

BHC

BIRKHOFF, HENDRICKS AND CONWAY, L.L.P.
CONSULTING ENGINEERS
DALLAS, TEXAS

Date: 29-Oct-02

Job Code: 2001180

CB&I Water (3)
9550 Hickman Road
Clive Iowa 50325

Attention: Mr. Jim McCombs

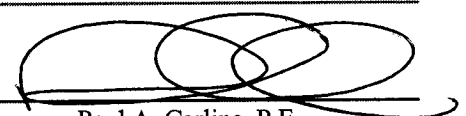
Re: City of Rockwall, Texas
Springer Road Elevated Storage Tank

We are transmitting herewith three copies of the submittal data furnished by Hanson Pipe & Products, Inc.
These copies have been reviewed and marked as follows:

No. Sheets	Dwg. Description	Explanation				
		No Exceptions Taken	Rejected	Make Corrections Noted	Revise and Resubmit	Submit Specified Items
K	Concrete Yard Piping	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Remarks:

By copy of this letter we are returning two copies of the submittal to Mr. Chuck Todd, P.E., City of Rockwall

By: 
Paul A. Carline, P.E.

Checking of shop drawings by Birkhoff, Hendricks and Conway, L.L.P. is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. Any action shown is subject to the requirements of the plans and specifications. Contractor is responsible for: dimensions which shall be confirmed and correlated at the job site; fabrication processes and techniques of construction, coordination of his work with that of all other trades; and performing his work in a safe and satisfactory manner.

CB&I Water

a division of CB&I Constructors, Inc.

9550 Hickman Road * Clive, IA 50325-5316 * (515)254-9228

DATE: October 25, 2002

TO: Birkhoff, Hendricks & Conway
7502 Greenville Ave, Suite 220
Dallas, TX 75231

ATTN: Paul Carline

DESCRIPTION: 2000 MG CET 97' DIA X 40'HR X 52' TWR

LOCATION: ROCKWALL, TX

CB&I CONTRACT: 137719

TRANSMITTAL: 5

Enclosed are: X Submittals X For Approval

Drawing #	Revision	Description	Copies
		Concrete Yard Piping	6

Remarks : 1. Please return 2 copies.

Copies: D. SELLERS-CNR
J. MCCOMBS
G. SCHRODER

BY **Jim McCombs**
Email: JMcCombs@chicagobridge.com

BHC

CONCRETE PRESSURE PIPE PROJECT

Project

LOCATION - ROCKWALL, TEXAS
OWNER - CITY OF ROCKWALL
DESCRIPTION - SPRINGER ROAD
2 MG ELEVATED STORAGE TANK

142 LF 24" B-303 PIPE CLASS 150-19'

Engineer

BIRKHOFF, HENDRICKS & CONWAY

<input checked="" type="checkbox"/> NO EXCEPTIONS TAKEN	<input type="checkbox"/> MAKE CORRECTIONS NOTED
<input type="checkbox"/> REJECTED	<input type="checkbox"/> REVISE AND RESUBMIT
	<input type="checkbox"/> SUBMIT SPECIFIED ITEM

Checking is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. Any action shown is subject to the requirements of the plans and specifications. Contractor is responsible for dimensions which shall be confirmed and reconciled at the job site; fabrication processes and techniques of construction, coordination of his work with that of all other trades and performing his work in a safe and satisfactory manner.

BIRKHOFF, HENDRICKS & CONWAY, L.L.P.
CONSULTING ENGINEERS, DALLAS, TEXAS

Date: 10/29/02 By: RAC

Directory

HANSON CONTACTS FOR THIS PROJECT ARE :

ENGINEERING - PAUL HEAD (972) 262-3600
SALES - RICK POE (972) 262-3600
DELIVERY - TOM PAGE (972) 262-1571
FIELD SERVICES - NELS THOMSEN/
CAROLINE DUNCAN (972) 262-3600

Contractor

CONTACT - SYB CONSTRUCTION
RANDY BENNETT
(972) 399-1066 OFFICE

HANSON Pipe & Products, Inc.

MANUFACTURER OF CONCRETE PRESSURE PIPE

DALLAS
HOUSTON VICTORIA LUBBOCK

CB & I CONSTRUCTORS, INC.

REVIEW FOR CONFORMANCE TO PLANS & SPECIFICATIONS

BY Gregg A. Howard

TITLE Design Engineer

DATE 10/24/02

COMPLIES Yes

EXCEPTIONS NOTED None

STANDARD ABBREVIATIONS

ADAP - ADAPTOR
 ATT'D - ATTACHED
 BC - BRUSH COAT
 BEVL - BEVEL
 BF - BLIND FLANGE
 BHC - BEGIN HORIZONTAL CURVE
 BOP - BOTTOM OF PIPE
 BRPE - BACK-UP RING PLAIN END
 BUR - BACK-UP RING END
 BVC - BEGIN VERTICAL CURVE
 B&P - BEVEL & PULL
 CB - COMBINED
 CCP - CONCRETE CYLINDER PIPE
 CL - CLASS
 CP - COMBINED PULL
 CPE - CLYINDER PLAIN END
 CPI - COMBINED POINT OF INTERSECTION
 CPPE - COUPLING PLAIN END
 CT - COMBINED TURN
 DET - DETAIL
 DH - DISHED HEAD
 DN - DOWN
 D&T - DRILLED & TAPPED
 EB - E-301 BELL
 ECC - ECCENTRIC
 EFLG - CLASS "E" FLANGE
 EHC - END HORIZONTAL CURVE
 ELEV - ELEVATION
 ES - E-301 SPIGOT
 EVC - END VERTICAL CURVE
 EXT - EXTRA
 FBO - FLANGE BLOW-OFF OUTLET
 FIK - FLANGE INSULATION KIT
 FLG - CLASS "D" FLANGE
 FO - FLANGE OUTLET
 FOB - FLAT ON BOTTOM
 FORF - FLANGE OUTLET REDUCING FLANGE
 FOT - FLAT ON TOP
 FT - FEET
 GKT - GASKET
 HEB - HARNESSED E-301 BELL
 HES - HARNESSED E-301 SPIGOT
 HH - HAND HOLE
 HLB - HARNESSED L-301 BELL

HLS - HARNESSED L-301 SPIGOT
 HP - HORIZONTAL PULL
 HBB - HARNESSED B-303 BELL
 HPI - HORIZONTAL POINT OF INTERSECTION
 HPL - HORIZONTAL PIPE LENGTH
 HBS - HARNESSED B-303 SPIGOT
 HT - HORIZONTAL TURN
 INV - INVERT
 JHA - JOINT HARNESS ASSEMBLY
 LB - L-301 BELL
 LD - LAYING DIRECTION
 LS - L-301 SPIGOT
 LT - LEFT
 MEB - MORTARED E-301 BELL
 MES - MORTARED E-301 SPIGOT
 MJB - MECHANICAL JOINT BELL
 MJPE - MECHANICAL JOINT PLAIN END
 MLB - MORTARED L-301 BELL
 MLS - MORTARED L-301 SPIGOT
 MBB - MORTARED B-303 BELL
 MPE - MORTARED PLAIN END
 MBS - MORTARED B-303 SPIGOT
 BB - B-303 BELL
 PCC - POINT COMPOUND CURVE
 PE - PLAIN END
 PRC - POINT REVERSE CURVE
 BS - B-303 SPIGOT
 PWEB - PLANT WELD E-301 BELL
 PWES - PLANT WELD E-301 SPIGOT
 PWLB - PLANT WELD L-301 BELL
 PWLS - PLANT WELD L-301 SPIGOT
 PWBB - PLANT WELD B-303 BELL
 PWBS - PLANT WELD B-303 SPIGOT
 QTY - QUANTITY
 RCB - REINFORCED CONCRETE PIPE BELL
 RCS - REINFORCED CONCRETE PIPE SPIGOT
 RF - REDUCING FLANGE
 RT - RIGHT
 SCRD - SCREED
 SFBF - SMOOTH FLOW BLIND FLANGE

SHT - SHEET
 SLB - SCREED L-301 BELL
 SLS - SCREED L-301 SPIGOT
 SBB - SCREED B-303 BELL
 SPC - SPECIAL
 SPIG - SPIGOT
 SPL - SLOPE PIPE LENGTH
 SBS - SCREED B-303 SPIGOT
 SRLB - SNAP-RING L-301 BELL
 SRLS - SNAP-RING L-301 SPIGOT
 SRBB - SNAP-RING B-303 BELL
 SRBS - SNAP-RING B-303 SPIGOT
 STD - STANDARD
 TAN - TANGENT
 TES - TRIMMED E-301 SPIGOT
 TIS - TRIMMED L-301 SPIGOT
 TO - THREADED OUTLET
 TOP - TOP OF PIPE
 TORF - THREADED OUTLET REDUCING FLANGE
 TBS - TRIMMED B-303 SPIGOT
 VCPE - VICTAULIC COUPLING PLAIN END
 VP - VERTICAL PULL
 VPI - VERTICAL POINT OF INTERSECTION
 VT - VERTICAL TURN
 WFPE - WALL FITTING PLAIN END
 WPE - WELDING PLAIN END

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	INDEX SHEET
2A	ORIENTATION SHEET
3	GENERAL INFORMATION
4	PIPE DESIGN
5-7	LAYOUT
D1-D8	SPECIAL PIPE & FITTINGS
D9	FLANGE SCHEDULE
D10	ADDITIONAL MATERIAL

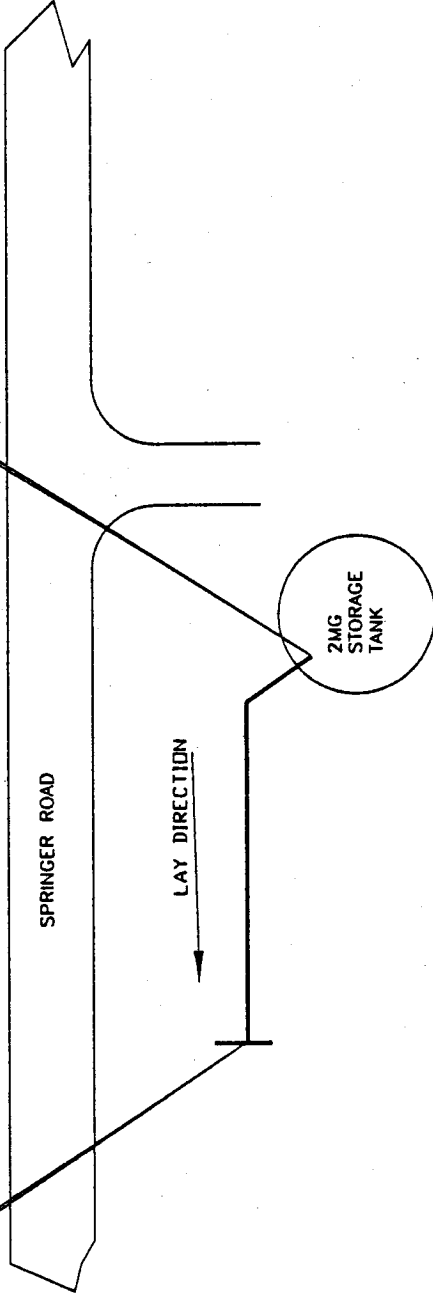
DR. BY: PNH	DATE: 10-16-02
CHECKED:	REVISION
ABBREVIATION & INDEX	
ROCKWALL, TEXAS	
Hanson Pipe & Products, Inc.	
DWG. NO. 02-145B	SHEET 2

REVIEW COPY 10/16/2002
NOT FOR FABRICATION



STA 0+00.00
START 24"
WATER LINE

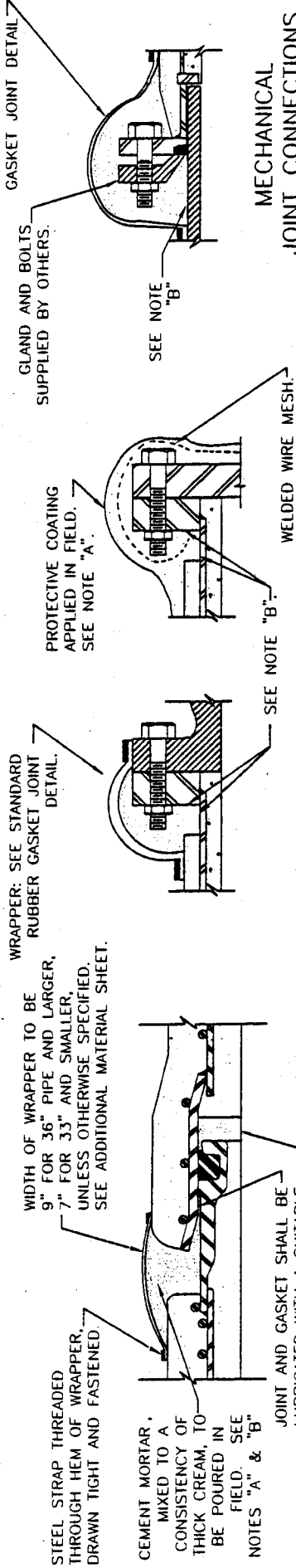
STA 1+34.40
24" B303 WL
CLASS 150-19



SPRINGER ROAD ELEVATED STORAGE TANK
ROCKWALL, TEXAS

No.	BY	DATE	REVISION	DR. BY:	PNH	ORIENTATION	Honson Pipe & Products, Inc.
				CHECKER:		ROCKWALL, TEXAS	DWG. NO. 02-145B
				DATE:	10-16-02		SHEET 2A

PROTECTIVE COATING APPLIED IN THE FIELD



WIDTH OF WRAPPER TO BE 9" FOR 36" PIPE AND LARGER, 7" FOR 33" AND SMALLER, UNLESS OTHERWISE SPECIFIED. SEE ADDITIONAL MATERIAL SHEET.

STEEL STRAP THREADED THROUGH HEM OF WRAPPER, DRAWN TIGHT AND FASTENED.

CEMENT MORTAR, MIXED TO A CONSISTENCY OF THICK CREAM, TO BE POURED IN FIELD. SEE NOTES "A" & "B".

JOINT AND GASKET SHALL BE LUBRICATED WITH A SUITABLE VEGETABLE COMPOUND SOAP PRIOR TO ENGAGEMENT.

CEMENT MORTAR PLACED IN FIELD.

SEE NOTE "B".

SEE NOTE "B".

WRAPPER, SEE STANDARD RUBBER GASKET JOINT DETAIL.

CLAND AND BOLTS SUPPLIED BY OTHERS.

MECHANICAL JOINT CONNECTIONS

FOR VALVES AND OTHER TYPES OF PIPE, ABOVE ALSO APPLICABLE TO CAULKED JOINTS AND FLEXIBLE COUPLING CONNECTIONS.

FLANGE CONNECTIONS

FOR AIR VALVES, ACCESS MANHOLES, FLANGED GATE VALVES, ETC.

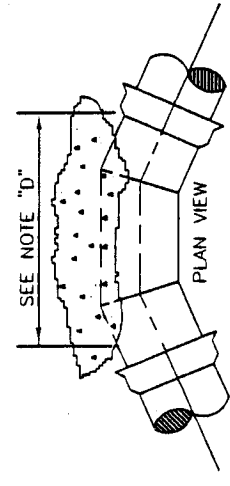
STANDARD RUBBER GASKET JOINT

APPLICABLE TO ALL TYPES OF PRESSURE PIPE MANUFACTURED BY HANSON.

NOTE "A": PROVIDE 1" MINIMUM THICKNESS CONCRETE OR MORTAR COATING IN THE FIELD FOR THE PROTECTION OF ALL EXPOSED STEEL, SUCH AS FLANGES, CAULKED JOINTS, THREADED OUTLETS, CLOSURES, ETC. THE CEMENT MORTAR USED SHALL CONSIST OF ONE PART PORTLAND CEMENT TO TWO AND ONE-HALF PARTS OF FINE, SHARP (PLASTER) SAND. WHERE SHOWN, COATING IS TO BE REINFORCED WITH WIRE MESH.

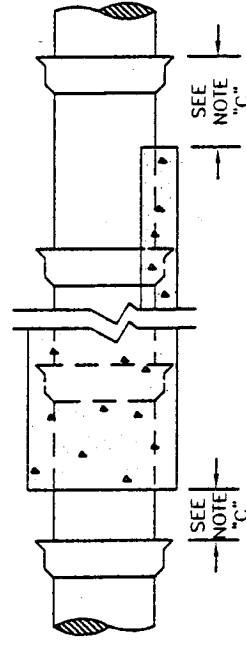
NOTE "B"

ANY SURFACE RECEIVING A CEMENT MORTAR COATING SHALL BE THOROUGHLY CLEANED AND WETTED WITH WATER JUST PRIOR TO PLACING THE CEMENT MORTAR COATING. AFTER PLACEMENT, CARE SHALL BE TAKEN TO PREVENT CEMENT MORTAR COATING FROM DRYING OUT TOO RAPIDLY BY COVERING WITH DAMP EARTH OR BURLAP. SOME SHRINKAGE CRACKING MAY OCCUR; SHRINKAGE CRACKS LESS THAN 1/8" WIDE IN OTHERWISE SOUND JOINT MORTAR ARE GENERALLY CONSIDERED ACCEPTABLE. CEMENT MORTAR COATING SHALL NOT BE ALLOWED TO FREEZE.



THRUST BLOCK

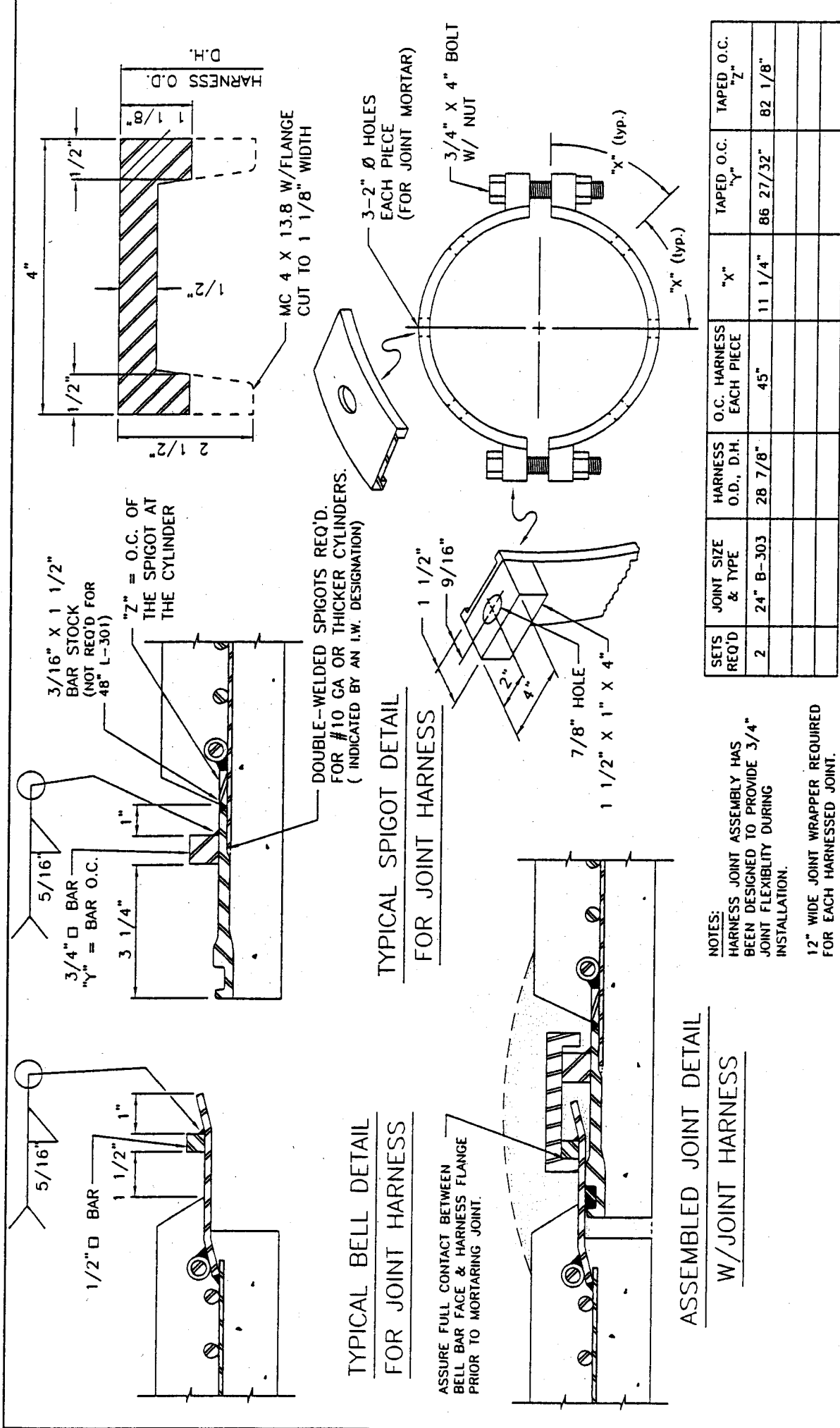
NOTE "D": THRUST BLOCK SHOULD NOT LIMIT THE FLEXIBILITY OF THE JOINTS. THRUST BLOCK DESIGN SHALL BE DETERMINED THROUGH CONSIDERATION OF EXISTING SOIL CONDITIONS BY THE OWNER AND/OR ENGINEER. THRUST SHOWN ON LAYOUT DRAWINGS ARE BASED ON PIPE DESIGN PRESSURES.



CONCRETE CRADLE, ENCASEMENT, OR STRUCTURE WALL CONNECTION

NOTE "C": IN ORDER TO PROVIDE FLEXIBILITY IN THE EVENT OF DIFFERENTIAL SETTLEMENT, A RUBBER GASKET JOINT SHALL BE WITHIN 2' OF A RIGID SUPPORT FOR PIPE 24" DIAMETER AND SMALLER. A FLEXIBLE JOINT SHALL BE WITHIN ONE PIPE DIAMETER OR 5' OF A RIGID SUPPORT, WHICHEVER IS LESS, FOR LARGER PIPE.

GENERAL FIELD INFORMATION SUBJECT TO OWNER'S AND/OR CONSULTING ENGR'S SPECIFICATIONS AND/OR APPROVAL



TYPICAL BELL DETAIL FOR JOINT HARNES

TYPICAL SPIGOT DETAIL FOR JOINT HARNES

ASSEMBLED JOINT DETAIL W/JOINT HARNES

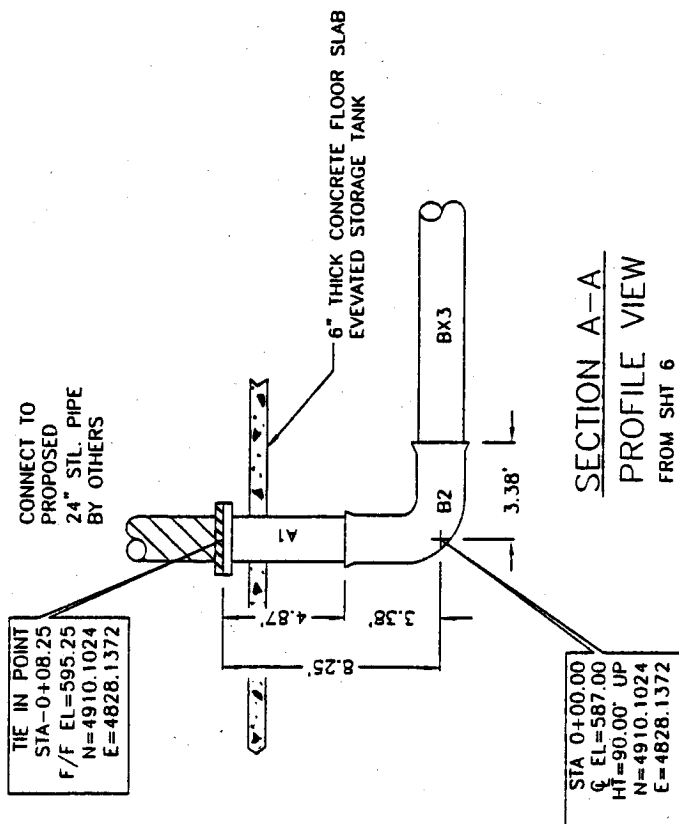
NOTES:
 HARNES JOINT ASSEMBLY HAS BEEN DESIGNED TO PROVIDE 3/4" JOINT FLEXIBILITY DURING INSTALLATION.
 12" WIDE JOINT WRAPPER REQUIRED FOR EACH HARNESSED JOINT.

SETS REQ'D	JOINT SIZE & TYPE	HARNES O.D., D.H.	O.C. HARNES EACH PIECE	"X"	TAPED O.C. "Y"	TAPED O.C. "Z"
2	24" B-303	28 7/8"	45"	11 1/4"	86 27/32"	82 1/8"

MATERIALS LIST				
CLASS	PC. No.	QTY	DESCRIPTIONS	DET. SHI. NO.
24" B303 CL 150	A1	1	24" ADAPTOR STD	FLG/BS D3
	B2	1	24" B303 4-CUT BEND 90.00'	BB/BB D5
			CONTINUED ON SHT 6	

NOTE: SEE GENERAL INFORMATION SHEETS FOR FIELD INSTALLATION INSTRUCTIONS

LAYOUT
ROCKWALL, TEXAS
Hanson Pipe & Products, Inc.
Dwg. No. 02-145B SHEET 5



CONNECT TO PROPOSED 24" STL. PIPE BY OTHERS

TIE IN POINT
STA-0+08.25
F/F EL=595.25
N=4910.1024
E=4828.1372

SECTION A-A
PROFILE VIEW
FROM SHT 6

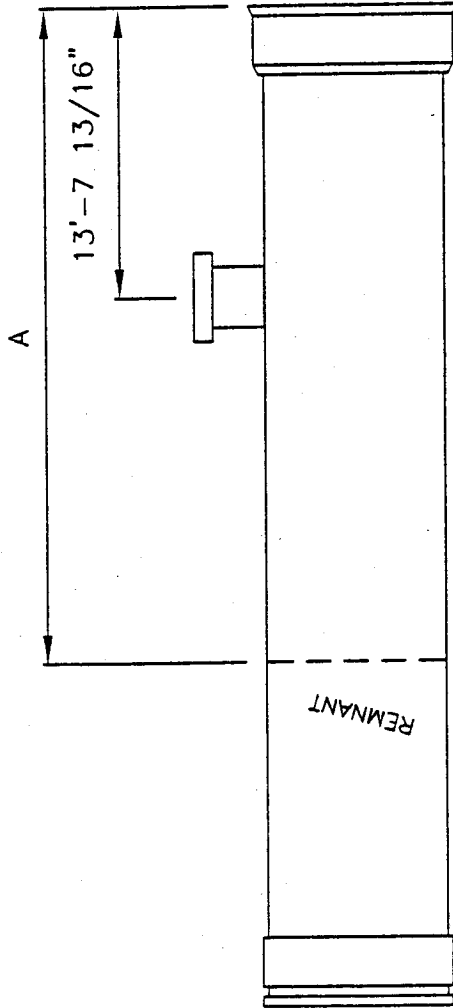
87 TONS

No.	BY	DATE	REVISION

DR. BT: PNH
CHECKED:
DATE: 10-16-02

NOT FOR FABRICATION

PIECE NO.	QTY	DESCRIPTION	DET SHT	SPL HPL	C/L STATION (Ft)	DEFLECTION DATA	SLOPE TANGENT	C/L ELEV (Ft)	PLAN READ UP
JH1-2	2	24" JOINT HARNESS ASSY.	3A						
DP11	1	24" DISH HD PLUG /HBS	D7		1+34.40			588.22	
DP10	1	24" DISH HD PLUG /HBS	D7		1+34.40	(0.00°)	0.52° 0.0091	(588.22)	
T9	1	CLASS 150-19' 24"HBB x 24"HBB x 24"FLG TEE	D8	2.07 2.07	1+32.33		0.52° 0.0091	588.20	
		24" BFV BY OTHERS		1.00 1.00	1+31.33			588.19	
<p style="text-align: center;">END OF LINE</p> <p style="text-align: center;">61 TONS</p> <p style="text-align: right;">CONT'D FROM 6</p>									
NOTE: READ UP									
DRAWN: PNH CHK BY: DATE: 10-16-02									
HANSON Pipe & Products, Inc.									
ROCKWALL, TEXAS									
PROJECT: 02-145B									
SHEET: 7									



① W/ 6" FLG. OUT., SEE SHT D2 ✓

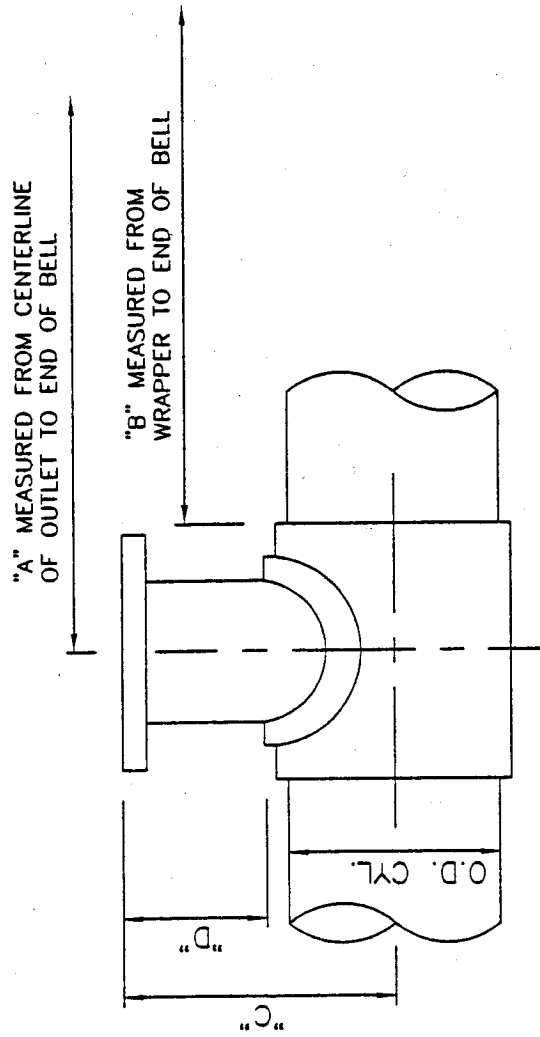
24" B-303
SHORT PIPE ARRANGEMENT (CLASS 150-19')

PC NO	LL	A	REM. LENGTH
BX3 ①	25.30	25' 3 1/8"	7.01

No.	BY	DATE	DR. BY: PNH	SPECIALS ROCKWALL, TEXAS	Hanson Pipe & Products, Inc.
			CHECKED: DATE: 10-16-02		
			REVISION	DWG. NO. 02-145B	SHEET D1

① SEE SHT D1

NOTE: FOR OUTLETS 6" AND SMALLER, OMIT MORTAR LINING AND PAINT WITH INEMEC SERIES 140 POLYAMIDOMINE EPOXY OR SIMILAR NSF APPROVED PAINT.

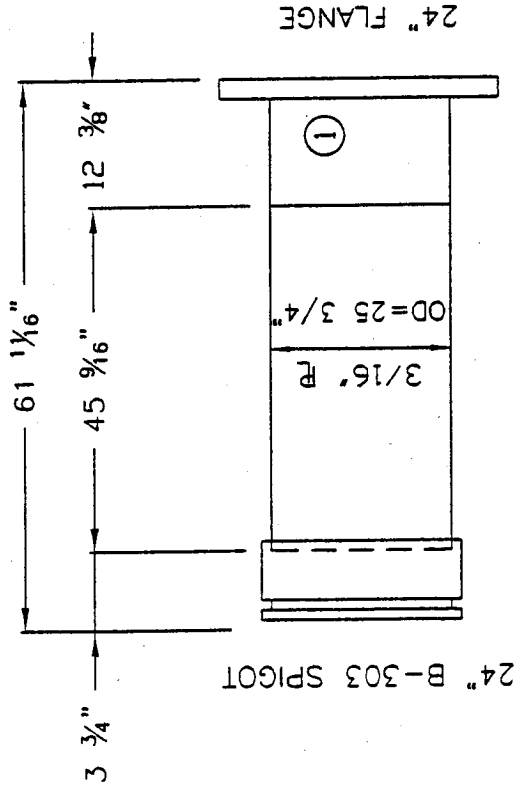


FLANGE OUTLET

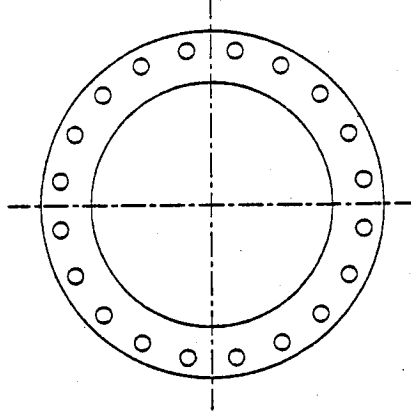
Pc. No.	SIZE & TYPE	OD CYL	OUT SIZE	"A"	"B"	"C"	"D"	WRAPPER	COLLAR	REMARKS
BX3	24" B-303	25 3/4"	6"	13'-7 13/16"	—	22 1/8"	9"	—	1/4" x 3 1/4"	①

NOTE: FLANGES 10" THROUGH 48" SHALL HAVE THE MORTAR COATING DELETED FOR 5" BEHIND THE FLANGE. EXPOSED CYLINDER IN THIS AREA AND THE FLANGE FACE IS TO BE COATED w/HOUGHTON "RUST VETO 344".

① 3/16"R x 12"NIP
OD=25 3/4"



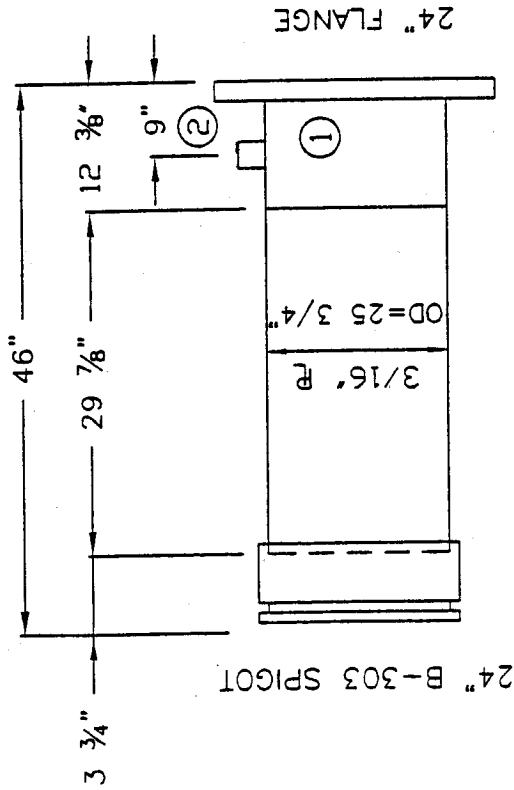
A1
24" B-303 SPIGOT x 24" FLANGE ADAPTOR



A1 FLANGE VIEW

No.	BY	DATE	REVISION
DR. BY: PNH			FITTINGS ROCKWALL, TEXAS
CHECKED:			
DATE: 10-11-02			Hanson Pipe & Products, Inc.
			DWG. NO. 02-145B
			SHEET D3

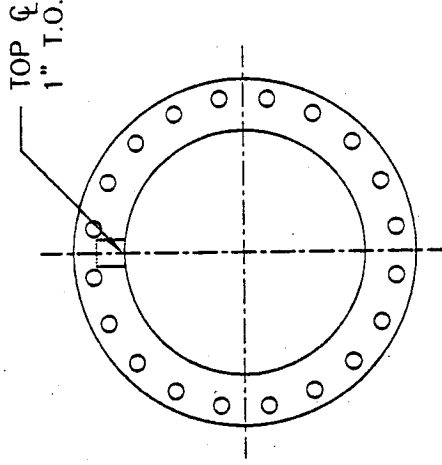
NOTE: FLANGES 10" THROUGH 48" SHALL HAVE THE MORTAR COATING DELETED FOR 5" BEHIND THE FLANGE. EXPOSED CYLINDER IN THIS AREA AND THE FLANGE FACE IS TO BE COATED w/HOUGHTON "RUST VETO 344".



A8
24" B-303 SPIGOT x 24" FLANGE ADAPTOR

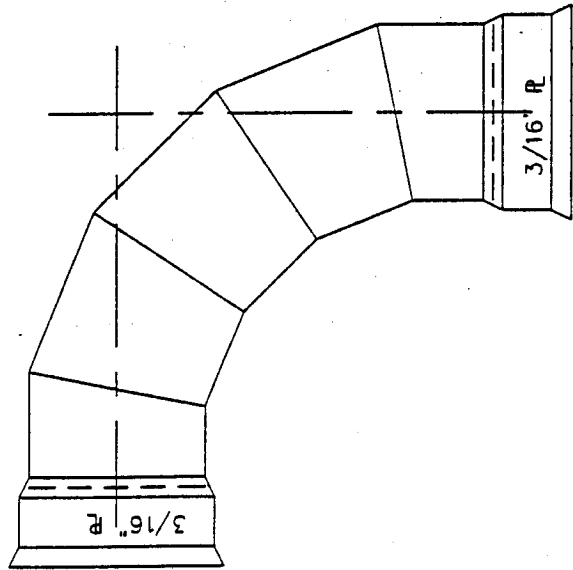
① 3/16" R x 12" NIP
OD=25 3/4"

② 1" THD OUT (IRON THD) — For Pressure Test
1 1/4" 3000# STL. HALF CPL.
1 1/4" x 1" BRASS BUSHING
1" BRASS PLUG

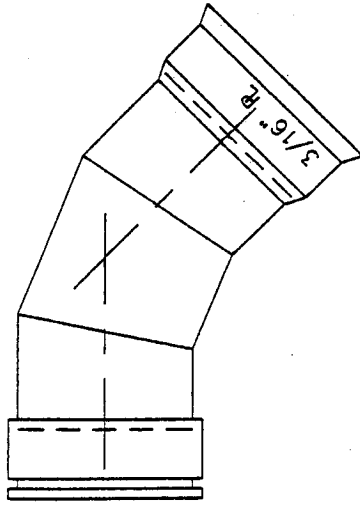


A8 FLANGE VIEW

No. BY DATE		DR. BY: PNH		Hanson Pipe & Products, Inc.	
REVISION		CHECKED:		FITTINGS	
		DATE: 10-16-02		ROCKWALL, TEXAS	
				DWG. NO. 02-145B	
				SHEET D4	



PC. NO. B2	ID= 24"	OD CYL= 25 3/4"	ANGLE= 90.00°	FULL CUTS= 4	TYPE 3
RADIUS= 30.75"	TANGENT= 30.75"	PLATE= 3/16"	CUT ANGLE= 11.250°	OVERALL CAN LENGTH= 59 9/16"	
<p>LEG1</p> <p>LL= 3.38'</p> <p>X= 5.31"</p> <p>BEVEL=</p> <p>JOINT TYPE: B-303 BELL</p> <p>LENGTH= 4 1/2"</p> <p>BACKUP RING:</p> <p>RING ID=</p> <p>RING OD=</p> <p>CHECK LENGTH= 40 9/16"</p>		<p>LEG2</p> <p>LL= 3.38'</p> <p>Y= 5.31"</p> <p>BEVEL=</p> <p>JOINT TYPE: B-303 BELL</p> <p>LENGTH= 4 1/2"</p> <p>BACKUP RING:</p> <p>RING ID=</p> <p>RING OD=</p> <p>CHECK LENGTH= 40 9/16"</p>		<p>DISTANCE AROUND CIR.</p> <p>1) 0"</p> <p>2) 20 1/4"</p> <p>3) 40 7/16"</p>	
<p>CUT1</p> <p>14"</p> <p>11 7/16"</p> <p>8 7/8"</p>		<p>CUT2</p> <p>21 1/8"</p> <p>23 11/16"</p> <p>26 1/4"</p>		<p>CUT3</p> <p>38 7/16"</p> <p>35 7/8"</p> <p>33 5/16"</p>	
<p>CUT4</p> <p>45 9/16"</p> <p>48 1/8"</p> <p>50 11/16"</p>		<p>DISTANCE FROM END TO EA. CUT</p>			
<p>DR. BY: PNH</p> <p>CHECKED:</p> <p>DATE: 10-11-02</p>					
<p>REVISION</p>					
<p>FITTINGS</p> <p>ROCKWALL, TEXAS</p>				<p>Hanson Pipe & Products, Inc.</p> <p>DWG. NO. 02-145B</p> <p>SHEET D5</p>	



PC. NO. B4 ID= 24" OD CYL= 25 3/4" ANGLE= 45.00° FULL CUTS= 2 TYPE 3
 RADIUS= 30.75" TANGENT= 12.74" PLATE= 3/16" CUT ANGLE= 11.250° OVERALL CAN LENGTH= 31 1/16"

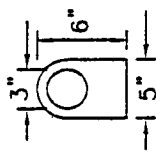
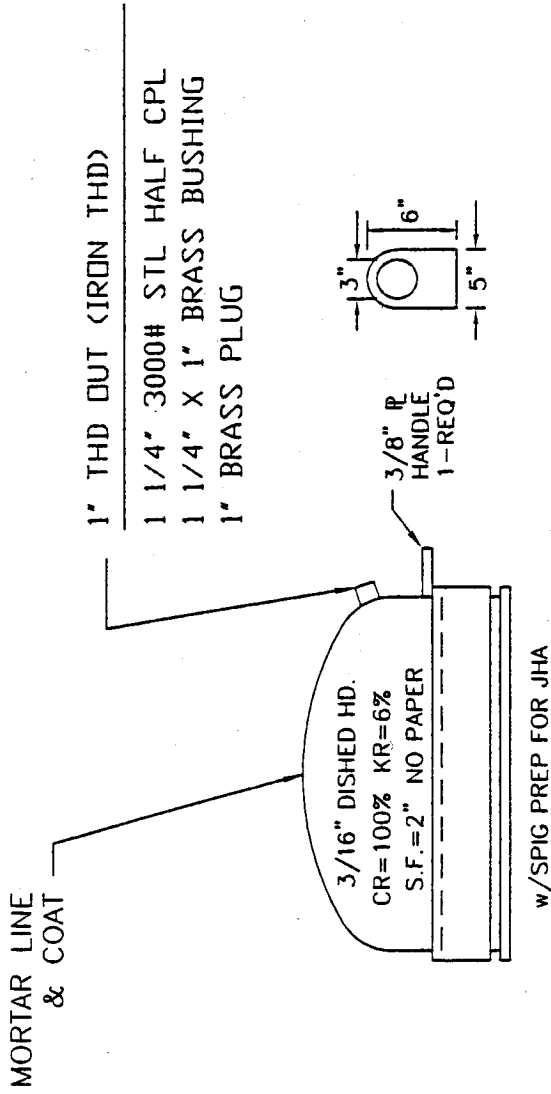
LEG1
 LL= 1.38"
 X= 3.32"
 BEVEL=
 JOINT TYPE: B-303 SPIG
 LENGTH= 3 3/4"
 BACKUP RING:
 RING ID=
 RING OD=
 CHECK LENGTH= 19 13/16"

LEG2
 LL= 1.71"
 Y= 3.28"
 BEVEL=
 JOINT TYPE: B-303 BELL
 LENGTH= 4 1/2"
 BACKUP RING:
 RING ID=
 RING OD=
 CHECK LENGTH= 20 1/2"

DISTANCE AROUND CIR. CUT1 CUT2
 1) 0" 12" 19 1/8"
 2) 20 1/4" 9 7/16" 21 11/16"
 3) 40 7/16" 6 7/8" 24 1/4"

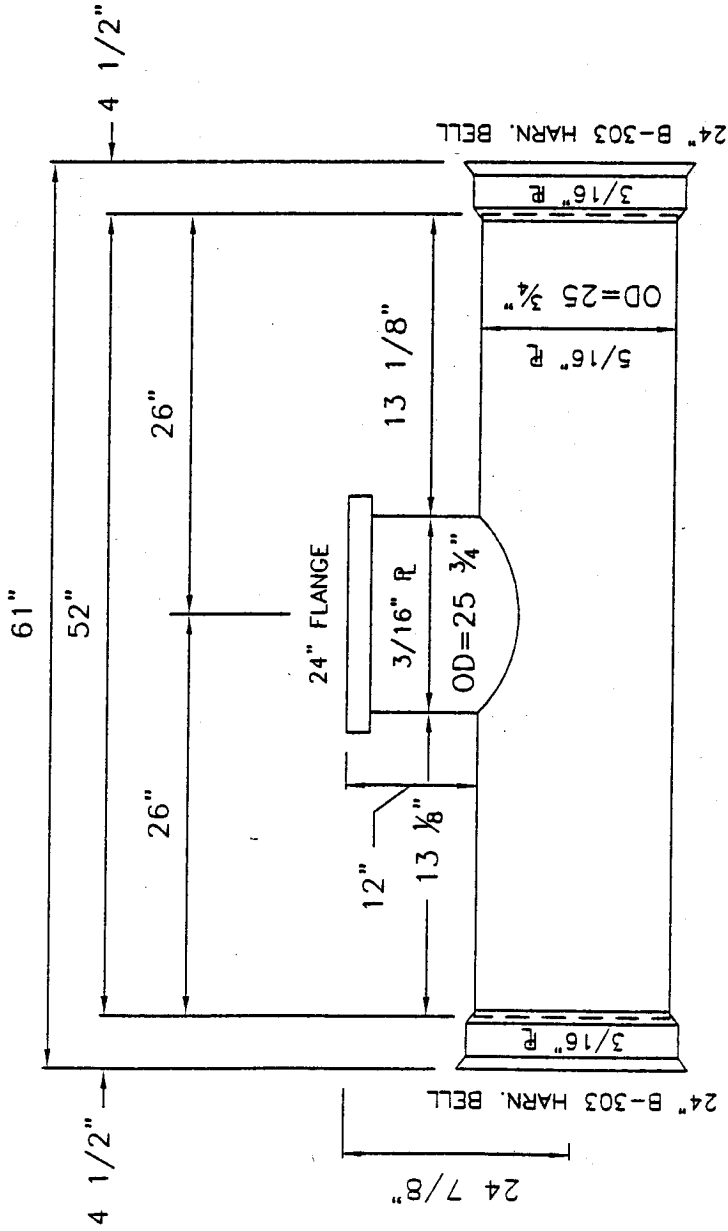
DISTANCE FROM END TO EA. CUT

No.	BY	DATE	REVISION	DR. BY: PNH	FITTINGS ROCKWALL, TEXAS	Hanson Pipe & Products, Inc. DWG. NO. 02-145B SHEET D6
				CHECKED:		
				DATE: 10-16-02		



SPIGOT DISHED HEAD PLUG

PC. NO.	SIZE - TYPE	DISHED HD. O.D.	CLASS	REMARKS
DP10	24" B-303	25 3/4"	150	
DP11	24" B-303	25 3/4"	150	



T9
 24" HBB x 24" HBB x 24" FLG TEE

No.	BY	DATE	REVISION
DR. BY: PNH			
CHECKED:			
DATE: 10-16-02			
FITTINGS			ROCKWALL, TEXAS
Hanson Pipe & Products, Inc.			DWG. NO. 02-145B
			SHEET D8

