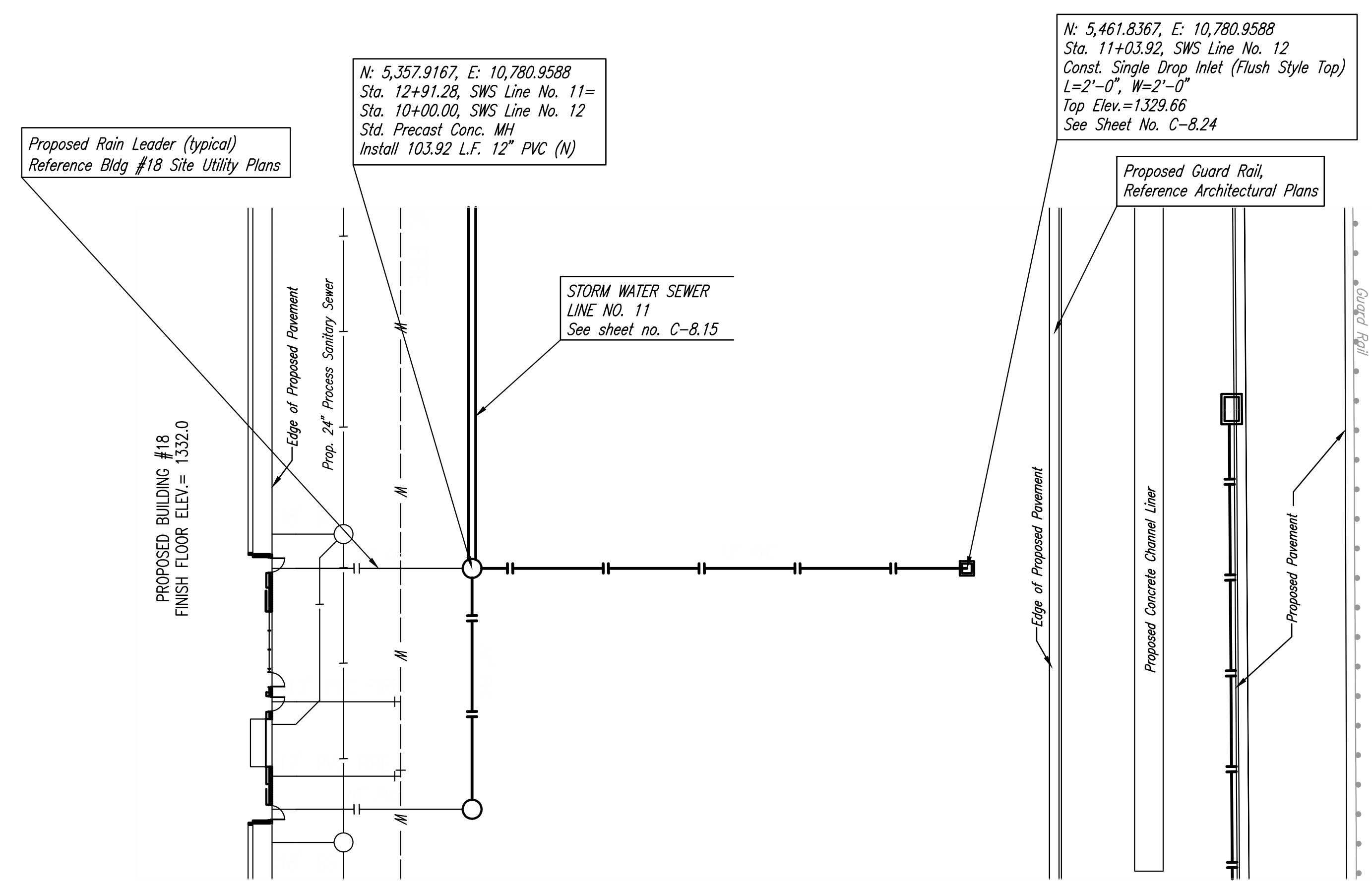
PLAN	CHECKED	BY	DATE
	CHECKED		

PROFILE	CHECKED	BY	DATE
	CHECKED		

Saved: 07-26-2012 4:02:11 PM by: CSL
 Plot Scale: 1:20 07-31-2012 3:33:31 PM by: CSL
 G:\2011\1394\005\Site Civil\PPD\11394-005-PPD-C-SWS-PP14



STORM WATER SEWER LINE NO. 12



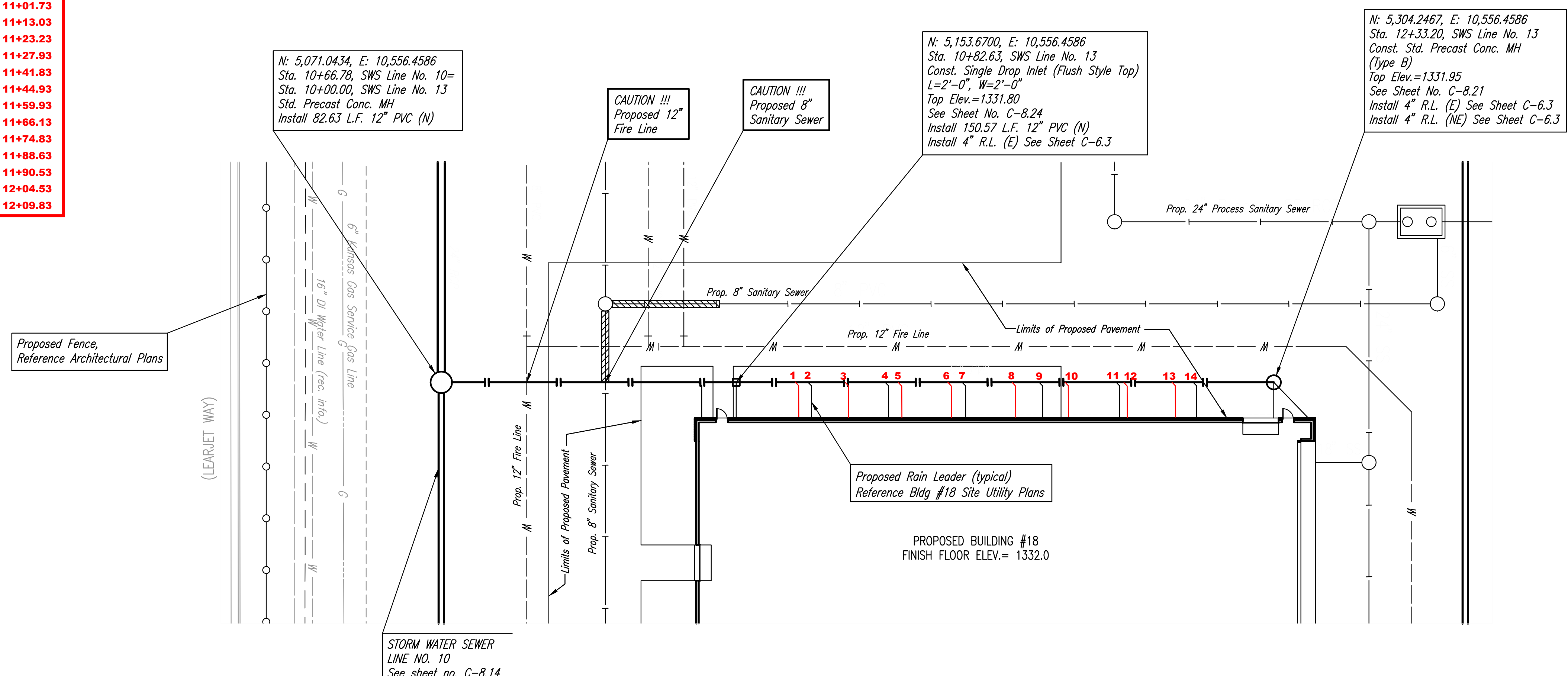
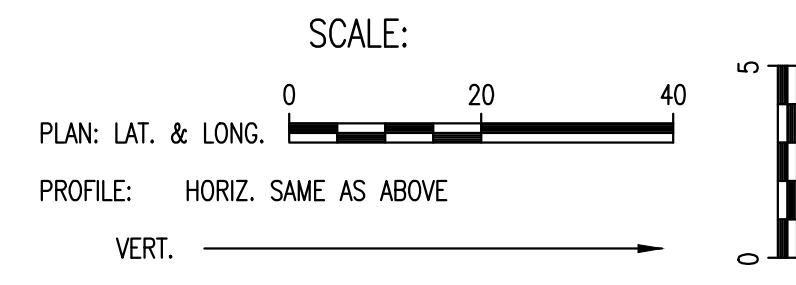
MEB, JSM
 DESIGNED BY
CSL
 DRAWN BY

Job No. 55-11394-005-1353
 Date JUNE 2012

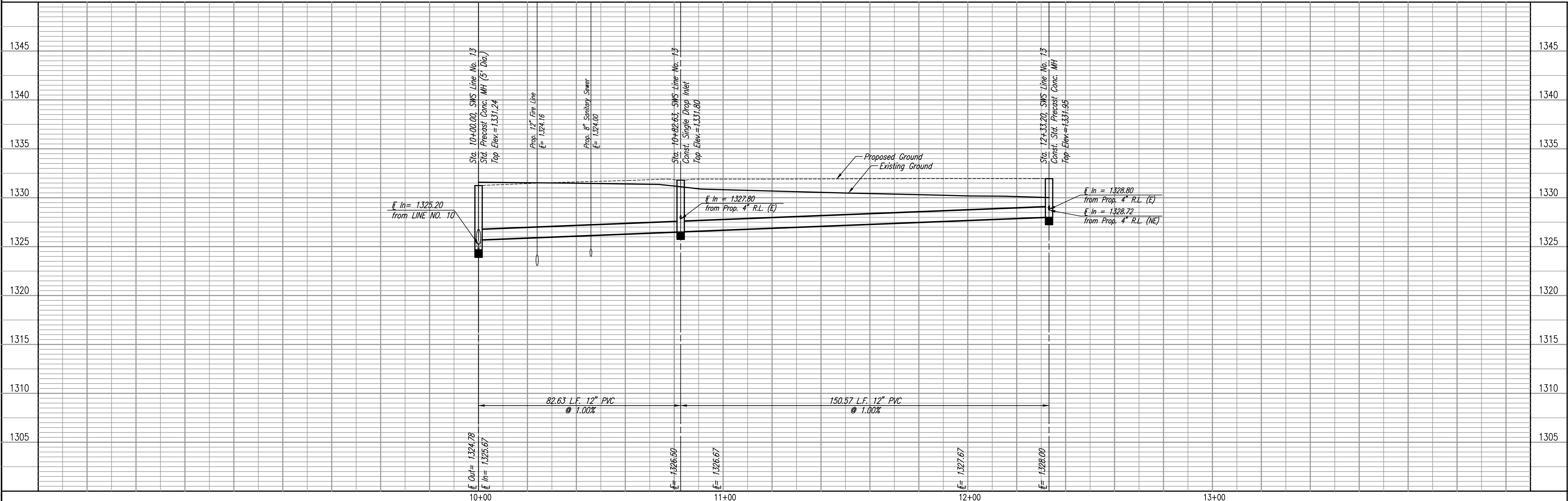
PEP
 PROFESSIONAL ENGINEERING CONSULTANTS P.A.
 303 SOUTH TOPEKA WICHITA, KS 67202
 316-262-2691 www.ppec.com

BOMBARDIER LEARJET SITE EXPANSION
 PRIVATE STORM WATER SEWER EXTENSION
STORM WATER SEWER LINE NO. 12
 GARY JANZEN, P.E. - INTERIM CITY ENGINEER
 PRIVATE PROJECT NO. 105 PPD (607861)

SWS LINE 13 TAP LOCATIONS	STATION
#1	10+99.13
#2	11+01.73
#3	11+13.03
#4	11+23.23
#5	11+27.93
#6	11+41.83
#7	11+44.93
#8	11+59.93
#9	11+66.13
#10	11+74.83
#11	11+88.63
#12	11+90.53
#13	12+04.53
#14	12+09.83



STORM WATER SEWER LINE NO. 13



PLAN	CHECKED	DATE
	CHECKED	
BY		

PROFILE	CHECKED	DATE
	CHECKED	
BY		

Saved: 07-25-2012 3:21:06 PM by: CSL
Plot Scale: 1:20 07-31-2012 3:35:04 PM by: CSL
C:\2011\1394\005\Site Civil\PPD\11394-005-PPD-C-SWS PPI15

BOMBARDIER LEARJET SITE EXPANSION
PRIVATE STORM WATER SEWER EXTENSION
STORM WATER SEWER LINE NO. 13

PROFESSIONAL ENGINEERING CONSULTANTS P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

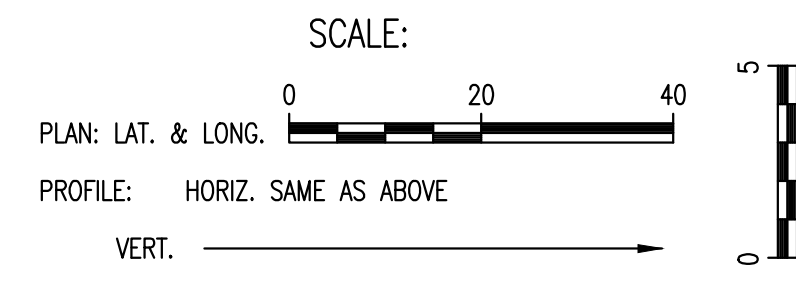
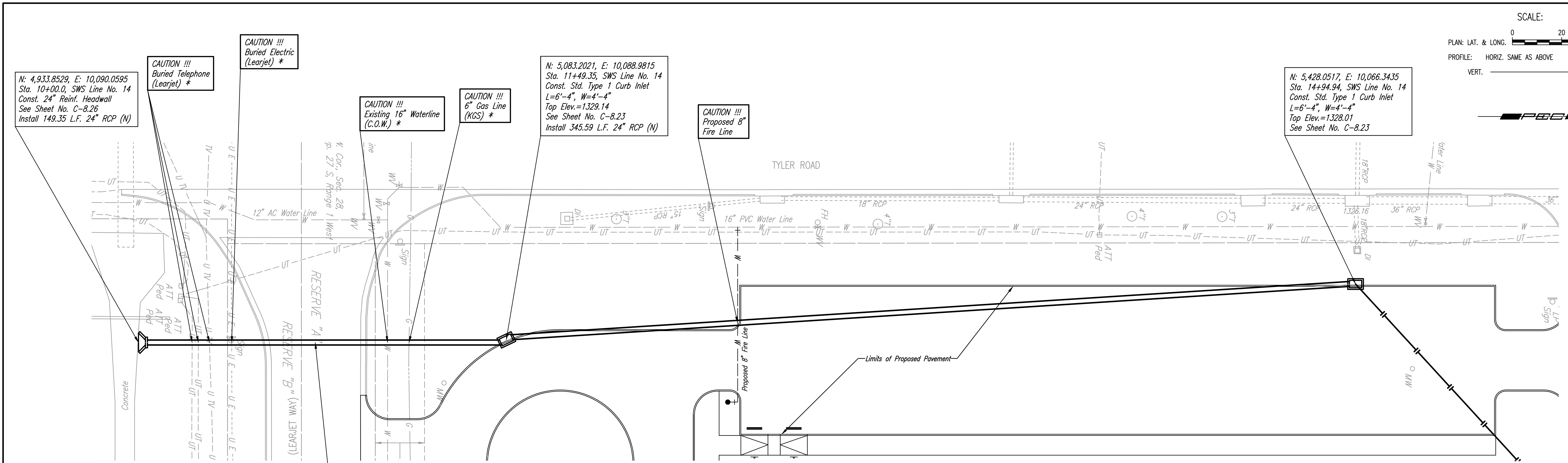
DESIGNED BY: MEB, JSM
DRAWN BY: CSL

Job No. 55-11394-005-1353
Date JUNE 2012

PLAN	CHECKED	DATE
	CHECKED	
BY		

PROFILE	CHECKED	DATE
	CHECKED	
BY		

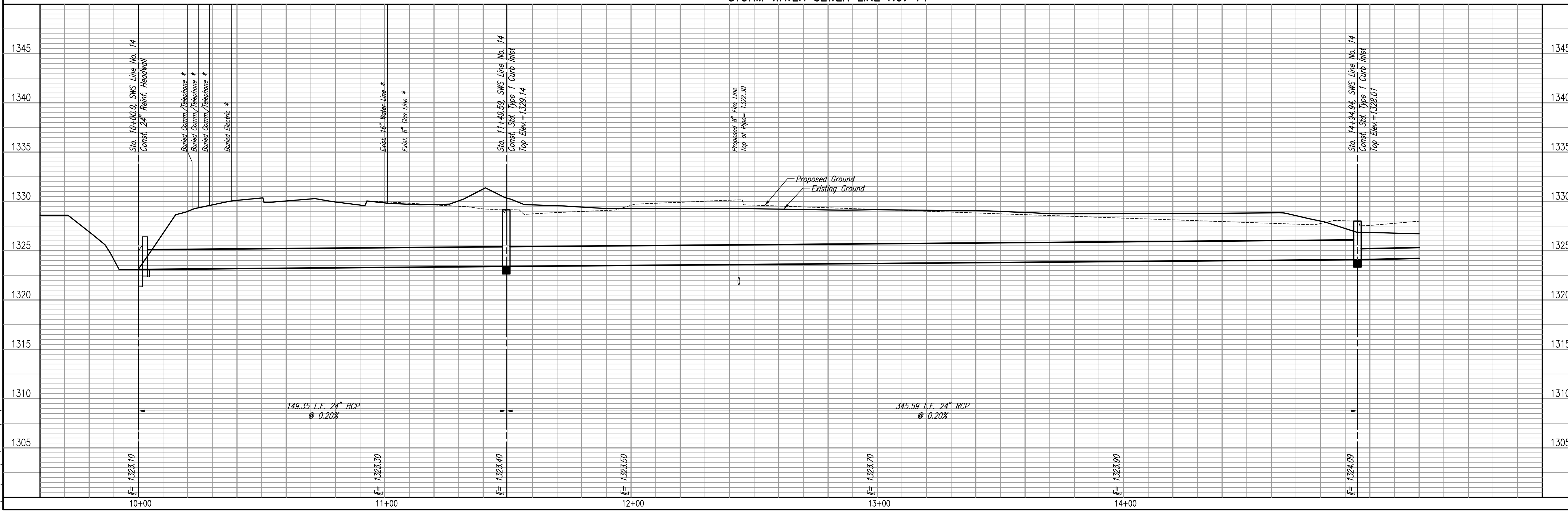
Saved: 07-25-2012 3:24:46 PM by: CSL
 Plot Scale: 1:20 07-31-2012 3:36:11 PM by: CSL
 G:\2011\1394\005\Site Civil\PPD\11394-005-PPD-C-SWS-PP16



STORM WATER SEWER LINE NO. 14

* PRIOR TO BEGINNING CONSTRUCTION, CONTRACTOR SHALL EXCAVATE THE EXISTING UTILITY TO VERIFY PIPE SIZE, TYPE FITTINGS, AND HORIZONTAL AND VERTICAL LOCATION. THE CONTRACTOR SHALL RELOCATE ANY EXISTING UTILITY TO BE FOUND IN CONFLICT WITH PROPOSED UTILITY. THE CONTRACTOR SHALL ALSO RELOCATE ANY EXISTING UTILITY THAT DOES NOT HAVE PROPER CLEARANCES BETWEEN PROPOSED AND EXISTING UTILITY. CONTRACTOR SHALL RELOCATE AND MAINTAIN MINIMUM COVER AND CLEARANCE REQUIREMENTS FOR EXISTING UTILITY BASED ON STATE AND LOCAL REGULATIONS.

**Line No. 14 not built at the time of As-built submittal.
 Line to be completed at a later date in time.**



MEB, JSM
 303 SOUTH TOPEKA WICHITA, KS 67202
 316-262-2691 www.pec1.com

PEC
 PROFESSIONAL ENGINEERING CONSULTANTS P.A.
 303 SOUTH TOPEKA WICHITA, KS 67202
 316-262-2691 www.pec1.com

Job No. 55-11394-005-1353
 Date JUNE 2012

Designed By MEB, JSM
 Drawn By CSL

BOMBARDIER LEARJET SITE EXPANSION
 PRIVATE STORM WATER SEWER EXTENSION

STORM WATER SEWER LINE NO. 14

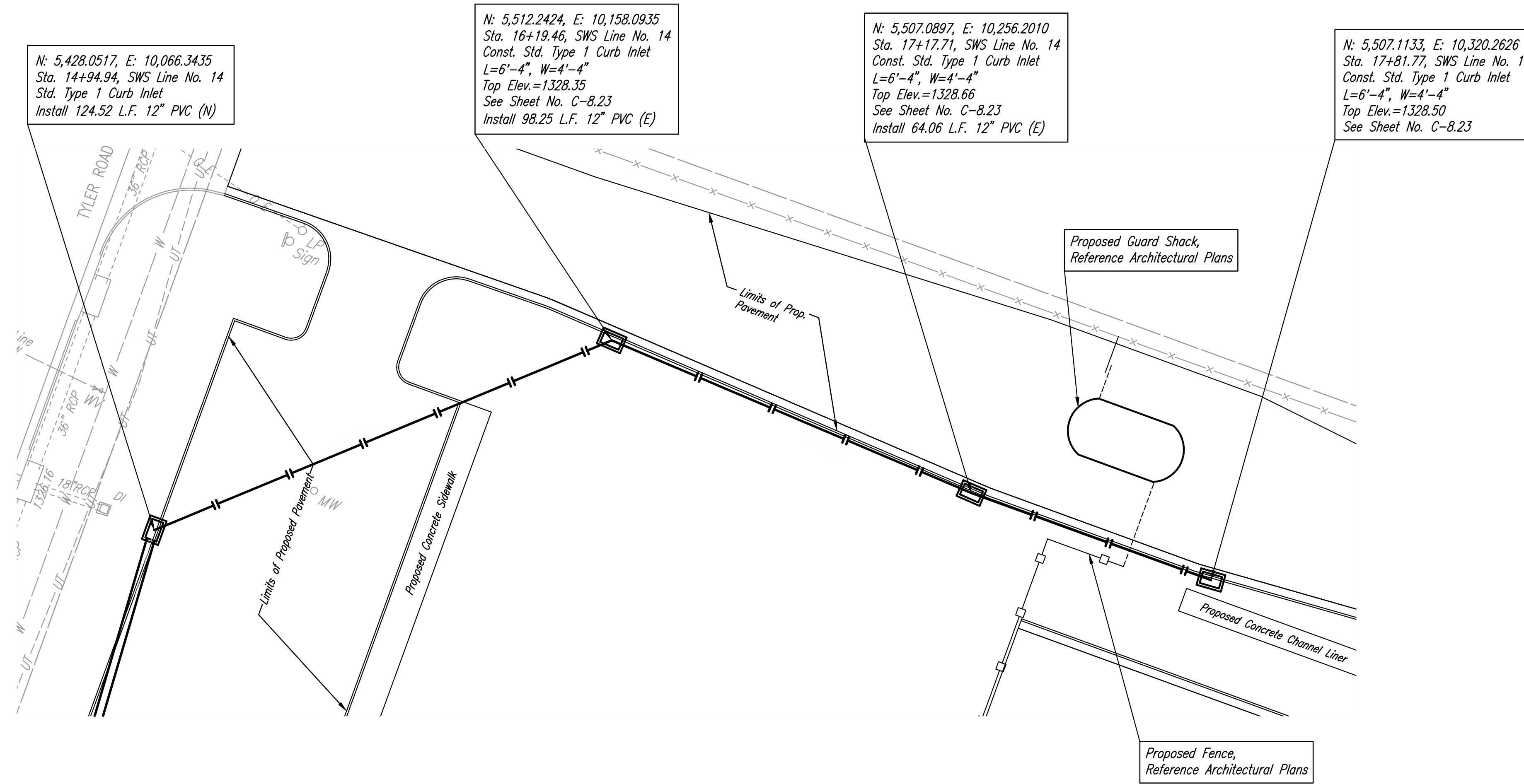
GARY JANZEN, P.E. - INTERIM CITY ENGINEER
 PRIVATE PROJECT NO. 105 PPD (607861)

Sheet C-8.18 of 33

PLAN	CHECKED	CHECKED	BY	DATE
------	---------	---------	----	------

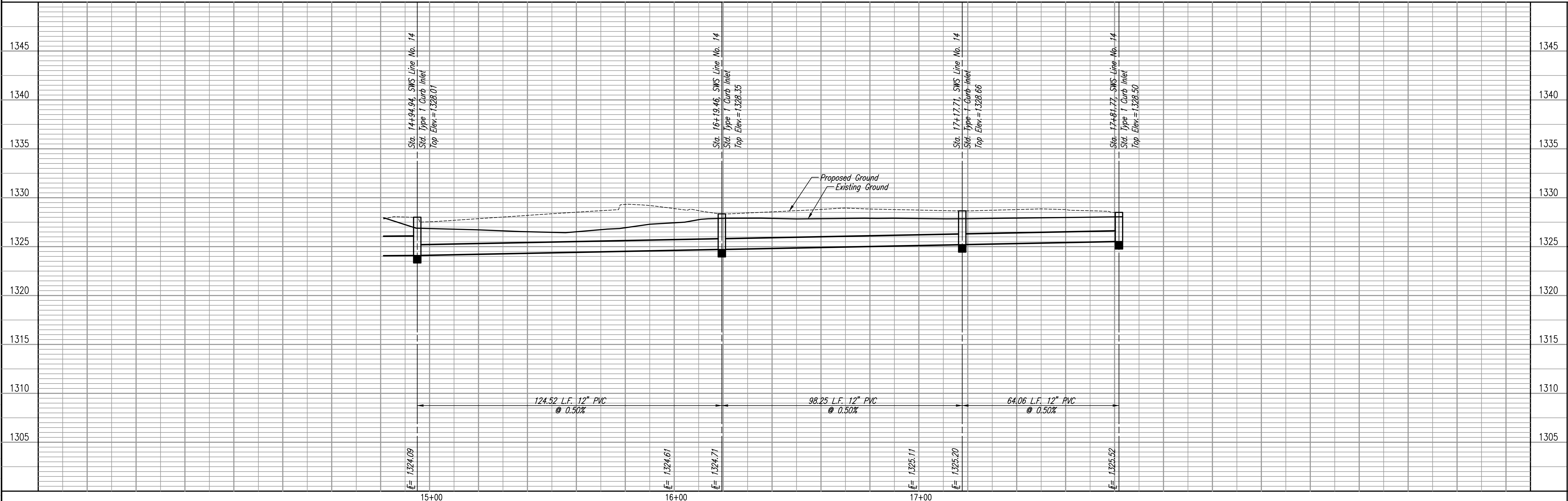
PROFILE	CHECKED	CHECKED	BY	DATE
---------	---------	---------	----	------

Saved: 07-26-2012 8:19:41 AM by CSL
 Plot Scale: 1:20 07-31-2012 3:37:15 PM by CSL
 G:\2011\1394\005\Site Civil\PPD\11394-005-PPD-C-SWS-PP17



Line No. 14 not built at the time of As-built submittal. Line to be completed at a later date in time.

STORM WATER SEWER LINE NO. 14

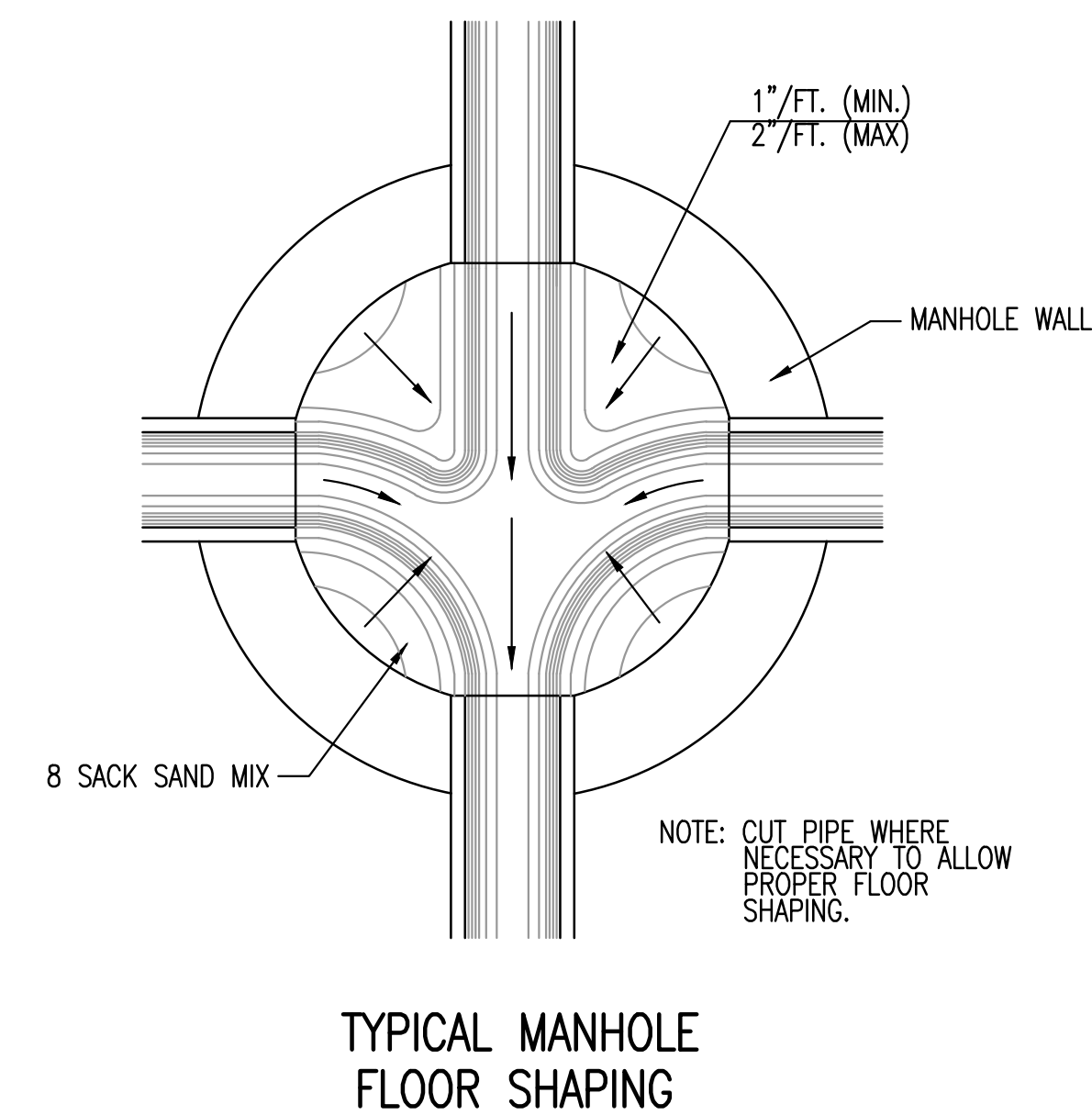
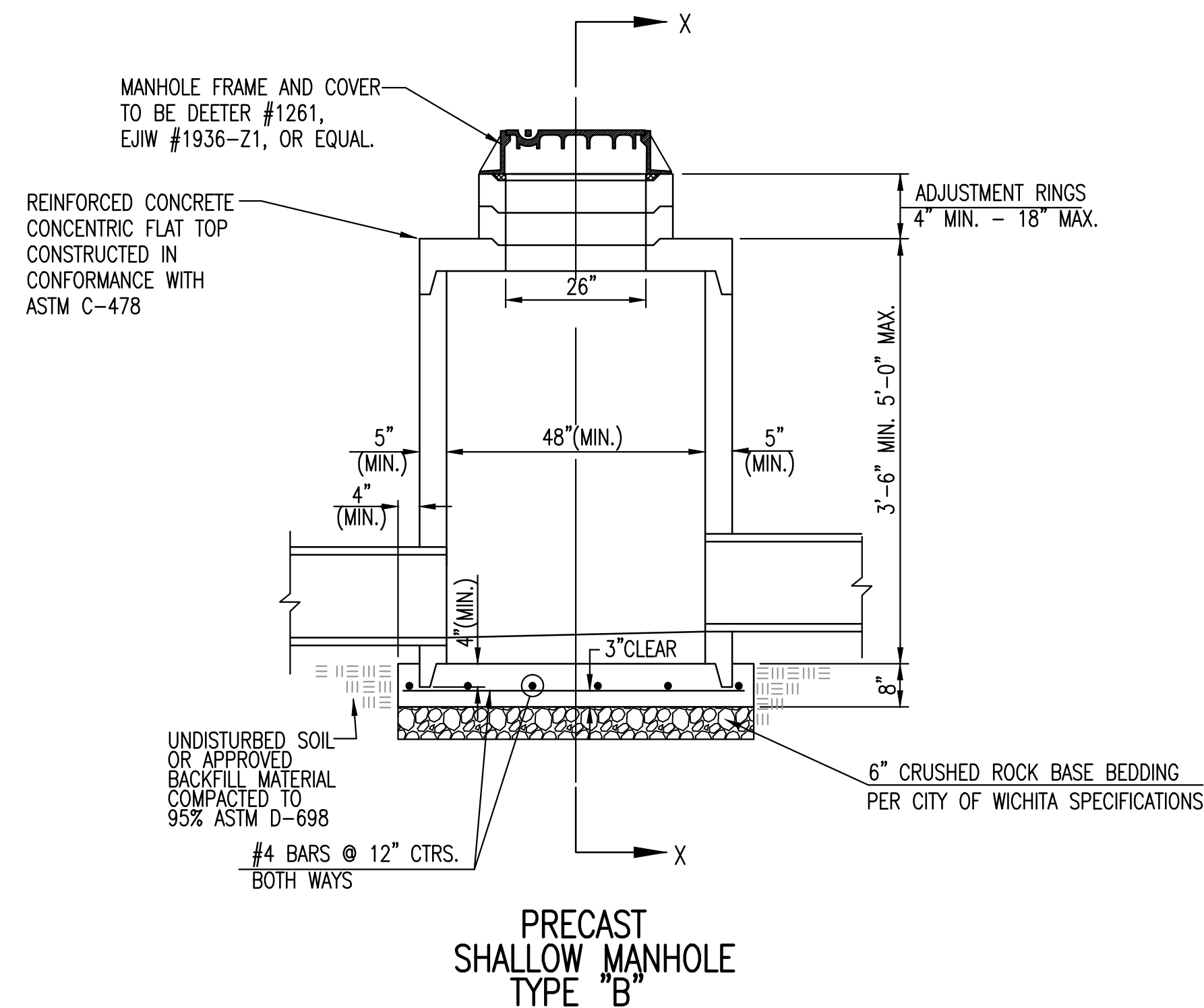
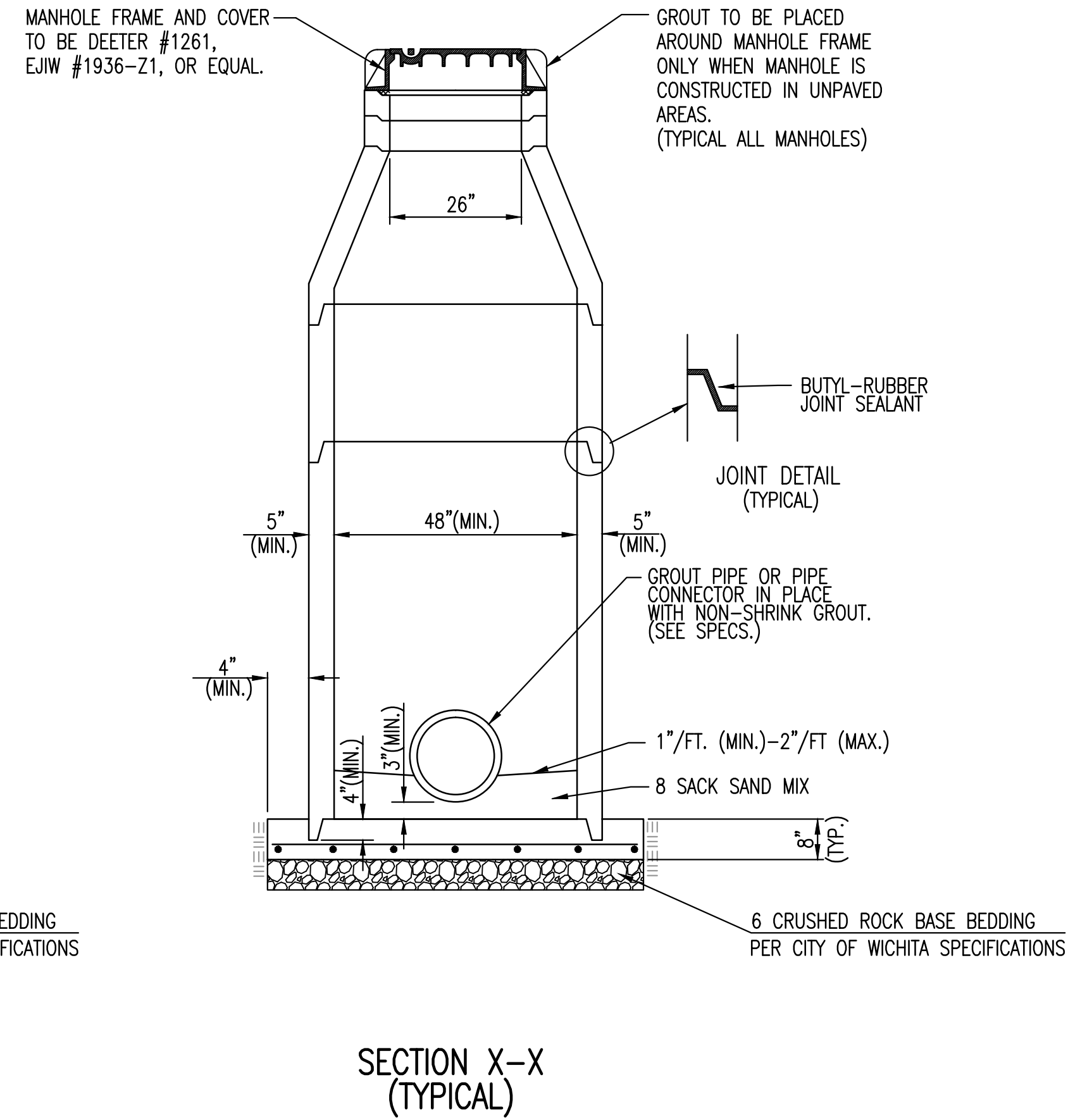
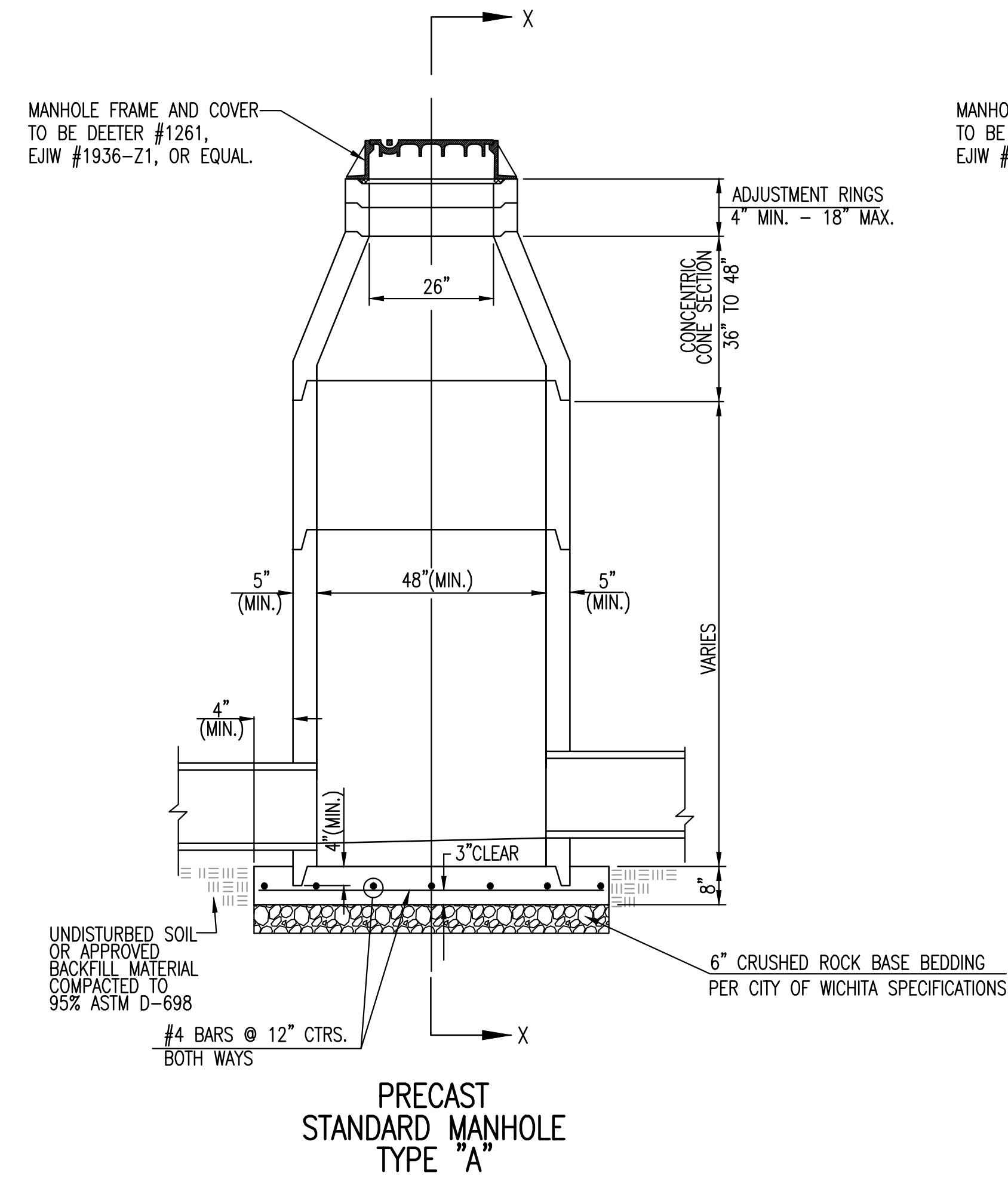


PEP PROFESSIONAL ENGINEERING CONSULTANTS P.A.
 303 SOUTH TOPEKA WICHITA, KS 67202
 316-262-2691 www.pcp.com

Job No. 35-11394-005-1353 Date JUNE 2012
 Designed By MEB, JSM
 Drawn By CSL

BOMBARDIER LEARJET SITE EXPANSION
 PRIVATE STORM WATER SEWER EXTENSION
STORM WATER SEWER LINE NO. 14
 GARY JANZEN, P.E. - INTERIM CITY ENGINEER
 PRIVATE PROJECT NO. 105 PPD (607861)


Sheet C-8.19 of 33

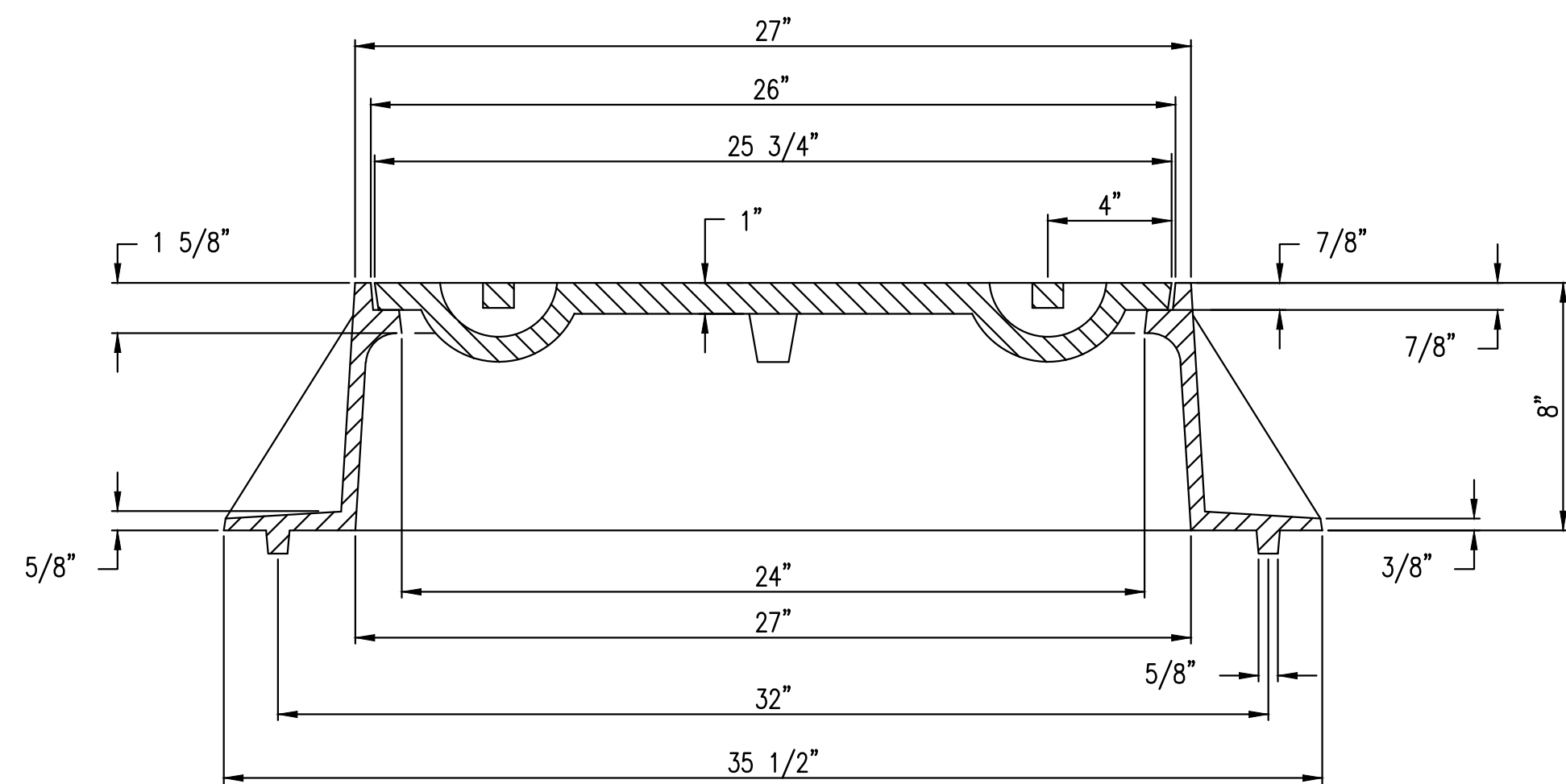
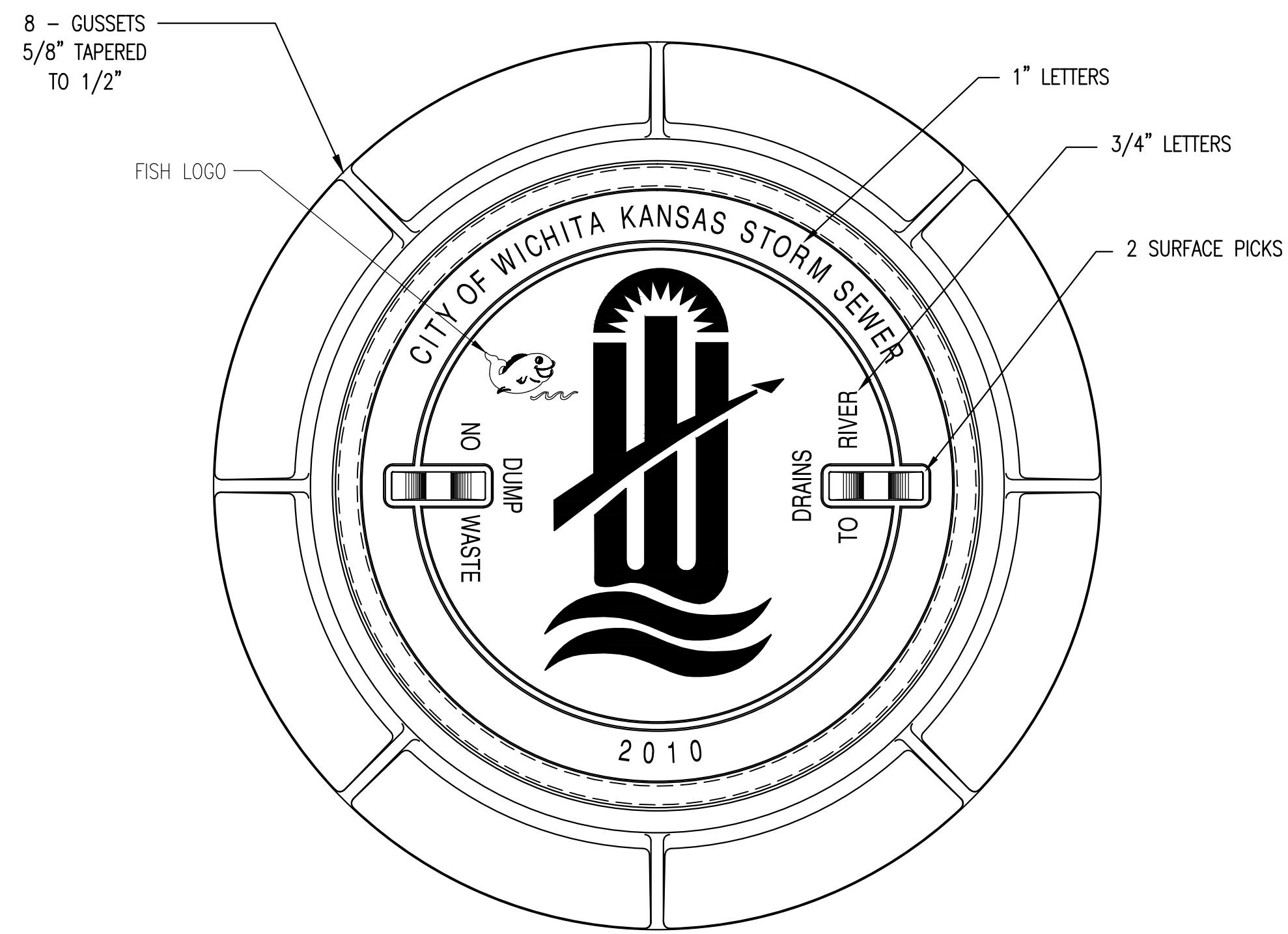


GENERAL NOTES

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 MDI, OR APPROVED EQUAL.
15. FOR BEEHIVE GRATE APPLICATION, GRATE TO BE DEETER #4495, EJIW #120545, OR APPROVED EQUAL.

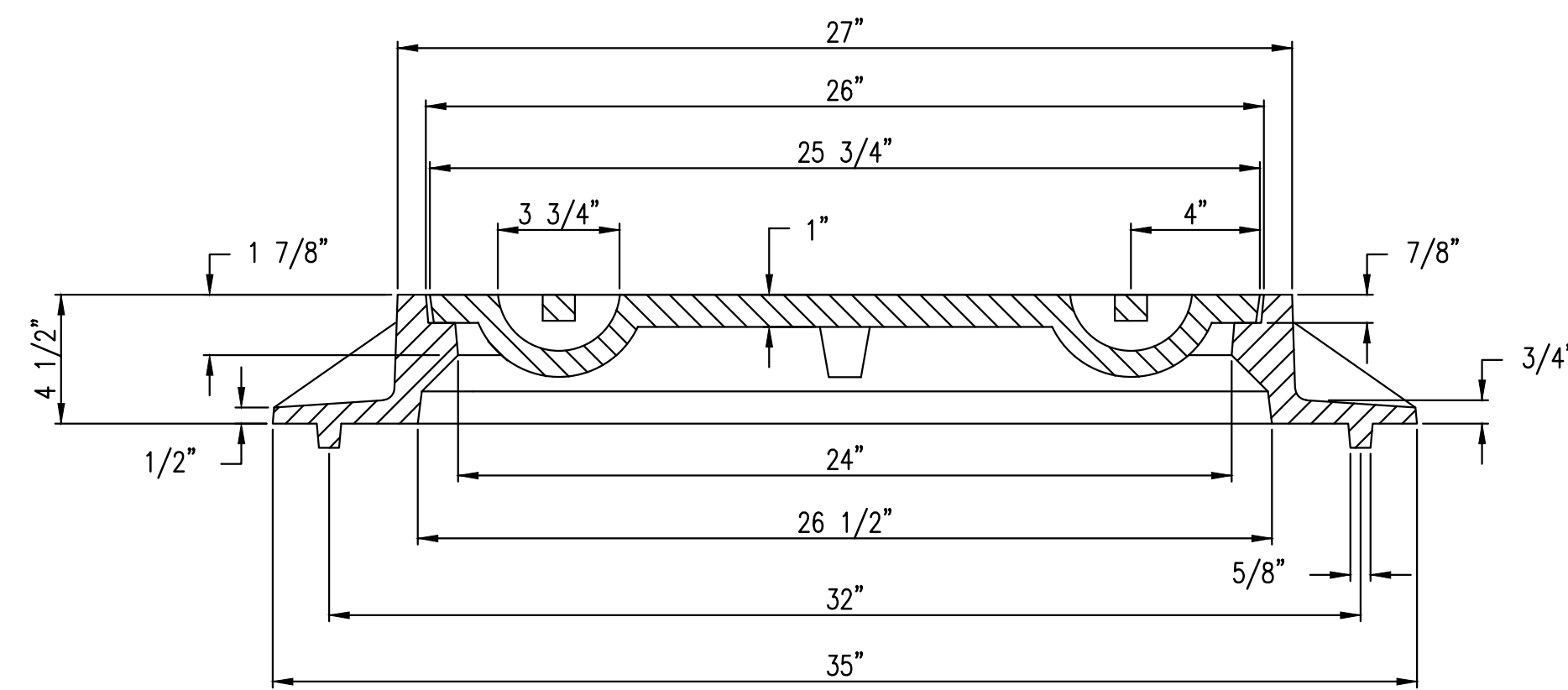
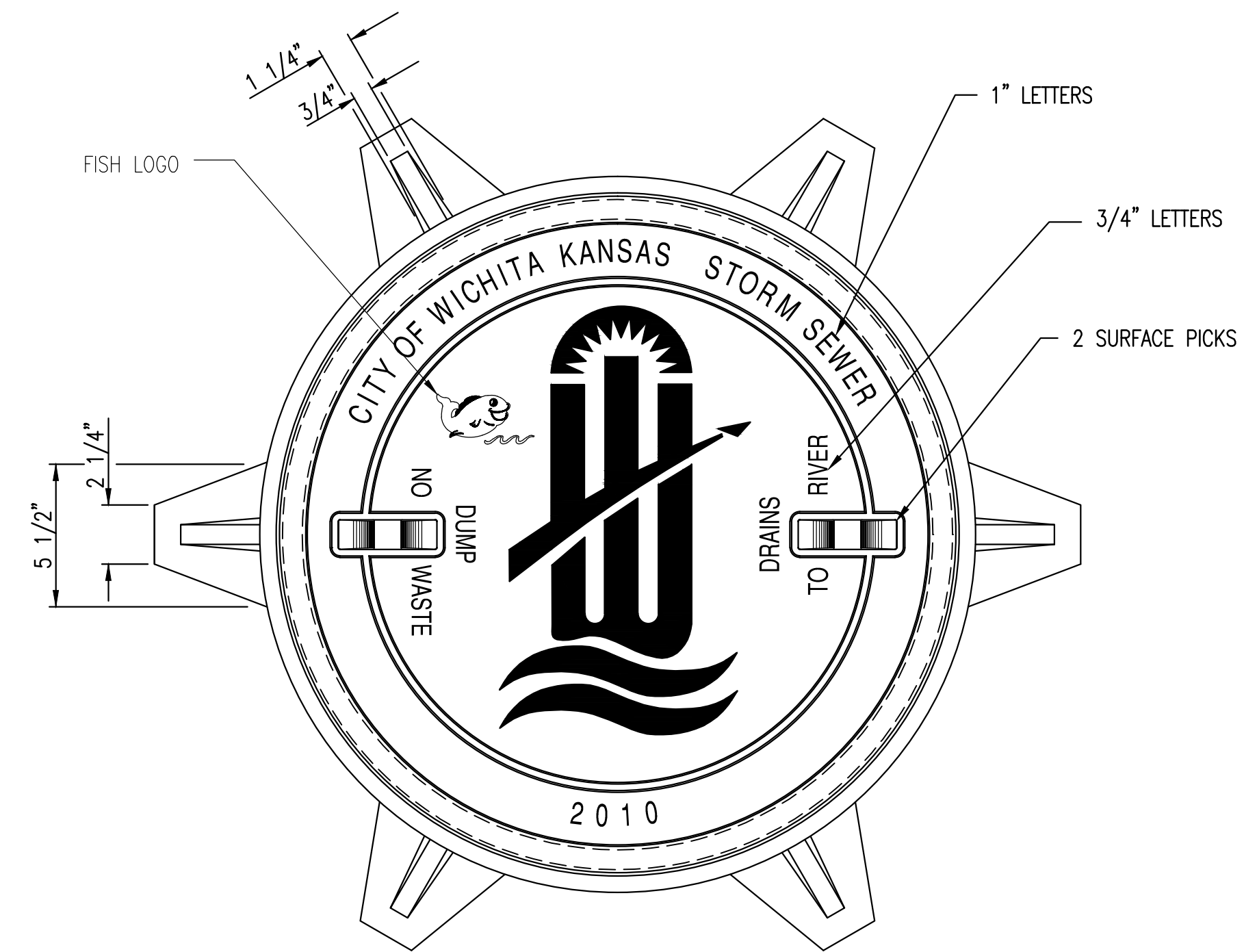
Sheet 07-26-2010 2:55:31 PM by CSI
 Plot Scale 1:1 07-31-2012 5:42:52 PM by GARY S. LINK
 Q:\2011\1394\005\Site Civil\PPD\11394-05-PPD-C-Precast Conc MH

 CITY OF WICHITA PUBLIC WORKS & UTILITIES ENGINEERING DIVISION		PRECAST CONCRETE MANHOLE (STORM SEWER) INTERIM CITY ENGINEER GARY JANZEN, P.E.	
		PROJECT NUMBER 105 PPD	OCA NUMBER (607861)
CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501		DESIGN	DRAWN
		SHEET C-8.21 of 33	



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.



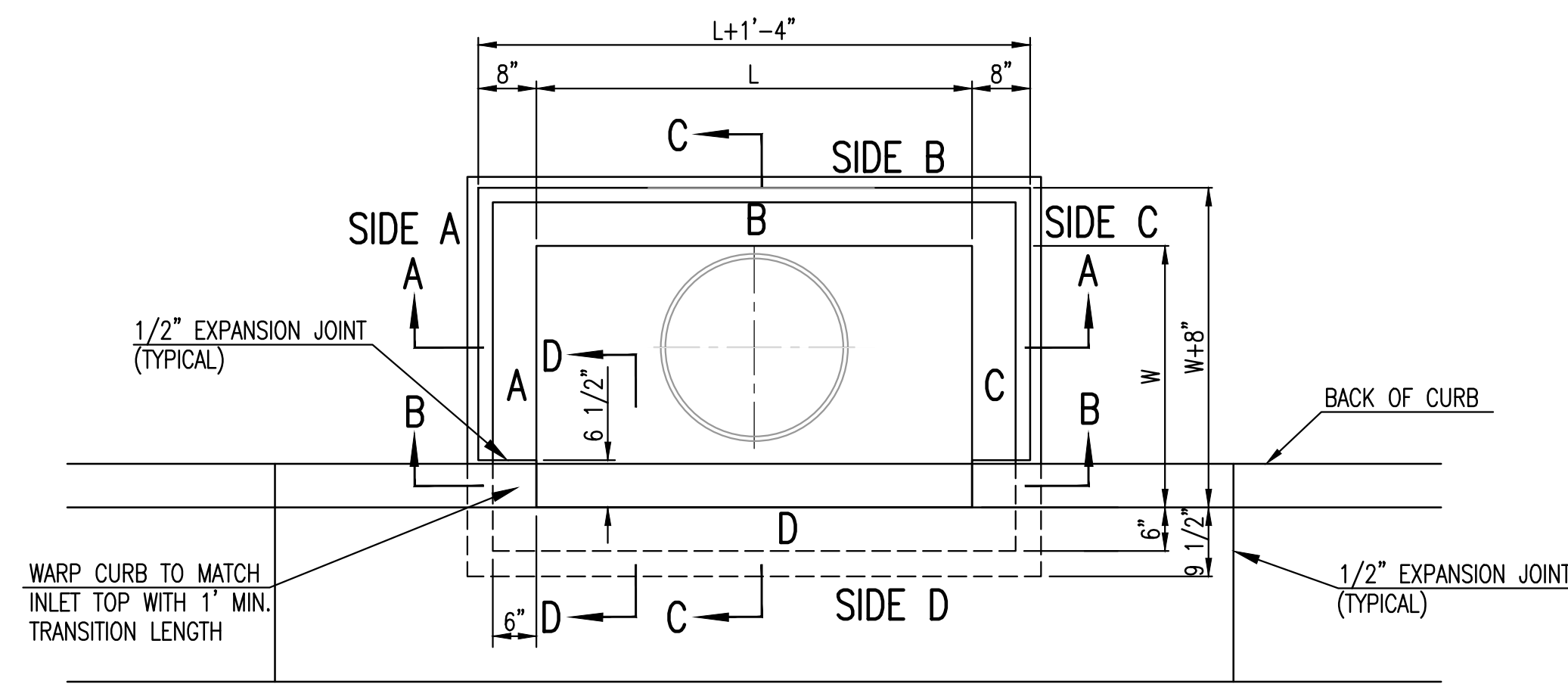
INLET FRAME
DEETER #2014 OR EJIW #1936-Z4

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

Sheet: 07-25-2010, 3:40:01 PM, by: CASHY, S. LINK
 Plot: 07-25-2010, 3:44:52 PM, by: CASHY, S. LINK
 C:\2011\11394\005\Site_Civil\PPD\11394-05-PPD-C-MH-Inlet Frame & Cover



MANHOLE/INLET FRAME AND COVER (STORM SEWER)		
INTERIM CITY ENGINEER GARY JANZEN, P.E.		
PROJECT NUMBER 105 PPD	OCA NUMBER (607861)	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 C-8.22 of 33



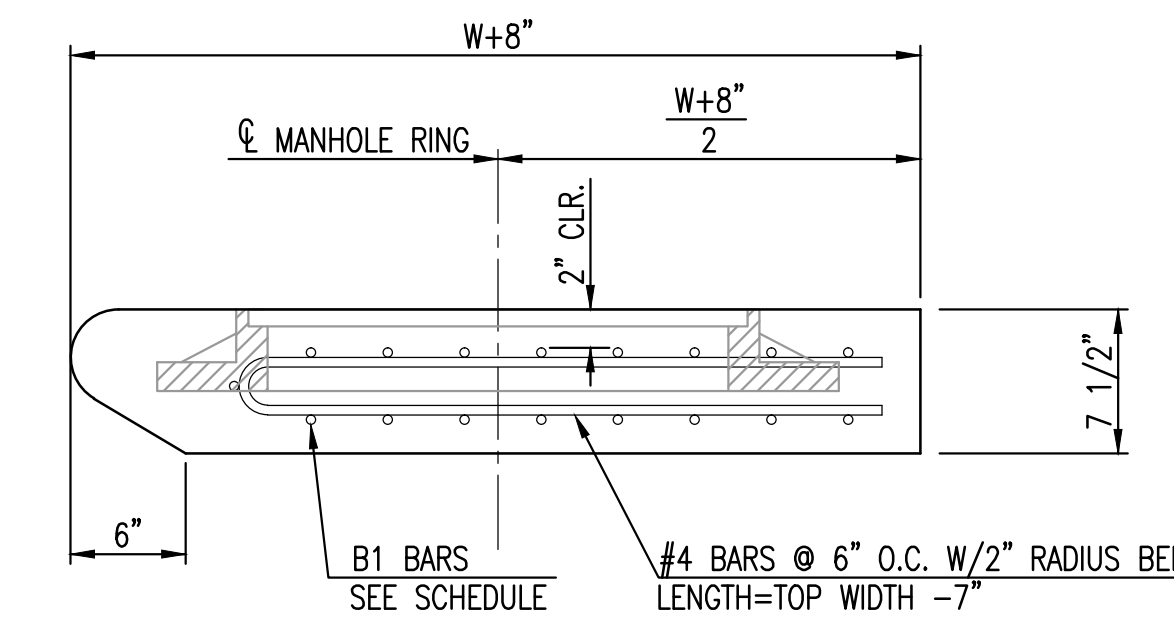
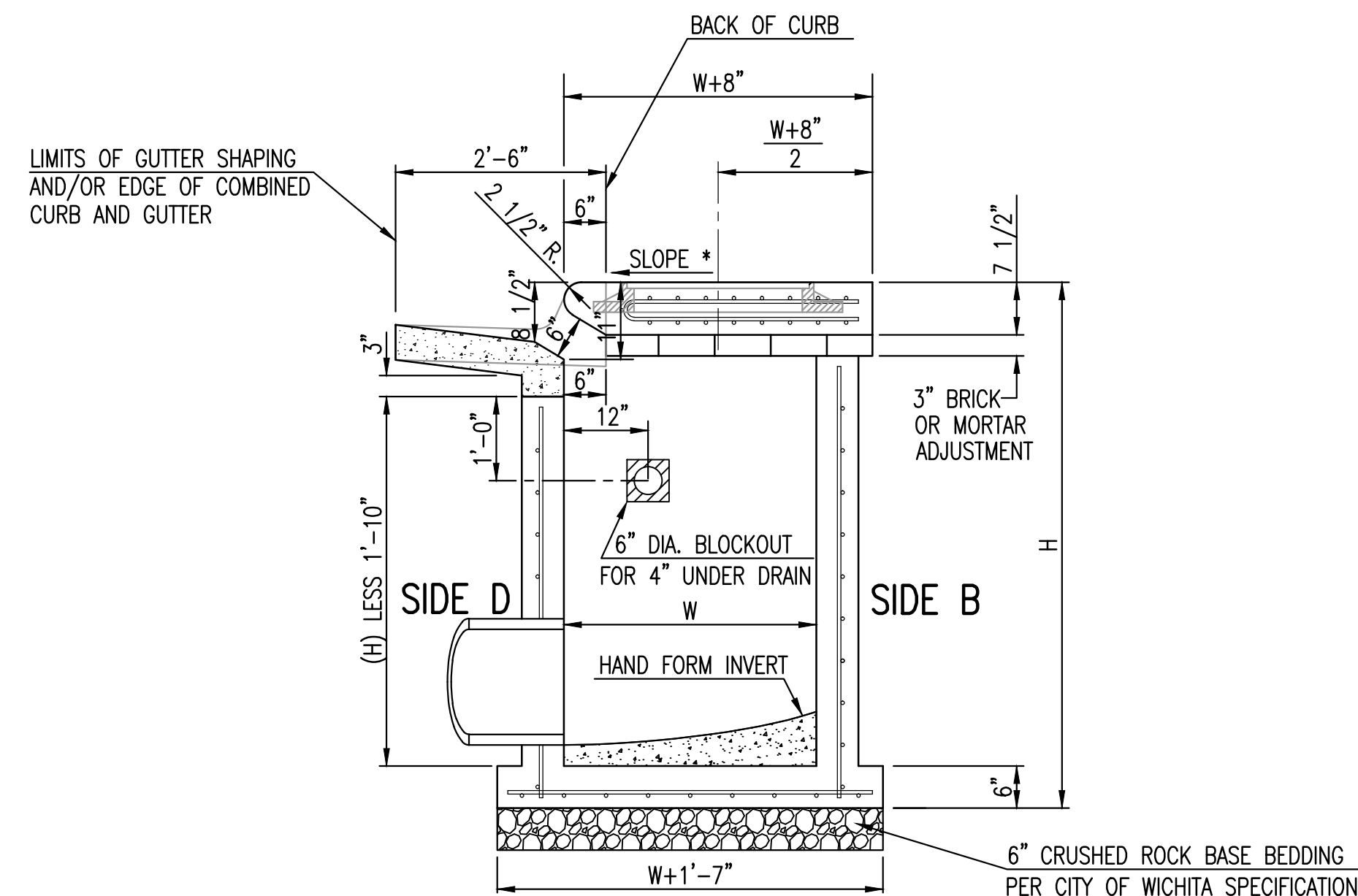
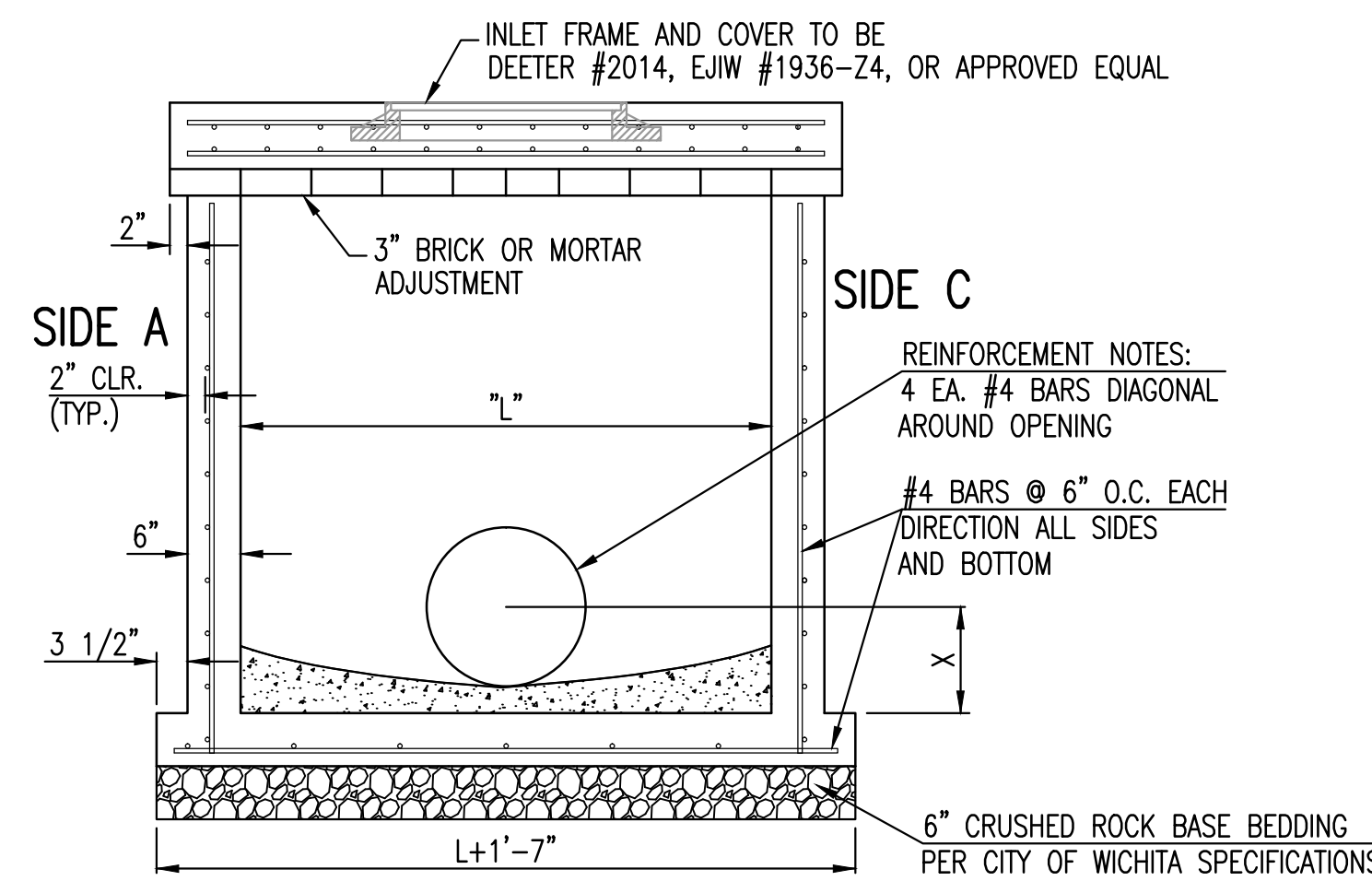
BAR SCHEDULE		
INLET OPENING	B1 BARS	SPACING
5'-0"	#4	4"
10'-0"	#6	3.5"

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"

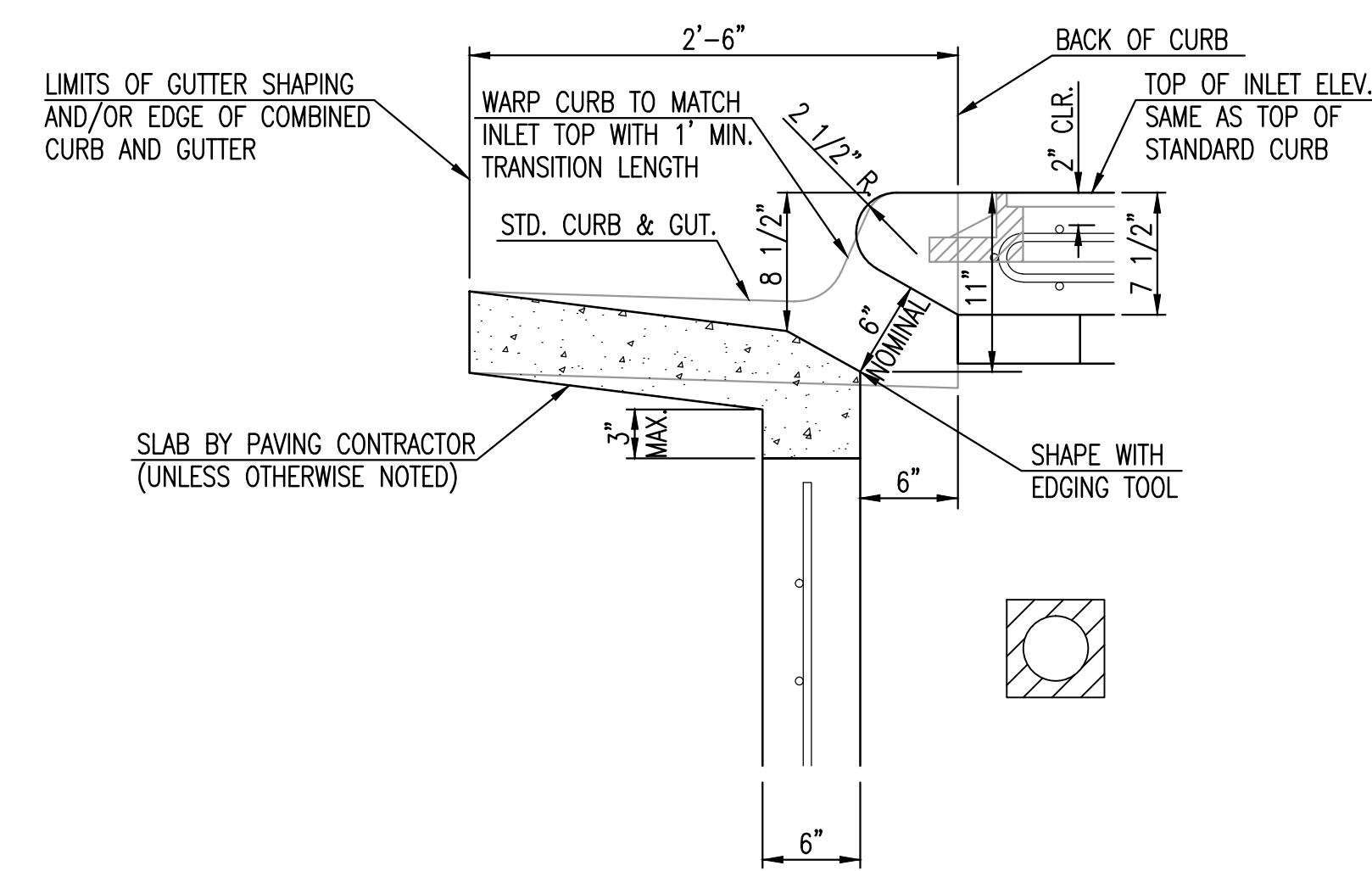
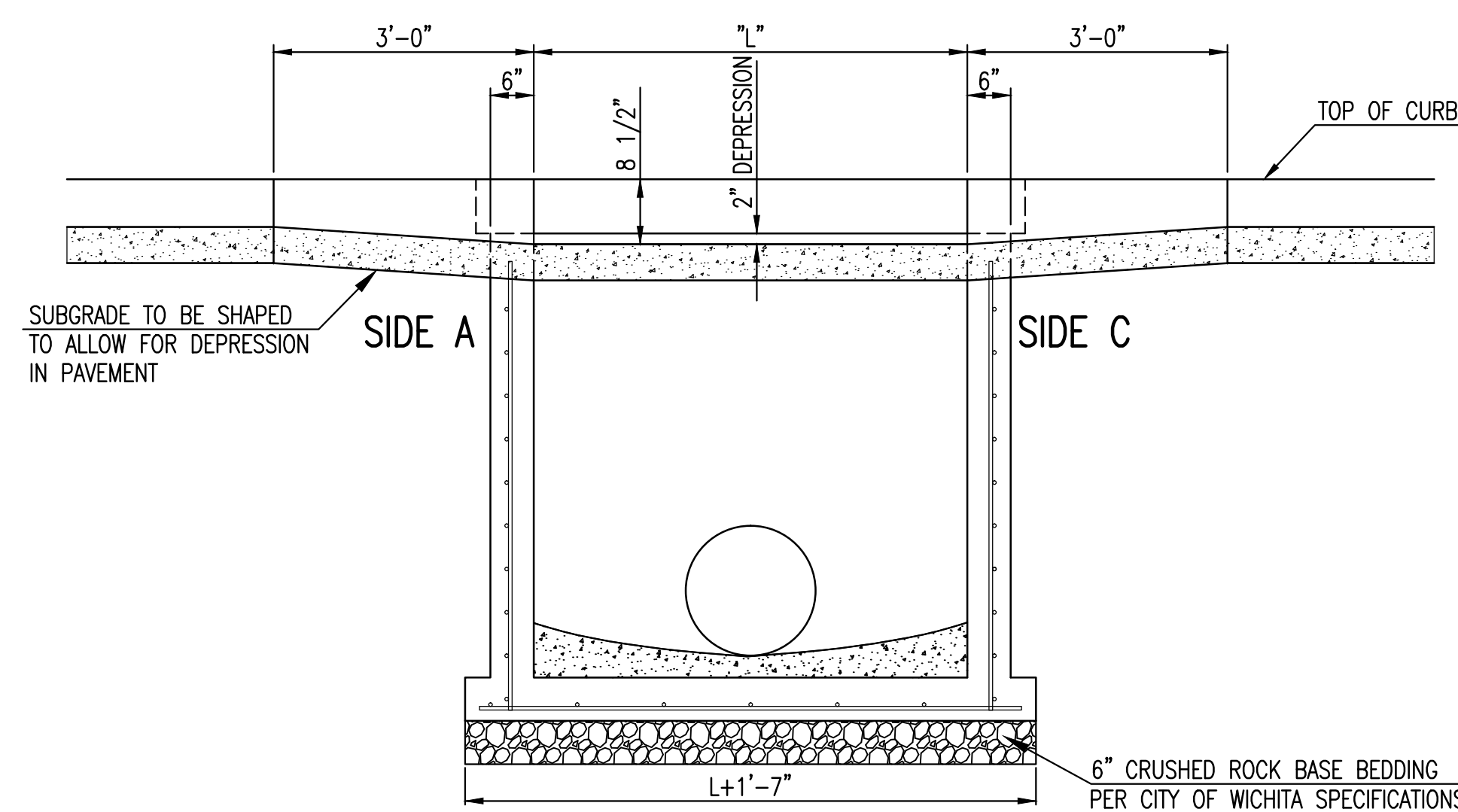
** FOR PIPES PERPENDICULAR TO INLET WALL

GENERAL NOTES

1. 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.
2. 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.
3. 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.
4. THE ENDS OF ALL PIPES INSTALLED IN INLETS SHALL BE CUT OFF FLUSH WITH THE INSIDE FACE OF THE INLET WALL.
5. INLET FRAME AND COVER TO BE DEETER #2014, EJIW #1936 Z4, OR APPROVED EQUAL, SEE SW-303.
6. CONTRACTOR SHALL REMOVE LIFTING HOOKS AFTER INSTALLATION. RECESSES IN INLET WALL SHALL BE GROUDED FLUSH TO THE INLET WALL WITH HYDRAULIC CEMENT AFTER THE INLET IS IN PLACE. LIFTING HOLES THRU THE INLET WALL WILL NOT BE ACCEPTED.



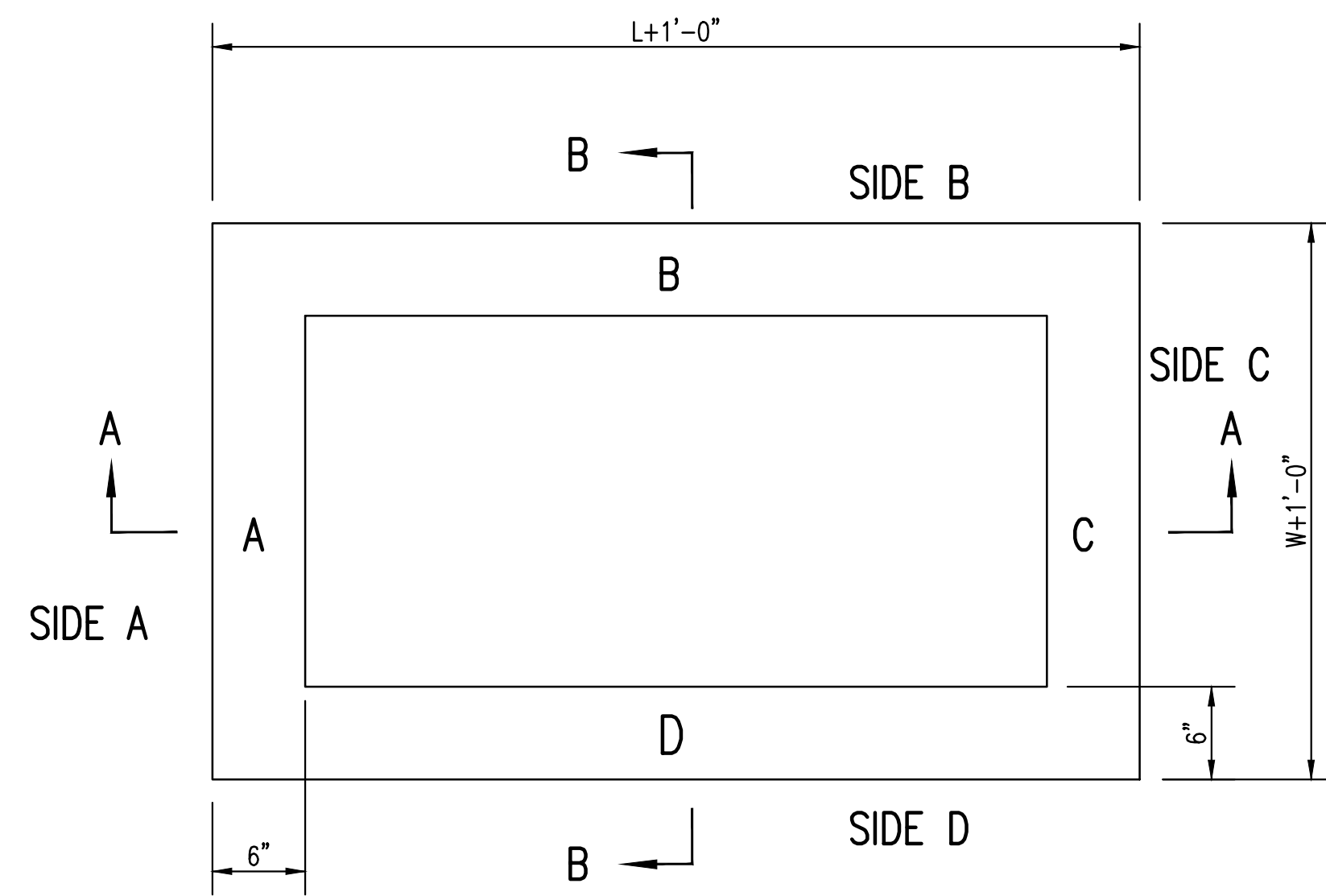
NOTES:
* SLOPE OF INLET TOP TO MATCH SIDEWALK OR PARKING SLOPES WITHIN LIMITS INDICATED.



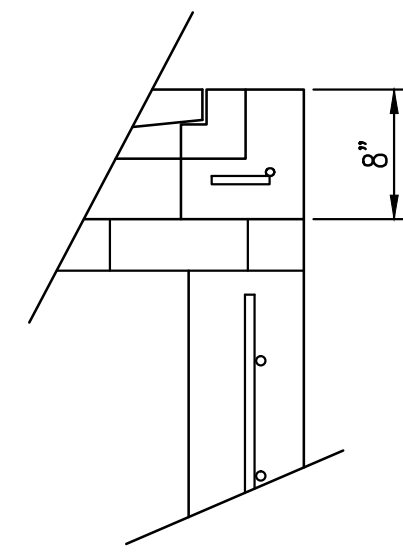
Sheet 07-25-2010 3:09:07 PM by CSI
 Proj. Name: 120-08-01-2012 946654 AM by CADRY, S. LUNK
 C:\2011\11394\005\Site_Cha\PPD\11394-05-PPD-C-1Type_1 Inlet L=5' and 10'



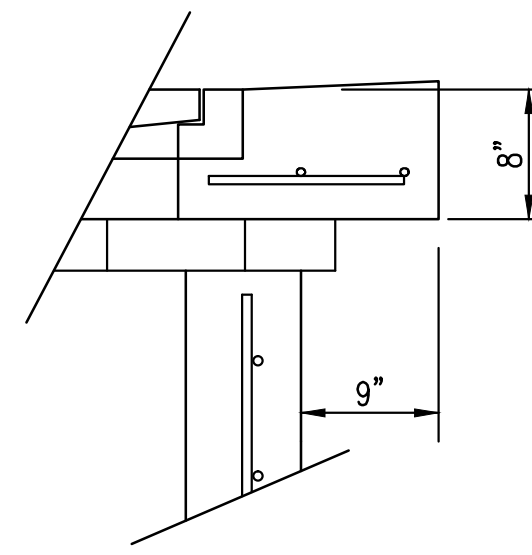
STANDARD TYPE 1 CURB INLET		
5'-0" OR 10'-0" OPENING		
INTERIM CITY ENGINEER GARY JANZEN, P.E.		
PROJECT NUMBER 105 PPD	OCA NUMBER (607861)	DATE 11/2010
CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501		DESIGN DRAWN SHEET C-8.23 of 33



TOP VIEW

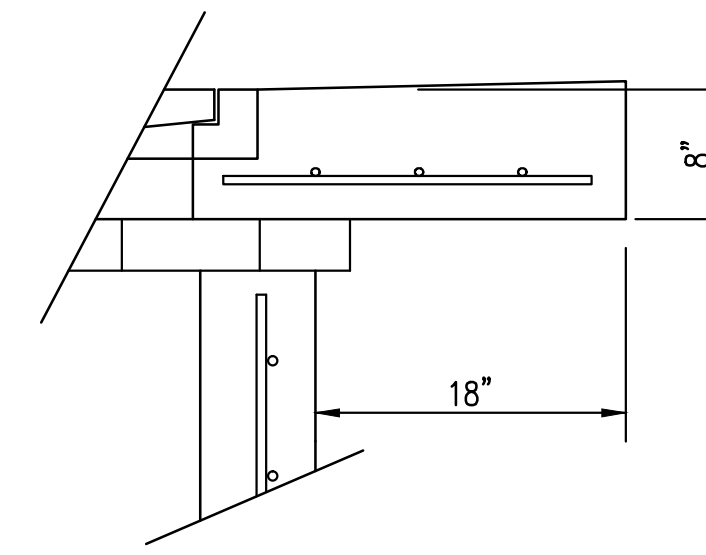


FLUSH STYLE TOP
NO APRON



9" APRON

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



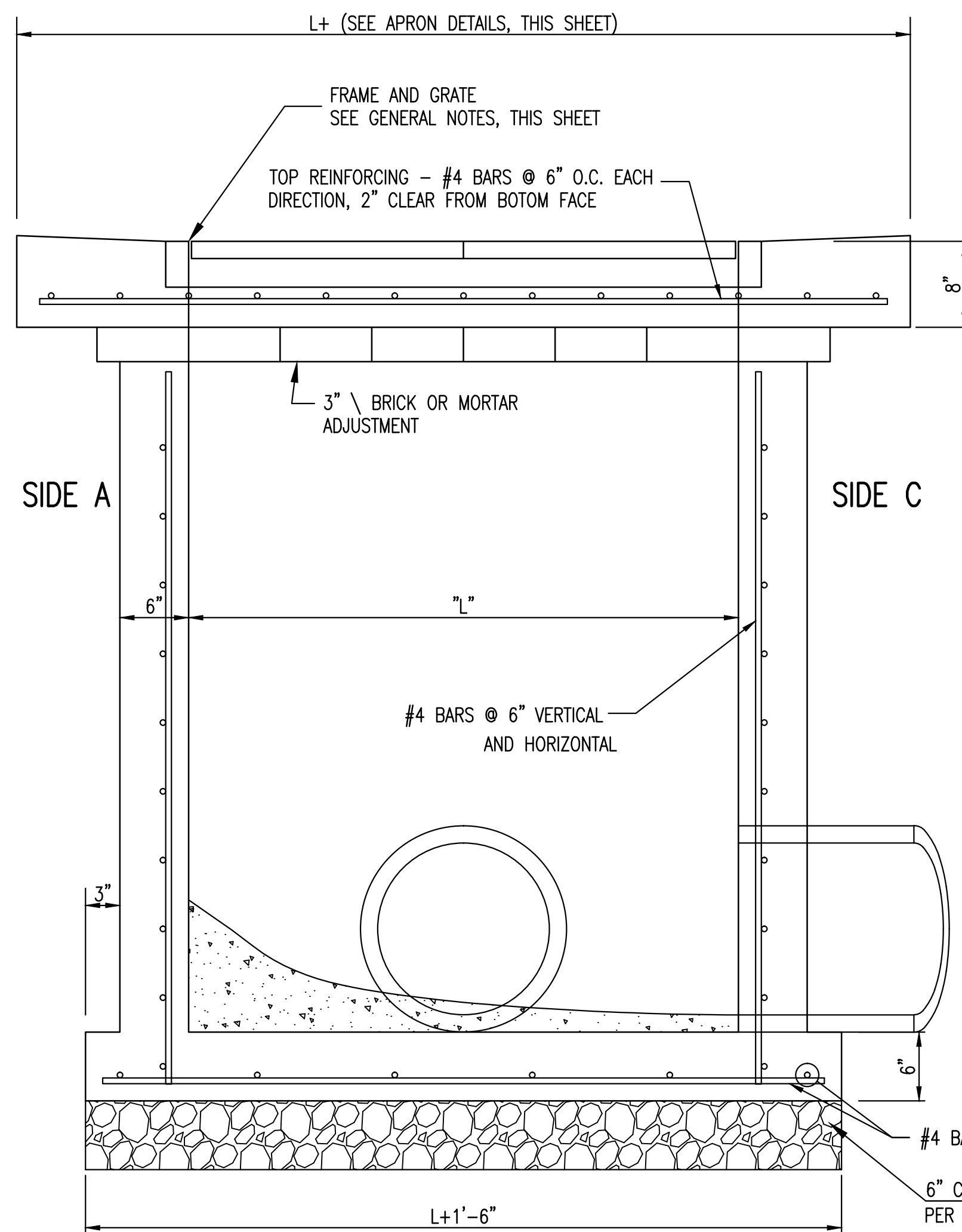
18" APRON

W=2' and L=2' for SINGLE DROP INLET
W=2' and L=4' for DOUBLE DROP INLET

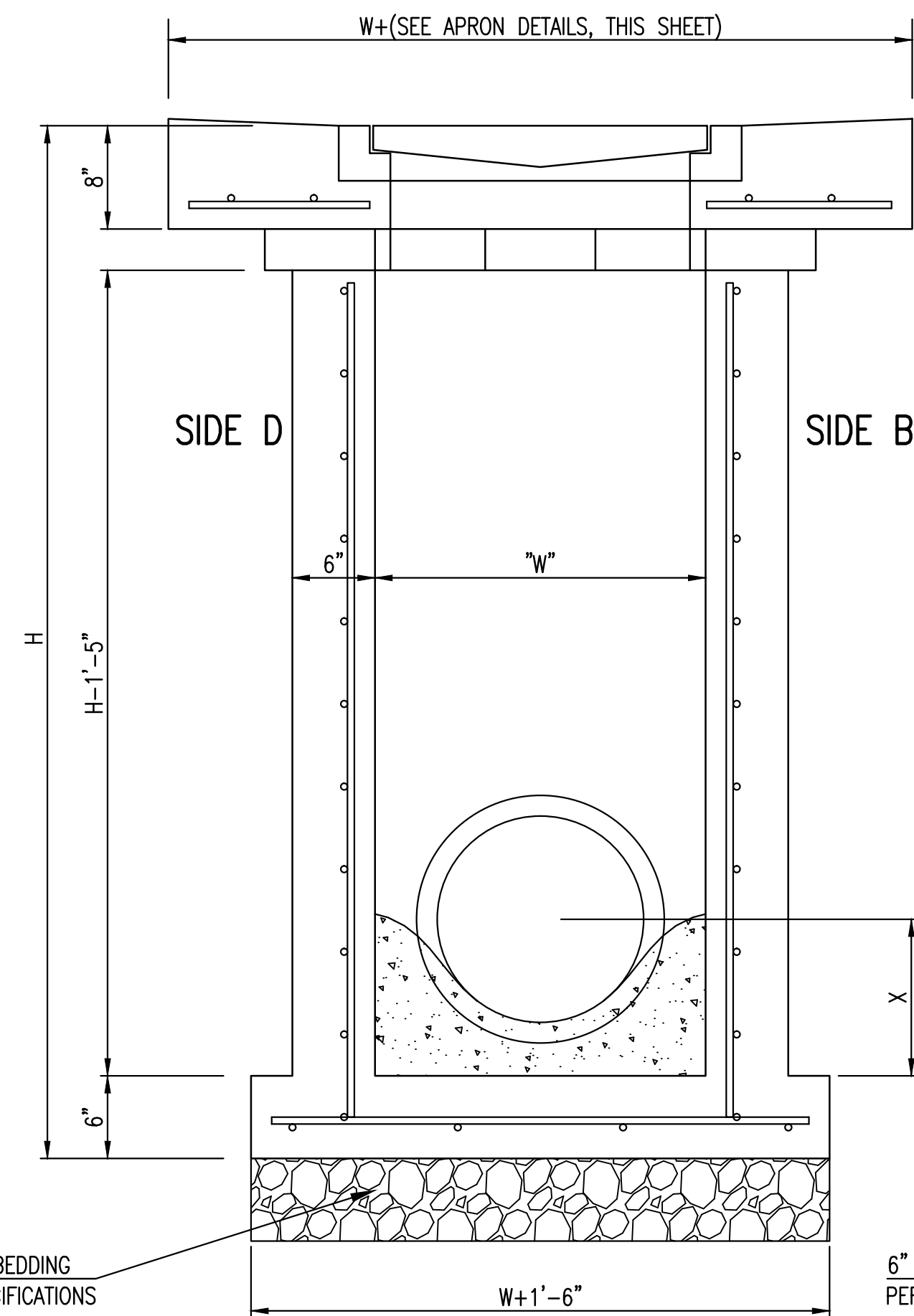
The structure(s) on this detail sheet are designed for HS-20 loading at these specific dimensions only. If larger dimensions are required, the ENGINEER shall provide a project specific structure design for approval by the City Engineer's office.

GENERAL NOTES

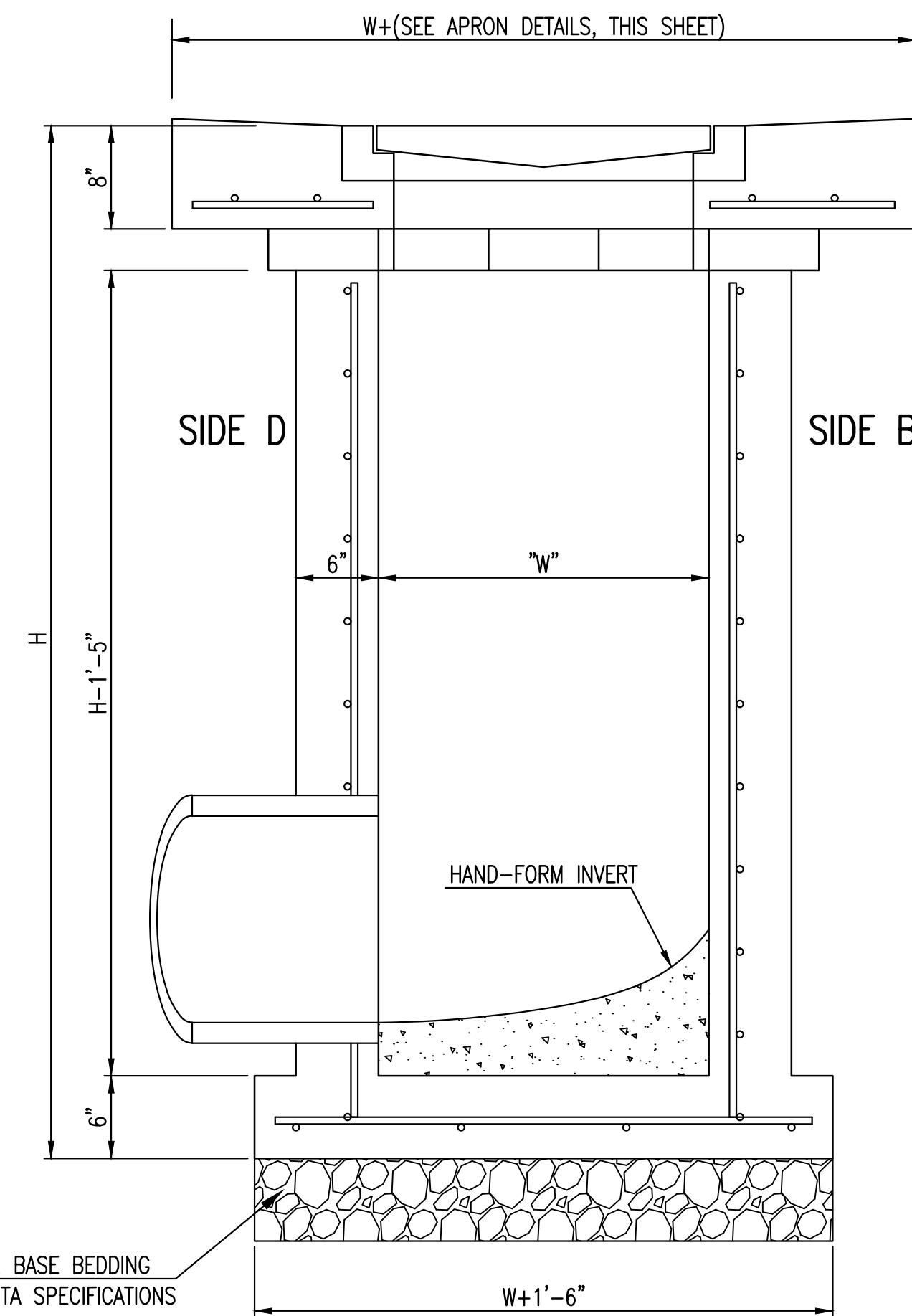
1. GRATE FRAME TO BE INSTALLED ON THIN MORTAR CUSHION TO INSURE FULL SUPPORT ALONG BRICK. CONCRETE USED FOR INLET CONSTRUCTION SHALL CONFORM TO CITY OF WICHITA SPECIFICATIONS FOR CONCRETE PAVEMENT MIX.
2. INLET INVERT SHALL BE SHAPED WITH 8 SACK SAND MIX CONCRETE TO CREATE FLOW CHANNELS AND TO INCREASE 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-Z1 OR APPROVED EQUAL FOR 2'x2' SINGLE DROP INLET AND DEETER #2434, EJIW #5391 Z3 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.



SECTION "A-A"



SECTION "B-B"
END OUTLET



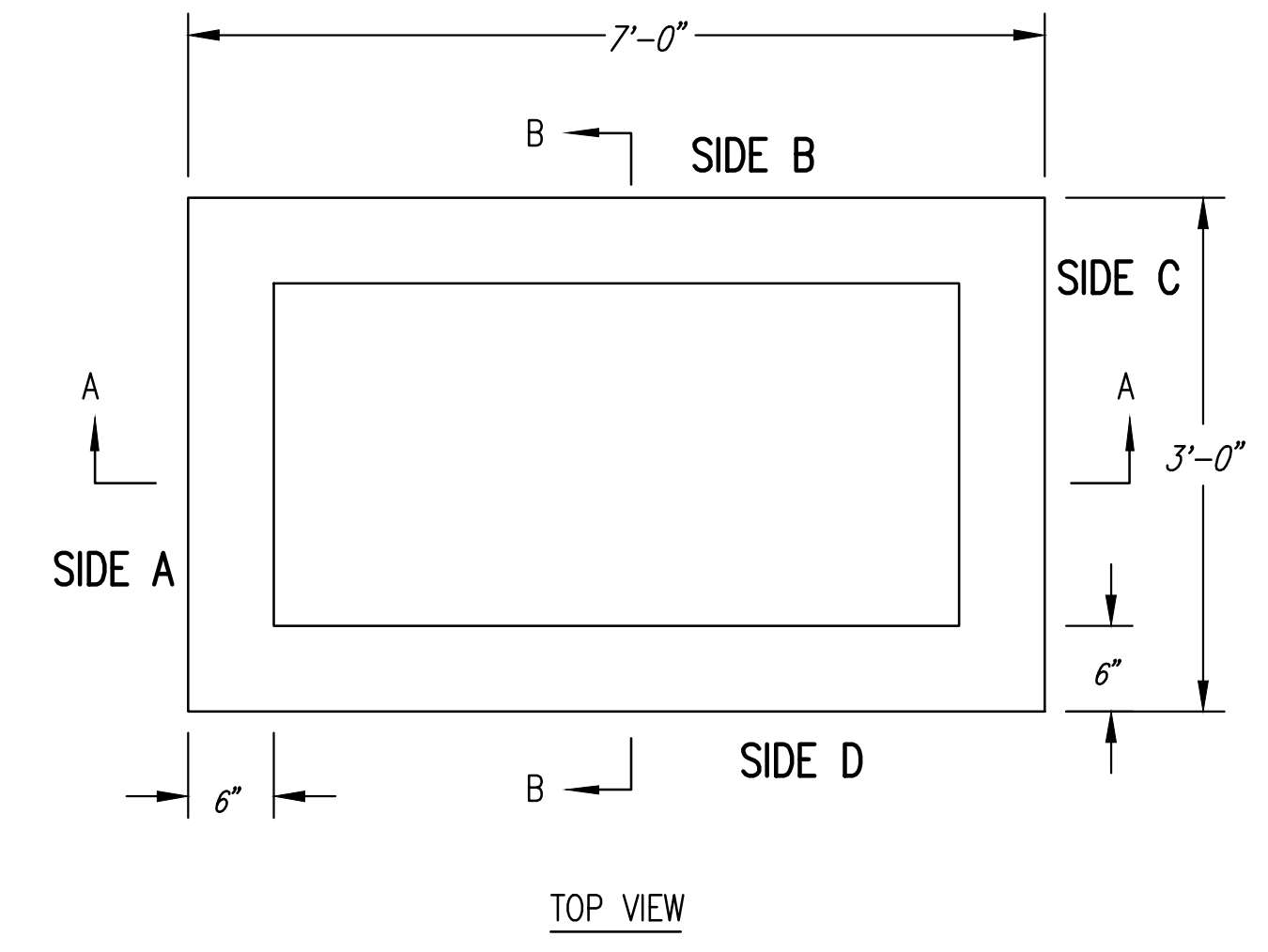
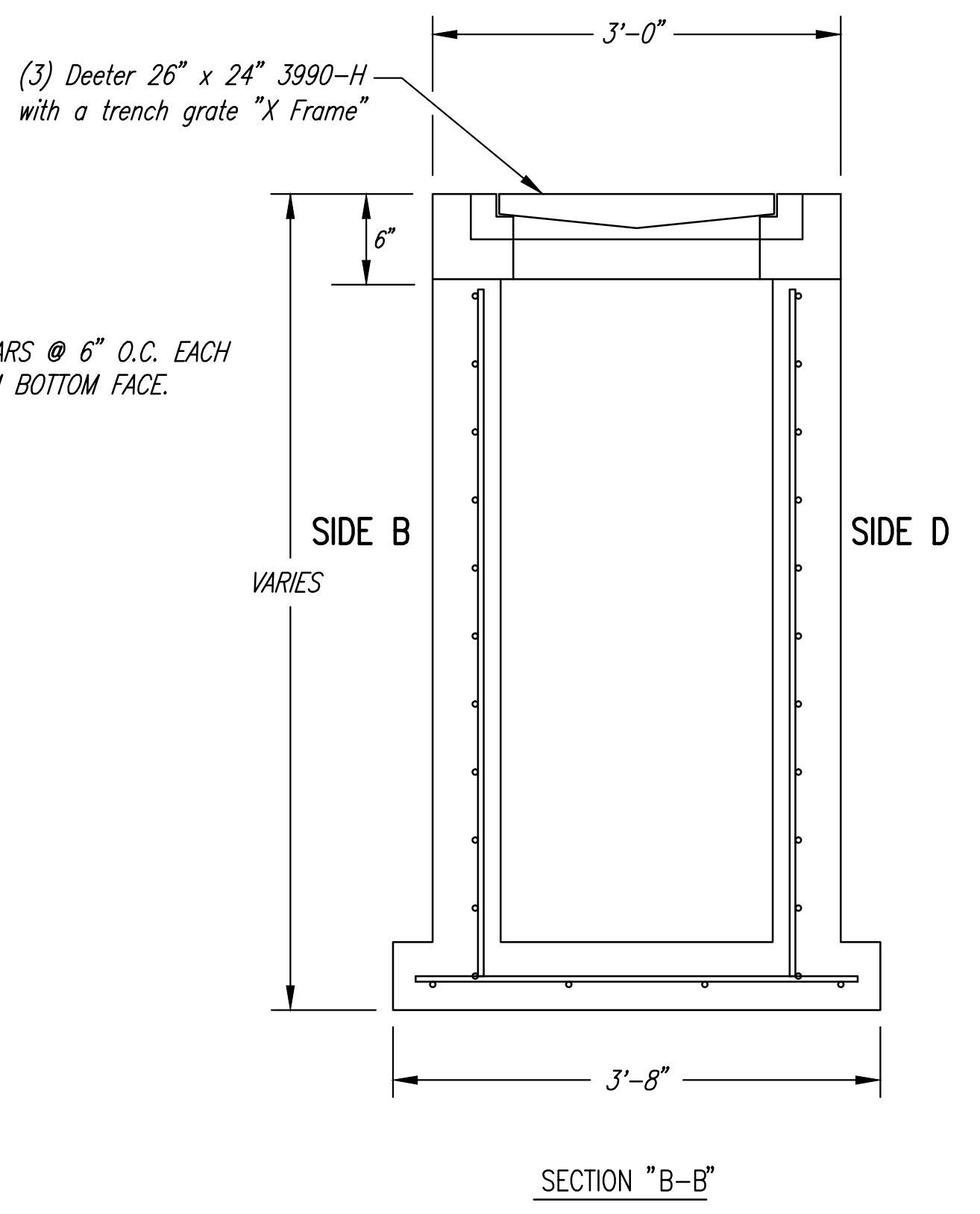
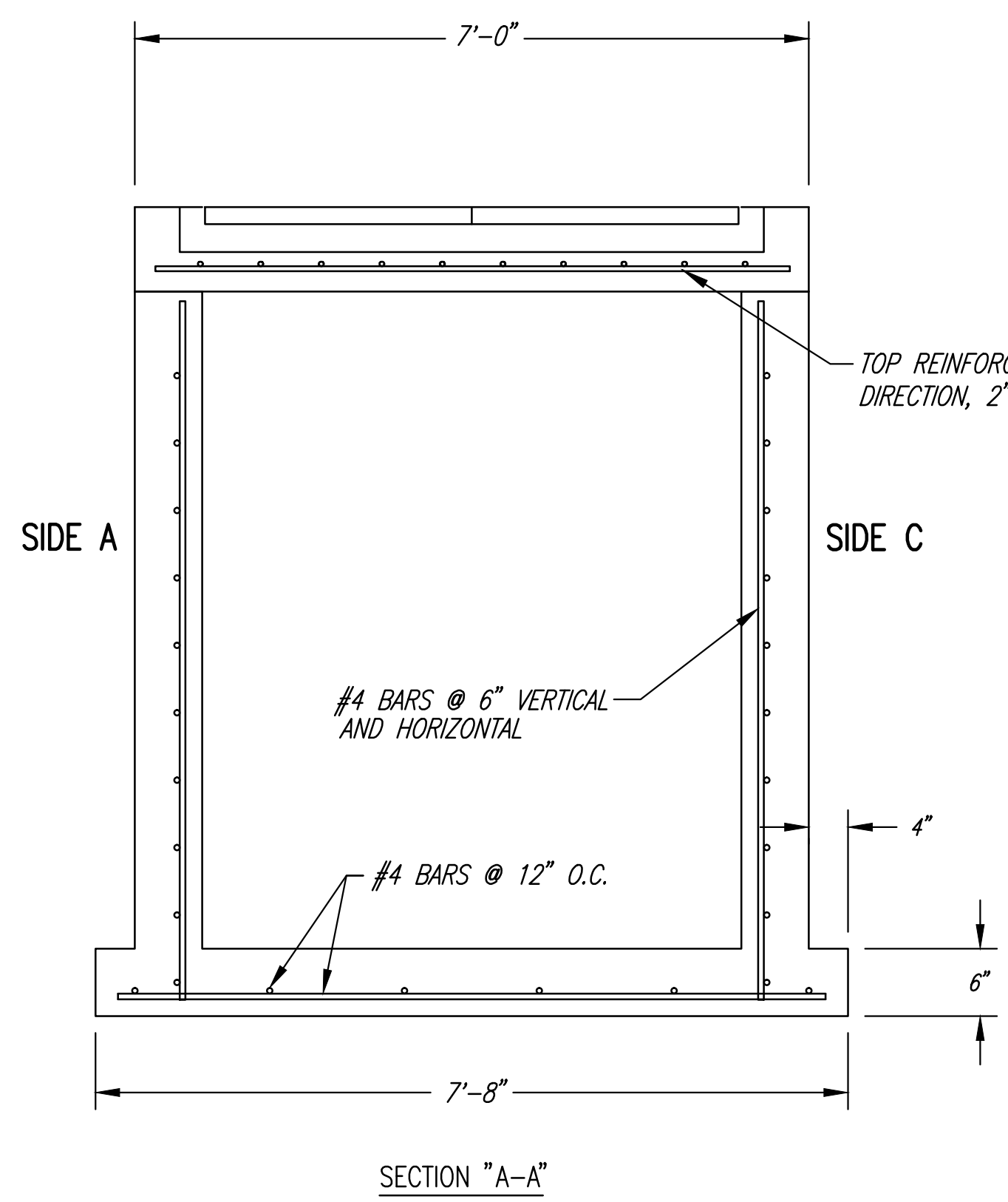
SECTION "B-B"
SIDE OUTLET

Sheet 07-25-2010 3:36:16 PM by CSI
 Proj. Name 110_07-31-2010 3:44:33
 C:\2011\11394\005\Site_Cri\PPD\11394-005-PPD-C-Single-Double Drop Inlet

REVISED 05/10/2011 - GJ




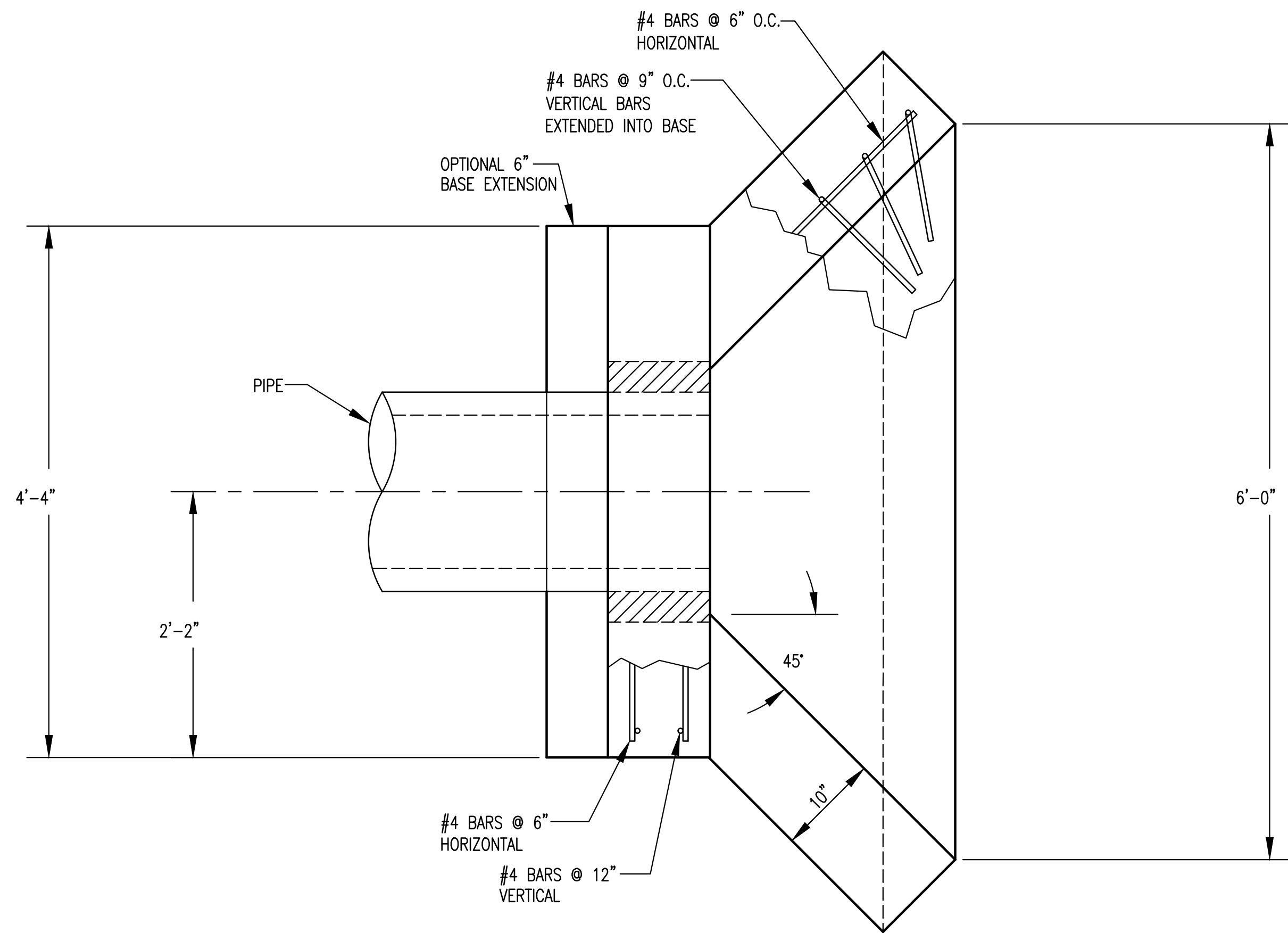
SINGLE/DOUBLE DROP INLET		
INTERIM CITY ENGINEER GARY JANZEN, P.E.		
PROJECT NUMBER 105 PPD	OCA NUMBER (607861)	DATE 11/2010
CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501		SHEET C-8.24 of 33



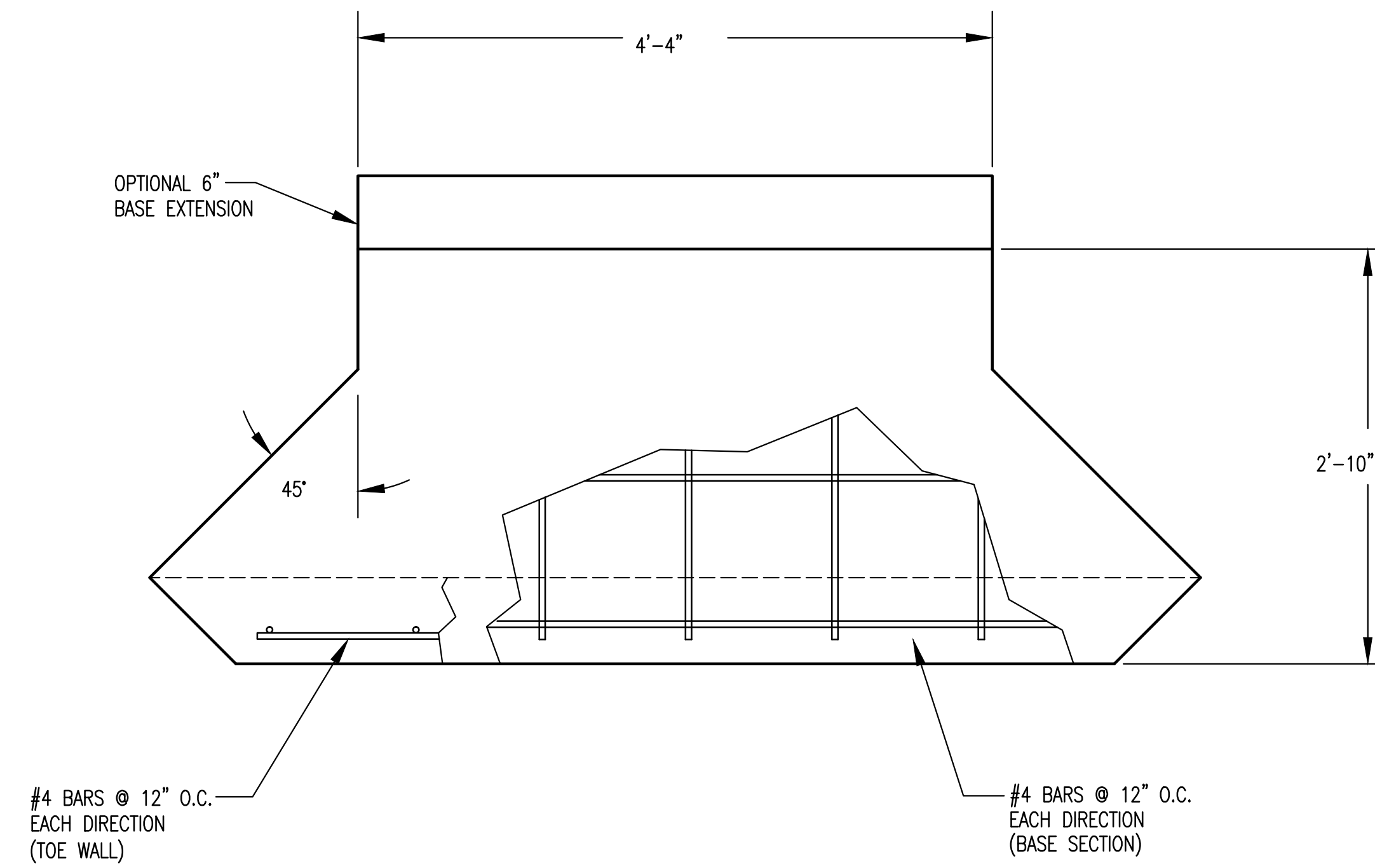
SPECIAL DOUBLE DROP INLET
NOT TO SCALE

Saved: 07-26-2012 4:05:30 PM by: CSL
 Plot Scale: 1:1 07-31-2012 3:45:32 PM by: CSL
 C:\2011\1394\005\Site Civil\PPD\11394-005-PPD-C-Special Inlet

No.	Revision	By	Date
BOMBARDIER LEARJET SITE EXPANSION PRIVATE STORM WATER SEWER EXTENSION SPECIAL INLET DETAIL GARY JANZEN, P.E. - INTERIM CITY ENGINEER PRIVATE PROJECT NO. 105 PPD (607861)			
 PEC		PROFESSIONAL ENGINEERING CONSULTANTS, P.A. 303 SOUTH TOPEKA WICHITA, KS 67202 316-262-2691 www.pec1.com	
Designed by	MEB, JSM	Job No.	35-11394-5-0534
Drawn by	CSL	Date	JANUARY 2012
			Sht. C-8.25 of 33

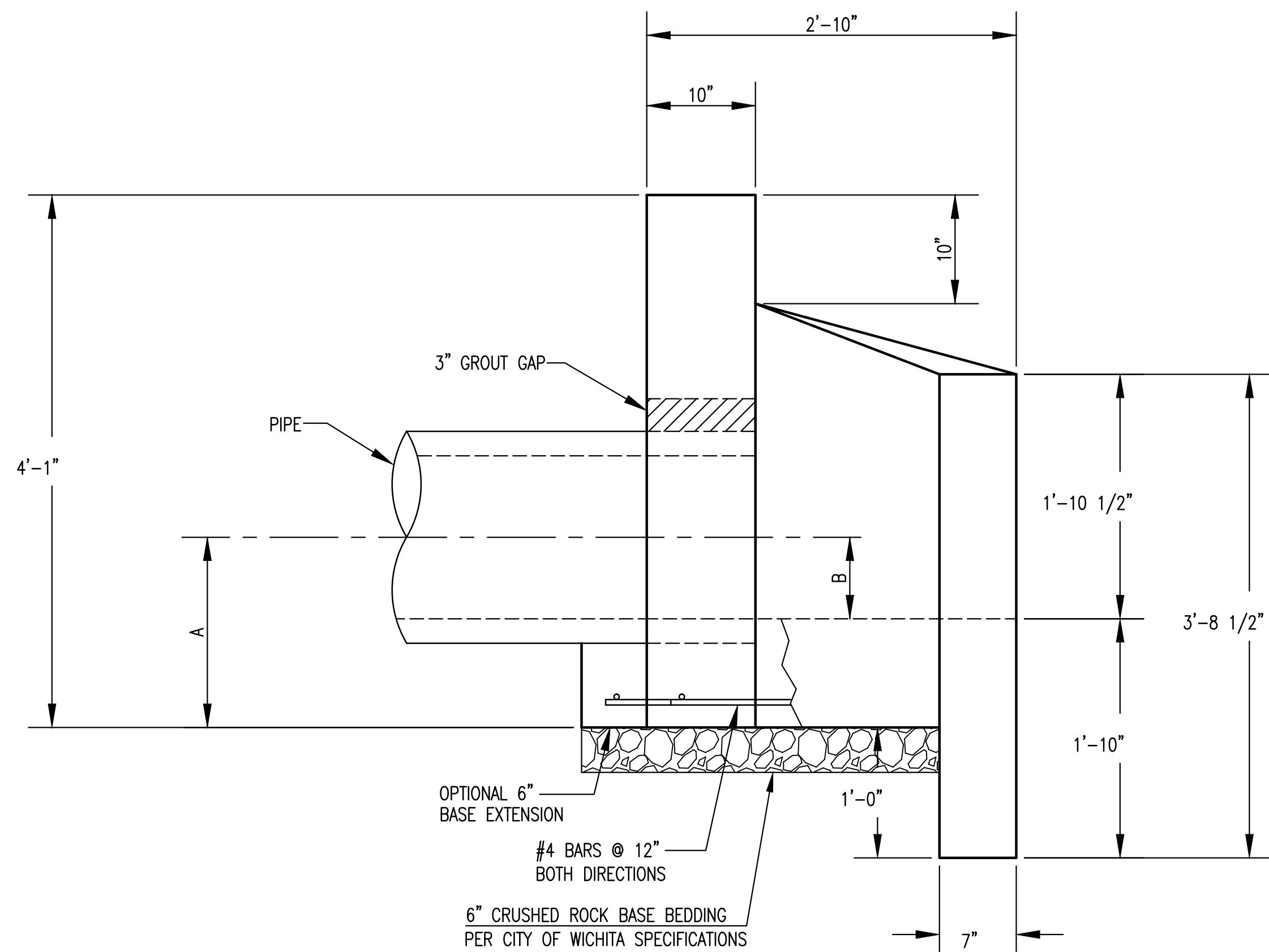


PLAN VIEW

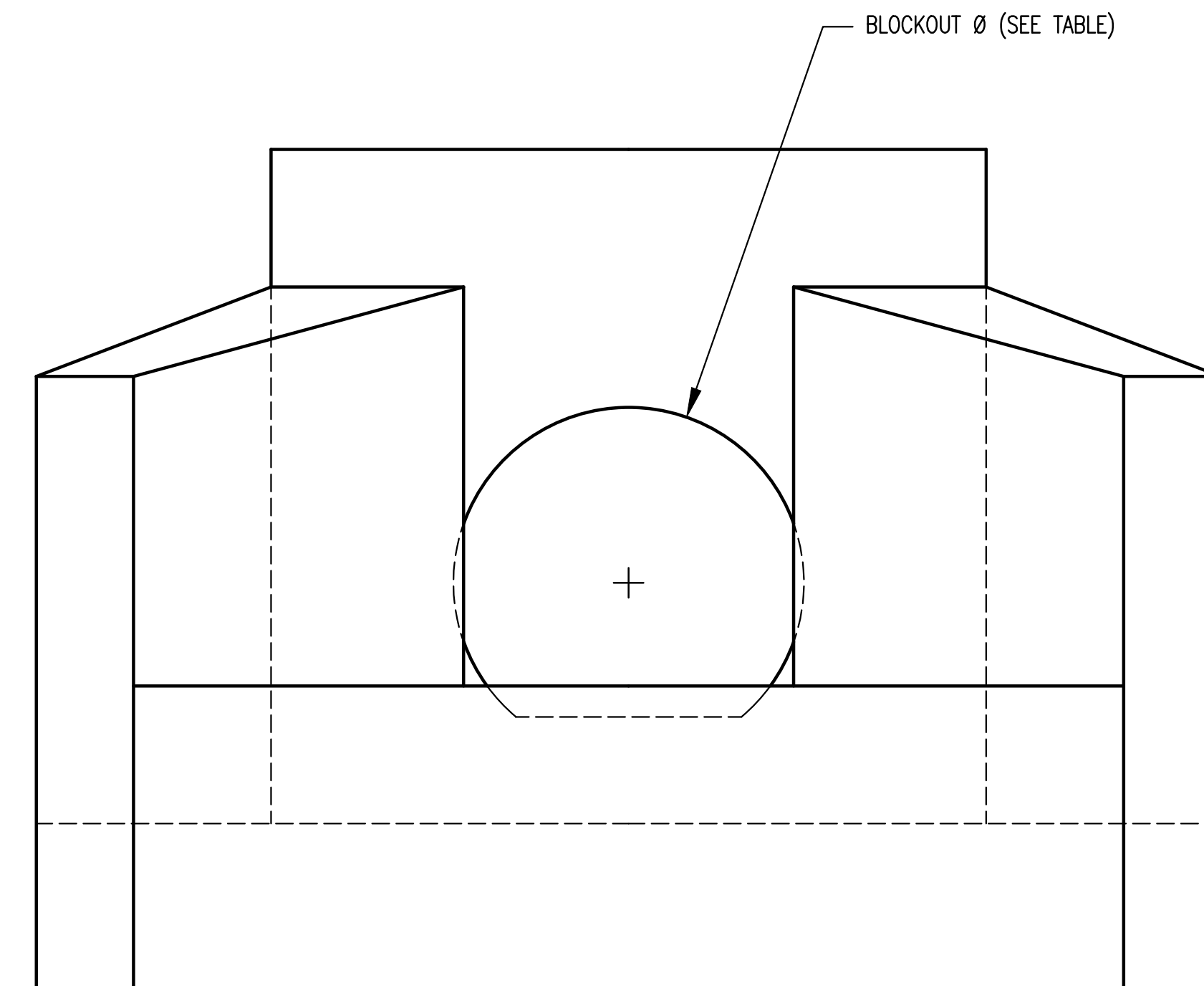


**PLAN VIEW
BASE**

PIPE Ø	A	B	BLOCKOUT Ø
15"	1'-5 1/2"	7 1/2"	2'-1 1/2"
18"	1'-7"	9"	2'-5"
24"	1'-10"	1'-0"	3'-0"



ELEVATION



FRONT VIEW

HEADWALLS, AS SHOWN, WILL NOT SUPPORT FLAP GATE.

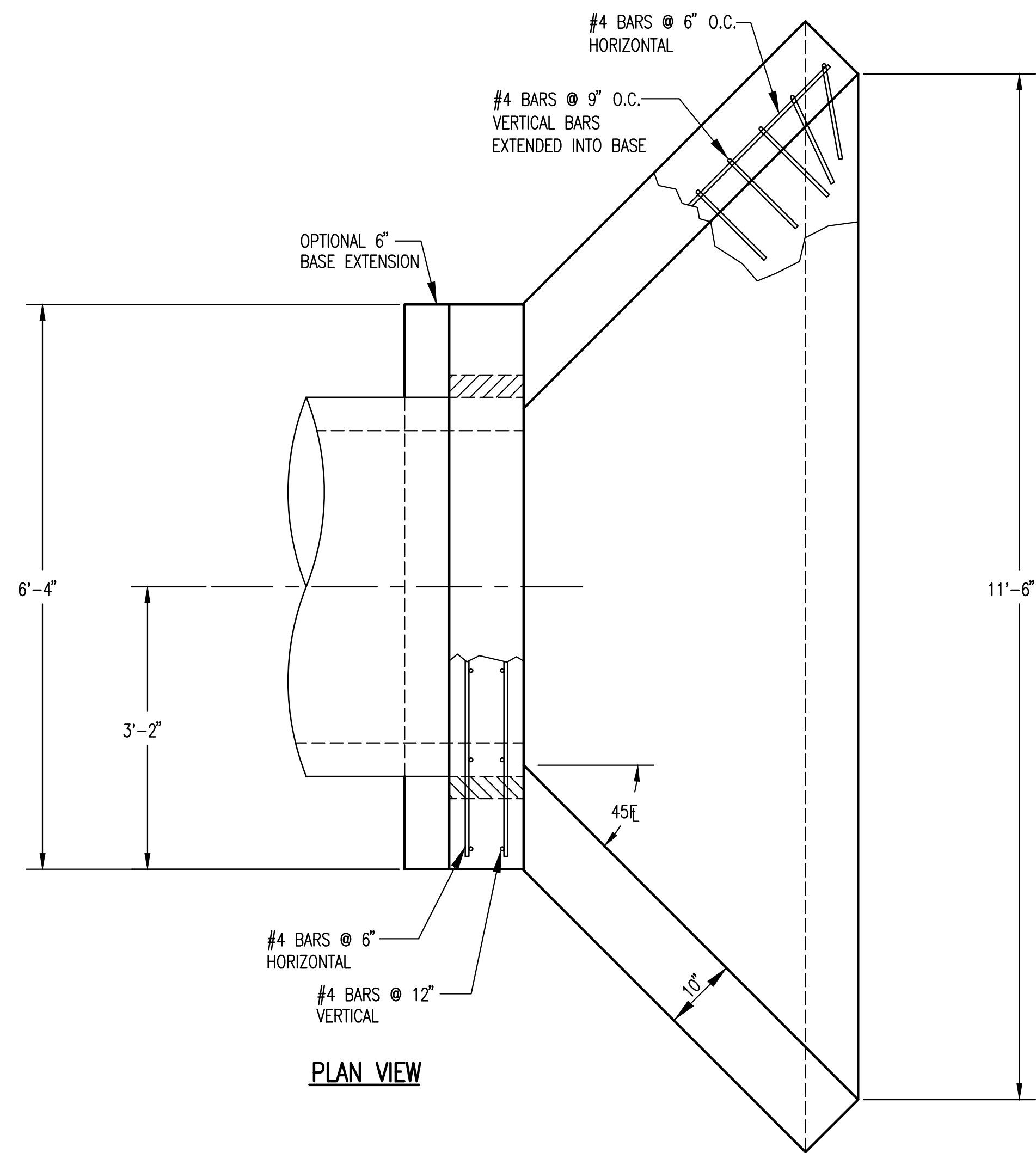


**HEADWALL
DETAILS FOR
15", 18", AND 24" PIPE**

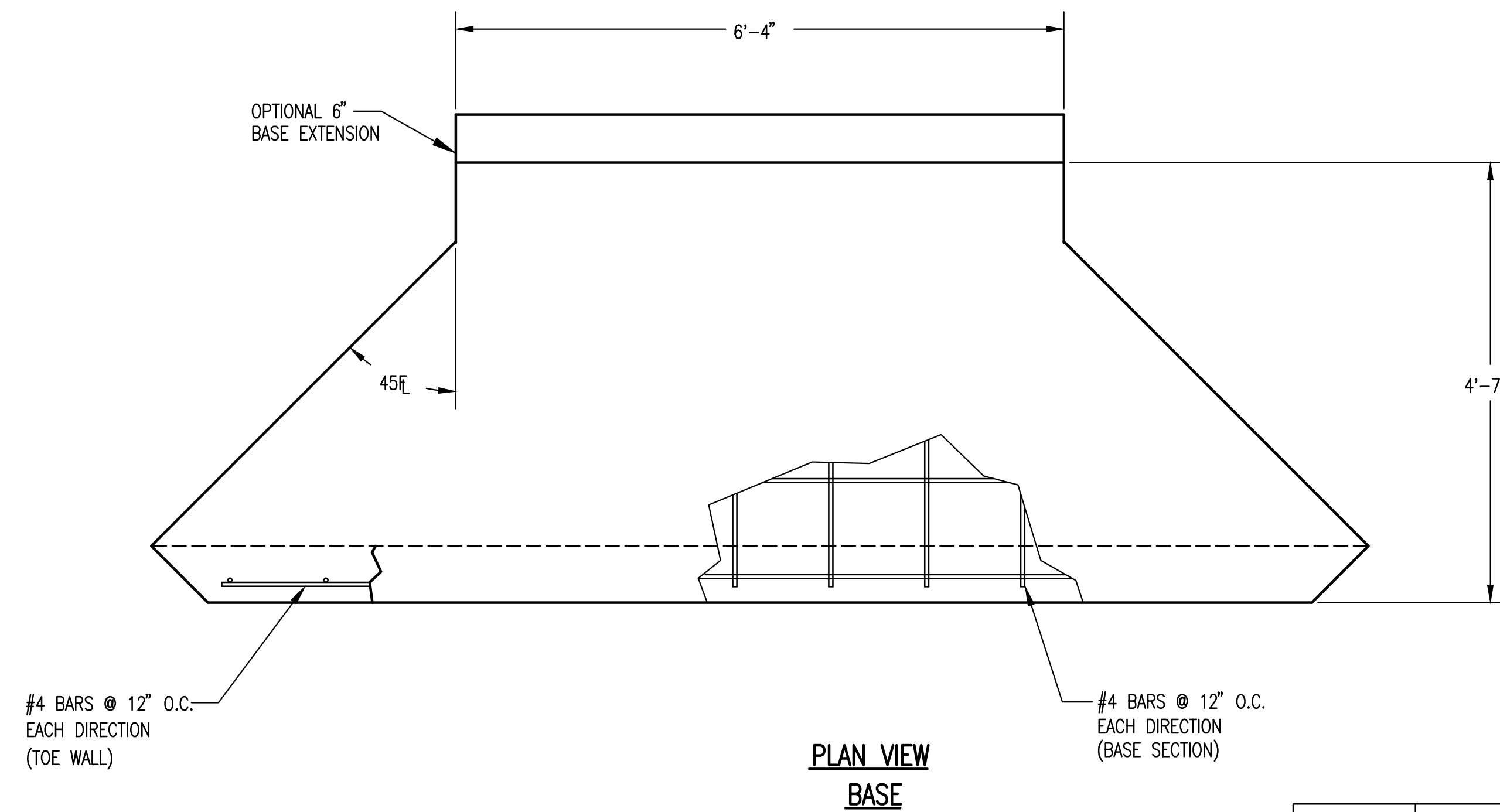
INTERIM CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER 105 PPD	OCA NUMBER (607861)	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 C-8.26 of 33		

Created: 07-26-2010 12:31:37 PM by CSI
 Plot: 07-26-2010 12:31:37 PM by GARY S. LINK
 C:\Users\link\Documents\11394\005\Site Civil\PPD\11394-05-PPD-C-Headwall 15,18-24 Details

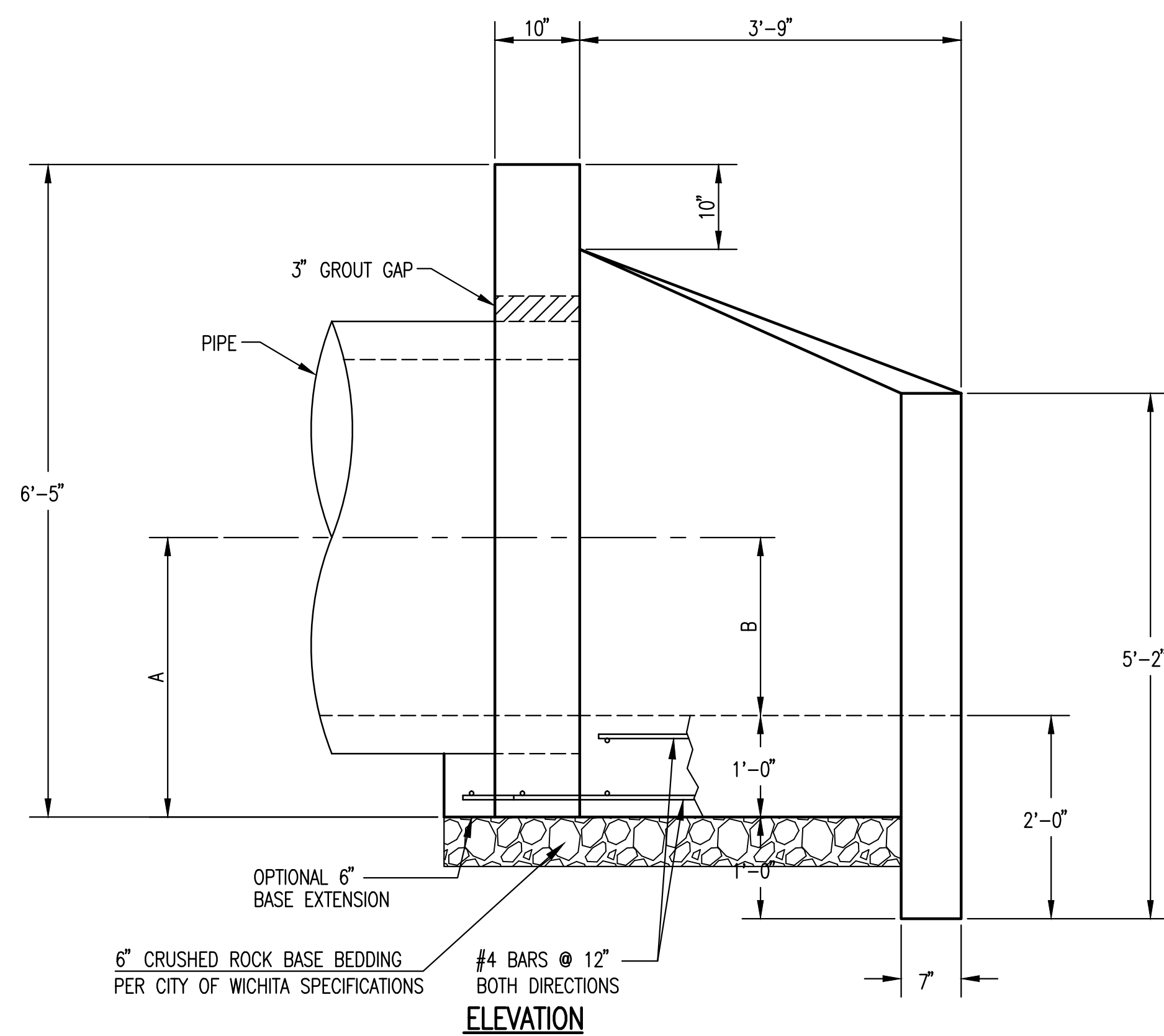


PLAN VIEW

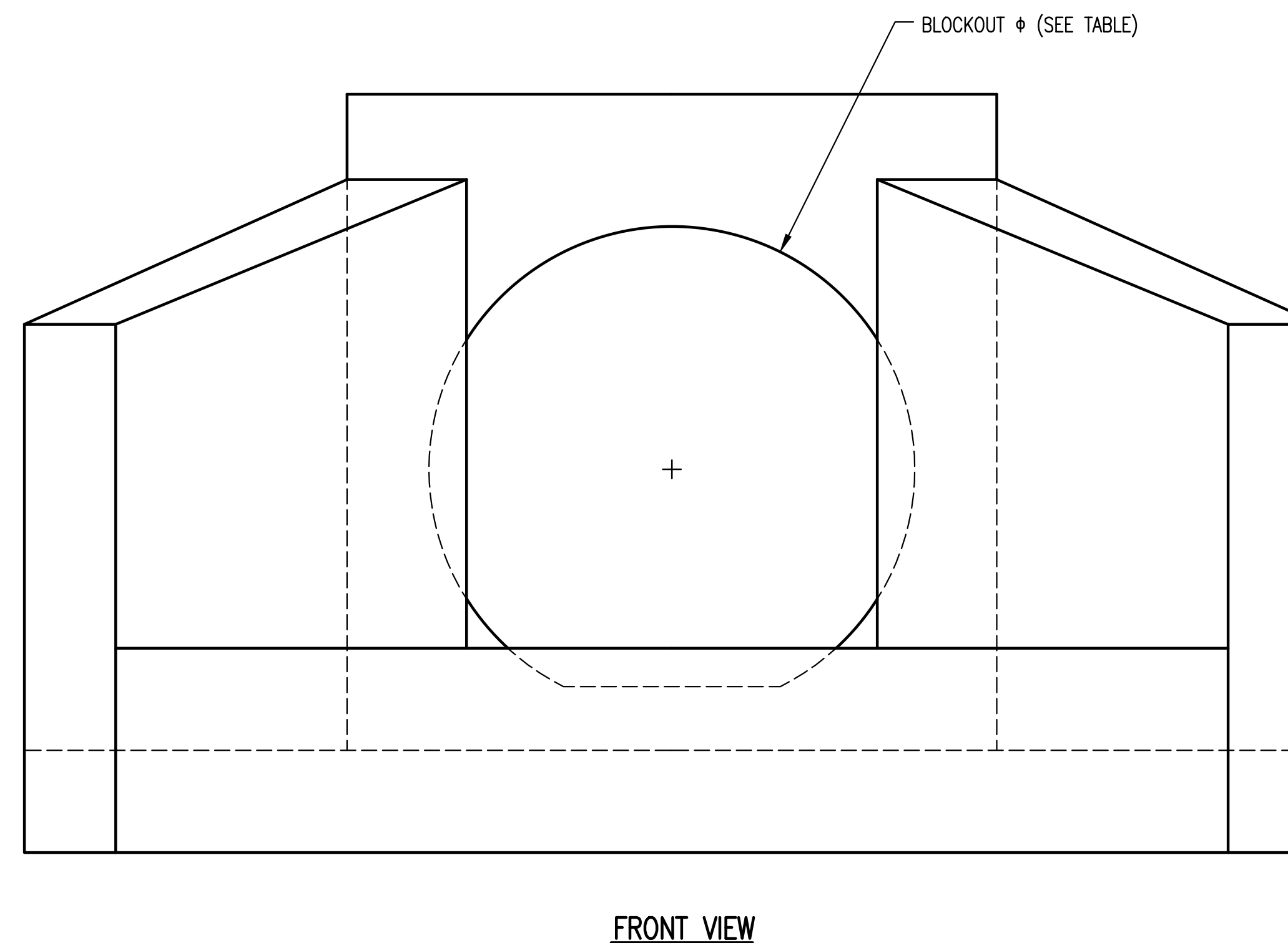


PLAN VIEW
BASE

PIPE ϕ	A	B	BLOCKOUT ϕ
42"	2'-9"	1'-9"	4'-9"
48"	3'-0"	2'-0"	5'-4"




ELEVATION

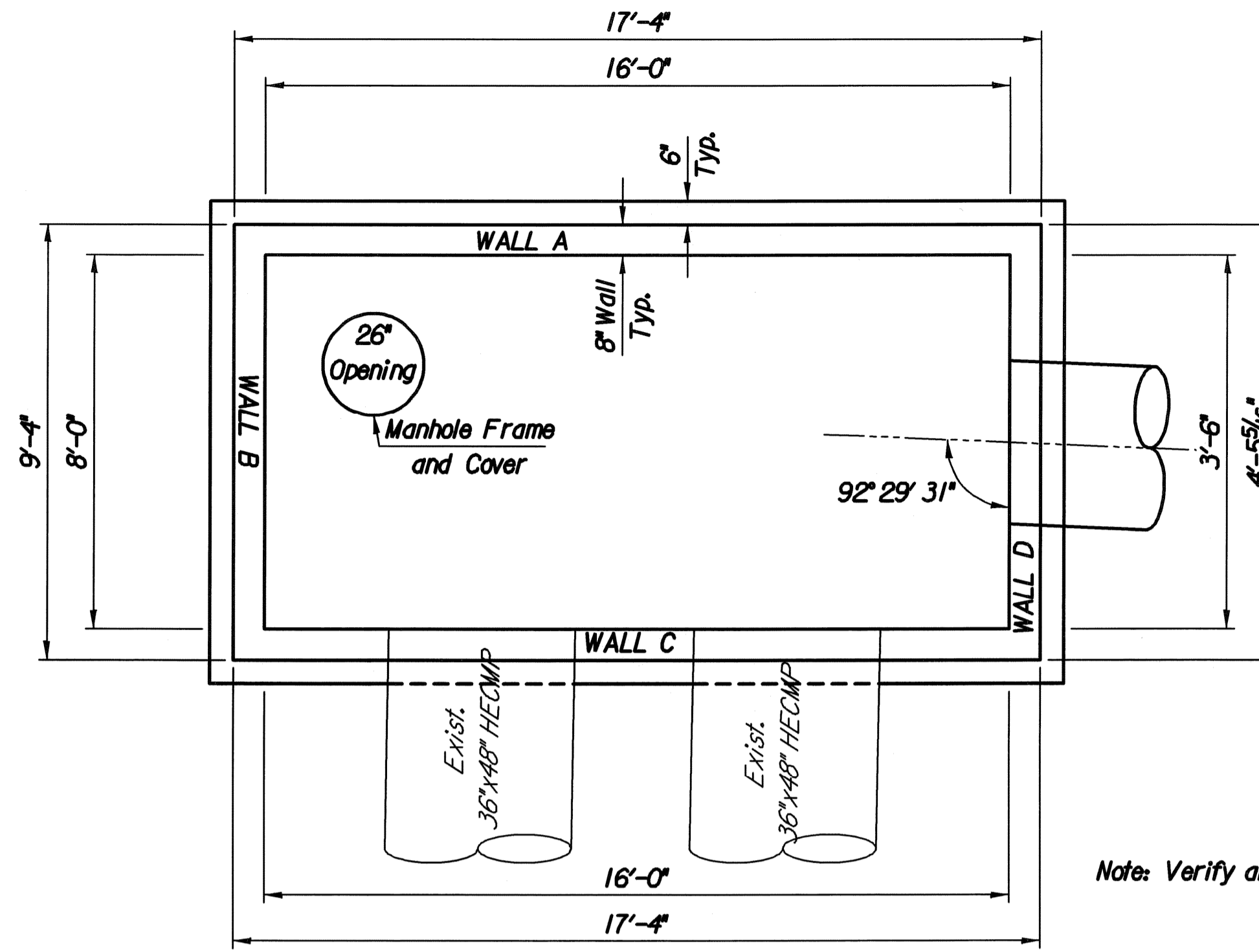


FRONT VIEW

HEADWALLS, AS SHOWN, WILL NOT SUPPORT FLAP GATE.

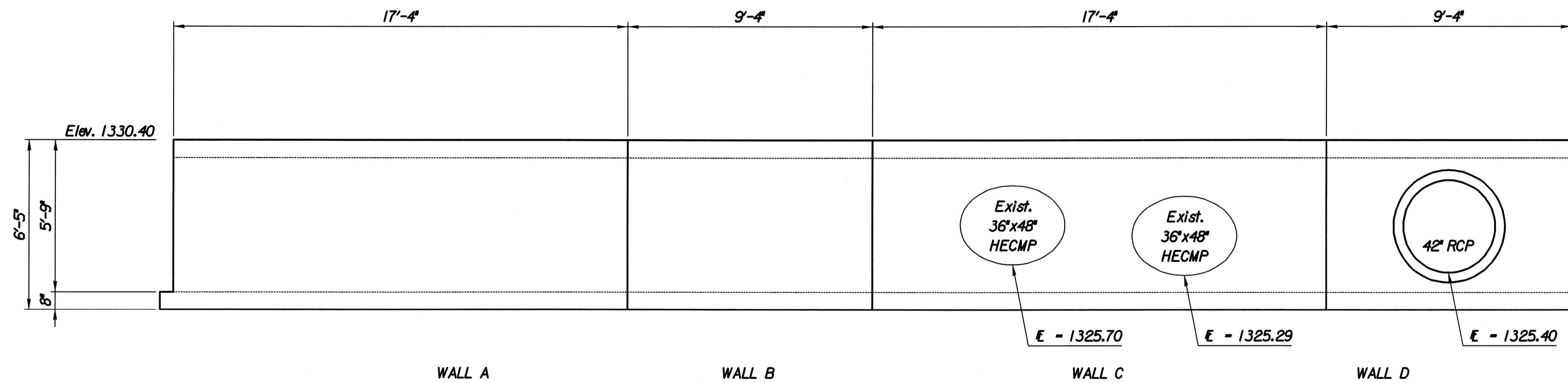
 <p>CITY OF WICHITA PUBLIC WORKS & UTILITIES ENGINEERING DIVISION</p>	<p>HEADWALL DETAILS FOR 42" AND 48" PIPE</p> <p>INTERIM CITY ENGINEER GARY JANZEN, P.E.</p>		
	PROJECT NUMBER	OCA NUMBER	DATE
	105 PPD	(607861)	11/2010
	<p>CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501</p>		
		DESIGN	DRAWN
		SHEET	
		C-8.27	
		of 33	

Sheet 07-25-2012 2:25:54 PM by CSI
 Proj. Name: 11-07-31-2012 5:40:43 PM by GARY, S. LINK
 C:\2011\11394\005\Site Civil\PPD\11394-05-PPD-C-Headwall 42-48 Details




Note: Verify angle of Exist. HECMP in field.

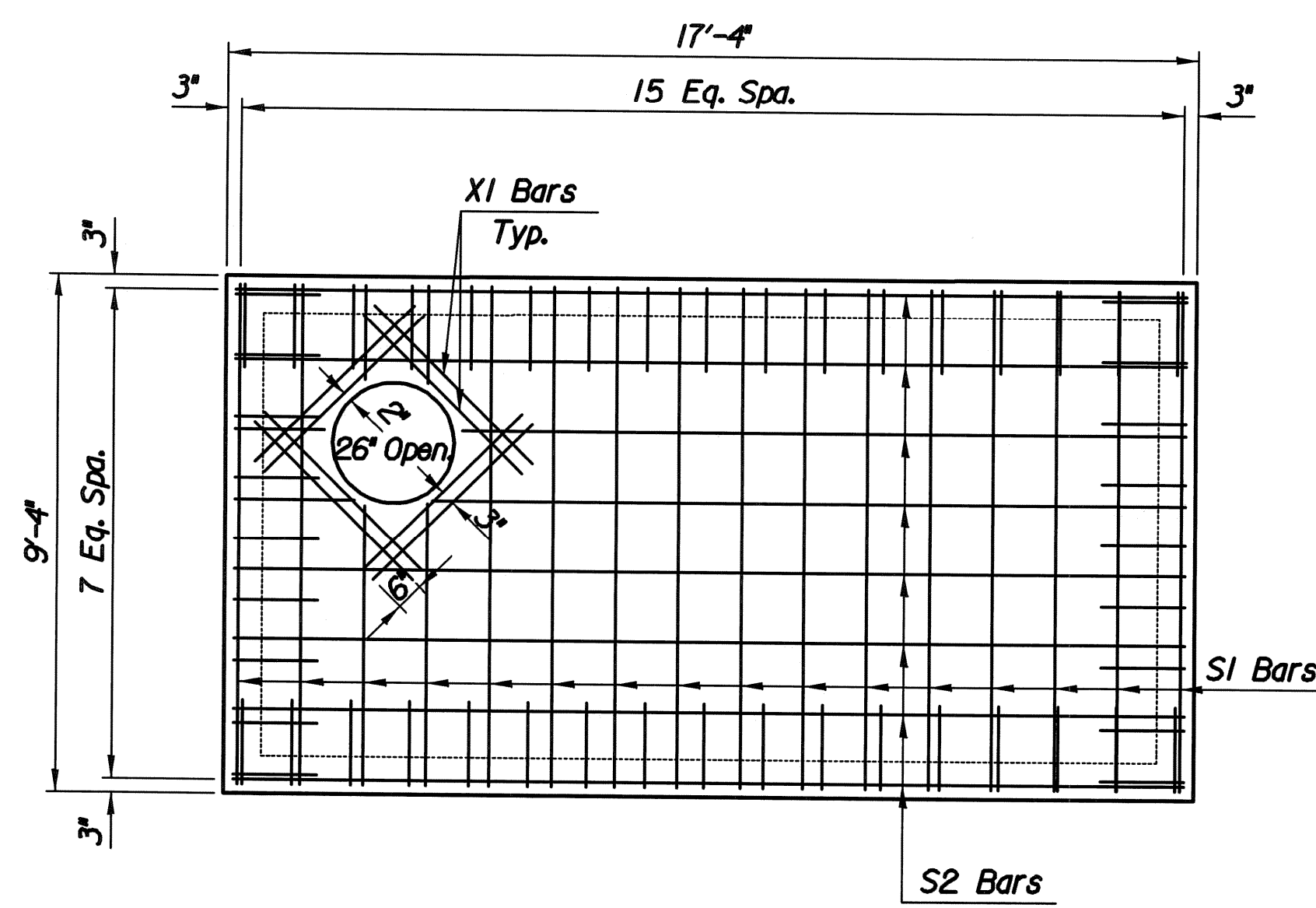
PLAN



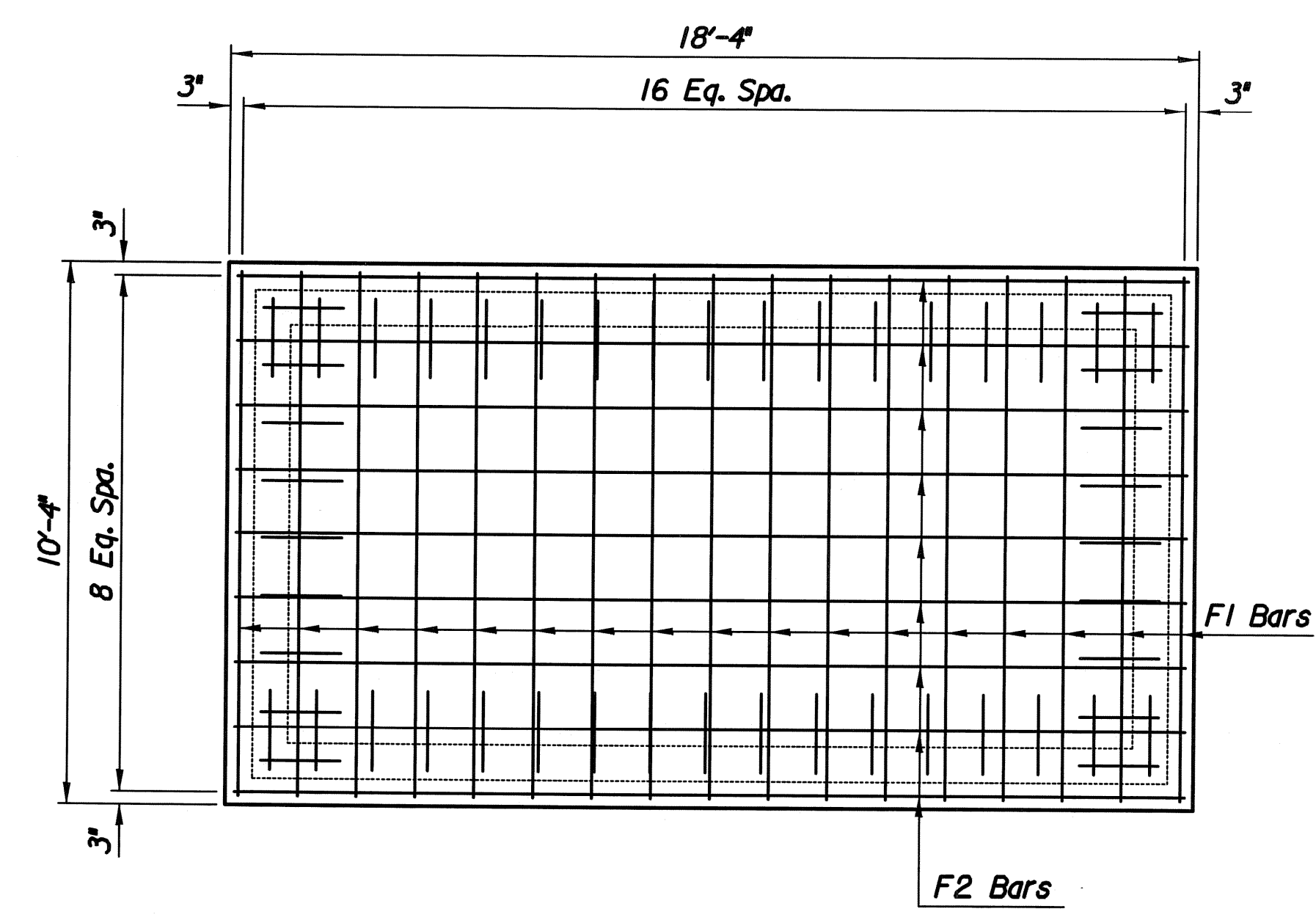
DEVELOPED VIEW OF MANHOLE
(External)

Plotted By: mlb
 Date: 7/26/2012 11:45:12 AM
 File: I:\2011\1394\005\06291\2\1394-005-Manhole.dgn

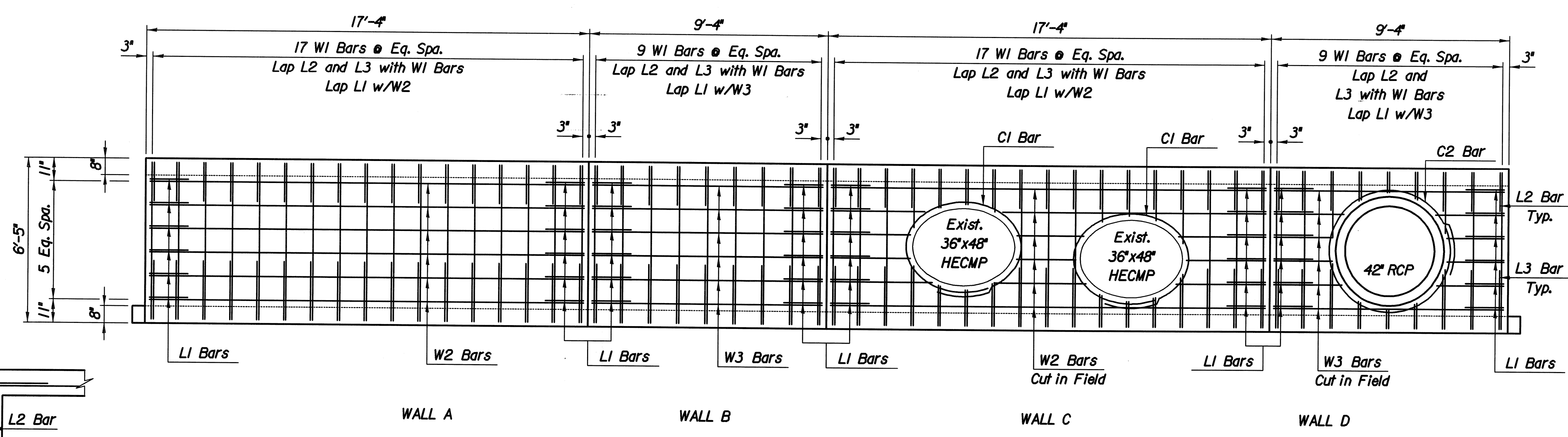
No.	Revision	By	Date
BOMBARDIER LEARJET SITE EXPANSION PRIVATE STORM WATER SEWER EXTENSION MANHOLE DETAILS JAMES L. ARMOUR, P.E. - CITY ENGINEER GARY JANZEN, P.E. - INTERIM CITY ENGINEER			
 PEC PROFESSIONAL ENGINEERING CONSULTANTS, P.A. 303 SOUTH TOPEKA WICHITA, KS 67202 316-262-2691 www.pec1.com			
Designed by	MEB, JSM	Job No.	35-11394-5-0534
Drawn by	MLB, CP	Date	JUNE 2012
			Sht. C-8.28



SLAB REINFORCEMENT



FLOOR REINFORCEMENT



DEVELOPED VIEW OF MANHOLE WALL REINFORCEMENT

BILL OF MATERIALS							
REINFORCING STEEL							
Mark	No.	Size	Length	Mark	No.	Size	Length
W1	52	#4	6'-1"	L1	24	#4	3'-0"
W2	12	#4	17'-0"	L2	52	#4	3'-0"
W3	12	#4	9'-0"	L3	52	#4	3'-9"
S1	16	#5	9'-0"	C1	2	#4	18'-8"
S2	8	#5	17'-0"	C2	1	#4	16'-11"
F1	17	#5	10'-0"				
F2	9	#5	18'-0"				
XI	8	#5	4'-0"				

PARTIAL BILL OF MATERIALS		
Item	Quantity	Unit
Concrete	15.0	C.Y.
Reinforcing Steel	1,398	Lbs.

NOTES

Concrete shall be air-entrained and have a 28-day compressive strength of 4,000 p.s.i. All exposed edges shall be finished with an edging tool.

All reinforcing steel dimensions are to the centerline of bars unless otherwise noted. All reinforcing steel shall conform to the requirements of ASTM A615, Grade 60.

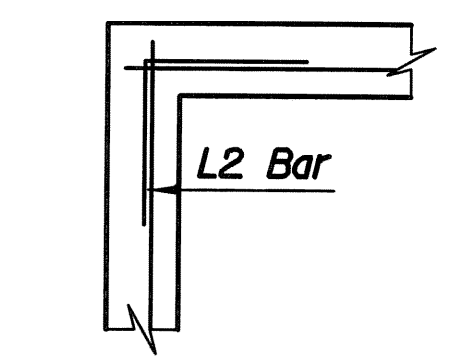
In general, pipes will enter and leave the manhole at various positions. Where possible bend bars around pipes. Field cut rebars where required.

Finish cut existing CMP at inside face of manhole.

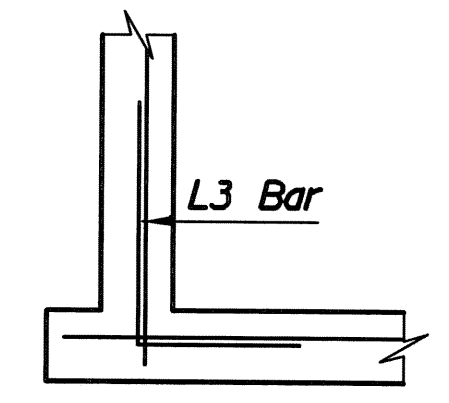
All reinforcing shall have 2" end clearance and 3" edge clearance unless noted otherwise.

Floor shaping required.

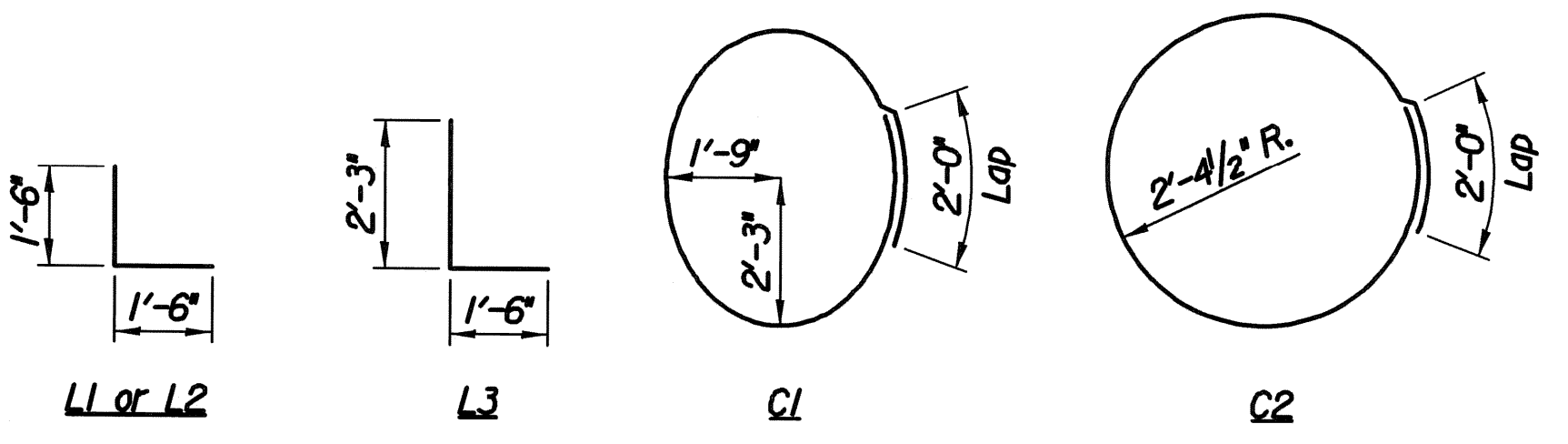
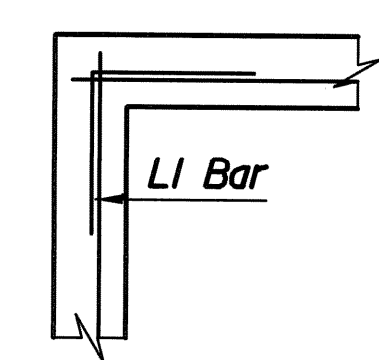
WALL TO SLAB DETAIL



WALL TO FLOOR DETAIL




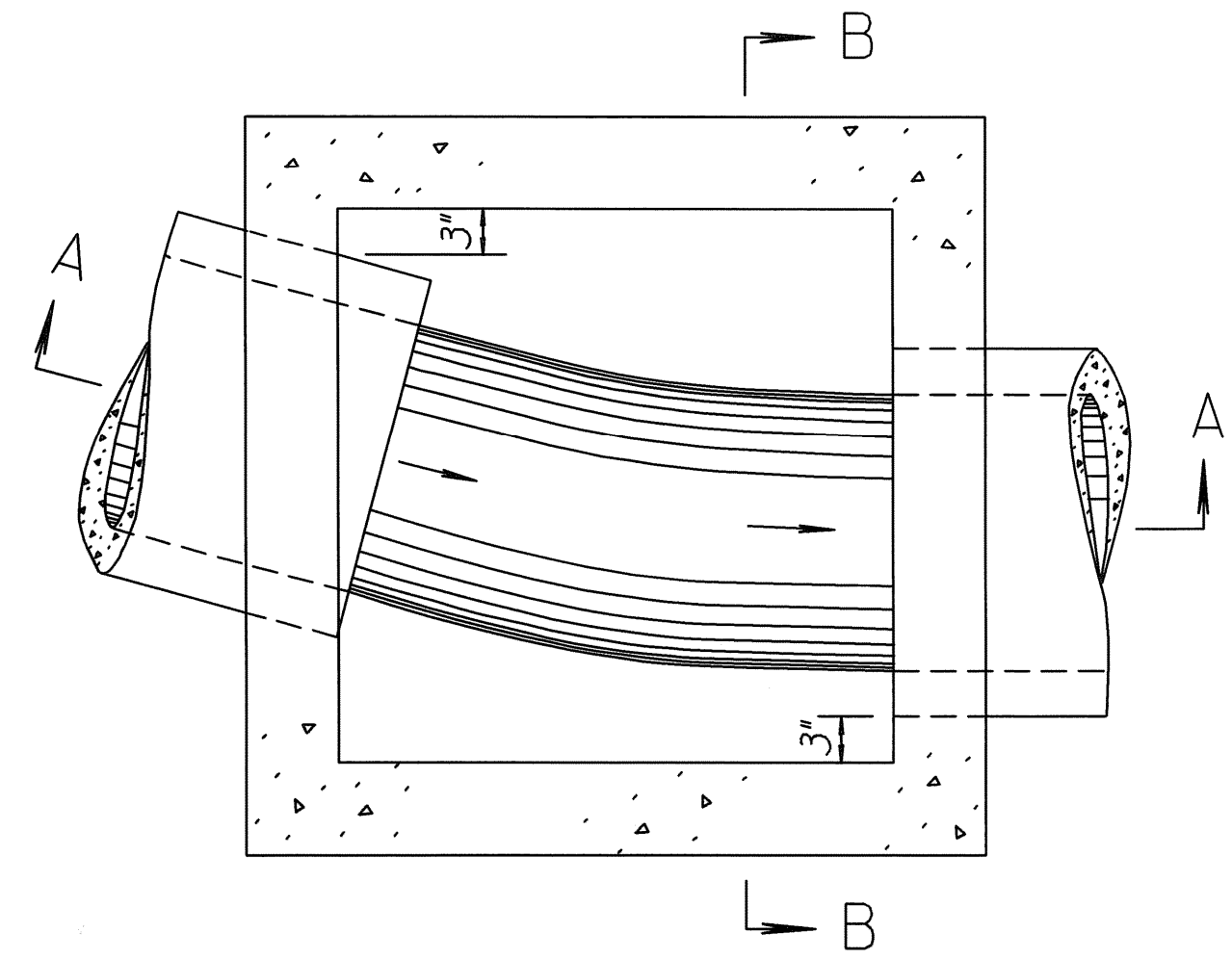
WALL CORNER DETAILS



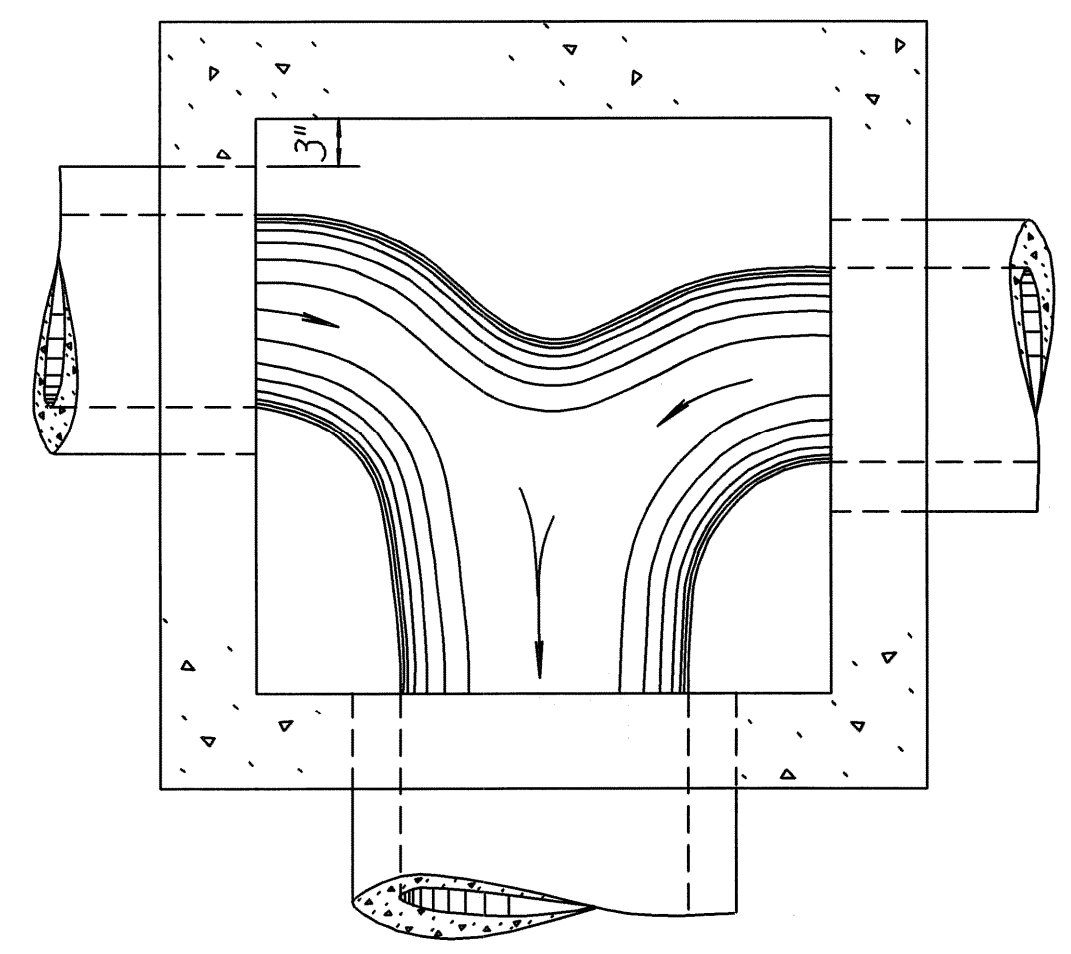
BENDING DIAGRAM

Plotted By: mlb Date: 7/26/2012 11:44:48 AM
 A:\2011\1394\005\06291\21\1394-005-Manhole Reinforcing.dgn

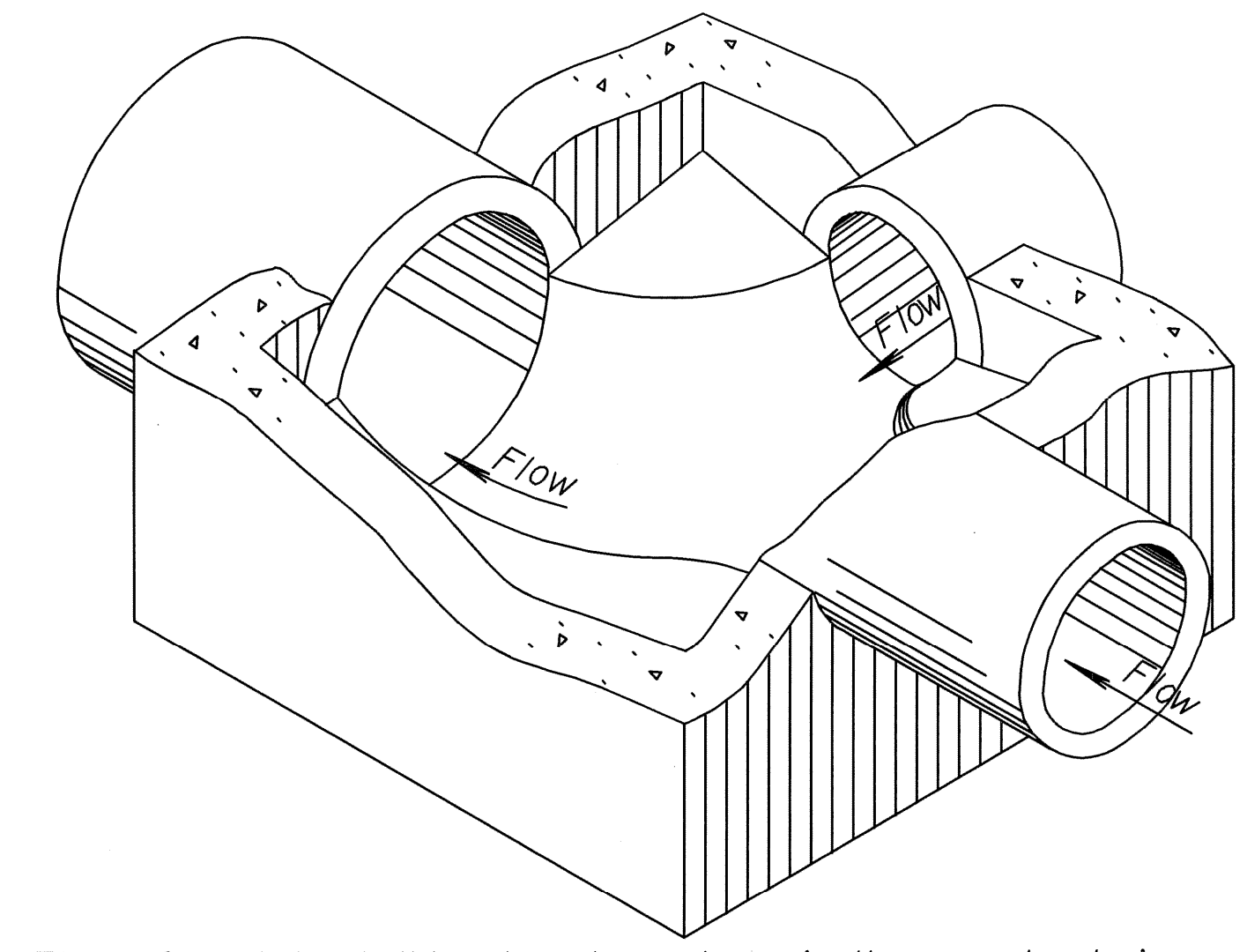
No.	Revision	By	Date
BOMBARDIER LEARJET SITE EXPANSION PRIVATE STORM WATER SEWER EXTENSION MANHOLE REINFORCING DETAILS JAMES L. ARMOUR, P.E. - CITY ENGINEER GARY JANZEN, P.E. - INTERIM CITY ENGINEER			
 PROFESSIONAL ENGINEERING CONSULTANTS, P.A. 303 SOUTH TOPEKA WICHITA, KS 67202 316-262-2691 www.pec1.com			
Designed by	MEB, JSM	Job No.	35-11394-5-0534
Drawn by	MLB, CP	Date	JUNE 2012
			Sht. C-8.29



PLAN - FLOOR (Example I)



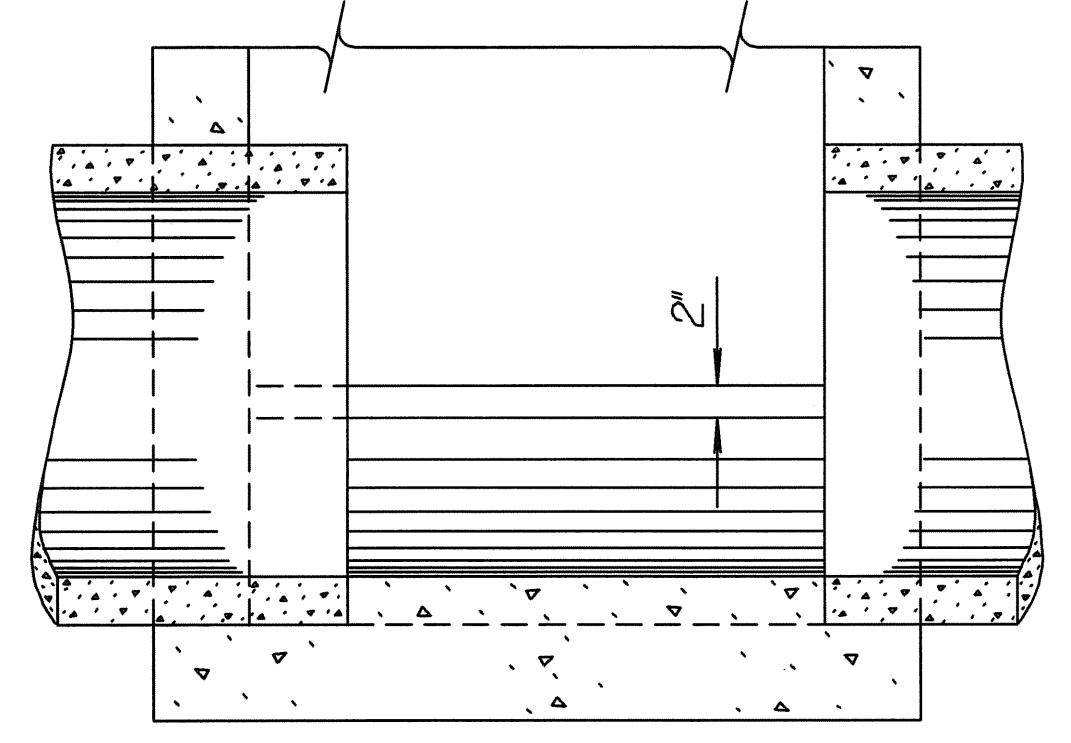
PLAN - FLOOR (Example III)



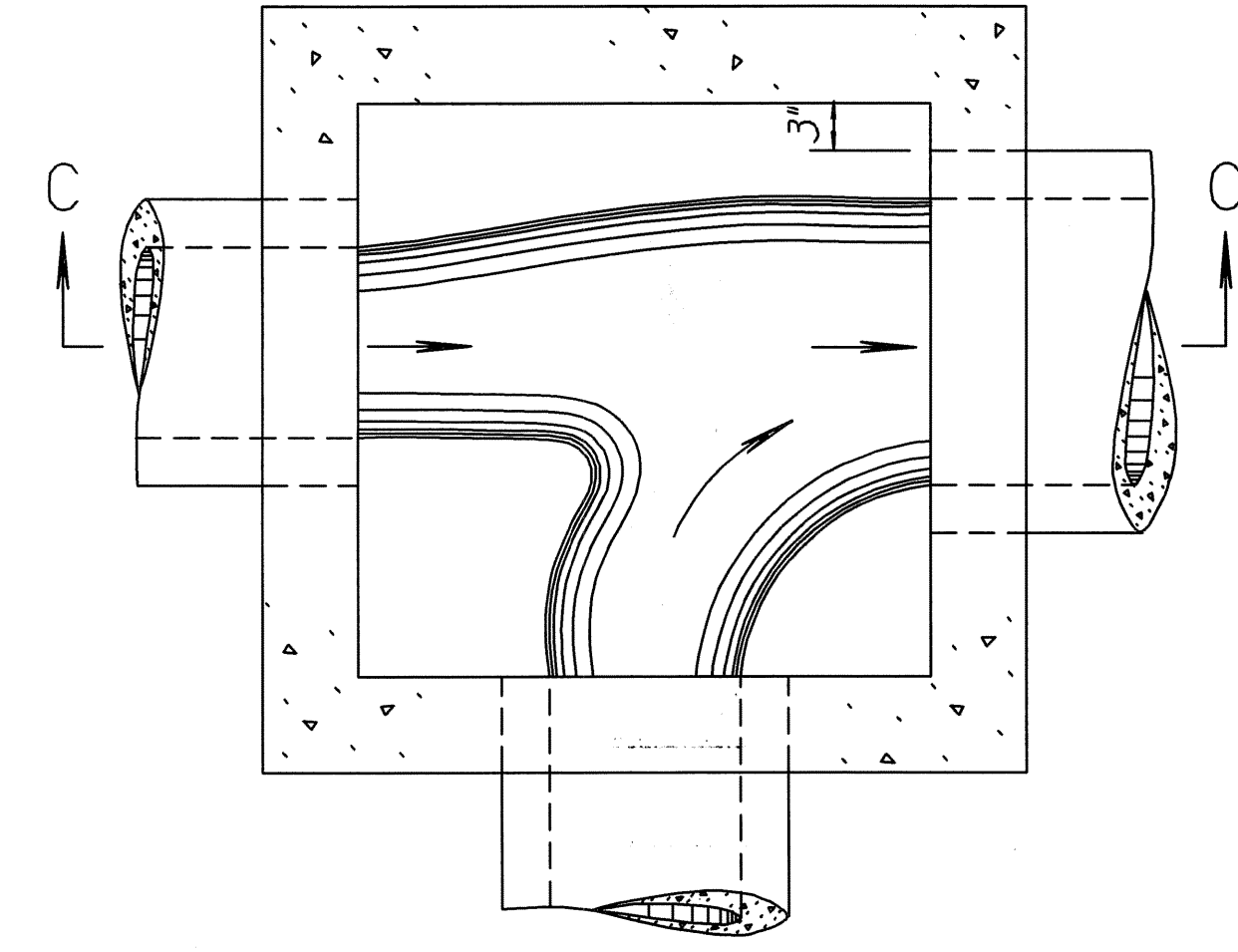
Floor of manhole shall be shaped as shown in the examples to increase hydraulic efficiency.

ISOMETRIC VIEW (Example IV)

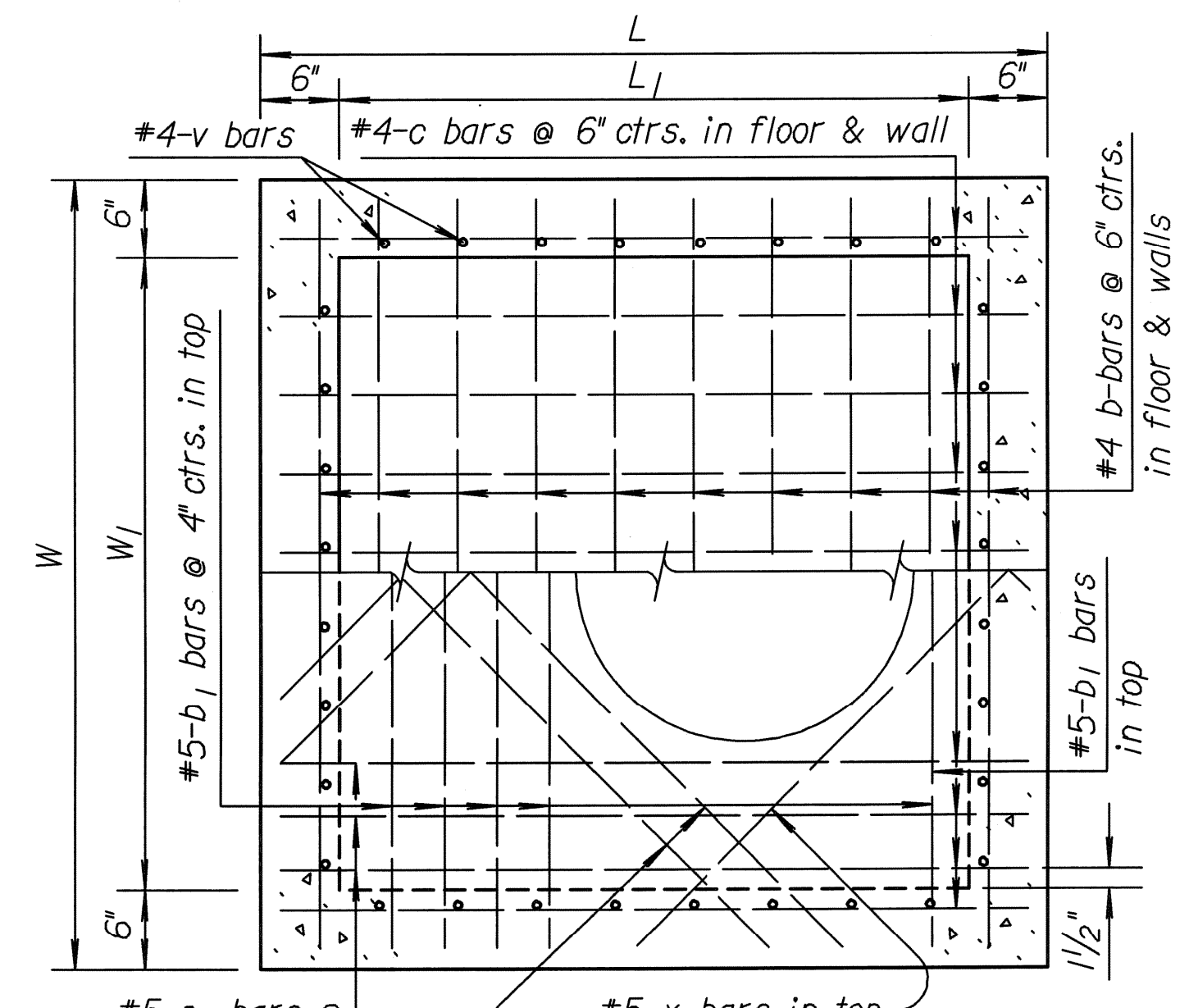
Note: Use Concrete Grade 3.0 throughout. All exposed edges shall be finished with an edging tool.
 At the contractor's option Concrete Grade 3.0 (AE) or mix used in concrete pavement may be used throughout.
 In general, pipes will enter and leave manhole at various positions. Where possible bend bars around pipes.
 Floor of manhole shall be shaped as shown in various "EXAMPLES" with unreinforced Concrete Grade 3.0.
 Manhole opening and steps, where used, shall be placed to afford easy access to top of shaped invert.
 Top reinforcing bars shall be adjusted accordingly.
 All castings shall be gray iron and shall comply with the KDOT Standard Specifications.
 No deductions in concrete quantities shall be made for pipe openings or additions to concrete quantities shall be made for shaping floor of manholes.
 The top of the manhole shall be sloped slightly to approximately fit the ground line or other condition as directed by the Engineer.
 Dimensions and weights of cast iron as shown on this sheet are minimum. Larger dimensions and/or heavier weights of cast iron may be used.
 The Contractor has the option of using precast manholes, as approved by the Engineer.
 Steps shall be installed in all manholes when specified in the plans or when "H" is equal to or greater than six feet. Steps shall comply with the requirements of the KDOT Standard Specification.



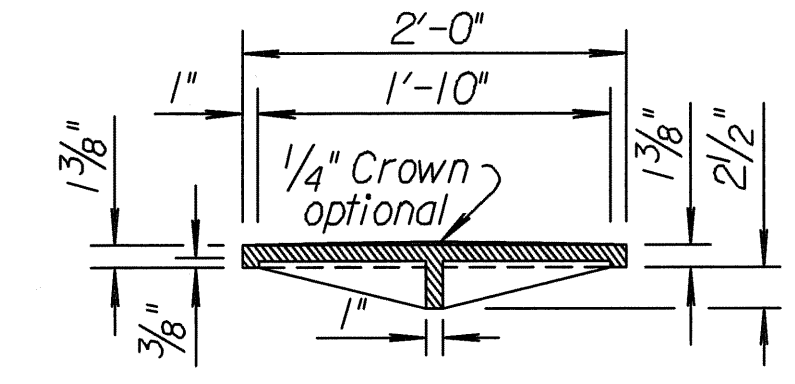
SECTION A-A (Example I)



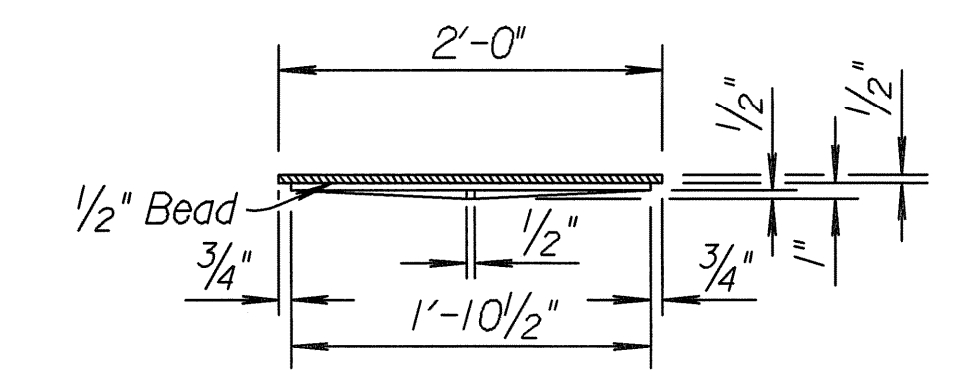
PLAN - FLOOR (Example IV)



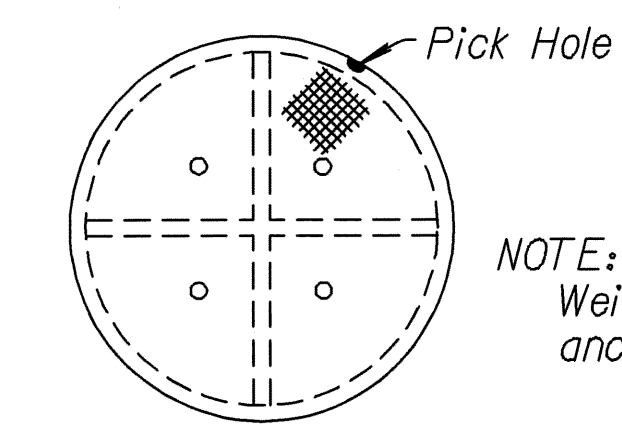
PLAN (Showing top & floor reinf.)



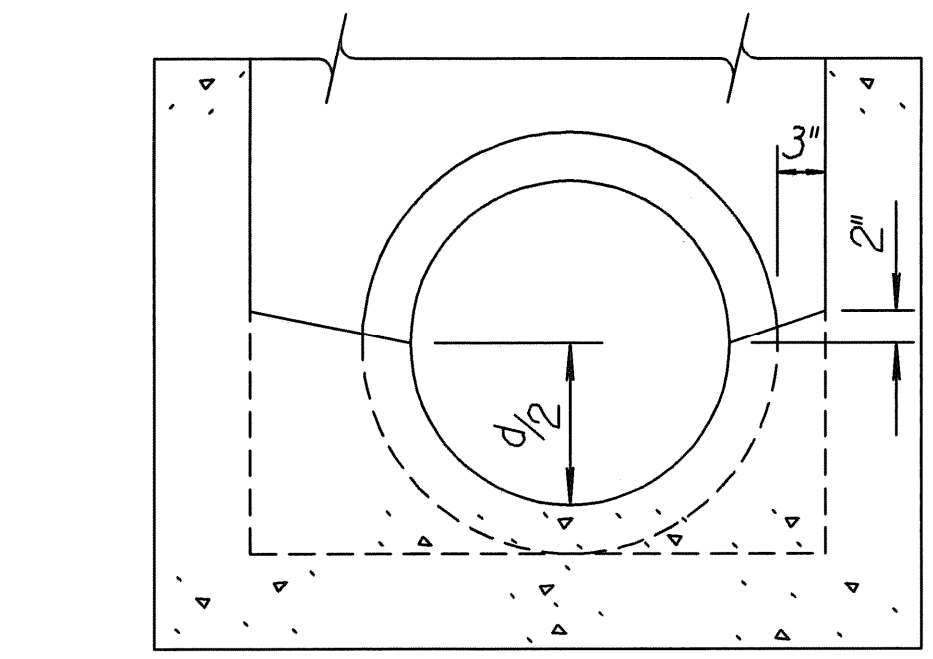
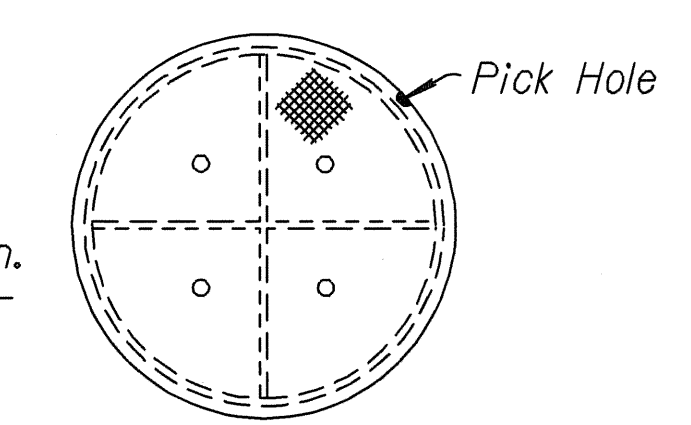
MANHOLE COVER TYPE A & B
(Weight=134 lbs.; without 1/4" Crown= 125 lbs.)



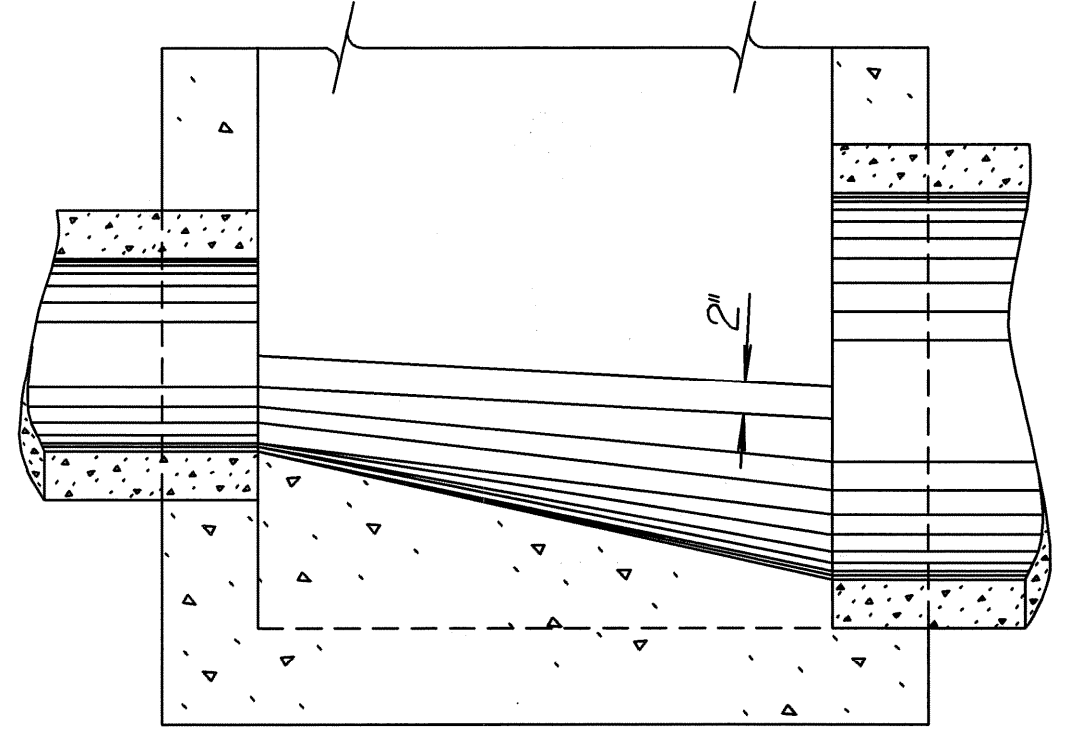
MANHOLE COVER TYPE C
(Weight= 64 lbs.)



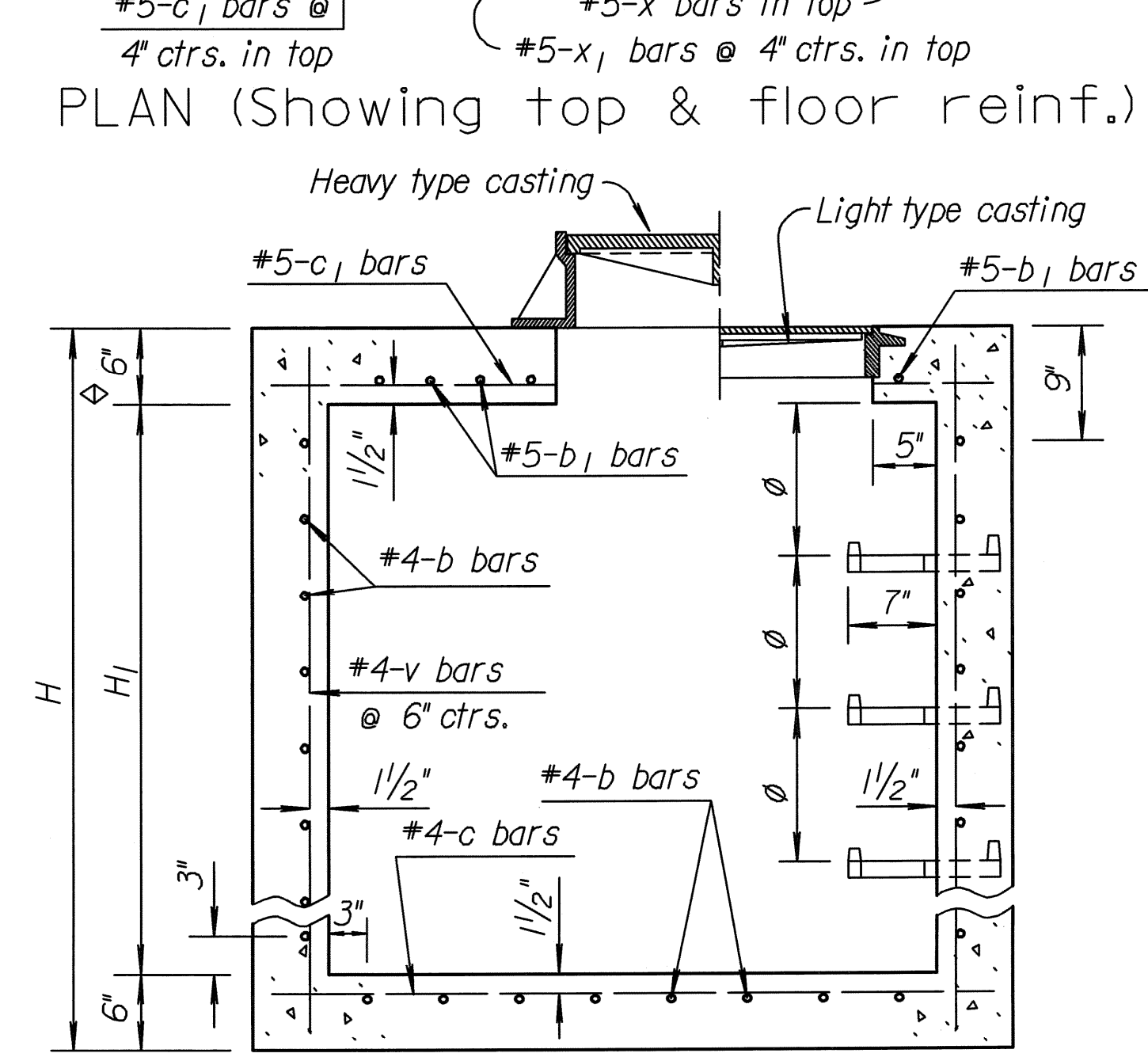
NOTE: All manhole castings are cast iron. Weight of castings includes no allowance for fillets and overruns.



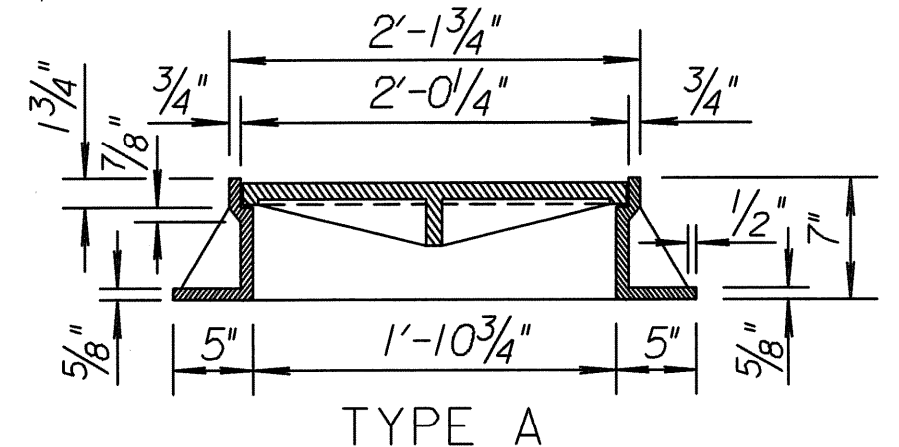
SECTION B-B (Example I)



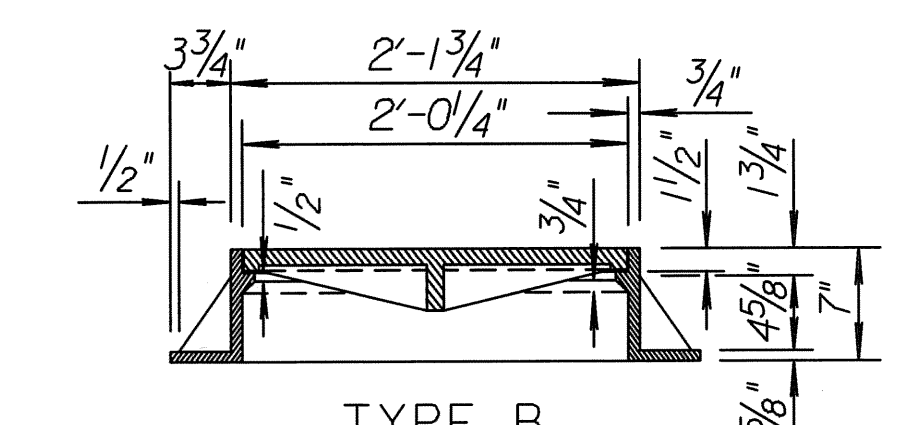
SECTION C-C (Example IV)



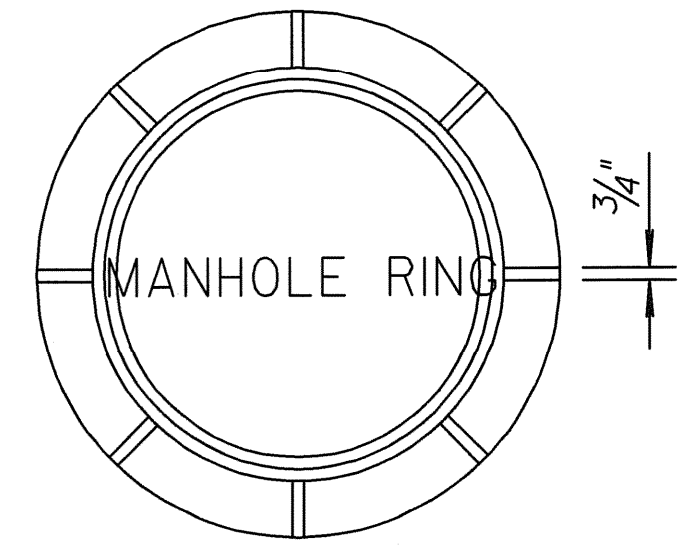
SECTION (Exclusive of floor shaping)



TYPE A

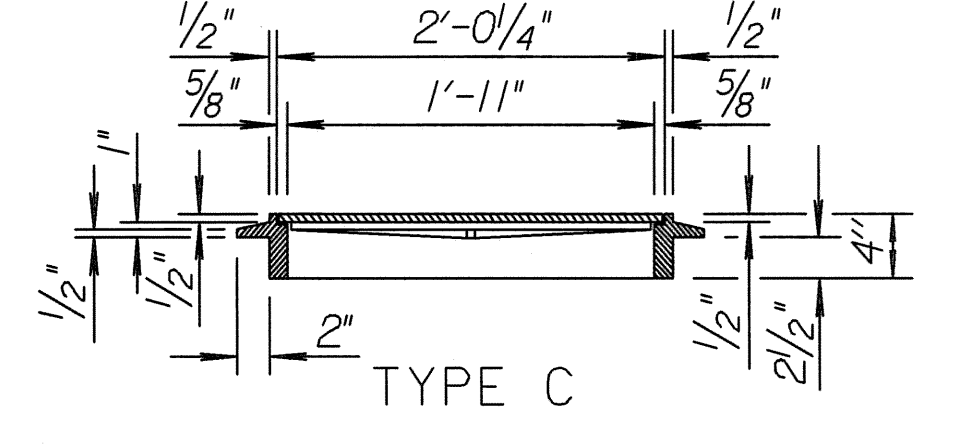


TYPE B

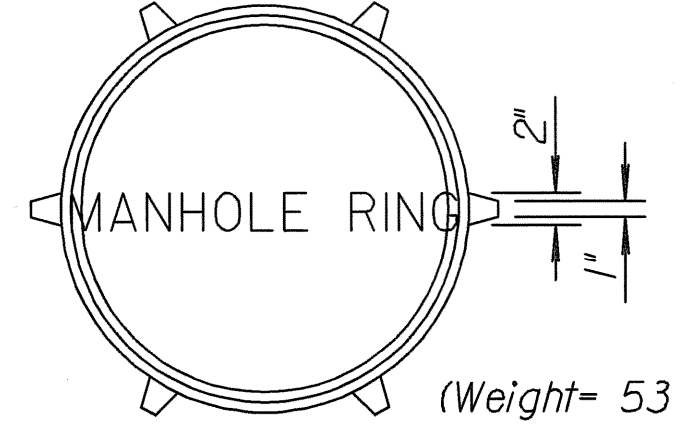


MANHOLE RING

(Type A Ring= 192 lbs., Type B Ring= 198 lbs.)
 HEAVY TYPE
 MANHOLE COVER AND RING
 Note: Either Type A or Type B may be used.



TYPE C



MANHOLE RING
(Weight= 53 lbs.)

* LIGHT TYPE
 MANHOLE COVER & RING
 *Rings with four equally spaced lugs will be permitted.

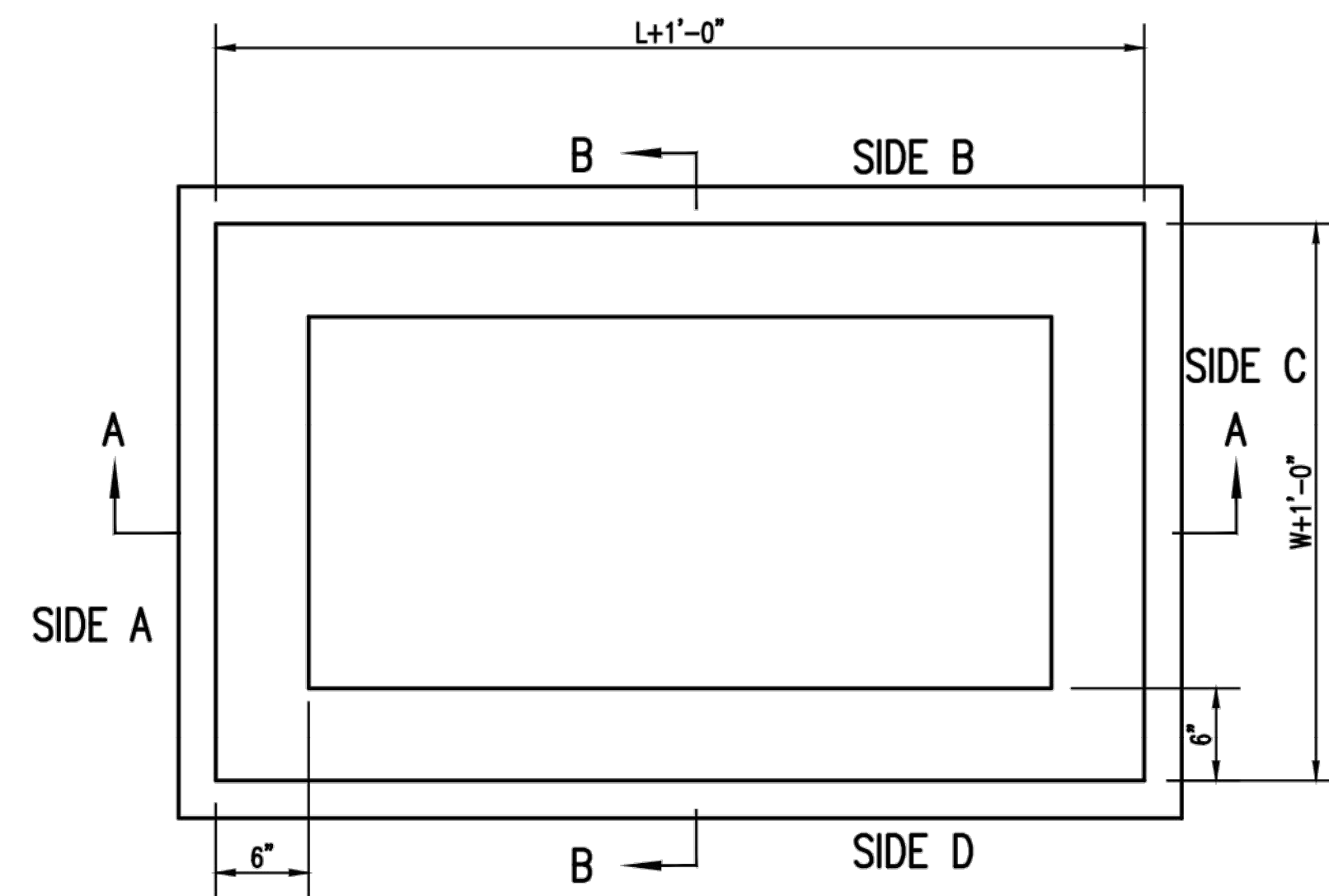
NO.	DATE	REVISIONS	BY	APP'D
31	1-28-05	Changed Class to Grade concrete	S.W.K.	J.O.B.
30	12-12-97	Revised step spacing	R.J.S.	J.O.B.
29	12-27-93	Delete paint note	R.J.S.	J.O.B.
28	1-30-92	Rev. paint & step notes, ent. on CADD	R.J.S.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

REINFORCED
 CONCRETE MANHOLE

RD633			
FHWA APPROVAL	06-10-05	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.

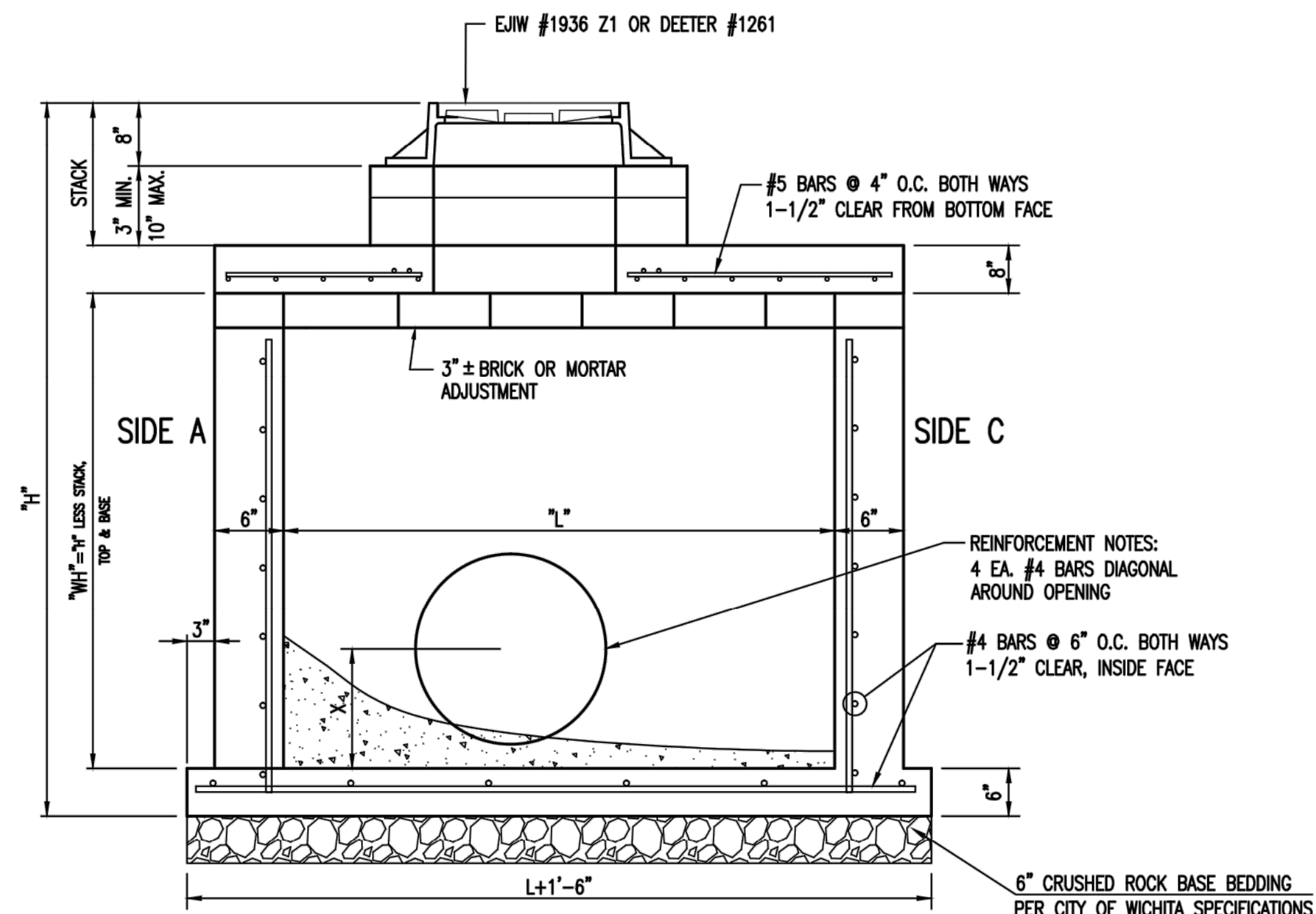
Drawn By: mlb
 File: I:\2011\11394\005\rd633.dgn
 Plotted: 7/26/2012



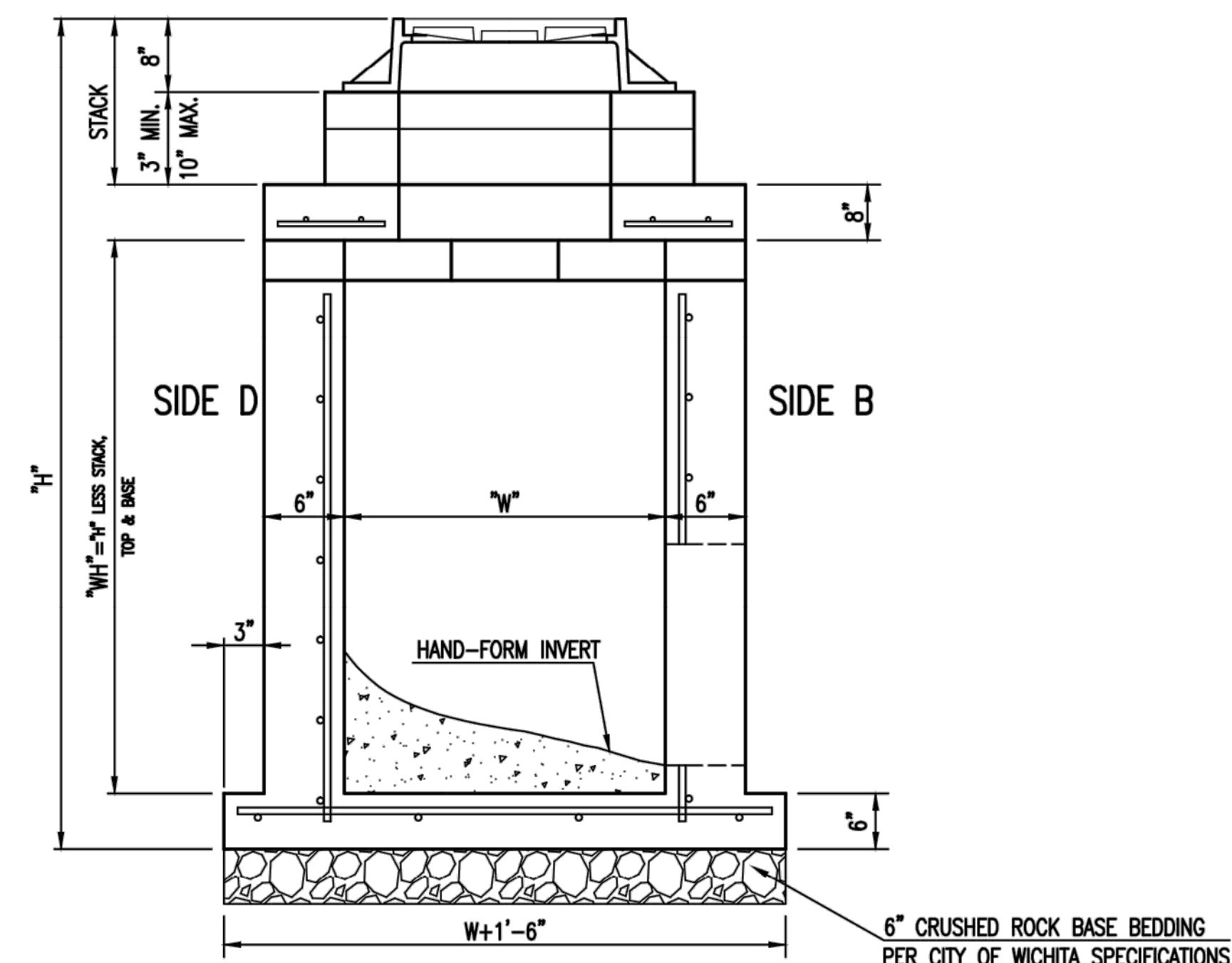
TOP VIEW

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 #1261, EJIW #1936-Z1 OR APPROVED EQUAL, SEE SW-303.
5. 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.



SECTION "A-A"



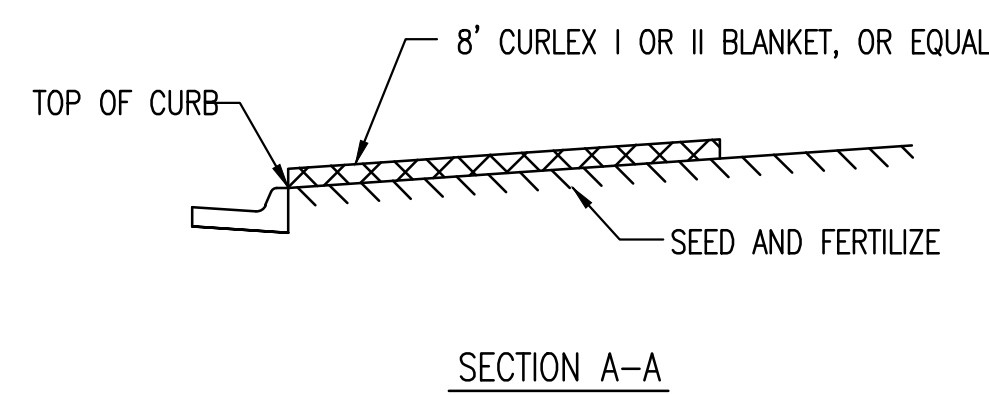
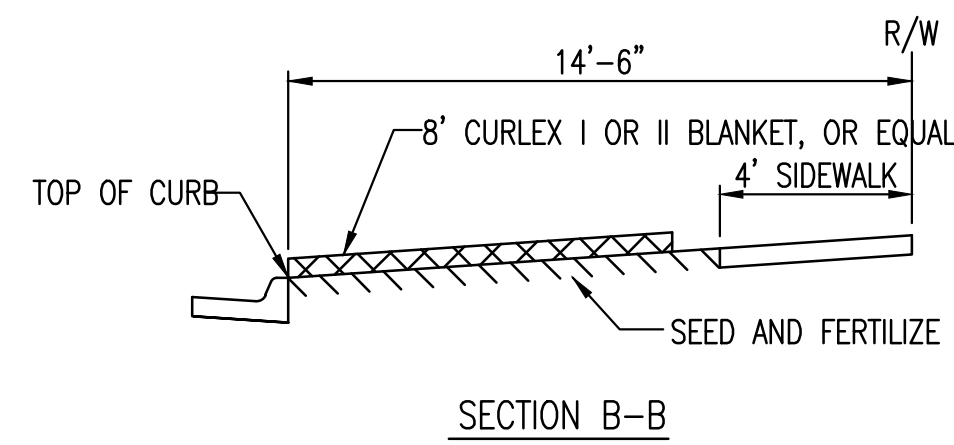
SECTION "B-B"



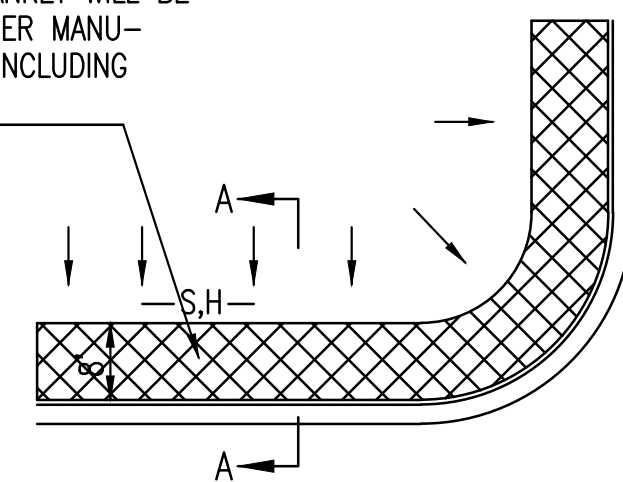
REINFORCED CONCRETE
MANHOLE
(STORM SEWER)

CITY ENGINEER
GARY JANZEN, P.E.

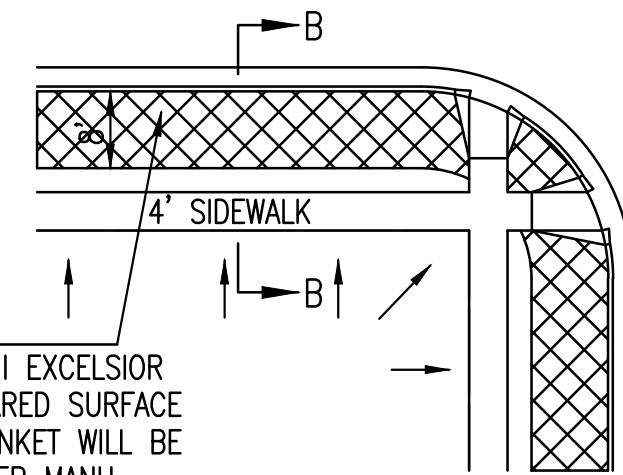
PROJECT NUMBER	OCA NUMBER	DATE
		11/2010
CITY ENGINEER'S OFFICE		DESIGN
CITY HALL - SEVENTH FLOOR		DRAWN
455 NORTH MAIN STREET		SHEET
WICHITA, KANSAS 67202-1620		_ of _
(316) 268-4501		



INSTALL 8' WIDE CURLEX I OR II EXCELSIOR BLANKET, OR EQUAL, ON PREPARED SURFACE BACK OF CURB. EDGE OF BLANKET WILL BE AT BACK OF CURB. INSTALL PER MANUFACTURERS RECOMMENDATION, INCLUDING STAPLES. (SEE DETAIL)



SOUTH STREET

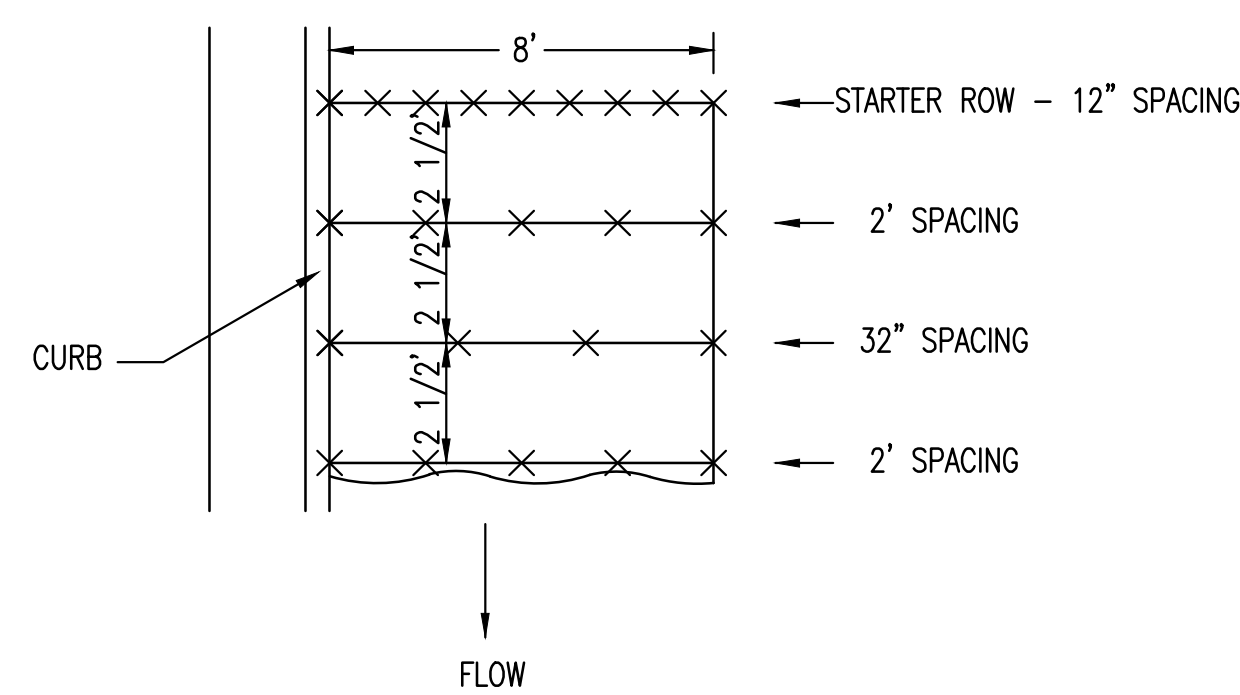


INSTALL 8' WIDE CURLEX I OR II EXCELSIOR BLANKET, OR EQUAL, ON PREPARED SURFACE BACK OF CURB. EDGE OF BLANKET WILL BE AT BACK OF CURB. INSTALL PER MANUFACTURERS RECOMMENDATION, INCLUDING STAPLES. (SEE DETAIL)

GENERAL NOTES

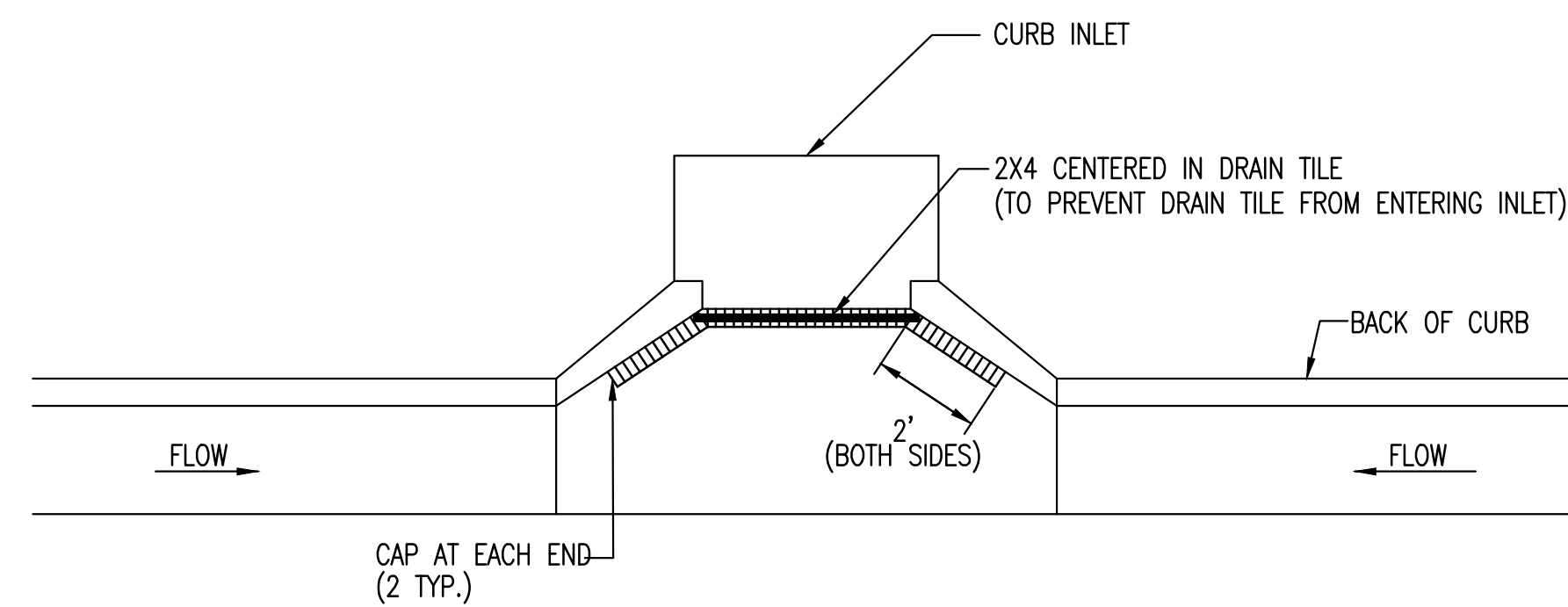
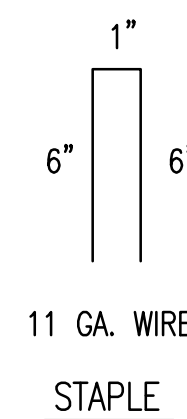
- EXCELSIOR MAT TO BE INSTALLED WHEN SOD IS NOT SPECIFIED ON PROJECT.
- EXCELSIOR BLANKET TO BE INSTALLED OVER SEED AND FERTILIZER, AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
- AFTER INSTALLATION OF EXCELSIOR BLANKET, AT LOCATIONS WHERE CONCENTRATED FLOW CARRIES SEDIMENT OVER THE CURB AND INTO THE GUTTER, SUPPLEMENTAL EROSION CONTROL DEVICES WILL BE INSTALLED BY THE CONTRACTOR AS NEEDED, TO FIX THE PROBLEM.

BACK OF CURB PROTECTION DETAIL



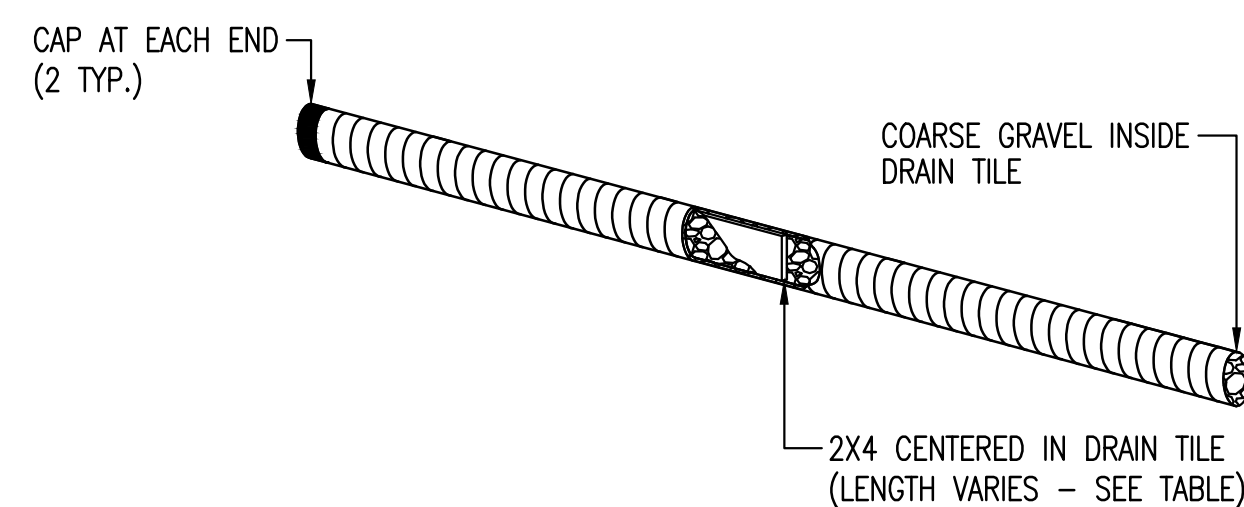
NOTES: USE 6" SEAM OVERLAP

DETAILS FOR CURLEX I OR II BLANKETS

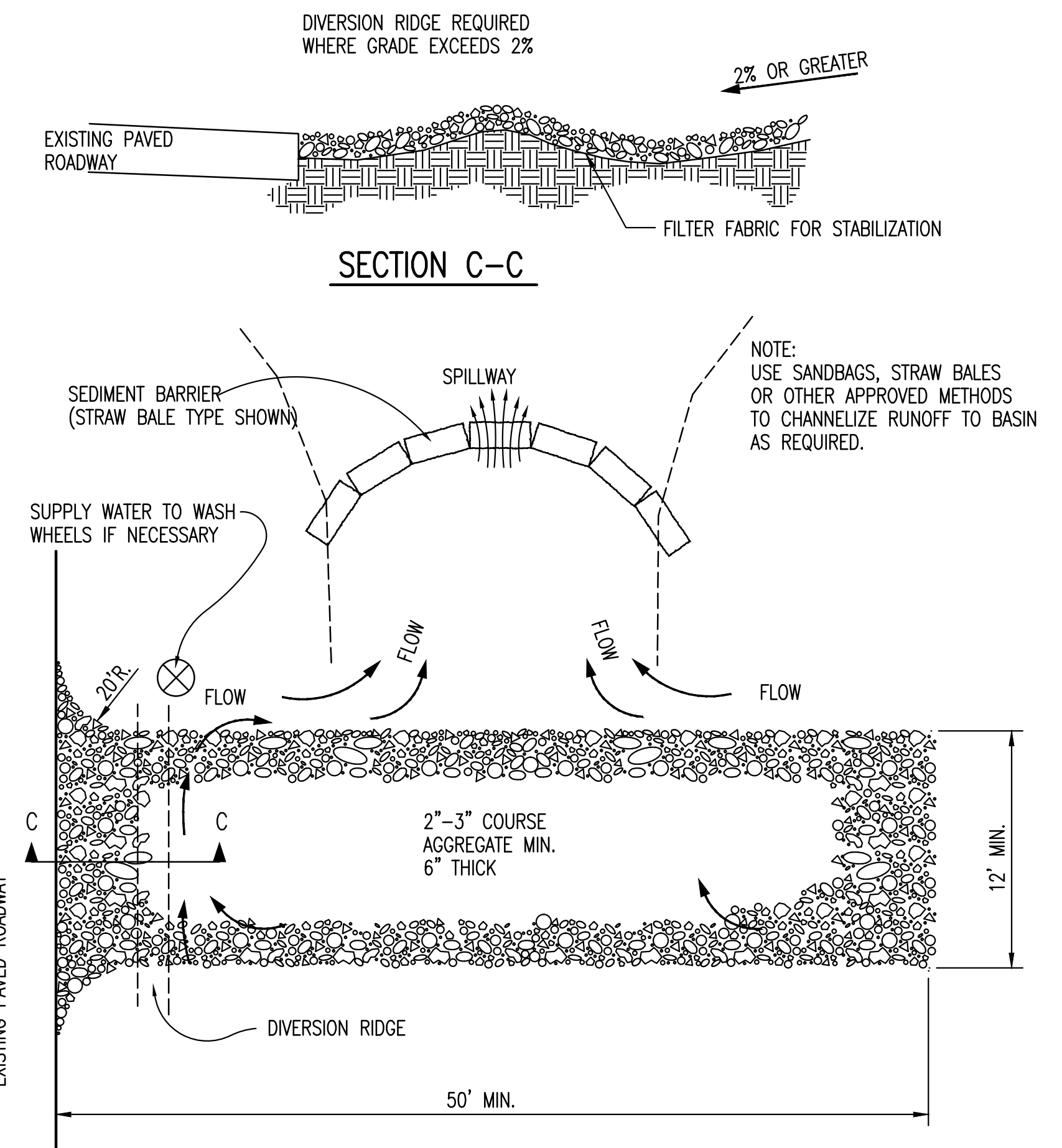


NOTE: PLACE 4" PERFORATED PVC PIPE, FILLED WITH 1/2"-1" DIA. GRAVEL, IN FRONT OF CURB INLET AS SHOWN.

2X4 LENGTH	INLET TYPE	INLET OPENING
5'-6"	1-A	5'-0"
10'-6"	1-A	10'-0"
15'-6"	1-A	15'-0"



CURB INLET PROTECTION
4" PERFORATED PIPE W/ GRAVEL



STABILIZED CONSTRUCTION ENTRANCE

GENERAL NOTES

- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
- WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
- WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN, AS SHOWN ABOVE.
- DRIVE ENTRANCES ONTO RESIDENTIAL LOTS WILL NOT BE REQUIRED TO HAVE THE SEDIMENT BARRIER SHOWN, BUT WHEEL WASHING MAY BE REQUIRED IF STABILIZED ENTRANCE IS NOT SUFFICIENT TO KEEP MUD FROM BEING TRACKED ONTO ADJACENT STREET. ENTRANCE SHALL EXTEND FROM BACK OF CURB TO DWELLING.

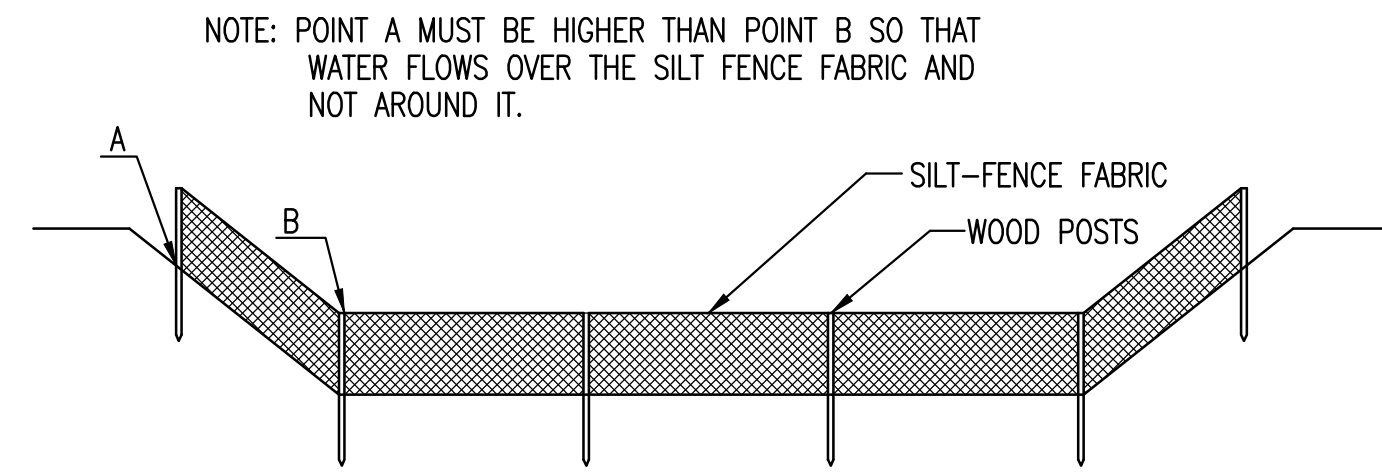


BACK OF CURB PROTECTION, CURB INLET PROTECTION AND CONSTRUCTION ENTRANCE

INTERIM CITY ENGINEER

GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
		11/2010
CITY ENGINEER'S OFFICE		DESIGN
CITY HALL - SEVENTH FLOOR		DRAWN
455 NORTH MAIN STREET		
WICHITA, KANSAS 67202-1620		
(316) 268-4501		SHEET
		C11.3 of _



SILT FENCE DITCH CHECKS
(STREAM PROTECTION)

MATERIAL SPECIFICATION:

SILT FENCE FABRIC SHOULD CONFORM TO THE AASHTO M288 96 SILT FENCE SPECIFICATION. THE POSTS USED TO SUPPORT THE SILT FENCE FABRIC SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG. SILT FENCE FABRIC SHOULD BE ATTACHED TO THE WOODEN POSTS WITH STAPLES, WIRE, ZIP TIES, OR NAILS.

PLACEMENT:

PLACE SILT FENCE IN DITCHES WHERE IT IS UNLIKELY THAT IT WILL BE OVERTOPPED. WATER SHOULD FLOW THROUGH A SILT FENCE DITCH CHECK, NOT OVER IT. SILT FENCE DITCH CHECKS OFTEN FAIL WHEN OVERTOPPED. SILT FENCE DITCH CHECKS SHOULD BE PLACED PERPENDICULAR TO THE FLOWLINE OF THE DITCH. THE SILT FENCE SHOULD EXTEND FAR ENOUGH SO THAT THE GROUND LEVEL AT THE ENDS OF THE FENCE IS HIGHER THAN THE TOP OF THE LOW POINT OF THE FENCE. THIS PREVENTS WATER FROM FLOWING AROUND THE CHECK. SILT FENCE DITCH CHECKS SHOULD NOT BE PLACED IN DITCHES WHERE HIGH FLOWS ARE EXPECTED. ROCK CHECKS SHOULD BE USED INSTEAD. SILT FENCE SHOULD BE PLACED IN DITCHES WITH SLOPES OF 6% OR LESS. FOR SLOPES STEEPER THAN 6%, ROCK CHECKS SHOULD BE USED.

THE FOLLOWING TABLE PROVIDES CHECK SPACING FOR A GIVEN DITCH GRADE:

DITCH CHECK DITCH GRADE (%)	SPACING CHECK SPACING (FEET)
0.5	200
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	30

PROPER INSTALLATION METHOD:

EXCAVATE A TRENCH PERPENDICULAR TO THE DITCH FLOWLINE THAT IS AT LEAST 12" DEEP BY 6" WIDE. EXTEND THE TRENCH IN A STRAIGHT LINE ALONG THE ENTIRE LENGTH OF THE PROPOSED DITCH CHECK. PLACE THE SOIL ON THE UPSTREAM SIDE OF THE TRENCH FOR LATER USE. ROLL OUT A CONTINUOUS LENGTH OF SILT FENCE FABRIC ON THE DOWNSTREAM SIDE OF THE TRENCH. PLACE THE EDGE OF THE FABRIC IN THE TRENCH STARTING AT THE TOP UPSLOPE EDGE OF THE TRENCH. LINE TWO SIDES OF THE TRENCH WITH THE FABRIC AS SHOWN ON DETAIL. BACKFILL OVER THE FABRIC IN THE TRENCH WITH THE EXCAVATED SOIL AND COMPACT. AFTER FILLING THE TRENCH, APPROXIMATELY 24" TO 36" OF SILT FENCE FABRIC SHOULD REMAIN EXPOSED. LAY THE EXPOSED SILT FENCE ON THE UPSLOPE SIDE OF THE TRENCH TO CLEAR AN AREA FOR DRIVING IN THE POSTS. JUST DOWNSTREAM OF THE TRENCH, DRIVE POSTS INTO THE GROUND TO A DEPTH OF AT LEAST 24". PLACE POSTS NO MORE THAN 4' APART. ATTACH THE SILT FENCE TO THE ANCHORED POST WITH STAPLES, WIRE, ZIP TIES, OR NAILS.

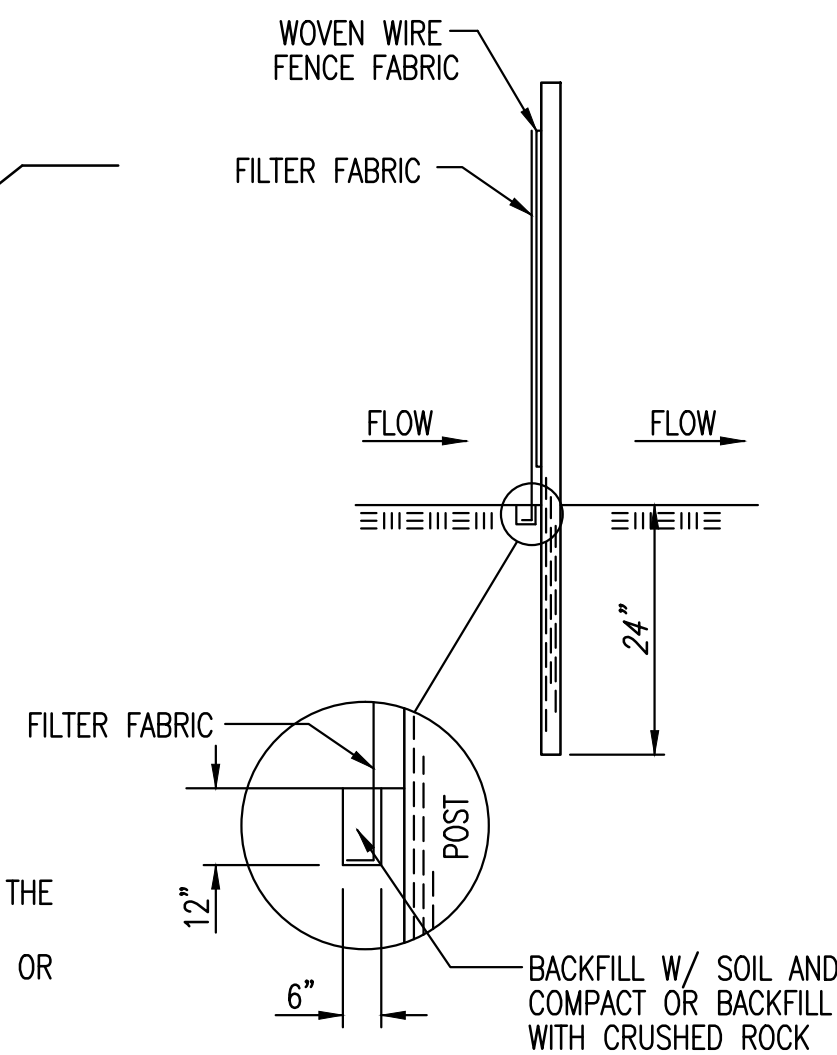
LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

WATER SHOULD FLOW THROUGH A SILT FENCE DITCH CHECK—NOT OVER IT. PLACE SILT FENCE IN DITCHES WHERE IT IS UNLIKELY THAT IT WILL BE OVERTOPPED. SILT FENCE INSTALLATIONS QUICKLY DETERIORATE WHEN WATER OVERTOPS THEM. DO NOT PLACE SILT FENCE POSTS ON THE UPSLOPE SIDE OF THE SILT FENCE FABRIC. IN THIS CONFIGURATION, THE FORCE OF THE WATER IS NOT RESTRICTED BY THE POSTS, BUT ONLY BY THE STAPLES (WIRE, ZIP TIES, NAILS, ETC.). THE SILT FENCE WILL RIP AND FAIL. DO NOT PLACE A SILT FENCE DITCH CHECK DIRECTLY IN FRONT OF A CULVERT OUTLET. IT WILL NOT STAND UP TO THE CONCENTRATED FLOW. DO NOT PLACE SILT FENCE DITCH CHECKS IN DITCHES THAT WILL LIKELY EXPERIENCE HIGH FLOWS. THEY WILL NOT STAND UP TO CONCENTRATED FLOW. FOLLOW PRESCRIBED DITCH CHECK SPACING GUIDELINES. IF SPACING GUIDELINES ARE EXCEEDED, EROSION WILL OCCUR BETWEEN THE DITCH CHECKS. DO NOT ALLOW WATER TO FLOW AROUND THE DITCH CHECK. MAKE SURE THAT THE DITCH CHECK IS LONG ENOUGH SO THAT THE GROUND LEVEL AT THE ENDS OF THE FENCE IS HIGHER THAN THE LOW POINT ON THE TOP OF THE FENCE. DO NOT PLACE SILT FENCE DITCH CHECKS IN CHANNELS WITH SHALLOW SOILS UNDERLAIN BY ROCK. IF THE CHECK IS NOT ANCHORED SUFFICIENTLY, IT WILL WASH OUT.

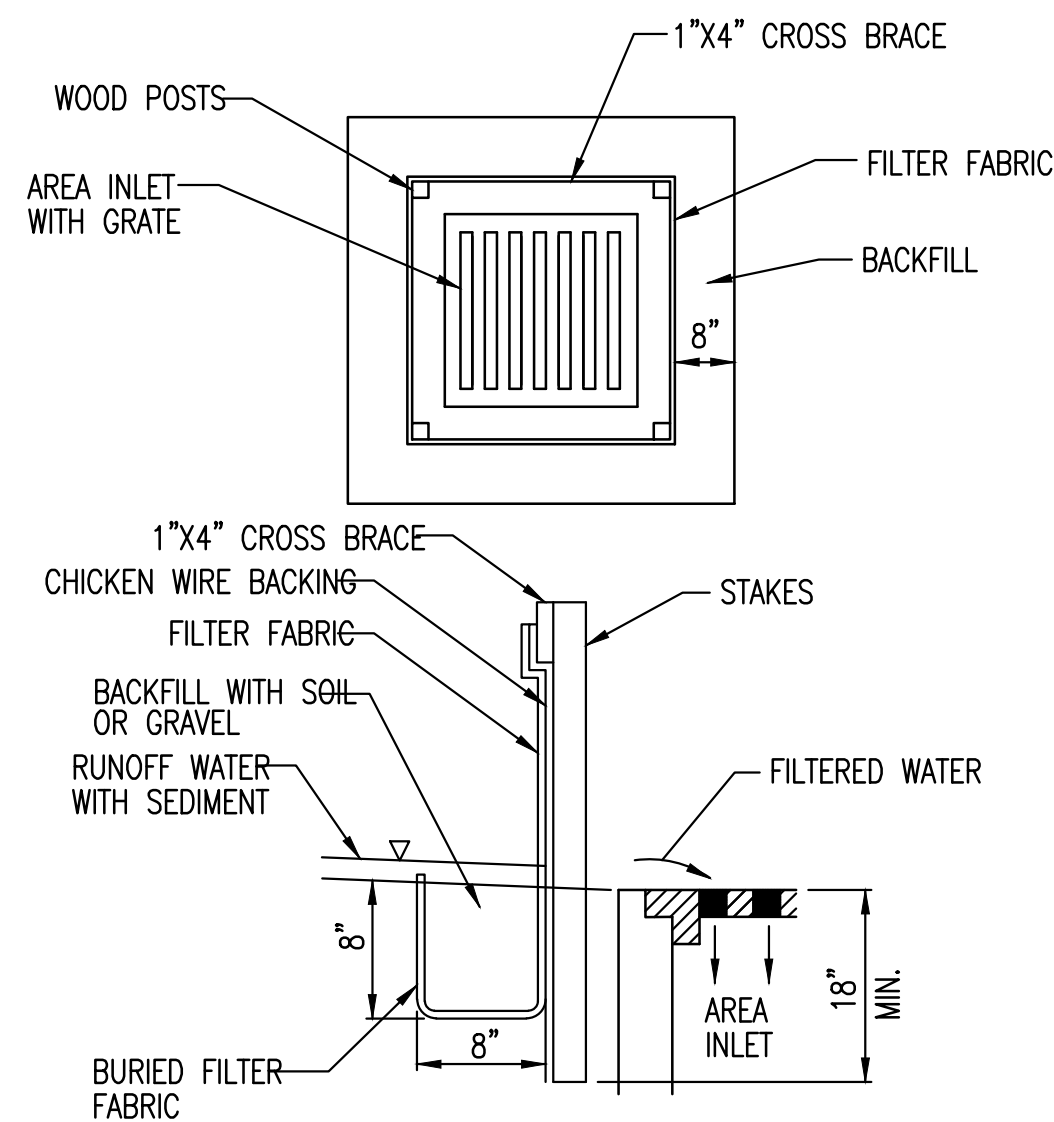
INSPECTION AND MAINTENANCE:

SILT FENCE DITCH CHECKS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:

- DOES WATER FLOW AROUND THE DITCH CHECK?
- DOES WATER FLOW UNDER THE DITCH CHECK?
- DOES THE SILT FENCE SAG EXCESSIVELY?
- HAS THE SILT FENCE TORN OR BECOME DETACHED FROM THE POSTS?
- DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE DITCH CHECK?



ANCHOR TRENCH DETAIL



SILT FENCE BARRIERS FOR AREA INLETS
(INLET PROTECTION)

MATERIAL SPECIFICATION:

SILT FENCE FABRIC SHOULD CONFORM TO THE AASHTO M288 96 SILT FENCE SPECIFICATION. THE WIRE OR POLYMERIC MESH BACKING USED TO HELP SUPPORT THE SILT FENCE FABRIC SHOULD CONFORM TO THE AASHTO M288 96 SILT FENCE SPECIFICATION. THE POSTS USED TO SUPPORT THE SILT FENCE FABRIC SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG. THE MATERIAL USED TO FRAME THE TOPS OF THE POSTS SHOULD BE 1" BY 4" BOARDS. SILT FENCE FABRIC AND SUPPORT BACKING SHOULD BE ATTACHED TO THE WOODEN POSTS AND FRAME WITH STAPLES, WIRE, ZIP TIES, OR NAILS.

PLACEMENT:

PLACE A SILT FENCE DROP INLET BARRIER IN A LOCATION WHERE IT IS UNLIKELY TO BE OVERTOPPED. WATER SHOULD FLOW THROUGH SILT FENCE, NOT OVER IT. SILT FENCE BARRIERS FOR AREA INLETS OFTEN FAIL WHEN REPEATEDLY OVERTOPPED. WHEN USED AS A BARRIER FOR AREA INLETS, SILT FENCE FABRIC AND POSTS MUST BE SUPPORTED AT THE TOP BY A WOODEN FRAME. WHEN A SILT FENCE BARRIER FOR AREA INLETS IS LOCATED NEAR AN INLET THAT HAS STEEP APPROACH SLOPES, THE STORAGE CAPACITY BEHIND THE BARRIER IS DRASTICALLY REDUCED. TIMELY REMOVAL OF SEDIMENT MUST OCCUR FOR A BARRIER TO OPERATE PROPERLY IN THIS LOCATION.

PROPER INSTALLATION METHOD:

EXCAVATE A TRENCH AROUND THE PERIMETER OF THE AREA INLET THAT IS AT LEAST 8" DEEP BY 8" WIDE. DRIVE POSTS TO A DEPTH OF AT LEAST 18" AROUND THE PERIMETER OF THE AREA INLET. THE DISTANCE BETWEEN POSTS SHOULD BE 4' OR LESS. IF THE DISTANCE BETWEEN TWO ADJACENT CORNER POSTS IS MORE THAN 4', ADD ANOTHER POST(S) BETWEEN THEM. CONNECT THE TOPS OF ALL THE POSTS WITH A WOODEN FRAME MADE OF 1" BY 4" BOARDS. USE NAILS OR SCREWS FOR FASTENING. ATTACH THE WIRE OR POLYMERIC-MESH BACKING TO THE OUTSIDE OF THE POST/FRAME STRUCTURE WITH STAPLES, WIRE, ZIP TIES, OR NAILS. ROLL OUT A CONTINUOUS LENGTH OF SILT FENCE FABRIC LONG ENOUGH TO WRAP AROUND THE PERIMETER OF THE AREA INLET. ADD MORE LENGTH FOR OVERLAPPING THE FABRIC JOINT. PLACE THE EDGE OF THE FABRIC IN THE TRENCH, STARTING AT THE OUTSIDE EDGE OF THE TRENCH. LINE ALL THREE SIDES OF THE TRENCH WITH THE FABRIC. BACKFILL OVER THE FABRIC IN THE TRENCH WITH THE EXCAVATED SOIL AND COMPACT. AFTER FILLING THE TRENCH, APPROXIMATELY 24" TO 36" OF SILT FENCE FABRIC SHOULD REMAIN EXPOSED. ATTACH THE SILT FENCE TO THE OUTSIDE OF THE POST/FRAME STRUCTURE WITH STAPLES, WIRE, ZIP TIES, OR NAILS. THE JOINT SHOULD BE OVERLAPPED TO THE NEXT POST.

NOTE: WHEN A SILT FENCE BARRIER FOR AREA INLET IS PLACED IN A SHALLOW MEDIAN DITCH, MAKE SURE THAT THE TOP OF THE BARRIER IS NOT HIGHER THAN THE PAVED ROAD. IN THIS CONFIGURATION, WATER MAY SPREAD ONTO THE ROADWAY CAUSING A HAZARDOUS CONDITION.

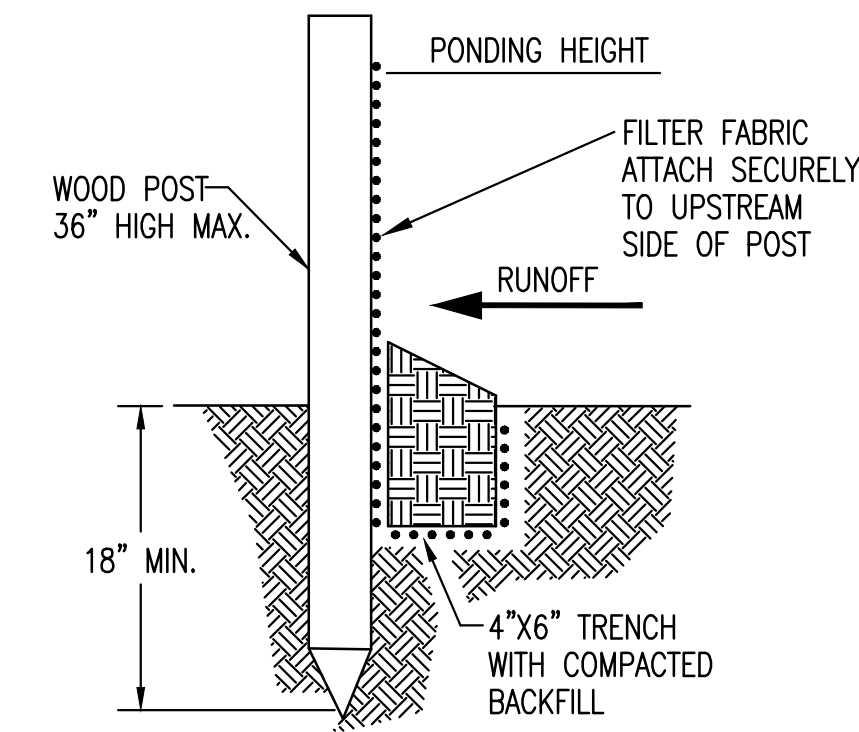
LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

WATER SHOULD FLOW THROUGH A SILT FENCE BARRIER FOR AREA INLET—NOT OVER IT. PLACE A SILT FENCE BARRIER FOR AREA INLET IN A LOCATION WHERE IT IS UNLIKELY TO BE OVERTOPPED. SILT FENCE BARRIER FOR AREA INLETS OFTEN FAIL WHEN REPEATEDLY OVERTOPPED. DO NOT PLACE POSTS ON THE OUTSIDE OF THE SILT FENCE BARRIER FOR AREA INLET. IN THIS CONFIGURATION, THE FORCE OF THE WATER IS NOT RESISTED BY THE POSTS, BUT ONLY BY THE STAPLES (WIRE, ZIP TIES, NAILS, ETC.). THE SILT FENCE WILL RIP AND FAIL. DO NOT INSTALL SILT FENCE BARRIER FOR AREA INLETS WITHOUT FRAMING THE TOP OF THE POSTS. THE CORNER POSTS AROUND AREA INLETS ARE STRESSED IN TWO DIRECTIONS WHEREAS A NORMAL SILT FENCE IS ONLY STRESSED IN ONE DIRECTION. THIS ADDED STRESS REQUIRES MORE SUPPORT.

INSPECTION AND MAINTENANCE:

SILT FENCE BARRIER FOR AREA INLETS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:

- DOES WATER FLOW UNDER THE SILT FENCE?
- DOES THE SILT FENCE SAG EXCESSIVELY?
- HAS THE SILT FENCE TORN OR BECOME DETACHED FROM THE POSTS?
- DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE AREA INLET BARRIER?



SILT FENCE BARRIERS

MATERIAL SPECIFICATION:

SILT FENCE FABRIC SHOULD CONFORM TO THE AASHTO M288 96 SILT FENCE SPECIFICATION. THE POSTS USED TO SUPPORT THE SILT FENCE FABRIC SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG. SILT FENCE FABRIC SHOULD BE ATTACHED TO THE WOODEN POSTS WITH STAPLES, WIRE, ZIP TIES, OR NAILS.

PLACEMENT:

A SLOPE BARRIER SHOULD BE USED AT THE TOE OF A SLOPE WHEN A DITCH DOES NOT EXIST. THE SLOPE BARRIER SHOULD BE PLACED ON NEARLY LEVEL GROUND 5' TO 10' AWAY FROM THE TOE OF A SLOPE. THE BARRIER IS PLACED AWAY FROM THE TOE OF THE SLOPE TO PROVIDE ADEQUATE STORAGE FOR SETTLING OUT SEDIMENT. WHEN PRACTICABLE, SILT FENCE SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW. SILT FENCE SLOPE BARRIERS CAN ALSO BE PLACED ALONG RIGHT-OF-WAY FENCE LINES TO KEEP SEDIMENT FROM CROSSING ONTO ADJACENT PROPERTY. WHEN PLACED IN THIS MANNER, THE SLOPE BARRIER WILL NOT LIKELY FOLLOW CONTOURS.

PROPER INSTALLATION METHOD:

EXCAVATE A TRENCH THE LENGTH OF THE PLANNED SLOPE BARRIER THAT IS 6" DEEP BY 4" WIDE. MAKE SURE THAT THE TRENCH IS EXCAVATED ALONG A SINGLE CONTOUR. WHEN PRACTICABLE, SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW. PLACE THE SOIL ON THE UPSLOPE SIDE OF THE TRENCH FOR LATER USE. ROLL OUT A CONTINUOUS LENGTH OF SILT FENCE FABRIC ON THE DOWNSLOPE SIDE OF THE TRENCH. PLACE THE EDGE OF THE FABRIC IN THE TRENCH STARTING AT THE TOP UPSLOPE EDGE. LINE ALL THREE SIDES OF THE TRENCH WITH THE FABRIC. BACKFILL OVER THE FABRIC IN THE TRENCH WITH THE EXCAVATED SOIL AND COMPACT. AFTER FILLING THE TRENCH, APPROXIMATELY 24" TO 36" OF SILT-FENCE FABRIC SHOULD REMAIN EXPOSED. LAY THE EXPOSED SILT FENCE UPSLOPE OF THE TRENCH TO CLEAR AN AREA FOR DRIVING IN THE POSTS. JUST DOWNSLOPE OF THE TRENCH, DRIVE POSTS INTO THE GROUND TO A DEPTH OF AT LEAST 18". PLACE POSTS NO MORE THAN 4' APART. ATTACH THE SILT FENCE TO THE ANCHORED POST WITH STAPLES, WIRE, ZIP TIES, OR NAILS.


LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

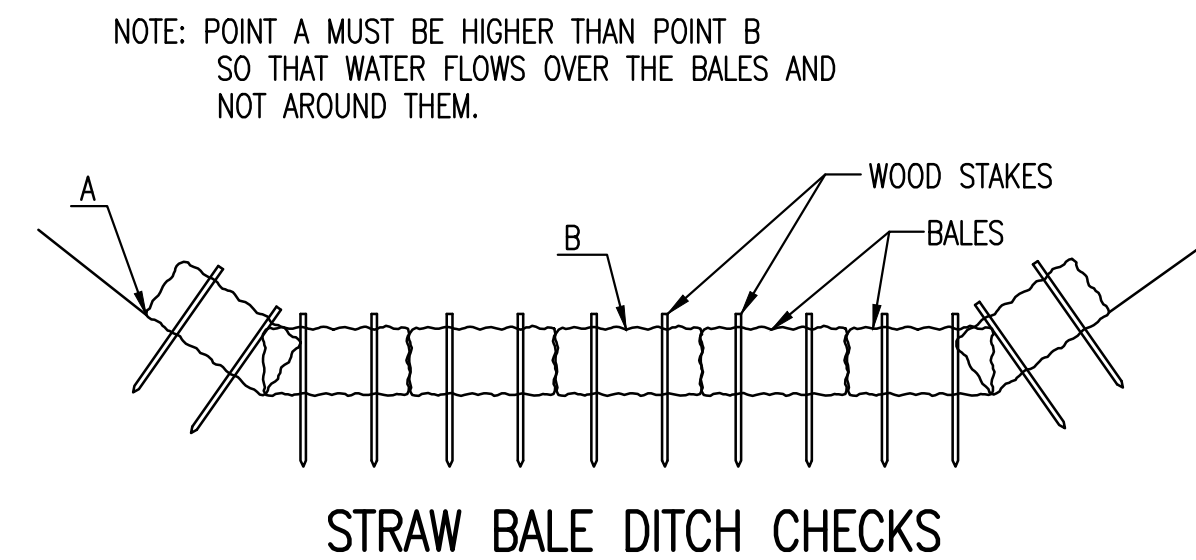
WHEN PRACTICABLE, DO NOT PLACE SILT FENCE SLOPE BARRIERS ACROSS CONTOURS. SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW. WHEN THE FLOW CONCENTRATES, IT OVERTOPS THE BARRIER AND THE SILT FENCE SLOPE BARRIER QUICKLY DETERIORATES. DO NOT PLACE SILT-FENCE POSTS ON THE UPSLOPE SIDE OF THE SILT FENCE FABRIC. IN THIS CONFIGURATION, THE FORCE OF THE WATER IS NOT RESTRICTED BY THE POSTS, BUT ONLY BY THE STAPLES (WIRE, ZIP TIES, NAILS, ETC.). THE SILT FENCE WILL RIP AND FAIL. DO NOT PLACE SILT FENCE SLOPE BARRIERS IN AREAS WITH SHALLOW SOILS UNDERLAIN BY ROCK. IF THE BARRIER IS NOT SUFFICIENTLY ANCHORED, IT WILL WASH OUT. SILT FENCE SLOPE BARRIERS MUST BE DUG INTO THE GROUND—SILT FENCE AT GROUND LEVEL DOES NOT WORK BECAUSE WATER WILL FLOW UNDERNEATH.

INSPECTION AND MAINTENANCE:

SILT FENCE SLOPE BARRIERS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:

- ARE THERE ANY POINTS ALONG THE SLOPE BARRIER WHERE WATER IS CONCENTRATING?
- DOES WATER FLOW UNDER THE SLOPE BARRIER?
- DO THE SILT FENCES SAG EXCESSIVELY?
- HAS THE SILT FENCE TORN OR BECOME DETACHED FROM THE POSTS?
- DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE SLOPE BARRIER?

 <p>CITY OF WICHITA PUBLIC WORKS & UTILITIES ENGINEERING DIVISION</p>	SILT FENCE DITCH CHECK AND BARRIER DETAILS		
	INTERIM CITY ENGINEER GARY JANZEN, P.E.		
	PROJECT NUMBER — — — —	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 C-11.4 of _



MATERIAL SPECIFICATION:

BALE DITCH CHECKS MAY BE CONSTRUCTED OF WHEAT STRAW, OAT STRAW, PRAIRIE HAY, OR BROMEGRASS HAY THAT IS FREE OF WEEDS DECLARED NOXIOUS BY THE KANSAS STATE BOARD OF AGRICULTURE. THE STAKES USED TO ANCHOR THE BALES SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG. OPTIONAL: THE DOWNSTREAM SCOUR APRON SHOULD BE CONSTRUCTED OF A DOUBLE-NETTED STRAW EROSION-CONTROL BLANKET AT LEAST 6" WIDE. OPTIONAL: THE METAL LANDSCAPE STAPLES USED TO ANCHOR THE EROSION-CONTROL BLANKET SHOULD BE AT LEAST 8" LONG.

PLACEMENT:

BALE DITCH CHECKS SHOULD BE PLACED PERPENDICULAR TO THE FLOWLINE OF THE DITCH. THE DITCH CHECK SHOULD EXTEND FAR ENOUGH SO THAT THE GROUND LEVEL AT THE ENDS OF THE CHECK IS HIGHER THAN THE TOP OF THE LOWEST CENTER BALE. THIS PREVENTS WATER FROM FLOWING AROUND THE CHECK. STRAW BALE DITCH CHECKS SHOULD NOT BE PLACED IN DITCHES WHERE HIGH FLOWS ARE EXPECTED. ROCK CHECKS SHOULD BE USED INSTEAD. BALES SHOULD BE PLACED IN DITCHES WITH SLOPES OF 6% OR LESS. FOR SLOPES STEEPER THAN 6%, ROCK CHECKS SHOULD BE USED. THE FOLLOWING TABLE PROVIDES CHECK SPACING FOR A GIVEN DITCH GRADE:

DITCH GRADE (%)	CHECK SPACING (FEET)
0.5	200
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	30

PROPER INSTALLATION METHOD:

EXCAVATE A TRENCH PERPENDICULAR TO THE DITCH FLOWLINE THAT IS 4" DEEP AND A BALE'S WIDTH WIDE. EXTEND THE TRENCH IN A STRAIGHT LINE ALONG THE ENTIRE LENGTH OF THE PROPOSED DITCH CHECK. PLACE THE SOIL ON THE UPSTREAM SIDE OF THE TRENCH-IT WILL BE USED LATER. OPTIONAL: ON THE DOWNSTREAM SIDE OF THE TRENCH, ROLL OUT A LENGTH OF EROSION-CONTROL BLANKET (SCOUR APRON) EQUAL TO THE LENGTH OF THE TRENCH. PLACE THE UPSTREAM EDGE OF THE EROSION-CONTROL BLANKET ALONG THE BOTTOM UPSTREAM EDGE OF THE TRENCH. THE EROSION CONTROL BLANKET SHOULD BE ANCHORED IN THE TRENCH WITH ONE ROW OF 8" LANDSCAPE STAPLES PLACED ON 18" CENTERS. THE REMAINDER OF THE EROSION-CONTROL BLANKET (THE PORTION THAT IS NOT LYING IN THE TRENCH) WILL SERVE AS THE DOWNSTREAM SCOUR APRON. THIS SECTION OF THE BLANKET SHOULD BE ANCHORED TO THE GROUND WITH 8" LANDSCAPE STAPLES PLACED AROUND THE PERIMETER OF THE BLANKET ON 18" CENTERS. THE REMAINDER OF THE BLANKET SHOULD BE ANCHORED USING TWO EVENLY SPACED ROWS OF 8" LANDSCAPE STAPLES ON 18" CENTERS PLACED PERPENDICULAR TO THE FLOWLINE OF THE DITCH. PLACE THE BALES IN THE TRENCH, MAKING SURE THAT THEY ARE BUTTED TIGHTLY. TWO STAKES SHOULD BE DRIVEN THROUGH EACH BALE ALONG THE CENTERLINE OF THE DITCH CHECK, APPROXIMATELY 6" TO 8" IN FROM THE BALE ENDS. STAKES SHOULD BE DRIVEN AT LEAST 12" INTO THE GROUND. ONCE ALL THE BALES HAVE BEEN INSTALLED AND ANCHORED, PLACE THE EXCAVATED SOIL AGAINST THE UPSTREAM SIDE OF THE CHECK AND COMPACT IT. THE COMPACTED SOIL SHOULD BE NO MORE THAN 3" TO 4" DEEP AND EXTEND UPSTREAM NO MORE THAN 24".

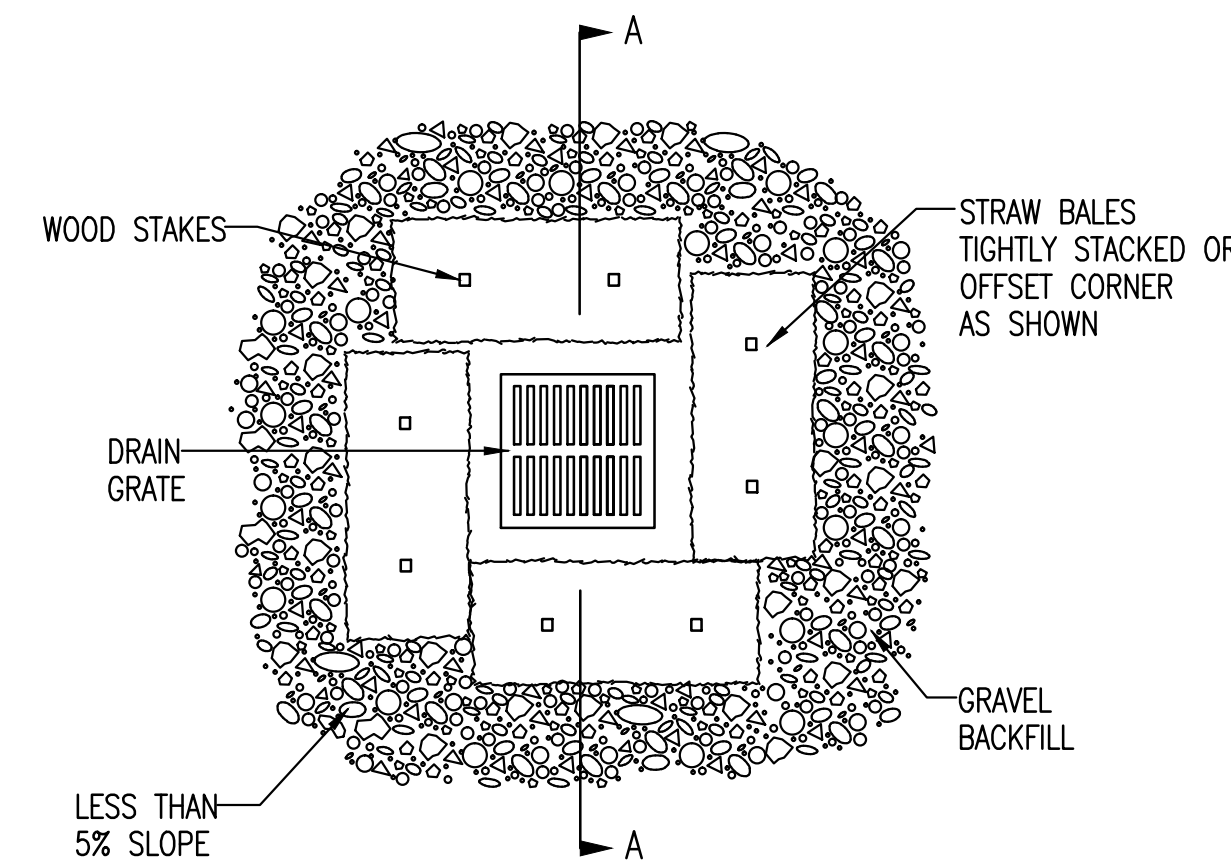
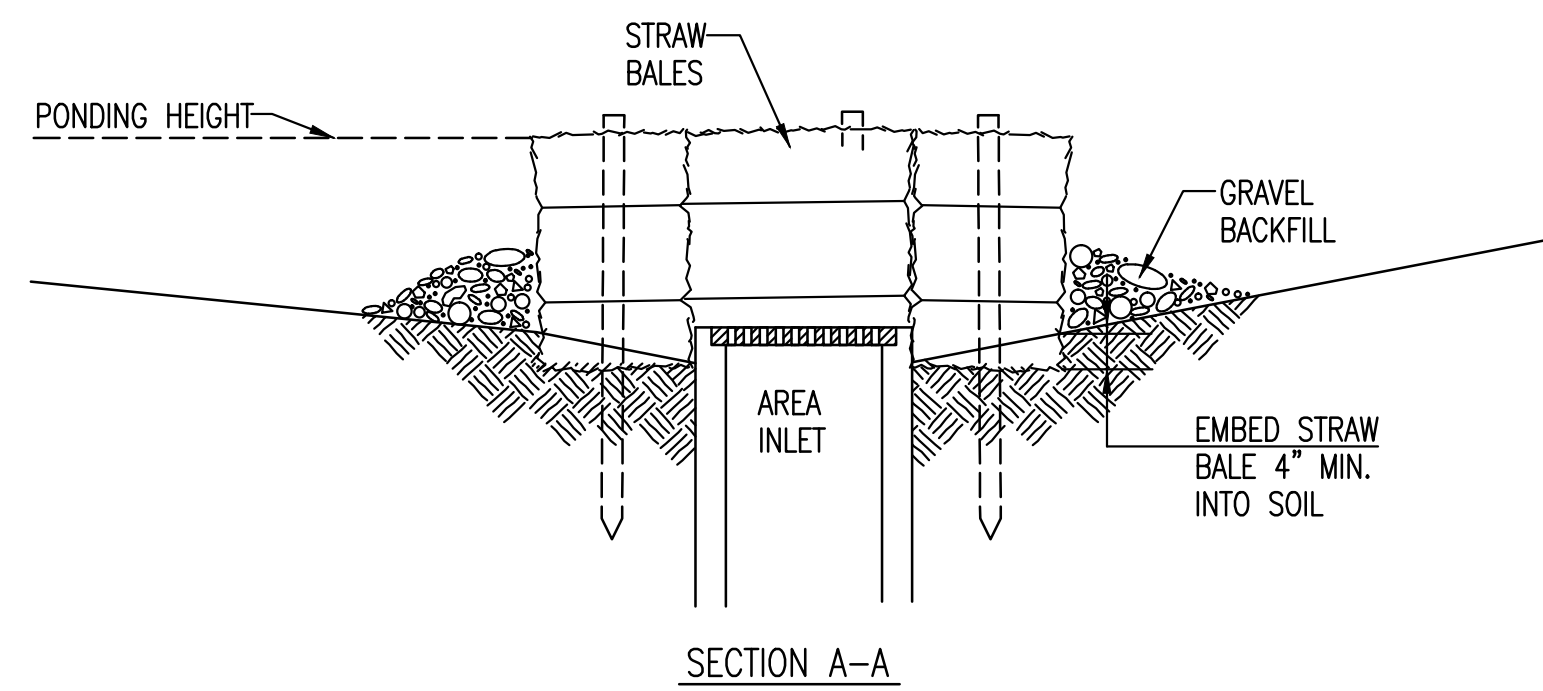
LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

DO NOT PLACE A BALE DITCH CHECK DIRECTLY IN FRONT OF A CULVERT OUTLET. IT WILL NOT STAND UP TO THE CONCENTRATED FLOW. DO NOT PLACE BALE DITCH CHECKS IN DITCHES THAT WILL LIKELY EXPERIENCE HIGH FLOWS. THEY WILL NOT STAND UP TO CONCENTRATED FLOW. FOLLOW PRESCRIBED DITCH-CHECK SPACING GUIDELINES. IF SPACING GUIDELINES ARE EXCEEDED, EROSION WILL OCCUR BETWEEN THE DITCH CHECKS. DO NOT ALLOW WATER TO FLOW AROUND THE DITCH CHECK. MAKE SURE THAT THE DITCH CHECK IS LONG ENOUGH SO THAT THE GROUND LEVEL AT THE ENDS OF THE CHECK IS HIGHER THAN THE TOP OF THE LOWEST CENTER BALE. DO NOT PLACE BALE DITCH CHECKS IN CHANNELS WITH SHALLOW SOILS UNDERLAIN BY ROCK. IF THE CHECK IS NOT ANCHORED SUFFICIENTLY, IT WILL WASH OUT. BALE DITCH CHECKS MUST BE DUG INTO THE GROUND. BALES AT GROUND LEVEL DO NOT WORK BECAUSE THEY ALLOW WATER TO FLOW UNDER THE CHECK.

INSPECTION AND MAINTENANCE:

BALE DITCH CHECKS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:

- DOES WATER FLOW AROUND THE DITCH CHECK?
- DOES WATER FLOW UNDER THE DITCH CHECK?
- DOES WATER FLOW THROUGH SPACES BETWEEN ABUTTING BALES?
- ARE ANY BALES AND/OR SCOUR APRONS (OPTIONAL) DISLODGED?
- ARE BALES DECOMPOSING DUE TO AGE AND/OR WATER DAMAGE?
- DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE DITCH CHECK?



STRAW BALE BARRIERS FOR AREA INLETS (INLET PROTECTION)

MATERIAL SPECIFICATION:

BALE AREA INLET BARRIERS SHOULD BE CONSTRUCTED OF WHEAT STRAW, OAT STRAW, PRAIRIE HAY, OR BROMEGRASS HAY THAT IS FREE OF WEEDS DECLARED NOXIOUS BY THE KANSAS STATE BOARD OF AGRICULTURE. THE STAKES USED TO ANCHOR THE BALES SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG. TWINE SHOULD BE USED TO BIND BALES. THE USE OF WIRE BINDING IS PROHIBITED BECAUSE IT DOES NOT BIODEGRADE READILY.

PLACEMENT:

BALE AREA INLET BARRIERS SHOULD BE PLACED DIRECTLY AROUND THE PERIMETER OF A DROP INLET. WHEN A BALE AREA INLET BARRIER IS LOCATED NEAR AN INLET THAT HAS STEEP APPROACH SLOPES, THE STORAGE CAPACITY BEHIND THE BARRIER IS DRASTICALLY REDUCED. TIMELY REMOVAL OF SEDIMENT MUST OCCUR FOR A BARRIER TO OPERATE PROPERLY IN THIS LOCATION.

PROPER INSTALLATION METHOD:

EXCAVATE A TRENCH AROUND THE PERIMETER OF THE AREA INLET THAT IS AT LEAST 4" DEEP BY A BALE'S WIDTH WIDE. PLACE THE BALES IN THE TRENCH, MAKING SURE THAT THEY ARE BUTTED TIGHTLY. SOME BALES MAY NEED TO BE SHORTENED TO FIT INTO THE TRENCH AROUND THE AREA INLET. TWO STAKES SHOULD BE DRIVEN THROUGH EACH BALE, APPROXIMATELY 6" TO 8" IN FROM THE BALE ENDS. STAKES SHOULD BE DRIVEN AT LEAST 12" INTO THE GROUND. ONCE ALL THE BALES HAVE BEEN INSTALLED AND ANCHORED, PLACE THE EXCAVATED SOIL AGAINST THE RECEIVING SIDE OF THE BARRIER AND COMPACT IT. THE COMPACTED SOIL SHOULD BE NO MORE THAN 3" TO 4" DEEP. NOTE: WHEN A BALE AREA INLET BARRIER IS PLACED IN A SHALLOW MEDIAN DITCH, MAKE SURE THAT THE TOP OF THE BARRIER IS NOT HIGHER THAN THE PAVED ROAD. IN THIS CONFIGURATION, WATER MAY SPREAD ONTO THE ROADWAY CAUSING A HAZARDOUS CONDITION.

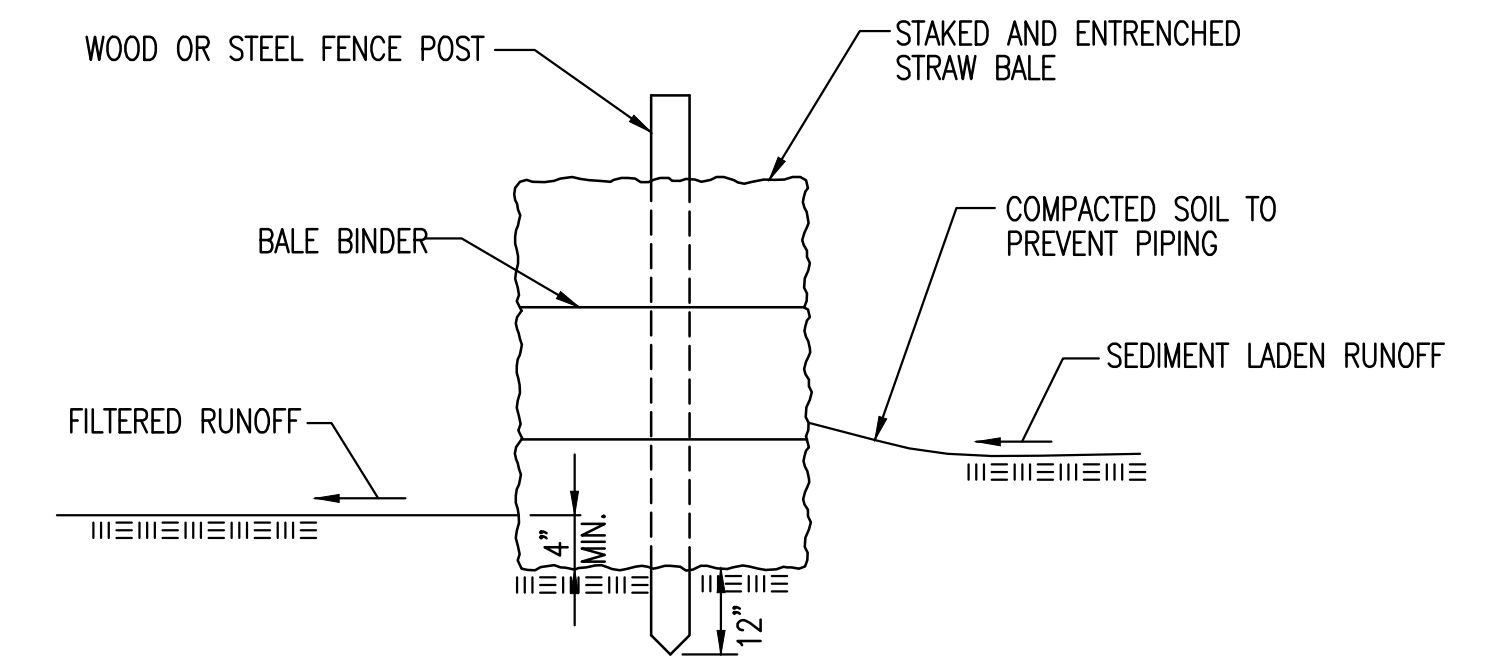
LIST OF COMMON PLACEMENT INSTALLATION MISTAKES TO AVOID:

BALES SHOULD BE PLACED DIRECTLY AGAINST THE PERIMETER OF THE AREA INLET. THIS ALLOWS OVERTOPPING WATER TO FLOW DIRECTLY INTO THE INLET INSTEAD OF ONTO NEARBY SOIL CAUSING SCOUR. BALE AREA INLET BARRIERS MUST BE DUG INTO THE GROUND. BALES AT GROUND LEVEL DO NOT WORK BECAUSE THEY ALLOW WATER TO FLOW UNDER THE BARRIER.

INSPECTION AND MAINTENANCE:

BALE AREA INLET BARRIERS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:

- DOES WATER FLOW UNDER THE AREA INLET BARRIER?
- DOES WATER FLOW THROUGH SPACES BETWEEN ABUTTING BALES?
- ARE ANY BALES DISLODGED?
- ARE BALES DECOMPOSING DUE TO AGE AND/OR WATER DAMAGE?
- DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE AREA INLET BARRIER?



STRAW BALE BARRIERS

MATERIAL SPECIFICATION:

BALE SLOPE BARRIERS MAY BE CONSTRUCTED OF WHEAT STRAW, OAT STRAW, PRAIRIE HAY, OR BROMEGRASS HAY THAT IS FREE OF WEEDS DECLARED NOXIOUS BY THE KANSAS STATE BOARD OF AGRICULTURE. THE STAKES USED TO ANCHOR THE BALES SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG. TWINE SHOULD BE USED TO BIND BALES. THE USE OF WIRE BINDING IS PROHIBITED BECAUSE IT DOES NOT BIODEGRADE READILY.

PLACEMENT:

A SLOPE BARRIER SHOULD BE USED AT THE TOE OF A SLOPE WHEN A DITCH DOES NOT EXIST. THE SLOPE BARRIER SHOULD BE PLACED ON NEARLY LEVEL GROUND 5' TO 10' AWAY FROM THE TOE OF A SLOPE. THE BARRIER IS PLACED AWAY FROM THE TOE OF THE SLOPE TO PROVIDE ADEQUATE STORAGE FOR SETTLING OUT SEDIMENT. WHEN PRACTICABLE, BALE SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW. BALE SLOPE BARRIERS CAN ALSO BE PLACED ALONG RIGHT-OF-WAY FENCE LINES TO KEEP SEDIMENT FROM CROSSING ONTO ADJACENT PROPERTY. WHEN PLACED IN THIS MANNER, THE SLOPE BARRIER WILL NOT LIKELY FOLLOW CONTOURS.

PROPER INSTALLATION METHOD:

EXCAVATE A TRENCH THE LENGTH OF THE PLANNED SLOPE BARRIER THAT IS 4" DEEP AND A BALE'S WIDTH WIDE. MAKE SURE THAT THE TRENCH IS EXCAVATED ALONG A SINGLE CONTOUR. WHEN PRACTICABLE, SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW. PLACE THE SOIL ON THE UPSLOPE SIDE OF THE TRENCH FOR LATER USE. PLACE THE BALES IN THE TRENCH, MAKING SURE THAT THEY ARE BUTTED TIGHTLY. TWO STAKES SHOULD BE DRIVEN THROUGH EACH BALE ALONG THE CENTERLINE OF THE DITCH CHECK, APPROXIMATELY 6" TO 8" IN FROM THE BALE ENDS. STAKES SHOULD BE DRIVEN AT LEAST 12" INTO THE GROUND. ONCE ALL THE BALES HAVE BEEN INSTALLED AND ANCHORED, PLACE THE EXCAVATED SOIL AGAINST THE UPSLOPE SIDE OF THE CHECK AND COMPACT IT. THE COMPACTED SOIL SHOULD BE NO MORE THAN 3" TO 4" DEEP.


LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

WHEN PRACTICAL, DO NOT PLACE BALE SLOPE BARRIERS ACROSS CONTOURS. SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW. CONCENTRATED FLOW OVER A SLOPE BARRIER CREATES A SCOUR HOLE ON THE DOWNSLOPE SIDE OF THE BARRIER. THE SCOUR HOLE EVENTUALLY UNDERMINES THE BALES AND THE BARRIER FAILS. DO NOT PLACE BALE SLOPE BARRIERS IN AREAS WITH SHALLOW SOILS UNDERLAIN BY ROCK. IF THE BARRIER IS NOT ANCHORED SUFFICIENTLY, IT WILL WASH OUT. BALE SLOPE BARRIERS MUST BE DUG INTO THE GROUND. BALES AT GROUND LEVEL DO NOT WORK BECAUSE THEY ALLOW WATER TO FLOW UNDER THE BARRIER.

INSPECTION AND MAINTENANCE:

BALE SLOPE BARRIERS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:

- ARE THERE ANY POINTS ALONG THE SLOPE BARRIER WHERE WATER IS CONCENTRATING?
- DOES WATER FLOW UNDER THE SLOPE BARRIER?
- DOES WATER FLOW THROUGH SPACES BETWEEN ABUTTING BALES?
- ARE ANY BALES DISLODGED?
- ARE BALES DECOMPOSING DUE TO AGE AND/OR WATER DAMAGE?
- DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE SLOPE BARRIER?

 <p>CITY OF WICHITA PUBLIC WORKS & UTILITIES ENGINEERING DIVISION</p>				<p>STRAW BALE DITCH CHECK AND BARRIER DETAILS</p>	
				<p>INTERIM CITY ENGINEER GARY JANZEN, P.E.</p>	
PROJECT NUMBER	OCA NUMBER	DATE			
---	---	11/2010			
CITY ENGINEER'S OFFICE			DESIGN	DRAWN	
CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501			SHEET		
			C-11.5 of		