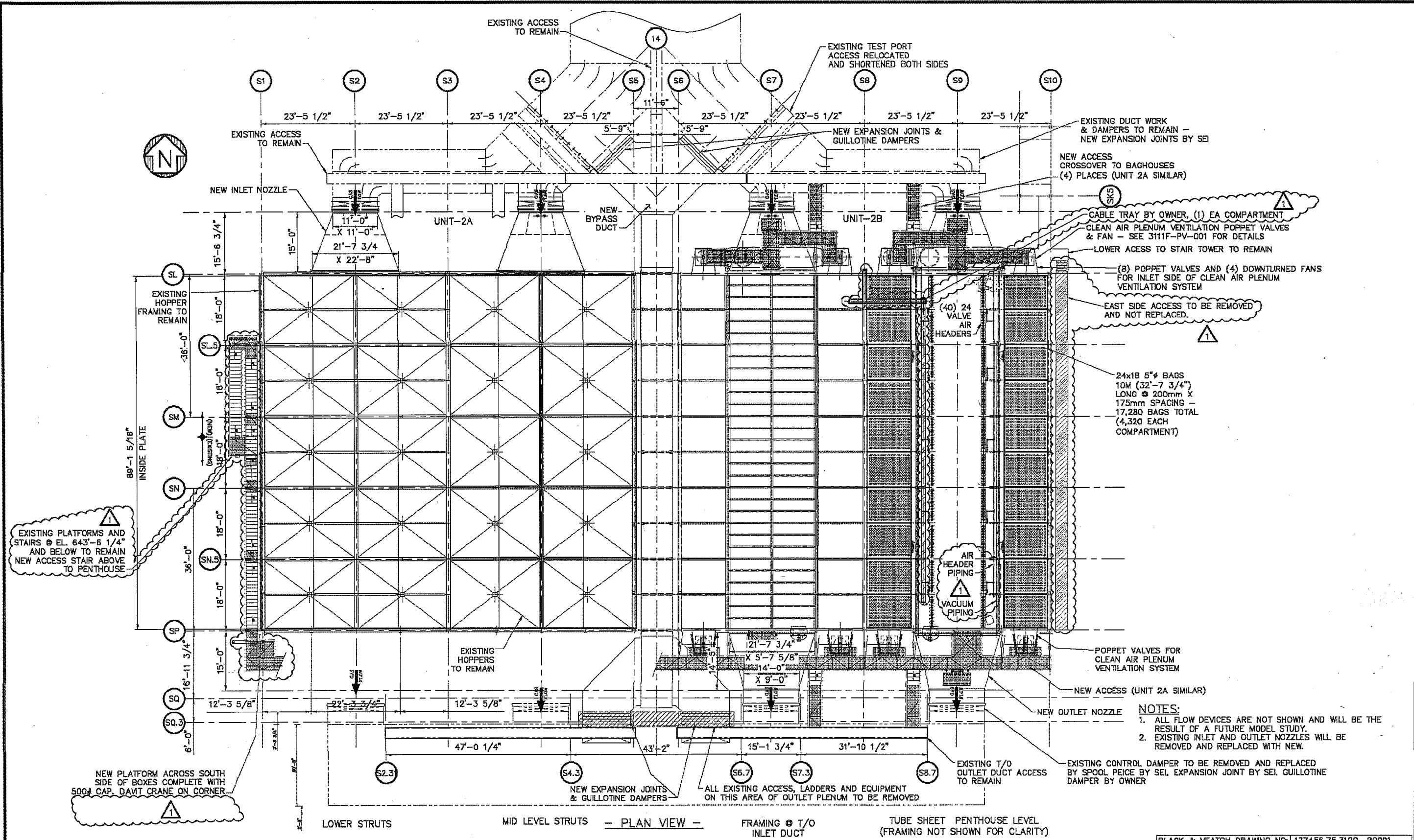


BUL28837 06-FEB-2015 14:15:06



- NOTES:**
1. ALL FLOW DEVICES ARE NOT SHOWN AND WILL BE THE RESULT OF A FUTURE MODEL STUDY.
 2. EXISTING INLET AND OUTLET NOZZLES WILL BE REMOVED AND REPLACED WITH NEW.

LOWER STRUTS MID LEVEL STRUTS FRAMING @ T/O INLET DUCT TUBE SHEET PENTHOUSE LEVEL (FRAMING NOT SHOWN FOR CLARITY)

BLACK & VEATCH DRAWING NO: 177456.75.3120.-20001

REV	BY	DATE	DESCRIPTION	CHECKED
1	LGS	5/20/14	CLARIFIED ACCESS TO BAG-HOUSE AS SHOWN, ADDED PIPING, OWNER CABLE TRAY REMOVED. CONNECTION TO BE DETERMINED DUE TO CODE VARIANCES	
0	LGS	3/5/14	ISSUED FOR CONSTRUCTION	
B	LGS	2/4/14	REVISED PER CUSTOMER COMMENTS	
A	LGS	1/8/13	ISSUED FOR APPROVAL	

DATE	BY	DATE	BY
06/11/14	LGS	12/3/13	LGS
01/28/14	LGS	12/3/13	LGS
02/12/14	LGS		
01/15/14	LGS		
01/27/14	LGS		
01/27/14	LGS		

3rd ANGLE PROJECTION

CERTIFIED FOR CONSTRUCTION

DATE: 3/5/14

BY: DALE CAMPBELL

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3111F-GA-001

SOUTHERNenvironmental INC.

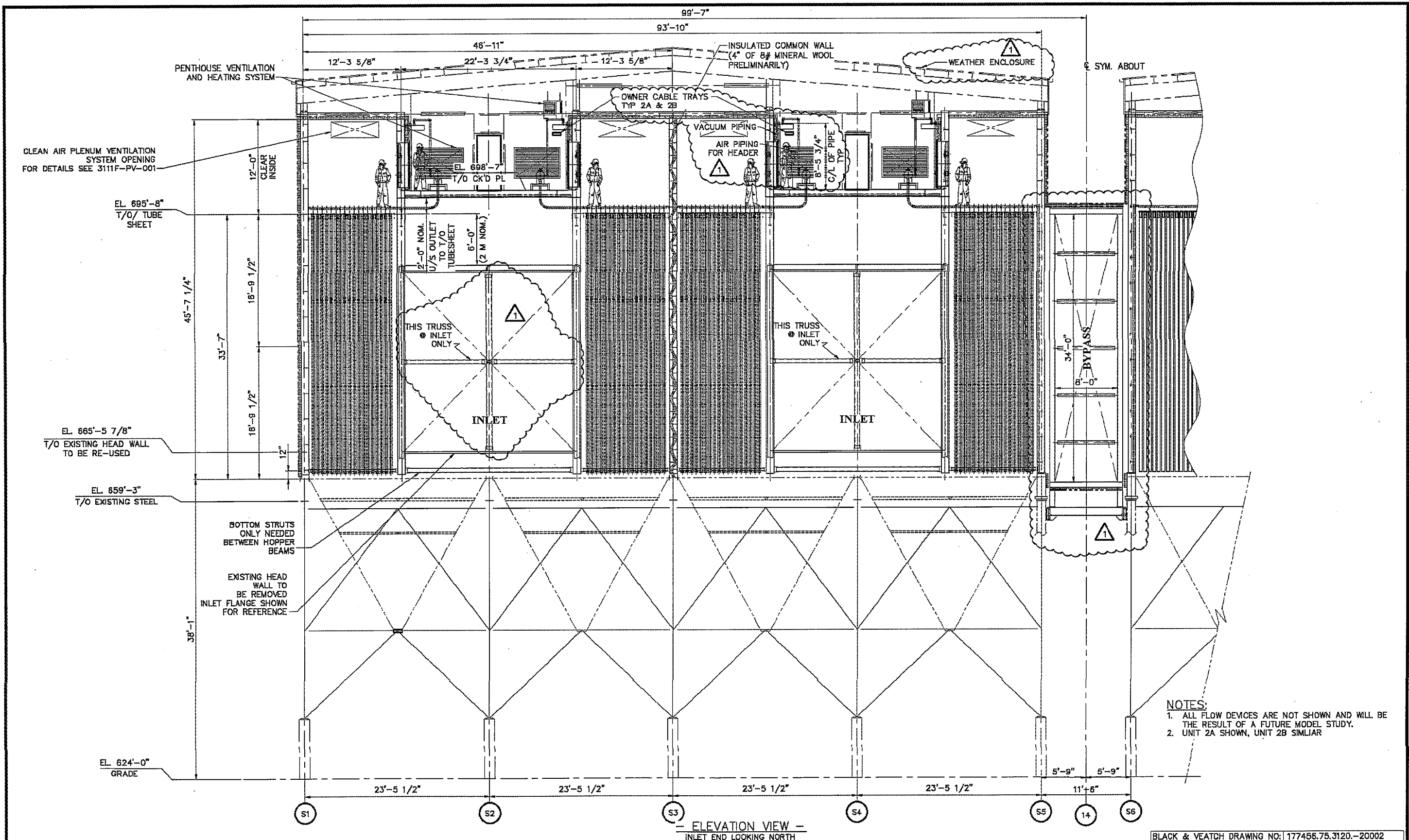
Air Pollution Control Systems

Pensacola, Florida

6590 West Nine Mile Road • Pensacola, FL 32526
Phone: (850) 944-4475 • Fax: (850) 944-8270
Website: www.SOUTHERNENVIRONMENTAL.com

CUSTOMER:	GRAND RIVER ENERGY CENTER CHOUTEAU, OK
PROJECT:	FABRIC FILTER PROJECT FOR UNIT 2 GRDA CONTRACT 40225
DWG. TITLE:	GENERAL ARRANGEMENT PLAN VIEW
GRAND NUMBER:	3111F-GA-001

BUL28837 06-FEB-2015 14:15:16



NOTES:
 1. ALL FLOW DEVICES ARE NOT SHOWN AND WILL BE THE RESULT OF A FUTURE MODEL STUDY.
 2. UNIT 2A SHOWN, UNIT 2B SIMILAR

BLACK & VEATCH DRAWING NO: 177456.75.3120.-20002

REV	BY	DATE	DESCRIPTION	CHECKED
1	LDS	5/23/14	ADDED REVISED STEEL SIZING AND TRUSS, PIPING, BYPASS AND WEATHER ENCLOSURE REVISIONS. ADDED OWNER CABLE TRAYS ISSUED FOR CONSTRUCTION	
0	LDS	3/5/14		
B	LDS	2/4/14	REVISED PER CUSTOMER COMMENTS	
A	LDS	1/9/14	ISSUED FOR APPROVAL	

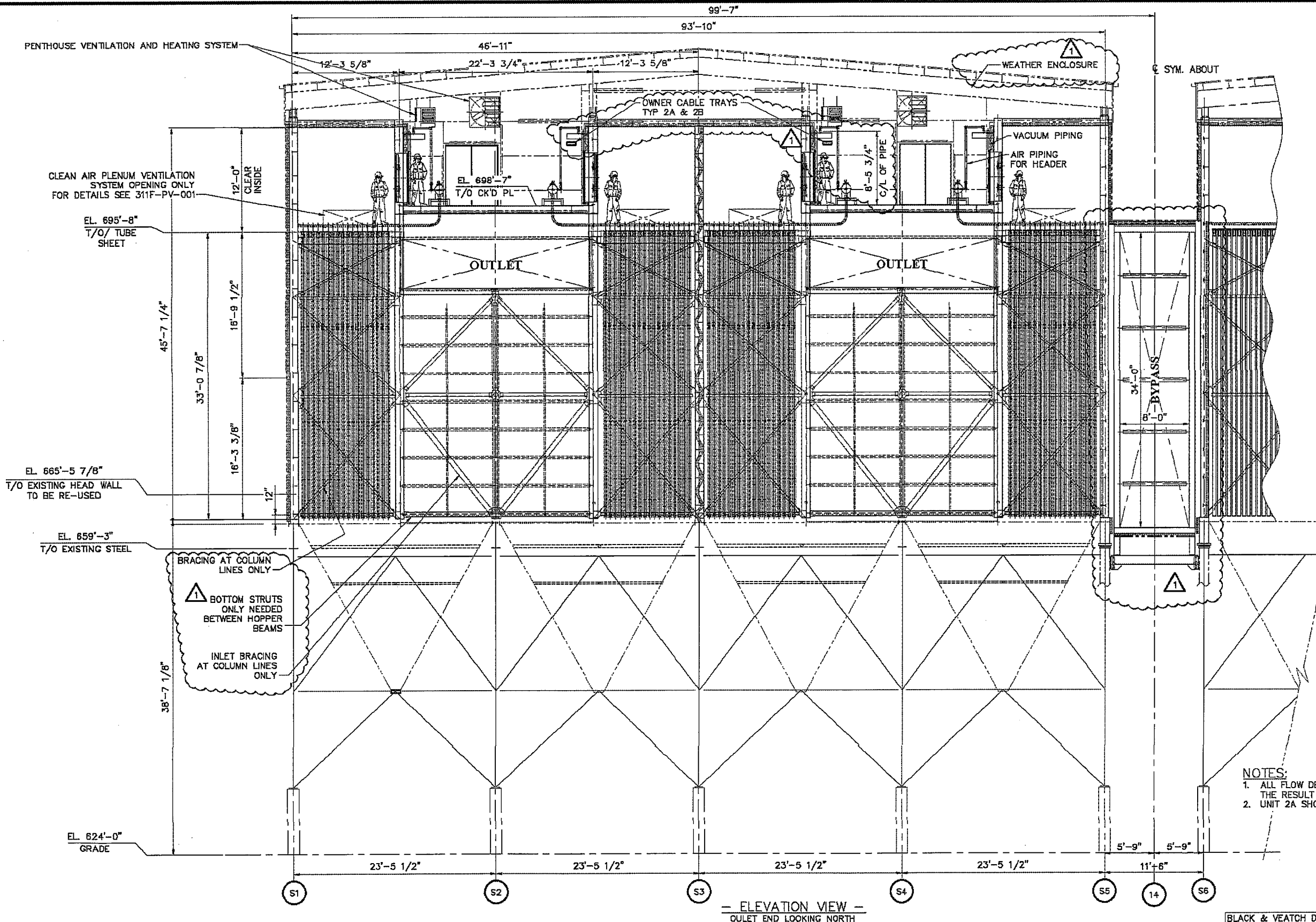
DATE	ISSUE	DATE	ISSUE	DATE	ISSUE	DATE	ISSUE
06/11/14	1	03/28/14	1	03/28/14	1	03/28/14	1
02/12/14	1	01/15/14	1	01/17/14	1		

DRAWN BY: LGS DATE: 12/3/13
 DESIGN BY: LGS DATE: 12/3/13
 CHECKED BY: DATE:
 SCALE: 3/16" = 1'-0" U.N.O.
 CUSTOMER PO NO:
 DRAWN BY: LGS
 DATE: 12/3/13
 CHECKED BY: DALE CAMPBELL
 DATE: 3/5/14
 CERTIFIED FOR CONSTRUCTION
 BY: DALE CAMPBELL

SOUTHERNenvironmental INC.
 Air Pollution Control Systems
 Pensacola, Florida
 6690 West Nine Mile Road • Pensacola FL 32528
 Phone: (850) 944-4475 • Fax: (850) 944-2270
 Website: www.SOUTHERNENVIRONMENTAL.com

CUSTOMER:	GRAND RIVER ENERGY CENTER CHOUTEAU, OK
PROJECT:	FABRIC FILTER PROJECT FOR UNIT 2 GRDA CONTRACT 40225
DWG. TITLE:	GENERAL ARRANGEMENT INLET END ELEVATION VIEW
DRAWING NUMBER:	3111F-GA-002

BUL28837 06-FEB-2015 14:15:21



NOTES:
 1. ALL FLOW DEVICES ARE NOT SHOWN AND WILL BE THE RESULT OF A FUTURE MODEL STUDY.
 2. UNIT 2A SHOWN, UNIT 2B SIMILAR

— ELEVATION VIEW —
 OUTLET END LOOKING NORTH

BLACK & VEATCH DRAWING NO: 177456.75.3120.-20003

REV	BY	DATE	DESCRIPTION	CHECKED
1	LGS	5/22/14	REVISED STEEL SIZING, ADDED UNDER TUBESHEET BRACING, PIPING, OWNER CABLE TRAY & REVISED BYPASS, INLET BRACING, WEATHER ENCLOSURE ISSUED FOR CONSTRUCTION	
0	LGS	3/5/14		
B	LGS	2/4/14	REVISED PER CUSTOMER COMMENTS	
A	LGS	1/9/14	ISSUED FOR APPROVAL	

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
02/17/14	LGS	ISSUED FOR CONSTRUCTION	12/3/13	LGS	DESIGN
01/28/14	LGS	ISSUED FOR CONSTRUCTION	12/3/13	LGS	DESIGN
02/25/14	LGS	ISSUED FOR CONSTRUCTION			
03/25/14	LGS	ISSUED FOR CONSTRUCTION			
05/15/14	LGS	ISSUED FOR CONSTRUCTION			
05/17/14	LGS	ISSUED FOR CONSTRUCTION			

3rd ANGLE PROJECTION

CERTIFIED FOR CONSTRUCTION
 DATE: 3/5/14
 BY: DALE CAMPBELL

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3111F-GA-003

SOUTHERNenvironmental INC.

Air Pollution Control Systems

Pensacola, Florida

6800 West Nine Mile Road • Pensacola FL 32528
 Phone: (850) 944-4475 • Fax: (850) 944-8270
 Website: www.SOUTHERNENVIRONMENTAL.com

CUSTOMER: GRAND RIVER ENERGY CENTER
 CHOUTEAU, OK

PROJECT: FABRIC FILTER PROJECT FOR UNIT 2
 GRDA CONTRACT 40225

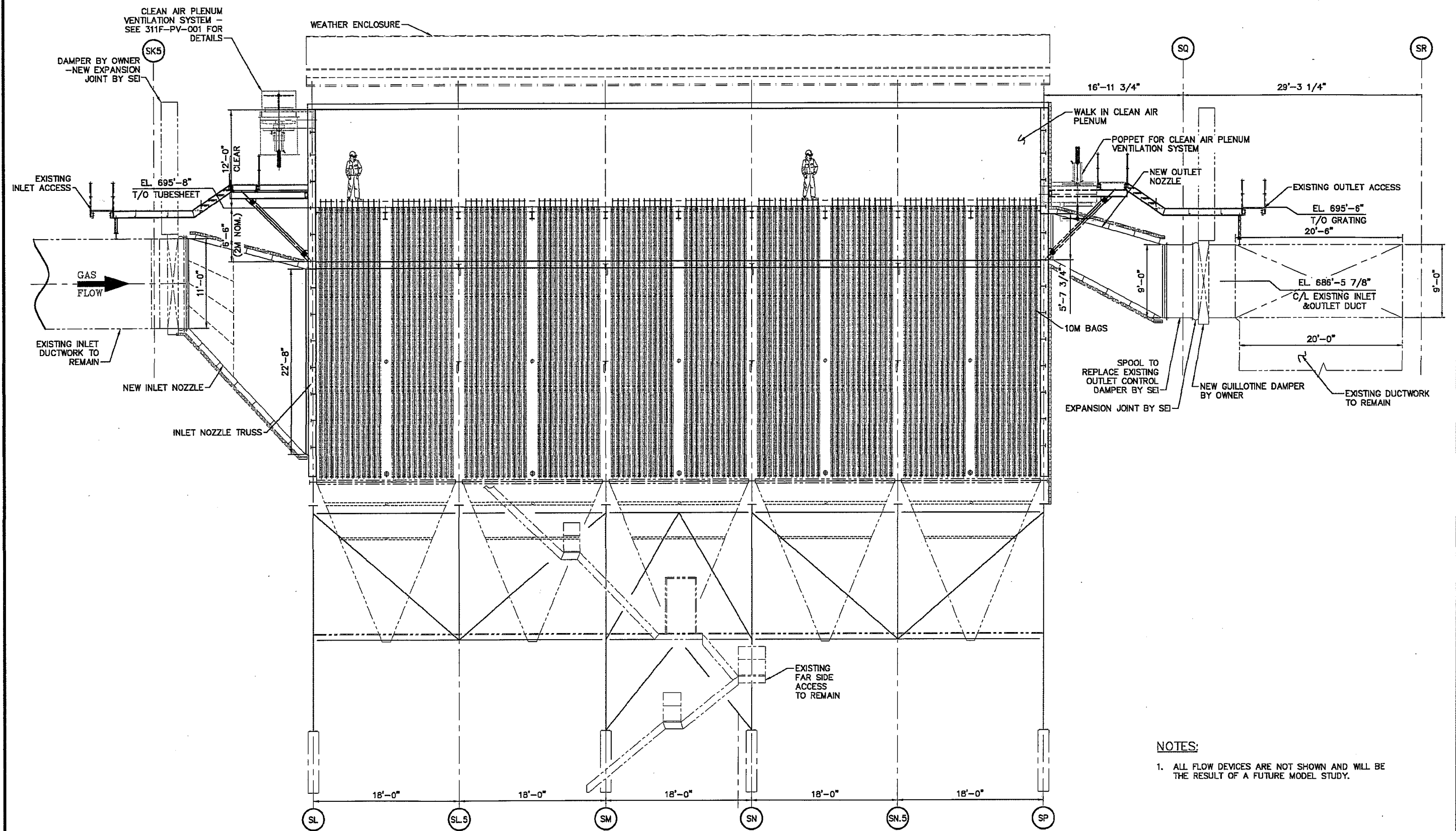
DWG. TITLE: GENERAL ARRANGEMENT
 OUTLET END FROM INSIDE CASING
 ELEVATION VIEW

DRAWING NUMBER: 3111F-GA-003

SCALE: 1" = 1'-0" U.N.O.

PLANT NUMBER: 1

BUL28837 06-FEB-2015 14:15:26



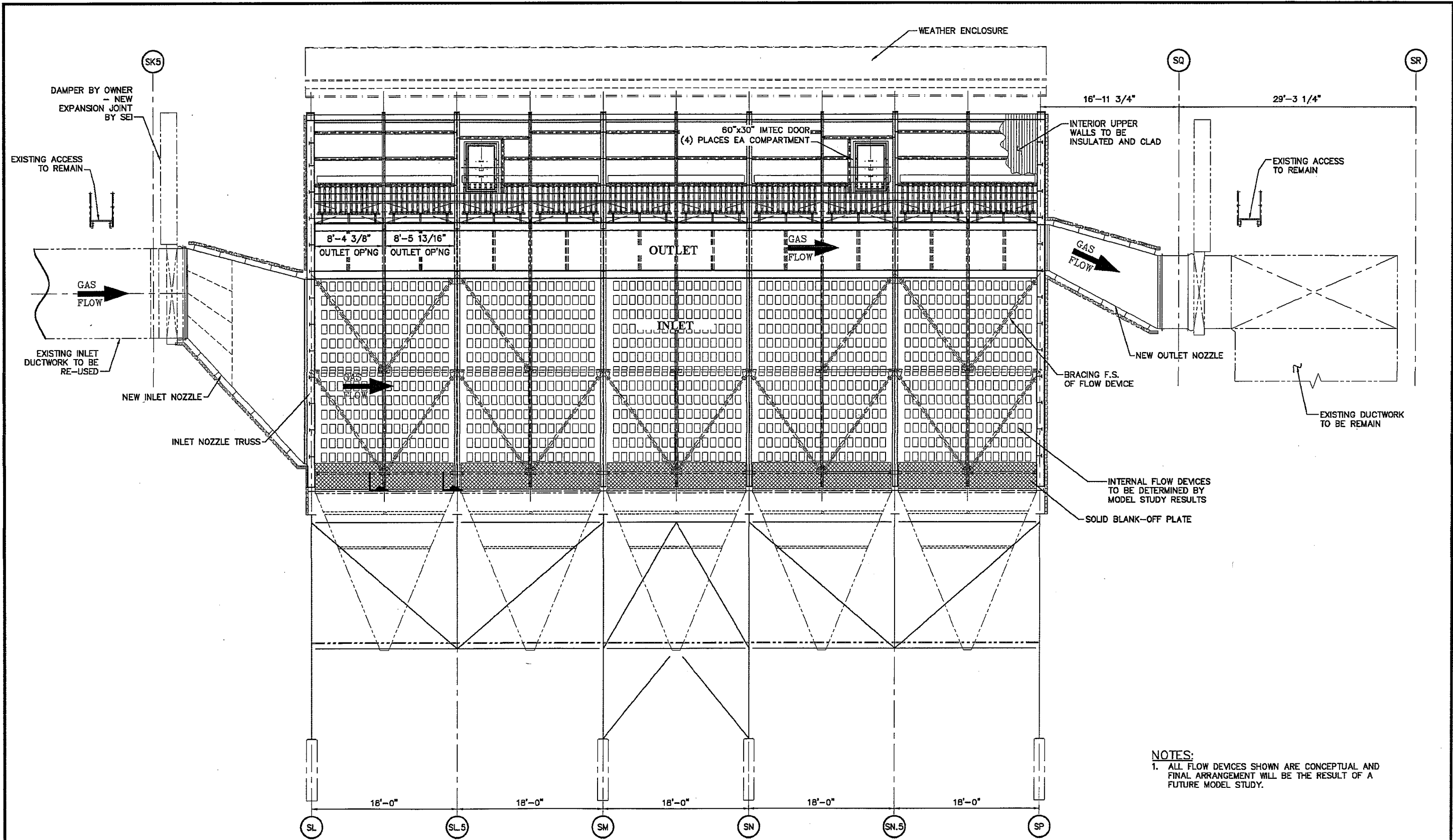
- SIDE ELEVATION VIEW -
 MID TUBESHEET - LOOKING EAST

NOTES:
 1. ALL FLOW DEVICES ARE NOT SHOWN AND WILL BE THE RESULT OF A FUTURE MODEL STUDY.

BLACK & VEATCH DRAWING NO: 177456.75.3120.-20004

<table border="1"> <tr><td>REV</td><td>BY</td><td>DATE</td><td>DESCRIPTION</td><td>CHECKED</td></tr> <tr><td>0</td><td>LGS</td><td>8/6/14</td><td>ISSUED FOR CONSTRUCTION</td><td></td></tr> <tr><td>D</td><td>LGS</td><td>5/23/14</td><td>REVISED STEEL SIZING, ACCESS, BAGHOUSE BRACING</td><td></td></tr> <tr><td>C</td><td>LGS</td><td>3/5/14</td><td>CLARIFIED OUTLET CONNECTIONS, ADDED INLET VANING</td><td></td></tr> <tr><td>B</td><td>LGS</td><td>2/4/14</td><td>ADDED CUSTOMER COMMENTS, REVISED INLET NOZZLE OPENING TO AGREE WITH GA-001</td><td></td></tr> <tr><td>A</td><td>LGS</td><td>1/8/14</td><td>REVISED PER CUSTOMER COMMENTS</td><td></td></tr> <tr><td></td><td></td><td></td><td>ISSUED FOR APPROVAL</td><td></td></tr> </table>		REV	BY	DATE	DESCRIPTION	CHECKED	0	LGS	8/6/14	ISSUED FOR CONSTRUCTION		D	LGS	5/23/14	REVISED STEEL SIZING, ACCESS, BAGHOUSE BRACING		C	LGS	3/5/14	CLARIFIED OUTLET CONNECTIONS, ADDED INLET VANING		B	LGS	2/4/14	ADDED CUSTOMER COMMENTS, REVISED INLET NOZZLE OPENING TO AGREE WITH GA-001		A	LGS	1/8/14	REVISED PER CUSTOMER COMMENTS					ISSUED FOR APPROVAL		<table border="1"> <tr><td>DATE</td><td>ISSUE</td><td>DATE</td><td>ISSUE</td><td>DATE</td><td>ISSUE</td><td>DATE</td><td>ISSUE</td></tr> <tr><td>08/27/14</td><td>1</td><td>08/27/14</td><td>1</td><td>08/27/14</td><td>1</td><td>08/27/14</td><td>1</td></tr> <tr><td>09/11/14</td><td>1</td><td>09/11/14</td><td>1</td><td>09/11/14</td><td>1</td><td>09/11/14</td><td>1</td></tr> <tr><td>03/25/14</td><td>1</td><td>03/25/14</td><td>1</td><td>03/25/14</td><td>1</td><td>03/25/14</td><td>1</td></tr> <tr><td>01/15/14</td><td>1</td><td>01/15/14</td><td>1</td><td>01/15/14</td><td>1</td><td>01/15/14</td><td>1</td></tr> <tr><td>02/12/14</td><td>1</td><td>02/12/14</td><td>1</td><td>02/12/14</td><td>1</td><td>02/12/14</td><td>1</td></tr> <tr><td>01/15/14</td><td>1</td><td>01/15/14</td><td>1</td><td>01/15/14</td><td>1</td><td>01/15/14</td><td>1</td></tr> <tr><td>01/15/14</td><td>1</td><td>01/15/14</td><td>1</td><td>01/15/14</td><td>1</td><td>01/15/14</td><td>1</td></tr> </table>		DATE	ISSUE	DATE	ISSUE	DATE	ISSUE	DATE	ISSUE	08/27/14	1	08/27/14	1	08/27/14	1	08/27/14	1	09/11/14	1	09/11/14	1	09/11/14	1	09/11/14	1	03/25/14	1	03/25/14	1	03/25/14	1	03/25/14	1	01/15/14	1	01/15/14	1	01/15/14	1	01/15/14	1	02/12/14	1	02/12/14	1	02/12/14	1	02/12/14	1	01/15/14	1	01/15/14	1	01/15/14	1	01/15/14	1	01/15/14	1	01/15/14	1	01/15/14	1	01/15/14	1	<table border="1"> <tr><td>DATE</td><td>ISSUE</td><td>DATE</td><td>ISSUE</td></tr> <tr><td>12/3/13</td><td>1</td><td>12/3/13</td><td>1</td></tr> <tr><td>12/3/13</td><td>1</td><td>12/3/13</td><td>1</td></tr> </table>		DATE	ISSUE	DATE	ISSUE	12/3/13	1	12/3/13	1	12/3/13	1	12/3/13	1	<p>CERTIFIED FOR CONSTRUCTION</p> <p>DATE: 8/6/14</p> <p>BY: DALE CAMPBELL</p>		<p>SOUTHERNenvironmental INC.</p> <p>Air Pollution Control Systems</p> <p>Pensacola, Florida</p> <p>6500 West Nine Mile Road • Pensacola FL 32526 Phone: (850) 944-4475 • Fax: (850) 944-8270 Website: www.SOUTHERNENVIRONMENTAL.com</p>		<p>CUSTOMER: GRAND RIVER ENERGY CENTER CHOCTEAU, OK</p> <p>PROJECT: FABRIC FILTER PROJECT FOR UNIT 2 GRDA CONTRACT 40225</p> <p>DRW. TITLE: GENERAL ARRANGEMENT INTERNAL SIDE ELEVATION AT MIDDLE OF THE TUBESHEET</p> <p>3111F-GA-004</p>	
REV	BY	DATE	DESCRIPTION	CHECKED																																																																																																																						
0	LGS	8/6/14	ISSUED FOR CONSTRUCTION																																																																																																																							
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12/3/13	1	12/3/13	1																																																																																																																							

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- SIDE ELEVATION VIEW -
 @ MID COMPARTMENT LOOKING EAST

NOTES:
 1. ALL FLOW DEVICES SHOWN ARE CONCEPTUAL AND FINAL ARRANGEMENT WILL BE THE RESULT OF A FUTURE MODEL STUDY.

BLACK & VEATCH DRAWING NO: 177456.75.3120.-20005

REV	BY	DATE	DESCRIPTION	CHECKED
O	LGS	8/6/14	ISSUED FOR CONSTRUCTION	
E	LGS	7/17/14	ADDED WEATHER ENCLOSURE LABEL	
D	LGS	5/23/14	ADDED REVISED BAGHOUSE BRACING, REVISED STEEL SIZING, ADDED INLET VANING	
C	LGS	3/5/14	REVISED PER CUSTOMER COMMENTS	
B	LGS	2/4/14	REVISED PER CUSTOMER COMMENTS	
A	LGS	1/8/14	ISSUED FOR APPROVAL	

DATE	ISSUE	DATE	ISSUE	DATE	ISSUE	DATE	ISSUE
08/07/14	1 PCS	07/16/14	1 PCS	05/11/14	05/12/14	03/28/14	03/28/14
02/24/14	1 PCS	02/25/14	1 PCS	01/15/14	01/17/14	01/08/14	01/08/14

DRAWN BY: LGS DATE: 12/3/13
 DESIGN BY: LGS DATE: 12/3/13
 CHECKED BY: DATE:
 SCALE: 3/16" = 1'-0" U.N.O.
 CUSTOMER PO NO:
 SHOP ORDER NO:
 FILE NAME: 3111F-GA-005

CERTIFIED FOR CONSTRUCTION
 DATE: 8/6/14
 BY: DALE CAMPBELL

3rd ANGLE PROJECTION

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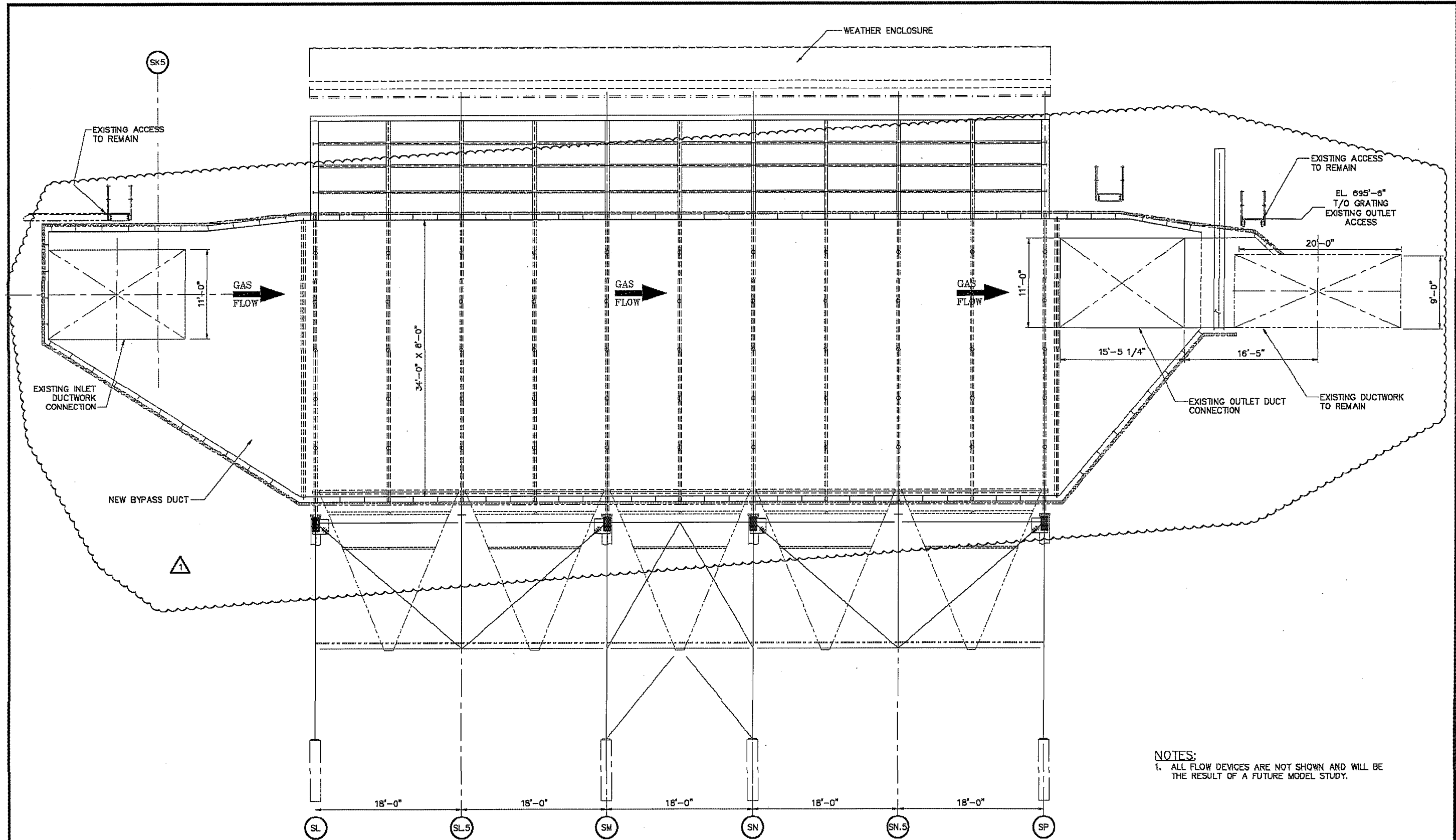
SOUTHERNenvironmental INC.
 Air Pollution Control Systems
 Pensacola, Florida

8390 West Nine Mile Road • Pensacola FL 32526
 Phone: (850) 944-4475 • Fax: (850) 944-8270
 Website: www.SOUTHERNENVIRONMENTAL.com

CUSTOMER:	GRAND RIVER ENERGY CENTER CHOUTEAU, OK
PROJECT:	FABRIC FILTER PROJECT FOR UNIT 2 GRDA CONTRACT 40225
DWG. TITL.:	GENERAL ARRANGEMENT INTERNAL SIDE ELEVATION AT MID COMPARTMENT
DRAWING NUMBER:	3111F-GA-005

PLOT FACTOR: 64

BUL28837 06-FEB-2015 14:15:39



NOTES:
 1. ALL FLOW DEVICES ARE NOT SHOWN AND WILL BE THE RESULT OF A FUTURE MODEL STUDY.

- SIDE ELEVATION VIEW -
 @ BYPASS DUCT LOOKING EAST

BLACK & VEATCH DRAWING NO: 177456.75.3120.-20006

REV	BY	DATE	DESCRIPTION	CHECKED
I	LGS	5/21/14	UPDATED BYPASS DIMENSIONS	
O	LGS	3/26/14	ISSUED FOR CONSTRUCTION	
B	LGS	2/4/14	REVISED PER CUSTOMER COMMENTS	
A	LGS	1/6/14	ISSUED FOR APPROVAL	

DATE	ISSUE	DATE	ISSUE	DATE	ISSUE	DATE	ISSUE
08/11/14	1	03/28/14	1	03/28/14	1	03/28/14	1
01/15/14	1	01/17/14	1	02/12/14	1		

DESIGNED BY:	LGS	DATE:	12/3/13
CHECKED BY:	LGS	DATE:	12/3/13
SCALE:	3/16" = 1'-0" U.N.O.		
CUSTOMER PO NO:			
SPRO ORDER NO:			
DATE:	02/12/14	BY:	DALE CAMPBELL
QUOTE:	3111F-GA-006		

CERTIFIED FOR CONSTRUCTION
 DATE: 3/26/14
 BY: DALE CAMPBELL

3rd ANGLE PROJECTION

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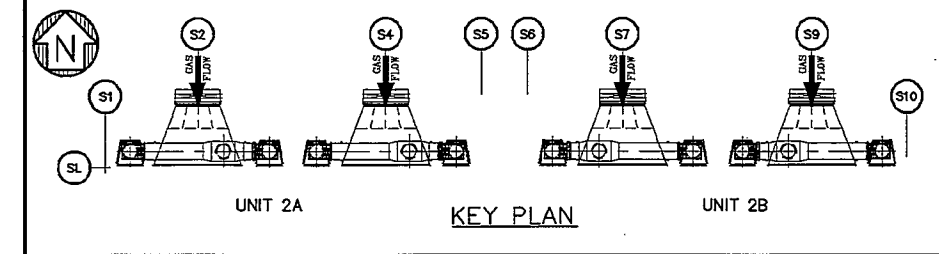
SOUTHERNenvironmental INC.

Air Pollution Control Systems
 Pensacola, Florida

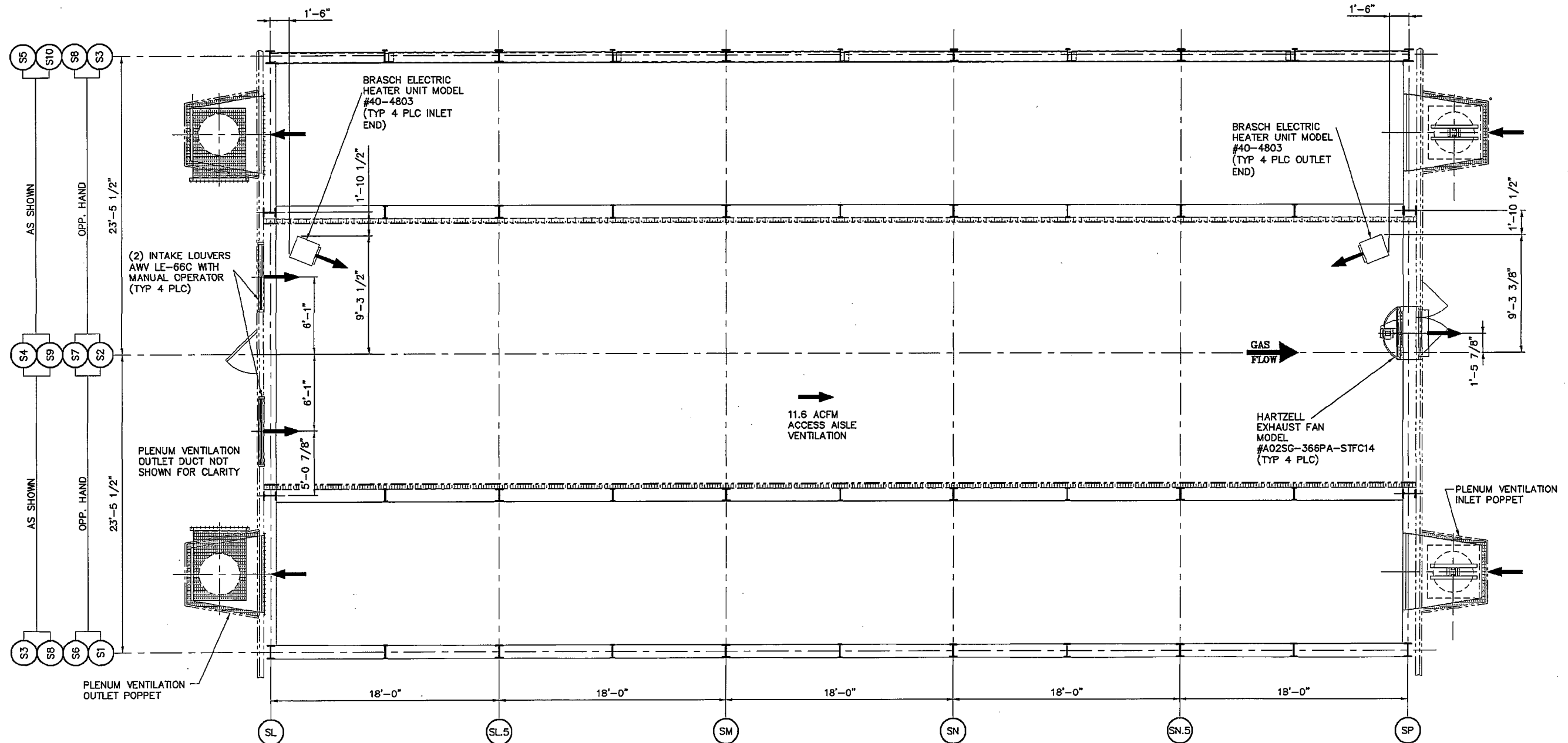
8890 West Nine Mile Road • Pensacola FL 32526
 Phone: (850) 844-1475 • Fax: (850) 844-8270
 Website: www.SOUTHERNENVIRONMENTAL.com

CUSTOMER:	GRAND RIVER DAM AUTHORITY CHOUTEAU, OK
PROJECT:	FABRIC FILTER PROJECT FOR UNIT 2 GRDA CONTRACT 40225
DWG. TITLE:	GENERAL ARRANGEMENT INTERNAL SIDE ELEVATION AT BYPASS DUCT
DRAWING NUMBER:	3111F-GA-006
REV:	1

BUL28837 06-FEB-2015 14:17:02



UNIT-2B EAST SIDE



- PLAN VIEW -

BLACK & VEATCH DRAWING NO: 177456.75.3120.-

REV	BY	DATE	DESCRIPTION	CHECKED
0	SLC	7/1/14	ISSUED FOR APPROVAL	XXX

DATE	ISSUE	DATE	ISSUE	DATE	ISSUE	DATE	ISSUE	DATE	ISSUE
07/02/14	1								

DESIGN BY:	SLC	DATE:	7/1/14
CHECKED BY:	PG	DATE:	7/1/14
SCALE:	1/4" = 1'-0"		
CUSTOMER PG No:			
SHIP ORDER No:			
FILE NAME:			

3rd ANGLE PROJECTION

ISSUED FOR APPROVAL

DATE: _____

BY: _____

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SOUTHERNenvironmental INC.

Air Pollution Control Systems

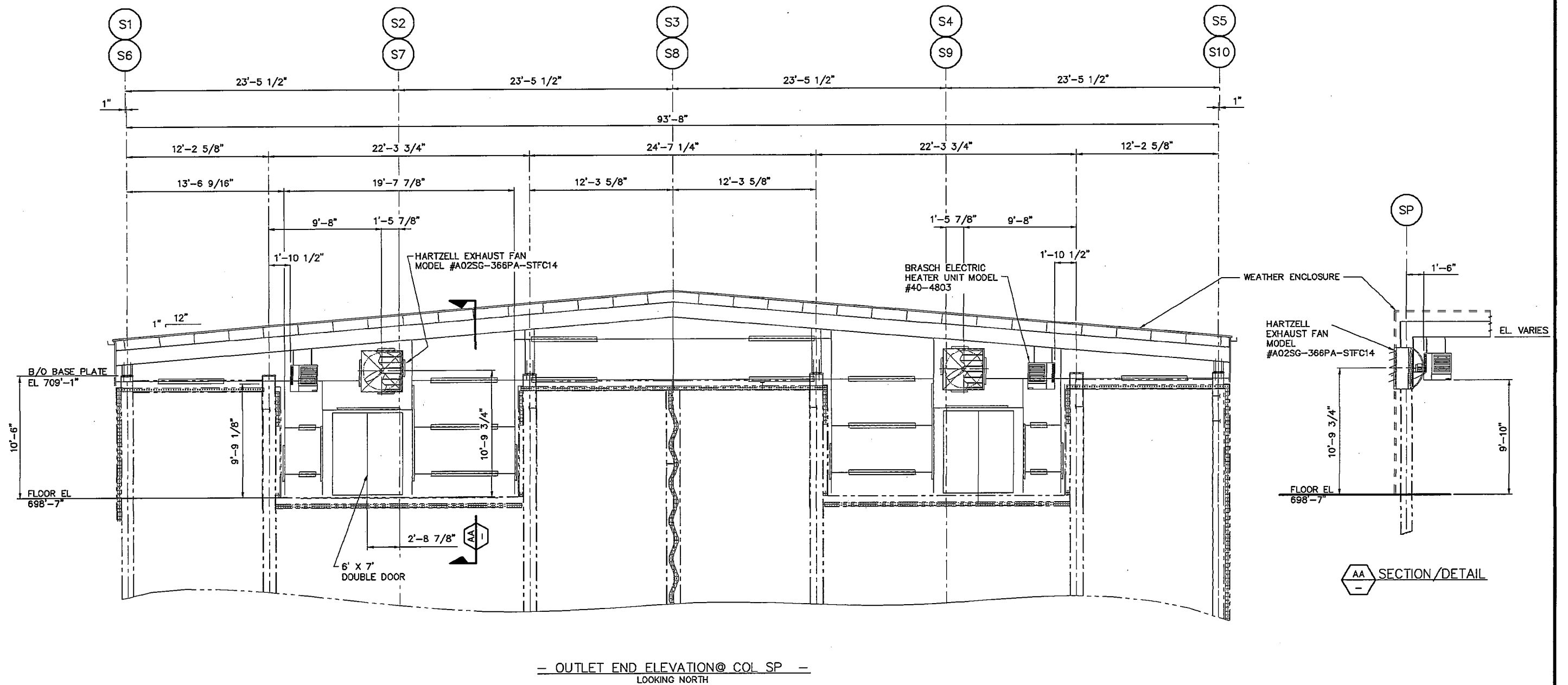
Pensacola, Florida

6500 West Nine Mile Road • Pensacola, FL 32526
 Phone: (850) 944-4475 • Fax: (850) 944-8270
 Website: www.SOUTHERNENVIRONMENTAL.com

CUSTOMER:	GRAND RIVER DAM AUTHORITY CHOUTEAU, OK
PROJECT:	FABRIC FILTER PROJECT FOR UNIT 2 GRDA CONTRACT 40225
DWG. TITLE:	GENERAL ARRANGEMENT VENTILATION AND HEATING SYSTEM SHOWING HEATERS, FANS & LOUVERS
DRAWING NUMBER:	3111F-HV-001
REV:	0

PLOT FACTOR: 48

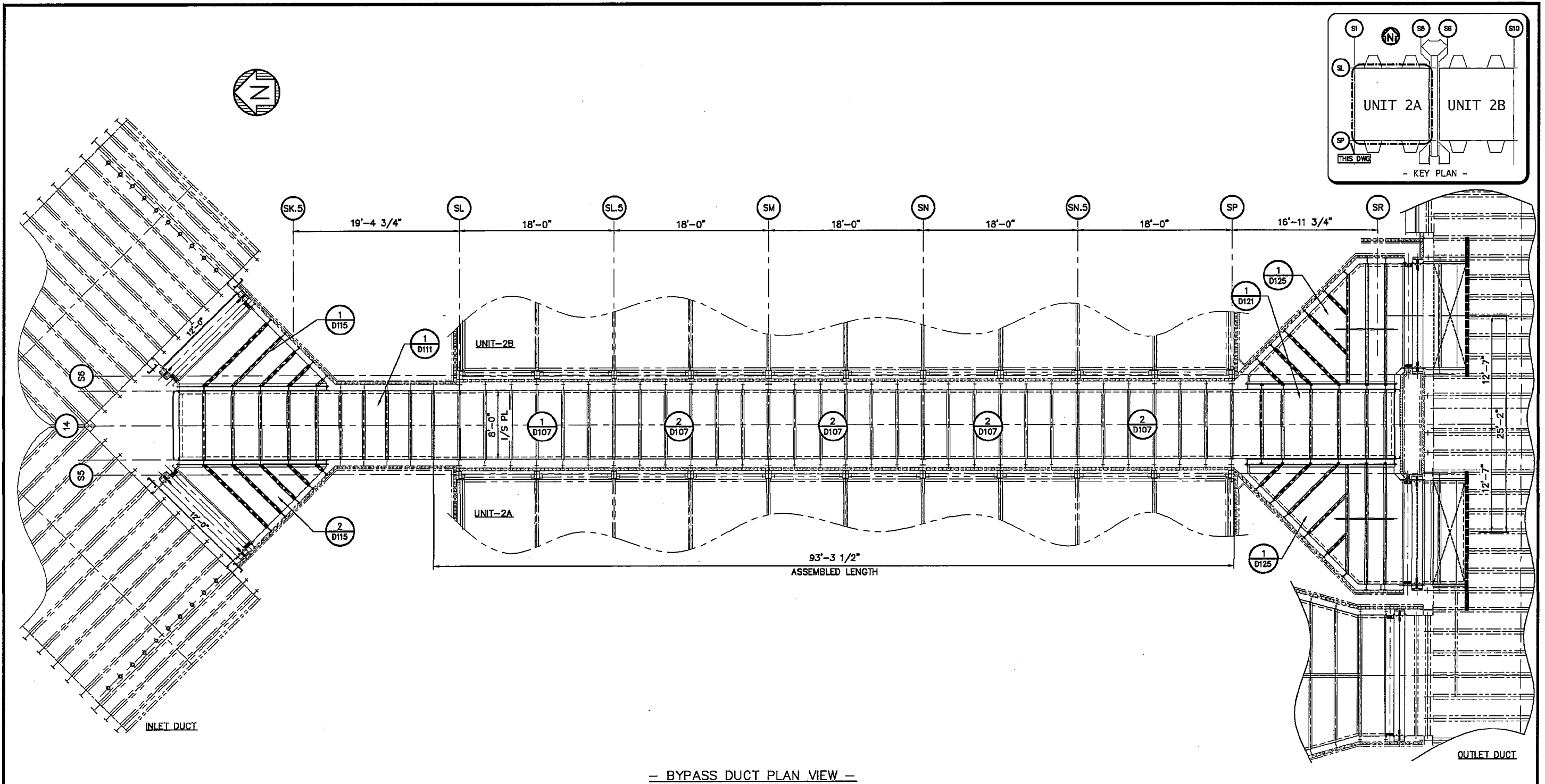
BUL28837 06-FEB-2015 14:17:02



BLACK & VEATCH DRAWING NO: 177456.75.3120.-

<table border="1"> <thead> <tr> <th>REV</th> <th>BY</th> <th>DATE</th> <th>DESCRIPTION</th> <th>CHECKED</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>SLC</td> <td>7/1/14</td> <td>ISSUED FOR APPROVAL</td> <td></td> </tr> </tbody> </table>				REV	BY	DATE	DESCRIPTION	CHECKED	0	SLC	7/1/14	ISSUED FOR APPROVAL		<table border="1"> <thead> <tr> <th>DATE</th> <th>ISSUE</th> <th>DATE</th> <th>ISSUE</th> <th>DATE</th> <th>ISSUE</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				DATE	ISSUE	DATE	ISSUE	DATE	ISSUE																																																							<table border="1"> <tr> <td>DRAWN BY:</td> <td>SLC</td> <td>DATE:</td> <td>7/1/14</td> </tr> <tr> <td>DESIGN BY:</td> <td>PG</td> <td>DATE:</td> <td>7/1/14</td> </tr> <tr> <td>CHECKED BY:</td> <td></td> <td>DATE:</td> <td></td> </tr> <tr> <td>SCALE:</td> <td colspan="3">1/4" = 1'-0"</td> </tr> <tr> <td>CUSTOMER PO No:</td> <td colspan="3"></td> </tr> <tr> <td>SHOP ORDER No:</td> <td colspan="3"></td> </tr> <tr> <td>FILE NAME:</td> <td colspan="3">3111F-HV-002</td> </tr> </table>		DRAWN BY:	SLC	DATE:	7/1/14	DESIGN BY:	PG	DATE:	7/1/14	CHECKED BY:		DATE:		SCALE:	1/4" = 1'-0"			CUSTOMER PO No:				SHOP ORDER No:				FILE NAME:	3111F-HV-002			<p>ISSUED FOR APPROVAL</p> <p>DATE: _____</p> <p>BY: _____</p>		<p>SOUTHERNenvironmental INC.</p> <p>Air Pollution Control Systems</p> <p>Pensacola, Florida</p> <p>6690 West Nine Mile Road • Pensacola FL 32526 Phone: (850) 944-4475 • Fax: (850) 944-8270 Website: www.SOUTHERNENVIRONMENTAL.com</p>		<table border="1"> <tr> <td>CUSTOMER:</td> <td>GRAND RIVER DAM AUTHORITY CHOUTEAU, OK</td> </tr> <tr> <td>PROJECT:</td> <td>FABRIC FILTER PROJECT FOR UNIT 2 GRDA CONTRACT 40225</td> </tr> <tr> <td>DWG. TITLE:</td> <td>HV LAYOUT ELEVATION OUTLET END SHOWING HEATERS AND EXHAUST FANS</td> </tr> <tr> <td>DRAWING NUMBER:</td> <td>3111F-HV-002</td> </tr> </table>		CUSTOMER:	GRAND RIVER DAM AUTHORITY CHOUTEAU, OK	PROJECT:	FABRIC FILTER PROJECT FOR UNIT 2 GRDA CONTRACT 40225	DWG. TITLE:	HV LAYOUT ELEVATION OUTLET END SHOWING HEATERS AND EXHAUST FANS	DRAWING NUMBER:	3111F-HV-002
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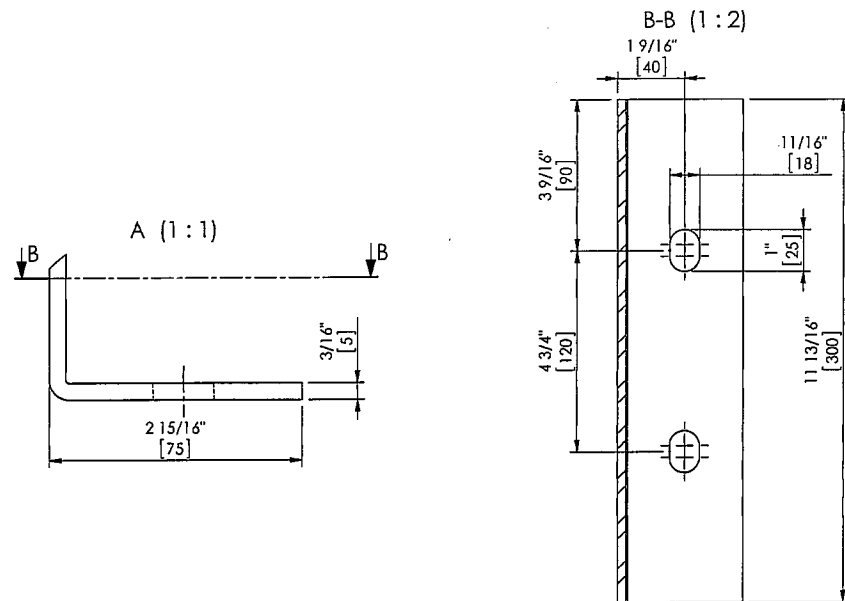
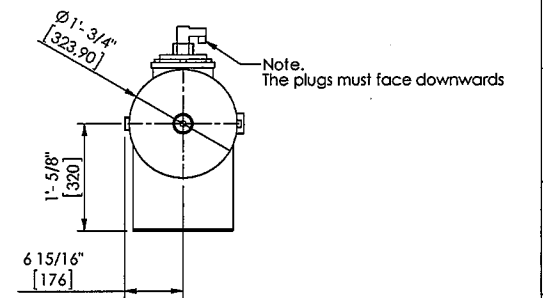
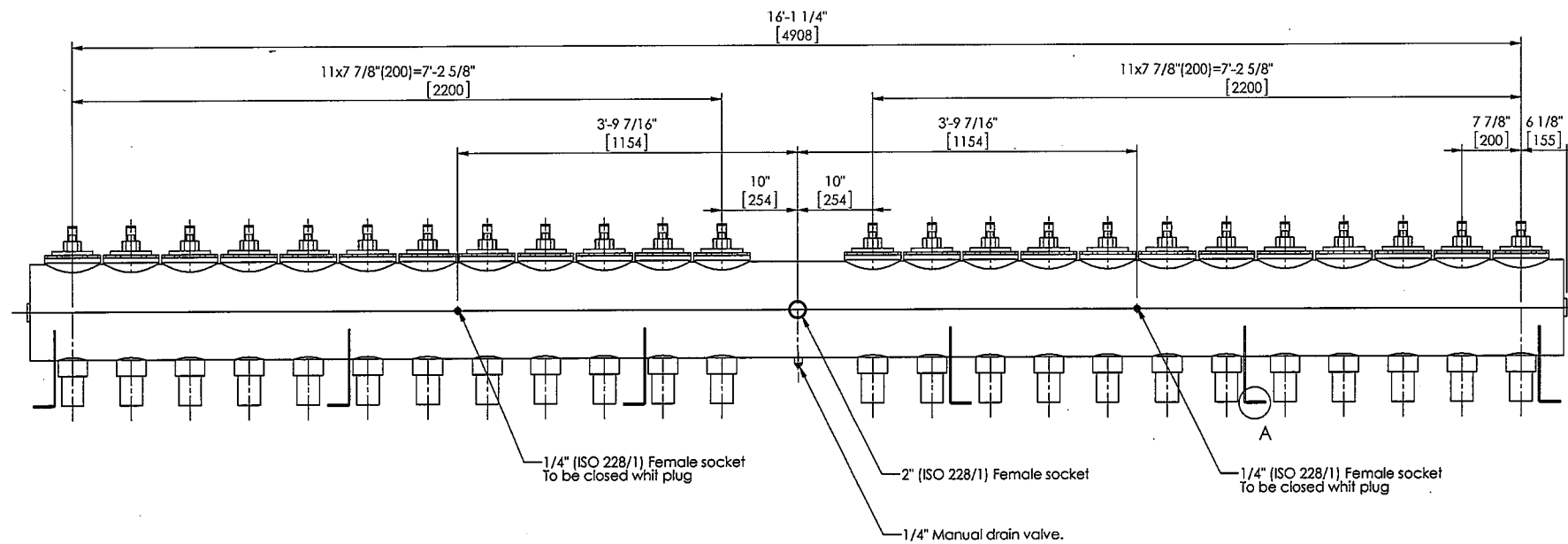
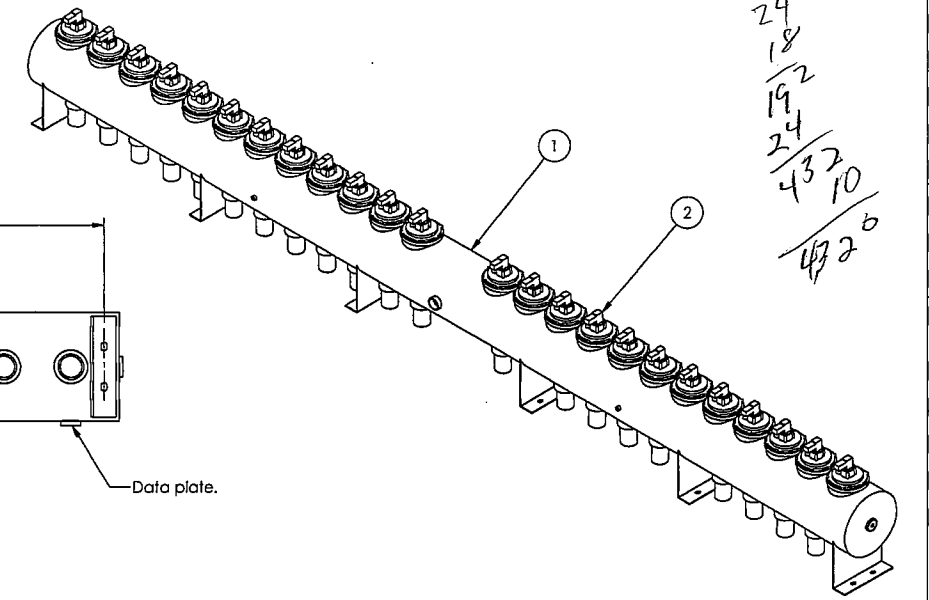
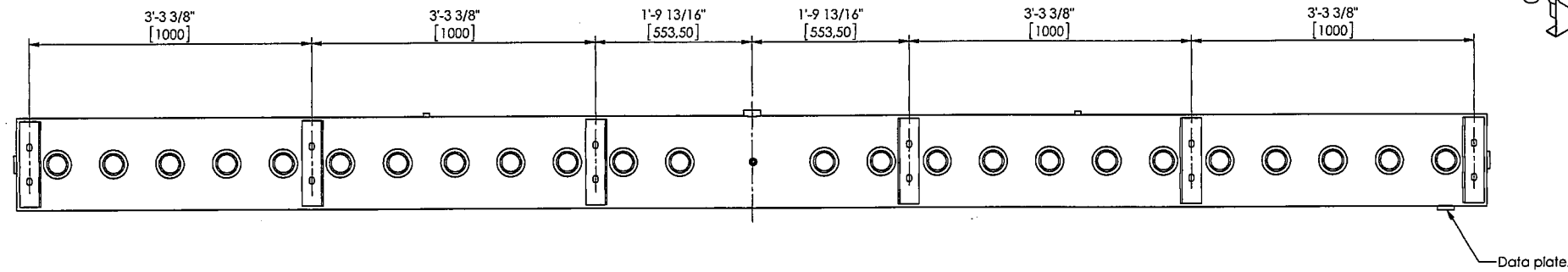
— BYPASS DUCT PLAN VIEW —

BLACK & VEATCH DRAWING NO: 177456.75.3120.-

<table border="1"> <tr> <th>REV</th> <th>BY</th> <th>DATE</th> <th>DESCRIPTION</th> <th>CHECKED</th> </tr> <tr> <td>A</td> <td>LGS</td> <td>8/15/14</td> <td>ISSUED FOR APPROVAL</td> <td></td> </tr> </table>			REV	BY	DATE	DESCRIPTION	CHECKED	A	LGS	8/15/14	ISSUED FOR APPROVAL		<table border="1"> <tr> <th>DATE</th> <th>ISSUE</th> <th>DATE</th> <th>ISSUE</th> <th>DATE</th> <th>ISSUE</th> <th>DATE</th> <th>ISSUE</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>			DATE	ISSUE	DATE	ISSUE	DATE	ISSUE	DATE	ISSUE									<table border="1"> <tr> <td>DATE</td> <td>8/4/14</td> </tr> <tr> <td>DESIGN BY</td> <td>LGS</td> </tr> <tr> <td>DATE</td> <td>8/4/14</td> </tr> <tr> <td>SCALE FOR D-SIZE</td> <td>3/16" = 1'-0"</td> </tr> <tr> <td>CUSTOMER PO No</td> <td></td> </tr> <tr> <td>SHIP ORDER No</td> <td>3111F-D-100</td> </tr> </table>			DATE	8/4/14	DESIGN BY	LGS	DATE	8/4/14	SCALE FOR D-SIZE	3/16" = 1'-0"	CUSTOMER PO No		SHIP ORDER No	3111F-D-100	<p>ISSUED FOR APPROVAL</p> <p>DATE: _____ BY: _____</p> <p>3rd ANGLE PROJECTION</p> <p>THIS DOCUMENT CONTAINS PROPRIETARY AND CONFIDENTIAL INFORMATION WHICH IS THE PROPERTY OF SOUTHERN ENVIRONMENTAL, INC. IT IS FURNISHED WITH THE UNDERSTANDING THAT IT MAY BE USED ONLY BY THE PARTY TO WHOM IT IS ISSUED, AND THAT IT IS RETURNABLE ON DEMAND.</p> <p>NOTE: USE DIMENSIONS SHOWN ONLY. DO NOT SCALE DRAWING.</p>			<p>SOUTHERNenvironmental inc.</p> <p><i>Air Pollution Control Systems</i></p> <p>Pensacola, Florida</p> <p>6990 West Nine Mile Road • Pensacola FL 32526 Phone: (850) 944-4478 • Fax: (850) 944-8270 Website: www.SOUTHERNENVIRONMENTAL.com</p>			<table border="1"> <tr> <td>CUSTOMER</td> <td>GRAND RIVER ENERGY CENTER CHOUTEAU, OK</td> </tr> <tr> <td>PROJECT</td> <td>FABRIC FILTER PROJECT FOR UNIT 2 GRDA CONTRACT 40225</td> </tr> <tr> <td>DWG. TITLE</td> <td>DUCTWORK BYPASS DUCT PLAN VIEW</td> </tr> <tr> <td>DRAWING NUMBER</td> <td>3111F-D-100</td> </tr> </table>			CUSTOMER	GRAND RIVER ENERGY CENTER CHOUTEAU, OK	PROJECT	FABRIC FILTER PROJECT FOR UNIT 2 GRDA CONTRACT 40225	DWG. TITLE	DUCTWORK BYPASS DUCT PLAN VIEW	DRAWING NUMBER	3111F-D-100
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DRAWING NUMBER	3111F-D-100																																																														

PLOT FACTOR: 64

BUL28837 06-FEB-2015 14:26:00



Design information

Project:
Project name: SEI-GRDA ESP TO FF
Project no.: 11/20673
Network no.: 5505481

Design data:
Number of diaphragm valves per air manifold: 24
Design, material, welding specifications and data plate to be in accordance with: ASME Section VIII Div 1, and to ASEM "U" stamp code requirements.

Medium: Air
Working pressure: 87 psi [6 bar]
Working temperature: +113 F / -31 F (+45° C / -30° C)

Painting specification:
Internal: None
External: Vendor standard

Diaphragm valves:
Diaphragm valve with solenoid valve, size: 2 1/2"
Voltage for solenoid valve: 24 V DC
Power consumption of solenoid valve must be 0,5 ampere or less

General notes:
Inside the air manifold must be clean and free from loose objects.
All tubes to be filled with simple plastic plugs prior to delivery.
Test certificate for each vessel must be forwarded to FLSmidth Airtech.

Replace with "Vessel to meet requirements of this Division and be stamped with the Certification Mark with the "U" Designator."

please note material

Pos.	Qty.	Part no.	Draw.no.	Description	Mat. desc.	Lb(W)	PF Code	Mat.	kg/pcs.
1	1			Tank		12'			67
2	24			Diaphragm valve		2 1/2"			

Scale: 1:10
Drawn: AAB
Appr: MCHR
Appr. Date: 21 Jan 15
Zone/Descr.: Pattern no. embossed/countersunk

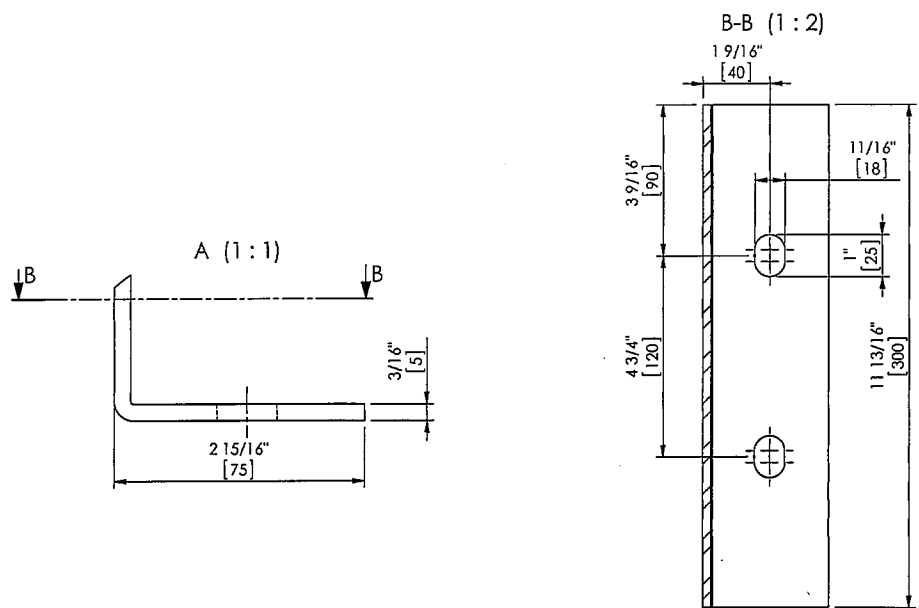
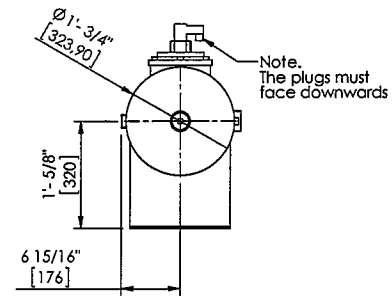
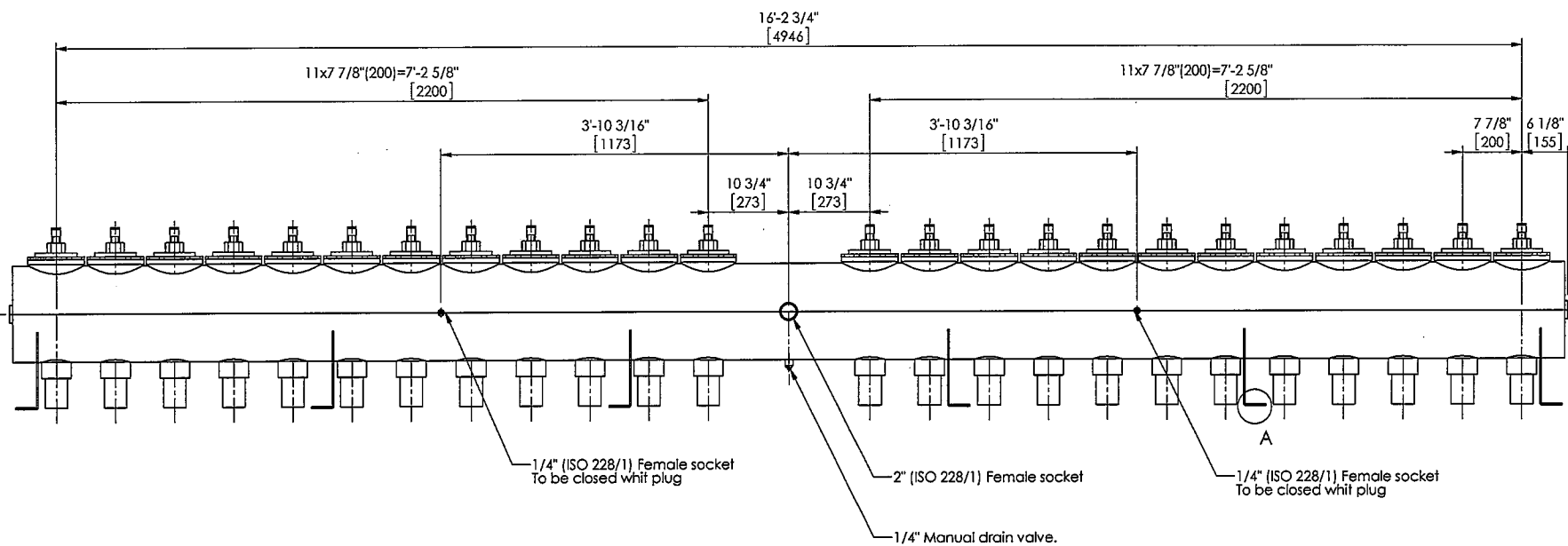
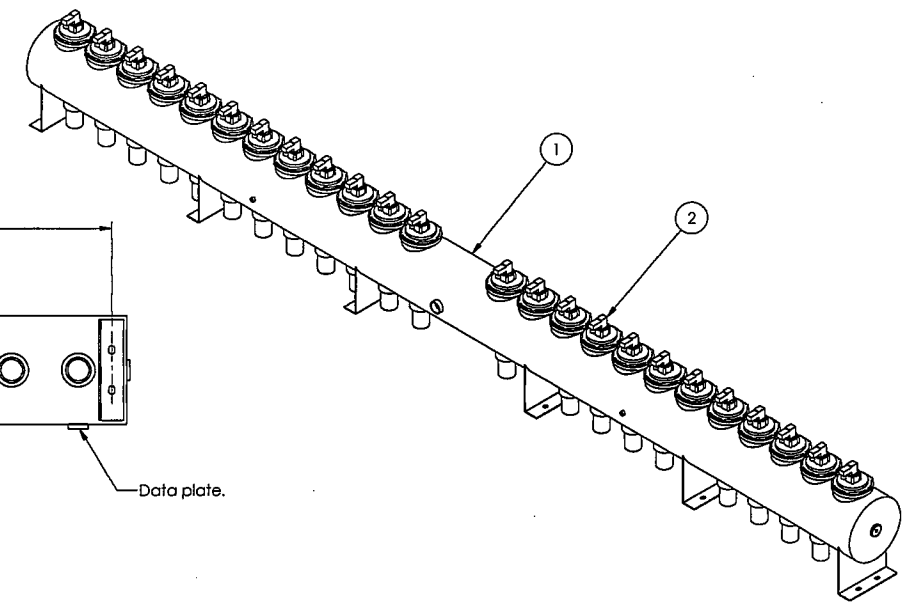
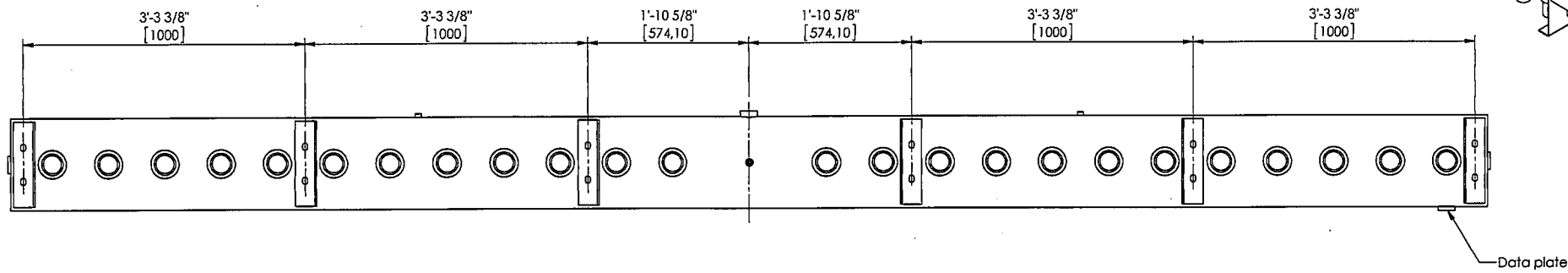
Pulse-Jet fabric Filter
SEI-GRDA Power
2520
Air manifold inlet outlet

Mat.: Weight: 335.71 kg
Welds: ISO-E ISO-E

Unless otherwise specified, adhere to General Workshop Instructions No. 500530.
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FLSMIDTH No.: 13088735 Ver.: 5.0

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Design information

Project:
 Project name: SEI-GRDA ESP TO FF
 Project no.: 11/20673
 Network no.: 5503481

Design data:
 Number of diaphragm valves per air manifold: 24
 Design, material, welding specifications and data plate to be in accordance with: ASME Section VIII Div 1, and to ASEM "U" stamp code requirements.

Medium: Air
 Working pressure: 87 psi (6 bar)
 Working temperature: +113 F / - 31 F (+45° C / -30° C)

Painting specification:
 Internal: None
 External: Vendor standard

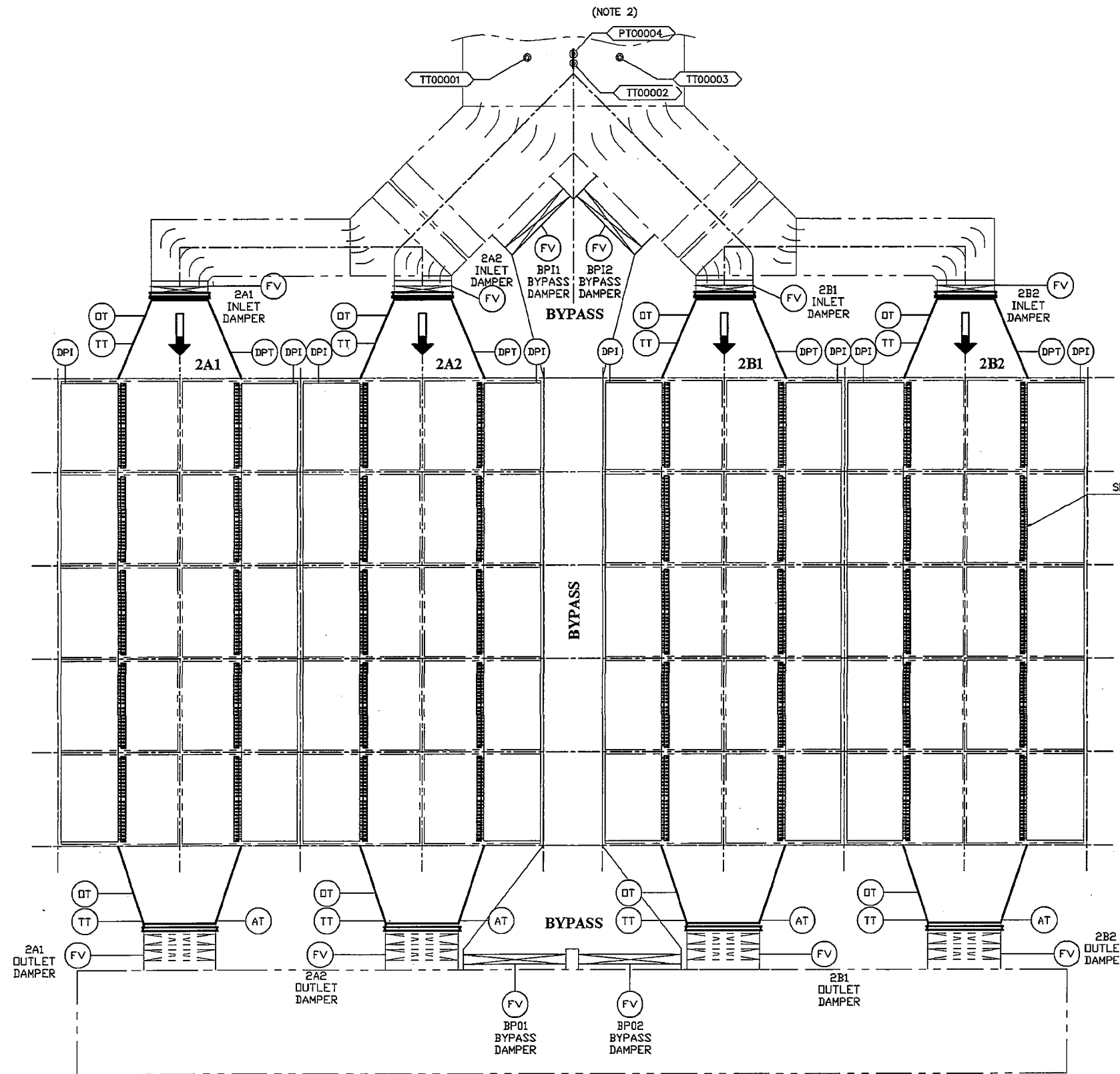
Diaphragm valves:
 Diaphragm valve with solenoid valve, size: 2 1/2"
 Voltage for solenoid valve: 24 V DC
 Power consumption of solenoid valve must be 0.5 ampere or less

General notes:
 Inside the air manifold must be clean and free from loose objects.
 All tubes to be fitted with simple plastic plugs prior to delivery.
 Test certificate for each vessel must be forwarded to FLSmidth Airtech.

please see comments on 2520 (same applies)

Pos.	Qty.	Part no.	Drawn.	Description	Mat. desc.	LxW	PP Code	Mat.	kg/pcs.
1	1			Tank		12"			67
2	24			Diaphragm valve		2"			
Scale: 1:10 Drawn: AAB Appr. MCHR Appr. Date: 21 Jan 15 Zone/Descr.: Patiem no.: embossed/countersunk									
Pulse-Jet fabric Filter SEI-GRDA Power 2521 Air manifold Center									
Mat.:		Weight: 337.09 kg		Welds: ISO-E ISO-E					
Unless otherwise specified, adhere to General Workshop Instructions No. 520330.									
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FLSMIDTH		No.: 13088739		Ver.: 5.0					

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SEE SHEETS 3 THROUGH 6 FOR COMPARTMENT INSTRUMENT DETAILS

SEE SHEETS 3 THROUGH 6 FOR PULSE VALVE DETAILS

NOTES:
 1) ALL EQUIPMENT TAG NUMBERS ARE PREFACED WITH "2CCB-"
 2) DPI, DPT & PT BLOWBACK DETAIL ON 3111F-PI-09.

PRELIMINARY

BLACK & VEATCH DRAWING NO: 177456.75.3120.05-24002

REV	BY	DATE	DESCRIPTION	CHECKED
E	RKB	07/01/14	CORRECTED DPI & DPT DETAILS	
D	RKB	05/29/14	ELIMINATED COMPARTMENT PT & ADDED DPI	
C	RKB	04/17/14	ADDED INLET INSTRUMENTS TT00001, TT00002, TT00003, PT00004	
B	RKB	02/03/14	UPDATED TAG NUMBERS	
A	RKB	01/21/14	PRELIMINARY	

DATE	07/01/14
ISSUE	1
DATE	07/01/14
ISSUE	1
DATE	06/10/14
ISSUE	1
DATE	04/17/14
ISSUE	1
DATE	02/13/14
ISSUE	1
DATE	01/21/14
ISSUE	1

DATE	01/12/14
ISSUE	1
DATE	01/12/14
ISSUE	1
DATE	01/12/14
ISSUE	1

ISSUED FOR APPROVAL
 DATE: _____
 BY: _____

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FILE NAME: 3111F-PI-01

SOUTHERNenvironmental INC.

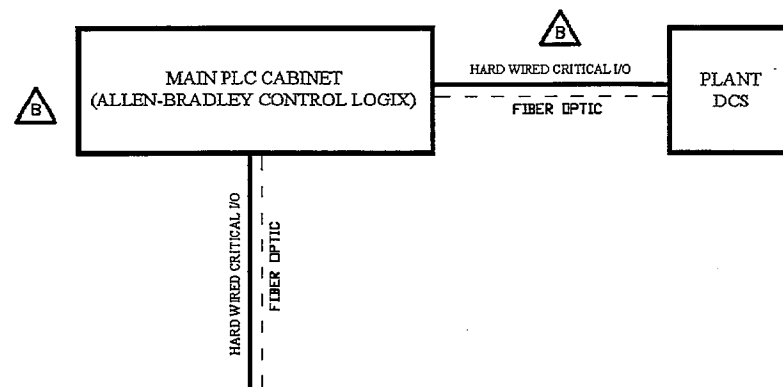
Air Pollution Control Systems

Pensacola, Florida

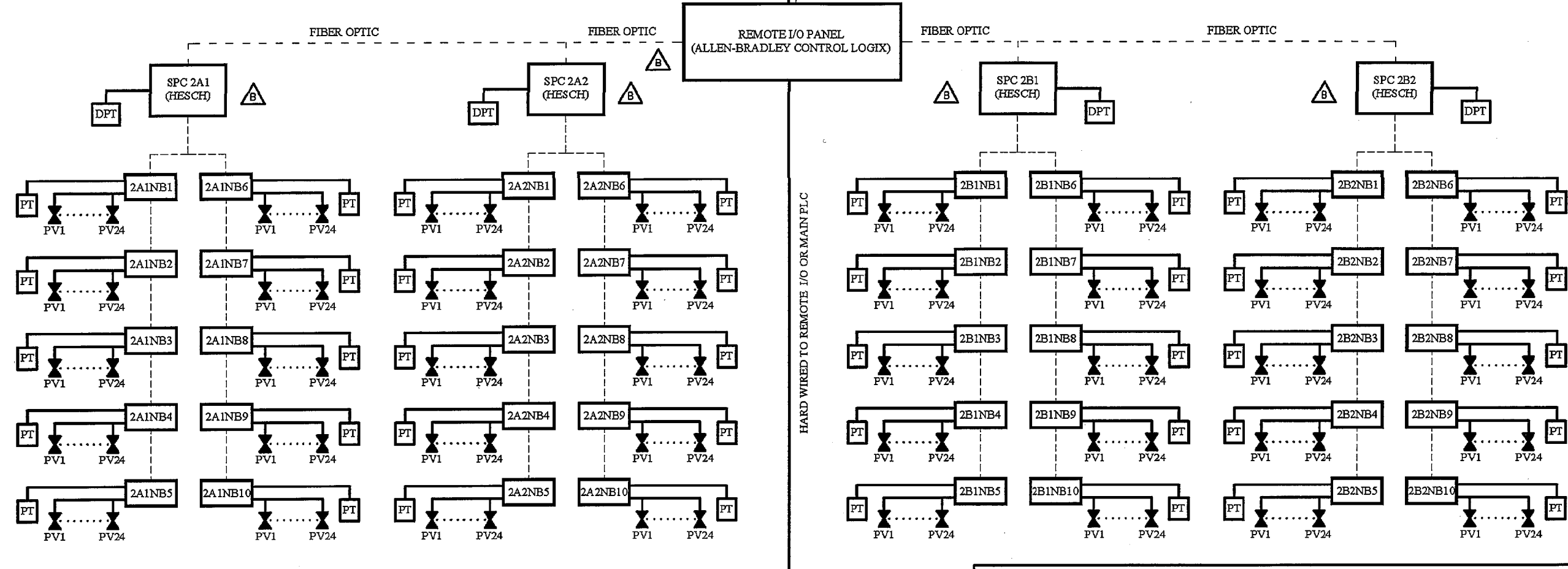
6850 West Nine Mile Road • Pensacola FL 32526
 Phone: (850) 944-4475 • Fax: (850) 944-8270
 Website: www.SOUTHERNENVIRONMENTAL.com

CUSTOMER:	GRAND RIVER DAM AUTHORITY CHOUTEAU, OK
PROJECT:	FABRIC FILTER PROJECT FOR UNIT 2 GRDA CONTRACT 40225
DWG. TITLE:	FABRIC FILTER SYSTEM P&I DIAGRAM OVERVIEW
DRAWING NUMBER:	3111F-PI-01

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- NOTES:**
1. REMOTE OPERATOR INTERFACE FROM PLANT DCS
 2. ALLEN-BRADLEY PLC INSTALLED IN THE EXISTING FGD CONTROL ROOM



INLET PRESSURE TRANSMITTERS
 INLET TEMPERATURE TRANSMITTERS
 INLET OXYGEN SENSORS
 OUTLET PRESSURE TRANSMITTERS
 OUTLET TEMPERATURE TRANSMITTERS
 OUTLET OXYGEN SENSORS
 BYPASS DAMPERS
 COMPARTMENT VENTILATION FANS
 COMPARTMENT VENTILATION DAMPERS
 BROKEN BAG DETECTORS

LEGEND

- HARD WIRE
- INTERNAL SERIAL FILTER BUS
SPC MASTER TO VALVE CONTROLLER
- - - FIBER OPTIC NETWORK
- SPC 2A1 (HESCH) SMART PULSE CONTROLLER MASTER CONTROL BOX
- 2AINB5 VALVE CONTROLLER
- PT PRESSURE TRANSMITTER
- SOLENOID VALVE

BLACK & VEATCH DRAWING NO: 177456.75.3120.-

REV	BY	DATE	DESCRIPTION	CHECKED
B	MAW	2/14/14	REVISED PER CUSTOMERS COMMENTS	BCA
A	MAW	12/20/13	FDR APPROVAL	BCA

DATE	ISSUE	ISSUE	ISSUE	ISSUE	ISSUE	ISSUE	ISSUE	ISSUE	ISSUE
02/14/14	1	PCS							
01/09/14	1	SMALL							
		GRDA/S&V							

DRAWN BY: MAW	DATE: 12/20/13
DESIGN BY: BCA	DATE: 12/20/13
CHECKED BY: BCA	DATE: 12/20/13
SCALE: NONE	
CUSTOMER PO NO:	
SHOP ORDER NO:	
FILE NAME: 3111F-E-021	

ISSUED FOR APPROVAL
 DATE: _____
 BY: _____

3rd ANGLE PROJECTION

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SOUTHERN environmental INC.

Air Pollution Control Systems

Pensacola, Florida

8890 West Nine Mile Road • Pensacola FL 32528
 Phone: (850) 544-4473 • Fax: (850) 544-8270
 Website: www.SOUTHERNENVIRONMENTAL.com

CUSTOMER: GRAND RIVER DAM AUTHORITY CHOUTEAU, OK
PROJECT: FABRIC FILTER PROJECT FOR UNIT 2 GDRA CONTRACT 40225
DWG. TITLE: CATEGORY CONTROL SYSTEM ARCHITECTURE
DRAWING NUMBER: 3111F-E-021
REV. B