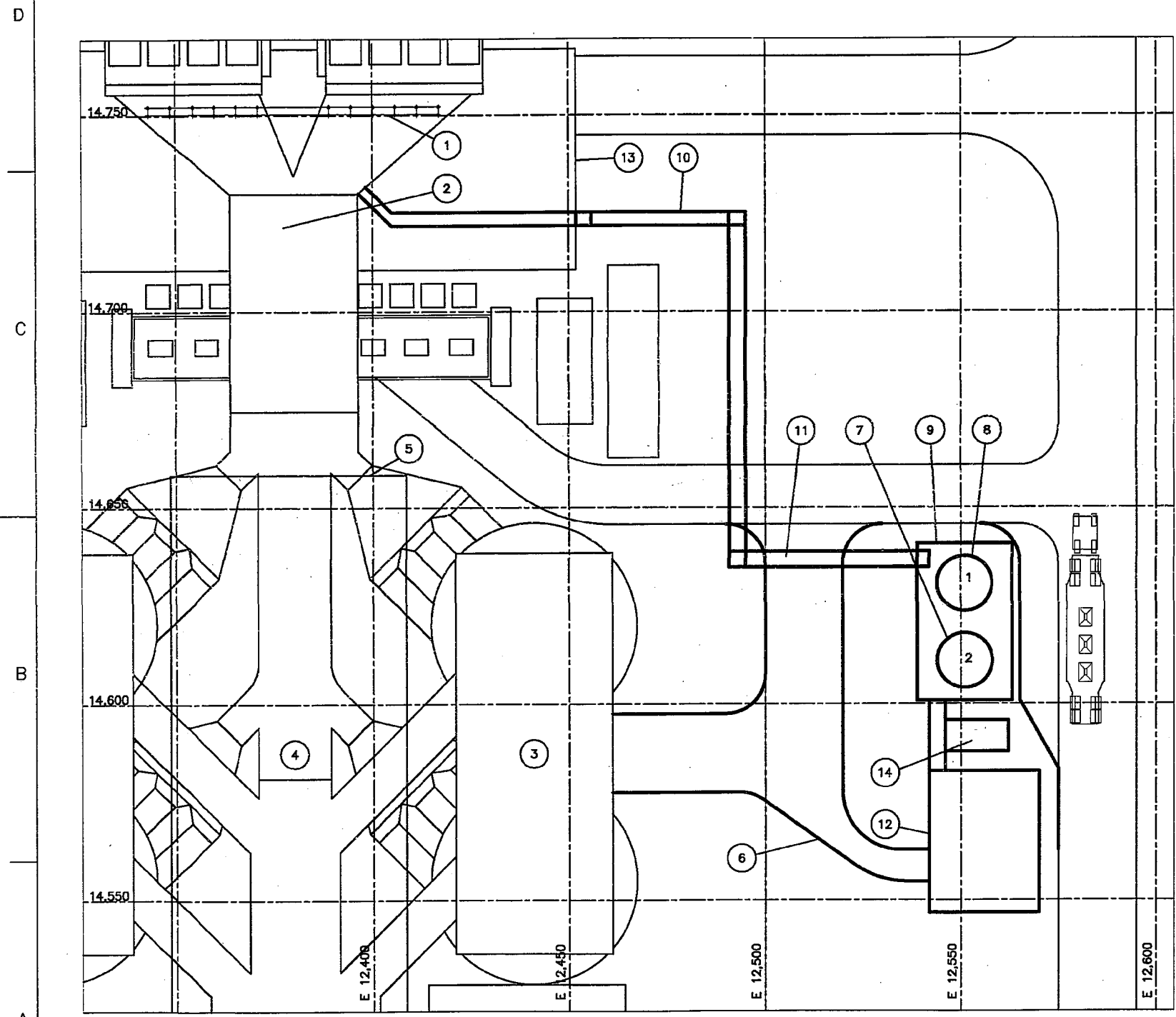


BUL28837 06-APR-2015 07:13:23



SITE PLAN  
SCALE: 1/16" = 1'-0"

BILL OF MATERIALS					
ITEM	QTY	DESCRIPTION	TIEDOWN LOCATIONS		REMARKS
			NORTH	EAST	
1	2	ACTIVATED CARBON INJECTION LANCE LOCATIONS			(BY CBPG)
2	1	SDA INLET DUCTWORK (EXISTING)			
3	2	UNIT 2 SDA VESSELS (EXISTING)			
4	1	SDA OUTLET DUCTWORK (EXISTING)			
5	1	LIME PREP BUILDING (EXISTING)			
6	1	ACCESS ROAD (NEW)			(BY OTHERS)
7	1	ACTIVATED CARBON STORAGE SILO 2	12551.00	14606.58	(BY CBPG)
8	1	ACTIVATED CARBON STORAGE SILO 1	12551.00	14630.58	(BY CBPG)
9	1	24'-0" X 44'-4" CONCRETE PAD FOR SILOS (NEW)			(BY OTHERS)
10	2	ACTIVATED CARBON PNEUMATIC CONVEY PIPING			(BY CBPG)
11	1	PIPE BRIDGE OVER ACCESS ROAD (NEW)			
12	1	AQC AREA (COMPRESSOR) BUILDING (NEW)			(BY OTHERS)
13	1	FAN BUILDING			(EXISTING)
14	1	AQC AREA ELECTRICAL EQUIPMENT ENCLOSURE			(BY OTHERS)

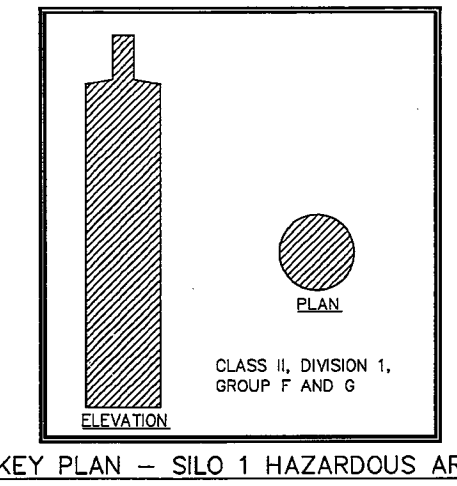
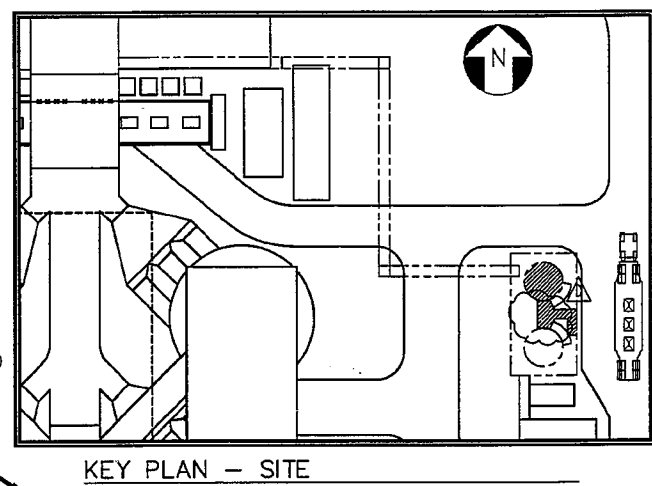
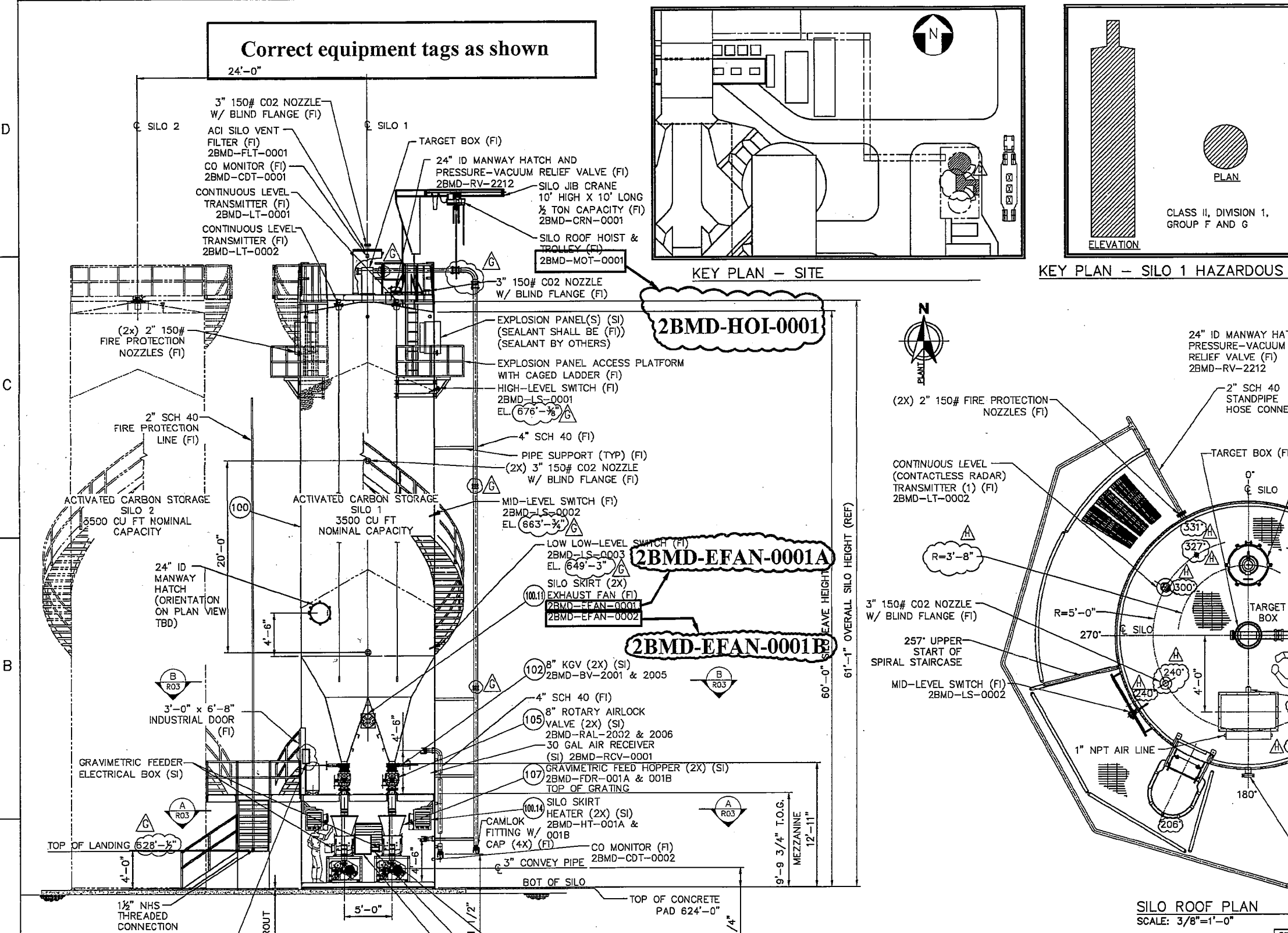
NOTE:  
SEE P&ID'S (DWG. 1501-P01 SHEETS 3 TO 7) FOR TAG NUMBERS

				GRAND RIVER DAM AUTHORITY ACTIVATED CARBON INJECTION SYSTEM GRAND RIVER ENERGY CENTER UNIT 2, CHOUTEAU, OK GENERAL ARRANGEMENT ACTIVATED CARBON INJECTION SYSTEM SITE PLAN			
33 Stroud Road - Mahan, PA - 15256 - USA American Filtration Product Division	DRAWN LTH 03.08.14 CHECKED MP 03.19.14 APPROVED	APP'D DATE APPROVED MP 03.19.14 APPROVED	APP'D DATE APPROVED MP 03.19.14 APPROVED	CONTRACT No. 1501 SCALE: 1/16" = 1'-0"	DWG. No. 1501-R01 SHEET 1 REV. E		

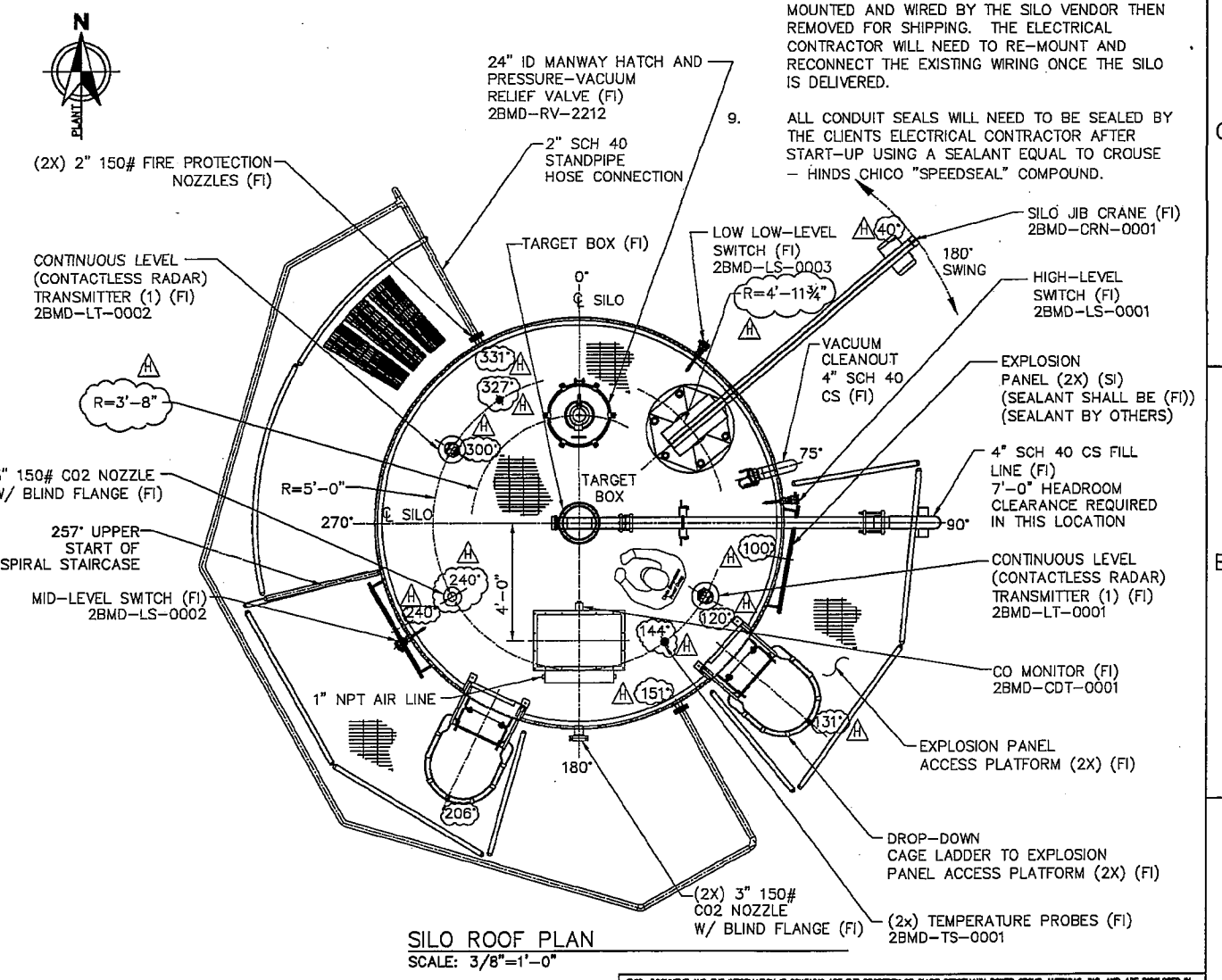
REV.	ZONE	DESCRIPTION	APP'D	DATE	REV.	ZONE	DESCRIPTION	APP'D	DATE	REV.	ZONE	DESCRIPTION
E	-	REVISED PER CUSTOMER'S COMMENTS	JB	06.18.14	C	-	EXTENDED CONCRETE PAD AND ROTATED STAIRS 180°	JB	06.11.14			
D	-	REVISED PER CUSTOMER'S COMMENTS	JB	07.21.14	B	-	REVISED PER CUSTOMER'S COMMENTS	JB	04.10.14			
					A	-	ISSUED FOR REVIEW, COMMENTS AND/OR APPROVAL	MP	03.19.14			

BUL28837 06-APR-2015 07:13:23

Correct equipment tags as shown  
24'-0"



- GENERAL NOTES:
1. FINAL DIMENSIONS TO BE REVEIWD AND CONFIRMED WITH SUBSEQUENT DWG REVISION.
  2. SEE P&ID'S (DWG 1501-P01 SHT. 3) FOR TAG NUMBERS.
  3. REFERENCE DRAWING 1501-E50 FOR AIR TERMINAL AND DOWN CONDUCTOR FOR LIGHTNING PROTECTION.
  4. (FI) DENOTES FIELD INSTALLED AND (SI) DENOTES SHOP INSTALLED.
  5. WORK THIS DRAWING WITH MASTER BILL OF MATERIAL. (LATER)
  6. LEVEL SWITCHES TO BE ACCESSIBLE FROM STAIRS.
  7. STAIRWAY ARRANGEMENT TO AVOID INTERFERENCE WITH EXHAUST FANS, LOUVERS, ETC.
  8. THE SILO FILL PANEL 2BMD-PNL-119 WILL BE MOUNTED AND WIRED BY THE SILO VENDOR THEN REMOVED FOR SHIPPING. THE ELECTRICAL CONTRACTOR WILL NEED TO RE-MOUNT AND RECONNECT THE EXISTING WIRING ONCE THE SILO IS DELIVERED.
  9. ALL CONDUIT SEALS WILL NEED TO BE SEALED BY THE CLIENTS ELECTRICAL CONTRACTOR AFTER START-UP USING A SEALANT EQUAL TO CROUSE - HINDS CHICO "SPEEDSEAL" COMPOUND.

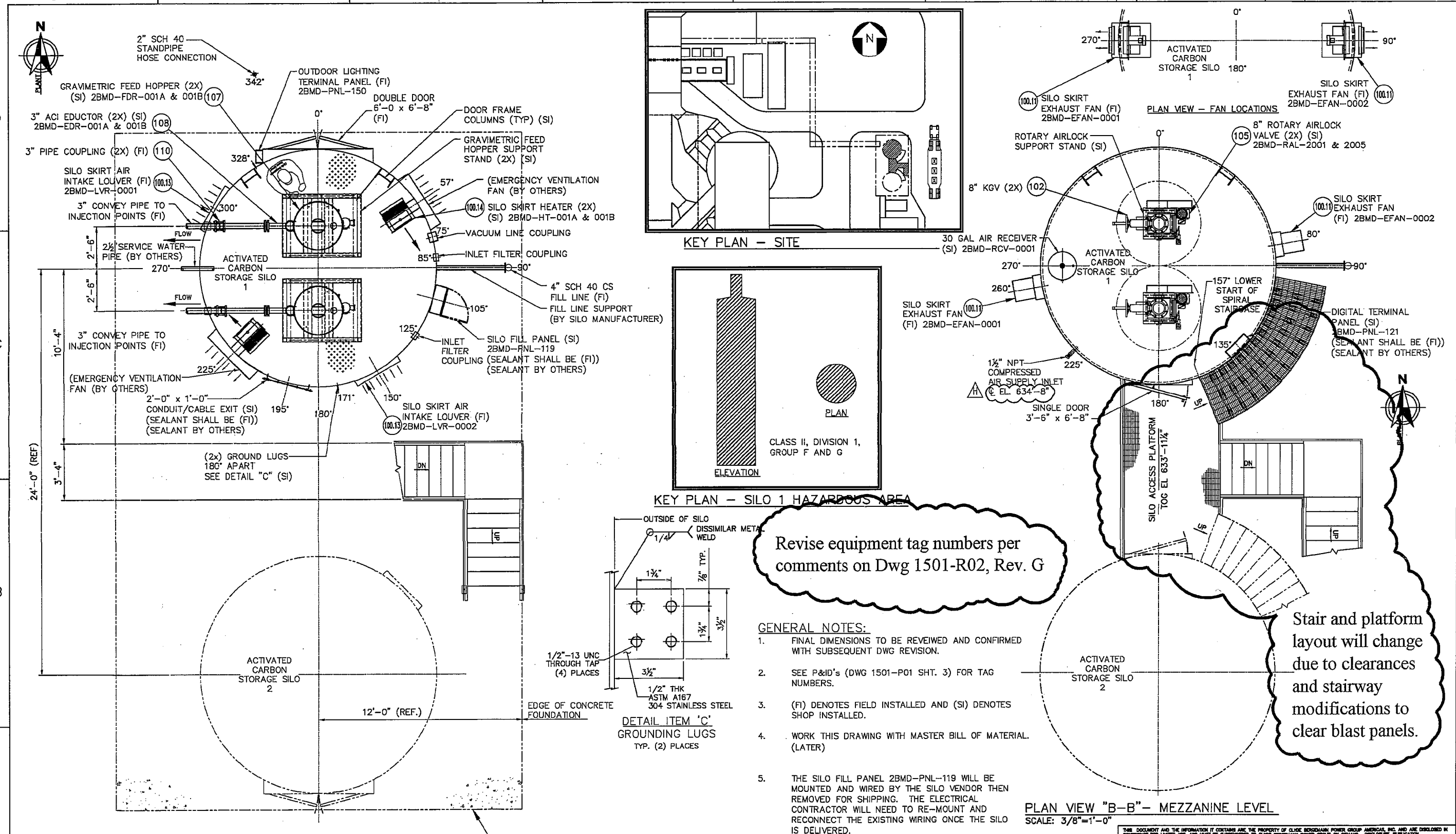


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		GRAND RIVER DAM AUTHORITY ACTIVATED CARBON INJECTION SYSTEM GRAND RIVER ENERGY CENTER UNIT 2, CHOUTEAU, OK	
33 Sproul Road - Mahan, PA - 15555 - USA		GENERAL ARRANGEMENT ACTIVATED CARBON STORAGE SILO 1 ELEVATION AND ROOF PLAN	
DRAWN LTH 03.04.14 CHECKED MP 03.10.14 APPROVED JB 07.21.14	DRWN LTH 03.04.14 CHCKD MP 03.10.14 APP'D JB 07.21.14	CONTRACT No. 1501 SCALE: AS NOTED	DWG. No. 1501-R02 SHT: 1 REV. H

REV.	ZONE	DESCRIPTION	APP'D	DATE	REV.	ZONE	DESCRIPTION	APP'D	DATE	APPROVED
H		REVISED SILO ROOF PLAN VIEW PER SILO FINAL DESIGN	JB	03.13.15	F		CHANGED GROUT TO 1 1/2", CHANGED QUANTITY ON CO2 NOZZLES, AND REMOVED BLIND FLANGE ON FIRE PROTECTION	JB	10.02.14	DRWN
G		CHANGED TRUCK FILL ELBOW TO 4" IWB ELBOW AND REVISED ELEVATIONS TO REFLECT 1 1/2" GROUT	JB	12.01.14	D		REVISED PER CUSTOMER'S COMMENTS, REVISED BOW NOS.	JB	08.18.14	CHCKD
							REVISED PER CUSTOMER'S COMMENTS, REVISED BOW NOS.	JB	07.21.14	APPROVED

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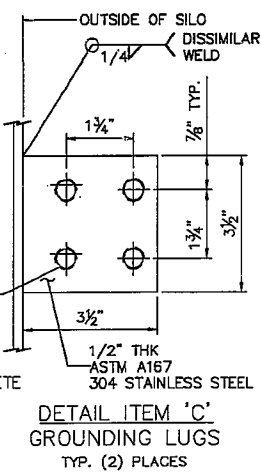
Revise equipment tag numbers per comments on Dwg 1501-R02, Rev. G

Stair and platform layout will change due to clearances and stairway modifications to clear blast panels.

- GENERAL NOTES:**
1. FINAL DIMENSIONS TO BE REVIEWED AND CONFIRMED WITH SUBSEQUENT DWG REVISION.
  2. SEE P&ID's (DWG 1501-P01 SHT. 3) FOR TAG NUMBERS.
  3. (FI) DENOTES FIELD INSTALLED AND (SI) DENOTES SHOP INSTALLED.
  4. WORK THIS DRAWING WITH MASTER BILL OF MATERIAL (LATER)
  5. THE SILO FILL PANEL 2BMD-PNL-119 WILL BE MOUNTED AND WIRED BY THE SILO VENDOR THEN REMOVED FOR SHIPPING. THE ELECTRICAL CONTRACTOR WILL NEED TO RE-MOUNT AND RECONNECT THE EXISTING WIRING ONCE THE SILO IS DELIVERED.
  6. ALL CONDUIT SEALS WILL NEED TO BE SEALED BY THE CLIENTS ELECTRICAL CONTRACTOR AFTER START-UP USING A SEALANT EQUAL TO CROUSE - HINDS CHICO "SPEEDSEAL" COMPOUND.

PLAN VIEW "A-A" - GROUND LEVEL  
SCALE: 3/8"=1'-0"

PLAN VIEW "B-B" - MEZZANINE LEVEL  
SCALE: 3/8"=1'-0"



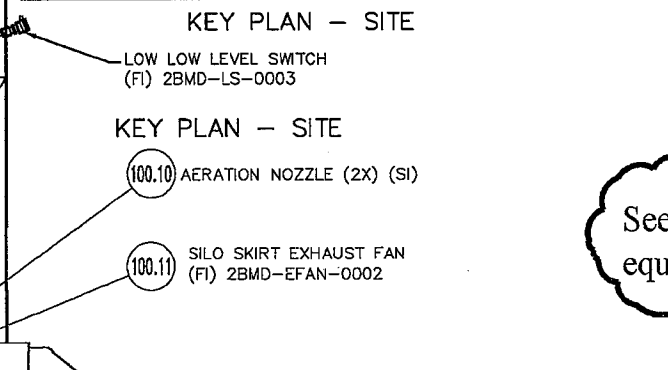
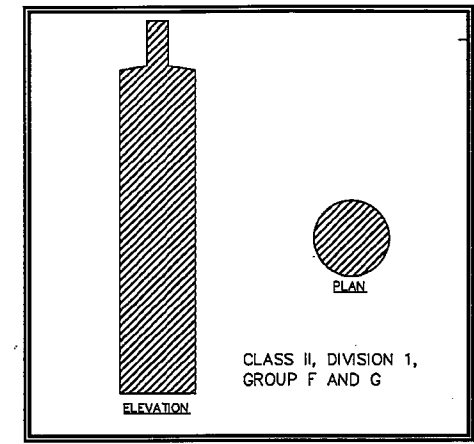
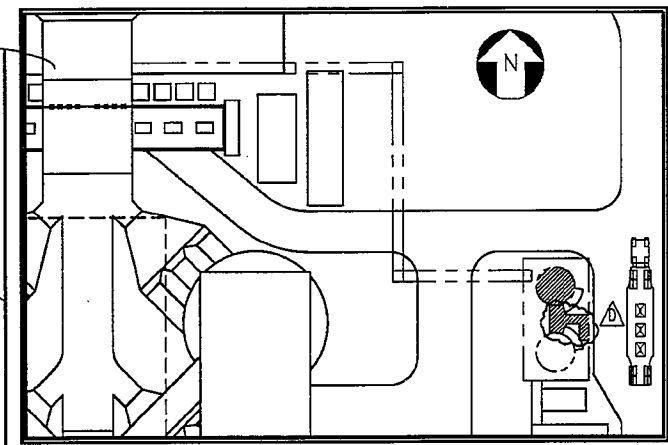
REV.	ZONE	DESCRIPTION	APP'D	DATE	REV.	ZONE	DESCRIPTION	APP'D	DATE	APPROVED	SCALE	REV.
H	-	REVISED INSTRUMENT AIR CONNECTION ELEVATION FROM 634'-7" TO 634'-8"	JB	12.10.14	F	-	REVISED EMERGENCY VENTILATION FAN AND SERVICE WATER LINE LOCATIONS PER CUSTOMER'S COMMENT	JB	10.20.14	DRAWN	LTH	03.04.14
G	-	REVISED ELEVATIONS TO REFLECT 1 1/2" GROUT AND SHOWED 2" SCH 40 STANDPIPE HOSE CONNECTION	JB	12.02.14	E	-	REVISED PER CUSTOMER'S COMMENTS	JB	08.18.14	CHECKED	MP	03.19.14
					D	-	REVISED PER CUSTOMER'S COMMENTS, REVISED BOM NOS., SHOWED FILL LINE SUPPORT	JB	07.21.14	APPROVED		

GRAND RIVER DAM AUTHORITY  
 ACTIVATED CARBON INJECTION SYSTEM  
 GRAND RIVER ENERGY CENTER UNIT 2, CHOCTEAU, OK  
**GENERAL ARRANGEMENT**  
 ACTIVATED CARBON STORAGE SILO 1  
 SILO FLOOR PLANS  
 CONTRACT No. 1501 DWG. No. 1501-R03 SHT: 1  
 SCALE:

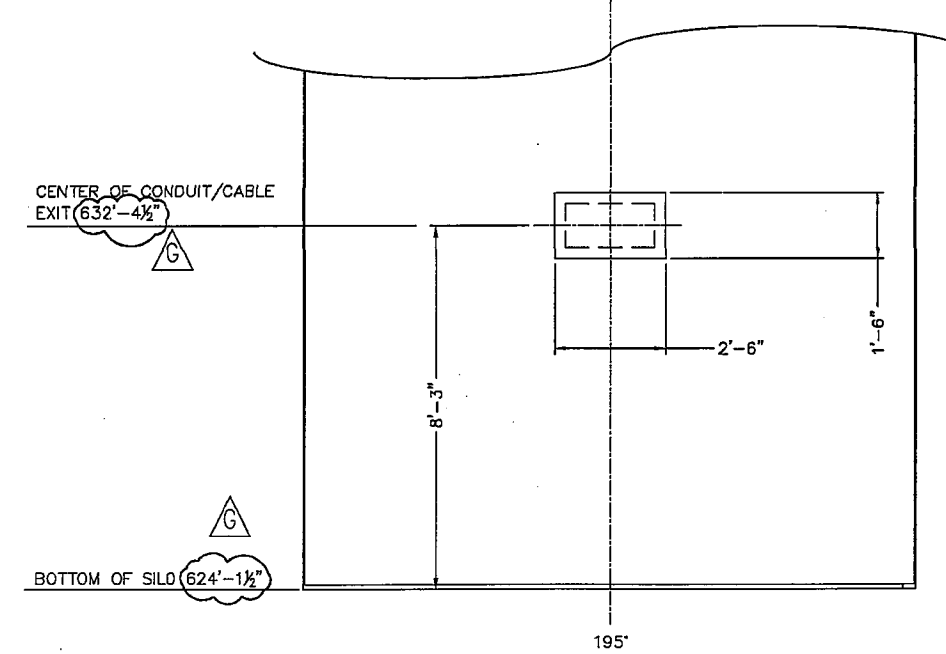
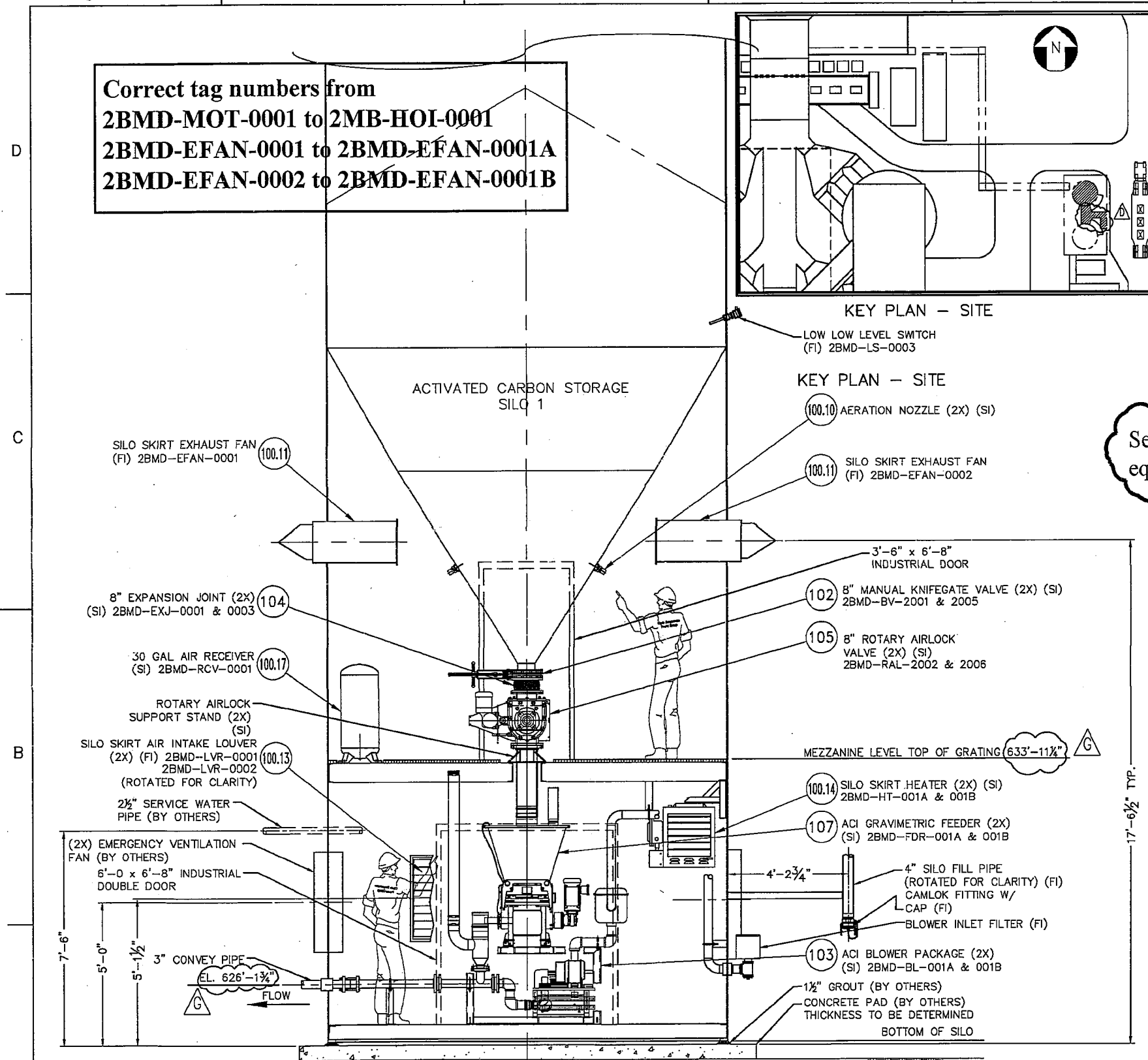
BUL28837 06-APR-2015 07:13:27

**Correct tag numbers from**  
**2BMD-MOT-0001 to 2MB-HOI-0001**  
**2BMD-EFAN-0001 to 2BMD-EFAN-0001A**  
**2BMD-EFAN-0002 to 2BMD-EFAN-0001B**

- GENERAL NOTES:**
1. FINAL DIMENSIONS TO BE REVIEWED AND CONFIRMED WITH SUBSEQUENT DWG REVISION.
  2. SEE P&ID'S (DWG 1501-P01 SHT. 3) FOR TAG NUMBERS.
  3. REFERENCE DRAWING 1501-E50 FOR AIR TERMINAL AND DOWN CONDUCTOR FOR LIGHTNING PROTECTION.
  4. (FI) DENOTES FIELD INSTALLED AND (SI) DENOTES SHOP INSTALLED.
  5. WORK THIS DRAWING WITH MASTER BILL OF MATERIAL (LATER)



See Dwg. 1501-R02 for changes to equipment tag numbers.



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GRAND RIVER DAM AUTHORITY  
 ACTIVATED CARBON INJECTION SYSTEM  
 GRAND RIVER ENERGY CENTER UNIT 2, CHOCTEAU, OK

ACTIVATED CARBON STORAGE SILO 1  
 GENERAL ARRANGEMENT  
 LOWER SILO ELEVATION

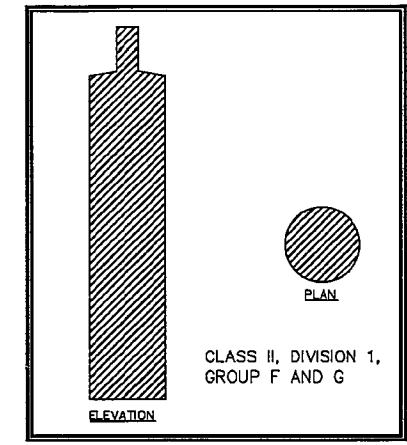
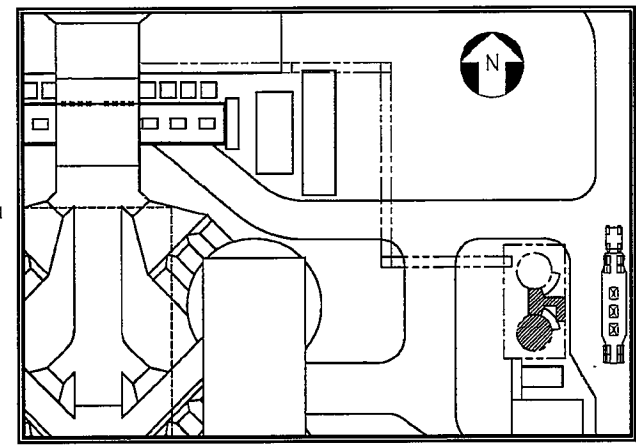
CONTRACT No. 1501 DWG. No. 1501-R04 SHT: 1

SCALE: AS NOTED REV. G

REV.	ZONE	DESCRIPTION	APP'D	DATE	REV.	ZONE	DESCRIPTION	APP'D	DATE	APPROVED
F		RELOCATED EMERGENCY VENTILATION FANS TO 5'-0" ABOVE CONCRETE PAD AND WATER LINE TO 7'-6" ABOVE CONCRETE						JB	10.20.14	DRAWN LTH 03.04.14
E		REVISED PER CUSTOMER'S COMMENTS						JB	08.18.14	CHECKED MP 03.10.14
D		REVISED PER CUSTOMER'S COMMENTS, REVISED BOM NOS., REPOSITIONED BLOWER SILENCER AND BLOWER INLET FILTER						JB	07.21.14	APPROVED
G		REVISED ELEVATIONS TO REFLECT 1 1/2" GROUT	JB	12.01.14						

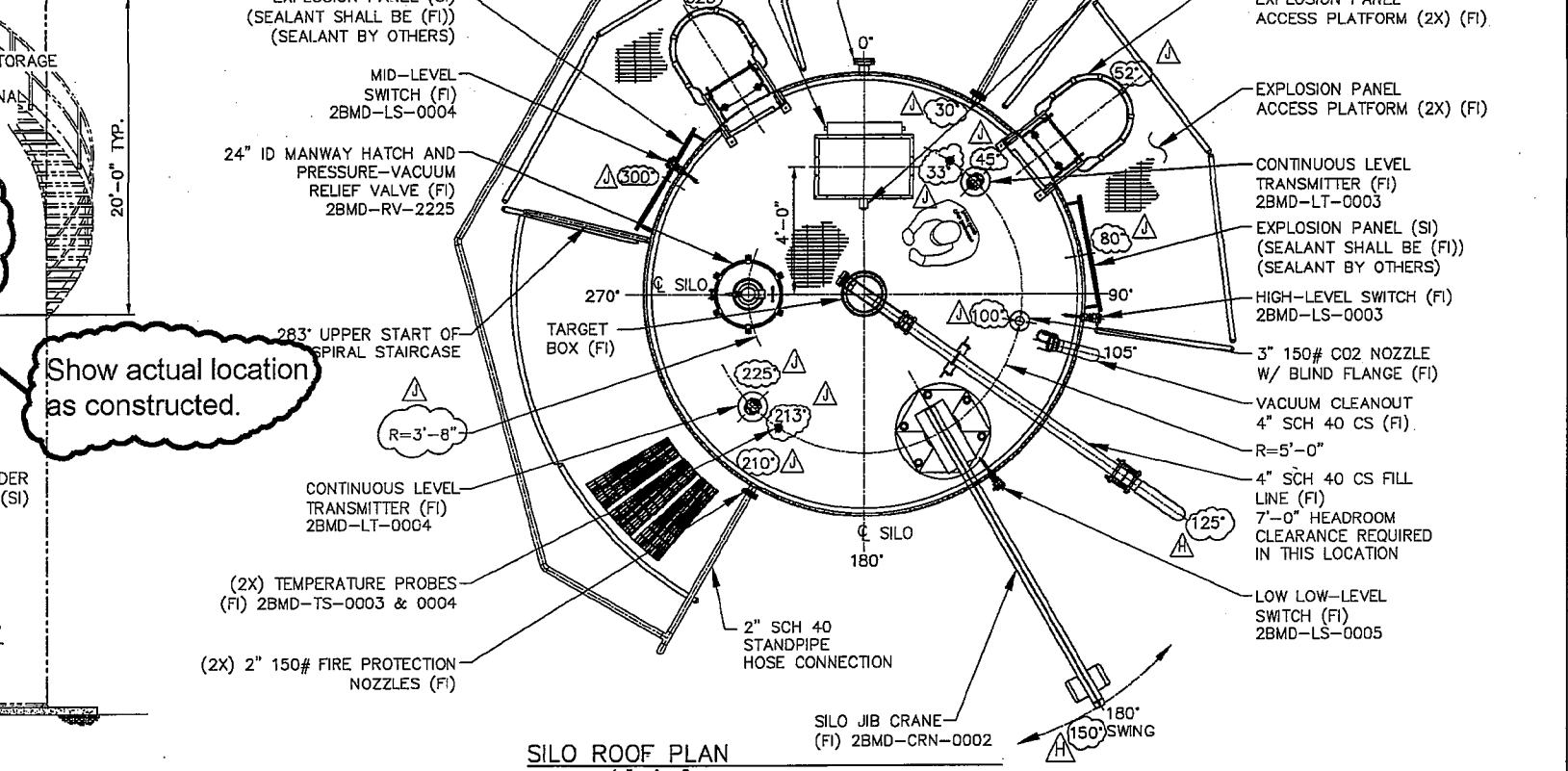
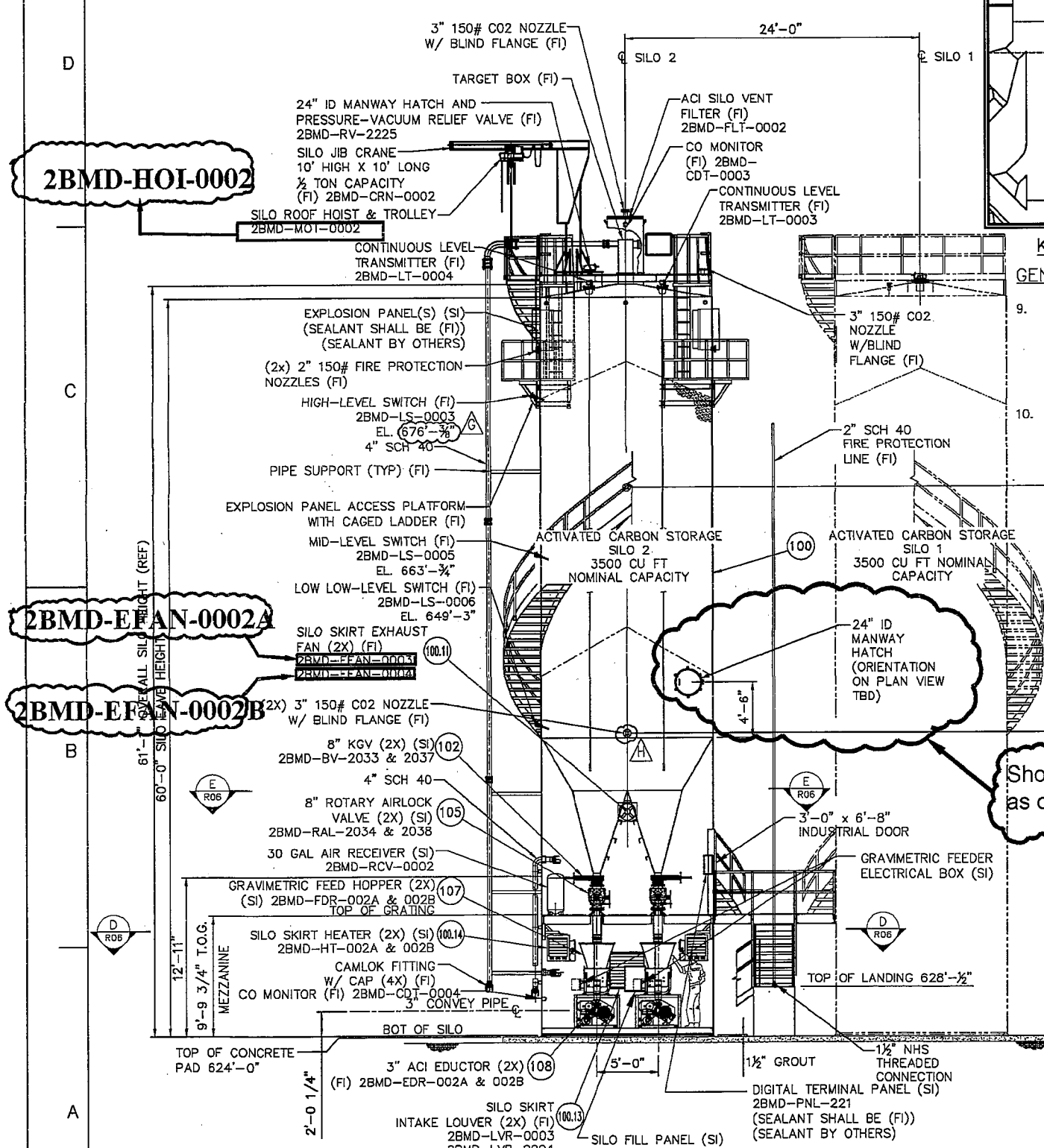
BUL28837 06-APR-2015 07:13:43

### CORRECT EQUIPMENT TAG NUMBERS



- GENERAL NOTES:**
1. FINAL DIMENSIONS TO BE REVIEWED AND CONFIRMED WITH SUBSEQUENT DWG REVISION.
  2. SOME EQUIPMENT HAS BEEN ROTATED FOR CLARITY. FOR CORRECT ORIENTATION REFER TO PLAN VIEWS.
  3. SEE P&ID'S (DWG 1501-P01 SHT. 4) FOR TAG NUMBERS.
  4. REFERENCE DRAWING 1501-E50 FOR AIR TERMINAL AND DOWN CONDUCTORS FOR LIGHTNING PROTECTION.
  5. (FI) DENOTES FIELD INSTALLED AND (SI) DENOTES SHOP INSTALLED.
  6. WORK THIS DRAWING WITH MASTER BILL OF MATERIAL. (LATER)
  7. LEVEL SWITCHES TO BE ACCESSIBLE FROM STAIRS.
  8. STAIRWAY ARRANGEMENT TO AVOID INTERFERENCE WITH EXHAUST FANS, LOUVERS, ETC.

- GENERAL NOTES:**
9. THE SILO FILL PANEL 2BMD-PNL-119 WILL BE MOUNTED AND WIRED BY THE SILO VENDOR THEN REMOVED FOR SHIPPING. THE ELECTRICAL CONTRACTOR WILL NEED TO RE-MOUNT AND RECONNECT THE EXISTING WIRING ONCE THE SILO IS DELIVERED.
  10. ALL CONDUIT SEALS WILL NEED TO BE SEALED BY THE CLIENTS ELECTRICAL CONTRACTOR AFTER START-UP USING A SEALANT EQUAL TO CROUSE - HINDS CHICO "SPEEDSEAL" COMPOUND.



Show actual location as constructed.

NOTE: SOME EQUIPMENT HAS BEEN ROTATED FOR CLARITY. FOR CORRECT ORIENTATION REFER TO PLAN VIEWS.

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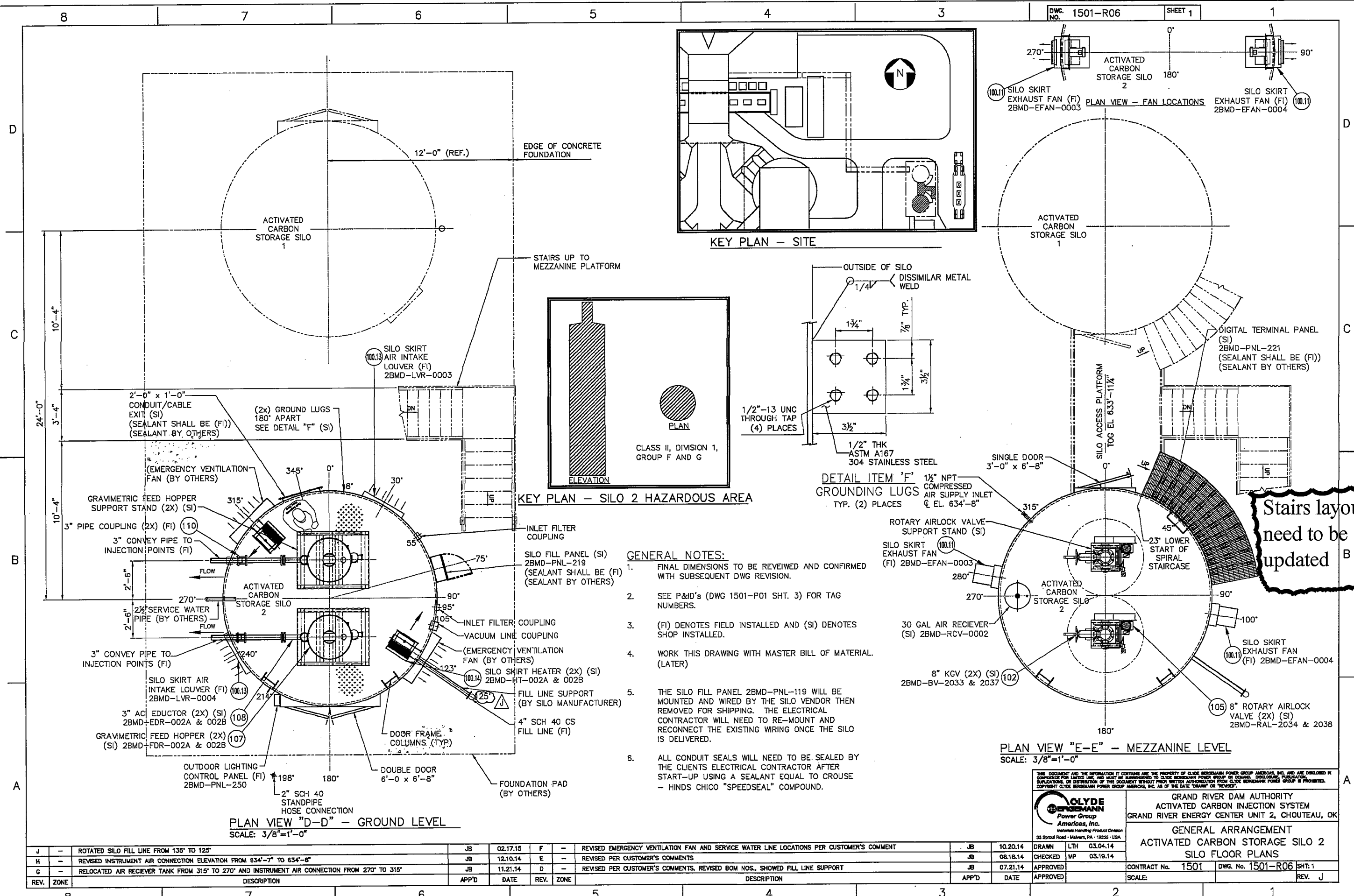
GRAND RIVER DAM AUTHORITY  
ACTIVATED CARBON INJECTION SYSTEM  
GRAND RIVER ENERGY CENTER UNIT 2, CHOULTEAU, OK

GENERAL ARRANGEMENT  
ACTIVATED CARBON STORAGE SILO 2  
ELEVATION AND ROOF PLAN

CONTRACT No. 1501 DWG. No. 1501-R05 SHT: 1  
SCALE: AS NOTED REV. J

REV.	ZONE	DESCRIPTION	APP'D	DATE	REV.	ZONE	DESCRIPTION	APP'D	DATE	APPROVED
J		REVISE SILO ROOF PLAN VIEW PER FINAL SILO DESIGN		03.13.15	F		CHANGED GROUT TO 1 1/2", CHANGED QUANTITY ON CO2 NOZZLES, AND REMOVED BLIND FLANGE ON FIR PROTECTION		10.02.14	10.02.14
H		MOVED JIB CRANE FROM 150' TO 150' AND SILO FILL LINE FROM 135' TO 125' AND MOVED CO2 NOZ. TO STORAGE AREA		01.15.15	E		REVISED PER CUSTOMER'S COMMENTS		08.18.14	08.18.14
G		CHANGED TRUCK FILL ELBOW TO 4" IWB ELBOW AND REVISED ELEVATIONS TO REFLECT 1 1/2"		12.01.14	D		REVISED PER CUSTOMER'S COMMENTS, REVISED BOM NOS.		07.21.14	07.21.14

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Stairs layout  
need to be  
updated

- GENERAL NOTES:**
1. FINAL DIMENSIONS TO BE REVIEWED AND CONFIRMED WITH SUBSEQUENT DWG REVISION.
  2. SEE P&ID'S (DWG 1501-P01 SHT. 3) FOR TAG NUMBERS.
  3. (FI) DENOTES FIELD INSTALLED AND (SI) DENOTES SHOP INSTALLED.
  4. WORK THIS DRAWING WITH MASTER BILL OF MATERIAL. (LATER)
  5. THE SILO FILL PANEL 2BMD-PNL-119 WILL BE MOUNTED AND WIRED BY THE SILO VENDOR THEN REMOVED FOR SHIPPING. THE ELECTRICAL CONTRACTOR WILL NEED TO RE-MOUNT AND RECONNECT THE EXISTING WIRING ONCE THE SILO IS DELIVERED.
  6. ALL CONDUIT SEALS WILL NEED TO BE SEALED BY THE CLIENTS ELECTRICAL CONTRACTOR AFTER START-UP USING A SEALANT EQUAL TO CROUSE - HINDS CHICO "SPEEDSEAL" COMPOUND.

REV.	ZONE	DESCRIPTION	APP'D	DATE	REV.	ZONE	DESCRIPTION	APP'D	DATE	APPROVED
J	-	ROTATED SILO FILL LINE FROM 135° TO 125°	JB	02.17.15	F	-	REVISED EMERGENCY VENTILATION FAN AND SERVICE WATER LINE LOCATIONS PER CUSTOMER'S COMMENT	JB	10.20.14	DRAWN LTH 03.04.14
H	-	REVISED INSTRUMENT AIR CONNECTION ELEVATION FROM 634'-7" TO 634'-8"	JB	12.10.14	E	-	REVISED PER CUSTOMER'S COMMENTS	JB	08.18.14	CHECKED MP 03.19.14
G	-	RELOCATED AIR RECEIVER TANK FROM 315° TO 270° AND INSTRUMENT AIR CONNECTION FROM 270° TO 315°	JB	11.21.14	D	-	REVISED PER CUSTOMER'S COMMENTS, REVISED BOM NOS., SHOWED FILL LINE SUPPORT	JB	07.21.14	APPROVED

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 Mechanical Handling Product Division  
 33 Spruce Road - Malvern, PA - 19355 - USA

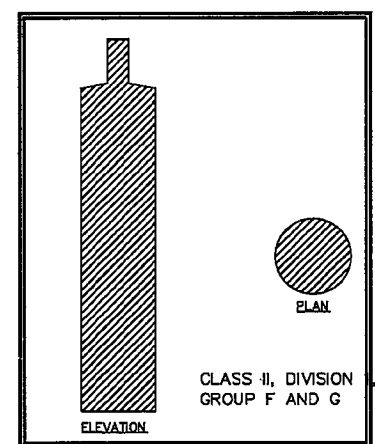
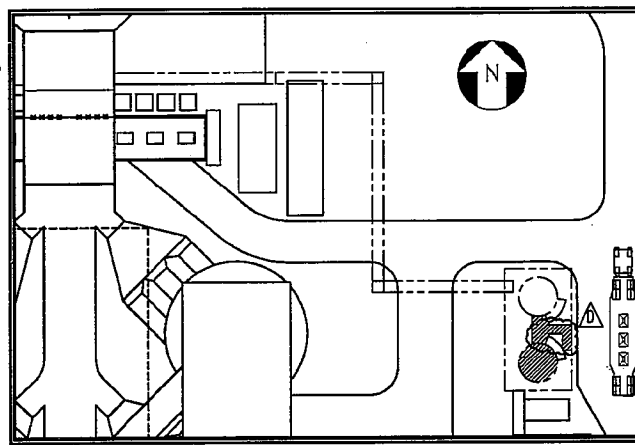
GRAND RIVER DAM AUTHORITY  
 ACTIVATED CARBON INJECTION SYSTEM  
 GRAND RIVER ENERGY CENTER UNIT 2, CHOUTEAU, OK

GENERAL ARRANGEMENT  
 ACTIVATED CARBON STORAGE SILO 2  
 SILO FLOOR PLANS

CONTRACT No. 1501 DWG. No. 1501-R06 SHT: 1  
 SCALE: REV. J

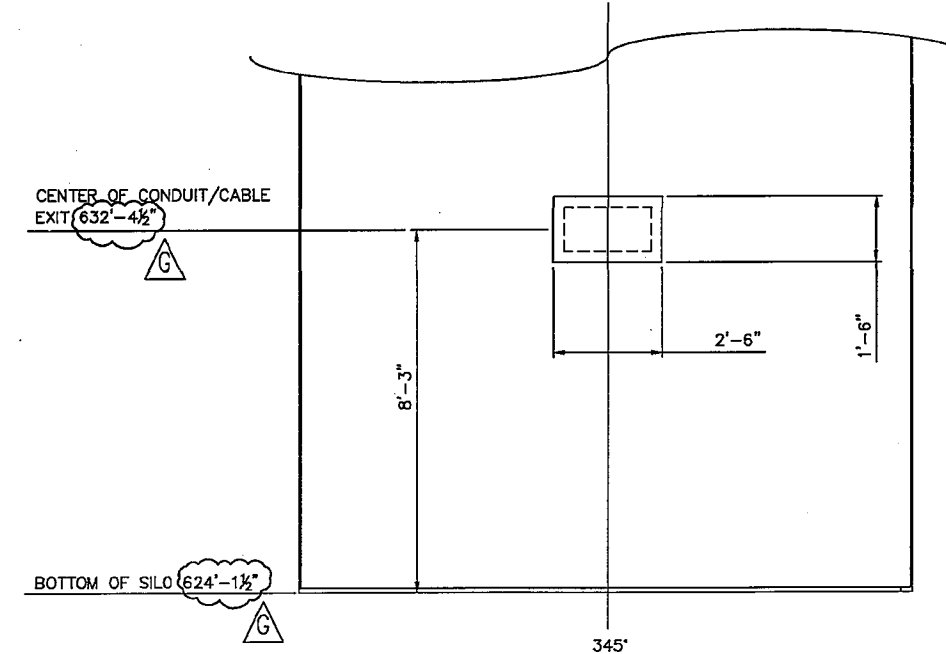
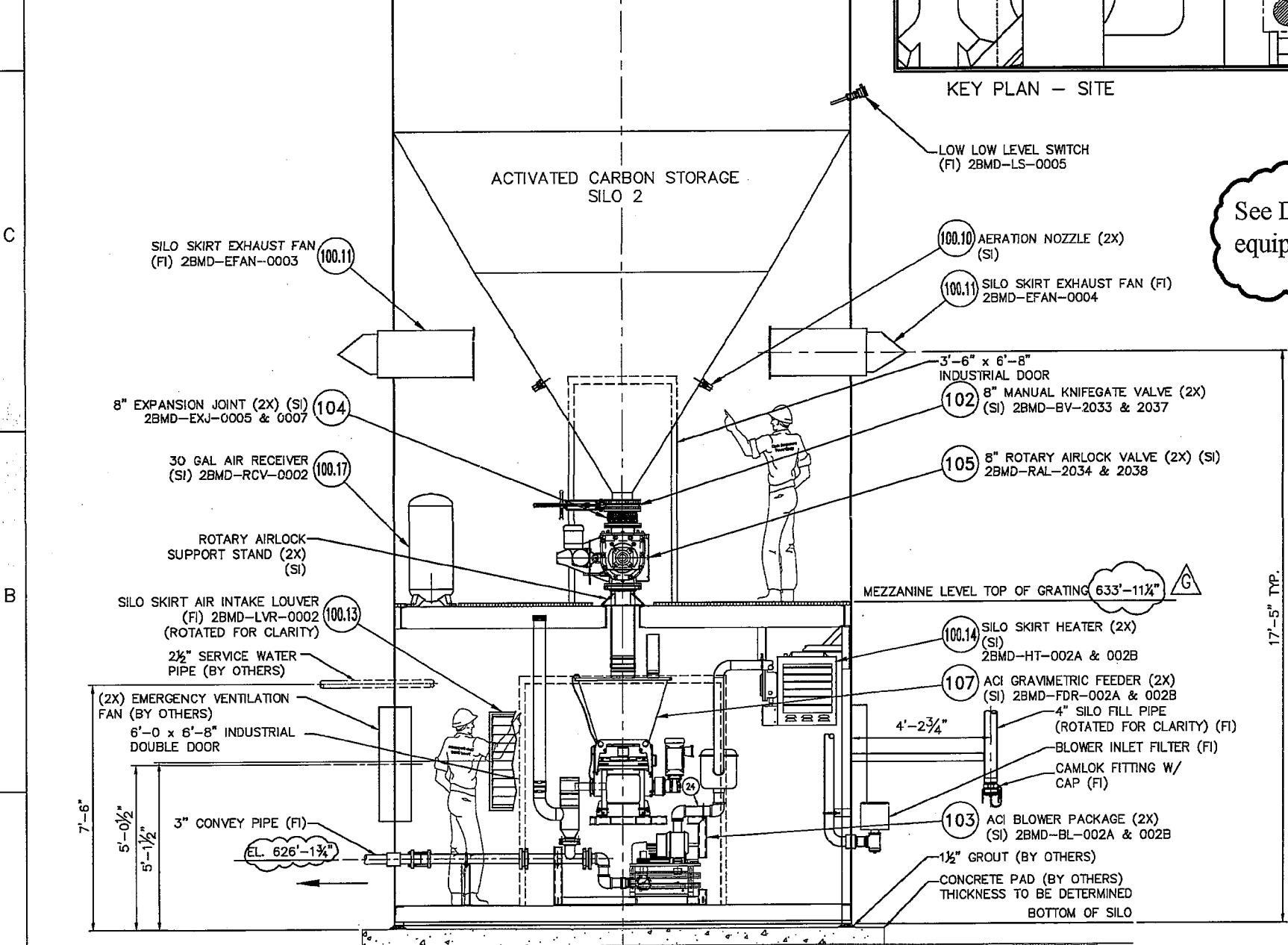
BUL28837 06-APR-2015 07:13:50

**Correct tag numbers from  
2BMD-MOT-0002 to 2MB-HOI-0002  
2BMD-EFAN-0003 to 2BMD-EFAN-0002A  
2BMD-EFAN-0004 to 2BMD-EFAN-0002B**



- GENERAL NOTES:**
1. FINAL DIMENSIONS TO BE REVIEWED AND CONFIRMED WITH SUBSEQUENT DWG REVISION.
  2. SEE P&ID'S (DWG 1501-P01 SHT. 4) FOR TAG NUMBERS.
  3. REFERENCE DRAWING 1501-E50 FOR AIR TERMINAL AND DOWN CONDUCTOR FOR LIGHTNING PROTECTION.
  4. (FI) DENOTES FIELD INSTALLED AND (SI) DENOTES SHOP INSTALLED.
  5. WORK THIS DRAWING WITH MASTER BILL OF MATERIAL. (LATER)

See Dwg. 1501-R05 for changes to equipment tag numbers.



**ELEVATION VIEW**  
LOOKING NORTH  
GROUND AND MEZZANINE LEVELS  
SCALE: 1/2" = 1'-0"

**DETAIL "A"**  
LOOKING NORTH  
CONDUIT ENTRY PLATE  
SCALE: 1/2" = 1'-0"

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GRAND RIVER DAM AUTHORITY  
ACTIVATED CARBON INJECTION SYSTEM  
GRAND RIVER ENERGY CENTER UNIT 2, CHOCTEAU, OK

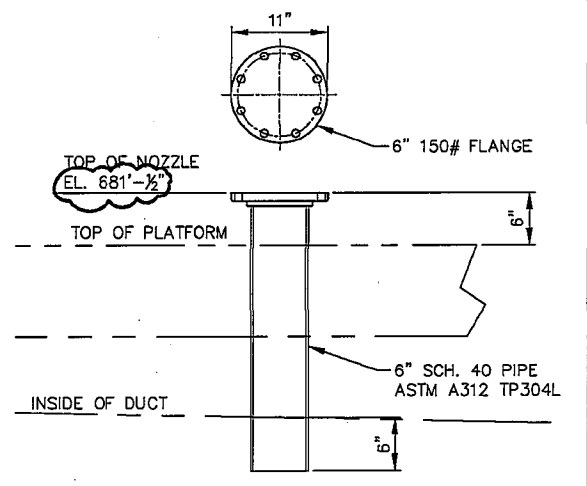
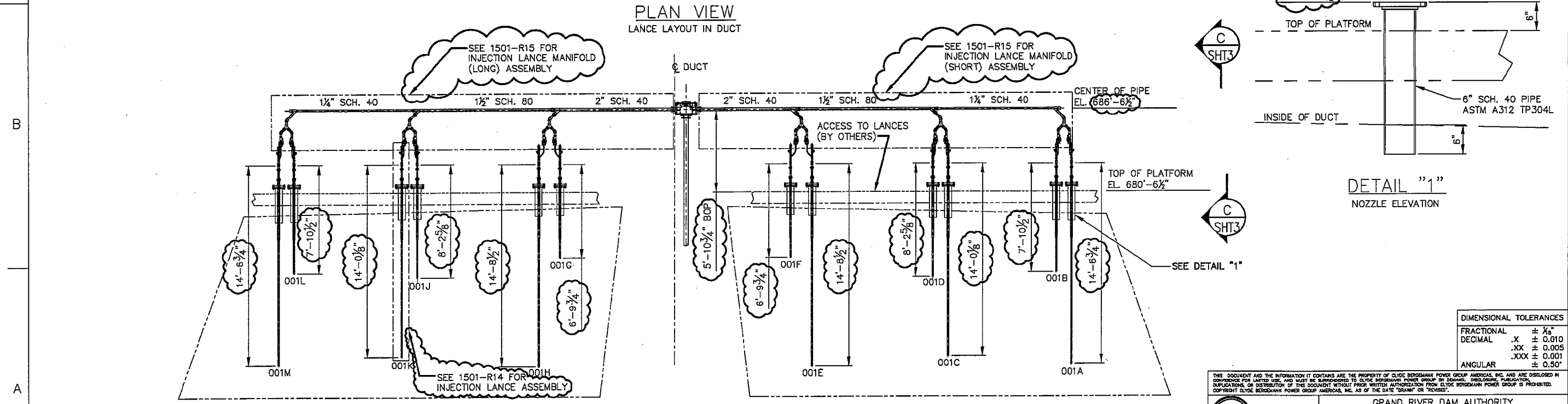
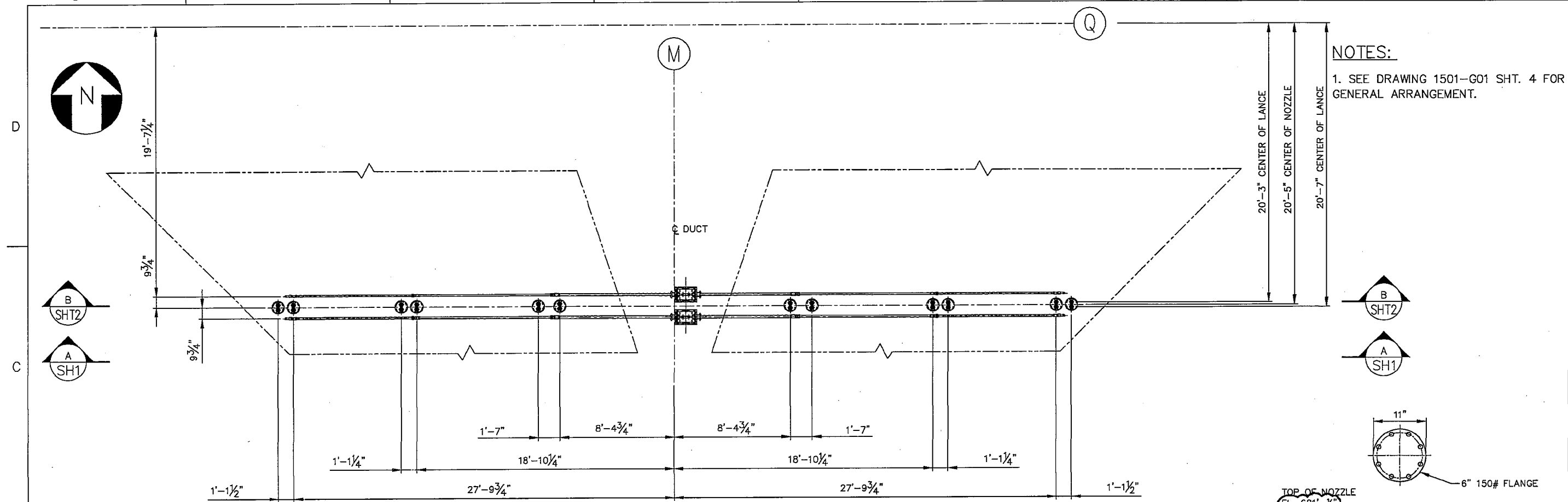
**ACTIVATED CARBON STORAGE SILO 2  
GENERAL ARRANGEMENT  
LOWER SILO ELEVATION**

CONTRACT No. 1501 DWG. No. 1501-R07 SHEET 1  
SCALE: AS NOTED REV. G

REV.	ZONE	DESCRIPTION	APP'D	DATE	REV.	ZONE	DESCRIPTION	APP'D	DATE	APPROVED
F		RELOCATED EMERGENCY VENTILATION FANS TO 5'-0" ABOVE CONCRETE PAD AND WATER LINE TO 7'-8" ABOVE CONCRETE						JB	09.30.14	DRAWN
E		REVISED PER CUSTOMER'S COMMENTS						JB	08.18.14	CHECKED
D		REVISED PER CUSTOMER'S COMMENTS, REVISED BOM NOS., REPOSITIONED BLOWER SILENCER AND BLOWER INLET FILTER						JB	07.21.14	APPROVED
G		REVISED ELEVATIONS TO REFLECT 1 1/2" GROUT								

BUL28837 06-APR-2015 07:13:58

NOTES:  
 1. SEE DRAWING 1501-G01 SHT. 4 FOR GENERAL ARRANGEMENT.



DIMENSIONAL TOLERANCES	
FRACTIONAL	± 1/16"
DECIMAL	.X ± 0.010
	.XX ± 0.005
	.XXX ± 0.001
ANGULAR	± 0.50°

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 Power Group  
 Americas, Inc.  
Manufacturing Product Division  
 33 Spruce Road - Malvern, PA - 19355 - USA

GRAND RIVER DAM AUTHORITY  
 ACTIVE CARBON INJECTION SYSTEM  
 COAL FIRED COMPLEX UNIT 2, CHOUTEAU, OK  
 ACI CONVEY PIPING  
 ACI STORAGE SILO 1 & 2  
 INJECTION PIPING MANIFOLD LAYOUT

REV.	ZONE	DESCRIPTION	APP'D	DATE	REV.	ZONE	DESCRIPTION	APP'D	DATE	APPROVED	SCALE	REV.
					C		CHANGED CENTER OF PIPE ELEVATION FROM 688'-7 3/4" TO 686'-6 1/2"; ADDED CALLS FOR MANIFOLD ASSEMBLIES	JB	01.15.15	DRAWN	AFC 09.24.14	
					B		REVISED TO SHOW NEW LANCE AND ADDED SHEET 3	JB	10.17.14	CHECKED	JB 09.24.14	
					A		INITIAL ISSUE	JB	09.24.14	APPROVED		



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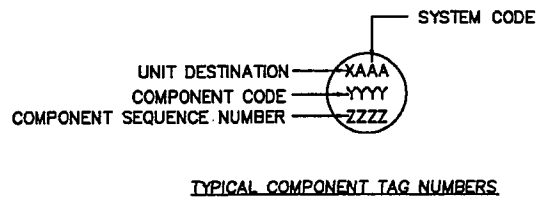
- SOFTWARE OR DATA HIGHWAY LINK
- PROCESS FLOW LINE
- INSTRUMENT AIR
- CONNECTION TO PROCESS
- ELECTRICAL SIGNAL
- CAPILLARY LINE
- HYDRAULIC LINE
- MECHANICAL LINK
- MANUAL GATE VALVE
- SOLENOID
- DIAPHRAGM ACTUATOR
- CHECK VALVE
- NEEDLE VALVE
- PRESSURE RELIEF OR SAFETY VALVE
- PRESSURE REDUCING REGULATOR  
SELF CONTAINED WITH HANDWHEEL  
ADJUSTABLE SET POINT
- VARIABLE FLOW RESISTOR
- AIR CYLINDER ACTUATED BY  
ONE CONTROLLED INPUT
- POPPET DAMPER
- BUTTERFLY DAMPER
- UNDEFINED INTERLOCK LOGIC
- PUFF MAIN PLC CONTROL PANEL (HMI)
- PROGRAMMABLE LOGIC CONTROL  
FIELD MOUNTED (REMOTE I/O)
- FRONT PANEL MOUNTED INSTRUMENT  
(LOCAL PANEL)
- INSTRUMENT MOUNTED INSIDE PANEL
- FIELD MOUNTED INSTRUMENT
- OWNER'S DCS
- DCS FIELD MOUNTED
- ROTARY ACTUATOR
- FILTER
- FILTER REGULATOR
- BALL VALVE

- DUPLEX STRAINER
- DRAIN
- PINCH VALVE
- GLOBE VALVE
- ROTARY VALVE
- V-PORT BALL VALVE
- FLOW STRAIGHTENING VANES
- FLEXIBLE HOSE
- UNGUIDED ELECTROMAGNETIC SIGNAL (RF)
- MOTOR
- CONDUCTANCE LEVEL PROBE
- 3-WAY VALVE
- FO FAIL OPEN
  - FC FAIL CLOSED
  - FLP FAIL LAST POSITION
  - IA INSTRUMENT AIR
  - PI PULSED INPUT
- VALVE  
OPERATION  
VALVE IN NORMALLY OPEN STATE
- VALVE IN NORMALLY CLOSED STATE
- ROTOMETER
- ULTRASONIC LEVEL DETECTOR
- SANDWICH TYPE ISOLATOR  
W/ PRESSURE GAUGE

- RESTRICTION ORIFICE
- STRAINER
- TERMINAL POINT
- DATA POINT
- ETHERNET
- OWNER'S DCS
- TYPE J THERMO COUPLE
- AIR HEADER
- 4-WAY SOLENOID VALVE
- 3-WAY CHECK VALVE  
W/FLOW REGULATOR
- INJECTION LANCE
- AIR COMPRESSOR
- AIR DRYER

Superseded by  
5-24002 thru 5-24008

DRAWING NUMBER KEY	
DESCRIPTION	CBEEC DRAWING NO.
LEGEND	1501-P01
LEGEND	1501-P02
DRY SORBENT STORAGE SILO 1	1501-P03
DRY SORBENT STORAGE SILO 2	1501-P04
INJECTION LANCES UNIT 1	1501-P05
INJECTION LANCES UNIT 2	1501-P06
AIR COMPRESSOR DRYER UNIT	1501-P07



COMPONENT FUNCTION CODE TABLE	
CODES	DESCRIPTION
ABD	DAMPER, BLOCKING AIR OPERATED
ABS	ABSORBER
ABV	VALVE, BLOCK, AIR OPERATED
ACC	ACCUMULATOR
ACD	DAMPER, CONTROL AIR OPERATED
ACU	AIR CONDITIONING UNIT
ACV	VALVE, CONTROL, AIR OPERATED
ADV	VALVE, DIVERTING, AIR OPERATED
AER	AERATOR
AHT	AIR HEATER
AHU	AIR HANDLING UNIT
AMP	AMPLIFIER
ANN	ANNUNCIATOR
ANT	ANTENNA
ANZ	ANALYZER
APL	PANEL, ANALYZER
ARCP	RECEPTACLE, AC
ARV	VALVE, RELIEF, AIR OPERATED
ASU	SWITCHING UNIT, AUTOMATIC
ATD	AIR TERMINAL DEVICE
AUV	VALVE, UNI-DIRECTIONAL AIR OPERATED
AV	VALVE, AIR
AY	RELAY, AUXILIARY
BAF	BAFFLE
BCH	BREECHING AND DUCTWORK
BD	DAMPER, BLOCKING
BDS	DRAINAGE STRUCTURES, CATCH BASIN/INLET
BGH	BAGHOUSE
BL	BLOWER
BL	MTL HANDLING, PNEU BLOWER
BNA	BIN ACTIVATOR
BS	BUS
BTRY	BATTERY
BU	BELL-UP
BUF	BUFFER (ISOLATOR) DEVICE
BV	VALVE, BLOCK, (ISOL & SHUTOFF)
BX	BOX
BYC	BATTERY CHARGER
CAB	CABINET
CAT	CATHODIC PROTECTION
CBL	CABLE
CBLT	CABLE TERMINATION
CCAB	CONTROL CABINET
CCL	COIL, COOLING
CD	DAMPER, CONTROL
CDR	CONTROL DRIVE

COMPONENT FUNCTION CODE TABLE	
CODES	DESCRIPTION
CDS	DRAINAGE STRUCTURES, CULVERT
CDT	DETECTOR, COMBUSTIBLES
CDU	CONDENSING UNIT
CFAN	FAN, SPOT COOLING
CHE	CHUTE
CHT	HEATER, CABINET
CHU	CHILLER UNIT
CLR	COOLER (INC DRAIN, EVAP & SAMPLE)
CM	COMMUNICATIONS
CMP	COMPRESSOR
CMPT	COMPARTMENT
CNT	CONTACTOR
CO	COLLECTOR
CON	CONDUIT
CPG	COUPLING
CPL	PANEL, CONTROL
CPU	COMPUTER
CRN	CRANE
CRT	CATHODE RAY TUBE
CSL	CONSOLE
CSU	COMPUTER STORAGE UNIT
CT	TRANSMITTER, CONDUCTIVITY
CV	VALVE, CONTROL, (MODULATING)
CVY	CONVEYOR
CXF	TRANSFORMER, CURRENT
DAL	DATA LOGGER
DC	DUCT
DCO	DUST COLLECTOR
DCO	MTL HANDLING, DUST COLLECTOR
DCON	CONDUIT, DIRECT BURIED
DET	DETECTOR
DH	HANGER, BREECHING
DHT	HEATER, DUCT
DI	DIODE
DIF	DIFFUSER
DIS	MTL HANDLING, BIN DISCHARGER
DMM	METER, DEMAND
DNSM	METER, DENSITY
DPU	DATA PROCESSING UNIT
DR	DRIVE
DRCP	RECEPTACLE, DC
DRY	DRYER
DS	SWITCH, DISCONNECT
DSU	DATA STORAGE UNIT
DTB	DUCT BANK
DV	VALVE, DIVERTER, (3-WAY & 4-WAY)

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**CLYDE BERGMANN**  
Americas, Inc.  
Mechanical Handling Product Division  
33 Sprad Road - Mahan, PA - 15305-USA

GRAND RIVER DAM AUTHORITY  
ACTIVATED CARBON INJECTION SYSTEM  
COAL FIRED COMPLEX UNIT 2, CHOUTEAU, OK

PIPING & INSTRUMENTATION DIAGRAM  
ACTIVATED CARBON INJECTION SYSTEM  
LEGEND SHEET

DRAWN	BPD	02.04.14
CHECKED	JMB	02.11.14
APPROVED		
APPROVED		

CONTRACT No. 1501      DWG. No. 1501-P01      SHT: 1

SCALE: NONE      REV: A

REV	DESCRIPTION	BY	APPD	DATE
A	INITIAL ISSUE	BPD	JMB	02.11.14

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- SOFTWARE OR DATA HIGHWAY LINK
- PROCESS FLOW LINE
- INSTRUMENT AIR
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- MANUAL GATE VALVE
- SOLENOID
- DIAPHRAGM ACTUATOR
- CHECK VALVE
- NEEDLE VALVE
- PRESSURE RELIEF OR SAFETY VALVE
- PRESSURE REDUCING REGULATOR SELF CONTAINED WITH HANDWHEEL ADJUSTABLE SET POINT
- VARIABLE FLOW RESISTOR
- AIR CYLINDER ACTUATED BY ONE CONTROLLED INPUT
- POPPET DAMPER
- BUTTERFLY DAMPER
- UNDEFINED INTERLOCK LOGIC
- PAC INJECTION SYSTEM
- MAIN PLC CONTROL PANEL (HMI)
- PROGRAMMABLE LOGIC CONTROL
- FIELD MOUNTED (REMOTE I/O)
- FRONT PANEL MOUNTED INSTRUMENT (LOCAL PANEL)
- INSTRUMENT MOUNTED INSIDE PANEL
- FIELD MOUNTED INSTRUMENT
- OWNER'S DCS
- DCS FIELD MOUNTED
- ROTARY ACTUATOR
- FILTER
- FILTER REGULATOR
- BALL VALVE

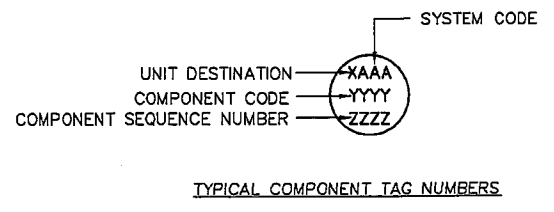
- DUPLEX STRAINER
- DRAIN
- PINCH VALVE
- GLOBE VALVE
- ROTARY VALVE
- V-PORT BALL VALVE
- FLOW STRAIGHTENING VANES
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- UNGUIDED ELECTROMAGNETIC SIGNAL (RF)
- MOTOR
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- 3-WAY VALVE
- FD FAIL OPEN
- FC FAIL CLOSED
- FLP FAIL LAST POSITION
- IA INSTRUMENT AIR
- PI PULSED INPUT
- VALVE OPERATION  
VALVE IN NORMALLY OPEN STATE  
VALVE IN NORMALLY CLOSED STATE
- ROTOMETER
- ULTRASONIC LEVEL DETECTOR OR GUIDED WAVE RADAR
- SANDWICH TYPE ISOLATOR W/ PRESSURE DEVICE

- RESTRICTION ORIFICE
- STRAINER
- TERMINAL POINT
- DATA POINT
- ETHERNET  
MAIN PLC      OWNER'S DCS
- TYPE E THERMO COUPLE
- AIR HEADER
- 4-WAY SOLENOID VALVE
- 3-WAY CHECK VALVE W/FLOW REGULATOR
- INJECTION LANCE
- AIR COMPRESSOR
- AIR DRYER

COMPONENT FUNCTION CODE TABLE	
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AHT	AIR HEATER
AHU	AIR HANDLING UNIT
AMP	AMPLIFIER
ANN	ANNUNCIATOR
ANT	ANTENNA
ANZ	ANALYZER
APL	PANEL, ANALYZER
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ARV	VALVE, RELIEF, AIR OPERATED
ASU	SWITCHING UNIT, AUTOMATIC
ATD	AIR TERMINAL DEVICE
AUV	VALVE, UNI-DIRECTIONAL AIR OPERATED
AV	VALVE, AIR
AY	RELAY, AUXILIARY
BAF	BAFFLE
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BD	DAMPER, BLOCKING
BDS	DRAINAGE STRUCTURES, CATCH BASIN/INLET
BGH	BAGHOUSE
BL	BLOWER
BL	MTL HANDLING, PNEU BLOWER
BNA	BIN ACTIVATOR
BS	BUS
BTRY	BATTERY
BU	BELL-UP
BUF	BUFFER (ISOLATOR) DEVICE
BV	VALVE, BLOCK, (ISOL & SHUTOFF)
BX	BOX
BYC	BATTERY CHARGER
CAB	CABINET
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CMP	COMPRESSOR
CMPT	COMPARTMENT
CNT	CONTACTOR
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CON	CONDUIT
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CPL	PANEL, CONTROL
CPU	COMPUTER
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CV	VALVE, CONTROL, (MODULATING)
CVY	CONVEYOR
CXF	TRANSFORMER, CURRENT
DAL	DATA LOGGER
DC	DUCT
DCO	DUST COLLECTOR
DCO	MTL HANDLING, DUST COLLECTOR
DCON	CONDUIT, DIRECT BURIED
DET	DETECTOR
DH	HANGER, BREECHING
DHT	HEATER, DUCT
DI	DIODE
DIF	DIFFUSER
DIS	MTL HANDLING, BIN DISCHARGER
DMM	METER, DEMAND
DNSM	METER, DENSITY
DPU	DATA PROCESSING UNIT
DR	DRIVE
DRCP	RECEPTACLE, DC
DRY	DRYER
DS	SWITCH, DISCONNECT
DSU	DATA STORAGE UNIT
DTB	DUCT BANK
DV	VALVE, DIVERTER, (3-WAY & 4-WAY)

DRAWING NUMBER KEY	
DESCRIPTION	CBEEC DRAWING NO.
LEGEND	1501-P01
LEGEND	1501-P02
STORAGE SILO 1	1501-P03
STORAGE SILO 2	1501-P04
CROSSOVER	1501-P05
INJECTION LANCES UNIT 1	1501-P06
INJECTION LANCES UNIT 2	1501-P07



REV	DESCRIPTION	BY	APPD	DATE
E	REMOVED 2-WAY MANIFOLD VALVE AND ISOLATION VALVE FROM PRESSURE TRANSMITTER LINE ON SHEET 3 AND 4	AFC	JMB	12.22.14
D	REVISED SHEET 3 AND 4 TO SHOW PDT AND PI ON THE BIN VENT FILTER	AFC	JMB	07.30.14
C	REVISED SHEET 3 AND 4 PER CUSTOMER COMMENTS	AFC	JMB	07.22.14
B	REVISED PER CUSTOMER COMMENTS	AFC	JMB	04.29.14
A	INITIAL ISSUE	BPD	JMB	02.11.14

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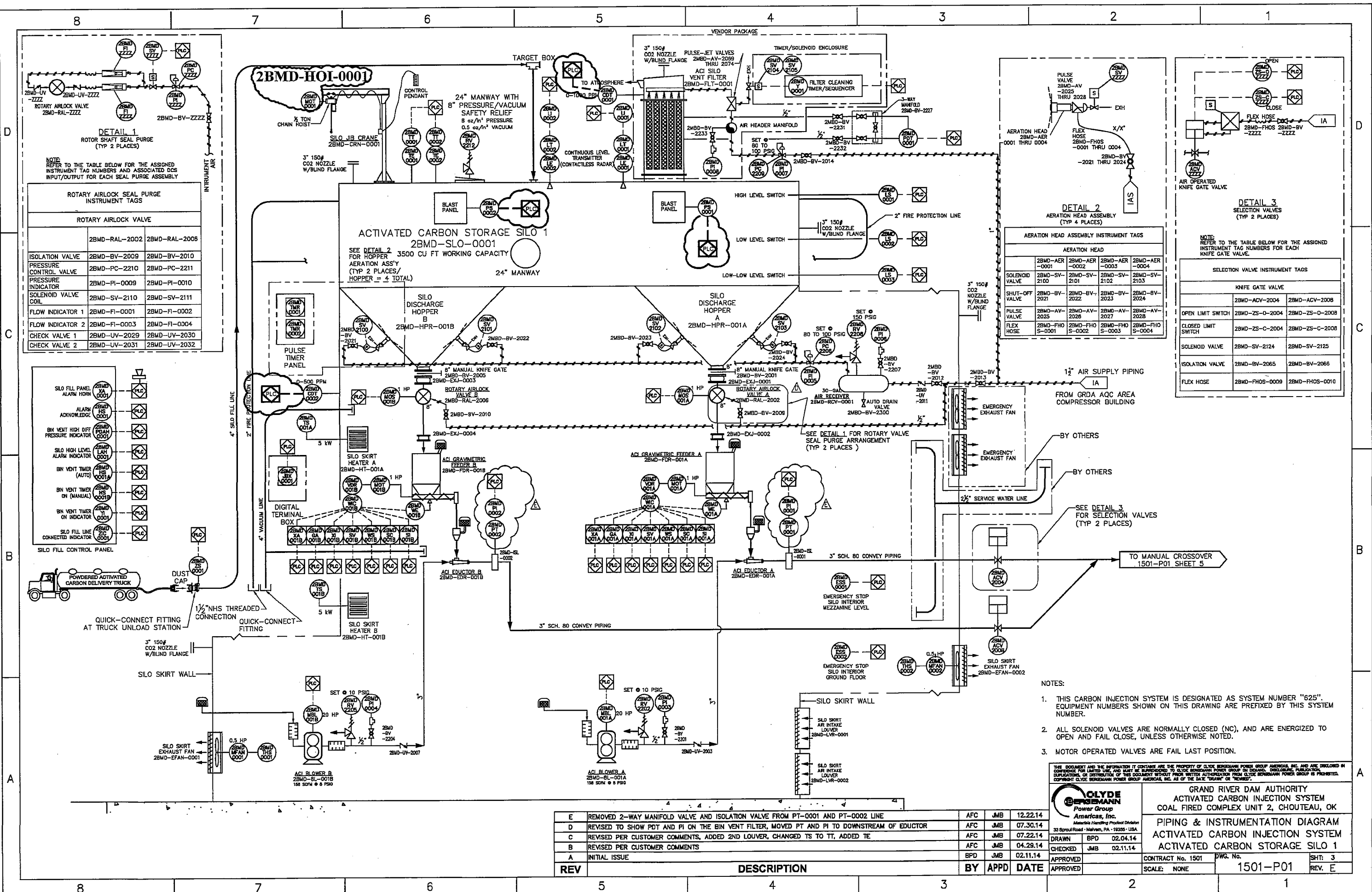
**CLYDE BERGEMANN**  
Americas, Inc.  
Power Group  
33 Spruill Road - Malvern, PA - 19355-USA

GRAND RIVER DAM AUTHORITY  
ACTIVATED CARBON INJECTION SYSTEM  
COAL FIRED COMPLEX UNIT 2, CHOUTEAU, OK

PIPING & INSTRUMENTATION DIAGRAM  
ACTIVATED CARBON INJECTION SYSTEM  
LEGEND SHEET

DRAWN	BPD	02.04.14	APPROVED		CONTRACT No. 1501	DWG. No.	1501-P01	SHT: 1
CHECKED	JMB	02.11.14	APPROVED		SCALE: NONE			REV. E

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**ROTARY AIRLOCK SEAL PURGE INSTRUMENT TAGS**

ROTARY AIRLOCK VALVE	
ISOLATION VALVE	2BMD-BV-2009 2BMD-BV-2010
PRESSURE CONTROL VALVE	2BMD-PC-2210 2BMD-PC-2211
PRESSURE INDICATOR	2BMD-PI-0009 2BMD-PI-0010
SOLENOID VALVE COIL	2BMD-SV-2110 2BMD-SV-2111
FLOW INDICATOR 1	2BMD-FI-0001 2BMD-FI-0002
FLOW INDICATOR 2	2BMD-FI-0003 2BMD-FI-0004
CHECK VALVE 1	2BMD-LV-2029 2BMD-LV-2030
CHECK VALVE 2	2BMD-LV-2031 2BMD-LV-2032

**SILo FILL CONTROL PANEL**

SILo FILL PANEL ALARM HORN	2BMD-XA-0001
ALARM ACKNOWLEDGE	2BMD-HS-0001
BIN VENT HIGH DIFF. PRESSURE INDICATOR	2BMD-PI-0001
SILo HIGH LEVEL ALARM INDICATOR	2BMD-LAI-0001
BIN VENT TIMER (AUTO)	2BMD-TS-0001
BIN VENT TIMER ON (MANUAL)	2BMD-TS-0002
BIN VENT TIMER ON INDICATOR	2BMD-TI-0001
SILo FILL LINE CONNECTED INDICATOR	2BMD-ZIC-0001

**DETAIL 2 AERATION HEAD ASSEMBLY INSTRUMENT TAGS**

AERATION HEAD			
SOLENOID VALVE	2BMD-SV-2100	2BMD-SV-2101	2BMD-SV-2102
SHUT-OFF VALVE	2BMD-SV-2021	2BMD-SV-2022	2BMD-SV-2023
PULSE VALVE	2BMD-AV-2025	2BMD-AV-2026	2BMD-AV-2027
FLEX HOSE	2BMD-FHO-S-0001	2BMD-FHO-S-0002	2BMD-FHO-S-0003

**DETAIL 3 SELECTION VALVES INSTRUMENT TAGS**

KNIFE GATE VALVE	
OPEN LIMIT SWITCH	2BMD-ACV-2004 2BMD-ZS-0-2008
CLOSED LIMIT SWITCH	2BMD-ZS-C-2004 2BMD-ZS-C-2008
SOLENOID VALVE	2BMD-SV-2124 2BMD-SV-2125
ISOLATION VALVE	2BMD-BV-2065 2BMD-BV-2066
FLEX HOSE	2BMD-FHOS-0009 2BMD-FHOS-0010

- NOTES:**
- THIS CARBON INJECTION SYSTEM IS DESIGNATED AS SYSTEM NUMBER "625". EQUIPMENT NUMBERS SHOWN ON THIS DRAWING ARE PREFIXED BY THIS SYSTEM NUMBER.
  - ALL SOLENOID VALVES ARE NORMALLY CLOSED (NC), AND ARE ENERGIZED TO OPEN AND FAIL CLOSE, UNLESS OTHERWISE NOTED.
  - MOTOR OPERATED VALVES ARE FAIL LAST POSITION.

REV	DESCRIPTION	BY	APPD	DATE
E	REMOVED 2-WAY MANIFOLD VALVE AND ISOLATION VALVE FROM PT-0001 AND PT-0002 LINE	AFC	JMB	12.22.14
D	REVISED TO SHOW PDT AND PI ON THE BIN VENT FILTER, MOVED PT AND PI TO DOWNSTREAM OF EDUCTOR	AFC	JMB	07.30.14
C	REVISED PER CUSTOMER COMMENTS, ADDED 2ND LOUVER, CHANGED TS TO TT, ADDED TE	AFC	JMB	07.22.14
B	REVISED PER CUSTOMER COMMENTS	AFC	JMB	04.29.14
A	INITIAL ISSUE	BPD	JMB	02.11.14

**OLYDE BERGMANN Power Group Americas, Inc.**  
 33 Spruill Road - Malvern, PA - 19355 - USA

**GRAND RIVER DAM AUTHORITY  
 ACTIVATED CARBON INJECTION SYSTEM  
 COAL FIRED COMPLEX UNIT 2, CHOUTEAU, OK**

**PIPING & INSTRUMENTATION DIAGRAM  
 ACTIVATED CARBON INJECTION SYSTEM  
 ACTIVATED CARBON STORAGE SILO 1**

DRAWN	BPD	02.04.14
CHECKED	JMB	02.11.14
APPROVED		
APPROVED		

CONTRACT No. 1501    DWG. No. 1501-P01    SHEET: 3  
 SCALE: NONE

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8		7		6		5		4		3		2		1	
COMPONENT FUNCTION CODE TABLE		COMPONENT FUNCTION CODE TABLE		COMPONENT FUNCTION CODE TABLE		COMPONENT FUNCTION CODE TABLE		COMPONENT FUNCTION CODE TABLE		COMPONENT FUNCTION CODE TABLE					
CODES	DESCRIPTION	CODES	DESCRIPTION	CODES	DESCRIPTION	CODES	DESCRIPTION	CODES	DESCRIPTION	CODES	DESCRIPTION				
EDR	EDUCTOR	ISL	INSULATION	NDS	DRAINAGE STRUCTURE, CLEAN OUT	SEP	SEPARATOR	VT	TRANSMITTER, VIBRATION	WW	WALKWAYS				
EFAN	FAN, EXHAUST	IV	VALVE, INSTRUMENT	OLU	OIL UNIT	SFAN	FAN, SUPPLY	WV	WALKWAYS	WVY	WIREWAY				
EHH	ELEC HANDHOLE	IVT	INVERTER	OPD	PLUMBING & DRAINS, ROOF	SFI	INDICATOR, SIGHT FLOW	XC	CONTROLLER, SPECIAL (INCLUDES ENTHALPY)	XDCR	TRANSDUCER				
EJR	EJECTOR	JBX	BOX, JUNCTION	ORF	ORIFICE	SGC	SIGNAL CONVERTERS	XDS	DRAINAGE STRUCTURES, MISCELLANEOUS	XEN	ENCLOSURE, MISC				
EMH	ELEC MANHOLE	JX	POWER SUPPLY, ELECTRIC	P	PUMP	SGM	SIGNAL MONITORS	XF	TRANSFORMER	XH	HANGER, SPECIAL				
ESS	SWITCH, EMERGENCY STOP	K	CONTROL STATION	PC	CONTROLLER, PRESSURE	SHD	SHIELDING	XI	INDICATOR, SPECIAL	XIS	SWITCH, MISC IND				
EXC	EXCITER	KBD	KEYBOARD	PDC	CONTROLLER DIFF PRESSURE	SIL	SILENCER	XK	CONTROL STATION, SPECIAL	XMH	MTL HANDLING, MISC				
EXJ	EXPANSION JOINT	KXF	TRANSFORMER, CONTROL	PDI	INDICATOR, DIFF PRESSURE	SKD	SKID	XS	SWITCH, SPECIAL	XT	TRANSMITTER, MISC				
EXX	COMPONENT, ELEC	KXX	COMPONENT, CONTROL	PDIS	SWITCH, DIFF PRESSURE IND	SLO	MTL HANDLING, SILOS	Y	RELAY, CONTROL	YDS	DRAINAGE STRUCTURE, MANHOLE, OILY WATER				
EYW	EYEWASH	L	PIPELINE	PDS	SWITCH, DIFF PRESSURE	SLO	SILO	ZE	PRIMARY ELEMENT, ZONE OR POSITION	ZS	SWITCH, LIMIT				
FAN	FAN	LC	CONTROLLER, LEVEL	PDT	TRANSMITTER, DIFF PRESSURE	SLV	SLEEVE	ZT	TRANSMITTER, ZONE						
FC	CONTROLLER, FLOW	LE	PRIMARY ELEMENT, LEVEL	PE	PRIMARY ELEMENT, PRESSURE	SNB	SNUBBER (PIPE)								
FD	DAMPER, FIRE	LFX	LIGHTING MATERIAL	PEC	PHOTOELECTRIC CELL	SPK	SPEAKER								
FDR	FEEDER	LI	INDICATOR, LEVEL	PFB	PREFABRICATED BLDG	SS	SWITCH, SPEED OR MOTION								
FE	PRIMARY ELEMENT, FLOW	LIS	SWITCH, LEVEL IND	PH	HANGER, PIPE	SSH	SAFETY SHOWER								
FEX	FIRE EXTINGUISHER	LPL	PANEL, LIGHTING	PHT	TRANSMITTER PH	ST	TRANSMITTER, SPEED (MOTION)								
FHOS	HOSE, FLEX	LS	SWITCH, LEVEL	PI	INDICATOR, PRESSURE	STR	STRAINER								
FI	INDICATOR, FLOW	LT	TRANSMITTER, LEVEL	PIPE	PIPE	SUS	SECONDARY UNIT SUBSTATION								
FIS	SWITCH, FLOW IND	LXF	TRANSFORMER, LIGHTING	PIS	SWITCH, PRESS IND	SV	VALVE, SOLENOID (ALL TYPES)								
FLT	FILTER	M	METER	PKXX	COMPONENT, CONTROL, PANEL MTD	SWG	SWITCHGEAR								
FM	METER, FLOW	M	METER	PL	PANEL	SXX	COMPONENT, STRUCTURAL								
FQ	TOTALIZER, FLOW	MBD	DAMPER, BLOCKING MOTOR OPERATED	PLC	CONTROLLER, LOGIC PROGRAMMABLE	TBG	TUBING								
FS	SWITCH, FLOW	MBL	MOTOR, BLOWER	PPL	PANEL, POWER	TC	CONTROLLER, TEMP								
FSH	FLASHER	MBV	VALVE, BLOCK, MOTOR OPERATED	PRN	PRINTER	TCPL	PANEL, CONTROL TEMPERATURE								
FT	TRANSMITTAL, FLOW	MC	CONTROLLER, MOISTURE (HUMIDITY)	PS	SWITCH, PRESSURE	TE	PRIMARY ELEMENT, TEMPERATURE								
FT	TRANSMITTER, FLOW	MCC	MOTOR CONTROL CENTER	PSP	PIPE SPOOL	TEL	TELEPHONE								
FUS	FUSE	MCD	DAMPER, CONTROL MOTOR OPERATED	PT	TRANSMITTER, PRESSURE	TGR	TURNING GEAR								
GAT	GATE	MCMP	MOTOR, COMPRESSOR	R	RECORDER	THS	THERMOSTAT								
GBM	GAS CYL &/OR MANIF	MCV	VALVE, CONTROL, MOTOR OPERATED	RAL	MTL HANDLING, ROTARY AIR LOCK	TI	INDICATOR, TEMP								
GBS	BUS, GROUNDING	MCVY	MOTOR, CONVEYOR	RCP	RECEPTACLE	TIS	SWITCH, TEMP IND								
GDT	DETECTOR, GROUND	MD	DAMPER, MANUAL	RCV	RECEIVER	TMR	TIMER								
GFI	INTERRUPTER, GROUND FAULT CIRCUIT	MDS	SWITCH, DISCONNECT MOTOR-OPERATED	RDS	DRAINAGE STRUCTURE, MANHOLE, STORM DRAIN	TNK	TANK								
GG	GLASS, GAUGE	MDT	DETECTOR, MATERIAL PRESENCE	RFAN	FAN, RETURN	TPL	PANEL, TERMINATION								
GRT	GRATE	MDV	VALVE, DIVERTING, MOTOR OPERATED	RJX	POWER SUPPLY, ELEC, REGULATED	TRP	TRAP								
GSKT	GASKET	MFM	METER, FAN	RPD	RUPTURE DISK	TRY	CABLE TRAY								
HBV	VALVE, BLOCK, HYDRAULIC OPERATED	MI	INDICATOR, MOISTURE (HUMIDITY)	RPL	PANEL, RELAY	TS	SWITCH, TEMPERATURE								
HCL	COIL, HEATING	MIX	MIXER	RS	RESISTOR	TST	TESTING								
HCV	VALVE, CONTROL, HYDRAULIC OPERATED	MOD	MODULE (INSTR AND/OR CONTROL)	RS	RESISTOR	TT	TRANSMITTER, TEMPERATURE								
HDS	DRAINAGE STRUCTURES, MANHOLE	MODE	MODEM	RST	RESTRAINT (INC PIPE RESTRAINTS & GUIDES)	TVC	TV CAMERA								
HDV	VALVE, DIVERTER, HYDRAULIC OPERATED	MON	MONITOR/TV	RTD	DETECTOR, RESIST TEMPERATURE	TW	THERMOWELL								
HOI	HOIST	MOS	MOTOR STARTER	RTU	REMOTE TERMINAL UNIT	TY	RELAY, TIME DELAY								
HOS	HOSE	MOT	MOTOR, MISC	RV	VALVE, RELIEF	UD	DAMPER, UNIDIRECTION								
HPR	HOPPER	MP	MOTOR, PUMP	RVR	RESERVOIR	UDC	DUCT, UNDERFLOOR								
HSS	HOSE, STATION	MPL	PANEL, MECHANICAL	RVS	RELIEF VALVE VENT SEAL	UHT	HEATER, UNIT								
HT	HEATER	MPX	MULTIPLEXER	S	SWITCH	UJX	POWER SUPPLY, UNINTERRUPTIBLE								
HTP	PUMP, HEAT	MRV	VALVE, RELIEF, MOTOR OPERATED	SBV	VALVE, BLOCK, SOLENOID	UV	VALVE, UNI-DIRECTION (CHK, REVERSE FLOW)								
HUM	HUMIDIFIER	MS	SWITCH, MOISTURE (HUMIDITY)	SC	SPLITTER BOX	VAC	MTL HANDLING, VACUUM SYSTEM								
HX	HEAT EXCHANGER	MSU	SWITCHING UNIT, MANUAL	SC	CONTROLLER, SPEED	VBK	VACUUM BREAKER								
HXX	COMPONENT, HVAC	MT	TRANSMITTER, MOISTURE (HUMIDITY)	SCL	SCALE	VBR	VIBRATOR								
HYD	HYDRANT	MUV	VALVE, UNI-DIRECTIONAL MOTOR OPERATED	SCN	SCREEN	VCU	VOLUME CONTROL UNIT (CNTRLS THE AIR SUP)								
IBS	BUS, ISOLATED PHASE	MXX	COMPONENT, MECH	SCR	SELECTIVE CATALYTIC REDUCTION EQUIPMENT	VDR	VARIABLE SPEED DRIVE								
IEN	ENCLOSURE, INSTR	NBS	BUS, NONSEGREGATED	SDT	DETECTOR, SMOKE (HEAT, FIRE, ETC.)	VE	PRIMARY ELEMENT, VIBRATION								
II	INDICATOR, CURRENT (AMMETER)			SE	PRIMARY ELEMENT, SPEED	VS	SWITCH, VIBRATION								
INJ	INJECTOR			SEA	SEAL	VSL	VESSEL								
IRK	RACK, INSTRUMENT														

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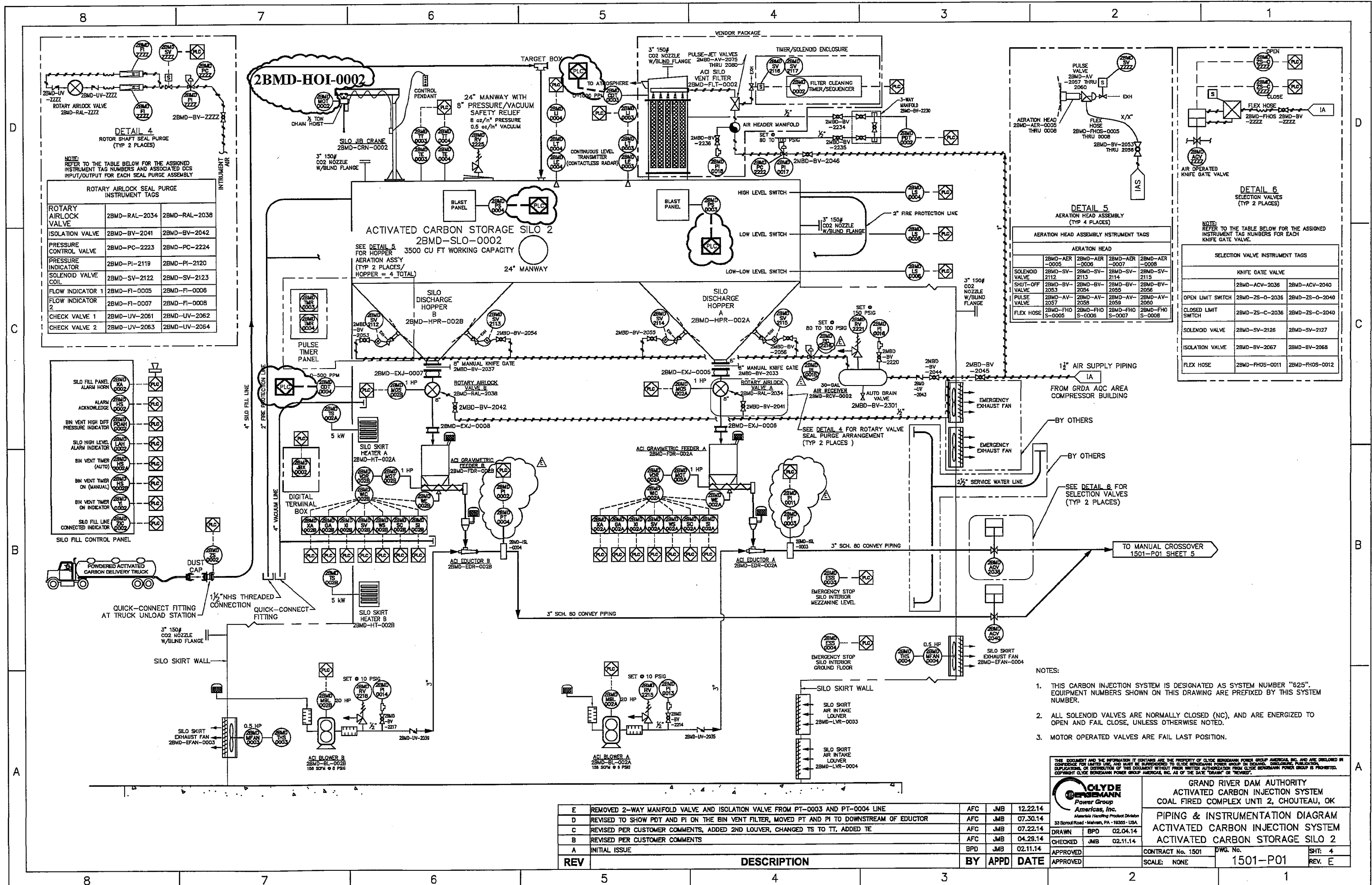
**CLYDE BERGMANN Power Group Americas, Inc.**  
 A Member Handling Product Division  
 33 Spind Road - Mariner, PA - 15356 - USA

GRAND RIVER DAM AUTHORITY  
 ACTIVATED CARBON INJECTION SYSTEM  
 COAL FIRED COMPLEX UNIT 2, CHOUTEAU, OK  
 PIPING & INSTRUMENTATION DIAGRAM  
 ACTIVATED CARBON INJECTION SYSTEM  
 LEGEND SHEET

DRAWN	BPD	02.04.14
CHECKED	JMB	02.11.14
APPROVED		
APPROVED		

CONTRACT No.	1501	DWG. No.	1501-P01
SCALE	NONE	SHT.	2
		REV.	E

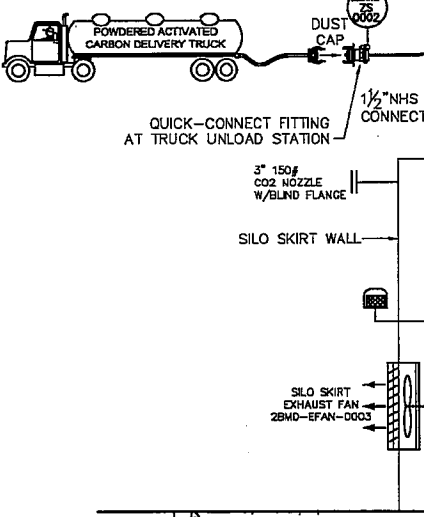
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NOTE: REFER TO THE TABLE BELOW FOR THE ASSIGNED INSTRUMENT TAG NUMBERS AND ASSOCIATED DCS INPUT/OUTPUT FOR EACH SEAL PURGE ASSEMBLY

ROTARY AIRLOCK SEAL PURGE INSTRUMENT TAGS		
ROTARY AIRLOCK VALVE	2BMD-RAL-2034	2BMD-RAL-2038
ISOLATION VALVE	2BMD-BV-2041	2BMD-BV-2042
PRESSURE CONTROL VALVE	2BMD-PC-2223	2BMD-PC-2224
PRESSURE INDICATOR	2BMD-PI-2119	2BMD-PI-2120
SOLENOID VALVE COIL	2BMD-SV-2122	2BMD-SV-2123
FLOW INDICATOR 1	2BMD-FI-0005	2BMD-FI-0006
FLOW INDICATOR 2	2BMD-FI-0007	2BMD-FI-0008
CHECK VALVE 1	2BMD-UV-2061	2BMD-UV-2062
CHECK VALVE 2	2BMD-UV-2063	2BMD-UV-2064

SILO FILL CONTROL PANEL	
SILO FILL PANEL ALARM HORN	2BMD-XA-0002
ALARM ACKNOWLEDGE	2BMD-TS-0004
BIN VENT HIGH DIFF. PRESSURE INDICATOR	2BMD-PI-0009
SILO HIGH LEVEL ALARM INDICATOR	2BMD-LA-0005
BIN VENT TIMER (AUTO)	2BMD-TS-0024
BIN VENT TIMER ON (MANUAL)	2BMD-TS-0025
BIN VENT TIMER ON INDICATOR	2BMD-PI-0002
SILO FILL LINE CONNECTED INDICATOR	2BMD-PI-0003

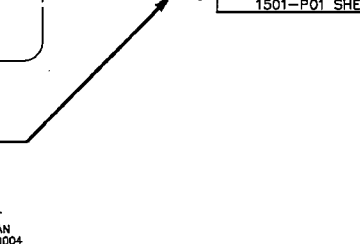


REV	DESCRIPTION	BY	APPD	DATE
E	REMOVED 2-WAY MANIFOLD VALVE AND ISOLATION VALVE FROM PT-0003 AND PT-0004 LINE	AFC	JMB	12.22.14
D	REVISED TO SHOW PDT AND PI ON THE BIN VENT FILTER, MOVED PT AND PI TO DOWNSTREAM OF EDUCTOR	AFC	JMB	07.30.14
C	REVISED PER CUSTOMER COMMENTS, ADDED 2ND LOUVER, CHANGED TS TO TT, ADDED TE	AFC	JMB	07.22.14
B	REVISED PER CUSTOMER COMMENTS	AFC	JMB	04.29.14
A	INITIAL ISSUE	BPD	JMB	02.11.14

NOTE: REFER TO THE TABLE BELOW FOR THE ASSIGNED INSTRUMENT TAG NUMBERS FOR EACH KNIFE GATE VALVE.

SELECTION VALVE INSTRUMENT TAGS			
KNIFE GATE VALVE			
OPEN LIMIT SWITCH	2BMD-ZS-O-2036	2BMD-ZS-O-2040	
CLOSED LIMIT SWITCH	2BMD-ZS-C-2036	2BMD-ZS-C-2040	
SOLENOID VALVE	2BMD-SV-2126	2BMD-SV-2127	
ISOLATION VALVE	2BMD-BV-2067	2BMD-BV-2068	
FLEX HOSE	2BMD-FHOS-0011	2BMD-FHOS-0012	

AERATION HEAD ASSEMBLY INSTRUMENT TAGS			
AERATION HEAD			
SOLENOID VALVE	2BMD-AER-0005	2BMD-AER-0006	2BMD-AER-0007
SHUT-OFF VALVE	2BMD-BV-2053	2BMD-BV-2054	2BMD-BV-2055
PULSE VALVE	2BMD-AV-2057	2BMD-AV-2058	2BMD-AV-2059
FLEX HOSE	2BMD-FHOS-0005	2BMD-FHOS-0006	2BMD-FHOS-0007



- NOTES:
- THIS CARBON INJECTION SYSTEM IS DESIGNATED AS SYSTEM NUMBER "625". EQUIPMENT NUMBERS SHOWN ON THIS DRAWING ARE PREFIXED BY THIS SYSTEM NUMBER.
  - ALL SOLENOID VALVES ARE NORMALLY CLOSED (NC), AND ARE ENERGIZED TO OPEN AND FAIL CLOSE, UNLESS OTHERWISE NOTED.
  - MOTOR OPERATED VALVES ARE FAIL LAST POSITION.

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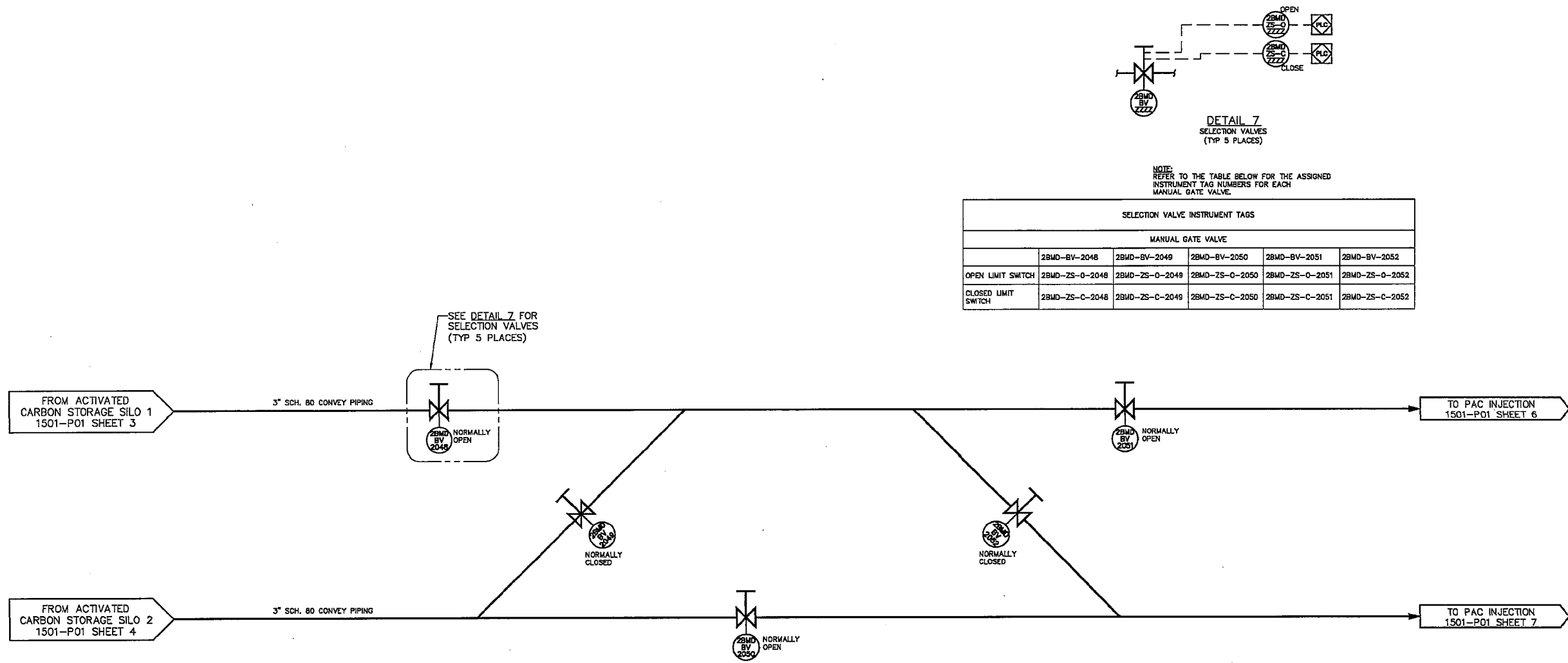
GRAND RIVER DAM AUTHORITY  
ACTIVATED CARBON INJECTION SYSTEM  
COAL FIRED COMPLEX UNIT 2, CHOCTEAU, OK

PIPING & INSTRUMENTATION DIAGRAM  
ACTIVATED CARBON INJECTION SYSTEM  
ACTIVATED CARBON STORAGE SILO 2

DRAWN	BPD	02.04.14
CHECKED	JMB	02.11.14
APPROVED		
APPROVED		

CONTRACT No. 1501	DWG. No.	1501-P01	SHT: 4
SCALE: NONE			REV. E

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REV	DESCRIPTION	BY	APPD	DATE
E	RENUMBERED VALVE TAG NUMBERS ON SHEET 6 AND SHEET 7	AFC	JMB	12.22.14
D	REVISED SHEET 3 AND 4 TO SHOW PDT AND PI ON THE BIN VENT FILTER	AFC	JMB	07.30.14
C	REVISED SHEETS 3 AND 4 PER CUSTOMER COMMENTS	AFC	JMB	04.28.14
B	REVISED PER CUSTOMER COMMENTS	AFC	JMB	04.29.14
A	INITIAL ISSUE	BPD	JMB	02.11.14

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Americas Handling Product Division  
33 Spruill Road - Havertown, PA - 19355 - USA

DRAWN: BPD 02.04.14  
CHECKED: JMB 02.11.14  
APPROVED: [Signature]

GRAND RIVER DAM AUTHORITY  
ACTIVATED CARBON INJECTION SYSTEM  
COAL FIRED COMPLEX UNIT 2, CHOATEAU, OK

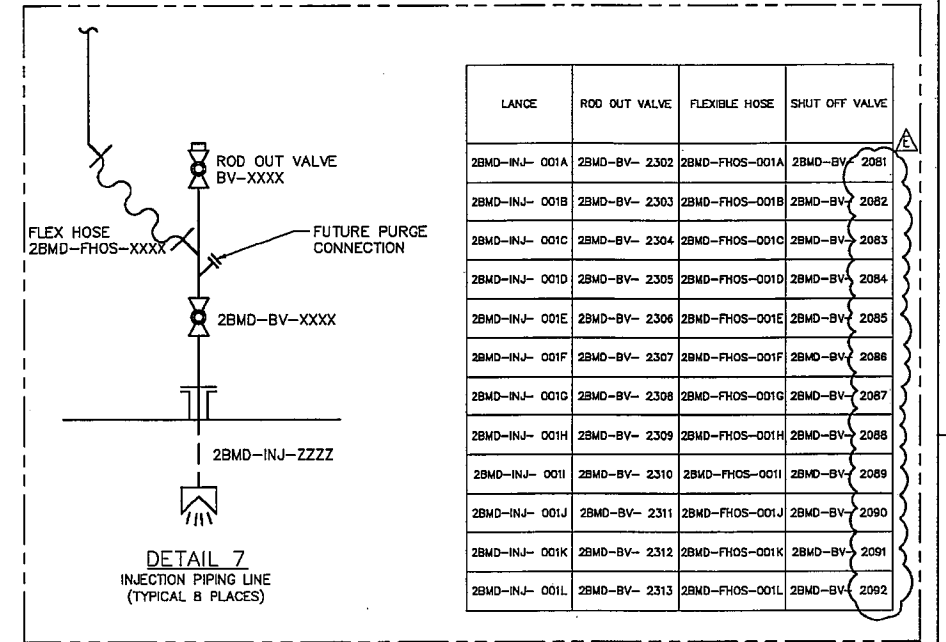
PIPING & INSTRUMENTATION DIAGRAM  
ACTIVATED CARBON INJECTION SYSTEM  
MANUAL CROSSOVER

CONTRACT No. 1501      DWG. No. 1501-PO1  
SCALE: NONE      REV. E

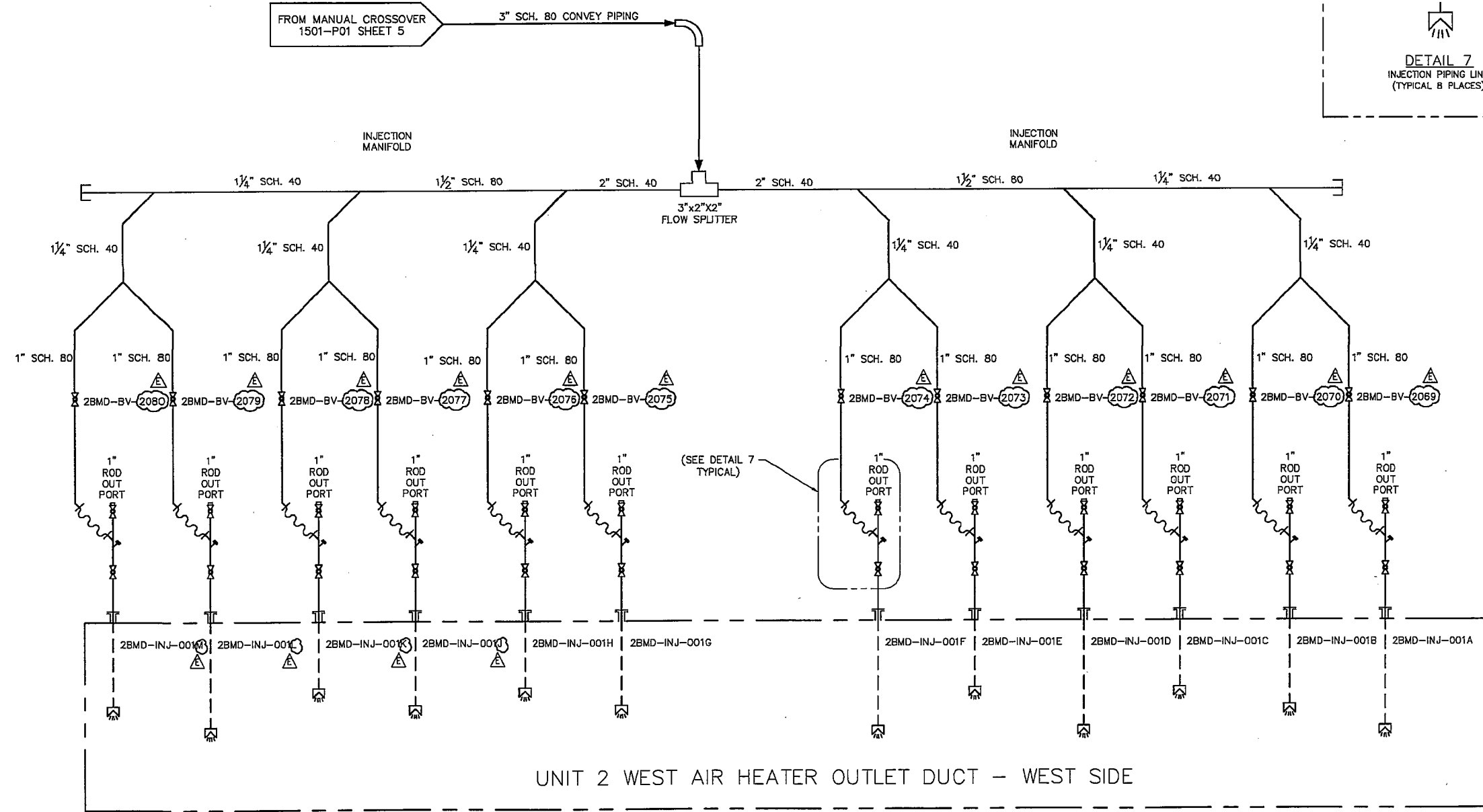
SHT: 5

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  3. SYSTEM CODE IS BMD, EXCEPT AS INDICATED.
  4. ALL VALVES ARE SERIES XXXX-XXX-XXXX, EXCEPT AS INDICATED.



LANCE	ROD OUT VALVE	FLEXIBLE HOSE	SHUT OFF VALVE
2BMD-INJ-001A	2BMD-BV-2302	2BMD-FHOS-001A	2BMD-BV-2081
2BMD-INJ-001B	2BMD-BV-2303	2BMD-FHOS-001B	2BMD-BV-2082
2BMD-INJ-001C	2BMD-BV-2304	2BMD-FHOS-001C	2BMD-BV-2083
2BMD-INJ-001D	2BMD-BV-2305	2BMD-FHOS-001D	2BMD-BV-2084
2BMD-INJ-001E	2BMD-BV-2306	2BMD-FHOS-001E	2BMD-BV-2085
2BMD-INJ-001F	2BMD-BV-2307	2BMD-FHOS-001F	2BMD-BV-2086
2BMD-INJ-001G	2BMD-BV-2308	2BMD-FHOS-001G	2BMD-BV-2087
2BMD-INJ-001H	2BMD-BV-2309	2BMD-FHOS-001H	2BMD-BV-2088
2BMD-INJ-001I	2BMD-BV-2310	2BMD-FHOS-001I	2BMD-BV-2089
2BMD-INJ-001J	2BMD-BV-2311	2BMD-FHOS-001J	2BMD-BV-2090
2BMD-INJ-001K	2BMD-BV-2312	2BMD-FHOS-001K	2BMD-BV-2091
2BMD-INJ-001L	2BMD-BV-2313	2BMD-FHOS-001L	2BMD-BV-2092



UNIT 2 WEST AIR HEATER OUTLET DUCT - WEST SIDE

REV	DESCRIPTION	BY	APPD	DATE
E	RENUMBERED VALVE TAG NUMBERS	AFC	JMB	12.22.14
D	REVISED INJECTION MANIFOLD PER CFD MODELING	AFC	JMB	09.02.14
C	REVISED SHEETS 3 AND 4 PER CUSTOMER COMMENTS	AFC	JMB	07.22.14
B	REVISED PER CUSTOMER COMMENTS	AFC	JMB	04.29.14
A	INITIAL ISSUE	BPD	JMB	02.11.14

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GRAND RIVER DAM AUTHORITY  
ACTIVATED CARBON INJECTION SYSTEM  
COAL FIRED COMPLEX UNIT 2, CHOCTEAU, OK

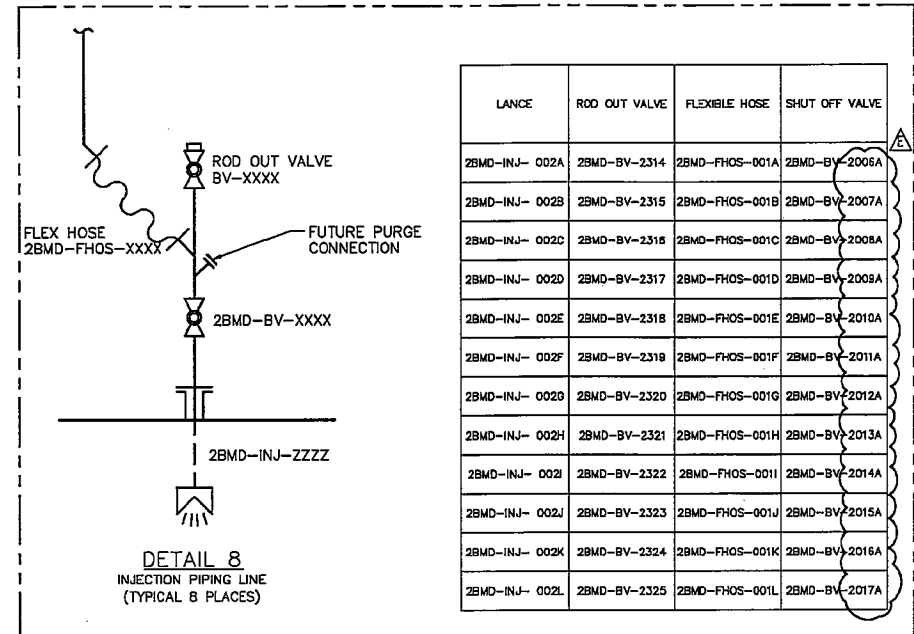
PIPING & INSTRUMENTATION DIAGRAM  
ACTIVATED CARBON INJECTION SYSTEM  
INJECTION LANCES

DRAWN	BPD	02.04.14
CHECKED	JMB	02.11.14
APPROVED		
APPROVED		

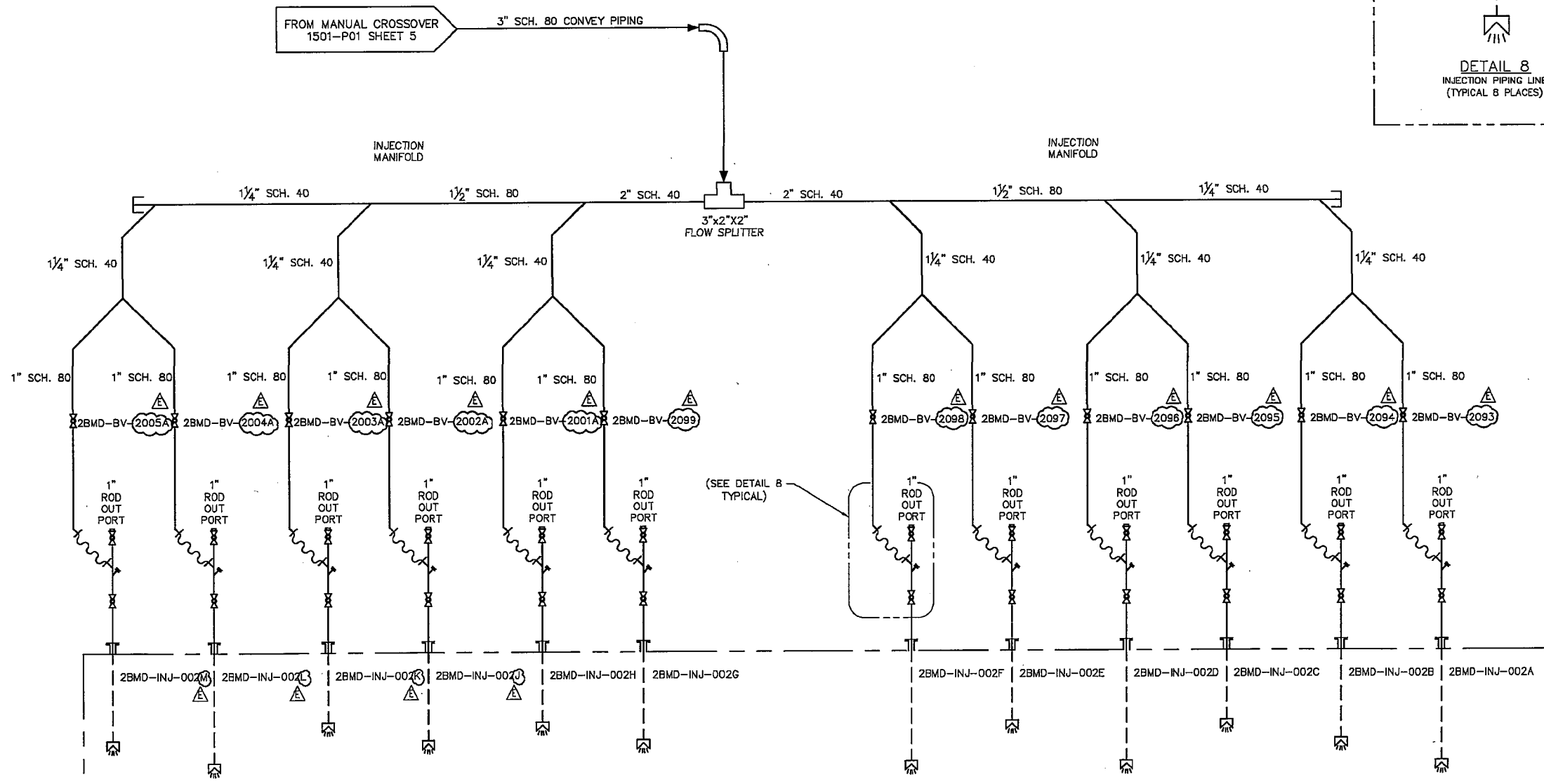
CONTRACT No. 1501	DWG. No.	SHT: 6
SCALE: NONE	1501-P01	REV. E

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  2. THIS DRAWING IS A SCHEMATIC, SEE GENERAL ARRANGEMENT AND ASSEMBLY DRAWINGS FOR ORIENTATION AND INSTALLATION.
  3. SYSTEM CODE IS BMD, EXCEPT AS INDICATED.
  4. ALL VALVES ARE SERIES XXXX-XXX-XXXX, EXCEPT AS INDICATED.



LANCE	ROD OUT VALVE	FLEXIBLE HOSE	SHUT OFF VALVE
2BMD-INJ-002A	2BMD-BV-2314	2BMD-FHOS-001A	2BMD-BV-2006A
2BMD-INJ-002B	2BMD-BV-2315	2BMD-FHOS-001B	2BMD-BV-2007A
2BMD-INJ-002C	2BMD-BV-2316	2BMD-FHOS-001C	2BMD-BV-2008A
2BMD-INJ-002D	2BMD-BV-2317	2BMD-FHOS-001D	2BMD-BV-2009A
2BMD-INJ-002E	2BMD-BV-2318	2BMD-FHOS-001E	2BMD-BV-2010A
2BMD-INJ-002F	2BMD-BV-2319	2BMD-FHOS-001F	2BMD-BV-2011A
2BMD-INJ-002G	2BMD-BV-2320	2BMD-FHOS-001G	2BMD-BV-2012A
2BMD-INJ-002H	2BMD-BV-2321	2BMD-FHOS-001H	2BMD-BV-2013A
2BMD-INJ-002I	2BMD-BV-2322	2BMD-FHOS-001I	2BMD-BV-2014A
2BMD-INJ-002J	2BMD-BV-2323	2BMD-FHOS-001J	2BMD-BV-2015A
2BMD-INJ-002K	2BMD-BV-2324	2BMD-FHOS-001K	2BMD-BV-2016A
2BMD-INJ-002L	2BMD-BV-2325	2BMD-FHOS-001L	2BMD-BV-2017A



UNIT 2 WEST AIR HEATER OUTLET DUCT - EAST SIDE

REV	DESCRIPTION	BY	APPD	DATE
E	RENUMBERED VALVE TAG NUMBERS	AFC	JMB	12.22.14
D	REVISED INJECTION MANIFOLD PER CFD MODELING	AFC	JMB	09.02.14
C	REVISED SHEETS 3 AND 4 PER CUSTOMER COMMENTS	AFC	JMB	04.28.14
B	REVISED PER CUSTOMER COMMENTS	AFC	JMB	04.28.14
A	INITIAL ISSUE	BPD	JMB	02.11.14

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Power Group  
Americas, Inc.  
Materials Handling Product Division  
33 Spruill Road - Malvern, PA - 19358 - USA

GRAND RIVER DAM AUTHORITY  
ACTIVATED CARBON INJECTION SYSTEM  
COAL FIRED COMPLEX UNIT 2, CHOUTEAU, OK

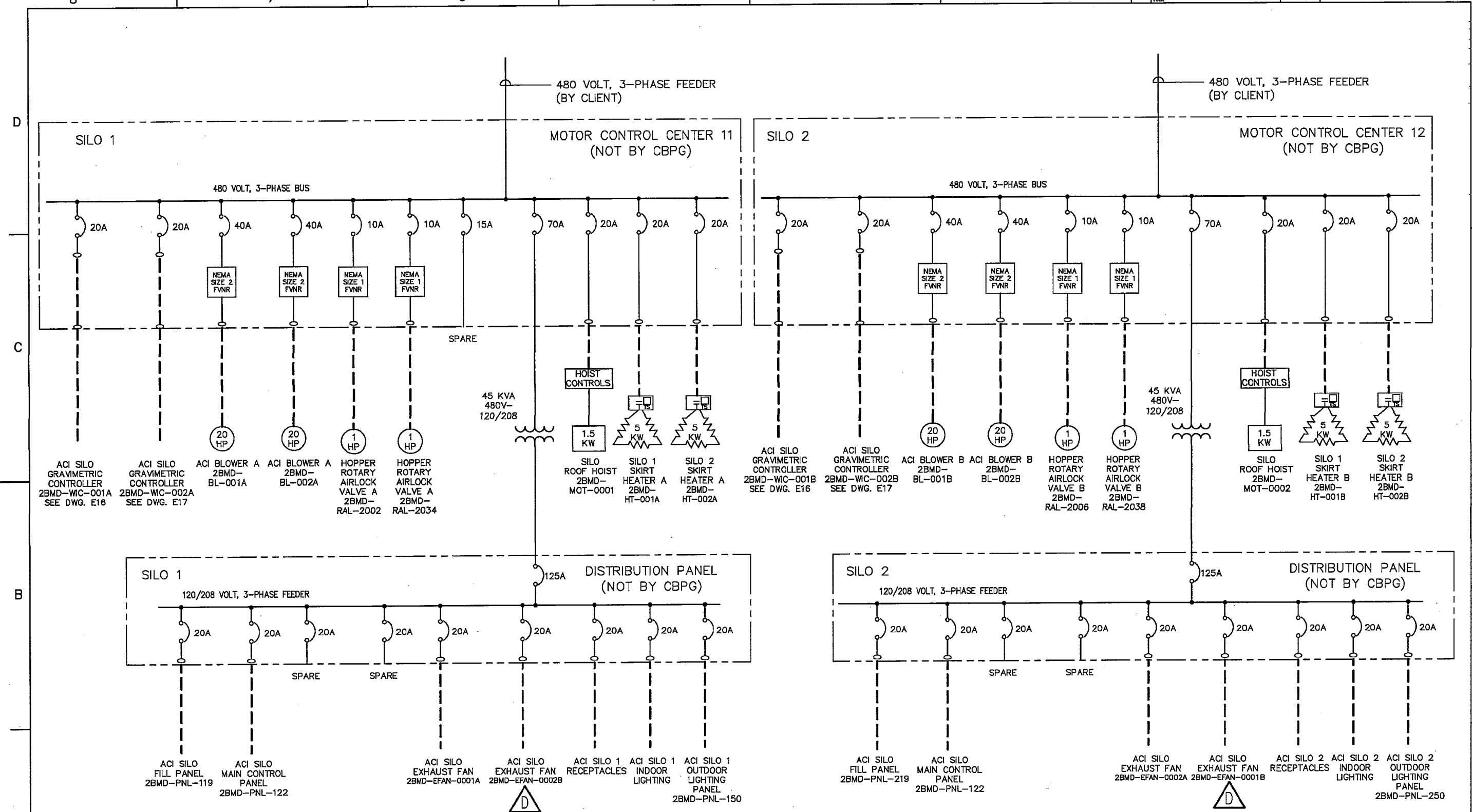
PIPING & INSTRUMENTATION DIAGRAM  
ACTIVATED CARBON INJECTION SYSTEM  
INJECTION LANCES

DRAWN	BPD	02.04.14
CHECKED	JMB	02.11.14
APPROVED		
APPROVED		

CONTRACT No.	1501	DWG. No.		SHT:	7
SCALE:	NONE		1501-PO1	REV:	E



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**LEGEND**

— CONDUIT & WIRING BY CUSTOMER'S CONTRACTOR.

--- ALL CABLE PROVIDED BY CBPG & WILL BE PRE-WIRED AND COILED AT SILO. ALL CONDUIT OR CABLE TRAYS & COILED CABLE INSTALLATION & TERMINATIONS FROM SILO TO BUILDING BY CUSTOMER CONTRACTOR. ALL RACEWAYS AND CABLE CONNECTIONS INSIDE BUILDING IS BY CUSTOMER.

FVNR = FULL VOLTAGE NON-REVERSING MOTOR STARTER

**NOTE:**

SUPPLIER OF MCC SHOULD CONFIRM CIRCUIT BREAKER AND MOTOR CIRCUIT PROTECTOR SIZE. RECOMMENDED SIZE OF CB SHOWN.

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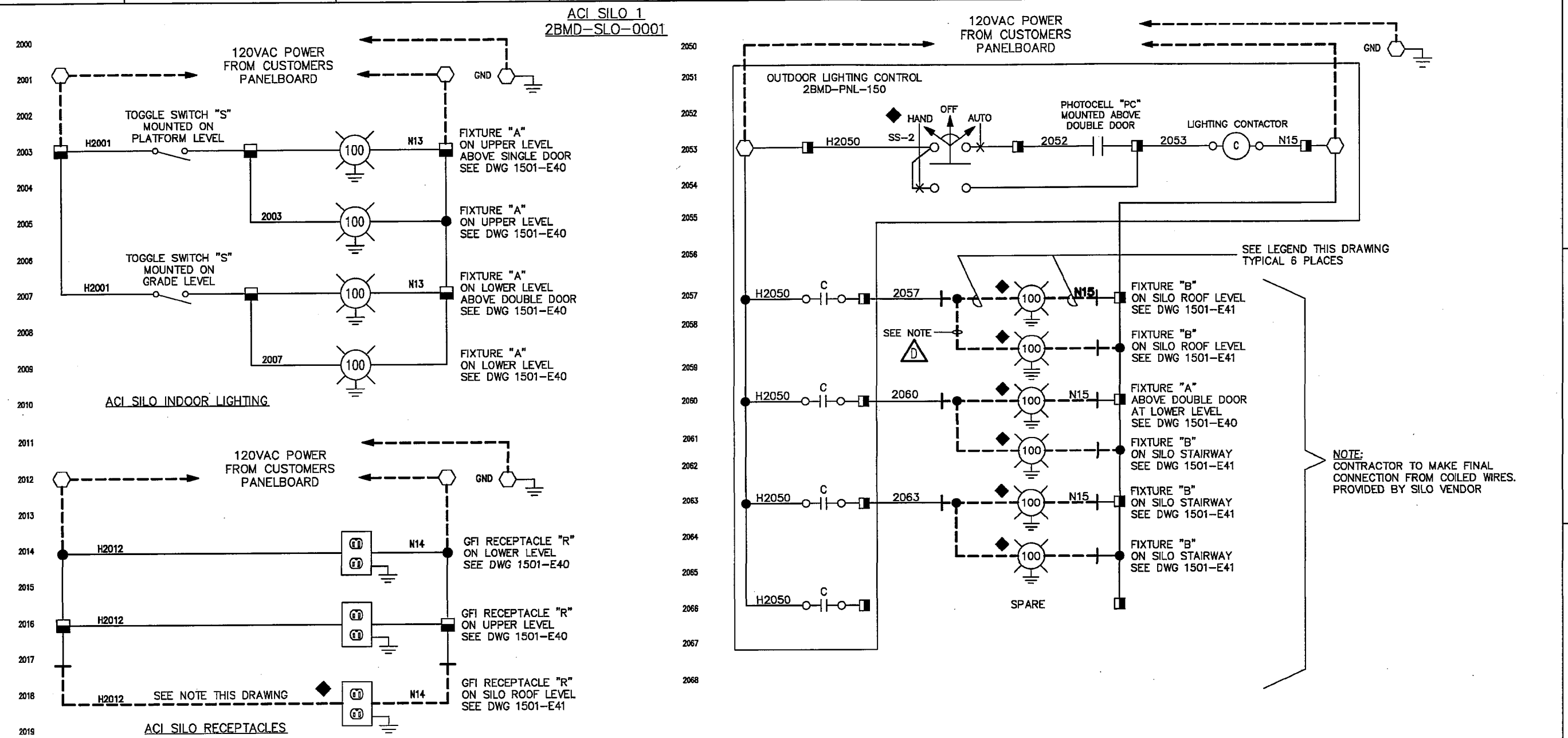


GRAND RIVER DAM AUTHORITY  
 COAL FIRED COMPLEX UNIT 2, CHOCTEAU, OK  
 ACTIVATED CARBON INJECTION SYSTEM

ELECTRICAL  
 ONE LINE DIAGRAM  
 ACTIVATED CARBON INJECTION SYSTEM

DL	07.18.14	DRAWN	CP	02.04.14
DL	06.08.14	CHECKED	DL	02.04.14
DL	04.10.14	APPROVED		
APP'D	DATE	APPROVED		
CONTRACT No.	DWG. No. 1501-E-00	SHT: 1		
SCALE: NONE		REV. D		

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- LEGEND**
- DENOTES A TERMINAL LOCATED IN THE CUSTOMERS PANELBOARD.
  - DENOTES A TERMINAL LOCATED IN THE DIGITAL TERMINAL BOX. SILO 1, 2BMD-PNL-121 OR SILO 2, 2BMD-PNL-221
  - DENOTES A TERMINAL LOCATED IN THE OUTDOOR LIGHTING PANEL. SILO 1, 2BMD-PNL-150 OR SILO 2, 2BMD-PNL-250
  - ◆ DENOTES A DEVICE FURNISHED BY CBPG AND WIRED BY PURCHASER'S ELECTRICAL CONTRACTOR.
  - WIRING BY PANEL VENDOR OR SILO FABRICATOR.
  - - - CABLE PROVIDED BY CBPG. ALL TERMINATION WIRING OUTSIDE OF SILO IS BY PURCHASER'S ELECTRICAL CONTRACTOR.
  - WIRING AND CONDUIT TO BE EXTENDED BY CLIENT'S ELECTRICAL CONTRACTOR.
  - COILED WIRE BY SILO VENDOR.

- GENERAL NOTES:**
1. WIRE NUMBER IS TERMINAL NUMBER EXCEPT AS NOTED.
  2. ALL CABLE PROVIDED BY CBPG.
  3. ALL CABLE TERMINATED IN SILOS AND COILED FOR SHIPMENT.
  4. ALL CABLE TRAY, CONDUIT AND CABLE ROUTING OUTSIDE OF SILOS IS BY PURCHASER'S CONTRACTOR.
  5. ALL CABLE TERMINATIONS AT MCC, MAIN CONTROL PANEL, DISTRIBUTION PANEL, ETC. IS BY PURCHASER'S CONTRACTOR.

**REFERENCE DRAWINGS:**  
 1501-E40, ACI SILO LIGHTING LOWER & UPPER LEVEL PLAN  
 1501-E41, ACI SILO LIGHTING ELEVATION & ROOF LEVEL

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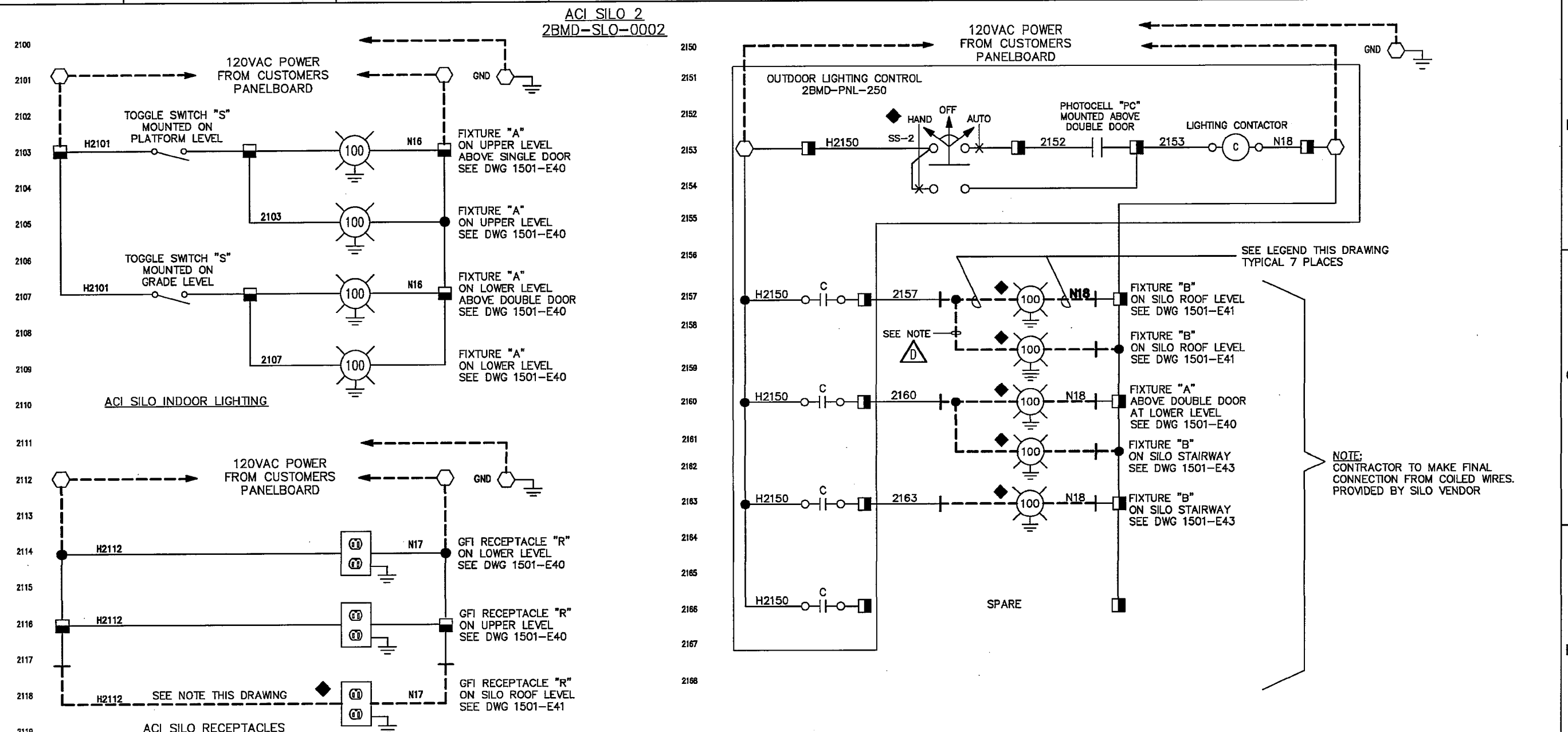
GRAND RIVER DAM AUTHORITY  
 COAL FIRED COMPLEX UNIT 2, CHOUTEAU, OK  
 ACTIVATED CARBON INJECTION SYSTEM

**ELECTRICAL SCHEMATIC DIAGRAM**  
 ACTIVATED CARBON INJECTION SYSTEM

CONTRACT No. \_\_\_\_\_ DWG. No. 1501-E20 SHEET 1  
 SCALE: NONE REV. D

REV.	ZONE	DESCRIPTION	APP'D	DATE	REV.	ZONE	DESCRIPTION	APP'D	DATE	APPROVED
					C	-	ISSUE FOR FABRICATION	DL	07.18.14	DRAWN
					B	-	REVISED PER CLIENT COMMENTS	DL	08.06.14	CHECKED
					A	-	ISSUE FOR REVIEW, COMMENT and/or APPROVAL	DL	04.10.14	APPROVED
D	-	GENERAL UPDATE		12.22.14						

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NOTE: CONTRACTOR TO MAKE FINAL CONNECTION FROM COILED WIRES PROVIDED BY SILO VENDOR

- LEGEND**
- DENOTES A TERMINAL LOCATED IN THE CUSTOMERS PANELBOARD.
  - DENOTES A TERMINAL LOCATED IN THE DIGITAL TERMINAL BOX, SILO 1, 2BMD-PNL-121 OR SILO 2, 2BMD-PNL-221
  - DENOTES A TERMINAL LOCATED IN THE OUTDOOR LIGHTING PANEL, SILO 1, 2BMD-PNL-150 OR SILO 2, 2BMD-PNL-250
  - ◆ DENOTES A DEVICE FURNISHED BY CBPG AND WIRED BY PURCHASER'S ELECTRICAL CONTRACTOR.
  - WIRING BY PANEL VENDOR OR SILO FABRICATOR.
  - - - CABLE PROVIDED BY CBPG, ALL TERMINATION WIRING OUTSIDE OF SILO IS BY PURCHASER'S ELECTRICAL CONTRACTOR.
  - - - WIRING AND CONDUIT TO BE EXTENDED BY CLIENT'S ELECTRICAL CONTRACTOR.
  - - - COILED WIRE BY SILO VENDOR.

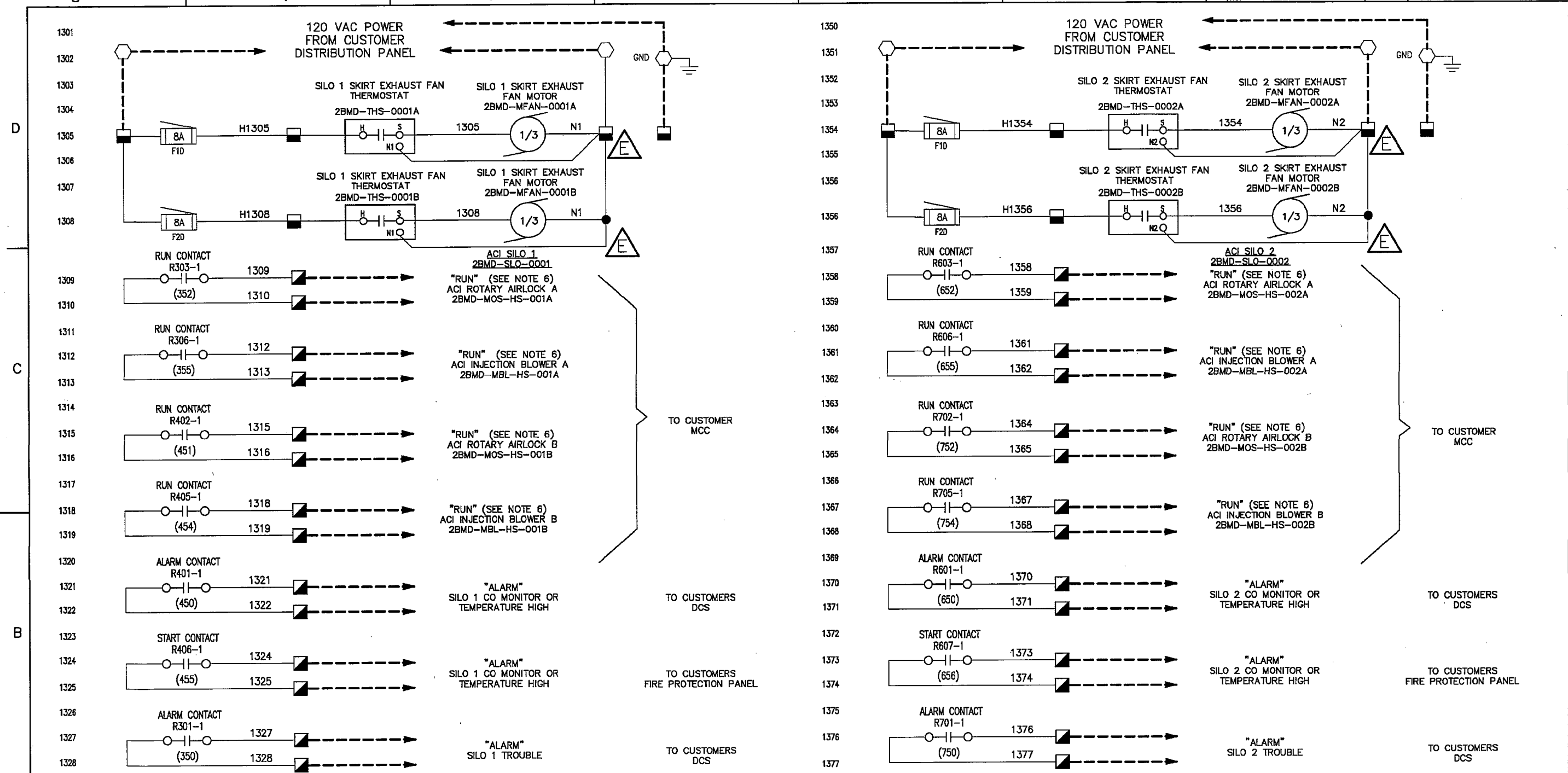
- GENERAL NOTES:**
1. WIRE NUMBER IS TERMINAL NUMBER EXCEPT AS NOTED.
  2. ALL CABLE PROVIDED BY CBPG.
  3. ALL CABLE TERMINATED IN SILOS AND COILED FOR SHIPMENT.
  4. ALL CABLE TRAY, CONDUIT AND CABLE ROUTING OUTSIDE OF SILOS IS BY PURCHASERS CONTRACTOR.
  5. ALL CABLE TERMINATIONS AT MCC, MAIN CONTROL PANEL, DISTRIBUTION PANEL, ETC. IS BY PURCHASER'S CONTRACTOR.

REFERENCE DRAWINGS:  
 1501-E42, ACI SILO LIGHTING LOWER & UPPER LEVEL PLAN  
 1501-E43, ACI SILO LIGHTING ELEVATION & ROOF LEVEL

		GRAND RIVER DAM AUTHORITY COAL FIRED COMPLEX UNIT 2, CHOUTEAU, OK ACTIVATED CARBON INJECTION SYSTEM	
ELECTRICAL SCHEMATIC DIAGRAM ACTIVATED CARBON INJECTION SYSTEM		CONTRACT No. _____ DWG. No. 1501-E21 SHT: 1	
SCALE: NONE		REV. D	

REV.	ZONE	DESCRIPTION	APP'D	DATE	REV.	ZONE	DESCRIPTION	APP'D	DATE	APPROVED
					C		ISSUE FOR FABRICATION		07.18.14	DL
					B		REVISED POWER SOURCE		08.06.14	DL
					A		ISSUE FOR REVIEW, COMMENT and/or APPROVAL		04.10.14	DL
D		GENERAL UPDATE								

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**GENERAL NOTES:**

1. WIRE NUMBER IS TERMINAL NUMBER EXCEPT AS NOTED.
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4. ALL CABLE TRAY, CONDUIT AND CABLE ROUTING OUTSIDE OF SILOS IS BY PURCHASERS CONTRACTOR.
5. ALL CABLE TERMINATIONS AT MCC, MAIN CONTROL PANEL, DISTRIBUTION PANEL, ETC. IS BY PURCHASER'S CONTRACTOR.
6. ALL RUN CONTACTS ARE MAINTAINED CONTACTS.

**LEGEND**

- DENOTES A TERMINAL LOCATED IN THE PURCHASER'S MCC
- ⊗ DENOTES A TERMINAL LOCATED IN THE ACI GRAVIMETRIC FEEDER CONTROLLER (X -DENOTES CONTROL "A" OR "B")
- DENOTES A TERMINAL LOCATED IN THE MAIN CONTROL PANEL. 2BMD-PNL-122
- DENOTES A TERMINAL LOCATED IN THE DIGITAL TERMINAL BOX. SILO 1, 2BMD-PNL-121 OR SILO 2, 2BMD-PNL-221
- △ DENOTES A TERMINAL LOCATED IN THE SELECTION VALVE TERMINAL BOX. SILO 1, 2BMD-PNL-124 OR SILO 2, 2BMD-PNL-224

— WIRING BY PANEL VENDOR OR SILO FABRICATOR.  
 - - - - - CABLE PROVIDED BY CBPG. ALL TERMINATION WIRING OUTSIDE OF SILO IS BY PURCHASER'S ELECTRICAL CONTRACTOR.

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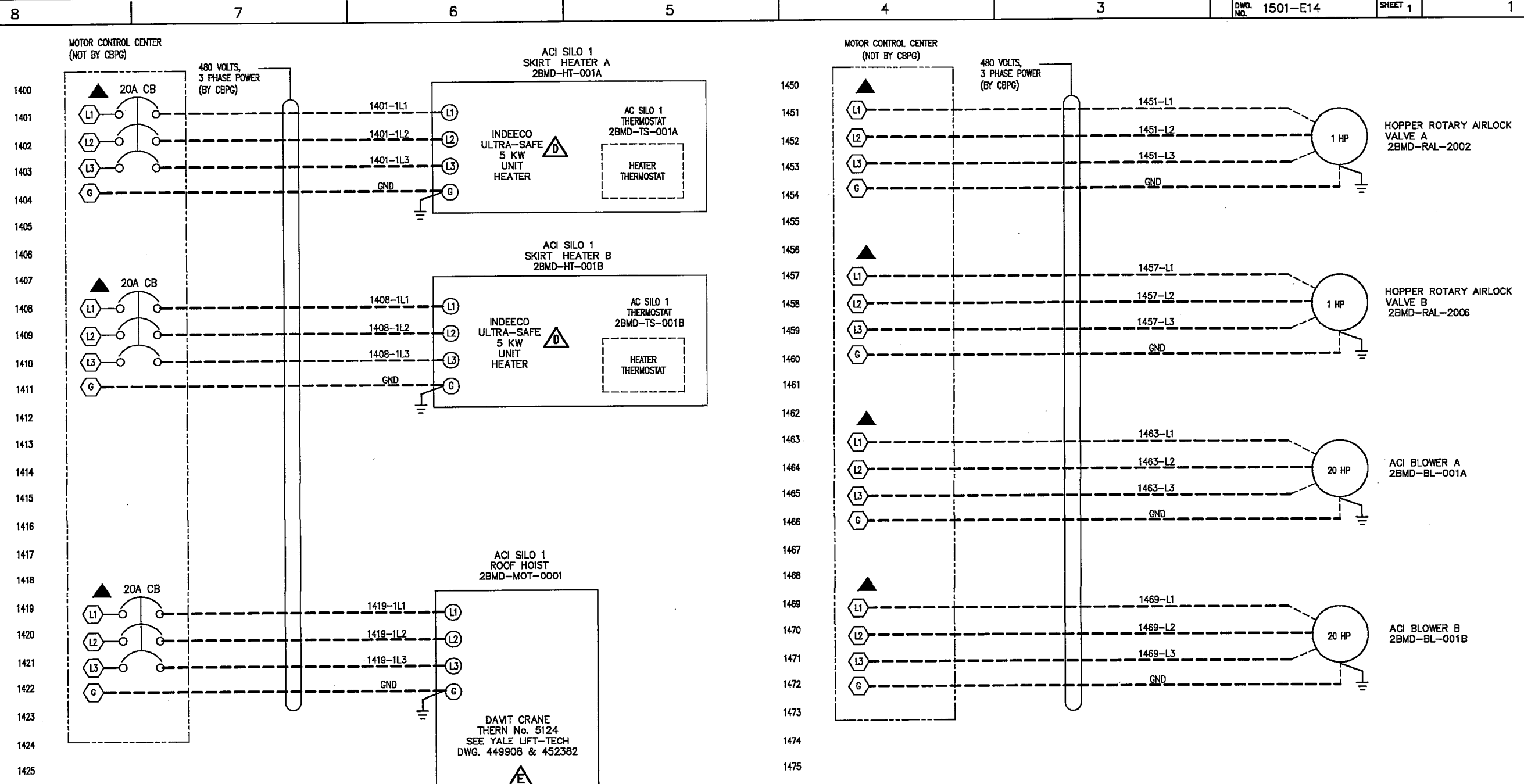
GRAND RIVER DAM AUTHORITY  
 COAL FIRED COMPLEX UNIT 2, CHOUTEAU, OK  
 ACTIVATED CARBON INJECTION SYSTEM

**ELECTRICAL**  
 SCHEMATIC DIAGRAM  
 ACTIVATED CARBON INJECTION SYSTEM

CONTRACT No. DWG. No. 1501-E13 SHEET 1  
 SCALE: NONE REV. E

REV.	ZONE	DESCRIPTION	APP'D	DATE	REV.	ZONE	DESCRIPTION	APP'D	DATE	APPROVED
E	-	ADDED THERMOSTAT NEUTRAL	DL	01.20.15	B	-	UPDATED AND REVISED PER CLIENT COMMENTS	DL	07.18.14	DRAWN CP 02.08.14
D	-	ADDED CLIENT COMMENTS	DL	09.04.14	A	-	UPDATED AND ADDED CLIENT COMMENTS	DL	06.06.14	CHECKED DL 02.06.14
							ISSUE FOR REVIEW, COMMENT and/or APPROVAL	DL	04.10.14	APPROVED

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**GENERAL NOTES:**

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**LEGEND**

- DENOTES A TERMINAL LOCATED IN THE PURCHASER'S MCC
- DENOTES A TERMINAL LOCATED IN A FIELD DEVICE.
- ◆ DENOTES A DEVICE FURNISHED BY CB POWER GROUP AND WIRED BY PURCHASER'S ELECTRICAL CONTRACTOR.
- ▲ DENOTES A DEVICE NOT FURNISHED OR WIRED BY CB POWER GROUP.

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GRAND RIVER DAM AUTHORITY  
 COAL FIRED COMPLEX UNIT 2, CHOUTEAU, OK  
 ACTIVATED CARBON INJECTION SYSTEM

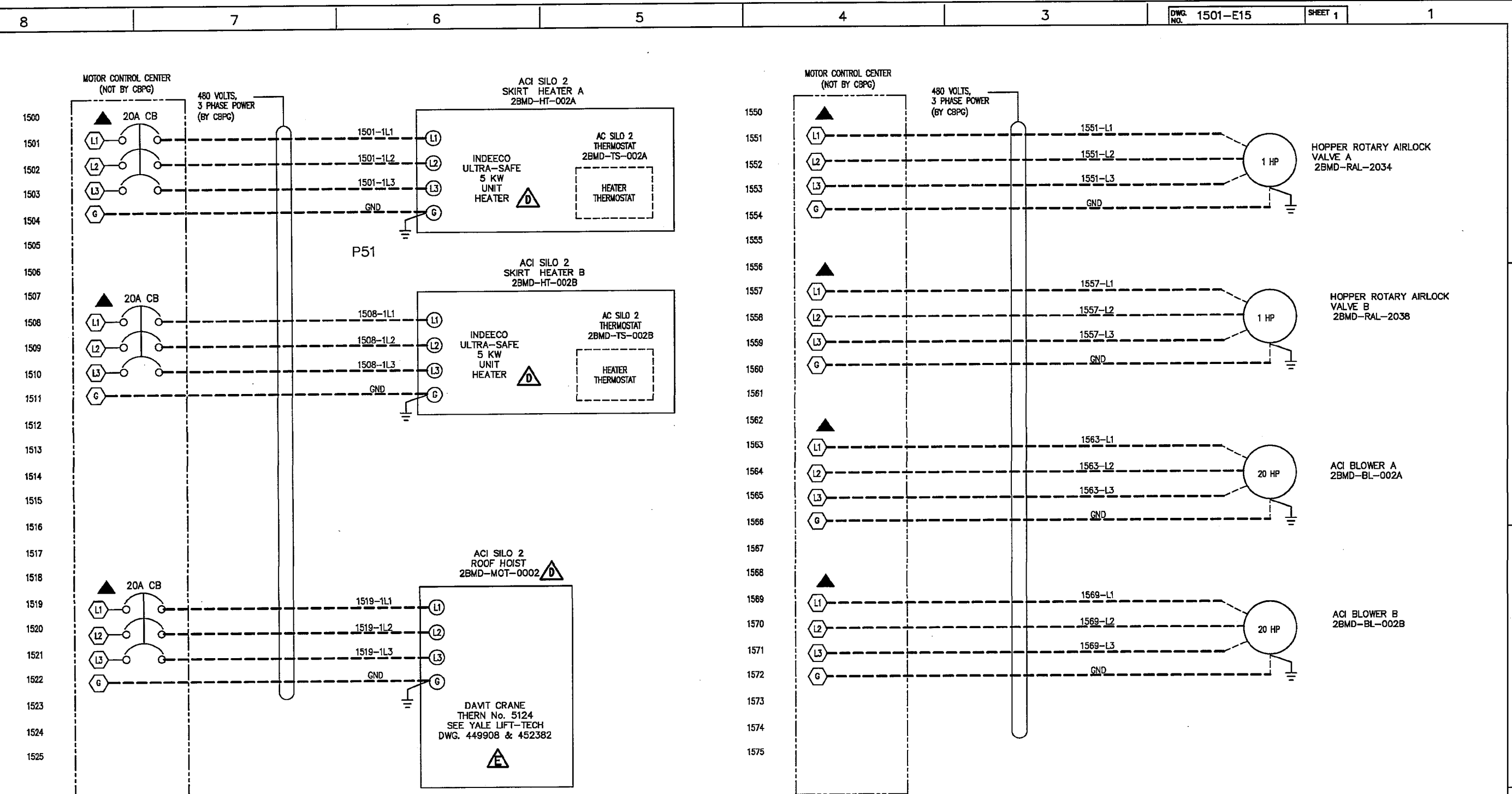
**ELECTRICAL SCHEMATIC DIAGRAM**  
 ACTIVATED CARBON INJECTION SYSTEM

DL	07.18.14	DRAWN	CP	02.04.14
DL	06.06.14	CHECKED	DL	02.04.14
DL	04.10.14	APPROVED		

CONTRACT No. \_\_\_\_\_ DWG. No. 1501-E14 SHT: 1  
 SCALE: NONE REV. E

REV.	ZONE	DESCRIPTION	APP'D	DATE	REV.	ZONE	DESCRIPTION	APP'D	DATE	APPROVED
E	-	ADDED CLIENT COMMENTS	DL	09.12.14	B	-	ADDED 3PH POWER WING FOR ROTARY VALVES & BLOWERS. ADDED CABLE NUMBERS	DL	07.18.14	DRAWN
D	-	ADDED CLIENT COMMENTS	DL	08.19.14	A	-	ISSUE FOR REVIEW, COMMENT and/or APPROVAL	DL	06.06.14	CHECKED

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GRAND RIVER DAM AUTHORITY  
 COAL FIRED COMPLEX UNIT 2, CHOUTEAU, OK  
 ACTIVATED CARBON INJECTION SYSTEM

**ELECTRICAL SCHEMATIC DIAGRAM**  
 ACTIVATED CARBON INJECTION SYSTEM

DL	07.18.14	DRAWN	CP	02.04.14
DL	06.06.14	CHECKED	DL	02.04.14
DL	04.10.14	APPROVED		

CONTRACT No. \_\_\_\_\_ DWG. No. 1501-E15 SHT: 1  
 SCALE: NONE REV. E

REV.	ZONE	DESCRIPTION	APP'D	DATE	REV.	ZONE	DESCRIPTION	APP'D	DATE	APPROVED
E	-	ADDED CLIENT COMMENTS	DL	06.12.14	B	-	ADDED 3PH POWER WING FOR ROTARY VALVES & BLOWERS. ADDED CABLE NUMBERS	DL	07.18.14	
D	-	ADDED CLIENT COMMENTS	DL	06.19.14	A	-	ISSUE FOR REVIEW, COMMENT and/or APPROVAL	DL	04.10.14	