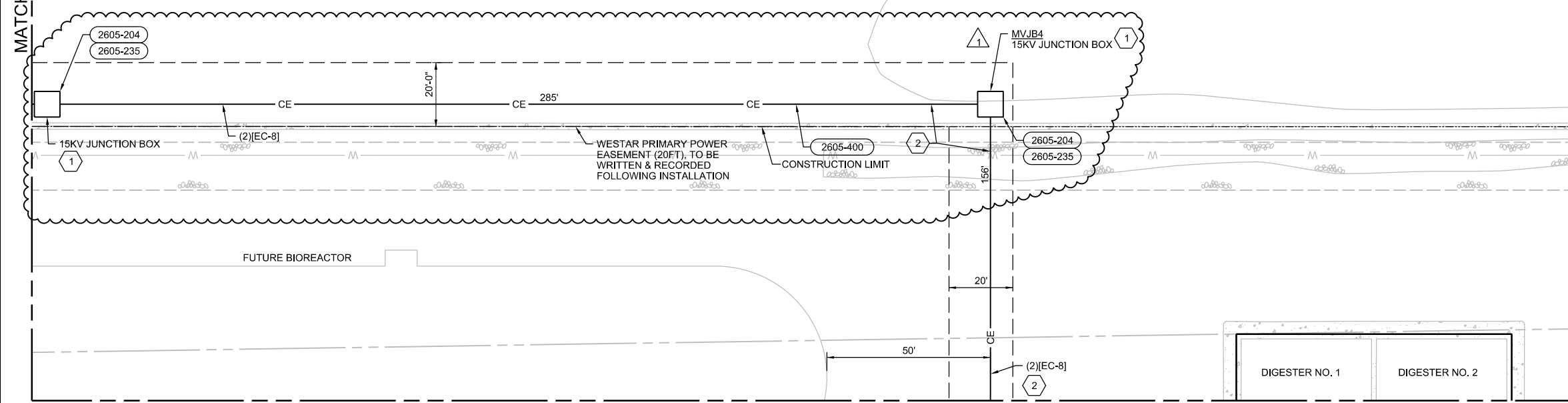


1 2 3 4 5 6

A
B
C
D

MATCHLINE, SEE DWG 080-E-2001



MATCHLINE, SEE DWG 080-E-2005

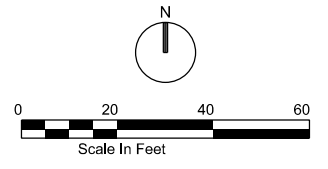
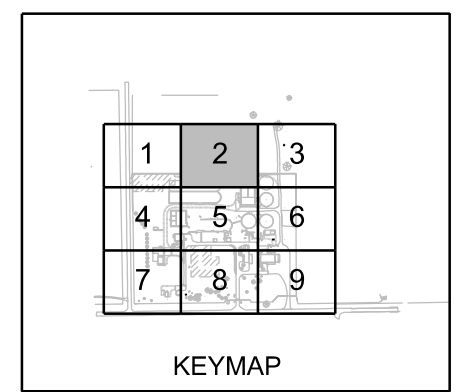
SHEET KEYNOTES

- 15KV JUNCTION BOX: 3-PHASE, 4-WAY, 600A LOADBREAK, 15KV, 95KV BIL, 84-INCH WIDE GRAY (ANSI 70) ALUMINUM ENCLOSURE, WITH 18-INCH HIGH BASE EXTENSION AND 30-INCH HIGH FIBERGLASS GROUND RING, EATON CATALOG NUMBERS SEC38423FCL15A01, SBE188422 AND GS308422 OR APPROVED EQUAL. PROVIDE TWO PARKING BUSHINGS PER PHASE. PROVIDE PROTECTIVE COVER (DUST COVER) FOR EACH BUSHING.
- 15KV DUCT BANK BURIAL DEPTH: TOP OF CONCRETE NOT LESS THAN 30 INCHES BELOW FINISHED GRADE.

NO.	DATE	REVISION	BY	MG
1	12/16/16	ADDENDUM NO. 2	JL	MG
DSGN		CHK	APVD	M. GROSS
J. LANDMAN		DR	A. CUGLIATI	M. GROSS

PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WOLF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

ch2m
SITE ELECTRICAL
**ELECTRICAL SITE PLAN
AREA 2**



VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE	DECEMBER 2016
PROJ	496312
DWG	080-E-2002
SHEET	107 of 314

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL. © CH2M HILL 2016. ALL RIGHTS RESERVED.

1

2

3

4

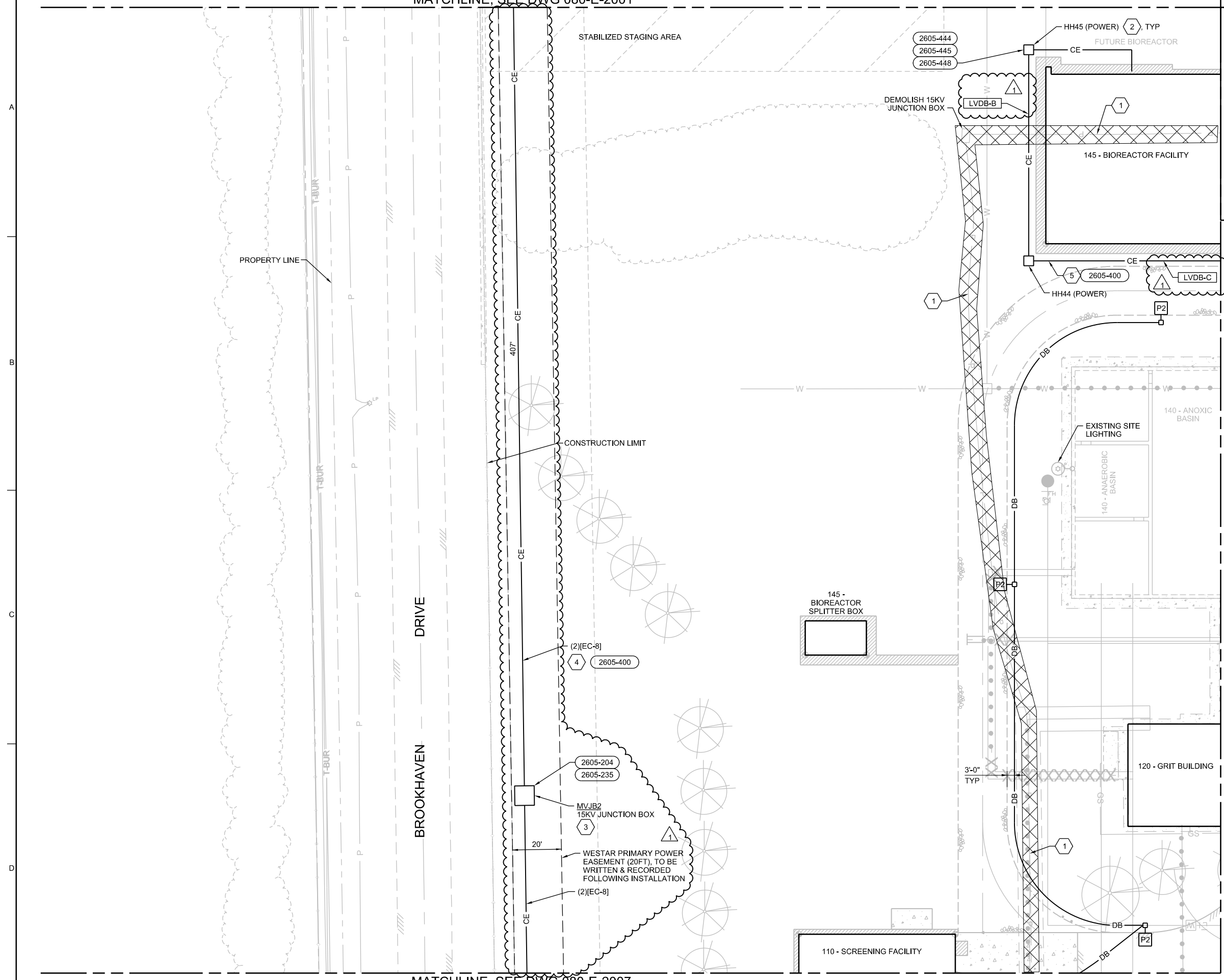
5

6

MATCHLINE, SEE DWG 080-E-2001

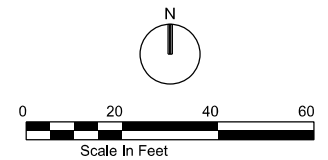
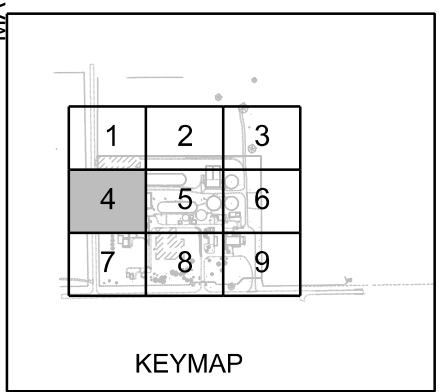
SHEET KEYNOTES

- WESTAR PRIMARY FEEDER. ABANDON IN PLACE OR DEMOLISH AS NECESSARY.
- HANDHOLE: 4'x4' PRECAST CONCRETE WITH HS-20 SIDEWALK COVER.
- 15KV JUNCTION BOX: 3-PHASE, 4-WAY, 600A LOADBREAK, 15KV, 95KV BIL, 84-INCH WIDE GRAY (ANSI 70) ALUMINUM ENCLOSURE, WITH 18-INCH HIGH BASE EXTENSION AND 30-INCH HIGH FIBERGLASS GROUND SLEEVE. EATON CATALOG NUMBERS SEC38423FCL15A01, SBE188422 AND GS308422 OR APPROVED EQUAL. PROVIDE TWO PARKING BUSHINGS PER PHASE. PROVIDE PROTECTIVE COVER (DUST COVER) FOR EACH BUSHING.
- 15KV DUCT BANK BURIAL DEPTH: TOP OF CONCRETE NOT LESS THAN 30 INCHES BELOW FINISHED GRADE.
- LOW-VOLTAGE DUCT BANK BURIAL DEPTH: TOP OF CONCRETE NOT LESS THAN 24 INCHES BELOW FINISHED GRADE.



MATCHLINE, SEE DWG 080-E-2007

MATCHLINE, SEE DWG 080-E-2005



NO.	DATE	REVISION	CHK	APVD
1	12/16/16	ADDENDUM NO. 2	J. LANDMAN	M. GROSS

PHASE II, 6 MGD EXPANSION
 FOUR MILE CREEK WQRF
 DEPARTMENT OF PUBLIC WORKS
 CITY OF WICHITA, KANSAS

ch2m
 SITE ELECTRICAL
ELECTRICAL SITE PLAN
AREA 4

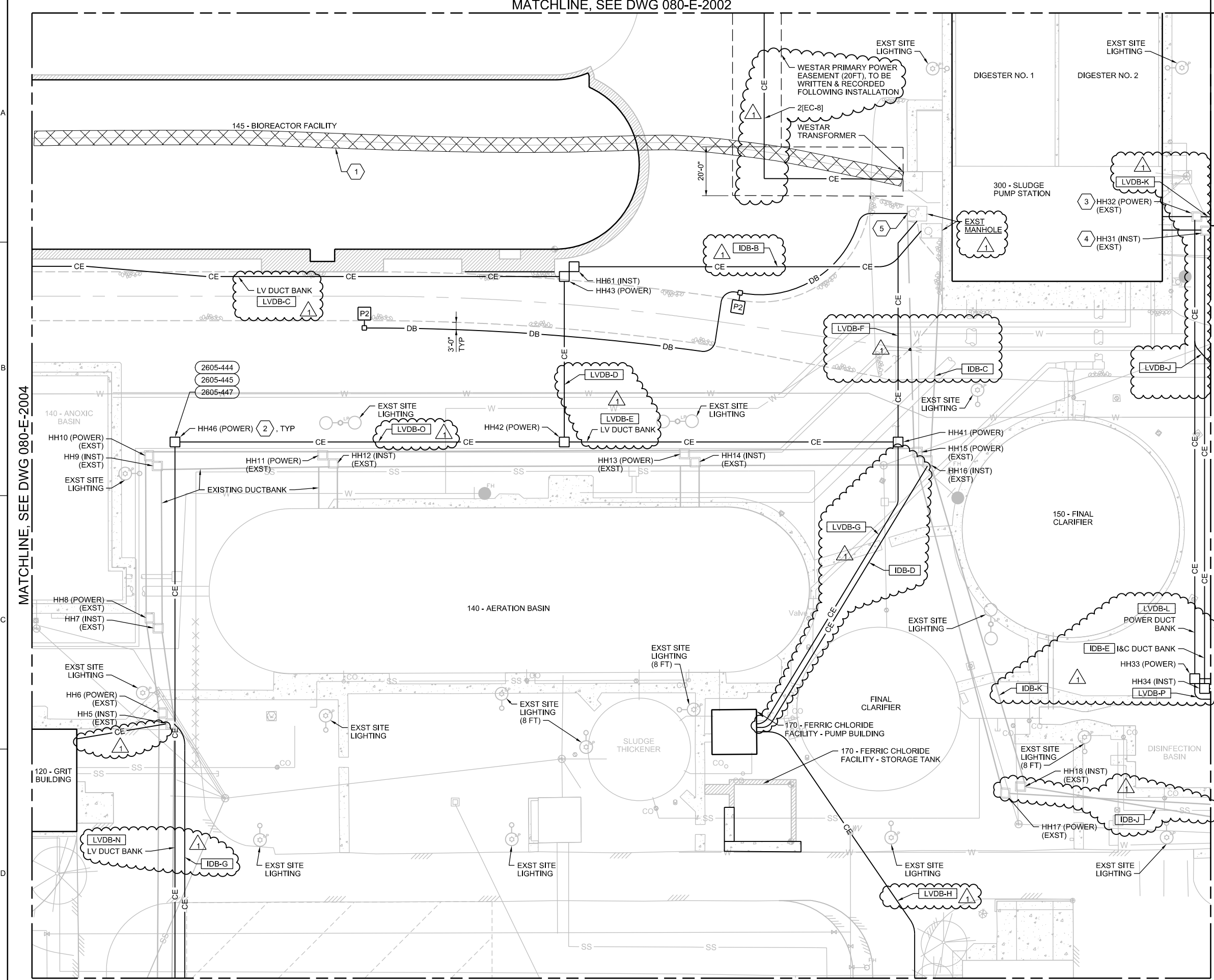
VERIFY SCALE	BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE	DECEMBER 2016
PROJ	496312
DWG	080-E-2004
SHEET	108 of 314

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL. © CH2M HILL 2016. ALL RIGHTS RESERVED.

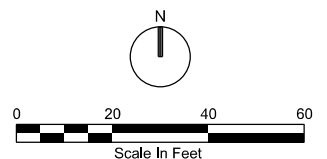
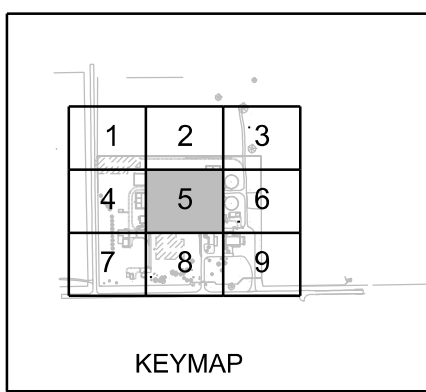
MATCHLINE, SEE DWG 080-E-2002

SHEET KEYNOTES

- WESTAR PRIMARY FEEDER. ABANDON IN PLACE OR DEMOLISH AS NECESSARY.
- HANDHOLE: 4'x4' PRECAST CONCRETE WITH HS-20 SIDEWALK COVER.
- LV HANDHOLE MARKED "2". RE-MARK "32".
- I&C HANDHOLE MARKED "1". RE-MARK "31".
- FROM LIGHTING CONTACTOR.



MATCHLINE, SEE DWG 080-E-2006



MATCHLINE, SEE DWG 080-E-2004

MATCHLINE, SEE DWG 080-E-2008

NO.	DATE	REVISION	CHK	APVD
1	12/16/16	ADDENDUM NO. 2	J. LANDMAN	M. GROSS

PHASE II, 6 MGD EXPANSION
 FOUR MILE CREEK WRF
 DEPARTMENT OF PUBLIC WORKS
 CITY OF WICHITA, KANSAS

ch2m
 SITE ELECTRICAL
ELECTRICAL SITE PLAN
AREA 5

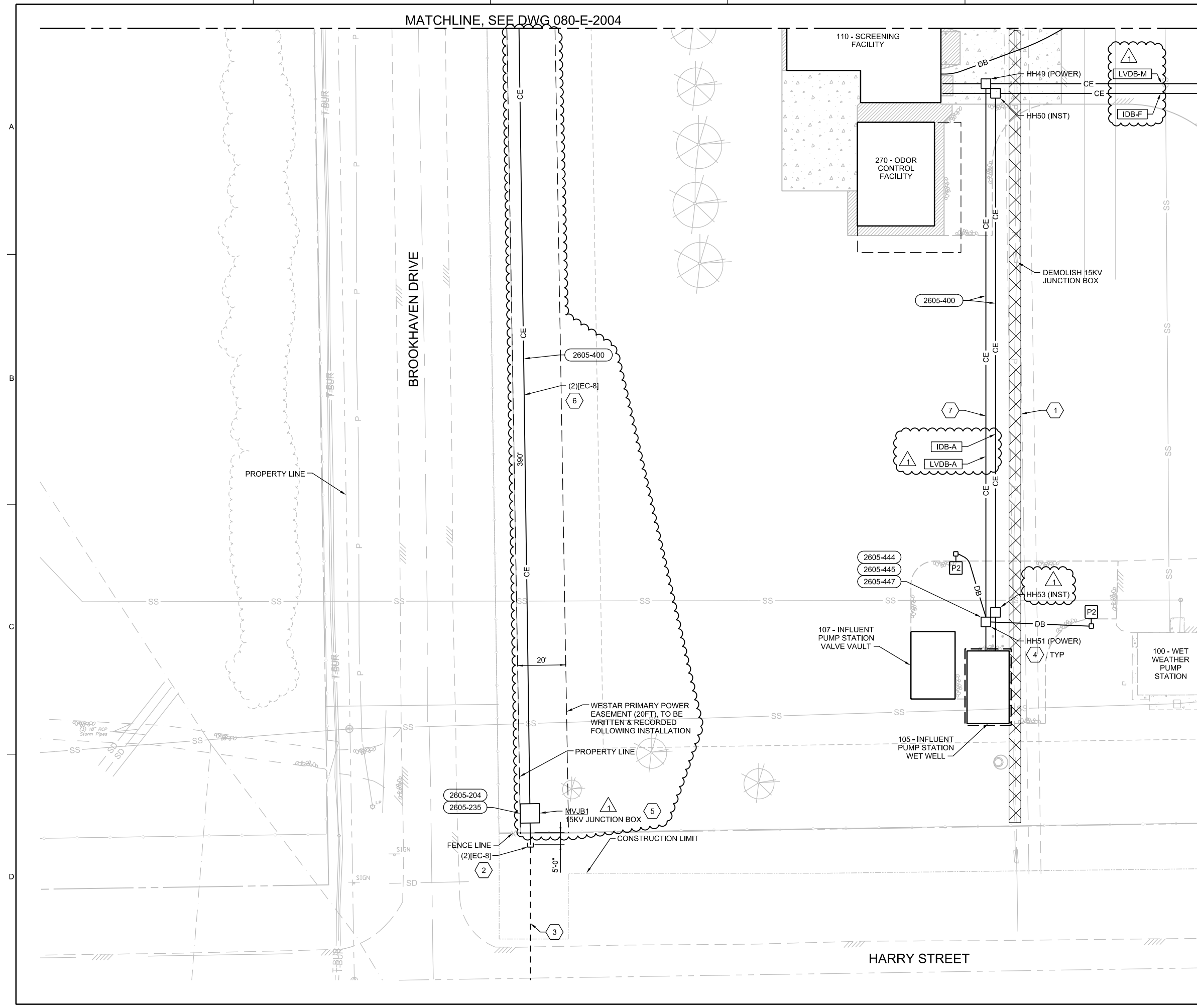
VERIFY SCALE	BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE	DECEMBER 2016
PROJ	496312
DWG	080-E-2005
SHEET	109 of 314

BIDDING SET

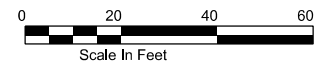
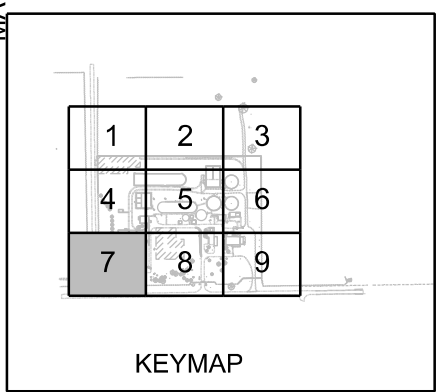
MATCHLINE, SEE DWG 080-E-2004

SHEET KEYNOTES

1. WESTAR PRIMARY FEEDER. ABANDON IN PLACE OR DEMOLISH AS NECESSARY.
2. STUB OUT TWO 5-INCH SCHEDULE 40 PVC RACEWAY FOR USE BY WESTAR.
3. HARRY STREET CROSSING, INCLUDING RACEWAY AND CONDUCTOR IS BY WESTAR.
4. HANDHOLE: 4'x4' PRECAST CONCRETE WITH HS-20 SIDEWALK COVER.
5. 15KV JUNCTION BOX: 3-PHASE, 4-WAY, 600A LOADBREAK, 15KV, 95KV BIL, 84-INCH WIDE GRAY (ANSI 70) ALUMINUM ENCLOSURE, WITH 18-INCH HIGH BASE EXTENSION AND 30-INCH HIGH FIBERGLASS GROUND SLEEVE. EATON CATALOG NUMBERS SEC38423FCL15A01, SBE188422 AND GS308422 OR APPROVED EQUAL. PROVIDE TWO PARKING BUSHINGS PER PHASE. PROVIDE PROTECTIVE COVER (DUST COVER) FOR EACH BUSHING.
6. 15KV DUCT BANK BURIAL DEPTH: TOP OF CONCRETE NOT LESS THAN 30 INCHES BELOW FINISHED GRADE.
7. LOW-VOLTAGE DUCT BANK BURIAL DEPTH: TOP OF CONCRETE NOT LESS THAN 24 INCHES BELOW FINISHED GRADE.



MATCHLINE, SEE DWG 080-E-2008



NO.	DATE	REVISION	CHK	APVD
1	12/16/16	ADDENDUM NO. 2	J. LANDMAN	M. GROSS

PHASE II, 6 MGD EXPANSION
 FOUR MILE CREEK WOLF
 DEPARTMENT OF PUBLIC WORKS
 CITY OF WICHITA, KANSAS

ch2m
 SITE ELECTRICAL
ELECTRICAL SITE PLAN
 AREA 7

VERIFY SCALE	BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE	DECEMBER 2016
PROJ	496312
DWG	080-E-2007
SHEET	111 of 314

BIDDING SET

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL. © CH2M HILL 2016. ALL RIGHTS RESERVED.

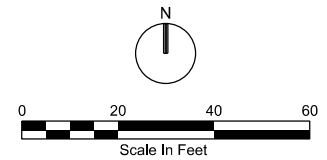
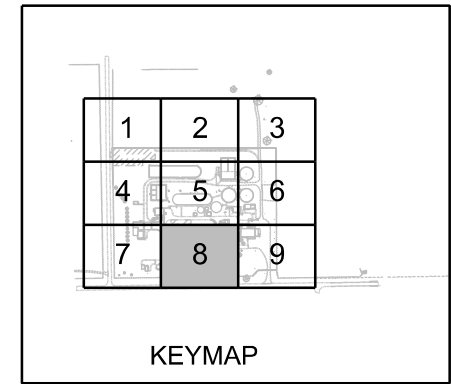
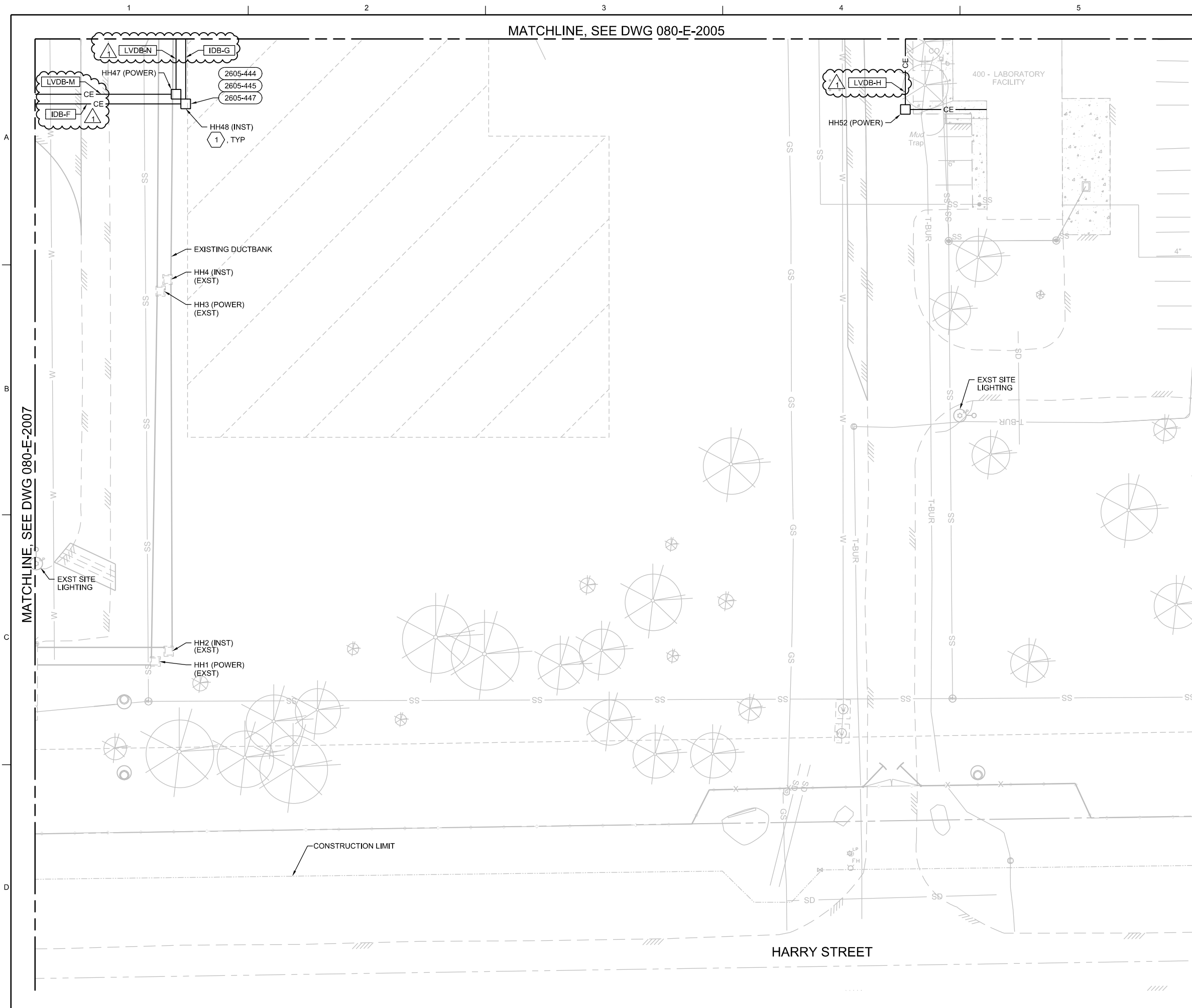
MATCHLINE, SEE DWG 080-E-2005

SHEET KEYNOTES

- 1. HANDHOLE: 4'x4'x4' PRECAST CONCRETE WITH HS-20 SIDEWALK COVER.

MATCHLINE, SEE DWG 080-E-2007

MATCHLINE, SEE DWG 080-E-2009



NO.	DATE	REVISION	CHK	APVD
1	12/16/16	ADDENDUM NO. 2	JL	BY
			DR	APVD
			J LANDMAN	M GROSS
			A CUGLIAT	M GROSS

PHASE II, 6 MGD EXPANSION
 FOUR MILE CREEK WOLF
 DEPARTMENT OF PUBLIC WORKS
 CITY OF WICHITA, KANSAS

ch2m
 SITE ELECTRICAL
ELECTRICAL SITE PLAN
AREA 8

VERIFY SCALE	BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE	DECEMBER 2016
PROJ	496312
DWG	080-E-2008
SHEET	112 of 314

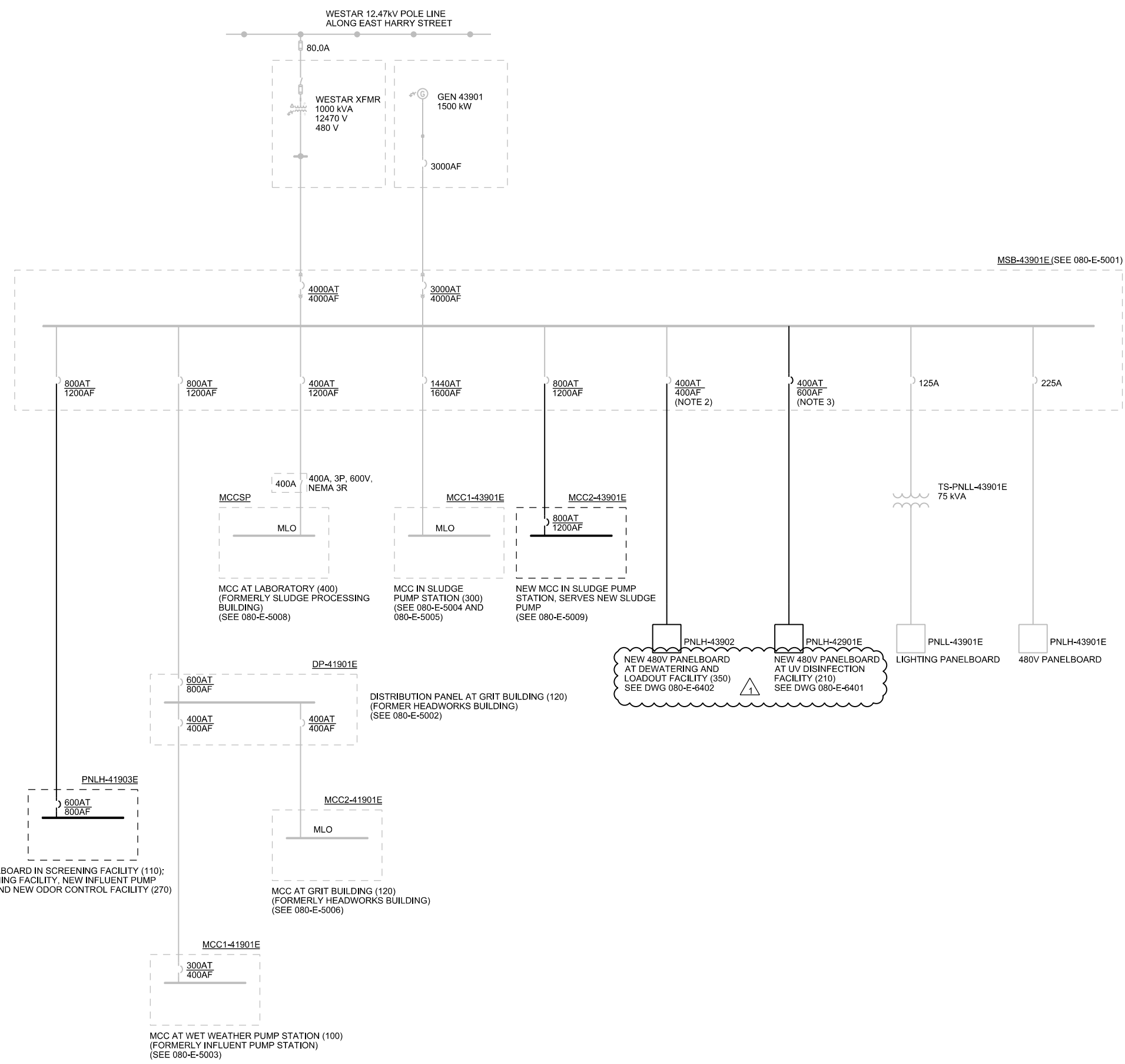
BIDDING SET

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL.

© CH2M HILL 2015. ALL RIGHTS RESERVED.

GENERAL NOTES

- NEW WORK SHOWN BOLD. EXISTING FACILITIES SHOWN SCREENED.
- REMOVE EXISTING 200A BREAKER AND REPLACE WITH NEW CIRCUIT BREAKER IN EXISTING SWITCHBOARD. PROVIDE ALL SWITCHBOARD MODIFICATIONS AS NEEDED TO COMPLETE THE INSTALLATION. REFER TO SPECIFICATION SECTION 26 05 04 FOR ADDITIONAL INFORMATION.
- PROVIDE NEW CIRCUIT BREAKERS IN EXISTING SWITCHBOARD. PROVIDE ALL SWITCHBOARD MODIFICATIONS AS NEEDED TO COMPLETE THE INSTALLATION. REFER TO SPECIFICATION SECTION 26 05 04 FOR ADDITIONAL INFORMATION.



PHASE II, 6 MGD EXPANSION FOUR MILE CREEK WQRF DEPARTMENT OF PUBLIC WORKS CITY OF WICHITA, KANSAS		J LANDMAN DR		A CUGLIAT CHK		M GROSS APVD	
NO.	DATE	REVISION	CHK	APVD	M GROSS		
1	12/16/16	ADDENDUM NO. 2			JL	BY	MG
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. 0" 1"							
DATE	DECEMBER 2016						
PROJ	496312						
DWG	080-E-5000						
SHEET	113 of 314						

ch2m
SITE ELECTRICAL
ONE-LINE DIAGRAM
OVERALL POWER DISTRIBUTION SYSTEM

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL.
©CH2M HILL 2016. ALL RIGHTS RESERVED.

BIDDING SET

GENERAL NOTES

- NEW WORK SHOWN BOLD. EXISTING FACILITIES SHOWN SCREENED.
- MSB-43901E IS LOCATED AT FACILITY 300.
- REPLACE SQUARE D 200AT CIRCUIT BREAKER WITH 400AT CIRCUIT BREAKER.
- PROVIDE NEW CIRCUIT BREAKERS IN EXISTING SWITCHBOARD, PROVIDE ALL SWITCHBOARD MODIFICATIONS AS NEEDED TO COMPLETE THE INSTALLATION.

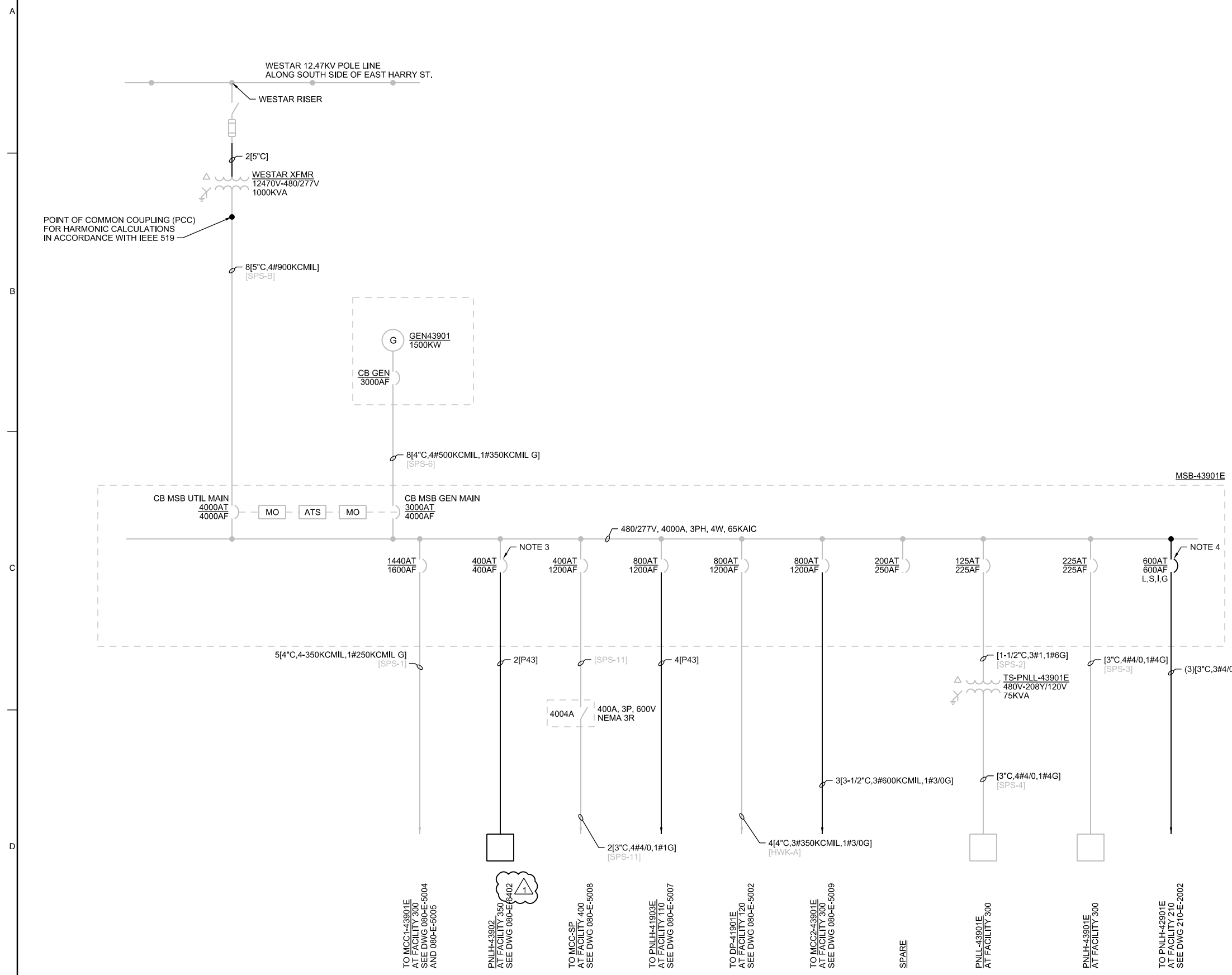
NO.	DATE	DR	CHK	APVD	M. GROSS
1	12/16/16	J. LANDMAN	A. CUGLIAT	APVD	M. GROSS
ADDENDUM NO. 2					

PHASE II, 6 MGD EXPANSION
 FOUR MILE CREEK WQRF
 DEPARTMENT OF PUBLIC WORKS
 CITY OF WICHITA, KANSAS

ch2m
 SITE ELECTRICAL
ONE-LINE DIAGRAM
MSB-43901E
SLUDGE PUMPING STATION (300)

VERIFY SCALE	BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE	DECEMBER 2016
PROJ	496312
DWG	080-E-5001
SHEET	114 of 314

BIDDING SET





GENERAL NOTES

- NEW WORK SHOWN BOLD. EXISTING FACILITIES SHOWN SCREENED.
- MCC1-43901E LOCATED AT FACILITY 300.

SHEET KEYNOTES

- REPLACE ACTIVE HARMONIC FILTER. RE-USE CURRENT TRANSFORMERS AND FUSED DISCONNECT SWITCH.
- USE SPARE STARTER. CHANGE FUSES AS INDICATED. CHANGE OVERLOAD ELEMENTS BASED ON MOTOR NAMEPLATE RATED CURRENT.
- DEMOLISH FEEDER TO PUMP. PUMP WILL BE CONTROLLED BY NEW VFD. SEE MCC2-43901E ONE-LINE DIAGRAM. PROVIDE "SPARE" NAMEPLATE AT MCC.
- SERVE PUMP MOTOR FROM VFD IN MCC2-43901E.

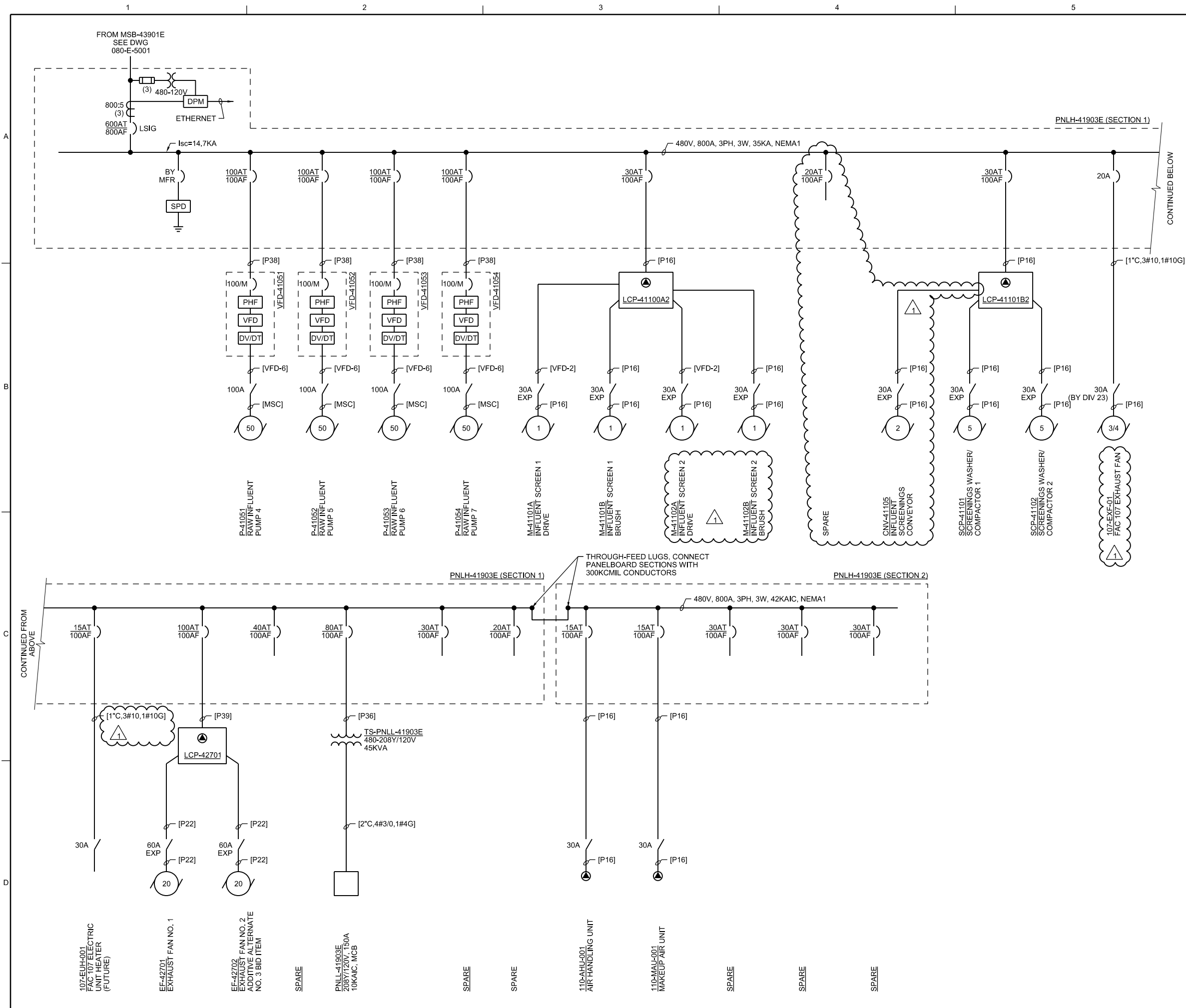
NO.	DATE	DR	CHK	APVD	M. GROSS
1	12/16/16	J. LANDMAN	A. CUGLIAT	M. GROSS	M. GROSS
ADDENDUM NO.	2				
MG					
BY					
APVD					

PHASE II, 6 MGD EXPANSION
 FOUR MILE CREEK WQRF
 DEPARTMENT OF PUBLIC WORKS
 CITY OF WICHITA, KANSAS

ch2m
 SITE ELECTRICAL
ONE-LINE DIAGRAM
MCC1-43901E
SLUDGE PUMPING STATION (300) 1 OF 2

VERIFY SCALE	BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE	DECEMBER 2016
PROJ	496312
DWG	080-E-5004
SHEET	117 of 314

BIDDING SET



GENERAL NOTES

- PNLH-41903E LOCATED AT FACILITY 110.
- CONNECT ALL DPM'S WITH CAT-6 CABLE TO RIO-#.

NO.	DATE	DR	CHK	APVD	M. GROSS
1	12/16/16	J. LANDMAN	A. CUGLIAT		
ADDENDUM NO. 2					
BY	JL	BY	MG	APVD	M. GROSS

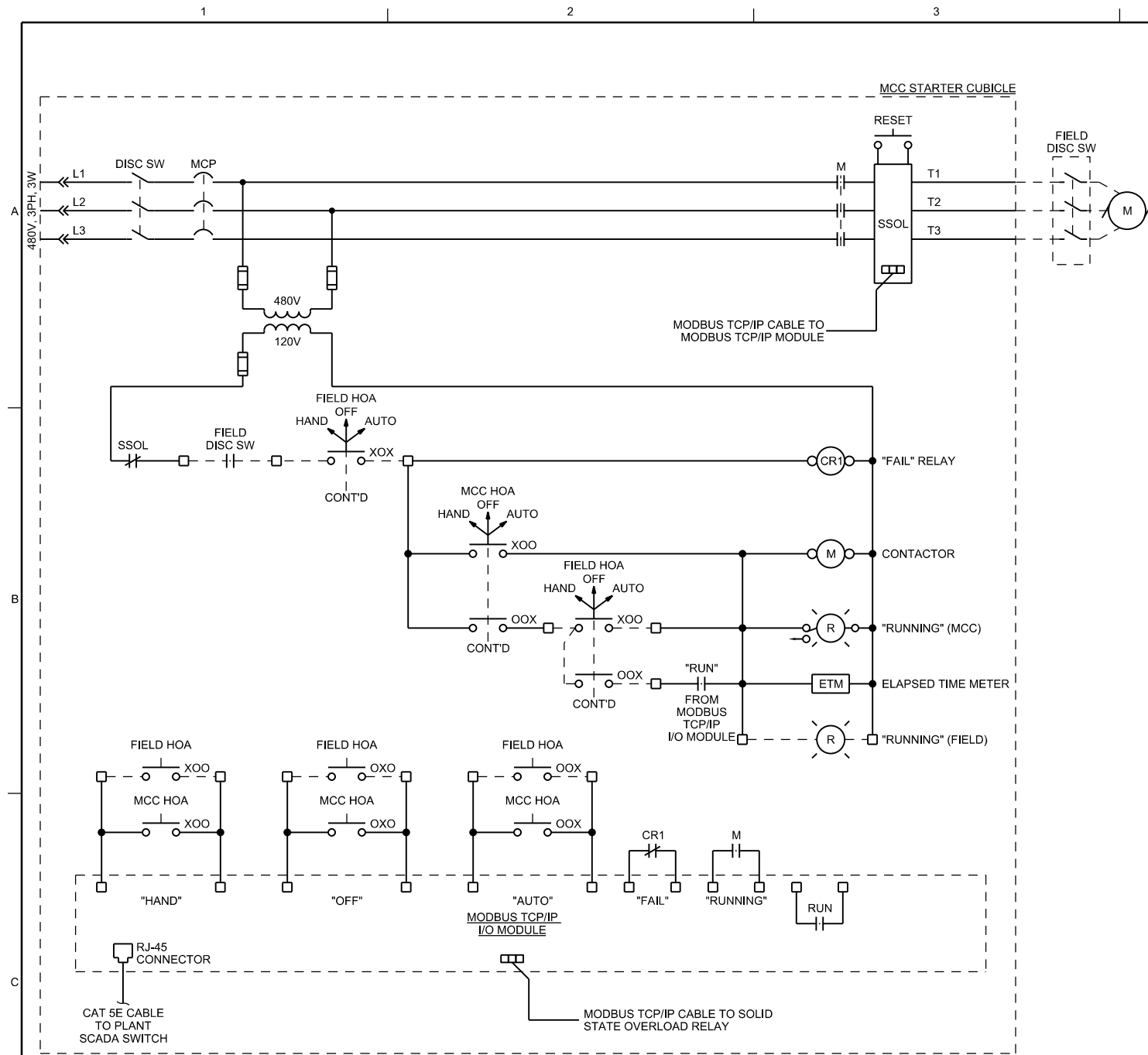
PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

ch2m
SITE ELECTRICAL
ONE-LINE DIAGRAM
PNLH-41903E
SCREENING FACILITY (110)

VERIFY SCALE	BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE	DECEMBER 2016
PROJ	496312
DWG	080-E-5007
SHEET	120 of 314

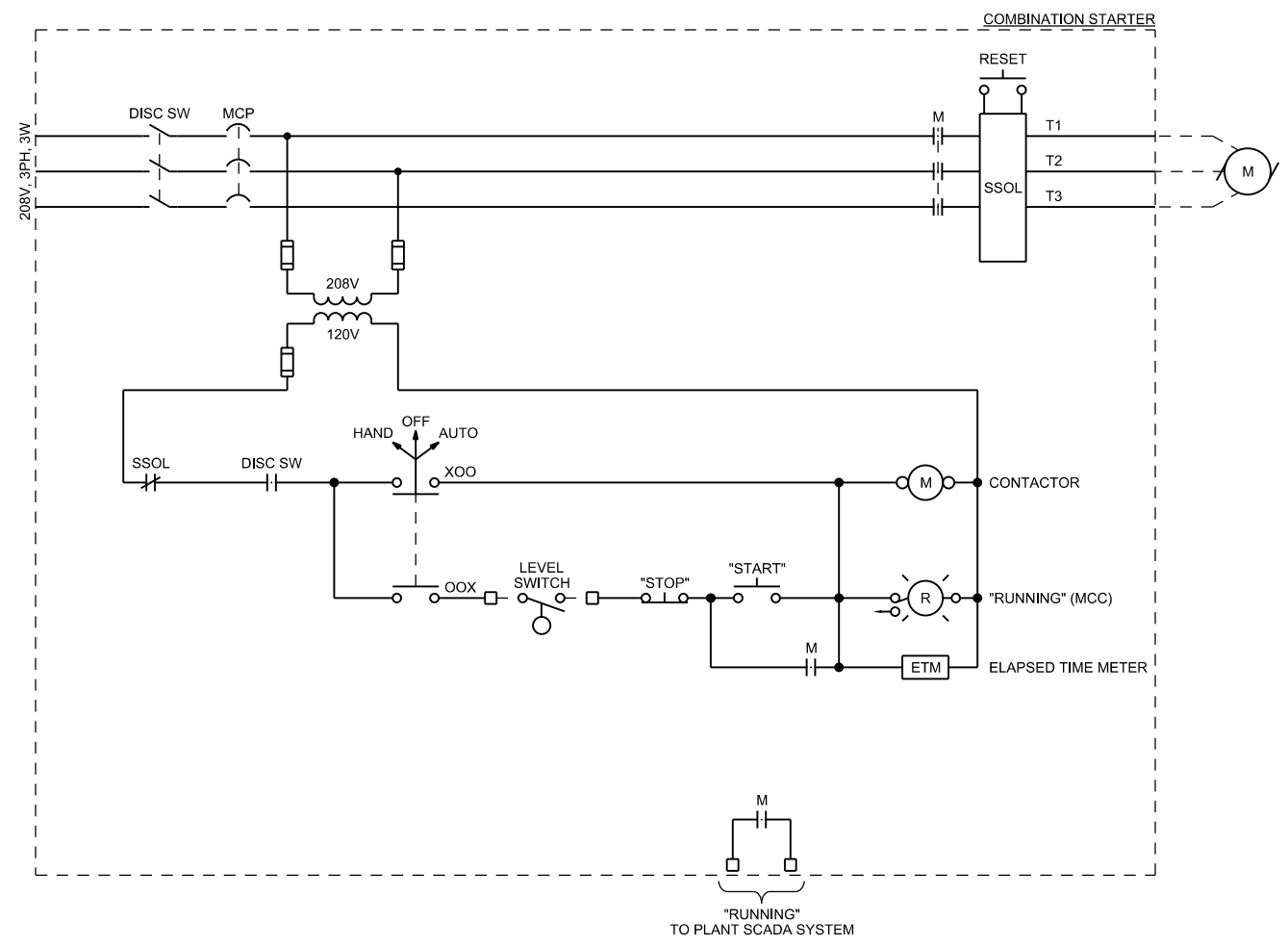
BIDDING SET

RE/USE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL. ©CH2M HILL 2016. ALL RIGHTS RESERVED.



CONTROL DIAGRAM APPLICABILITY		
EQUIPMENT NUMBER	DESCRIPTION	FIELD HOA STATION
GCL-41201	VORTEX GRIT COLLECTION MECHANISM NO. 1	CS-41201A
GC-41202	GRIT CLASSIFIER NO. 2	CS-41202
P-41201	GRIT PUMP NO. 1	CS-41201
P-43301	DIGESTER RECYCLE PUMP NO. 1	CS-43301
P-43302	DIGESTER RECYCLE PUMP NO. 2	CS-43302

CONTROL DIAGRAM



CONTROL DIAGRAM APPLICABILITY		
EQUIPMENT NUMBER	DESCRIPTION	LEVEL SWITCH
P-42301	REUSE PUMP	LSL-42301

CONTROL DIAGRAM

NO.	DATE	REVISION	BY	APVD
0	12/16/16	ADDENDUM NO. 2	JL	MG

PHASE II, 6 MGD EXPANSION
 FOUR MILE CREEK WQRF
 DEPARTMENT OF PUBLIC WORKS
 CITY OF WICHITA, KANSAS

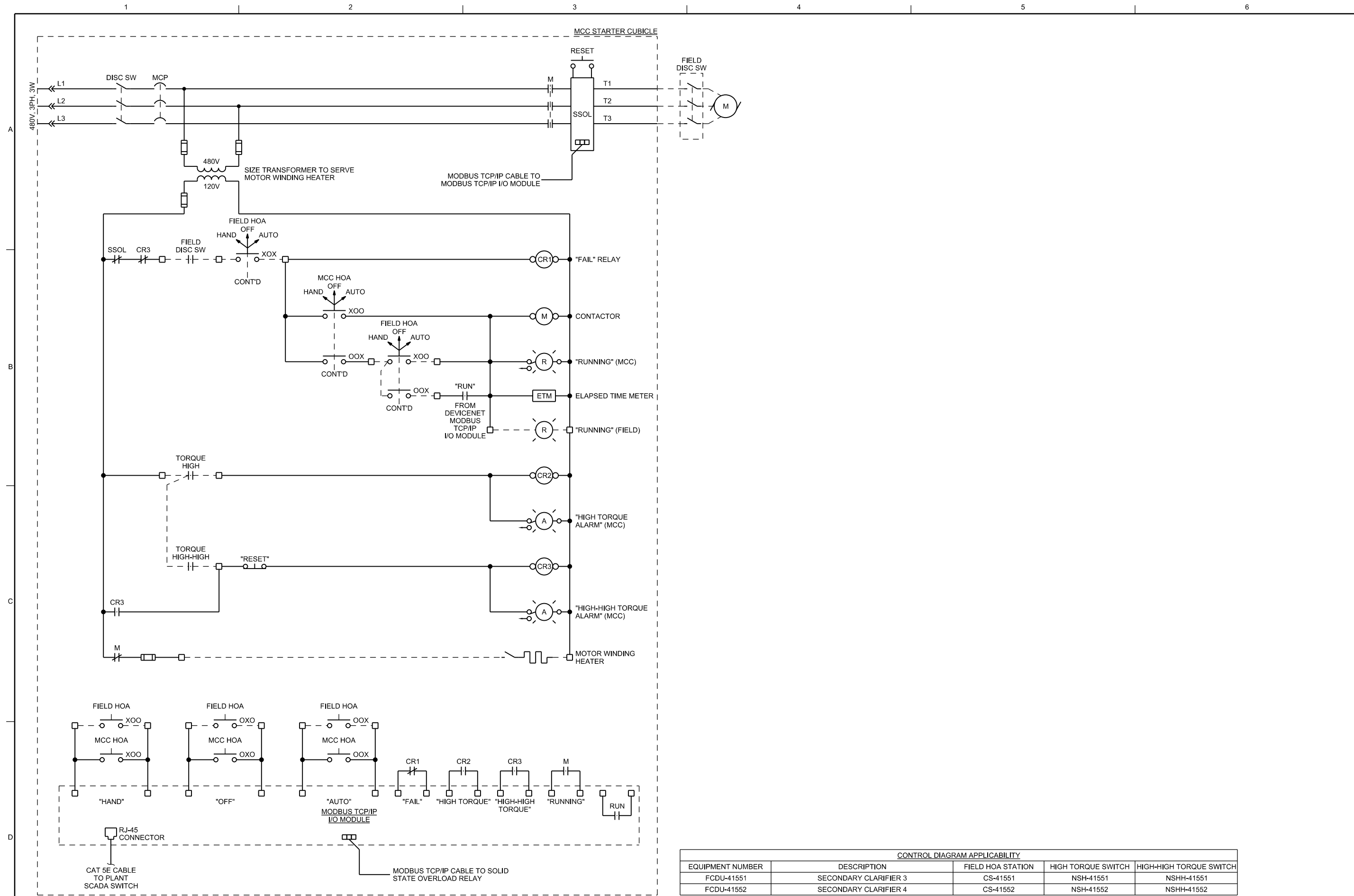
ch2m
 SITE ELECTRICAL
MOTOR CONTROL DIAGRAMS

VERIFY SCALE	BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE	DECEMBER 2016
PROJ	496312
DWG	080-E-6201
SHEET	123a of 314

DESIGN DEVELOPMENT

J. LANDMAN DR A. CUGLIATI M. GROSS M. GROSS

REUSE OF DOCUMENTS: THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL. ©CH2M HILL 2016. ALL RIGHTS RESERVED.



CONTROL DIAGRAM

CONTROL DIAGRAM APPLICABILITY				
EQUIPMENT NUMBER	DESCRIPTION	FIELD HOA STATION	HIGH TORQUE SWITCH	HIGH-HIGH TORQUE SWITCH
FCDU-41551	SECONDARY CLARIFIER 3	CS-41551	NSH-41551	NSHH-41551
FCDU-41552	SECONDARY CLARIFIER 4	CS-41552	NSH-41552	NSHH-41552

1
2
3
4
5
6

A
B
C
D

480V 3PH 3W
480V
120V
SSOL
T1
T2
T3

DISC SW
MCP
FIELD DISC SW
M

SIZE TRANSFORMER TO SERVE MOTOR WINDING HEATER
MODBUS TCP/IP CABLE TO MODBUS TCP/IP I/O MODULE

FIELD HOA
HAND
OFF
AUTO
XOX

SSOL
CR3
FIELD DISC SW
CONT'D

CR1
"FAIL" RELAY

M
CONTACTOR

OOX
FIELD HOA
OFF
AUTO

OOX
CONT'D

ETM
ELAPSED TIME METER

FROM DEVICENET MODBUS TCP/IP I/O MODULE

CR2

A
"HIGH TORQUE ALARM" (MCC)

CR3

A
"HIGH-HIGH TORQUE ALARM" (MCC)

M

MOTOR WINDING HEATER

FIELD HOA
MCC HOA

XOX
XOX

"HAND"
"OFF"
"AUTO"

MODBUS TCP/IP I/O MODULE

CR1
CR2
CR3

M

"FAIL"
"HIGH TORQUE"
"HIGH-HIGH TORQUE"

"RUNNING"

RUN

RJ-45 CONNECTOR

CAT 5E CABLE TO PLANT SCADA SWITCH

MODBUS TCP/IP CABLE TO SOLID STATE OVERLOAD RELAY

MCC STARTER CUBICLE

RESET

M

T1

T2

T3

FIELD DISC SW

M

REVISION

NO.
DATE

DR

CHK

APVD

BY

MG

APVD

M GROSS

A CUGLIATI

J LANDMAN

12/16/16

ADDENDUM NO. 2

0

NO.

DATE

DR

CHK

APVD

BY

MG

APVD

M GROSS

A CUGLIATI

J LANDMAN

12/16/16

ADDENDUM NO. 2

0

NO.

DATE

DR

CHK

APVD

BY

MG

APVD

M GROSS

A CUGLIATI

J LANDMAN

12/16/16

ADDENDUM NO. 2

0

NO.

DATE

DR

CHK

APVD

BY

MG

APVD

M GROSS

A CUGLIATI

J LANDMAN

12/16/16

ADDENDUM NO. 2

0

NO.

DATE

DR

CHK

APVD

BY

MG

APVD

M GROSS

A CUGLIATI

J LANDMAN

12/16/16

ADDENDUM NO. 2

0

NO.

DATE

DR

CHK

APVD

BY

MG

APVD

M GROSS

A CUGLIATI

J LANDMAN

12/16/16

ADDENDUM NO. 2

0

NO.

DATE

DR

CHK

APVD

BY

MG

APVD

M GROSS

A CUGLIATI

J LANDMAN

12/16/16

ADDENDUM NO. 2

0

NO.

DATE

DR

CHK

APVD

BY

MG

APVD

M GROSS

A CUGLIATI

J LANDMAN

12/16/16

ADDENDUM NO. 2

0

NO.

DATE

DR

CHK

APVD

BY

MG

APVD

M GROSS

A CUGLIATI

J LANDMAN

12/16/16

ADDENDUM NO. 2

0

NO.

DATE

DR

CHK

APVD

BY

MG

APVD

M GROSS

A CUGLIATI

J LANDMAN

12/16/16

ADDENDUM NO. 2

0

NO.

DATE

DR

CHK

APVD

BY

MG

APVD

M GROSS

A CUGLIATI

J LANDMAN

12/16/16

ADDENDUM NO. 2

0

NO.

DATE

DR

CHK

APVD

BY

MG

APVD

M GROSS

A CUGLIATI

J LANDMAN

12/16/16

ADDENDUM NO. 2

0

NO.

DATE

DR

CHK

APVD

BY

MG

APVD

M GROSS

A CUGLIATI

J LANDMAN

12/16/16

ADDENDUM NO. 2

0

NO.

DATE

DR

CHK

APVD

BY

MG

APVD

M GROSS

A CUGLIATI

J LANDMAN

12/16/16

ADDENDUM NO. 2

0

NO.

DATE

DR

CHK

APVD

BY

MG

APVD

M GROSS

A CUGLIATI

J LANDMAN

12/16/16

ADDENDUM NO. 2

0

NO.

DATE

DR

CHK

APVD

BY

MG

APVD

M GROSS

A CUGLIATI

J LANDMAN

12/16/16

ADDENDUM NO. 2

0

NO.

DATE

DR

CHK

APVD

BY

MG

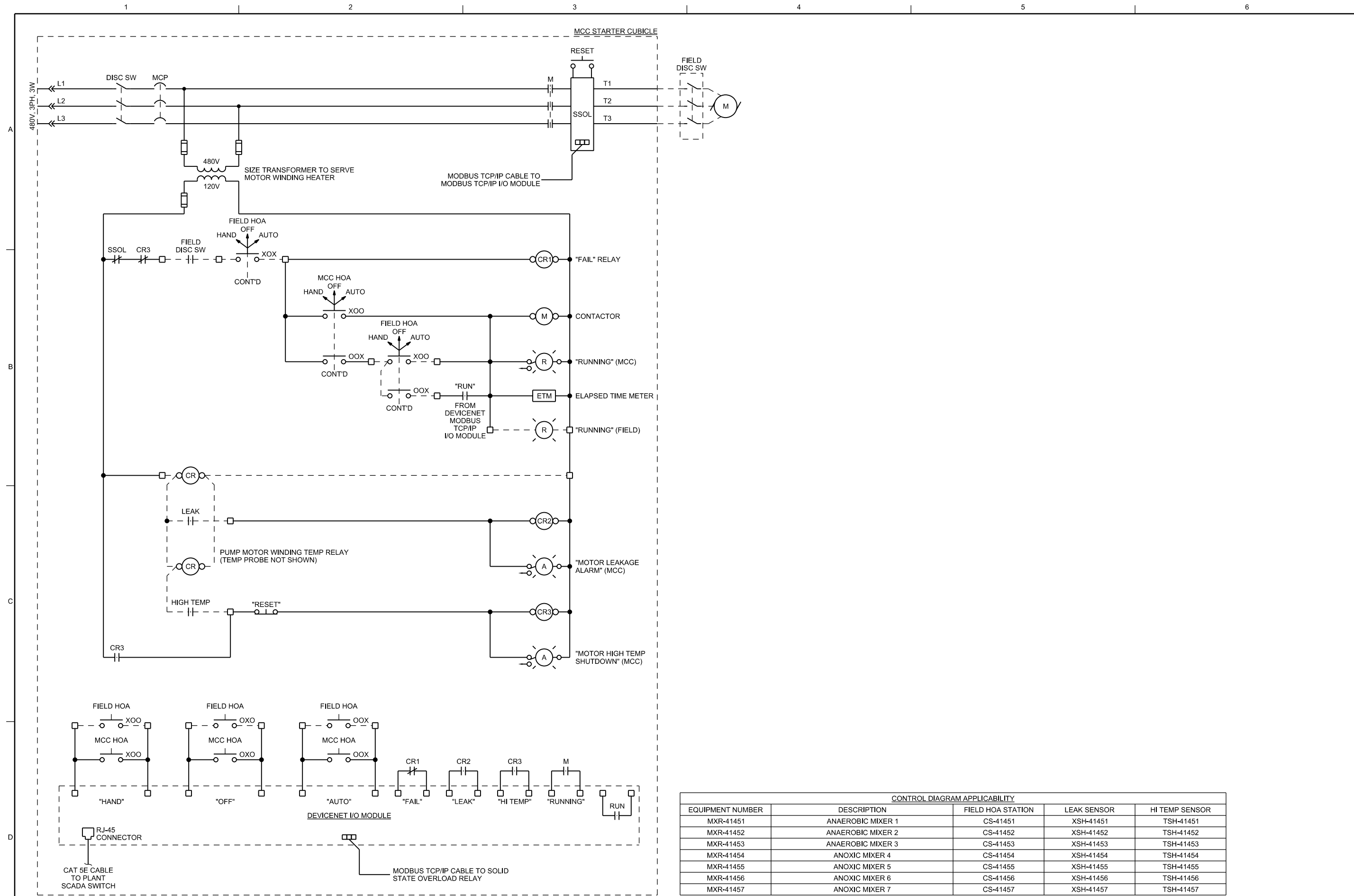
APVD

M GROSS

A CUGLIATI

J LANDMAN

12/16/



CONTROL DIAGRAM

CONTROL DIAGRAM APPLICABILITY				
EQUIPMENT NUMBER	DESCRIPTION	FIELD HOA STATION	LEAK SENSOR	HI TEMP SENSOR
MXR-41451	ANAEROBIC MIXER 1	CS-41451	XSH-41451	TSH-41451
MXR-41452	ANAEROBIC MIXER 2	CS-41452	XSH-41452	TSH-41452
MXR-41453	ANAEROBIC MIXER 3	CS-41453	XSH-41453	TSH-41453
MXR-41454	ANOXIC MIXER 4	CS-41454	XSH-41454	TSH-41454
MXR-41455	ANOXIC MIXER 5	CS-41455	XSH-41455	TSH-41455
MXR-41456	ANOXIC MIXER 6	CS-41456	XSH-41456	TSH-41456
MXR-41457	ANOXIC MIXER 7	CS-41457	XSH-41457	TSH-41457

ch2m
SITE ELECTRICAL

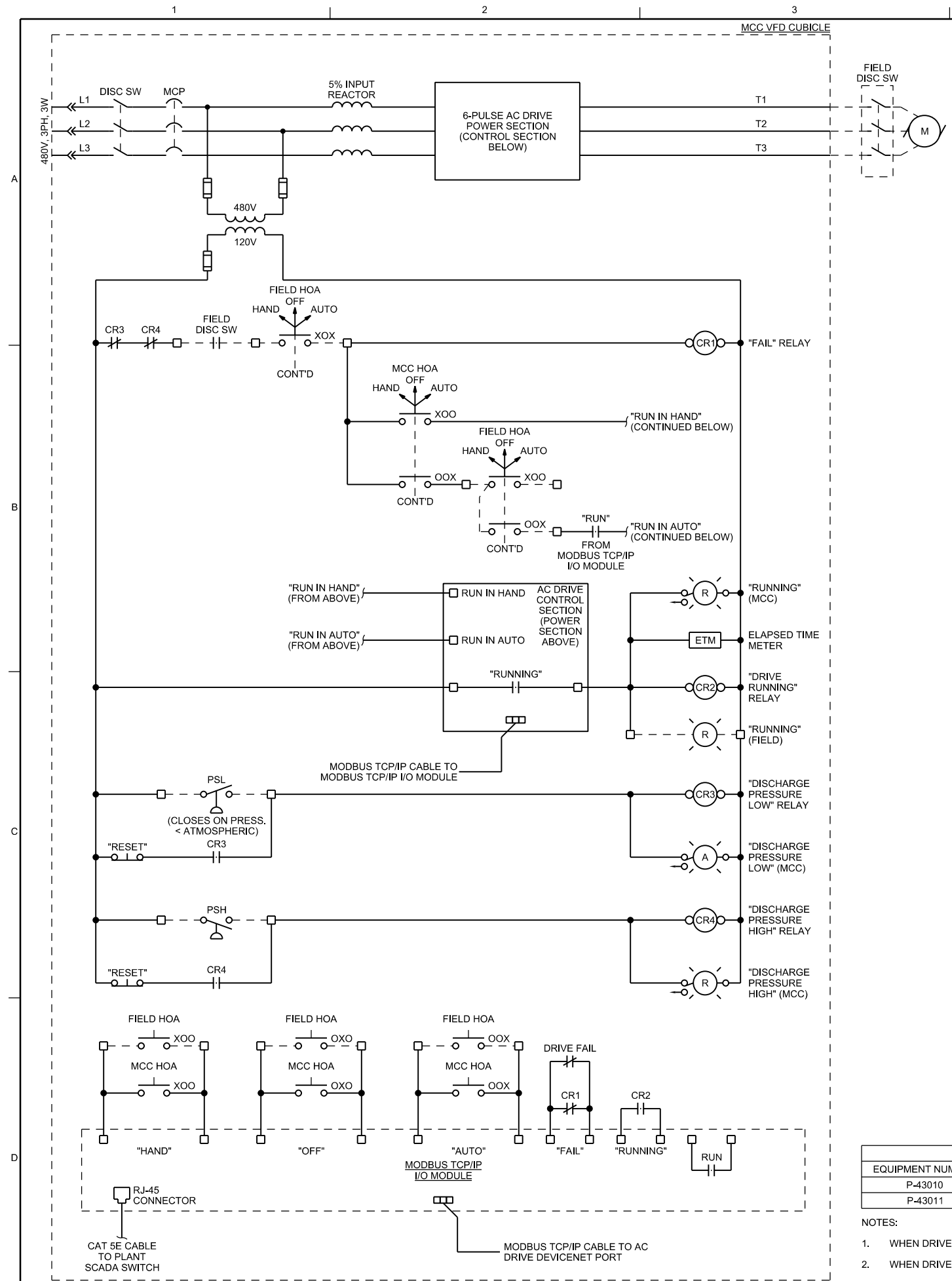
MOTOR CONTROL DIAGRAMS

PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

DATE	DECEMBER 2016
PROJ	496312
DWG	080-E-6203
SHEET	123c of 314

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.

DESIGN DEVELOPMENT



CONTROL DIAGRAM

CONTROL DIAGRAM APPLICABILITY				
EQUIPMENT NUMBER	DESCRIPTION	FIELD HOA STATION	LSL	LSH
P-43010	DIGESTED SLUDGE PUMP NO. 1	CS-43010	PSL-43017	PSH-43017
P-43011	DIGESTED SLUDGE PUMP NO. 2	CS-43011	PSL-43519	PSH-43519

- NOTES:
- WHEN DRIVE IS OPERATING IN "HAND", SPEED IS SET FROM HMI AT THE DRIVE.
 - WHEN DRIVE IS OPERATING IN "AUTO", SPEED IS SET FROM MODBUS TCP/IP SIGNAL FROM PLANT SCADA SYSTEM.
 - FIELD HOA STATIONS AND PRESSURE SWITCHES EXIST. PROVIDE WIRING AS INDICATED IN THIS CONTROL DIAGRAM.

SITE ELECTRICAL

MOTOR CONTROL DIAGRAMS

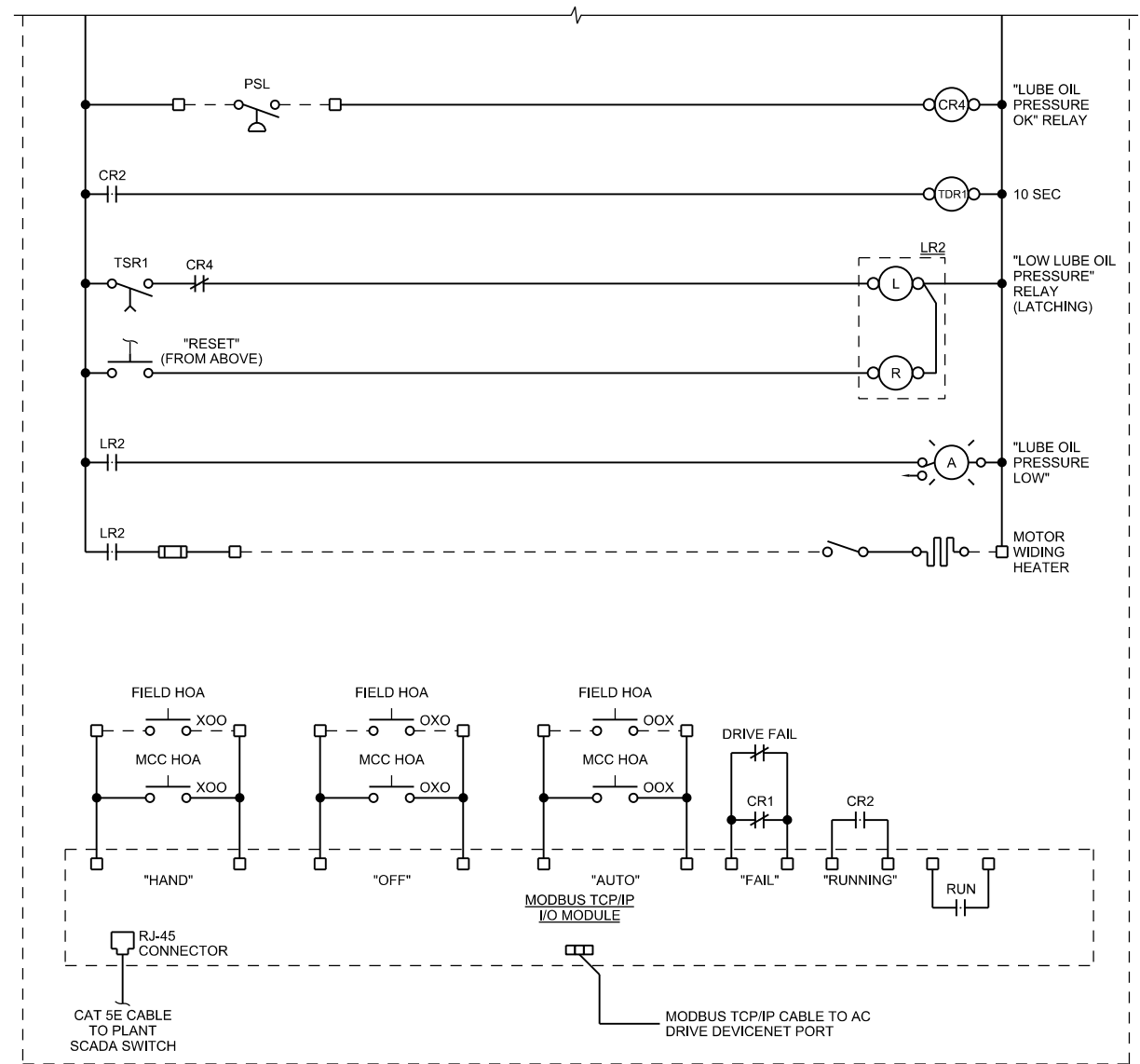
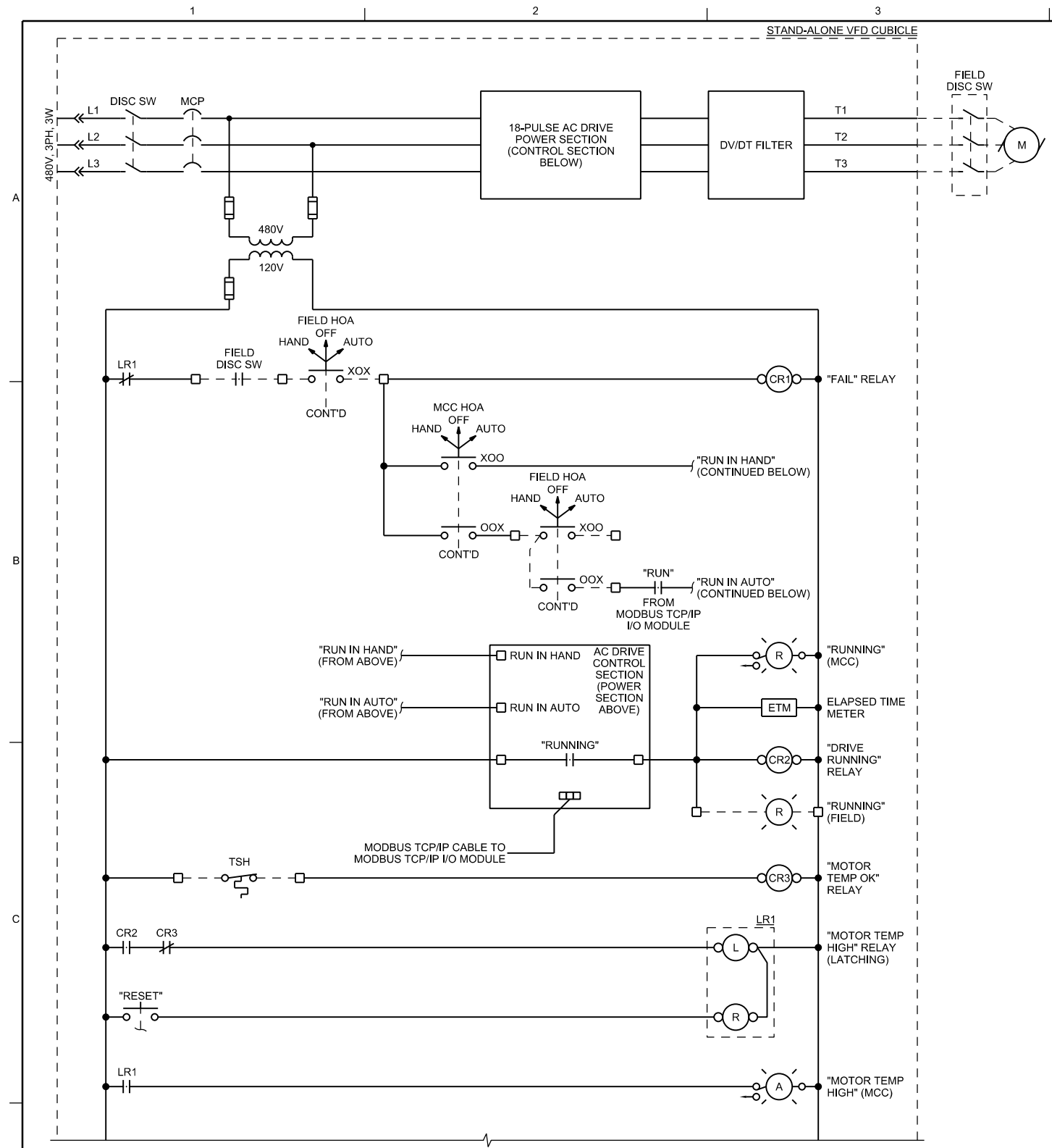
PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

DATE	DECEMBER 2016
PROJ	496312
DWG	080-E-6205
SHEET	123e of 314

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0" 1"

DATE: DECEMBER 2016
PROJ: 496312
DWG: 080-E-6205
SHEET: 123e of 314

DESIGN DEVELOPMENT



CONTROL DIAGRAM

CONTROL DIAGRAM APPLICABILITY				
EQUIPMENT NUMBER	DESCRIPTION	FIELD HOA STATION	TSH	PSL
SAER-41451	AERATOR NO. 1	CS-41451A	TSH-41451	PSL-41451A
SAER-41452	AERATOR NO. 2	CS-41452A	TSH-41452	PSL-41452A

- NOTES:
- WHEN DRIVE IS OPERATING IN "HAND", SPEED IS SET FROM HMI AT THE DRIVE.
 - WHEN DRIVE IS OPERATING IN "AUTO", SPEED IS SET FROM MODBUS TCP/IP SIGNAL FROM PLANT SCADA SYSTEM.

1
2
3
4
5
6

A
B
C
D

STAND-ALONE VFD CUBICLE

FIELD DISC SW

480V, 3PH, 3W

L1
L2
L3

DISC SW
MCP

480V
120V

18-PULSE AC DRIVE POWER SECTION (CONTROL SECTION BELOW)
DV/DT FILTER
T1
T2
T3

FIELD HOA
OFF
AUTO

LR1
FIELD DISC SW
CONT'D
CR1
"FAIL" RELAY

FIELD HOA
OFF
AUTO

CONT'D
XOX
"RUN IN HAND" (CONTINUED BELOW)

FIELD HOA
OFF
AUTO

CONT'D
OOX
"RUN" (CONTINUED BELOW)

CONT'D
FROM MODBUS TCP/IP I/O MODULE

"RUN IN HAND" (FROM ABOVE)
AC DRIVE CONTROL SECTION (POWER SECTION ABOVE)
"RUNNING" (MCC)

"RUN IN AUTO" (FROM ABOVE)
"RUNNING"
ELAPSED TIME METER

MODBUS TCP/IP CABLE TO MODBUS TCP/IP I/O MODULE
CR2
"DRIVE RUNNING" RELAY

TSH
CR3
"RUNNING" (FIELD)

CR2
CR3
"MOTOR TEMP OK" RELAY

"RESET"
LR1
"MOTOR TEMP HIGH" RELAY (LATCHING)

LR1
"MOTOR TEMP HIGH" (MCC)

PSL
CR4
"LUBE OIL PRESSURE OK" RELAY

CR2
TDR1
10 SEC

TSR1
CR4
"LOW LUBE OIL PRESSURE" RELAY (LATCHING)

"RESET" (FROM ABOVE)
LR2

LR2
"LUBE OIL PRESSURE LOW"

LR2
MOTOR WINDING HEATER

FIELD HOA
FIELD HOA
FIELD HOA

MCC HOA
MCC HOA
MCC HOA

XOO
OXO
OOX

"HAND"
"OFF"
"AUTO"

DRIVE FAIL
"FAIL"
"RUNNING"

MODBUS TCP/IP I/O MODULE

RJ-45 CONNECTOR

CAT 5E CABLE TO PLANT SCADA SWITCH

MODBUS TCP/IP CABLE TO AC DRIVE DEVICENET PORT

PHASE II, 6 MGD EXPANSION

FOUR MILE CREEK WQRF

DEPARTMENT OF PUBLIC WORKS

CITY OF WICHITA, KANSAS

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016

PROJ
496312

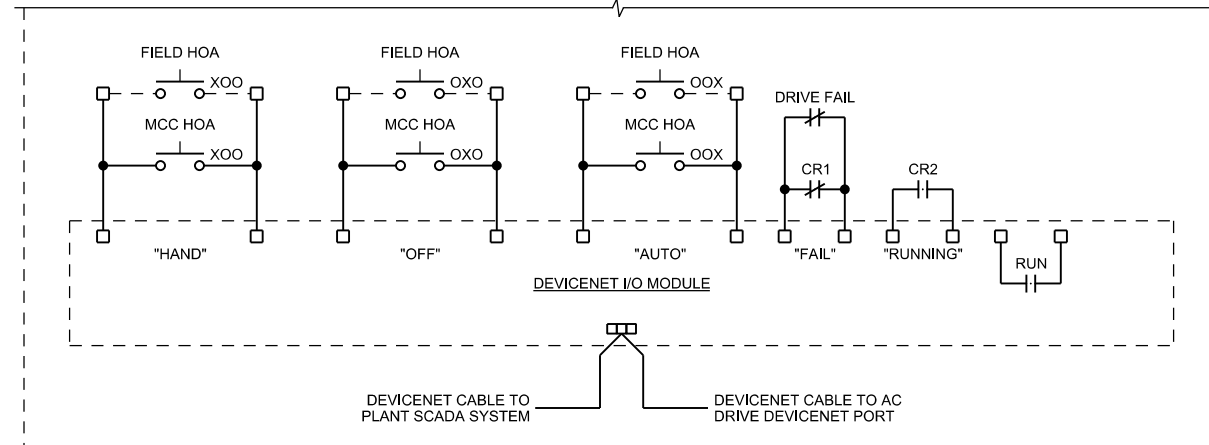
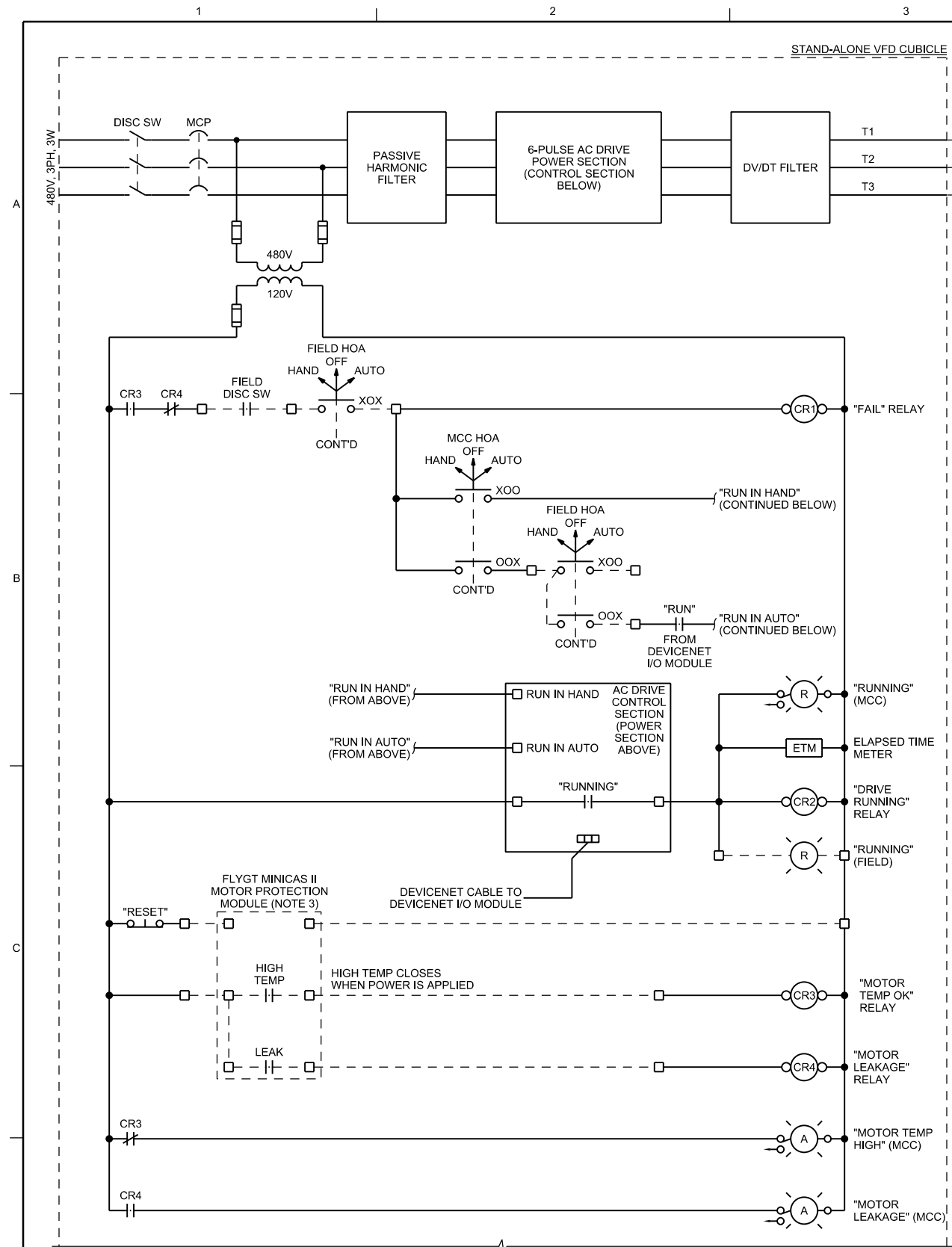
DWG
080-E-6206

SHEET
123f of 314

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE
DECEMBER 2016



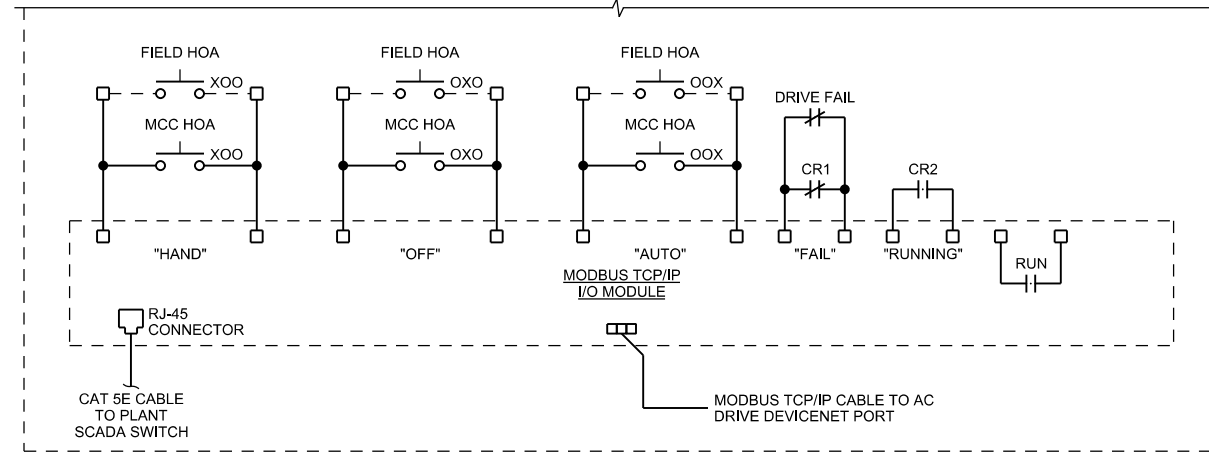
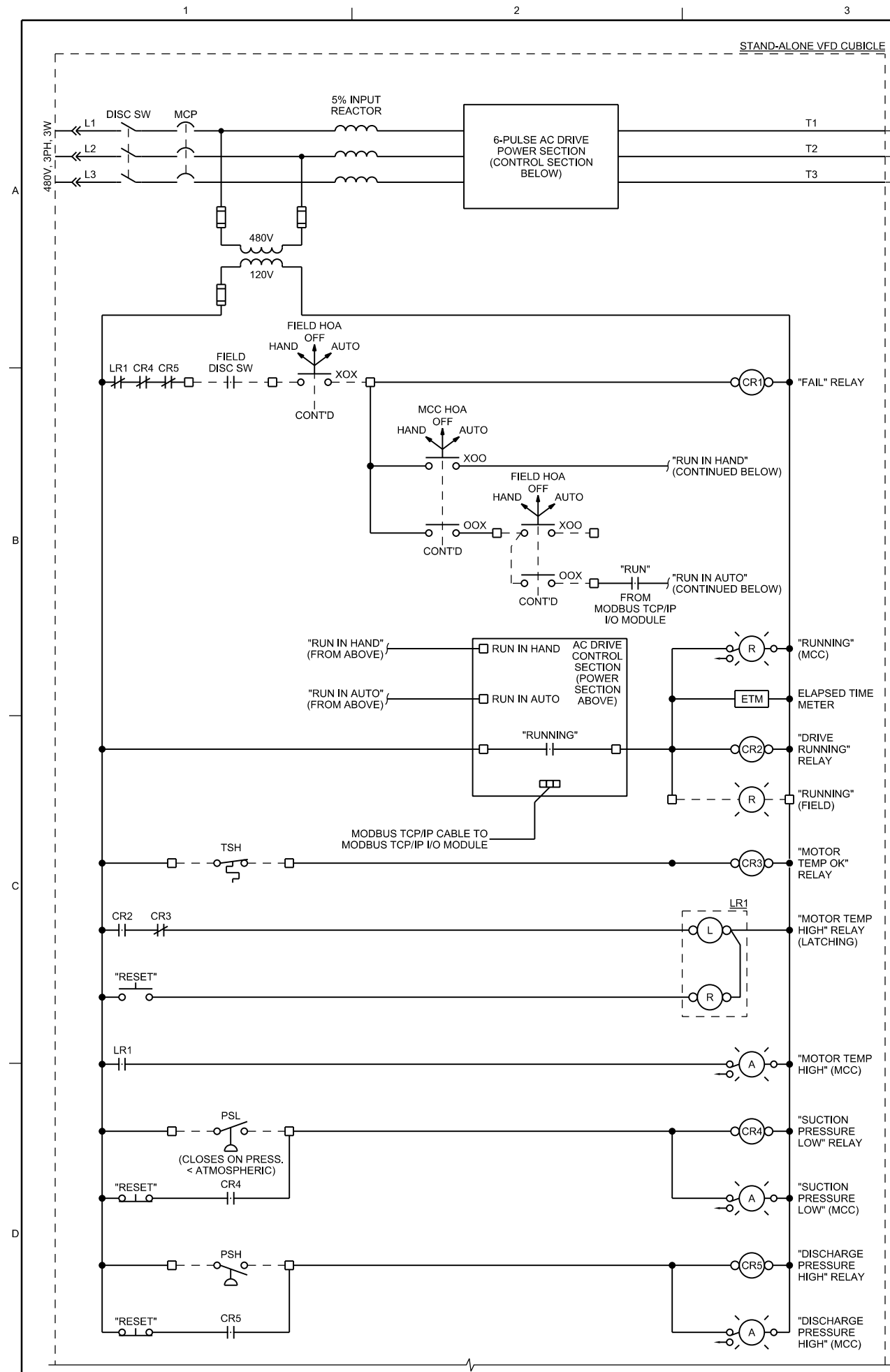
CONTROL DIAGRAM APPLICABILITY				
EQUIPMENT NUMBER	DESCRIPTION	FIELD HOA STATION	TSH	LEAK
P-41051	RAW INFLUENT PUMP 4	CS-41051	TSH-41051	XSH-41051
P-41052	RAW INFLUENT PUMP 5	CS-41052	TSH-41052	XSH-41052
P-41053	RAW INFLUENT PUMP 6	CS-41053	TSH-41053	XSH-41053
P-41054	RAW INFLUENT PUMP 7	CS-41054	TSH-41054	XSH-41054

- NOTES:
- WHEN DRIVE IS OPERATING IN "HAND", SPEED IS SET FROM HMI AT THE DRIVE.
 - WHEN DRIVE IS OPERATING IN "AUTO", SPEED IS SET FROM DEVICENET SIGNAL FROM PLANT SCADA SYSTEM.
 - TEMPERATURE AND LEAKAGE PROBES ARE NOT SHOWN HERE FOR CLARITY.

CONTROL DIAGRAM

PHASE II, 6 MGD EXPANSION FOUR MILE CREEK WORTH DEPARTMENT OF PUBLIC WORKS CITY OF WICHITA, KANSAS		M GROSS M GROSS M GROSS	
NO.	DATE	REVISION	BY
0	12/16/16	ADDENDUM NO. 2	JL
DR	J. LANDMAN	CHK	A. CUGLIATI
DSGN	J. LANDMAN	CHK	A. CUGLIATI
SITE ELECTRICAL		MOTOR CONTROL DIAGRAMS	
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING.			
DATE	DECEMBER 2016		
PROJ	496312		
DWG	080-E-6207		
SHEET	123g of 314		

DESIGN DEVELOPMENT



CONTROL DIAGRAM APPLICABILITY					
EQUIPMENT NUMBER	DESCRIPTION	FIELD HOA STATION	TSH	PSL	PSH
PMP-43014	WAS/RDT PUMP NO. 1	CS-43014	TSH-43014	PSL-43026	PSH-43027
PMP-43015	WAS/RDT PUMP NO. 2	CS-43015	TSH-43015	PSL-43028	PSH-43029

- NOTES:
- WHEN DRIVE IS OPERATING IN "HAND", SPEED IS SET FROM HMI AT THE DRIVE.
 - WHEN DRIVE IS OPERATING IN "AUTO", SPEED IS SET FROM MODBUS TCP/IP SIGNAL FROM PLANT SCADA SYSTEM.

CONTROL DIAGRAM

PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WORTH
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

DATE: 12/16/16
ADDENDUM NO. 2

NO. 0

DR J. LANDMAN
M. GROSS

CHK A. CUGLIATI
M. GROSS

BY J.L.
M.G.

APVD APVD

ch2m
SITE ELECTRICAL

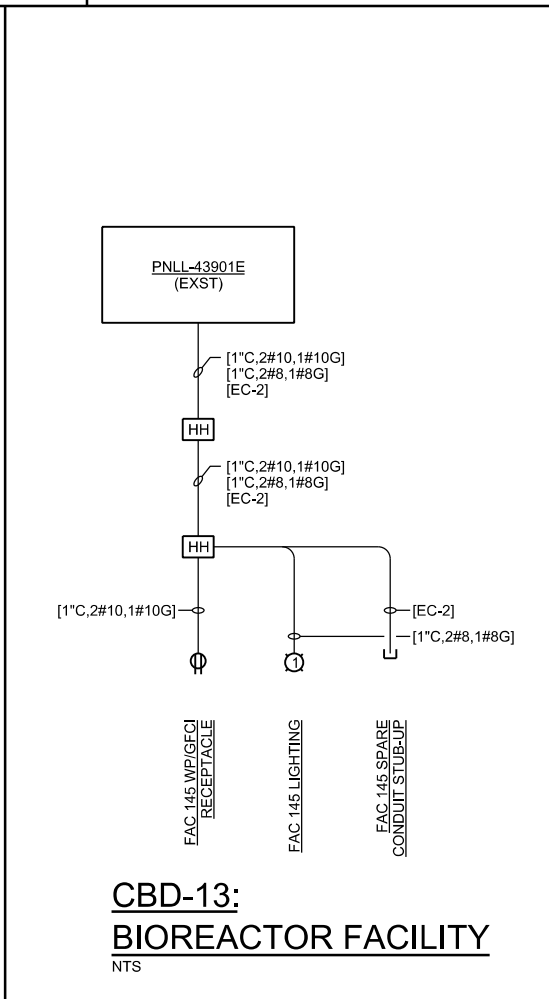
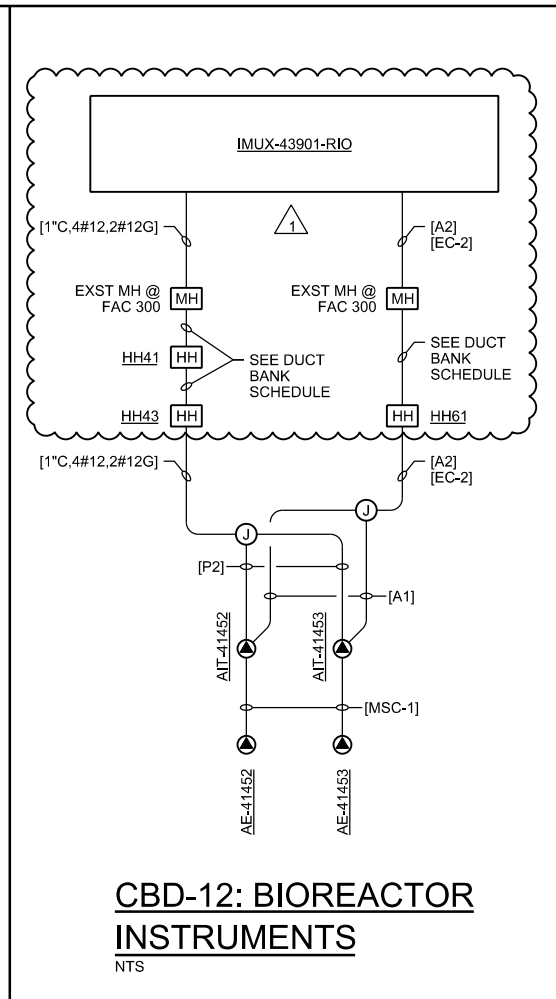
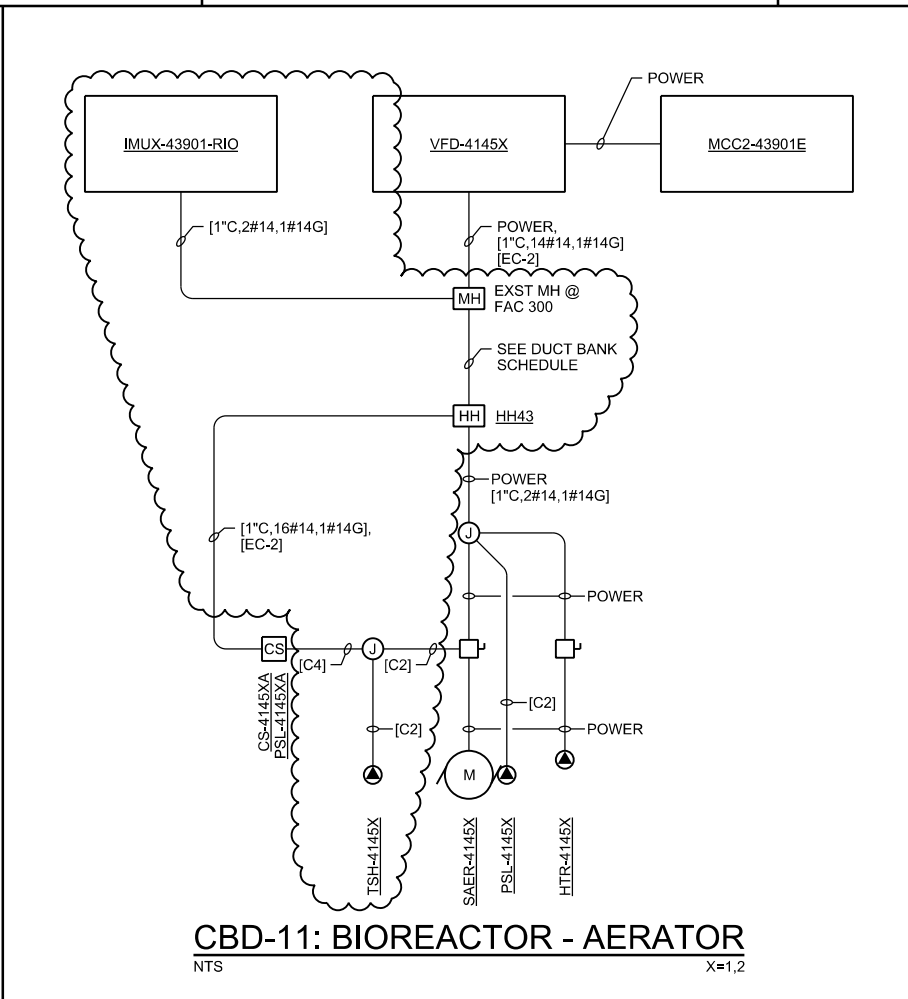
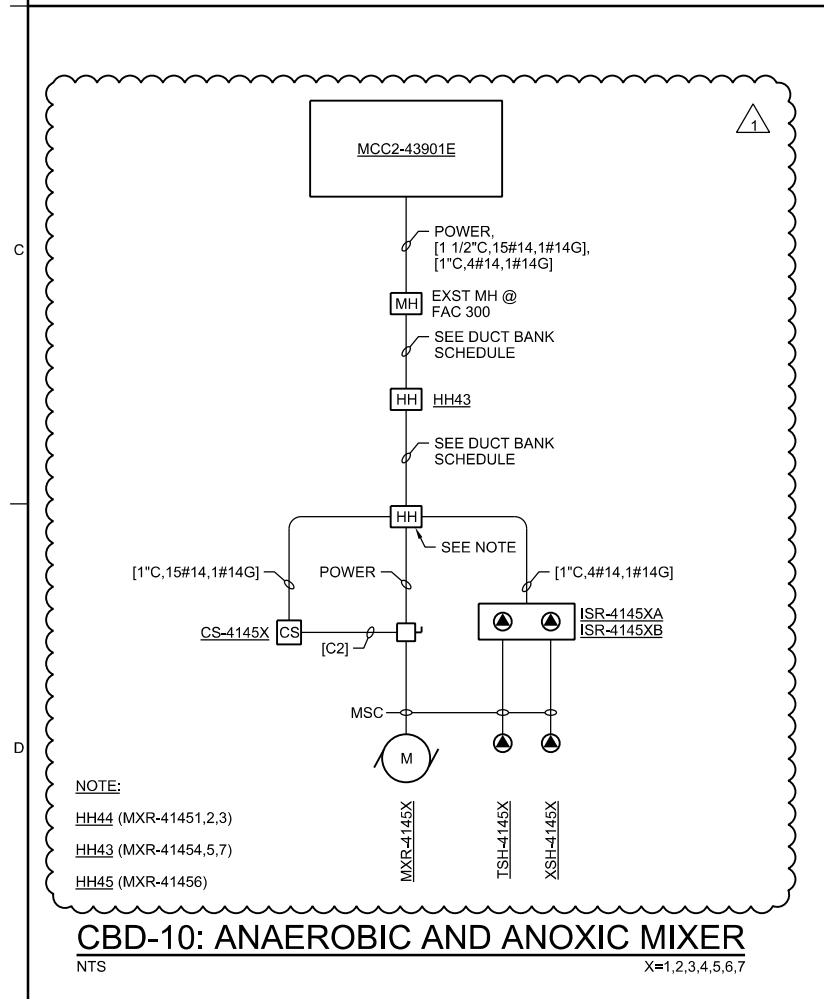
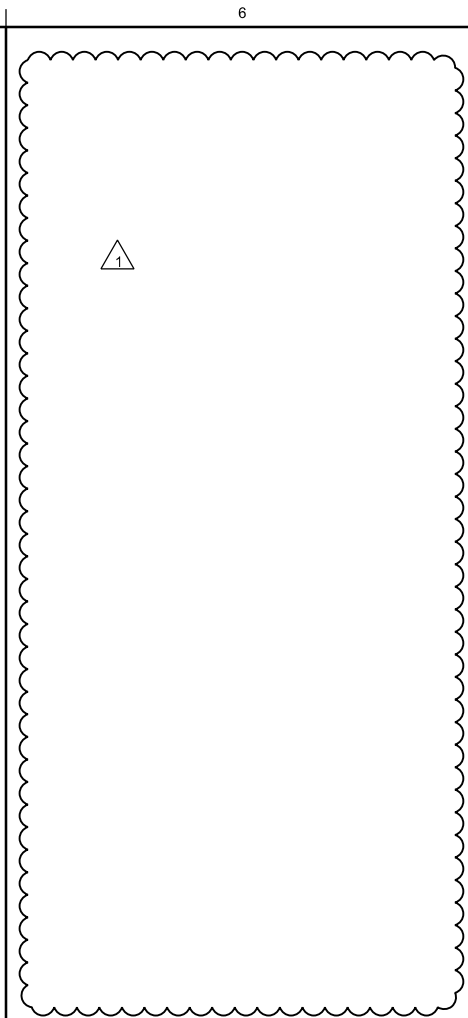
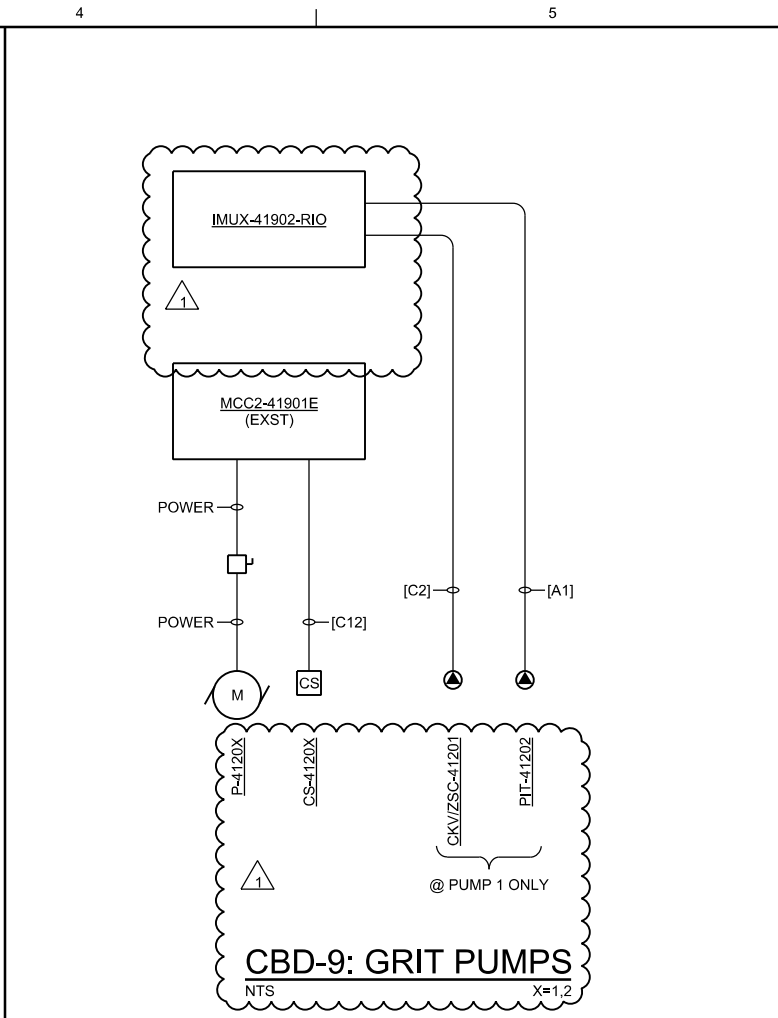
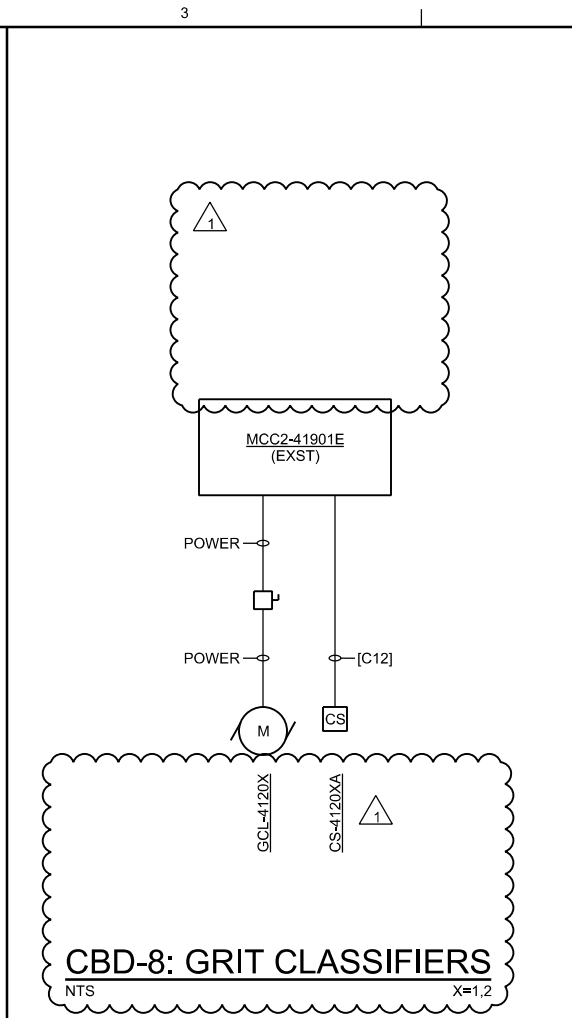
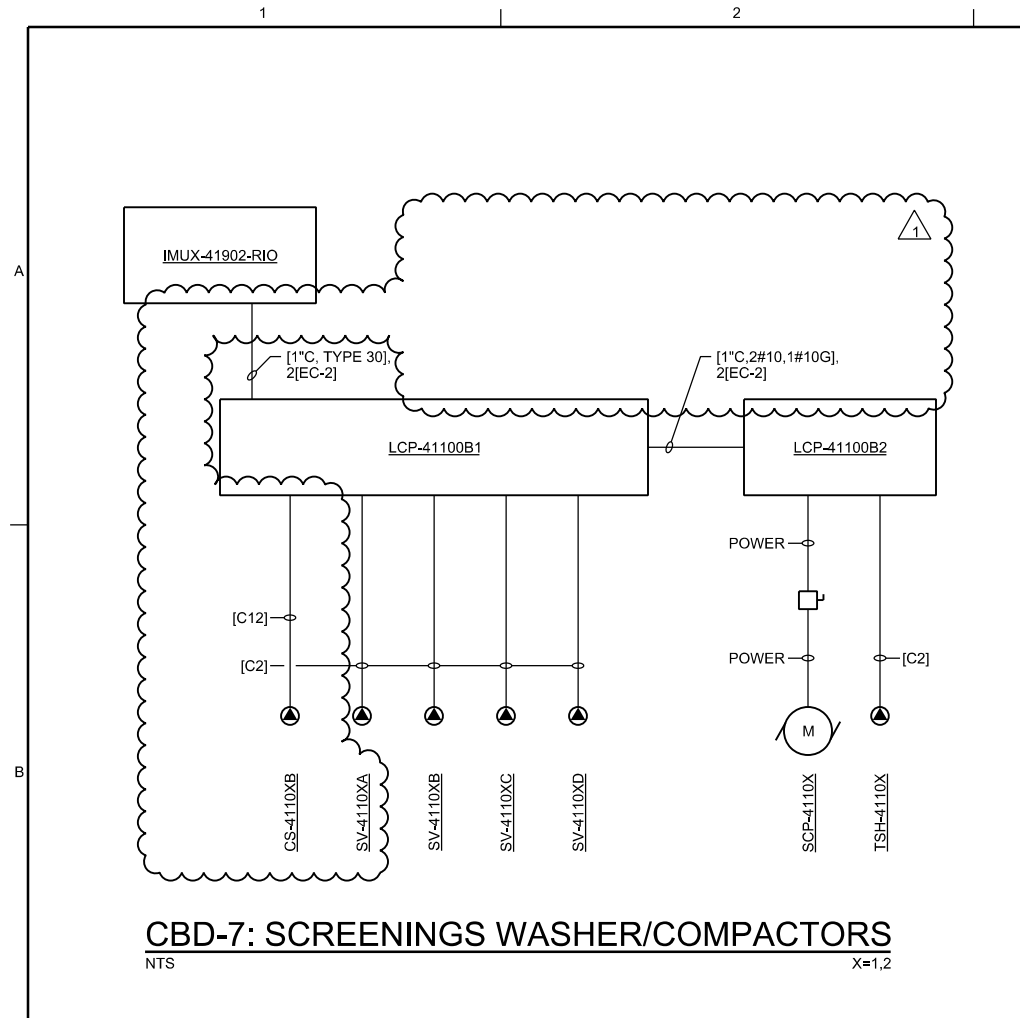
MOTOR CONTROL DIAGRAMS

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE: DECEMBER 2016
PROJ: 496312
DWG: 080-E-6208
SHEET: 123h of 314

DESIGN DEVELOPMENT

FILENAME: 080-E-6208_496312.dgn PLOT DATE: 2016/12/16 PLOT TIME: 3:36:03 PM



NO.	DATE	DR	CHK	APVD	M. GROSS
1	12/16/16	J. LANDMAN	A. CUGLIATI		
ADDENDUM NO. 2					
BY	BY	BY	BY	BY	BY
JL	JL	JL	JL	JL	JL
MG	MG	MG	MG	MG	MG

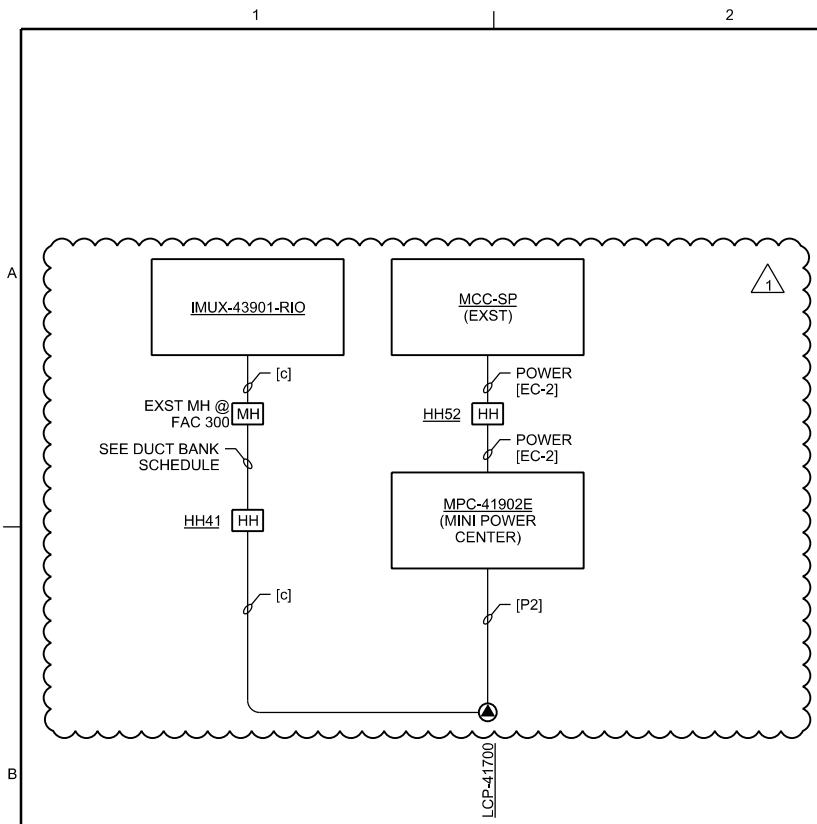
PHASE II, 6 MGD EXPANSION
 FOUR MILE CREEK WQRF
 DEPARTMENT OF PUBLIC WORKS
 CITY OF WICHITA, KANSAS

ch2m
 SITE ELECTRICAL

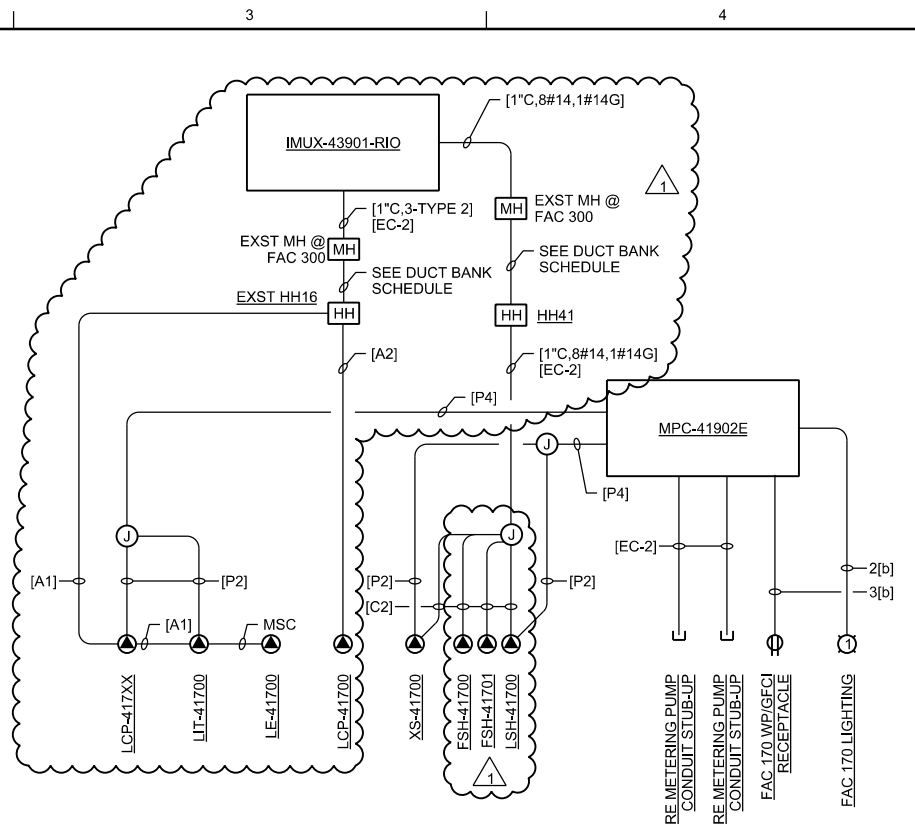
CABLE BLOCK DIAGRAMS 2

VERIFY SCALE
 BAR IS ONE INCH ON ORIGINAL DRAWING.
 0 1"

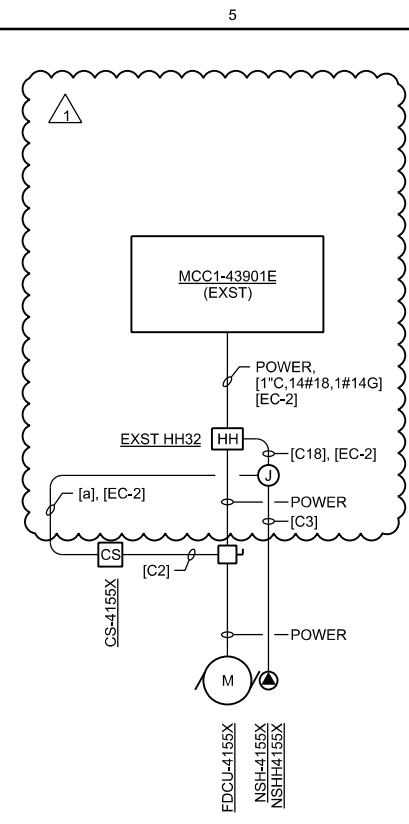
DATE: DECEMBER 2016
 PROJ: 496312
 DWG: 080-E-6302
 SHEET: 125 of 314



CBD-14: FERRIC CHLORIDE METERING PUMP
NTS X=1,2



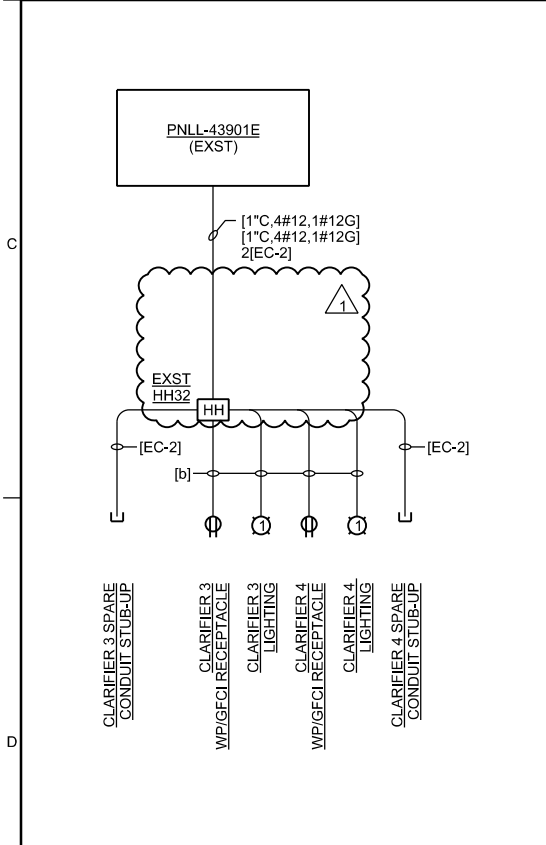
CBD-15: FERRIC CHLORIDE INSTRUMENT & FACILITY
NTS



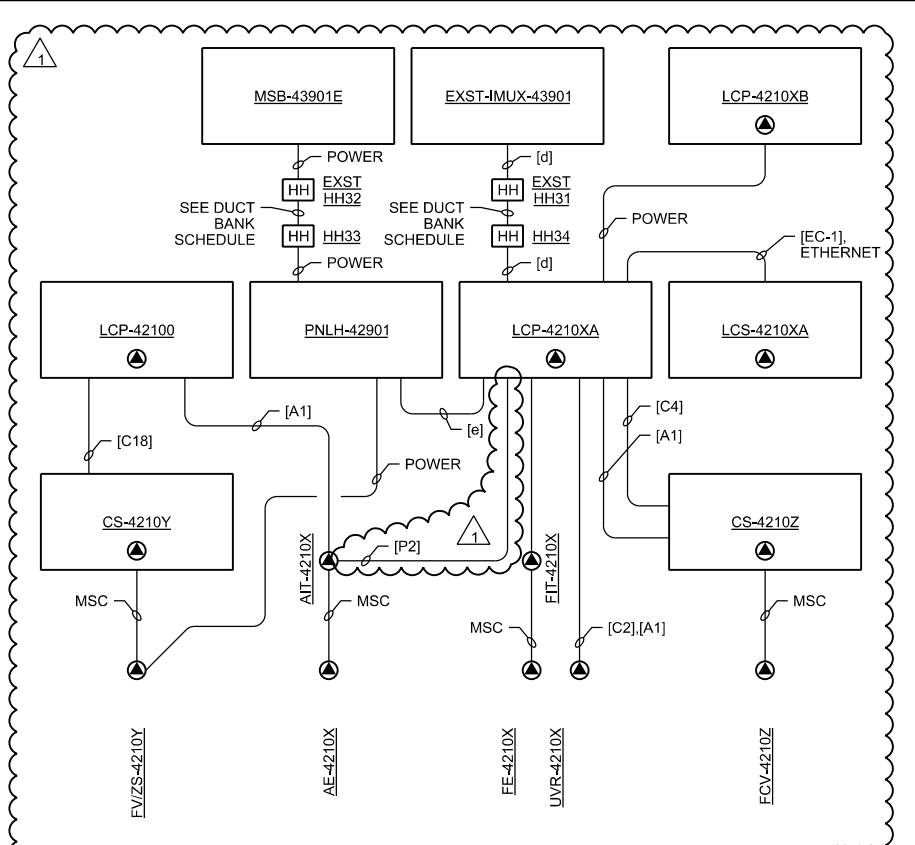
CBD-16: SECONDARY CLARIFIER DRIVE
NTS X=1,2

CONDUIT CALLOUTS
(THIS DWG ONLY)

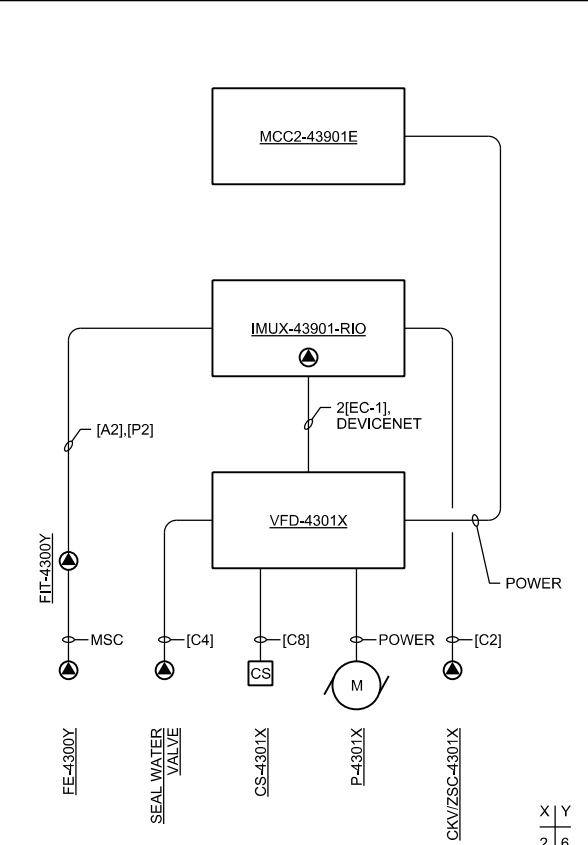
[a]	1" C, 15#14, 1#14G
[b]	1" C, 2#12, 1#12G
[c]	1" C, 16#14, 1#14G
[d]	4"2" C, EMPTY
[e]	1 1/2" 3#10, 1#6G



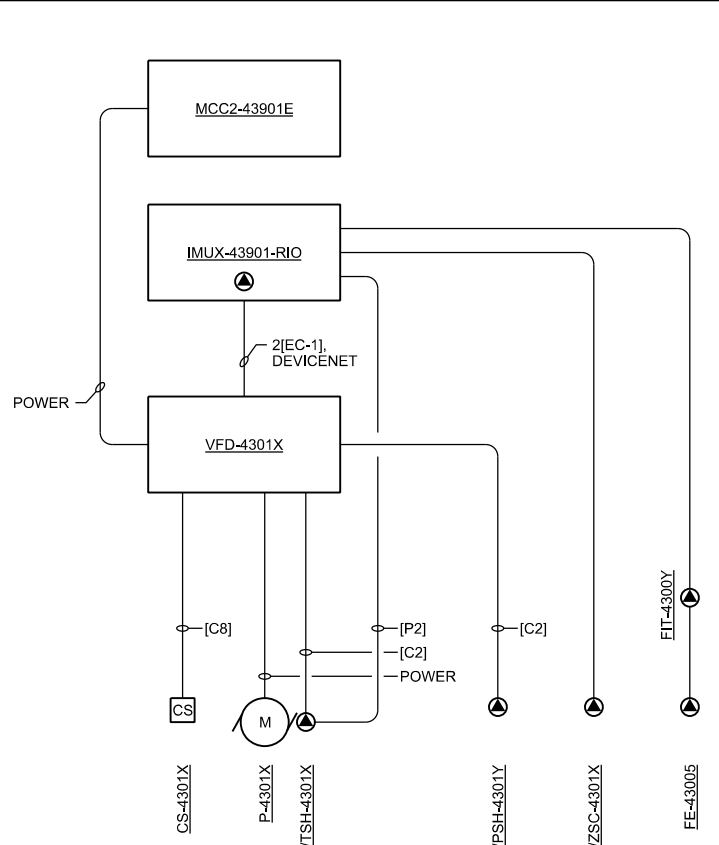
CBD-17: SECONDARY CLARIFIER DRIVE - FACILITY
NTS



CBD-18: UV REACTORS
NTS X=1,2 Y=1,3 Z=2,4



CBD-19: NEW RAS PUMPS
NTS



CBD-20: WAS/RDT PUMPS
NTS

PHASE II, 6 MGD EXPANSION FOUR MILE CREEK WQRF DEPARTMENT OF PUBLIC WORKS CITY OF WICHITA, KANSAS		J. LANDMAN DR		A. CUGLIATI CHK		M. GROSS APVD	
NO.	1	DATE	12/16/16	ADDENDUM NO.	2	BY	JL
REVISION		CHK		APVD		BY	MG
DSGN							

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE: DECEMBER 2016
PROJ: 496312
DWG: 080-E-6303
SHEET: 126 of 314

ch2m
SITE ELECTRICAL
CABLE BLOCK DIAGRAMS 3

ELECTRICAL PANELBOARD SCHEDULE

PANEL: MPC-41902E
 VOLTAGE: 480-208Y/120V, 15KVA
 BUS SIZE: 200A
 MAIN SIZE: PR1:40A SEC:60A
 SCCR: 10KA

LOCATION: FACILITY 170 (FERRIC CHLORIDE STORAGE)
 MOUNTING: SURFACE
 FED FROM: MCC-SP (FACILITY 400 - LABORATORY)
 MAIN TYPE: CIRCUIT BREAKER
 NOTES: MINI POWER CENTER

CIRCUIT TITLE	BREAKER			LOAD, VA			LOAD, VA			BREAKER			CIRCUIT TITLE
	CKT NO.	AMP	POLE	PHASE			PHASE			POLE	AMP	CKT NO.	
				A	B	C	A	B	C				
LCP-41700 (CHEM PUMPS)	1	20	1	500			132			1	20	2	LIGHTS - INTERIOR
XS-41700 (LEAK DET. SYST)	3	20	1		100		94			1	20	4	LIGHTS - EXTERIOR
LSH-41700 (FERRIC TANK SUMP LVL SW)	5	15	1			50			360	1	20	6	RCPT - INTERIOR
LCP-41700 (TANK FILL STATION)	7	20	1	200			360			1	20	8	RCPT - EXTERIOR
EF-13 (EXST)	9	20	1		158		180			1	20	10	RCPT - STORAGE TANK
UH-11 (EXST)	11	20	2			1650				1	20	12	SPARE
	13	-	-	1650						1	20	14	SPARE
MOTORIZED LOUVER	15	15	-		50					1	20	16	SPARE
LIT-41700 (FERRIC TANK LVL XMTR)	17									1	20	18	SPARE
SPACE	19											20	SPARE
SPACE	21											22	SPACE
SPACE	23											24	SPACE
TOTAL LOAD				2350	308	1700	492	274	360				

PHASE A LOAD (VA) = 2842
 PHASE B LOAD (VA) = 582
 PHASE C LOAD (VA) = 2060
 TOTAL LOAD (VA) = 5484

ELECTRICAL PANELBOARD SCHEDULE

PANEL: PNLH-42901E
 VOLTAGE: 480 VAC, 3 PHASE, 3 WIRE
 BUS SIZE: 600A
 MAIN SIZE: 600A, LSIG
 SCCR: 35KA

LOCATION: FACILITY 210 (UV DISINFECTION)
 MOUNTING: FLOOR
 FED FROM: MSB-43901A (FACILITY 300 - SLUDGE PUMPING STATION)
 MAIN TYPE: CIRCUIT BREAKER
 NOTES:

CIRCUIT TITLE	BREAKER			LOAD, VA			LOAD, VA			BREAKER			CIRCUIT TITLE
	CKT NO.	AMP	POLE	PHASE			PHASE			POLE	AMP	CKT NO.	
				A	B	C	A	B	C				
LCP-42101B (UV REACTOR 1)	1	150	3	35000			100			3	20	2	FV-42101 (FUTURE)
	3	-	-		35000		100			-	-	4	-
	5	-	-			35000		100		-	-	6	-
LCP-42102B (UV REACTOR 2)	7	150	3	35000			100			3	20	8	FCV-42102 (FUTURE)
	9	-	-			35000		100		-	-	10	-
	11	-	-			35000		100		-	-	12	-
LCP-42102C (UV REACTOR 3) (FUTURE)	13	150	3	35000						3	30	14	SPARE
	15	-	-		35000					-	-	16	-
	17	-	-			35000				-	-	18	-
FV-42101	19	20	3	100						3	30	20	SPARE
	21	-	-		100					-	-	22	-
	23	-	-			100				-	-	24	-
FCV-42102	25	20	3	100						3	30	26	SPARE
	27	-	-		100					-	-	28	-
	29	-	-			100				-	-	30	-
FV-42103	31	20	3	100						3	30	32	SPARE
	33	-	-		100					-	-	34	-
	35	-	-			100				-	-	36	-
FCV-42104	37	20	3	100			5000			3	60	38	PNLH-42901E (VIA TS-PNLH-42901E)
	39	-	-		100			5000		-	-	40	-
	41	-	-			100		5000	5000	-	-	42	-
TOTAL LOAD				105400	105400	105400	5200	5200	5200				

PHASE A LOAD (VA) = 110600
 PHASE B LOAD (VA) = 110600
 PHASE C LOAD (VA) = 110600
 TOTAL LOAD (VA) = 331800

ELECTRICAL PANELBOARD SCHEDULE

PANEL: PNLL-41903E
 VOLTAGE: 208/120 VAC, 3 PHASE, 4 WIRE
 BUS SIZE: 200A
 MAIN SIZE: 150A
 SCCR: 10KAIC

LOCATION: FACILITY 110 (SCREENINGS)
 MOUNTING: SURFACE
 FED FROM: PNLH-41903E AND TS-PNLL-41903E (SCREENINGS)
 MAIN TYPE: CIRCUIT BREAKER
 NOTES:

CIRCUIT TITLE	BREAKER			LOAD, VA			LOAD, VA			BREAKER			CIRCUIT TITLE
	CKT NO.	AMP	POLE	PHASE			PHASE			POLE	AMP	CKT NO.	
				A	B	C	A	B	C				
LCP-41101 (GAS DETECTION)	1	20	1	250			540			1	20	2	RCPT - ELECTRICAL ROOM
SPARE	3	20	1				720			1	20	4	RCPT - EXTERIOR
SPARE	5	20	1						360	1	20	6	RCPT - SCREENING ROOM
FACP	7	20	1	500			360			1	20	8	RCPT - FACILITY 107 (IPS-VV)
107-IH-01 (IPS-VV)	9	20	1		250		200			3	20	10	LIGHTING CONTACTOR (EXT. LTS)
IMUX-41902-RIO	11	20	1			1000		200		-	-	12	-
SPARE	13	20	1				200			-	-	14	-
SPARE	15	20	1					300		1	20	16	LIGHTING - ELECTRICAL ROOM
SPARE	17	20	1						500	1	20	18	LIGHTING - SCREENING ROOM
SPARE	19	20	1				360			1	20	20	RCPT - FACILITY 105 (PS-VV)
SPARE	21	20	1							1	20	22	SPARE
SPARE	23	20	1							1	20	24	SPARE
	25									1	20	26	SPARE
	27											28	
	29											30	
	31											32	
	33											34	
	35											36	
	37											38	
	39											40	
	41											42	
TOTAL LOAD				750	250	1000	1460	1220	1060				

PHASE A LOAD (VA) = 2210
 PHASE B LOAD (VA) = 1470
 PHASE C LOAD (VA) = 2060
 TOTAL LOAD (VA) = 5740

ELECTRICAL PANELBOARD SCHEDULE

PANEL: PNLL-42901E
 VOLTAGE: 208/120 VAC, 3 PHASE, 4 WIRE
 BUS SIZE: 100A
 MAIN SIZE: 60A
 SCCR: 10KAIC

LOCATION: FACILITY 210 (UV DISINFECTION)
 MOUNTING: SURFACE
 FED FROM: TS-PNLL-42901E (15KVA) (UV DISINFECTION)
 MAIN TYPE: CIRCUIT BREAKER
 NOTES:

CIRCUIT TITLE	BREAKER			LOAD, VA			LOAD, VA			BREAKER			CIRCUIT TITLE
	CKT NO.	AMP	POLE	PHASE			PHASE			POLE	AMP	CKT NO.	
				A	B	C	A	B	C				
LCP-42301 (REUSE PUMP)	1	20	2	1125			540			1	20	2	RCPT - GROUND FLOOR
	3	-	-		1125		360			1	20	4	RCPT - LOWER LEVEL
	5	-	-			1125		540		1	20	6	RCPT - EXTERIOR
SPARE	7	20	1				300			1	20	8	LIGHTS, INTERIOR - UPPER LEVEL
SPARE	9	20	1					300		1	20	10	LIGHTS, INTERIOR - LOWER LEVEL
SPARE	11	20	1						333	3	20	12	LIGHTING CONTACTOR - EXTERIOR
SPARE	13	20	1					333		-	-	14	-
SPARE	15	20	1						333	-	-	16	-
SPARE	17	20	1							1	20	18	SPARE
	19									1	20	20	SPARE
	21									1	20	22	SPARE
	23									1	20	24	SPARE
	25									1	20	26	SPARE
	27									1	20	28	SPARE
	29											30	
	31											32	
	33											34	
	35											36	
	37											38	
	39									3		40	SURGE PROTECTIVE DEVICE
	41											42	
TOTAL LOAD				1125	1125	1125	1173	993	873				

PHASE A LOAD (VA) = 2298
 PHASE B LOAD (VA) = 2118
 PHASE C LOAD (VA) = 1998
 TOTAL LOAD (VA) = 6414



VERIFY SCALE
 BAR IS ONE INCH ON ORIGINAL DRAWING.
 DATE: DECEMBER 2016
 PROJ: 496312
 DWG: 080-E-6401
 SHEET: 128 of 314

PHASE II, 6 MGD EXPANSION
 FOUR MILE CREEK WORF
 DEPARTMENT OF PUBLIC WORKS
 CITY OF WICHITA, KANSAS

PANELBOARD SCHEDULES

NO.	1	DATE	12/16/16	ADDENDUM NO.	2	REVISION	CHK	APVD	M. GROSS
BY	JL	APVD	M. GROSS						

BIDDING SET

LOW VOLTAGE DUCT BANK SCHEDULE

Table with columns: DUCT BANK, RACEWAY SIZE, CONDUCTORS, ORIGINATION, DESTINATION. Includes entries for LVDB-A (HH51 TO HH49), LVDB-B (HH45 TO HH44), and LVDB-C (HH44 TO HH43).

LOW VOLTAGE DUCT BANK SCHEDULE

Table with columns: DUCT BANK, RACEWAY SIZE, CONDUCTORS, ORIGINATION, DESTINATION. Includes entries for LVDB-E (HH42 TO HH41), LVDB-F (HH41 TO EXST MH AT FAC 300), and LVDB-G (FAC 170 TO HH41).

LOW VOLTAGE DUCT BANK SCHEDULE

Table with columns: DUCT BANK, RACEWAY SIZE, CONDUCTORS, ORIGINATION, DESTINATION. Includes entries for LVDB-F (HH41 TO EXST MH AT FAC 300), LVDB-G (FAC 170 TO HH41), LVDB-H (FAC 170 TO HH41), LVDB-I (SEC CLFR 3 TO EXST HH32), LVDB-J (SEC CLFR 4 TO EXST HH32), LVDB-K (SEC CLFR 4 TO EXST HH32), LVDB-L (HH33 TO EXST HH32), LVDB-M (HH49 TO HH47), LVDB-N (HH47 TO HH46), LVDB-O (HH46 TO HH42), LVDB-P (HH33 TO EXST HH20), and LVDB-Q (HH20 TO EXST FAC 350).

INSTRUMENT DUCT BANK SCHEDULE

Table with columns: DUCT BANK, RACEWAY SIZE, CONDUCTORS, ORIGINATION, DESTINATION. Includes entries for IDB-A (HH53 TO HH50), IDB-B (HH61 TO EXST FAC 300 MH), IDB-C (EXST HH16 TO EXST FAC 300 MH), IDB-D (FAC 170 TO EXST HH16), IDB-E (HH34 TO EXST HH31), IDB-F (HH50 TO HH48), IDB-G (HH48 TO EXST HH5), IDB-H (EXST HH21 TO EXST HH19), IDB-J (EXST HH19 TO EXST HH18), and IDB-K (EXST HH18 TO EXST HH16).

Revision table with columns: NO., DATE, DSGN, DR, J. LANDMAN, A. CUGLIATI, M. GROSS, REVISION, CHECK, APVD, BY, DATE, NO., DATE, DSGN, DR, J. LANDMAN, A. CUGLIATI, M. GROSS, REVISION, CHECK, APVD, BY, DATE.

PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WORK
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

ch2m SITE ELECTRICAL DUCTBANK SCHEDULES

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1" DATE: DECEMBER 2016 PROJ: 496312 DWG: 080-E-6405 SHEET: 129a of 314

BIDDING SET

© CH2M HILL 2015. ALL RIGHTS RESERVED.

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL.

SHEET KEYNOTES

- 2/0 AWG GROUNDING ELECTRODE, BOND TO PIPE.
- CONCRETE-ENCASED GROUNDING ELECTRODE: 2/0 AWG BARE COPPER WIRE IN LOWER THIRD OF BUILDING FOOTER. BOND TO REINFORCING STEEL AT EACH CORNER. USE EXOTHERMIC WELD.
- GROUNDING PAD: NEMA 4-HOLE, INSTALLED FLUSH WITH FLOOR SURFACE BENEATH EACH FLOW ELEMENT LOCATION.
- MAGMETER BONDING JUMPER: 2/0 AWG COPPER WIRE. CONNECT FLOW ELEMENT IN ACCORDANCE WITH INSTRUMENT MANUFACTURER'S INSTRUCTIONS.
- GROUNDING PAD FOR FUTURE PIPE BOND. NEMA 4-HOLE, INSTALLED FLUSH WITH WALL, 7 FEET AFF.
- MOUNT LUMINAIRE NEXT TO STRUCTURAL BEAM, ABOVE LANDING, BOTTOM OF LUMINAIRE SHALL BE FLUSH WITH BOTTOM OF THE BEAM.
- MOUNT LUMINAIRE 8FT ABOVE FINISHED FLOOR.
- MOUNT LUMINAIRES IN THIS ROOM TO CEILING, UNLESS OTHERWISE NOTED. MOUNTING HEIGHT: 10FT ABOVE FINISHED FLOOR, MINIMUM
- MOUNT EMERGENCY LIGHTING AS HIGH ON WALL AS POSSIBLE. NOT TO EXCEED 15 FT. FIELD-ADJUST LAMPS FOR MAXIMUM LIGHTING COVERAGE

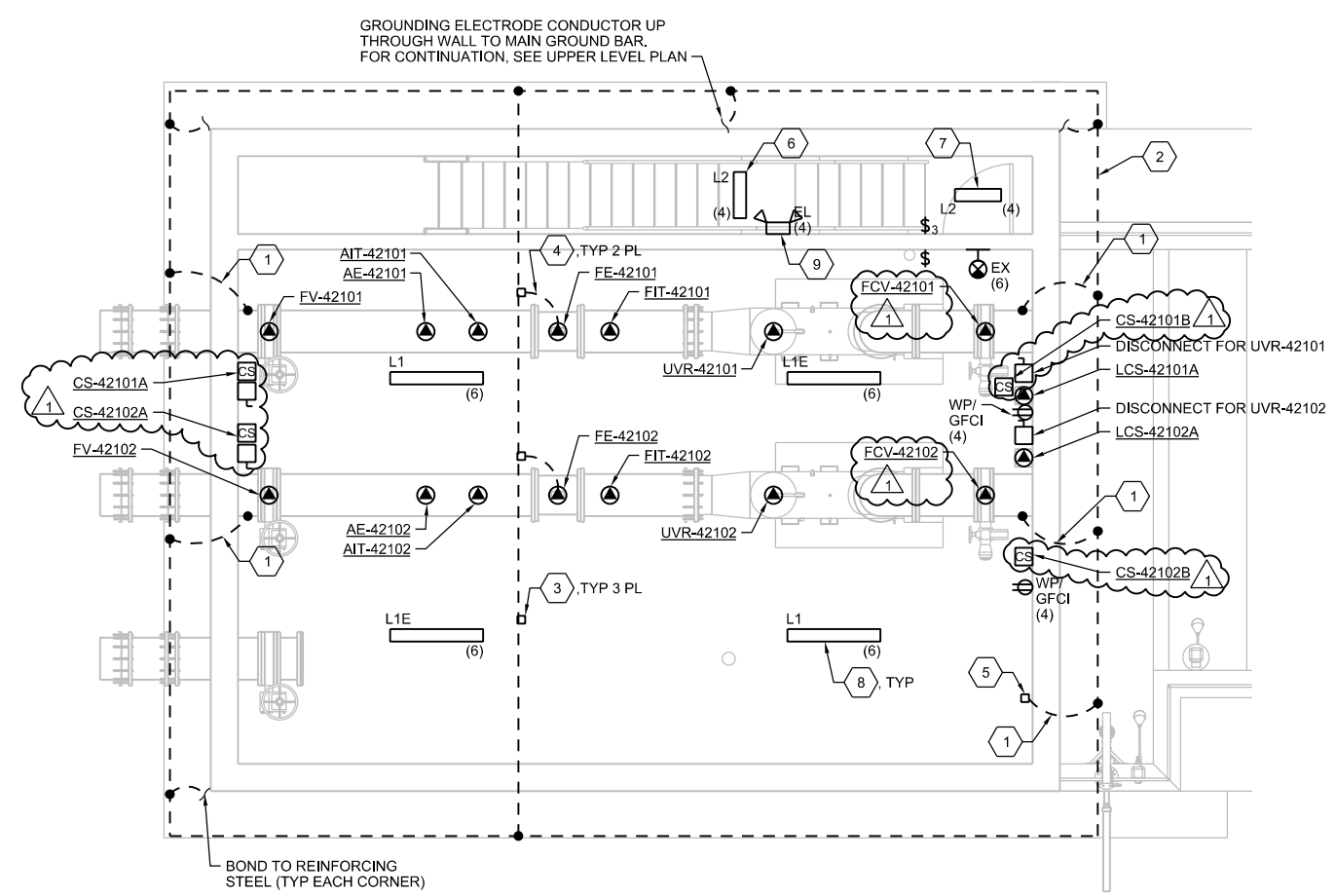
THIS DOCUMENT IS AN ELECTRONIC COPY. ORIGINAL DOCUMENT WAS ISSUED AND SEALED ON 11/04/2016. THE ORIGINAL DOCUMENT IS STORED AT THE OFFICES OF CH2M HILL ENGINEERS, INC., ENGLEWOOD, CO.

NO.	1	DATE	12/16/16	ADDENDUM NO.	2	REVISION	CHK	APVD	M. GROSS
DR	J. LANDMAN	APVD	A. CUGLIATI	APVD	M. GROSS				

PHASE II, 6 MGD EXPANSION
 FOUR MILE CREEK WORK
 DEPARTMENT OF PUBLIC WORKS
 CITY OF WICHITA, KANSAS

ch2m
 UV DISINFECTION FACILITY
**ELECTRICAL
 LOWER LEVEL PLAN**

VERIFY SCALE	BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE	NOVEMBER 2016
PROJ	496312
DWG	210-E-2001
SHEET	271 of 314

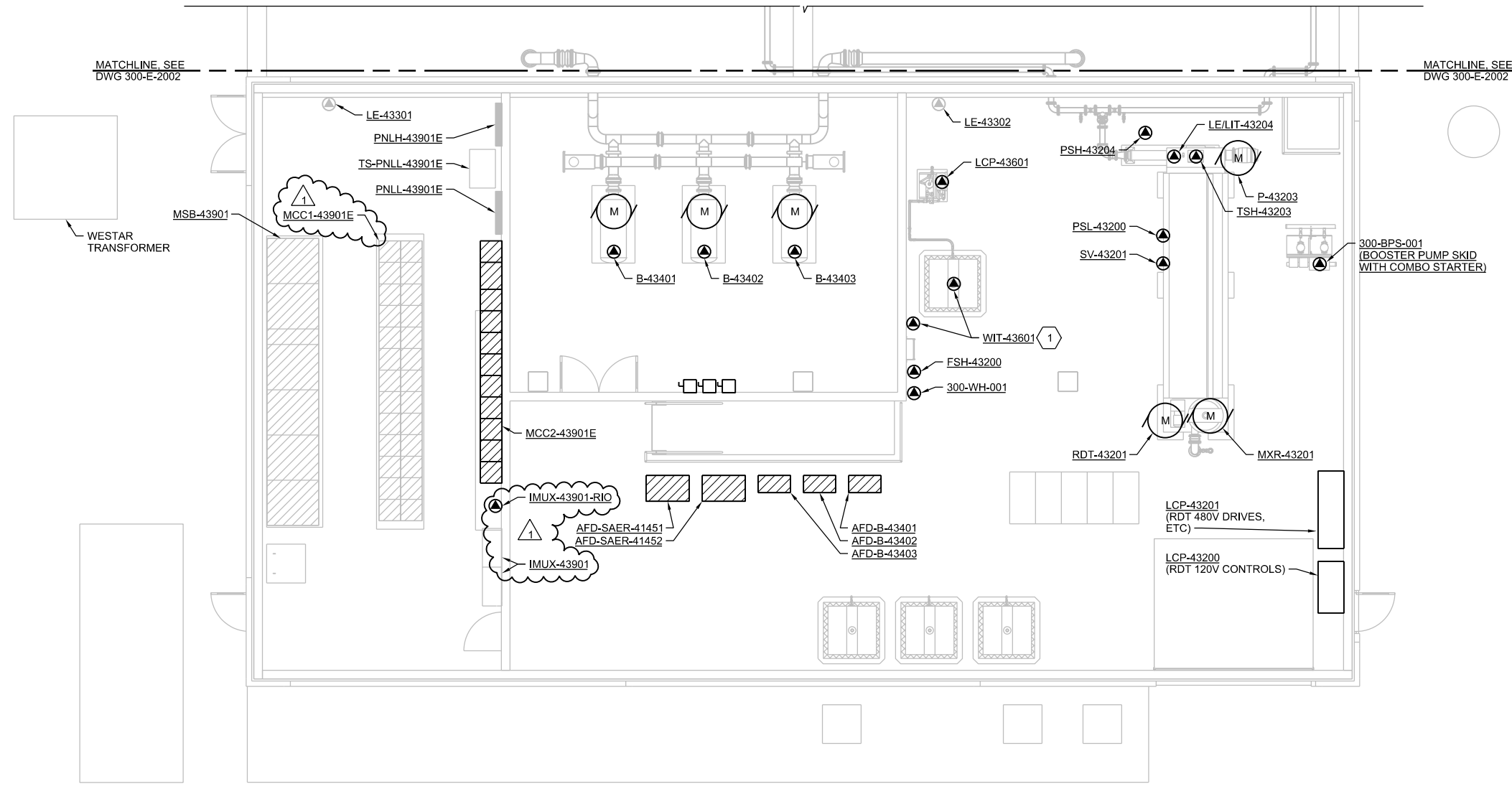


N
PLAN
 1/4"=1'-0"

BIDDING SET

1 2 3 4 5 6

A
B
C
D



MATCHLINE, SEE DWG 300-E-2002

MATCHLINE, SEE DWG 300-E-2002

UPPER PROCESS PLAN
3/16"=1'-0"

NO.	DATE	REVISION	BY	APVD
1	12/16/16	ADDENDUM NO. 2	JL	MG
				APVD
				M. GROSS

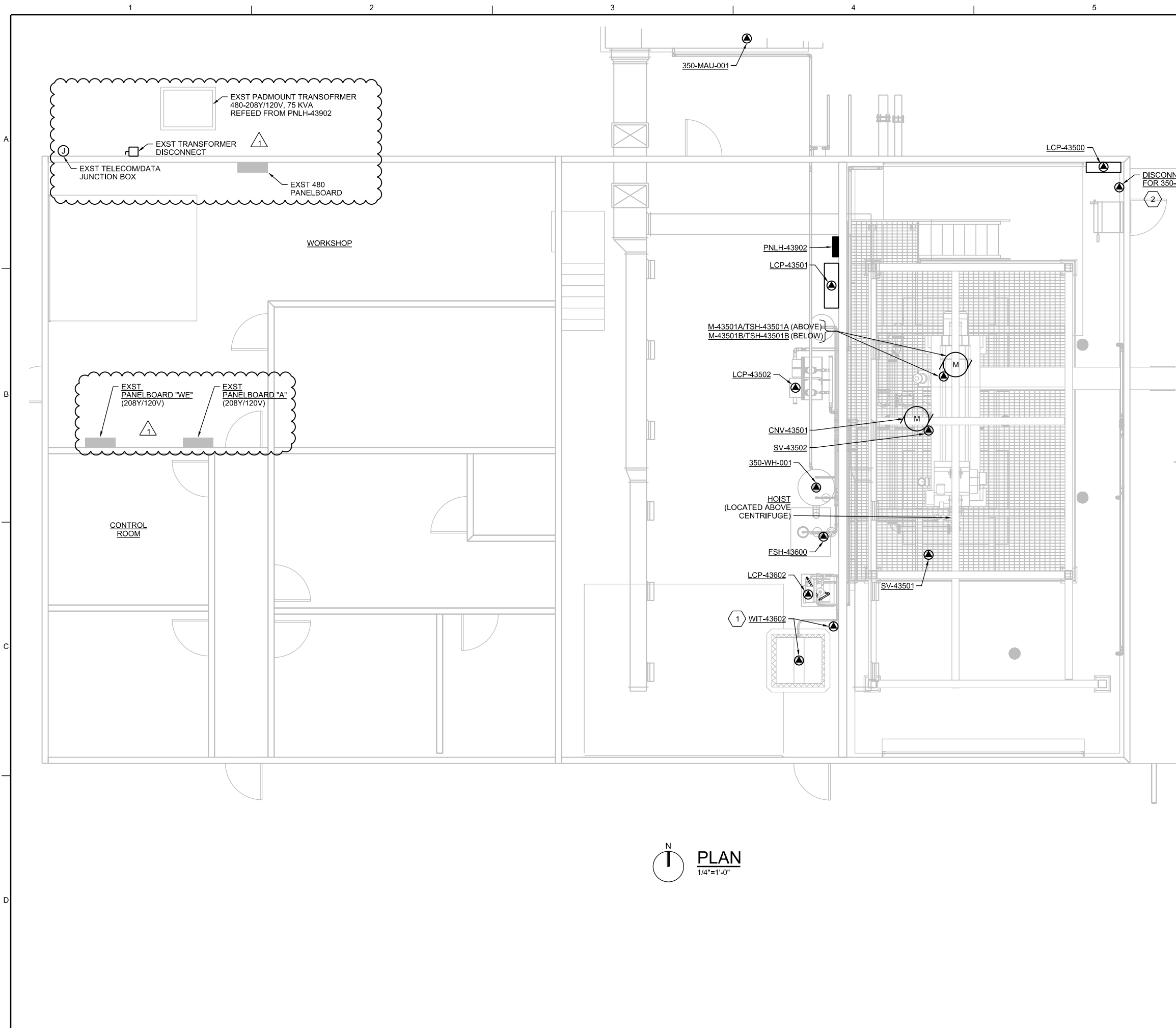
PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WOLF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

ch2m
SLUDGE PUMP STATION
ELECTRICAL
UPPER PROCESS PLAN

VERIFY SCALE	BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE	NOVEMBER 2016
PROJ	496312
DWG	300-E-2003
SHEET	297 of 314

BIDDING SET

RE/USE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL.
A CUGLIAT
DR
J. LANDMAN
M. GROSS
CHK
APVD
BY
M. GROSS



- ### SHEET KEYNOTES
- SCALE AND TRANSMITTER PROVIDED WITH MANUFACTURER'S CABLE. CUT CABLE TO LENGTH AND TERMINATE PER MANUFACTURER SPECIFICATION FOR PERMANENT INSTALL.
 - COMBINATION STARTER-DISCONNECT PROVIDED BY DIVISION 23. BUILDING MECHANICAL. INSTALLATION BY DIVISION 26.
 - ALL WORK FACILITY 350 IS ASSOCIATED WITH BID ITEM ADDITIVE ALTERNATE NO. 2: DEWATERING FACILITY.

NO.	DATE	DR	CHK	BY	APVD
1	12/16/16	J. LANDMAN	A. CUGLIATI	M. GROSS	M. GROSS
ADDENDUM NO. 2					

PHASE II, 6 MGD EXPANSION
 FOUR MILE CREEK WQRF
 DEPARTMENT OF PUBLIC WORKS
 CITY OF WICHITA, KANSAS

ch2m
 DEWATERING AND LOADOUT FACILITY
ELECTRICAL PLAN

N
PLAN
 1/4"=1'-0"

VERIFY SCALE
 BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE	DECEMBER 2016
PROJ	496312
DWG	350-E-2001
SHEET	314 of 314

BIDDING SET