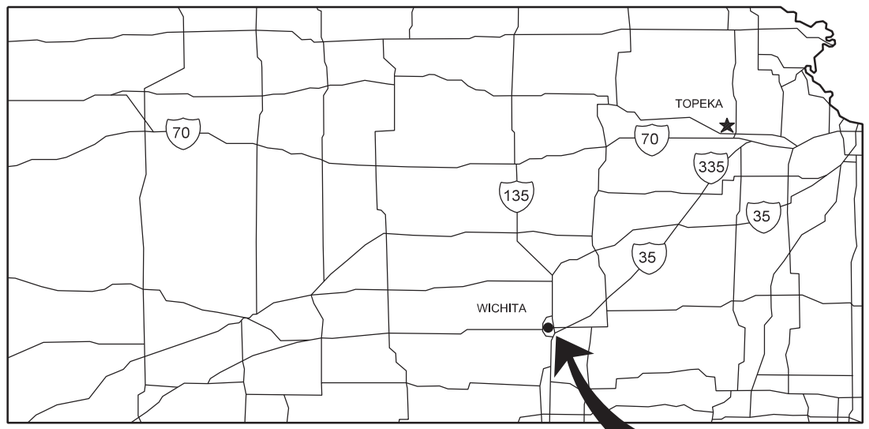
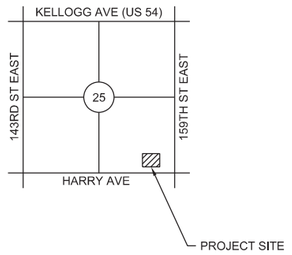
PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WQRF
COW PN 468-84961
OCA 624119
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

GARY JANZEN, P.E., CITY ENGINEER



N LOCATION MAP



N VICINITY MAP

STORMWATER CERTIFICATION:

REDEVELOPMENT

THESE CONSTRUCTION PLANS WERE PREPARED IN ACCORDANCE WITH THE CURRENT STORMWATER MANAGEMENT REGULATIONS AS SET FORTH IN THE CITY OF WICHITA'S STORMWATER MANAGEMENT ORDINANCE 16.32 AND THE POLICIES/GUIDELINES PRESENTED IN THE WICHITA/SEDGWICK COUNTY STORMWATER MANUAL.

DISTURBED AREA: 8 ACRES

WATER QUALITY TREATMENT: N/A

DOWNSTREAM CHANNEL PROTECTION: N/A

DETENTION: N/A

DEVELOPMENT USES OFFSITE BMP PROGRAM.

BIDDING SET

ch2m SM

NOVEMBER 2016

RUSSELL JO JOHNSON — 15411 — 11/4/16 — KANSAS — PROFESSIONAL ENGINEER

11/04/2016

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NO.	DATE	REVISION	BY	APVD
DSGN	J ASSOULINE	DR F JAGLA	CHK J ASSOULINE	APVD E JOHNSON

PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
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GENERAL

COVER SHEET

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RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		J ASSOULINE	F JAGLA	J ASSOULINE			E JOHNSON

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311	350-M-6001	AIRFLOW SCHEMATIC
312	350-P-2001	PLAN
313	350-P-3001	SECTION
314	350-E-2001	PLAN

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

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NO.	DATE	DR	CHK	APVD	BY	REVISION
DSGN	J ASSOULINE	J ASSOULINE	F JAGLA	J ASSOULINE	APVD	E JOHNSON

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ABBREVIATIONS

A	AMMETER, AMPERES, AWNINGS
AB	ANCHOR BOLT, ABOVE AERATION BASIN
ABI	AERATION BASIN INFLUENT
ABDN	ABANDON
AC	ACOUSTICAL, ACOUSTICAL CEILING
AC	ALTERNATING CURRENT, ASPHALTIC CONCRETE, ASBESTOS CONCRETE
ACFL	ACCESS FLOORING
ACI	AMERICAN CONCRETE INSTITUTE
ACMU	ACOUSTICAL CONCRETE MASONRY UNIT, ACOUSTICAL CMU
ACP	ACOUSTICAL PANELS
ACST	ACOUSTICAL
ACT	ACOUSTICAL TILE
AD	AREA DRAIN
ADDL	ADDITIONAL
ADJ	ADJACENT
ADW	DRY WEATHER AVERAGE
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AG	ACOUSTICAL, ACOUSTICAL GLASS
AGGR	AGGREGATE
AHR	ANCHOR
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AJ	ADJUSTABLE
AL	ALUMINUM
ALKY	ALKALINITY
ALTN	ALTERNATE
AM	AUTO-MANUAL
AMRD	ACOUSTICAL METAL ROOF DECKING
ANDZ	ANODIZE
APPROX	APPROXIMATE
APVD	APPROVED
ARCH	ARCHITECTURAL
AR	ANALOG RELAY
AS	AS SELECTED
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AVG	AVERAGE
AWW	WET WEATHER AVERAGE
@	AT
B	BELL
BAL	BALANCE
BCJ	BRICK CONTROL JOINT
BETW	BETWEEN
BF	BLIND FLANGE, BOTTOM FACE
BFV	BUTTERFLY VALVE
BL	BASELINE
BFP	BACKFLOW PREVENTER
BLDG	BUILDING
BLK	BLOCK
BM	BEAM, BENCHMARK
BO	BOTTOM OF
B.O.B.	BOTTOM OF BEAM
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BOT	BOTTOM
BRG	BEARING
BRK	BRICK
BRKR	BREAKER
BSP	BLACK STEEL PIPE
BV	BALL VALVE, BLOCK VENT
BVC	BEGINNING OF VERTICAL CURVE
BYP	BYPASS
C	CONDUIT, CASEMENT
°C	DEGREE CELSIUS
C TO C	CENTER TO CENTER
CAB	CABINET
CB	CATCH BASIN, CIRCUIT BREAKER
CC	CENTER OF CIRCLE
CC	CONTROL CABLE
CCP	CENTRAL CONTROL PANEL
CCS	CENTRAL CONTROL SYSTEM
CDF	CONTROLLED DENSITY FILL
CE	CONSTRUCTION ENTRANCE
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CHEM	CHEMICAL
CHKD	CHECKERED
CI	CAST IRON
CIP	CAST IRON PIPE, CAST IN PLACE
CIP	CULVERT INLET PROTECTION
CISP	CAST IRON SOIL PIPE
CJ	CONSTRUCTION JOINT
CKT	CIRCUIT
CL	CENTERLINE
CLDI	CEMENT LINED DUCTILE IRON
CLSF	CONTROLLED LOW STRENGTH FILL
CLG	CEILING
CLR	CLEAR, CLEARANCE
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CM	CONTROL MONUMENT
CMP	CENTRAL MONITORING PANEL
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CNTR	COUNTER
CO	CLEANOUT, CARBON MONOXIDE
COL	COLUMN, COLOR
CONC	CONCRETE
COND	CONDENSATE
CONDTN	CONDITIONED
CONN	CONNECTION
CONSTR	CONSTRUCTION
CONT	CONTINUED, CONTINUOUS, CONTINUATION
CONTR	CONTRACTOR
COORD	COORDINATE
COP	COPPER
CP	CENTER PIVOT
CP-X	CONTROL PANEL NO. X
CPLG	COUPLING
CPRSR	COMPRESSOR
CPT	CONTROL POWER TRANFORMER, CARPET
CPVC	CHLORINATED PVC
CR	CONTROL RELAY
CRS	COLD ROLLED STEEL
CRS	CONSTRUCTION ROAD STABILIZATION
CST	CARBON STEEL PIPE
CT	CERAMIC TILE
CT	CURRENT TRANSFORMER
CTC	COMPUTER TERMINAL CABINET
CTR	CENTER
CTRD	CENTERED
CTSK	COUNTERSUNK
CU	CUBIC
CU FT	CUBIC FOOT
CU IN	CUBIC INCH
CUH	COPPER TUBING, HARD DRAWN
CV	CHECK VALVE
CWR	CABINET DOOR MOUNTED WASTE RECEPTACLE
CY, CU YD	CUBIC YARD
CWS	CLEAN WATER SERVICES
D	DEEP, DRAIN
d	PENNY NAIL SIZE
DA	DUAL ACTION
DAS	DATA ACQUISTION SYSTEM
DBA	DEFORMED BAR ANCHOR
DBL	DOUBLE
DC	DIRECT CURRENT
DEG	DEGREE
DEMO	DEMOLITION
DET	DETAIL
DF	DOUGLAS FIR, DRINKING FOUNTAIN
DDI	DROP INLET
DH	DOUBLE HUNG
DI	DUCTILE IRON
DIA	DIAMETER
DIAG	DIAGONAL
DIP	DUCTILE IRON PIPE
DIR	DIRECTION
DISCH	DISCHARGE
DN	DOWN
DO	DISSOLVED OXYGEN
DOL	DIRECT-ON-LINE
DP, DPNL	DISTRIBUTION PANEL
DR	DOOR
DS	DOWNSPOUT
DWG	DRAWING
DWL	DOWEL
△	DELTA
E	EAST, EMPTY
EA	EACH, EXHAUST AIR
EB, EBCT	EMPTY BED CONTACT TIME
ECC	ECCENTRIC
EE	EMERGENCY EYEWASH
EDF	EGG-SHAPED DIGESTER FACILITY
EF	EACH FACE, EXHAUST FAN
EFF	EFFICIENCY, EFFICIENT, EFFLUENT
EFL	EFFLUENT
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
EL	ELEVATION
ELB	ELBOW
ELC	ELECTRICAL LOAD CENTER
ELEC	ELECTRIC, ELECTRICAL
ENGR	ENGINEER
EOB	EDGE OF GRAVEL
EOP	EDGE OF PAVEMENT
ESC	EROSION AND SEDIMENT CONTROL
EP	EXPLOSION PROOF, EDGE OF PAVING
EQ	EQUALIZATION
EQL	EQUAL
EQL SP	EQUALLY SPACED
EQPT	EQUIPMENT
ESC	EROSION AND SEDIMENT CONTROL
ETM	ELAPSED TIME METER
EVC	END OF VERTICAL CURVE
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EXH	EXHAUST
EXP	EXPANSION, EXPOSED
EXP AB	EXPANSION ANCHOR BOLT
EXP JT	EXPANSION JOINT
EXST, EXIST	EXISTING
EXT	EXTERIOR
°F	DEGREE FAHRENHEIT
FB	FLAT BAR
F, FU	FUSE
F, FX	FIXED
FAP	FIRE ALARM PANEL
FC	FLEXIBLE CONDUIT
FCA	FLANGED COUPLING ADAPTER
FCL2	FREE CHLORINE RESIDUAL
FCO	FLOOR CLEANOUT
FCTY	FACTORY
FD	FLOOR DRAIN
FDN	FOUNDATION
FDR	FEEDER
FEXT	FIRE EXTINGUISHER
FF	FINISHED FLOOR
FG	FINISH GRADE, FLOAT GLASS
FH	FLAT HEAD
FHY	FIRE HYDRANT
FIG	FIGURE
FL	FLOW LINE
FLG	FLANGE
FL	FLOOR
FLEX	FLEXIBLE
FLH	FLAT HEAD
FLTR	FILTER
FLUOR	FLUORESCENT
FM	FORCE MAIN
FNSH	FINISH
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FP	FIELD PANEL
FPM	FEET PER MINUTE
FR	FORWARD REVERSE
FRP	FIBERGLASS REINFORCED PLASTIC
FSHS	FOLDING SHOWER SEAT
FT	FOOT OR FEET
FTG	FOOTING
FU	FIXTURE UNIT
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
FWD	FORWARD
G, GND	GROUND
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GB	GYPSUM BOARD
GC	GROOVED COUPLING
GCMU	GLAZED CONCRETE MASONRY UNITS
GFA	GROOVED FLANGE ADAPTER
GFI	GROUND FAULT INTERRUPTER
GFR	GROUND FAULT RELAY
GH	GREENHOUSE
GL	GLASS
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GPS	GLOBAL POSITION SYSTEM
GRTG	GRATING
GSB	GYPSUM SOFFIT BOARD
GSP	GALVANIZED STEEL PIPE
GV	GATE VALVE
GVL	GRAVEL
GWB	GYPSUM WALLBOARD
GYP	GYPSUM
H	HIGH, HORN OR HOWLER
H2S	HYDROGEN SULFIDE
H.A.S.	HEADED ANCHOR STUD
HC	HOLLOW CORE WOOD
HCL	HYDROCHLORIC ACID
HDNR	HARDENER
HDNS	HARDNESS
HDR	HEADER
HDW	HARDWARE
HGL	HYDRAULIC GRADE LINE
HK	HOOK
HGT	HEIGHT
HH	HANDHOLE
HID	HIGH INTENSITY DISCHARGE
HK	HOOK
HM	HOLLOW METAL
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
HORIZ	HORIZONTAL
HP	HORSEPOWER
HPT	HIGH POINT
HPU	HYDRAULIC POWER UNIT
HR	HOSE RACK, HANDRAIL
HV	HOSE VALVE
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HWL	HIGH WATER LEVEL
IC	INTERRUPTING CAPACITY
ID	INDUCED DRAFT, INSIDE DIAMETER
IE	INVERT ELEVATION
I.F.	INSIDE FACE
IG	INSULATING, INSULATING GLASS
IN	INCH
INCAND	INCANDESCENT
INFL	INFLUENT
INJS	INJECTIONS
INST	INSTANTANEOUS
INSTM	INSTRUMENT, INSTRUMENTATION
INSUL	INSULATION
INVT	INVERT
IP	INLET PROTECTION, INSTRUMENTATION PANEL
IRRIG	IRRIGATION
ITG	INSULATED TEMPERED GLASS
ITX	ISOLATION TRANSFORMER
IU	INTAKE UNIT
IW	IRRIGATION WELL
J	JALOUSIE
JA	JAL-AWNING
JB	JUNCTION BOX
JAN	JANITOR
JCT	JUNCTION
JT	JOINT
K	KEY GROUP, KEY INTERLOCK
KIP	THOUSAND POUNDS
KIT	KITCHEN
K-PL	KICKPLATE
KSK	KITCHEN SINK
KV	KILOVOLTS
KVA	KILOVOLT AMPERES
KVAR	KILOVOLT AMPERES REACTIVE
KW	KILOWATT
L	ANGLE, LENGTH
LA	LIGHTNING ARRESTER
LAB	LABORATORY
LAM	LAMINATE
LAT	LATITUDE
LB	POUND
LC	LIGHTING CONTACTOR
LD	COMBINATION LOUVER/DAMPER
LDG	LOADING DOCK
LEL	LOWER EXPLOSIVE LIMIT
LF	LINEAR FEET
LG	LONG
LH	LEFT HAND
LHR	LEFT HAND REVERSE
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LNTL	LINTEL
LONG	LONGITUDINAL
LOS	LOCK-OUT STOP PUSHBUTTON
LP	LIGHT POLE, LIGHTING PANEL, LOCAL PANEL
LPT	LOW POINT
LR	LATCHING RELAY
LR	LOCAL-REMOTE
LR	LONG RADIUS
LS	LABORATORY SINK
LT	LEFT
LTG, LTS	LIGHTS OR LIGHTING
LTX	LIGHTING TRANSFORMER
LWL	LOW WATER LEVEL
MA	MANUAL-AUTO
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MB	MACHINE BOLT
MC	MASONRY CLEARANCE
MC	MODULATE-CLOSE
MCC	MOTOR CONTROL CENTER
MCJ	MASONRY CONTROL JOINT
MDO	MEDIUM DENSITY OVERLAY
MECH	MECHANICAL
MFD	MANUFACTURED
MFR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE, MOUNTING HEIGHT
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MLO	MAIN LUGS ONLY
MMDW	DRY WEATHER MAXIMUM MONTH
MMP	MECHANICAL MOUNTING PANEL
MMWW	WET WEATHER MAXIMUM MONTH
MO	MANUAL OPERABLE, MASONRY OPENING
MP	METAL PANEL, MILE POST
MPU	MULTIPURPOSE UNIT
MS	MANUFACTURER'S STANDARD
MSC	MANUFACTURER SUPPLIED CABLE
MSR	GROUPED MOTOR CONTROL
MT	MOUNT
MTD	MOUNTED
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
MTS	MILL TYPE STEEL PIPE
MU	MULCHING
MV	MERCURY VAPOR
MW	MONITORING WELL
MWS	MAXIMUM WATER SURFACE
N	NORTH, NEUTRAL
NA	NOT APPLICABLE
NA	NON-AUTOMATIC
NC	NORMALLY CLOSED
NEUT	NEUTRAL
NG	NATURAL GAS
NGVD	NATIONAL GEODETIC VERTICAL DATUM
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
NO., #	NUMBER
NOM	NOMINAL
NP	NON-PROTECTED
NPT	NATIONAL PIPE THREADS
NPW	NON POTABLE WATER
NRCY	NITRIFIED RECYCLE
NS	NON-SHRINK
NTS	NOT TO SCALE
O2	OXYGEN
O TO O	OUT TO OUT
OA	OVERALL, ODOROUS AIR
OC	ON CENTER
OC	OPEN-CLOSE (O)
OCA	OPEN-CLOSE-AUTO
OCR	OPEN-CLOSE-REMOTE
OD	OUTSIDE DIAMETER, OVERFLOW DRAIN
O.F.	OUTSIDE FACE
OF/CI	OWNER FURNISHED, CONTRACTOR INSTALLED
OF/OI	OWNER FURNISHED, OWNER INSTALLED
OL	OVERLOAD RELAY
OO	ON-OFF
OOA	ON-OFF-AUTO
OOR	ON-OFF-REMOTE
OP	OPAQUE PANEL, OUTLET PROTECTION
OPER	OPERATOR
OPNG	OPENING
OPP	OPPOSITE
OSA	OUTSIDE AIR
OSC	OPEN-STOP-CLOSE
OSD	OPEN SITE DRAIN
OWSJ	OPEN WEB STEEL JOIST
OZ	OUNCE
P	PROJECTED
P	PILASTER, PIPE
PAVT	PAVER TILE
PB	PUSHBUTTON SWITCH
PC	POINT OF CURVE, PHOTOCELL
PC	PRECAST CONCRETE PANEL
PCCP	PRECAST CONCRETE CYLINDER PIPE
PCV	PRESSURE CONTROL VALVE
PE	PLAIN END
PED	PEDESTAL, PEDESTRIAN
PEP	POLYETHYLENE PIPE
PEN.	PENETRATION
PFC	POUNDS PER CUBIC FOOT
PGL	PROFILE GRADE LINE
PH	PENTHOUSE
pH	HYDROGEN ION CONCENTRATION
PH	PHASE
PI	POINT OF INTERSECTION
PIT	PILOT TUBE TEST STATION
PJF	PREMOLDED JOINT FILLER
PL	PLATE (STEEL)
PL	PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER, PLASTIC
PLC	PROGRAMMABLE LOGIC CONTROLLER
PLEFF	PLANT EFFLUENT
PLYWD	PLYWOOD
PNL	PANEL
PP	POWER POLE
P-P	PUSH-PULL
PPL	POLYPROPYLENE LINED
PR	PAIR
PRC	POINT OF REVERSE CURVE
PRCST	PRECAST
PREFAB	PREFABRICATION
PRES	PRESSURE
PRI	PRIMARY
PRM	PERMANENT REFERENCED MARKER
PROJ	PROJECTION
PROP	PROPERTY
PS	PLASTIC SHEET, POLYCARBONATE SHEET
PS	PAINT SYSTEM
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH, GAUGE
PT	POINT OF TANGENCY
PT	POTENTIAL TRANSFORMER
PT	PRESSURE TREATED
PTD	PAPER TOWEL DISPENSER
PTN	PARTITION
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
PVMT	PAVEMENT
PVT	POINT OF VERTICAL TANGENCY
PW	POTABLE WATER
QAA	AVERAGE FLOW
QMM	MAXIMUM 30 DAY FLOW
QPI	PEAK INSTANTANEOUS FLOW
QPP	PEAK PUMPING FLOW
QT	QUARRY TILE
R	RISER
R OR RAD	RADIUS
RA	RETURN AIR
RC	REINFORCED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RCPT	RECEPTACLE
RD	ROAD, ROOF DRAIN
RDCR	REDUCER
RDW	REDWOOD
RECIR	RECIRCULATION
REF	REFER OR REFERENCE
REFR	REFRIGERATE, REFRIGERANT
REINF	REINFORCED, REINFORCING, REINFORCE
REQD	REQUIRED
RESIL	RESILIENT
RFCA	RESTRAINED FLANGE COUPLING ADAPTER
RFS	ROLL-UP FIRE SHUTTER
RH	RIGHT HAND
RH	RODHOLE
RHR	RIGHT HAND REVERSE
RL	RAIN LEADER
RLS	RUBBER LINED STEEL
RM	ROOM
RO	ROUGH OPENING
ROL	RAISE-OFF-LOWER
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
RPM	REVOLUTIONS PER MINUTE
RR	RIPRAP

NOTES:

CONTACT ENGINEER FOR ABBREVIATIONS USED BUT NOT SHOWN ON THIS DRAWING.

GENERAL NOTE:

1. THIS IS A STANDARD LEGEND SHEET. THEREFORE, NOT ALL OF THE INFORMATION SHOWN MAY BE USED ON THIS PROJECT.

RUSSELL JO JOHNSON — 15411 — 11/4/16 — KANSAS — PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD
		J ASSOULINE	F JAGLA	J ASSOULINE	B JOHNSON

REVISION

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PHASE II, 6 MGD EXPANSION
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GENERAL

ABBREVIATIONS

VERIFY SCALE

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DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0004
SHEET	4 of 314

BIDDING SET

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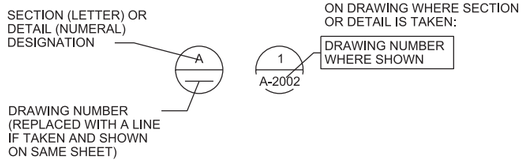
ABBREVIATIONS (CONT.)

RRUB	RADIAL RUBBER
RS	RIGID STEEL, RAW SEWAGE
RST	REINFORCING STEEL
RT	RIGHT, ROUND TUBE
RTN	RETURN
RTO	REGENERATIVE THERMAL OXIDIZER
RUB	RUBBER
RUBC	RUBBER CUSHIONED FLOORING
RUBS	RUBBER ESD CONTROL FLOORING
R/W	RIGHT OF WAY
S	I-BEAM, SANITARY
S	SLOPE, SOUTH, SWITCH
SA	SUPPLY AIR
SATC	SUSPENDED ACCUSTICAL TILE CEILING
SB	SEDIMENT BASIN
SC	SHOWER CURTAIN, SOLID CORE WOOD
SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
SCC	SOLID CORE
SCFM	STANDARD CUBIC FEED PER MINUTE
SCHED	SCHEDULE
SCU	SPEED CONTROL UNIT
SDP	SUB-DISTRIBUTION PANEL
SDWK	SIDEWALK
SEC	SECONDARY
SECT	SECTION
SED	SEDIMENTATION
SEW	SEWAGE
SG	LAMINATED SAFETY GLASS, SAFETY
SGWB	SUSPENDED GYPSUM WALL BOARD
SH	SHEET
SHA	SURFACE HARDENING AGENT
SHS	SOLIDS HANDLING SYSTEM
SIM	SIMILAR
SK	SINK
SLR	SEALER
SMLS	SEAMLESS EPOXY
SOI	SPRAY- ON INSULATION
SOLN	SOLUTION
SP	SPACE OR SPACES, SPANDREL PANEL, STORMPROOF
SPEC, SPECS	SPECIFICATIONS
SPD	SUMP PUMP DISCHARGE
SPG	SPACING
SPLY	SUPPLY
SQ	SQUARE
SQ FT	SQUARE FOOT, FEET
SQ IN	SQUARE INCH
SR	SHORT RADIUS
SS	START-STOP, SANITARY SEWER
SST	STAINLESS STEEL
SSC	SUPERVISORY SET POINT CONTROL
ST	STORM DRAIN
ST	STRAIGHT
STA	STATUS, STATION
STD	STANDARD
STIF	STIFFENER
STIRR	STIRRUP
STL	STEEL
STRL	STRUCTUAL
STRUCT	STRUCTURE
SUBFL	SUBFLOOR
SUSP	SUSPENDED
SV	SOLENOID VALVE
SVIN	SHEET VINYL
SWBD	SWITCHBOARD
SWMP	STORMWATER MANAGEMENT PLAN
SWGR	SWITCHGEAR
SYMM	SYMMETRICAL
T	THERMOSTAT, TREAD
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
TA	TRANSFER AIR
TAN	TANGENT
TB	TERMINAL BOARD
TBG	TUBING
TC	TIME TO CLOSE
TC	TURBIDITY CURTAIN
TCAD	TIME CLOSE AFTER DE-ENERGIZATION
TCAE	TIME CLOSE AFTER ENERGIZATION
TDH	TOTAL DYNAMIC HEAD
TDR	TIME DELAY RELAY
TECH	TECHNICAL
TEL	TELEPHONE
TEMP	TEMPORARY, TEMPERATURE
TF	TOP FACE
TFG	TEMPERED FLOAT GLASS
TG	TEMPERED
TH	TOP-HINGED
THD	THREAD
THK	THICKNESS
THRU	THROUGH
TJB	TERMINAL JUNCTION BOX
TL	TEFLON LINED PIPE
T.O.	TIME TO OPEN, TOP OF
TOAE	TIME OPEN AFTER ENERGIZATION
TOC	TOP OF CONCRETE
TOC	TOP OF CURB
TOD	TIME ON DELAY, TOP OF DUCT TOTAL OXYGEN DEMAND
TOF	TOP OF FOOTING
TOG	TOP OF GROUT, TOP OF GRATE
T.O.P.	TOP OF PARAPET
TOS	TOP OF SLAB
TOW	TOP OF WALL
TP	TURNING POINT
TR	TRANSOM, TRUSS
TRANS	TRANSFORMER, TRANSITION
TRANSV	TRANSVERSE
TRD	TREAD
TS	TEMPORARY SEEDING, TUBE STEEL
TSHT	THRESHOLD
TSS	TOTAL SUSPENSION SOLIDS
TST	TOP OF STEEL
TTC	TELEPHONE TERMINAL CABINET
TTD	TOILET TISSUE DISPENSER
TU-X	TREATMENT UNIT NO. X
TURB	TURBIDITY
TWP	TRANSLUCENT WALL PANEL
TX	TRANSFORMER
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
USB	UNIT SUBSTATION
UVR	UNDER VOLTAGE RELAY
V	VENT, VALVE
V	VOLTMETER, VOLTS
VB	VAPOR BARRIER (RETARDER)
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VCT	VINYL COMPOSITION TILE
VEL	VELOCITY
VERT	VERTICAL
VHC	VOLATILE HYDROCARBONS
VIB	VIBRATION
VIF	VERIFY IN FIELD
VIN	VINYL
VINT, VT	VINYL TILE
VP	VERTICAL PIVOTED
VPS	VENEER PLASTER SYSTEM
VPC	POINT OF VERTICAL CURVATURE
VPI	POINT OF VERTICAL INTERSECTION
VPT	POINT OF VERTICAL TANGENT
VS	VERTICAL SLIDE
VTR	VENT THRU ROOF
VWC	VINYL WALL COVERING
W	WEST
W/	WITH
WAS	WASTE ACTIVATED SLUDGE
WC	WATER COLUMN
WEASTRIP	WEATHERSTRIP
WG	WIRE, WIRE GLASS
WH	WATTHOUR METER
WHD	WATTHOUR DEMAND METER
WP	WATERPROOF, WEATHERPROOF, WORKPOINT
WR	WASTE RECEPTACLE
WRB	WATER RESISTANT GWB
WS	WATER SURFACE, WATERSTOP, WELDED STEEL
WWF	WELDED WIRE FABRIC
WWPH	WET WEATHER PEAK HOUR
YR	YEAR

NOTES:

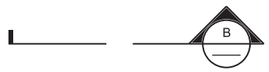
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SECTION / DETAIL DESIGNATIONS

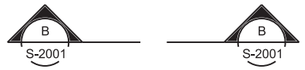


DRAWING TITLE
SCALE

ON DRAWING WHERE ONLY A TITLE IS REQUIRED WITH NO REFERENCE (eg: ELEVATIONS)



SECTION CALLOUT WHERE SECTION IS ON THE SAME SHEET AND CUT EXTENDS TO A FIXED LIMIT



SECTION CALLOUT WHERE SECTION IS ON ANOTHER SHEET AND CUT EXTENDS THROUGHOUT ENTIRE SHEET



GRID LINE INDICATOR



KEYNOTE NUMBER

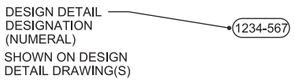


REVISION / ADDENDA NUMBER



NORTH ARROW; CAN BE MODIFIED TO INCLUDE MAGNETIC NORTH ALONG WITH PROJECT NORTH

DESIGN DETAIL DESIGNATION



NOTES:

1. ALL DESIGN DETAILS ARE TYPICAL AND MUST BE USED IF DESIGN DETAIL DESIGNATION IS NOT SHOWN
2. THE TERM STANDARD DETAIL, OR A FORM OF IT, IS SYNOMONOUS WITH DESIGN DETAIL. THE DESIGN DETAILS REPRESENT THE CHARACTER AND NATURE OF THE WORK REQUIRED THROUGHOUT THE PROJECT. ALL ASSOCIATED WORK SHALL BE IN ACCORDANCE WITH THE DESIGN DETAILS SHOWN WHETHER THE DETAILS ARE SPECIFICALLY REFERENCED OR NOT.

GENERAL NOTE:

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RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		J ASSOULINE	F JAGLA	J ASSOULINE		B JOHNSON	

REVISION

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

GENERAL

ABBREVIATIONS AND GENERAL LEGEND

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0005
SHEET	5 of 314

BIDDING SET

FILENAME: 001-G-0005_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 4:41:22 PM

GENERAL SITE NOTES:

1. SOURCE OF TOPOGRAPHY SHOWN ON THE CIVIL PLANS ARE BASE MAPS PROVIDED BY MERESTONE SURVEYING, SUPPLEMENTED BY GROUND SURVEY PERFORMED BY MERESTONE SURVEYING. EXISTING CONDITIONS MAY VARY FROM THOSE SHOWN ON THESE PLANS. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND ADJUST WORK PLAN ACCORDINGLY PRIOR TO BEGINNING CONSTRUCTION.
2. EXISTING TOPOGRAPHY, STRUCTURES, AND SITE FEATURES ARE SHOWN SCREENED AND/OR LIGHT-LINED. NEW FINISH GRADE, STRUCTURES, AND SITE FEATURES ARE SHOWN HEAVY-LINED.
3. HORIZONTAL DATUM: PLANT COORDINATES (GRID). SEE SHEET 050-C-1000 FOR CONVERSION TO KANSAS STATE PLANE, SOUTH ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83), GRID, AND CONVERSION FROM GRID TO GROUND (SURVEY FEET).
4. VERTICAL DATUM: NGVD29.
5. MAINTAIN, RELOCATE, OR REPLACE EXISTING SURVEY MONUMENTS, CONTROL POINTS, AND STAKES WHICH ARE DISTURBED OR DESTROYED. PERFORM THE WORK TO PRODUCE THE SAME LEVEL OF ACCURACY AS THE ORIGINAL MONUMENT(S) IN A TIMELY MANNER, AND AT THE CONTRACTOR'S EXPENSE.
6. FOR LOCATION OF CONTROL POINT ON STRUCTURES, SEE STRUCTURAL DRAWINGS.
7. COORDINATES AND DIMENSIONS SHOWN FOR ROADWAY IMPROVEMENTS ARE TO FACE OF CURB OR EDGE OF PAVEMENT.
8. STABILIZED STAGING AREA SHALL BE FOR CONTRACTOR'S EMPLOYEE PARKING, CONTRACTOR'S TRAILERS AND ON-SITE STORAGE OF MATERIALS.
9. PROVIDE TEMPORARY FENCING AS NECESSARY TO MAINTAIN SECURITY AT ALL TIMES.
10. ELEVATIONS GIVEN ARE TO FINISH GRADE UNLESS OTHERWISE SHOWN.
11. SLOPE UNIFORMLY BETWEEN CONTOURS AND SPOT ELEVATIONS SHOWN.
12. ALL DISTURBED AREAS NOT RECEIVING A HARD SURFACE SHALL RECEIVE 12" TOPSOIL AND SEEDING PER KANSAS STATE ROAD AND BRIDGE CONSTRUCTION SECTIONS 903 AND 2103.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING EROSION CONTROL DEVICES DURING CONSTRUCTION. SEE EROSION CONTROL DRAWINGS. CONTRACTOR TO SUBMIT EROSION CONTROL PLAN.

GENERAL YARD PIPING AND UTILITIES NOTES:

1. EXISTING UNDERGROUND UTILITIES OBTAINED FROM AS-BUILTS AND FROM FIELD SURVEY. CONTRACTOR SHALL FIELD VERIFY DEPTH AND LOCATION PRIOR TO EXCAVATION. PROTECT ALL EXISTING UTILITIES DURING CONSTRUCTION. UNLESS SHOWN OTHERWISE ON THE DRAWINGS.
2. FOR PIPING FLOW STREAM IDENTIFICATION, SEE PIPE SCHEDULE.
3. EXISTING PIPING AND EQUIPMENT ARE SHOWN SCREENED AND/OR LIGHT-LINED. NEW PIPING AND EQUIPMENT ARE SHOWN HEAVY-LINED.
4. UNLESS OTHERWISE SHOWN ALL PIPING SHALL HAVE A MINIMUM OF 3' COVER.
5. ALL PIPES SHALL HAVE A CONSTANT SLOPE BETWEEN INVERT ELEVATIONS UNLESS A FITTING IS SHOWN.
6. ALL NEW WATER PIPES MUST BE PROPERLY FLUSHED, PRESSURE TESTED, CHLORINATED AND BACTERIOLOGICALLY TESTED, AS SPECIFIED.
7. FOR TRENCHING AND BACKFILL, SEE (3123-110).
8. FOR SURFACE RESTORATION OF ASPHALT CONCRETE, SEE (3123-115).
9. MINIMUM ALLOWABLE CLEARANCE BETWEEN PIPES AT CROSSINGS SHALL BE 3", WHERE CLEARANCE IS LESS THAN 12", CONTROLLED LOW STRENGTH MATERIAL IS REQUIRED AS SHOWN ON (3123-120).

EROSION CONTROL LEGEND

	COVER PRACTICES	SYMBOL
CF	CONSTRUCTION FENCING (INITIAL, INTERIM)	
CWA	CONCRETE WASHOUT AREA (INITIAL, INTERIM)	
EM	EROSION CONTROL MAT (FINAL)	
IP	INLET PROTECTION (INITIAL, INTERIM)	
RR	RIP RAP (FINAL)	
SF	SILT FENCE (INITIAL, INTERIM)	
SM	SEEDING AND MULCHING (FINAL)	
SW	STRAW BALE WADDLE (INITIAL, INTERIM)	OR
VTC	VEHICLE TRACKING CONTROL (INITIAL, INTERIM)	

NOTE: FOR CITY OF WICHITA EROSION CONTROL DETAILS, REFER TO DWG 050-C-9001 THRU 050-C-9004.

CIVIL LEGEND

EXISTING	THIS CONTRACT	
	⊗ 158.5	SPOT ELEVATION
155	155	MAJOR CONTOUR LINE
	154	MINOR CONTOUR LINE
		DRAINAGEWAY OR DITCH
		CATCH BASIN OR INLET
		ELECTRICAL VAULT
		TRENCH DRAIN
SIGN		SIGN
(SS) OR (W)	OR	MANHOLE
		POST OR GUARD POST
		GUY ANCHOR
FH		FIRE HYDRANT
UP		UTILITY POLE
LP		LIGHT POLE
BM	BM	BENCHMARK
		SURVEY CONTROL POINT, POINT OF INTERSECTION OR SECTION CORNER
		BRUSH/TREE LINE
		TREE
		PROPERTY LINE
		CENTER LINE, BUILDING, ROAD, ETC.
R/W		RIGHT-OF-WAY
		STAGING OR WORK AREA LIMITS
	N 1000.00 E 1000.00	STRUCTURE, BUILDING OR FACILITY LOCATION POINT - COORDINATES
	1-500	CONTROL POINT, SEE HORIZONTAL AND VERTICAL CONTROL DWG FOR COORDINATES AND ELEVATIONS
XXXXXXXXX - OR	OR	DEMOLITION
OR	OR	STRUCTURE, BUILDING OR FACILITY
		ASPHALT CONCRETE PAVEMENT
		GRAVEL SURFACING
		CONCRETE PAVEMENT/FOUNDATION
		CONCRETE SIDEWALK/MOW STRIP/LANDING
		ROCK SLOPE PROTECTION /RIPRAP
		DOUBLE SWING GATE
		SLIDING GATE
		CHAIN LINK FENCE
		BARB WIRE FENCE
SD		CULVERT
		GRADING LIMITS
SD	SD	BURIED STORM DRAIN PIPE
SS	SS	BURIED SANITARY SEWER PIPE
W	W	BURIED WATER PIPE
T-BUR	T-BUR	BURIED COMMUNICATIONS
P	P	BURIED ELECTRICAL
GS	GS	BURIED GAS PIPE

YARD PIPING LEGEND

PIPING DESIGNATION

EXAMPLE:

16" ROP
16" ROP
SERVICE, SEE PIPE SCHEDULE
PIPE DIAMETER

PIPE AND FITTING SYMBOLS

EXISTING WORK	NEW WORK	
XXXXXXX		EXISTING PIPE TO BE REMOVED
		EXISTING PIPE TO BE ABANDONED IN PLACE
		ELBOW UP
		ELBOW DOWN
		TEE UP
		TEE DOWN
		LATERAL UP
		LATERAL DOWN
		CONCENTRIC REDUCER
		CAP OR PLUG
		ELBOW, 90 DEGREE
		TEE
		ELBOW, 45 DEGREE
		LATERAL
		CLEANOUT
		WELDED JOINT
		FLANGED JOINT
		MECHANICAL JOINT & PROPRIETARY RESTRAINED JOINT

VALVE SYMBOLS

	GATE
	BUTTERFLY
SEATING PORT	PLUG

GENERAL NOTE:

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ROBERT LEE TOWNSEND LICENSED 25258 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

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NO.	DSGN	DATE	DR	REVISION	CHK	APVD	BY	APVD
	E NEPERUD		M MONAHAN		R TOWNSEND		E JOHNSON	

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

ch2m

GENERAL

CIVIL AND YARD PIPING NOTES AND LEGEND

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	NOVEMBER 2016
PROJ	496312
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FILENAME: 001-G-0100_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 4:45:20 PM

GENERAL ARCHITECTURAL NOTES

1. UNLESS OTHERWISE INDICATED, PLAN DIMENSIONS ARE ON CENTERLINES, NOMINAL SURFACE OF MASONRY AND FACE OF CONCRETE WALLS.
2. "FLOOR LINE" REFERS TO TOP OF CONCRETE SLABS. FINISH FLOORING IS INSTALLED ABOVE THE FLOOR LINE. FOR DEPRESSED FLOORS AND CURBS, SEE STRUCTURAL DRAWINGS.
3. LINE OF GRADES, AS SHOWN ON BUILDING ELEVATIONS AND SECTIONS, ARE APPROXIMATE. THEY ARE AT THE BUILDING FACE, OR ON THE SECTION END EXCEPT AS NOTED.
4. VERIFY ALL ROUGH-IN DIMENSIONS FOR EQUIPMENT PROVIDED IN THIS CONTRACT, OR BY OTHERS.
5. REFER TO ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL AND OTHER CATEGORIES OR DRAWINGS FOR ADDITIONAL NOTES.
6. VERIFY SIZE AND LOCATION OF, AND PROVIDE REQUIRED OPENINGS THROUGH FLOORS AND WALLS, ACCESS DOORS, FURRING, CURBS, ANCHORS AND INSERTS. PROVIDE ALL BASES AND BLOCKING REQUIRED FOR ACCESSORIES, MECHANICAL, ELECTRICAL AND OTHER EQUIPMENT.

ARCHITECTURAL MATERIAL SYMBOLS

SYMBOL	LEGEND
	GRATING, SPAN DIRECTION INDICATED
	CHECKERED PLATE
	GROUT
	GRANULAR FILL
	EARTH OR FINISH GRADE
	CONCRETE
	CMU WALL (PLAN)
	CMU WALL (SECTION)
	RIGID INSULATION
	BATT INSULATION
	STEEL
	ALUMINUM
	PLYWOOD
	WOOD, ROUGH CONTINUOUS
	WOOD, ROUGH NON-CONTINUOUS
	WOOD, FINISHED

ARCHITECTURAL LEGEND

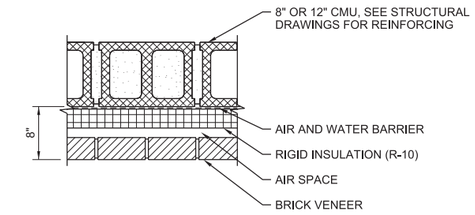
SYMBOL	LEGEND
ROOM NAME, "XX" = FACILITY INDICATOR, TYP; XX101	ROOM IDENTIFIER
XXL-1	LOUVER IDENTIFIER
A	WALL TYPE INDICATOR
A, XX-A-3001	EXTERIOR ELEVATION INDICATOR
QUANTITY AND DIRECTION OF POINTERS AS REQUIRED; A, B, C, D, E, A, XX-A-301	INTERIOR ELEVATION INDICATOR
⊗ 110.50	SPOT ELEVATION INDICATOR
	DIRECTION OF SLOPE DOWN
HINGE SIDE	DOOR/HATCH SWING INDICATOR
ACTIVE, XX101A, INACTIVE	INDICATES PAIR OF DOORS
F.EXT-X	FIRE EXTINGUISHER "X" = NUMBER IN SPECIFICATIONS
DOOR NUMBER, TYP; XX101A	INDICATES SINGLE DOOR

WALL TYPES

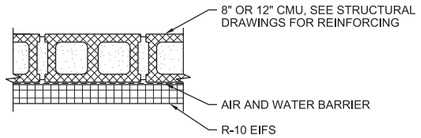
NOTES:

1. WHERE MORE THAN ONE WALL TYPE IS INDICATED FOR A SINGLE LOCATION ON THE PLANS, CONSTRUCTION VARIES IN THE HEIGHT OF THE WALL, WALL TYPES ARE SHOWN IN THE ORDER IN WHICH THEY OCCUR, WITH THE LOWEST LOCATED NEAREST THE WALL.

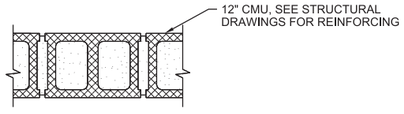
A



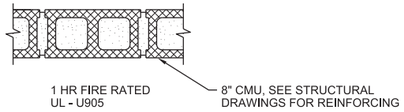
B



C



D



MICHAEL C SAPP LICENSED 11/7/16 6650 KANSAS ARCHITECT

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	REVISION	BY	APVD
		M SAPP	S BARD	S SILKWORTH				M SAPP

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GENERAL
ARCHITECTURAL NOTES, LEGEND, MATERIAL SYMBOLS, AND WALL TYPES

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0200
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FILENAME: 001-G-0200_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 4:41:00 PM

INTERIOR FINISH SCHEDULE

ABBREVIATIONS:

AC	ACOUSTICAL CEILING	CT	CERAMIC TILE	LINO	SHEET LINOLEUM	RUB	RUBBER
ACFL	ACCESS FLOORING	EIFS	EXTERIOR INSULATION AND FINISH SYSTEM	MATL	MATERIAL	SLR	CLEAR SEALER
ACMU	ACOUSTICAL CMU	EXP	EXPOSED STRUCTURE	MDO	MEDIUM DENSITY OVERLAY	SMLS	SEAMLESS EPOXY
ACT	ACOUSTICAL TILE	FCTY	FACTORY	MET	METAL	SOI	SPRAY-ON INSULATION
AL	ALUMINUM	FRP	FIBERGLASS REINFORCED PLASTIC	NAT	NATURAL	SS	SOLID SURFACING
AS	AS SELECTED	FWC	FABRIC WALL COVERING	PLAM	PLASTIC LAMINATE	SVIN	SHEET VINYL
BRK	BRICK	FNSH	FINISH	PLAS	PLASTER	TCTG	TRAFFIC COATING
CLR	CLEAR	GMU	GLASS MASONRY UNIT	PAVT	PAVER TILE	VCT	VINYL COMPOSITION TILE
CMU	CONCRETE MASONRY UNIT	GCMU	GLAZED CONCRETE MASONRY UNIT	PLWD	PLYWOOD	VINT	VINYL TILE
COL	COLOR	GWB	GYPSUM WALL BOARD	PNL	PANELING	VWC	VINYL WALL COVERING
CONC	CONCRETE	GSB	GYPSUM SOFFIT BOARD	PTN	PARTITION	WD	WOOD
CNTR	COUNTER	GLZ	GLAZING	QT	QUARRY TILE	WRB	WATER RESISTANT GWB
CPT	CARPET	HGT	HEIGHT	RESIL	RESILIENT	WW	WINDOW WALL
CRC	CHEMICAL-RESISTANT COATINGS	HDNR	CLEAR FLOOR HARDENER	RT	RUBBER TILE	X	OPEN

NOTES:

NO. 1 NUMBERS IN THE FINISH COLUMN REFER TO PAINT SYSTEMS IN SPECIFICATION SECTION 09 90 00.
NO. 2 CODES IN COL COLUMN REFER TO COLOR LIST ON THIS SHEET.
NO. 3 WALL SURFACES BEHIND CASEWORK AND OTHER BUILT-IN ITEMS NEED NOT BE PAINTED.
NO. 4 FOR EXTERIOR FINISHES AND COLORS, SEE COLOR LIST ON THIS SHEET.
NO. 5 FOR DOOR AND FRAME FINISHES, SEE DOOR AND HARDWARE SCHEDULE ON THIS SHEET.
NO. 6 FOR LOUVER, COILING DOOR, WINDOW AND TRIM FINISHES, SEE LOUVER, DOOR AND WINDOW SCHEDULES ON THIS SHEET.

SPACE		FLOOR			BASE AND WAINSCOT					TYPICAL WALL			OTHER WALL			CEILING				MISCELLANEOUS				OTHER REQUIREMENTS
NO.	NAME	SUB FL	FINISH	COL	HGT	MATL	FINISH	COL	WALLS	MATL	FINISH	COL	MATL	FINISH	COL	HGT	MATL	FINISH	COL	ITEM	MATL	FINISH	COL	
110101	SCREENINGS ROOM	CONC	HDNR	CLR	~	~	~	~	~	CMU	23	P-1	~	~	~	X	CONC	23	P-3					
110102	ELECTRICAL ROOM	CONC	HDNR	CLR	~	~	~	~	~	CMU	23	P-1	~	~	~	X	CONC	23	P-3					
210101	ELECTRICAL ROOM	CONC	HDNR	CLR	~	~	~	~	~	CMU	23	P-1	~	~	~	X	CONC	23	P-3					
210001	UV EQUIPMENT ROOM	CONC	HDNR	CLR	~	~	~	~	~	CONC	23	P-1	CMU	23	P-1	X	CONC	23	P-3					
BLDG 300	SLUDGE PUMP STATION	EXST CONC	~	~	~	~	~	~	~	EXST CONC	23	~	EXST CMU	5	~	EXST	~	~	~					REPAIR FINISH TO MATCH EXISTING
BLDG 350	GARAGE/DEWATERING BAYS	EXST CONC	~	~	~	~	~	~	~	EXST MET	5	~	CMU	5	~	EXST	~	~	~					REPAIR FINISH TO MATCH EXISTING

DOOR AND HARDWARE SCHEDULE

ABBREVIATIONS:

AL	ALUMINUM	IG-DP	INSULATING GLASS - DOUBLE PANE
COL	COLOR	HM	HOLLOW METAL
CONSTR	CONSTRUCTION	KEY	KEY GROUP
EXT	EXTERIOR	MATL	MATERIAL
FCTY	FACTORY	MET	METAL
FNSH	FINISH	SG	SAFETY GLASS

NOTES:

NO. 1 SEE THIS SHEET FOR DOOR AND FRAME TYPES.
NO. 2 FOR DOOR DETAILS, SEE DESIGN DETAILS.
NO. 3 NUMBER CODE IN HARDWARE SET COLUMN REFERS TO HARDWARE SETS IN SPECIFICATION SECTION 08 71 00.
NO. 4 NUMBERS IN FINISH COLUMN REFER TO PAINT SYSTEMS IN SPECIFICATION SECTION 09 90 00.
NO. 5 CODES IN COL COLUMN REFER TO TO COLOR LIST ON THIS SHEET.
NO. 6 FOR GLASS TYPES, SEE SPECIFICATION SECTION 08 80 00.

OPENING																HARDWARE		FIRE PROTECTION RATING	COMMENTS
NO.	SIZE		DOOR					FRAME				DETAILS							
	WIDTH	HEIGHT	CONSTR	TYPE	GLASS	FINISH	COL	MATL	TYPE	FINISH	COL	HEAD	JAMB	SILL		SET NO.	KEY		
110101A	3'-0"	7'-10"	HM	G	IG-DP/SG	5	P-2	HM	F-1	5	P-2	0811-064	0811-064	0871-001		2	EXT	~	
110101B	12'-0"	12'-0"	AL	OHC	~	FCTY	E-3	MET	F-3	FCTY	E-3	0833-007	0833-008/010	0833-008		3		~	
110101C	3'-0"	7'-10"	HM	G	IG-DP/SG	5	P-2	HM	F-1	5	P-2	0811-064	0811-064	0871-001		2	EXT	~	
110102A	3'-6" (2)	7'-10"	HM	G-G	IG-DP/SG	5	P-2	HM	F-2	5	P-2	0811-064	0811-064	0871-001		1	EXT	~	
																		~	
210001A	3'-0"	7'-2"	HM	F	~	5	P-2	HM	F-1	5	P-2	0811-003	0811-004	0871-001		5		1 HR	
210101A	3'-0"	7'-2"	HM	F	~	5	P-2	HM	F-1	5	P-2	0811-003	0811-004	0871-001		5		1 HR	
210101B	3'-6" (2)	7'-2"	HM	G-G	IG-DP/SG	5	P-2	HM	F-2	5	P-2	0811-064	0811-064	0871-001		1	EXT	~	
210001A	3'-0"	7'-2"	HM	F	~	5	P-2	HM	F-1	5	P-2	0811-064	0811-064	0871-001		2	EXT		
																		~	
350110A	16'-0"	16'-0"	AL	OHC	~	FCTY	*	MET	F-3	FCTY	*	0833-006	0833-011	0833-011		3		~	CONFIRM EXTG OPENING SIZE COLOR: MATCH EXTG SECTIONAL DOORS

COLOR LIST

MARK	ITEM	MANUFACTURER	CCLOR	COMMENT
P	**PAINTING AND STAIN**			
P-1	PAINT	SHERWIN WILLIAMS	SW7008 ALABASATER	WALL
P-2	PAINT	SHERWIN WILLIAMS	SW2808 ROCKWOOD DARK BROWN	DOORS AND TRIM
P-3	PAINT	SHERWIN WILLIAMS	SW7007 CEILING BRIGHT WHITE	CEILING
E	**EXTERIOR ITEMS**			
E-1	FACE BRICK	ACME BRICK	CCPPER SAND	MATCH EXISTING BUILDINGS
E-2	EIFS	STO	CHAMPAGNE	MATCH EXISTING BUILDINGS
E-3	LOUVERS/WINDOWS/OVERHEAD COILING DOORS	BERRIDGE	DARK BRONZE	KYNAR 500
E-4	COPING, GUTTERS AND DOWNSPOUTS	BERRIDGE	DARK BRONZE	KYNAR 500
E-5	ROOF	CARLISLE	TAN	

LOUVER SCHEDULE

LOUVER TYPE ABBREVIATIONS:
DB DRAINABLE BLADE

OTHER ABBREVIATIONS:
AFF ABOVE FINISH FLOOR
AL ALUMINUM
FCTY FACTORY

NOTES:
NO. 1 FOR LOUVER DETAILS, SEE DESIGN DETAILS.
NO. 2 CODES IN COL COLUMN REFER TO COLOR LIST ON THIS SHEET.

NO.	OPENING		LOUVER				DETAILS			SILLS			OTHER REQUIREMENTS
	WIDTH	HEIGHT	MATL	TYPE	FINISH	COL	HEAD	JAMB	SILL	MATL	COL	HEIGHT	
110L-1	3'-4"	3'-4"	AL	DB	FCTY	E-3	0890-002	0890-002	0890-002	~	~	9'-4" AFF	
350L-1	2'-6"	2'-6"	AL	DB	FCTY	E-3	0890-003	0890-003	0890-003	~	~	16'-9" AFF	

WINDOW SCHEDULE

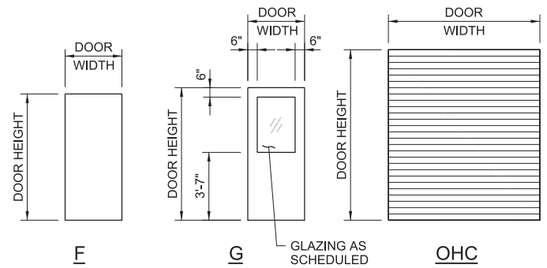
WINDOW TYPE ABBREVIATIONS:
F FIXED
TWP TRANSLUCENT WALL PANEL

OTHER ABBREVIATIONS:
AFF ABOVE FINISH FLOOR
AL ALUMINUM
FCTY FACTORY

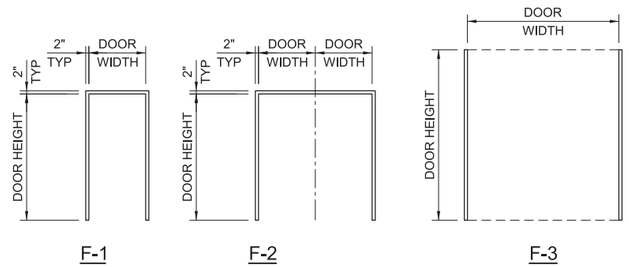
NOTES:
NO. 1 FOR FRAME TYPES, SEE WINDOW TYPES ON THIS SHEET.
NO. 2 FOR FRAME DETAILS, SEE DESIGN DETAILS.
NO. 3 CODES IN COL COLUMN REFER TO COLOR LIST ON THIS SHEET.

NO.	OPENING				FRAME							SILLS			OTHER REQUIREMENTS
	SIZE		WINDOW		DETAILS										
	WIDTH	HEIGHT	TYPE	GLASS	MATL	TYPE	FINISH	COL	HEAD	JAMB	SILL	MATL	COLOR	HEIGHT	
110W-1	7'-4"	4'-0"	W1	IG-DP	AL	W1	FCTY	E-3	0851-002	0851-003	0851-002	~	~	4'-0"	
110W-2	7'-4"	4'-0"	W1	IG-DP	AL	W1	FCTY	E-3	0851-002	0851-003	0851-002	~	~	4'-0"	
110W-3	7'-4"	4'-0"	W1	IG-DP	AL	W1	FCTY	E-3	0851-002	0851-003	0851-002	~	~	4'-0"	

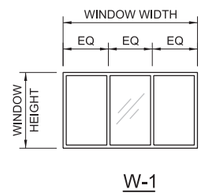
DOOR TYPES



FRAME TYPES



WINDOW TYPES



MICHAEL C SAPP LICENSED 11/4/16 6650 KANSAS ARCHITECT

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
REVISION		M SAPP	S BARD	S SILKWORTH			M SAPP

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

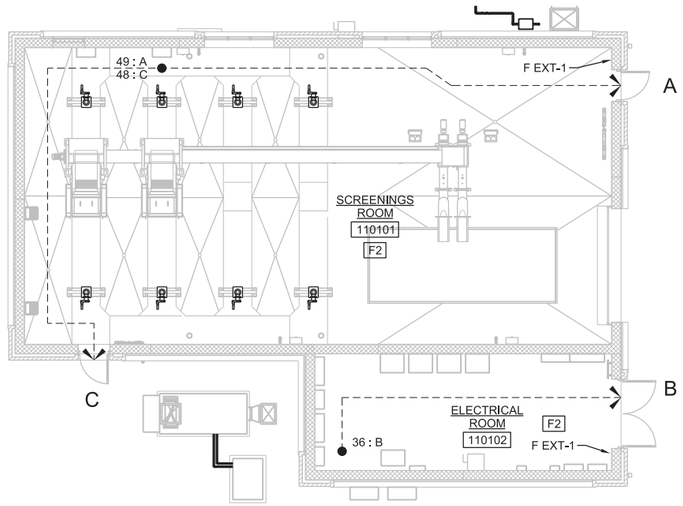
GENERAL
ARCHITECTURAL SCHEDULES

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0201
SHEET	8 of 314

BIDDING SET

FILENAME: 001-G-0201 496312 PLOT DATE: 11/2/2016 PLOT TIME: 4:41:08 PM



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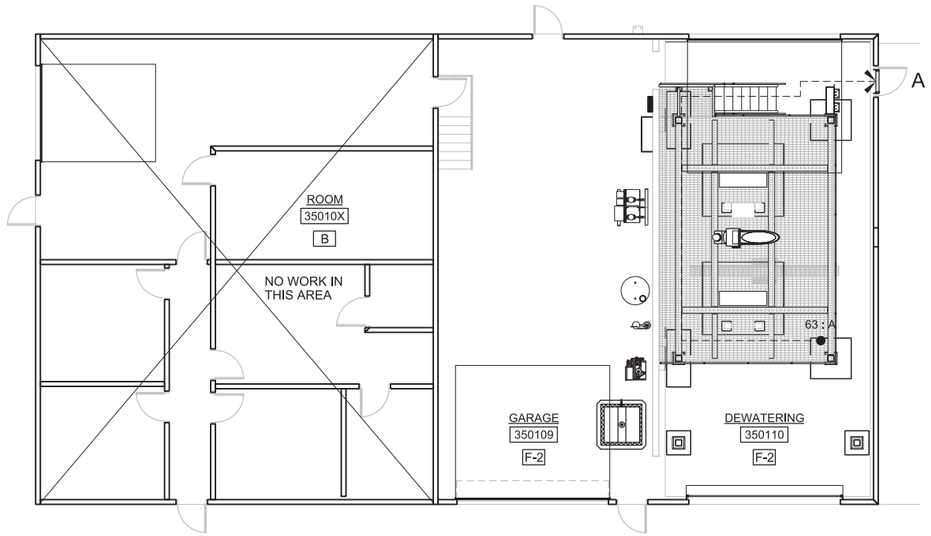
SCREENINGS BUILDING LIFE SAFETY PLAN

1/8"=1'-0"

LIFE SAFETY LEGEND

X : Y — TRAVEL DISTANCE (X = TOTAL DISTANCE IN FEET TO Y, EXIT LETTER)

F2 — OCCUPANCY GROUP



N

EXISTING DEWATERING / LOADOUT FACILITY LIFE SAFETY PLAN

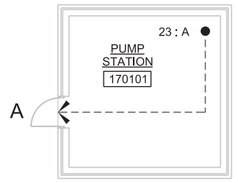
1/8"=1'-0"

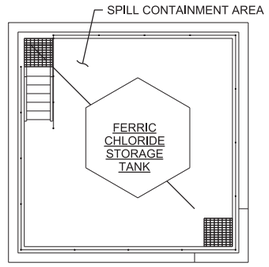
NEW BUILDING CODE DATA - SCREENINGS BUILDING	
BUILDING CODE:	2006 INTERNATIONAL BUILDING CODE (IBC)
	2012 INTERNATIONAL FIRE CODE (IFC)
	2012 INTERNATIONAL MECHANICAL CODE (IMC)
	2012 UNIFORM PLUMBING CODE (UPC)
	2014 NATIONAL ELECTRICAL CODE (NEC)
BUILDING NAME:	SCREENINGS BUILDING
BUILDING DESCRIPTION:	
THE SCREENING BUILDING IS A ONE-STORY BUILDING THAT HOUSES PROCESS FACILITIES REQUIRED FOR OPERATION OF THE WATER TREATMENT PLANT. THIS BUILDING PROVIDES SPACE FOR THE SCREENING CHANNELS AND ELECTRICAL EQUIPMENT. THIS 2,283 SF BUILDING IS OF NON COMBUSTIBLE CONSTRUCTION, CONCRETE SLAB/FOUNDATION, LOAD BEARING CMU WALLS AND PRECAST CONCRETE PLANKS SUPPORTING RIGID INSULATION AND THERMOPLASTIC ROOFING MEMBRANE.	
USE AND OCCUPANCY CLASSIFICATION AND TYPE OF CONSTRUCTION:	
USE AND OCCUPANCY CLASS (IBC CHAPTER 3):	F-2 LOW HAZARD FACTORY/INDUSTRIAL
INCIDENTAL USE AREAS (IBC 508.2):	NONE
ACCESSORY USE AREAS (IBC 508.3.1):	NONE
NON-SEPARATED USE (IBC 508.3.2):	N/A
OCCUPANCY SEPARATIONS (IBC 508.3.3):	NONE
BUILDING SEPARATIONS (IBC TABLE 706.3.7):	NONE
TYPE OF CONSTRUCTION (IBC CHAPTER 6):	II B
AREA AND HEIGHT LIMITATIONS:	
ALLOWABLE AREA PER FLOOR **(A = T + [TF/100] + [TS/100])**:	
OCCUPANCY:	F-2 LOW HAZARD FACTORY/INDUSTRIAL
TABULAR AREA **(T)** (IBC TABLE 503):	23,000 SF
SPRINKLER INCREASE **(S)** (IBC 506.3):	0 %
FRONTAGE INCREASE **(F)** (IBC 506.2):	0 %
MAXIMUM AREA PER FLOOR **(A)**:	23,000 SF
ACTUAL TOTAL AREA:	2,283 SF
MAXIMUM ALLOWABLE STORIES (IBC TABLE 503):	2 STORY
ACTUAL NUMBER OF STORIES:	1 STORY
MAXIMUM ALLOWABLE HEIGHT (IBC TABLE 503):	55 FEET
ACTUAL HEIGHT:	20 FEET
AUTOMATIC SPRINKLER FOR STORY INCREASE (IBC 504.2):	NOT USED
EGRESS REQUIREMENTS:	
DESIGN OCCUPANCY (IBC TABLE 1004.1.2):	8 OCCUPANTS
ACTUAL NUMBER OF OCCUPANCY:	2 TYP OCCUPANTS DAILY
	8 OCCASIONALLY
EGRESS WIDTH BASED ON OCCUPANCY (IBC TABLE 1005.1):	2 INCHES MIN
MIN DOOR WIDTH (IBC 1008.1.1):	34 INCHES
MAX COMMON PATH TRAVEL: (IBC 1014.3)	75 FEET MAX
MAX TRAVEL DISTANCE: (IBC TABLE 1016.1)	300 FEET MAX
MAX DEAD ENDS: (IBC TABLE 1017.3)	20 FEET MAX
REQUIRED EXITS (IBC 1019):	1 EXITS MIN FOR EACH SPACE

REQUIRED FIRE RESISTANT RATINGS:		
BUILDING ELEMENTS (IBC TABLE 601):		
STRUCTURAL FRAME:		0 HOUR
EXTERIOR BEARING WALLS:		0 HOUR
INTERIOR BEARING WALLS:		0 HOUR
INTERIOR NON-BEARING WALLS:		0 HOUR
FLOOR CONSTRUCTION:		0 HOUR
ROOF CONSTRUCTION:		0 HOUR
SHAFT ENCLOSURE (IBC 707.4):		N/A
STAIRWAY ENCLOSURE (IBC 1019.1):		N/A
CORRIDOR (IBC TABLE 1016.1):		N/A
ALLOWABLE AREA OF EXTERIOR DOORS AND WINDOWS (IBC 704.8):		NO LIMIT
FIRE SEPARATION DISTANCE (IBC TABLE 602):		F-2 = NR> 10FT
DISTANCE FROM ADJACENT BUILDING OR PROPERTY LINE:		> 30 FT
INSULATION REQUIREMENTS: IECC 502.2(1)		
INSULATION (R-VALUE):	ROOF:	R-20 CONT.
	WALLS:	R-10 CONT
	DOORS:	U-0.7
	WINDOWS:	SHGC 0.40 MAX
	PERIMETER SLAB INSULATION:	NO REQUIREMENT
FIRE PROTECTION:		
SPRINKLERS (IBC 903):		NOT REQUIRED
FIRE EXTINGUISHERS (IBC 906):		FIRE EXT. PROVIDED AT EXITS
FIRE ALARM AND DETECTION		NOT REQUIRED
SIGNAGE:		
EXIT SIGNS:		SEE ELECTRICAL DESIGN
HAZARD PLACARDS:		YES
DANGER/ WARNING/ CAUTION:		YES
PLUMBING FIXTURES (IBC TABLE 2902.1):		
OCCUPANCY:		F-2 LOW HAZARD FACTORY/INDUSTRIAL
MINIMUM FIXTURE COUNT: SCREENING BUILDING IS LOCATED WITHIN TRAVEL DISTANCE OF LABORATORY BUIDING WITH RESTROOMS AVAILABLE.		
TRAVEL DISTANCE (IBC 2902.4.1):		500 FT MAX
ACCESSIBILITY REQUIREMENTS:		EXEMPT PER 1103.2.9

EXISTING BUILDING CODE DATA	
BUILDING CODE:	2006 INTERNATIONAL BUILDING CODE (IBC), CHAPTER 34
BUILDING NAME:	DEWATERING / LOADOUT FACILITY
CLASSIFICATION OF WORK:	

ALTERATIONS: IBC 3403.2,3.2 ALL WORK TO BE CONFINED TO F-2 PORTION OF BUILDING.
OCCUPANCY: NO CHANGE, B / F-2 WITH FIRE SEPARATION
ACCESSIBILITY: NO CHANGE





N

FERRIC CHLORIDE PUMP STATION AND EXISTING STORAGE LIFE SAFETY PLAN

1/8"=1'-0"

EXISTING BUILDING CODE DATA	
BUILDING CODE:	2006 INTERNATIONAL BUILDING CODE (IBC), CHAPTER 34
BUILDING NAME:	FERRIC CHLORIDE PUMP STATION
CLASSIFICATION OF WORK:	

ALTERATIONS: IBC 3403.2,3.2 ALTERATION OF PROCESS EQUIPMENT. NO CHANGE TO STRUCTURE, CONSTRUCTION OF NEW EXTERIOR CHEMICAL STORAGE TO COMPLY WITH 2012 INTERNATIONAL FIRE CODE FOR HAZARDOUS MATERIALS.
OCCUPANCY: NO CHANGE
ACCESSIBILITY: NO CHANGE

MICHAEL C SAPP LICENSED 11/7/16 6650 KANSAS ARCHITECT

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		M SAPP	S BARD	S SILKWORTH		M SAPP	

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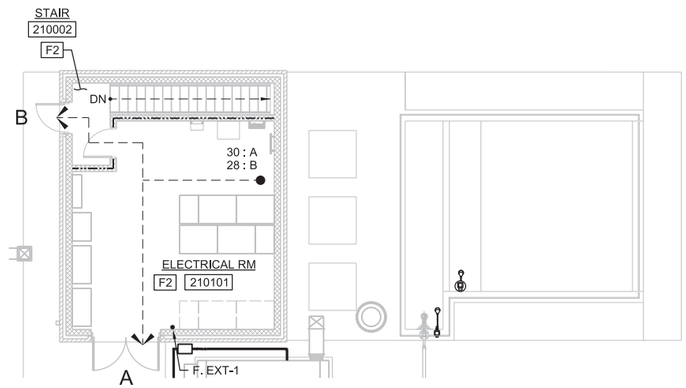
GENERAL
ARCHITECTURAL
LIFE SAFETY PLANS
AND CODE DATA

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0202
SHEET	9 of 314

BIDDING SET

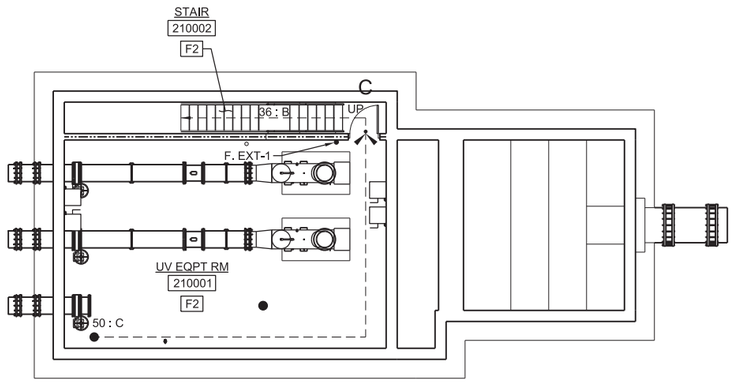
FILENAME: 001-G-0202_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 4:41:15 PM



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UV BUILDING GROUND LEVEL LIFE SAFETY PLAN

1/8"=1'-0"



N

UV BUILDING LOWER LEVEL LIFE SAFETY PLAN

1/8"=1'-0"

NEW BUILDING CODE DATA

BUILDING CODE:	2006 INTERNATIONAL BUILDING CODE (IBC)	
	2012 INTERNATIONAL FIRE CODE (IFC)	
	2012 INTERNATIONAL MECHANICAL CODE (IMC)	
	2012 UNIFORM PLUMBING CODE (UPC)	
	2014 NATIONAL ELECTRICAL CODE (NEC)	
USE AND OCCUPANCY CLASS (IBC CHAPTER 3):	F-2 LOW HAZARD FACTORY/INDUSTRIAL	
INCIDENTAL USE AREAS (IBC 508.2):	NONE	
ACCESSORY USE AREAS (IBC 508.3.1):	NONE	
NON-SEPARATED USE (IBC 508.3.2): OCCUPANCY SEPARATIONS (IBC 508.3.3):	N/A NONE	
BUILDING SEPARATIONS (IBC TABLE 706.3.7):	NONE	
TYPE OF CONSTRUCTION (IBC CHAPTER 6):	II B	
AREA AND HEIGHT LIMITATIONS:		
ALLOWABLE AREA PER FLOOR **(A = T + [TF/100] + [TS/100])**:		
OCCUPANCY:	F-2 LOW HAZARD FACTORY/INDUSTRIAL	
TABULAR AREA **(T)** (IBC TABLE 503):	23,000 SF	
SPRINKLER INCREASE **(S)** (IBC 506.3):	0 %	
FRONTAGE INCREASE **(F)** (IBC 506.2):	0 %	
MAXIMUM AREA PER FLOOR **(A)**:	23,000 SF	
ACTUAL TOTAL AREA:	1,572 SF	
MAXIMUM ALLOWABLE STORIES (IBC TABLE 503):		2 STORY
ACTUAL NUMBER OF STORIES:		1 STORY
MAXIMUM ALLOWABLE HEIGHT (IBC TABLE 503):		55 FEET
ACTUAL HEIGHT:		16 FEET
AUTOMATIC SPRINKLER FOR STORY INCREASE (IBC 504.2):		NOT USED
EGRESS REQUIREMENTS:		
DESIGN OCCUPANCY (IBC TABLE 1004.1.2):	16 OCCUPANTS	
ACTUAL NUMBER OF OCCUPANCY:	2 TYP OCCUPANTS DAILY 8 OCCASIONALLY	
EGRESS WIDTH BASED ON OCCUPANCY (IBC TABLE 1005.1):	3 INCHES MIN	
STAIR WIDTH BASED ON OCCUPANCY (IBC TABLE 1005.1):	5 INCHES MIN	
MIN DOOR WIDTH (IBC 1008.1.1):	34 INCHES	
MIN STAIR WIDTH (IBC 1009.1):	36 INCHES	
MAX COMMON PATH TRAVEL: (IBC 1014.3)	75 FEET MAX	
MAX TRAVEL DISTANCE: (IBC TABLE 1016.1)	300 FEET MAX	
MAX DEAD ENDS: (IBC TABLE 1017.3)	20 FEET MAX	
REQUIRED EXITS (IBC 1019):	1 EXITS MIN FOR EACH SPACE	
REQUIRED FIRE RESISTANT RATINGS:		
BUILDING ELEMENTS (IBC TABLE 601):		
STRUCTURAL FRAME:	0 HOUR	
EXTERIOR BEARING WALLS:	0 HOUR	
INTERIOR BEARING WALLS:	0 HOUR	
INTERIOR NON-BEARING WALLS:	0 HOUR	
FLOOR CONSTRUCTION:	0 HOUR	
ROOF CONSTRUCTION:	0 HOUR	
SHAFT ENCLOSURE (IBC 707.4):	N/A	
STAIRWAY ENCLOSURE (IBC 1019.1):	N/A	
CORRIDOR (IBC TABLE 1016.1):	N/A	
ALLOWABLE AREA OF EXTERIOR DOORS AND WINDOWS (IBC 704.8):	NO LIMIT	
FIRE SEPARATION DISTANCE (IBC TABLE 602):	F-2 = NR> 10FT	
DISTANCE FROM ADJACENT BUILDING OR PROPERTY LINE:	> 30 FT	
INSULATION REQUIREMENTS: IECC 502.2(1)		
INSULATION (R-VALUE): ROOF:	R-20 CONT.	
WALLS:	R-10 CONT	
DOORS:	U-0.7	
WINDOWS:	SHGC 0.40 MAX	
PERIMETER SLAB INSULATION:	NO REQUIREMENT	
FIRE PROTECTION:		
SPRINKLERS (IBC 903):	NOT REQUIRED	
FIRE EXTINGUISHERS (IBC 906):	FIRE EXT. PROVIDED AT EXITS	
FIRE ALARM AND DETECTION	NOT REQUIRED	
SIGNAGE:		
EXIT SIGNS:	SEE ELECTRICAL DESIGN	
HAZARD PLACARDS:	NO	
DANGER/ WARNING/ CAUTION:	YES	
PLUMBING FIXTURES (IBC TABLE 2902.1):		
OCCUPANCY:	F-2 LOW HAZARD FACTORY/INDUSTRIAL	
MINIMUM FIXTURE COUNT: SCREENING BUILDING IS LOCATED WITHIN TRAVEL DISTANCE OF LABORATORY BUIDING WITH RESTROOMS AVAILABLE.		
TRAVEL DISTANCE (IBC 2902.4.1):	500 FT MAX	
ACCESSIBILITY REQUIREMENTS:	EXEMPT PER 1103.2.9	

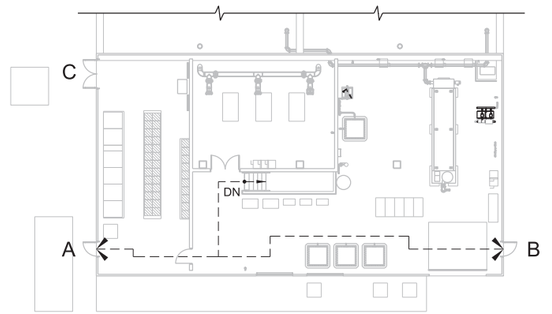
EXISTING BUILDING CODE DATA

BUILDING CODE:	2006 INTERNATIONAL BUILDING CODE (IBC), CHAPTER 34
BUILDING NAME:	SLUDGE PUMP STATION
CLASSIFICATION OF WORK:	

ALTERATIONS: IBC 3403.2.3.2 ALTERATION OF PROCESS EQUIPMENT, NO CHANGE TO STRUCTURE

OCCUPANCY: NO CHANGE

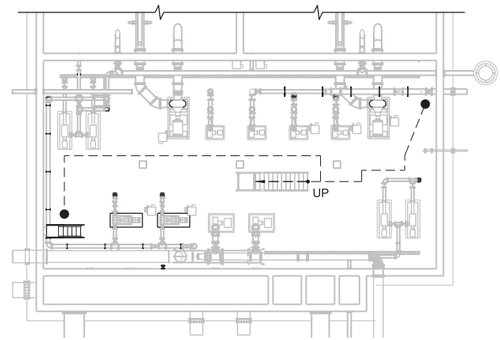
ACCESSIBILITY: NO CHANGE



N

SLUDGE PUMP STATION UPPER LEVEL LIFE SAFETY PLAN

1/16"=1'-0"



N

SLUDGE PUMP STATION LOWER LEVEL LIFE SAFETY PLAN

1/16"=1'-0"

LIFE SAFETY LEGEND

X : Y — TRAVEL DISTANCE (X = TOTAL DISTANCE IN FEET TO Y, EXIT LETTER)

F2 — OCCUPANCY GROUP

1 HOUR FIRE RATED WALL

MICHAEL C SAPP LICENSED 11/4/16 6650 KANSAS ARCHITECT

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		M SAPP	S BARD	S SILKWORTH	APVD	M SAPP	

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GENERAL
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LIFE SAFETY PLANS
AND CODE DATA

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0203
SHEET	10 of 314

BIDDING SET

DESIGN CRITERIA

1. APPLICABLE CODE: 2012 INTERNATIONAL BUILDING CODE (IBC), AS AMENDED BY SEDGWICK COUNTY, AND ALL OTHER APPLICABLE LOCAL AGENCIES. THE LOCALLY ADOPTED CODE IS THE 2006 IBC.

2. REFER TO THE DRAWINGS FOR ADDITIONAL AND SPECIFIC STRUCTURE LOADINGS AND REQUIREMENTS.

3. ALL LOADS SHOWN ARE SERVICE LEVEL (UNFACTORED) UNLESS SPECIFICALLY NOTED OTHERWISE.

4. DEAD LOADS:
   - A. SELF WEIGHT
   - B. COLLATERAL LOADS = 10 PSF

5. ROOF LOADS:
   - GROUND SNOW LOAD, Pg = 15 PSF
   - SNOW EXPOSURE FACTOR, Ce = 1.00
   - THERMAL FACTOR, Ct = 1.00
   - SLOPE FACTOR, Cs = 1.00
   - IMPORTANCE FACTOR, I = 1.10
   - MINIMUM FLAT ROOF SNOW LOAD, Pf = 11.6 PSF
   - SEE SNOW DRIFT DIAGRAMS ON ROOF PLAN(S) FOR AREAS WITH INCREASED DRIFT LOADS.
   - LIVE LOAD = 20 PSF
   - MISCELLANEOUS MECHANICAL AND ELECTRICAL LOADS = 10 PSF

   STRUCTURES HAVE BEEN DESIGNED FOR REDUCED ROOF LIVE LOADS IN ACCORDANCE WITH THE IBC.

   DEFLECTION CRITERIA FOR CONTRACTOR DESIGNED ROOF FRAMING MEMBERS:
   - TOTAL LOAD L/240
   - LIVE LOAD L/360
   - SNOW LOAD L/240

   WHERE L IS THE MEMBER SPAN LENGTH

6. FLOOR LIVE LOADS:
   - OFFICE 150 PSF
   - ELECTRICAL ROOM 300 PSF
   - MECHANICAL ROOM 200 PSF
   - CORRIDORS, EXITS, STAIRS 150 PSF

7. WIND LOADS:
   - ASCE 7 METHOD = MWFRS DIRECTIONAL PROCEDURE
   - BASIC WIND SPEED (3-SECOND GUST) = 120 MPH (ULTIMATE)
   - EXPOSURE CATEGORY = C
   - INTERNAL PRESSURE COEFFICIENT, GCpi = +/- 0.18
   - RISK CATEGORY = III
   - IMPORTANCE FACTOR, Iw = 1.0
   - COMPONENT AND CLADDING DESIGN PRESSURE FOR NON-STRUCTURAL WALL COMPONENTS = 31.1 (ULTIMATE WIND PRESSURE)

8. SEISMIC LOADS:
   - MAPPED SPECTRAL RESPONSE ACCELERATIONS
     - SS = 0.140g
     - S1 = 0.056g
   - DESIGN SPECTRAL RESPONSE ACCELERATIONS
     - SDS = 0.149g
     - SD1 = 0.090g
     - SITE CLASS = D
     - RISK CATEGORY = III
   - SEISMIC DESIGN CATEGORY = B
   - IMPORTANCE FACTOR, Ie = 1.25
   - STRUCTURES HAVE BEEN ANALYZED USING THE EQUIVALENT LATERAL FORCE PROCEDURES OF ASCE 7.

9. LATERAL FORCE-RESISTING SYSTEMS SEE PLANS FOR STRUCTURE SPECIFIC LOADS.

10. SPECIAL LOADS: SEE PLANS FOR STRUCTURE SPECIFIC LOADS.

11. HYDRAULIC LOADS: SEE PLANS FOR STRUCTURE SPECIFIC LOADS.

12. SOIL DESIGN PARAMETERS:
    - A. NET ALLOWABLE SOIL BEARING PRESSURES: TYPICAL UNLESS NOTED OTHERWISE ON FACILITY DRAWINGS 2000 PSF
    - B. GROUND WATER (GW) ELEVATION:
      - DESIGN GW REFER TO FACILITY DRAWINGS
      - 100 YEAR FLOOD 1288 FT
    - C. EQUIVALENT DRAINED FLUID PRESSURES (ABOVE GW):
      - GRANULAR MATERIAL (IMPORTED)
        - ACTIVE: 40 PCF
        - AT REST: 55 PCF
        - PASSIVE: 360 PCF
      - CLAY MATERIAL (IN-SITU):
        - ACTIVE: 60 PCF
        - AT REST: 79 PCF
        - PASSIVE: 240 PCF
    - D. EQUIVALENT UNDRAINED FLUID PRESSURES (BELOW GW):
      - ACTIVE: 85 PCF
      - AT REST: 90 PCF
    - E. VERTICAL SURCHARGE: 2 FT OF SOIL WEIGHT
    - F. COEFFICIENT OF FRICTION: 0.3
    - G. MODULUS OF SUBGRADE REACTION 125 PCI
    - H. NATIVE SOIL UNIT WEIGHT 120 PCF
    - I. FACTOR OF SAFETY FOR UPLIFT RESISTANCE (SOIL FRICTION AND WEDGE FAILURE NOT CONSIDERED):
      - NORMAL HIGH GW ELEVATION FOS = 1.25

13. FROST DEPTH: 36 IN

14. PROVISIONS FOR FUTURE CONSTRUCTION:
    - A. STRUCTURE 145-BIOREACTOR FACILITY

GENERAL INFORMATION

1. FOR ABBREVIATIONS NOT LISTED, SEE ASME Y14.38 "ABBREVIATIONS AND ACRONYMS: PUBLICATION AS DISTRIBUTED BY THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME).

2. DESIGN DETAILS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS OCCURRING THROUGHOUT THE PROJECT, WHETHER OR NOT THEY ARE INDIVIDUALLY CALLED OUT.

3. VERIFY FINAL OPENING DIMENSIONS IN WALLS, SLABS, AND DECKS WITH OTHER DISCIPLINE DRAWINGS PRIOR TO CONSTRUCTION OF THESE ELEMENTS.

4. FOR NUMBER, TYPE, SIZE, ARRANGEMENT, AND/OR LOCATION OF EQUIPMENT PADS, SEE OTHER DISCIPLINE DRAWINGS. COORDINATE WITH EQUIPMENT SUPPLIER PRIOR TO PLACING SLABS, WALLS AND FOUNDATIONS. COORDINATE PIPING OPENINGS WITH OTHER DISCIPLINE DRAWINGS.

5. DO NOT CUT OR MODIFY STRUCTURAL MEMBERS FOR PIPES, DUCTS, ETC, UNLESS SPECIFICALLY DETAILED OR APPROVED IN WRITING BY THE ENGINEER.

6. VISITS TO THE JOB SITE BY THE ENGINEER TO OBSERVE THE CONSTRUCTION DO NOT IN ANY WAY MEAN THAT ENGINEER IS GUARANTOR OF CONSTRUCTOR'S WORK, NOR RESPONSIBLE FOR THE COMPREHENSIVE OR SPECIAL INSPECTIONS, COORDINATION, SUPERVISION, OR SAFETY AT THE JOB SITE.

7. INFORMATION (DETAILING, DIMENSIONS, CONFIGURATIONS, AND ELEVATIONS, ETC.) OF EXISTING CONSTRUCTION SHOWN REFLECTS AVAILABLE EXISTING DESIGN DOCUMENTS, AND DOES NOT NECESSARILY REPRESENT THE AS-CONSTRUCTED CONDITIONS. THE CONTRACTOR SHALL FIELD VERIFY DIMENSIONS, ELEVATIONS AND DETAILING OF THE EXISTING STRUCTURES PRIOR TO UNDERTAKING ANY WORK THAT IS AFFECTED BY THE EXISTING STRUCTURE. NOTIFY ENGINEER IF CONDITIONS VARY FROM THAT SHOWN PRIOR TO STARTING WORK.

FOUNDATIONS

1. REFER TO GEOTECHNICAL DATA REPORT 01165006 BY TERRACON DATED SEPTEMBER 15, 2016 AND SUPPLEMENTAL DESIGN MEMO DATED SEPTEMBER 15, 2016.

2. EXCAVATIONS SHALL BE SHORED TO PREVENT SUBSIDENCE AND DAMAGE TO ADJACENT EXISTING STRUCTURES, ROADS, UTILITIES, ETC.

3. SUBGRADE PREPARATION FOR FOUNDATION SLABS, SLABS-ON-GRADE AND WALL AND COLUMN FOUNDATIONS SHALL BE AS SPECIFIED. COORDINATE WITH VAPOR RETARDER REQUIREMENTS.

4. FOUNDATION BEARING SURFACES SHALL BE OBSERVED BY THE GEOTECHNICAL ENGINEER OR QUALIFIED DESIGNEE PRIOR TO PLACEMENT OF FORMWORK OR REINFORCING STEEL. THE OBSERVATION SHALL VERIFY IF THE ACTUAL EXPOSED SUBGRADE IS AS ANTICIPATED BY THE SITE SPECIFIC DATA REPORTS.

5. NO BACKFILL SHALL BE PLACED BEHIND WALLS UNTIL THE WALL'S CONCRETE HAS ATTAINED 100 PERCENT AND TOP SUPPORTING SLAB'S CONCRETE HAS ATTAINED 80 PERCENT OF THEIR SPECIFIED 28 DAY COMPRESSIVE STRENGTH, OR UNTIL TOP-OF-WALL FRAMING SYSTEMS, INCLUDING STEEL OR WOOD DIAPHRAGMS, HAVE BEEN COMPLETED.

6. NO BACKFILL SHALL BE PLACED BEHIND CANTILEVERED, FREE TOP WALLS UNTIL THE CONCRETE HAS ATTAINED 100 PERCENT OF ITS SPECIFIED 28 DAY COMPRESSIVE STRENGTH.

7. USE OF EXPLOSIVES IS ONLY ALLOWED WITH WRITTEN PERMISSION FROM ENGINEER.

CONCRETE REINFORCING

1. REINFORCING STEEL:
   - TYPICAL: ASTM A615, GRADE 60
   - WELDED: ASTM A706, GRADE 60 (WELDING IS ONLY PERMITTED WITH WRITTEN PERMISSION FROM ENGINEER)

2. FABRICATION AND PLACEMENT OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH CRSI MSP-1 "MANUAL OF STANDARD PRACTICE"AND ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE".

3. FOR REINFORCED CONCRETE FRAME MEMBERS AND DESIGNATED BOUNDARY ELEMENTS OF CONCRETE SHEAR WALL STRUCTURES, REINFORCING STEEL SHALL MEET THE FOLLOWING REQUIREMENTS:
   - a. ACTUAL YIELD STRENGTH BASED ON MILL TESTS SHALL NOT EXCEED SPECIFIED YIELD STRENGTH BY MORE THAN 18,000 PSI. (RETESTS SHALL NOT EXCEED THIS VALUE BY MORE THAN AN ADDITIONAL 3000 PSI.)
   - b. RATIO OF THE ACTUAL ULTIMATE TENSILE STRESS TO ACTUAL TENSILE YIELD STRENGTH SHALL NOT BE LESS THAN 1.25.

4. MINIMUM REINFORCING FOR CONCRETE WALLS AND SLABS SHALL BE AS FOLLOWS:

THICKNESS	REINF EACH WAY	LOCATION
6"	#4@12"	CENTERED
8"	#5@12"	CENTERED
10"	#4@12"	EACH FACE
12"	#5@12"	EACH FACE

   PROVIDE LARGER SIZES AND MORE REINFORCING IN SECTIONS OF CONCRETE WHERE REQUIRED BY THE DETAILS ON THE DRAWINGS OR BY THE SPECIFICATIONS.

5. CONCRETE COVER FOR REINFORCING, UNLESS SHOWN OTHERWISE, SHALL BE:
   - WHEN CAST AGAINST EARTH: 3"
   - INTERIOR, DRY, HUMIDITY CONTROLLED AREAS:
   - BEAM STIRRUPS AND COLUMN TIES 1 1/2"
   - CONCRETE EXPOSED TO EARTH, LIQUID, WASHDOWN, OR WEATHER:
   - WALLS AND SLABS 2"
   - BEAM STIRRUPS AND COLUMN TIES 2"
   - BEAM AND COLUMN PRIMARY REINFORCING 2 1/2"

6. REFER TO WALL CORNER AND WALL INTERSECTION REINFORCING DETAIL (0330-003). WALL CORNER REINFORCING SIZES AND SPACINGS SHALL BE AS SHOWN ON THE DRAWINGS AND REFERENCED TO THIS DETAIL. TYPICAL HORIZONTAL WALL REINFORCING SHALL LAP WITH THE CORNER HORIZONTAL REINFORCING.

7. 90 DEGREE BENDS, UNLESS OTHERWISE SHOWN, SHALL BE ACI 318 STANDARD HOOKS.

8. WALL CORNER AND WALL INTERSECTION REINFORCEMENT BARS SHALL BE CONTINUOUS AROUND CORNERS AND THROUGH COLUMNS OR PILASTERS. REINFORCEMENT SHALL BE EXTENDED INTO CONNECTING WALLS AND LAPPED ON THE OPPOSITE FACE OF THE CONNECTING WALLS, AS INDICATED IN DETAIL (0330-003).

9. WALL FOOTING CORNER AND INTERSECTION REINFORCEMENT BARS SHALL BE EXTENDED INTO CONNECTING FOOTINGS AND LAPPED ON THE OPPOSITE FACE OF THE CONNECTING FOOTING. OUTSIDE FACE WALL FOOTING REINFORCEMENT SHALL BE LAPPED WITH CORNER BARS. ALL WALL FOOTING REINFORCEMENT SHALL BE CONTINUOUS THROUGH COLUMNS OR PILASTERS FOOTINGS.

CONCRETE REINFORCING (CONTINUED)

10. LAP VERTICAL WALL BARS WITH DOWELS FROM BASE SLABS AND EXTEND INTO TOP FACE OF ROOF SLABS AND LAP WITH TOP SLAB REINFORCEMENT. PROVIDE A MINIMUM OF FOUR FULL HEIGHT VERTICAL BARS WITH MATCHING DOWELS AT WALL ENDS, CORNERS AND INTERSECTIONS WITH SIZE TO MATCH TYPICAL VERTICAL REINFORCING STEEL SHOWN OR REQUIRED BY NOTES ABOVE.

11. LOCATE ELEVATED SLAB AND BEAM TOP BAR SPLICES AT MIDSPAN AND BOTTOM BAR SPLICES AT SUPPORTS.

12. REINFORCING STEEL FOR FOOTINGS AND SLABS ON GRADE SHALL BE ADEQUATELY SUPPORTED ON BAR SUPPORTS WITH SPACERS TO KEEP REINFORCING ABOVE THE PREPARED GRADE. LIFTING REINFORCING OFF GRADE DURING CONCRETE PLACEMENT IS NOT PERMITTED.

13. REFER TO OPENING REINFORCING DETAILS (0330-001).

14. REINFORCEMENT BENDS AND LAPS, UNLESS OTHERWISE NOTED, SHALL SATISFY THE FOLLOWING MINIMUM REQUIREMENTS:

CONCRETE DESIGN STRENGTH = 4,500 PSI (MIN) AT 28 DAYS [3] GRADE 60 REINFORCING STEEL										
BAR SIZE		#3	#4	#5	#6	#7	#8	#9	#10	#11
LAP SPLICE LENGTH										
SPACING = 3"	TOP BAR [2]	1'-4"	1'-8"	2'-1"	3'-0"	5'-2"	6'-8"	8'-6"	10'-10"	13'-4"
	OTHER BAR	1'-4"	1'-4"	1'-8"	2'-4"	4'-0"	5'-2"	6'-7"	8'-4"	10'-3"
SPACING = 4"	TOP BAR [2]	1'-4"	1'-8"	2'-0"	2'-5"	3'-10"	5'-0"	6'-5"	8'-1"	10'-0"
	OTHER BAR	1'-4"	1'-4"	1'-7"	1'-10"	3'-0"	3'-11"	4'-11"	6'-3"	7'-8"
SPACING ≥ 6"	TOP BAR [2]	1'-4"	1'-8"	2'-0"	2'-5"	3'-6"	4'-0"	5'-0"	6'-2"	7'-5"
	OTHER BAR	1'-4"	1'-4"	1'-7"	1'-10"	2'-9"	3'-1"	3'-10"	4'-9"	5'-8"
EMBEDMENT LENGTH										
SPACING = 3"	TOP BAR [2]	1'-0"	1'-3"	1'-8"	2'-4"	4'-0"	5'-2"	6'-7"	8'-4"	10'-3"
	OTHER BAR	1'-0"	1'-0"	1'-3"	1'-10"	3'-1"	4'-0"	5'-1"	6'-5"	7'-11"
SPACING = 4"	TOP BAR [2]	1'-0"	1'-3"	1'-7"	1'-10"	3'-0"	3'-11"	4'-11"	6'-3"	7'-8"
	OTHER BAR	1'-0"	1'-0"	1'-3"	1'-5"	2'-4"	3'-0"	3'-10"	4'-10"	5'-11"
SPACING ≥ 6"	TOP BAR [2]	1'-0"	1'-3"	1'-7"	1'-10"	2'-9"	3'-1"	3'-10"	4'-9"	5'-8"
	OTHER BAR	1'-0"	1'-0"	1'-3"	1'-5"	2'-1"	2'-5"	3'-0"	3'-8"	4'-5"

[1] LAP LENGTHS ARE BASED ON MINIMUM CONCRETE COVER OF 2". LONGER LENGTHS ARE REQUIRED FOR CONCRETE COVER LESS THAN 2".
[2] TOP BARS SHALL BE DEFINED AS ANY HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12 INCHES OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR IN ANY SINGLE POUR. HORIZONTAL WALL BARS ARE CONSIDERED TOP BARS.
[3] WHERE 3000 PSI CONCRETE IS USED, INCREASE ABOVE LENGTHS BY 16 PERCENT. WHERE 3500 PSI CONCRETE IS USED, INCREASE ABOVE LENGTHS BY 7 PERCENT.

INSPECTION AND TESTING

1. SPECIAL INSPECTION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR INSPECTIONS REQUIRED BY THE BUILDING OFFICIAL. THE CONTRACTOR SHALL SCHEDULE BOTH INSPECTIONS.

2. SPECIFIED CONCRETE AND MASONRY AND OTHER MATERIAL TESTING RELATED TO SPECIAL INSPECTION DURING CONSTRUCTION WILL BE FURNISHED BY THE CONTRACTOR.

3. SPECIFIED LABORATORY TEST MIXES AND SIMILAR TEST RESULTS TO VERIFY MATERIAL QUALITY AND CONFORMANCE TO SPECIFICATIONS, AND SUBMITTED FOR REVIEW PRIOR TO ACCEPTANCE FOR USE ON THE PROJECT, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

4. SPECIAL INSPECTION, TESTING AND OBSERVATION (CONTRACTOR FURNISHED) IS REQUIRED IN ACCORDANCE WITH IBC SECTIONS 110 AND 1704 AS INDICATED IN THE STATEMENT OF SPECIAL INSPECTIONS. REFER TO DRAWINGS 001-G-0302 TO 001-G-0305.

FORMWORK, SHORING AND BRACING

1. STRUCTURES SHOWN ON THE DRAWINGS HAVE BEEN DESIGNED FOR STABILITY UNDER FINAL CONDITIONS ONLY. DESIGN SHOWN DOES NOT INCLUDE NECESSARY COMPONENTS OR EQUIPMENT FOR STABILITY OF THE STRUCTURES DURING CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR WORK RELATING TO CONSTRUCTION ERECTION METHODS, BRACING, SHORING, RIGGING, GUYS, SCAFFOLDING, FORMWORK, AND OTHER WORK AIDS REQUIRED TO SAFELY PERFORM THE WORK SHOWN.

2. TEMPORARY SHORING SHALL REMAIN IN PLACE UNTIL ELEVATED CONCRETE FLOOR OR SLABS HAVE REACHED 80 PERCENT OF THE 28 DAY COMPRESSIVE STRENGTH AS DETERMINED BY FIELD CYLINDER BREAKS.

3. "BURY"BARS OR "CARRIER" BARS ARE NOT ALLOWED FOR THE BOTTOM MATS OF REINFORCING IN ALL ELEVATED SLABS AND ARE NOT ALLOWED FOR THE TOP MATS OF REINFORCING IN ELEVATED SLABS LESS THAN 12 INCHES THICK.

CAST IN PLACE CONCRETE

1. 28-DAY COMPRESSIVE STRENGTHS (TO MEET STRUCTURAL STRENGTH REQUIREMENTS):
   - HYDRAULIC AND BUILDING STRUCTURES: 4,000 PSI
   - CONCRETE FILL, CURBS AND SIDEWALKS, AND DUCT BANKS AND PIPE ENCASEMENTS NOT INTEGRAL WITH FOUNDATIONS: 4,500 PSI

2. 56-DAY COMPRESSIVE STRENGTHS (TO MEET DURABILITY REQUIREMENTS OF ACI 350):
   - HYDRAULIC AND BUILDING STRUCTURES: 5,000 PSI

3. DESIGN STRENGTHS ARE SAME AS 28-DAY COMPRESSIVE STRENGTHS.

4. CONTINUOUS WATERSTOP AS SPECIFIED SHALL BE INSTALLED IN CONSTRUCTION JOINTS OF HYDRAULIC STRUCTURES, CHANNELS, AND BELOW GRADE STRUCTURES, EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE.

5. CONSTRUCTION JOINTS INDICATED ARE SUGGESTED LOCATIONS. SUB-CONTRACTOR MAY REVISE LOCATION OF JOINTS, SUBJECT TO SPECIFIED REQUIREMENTS. LAYOUT SHOWING ALL CONSTRUCTION JOINT LOCATIONS SHALL BE SUBMITTED FOR REVIEW BY CH2M HILL.

6. ROUGHEN AND CLEAN CONSTRUCTION JOINTS IN WALLS AND SLABS AS SPECIFIED PRIOR TO PLACING ADJACENT CONCRETE.

7. COORDINATE PLACEMENT OF OPENINGS, PIPE PENETRATIONS, CURBS, DOWELS, SLEEVES, CONDUITS, BOLTS AND INSERTS PRIOR TO PLACEMENT OF CONCRETE.

8. NO ALUMINUM CONDUIT OR PRODUCTS CONTAINING ALUMINUM OR ANY OTHER MATERIAL INJURIOUS TO THE CONCRETE SHALL BE EMBEDDED IN THE CONCRETE.

9. DO NOT PLACE CONDUIT PARALLEL TO BEAM OR COLUMN REINFORCEMENT UNLESS SPECIFICALLY INDICATED IN DRAWINGS.

10. PATCH FORM TIE HOLES IN ACCORDANCE WITH DETAILS (0310-051) AND/OR (0310-052).

HUGO ANDRES ROJAS LICENSED 11/04/16 24949 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		H ROJAS	F JAGLA	M MERKLEIN	APVD	H ROJAS	

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

ch2m

GENERAL
STRUCTURAL
GENERAL NOTES 1

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

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BIDDING SET

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PRECAST PRESTRESSED CONCRETE

1. PRECAST PRESTRESSED CONCRETE MEMBERS SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 5,000 PSI.
2. DESIGN PER PCI DESIGN HANDBOOK 7TH EDITION, ACI 318 AND ACI 550.1.
3. FABRICATE, TRANSPORT AND ERECT PER PCI DESIGN HANDBOOK 7TH EDITION, PCI ERECTOR'S MANUAL, AND ACI 304.
4. DESIGN PRECAST PRESTRESSED CONCRETE MEMBERS TO SUPPORT THE SUPERIMPOSED LOADS PROVIDED ON PLANS, TO MEET REQUIREMENTS STATED UNDER DESIGN CRITERIA ABOVE, AND FOR LOADS RESULTING FROM TRANSPORTATION AND ERECTION.
5. SUBMIT CALCULATIONS AND DRAWINGS STAMPED BY AN ENGINEER LICENSED IN THE STATE OF KANSAS FOR REVIEW PRIOR TO FABRICATION.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR ERECTION AND PLACEMENT, INCLUDING PICK UP POINT INSERTS AND LOCATIONS, SPECIAL PICK UP REINFORCING, STRONGBACKING, LOCATION AND SPACING OF SHIMS AND SIMILAR ITEMS.
7. VERIFY GEOMETRY OF INSERTS AND OPENINGS AS REQUIRED PER ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS.
8. DESIGN AND PROVIDE BEARING PADS.
9. DESIGN SHALL ADHERE TO TOLERANCE REQUIREMENTS PER PCI DESIGN HANDBOOK 7TH EDITION. CONTRACTOR SHALL TAKE ALL MEASURES NECESSARY TO CONFORM WITH THESE TOLERANCES INCLUDING BUT NOT LIMITED TO THE ADJUSTMENT OF BEARING HEIGHTS.

CONCRETE UNIT MASONRY

1. MASONRY WALL TYPE: ORDINARY REINFORCED MASONRY SHEAR WALLS.
2. DESIGN COMPRESSIVE STRENGTH, f'm, OF THE FINISHED ASSEMBLY AND MATERIAL PROPERTIES SHALL BE PER THE TABLE BELOW.
3. MORTAR: ASTM C270, TYPE S, HYDRATED.
4. GROUT: ASTM C476 COARSE GROUT. USE OF WATER REDUCERS OR SUPERPLASTICIZERS IS NOT PERMITTED.
5. CONCRETE MASONRY UNITS: ASTM C90, MEDIUM WEIGHT, LINEAR SHRINKAGE SHALL NOT EXCEED 0.065 PERCENT.
6.

DESIGN COMPRESSIVE STRENGTH OF ASSEMBLY F'm (psi)	UNIT STRENGTH (psi)	GROUT STRENGTH (psi) min (max)	MORTAR PROPERTIES
1,500	1,900	2,000 (3,500)	TYPE S

7. PLACE COURSES IN WALLS, COLUMNS, AND PILASTERS IN RUNNING BOND PATTERN.
8. PROVIDE MATCHING FOUNDATION DOWELS FOR ALL TYPICAL AND ADDITIONAL VERTICAL BARS.
9. PROVIDE VERTICAL BARS AND DOWELS WITH LAP LENGTHS AS SHOWN IN DETAIL 0422-004.
10. STAGGER ADJACENT LAP SPLICES BY 24 INCHES WHEN SEPARATED BY 3 INCHES OR LESS.
11. PROVIDE NUMBER OF FULL HEIGHT VERTICAL BARS AT EDGES OF OPENINGS AS SHOWN IN DETAIL (0422-004).
12. PROVIDE FULL HEIGHT VERTICAL BARS IN 3 CELLS AT WALL CORNERS AND INTERSECTIONS AS SHOWN IN DETAIL (0422-001).
13. AT BOND BEAMS SHOWN ON THE DRAWINGS, PROVIDE HORIZONTAL CORNER AND INTERSECTION BARS WITH LAP LENGTHS AS SHOWN IN DETAIL (0422-001).
14. PROVIDE REINFORCED LINTELS ABOVE AND REINFORCED BOND BEAMS BELOW OPENINGS AS SHOWN IN DETAIL (0422-004).
15. PROVIDE FULL HEIGHT VERTICAL BARS WITH MATCHING DOWELS IN CELLS ADJACENT TO OPENINGS AS SHOWN IN DETAIL (0422-004).
16. GROUTING: PARTIALLY GROUT WALLS;
    - A. GROUT IS REQUIRED ONLY FOR CELLS WITH REINFORCING. SOLID GROUT WALLS IS ACCEPTABLE UNLESS OTHERWISE INDICATED ON THE DRAWINGS
    - B. SOLID GROUT ALL PIERS, COLUMNS, HEADERS, AND BOND BEAMS.
    - C. SOLID GROUT ADDITIONAL MASONRY AREAS SPECIFICALLY INDICATED ON THE DRAWINGS.
17. MASONRY UNIT AND GROUT TESTING SHALL BE IN CONFORMANCE WITH IBC "UNIT STRENGTH METHOD". TESTING WILL BE CONTRACTOR FURNISHED AS INDICATED ON THE STATEMENT OF SPECIAL INSPECTIONS PLAN PROVIDED ON THE DRAWINGS. PRISM TEST METHOD MAY BE SUBMITTED AS AN ALTERNATIVE OR MAY BE REQUIRED BY OWNER'S REPRESENTATIVE TO VERIFY WORK.
18. THE MINIMUM REINFORCING FOR ORDINARY REINFORCED CONCRETE BLOCK WALLS SHALL BE AS FOLLOWS. PROVIDE LARGER SIZES AND MORE REINFORCING IN SECTIONS OF WALLS WHERE REQUIRED BY THE DETAILS ON THE DRAWINGS OR BY THE SPECIFICATIONS.

WALL THICKNESS	VERTICAL REINFORCING	VERTICAL BAR LOCATION	HORIZONTAL JOINT REINFORCING*
8"	#5@48"	CENTERED	EVERY OTHER COURSE
12"	#5@48"	EACH FACE	EVERY OTHER COURSE.

19. DO NOT PLACE CONDUIT IN CELLS CONTAINING PARALLEL REINFORCEMENT.

WELDING

1. WELDS SHALL CONFORM TO AMERICAN WELDING SOCIETY (AWS):
   - D1.1, STRUCTURAL WELDING CODE STEEL
   - D1.2, STRUCTURAL WELDING CODE ALUMINUM
   - D1.3, STRUCTURAL WELDING CODE SHEET STEEL
   - D1.4, STRUCTURAL WELDING CODE REINFORCING STEEL
   - D1.6, STRUCTURAL WELDING CODE STAINLESS STEEL
2. REPAIR WELDS FOUND DEFECTIVE IN ACCORDANCE WITH AWS D1.1 SECTION 5.26.
3. USE INTERMITTENT WELDS AT FIELD WELDS OF EMBED PLATES AND ANGLES TO AVOID SPALLING OR CRACKING OF THE EXISTING CONCRETE.
4. BUTT JOINT WELDS SHALL BE COMPLETE JOINT PENETRATION (CJP) UNLESS INDICATED OTHERWISE.

STRUCTURAL STEEL AND METAL FABRICATIONS

1. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS:

W-SHAPES	A992
MISCELLANEOUS SHAPES INCLUDING ANGLES, CHANNELS, PLATES, ETC.	A36
HOLLOW STRUCTURAL SECTIONS (HSS)	A500, GRADE B
STEEL PIPE	A53, GRADE B
STAINLESS STEEL SHAPES	A276

2. ALUMINUM SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS:

STRUCTURAL SHAPES	B308
PLATES	B209

3. STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN CONFORMANCE WITH THE AISC MANUAL OF STEEL CONSTRUCTION, CURRENT EDITION, AND CURRENT OSHA STANDARDS.
4. FASTENERS SHALL BE HIGH STRENGTH BOLTS CONFORMING TO THE FOLLOWING ASTM STANDARDS EXCEPT WHERE SPECIFICALLY INDICATED OTHERWISE:

UNLESS SHOWN OTHERWISE	A325-N
ANCHOR BOLTS (AB)	
STAINLESS STEEL	F593, AISI TYPE 316, CONDITION CW
STEEL OR GALVANIZED STEEL	F1554, GR 36 / A153
MACHINE BOLTS (MB)	
STEEL	A307
STAINLESS STEEL	F593, AISI TYPE 316, CONDITION CW
GALVANIZED STEEL	A307 / A153
ALUMINUM	F468, ALLOY 2024-T4

5. ITEMS TO BE EMBEDDED IN CONCRETE SHALL BE CLEAN AND FREE OF OIL, DIRT AND PAINT.
6. NO HOLES OTHER THAN THOSE SPECIFICALLY DETAILED SHALL BE ALLOWED THROUGH STRUCTURAL STEEL MEMBERS. NO CUTTING OR BURNING OF STRUCTURAL STEEL IS PERMITTED WITHOUT THE APPROVAL OF CH2M HILL.
7. RAILING SYSTEM SHOWN ON THE DRAWINGS IS FOR PRESENTATION ONLY, COORDINATE ACTUAL POST LOCATIONS, NUMBER OF RAILS, AND OTHER COMPONENTS OF RAILING SYSTEM WITH SPECIFICATIONS, DETAILS, AND RAILING SYSTEM MANUFACTURER.

DEFERRED SUBMITTALS

1. DEFERRED SUBMITTALS ARE THOSE PORTIONS OF THE DESIGN WHICH ARE NOT SUBMITTED AT THE TIME OF PERMIT APPLICATION AND WHICH ARE TO BE SUBMITTED TO THE PERMITTING AGENCY FOR ACCEPTANCE PRIOR TO INSTALLATION OF THAT PORTION OF THE WORK OR ARE REQUIRED TO BE SUBMITTED FOR REVIEW ONLY BY CH2M HILL.
2. WHERE DEFERRED SUBMITTALS INCLUDE ADDITIONAL MATERIALS, INSTALLATION, ANCHORAGE, OR CERTIFICATION OF COMPONENTS THAT REQUIRE SPECIAL INSPECTION AND/OR STRUCTURAL OBSERVATION TO MEET CODE REQUIREMENTS, THE DEFERRED SUBMITTAL SHALL INCLUDE SPECIFIC LINE ITEMS TO BE ADDED TO THE APPROPRIATE TABLES IN THE PROJECT'S STATEMENT OF SPECIAL INSPECTIONS PLAN IF THEY ARE NOT ALREADY IDENTIFIED.
3. THE FOLLOWING IS A LIST OF DEFERRED SUBMITTALS PER IBC SECTION 107.3.4.1 OF 2012 IBC THAT ARE EXPECTED TO CONTAIN STRUCTURAL CALCULATIONS OR SAFETY RELATED SYSTEM INFORMATION FOR REVIEW TO MEET BUILDING PERMITTING REQUIREMENTS FOR DESIGNED SYSTEMS. PRIOR TO INSTALLATION OF THE INDICATED STRUCTURAL ELEMENT, EQUIPMENT, DISTRIBUTION SYSTEM, COMPONENT, OR ITS ANCHORAGE, THE SUB-CONTRACTOR SHALL SUBMIT THE REQUIRED CALCULATIONS AND SUPPORTING DATA AND DRAWINGS FOR REVIEW AND ACCEPTANCE BY CH2M HILL. ADDITIONALLY, ACCEPTANCE INDICATED ON CH2M HILL'S COMMENT FORM, ALONG WITH THE COMPLETED, FINAL SUBMITTAL SHALL THEN BE SUBMITTED BY THE SUB-CONTRACTOR TO THE PERMITTING AGENCY AND APPROVED PRIOR TO INSTALLATION OF THESE ITEMS.

SPECIFICATION SECTION	CODE REQUIRED DEFERRED SUBMITTALS FOR REVIEW BY PERMITTING AGENCY
01 88 15	ANCHORAGE AND BRACING
03 40 00	PRECAST CONCRETE
05 52 16	ALUMINUM RAILINGS
40 05 15	PIPING SUPPORT SYSTEMS
41 22 23.19	MONORAIL HOISTS
44 42 24.03	SECONDARY CLARIFIER MECHANISM
OTHER	ANY EQUIPMENT OR COMPONENT IN WHICH A TECHNICAL SPECIFICATION REQUIRES SUBMITTAL OF EQUIPMENT OR ANCHORAGE SYSTEM CALCULATIONS

HUGO ANDRES ROJAS LICENSED 11/04/16 24949 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	REVISION	BY	APVD
		H ROJAS	F JAGLA	M MERKLEIN				H ROJAS

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FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

ch2m

GENERAL
STRUCTURAL
GENERAL NOTES 2

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

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PROJ	496312
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BIDDING SET

STATEMENT OF SPECIAL INSPECTIONS

GENERAL NOTES

1. THE STATEMENT OF SPECIAL INSPECTIONS PROVIDE PROJECT COMPLIANCE WITH THE PROVISIONS OF THE 2012 INTERNATIONAL BUILDING CODE (IBC) CHAPTER 17 FOR SPECIAL INSPECTION AND TESTING FOR WIND AND SEISMIC RESISTANCE AS APPLICABLE. EXCEPT WHERE OTHERWISE NOTED, THIS INSPECTION IS CONTRACTOR FURNISHED.
2. STANDARD SPECIAL INSPECTION REQUIREMENTS FOR NONSTRUCTURAL COMPONENTS ARE CONTAINED IN TABLE 1.
3. STANDARD SPECIAL INSPECTION REQUIREMENTS FOR STRUCTURAL COMPONENTS, REGARDLESS OF WIND OR SEISMIC DESIGN CATEGORIES, ARE CONTAINED IN TABLE 2. STANDARD TESTING REQUIREMENTS FOR STRUCTURAL COMPONENTS ARE CONTAINED IN TABLE 3.
4. FOR ADDITIONAL REQUIREMENTS, REFER TO SPECIFICATION SECTION 01 45 33, SPECIAL INSPECTION AND TESTING. THESE INCLUDE:
   - A. CONTRACTOR'S REQUIREMENTS TO PROVIDE ACCESS TO THE WORK FOR REQUIRED INSPECTIONS, AND TO PROVIDE NOTICE OF REQUIRED INSPECTIONS AND STRUCTURAL OBSERVATION.
   - B. CONTRACTOR'S STATEMENT OF RESPONSIBILITY FOR WORK TO BE PERFORMED ON SYSTEMS DESIGNATED UNDER THE STATEMENT OF SPECIAL INSPECTIONS FOR WIND OR SEISMIC RESISTANCE.
   - C. DEFINITIONS AND TERMINOLOGY USED IN THIS STATEMENT OF SPECIAL INSPECTIONS.

SPECIAL INSPECTION

1. SPECIAL INSPECTION WILL BE IN ACCORDANCE WITH IBC SECTIONS 1704 AND 1705 TOGETHER WITH LOCAL AND STATE AMENDMENTS. REFER TO THE FOLLOWING TABLES FOR PROJECT SPECIFIC INSPECTION TYPES AND FREQUENCIES.
2. SPECIAL INSPECTIONS WILL BE PROVIDED BY A CERTIFIED OR QUALIFIED INSPECTOR AND ASSOCIATED TESTING WILL BE PERFORMED BY AN APPROVED ACCREDITED INDEPENDENT AGENCY. THE CONTRACTOR WILL SECURE AND PAY FOR THE SERVICES OF THE AGENCY TO PERFORM ALL SPECIAL INSPECTION AND ASSOCIATED TESTS. INSPECTORS FOR EACH SYSTEM AND MATERIAL WILL BE INTERNATIONAL CODE COUNCIL (ICC) CERTIFIED OR OTHERWISE APPROVED BY THE BUILDING OFFICIAL.
3. THE SPECIAL INSPECTOR WILL OBSERVE THE INDICATED WORK FOR COMPLIANCE WITH THE APPROVED CONTRACT DOCUMENTS AND SUBMIT RECORDS OF INSPECTION. ALL DISCREPANCIES WILL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION.
4. SPECIAL INSPECTION AND ASSOCIATED TESTING REPORTS WILL BE SUBMITTED TO THE ENGINEER, CONTRACTOR, BUILDING OFFICIAL, AND OWNER WITHIN ONE WEEK OF INSPECTION OR WITHIN ONE WEEK OF TEST COMPLETION. INSPECTIONS FOR WHICH REPORTING WILL BE REQUIRED ARE NOTED IN THE FOLLOWING TABLES.
5. AT THE CONCLUSION OF CONSTRUCTION, A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF PREVIOUSLY NOTED DISCREPANCIES WILL BE SUBMITTED.

GEOTECHNICAL OBSERVATION

1. ALL FOUNDATION BEARING SURFACES SHALL BE INSPECTED BY GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF REINFORCING STEEL. ADDITIONAL SPECIAL INSPECTION REQUIREMENTS ARE LISTED IN TABLE 1.
2. GEOTECHNICAL TESTING REQUIREMENTS ARE LISTED IN TABLE 3.

STRUCTURAL OBSERVATION

1. STRUCTURAL OBSERVATIONS REQUIREMENTS FOR SEISMIC RESISTANCE IN ACCORDANCE WITH IBC SECTION 1704.5.1 ARE NOT APPLICABLE TO THIS PROJECT.
2. STRUCTURAL OBSERVATIONS REQUIREMENTS FOR WIND REQUIREMENTS IN ACCORDANCE WITH IBC SECTION 1704.5.2 ARE NOT APPLICABLE TO THIS PROJECT.

SPECIAL INSPECTIONS FOR WIND RESISTANCE

1. SPECIAL INSPECTIONS REQUIREMENTS FOR WIND RESISTANCE IN ACCORDANCE WITH IBC SECTION 1705.10 ARE NOT APPLICABLE TO THIS PROJECT.

SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE

1. SPECIAL INSPECTIONS REQUIREMENTS FOR SEISMIC RESISTANCE IN ACCORDANCE WITH IBC SECTION 1705.11 AND 1705.12 ARE NOT APPLICABLE TO THIS PROJECT.

TABLE 1
REQUIRED NON-STRUCTURAL SPECIAL INSPECTION
REFER TO SPECIFICATION SECTION 01 45 33

SYSTEM OR MATERIAL	2012 IBC CODE REFERENCE	REFERENCED STANDARD	PERIODIC CONTRACTOR FURNISHED SPECIAL INSPECTION (SEE NOTE 1)	CONTINUOUS CONTRACTOR FURNISHED SPECIAL INSPECTION	COMMENTS	TESTING FOR SPECIAL INSPECTION
GEOTECHNICAL						
1. SOILS:						
A. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	1705.6, 1803.5.8, 1803.5.9, 1804.5	SECTION 31 23 13, SUBGRADE PREPARATION	X		PROFESSIONAL OBSERVATION BY GEOTECHNICAL ENGINEER	SEE TABLE 3 FOR CLSM STRENGTH TEST REQUIREMENTS
B. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	1705.6	SECTION 31 23 16, EXCAVATION	X		PROFESSIONAL OBSERVATION BY GEOTECHNICAL ENGINEER	
C. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS	1705.6	SECTION 31 23 23, FILL AND BACKFILL	X			SEE TABLE 3 FOR GRADATION TEST REQUIREMENTS
D.VERIFY USE OF PROPER MATERIALS, DENSITIES, AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	1705.6, 1803.5.8	SECTION 31 23 23, FILL AND BACKFILL		X		SEE TABLE 3 FOR DENSITY TEST REQUIREMENTS
E. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY	1705.6	SECTION 31 23 13, SUBGRADE PREPARATION	X		PROFESSIONAL OBSERVATION BY GEOTECHNICAL ENGINEER	SEE TABLE 3 FOR DENSITY TEST AND PROOF ROLLING REQUIREMENTS
GENERAL						
1. CONSTRUCTION MATERIALS AND SYSTEMS THAT ARE ALTERNATIVES TO MATERIALS AND SYSTEMS PRESCRIBED BY CODE	1705.1.1 ITEM 1		X			
2. UNUSUAL DESIGN APPLICATION OF CODE MATERIALS	1705.1.1 ITEM 2			X		
3. INSTALLATION OF MATERIALS THAT REQUIRE ADDITIONAL MANUFACTURER'S INSTRUCTIONS BEYOND CODE REQUIREMENTS	1703.4.2, 1705.1.1 ITEM 3	ICC-ES EVALUATION REPORTS		X		
STRUCTURAL						
SEE TABLE 2.						

NOTES:
1. PERIODIC INSPECTION IS DEFINED AS INSPECTION BY THE SPECIAL INSPECTOR OF ALL MATERIALS AND SYSTEMS, IN SOME CASES PERFORMED DURING THEIR PLACEMENT AND IN ALL CASES PERFORMED UPON COMPLETION OF THEIR PLACEMENT. THE COMPLETION INSPECTION SHALL BE PERFORMED SO THAT WORK CAN BE CORRECTED PRIOR TO OTHER RELATED WORK PROCEEDING AND COVERING INSPECTED WORK.

HUGO ANDRES ROJAS LICENSED 11/04/16 24949 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
REVISION		H ROJAS	F JAGLA	M MERKLEIN		H ROJAS	

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GENERAL
STRUCTURAL
SPECIAL INSPECTIONS NOTES 1

BIDDING SET

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
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DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0302
SHEET	13 of 314

FILENAME: 001-G-0302_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 4:40:42 PM

TABLE 2
REQUIRED STRUCTURAL SPECIAL INSPECTION
REFER TO SPECIFICATION SECTION 01 45 33

SYSTEM	2012 IBC CODE REFERENCE	REFERENCED STANDARD	PERIODIC CONTRACTOR FURNISHED SPECIAL INSPECTION (SEE NOTE 1)	CONTINUOUS CONTRACTOR FURNISHED SPECIAL INSPECTION	COMMENTS	TESTING FOR SPECIAL INSPECTION
CONCRETE						
1. INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS, AND PLACEMENT	1705.3, 1903.1	ACI 318: 3.5, 7.1-7.7	X			SEE TABLE 6 FOR REINFORCING STEEL TESTING
2. INSPECTION OF REINFORCING STEEL WELDING	1705.3, 1903.1	AWS D1.4 ACI 318: 3.5.2			SEE STRUCTURAL STEEL (IN THIS TABLE) FOR WELDING INSPECTION REQUIREMENTS	
3. INSPECTION OF ANCHORS CAST IN CONCRETE	1705.3, 1908.5, 1909.1	ACI 318: 8.1.3	X			
4. INSPECTION OF ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS	1705.3, 1909.1	ACI 318: 3.8.6, 8.1.3, ICC-ES EVALUATION REPORTS	X		PROVIDE CONTINUOUS SPECIAL INSPECTION WHERE REQUIRED BY ICC-ES REPORT	
5. VERIFY USE OF REQUIRED DESIGN MIX	1705.3, 1904.2	ACI 318: Ch. 4, 5.2-5.4	X			
6. AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	1705.3	ASTM C 172, ASTM C 31, ACI 318: 5.6, 5.8		X		SEE TABLE 3 FOR CONCRETE TEST REQUIREMENTS
7. INSPECTION OF CONCRETE FOR PROPER APPLICATION TECHNIQUES	1705.3, 1910.6, 1910.7, 1910.8	ACI 318: 5.9, 5.10		X		
8. INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	1705.3	ACI 318: 5.11-5.13	X			
9. ERECTION OF PRECAST CONCRETE MEMBERS	1705.3	ACI 318: Ch. 16	X			
10. VERIFY OF IN-SITU CONCRETE STRENGTH PRIOR TO REMOVAL OF SHORING AND FORMS FROM BEAMS AND STRUCTURAL SLABS	1705.3	ACI 318: 6.2	X			
11. INSPECT FORMWORK FOR SHAPE, LOCATION, AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED	1705.3	ACI 318: 6.1.1	X			
12. INSPECTION OF WATERSTOPS FOR PROPER SHAPE, LOCATION, JOINT QUALITY, AND SURROUNDING CONCRETE PLACEMENT			X			
13. VERIFY PROPER INSTALLATION OF MECHANICAL REINFORCING SPLICES AND CONNECTIONS	1705.1.1 ITEM 3, 1705.3	ICC-ES EVALUATION REPORTS	X			

TABLE 2 (CONTINUED)
REQUIRED STRUCTURAL SPECIAL INSPECTION
REFER TO SPECIFICATION SECTION 01 45 33

SYSTEM	2012 IBC CODE REFERENCE	REFERENCED STANDARD	PERIODIC CONTRACTOR FURNISHED SPECIAL INSPECTION (SEE NOTE 1)	CONTINUOUS CONTRACTOR FURNISHED SPECIAL INSPECTION	COMMENTS	TESTING FOR SPECIAL INSPECTION
MASONRY VENEER LEVEL A						
1. VERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS	1705.4	ACI 530: Sec. 1.19.1 ACI 530.1: Art. 1.5	X			
MASONRY LEVEL B						
1. FOR SELF-CONSOLIDATING GROUT: VERIFY SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) AS DELIVERED TO THE PROJECT SITE.	1705.4	ACI 530: Sec. 1.19.2 ACI 530.1: Art. 1.5B.1.b.3	X			
2. VERIFY f'_m AND f_{AAC} PRIOR TO CONSTRUCTION EXCEPT WHERE SPECIFICALLY EXEMPTED BY CODE	1705.4	ACI 530: Sec. 1 19.2 ACI 530.1: Art. 1.4B	X			
3. VERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS	1705.4	ACI 530: Sec. 1.19.2 ACI 530.1: Art. 1.5	X			
4. AS MASONRY CONSTRUCTION BEGINS, THE FOLLOWING SHALL BE VERIFIED TO ENSURE COMPLIANCE:						
A. PROPORTIONS OF SITE-PREPARED MORTAR	1705.4	ACI 530: Sec. 1.19.2 ACI 530.1: Art. 2.1, 2.6A	X			
B. CONSTRUCTION OF MORTAR JOINTS	1705.4	ACI 530: Sec. 1.19.2 ACI 530.1: Art. 3.3B	X			
C. LOCATION OF REINFORCEMENT AND CONNECTORS	1705.4	ACI 530: Sec. 1.19.2 ACI 530.1: Art. 3.4, 3.6A	X			
5. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:						
A. GROUT SPACE	1705.4	ACI 530: Sec. 1.19.2 ACI 530.1: Art. 3.2D, 3.2F	X			
B. GRADE, TYPE, AND SIZE OF REINFORCEMENT AND ANCHOR BOLTS	1705.4	ACI 530: Sec. 1.16, 1.19.2 ACI 530.1: Art. 2.4, 3.4	X			
C. PLACEMENT OF REINFORCEMENT AND CONNECTORS	1705.4	ACI 530: Sec. 1.16, 1.19.2 ACI 530.1: Art. 3.2E, 3.4, 3.6A	X			
D. PROPORTIONS OF SITE-PREPARED GROUT	1705.4	ACI 530: Sec. 1.19.2 ACI 530.1: Art. 2.6B, 2.4G.1.b	X			
E. CONSTRUCTION OF MORTAR JOINTS	1705.4	ACI 530: Sec. 1.19.2 ACI 530.1: Art. 3.3B	X			

TABLE 2 (CONTINUED)
REQUIRED STRUCTURAL SPECIAL INSPECTION
REFER TO SPECIFICATION SECTION 01 45 33

SYSTEM	2012 IBC CODE REFERENCE	REFERENCED STANDARD	PERIODIC CONTRACTOR FURNISHED SPECIAL INSPECTION (SEE NOTE 1)	CONTINUOUS CONTRACTOR FURNISHED SPECIAL INSPECTION	COMMENTS	TESTING FOR SPECIAL INSPECTION
6. VERIFY DURING CONSTRUCTION:						
A. SIZE AND LOCATION OF STRUCTURAL ELEMENTS	1705.4	ACI 530: Sec. 1.19.2 ACI 530.1: Art. 3.3F	X			
B. TYPE, SIZE AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION	1705.4	ACI 530: Sec. 1.16.4.3, 1.17.1, 1.19.2	X			
C. WELDING OF REINFORCEMENT	1705.4	ACI 530: Sec. 1.19.2, 2.1.7.7.2, 3.3.3.4(c), 8.3.3.4(b)		X	SEE STRUCTURAL STEEL (IN THIS TABLE) FOR WELDING INSPECTION REQUIREMENTS	
D. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMP. BELOW 40 DEGREES F) OR HOT WEATHER (TEMP. ABOVE 90 DEGREES F)	1705.4, 2104.3, 2104.4	ACI 530: Sec. 1.19.2 ACI 530.1: Art. 1.8C, 1.8D	X			
E. PLACEMENT OF GROUT	1705.4	ACI 530: Sec. 1.19.2 ACI 530.1: Art. 3.5, 3.6C		X		
7. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS	1705.4, 2105.2.2, 2105.3	ACI 530.1: Art.	X			SEE TABLE 3 FOR UNIT STRENGTH TESTS FOR MASONRY
STRUCTURAL STEEL						
1. VERIFY STRUCTURAL STEEL MATERIAL						
A. IDENTIFICATION MARKINGS TO CONFORM TO AISC 360	1705.2.1, 2203.1	Applicable ASTM Material Standards	X			
B. MANUFACTURER'S CERTIFIED TEST REPORTS	1705.2.1	AISC 360: Sec. N3.2, N5.2	X			
2. PRIOR TO BOLTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:						
A. MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS	1705.2.1	AISC 360: Sec. N3.2, N5.2, N5.6 RCSC: Sec. 2.1, 9.1		X		
B. FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS	1705.2.1	AISC 360: Sec. N3.2, N5.2, N5.6 Applicable ASTM Material Standards	X			
C. PROPER BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	1705.2.1	AISC 360: Sec. N5.6 RCSC: Sec. 4	X			
D. CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	1705.2.1	AISC 360: Sec. N5.6 RCSC: Sec. 3.2, 4	X			

HUGO ANDRES ROJAS LICENSED 11/04/16 24949 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DR	REVISION	CHK	APVD	BY
DSGN	H ROJAS	F JAGLA		M MERKLEIN	APVD	H ROJAS

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0303
SHEET	14 of 314

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TABLE 2 (CONTINUED)
REQUIRED STRUCTURAL SPECIAL INSPECTION
REFER TO SPECIFICATION SECTION 01 45 33

SYSTEM	2012 IBC CODE REFERENCE	REFERENCED STANDARD	PERIODIC CONTRACTOR FURNISHED SPECIAL INSPECTION (SEE NOTE 1)	CONTINUOUS CONTRACTOR FURNISHED SPECIAL INSPECTION	COMMENTS	TESTING FOR SPECIAL INSPECTION
E. PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED	1705.2.1	AISC 360: Sec. N5.6 RCSC: Sec. 7		X		
F. PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS	1705.2.1	AISC 360: Sec. N5.6 RCSC: Sec. 2.2	X			
3. VERIFY DURING BOLTING:						
A. FASTENER ASSEMBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED	1705.2.1	AISC 360: Sec. N5.6	X			
B. JOINT BROUGHT TO SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION	1705.2.1	AISC 360: Sec. N5.6	X			
C. FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	1705.2.1	AISC 360: Sec. N5.6	X			
D. FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES	1705.2.1	AISC 360: Sec. N5.6	X			SEE TABLE 3 FOR TESTING OF HIGH-STRENGTH BOLTING
4. PRIOR TO WELDING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:						
A. APPROVED WELDING PROCEDURE SPECIFICATIONS (WPS) AVAILABLE TO WELDERS AND WELDING INSPECTOR(S)	1705.2.1	AWS D1.1	X			
B. WELDER QUALIFICATIONS AND JOINT FIT-UP	1705.2	AWS D1.1	X		NOTE 2	ALSO SEE REQUIREMENTS OF SPEC. SECTION 05 05 23
5. VERIFY DURING WELDING:						
A. CONTROL AND HANDLING OF WELDING CONSUMABLES	1705.2.1	AWS D1.1	X			
B. ENVIRONMENTAL CONDITIONS	1705.2.1	AWS D1.1	X			
C. COMPLIANCE WITH WPS REQUIREMENTS	1705.2.1	AWS D1.1	X		NOTE 2	ALSO SEE REQUIREMENTS OF SPEC. SECTION 05 05 23 AND TABLE 3 FOR STRUCTURAL STEEL TEST REQUIREMENT

TABLE 2 (CONTINUED)
REQUIRED STRUCTURAL SPECIAL INSPECTION
REFER TO SPECIFICATION SECTION 01 45 33

SYSTEM	2012 IBC CODE REFERENCE	REFERENCED STANDARD	PERIODIC CONTRACTOR FURNISHED SPECIAL INSPECTION (SEE NOTE 1)	CONTINUOUS CONTRACTOR FURNISHED SPECIAL INSPECTION	COMMENTS	TESTING FOR SPECIAL INSPECTION
6. AFTER WELDING, VERIFY THE FOLLOWING:						
A. SIZE, LENGTH AND LOCATION OF WELDS	1705.2.1	AWS D1.1	X		NOTE 2	
B. WELDS MEET VISUAL ACCEPTANCE CRITERIA	1705.2.1	AWS D1.1	X		NOTE 2	ALSO SEE REQUIREMENTS OF SPEC. SECTION 05 05 23
C. BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)	1705.2.1	AWS D1.1	X			
D. NONDESTRUCTIVE WELDING INSPECTION	1705.2	AWS D1.1	X		NOTE 2	ALSO SEE REQUIREMENTS OF SPEC. SECTION 05 05 23
7. INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE:						
A. DETAILS SUCH AS BRACING AND STIFFENING	1705.2.1		X			
B. MEMBER LOCATIONS	1705.2.1		X			
C. APPLICATION OF JOINT DETAILS AT EACH CONNECTION	1705.2.1		X			
STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL						
1. INSPECTION OF WELDING, REINFORCING STEEL:						
A. VERIFY WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A706	1705.2.2, 1903.1	AWS D1.4 ACI 318: 3.5.2	X		NOTE 2	CONTRACTOR TO DETERMINE THE CARBON EQUIVALENT TO DEVELOP WPS REQUIREMENTS
B. REINFORCING STEEL RESISTING FLEXURAL AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL MOMENT FRAMES	1705.2.2, 1903.1	AWS D1.4 ACI 318: 3.5.2		X		SEE TABLE 3 FOR TESTING OF WELDING REINFORCING STEEL
C. REINFORCING STEEL	1705.2.2, 1903.1	AWS D1.4		X		SEE TABLE 3 FOR
D. SHEAR REINFORCEMENT	1705.2.2, 1903.1	AWS D1.4 ACI 318: 3.5.2		X		SEE TABLE 3 FOR TESTING OF WELDING REINFORCING STEEL
E. OTHER REINFORCING STEEL	1705.2.2, 1903.1	AWS D1.4 ACI 318: 3.5.2	X		NOTE 2	ALSO SEE REQUIREMENTS OF SPEC. SECTION 05 05 23
ALUMINUM						
1. VERIFY ALUMINUM MATERIAL						
A. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS	1705.1.1 ITEM 2		X			
B. MANUFACTURERS' CERTIFIED MILL TEST REPORTS	1705.1.1 ITEM 2		X			
2. INSPECTION OF WELDING:						
A. NONDESTRUCTIVE INSPECTION	1705.1.1 ITEM 2	AWS D1.2	X		NOTE 2	ALSO SEE REQUIREMENTS OF SPEC. SECTION 05 05 23

NOTES:
1. PERIODIC INSPECTION IS DEFINED AS INSPECTION BY THE SPECIAL INSPECTOR OF ALL MATERIALS AND SYSTEMS, IN SOME CASES PERFORMED DURING THEIR PLACEMENT AND IN ALL CASES PERFORMED UPON COMPLETION OF THEIR PLACEMENT. THE COMPLETION INSPECTION SHALL BE PERFORMED SO THAT WORK CAN BE CORRECTED PRIOR TO OTHER RELATED WORK PROCEEDING AND COVERING INSPECTED WORK.

2. VISUAL INSPECTION S THE RESPONSIBILITY OF THE CONTRACTOR'S WELDING INSPECTOR(S) AND IS NOT CONSIDERED SPECIAL INSPECTION. CONTRACTOR MUST PROVIDE A QUALIFIED WELDING INSPECTOR TO OVERSEE CONTRACTOR'S WELDING OPERATIONS, AS REQUIRED BY AWS D1.1, SECTIONS 6.1.2 & 6.6, SPEC. SECTION 05 05 23 AND REFERENCED WELDING CODES.

HUGO ANDRES ROJAS
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11/04/16
24949
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY
REVISION		H ROJAS	F JAGLA	M MERKLEIN	APVD	H ROJAS

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0304
SHEET	15 of 314

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TABLE 3
TESTING FOR REQUIRED SPECIAL INSPECTION
REFER TO SPECIFICATION SECTION 01 45 33

MATERIAL	TYPE OR SCOPE	STANDARD	2012 IBC CODE REFERENCE	FREQUENCY	BY WHOM	COMMENTS
GEOTECHNICAL						
COMPACTED FILL	GRADATION	ASTM C117, C136	1705.6	SECTION 31 23 23, FILL AND BACKFILL	TESTING AGENCY	
COMPACTED FILL	COMPACTION	ASTM **D1557**	1705.6	SECTION 31 23 23, FILL AND BACKFILL	TESTING AGENCY	
COMPACTED FILL	DENSITY	ASTM **D1556**	1705.6	SECTION 31 23 23, FILL AND BACKFILL	TESTING AGENCY	
PREPARED SUBGRADE	DENSITY	ASTM **D1557**	1705.6	SECTION 31 23 13, SUBGRADE PREPARATION	TESTING AGENCY	
CONCRETE						
CONCRETE	STRENGTH	ASTM C39	1705.3	ONCE EACH DAY, BUT NOT LESS THAN ONE SAMPLE FOR EACH 100 CUBIC YARDS OR 5,000 SFT OF WALLS OR SLABS PLACED	TESTING AGENCY	
CONCRETE	SLUMP	ASTM C143, C94	1705.3	ONE SAMPLE PER STRENGTH TEST	TESTING AGENCY	
CONCRETE	AIR CONTENT	ASTM C231, C94	1705.3	ONE SAMPLE PER STRENGTH TEST	TESTING AGENCY	
CONCRETE	TEMPERATURE	ASTM C1064	1705.3	ONE SAMPLE PER STRENGTH TEST	TESTING AGENCY	
MASONRY						
CONCRETE MASONRY	UNIT STRENGTH	ASTM C140	2105.2.2.1.2	ONE SAMPLE SET (6 FULL SIZE UNITS) PER 5,000 SQ. FT. DURING CONSTRUCTION	TESTING AGENCY	
MASONRY	COMPRESSIVE STRENGTH OF GROUT	ASTM C1019	2105.2.2.1	THREE SAMPLES PRIOR TO CONSTRUCTION	TESTING AGENCY	
MASONRY	PRISM	ASTM C1314	2105.2.2.2	TEST THREE PRISMS PRIOR TO CONSTRUCTION	TESTING AGENCY	
STEEL						
HIGH-STRENGTH BOLTING	PRE-INSTALLATION VERIFICATION TESTING OF PRETENSIONED BOLTS	RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS, Sec. 7	1705.2	3 FASTENER ASSEMBLIES OF EACH COMBINATION OF DIAMETER, LENGTH, GRADE AND LOT	TESTING AGENCY	
STRUCTURAL STEEL	ULTRASONIC OR RADIOGRAPHIC NONDESTRUCTIVE TESTING	AWS D1.1	1705.2	SECTION 05 05 23, WELDING	TESTING AGENCY	PERFORM RT OR UT ON GROOVE WELDS
REINFORCING STEEL	MAGNETIC PARTICLE NONDESTRUCTIVE TESTING	AWS D1.4	1705.3, 1903.1	SECTION 05 05 23, WELDING	TESTING AGENCY	PERFORM ON FILLET WELDS AND PARTIAL JOINT PENETRATION WELDS

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PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		H ROJAS	F JAGLA	M MERKLEIN			H ROJAS

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GENERAL
STRUCTURAL
SPECIAL INSPECTIONS NOTES 4

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0305
SHEET	16 of 314

BIDDING SET

FILENAME: 001-G-0305_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 4:40:51 PM

PIPE AND FITTING SYMBOLS

DOUBLE LINE	SINGLE LINE	
		EXISTING PIPE
		NEW PIPE
		EXISTING PIPE TO BE ABANDONED
		EXISTING PIPE TO BE REMOVED
		WELDED JOINT
		GROOVED END JOINT
		FLANGED JOINT
		MECHANICAL JOINT & PROPRIETARY RESTRAINED JOINT
		BELL & SPIGOT JOINT (LEADED)
		HUB & SPIGOT JOINT (RUBBER GASKET)
		BALL JOINT
		ADAPTER SIDE GROOVED END ADAPTER FLANGE
		FLANGED COUPLING ADAPTER
		FLEXIBLE COUPLING
		METAL BELLOWS EXP JOINT
		ELASTOMER BELLOWS EXP JOINT
		ELBOW UP
		ELBOW DOWN
		TEE UP
		TEE DOWN
		LATERAL UP
		LATERAL DOWN
		CONCENTRIC REDUCER
		ECCENTRIC REDUCER

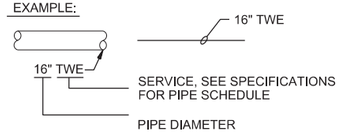
DOUBLE LINE	SINGLE LINE	
		REDUCING BUSHING
		UNION
		CAP
		ANCHOR
		ELBOW, 90 DEGREE
		CROSS
		TEE
		ELBOW, 45 DEGREE
		LATERAL

NOTES:

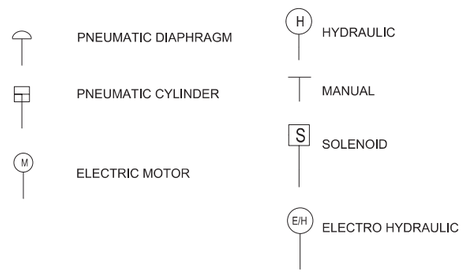
1. ONLY FLANGED END CONNECTIONS ARE SHOWN HERE FOR DOUBLE LINE FITTINGS. FITTINGS WITH OTHER END PATTERNS ARE SHOWN SIMILARLY ON THE CONSTRUCTION DRAWINGS. ALSO SEE PIPING SPECIFICATIONS.
2. SYMBOLS SHOWN HERE FOR SINGLE LINE FITTINGS ARE GENERIC ONLY. REFER TO PIPING SPECIFICATIONS FOR SPECIFIC END CONNECTIONS FOR SINGLE LINE PIPE AND FITTINGS.
3. EXISTING PIPE AND EQUIPMENT IS SHOWN LIGHT-LINED AND/OR SCREENED AND IS NOTED AS EXISTING. NEW PIPING AND EQUIPMENT IS SHOWN HEAVY-LINED.

PIPING DESIGNATION

EXAMPLE:



ACTUATOR SYMBOLS

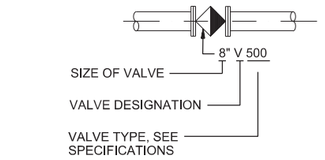


VALVE SYMBOLS

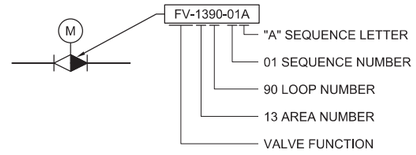
SINGLE LINE	DOUBLE LINE	
		GATE
K		KNIFE GATE
		BUTTERFLY
		WAFER/LUG STYLE BUTTERFLY
		GLOBE
		BALL
		SEATING PORT
		ECCENTRIC PLUG
		PLUG OR COCK
		NEEDLE
		DIAPHRAGM
		PINCH
		SWING CHECK
		BALL CHECK
		HOSE VALVE (HV- X) OR (V-X) X = NO. IN SPECS
S		SAMPLE
		MUD
		PRESSURE RELIEF
		AIR AND/OR VACUUM RELEASE
		REGULATED SIDE PRESSURE CONTROL (INTERNAL PILOT)
		REGULATED SIDE PRESSURE CONTROL (EXTERNAL PILOT)
		MULTI-PORT VALVE, ARROWS INDICATE FLOW PATTERN. SEATING PORTS ARE IMPLIED BY INDICATED FLOW PATTERN.
		TELESCOPING SCUM VALVE

VALVE DESIGNATIONS

MANUAL VALVES AND CHECK VALVES



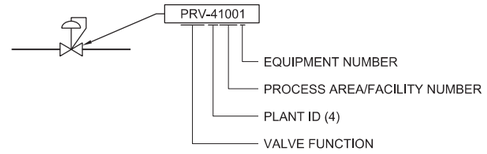
CONTROL VALVES



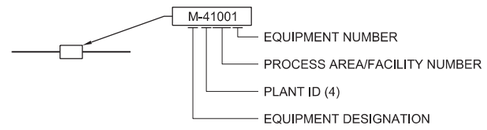
NOTE:

SEE I&C LEGENDS FOR FURTHER DEFINITIONS AND ACTUATOR TYPES.

SELF-CONTAINED REGULATING VALVES



EQUIPMENT DESIGNATIONS



MECHANICAL LEGEND AND NOTES

GENERAL PIPING NOTES

1. LAY PIPE TO UNIFORM GRADE BETWEEN INDICATED ELEVATION POINTS.
2. SIZE OF FITTINGS SHOWN ON DRAWINGS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, UNLESS OTHERWISE INDICATED. TYPE OF JOINT AND FITTING MATERIAL SHALL BE THE SAME AS SHOWN FOR ADJACENT STRAIGHT RUN OF PIPE.
3. SEE SECTION 40 05 15 BASIC MECHANICAL MATERIALS AND METHODS FOR PIPE SUPPORT REQUIREMENTS. FOR PIPING LESS THAN 24-INCH, PIPE SUPPORT DESIGN DETAILS INDICATED AND DEPICTED ON THE DRAWINGS ONLY INDICATE THE GENERAL TYPE OF SUPPORT INTENDED FOR THE SERVICE. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL SUPPORTS, INCLUDING THE DESIGN, LAYOUT AND COORDINATION OF SUPPORT LOCATIONS WITH OTHER EQUIPMENT. PIPE SUPPORTS FOR PIPING 18-INCH AND LARGER ARE DESIGN, LOCATED ON THE DRAWINGS.
4. ALL JOINTS SHALL BE WATERTIGHT. WALL PIPES SHALL BE USED WHEREVER PIPING PASSES FROM A STRUCTURE TO BACKFILL.
5. ALL FLEXIBLE CONNECTORS AND COUPLING ADAPTERS SHALL BE PROVIDED WITH THRUST PROTECTION AS SPECIFIED, UNLESS OTHERWISE NOTED. THRUST PROTECTION SHALL BE ADEQUATE FOR TEST PRESSURES SPECIFIED.
6. SYMBOLS, LEGENDS, AND PIPE USE IDENTIFICATIONS SHOWN SHALL BE FOLLOWED THROUGHOUT THE DRAWINGS, WHEREVER APPLICABLE. NOT ALL OF THE VARIOUS PIPING COMPONENTS ARE NECESSARILY USED IN THE PROJECT.
7. ALL BURIED PIPING SPECIFIED TO BE PRESSURE TESTED, EXCEPT FLANGED, WELDED, OR SCREWED PIPING, SHALL BE PROVIDED WITH THRUST PROTECTION AS SPECIFIED, UNLESS OTHERWISE NOTED.
8. NUMBER AND LOCATION OF UNIONS SHOWN ON DRAWINGS IS ONLY APPROXIMATE. PROVIDE ALL UNIONS NECESSARY TO FACILITATE CONVENIENT REMOVAL OF VALVES AND MECHANICAL EQUIPMENT.
9. WHERE A GROOVED END COUPLING IS SHOWN, IT SHALL BE THE RIGID JOINT TYPE, UNLESS OTHERWISE SPECIFIED. WHERE A FLANGED COUPLING ADAPTER IS SHOWN, A STANDARD FLANGE SHALL BE JOINED TO THE COUPLING ADAPTER.

FLOW STREAM IDENTIFICATIONS

SEE PIPE SCHEDULE ON DRAWINGS 001-G-0900 AND 001-G-0901.

GENERAL NOTE:

1. THIS IS A STANDARD LEGEND SHEET. THEREFORE, NOT ALL OF THE INFORMATION SHOWN MAY BE USED ON THIS PROJECT.

ESTELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DESCRIPTION	DATE	BY
	REVISION		APVD
	CHK		J SANDINO
	DR		T WHITE
DSGN		DATE	E JOHNSON

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

ch2m

GENERAL
PROCESS MECHANICAL LEGEND

BIDDING SET

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0400
SHEET	17 of 314

FILENAME: 001-G-0400_496312.dgn PLOT DATE: 2016\11\03 PLOT TIME: 1:12:16 PM

PLUMBING SYMBOLS

- EXISTING PIPE (SCREENED)
- NEW PIPE
- EXISTING PIPE TO BE ABANDONED
- EXISTING PIPE TO BE REMOVED
- ANCHOR
- CAP
- CLEANOUT PLUG
- ELBOW, 90 DEGREE
- ELBOW UP
- ELBOW DOWN
- CROSS
- TEE
- TEE UP
- TEE DOWN
- ELBOW, 45 DEGREE
- LATERAL
- LATERAL UP
- LATERAL DOWN
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- UNION
- GROOVED END JOINT
- FLEXIBLE PIPE CONNECTION
- STEEL BELLOWS EXPANSION JOINT
- STRAINER
- SIGHT GLASS
- PRESSURE SWITCH
- PRESSURE GAUGE WITH COCK
- THERMOMETER
- HOSE RACK (TYPE AS INDICATED)
- EYEWASH
- SAFETY SHOWER
- SAFETY SHOWER\EYEWASH COMBINATION UNIT
- HOSE VALVE

Z" YCO-X — Z = OUTLET SIZE IN INCHES; Y = F - FLOOR CLEANOUT, W - WALL CLEANOUT; X = NO. IN SPECIFICATION

Z" HD-XY — HUB DRAIN; Z = OUTLET SIZE IN INCHES; X = NO. IN SPECIFICATION; Y = T WITH TRAP, Y = P WITH PRIMED TRAP

Z" FD-XY — FLOOR DRAIN; Z = OUTLET SIZE IN INCHES; X = NO. IN SPECIFICATION; Y = T WITH TRAP, Y = P WITH PRIMED TRAP

Z" RD-X — ROOF DRAIN; Z = OUTLET SIZE IN INCHES; X = NO. IN SPECIFICATION

Z" OD-X — OVERFLOW ROOF DRAIN; Z = OUTLET SIZE IN INCHES; X = NO. IN SPECIFICATION

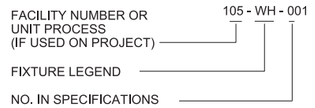
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PLUMBING EQUIPMENT IDENTIFICATION

IDENTIFICATION	EQUIPMENT NAME
AAV	AIR ADMITTANCE VALVE
AD	AREA DRAIN
AC	AIR COMPRESSOR
ANT	ACID NEUTRALIZATION TANK
AR	AIR RECEIVER
BFP	BACKFLOW PREVENTER
BP	BOOSTER PUMP
CP	CIRCULATION PUMP
DB	DOWNSPOUT BOOT
DCBP	DOUBLE CHECK BACKFLOW PREVENTER
DN	DOWNSPOUT NOZZLE
DT	DILUTION TANK
DWT	DOMESTIC WATER STORAGE TANK
ET	EXPANSION TANK
ETP	ELECTRONIC TRAP PRIMER
IM	ICE MAKER
HX	HEAT EXCHANGER
OD	OVERFLOW ROOF DRAIN
ON	OVERFLOW NOZZLE
OS	OIL\WATER SEPERATOR
P	PUMP
RD	ROOF DRAIN
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
ST	STORAGE TANK
SP	SUMP PUMP
TP	TRAP PRIMER ASSEMBLY
TWT	TEMPERED WATER STORAGE TANK
WH	WATER HEATER
WHA	WATER HAMMER ARRESTOR
VP	VACUUM PUMP

EXAMPLE CALLOUT:

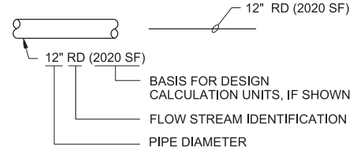


VALVE SYMBOLS

SINGLE LINE	DOUBLE LINE
GATE	
BUTTERFLY	OR
GLOBE	OR
BALL	OR
PLUG OR COCK	OR
SWING CHECK	OR
BALL CHECK	OR
HOSE VALVE (HV- X) OR (V-X) X = NO. IN SPECS	
PRESSURE RELIEF	
AIR AND/OR VACUUM RELEASE	
REGULATED SIDE	
PRESSURE CONTROL (INTERNAL PILOT)	
BALANCE VALVE (RHW)	
BACKFLOW PREVENTER	

PIPING DESIGNATION

EXAMPLE:



PIPE SERVICE IDENTIFICATION	BASIS FOR DESIGN CALCULATION UNITS
RD	DRAINAGE AREA IN SQUARE FOOTAGE - SF
NG	VOLUME OF GAS CUBIC FEET PER HOUR - CFH *
D	DRAINAGE FIXTURE UNIT - DFU
V	DRAINAGE FIXTURE UNIT - DFU
W1	FLOW IN GALLONS PER MINUTE GPM
HW	FLOW IN GALLONS PER MINUTE GPM

NOTE: * GAS FLOW DEMAND BASED ON PROJECT SITE ELEVATION

PLUMBING FIXTURE IDENTIFICATION

LEGEND	FIXTURE
DF	DRINKING FOUNTAIN
EE	EMERGENCY EYE WASH
ES	EMERGENCY SAFETY SHOWER
EWC	ELECTRIC WATER COOLER
LAV	LAVATORY
LSK	LABORATORY SINK
LP	LABORATORY FAUCET OR COCK
MS	MOP SINK
SH	SHOWER
S	SINK
SSH	SAFETY SHOWER\EYEWASH COMBINATION
SSK	SERVICE SINK
UR	URINAL
WC	WATER CLOSET
WF	WASH FOUNTAIN
HV	HOSE VALVE OR HYDRANT
WS	AUTOMATIC WASHER
YH	YARD HYDRANT

EXAMPLE CALLOUT: SSH - 1 (FIXTURE LEGEND; NO. IN SPECIFICATIONS)

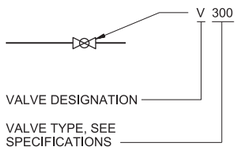
PLUMBING FIXTURE SCHEDULE

ITEM	DESCRIPTION	D	V	ARD	ARV	W1	HW	DIW	W2	A	VAC	COMMENTS
WC-1	WALL MTD WATER CLOSET	4"	2"	-	-	1"	-	-	-			
WC-2	WALL MTD WATER CLOSET	4"	2"	-	-	1"	-	-	-			ADA COMPLIANT
UR-1	URINAL	2"	1 1/2"	-	-	3/4"	-	-	-			
UR-2	URINAL	2"	1 1/2"	-	-	3/4"	-	-	-			ADA COMPLIANT
LAV-1	LAVATORY	1 1/2"	1 1/2"	-	-	1/2"	1/2"	-	-			
LAV-2	LAVATORY	1 1/2"	1 1/2"	-	-	1/2"	1/2"	-	-			ADA COMPLIANT
S-1	SINK (KITCHEN)	2"	1 1/2"	-	-	1/2"	1/2"	-	-			
S-2	SAMPLE SINK (PROCESS)	3"	1 1/2"	-	-	-	-	-	1/2"			
MS-1	MOP SINK	3"	1 1/2"	-	-	1/2"	1/2"	-	-			
SSK-1	SERVICE SINK	3"	1 1/2"	-	-	1/2"	1/2"	-	-			
SH-1	SHOWER	2"	1 1/2"	-	-	1/2"	1/2"	-	-			
SH-2	SHOWER	2"	1 1/2"	-	-	1/2"	1/2"	-	-			ADA COMPLIANT
DF-1	DRINKING FOUNTAIN	1 1/2"	1 1/2"	-	-	1/2"	-	-	-			ADA COMPLIANT
EWC-1	ELECTRIC WATER COOLER	1 1/2"	1 1/2"	-	-	1/2"	-	-	-			ADA COMPLIANT
EWH-1	EYE WASH HAND HELD	-	-	-	-	3/4"	-	-	-			
LSK-1	LAB SINK	-	-	2"	1 1/2"	1/2"	1/2"	1/2"	-			
LSK-2	LAB SAMPLE SINK	-	-	3"	1 1/2"	1/2"	1/2"	-	-			
LP-1	LAB AIR COCK	-	-	-	-	-	-	-	-	1/2"	-	
LP-2	LAB VACUUM COCK	-	-	-	-	-	-	-	-	-	1/2"	
SSH-1	SAFETY SHOWER\EYEWASH	-	-	-	-	1 1/2"	-	-	-	-	-	
SSH-2	SAFETY SHOWER\EYEWASH	-	-	-	-	1 1/2"	-	-	-	-	-	EXTERIOR TYPE

VALVE DESIGNATIONS

MANUAL VALVES AND CHECK VALVES

EXAMPLE CALLOUT:



GENERAL DRAWING NOTES

1. THIS IS A STANDARD LEGEND SHEET. SOME SYMBOLS OR ABBREVIATIONS ON THIS SHEET MAY NOT APPEAR ON THE PLANS.
2. FOR ADDITIONAL ABBREVIATIONS OF OTHER DIVISIONS, SEE OTHER LEGENDS SUCH AS GENERAL, HVAC, MECHANICAL, FIRE PROTECTION, STRUCTURAL AND ARCHITECTURAL LEGENDS.
3. FOR ADDITIONAL FLOW STREAM IDENTIFICATIONS OF OTHER DIVISIONS SEE OTHER LEGENDS SUCH AS GENERAL, INSTRUMENTATION AND CONTROL LEGENDS.

SCOTT HOFFMAN LICENSED 11/4/16 25291 Scott Hoffman KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	REVISION	BY	APVD
		S HOFFMAN	T WHITE	P RAUSCH	APVD	S HOFFMAN	

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

GENERAL
PLUMBING LEGEND 1

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0500
SHEET	18 of 314

BIDDING SET

FILENAME: 001-G-0500_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 4:44:31 PM

PLUMBING GENERAL NOTES

1. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS, VERIFY EXISTING PLUMBING PIPING SYSTEMS AND VERIFY NEW POINTS OF CONNECTION TO EXISTING PIPING PRIOR TO PERFORMING WORK.
2. IN THE AREAS OF PLUMBING DEMOLITION THE CONTRACTOR SHALL FIELD LOCATE AND REMOVE ALL PIPING THAT IS NO LONGER IN USE OR REQUIRED TO SERVE THE NEW OR EXISTING PLUMBING FIXTURES. INCLUDES BUT IS NOT LIMITED TO , SANITARY DRAINS, VENTS, W1, HW, RHW, HANGERS AND SUPPORTS.
3. ALL BURIED AND CONCRETE ENCASED COPPER PIPING SHALL BE INSTALLED WITH A PROTECTIVE SLEEVE, OR WRAP, FOR ITS ENTIRE LENGTH. SLEEVE, OR WRAP, SHALL BE FLEXIBLE POLYETHYLENE MANUFACTURED FOR CONTINUOUS PIPE COVER APPLICATION. EXTEND SLEEVE, OR WRAP, 2 INCHES ABOVE FINISHED FLOOR.
4. PATCH ALL HOLES IN WALLS AND FLOORS LEFT AS A RESULT OF PLUMBING DEMOLITION WORK.
5. ALL PIPE PENETRATIONS THROUGH FLOORS AND WALLS SHALL BE SLEEVED AND SEALED.
6. WHERE NEW PIPING IS INSTALLED UNDER EXISTING CONCRETE FLOORS ON GRADE , CONCRETE FLOORS SHALL BE SAW CUT AND PATCHED TO MATCH EXISTING FLOOR SURFACE.
7. FURNISH AND INSTALL WATER HAMMER ARRESTERS ON W1 AND HW PIPING.
8. PIPING ELEVATIONS SHOWN ARE APPROXIMATE, FIELD VERIFY PIPING ELEVATIONS WITH NEW AND EXISTING CONDITIONS PRIOR TO INSTALLATION.
9. THE CONTRACTOR SHALL PROVIDE OFFSETS IN THE PIPING RUNS, IN ADDITION TO WHAT IS SHOWN ON THE DRAWINGS, WHERE REQUIRED TO CLEAR EXISTING AND NEW; HVAC, STRUCTURAL, ARCHITECTURAL, ELECTRICAL, MECHANICAL AND OTHER SYSTEMS.
10. PLUMBING VENTS THROUGH ROOF SHALL BE OFFSET AT ROOF TO PROVIDE MINIMUM DISTANCE OF 3'-6" FROM EXTERIOR WALL.
11. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF PLUMBING FIXTURES, VENTS THRU ROOF.
12. CLEANOUT TO GRADE FITTINGS, WHERE SANITARY DRAIN EXITS THE BUILDING, SHALL ALLOW FOR RODDING BOTH WAYS.
13. COORDINATE FINAL LOCATIONS OF FLOOR AND HUB DRAINS THAT RECEIVE CONDENSATE DRAINAGE FROM HVAC EQUIPMENT. INSTALL SUCH THAT CONDENSATE PIPING DOES NOT BECOME A TRIP HAZARD.
14. ALL PIPING LOCATED IN RETURN AIR PLENUM SPACES SHALL MEET APPLICABLE BUILDING CODES FOR MATERIAL TYPE.
15. PROVIDE CLEANOUTS IN ROOF DRAIN PIPING, ROOF OVERFLOW DRAIN PIPING AND SANITARY WASTE PIPING AS SHOWN ON THE DRAWINGS. FURNISH AND INSTALL ADDITIONAL CLEANOUTS AS REQUIRED BY CODE.
16. INSULATE ABOVE GRADE DRAINAGE PIPING THAT RECEIVES CONDENSATE FROM AIR CONDITIONING UNITS.
17. THE CONTRACTOR SHALL COORDINATE THE PLUMBING DEMOLITION WORK WITH THE MECHANICAL, HVAC, ARCHITECTURAL, STRUCTURAL AND ELECTRICAL DEMOLITION WORK.
18. ALL PIPES PASSING THROUGH FIRE RATED WALLS AND FLOORS SHALL BE INSTALLED TO MEET APPLICABLE UL SYSTEM REQUIREMENTS PERTAINING TO THE TYPE OF CONSTRUCTION. REFER TO ARCHITECTURAL DRAWINGS FOR WALLS AND FLOORS WHICH ARE FIRE RATED.
19. ALL PIPE LINES BELOW GRADE ARE SHOWN DASHED.
20. (XXXX-XXX) INDICATES STANDARD DETAIL NUMBER.

GENERAL NOTE:

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GENERAL DRAWING NOTES

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2. FOR ADDITIONAL ABBREVIATIONS OF OTHER DIVISIONS, SEE OTHER LEGENDS SUCH AS GENERAL, HVAC, MECHANICAL, FIRE PROTECTION, STRUCTURAL AND ARCHITECTURAL LEGENDS.
3. FOR ADDITIONAL FLOW STREAM IDENTIFICATIONS OF OTHER DIVISIONS SEE OTHER LEGENDS SUCH AS GENERAL, INSTRUMENTATION AND CONTROL, HVAC, MECHANICAL, FIRE PROTECTION, STRUCTURAL AND ARCHITECTURAL LEGENDS.

SCOTT HOFFMAN LICENSED 11/4/16 25291 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD
		S HOFFMAN	T WHITE	P RAUSCH	APVD

REVISION BY APVD

S HOFFMAN

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

ch2m

GENERAL
PLUMBING LEGEND 2

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0501
SHEET	19 of 314

BIDDING SET

FILENAME: 001-G-0501_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 4:42:42 PM

HEATING, VENTILATING, AND AIR CONDITIONING PIPE AND FITTING SYMBOLS

DOUBLE LINE	SINGLE LINE	
		EXISTING PIPE (SCREENED)
		NEW PIPE
		EXISTING PIPE TO BE ABANDONED
		EXISTING PIPE TO BE REMOVED
		WELDED JOINT
		GROOVED END JOINT
		FLANGED JOINT
		FLEXIBLE COUPLING
		GROOVED END GROOVED END ADAPTER FLANGE
		STEEL BELLOWS EXP JOINT
		ELBOW UP
		ELBOW DOWN
		TEE UP
		TEE DOWN
		LATERAL UP
		LATERAL DOWN
		CONCENTRIC REDUCER
		ECCENTRIC REDUCER
		UNION
		ANCHOR
		PIPE ALIGNMENT GUIDE
		FLEXIBLE (ELASTOMER) PIPE CONNECTION

NOTES:

1. ONLY FLANGED FITTINGS ARE SHOWN FOR DOUBLE LINE PIPING. FITTINGS WITH OTHER END PATTERNS ARE SIMILAR.
2. EXISTING PIPING AND EQUIPMENT IS SHOWN LIGHT LINED AND/OR SCREENED AND IS NOTED AS EXISTING. NEW PIPING AND EQUIPMENT IS SHOWN HEAVY-LINED.-

VALVE SYMBOLS

SINGLE LINE	DOUBLE LINE
GATE	
BUTTERFLY	OR
GLOBE	OR
BALL	OR
SEATING PORT ECCENTRIC PLUG	OR
PLUG OR COCK	OR
NEEDLE	OR
SWING CHECK	OR
BALL CHECK	OR

- BALANCING FITTING (B)
- COMBINATION FLOW INDICATOR AND BALANCING FITTING (F, B)
- COMBINATION FLOW INDICATOR, BALANCING FITTING AND SHUT-OFF VALVE (F, B, S.O.)
- PRESSURE RELIEF
- AIR VENT (AUTO)
- AIR VENT (MANUAL)
- REGULATED SIDE PRESSURE CONTROL
- MULTI-PORT VALVE (GLOBE VALVE SHOWN. FOR OTHER VALVE TYPES, APPROPRIATE VALVE SYMBOL SHOWN). ARROWS INDICATE FLOW PATTERN. SEATING PORTS ARE IMPLIED BY INDICATED FLOW PATTERN.
- SOLENOID VALVE (S)
- TO TEMPERATURE SENSOR (T)
- TEMPERATURE SENSING VALVE

MISCELLANEOUS PIPING SYMBOLS

- STEAM TRAP X = NO. IN SPECS (X)
- FLOW SWITCH (FS)
- FLOW METER X = NO. SHOWN IN SPECS (FM, X)
- PRESSURE SWITCH (PS)
- STRAINER
- GAUGE WITH COCK
- THERMOMETER
- GAUGE GLASS WITH COCKS

VALVE DESIGNATIONS

MANUAL VALVES AND CHECK VALVES

V 400
- V — VALVE TYPE, SEE SPECIFICATIONS
- 400 — VALVE DESIGNATION

CONTROL VALVES

- ACTUATOR SYMBOL (M)
- FLOW DIRECTION
- VALVE SYMBOL
- FLOW DIRECTION

HVAC EQUIPMENT IDENTIFICATION

ACC	AIR-COOLED CONDENSER
ACCU	AIR-COOLED CONDENSING UNIT
ACU	AIR CONDITIONING UNIT
AHU	AIR HANDLING UNIT
AWC	ABSORPTION WATER CHILLER
BC	BOOSTER HEATING COIL
BD	BUTTERFLY DAMPER
CD	CEILING DIFFUSER
CG	CEILING GRILLE
CR	CEILING REGISTER
CHWP	CHILLED WATER PUMP
CR	CEILING REGISTER
CRP	CONDENSATE RETURN PUMP
CRU	CONDENSATE RETURN UNIT
CT	COOLING TOWER
CTP	COOLING TOWER PUMP
CUH	CABINET UNIT HEATER
CWP	CONDENSER WATER PUMP
DA	DEARATOR
DG	DOOR GRILLE
ECP	ENVIRONMENTAL CONTROL PANEL
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
EUH	ELECTRIC UNIT HEATER
FG	FLOOR GRILLE
FD	FIRE DAMPER
HRU	HEAT RECOVERY UNIT
HCG	HIGH-CAPACITY GRILLE
HCSG	HIGH-CAPACITY SUPPLY GRILLE
HTP	HEAT PUMP
HU	HUMIDIFIER
HTR	HIGH THROW REGISTER
HWP	HEATING WATER PUMP
HX	HEAT EXCHANGER
LD	LINEAR DIFFUSER
MD	MOTORIZED DAMPER
ML	MOTORIZED LOUVER
OBD	OPPOSED BLADE DAMPER
PCG	PERFORATED CEILING GRILLE
PCD	PERFORATED CEILING DIFFUSER
PEF	PORTABLE EXHAUST FAN
RAC	ROOM AIR CONDITIONER
SF	SUPPLY FAN
SD	SLOT DIFFUSER
TAC	TERMINAL AIR CONDITIONER
TCU	TERMINAL CONTROL UNIT
UH	UNIT HEATER
WC	WATER CHILLER
WCC	WATER-COOLED CONDENSER
WCCU	WATER-COOLED CONDENSING UNIT
WG	WALL GRILLE
WR	WALL REGISTER
WSG	WATER SUPPLY GRILLE
WSHP	WATER SOURCE HEAT PUMP
WSR	WALL SUPPLY REGISTER

NOTE:
ABBREVIATIONS ARE SHOWN ON GENERAL LEGENDS.

HEATING, VENTILATING, AND AIR CONDITIONING SYMBOLS

- WALL REGISTER OR GRILLE (SUPPLY)
- CEILING DIFFUSER OR REGISTER (SUPPLY)
- CEILING REGISTER OR GRILLE (RETURN AND EXHAUST)
- WALL REGISTER OR GRILLE (RETURN AND EXHAUST)
- TURNING VANES
- 45 DEGREE ENTRY
- CONICAL TEE
- BELLMOUTH
- SD — SMOKE DAMPER
- FD — FIRE DAMPER
- MANUAL OPPOSED-BLADE DAMPER
- MANUAL BUTTERFLY DAMPER
- M — MOTORIZED DAMPER
- SOUND ATTENUATED DUCT
- FLEXIBLE CONNECTION
- FLEXIBLE DUCTWORK
- R — INCLINED RISE IN DUCT
- D — INCLINED DROP IN DUCT
- SUPPLY DUCT (SECTION)
- INTAKE, RETURN, OR EXHAUST DUCT (SECTION)
- T — ROOM TEMPERATURE SENSOR
- P — ROOM PRESSURE SENSOR
- H — ROOM HUMIDITY SENSOR
- ECP — ENVIRONMENTAL CONTROL PANEL
- (200) — 200 SCFM
- M — MOTORIZED VALVE - 3 WAY
- M — MOTORIZED VALVE - 2 WAY

GENERAL NOTE:

1. THIS IS A STANDARD LEGEND SHEET. THEREFORE, NOT ALL OF THE INFORMATION SHOWN MAY BE USED ON THIS PROJECT.

SCOTT HOFFMAN LICENSED 11/4/16 25291 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	BY
	REVISION	S HOFFMAN	T WHITE	P RAUSCH	APVD
				APVD	S HOFFMAN

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GENERAL
HVAC / BUILDING SERVICES LEGEND

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0502
SHEET	20 of 314

BIDDING SET

CONTROL DAMPERS

23 09 13

TAG NUMBER	LOCATION	SPECIFICATION TYPE	SERVES	CONSTRUCTION MATERIALS					PERFORMANCE					NOMINAL DIMENSIONS INCHES		ACTUATOR DATA					DAMPER		ACTUATOR		APPLICABLE REMARKS
				AXLES	BLADE	FRAME	SEALS JAMB	SEALS BLADE	MAX. TEMP. DEG. F.	MAX. PRESS. IN. WC.	MAX. VELOCITY FPM	MAX LEAKAGE @ 1 IN. WC. CFM / SQ. FT.	PRESS. DROP @ 1500 FPM IN. WC.	L	H	FAILS	RANGE	TYPE	NEMA CLASS	VOLTS OR PRESS.	MANUFACTURER	MODEL NO.	MANUFACTURER	MODEL NO.	
105-MD-001	INTAKE HOOD	23 31 13	INTAKE	304 SST	ALUM	ALUM	SILICONE	SILICONE	200	8	4000	3	0.19	28	28	OPEN	0-100%	SPRING RETURN	7X	24	GREENHECK	ICD-45	BELIMO	NF	A,B

REMARKS:
- A: DAMPER SHALL BE 24V.
- B: DAMPER SHALL BE INTERLOCKED WITH EXHAUST FAN.

ABBREVIATIONS:

STL	GALVANIZED STEEL
ALUM	ALUMINUM
304 SST	STAINLESS STEEL, TYPE 304
316 SST	STAINLESS STEEL, TYPE 316
PVC	POLY VINYL CHLORIDE
EPDM	ETHYLENE PROPYLENE DIENE MONOMER

FANS

TAG NUMBER	LOCATION	TYPE	FAN DATA							ELECTRICAL DATA								MAXIMUM DIMENSIONS INCHES				MANUFACTURE	MODEL NO.	REMARKS
			AIRFLOW MAXIMUM ACFM	AIRFLOW @ SP IN. WG.	AIRFLOW MINIMUM ACFM	SPEED RPM	DRIVE TYPE	WHEEL TYPE	MAXIMUM BHP	MOTOR HP	RPM	CLOSU	NEMA CLASS	VOLTS	PH	L	W	H	WEIGHT LBS.			
105-EXF-001	PIPE GALLERY ROOF	CENTRIFUGAL UPBLAST	1,200	0.25	0	1,348	BELT DRIVE	BACKWARD INCLINE	0.19	0.75	1725	TEFC	4	480	3	30.2	30.2	28.3	108	COOK	ACRU-B 120R5B	A,C,D,E
110-EXF-001	SCREENINGS ROOM WALL	WALL PROPELLER HEAVY DUTY	7,100	0.25	0	1,402	BELT DRIVE	PROPELLER	1.38	2.00	1725	TEFC	12	480	3	30.2	25.7	30.2	293	COOK	AWB-24A9B	A,C,D
210-EXF-001	UV REACTOR ROOM ROOF	CENTRIFUGAL UPBLAST	1,600	0.25	0	1,170	BELT DRIVE	BACKWARD INCLINE	0.23	0.75	1725	TEFC	12	480	3	30.2	30.2	28.3	120	COOK	ACRU-B 135R5B	A,B
350-EXF-001	CONVEYOR ROOM WALL	WALL PROPELLER HEAVY DUTY	6,000	0.25	0	1,251	BELT DRIVE	PROPELLER	1.01	1.50	1725	TEFC	4	480	3	30.2	25.7	30.2	287	COOK	AWB-24A8B	A,B

REMARKS:
- A. PROVIDE GRAVITY BACKDRAFT DAMPER
- B. PROVIDE COMBINATION STARTER / DISCONNECT SWITCH
- C. PROVIDE EXPLOSION PROOF COMBINATION STARTER / DISCONNECT SWITCH
- D. PROVIDE EXPLOSION PROOF FAN ASSEMBLY AND MOTOR.
- E. INTERLOCK EXHAUST FAN OPERATION WITH INTAKE HOOD MOTORIZED DAMPER.

MAKE-UP AIR UNITS

23 52 00

TAG NUMBER	LOCATION	INDOOR / OUTDOOR	FAN MODULE AIRFLOW SUPPLY ACFM	AIRFLOW OSA ACFM	STATIC PRESSURE TOTAL IN. W.G.	STATIC PRESSURE EXTERNAL IN. W.G.	MAX. POWER BHP	FAN SPEED RPM	WHEEL TYPE	DRIVE	FAN ELECTRICAL DATA HP	RPM	VOLTS	PH	NEMA CLASS	MOTOR ENCLOSURE	FUEL SOURCE	GAS INPUT BTU/HR	GAS OUTPUT MBH AT ALTITUDE	GAS FIRED HEATER MODULE AIRFLOW ACFM	EAT DEG. F	LAT DEG. F	AS SUPPLY PRES MIN IN. W.G.	AS SUPPLY PRES MAX IN. W.G.	BURNER CONTROL TYPE	BURNER IGNITION TYPE	FILTER MODULE EFFICIENCY %	AIR DP (FINAL) IN. W.G.	MAXIMUM DIMENSIONS INCHES L	W	H	WEIGHT LBS.	MANUFACTURER	MODEL NO.	REMARKS
110-MAU-001	ON GRADE AT SCREENING FACILITY	OUTDOOR	7,100	7,100	3.3	1.25	5.3	1,755	PLENUM FAN	BELT DRIVE	7.5	1800	480	3	4	ODP	NG	950.0	743.8	7,100	-2	95	7.0	13.0	MODULATING	INTERMITTENT	30	0.6	221	72	45	2,641	TRANE	CSAA014UB	A,B,C,D,E,F,G,H,I,J
210-MAU-001	ON GRADE AT UV FACILITY	OUTDOOR	1,600	1,600	2.9	1.25	1.5	865	PLENUM FAN	BELT DRIVE	3	3600	480	3	12	ODP	NG	250.0	167.6	1,600	-2	95	7.0	13.0	MODULATING	INTERMITTENT	30	0.6	184	32	33	1,384	TRANE	CSAA003UB	A,B,C,D,E,F,G,H,I,J
350-MAU-001	ON GRADE AT DEWATERING BUILDING	OUTDOOR	6,000	6,000	3.1	1.25	4.5	1,065	PLENUM FAN	BELT DRIVE	5	1800	480	3	12	ODP	NG	800.0	628.6	6,000	-2	95	7.0	13.0	MODULATING	INTERMITTENT	30	0.6	214	67	45	2,401	TRANE	CSAA012UB	A,B,C,D,E,F,G,H,I,J

REMARKS
- A. MOTOR CONTROL: ADJUSTABLE FREQUENCY DRIVE, UNIT MOUNTED
- B. CORROSION PROTECTION COATING - BAKED EPOXY
- C. DISCONNECT: FACTORY INSTALLED
- D. HEATER CONTROL: HEATER CONTRACTORS AND CONTROL CABINET, UNIT INSTALLED
- E. FAN SPARK RESISTANT CONSTRUCTION - AMCA TYPE B
- F. PROVIDE SOLID STATE ELECTRONIC TEMPERATURE CONTROL SYSTEM
- G. PROVIDE FACTORY SUPPLIED VIBRATION ISOLATORS
- H. PROVIDE UNIT WEATHER PROOFING OPTION
- I. DISCONNECT: UNIT INSTALLED
- J. COORDINATE SUPPLY DISCHARGE OPENING AS INDICATED ON MAU IN PLAN TO WITH UNIT

AIR HANDLING UNITS (SPLIT SYSTEM OUTDOOR UNITS)

23 81 00.06

TAG NUMBER	LOCATION	INDOOR FAN DATA MAXIMUM SUPPLY AIR CFM	INDOOR FAN DATA MINIMUM SUPPLY AIR CFM	INDOOR FAN DATA OUTSIDE AIR CFM	INDOOR FAN DATA EXTERNAL STATIC P IN. WG	INDOOR FAN MOTOR DATA HP	VOLT	PH	DX COOLING DATA NET TOTAL BTU/HR	NET SENS. BTU/HR	EAT DEG. F DB	EAT DEG. F WB	LAT DEG. F DB	LAT DEG. F WB	AMBIENT TEMP. DEG. F	SEER @ ARI	PH	UNIT ELECTRICAL DATA # CONN	MCA	MOCP	VOLT	PH	NEMA CLASS	MOTOR ENCLOSURE	MAXIMUM DIMENSIONS INCHES L	W	H	WEIGHT LBS	MANUFACTURER	MODEL	REMARKS
110-AHU-001	ELECTRICAL ROOM	3,000	3,000	0	1.3	3	480	3	26,646	23,087	85.0	68.0	53.4	53.1	100	13	3	1	6.2	15	480	3	3R	1	131	51	42.3	1490	TRANE	UCCAG08C1A0EY0220	B,E,F,K,L,M,O,P
210-AHU-001	ELECTRICAL ROOM	1,200	1,200	0	1.3	1.5	480	3	79,490	59,020	85.0	68.0	53.0	52.2	100	13	3	1	4.8	15	480	3	3R	1	126	32	32	1313	TRANE	UCCAG03C1A0EY0220	B,E,F,K,L,M,O,P

REMARKS:
- A. MOTORIZED FRESH AIR DAMPER
- B. DUAL CIRCUIT REFRIGERATION SYSTEM
- C. UNIT CONFIGURATION: PACKAGED, ROOF-MOUNT TYPE
- D. UNIT CONFIGURATION: PACKAGED, GROUND-MOUNT TYPE
- E. DIP APPLIED ANTI-CORROSION COATING ON CONDENSER COIL (NOT SPRAY APPLIED)
- F. LOW-AMBIENT COOLING KIT:
- G. COMPRESSOR CYCLE DELAY
- H. HOT GAS BYPASS: ON LEAD COMPRESSOR
- I. HOT GAS BYPASS: ON BOTH COMPRESSORS
- J. HOT-GAS REHEAT
- K. COMPRESSOR START ASSIST: CAPACITOR/RELAY TYPE
- L. FILTER DRIER
- M. LIQUID SOLENOID VALVE
- N. ROOF CURB
- O. FACTORY PROVIDED DISCONNECT
- P. COMPRESSOR ISOLATION VALVES AND REFRIGERANT SIGHT GLASS

SCOTT HOFFMAN LICENSED 11/4/16 25291 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		S HOFFMAN	T WHITE	P RAUSCH	APVD	S HOFFMAN	

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

ch2m

GENERAL
HVAC
EQUIPMENT SCHEDULES

BIDDING SET

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0503
SHEET	21 of 314

FILENAME: 001-G-0503_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 4:41:06 PM

SPLIT SYSTEM DX OUTDOOR UNITS

23 81 00

TAG NUMBER	LOCATION	DX COOLING DATA			OUTDOOR FAN DATA					COMPRESSOR DATA						UNIT ELECTRICAL DATA								MAXIMUM DIMENSIONS				MANUFACTURER	MODEL NO.	REMARKS
		CAPACITY BTU/HR	AMBIENT TEMP. DEG. F	EER @ ARI	NO.	HP (EA)	VOLTS	PH	ACFM (TOTAL)	NO.	TEP	RLA (EA.)	LRA (EA.)	VOLTS	PH	# CONN	MCA AMPS	IOC	MOTOR ENCLOSURE	NEMA CLASS	VOLTS	PH	INCHES L	INCHES W	INCHES H	WEIGHT LBS.			
110-AC-001	ELECTRICAL ROOM	150,000	100	11.7	1	1.00	480	1	7,800	2	1	10.6	75.0	480	3	1	27.0	35	TEFC	3R	480	3	52	38	45	326	TRANE	TTA 120 H	B,C,D,E,J, M, R, S
210-AC-001	ELECTRICAL ROOM	95,000	100	11.2	1	0.50	480	1	5,100	2	1	6.8	41.0	480	3	1	16.9	20	TEFC	3R	480	3	52	38	45	326	TRANE	TTA 090 H	B,C,D,E,J, M, R, S

REMARKS:

A: CRANKCASE HEATER
B: CONDENSER HAIL GUARDS
C: 5 YEAR COMPRESSOR WARRANTY FOR EACH COMPRESSOR
D: DIP APPLIED ANTI-CORROSION COATING ON CONDENSER COIL (NOT SPRAY APPLIED)
E: COPPER CONDENSER COIL FINS
F: FACTORY INSTALLED UNLOADER ACCESSORY
G: HOT GAS BYPASS ON LEAD COMPRESSOR
H: HOT GAS BYPASS ON BOTH COMPRESSORS
I: FACTORY INSTALLED ACCUMULATOR
J: LOW-AMBIENT COOLING KIT
K: WALL-MOUNT KIT
L: COMPRESSOR START ASSIST
M: CABINET CORROSION PROTECTION
N: COMPRESSOR CYCLE DELAY
O: HOT-GAS REHEAT
P: LIQUID LINE FILTER DRIER
Q: LIQUID SOLENOID VALVE
R: UNIT INSTALLED MOTOR CONTACTOR / STARTER
S: DISCONNECT: FACTORY INSTALLED
T: NOT USED
U: NOT USED
V: DISCONNECT: UNIT INSTALLED

SCOTT HOFFMAN LICENSED 11/4/16 25291 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	BY	APVD
DSGN	S HOFFMAN	DR T WHITE	CHK P RAUSCH	APVD S HOFFMAN

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GENERAL
HVAC
EQUIPMENT SCHEDULES

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0504
SHEET	22 of 314

BIDDING SET

FILENAME: 001-G-0504_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 4:42:57 PM

ONE-LINE DIAGRAM-1

SYMBOL	DESCRIPTION
	DRAWOUT AIR CIRCUIT BREAKER, LOW VOLTAGE
400	CIRCUIT BREAKER, THERMAL MAGNETIC TRIP SHOWN, 3 POLE, UNO
AS/AF or AT/AF	CIRCUIT BREAKER, STATIC TRIP UNIT, SENSOR AMP TRIP AND FRAME RATINGS SHOWN, 3 POLE, UNO
100/M	CIRCUIT BREAKER, MAGNETIC TRIP ONLY, TRIP RATING SHOWN, 3 POLE, UNO
400 400	CIRCUIT BREAKER WITH CURRENT LIMITING FUSES, TRIP AND FUSE RATING INDICATED, 3 POLE, UNO
400 225	FUSED SWITCH, SWITCH AND FUSE CURRENT RATING INDICATED, 3 POLE, UNO
100	SWITCH, CURRENT RATING INDICATED, 3 POLE, UNO
60 (3)	FUSE, CURRENT RATING AND QUANTITY INDICATED
1	MAGNETIC STARTER WITH OVERLOAD, NEMA SIZE INDICATED, FVNR UNO
AFD	ELECTRONIC STARTER/SPEED CONTROL RVSS = REDUCED VOLTAGE SOFT STARTER AFD = AC ADJUSTABLE FREQUENCY DRIVE DC = DC ADJUSTABLE SPEED DRIVE RVAT = REDUCED VOLTAGE AUTO TRANSFORMER TYPE RVRT = REDUCED VOLTAGE REACTOR TYPE
	CABLE OR BUS CONNECTION POINT
K	KEY INTERLOCK
	SURGE ARRESTER (GAP TYPE)
10	CAPACITOR - KVAR INDICATED, 3 PHASE
3	AC MOTOR, SQUIRREL CAGE INDUCTION - HORSEPOWER INDICATED
G 500/625	GENERATOR, KW/KVA RATING SHOWN
VS V 0-600V	ANALOG METER WITH SWITCH - SCALE RANGE SHOWN V = VOLTAGE KW = KILOWATTS A = AMPERAGE KVAR = KILOVARS PF = POWER FACTOR
DPM	DIGITAL POWER METER (MULTIFUNCTION)
	UTILITY REVENUE METER
	GROUND
15 KVA 480-120/240V 1 PH	TRANSFORMER, SIZE, VOLTAGE RATINGS, AND PHASE INDICATED
	SHIELDED ISOLATION TRANSFORMER
480-120V (3)	POTENTIAL TRANSFORMER, VOLTAGE RATING AND QUANTITY INDICATED
100:5 (3)	CURRENT TRANSFORMER, RATIO(100:5) AND QUANTITY INDICATED (3)
	CONNECTION POINT TO EQUIPMENT SPECIFIED IN OTHER DIVISIONS, RACEWAY, CONDUCTOR AND CONNECTION IN THIS DIVISION
SPD	SURGE PROTECTIVE DEVICE

ONE-LINE DIAGRAM-2

SYMBOL	DESCRIPTION
	DRAWOUT POWER CIRCUIT BREAKER, MEDIUM VOLTAGE
	NON DRAWOUT FUSED SWITCH, MEDIUM VOLTAGE
	DRAWOUT FUSED SWITCH AND CONTACTOR, MEDIUM VOLTAGE
	DRAWOUT FUSED SWITCH AND VACUUM CONTACTOR, MEDIUM VOLTAGE
	DRAWOUT VACUUM CONTACTOR, MEDIUM VOLTAGE
	MEDIUM VOLTAGE CABLE STRESS CONE TYPE TERMINATION, OPEN TERMINATOR OR ELBOW
	SWITCH - LOAD BREAK, GROUP OPERATED, MEDIUM VOLTAGE
	SWITCH W/ARCING HORNS, MEDIUM VOLTAGE
	DISCONNECTING FUSE - SOLID MATERIAL, MEDIUM VOLTAGE
	SWITCH - HOOK STICK OPERATED, SINGLE POLE, MEDIUM VOLTAGE
	FUSE - EXPULSION, HOOK STICK OPERATED, SINGLE POLE, MEDIUM VOLTAGE
	GROUND SWITCH, GANG OPERATED
	TERMINAL BLOCK LUG
	DELTA CONNECTION
	WYE GROUNDED CONNECTION, SOLID GROUND
R or Z	WYE NEUTRAL GROUND RESISTOR OR IMPEDANCE CONNECTION
86	RELAY OR DEVICE, FUNCTION NUMBER AS INDICATED
50:5 (1)	CURRENT TRANSFORMER, ZERO SEQUENCE, RATIO AND QUANTITY INDICATED
800/1200:5 (3)	BUSHING CURRENT TRANSFORMER, MULTI-RATIO AND QUANTITY INDICATED
MO	MOTOR OPERATOR, BREAKER OR SWITCH
EUM	ENERGY MONITORING UNIT
MRP	MOTOR PROTECTION RELAY
AHF	ACTIVE HARMONIC FILTER
PHF	PASSIVE HARMONIC FILTER
DV/DT	DV/DT FILTER

NOTES:

1. THESE ARE STANDARD LEGEND SHEETS. SOME SYMBOLS AND ABBREVIATIONS MAY APPEAR ON THE LEGEND AND NOT ON THE DRAWINGS.
2. FOR ADDITIONAL ABBREVIATIONS OF OTHER DIVISIONS (HVAC, MECHANICAL, AND STRUCTURAL/ARCHITECTURAL) SEE OTHER LEGENDS.

CONTROL DIAGRAM-1

SYMBOL	DESCRIPTION
	PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY OPEN
	PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY CLOSED
	PUSH BUTTON SWITCH, MAINTAINED CONTACTS WITH MECHANICAL INTERLOCK
	3 POSITION SELECTOR SWITCH MAINTAINED CONTACT
HAND OFF REMOTE	SELECTOR SWITCH - MAINTAINED CONTACT - CHART IDENTIFIES OPERATION WHEN NEEDED FOR CLARITY:
	TOGGLE SWITCH, ON-OFF TYPE
ON OFF	SELECTOR SWITCH, ON-OFF TYPE
	MUSHROOM HEAD PUSHBUTTON SWITCH
A	INDICATING LIGHT, PUSH-TO-TEST, LETTER INDICATES COLOR
A	INDICATING LIGHT - LETTER INDICATES COLOR A - AMBER G - GREEN S - STROBE B - BLUE R - RED C - CLEAR W - WHITE
ETM	ELAPSED TIME METER
M	MOTOR STARTER CONTACTOR COIL
CRX	CONTROL RELAY, X INDICATES NUMERICAL ORDER IN CIRCUIT
TDR X	TIME DELAY RELAY, X INDICATES NUMERICAL ORDER IN CIRCUIT
SV X	SOLENOID VALVE, X INDICATES NUMERICAL ORDER IN CIRCUIT
	CONTACT - NORMALLY OPEN
	CONTACT - NORMALLY CLOSED
	REMOTE DEVICE
	TIME DELAY RELAY CONTACT, NORMALLY OPEN, CLOSES WHEN ENERGIZED AND TIMED OUT
	TIME DELAY RELAY CONTACT, NORMALLY CLOSED, OPENS WHEN ENERGIZED AND TIMED OUT
	TIME DELAY RELAY CONTACT, CLOSES WHEN ENERGIZED, OPENS WHEN DE-ENERGIZED AND TIMED OUT
	TIME DELAY RELAY CONTACT, OPENS WHEN ENERGIZED, CLOSES WHEN DE-ENERGIZED AND TIMED OUT
	MOTOR SPACE HEATER
	TERMINAL BLOCK, REMOTE
	TERMINAL BLOCK, INTERNAL
	FUSED TERMINAL BLOCK
	FUSE, RATING INDICATED
CPT 120V	TRANSFORMER, CONTROL POWER
	THERMOCOUPLE

	POSITION			
CKT	HAND	OFF	REMOTE	X - CLOSED CONTACT
1	X	O	O	O - OPEN CONTACT
2	O	O	X	

CONTROL DIAGRAM-2

SYMBOL	DESCRIPTION
	CAPACITOR
+ −	BATTERY
	LIMIT SWITCH, NORMALLY OPEN, CLOSES AT END OF TRAVEL
	LIMIT SWITCH, NORMALLY CLOSED, OPENS AT END OF TRAVEL
	TEMPERATURE SWITCH, OPENS ON TEMPERATURE RISE
	TEMPERATURE SWITCH, CLOSES ON TEMPERATURE RISE
	FLOAT SWITCH, NORMALLY OPEN, CLOSES ON DESCENDING LEVEL
	FLOAT SWITCH, NORMALLY OPEN, CLOSES ON RISING LEVEL
	PRESSURE SWITCH, NORMALLY CLOSED, OPENS ON RISING PRESSURE
	PRESSURE SWITCH, NORMALLY OPEN, CLOSES ON RISING PRESSURE
	FLOW SWITCH, CLOSES ON INCREASED FLOW
	FLOW SWITCH, OPENS ON INCREASED FLOW
NGR	NEUTRAL GROUND CURRENT LIMITING RESISTOR
RES	CALIBRATING RESISTOR
T GEN	TACHOMETER GENERATOR
GFS	GROUND FAULT SENSOR
	FLASHER
	SEALED CONTACT
	BUZZER
	POTENTIOMETER
	RESISTOR
	BLOWN FUSE INDICATOR
	COAXIAL CABLE
	MULTICONDUCTOR SHIELDED CABLE
	DUPLEX RECEPTACLE
L U	RELAY, WITH MECHANICAL LATCH
	FULLWAVE DIODE BRIDGE (AC TO DC)

GENERAL NOTE:

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MARY J. GROSS LICENSED 16702 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	REVISION	BY	APVD
		J LANDMAN	A CUGLIAT	M GROSS		M GROSS	

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

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GENERAL
ELECTRICAL LEGEND 1

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0600
SHEET	23 of 314

BIDDING SET

POWER SYSTEM PLAN-1

SYMBOL	DESCRIPTION
	CONNECTION POINT TO EQUIPMENT SPECIFIED. RACEWAY, CONDUCTOR,TERMINATION AND CONNECTION IN THIS DIVISION.
MCC-A	MAJOR ELECTRICAL COMPONENT OR DEVICE - NAME OR IDENTIFYING SYMBOL AS SHOWN.
	PANELBOARD - SURFACE MOUNTED
LPXXA	PANELBOARD LETTER OR NUMBER FACILITY NUMBER LP - LOW VOLTAGE PANEL DP - DISTRIBUTION PANEL
	PANELBOARD - FLUSH MOUNTED
	TERMINAL JUNCTION BOX
M	MOTOR, SQUIRREL CAGE INDUCTION
G	GENERATOR, VOLTAGE AND SIZE AS INDICATED.
LPXXA	HOME RUN - DESTINATION SHOWN
or G	EXPOSED CONDUIT AND CONDUCTORS*
or G	CONCEALED CONDUIT AND CONDUCTORS*

NOTE:
ALL UNMARKED CONDUIT RUNS CONSIST OF TWO NO. 12, ONE NO. 12 GROUND CONDUCTORS IN 3/4" CONDUIT. RUNS MARKED WITH CROSSHATCHES INDICATE NUMBER OF NO. 12 CONDUCTORS. CROSSHATCH WITH SUBSCRIPT "G" INDICATES GREEN GROUND WIRE.

G	CROSSHATCHES WITH BAR INDICATE NO.10 CONDUCTOR. SIZE CONDUIT ACCORDING TO SPECIFICATIONS AND APPLICABLE CODE.
[A1]	CONDUIT AND CONDUCTOR CALLOUT, SEE LEGEND.
	CONDUIT DOWN
	CONDUIT UP
	CONDUIT, STUBBED AND CAPPED
	CONDUIT TERMINATION AT CABLE TRAY
EX	EXISTING CONDUIT/ DUCT BANK
BD	BUS DUCT - SEE SPECIFICATIONS
CE	CONCRETE ENCASED CONDUIT
DB	DIRECT BURIED CONDUIT
FO	FIBER OPTIC CONDUIT
XXXX	CONCRETE ENCASED DUCT BANK WHERE XXXX IS THE DUCT BANK NAME. SEE CIRCUIT AND RACEWAY CODING DEFINITION
	CONCEALED CONDUIT ROUTING AREA
	CONDUIT ROUTING AREA
	CABLE TRAY
T	TRANSFORMER
J or HH	GENERAL CONTROL OR WIRING DEVICE. LETTER SYMBOLS OR ABBREVIATIONS INDICATE TYPE OF DEVICE
CS	CONTROL STATION, SEE CONTROL DIAGRAMS FOR CONTROL DEVICE(S) REQUIRED.
30	NONFUSED DISCONNECT SWITCH, CURRENT RATING INDICATED, 3 POLE
60/40	FUSED DISCONNECT SWITCH, CURRENT RATING INDICATED (60/40, 60=SWITCH RATING / 40=FUSE RATING) 3 POLE
2	COMBINATION CIRCUIT BREAKER AND MAGNETIC STARTER, NEMA SIZE INDICATED

POWER SYSTEM PLAN-2

SYMBOL	DESCRIPTION
100/40	BREAKER, SEPARATELY MOUNTED, CURRENT RATING INDICATED (100/40, 100 = FRAME SIZE; 40 = TRIP RATING) 3 POLE
C 2	CONTACTOR, MAGNETIC, NEMA SIZE INDICATED
L 30	LIGHTING CONTACTOR, CURRENT RATING INDICATED
2	STARTER, MAGNETIC NEMA SIZE INDICATED
XX 2	CONVENIENCE RECEPTACLE - DUPLEX UNLESS NOTED OTHERWISE WP - WEATHERPROOF C - CLOCK HANGER TL - TWIST LOCK CRE - CORROSION RESISTANT GFCI - GROUND FAULT CIRCUIT INTERRUPTER SUBSCRIPT NUMBER AT RECEPTACLE INDICATES CIRCUIT
	240V RECEPTACLE
	CONVENIENCE RECEPTACLE - QUADRUPLEX
	MULTI OUTLET ASSEMBLY
	DUPLEX CONVENIENCE RECEPTACLE - FLUSH IN FLOOR
	CONVENIENCE RECEPTACLE, PEDESTAL, DUPLEX SINGLE FACE UNLESS INDICATED OTHERWISE
L20R 20	RECEPTACLE, SPECIAL PURPOSE-NEMA CONFIGURATION AND AMPERAGE INDICATED
T	THERMOSTAT
	UTILITY REVENUE METERING FACILITY
EUH	ELECTRIC UNIT HEATER
AC	ELECTRIC AIR CONDITIONER (SELF CONTAINED UNIT)
	UTILITY POLE

LIGHTING SYSTEM PLAN

SYMBOL	DESCRIPTION
1 or 1	LUMINAIRE, SEE SCHEDULE
1	LUMINAIRE, SEE SCHEDULE
1 or	LUMINAIRE WITH INTERNAL BATTERY BACKUP, SEE SCHEDULE
1	STRIP LUMINAIRE, SEE SCHEDULE
4 or 4	LUMINAIRE AND POLE, SEE SCHEDULE
5 or 5	WALL MOUNTED LUMINAIRE, SEE SCHEDULE
1	FLOOD LIGHTS - AIM IN THE DIRECTION SHOWN
	STANDBY LIGHTING UNIT, SURFACE MOUNTED, SEE SCHEDULE
XX or	EXIT LIGHTS - FILLED SECTION INDICATES LIGHTED FACE, ARROW INDICATES EGRESS DIRECTIONAL INDICATORS, XX = FIXTURE NUMBER, SEE SCHEDULE
$a or 2a	SMALL LETTER SUBSCRIPT AT SWITCH AND LUMINAIRE INDICATES SWITCHING. SUBSCRIPT NUMBER AT LUMINAIRE INDICATES CIRCUIT
$3	WALL SWITCH: 2- DOUBLE POLE 3- THREE WAY 4- FOUR WAY WP- WEATHERPROOF EX- EXPLOSIONPROOF M- MOTOR RATED P- PILOT LIGHT K- KEY OPERATED D- DIMMER CRE- CORROSION RESISTANT L- MOMENTARY 3-WAY MS- MANUAL STARTER WITH OVERLOADS
OS	OCCUPANCY SENSOR
LC	LIGHTING CONTACTOR
MD	MOTION DETECTOR
PC	PHOTOCELL

FIRE ALARM SYSTEM PLAN AND RISER

SYMBOL	DESCRIPTION
F P	FIRE ALARM STATION, MANUAL
	FIRE ALARM SYSTEM, AUTOMATIC SMOKE DETECTOR
HD	FIRE ALARM SYSTEM, AUTOMATIC, HEAT DETECTOR
F	FIRE ALARM BELL
F	FIRE ALARM HORN
	FIRE ALARM HORN/STROBE LIGHT
	FIRE ALARM STROBE LIGHT
	AIR DUCT DETECTOR
FS	FIRE SPRINKLER FLOW SWITCH
TS	FIRE SPRINKLER TAMPER SWITCH
D	DOOR HOLDER

TELEPHONE SYSTEM PLAN AND RISER

SYMBOL	DESCRIPTION
TTC	TELEPHONE TERMINAL CABINET
	TELEPHONE RECEPTACLE FLOOR BOX
	TELEPHONE RECEPTACLE
T	TELEPHONE SYSTEM RACEWAY

COMPUTER SYSTEM (DATA) PLAN AND RISER

SYMBOL	DESCRIPTION
CTC	COMPUTER SYSTEM TERMINAL CABINET
	COMPUTER NETWORK CONNECTION
	COMPUTER NETWORK CONNECTION, FLUSH IN FLOOR
D	DATA SYSTEM RACEWAY

COMBINED TELEPHONE/COMPUTER SYSTEM PLAN AND RISER

SYMBOL	DESCRIPTION
4	COMBINATION TELEPHONE/DATA RECEPTACLE, WALL MOUNTED, NUMBER OF PORTS INDICATED
4	COMBINATION TELEPHONE/DATA RECEPTACLE, FLOOR BOX, NUMBER OF PORTS INDICATED

CLOSED CIRCUIT/TELEVISION CABLE PLAN AND RISER

	COMBINATION CLOSED CIRCUIT TELEVISION RECEPTACLE (CCTV) AND DUPLEX CONVENIENCE RECEPTACLE IN TWO GANG BOX WITH BARRIER, 12" DOWN FROM CEILING
	COMBINATION TELEVISION CABLE RECEPTACLE (TV) AND DUPLEX CONVENIENCE RECEPTACLE IN TWO GANG BOX WITH BARRIER, 12" DOWN FROM CEILING
	CLOSED CIRCUIT TELEVISION RECEPTACLE, FLOOR BOX
	TELEVISION CABLE RECEPTACLE, FLOOR BOX

SOUND SYSTEM PLAN AND RISER

SYMBOL	DESCRIPTION
S	SPEAKER, CONE TYPE, RECESSED IN CEILING, SEE ARCHITECTURAL DRAWINGS FOR CEILING TYPE
S	SPEAKER, CONE TYPE, WALL MOUNTED
S	SPEAKER, CONE TYPE, SURFACE MOUNTED
V	VOLUME CONTROL, WALL MOUNT 5'-0" AFF
S	INTERIOR PAGING TRUMPET SOUND REPRODUCER WITH REMOTE AMPLIFIER, SURFACE MOUNTED
M	MICROPHONE OUTLET
S	SOUND SYSTEM RACEWAY
S	COMMUNICATION STATION

SECURITY SYSTEM PLAN AND RISER

SYMBOL	DESCRIPTION
CR	CARD KEY ACCESS
CS	CONTROL STATION
DS	DOOR SWITCH
EP	EGRESS PUSHBUTTON
	ELECTRONIC LOCK M = MAGENITIC S = STRIKE
	INTERCOM
	MONITOR
	MOTION SENSOR
	VIDEO CAMERA PTZ = PAN/TILT/ZOOM F = FIXED

GROUND SYSTEM PLAN

SYMBOL	DESCRIPTION
	GROUND ROD
	GROUND ROD IN TEST WELL
G	GROUNDING CONDUCTOR, SIZE AS INDICATED
	PIGTAIL FOR CONNECTION TO EQUIPMENT CABINET OR FRAME
G	EQUIPMENT GROUND BUS
N	EQUIPMENT NEUTRAL BUS

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NO.	DSGN	DATE	BY	REVISION	CHK
	J LANDMAN		M GROSS	APVD	A CUGLIAT
	DR		M GROSS	APVD	M GROSS

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DEPARTMENT OF PUBLIC WORKS
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GENERAL
ELECTRICAL LEGEND 2

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0601
SHEET	24 of 314

BIDDING SET

GENERAL CIRCUIT CONDUCTOR AND CONDUIT IDENTIFICATION

POWER CIRCUIT CALLOUTS			
[P1]	[1/2"FLEX, 2#12,#12G]	[P24]	[1"C,3#8,3#14,1#10G]
[P2]	[3/4"C,2#12,1#12G]	[P25]	[1"C,3#8,4#14,1#10G]
[P3]	[3/4"C,3#12,1#12G]	[P26]	[1"C,3#8,5#14,1#10G]
[P4]	[3/4"C,4#12,1#12G]	[P27]	[1"C,2#6, 1#10G]
[P5]	[3/4"C,5#12,1#12G]	[P28]	[1"C,3#6, 1#8G]
[P6]	[3/4"C,6#12,1#12G]	[P29]	[1"C,3#6, 2#14,1#8G]
[P7]	[3/4"C,7#12,1#12G]	[P30]	[1"C,3#6, 3#14,1#8G]
[P8]	[3/4"C,8#12,1#12G]	[P31]	[1"C,3#6, 4#14,1#8G]
[P9]	[3/4"C,3#12,2#14,1#12G]	[P32]	[1"C,3#6, 5#14,1#8G]
[P10]	[3/4"C,3#12,3#14,1#12G]	[P33]	[1"C,3#4,1#8G]
[P11]	[3/4"C,3#12,4#14,1#12G]	[P34]	[1 1/4"C,3#4,3#14,1#8G]
[P12]	[3/4"C,3#12,5#14,1#12G]	[P35]	[1 1/4"C,3#4,5#14,1#8G]
[P13]	[3/4"C,3#12,6#14,1#12G]	[P36]	[1 1/4"C,3#3, 1#6G]
[P14]	[3/4"C,3#12,7#14,1#12G]	[P37]	[1 1/4"C,3#3, 3#14,1#6G]
[P15]	[3/4"C,2#10,1#10G]	[P38]	[1 1/4"C,3#2, 1#6G]
[P16]	[3/4"C,3#10,1#10G]	[P39]	[1 1/4"C,3#1, 1#6G]
[P17]	[3/4"C,3#10,2#14,1#10G]	[P40]	[1 1/2"C,3#1, 3#14,1#6G]
[P18]	[3/4"C,3#10,3#14,1#10G]	[P41]	[1 1/2"C,3#2/0, 1#4G]
[P19]	[3/4"C,3#10,4#14,1#10G]	[P42]	[2"C,3#3/0, 1#4G]
[P20]	[3/4"C,3#10,5#14,1#10G]	[P43]	[2"C,3#4/0, 1#3G]
[P21]	[1"C,2#8,1#10G]		
[P22]	[1"C,3#8,1#10G]		
[P23]	[1"C,3#8,2#14,1#10G]		

MULTICONDUCTOR POWER CABLE CIRCUIT CALLOUTS	
[PC1]	[3/4"C,1 (3C#12,1#12G) TYPE 2]
[PC2]	[3/4"C,1 (3C#10,1#10G) TYPE 2]
[PC3]	[1"C,1 (3C#8,1#10G) TYPE 2]
[PC4]	[1 1/4"C,2 (3C#12,1#12G) TYPE 2]
[PC5]	[1 1/2"C,2 (3C#10,1#10G) TYPE 2]
[PC1A]	[3/4"C,1 (2C#12,1#12G) TYPE 2]
[PC2A]	[3/4"C,1 (2C#10,1#10G) TYPE 2]

EMPTY CONDUIT	
[EC-1]	[3/4"C,WITH PULL STRING]
[EC-2]	[1"C,WITH PULL STRING]
[EC-3]	[1 1/4"C,WITH PULL STRING]
[EC-4]	[1 1/2"C,WITH PULL STRING]
[EC-5]	[2"C,WITH PULL STRING]
[EC-6]	[3"C,WITH PULL STRING]
[EC-7]	[4"C,WITH PULL STRING]
[EC-8]	[5"C,WITH PULL STRING]

ANALOG CIRCUIT CALLOUTS	
[A1]	[3/4"C,1 TYPE 3]
[A2]	[1"C,2 TYPE 3]
[A3]	[1"C,3 TYPE 3]
[A4]	[1"C,4 TYPE 3]
[A5]	[1 1/4"C,5 TYPE 3]
[A6]	[1 1/4"C,6 TYPE 3]
[A7]	[1 1/2"C,7 TYPE 3]
[A8]	[1 1/2"C,8 TYPE 3]
[A9]	[1 1/2"C,9 TYPE 3]
[A10]	[2"C,10 TYPE 3]
[A11]	[2"C,11 TYPE 3]
[A12]	[2"C,12 TYPE 3]
[A13]	[2"C,13 TYPE 3]
[A14]	[2"C,14 TYPE 3]
[A15]	[3/4"C,1 TYPE 4]
[A16]	[3/4"C,2 TYPE 4]
[A17]	[1"C,3 TYPE 4]
[A18]	[1 1/4"C,4 TYPE 4]
[A19]	[1 1/4"C,5 TYPE 4]
[A20]	[1 1/4"C,6 TYPE 4]
[A21]	[1 1/2"C,7 TYPE 4]
[A22]	[1 1/2"C,8 TYPE 4]
[A23]	[2"C,9 TYPE 4]
[A24]	[3/4"C,1-4 pr. TYPE 5]
[A25]	[1"C,2-4 pr. TYPE 5]

CONTROL CIRCUIT CALLOUTS	
[C1]	[3/4"C,MSC]
[C2]	[3/4"C,2#14,1#14G]
[C3]	[3/4"C,3#14,1#14G]
[C4]	[3/4"C,4#14,1#14G]
[C5]	[3/4"C,5#14,1#14G]
[C6]	[3/4"C,6#14,1#14G]
[C7]	[3/4"C,7#14,1#14G]
[C8]	[3/4"C,8#14,1#14G]
[C9]	[3/4"C,9#14,1#14G]
[C10]	[3/4"C,10#14,1#14G]
[C11]	[3/4"C,11#14,1#14G]
[C12]	[3/4"C,12#14,1#14G]
[C13]	[3/4"C,13#14,1#14G]
[C14]	[3/4"C,14#14,1#14G]
[C15]	[3/4"C,15#14,1#14G]
[C16]	[3/4"C,16#14,1#14G]
[C17]	[3/4"C,17#14,1#14G]
[C18]	[3/4"C,18#14,1#14G]
[C19]	[3/4"C,19#14,1#14G]
[C20]	[1"C,20#14,1#14G]
[C21]	[1"C,21#14,1#14G]
[C22]	[1"C,22#14,1#14G]
[C23]	[1"C,23#14,1#14G]
[C24]	[1"C,24#14,1#14G]
[C25]	[1"C,25#14,1#14G]

MULTICONDUCTOR CONTROL CABLE CIRCUIT CALLOUTS	
[CC5]	[3/4"C,1-5C TYPE 1]
[CC7]	[3/4"C,1-7C TYPE 1]
[CC9]	[1"C,1-9C TYPE 1]
[CC12]	[1"C,1-12C TYPE 1]
[CC19]	[1 1/2"C, 1-19C TYPE 1]
[CC25]	[1 1/2"C,1-25C TYPE 1]
[CC37]	[2"C,1-37C TYPE 1]
[CCC1]	[1-7C #12 TYPE 1]
[MSC-1]	[1"C,MSC]
[MSC-2]	[2"C,MSC]

NOTES:
1. FOR CABLE TYPES, SEE SPECIFICATIONS.
2. CONDUIT SIZES ARE BASE ON THE AREA OF THW CONDUCTORS.
3. SIZING OF CONDUCTORS #1AWG AND SMALLER BASED ON AMPACITIES AT 60 DEGREES C, SIZING OF CONDUCTORS #1/0AWG AND LARGER BASED ON AMPACITIES AT 75 DEGREES C.
4. WHERE CIRCUITS ARE UNDERGROUND, DIRECT BURIED OR CONCRETE ENCASED, MINIMUM CONDUIT SIZE SHALL BE 1".
5. FOR METRIC CONDUIT SIZES USE THE FOLLOWING CONVERSION:
   1/2" = 16 mm 1/4" = 35 mm
   3/4" = 21 mm 1 1/2" = 41 mm
   1" = 27 mm 2" = 53 mm

VFD TO MOTOR CONDUCTORS TYPE 8 CABLE

CKT ID	CONDUCTOR SIZE (AWG)	MINIMUM GROUND WIRE SIZE (AWG)	CONDUCTOR AMPACITY (AMPS)*	MINIMUM CONDUIT (INCH)
[VFD-1]	12	12	24	1
[VFD-2]	10	10	33	1 1/4
[VFD-3]	8	8	43	1 1/2
[VFD-4]	6	6	58	2
[VFD-5]	4	4	79	2
[VFD-6]	2	2	105	3
[VFD-7]	1	3 x 6	121	3
[VFD-8]	1/0	3 x 4	145	3
[VFD-9]	2/0	3 x 4	166	3
[VFD-10]	3/0	3 x 4	189	3
[VFD-11]	4/0	3 x 2	223	3

* BASED ON 75 DEGREES C, NEC TABLE B.310.1

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NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		J LANDMAN	A CUGLIAT	M GROSS	APVD	M GROSS	

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PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
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GENERAL
ELECTRICAL LEGEND 3

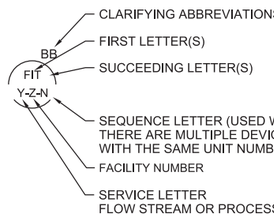
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0602
SHEET	25 of 314

BIDDING SET

INSTRUMENT IDENTIFICATION

EXAMPLE SYMBOLS



TAG: Y-FIT-Z-N

DIGITAL SYSTEM INTERFACES

- AI — ANALOG INPUT
- AO — ANALOG OUTPUT
- DI — DISCRETE INPUT
- DO — DISCRETE OUTPUT

GENERAL INSTRUMENT OR FUNCTIONAL SYMBOLS

- FIELD MOUNTED
- REAR-OF-PANEL MOUNTED (OPERATOR INACCESSIBLE)
- PANEL MOUNTED (OPERATOR ACCESSIBLE)
- MCC MOUNTED

INSTRUMENT IDENTIFICATION LETTERS TABLE

LETTER	FIRST-LETTER		SUCCEEDING-LETTERS		
	PROCESS OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	READOUT OR PASSIVE FUNCTION	READOUT OR PASSIVE FUNCTION
A	ANALYSIS (+)		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE (*)	USER'S CHOICE (*)	USER'S CHOICE (*)
C	USER'S CHOICE (*)			CONTROL	
D	DENSITY (S.G.)	DIFFERENTIAL			
E	VOLTAGE		PRIMARY ELEMENT, SENSOR		
F	FLOW RATE	RATIO (FRACTION)			
G	USER'S CHOICE (*)		GLASS, GAUGE VIEWING DEVICE	GATE	
H	HAND (MANUAL)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOTION	MOMENTARY			MIDDLE, INTERMEDIATE
N	TORQUE		USER'S CHOICE (*)	USER'S CHOICE (*)	USER'S CHOICE (*)
O	USER'S CHOICE (*)		ORIFICE, RESTRICTION		
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD OR PRINT		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTI VARIABLE		MULTI FUNCTION	MULTI FUNCTION	MULTI FUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X	MOISTURE/LEAK	X AXIS	UNCLASSIFIED (*)	UNCLASSIFIED (*)	UNCLASSIFIED (*)
Y	EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION	Z AXIS		DRIVE, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

TABLE BASED ON THE INSTRUMENTATION, SYSTEMS, AND AUTOMATION SOCIETY (ISA) STANDARD.

(+) WHEN USED, EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL. SEE ABBREVIATIONS AND LETTER SYMBOLS.
(*) WHEN USED, DEFINE THE MEANING HERE FOR THE PROJECT.

SPECIAL CASES

- OO / YL — ON AND OFF EVENT LIGHTS
- HOA / HS — HAND-OFF-AUTO SWITCH, MAINTAINED CONTACT SWITCH (CONTROLLED DEVICE IN "HAND" WILL RESTART ON RETURN OF POWER AFTER POWER FAILURE).
- SS / HS — STOP-START HAND SWITCH MOMENTARY CONTACT SWITCHES (CONTROLLED DEVICE WILL NOT RESTART ON RETURN OF POWER AFTER POWER FAILURE).
- HA / HS — HAND-AUTO SWITCH, MAINTAINED CONTACT SWITCH ASSOCIATED WITH ACTUATOR OPERATOR.
- OSC / HS — OPEN-STOP-CLOSE SWITCH, MOMENTARY CONTACT SWITCHES ASSOCIATED WITH ACTUATOR OPERATOR.
- OCA / HS — OPEN-STOP-AUTO SWITCH, MAINTAINED CONTACT (CONTROLLED DEVICE WILL OPERATE ON RETURN OF POWER AFTER POWER FAILURE IN OPEN OR CLOSE).
- YAL — BEACON LIGHT ASSEMBLY

TRANSDUCERS

A	ANALOG	I	CURRENT
D	DIGITAL	P	PNEUMATIC
E	VOLTAGE	PF	PULSE FREQUENCY
F	FREQUENCY	PD	PULSE DURATION
H	HYDRAULIC	R	RESISTANCE

EXAMPLE

- I/P / FY — CURRENT TO PNEUMATIC TRANSDUCER (BACK OF PANEL, IN A FLOW LOOP)
- OC / ZS — OPENED - CLOSED CONTACTS ASSOCIATED WITH GATE OR VALVE APPLICATION
- (F) OR (D) / FSL — (D) - DOPPLER (F) - FLAPPER

CS- — CONTROL STATION

GENERAL NOTES

1. COMPONENTS AND PANELS SHOWN WITH A SINGLE ASTERISK (*) ARE TO BE PROVIDED AS PART OF A PACKAGE SYSTEM.
2. COMPONENTS AND PANELS SHOWN WITH A DOUBLE ASTERISK (**) ARE TO BE PROVIDED UNDER DIVISION 26, ELECTRICAL.
3. EQUIPMENT SHOWN SCREENED BACK IS EXISTING AND WHAT IS SHOWN IN DARK COLOR IS PROPOSED NEW EQUIPMENT.
4. FOR PIPING SERVICE DESIGNATION AND ABBREVIATIONS, SEE DRAWING 001-G-0090.
5. THIS IS A STANDARD LEGEND. THEREFORE, NOT ALL OF THIS INFORMATION MAY BE USED ON THIS PROJECT.
6. FOR ADDITIONAL ABBREVIATIONS SEE SPECIFICATION 40.90.00 SUPPLEMENT.

GENERAL NOTE:

1. THIS IS A STANDARD LEGEND SHEET. THEREFORE, NOT ALL OF THE INFORMATION SHOWN MAY BE USED ON THIS PROJECT.

LINE LEGEND

- PRIMARY PROCESS (CLOSED CONDUIT, DASHED LINE INDICATES ALTERNATE FLOW STREAM)
- SECONDARY PROCESS
- BYPASS PROCESS
- TERTIARY PROCESS
- PROCESS (OPEN CHANNEL)
- ANALOG SIGNAL (4 TO 20 mAdc, ETC.)
- DISCRETE (ON/OFF, ETC.)
- PNEUMATIC SIGNAL
- FILLED SYSTEM SIGNAL
- HYDRAULIC SYSTEM SIGNAL
- DEVICENET
- ETHERNET CAT 5 CABLE
- "POWER" — POWER WIRING
- FIBER OPTIC CABLE (12 FIBER PER CABLE)
- BUILDING OR FACILITY BOUNDARY
- PACKAGE SYSTEM BOUNDARY
- SIMILAR EQUIPMENT BOUNDARY
- HEAT TRACED PROCESS

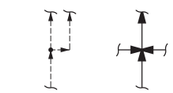
PARALLELING LINES



(A) TOTAL OF 2 SIGNALS

(B) 3 TYPICAL SETS OF 2 SIGNALS EACH. TOTAL OF 6 SIGNALS.

CONNECTING LINES



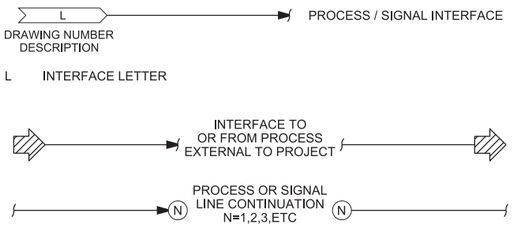
NON-CONNECTING LINES



DEMOLITION



INTERFACE SYMBOLS



SELF CONTAINED VALVE & EQUIPMENT TAG NUMBERS

A-XZZZN

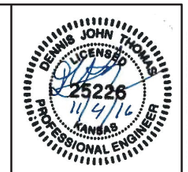
A EQUIPMENT TYPE

ATS	AUTOMATIC TRANSFER SWITCH
ARV	AIR RELEASE VALVE
AVRV	AIR AND VACUUM RELEASE VALVE
CP	CONTROL PANEL
CPU	CENTRAL PROCESSING UNIT
CS	CONTROL STATION
DC	DATA CABINET
DSW	DISCONNECT SWITCH
ECP	ENVIRONMENTAL CONTROL PANEL
F	FAN
FACP	FIRE ALARM CONTROL PANEL
FCV	FLOW CONTROL VALVE
FV	FLOW VALVE
G	GATE
GEN	GENERATOR
HMI	HUMAN MACHINE INTERFACE
LCP	LOCAL CONTROL PANEL
LCS	LOCAL CONTROL STATION
M	MECHANICAL EQUIPMENT
MCC	MOTOR CONTROL CENTER
MCP	MAIN CONTROL PANEL
MS	MOTOR STARTER
NIP	NETWORK INTERFACE PANEL
P	PUMP
PRV	PRESSURE RELIEF VALVE
S	SAMPLER
SV	SOLENOID VALVE
T	TANK
VFD	VARIABLE FREQUENCY DRIVE
UPS	UNINTERRUPTIBLE POWER SUPPLY

X PLANT ID
ZZZ FACILITY NUMBER/PROCESS AREA/FACILITY NUMBER
N SEQUENCE NUMBER

ABBREVIATIONS & LETTER SYMBOLS

AC	ALTERNATING CURRENT
AM	AUTO-MANUAL
ASU	AIR SUPPLY UNIT
BUSSW	BUS SWITCH
CAM	COMPUTER-AUTO-MANUAL
CCS	CENTRAL CONTROL SYSTEM
CG	COMBUSTIBLE GAS
CL_2 etc.	CHLORINE (TYPICAL: USE STANDARD CHEMICAL ELEMENT ABBREVIATIONS)
CM	COMPUTER-MANUAL
CNSW	SWITCH
COD	CHEMICAL OXYGEN DEMAND
CP-X	CONTROL PANEL NO. X
CPP	COPPER PATCH PANEL
CS	CONTROL STATION
DC	DIRECT CURRENT OR DATA CABINET, AS NOTED
DCS	DISTRIBUTED CONTROL SYSTEM
DCU	DISTRIBUTED CONTROL UNIT
DO	DISSOLVED OXYGEN
DR	DRAIN
ENET	ETHERNET
ESW	ETHERNET SWITCH
FCL	FREE CHLORINE RESIDUAL
FLP	
FOS	FAST-OFF-SLOW
FOSA	FAST-OFF-SLOW-AUTO
FOSR	FAST-OFF-SLOW-REMOTE
FP-W-X	FIELD PANEL NO. -- W-X (W=UNIT PROCESS NUMBER X=PANEL NUMBER)
FPP	FIBER PATCH PANEL
FR	FORWARD-REVERSE
FWD	FORWARD
H_2S	HYDROGEN SULFIDE GAS
HA	HAND-AUTOELEMENT ABBREVIATIONS)
HOA	HAND-OFF-AUTO
ISR	INTRINSICALLY SAFE RELAY
LCS	LOCAL CONTROL STATION
LEL	LOWER EXPLOSIVE LIMIT
LOS	LOCKOUT STOP
LR	LOCAL-REMOTE
MA	MANUAL-AUTO
MC	MODULATE-CLOSE
MCC-X	MOTOR CONTROL CENTER NO. X
MPP	MOTOR PROTECTION PANEL
MSC	MANUFACTURER SUPPLIED CABLE
NRCY	NITRIFIED RECYCLE
MSP	MOTOR STARTER PANEL
OC	OPEN(ED)-CLOSE(D)
OCA	OPEN-CLOSE-AUTO
OIT	OPERATOR INTERFACE TERMINAL
OO	ON-OFF
OOA	ON-OFF-AUTO
OOR	ON-OFF-REMOTE
ORP	OXIDATION REDUCTION POTENTIAL
OSC	OPEN-STOP-CLOSE
pH	HYDROGEN ION CONCENTRATION
PLC	PROGRAMMABLE LOGIC CONTROLLER
PS	PUMP STATION
REV	REVERSE
RIO	REMOTE I/O UNIT
RM-X	REMOTE MULTIPLEXING MODULE NO. X
RST	RESET
RTU-X	REMOTE TELEMETRY UNIT NO. X
	ROOF TOP UNIT
SF	SLOWER-FASTER
SS	START-STOP
SSC	SUPERVISORY SET POINT CONTROL
TBX	TERMINATION BOX
TCL_2	TOTAL CHLORINE RESIDUAL
TEMP	TEMPERATURE
TOC	TOTAL ORGANIC CARBON
TOD	TOTAL OXYGEN DEMAND
TSS	TOTAL SUSPENDED SOLIDS
TURB	TURBIDITY
VIB	VIBRATION
VHC	VOLATILE HYDROCARBONS
VFD	VARIABLE FREQUENCY DRIVE
UPS	UNINTERRUPTIBLE POWER SUPPLY
Δ	DIFFERENCE
Σ	SUM
×	MULTIPLY
÷	DIVIDE
F(X)	CHARACTERIZED
X_n	RAISED TO THE Nth POWER
$\sqrt{}$	SQUARE ROOT
AVG	AVERAGE
1:1	REPEAT OR BOOST
>	SELECT HIGHEST SIGNAL
<	SELECT LOWEST SIGNAL
%	GAIN OR ATTENUATE
}	BIAS



11/04/2016

NO.	DATE	REVISION	BY	APVD
DSGN	D THOMAS	DR E KRISTEL	CHK L FOX	APVD E JOHNSON

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

ch2m

GENERAL
INSTRUMENTATION AND CONTROLS LEGEND 1

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0700
SHEET	26 of 314

BIDDING SET

FILENAME: 001-G-0700_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 4:41:34 PM

VALVE SYMBOLS

GATE
KNIFE GATE
BUTTERFLY
GLOBE
BALL
V
VEE-BALL
PLUG
SEAT PORT ECCENTRIC PLUG
DIAPHRAGM
THREE WAY PLUG VALVE
PINCH
NEEDLE
SWING CHECK
BALL CHECK
BACKFLOW PREVENTER
ROTARY
TELESCOPE
S
SAMPLE
MUD
THREE WAY VALVE
PRESSURE RELIEF
AIR AND/OR VACUUM RELEASE
REGULATED SIDE PRESSURE CONTROL
PRESSURE REGULATION (CLAY-TYPE)
MULTI-PORT VALVE (GATE VALVE SHOWN. FOR OTHER VALVE TYPES, APPROPRIATE VALVE SYMBOL SHOWN.) SEAT PORTS ARE IMPLIED BY INDICATED FLOW PATTERN.
ANGLE GATE
FLAPPER CHECK

GATE SYMBOLS

SLUICE
FABRICATED SLIDE
BUTTERFLY
FLAP

DAMPER SYMBOLS

OA
MANUAL BUTTERFLY DAMPER (AIR)

ACTUATOR SYMBOLS

PNEUMATIC DIAPHRAGM SPRING-OPPOSED, SINGLE OR DOUBLE ACTING
VALVE POSITIONER
PNEUMATIC CYLINDER SINGLE OR DOUBLE ACTING ACTUATED BY ONE INPUT
H
HYDRAULIC
M
ELECTRIC MOTOR
DIAPHRAGM, DIFFERENTIAL PRESSURE
S
SOLENOID
E/H
ELECTROHYDRAULIC
T
MANUAL
H
PNEUMATIC

NOTE:
ON LOSS OF PRIMARY POWER (PNEUMATIC, ELECTRICAL, OR HYDRAULIC)

XX: FO FAIL OPEN
FC FAIL CLOSED
FLP FAIL TO LAST POSITION

PRIMARY ELEMENT SYMBOLS

PARSHALL FLUME
PROPELLER OR TURBINE METER
WEIR
THERMAL FLOWMETER
ORFICE PLATE
LEVEL (BUBBLER TUBE)
FLOW TUBE
PITOT-STATIC
LE
LEVEL RADAR
VORTEX METER
ULTRASONIC FLOWMETER
LET
SUBMERSIBLE PRESSURE LEVEL SENSOR
M
ELECTROMAGNETIC FLOWMETER
LS
LEVEL (FLOAT)
FI
ROTAMETER
DE
DENSITY METER
XX
GENERIC
LE
LEVEL ULTRASONIC
LE
LEVEL TUNING FORK (LIQUIDS)
FE
FLOW TRANSIT TIME ULTRASONIC
FS
(D) DOPPLER
(F) FLAPPER
FLOW SWITCH

GENERAL NOTE:

1. THIS IS A STANDARD LEGEND SHEET. THEREFORE, NOT ALL OF THE INFORMATION SHOWN MAY BE USED ON THIS PROJECT.

MISCELLANEOUS SYMBOLS

V
VENT TO ATMOSPHERE
AIR GAP
T
DRIP TRAP
PIG INSERT POINT
PIG CATCH POINT
A
SELF CONTAINED AIR SUPPLY
AP
AIR PURGE SET
F
FLUSHING CONNECTION
S
SEAL WATER SET
WP
WATER PURGE SET
HOSE CONNECTION
FLEXIBLE CONNECTION
AERATOR
DIAPHRAGM SEAL
ANNULAR DIAPHRAGM SEAL
SS
COMPOSITE SAMPLER
MANUAL DIVERTER GATE
CALIBRATION COLUMN
INLINE SILENCER
BLIND FLANGE
PIPE CAP
STRAINER
BASKET STRAINER
FILTER
PULSATION DAMPENER
EXPANSION CHAMBER
M
GRINDER
CI
CHEMICAL INJECTION
SIGHT GLASS
CHEMICAL DIFFUSER
EDUCTOR
HEATER

FFLCPLLLX
PANEL CONTINUED ON SAME OR OTHER DRAWING
PANEL OUTLINE
PANEL NAME
120V
120 VOLT, 60 HZ POWER WITH ISOLATION SWITCH PROVIDED UNDER DIV 26
480V
480 VOLT, 60 HZ POWER
XX
AIR SET
XX = SUPPLY PRESSURE IN PSIG.
PLUG
RUPTURE DISK (VACUUM)
RUPTURE DISK (PRESSURE)
REDUCER
COUPLING
STATIC MIXER
MANUAL MIXING VALVE
TBX
LEVEL SENSOR TERMINATION ENCLOSURE
A, B → AND → C
LOGIC ELEMENT: IF A AND NOT B THEN C
A, B → OR → C
LOGIC ELEMENT: IF A OR B THEN C
RADIO ANTENNA
I
OR
INTERLOCK, SEE CONTROL DIAGRAMS
I
HORN
AIR DIFFUSER
SKIMMING MECHANISM
SCREW
SCREW CONVEYOR
MIXER
M
ELECTRIC MOTOR
SAFETY SHOWER
OR
WATER SPRAY
ISR
INTRINSICALLY SAFE RELAY
DISCONNECT SWITCH
TERMINATION BOX
FLAME ARRESTOR

COMMUNICATIONS SYMBOLS

CPP
COPPER PATCH PANEL
FACP
FIRE ALARM CONTROL PANEL
FPP
FIBER OPTIC PATCH PANEL
ETHERNET SWITCH WITH ASSOCIATES POWER SUPPLY
PROGRAMMABLE LOGIC CONTROLLER (PLC)
REMOTE TERMINAL UNIT (RTU)
PC, HMI CLIENT, OR HMI WORKSTATION
TV
SECURITY TV MONITOR
TV
SECURITY TV CAMERA
UPS
UNINTERRUPTIBLE POWER SUPPLY
DPM
DIGITAL POWER METER
TELEPHONE, ANALOG AND DATA FIBER OPTIC MULTIPLEXER
PBX
PRIVATE BRANCH EXCHANGE (PBX)
MCC'S
MCCS
VFD'S
VFDS
BNC "T" CONNECTOR OR AS NOTED
FOC
FIBER OPTIC TO COPPER MEDIA CONVERTER
MODBUS+RIO, DEVICENET OR PROFIBUS, FIBER OPTIC CONVERTER
S — RS-232 OR RS-485 (AS NOTED)
E — CAT5E OR AS NOTED
CX — COAXIAL OR SPECIALTY
FO — FIBER OPTIC MULTIMODE
MB+ — MODBUS PLUS
T — TELEPHONE RJ-11
USB — USB CABLE
TBX — LEVEL SENSOR TERMINATION ENCLOSURE

PUMP AND COMPRESSOR SYMBOLS

CENTRIFUGAL PUMP (DRY PIT)
XX
CENTRIFUGAL WET PIT PUMP OR TURBINE PUMP
PERISTALTIC, OR HOSE PUMP
DIAPHRAGM PUMP
LOBE GEAR PUMP, OR BLOWER (POSITIVE DISPLACEMENT)
VERTICAL TURBINE CAN PUMP
PROGESSING CAVITY PUMP
COMPRESSOR (CENTRIFUGAL)
COMPRESSOR (PISTON)
BLOWER OR FAN (CENTRIFUGAL)
EJECTOR
METERING PUMP
PISTON PUMP
SUBMERSIBLE SUMP PUMP
ROTARY PUMP
VACUUM PUMP
SCREW PUMP
PROGRESSIVE CAVITY PUMP

XX: AS ADJUSTABLE SPEED
AS-FR ADJUSTABLE SPEED (FORWARD-REVERSE)
AS-R ADJUSTABLE SPEED (REVERSING)
CS-1 CONSTANT SPEED (SINGLE SPEED)
CS-2 CONSTANT SPEED (TWO SPEED)
CS-R CONSTANT SPEED (REVERSING)

LINE IDENTIFICATION

(FOR REFERENCE ONLY. SEE SITE AND MECHANICAL DRAWINGS)

PIPING CHANGE DATABASE SYMBOL
XXX
FLOW STREAM ID

FLOW STREAM IDENTIFICATION

SEE DWGS 001-G-0900 AND 001-G-0901 FOR PIPING SERVICE DESIGNATION AND ABBREVIATIONS.

DENNIS JOHN THOMAS LICENSED 25226 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		D THOMAS	E KRISTEL	L FOX	APVD	E JOHNSON	

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

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GENERAL
INSTRUMENTATION AND CONTROLS LEGEND 2

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0701
SHEET	27 of 314

BIDDING SET

GENERAL NOTES

1. BIOREACTOR DRAINS NOT SHOWN.

LEGEND

NEW

EXISTING

FUTURE

FC
30" ML
BIOREACTOR (FUTURE)
30" ML
30" ML
145 - BIOREACTOR
FERRIC CHLORIDE
FC
30" ML
TO CLARIFIER FEED CHANNEL
TO CLARIFIER FEED CHANNEL
30" ML
30" ML
30" ML
24" ML (NRCY)
FROM SLUDGE PUMP STATION
ANAEROBIC CELL
ANAEROBIC CELL
ANOXIC ZONE
ANAEROBIC CELL
FC
FERRIC CHLORIDE
20" ML/BYP (BYPASS)
30" ML (NRCY)
TO SLUDGE PUMP STATION
48" ML
TO CLARIFIER FEED CHANNEL
BIOREACTOR SPLITTER BOX
48" ML
140 - AERATION BASIN
TO FUTURE GRIT FACILITY EXPANSION
54" ML
10" RAS
FROM SLUDGE PUMP STATION
48" ML
18" RAS
FROM SLUDGE PUMP STATION
42" SRS
24" SRS
FROM FUTURE GRIT FACILITY EXPANSION
36" SRS
GRIT CYCLONE AND CLASSIFIER
GRIT PUMP
120 - GRIT BUILDING
4" GR
4" GR
VORTEX GRIT BASIN/ MECHANISM
DUMPSTER
SRS CHANNEL
30" SRS
30" SRS
110 - SCREENING FACILITY
FINE SCREEN 1
FINE SCREEN 2
MANUAL BAR SCREEN NO. 1
MANUAL BAR SCREEN NO. 2
SCR
SCREENINGS WASHER/COMPACTORS
DUMPSTER
270 - ODOR CONTROL FACILITY
30" FA
NORTH POND
SOUTH PONDS
LIFT STATION
FROM COLLECTION SYSTEM
MANHOLE
24" SSFM
16" SSFM/OF
16" SSFM/OF
16" SSFM/OF
18" FA
107 INFLUENT PUMP STATION VALVE VAULT
PUMP 7
PUMP 6
PUMP 5
PUMP 4
105 INFLUENT PUMP STATION
42" RS
42" RS/OF
100 - WET WEATHER PUMP STATION
PUMP 1
PUMP 2
PUMP 3
WETWELL
36" RS
FROM COLLECTION SYSTEM
3" W3
W3

ESTELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		S LEVESQUE	F JAGLA	J SANDINO	APVD	E JOHNSON	

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

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GENERAL

PROCESS FLOW DIAGRAM
LIQUIDS 1

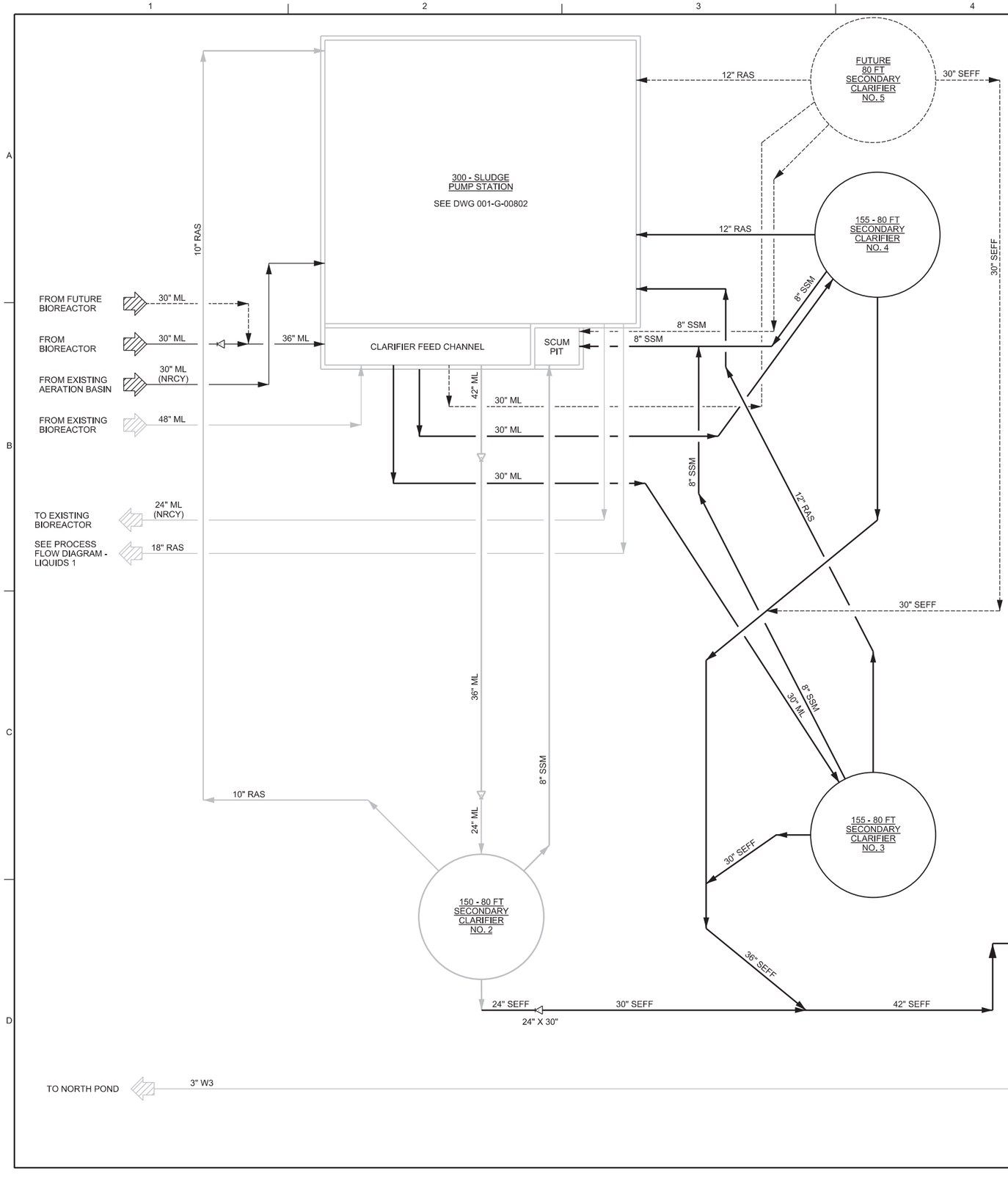
VERIFY SCALE

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0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0800
SHEET	28 of 314

BIDDING SET

FILENAME: 001-G-0800_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 4:44:33 PM



GENERAL NOTES

1. CLARIFIER DRAINS NOT SHOWN.

LEGEND

- NEW
- EXISTING
- FUTURE

ESTELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DSGN	DATE	DR	CHK	APVD	BY	APVD
	S LEVESQUE		F JAGLA	J SANDINO		E JOHNSON	

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GENERAL

PROCESS FLOW DIAGRAM LIQUIDS 2

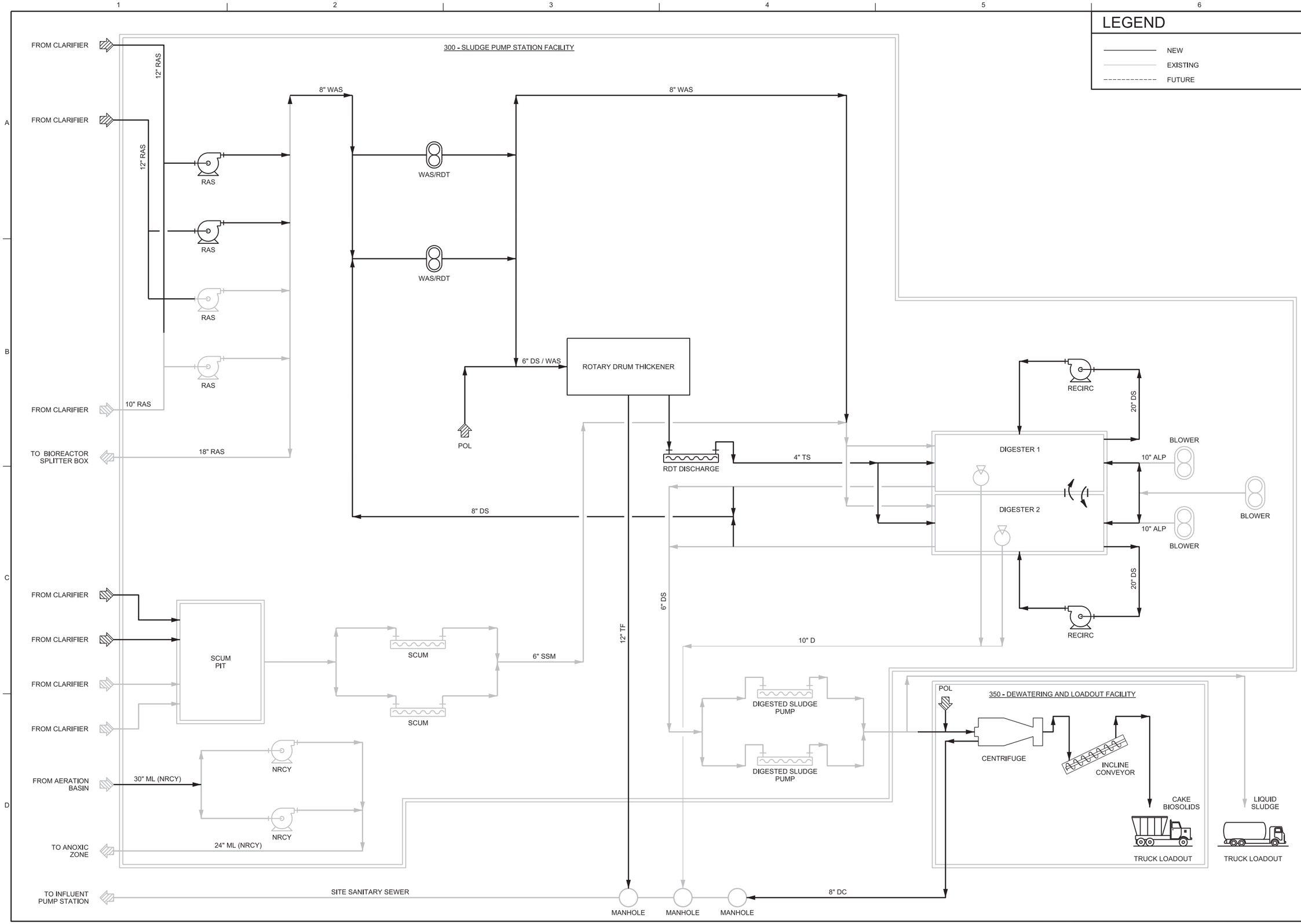
VERIFY SCALE

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0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0801
SHEET	29 of 314

BIDDING SET

FILENAME: 001-G-0801_496312.dgn PLOT DATE: 2016\11\03 PLOT TIME: 1:13:58 PM



RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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

GENERAL
PROCESS FLOW DIAGRAM
SOLIDS

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0802
SHEET	30 of 314

BIDDING SET

MASS BALANCE - MAXIMUM MONTH

Constituent	RawSewage(RS)	MainRecycledStream(Recycle)	MainBioreactorInfluent(BI)	MainSecondaryClarifierInfluent(SI)	MainSecondaryClarifierEffluent(SEFF)	PlantEffluent(PLEFF)	MainWAS	RDTThickenedWAS(TWAS)	Dig1AerobicDigesterEffluent(ADE)	Dig2AerobicDigesterEffluent(ADE)	Biosolids to Disposal	RDTWASThickeningRecycle(TWASR)	CentrifugeDewateringRecycle(DWR)	RecyCombinedDischarge
Flow (gallons/day)	7,620,000	169,658	7,789,658	12,789,648	7,639,044	7,639,044	150,753	26,703	26,703	26,703	4,238	147,192	22,466	169,658
Carbonaceous BOD_5 (lbs/day)	12,017	139	12,156	87,210	227	227	2,546	2,418	635	252	205	128	11	139
Particulate	7,972	8	7,979	5,424	11	11	158	151	0	0	0	8	0	8
Heterotrophs	12	79	92	54,349	108	108	1,588	1,508	239	36	0	79	0	79
Methanol Degraders	12	0	13	282	1	1	8	8	1	0	0	0	0	0
AOBs	11	6	17	4,086	8	8	119	113	32	9	9	6	0	6
NOBs	11	0	11	0	0	0	0	0	0	0	0	0	0	0
PAOs	10	44	54	22,784	45	45	666	632	360	205	195	33	10	44
PHA	1	0	2	194	0	0	6	5	3	2	2	0	0	0
Filtrate	3,988	1	3,989	91	54	54	1	0	0	0	0	1	0	1
COD (lbs/day)	26,076	774	26,850	311,594	2,032	2,032	9,061	8,586	6,417	5,920	5,621	475	300	774
Particulate Bio	15,080	14	15,094	9,438	19	19	276	262	0	0	0	14	0	14
Particulate Non-Bio	2,665	267	2,932	93,828	186	186	2,741	2,604	2,604	2,604	2,474	137	130	267
Decay Prod Aer/Anx	1,142	270	1,412	86,664	172	172	2,532	2,405	2,782	2,871	2,727	127	144	270
Decay Prod Anaerobic	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heterotrophs	16	105	121	70,620	140	140	2,063	1,960	311	47	44	103	2	105
Methanol Degraders	16	1	16	366	1	1	11	10	1	0	0	1	0	1
AOBs	16	9	25	6,001	12	12	175	167	46	14	13	9	1	9
NOBs	16	0	16	0	0	0	0	0	0	0	0	0	0	0
PAOs	16	80	96	42,018	83	83	1,227	1,166	664	378	359	61	19	80
PHA	2	1	2	284	1	1	8	8	4	3	2	0	0	1
Soluble Bio	4,727	1	4,728	125	74	74	1	0	0	0	0	1	0	1
VFA	691	0	691	7	4	4	0	0	0	0	0	0	0	0
Colloidal Bio	325	0	325	0	0	0	0	0	0	0	0	0	0	0
Soluble Non-Bio	1,306	26	1,332	2,244	1,340	1,340	26	5	5	5	1	22	4	26
Colloidal Non-Bio	57	0	57	0	0	0	0	0	0	0	0	0	0	0
TSS (lbs/day)	12,618	804	13,422	321,227	638	638	9,383	8,914	7,158	6,701	6,366	469	335	804
Biodegradable	8,407	8	8,415	5,267	10	10	154	146	0	0	0	8	0	8
Non-Biodegradable	1,925	193	2,118	67,784	135	135	1,980	1,881	1,881	1,881	1,787	99	94	193
Inorganic Particles	1,325	133	1,457	46,578	92	92	1,361	1,293	1,293	1,293	1,228	68	65	133
Decay Prod Aer/Anx	894	211	1,105	67,812	135	135	1,981	1,882	2,177	2,246	2,134	99	112	211
Decay Prod Anaerobic	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Metal Hydroxide	0	43	43	14,997	30	30	438	416	416	416	395	22	21	43
Metal Absorbed Phosphate	0	44	44	10,490	31	31	452	430	430	430	408	23	21	44
Heterotrophs	12	83	95	55,258	110	110	1,614	1,533	243	37	35	81	2	83
Methanol Degraders	12	0	13	286	1	1	8	8	1	0	0	0	0	0
AOBs	12	7	20	4,695	9	9	137	130	36	11	10	7	1	7
NOBs	12	0	12	0	0	0	0	0	0	0	0	0	0	0
PAOs	12	63	75	32,878	65	65	960	912	519	296	281	48	15	63
PHA	1	0	1	170	0	0	5	4	2	2	2	0	0	0
Poly-P	4	19	23	10,008	20	20	292	278	158	90	85	15	4	19
VSS (lbs/day)	10,725	520	11,245	214,547	426	426	6,267	5,954	4,480	4,131	3,924	313	207	520
Biodegradable	7,987	7	7,994	4,740	9	9	138	132	0	0	0	7	0	7
Non-Biodegradable	1,877	174	2,051	61,006	121	121	1,782	1,693	1,693	1,693	1,608	89	85	174
Decay Prod Aer/Anx	804	190	995	61,031	121	121	1,783	1,694	1,959	2,022	1,921	89	101	190
Decay Prod Anaerobic	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Metal Hydroxide	0	11	11	3,793	8	8	111	105	105	105	100	6	5	11
Heterotrophs	11	74	85	49,732	99	99	1,453	1,380	219	33	31	73	2	74
Methanol Degraders	11	0	12	258	1	1	8	7	1	0	0	0	0	0
AOBs	11	7	18	4,226	8	8	123	117	33	10	9	6	0	7
NOBs	11	0	11	0	0	0	0	0	0	0	0	0	0	0
PAOs	11	57	68	29,590	59	59	864	821	467	266	253	43	13	57
PHA	1	0	1	170	0	0	5	5	3	2	2	0	0	0
TKN (lbs/day)	2,695	43	2,738	16,608	190	190	481	454	362	327	311	26	17	43
NH_3-N (lbs-N/day)	1,693	2	1,694	124	74	74	1	0	10	0	0	1	0	2
Particulate Bio Org N	561	1	561	351	1	1	10	10	0	0	0	1	0	1
Non-Bio Part Org N	99	11	111	3,537	7	7	103	98	121	126	120	5	6	11
Decay Prod Aer/Anx	69	16	86	5,249	10	10	153	146	168	174	165	8	9	16
Decay Prod Anaerobic	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heterotrophs	1	6	7	4,277	8	8	125	119	19	3	3	6	0	6
Methanol Degraders	1	0	1	22	0	0	1	1	0	0	0	0	0	0
AOBs	1	1	2	363	1	1	11	10	3	1	1	1	0	1
NOBs	1	0	1	0	0	0	0	0	0	0	0	0	0	0
PAOs	1	5	6	2,545	5	5	74	71	40	23	22	4	1	5
Non-Bio Soluble Org. N	78	2	80	135	80	80	2	0	0	0	0	1	0	2
Non-Bio Colloidal Org. N	2	0	2	0	0	0	0	0	0	0	0	0	0	0
Soluble Bio Org N	176	0	176	5	3	3	0	0	0	0	0	0	0	0
Colloidal Bio Org N	12	0	12	0	0	0	0	0	0	0	0	0	0	0
NO_2-N (lbs-N/day)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO_3-N (lbs-N/day)	0	14	14	376	224	224	4	1	22	12	2	4	10	14
Total Nitrogen (lbs-N/day)	2,695	57	2,752	16,984	414	414	485	455	383	339	312	30	27	57
TP (lbs-P/day)	288	113	401	12,584	37	37	367	349	349	349	254	19	94	113
Bio Particulate	32	0	32	19	0	0	1	1	0	0	0	0	0	0
Non-Bio Particulate	8	1	9	281	1	1	8	8	15	17	16	0	1	1
Decay Prod Aer/Anx	23	5	28	1,733	3	3	51	48	56	57	55	3	3	5
Decay Prod Anaerobic	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Metal Absorbed	0	14	14	5,052	10	10	148	140	140	140	133	7	7	14
Heterotrophs	0	2	2	1,412	3	3	41	39	6	1	1	2	0	2
Methanol Degraders	0	0	0	7	0	0	0	0	0	0	0	0	0	0
AOBs	0	0	1	120	0	0	4	3	1	0	0	0	0	0
NOBs	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PAOs	0	2	2	840	2	2	25	23	13	8	7	1	0	2
Poly-P	1	6	7	3,098	6	6	91	86	49	28	26	5	1	6
Ortho-PO4	223	82	305	20	12	12	0	0	68	97	15	0	82	82
Alkalinity (lbs/day as $CaCO_3$)	17,360	184	17,543	18,930	11,306	11,306	223	40	0	0	0	184	0	184
H_2S (lbs/day)	382	0	382	0	0	0	0	0	0	0	0	0	0	0
Temperature (^{0}C)	14.2	15.3	14.2	13.8	13.5	13.5	13.8	13.8	26.3	25.1	25.1	13.8	25.1	15.3
BOD_5 (mg/L)	189	98	187	817	4	4	2,024	10,849	2,849	1,131	6,773	104	67	98
COD (mg/L)	410	547	413	2,919	32	32	7,202	38,527	28,795	26,566	158,923	386	1,599	547
TSS (mg/L)	198	568	206	3,010	10	10	7,458	40,000	32,119	30,070	180,000	382	1,787	568
VSS (mg/L)	169	367	173	2,010	7	7	4,981	26,716	20,104	18,535	110,951	255	1,102	367
TKN (mg-N/L)	42	31	42	156	3	3	382	2,038	1,623	1,469	8,781	22	90	31
NH_3-N (mg-N/L)	26.6	1	26	1	1	1	1	1	45	2	2	1	2	1
NO_2-N (mg/L)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO_3-N (mg-N/L)	0	10	0	4	4	4	4	4	97	53	53	3	53	10
Total Nitrogen (mg/L)	42	40	42	159	7	7	385	2,041	1,720	1,523	8,834	24	143	40
TP (mg-P/L)	5	80	6	118	1	1	292	1,565	1,565	1,565	7,188	15	504	80
Alkalinity (mg/L as $CaCO_3$)	273	130	270	177	177	177	177	177	0	0	0	149	0	130
H_2S (mg/L)	6	0	6	0	0	0	0	0	0	0	0	0	0	0

KRISTELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD
		S LEVESQUE	F JAGLA	J SANDINO	E JOHNSON

REVISION

BY APVD

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GENERAL

MASS BALANCE
MAXIMUM MONTH

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0803
SHEET	31 of 314

BIDDING SET

FILENAME: 001-G-0803_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 4:39:09 PM

MASS BALANCE - ANNUAL AVERAGE

Constituent	RawSewage(RS)	MainRecycledStream(Recycle)	MainBioreactorInfluent(BI)	MainSecondaryClarifierInfluent(SI)	MainSecondaryClarifierEffluent(SEFF)	PlantEffluent(PLEFF)	MainWAS	RDTThickenedWAS(TWAS)	Dig1AerobicDigesterEffluent(ADE)	Dig2AerobicDigesterEffluent(ADE)	CentrifugeDewateredSludge(DWE)	Biosolids to Disposal	RDTWASThickeningRecycle(TWASR)	CentrifugeDewateringRecycle(DWR)	RecyCombinedDischarge
Flow (gallons/day)	6,000,000	141,543	6,141,544	10,256,442	6,011,996	6,011,996	129,612	22,372	22,372	22,372	3,497	3,497	122,668	18,875	141,543
Carbonaceous BOD_5 (lbs/day	10,014	98	10,112	58,517	97	97	1,784	1,694	445	184	163	163	90	9	98
Particulate	6,645	5	6,650	3,242	3	3	99	94	0	0	0	0	5	0	5
Heterotrophs	10	48	57	31,262	30	30	954	906	108	12	0	0	48	0	48
Methanol Degraders	10	0	10	220	0	0	7	6	1	0	0	0	0	0	0
AOBs	9	5	13	2,837	3	3	87	82	18	4	4	4	4	0	5
NOBs	9	0	9	0	0	0	0	0	0	0	0	0	0	0	0
PAOs	8	40	48	20,760	20	20	633	602	316	166	158	158	32	8	40
PHA	1	0	1	129	0	0	4	4	2	1	1	1	0	0	1
Filtrate	3,324	1	3,325	68	40	40	1	0	0	0	0	0	1	0	1
COD (lbs/day)	21,730	644	22,374	242,538	1,432	1,432	7,363	6,974	5,414	5,056	4,800	4,800	388	256	644
Particulate Bio	12,571	9	12,579	5,640	5	5	172	163	0	0	0	0	9	0	9
Particulate Non-Bio	2,221	231	2,452	77,525	75	75	2,365	2,247	2,247	2,247	2,134	2,134	118	112	231
Decay Prod Aer/Anx	952	236	1,188	73,781	72	72	2,251	2,138	2,409	2,474	2,350	2,350	113	124	236
Decay Prod Anaerobic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heterotrophs	13	63	75	40,622	40	40	1,239	1,177	141	16	15	15	62	1	63
Methanol Degraders	13	0	13	285	0	0	9	8	1	0	0	0	0	0	0
AOBs	13	7	19	4,166	4	4	127	121	27	6	6	6	0	0	7
NOBs	13	0	13	0	0	0	0	0	0	0	0	0	0	0	0
PAOs	13	74	86	38,286	37	37	1,168	1,110	583	306	291	291	58	15	74
PHA	1	0	2	188	0	0	6	5	3	2	1	1	0	0	0
Soluble Bio	3,939	1	3,940	92	54	54	1	0	0	0	0	0	1	0	1
VFA	576	0	576	5	3	3	0	0	0	0	0	0	0	0	0
Colloidal Bio	271	0	271	0	0	0	0	0	0	0	0	0	0	0	0
Soluble Non-Bio	1,089	24	1,113	1,946	1,141	1,141	25	4	4	4	1	1	20	4	24
Colloidal Non-Bio	48	0	48	0	0	0	0	0	0	0	0	0	0	0	0
TSS (lbs/day)	10,515	670	11,184	257,687	251	251	7,861	7,468	5,974	5,530	5,253	5,253	393	276	670
Biodegradable	7,009	5	7,013	3,148	3	3	96	91	0	0	0	0	5	0	5
Non-Biodegradable	1,605	167	1,771	56,012	55	55	1,709	1,623	1,623	1,623	1,542	1,542	85	81	167
Inorganic Particles	1,104	115	1,219	38,533	38	38	1,176	1,117	1,117	1,117	1,061	1,061	59	56	115
Decay Prod Aer/Anx	745	185	930	57,732	56	56	1,761	1,673	1,885	1,936	1,839	1,839	88	97	185
Decay Prod Anaerobic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Metal Hydroxide	0	21	21	6,963	7	7	212	202	202	202	192	192	11	10	21
Metal Absorbed Phosphat	0	22	22	7,310	7	7	223	212	212	212	201	201	11	11	22
Heterotrophs	10	49	59	31,785	31	31	970	921	110	13	12	12	48	1	49
Methanol Degraders	10	0	10	223	0	0	7	6	1	0	0	0	0	0	0
AOBs	10	5	15	3,260	3	3	99	94	21	5	5	5	5	0	5
NOBs	10	0	10	0	0	0	0	0	0	0	0	0	0	0	0
PAOs	10	58	67	29,958	29	29	914	868	456	240	228	228	46	12	58
PHA	1	0	1	113	0	0	3	3	2	1	1	1	0	0	0
Poly-P	3	44	46	22,650	22	22	691	656	345	181	172	172	35	9	44
VSS (lbs/day)	8,937	427	9,365	165,780	161	161	5,057	4,805	3,740	3,487	3,313	3,313	253	174	427
Biodegradable	6,658	4	6,662	2,833	3	3	86	82	0	0	0	0	4	0	4
Non-Biodegradable	1,564	150	1,714	50,411	49	49	1,538	1,461	1,461	1,461	1,388	1,388	77	73	150
Decay Prod Aer/Anx	670	166	837	51,958	51	51	1,585	1,506	1,697	1,742	1,655	1,655	79	87	166
Decay Prod Anaerobic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Metal Hydroxide	0	5	5	1,761	2	2	54	51	51	51	48	48	3	3	5
Heterotrophs	9	44	53	28,607	28	28	873	829	99	11	11	11	44	1	44
Methanol Degraders	9	0	9	201	0	0	6	6	1	0	0	0	0	0	0
AOBs	9	5	14	2,934	3	3	89	85	19	5	4	4	0	0	5
NOBs	9	0	9	0	0	0	0	0	0	0	0	0	0	0	0
PAOs	9	52	61	26,962	26	26	823	781	411	216	205	205	41	11	52
PHA	1	0	1	113	0	0	3	3	2	1	1	1	0	0	0
TKN (lbs/day)	2,343	36	2,379	12,982	118	118	393	371	303	279	265	265	21	14	36
NH_3-N (lbs-N/day)	1,472	1	1,473	59	35	35	1	0	6	0	0	0	1	0	1
Particulate Bio Org N	491	0	492	226	0	0	7	6	0	0	0	0	0	0	0
Non-Bio Part Org N	87	10	97	3,065	3	3	94	89	105	109	104	104	5	5	10
Decay Prod Aer/Anx	58	14	72	4,468	4	4	136	130	146	150	142	142	7	7	14
Decay Prod Anaerobic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heterotrophs	1	5	5	2,460	2	2	75	71	9	1	1	1	4	0	4
Methanol Degraders	1	0	1	17	0	0	1	1	0	0	0	0	0	0	0
AOBs	1	0	1	252	0	0	8	7	2	0	0	0	0	0	0
NOBs	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
PAOs	1	4	5	2,319	2	2	71	67	35	19	18	18	4	1	4
Non-Bio Soluble Org. N	65	1	67	117	68	68	1	0	0	0	0	0	1	0	1
Non-Bio Colloidal Org. N	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Soluble Bio Org N	154	0	154	4	2	2	0	0	0	0	0	0	0	0	0
Colloidal Bio Org N	11	0	11	0	0	0	0	0	0	0	0	0	0	0	0
NO_2-N (lbs-N/day)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO_3-N (lbs-N/day)	0	10	10	248	146	146	3	1	16	9	1	1	3	7	10
Total Nitrogen (lbs-N/day)	2,343	45	2,389	13,231	263	263	396	372	319	288	266	266	24	21	45
TP (lbs-P/day)	250	178	428	12,813	31	31	390	370	370	370	212	212	20	158	178
Bio Particulate	27	0	27	12	0	0	0	0	0	0	0	0	0	0	0
Non-Bio Particulate	6	1	7	230	0	0	7	7	12	13	13	13	0	1	1
Decay Prod Aer/Anx	19	5	24	1,476	1	1	45	43	48	49	47	47	2	2	5
Decay Prod Anaerobic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Metal Absorbed	0	7	7	2,384	2	2	73	69	69	69	66	66	4	3	7
Heterotrophs	0	1	2	812	1	1	25	24	3	0	0	0	1	0	1
Methanol Degraders	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0
AOBs	0	0	0	83	0	0	3	2	1	0	0	0	0	0	0
NOBs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PAOs	0	1	2	768	1	1	23	22	12	6	6	6	1	0	1
Poly-P	1	14	14	7,013	7	7	214	203	107	56	53	53	11	3	14
Ortho-PO4	196	149	345	31	18	18	0	0	119	176	27	27	0	148	149
Alkalinity (lbs/day as $CaCO_3$)	13,669	156	13,825	14,678	8,604	8,504	185	32	0	3	0	0	153	3	156
H_2S (lbs/day)	300	0	300	0	0	0	0	0	0	0	0	0	0	0	0
Temperature (°C)	18.8	20.2	18.8	18.8	18.5	18.5	18.8	18.8	30.7	29.3	29.3	29.3	18.8	29.3	20.2
BOD_5 (mg/L)	200	83	197	684	2	1.9	1,649	9,074	2,385	985	5,989	5,989	88	58	83
COD (mg/L)	434	545	437	2,834	29	28.5	6,807	37,355	28,999	27,079	164,461	164,461	379	1,626	545
TSS (mg/L)	210	567	218	3,011	5	5.0	7,268	40,000	31,996	29,616	180,000	180,000	384	1,755	567
VSS (mg/L)	178	362	183	1,937	3	3.2	4,676	25,733	20,030	18,677	113,515	113,515	247	1,107	362
TKN (mg-N/L)	47	30	46	152	2	2.3	363	1,989	1,625	1,496	9,082	9,082	21	90	30
NH_3-N (mg-N/L)	29.4	1	29	1	1	0.7	1	1	35	0	0	0	1	0	1
NO_2-N (mg/L)	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0
NO_3-N (mg-N/L)	0	8	0	3	3	2.9	3	3	84	46	46	46	3	46	8
Total Nitrogen (mg/L)	47	38	47	155	5	5.3	366	1,992	1,709	1,541	9,128	9,128	23	136	38
TP (mg-P/L)	5	151	8	150	1	0.6	361	1,984	1,984	1,984	7,278	7,278	19	1,004	151
Alkalinity (mg/L as $CaCO_3$)	273	132	270	171	171	171	171	171	0	16	16	16	150	16	132
H_2S (mg/L)	6	0	6	0	0	0	0	0	0	0	0	0	0	0	0

KASELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		S LEVESQUE	F JAGLA	J SANDINO		E JOHNSON	

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

ch2m

GENERAL
MASS BALANCE
ANNUAL AVERAGE

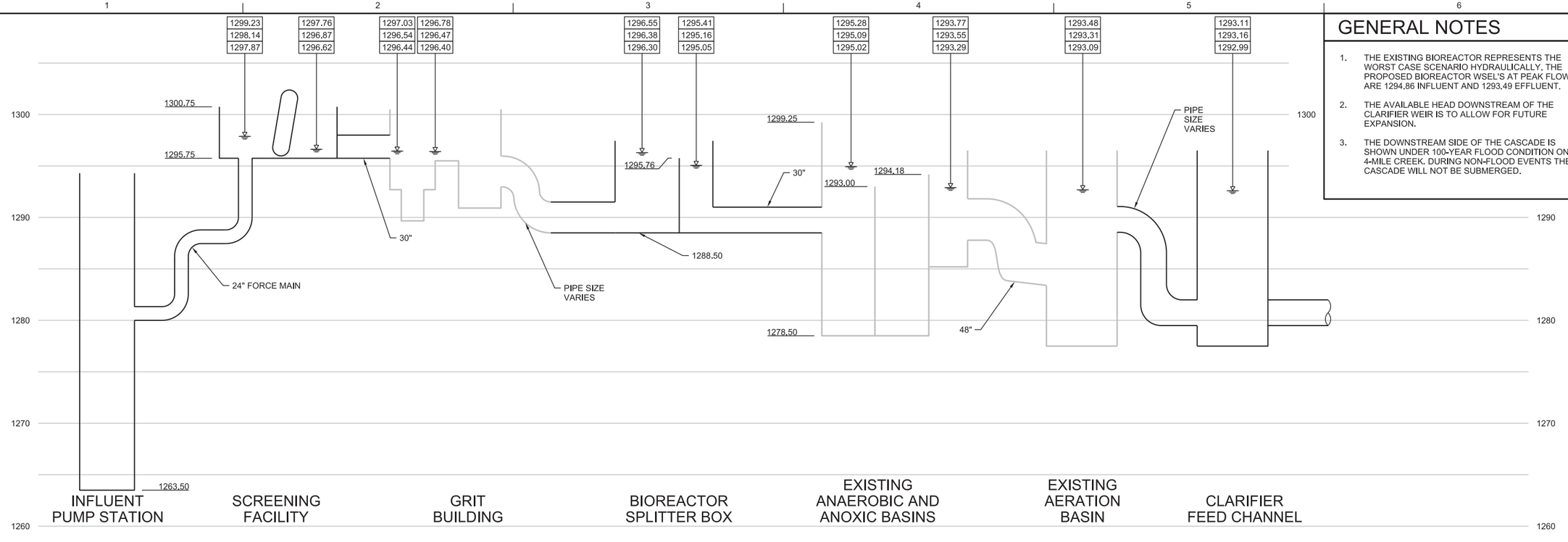
VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0804
SHEET	32 of 314

BIDDING SET

FILENAME: 001-G-0804_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 4:42:27 PM

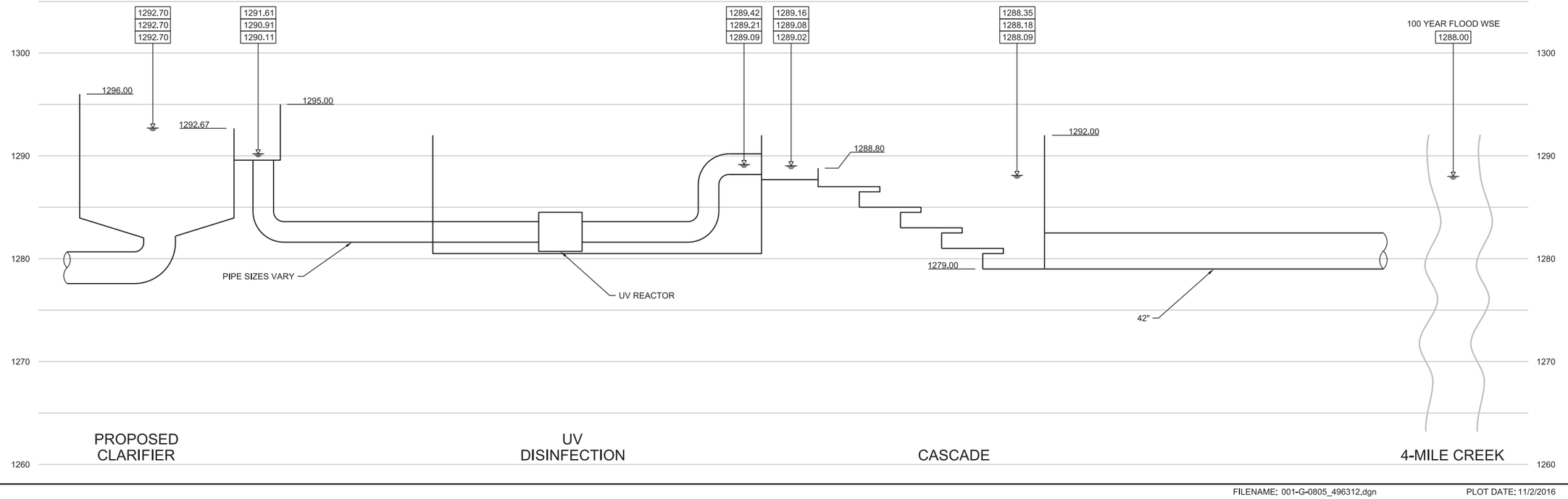


GENERAL NOTES

1. THE EXISTING BIOREACTOR REPRESENTS THE WORST CASE SCENARIO HYDRAULICALLY. THE PROPOSED BIOREACTOR WSEL'S AT PEAK FLOW ARE 1294.86 INFLUENT AND 1293.49 EFFLUENT.
2. THE AVAILABLE HEAD DOWNSTREAM OF THE CLARIFIER WEIR IS TO ALLOW FOR FUTURE EXPANSION.
3. THE DOWNSTREAM SIDE OF THE CASCADE IS SHOWN UNDER 100-YEAR FLOOD CONDITION ON 4-MILE CREEK. DURING NON-FLOOD EVENTS THE CASCADE WILL NOT BE SUBMERGED.

LEGEND:

FLOW	NO. BIOREACTORS ONLINE	NO. CLARIFIERS ONLINE
PEAK 12 MGD	2	3
MAX MONTH 7.45 MGD	2	2
AVERAGE 6 MGD	2	2



RUSSELL JO JOHNSON — 15411 — 11/4/16 — KANSAS — PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DR	CHK	APVD	BY	REVISION
DSGN	A SMITH	F JAGLA	M RIDENS	APVD	E JOHNSON	

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

GENERAL

HYDRAULIC PROFILE

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0805
SHEET	33 of 314

BIDDING SET

FILENAME: 001-G-0805_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 4:40:11 PM

PIPE SCHEDULE

Service	Legend	Exposure[1]	Size (inches)[2]	Material[3]	Specification Section	Joint Type[4]	Coating[5]	Lining	Test Pressure and Type (psig-x), x = Type indicated in Legend[6]	Pipe Color and Label[7]	Heat Trace (Y/N)	Insulation (Y/N)	Comments
AIR (LOW PRESSURE)	ALP	ALL	ALL	CST	SEE COMMENTS	SEE COMMENTS	SYSTEM NO. 5	NONE	15-P Per 40 80 01		SEE COMMENTS	SEE COMMENTS	New pipe to match existing where shown on drawings.
DRAIN	D	EXP	ALL	PVC	40 27 00.10	W	SYSTEM NO. 25	NONE	PC		Y	Y	
		INT	ALL	PVC	40 27 00.10	W, SW	SYSTEM NO. 25	NONE	PC		N	N	
		BUR	ALL	PVC	33 05 01.12	RGK	NONE	NONE	5-GH Per 33 05 01.12	Per 31 23 23.15	N	N	
DEWATERING CENTRATE	DC	INT	ALL	CLDI	40 27 00.01	FL. GE	SYSTEM NO. 5	CM	5-H Per 40 80 01		N	N	
		BUR	ALL	CLDI	33 05 01.02	PRJ	ASPHALT COATING AND V-BIO POLYETHYLENE ENCASEMENT	CM	5-H Per 40 80 01	Per 31 23 23.15	N	N	
DIGESTED SLUDGE	DS	INT	ALL	CLDI	40 27 00.01	GE, FL	SYSTEM NO. 5	CM	60-H Per 40 80 01		N	N	
		BUR	ALL	CLDI	33 05 01.02	PRJ	ASPHALT COATING AND V-BIO POLYETHYLENE ENCASEMENT	CM	60-H Per 40 80 01	Per 31 23 23.15	N	N	
DIGESTED SLUDGE/WASTE ACTIVATED SLUDGE	DS/WAS	INT	ALL	CLDI	40 27 00.01	GE, FL	SYSTEM NO. 5	CM	60-H Per 40 80 01		N	N	
DOMESTIC HOT WATER	DHW	ALL	ALL	COP	40 27 00.13	SOLDERED	NONE	NONE	90, H	DK. BLUE	N	N	
FOUL AIR	FA	EXP	ALL	FRP	23 31 16.16	W	UV PROTECTION BARRIER	NONE	Per 23 31 16.16		N	N	
		INT	ALL	SST	23 31 13	W	NONE	NONE	Per 23 31 13		N	N	
		BUR	ALL	PWPE	40 27 00.21	W	NONE	NONE	GH or GP per 40 80 01		N	N	
FERRIC CHLORIDE	FC	EXP	ALL	DWCP	40 27 00.15	W	SYSTEM NO. 25	NONE	150-H Per 40 80 01		N	N	Double-Walled Containment Pipe w/ Leak Detection.
		INT	ALL	DWCP	40 27 00.15	W	SYSTEM NO. 25	NONE	150-H Per 40 80 01		N	N	Double-Walled Containment Pipe w/ Leak Detection
		BUR	ALL	DWCP	40 27 00.15	W	NONE	NONE	150-H Per 40 80 01		N	N	Double-Walled Containment Pipe w/ Leak Detection
GRIT SLURRY	GR	INT	ALL	GLDI	40 27 00.01	PRJ, GE or FL	SYSTEM NO. 5	GL	40-H Per 40 80 01		N	N	
MIXED LIQUOR	ML	BUR	≤ 36	CLDI	33 05 01.02	PRJ	ASPHALT COATING AND V-BIO POLYETHYLENE ENCASEMENT	CM	H Per 40 80 01	Per 31 23 23.15	N	N	
			>36	WS-CL	33 05 01.01	W	TAPE COAT WITH CEMENT MORTAR COATING	CM	Per 33 05 01.01	Per 31 23 23.15	N	N	
NITRIFIED RECYCLED SLUDGE	NRCY	INT	ALL	CLDI	40 27 00.01	FL, GE	SYSTEM NO. 5	CM	GH Per 40 80 01		N	N	
		BUR	ALL	CLDI	33 05 01.02	PRJ	ASPHALT COATING AND V-BIO POLYETHYLENE ENCASEMENT	CM	GH Per 40 80 01	Per 31 23 23.15	N	N	
PLANT EFFLUENT	PLEFF	INT	ALL	CLDI	40 27 00.01	FL	SYSTEM NO. 5	CM	GH Per 40 80 01		N	N	
		BUR	ALL	PVC	33 05 01.09	RGK	NONE	NONE	GH Per 40 80 01	Per 31 23 23.15	N	N	
POLYMER	POL	INT	ALL	PVC	40 27 00.10	W, SW	SYSTEM NO. 25	NONE	100-H Per 40 80 01		N	N	
RETURNED ACTIVATED SLUDGE	RAS	INT	ALL	CLDI	40 27 00.01	FL	SYSTEM NO. 5	CM	60-H Per 40 80 01		N	N	
		BUR	ALL	CLDI	33 05 01.02	PRJ	ASPHALT COATING AND V-BIO POLYETHYLENE ENCASEMENT	CM	60-H Per 40 80 01	Per 31 23 23.15	N	N	
RAW SEWAGE	RS	ALL	< 36	PVC	33 05 01.09	RGK	NONE	NONE	5-GH Per 40 80 01	Per 31 23 23.15	N	N	
			36	RCP	33 05 01.12	RGK	NONE	Ceramic-epoxy	5-GH Per 33 05 01.12	Per 31 23 23.15	N	N	Hydraulic profile upstream of plant is unknown and pipe may not be fully submerged to prevent odorous gas buildup. Abrasion resistant epoxy instead of cement mortar shall be used.
			>36	HDPE	SEE COMMENTS	SEE COMMENTS	SEE COMMENTS	SEE COMMENTS	SEE COMMENTS	SEE COMMENTS	SEE COMMENTS	SEE COMMENTS	Existing HDPE line. Only cutting line. No new installations.
SECONDARY EFFLUENT	SEFF	INT	ALL	CLDI	40 27 00.01	FL	SYSTEM NO. 5	CM	GH Per 40 80 01		N	N	
		BUR	ALL	CLDI	33 05 01.02	PRJ	ASPHALT COATING AND V-BIO POLYETHYLENE ENCASEMENT	CM	H Per 40 80 01	Per 31 23 23.15	N	N	

RUSSELL JO JOHNSON — 15411 — 11/4/16 — KANSAS — PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		J PITTS	F JAGLA	S CHAMPLIN			E JOHNSON

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

ch2m

GENERAL

PIPE SCHEDULE 1

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0900
SHEET	34 of 314

BIDDING SET

FILENAME: 001-G-0900_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 4:40:21 PM

PIPE SCHEDULE (CONT.)

Service	Legend	Exposure[1]	Size (inches)[2]	Material[3]	Specification Section	Joint Type[4]	Coating[5]	Lining	Test Pressure and Type (psig-x), x = Type indicated in Legend[6]	Pipe Color and Label[7]	Heat Trace (Y/N)	Insulation (Y/N)	Comments
SCREENED RAW SEWAGE	SRS	BUR	≤ 36	CLDI	33 05 01.02	PRJ	ASPHALT COATING AND V-BIO POLYETHYLENE ENCASEMENT	CM	H Per 40 80 01	Per 31 23 23.15	N	N	
			>36	WS-CL	33 05 01.01	W	TAPE COAT WITH CEMENT MORTAR COATING	CM	Per 33 05 01.01	Per 31 23 23.15	N	N	
SANITARY SEWER FORCE MAIN	SSFM	INT	ALL	DIP	40 27 00.01	FL	SYSTEM NO. 4	Ceramic-epoxy	60-H Per 40 80 01		N	N	
		BUR	ALL	DIP	33 05 01.02	PRJ	ASPHALT COATING AND V-BIO POLYETHYLENE ENCASEMENT	Ceramic-epoxy	60-H Per 40 80 01	Per 31 23 23.15	N	N	
SECONDARY SCUM	SSM	INT	ALL	CLDI	40 27 00.01	PRJ, GE or FL	SYSTEM NO. 5	CM	5-GH Per 40 80 01		N	N	
		SUB	ALL	CLDI	40 27 00.01	PRJ, GE or FL	SYSTEM NO. 2	CM	5-GH Per 40 80 01		N	N	
		BUR	ALL	PVC	33 05 01.09	RGK	NONE	NONE	5-GH Per 40 80 01	Per 31 23 23.15	N	N	
TEMPERED WATER	-	ALL	ALL	COP	40 27 00.13	SOLDERED	NONE	NONE	90, H	DK. BLUE	N	N	
THICKENING FILTRATE	TF	EXP	ALL	CLDI	40 27 00.01	PRJ, GE or FL	SYSTEM NO. 5	CM	5-GH Per 40 80 01		N	Y	
		BUR	ALL	CLDI	33 05 01.02	PRJ	ASPHALT COATING AND V-BIO POLYETHYLENE ENCASEMENT	CM	5-GH Per 40 80 01	Per 31 23 23.15	N	N	
THICKENED SLUDGE	TS	INT	ALL	CLDI	40 27 00.01	PRJ, GE or FL	SYSTEM NO. 5	CM	60-H Per 40 80 01		N	N	
UNDERDRAIN	UD	BUR	ALL	Heavy-duty corrugated polyethylene	33 46 00	W	NONE	NONE	NA	Per 31 23 23.15	N	N	
VENT	V	EXP	ALL	PVC	40 27 00.10	W	SYSTEM NO. 25	NONE	NA		N	N	
POTABLE WATER	W1	EXP	ALL	COP	40 27 00.13	SW	NONE	NONE	PC		Y	Y	
		INT	ALL	COP	40 27 00.13	SW	NONE	NONE	PC		N	Y	
		BUR	ALL	PVC	33 05 01.09	RGK	NONE	NONE	150-H Per 40 80 01	Per 31 23 23.15	N	N	
ISOLATED POTABLE WATER	W2	EXP	ALL	PVC	40 27 00.10	FL, W	SYSTEM NO. 25	NONE	PC		Y	Y	
		INT	ALL	PVC	40 27 00.10	FL, W	NONE	NONE	PC		N	N	
		BUR	ALL	PVC	33 05 01.09	RGK	NONE	NONE	150-H Per 40 80 01	Per 31 23 23.15	N	N	
NON-POTABLE WATER	W3	BUR	ALL	PVC	33 05 01.09	RGK	NONE	NONE	150-H Per 40 80 01	Per 31 23 23.15	N	N	
WASTE ACTIVATED SLUDGE	WAS	INT	ALL	CLDI	40 27 00.01	GE or FL	SYSTEM NO. 5	CM	60-H Per 40 80 01		N	N	
		BUR	ALL	CLDI	33 05 01.02	PRJ	ASPHALT COATING AND V-BIO POLYETHYLENE ENCASEMENT	CM	60-H Per 40 80 01	Per 31 23 23.15	N	N	
WASTE ACTIVATED SLUDGE/ SECONDARY SCUM	WAS/SSM	INT	ALL	CLDI	40 27 00.01	PRJ, GR or FL	SYSTEM NO. 5	CM	60-H Per 40 80 01		N	N	
SERVICE/ BYPASS	XX/BYP	ALL	ALL	SEE COMMENTS	SEE COMMENTS	SEE COMMENTS	SEE COMMENTS	SEE COMMENTS	SEE COMMENTS		SEE COMMENTS	SEE COMMENTS	Match to service pipe, or as shown on drawings.
SERVICE/ DRAIN	XX/D	ALL	ALL	SEE COMMENTS	SEE COMMENTS	SEE COMMENTS	SEE COMMENTS	SEE COMMENTS	SEE COMMENTS		SEE COMMENTS	SEE COMMENTS	Match to service pipe, or as shown on drawings.
SERVICE/ OVERFLOW	XX/OF	ALL	ALL	SEE COMMENTS	SEE COMMENTS	SEE COMMENTS	SEE COMMENTS	SEE COMMENTS	SEE COMMENTS		SEE COMMENTS	SEE COMMENTS	Match to service pipe, or as shown on drawings.
SAMPLE	XX/SA	ALL	ALL	SEE COMMENTS	SEE COMMENTS	SEE COMMENTS	SEE COMMENTS	SEE COMMENTS	SEE COMMENTS		SEE COMMENTS	SEE COMMENTS	Match to service pipe, or as shown on drawings.

LEGEND

1. BUR BURIED; EXP EXPOSED; INT INTERIOR; SUB SUBMERGED; ALL ALL EXPOSURES
2. > GREATER THAN; < LESS THAN; <= LESS THAN OR EQUAL TO; >= GREATER THAN OR EQUAL TO; ALL ALL SIZES
3. CLDI CEMENT LINED DUCTILE IRON; COP COPPER; CST CARBON STEEL; DIP DUCTILE IRON PIPE; DWCP DOUBLE-WALLED CONTAINMENT; FRP FIBER REINFORCED PLASTIC; GLDI GLASS LINED DUCTILE IRON; HDPE HIGH-DENSITY POLYETHYLENE; PVC POLYVINYL CHLORIDE; PWPE PROFILE WALL POLYETHYLENE; RCP REINFORCED CONCRETE; SSFM SANITARY SEWER FORCE MAIN; WS WELDED STEEL; WS-CL CEMENT LINED WELDED STEEL
4. FL FLANGED; GE GROOVED END; PRJ PROPRIETARY RESTRAINED JOINT; PSH PUSH ON; RGK RUBBER GASKET; SW SOCKET WELD; W WELD
5. COATING SYSTEM NUMBER AS SPECIFIED IN SECTION 09 90 00, PAINTING AND COATING. CONCRETE ENCASED PIPE AS SHOWN ON DRAWINGS SHALL BE COATED PER SECTION 09 90 00.
6. GH GRAVITY HYDROSTATIC; GP GRAVITY PNEUMATIC; H PRESSURE HYDROSTATIC; P PRESSURE PNEUMATIC; PC TEST PER UNIFORM PLUMBING CODE; NA NOT APPLICABLE
7. PROVIDE JOINT BONDS, PIPE CONNECTING, AND TEST STATIONS FOR BURIED METALLIC PIPE IN ACCORDANCE WITH SECTION 26 42 01. PROVIDE GALVANIC ANODE CATHODIC PROTECTION IN ACCORDANCE WITH SECTION 26 42 02.

RUSSELL JO JOHNSON 15411 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		J PITTS	F JAGLA	S CHAMPLIN	APVD	E JOHNSON	

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

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GENERAL

PIPE SCHEDULE 2

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0901
SHEET	35 of 314

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FILENAME: 001-G-0901_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 4:40:21 PM

AREA CLASSIFICATION TABLE

FACILITY NUMBER	FACILITY	ROOM / AREA	MATERIAL SELECTION DESIGNATION	NFPA 820-2016 CLASSIFICATION	NFPA 820-2016 REFERENCE	NFPA 820 REQUIRED VENTILATION	VENTILATION PROVIDED	NFPA 820 FIRE PROTECTION MEASURES	NOTES
8	SITE	ALL OUTDOOR AREAS UNLESS DESIGNATED OTHERWISE	OUTDOOR	UNCLASSIFIED	N/A	N/A	N/A	N/A	
		ENCLOSED VALVE OR METERING VAULTS AND PROCESS MANHOLES WITHOUT FORCED VENTILATION	OUTDOOR HAZARDOUS	CLASS I, DIVISION 2	TABLE 4.2 LINE 31a	N/A	N/A	N/A	
		ELECTRICAL HANDHOLES, MANHOLES AND NON-PROCESS VAULTS	OUTDOORS	UNCLASSIFIED	N/A	N/A	N/A	N/A	
100	WET WEATHER PUMP STATION	PUMP ROOM (LOWER LEVEL)							THE DESIGN OF THE EXISTING PRIMARY EFFLUENT PUMP STATION PRE-DATES THE PUBLICATION OF THE FIRST RELEASE OF NFPA 820 IN 1990. ITS CONSTRUCTION RELATIVE TO THE REQUIREMENTS OF NFPA 820-2016, WAS NOT EVALUATED.
		UPPER LEVEL							
105	PRIMARY INFLUENT PUMP STATION	INFLUENT WET WELL	SUBMERGED HAZARDOUS	CLASS I, DIVISION 1	TABLE 4.2.2 LINE 16.a	NONE OR FEWER THAN 12 AIR CHANGES PER HOUR	FEWER THAN 12 AIR CHANGES PER HOUR	GAS DETECTION	GAS DETECTION IS LOCATED IN A FOUL AIR DUCT AT THE ODOR CONTROL FACILITY (270)
		LOCATIONS NEAR WET WELL HATCHES	OUTDOOR HAZARDOUS	CLASS I, DIVISION 2	FIGURE A.4.2(c)	N/A	N/A	N/A	HAZARDOUS LOCATION EXTENDS UP 18 INCHES ABOVE DECK AND 3 FEET OUT FROM EDGE OF HATCHES AND OTHER UNSEALED OPENINGS.
		WETWELL VENT OPENING	OUTDOOR HAZARDOUS	CLASS I, DIVISION 1 (SEE NOTES)	FIGURE A.4.2(c)	N/A	N/A	N/A	DIVISION 1 LOCATION EXTENDS 3 FEET OUT FROM VENT OPENINGS. DIVISON 2 LOCATION EXTENDS 2 FEET FURTHER.
		VALVE VAULT	WASHDOWN CORROSIVE	CLASS I, DIVISION 2	TABLE 4.2.2 LINE 31.a	N/A	N/A	N/A	
110	NEW SCREENING FACILITY	SCREENINGS EQUIPMENT ROOM	WASHDOWN CORROSIVE HAZARDOUS	CLASS I, DIVISION 2	TABLE 5.2.2 LINE 1.b	12 AIR CHANGES PER HOUR	12 AIR CHANGES PER HOUR	FIRE EXTINGUISHER HYDRANT GAS DETECTION	
		ELECTRICAL ROOM	DRY	UNCLASSIFIED	N/A	N/A	N/A	N/A	
120	(EXISTING) GRIT FACILITY (FORMERLY HEADWORKS)	PROCESS ROOM	WASHDOWN CORROSIVE HAZARDOUS	CLASS I, DIVISION 2	TABLE 5.2.2 LINE 2.b AND LINE 5.b	12 AIR CHANGES PER HOUR	12 AIR CHANGES PER HOUR	FIRE EXTINGUISHER HYDRANT GAS DETECTION	
		ELECTRICAL ROOM	DRY	UNCLASSIFIED	N/A	N/A	N/A	N/A	
NO NUMBER	(EXISTING) ANAEROBIC AND ANOXIC BASINS	BASINS	OUTDOOR HAZARDOUS	CLASS I, DIVISION 2	TABLE 5.2.2 LINE 6.c	N/A	N/A	HYDRANT	CLASSIFIED SPACE EXTENDS FROM GROUND LEVEL UP 10 FEET ABOVE TOP OF CHANNEL AND OUT 10 FEET FROM EDGE OF BASIN WALL. INTERIOR OF THE BASINS, BELOW THE ELEVATION OF THE BASIN WALL IS CONSIDERED SUBMERGED.
140	(EXISTING) AERATION BASIN	BASINS	OUTDOOR HAZARDOUS	CLASS I, DIVISION 2	TABLE 5.5.2 LINE 7.c LINE 8 AND LINE 9.c	N/A	N/A	HYDRANT	CLASSIFIED SPACE INCLUDES THE INTERIOR OF THE TANK UP TO 18 INCHES ABOVE THE TOP OF THE TANK AND EXTENDS 18 INCHES BEYOND THE TANK WALL. A CLASSIFIED SPACE 18 INCHES ABOVE GRADE EXTENDS 10 FEET OUT FROM THE TANK WALL. INTERIOR OF THE BASIN, BELOW THE ELEVATION OF THE BASIN WALL, IS CONSIDERED SUBMERGED.
145	ANAEROBIC AND ANOXIC BASINS (SEE NOTE 1 FOR SPLITTER BOX)	BASINS	OUTDOOR HAZARDOUS	CLASS I, DIVISION 2	TABLE 5.2.2 LINE 6.c	N/A	N/A	HYDRANT	CLASSIFIED SPACE EXTENDS FROM GROUND LEVEL UP 10 FEET ABOVE TOP OF CHANNEN AND OUT 10 FEET FROM EDGE OF BASIN WALL. INTERIOR OF THE BASINS, BELOW THE ELEVATION OF THE BASIN WALL IS CONSIDERED SUBMERGED.
	AERATION BASIN (SEE NOTE 1 FOR SPLITTER BOX)	BASINS	OUTDOOR HAZARDOUS	CLASS I, DIVISION 2	TABLE 5.2.2 LINE 7.c AND LINE 8 AND LINE 9.c	N/A	N/A	HYDRANT	CLASSIFIED SPACE INCLUDES THE INTERIOR OF THE TANK UP TO 18 INCHES ABOVE THE TOP OF THE TANK AND EXTENDS 18 INCHES BEYOND THE TANK WALL. A CLASSIFIED SPACE 18 INCHES ABOVE GRADE EXTENDS 10 FEET OUT FROM THE TANK WALL. INTERIOR OF THE BASIN, BELOW THE ELEVATION OF THE BASIN WALL, IS CONSIDERED SUBMERGED.

FACILITY NUMBER	FACILITY	ROOM / AREA	MATERIAL SELECTION DESIGNATION	NFPA 820-2016 CLASSIFICATION	NFPA 820-2016 REFERENCE	NFPA 820 REQUIRED VENTILATION	VENTILATION PROVIDED	NFPA 820 FIRE PROTECTION MEASURES	NOTES
155	SECONDARY CLARIFIERS	CLARIFIERS	OUTDOOR HAZARDOUS	CLASS I, DIVISION 2	TABLE 5.2.2 LINE 16 and LINE 7.c	N/A	N/A	HYDRANT	CLASSIFIED SPACE INCLUDES THE INTERIOR OF THE TANK UP TO 18 INCHES ABOVE THE TOP OF THE TANK AND EXTENDS 18 INCHES BEYOND THE TANK WALL. A CLASSIFIED SPACE 18 INCHES ABOVE GRADE EXTENDS 10 FEET OUT FROM THE TANK WALL. INTERIOR OF THE BASIN, BELOW THE ELEVATION OF THE BASIN WALL, IS CONSIDERED SUBMERGED.
170	FERRIC CHLORIDE	STORAGE TANK	WASHDOWN CHEMICAL	UNCLASSIFIED	N/A	N/A	N/A	N/A	
		PUMP ROOM	WASHDOWN CHEMICAL	UNCLASSIFIED	N/A	N/A	N/A	N/A	
210	UV	UPPER LEVEL	DRY	UNCLASSIFIED	N/A	N/A	N/A	N/A	
		LOWER LEVEL	WASHDOWN NON-CORROSIVE	UNCLASSIFIED	N/A	N/A	N/A	N/A	
270	ODOR CONTROL	ODOR CONTROL FANS, DUCT AND BIOFILTER	OUTDOORS	CLASS I DIVISION 2	TABLE 4.2.2 LINE 20.d	NOT ENCLOSED OPEN TO THE ATMOSPHERE	N/A	FIRE EXTINGUISHER HYDRANT GAS DETECTION	CLASSIFIED SPACE INCLUDES AREAS WITHIN 3 FEET OF LEAKAGE SOURCES SUCH AS FANS, DAMPERS, FLEXIBLE CONNECTIONS, FLANGES, PRESSURIZED UNWELDED DUCTWORK AND THE BIOFILTER
300	(EXISTING) SLUDGE PUMP STATION	LOWER LEVEL PUMP ROOM	WASHDOWN NON-CORROSIVE	UNCLASSIFIED	TABLE 6.2.2 LINE 6.b AND LINE 9.b	6 AIR CHANGES PER HOUR	6 AIR CHANGES PER HOUR	HYDRANT FIRE EXTINGUISHER	
		UPPER LEVEL ROTARY DRUM THICKENER SPACE	WASHDOWN NON-CORROSIVE	UNCLASSIFIED	TABLE 6.2.2 LINE 12.a	6 AIR CHANGES PER HOUR	6 AIR CHANGES PER HOUR	HYDRANT FIRE EXTINGUISHER	
		UPPER LEVEL BLOWER ROOM	DRY	UNCLASSIFIED	N/A	N/A	N/A	N/A	
		UPPER LEVEL ELECTRICAL ROOM	DRY	UNCLASSIFIED	N/A	N/A	N/A	N/A	
		DIGESTER TANK	SUBMERGED HAZARDOUS	CLASS I DIVISION 2	TABLE 5.2.2 LINE 8 AND LINE 7.c	N/A	N/A	N/A	CLASSIFIED SPACE INCLUDES THE INTERIOR OF THE TANK UP TO 18 INCHES ABOVE THE TOP OF THE TANK AND EXTENDS 18 INCHES BEYOND THE TANK WALL. A CLASSIFIED SPACE 18 INCHES ABOVE GRADE EXTENDS 10 FEET OUT FROM THE TANK WALL. INTERIOR OF THE BASIN, BELOW THE ELEVATION OF THE BASIN WALL, IS CONSIDERED SUBMERGED.
		EXTERIOR OF DIGESTER TANK	OUTDOOR HAZARDOUS	CLASS I DIVISION 2	5.5.2 LINE 9a3	N/A	N/A	N/A	CLASSIFIED SPACE EXTENDS 18 INCHES IN ALL DIRECTIONS FROM TANK.
350	SOLIDS DEWATERING FACILITY (FORMERLY WAREHOUSE)	CENTRIFUGE ROOM	WASHDOWN NON-CORROSIVE	UNCLASSIFIED	TABLE 6.2.2 LINE 12.a	6 AIR CHANGES PER HOUR	6 AIR CHANGES PER HOUR	HYDRANT FIRE EXTINGUISHER FIRE ALARM SYSTEM	
		TRUCK LOADOUT	WASHDOWN NON-CORROSIVE	UNCLASSIFIED	TABLE 6.2.2 LINE 12.a	6 AIR CHANGES PER HOUR	6 AIR CHANGES PER HOUR	HYDRANT FIRE EXTINGUISHER	
		MAINTENANCE, ADMISISTRATIVE AND OTHER NON-PROCESS SPACES	DRY						MAINTENANCE, ADMINISTRATIVE AND OTHER NON-PROCESS SPACES ARE NOT WITHIN THE SCOPE OF NFPA 820, PER 1.1.3(7) OF THAT STANDARD.

NOTES:

1. THE SPLITTER BOX IS GROUPED WITH FACILITY 145. MATERIALS OF CONSTRUCTION WILL FALL INTO THE SAME CATEGORY. THERE IS NO ELECTRICAL EQUIPMENT AT THE SPLITTER BOX. AREA CLASSIFICATION IS NOT APPLICABLE.

MARY J. GROSS LICENSED 16702 11-4-16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	REVISION	BY	APVD
		J LANDMAN	A CUGLIAT	J ASSOLINE	APVD	B JOHNSON	

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FOUR MILE CREEK WORF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

GENERAL

AREA CLASSIFICATION TABLE

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0902
SHEET	36 of 314

BIDDING SET

FILENAME: 001-G-0902_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 4:41:23 PM

MATERIAL SELECTION TABLE

		ELECTRICAL				HVAC		ALL TRADES					
MATERIAL SELECTION DESIGNATION[4]	CLASSIFICATION	NEMA 250 ENCLOSURE TYPE	ELECTRICAL CONDUIT	ELECTRICAL BOXES & FITTINGS	SUPPORTS FOR ELECTRICAL CONDUITS & CABLE TRAYS	DUCTWORK	DUCTWORK SUPPORTS & FASTENERS	PIPE SUPPORTS	STANCHEONS, BENCH STANDS, AND FLOOR STANDS	FRAMING CHANNEL (ALL TRADES)	HARDWARE (THREADED ROD, NUTS, BOLTS, FASTENERS, ETC.)	CONCRETE/MASONRY ANCHORAGE	REMARKS
OUTDOOR	UNCLASSIFIED	4X	RMC	304 SST 316 SST OR FIBERGLASS	304 SST	DOUBLE WALL AL	AL	304 SST	316 SST HARDWARE ALUMINUUM MOUNTING PLATE AND POST	304 SST	304 SST	304 SST	NOTE 2
OUTDOOR HAZARDOUS	CLASS I DIVISON 1	7	RMC	CAST ALUMINUM	304 SST	DOUBLE WALL AL	AL	304 SST	316 SST HARDWARE ALUMINUUM MOUNTING PLATE AND POST	304 SST	304 SST	304 SST	NOTE 2
	CLASS I DIVISON 2	7 NOTE 10	RMC	CAST ALUMINUM	304 SST	DOUBLE WALL AL	AL	304 SST	316 SST HARDWARE ALUMINUUM MOUNTING PLATE AND POST	304 SST	304 SST	304 SST	NOTE 2
	CLASS I DIVISION 2	4X NOTE 10	RMC	304 SST 316 SST OR FIBERGLASS	304 SST	DOUBLE WALL AL	AL	304 SST	316 SST HARDWARE ALUMINUUM MOUNTING PLATE AND POST	304 SST	304 SST	304 SST	NOTE 2
SUBMERGED	UNCLASSIFIED	6	PVC COATED RGS OR FIBERGLASS	CAST IRON	316 SST	N/A	N/A	316 SST	316 SST HARDWARE 316 SST MOUNTING PLATE AND POST	316 SST	316 SST	316 SST FBE (SEE NOTE 8)	NOTE 3
SUBMERGED HAZARDOUS	CLASS I DIVISION 1 OR DIVISION 2	NO SUITABLE ENCLOSURE TYPES ARE AVAILABLE	PVC COATED RGS	MALLEABLE IRON FITTINGS	316 SST	N/A	N/A	316 SST	316 SST HARDWARE 316 SST MOUNTING PLATE AND POST	316 SST	316 SST	316 SST FBE (SEE NOTE 8)	NOTE 3
WASHDOWN, NON-CORROSIVE	UNCLASSIFIED	4	RMC	304 SST 316 SST FIBERGLASS MALLEABLE IRON OR CAST ALUMINUM	304 SST	AL	AL	304 SST	316 SST HARDWARE ALUMINUUM MOUNTING PLATE AND POST	304 SST (NOTE 9)	304 SST (NOTE 9)	304 SST (NOTE 9)	NOTE 2, 5, 6
WASHDOWN, CORROSIVE	UNCLASSIFIED	4X	PVC COATED RGS OR FIBERGLASS	304 SST 316 SST FIBERGLASS OR PVC-COATED MALLEABLE IRON	304 SST	AL	AL	304 SST	316 SST HARDWARE ALUMINUUM MOUNTING PLATE AND POST	304 SST	304 SST	304 SST	NOTE 2, 5, 6
WASHDOWN, CORROSIVE, HAZARDOUS	CLASS I DIVISON 1	7	PVC COATED RMC	PVC-COATED MALLEABLE IRON OR CAST ALUMINUM	304 SST	AL	AL	304 SST	316 SST HARDWARE ALUMINUUM MOUNTING PLATE AND POST	304 SST	304 SST	304 SST	NOTE 2, 5, 6
	CLASS I DIVISON 2	7 NOTE 10	PVC COATED RMC	PVC-COATED MALLEABLE IRON OR CAST ALUMINUM	304 SST	AL	AL	304 SST	316 SST HARDWARE ALUMINUUM MOUNTING PLATE AND POST	304 SST	304 SST	304 SST	NOTE 2, 5, 6
	CLASS I DIVISION 2	4X NOTE 10	PVC COATED RMC	304 SST 316 SST	304 SST	AL	AL	304 SST	316 SST HARDWARE ALUMINUUM MOUNTING PLATE AND POST	304 SST	304 SST	304 SST	NOTE 2, 5, 6
WASHDOWN, CHEMICAL	UNCLASSIFIED	4X NON-METALLIC	FIBERGLASS	BOXES: FRP FITTINGS: FRP OR 316 STAINLESS	FRP	AL	AL	FRP	316 SST HARDWARE FRP MOUNTING PLATE AND POST	FRP	316 SST	316 SST	NOTE 5, 6
DRY	UNCLASSIFIED	1	RMC EXPOSED, EMT CONCEALED	SHEET STEEL	GALV STL	GALV STL	GALV STL	GALV STL	316 SST HARDWARE GALV MOUNTING PLATE AND POST	GALV STL	GALV STL	PLAIN UNCOATED STL (SEE NOTE 7)	NOTE 5
DRY, HAZARDOUS	CLASS I DIVISON 1	7	RMC EXPOSED	MALLEABLE IRON OR CAST ALUMINUM	GALV STL	GALV STL	GALV STL	GALV STL	316 SST HARDWARE GALV MOUNTING PLATE AND POST	GALV STL	GALV STL	PLAIN UNCOATED STL (SEE NOTE 7)	NOTE 5, 6
	CLASS I DIVISON 2	7 NOTE 10	RMC EXPOSED	MALLEABLE IRON OR CAST ALUMINUM	GALV STL	GALV STL	GALV STL	GALV STL	316 SST HARDWARE GALV MOUNTING PLATE AND POST	GALV STL	GALV STL	PLAIN UNCOATED STL (SEE NOTE 7)	NOTE 5, 6
	CLASS I DIVISION 2	4X NOTE 10	RMC EXPOSED	304 SST 316 SST OR FIBERGLASS	GALV STL	GALV STL	GALV STL	GALV STL	316 SST HARDWARE GALV MOUNTING PLATE AND POST	GALV STL	GALV STL	PLAIN UNCOATED STL (SEE NOTE 7)	NOTE 5, 6

NOTES:

1. MATERIALS SHOWN ARE TYPICAL UNLESS OTHERWISE INDICATED ON SPECIFIC DRAWINGS OR SPECIFICATIONS.
2. WHERE ALUMINUM MATES WITH CONCRETE, COAT WITH BITUMASTIC COATING PER 09 90 00.
3. "SUBMERGED" REFERS TO ANY LOCATION BELOW LIQUID SURFACE, BELOW TOP OF BASIN, AND UNDERSIDE OF TANK COVER OR TANK SLAB, INCLUDING THE WET VAPOR SPACE ABOVE LIQUID SURFACE.
4. SEE DRAWING 001-G-0902 FOR MATERIAL SELECTION DESIGNATION BY FACILITY AND AREA.
5. GALVANIZED STEEL SHALL BE GALVANIZED PER ASTM A123. HIGH-STRENGTH FASTENERS THAT REQUIRE GALVANIZING SHALL USE ASTM A325 BOLTS AND SHALL COMPLY WITH ASTM A143.
6. MALLEABLE IRON SHALL HAVE STANDARD ELECTROPLATED ZINC FINISH.
7. USE HOT-DIPPED GALVANIZED BOLTED CONNECTIONS FOR GALVANIZED STEEL MEMBERS.
8. FUSION-BONDED EXOXY (FBE) PER 09 90 00. FBE EMBEDDED PORTION OF ANCHOR ONLY.
9. GALVANIZED STEEL MAY BE USED FOR FRAMING CHANNEL, HARDWARE, AND CONCRETE/MASONRY ANCHORAGE ABOVE 3 FEET ELEVATION WITHIN A ROOM OR AREA.
10. IN ACCORDANCE WITH NEC 501(B)(4), USE EXPLOSIONPROOF (NEMA 250 TYPE 7) BOXES AND FITTINGS AS REQUIRED BY 501.105(B)(1) (MAKE-AND-BREAK CONTACTS), 501.115(B)(1) (SWITCHES, CIRCUIT BREAKERS, MOTOR CONTROLLERS, FUSES), AND 501.150(B)(1) (SIGNALING, ALARM, REMOTE-CONTROL AND COMMUNICATIONS EQUIPMENT). ENCLOSURES FOR OTHER EQUIPMENT MAY USE GENERAL-PURPOSE BOXES AND FITTINGS.

REFERENCE SPECIFICATIONS:

05 50 00 - METAL FABRICATIONS

09 90 00 - PAINTING AND COATING

23 31 13 - METAL DUCTS AND ACCESSORIES

26 05 33 - RACEWAY AND BOXES

40 05 15 - PIPING SUPPORT SYSTEMS

MARY J. GROSS LICENSED 16702 11-4-16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		J LANDMAN	A CUGLIAT	J ASSOLINE	APVD	B JOHNSON	

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PHASE II, 6 MGD EXPANSION
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DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

GENERAL

MATERIAL SELECTION TABLE

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	001-G-0903
SHEET	37 of 314

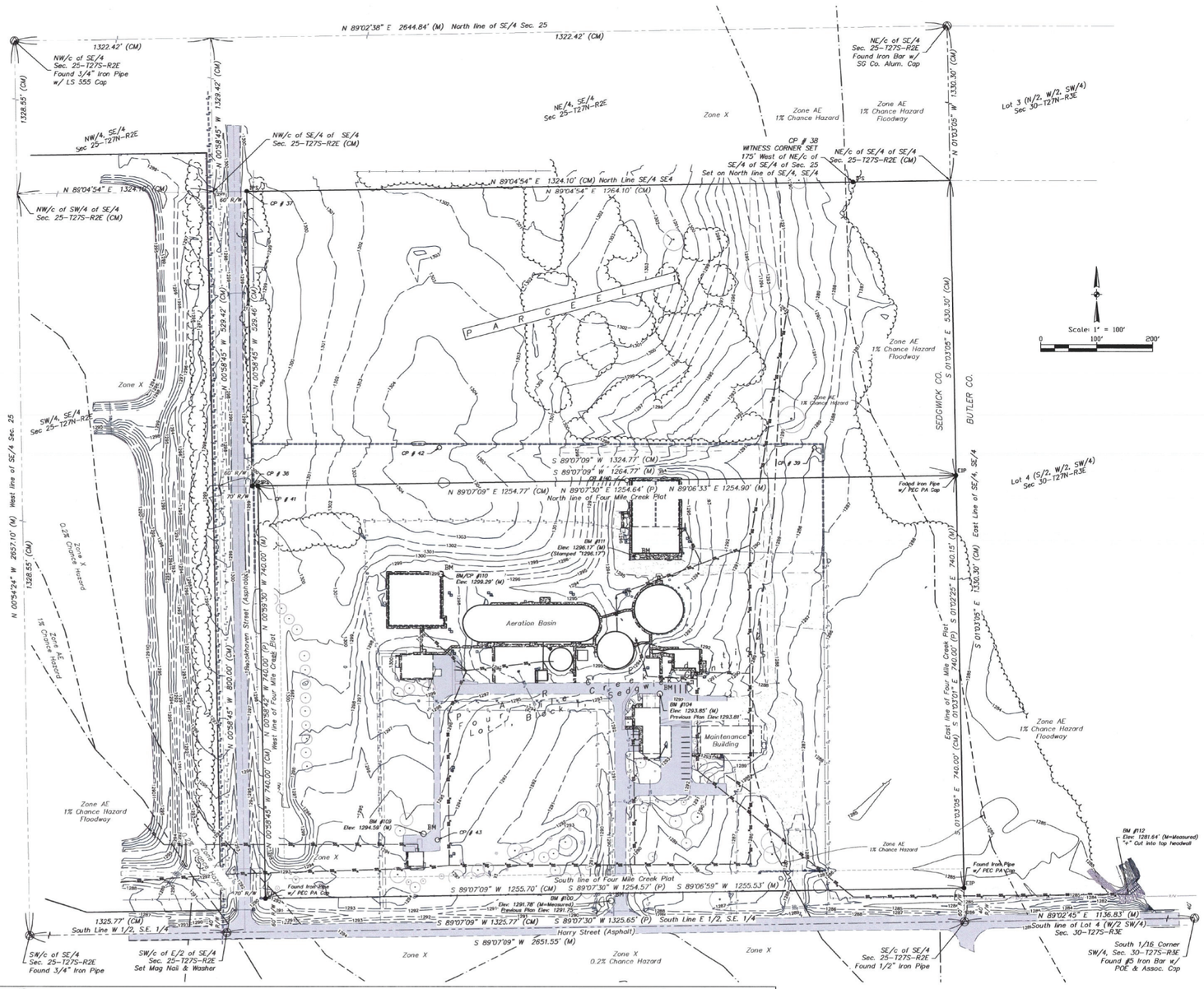
BIDDING SET

TOPOGRAPHIC SURVEY FOR CITY OF WICHITA
FOUR-MILE CREEK WASTEWATER TREATMENT FACILITY
SEDGWICK & BUTLER COUNTY, KANSAS



SURVEY NOTES:
1. Bearings are based on the South line of the Southeast Quarter of Section 25-T27S-R2E as being S 89°07'09" W.
2. Error of Closure is better than 1 : 20,000
3. According to the Four Mile Creek Plat, there is Access Control along the South line of said plat Except for (2) openings.
4. At the time of survey, there are no visible encroachments on the subject property or upon adjacent land abutting said property except as shown hereon and noted.
5. The Sanitary Sewer Pipe Sizes and Depths shown hereon were compiled of onsite observations, calculations and onsite City of Wichita personnel...said Pipe Size, Type & Depth should be verified.
6. Flood zone designation areas were downloaded from the FEMA website.
7. Distances Shown are in US Survey Feet (Ground).
8. Benchmark Notes:
   - 8.1. After discussion with Robert Townsend (CH2M) we decided to adjust previous benchmark elevations to fit stamped elevation of BM #111 "1296.17", said elevation appears to be on the Vertical Datum of NGVD29.
9. An Informational Title Binder (No. 2152388) for For Parcel 1 & 2 was performed by:
   First American Title (Security 1st Title)
   Title Officer: Scott Brown+

UTILITY NOTES:
1. All underground utilities may not be shown. Above ground features are located and shown.
   KANSAS ONE CALL: 1-800-344-7233 Ticket #115601651
   CALL TWO WORKING DAYS BEFORE YOU DIG!!
2. The utility locations represented on this survey were compiled by field observation, onsite personnel. If any construction or relocation is planned for this site the various utility companies should be requested to verify their locations in the field prior to final design or construction any utilities not shown are due to no response to Kansas One Call ticket.
3. The existence of underground storage facilities, buried foundations, pipelines, or any other subsurface structure may be present. All visible above ground evidence of underground structures or appurtenances have been shown. Additional subsurface exploration work or detailed record data will be required to further delineate any subsurface conditions not defined by this survey.
4. The were NOT any City of Wichita Utilities marked.



Point#	Northing PLANT GRID	Easting PLANT GRID	Northing (GRID) SPC NAD83 KS S	Easting (GRID) SPC NAD83 KS S	Elevation NGVD29	Description
1	566375.24	390625.11	1678625.65	1702224.90		SCOR / 3/4" Pipe @ SE/c Sec 25
7	566334.75	387974.17	1699573.96	1695573.96		SCOR / 1" Pipe @ S/4 Sec 25
14	566435.29	390624.01	1678685.70	1702223.79		EIBC / 1/2" Pipe w/ PEC PA
15	567175.24	390610.65	1679425.65	1702210.36		EIBC / 1/2" Pipe w/ PEC PA
16	566416.06	389368.77	1678666.34	1700968.56		EIBC / 1/2" Pipe w/ PEC PA
17	568991.23	387932.40	1681241.37	1699531.92		SCOR / 3/4" Pipe w/ Cap center Sec. 25
21	569035.10	390576.57	1681285.50	1702176.09		SCOR / Iron Bar w/ SG-CO Cap E/4-Sec 25
25	566394.05	391761.66	1678644.58	1703361.45		SCOR / #5 EIBC POE ASSOC
28	566396.34	390928.70	1678646.78	1702528.49		IBSCP
35	566355.01	389299.67	1678605.28	1700899.47		SCOR / Set MAG Nail w/ WSHR CLS-179
36	567155.71	389346.04	1679405.99	1700945.75		IBSC 1/2"CLS-179 MS ORANGE
37	567685.04	389337.05	1679935.32	1700936.71		IBSC MS CLS-179
38	567702.37	390425.88	1679952.76	1702025.54		IBSC / Witness Corner 175FT W PROP
39	567224.49	390355.94	1679474.87	1701955.65		IBSCP BLUE CAP
40	567165.97	390019.54	1679416.32	1701619.25		IBSCP BLUE CAP
41	567155.83	389356.05	1679406.11	1700955.77		IBSC CLS-179
42	567224.46	389683.13	1679474.77	1701281.84		IBSCP BLUE CAP
43	566521.06	389677.47	1678771.57	1701277.25		CST-NL WSHR SET
100	566412.11	389990.50	1678662.45	1701590.29	1291.78	BM 100 / SQR CUT FND SE-C LP
101	566321.41	388812.29	1678571.63	1700412.09	1291.22	BM 101 / SQR CUT FND MID GRL
104	566782.19	390077.76	1679032.54	1701677.51	1293.85	BM 104 / SQR CUT FND SE-C RTWL
109	566531.91	389652.77	1678782.21	1701252.55	1294.59	BM 109 / SQR CUT FND SE-C LP
110	566998.19	389684.15	1679248.51	1701283.88	1299.29	BM #110 / SQR CUT SET w/ + Cut
111	567028.47	390038.44	1679278.82	1701638.17	1296.17	BM 111 / BRASS DISK 1296.17
SCOR:	Section Corner Found					
EIBC:	Existing Iron Bar w/ Cap					
IBSC:	1/2" x 24" Iron Rebar set w/ orange "Merestone CLS-179" cap					
IBSCP:	1/2" x 24" Iron Rebar set w/ blue "Merestone GPS CP" cap					

Conversion from PLANT GRID to STATE PLANE COORDINATES
- MOVE
  - N 00°00'00" W 1112250.4074'
  - S 90°00'00" E 1311599.7912'
- Rotate +0.00587720° COUNTER-CLOCKWISE
- To get from GRID to GROUND scale by 1.00011187218414 from Point #1 (SE/ COR SEC. 25)

State of Kansas)
) SS
January 4, 2016
County of Sedgwick)

We, Merestone Surveying LLC, Surveyors in aforesaid county and state do hereby certify that this 4th day of January, perform a Topographic survey on the following tracts more particularly described as follows to wit:

PROPERTY DESCRIPTION

Parcel 1:
The Southeast Quarter of the Southeast Quarter of Section 25, Township 27 South, Range 2 East of the 6th P.M., Sedgwick County, Kansas; EXCEPT that portion taken for county road in Road Book C, Page 54; AND EXCEPT Four Mile Creek Addition to Sedgwick County, Kansas

Parcel 2:
Lot 1, Block 1, Four Mile Creek Addition to Sedgwick County, Kansas

The accompanying sketch is a true and correct exhibit of said survey based on actual field measurements where the monuments are of the character and occupy the positions as indicated.

TODD P. HORNBAKER, LS-1532, 1/18/2016, KANSAS LAND SURVEYOR

Todd P. Hornbaker, PLS 1532

This document should contain an original stamped seal and a surveyor's signature in blue ink. If it does not, it is a copy and should be assumed to contain unauthorized alterations. The certification on this document shall not apply to any copies.

LEGEND:

= Section Corner	= Water Manhole	= Power Pole	CM: = Calc'd Measured
= Tree	= Yard Hydrant	= Guy Wire	= Property Line
= Site BM	= Fire Hydrant	= Gas Meter	= Section Line
= Sign	= Junction Box	= Existing Iron Pin w/ Cap	= Easement
= Water Meter	= Sanitary Manhole	= Existing Iron Pin	= Edge of Asphalt
= Water Valve	= Sanitary Valve	M: = Measured Bearing	= Edge of Concrete
	= Light Pole	P: = Record Bearing	= Edge of Gravel

= Existing Gas Line; = Existing Telco Line; = Existing Sanitary Sewer; = Overhead Electric Line; = Underground Water Line; = Building Line; = Fence

= Concrete Pavement; = Gravel Surface; = Asphalt Surface

Merestone Surveying
1641 N. Andover Rd., Andover, KS 67002 P:316-425-7770 F:316-425-7773
ENGINEERING | SURVEYING | GIS | MAPPING

Four Mile Creek Waste Water Plant
CH2M Hill
245 N. Waco, Ste. 240
Wichita, KS

PROJECT NUMBER 15-11-135
REVISIONS:
DESIGN N/A
DRAWN TPH
APPROVED BLP
DATE Jan. 18, 16
SCALE As Noted
SHEET 1 OF 1

15-11-135_/surf/Four Mile Creek_Plat-DRL_CH2M
K:\CAD\Design Survey\15-11-135 CH2M Four Mile Creek Wichita\SHEETS\

NOTE;
1. THE SURVEY INFORMATION IS PROVIDED HERE FOR REFERENCE INFORMATION AND CONTRACTOR SHALL OBTAIN ORIGINAL VERSION FOR USE DURING CONSTRUCTION.

ROBERT LEE TOWNSEND, LICENSED, 25258, 11/4/16, KANSAS, PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD
		E NEPERUD	A GORDEN	R TOWNSEND	E JOHNSON

REVISION BY

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SITE CIVIL
SURVEY CONTROL

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-1000
SHEET	38 of 314

BIDDING SET

Plot Date: Jan. 18, 16
Paper Size: ANSI D (22"x34")

FILENAME: 050-C-1000_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 4:36:48 PM

GENERAL NOTES

1. FOR GENERAL CIVIL NOTES AND LEGEND, SEE DWG 001-G-0100.
2. FOR BENCHMARKS AND SURVEY CONTROL, SEE DWG 050-C-1000.
3. HAUL ROUTE VIA EAST HARRY STREET, SPRINGDALE DRIVE AND US 400 (EAST KELLOGG AVENUE).

FACILITY LEGEND

100. EXST WET WEATHER PUMP STATION
105. INFLUENT PUMP STATION WET WELL
107. INFLUENT PUMP STATION VALVE VAULT
110. SCREENING FACILITY
120. EXST GRIT BUILDING / HEADWORKS
140. EXST AERATION BASIN
145. BIOREACTOR SPLITTER BOX
BIOREACTOR FACILITY
150. EXST FINAL CLARIFIER
155. SECONDARY CLARIFIERS NO. 3 AND NO. 4
170. FERRIC CHLORIDE FACILITY STORAGE TANK
EXST FERRIC CHLORIDE FACILITY PUMP BUILDING
210. UV DISINFECTION FACILITY / CASCADE
270. ODOR CONTROL FACILITY
300. EXST SLUDGE PUMP STATION / DIGESTERS NO. 1 AND NO. 2
350. EXST DEWATERING AND LOADOUT / MAINTENANCE BUILDING
400. EXST LABORATORY FACILITY / SLUDGE PROCESSING BUILDING

GEOTECH BORING LOCATIONS

BORING ID	NORTHING	EASTING	ELEVATION
B-1	567110.70	389541.02	1302.28
B-2	567073.85	389735.72	1303.55
B-3	567043.66	389925.70	1298.39
B-4	567084.64	390220.82	1291.42
B-5	567053.97	390158.53	1293.66
B-6	566975.63	390214.24	1290.76
B-7	566905.52	390160.76	1291.92
B-8	566802.15	390358.28	1286.20
B-9	566769.77	389421.61	1298.50
B-10	566740.29	389516.80	1298.04
B-11	566545.95	389483.22	1294.70
B-12	566876.28	390229.28	1289.61
B-13	566834.14	390207.11	1290.83
B-14	566460.78	389951.08	1291.12
B-15	566465.26	390862.27	1285.14
B-16	566444.01	390865.91	1285.01

NOTE:

FOR ADDITIONAL INFORMATION, REFER TO THE GEOTECHNICAL DESIGN MEMORANDUM, PROPOSED WICHITA FOUR MILE CREEK, WICHITA, KANSAS, DATED SEPTEMBER 15, 2016 AND THE GEOTECHNICAL DATA REPORT, PROPOSED WICHITA FOUR MILE CREEK, WICHITA, KANSAS, DATED MARCH 25, 2016, BY TERRACON CONSULTANTS, INC.

N

0 100 200 300

1"=100'

ROBERT LEE TOWSE LICENSED 25258 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DR	CHK	APVD	BY	REVISION
DSGN	E NEPERUD	A GORDEN	R TOWNSEND	APVD	E JOHNSON	

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

SITE CIVIL

OVERALL SITE PLAN
KEY MAP

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-2000
SHEET	39 of 314

BIDDING SET

FILENAME: 050-C-2000_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 7:00:42 PM

GENERAL NOTES

1. FOR OVERALL SITE PLAN KEY MAP AND STANDARD NOTES, REFER TO DWG 050-C-2000.
2. FOR GRADING, DRAINAGE AND EROSION CONTROL PLAN, REFER TO DWG 050-C-2401.
3. FOR HORIZONTAL AND VERTICAL CONTROL, REFER TO TABLES ON DWG 050-C-6001 AND 050-C-6002.

ROBERT LEE TOWNSEND
LICENSED
25258
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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NO.	DATE	REVISION	DR	CHK	APVD	BY	APVD
DSGN	E NEPERUD		A GORDEN	R TOWNSEND		E JOHNSON	

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PROPERTY LINE

DRIVE

BROOKHAVEN

MATCHLINE, SEE DWG 050-C-2002

MATCHLINE, SEE DWG 050-C-2004

CONSTRUCTION LIMIT

EXST FENCE

GRAVEL ACCESS ROAD TO STAGING AREA. CONTRACTOR RESPONSIBLE TO IMPROVE EXST ACCESS ROAD AS NECESSARY

1-500

15' MAX

CONSTRUCTION GATE FOR STAGING AREA ACCESS

EXST GATE AND ACCESS DRIVE BY APPROVAL ONLY. NOT FOR CONSTRUCTION ACCESS - RESTRICTED ACCESS

STABILIZED STAGING AREA NO. 1
(APPROX AREA = 0.61 ACRES)
FOR CONSTRUCTION FENCING, REFER TO DWG 050-C-2401

EXST FENCE

PROPERTY LINE

1-502

1-501

35' BLDG SETBACK

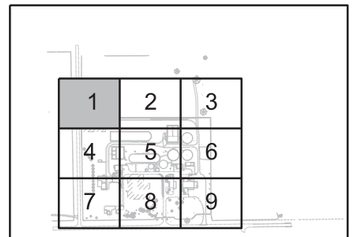
FUTURE BIOREACTOR

T-BUR

P

SD

LP



KEYMAP

N

0 20 40 60
Scale In Feet

ch2m

SITE CIVIL

LAYOUT AND PAVING PLAN
AREA 1

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

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-2001
SHEET	40 of 314

BIDDING SET

FILENAME: 050-C-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 6:58:31 PM

GENERAL NOTES

1. FOR OVERALL SITE PLAN KEY MAP AND STANDARD NOTES, REFER TO DWG 050-C-2000.
2. FOR GRADING, DRAINAGE AND EROSION CONTROL PLAN, REFER TO DWG 050-C-2402.

MATCHLINE, SEE DWG 050-C-2001

MATCHLINE, SEE DWG 050-C-2003

EXST FENCE

CONSTRUCTION LIMIT

15' MAX

EXST ACCESS ROAD

GRAVEL ACCESS ROAD TO STAGING AREA. CONTRACTOR RESPONSIBLE TO IMPROVE EXST ACCESS ROAD AS NECESSARY

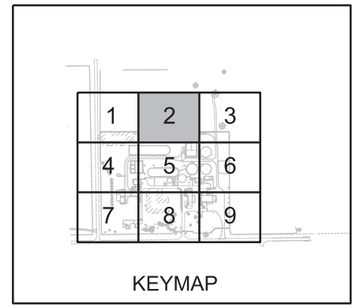
PROPERTY LINE

FUTURE BIOREACTOR

EXST DIGESTER NO. 1

EXST DIGESTER NO. 2

MATCHLINE, SEE DWG 050-C-2005



KEYMAP

N

0 20 40 60

Scale In Feet

ROBERT LEE TOWNSEND
LICENSED
25258
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	BY	APVD

DSGN E NEPERUD | DR A GORDEN | CHK R TOWNSEND | APVD E JOHNSON

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ch2m

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

SITE CIVIL

LAYOUT AND PAVING PLAN
AREA 2

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-2002
SHEET	41 of 314

BIDDING SET

FILENAME: 050-C-2002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 6:59:50 PM

GENERAL NOTES

1. FOR OVERALL SITE PLAN KEY MAP AND STANDARD NOTES, REFER TO DWG 050-C-2000.
2. FOR GRADING, DRAINAGE AND EROSION CONTROL PLAN, REFER TO DWG 050-C-2403.

SHEET KEYNOTES

1-4. NOT USED.

5. PROVIDE CHAIN LINK FENCE REPAIR/REPLACEMENT AS REQUIRED BY (3231-410).

ROBERT LEE TOWNSEND
LICENSED
25258
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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NO.	DATE	REVISION	DR	CHK	APVD	BY	APVD
DSGN	E NEPERUD		A GORDEN	R TOWNSEND		E JOHNSON	

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EXIST MH NO. 1, SEE DWG 051-Y-2003

LIMIT OF FOURMILE CREEK FLOODPLAIN

CONSTRUCTION LIMIT

MH NO. 111, SEE DWG 051-Y-2003

MH NO. 110, SEE DWG 051-Y-2003

PROPERTY LINE

MATCHLINE, SEE DWG 050-C-2002

EXST ACCESS ROAD

FOURMILE CREEK 100-YEAR FLOODWAY

PROPOSED SANITARY SEWER GRAVITY MAIN, SEE DWG 051-Y-2003

GRAVEL ACCESS ROAD TO STAGING AREA. CONTRACTOR RESPONSIBLE TO IMPROVE EXST ACCESS ROAD AS NECESSARY

FOURMILE CREEK 100-YEAR FLOODPLAIN

LIMITS OF FOURMILE CREEK FLOODWAY

EXST FENCE

5

EXST ACCESS ROAD

15' MAX

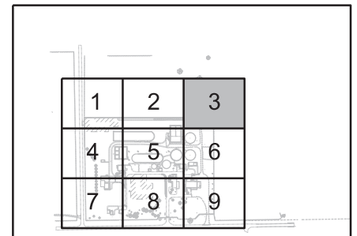
FUTURE CLARIFIER NO. 5

EXST ACCESS ROAD

EXST FENCE

PROPERTY LINE

MATCHLINE, SEE DWG 050-C-2006



KEYMAP

N

0 20 40 60

Scale In Feet

ch2m

SITE CIVIL

LAYOUT AND PAVING PLAN
AREA 3

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

BIDDING SET

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-2003
SHEET	42 of 314

FILENAME: 050-C-2003_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 6:59:50 PM

MATCHLINE, SEE DWG 050-C-2001

4-534

STABILIZED STAGING AREA NO. 1
(APPROX AREA = 0.61 ACRES)
FOR CONSTRUCTION FENCING, REFER
TO DWG 050-C-2404

4-533

EXST FENCE

PROPERTY LINE

PROPERTY
LINE

T-BUR

P

FUTURE
BIOREACTOR

2'

51.75'

145 - BIOREACTOR
FACILITY

1

UD-1, UNDER DRAIN
MANHOLE, SEE
DWG 051-Y-6001
AND DWG 145-S-2001

PI STA 12+62.57

N 567,048.67
E 389,580.17

13+00

10'

10'

R 55'

PT STA 12+69.37

EXST
ANOXIC
BASIN

EXST ANAEROBIC
BASIN

PC STA 12+07.57

12+00

FOR ACCESS ROAD PROFILE,
SEE DWG 050-C-3001. FOR
HORIZONTAL ACCESS ROAD
CENTERLINE CONTROL, SEE
DWG 050-C-6001.

145 - BIOREACTOR
SPLITTER BOX

2'

2'

N 566,880.42
E 389,481.81

N 566,880.42
E 389,506.81

1

3

PVT STA 11+18.71

11+00

MATCHLINE, SEE DWG
050-C-2005

DRIVE

BROOKHAVEN

35'
BLDG SETBACK

CONSTRUCTION
LIMIT

120 -
EXST GRIT
BUILDING

10'

10'

4-541

PVC STA 10+18.71

4-540

N 566,766.19
E 389,543.16

11

5'x 5'-10"
CONCRETE
LANDING

N 566,766.19
E 389,479.16

4-536

4-535

12

1

2'

2'

110 - SCREENING
FACILITY

R 45'

6

2

4-538

4-537

R 50'

10'-00"

POB STA 10+00.00

4-539

19

4

MATCHLINE, SEE DWG 050-C-2007

GENERAL NOTES

1. FOR OVERALL SITE PLAN KEY MAP AND STANDARD NOTES, REFER TO DWG 050-C-2000.
2. FOR GRADING, DRAINAGE AND EROSION CONTROL PLAN, REFER TO DWG 050-C-2404.
3. FOR HORIZONTAL AND VERTICAL CONTROL, REFER TO TABLES ON DWG 050-C-6001 AND 050-C-6002.
4. FOR FACILITY COORDINATE DETAILS, SEE STRUCTURAL PLAN DRAWINGS.

SHEET KEYNOTES

1. PROVIDE CONCRETE 4' WIDE SIDEWALK PER (3213-220), UNLESS OTHERWISE NOTED. 2' DIMENSION INDICATES A CONCRETE MOW STRIP. USE 1/2" PJF BETWEEN STRUCTURE AND SIDEWALK/MOW STRIP. SLOPE AWAY AT 1/4" PER FOOT FROM STRUCTURE.
2. PROVIDE CONCRETE PAVEMENT TYPE C2 PER (3213-240). USE 1/2" PJF BETWEEN PAVEMENT AND BUILDING.
3. PROVIDE GRAVEL SURFACING PER (3215-260).
4. PROVIDE ASPHALT CONCRETE TYPE A2 PAVEMENT PER (3212-210).
5. NOT USED.
6. PROVIDE GUARD POST PER (3471-810). SPACE BOLLARDS 4' APART, EQUIDISTANT FROM HYDRANT AS SHOWN.

7-10. NOT USED.

11. LANDING TO BE REINFORCED W/ #5 @ 12" OC EW. PLACE AT DOOR WAY W/ LANDING EXTENDING 6" BEYOND ROUGH OPENING ON HINGE SIDE OF DOOR. USE 1/2" PJF BETWEEN LANDING AND BUILDING. SLOPE AWAY AT 1/4" PER FOOT FROM BUILDING.
12. PROVIDE APPROX 16.75' x 6.5' CONCRETE EQUIPMENT SLAB PER (0330-056) TYPE H. PAD SIZE TO BE COORDINATED WITH EQUIPMENT MANUFACTURER. HOLD SOUTHWEST CORNER COORDINATE. USE 1/2" PJF BETWEEN EQUIPMENT PAD AND MOW STRIP.

13-18. NOT USED.

19. PROVIDE CONCRETE TO ASPHALT TRANSITION PER (3213-250).

KEYMAP

1 2 3
4 5 6
7 8 9

N

0 20 40 60
Scale In Feet

ROBERT LEE TOWNSEND
LICENSED
25258
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DR	REVISION	CHK	APVD	BY	APVD
DSGN	E NEPERUD		A GORDEN		R TOWNSEND		E JOHNSON

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

ch2m

SITE CIVIL

LAYOUT AND PAVING PLAN
AREA 4

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-2004
SHEET	43 of 314

BIDDING SET

FILENAME: 050-C-2004_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 6:59:47 PM

MATCHLINE, SEE DWG 050-C-2002

FUTURE BIOREACTOR

145 - BIOREACTOR FACILITY

UD-2, UNDER DRAIN MANHOLE, SEE DWG 051-Y-6001 AND DWG 145-S-2001

20' 10' 20' 32' 38'

PI STA 15+44.47

N 567,048.67
E 389 865.59

UD-4, UNDER DRAIN MANHOLE, SEE DWG 051-Y-6001 AND DWG 145-S-2001

5-521

5-522

R 45'

MATCH EXST

5-523

EXST DIGESTER NO. 1

EXST DIGESTER NO. 2

300 - EXST SLUDGE PUMP STATION

5-524

FEATHER NEW ROAD ONTO EXISTING GRAVEL SURFACE

EXST ACCESS ROAD

MATCH EXST

5-525

5-519

R 1000'

5.24'

14+00 15+00 16+00 16+97

10' 10' 10' 10'

FOR ACCESS ROAD PROFILE, SEE DWG 050-C-3001. FOR HORIZONTAL ACCESS ROAD CENTERLINE CONTROL, SEE DWG 050-C-6001.

PVC STA 14+35.00

PC STA 14+73.26

PVT STA 15+35.00

PT STA 16+15.44

PVC STA 16+43.00

PVT STA 16+93.00

POE STA 16+97.03

EXST ANOXIC BASIN

MATCHLINE, SEE DWG 050-C-2004

150 - EXST FINAL CLARIFIER

140- EXST AERATION BASIN

120 - EXST GRIT BUILDING

170 - EXST FERRIC CHLORIDE FACILITY - PUMP BUILDING

EXST FINAL CLARIFIER

EXST SLUDGE THICKENER

170 - FERRIC CHLORIDE FACILITY - STORAGE TANK

MATCH EXST

N 566,829.61
E 389,962.44

N 566,806.27
E 389,962.44

MATCH EDGE OF EXST ROAD

5-550

5-555

5-556

5-557

5-558

5-559

5-551

R 50'

R 30'

8 MATCH EXST

EXST ACCESS ROAD

EXST ACCESS ROAD

STABILIZED STAGING AREA NO. 2
(APPROX AREA = 0.71 ACRES)
FOR CONSTRUCTION FENCING, REFER TO DWG 050-C-2405

EXST DISINFECTION BASIN

MATCHLINE, SEE DWG 050-C-2006

MATCHLINE, SEE DWG 050-C-2008

GENERAL NOTES

1. FOR OVERALL SITE PLAN KEY MAP AND STANDARD NOTES, REFER TO DWG 050-C-2000.
2. FOR GRADING, DRAINAGE AND EROSION CONTROL PLAN, REFER TO DWG 050-C-2405.
3. FOR HORIZONTAL AND VERTICAL CONTROL, REFER TO TABLES ON DWG 050-C-6001 AND 050-C-6002.
4. FOR FACILITY COORDINATE DETAILS, SEE STRUCTURAL PLAN DRAWINGS.

SHEET KEYNOTES

1. PROVIDE CONCRETE 4' WIDE SIDEWALK PER (3213-220). UNLESS OTHERWISE NOTED. 2' DIMENSION INDICATES A CONCRETE MOW STRIP. USE 1/2" PJF BETWEEN STRUCTURE AND SIDEWALK/MOW STRIP. SLOPE AWAY AT 1/4" PER FOOT FROM STRUCTURE.
2. NOT USED.
3. PROVIDE GRAVEL SURFACING PER (3215-260).
4. PROVIDE ASPHALT CONCRETE PAVEMENT TYPE A2 PER (3212-210).

5-6. NOT USED.

7. NOT USED.
8. PROVIDE PAVEMENT CONNECTION PER (3212-215).

9-17. NOT USED.

18. PROVIDE CONCRETE BLOCK OUT FOR CONCRETE STAIR AND LANDING PER (0330-050).

19-23. NOT USED.

24. PROVIDE 14' x 4' CONCRETE EQUIPMENT SLAB PER (0330-056) TYPE H. USE 1/2" PJF BETWEEN EQUIPMENT PAD AND STRUCTURE.

25-26. NOT USED.

27. PROVIDE 31.33' x 4' CONCRETE EQUIPMENT SLAB PER (0330-056) TYPE H. USE 1/2" PJF BETWEEN EQUIPMENT PAD AND STRUCTURE.

KEYMAP

1 2 3
4 5 6
7 8 9

N

0 20 40 60
Scale In Feet

ROBERT LEE TOWNSEND
LICENSED
25258
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		E NEPERUD	A GORDEN	R TOWNSEND	APVD	E JOHNSON	

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

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SITE CIVIL

LAYOUT AND PAVING PLAN AREA 5

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-2005
SHEET	44 of 314

BIDDING SET

MATCHLINE, SEE DWG 050-C-2003

FUTURE CLARIFIER NO. 5

UD-4, UNDER DRAIN MANHOLE, SEE DWG 051-Y-6001 AND DWG 155-S-2001

155 - CLARIFIER NO. 4

N 567,069.19
E 390,186.81

6-562
6-561
6-557
6-558
6-563
6-560
6-564
6-559
6-556
6-555

MH NO. 108, SEE DWG 051-Y-2006

MATCH EXST

SEE DWG 050-C-2406, KEYNOTE 22

EXST ACCESS ROAD

MATCH EXST

UD-5, UNDER DRAIN MANHOLE, SEE DWG 051-Y-6001 AND DWG 155-S-2001

6-545
6-549
6-546
6-550

155 - CLARIFIER NO. 3

N 566,934.19
E 390,186.81

6-547
6-548
6-551
6-552

UD-6, UNDER DRAIN MANHOLE, SEE DWG 051-Y-6001 AND DWG 155-S-2001

EXST DISINFECTION BASIN

N 566,877.39
E 390,212.90

210 - CASCADE

N 566,877.39
E 390,176.57

6-578
6-579
6-575
6-574
6-572
6-576
6-577
6-573

5'x 8'-10" x 8" THICK CONCRETE LANDING

6-571

MH NO. 106, SEE DWG 051-Y-2006

210 - UV DISINFECTION FACILITY

6-570
6-569
6-568
6-565
6-567
6-566

MH NO. 107, SEE DWG 051-Y-2006

MATCH EXST

EXST ACCESS ROAD

EXST ACCESS ROAD

MH NO. 109, SEE DWG 051-Y-2006

LIMIT OF FOURMILE CREEK FLOODPLAIN

EXST FENCE

CONSTRUCTION LIMIT

FOURMILE CREEK 100-YEAR FLOODWAY

PROPERTY LINE

FOURMILE CREEK LIMIT OF FLOODWAY

FOURMILE CREEK 100-YEAR FLOODPLAIN

MATCHLINE, SEE DWG 050-C-2005

MATCHLINE, SEE DWG 050-C-2009

GENERAL NOTES

1. FOR OVERALL SITE PLAN KEY MAP AND STANDARD NOTES, REFER TO DWG 050-C-2000.
2. FOR GRADING, DRAINAGE AND EROSION CONTROL PLAN, REFER TO DWG 050-C-2406.
3. FOR HORIZONTAL AND VERTICAL CONTROL, REFER TO TABLES ON DWG 050-C-6001 AND 050-C-6002.
4. FOR FACILITY COORDINATE DETAILS, SEE STRUCTURAL PLAN DRAWINGS.

SHEET KEYNOTES

1. PROVIDE CONCRETE 4' WIDE SIDEWALK PER (3213-220), UNLESS OTHERWISE NOTED. 2' DIMENSION INDICATES A CONCRETE MOW STRIP. USE 1/2" PJF BETWEEN STRUCTURE AND SIDEWALK/MOW STRIP. SLOPE AWAY AT 1/4" PER FOOT FROM STRUCTURE.
2. NOT USED.
3. PROVIDE GRAVEL SURFACING PER (3215-260).

4-10. NOT USED.

11. LANDING TO BE REINFORCED W/ #5 @ 12" OC EW. PLACE AT DOOR WAY W/ LANDING EXTENDING 6" BEYOND ROUGH OPENING ON HINGE SIDE OF DOOR. USE 1/2" PJF BETWEEN LANDING AND BUILDING. SLOPE AWAY AT 1/4" PER FOOT FROM BUILDING.

12-27. NOT USED.

28. PROVIDE CONCRETE STAIR LANDING PER (0330-056) TYPE G AT ADJOINING ACCESS SIDEWALK AT ALL STAIRWAYS FROM CLARIFIERS. COORDINATE WITH CLARIFIER BRIDGE/STAIR MANUFACTURER TO DETERMINE REQUIRED LANDING DIMENSIONS AND ELEVATIONS. ADJUST SIDEWALK AROUND LANDING TO PROVIDE 4 FEET (MIN) WIDE ACCESS. USE 1/2" PJF BETWEEN LANDING AND STRUCTURE.

29-30. NOT USED.

31. PROVIDE APPROX 14.5' x 3.3' CONCRETE EQUIPMENT SLAB PER (0330-056) TYPE H. PAD SIZE TO BE COORDINATED WITH EQUIPMENT MANUFACTURER. HOLD NORTHEAST CORNER COORDINATE.
32. PROVIDE APPROX 11' x 3.3' CONCRETE EQUIPMENT SLAB PER (0330-056) TYPE H. PAD SIZE TO BE COORDINATED WITH EQUIPMENT MANUFACTURER. HOLD NORTHEAST CORNER COORDINATE.

KEYMAP

1 2 3
4 5 6
7 8 9

N

0 20 40 60
Scale In Feet

ROBERT LEE TOWNSEND
LICENSED
25258
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DSGN	DATE	DR	REVISION	CHK	APVD	BY	APVD
					A GORDEN	R TOWNSEND	E JOHNSON	

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

ch2m.

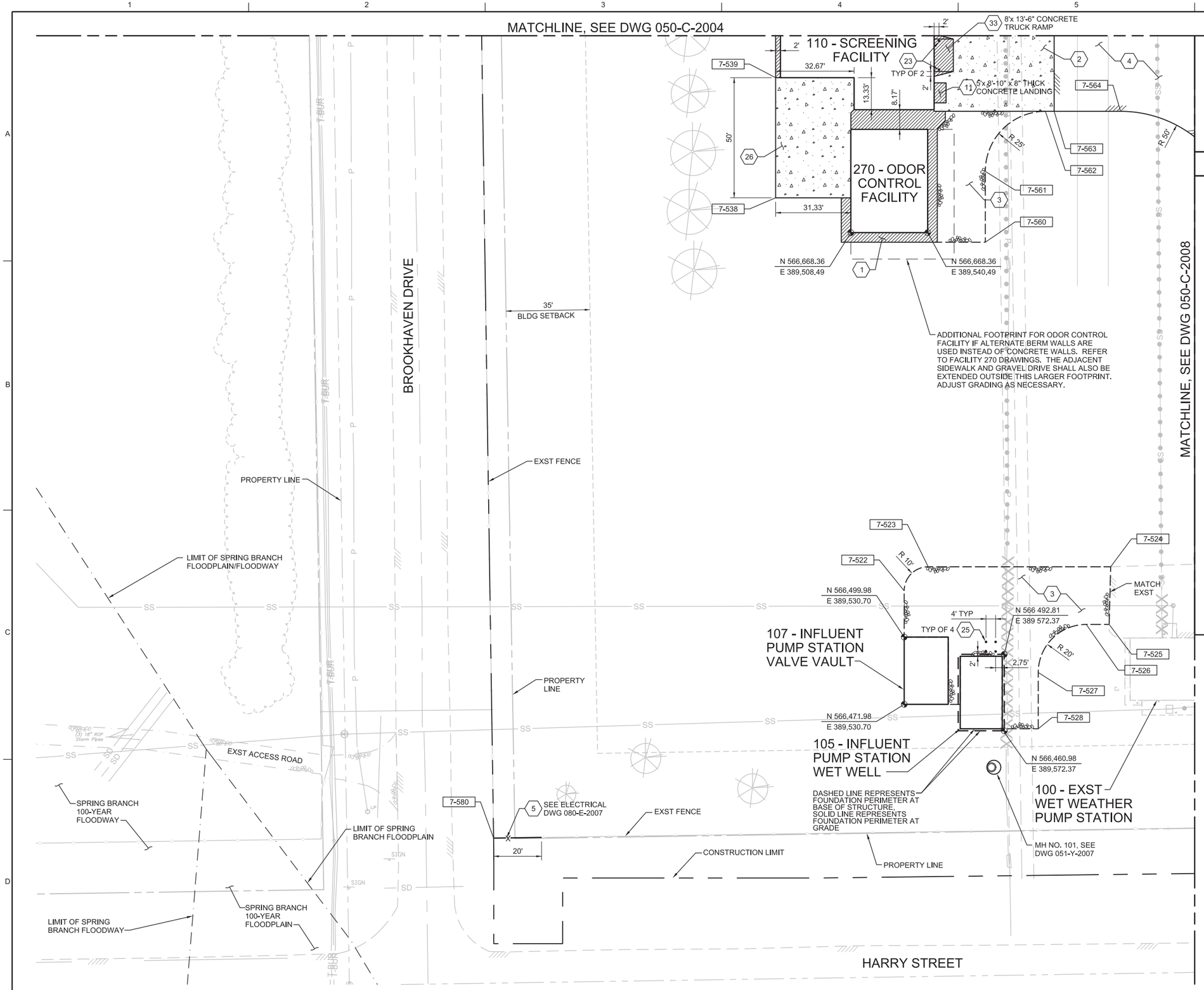
SITE CIVIL

LAYOUT AND PAVING PLAN AREA 6

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-2006
SHEET	45 of 314

BIDDING SET



GENERAL NOTES

1. FOR OVERALL SITE PLAN KEY MAP AND STANDARD NOTES, REFER TO DWG 050-C-2000.
2. FOR GRADING, DRAINAGE AND EROSION CONTROL PLAN, REFER TO DWG 050-C-2407.
3. FOR HORIZONTAL AND VERTICAL CONTROL, REFER TO TABLES ON DWG 050-C-6001 AND 050-C-6002.
4. FOR FACILITY COORDINATE DETAILS, SEE STRUCTURAL PLAN DRAWINGS.

SHEET KEYNOTES

1. PROVIDE CONCRETE 4' WIDE SIDEWALK PER (3213-220). UNLESS OTHERWISE NOTED, 2' DIMENSION INDICATES A CONCRETE MOW STRIP. USE 1/2" PJF BETWEEN STRUCTURE AND SIDEWALK/MOW STRIP. SLOPE AWAY AT 1/4" PER FOOT FROM STRUCTURE.
2. PROVIDE CONCRETE PAVEMENT TYPE C2 PER (3213-240). USE 1/2" PJF BETWEEN PAVEMENT AND BUILDING.
3. PROVIDE GRAVEL SURFACING PER (3215-260).
4. PROVIDE ASPHALT CONCRETE PAVEMENT TYPE C2 PER (3212-210).
5. PROVIDE CHAIN LINK REPAIR/REPLACEMENT AS REQUIRED BY (3231-410).

6-10. NOT USED.

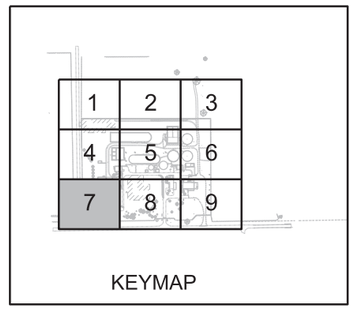
11. LANDING TO BE REINFORCED W/ #5 @ 12" OC EW. PLACE AT DOOR WAY W/ LANDING EXTENDING 6" BEYOND ROUGH OPENING ON HINGE SIDE OF DOOR. USE 1/2" PJF BETWEEN LANDING AND BUILDING. SLOPE AWAY AT 1/4" PER FOOT FROM BUILDING.

12-22. NOT USED.

23. PROVIDE GUARD POST PER (3471-810), AT SCREENING FACILITY LOCATE 6' FROM CENTER OF ROLLUP DOOR.
24. NOT USED.
25. PROVIDE GUARD POST PER (3471-810) PER DIMENSIONS SHOWN ON PLAN.
26. PROVIDE CONCRETE EQUIPMENT SLAB PER (0330-056) TYPE H.

27-32. NOT USED

33. REINFORCE RAMP W/ #5 @ 12" OC EW. USE #4 DOWELS @12". PLACE RAMP AT EQUIPMENT DOOR W/ RAMP EXTENDING 6" BEYOND ROUGH OPENING. THEN ANOTHER 2' SLOPING DOWN TO CONCRETE PAVEMENT. USE 1/2" PJF BETWEEN RAMP AND BUILDING.



N

0 20 40 60
Scale In Feet

ROBERT LEE TOWNSEND
LICENSED
25258
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	CHK	APVD	BY	APVD
DSGN	E NEPERUD		DR	A GORDEN	R TOWNSEND	E JOHNSON

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

ch2m

SITE CIVIL

LAYOUT AND PAVING PLAN AREA 7

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-2007
SHEET	46 of 314

BIDDING SET

MATCHLINE, SEE DWG 050-C-2005

MATCHLINE, SEE DWG 050-C-2007

MATCHLINE, SEE DWG 050-C-2009

400 - EXST LABORATORY FACILITY

STABILIZED STAGING AREA NO. 2
(APPROX AREA =0.71 ACRES)
FOR CONSTRUCTION FENCING, REFER TO DWG 050-C-2408

EXST ACCESS ROAD

EXST ACCESS ROAD

HARRY STREET

PROPERTY LINE

EXST FENCE

CONSTRUCTION LIMIT

BLDG SETBACK 35'

FHY, SEE DWG 051-Y-2005

MH NO. 102, SEE DWG 051-Y-2008

MH NO. 103, SEE DWG 051-Y-2008

MH NO. 104, SEE DWG 051-Y-2008

EXST WWTP SIGN, SEE DWG 050-C-7001

8" FIRE SERVICE METER VAULT, SEE DWG 051-Y-2008

REPLACE DRIVE IN-KIND AS REQUIRED DUE TO SS CONSTRUCTION

8-500 8-501 8-502 8-503 8-504 8-505 8-506 8-507 8-508 8-509 8-510

R 50'

20.5'

28.0'

10'

4' 8'

GENERAL NOTES

1. FOR OVERALL SITE PLAN KEY MAP AND STANDARD NOTES, REFER TO DWG 050-C-2000.
2. FOR GRADING, DRAINAGE AND EROSION CONTROL PLAN, REFER TO DWG 050-C-2408.
3. FOR HORIZONTAL AND VERTICAL CONTROL, REFER TO TABLES ON DWG 050-C-6001 AND 050-C-6002.

SHEET KEYNOTES

1-3. NOT USED.

4. PROVIDE ASPHALT CONCRETE PAVEMENT TYPE A2 PER (3212-210).
5. PROVIDE CHAIN LINK FENCE REPAIR/REPLACEMENT AS REQUIRED BY (3231-410).
6. PROVIDE GUARD POST PER (3471-810). SPACE BOLLARDS 4' APART, EQUIDISTANT FROM HYDRANT AS SHOWN.
7. PROVIDE CONCRETE VALLEY GUTTER PER (3216-330).
8. PROVIDE PAVEMENT CONNECTION PER (3212-215).
9. PROVIDE DOUBLE SWING GATE REPLACEMENT AS REQUIRED PER (3231-415). MATCH EXISTING GATE WIDTH.

KEYMAP

1 2 3
4 5 6
7 8 9

N

0 20 40 60
Scale In Feet

ROBERT LEE TOWNSEND
LICENSED
25258
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		E NEPERUD	A GORDEN	R TOWNSEND	APVD	E JOHNSON	

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

ch2m

SITE CIVIL

LAYOUT AND PAVING PLAN AREA 8

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-2008
SHEET	47 of 314

BIDDING SET

FILENAME: 050-C-2008_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 7:01:05 PM

MATCHLINE, SEE DWG 050-C-2006

MATCHLINE, SEE DWG 050-C-2008

350 - EXST DEWATERING AND LOADOUT

9-500 9-501 10

EXST ACCESS ROAD

EXST ACCESS ROAD

Mud Trap

EXST FENCE

CONSTRUCTION LIMIT

LIMIT OF FOURMILE CREEK FLOODPLAIN

RESTORE IN-KIND POST CONSTRUCTION. REMOVE VTC SHOWN ON DWG 050-C-2409 POST CONSTRUCTION.

FOURMILE CREEK 100-YEAR FLOODPLAIN

EXST ACCESS ROAD

9-506

CONSTRUCTION LIMIT

9-504 15

5

9-505

16

9-503

EXST FENCE

MH NO. 105, SEE DWG 051-Y-2009

PROPERTY LINE

35' BLDG SETBACK

CONSTRUCTION LIMIT

CONSTRUCTION LIMIT

SIGN

HARRY STREET

KEYMAP

1 2 3
4 5 6
7 8 9

N

0 20 40 60
Scale In Feet

GENERAL NOTES

1. FOR OVERALL SITE PLAN KEY MAP AND STANDARD NOTES, REFER TO DWG 050-C-2000.
2. FOR GRADING, DRAINAGE AND EROSION CONTROL PLAN, REFER TO DWG 050-C-2409.
3. FOR HORIZONTAL AND VERTICAL CONTROL, REFER TO TABLES ON DWG 050-C-6001 AND 050-C-6002.

SHEET KEYNOTES

1-4. NOT USED.

5. PROVIDE CHAIN LINK FENCE REPAIR/REPLACEMENT AS REQUIRED BY (3231-410).

6-9. NOT USED.

10. PROVIDE 17'x 6.2' CONCRETE EQUIPMENT SLAB PER (0330-056) TYPE H. PAD SIZE TO BE COORDINATED WITH EQUIPMENT MANUFACTURER. HOLD NORTHWEST CORNER COORDINATE.

12. NOT USED.

13-14. NOT USED.

15. PROVIDE CANTILEVER SLIDE GATE REPLACEMENT AS REQUIRED PER (3231-425). MATCH EXISTING GATE WIDTH.

16. PROVIDE BARB WIRE REPAIR/REPLACEMENT AS REQUIRED BY (3123-450).

ROBERT LEE TOWNSEND LICENSED 25258 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	REVISION	BY	APVD
		E NEPERUD	A GORDEN	R TOWNSEND		E JOHNSON	

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

SITE CIVIL

LAYOUT AND PAVING PLAN AREA 9

BIDDING SET

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-2009
SHEET	48 of 314

FILENAME: 050-C-2009_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 7:01:08 PM

GENERAL NOTES

1. FOR GENERAL CIVIL NOTES AND LEGEND, SEE DWG 001-G-0100.
2. FOR BENCHMARKS AND SURVEY CONTROL, SEE DWG 050-C-1000.
3. CLEAN SEDIMENT AND DEBRIS FROM EXISTING CULVERT TO REMAIN AFTER CONSTRUCTION AS SHOWN ON DWG 050-C-2405 AND 050-C-2408.
4. DISTURBED AREAS THAT ARE NOT PAVED, SHALL RECEIVE NATIVE GRASS SEEDING.

FACILITY LEGEND

100. EXST WET WEATHER PUMP STATION
105. INFLUENT PUMP STATION WET WELL
107. INFLUENT PUMP STATION VALVE VAULT
110. SCREENING FACILITY
120. EXST GRIT BUILDING / HEADWORKS
140. EXST AERATION BASIN
145. BIOREACTOR SPLITTER BOX
BIOREACTOR FACILITY
150. EXST FINAL CLARIFIER
155. SECONDARY CLARIFIERS NO. 3 AND NO. 4
170. FERRIC CHLORIDE FACILITY STORAGE TANK
EXST FERRIC CHLORIDE FACILITY PUMP BUILDING
210. UV DISINFECTION FACILITY / CASCADE
270. ODOR CONTROL FACILITY
300. EXST SLUDGE PUMP STATION / DIGESTERS NO. 1 AND NO. 2
350. EXST DEWATERING AND LOADOUT / MAINTENANCE BUILDING
400. EXST LABORATORY FACILITY / SLUDGE PROCESSING BUILDING

N

0 100 200 300
1"=100'

SITE PLAN AREA 1 SEE 050-C-2401
SITE PLAN AREA 2 SEE 050-C-2402
SITE PLAN AREA 3 SEE 050-C-2403
SITE PLAN AREA 4 SEE 050-C-2404
SITE PLAN AREA 5 SEE 050-C-2405
SITE PLAN AREA 6 SEE 050-C-2406
SITE PLAN AREA 7 SEE 050-C-2407
SITE PLAN AREA 8 SEE 050-C-2408
SITE PLAN AREA 9 SEE 050-C-2409

LIMIT OF FLOODPLAIN
100 YR FLOODPLAIN EL = 1289.26
100 YR FLOODWAY EL= 1290.17
100 YR FLOODPLAIN EL = 1288.90
100 YR FLOODWAY EL= 1289.76
100 YR FLOODPLAIN EL = 1288.58
100 YR FLOODWAY EL= 1289.49
100-YEAR FLOODWAY
100 YR FLOODPLAIN EL = 1288.42
100 YR FLOODWAY EL= 1289.35
LIMIT OF FLOODWAY
100 YR FLOODPLAIN EL = 1288.16
100 YR FLOODWAY EL= 1289.12
100 YR FLOODPLAIN EL = 1288.01
100 YR FLOODWAY EL= 1288.96
100 YR FLOODPLAIN EL = 1287.71
100 YR FLOODWAY EL= 1288.61
100-YEAR FLOODPLAIN
100 YR FLOODPLAIN EL = 1287.63
100 YR FLOODWAY EL= 1288.46
100-YEAR FLOODPLAIN
LIMIT OF FLOODPLAIN
LIMIT OF FLOODWAY
LIMIT OF FLOODPLAIN/ FLOODWAY
100-YEAR FLOODWAY
LIMIT OF FLOODWAY
LIMIT OF FLOODPLAIN
100-YEAR FLOODPLAIN

CONSTRUCTION LIMIT
EXST STAGING AREA ACCESS DRIVE BY APPROVAL ONLY. NOT FOR CONSTRUCTION ACCESS - RESTRICTED ACCESS.
GRAVEL ACCESS ROAD TO STAGING AREA. CONTRACTOR RESPONSIBLE TO IMPROVE EXST ACCESS ROAD AS NECESSARY
STABILIZED STAGING AREA NO. 1
STABILIZED STAGING AREA NO. 2
FUTURE BIOREACTOR
BIOREACTOR FACILITY
EXST ANAEROBIC & ANOXIC BASINS
FUTURE CLARIFIER NO. 5
EXST DIGESTER NO. 1
EXST DIGESTER NO. 2
NO. 4
NO. 3
EXST FINAL CLARIFIER
EXST SLUDGE THICKENER
EXST DISINFECTION BASIN
ROAD EXPANSION
BLDG SETBACK
BLDG SETBACK
35'
35'
BROOKHAVEN DRIVE
FOUR MILE CREEK
SPRING BRANCH
HARRY STREET
PLEFF OUTFALL STRUCTURE, SEE DWG 050-C-2410
EXST CASCADE

NO.	DATE	DSGN
	REVISION	BY APVD
	A GORDEN	CHK R TOWNSEND APVD
	E NEPERUD	DR E JOHNSON

11/04/2016

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ROBERT LEE TOWNSEND LICENSED 25258 11/4/16 KANSAS PROFESSIONAL ENGINEER

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

ch2m

SITE CIVIL

OVERALL GRADING AND DRAINAGE PLAN KEY MAP

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

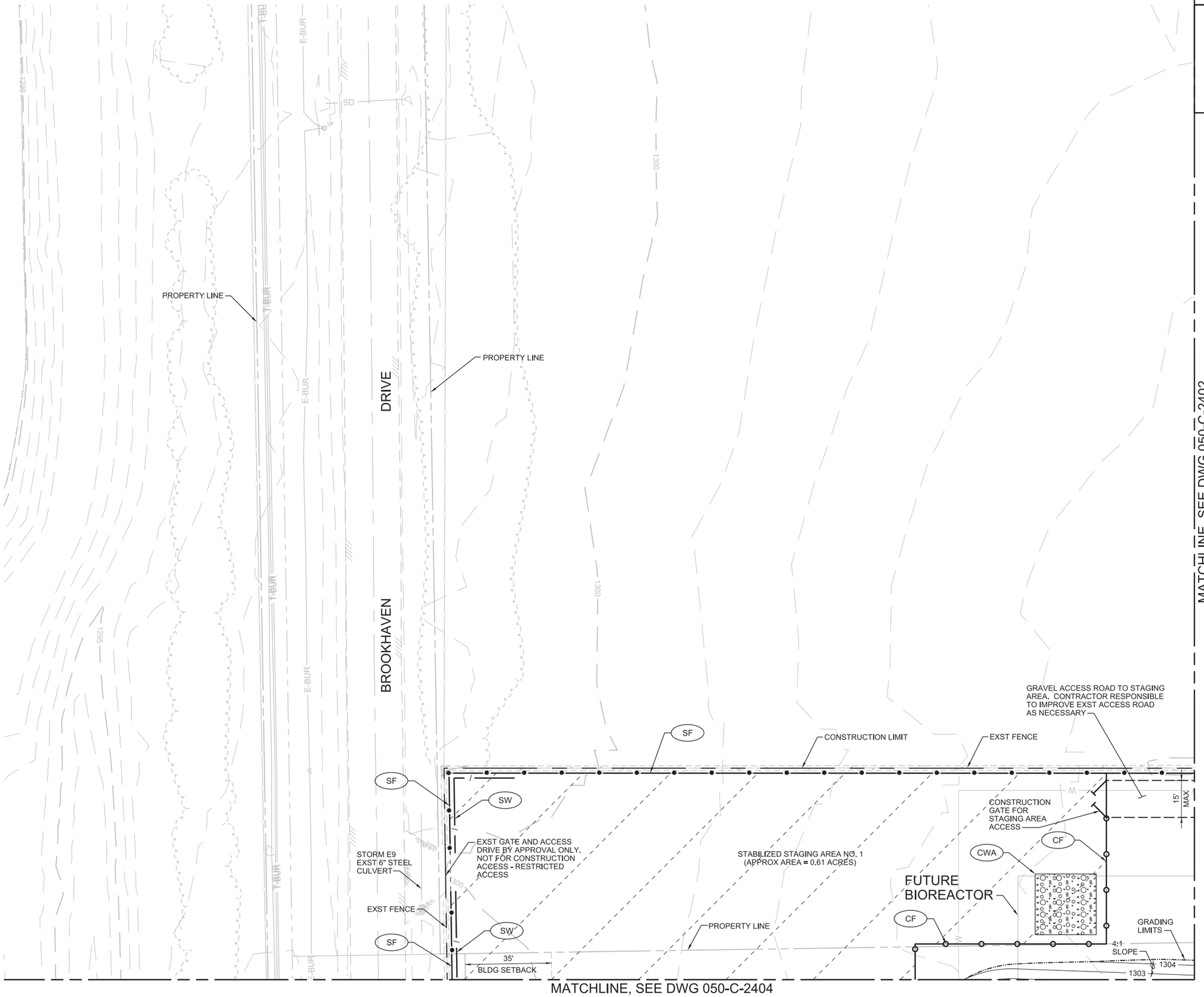
DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-2400
SHEET	49 of 314

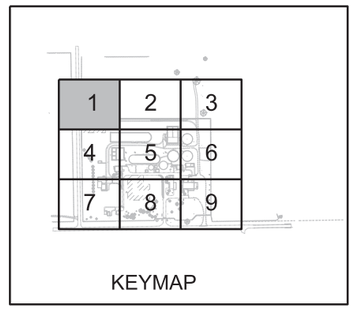
BIDDING SET

FILENAME: 050-C-2400_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 7:54:22 PM

GENERAL NOTES

1. FOR OVERALL GRADING AND DRAINAGE PLAN KEY MAP AND NOTES, REFER TO DWG 050-C-2400.
2. FOR LAYOUT AND PAVING PLAN, REFER TO DWG 050-C-2001.
3. NO FILL OR SPOILS TO BE PLACED WITHIN 100-YEAR FLOODPLAIN.
4. DISTURBED AREAS THAT ARE NOT PAVED, SHALL RECEIVE NATIVE GRASS SEEDING.





KEYMAP

N

0 20 40 60

Scale In Feet

ROBERT LEE TOWNSEND
LICENSED
25258
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	DR	CHK	APVD	BY	APVD
DSGN	E NEPERUD	A GORDEN		R TOWNSEND		E JOHNSON	

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

SITE CIVIL

GRADING, DRAINAGE AND EROSION CONTROL PLAN AREA 1

VERIFY SCALE

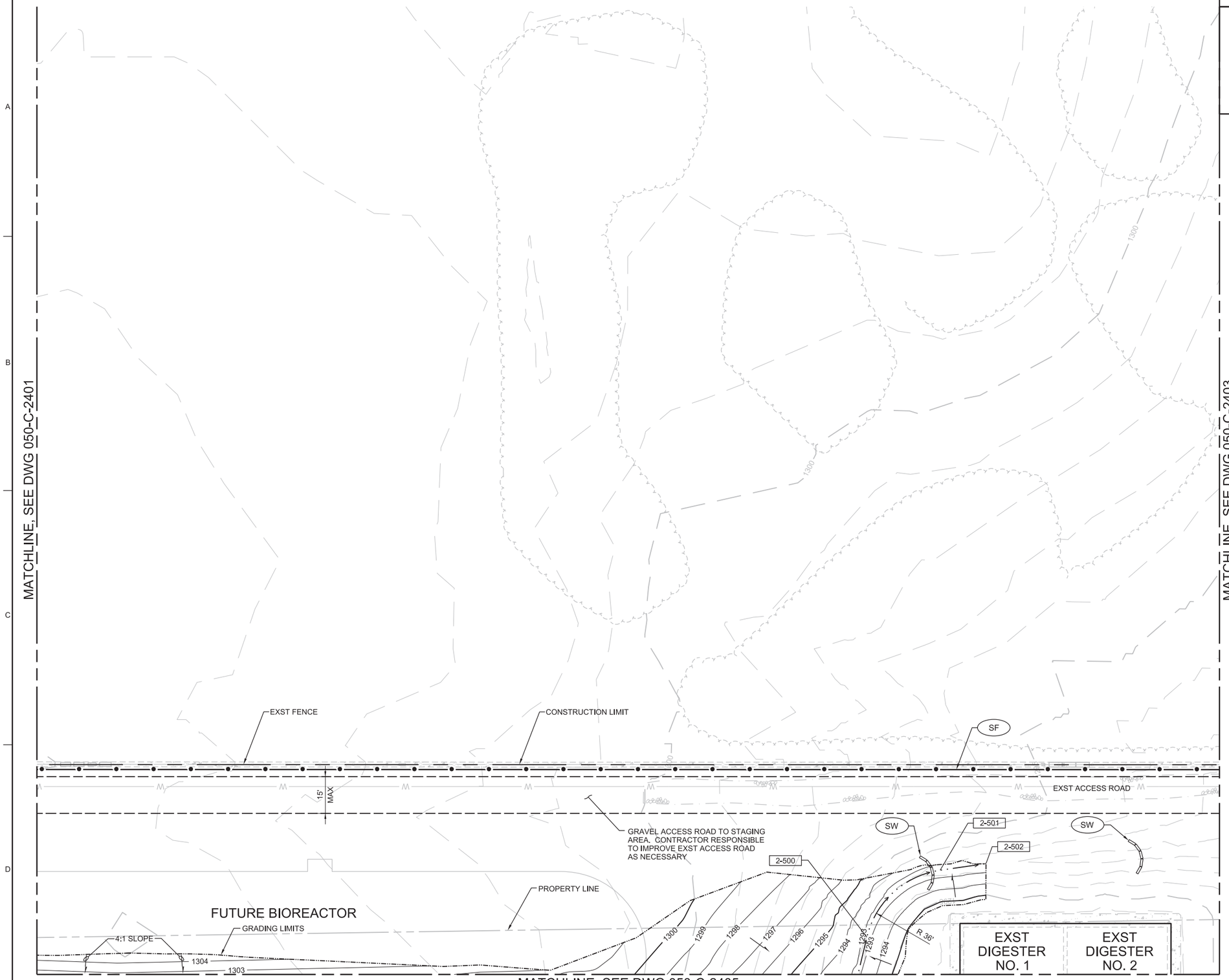
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

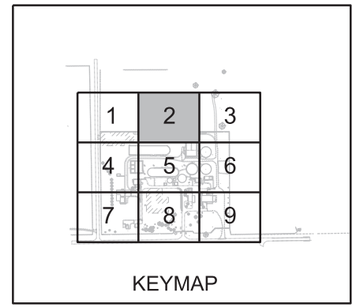
DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-2401
SHEET	50 of 314

BIDDING SET

GENERAL NOTES

1. FOR OVERALL GRADING AND DRAINAGE PLAN KEY MAP AND NOTES, REFER TO DWG 050-C-2400.
2. FOR LAYOUT AND PAVING PLAN, REFER TO DWG 050-C-2002.
3. NO FILL OR SPOILS TO BE PLACED WITHIN 100-YEAR FLOODPLAIN.
4. DISTURBED AREAS THAT ARE NOT PAVED, SHALL RECEIVE NATIVE GRASS SEEDING.





N

0 20 40 60
Scale In Feet

ROBERT LEE TOWNSEND
LICENSED
25258
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	DR	CHK	APVD	BY	APVD
DSGN	E NEPERUD	A GORDEN		R TOWNSEND		E JOHNSON	

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

SITE CIVIL

GRADING, DRAINAGE AND EROSION CONTROL PLAN AREA 2

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-2402
SHEET	51 of 314

BIDDING SET

FILENAME: 050-C-2402_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 7:01:07 PM

GENERAL NOTES

1. FOR OVERALL GRADING AND DRAINAGE PLAN KEY MAP AND NOTES, REFER TO DWG 050-C-2400.
2. FOR LAYOUT AND PAVING PLAN, REFER TO DWG 050-C-2003.
3. NO FILL OR SPOILS TO BE PLACED WITHIN 100-YEAR FLOODPLAIN.
4. DISTURBED AREAS THAT ARE NOT PAVED, SHALL RECEIVE NATIVE GRASS SEEDING.



N

0 20 40 60
Scale In Feet

ROBERT LEE TOWNSEND
LICENSED
25258
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DR	REVISION	CHK	APVD	BY	APVD
DSGN	E NEPERUD		A GORDEN		R TOWNSEND		E JOHNSON

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

SITE CIVIL

GRADING, DRAINAGE AND EROSION CONTROL PLAN AREA 3

BIDDING SET

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-2403
SHEET	52 of 314

MATCHLINE, SEE DWG 050-C-2401

MATCHLINE, SEE DWG 050-C-2405

MATCHLINE, SEE DWG 050-C-2407

STABILIZED STAGING AREA NO. 1
(APPROX AREA - 0.61 ACRES)

SW

CF

CONSTRUCTION LIMIT

PROPERTY LINE

EXST OSAGE ORANGE TREES

PROPERTY LINE

CF
PROTECT TREES

4:1 SLOPE

4-501

2' WIDE BOT

FUTURE BIOREACTOR

1301.50

4-502

2' WIDE BOT

4:1 SLOPE

145 - BIOREACTOR FACILITY
TOW 1302.00

UD-1, UNDER DRAIN MANHOLE, SEE DWG 051-Y-6001 AND DWG 145-S-2001

1301.00

4-503

4-504

4-515

SW

4-505

4-516

FOR ACCESS ROAD PROFILE, SEE DWG 050-C-3001

GRADING LIMITS

A
050-C-3002

145 - BIOREACTOR SPLITTER BOX TOW 1300.50

4-517

SW

4-513

4-512

1300.00

IP

4-511

4-518

STORM C3
12" CMP CULVERT
8 LF, S=0.0409 FT/FT

20

18

4-506

RR

4-507

2' WIDE BOT

4-525

13+00

2%

4-524

HPT

B
050-C-3002

EXST ANOXIC BASIN

4-526

4-527

BEG TRANS - V-DITCH TO FLAT BOT

SW

EXST ANAEROBIC BASIN

4-531

GRADING LIMITS

11+00

4:1 SLOPE

4-528

BEGIN 2' WIDE BOT

120 - EXST GRIT BUILDING

SW

4-529

4-530

IP

20

RR

STORM C2
18" DIA RCP, CLASS III
77 LF, S=0.014 FT/FT

10+00

SF

CF
PROTECT TREES

BROOKHAVEN DRIVE

35'
BLDG SETBACK

4-508

4-509

4-519

110 - SCREENING FACILITY
FF 1300.75

EXST FENCE

4-510

4:1 SLOPE

4-520

SW

1300.50

TOC @ DOOR
EL 1300.75

T-BUR

E-BUR

R-BUR

GENERAL NOTES

1. FOR OVERALL GRADING AND DRAINAGE PLAN KEY MAP AND NOTES, REFER TO DWG 050-C-2400.
2. FOR LAYOUT AND PAVING PLAN, REFER TO DWG 050-C-2004.
3. NO FILL OR SPOILS TO BE PLACED WITHIN 100-YEAR FLOODPLAIN.
4. FOR HORIZONTAL AND VERTICAL CONTROL, REFER TO TABLES ON DWG 050-C-6001 AND 050-C-6002.
5. DISTURBED AREAS THAT ARE NOT PAVED, SHALL RECEIVE NATIVE GRASS SEEDING.

SHEET KEYNOTES

1-19. NOT USED.

20. PROVIDE 12" D50 RIPRAP (NON-GROUTED).

ROBERT LEE TOWNSEND
LICENSED
25258
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		E NEPERUD	A GORDEN	R TOWNSEND	APVD	E JOHNSON	

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

ch2m

SITE CIVIL

GRADING, DRAINAGE AND EROSION CONTROL PLAN AREA 4

KEYMAP

1	2	3
4	5	6
7	8	9

N

0 20 40 60
Scale In Feet

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-2404
SHEET	53 of 314

BIDDING SET

FILENAME: 050-C-2404_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 7:01:25 PM

GENERAL NOTES

1. FOR OVERALL GRADING AND DRAINAGE PLAN KEY MAP AND NOTES, REFER TO DWG 050-C-2400.
2. FOR LAYOUT AND PAVING PLAN, REFER TO DWG 050-C-2005.
3. NO FILL OR SPOILS TO BE PLACED WITHIN 100-YEAR FLOODPLAIN.
4. FOR HORIZONTAL AND VERTICAL CONTROL, REFER TO TABLES ON DWG 050-C-6001 AND 050-C-6002.
5. DISTURBED AREAS THAT ARE NOT PAVED, SHALL RECEIVE NATIVE GRASS SEEDING.
6. CONTRACTOR SHALL COORDINATE WITH SITE ELECTRICAL ROUTING TO PREVENT VAULTS OR HANDHOLES FROM BEING LOCATED NEAR DRAINAGE FLOWLINES. SITE GRADING MAY BE ADJUSTED, AS APPROVED BY THE ENGINEER, TO ACCOMPLISH THAT COORDINATION.

SHEET KEYNOTES

1-19. NOT USED.

20. PROVIDE 12" D50 RIPRAP (NON-GROUTED).

21. RAISE VALVE STEMS TO MATCH FINAL GRADE ELEVATION IN ACCORDANCE WITH THE VALVE STEM EXTENSION DETAIL ON DWG 051-Y-9004.

22-29. NOT USED.

30. CLEAN SEDIMENT AND DEBRIS FROM EXISTING CULVERT TO REMAIN AFTER CONSTRUCTION.

MATCHLINE, SEE DWG 050-C-2402

MATCHLINE, SEE DWG 050-C-2404

MATCHLINE, SEE DWG 050-C-2406

MATCHLINE, SEE DWG 050-C-2408

FUTURE BIOREACTOR

145 - BIOREACTOR FACILITY
TOW 1302.00

EXST DIGESTER NO. 1

EXST DIGESTER NO. 2

300 - EXST SLUDGE PUMP STATION

EXST ANOXIC BASIN

145 - EXST AERATION BASIN

150 - EXST FINAL CLARIFIER

120 - EXST GRIT BUILDING

EXST SLUDGE THICKENER

170 - EXST FERRIC CHLORIDE FACILITY - PUMP BUILDING

EXST FINAL CLARIFIER

170 - FERRIC CHLORIDE FACILITY - STORAGE TANK
TOW 1295.50
FF 1291.75

EXST DISINFECTION BASIN

EXST ACCESS ROAD

STABILIZED STAGING AREA NO. 2
(APPROX AREA = 0.71 ACRES)

CONSTRUCTION GATE FOR STAGING AREA ACCESS

GRADING LIMITS

4:1 SLOPE

BEGIN 2' WIDE BOT

END 2' WIDE BOT

BEGIN 4' WIDE BOT

10' TRANS

5-501 HPT

5-502

5-503

5-504

5-505

5-506

5-507

5-508

5-510

5-511

5-512

5-513

5-514

5-515

5-516

5-517

5-518

5-520

5-522

5-523

5-524

5-525

5-526

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5-531

5-532

5-533

5-534

5-535

5-536

5-537

5-538

5-539

5-540

5-541

5-542

5-543

5-544

UD-2, UNDER DRAIN MANHOLE, SEE DWG 051-Y-6001 AND DWG 145-S-2001

UD-3, UNDER DRAIN MANHOLE, SEE DWG 051-Y-6001 AND DWG 145-S-2001

FOR ACCESS ROAD PROFILE, SEE DWG 050-C-3001

TOC @ STAIRS 1300.56

TOC @ ACCESS PT EL 1295.21

STORM C1
18" DIA RCP, CLASS III CULVERT, 57 LF
S=0.0049 FT/FT

STORM E1
EXST 13"x18" ELLIPTICAL RCP CULVERT

PROTECT EXST LIGHT POLE WITH RIP RAP

ELEC PULLBOX HH42
SEE DWG 080-E-2005
SEE NOTE 6, TYP.

EXST SIDEWALK TO REMAIN

MATCH EXST

3:1 TO DAYLIGHT

KEYMAP

1 2 3
4 5 6
7 8 9

N

0 20 40 60
Scale In Feet

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-2405
SHEET	54 of 314

ROBERT LEE TOWNSEND
LICENSED
25258
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		E NEPERUD	A GORDEN	R TOWNSEND	APVD	E JOHNSON	

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

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SITE CIVIL

GRADING, DRAINAGE AND EROSION CONTROL PLAN AREA 5

BIDDING SET

FILENAME: 050-C-2405_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 7:03:12 PM

MATCHLINE, SEE DWG 050-C-2403

FUTURE CLARIFIER NO. 5

155 - CLARIFIER NO. 4 TOW 1295.50

155 - CLARIFIER NO. 3 TOW 1295.50

210 - UV DISINFECTION FACILITY FF 1292.00

210 - CASCADE TOW 1292.00 & 1291.00 (EAST WALL)

EXST DISINFECTION BASIN

MATCHLINE, SEE DWG 050-C-2405

MATCHLINE, SEE DWG 050-C-2409

GENERAL NOTES

1. FOR OVERALL GRADING AND DRAINAGE PLAN KEY MAP AND NOTES, REFER TO DWG 050-C-2400.
2. FOR LAYOUT AND PAVING PLAN, REFER TO DWG 050-C-2006.
3. NO FILL OR SPOILS TO BE PLACED WITHIN 100-YEAR FLOODPLAIN OR FLOODWAY.
4. FOR HORIZONTAL AND VERTICAL CONTROL, REFER TO TABLES ON DWG 050-C-6001 AND 050-C-6002.
5. DISTURBED AREAS THAT ARE NOT PAVED, SHALL RECEIVE NATIVE GRASS SEEDING.

SHEET KEYNOTES

1-19. NOT USED.

20. PROVIDE 12" D50 RIPRAP (NON-GROUTED).

21. NOT USED

22. RAISE TOP OF MANHOLE USING PRECAST CONCRETE SPACERS/GRADE RING COLLARS IN ACCORDANCE WITH THE MANHOLE DETAILS SHOWN ON DWG 051-Y-9001.

23-29. NOT USED.

30. CLEAN SEDIMENT AND DEBRIS FROM EXISTING CULVERT TO REMAIN AFTER CONSTRUCTION.

KEYMAP

N

0 20 40 60
Scale In Feet

ROBERT LEE TOWNSEND LICENSED 25258 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	DR	CHK	APVD	BY	APVD
DSGN	E NEPERUD		A GORDEN	R TOWNSEND		E JOHNSON	

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

SITE CIVIL

GRADING, DRAINAGE AND EROSION CONTROL PLAN AREA 6

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-2406
SHEET	55 of 314

BIDDING SET

FILENAME: 050-C-2406_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 7:02:01 PM

GENERAL NOTES

1. FOR OVERALL GRADING AND DRAINAGE PLAN KEY MAP AND NOTES, REFER TO DWG 050-C-2400.
2. FOR LAYOUT AND PAVING PLAN, REFER TO DWG 050-C-2007.
3. NO FILL OR SPOILS TO BE PLACED WITHIN 100-YEAR FLOODPLAIN.
4. FOR HORIZONTAL AND VERTICAL CONTROL, REFER TO TABLES ON DWG 050-C-6001 AND 050-C-6002.
5. ADDITIONAL FOOTPRINT FOR ODOR CONTROL FACILITY IF ALTERNATE BERM WALLS ARE USED INSTEAD OF CONCRETE WALLS. REFER TO FACILITY 270 DRAWINGS. THE ADJACENT SIDEWALK AND GRAVEL DRIVE SHALL ALSO BE EXTENDED OUTSIDE THIS LARGER FOOTPRINT. ADJUST GRADING AS NECESSARY.
6. BACKFILL ERODED GRADE TO SLOPE AWAY FROM BUILDING.
7. DISTURBED AREAS THAT ARE NOT PAVED, SHALL RECEIVE NATIVE GRASS SEEDING.

SHEET KEYNOTES

1-19. NOT USED.

20. PROVIDE 12" D50 RIPRAP (NON-GROUTED).

N

0 20 40 60
Scale In Feet

ROBERT LEE TOWNSEND
LICENSED
25258
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	REVISION	CHK	APVD	BY	APVD
		E NEPERUD	A GORDEN	DR	R TOWNSEND		E JOHNSON

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FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

ch2m:

SITE CIVIL

GRADING, DRAINAGE AND EROSION CONTROL PLAN AREA 7

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-2407
SHEET	56 of 314

BIDDING SET

FILENAME: 050-C-2407_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 7:00:55 PM

MATCHLINE, SEE DWG 050-C-2405

MATCHLINE, SEE DWG 050-C-2407

MATCHLINE, SEE DWG 050-C-2409

30 STORM E1
EXST 13"x18"
ELLIPTICAL
RCP CULVERT

CF

MATCH EXST

8-511

8-512

R 40'

EXST ACCESS ROAD

STABILIZED STAGING AREA NO. 2
(APPROX AREA =0.71 ACRES)

GRADING LIMITS

8-515

8-516

8-517

VALLEY GUTTER

8-519

8-520

8-521

8-522

8-523

8-518

8-524

MH NO. 102, SEE
DWG 051-Y-2008

MH NO. 103, SEE
DWG 051-Y-2008

PROPERTY LINE

EXST FENCE

SW

SF

BLDG SETBACK 35'

STORM E5
EXST 2-15" DIA CMP CULVERT
52 LF EA, REPLACE W/ 2-18" CMP
MATCH EXST INVERT

IP

RR

20

EXST WWTP SIGN,
SEE DWG 050-C-7001

MH NO. 104, SEE
DWG 051-Y-2008

CONSTRUCTION LIMIT

STORM E6
EXST 30" CMP
CULVERT

HARRY STREET

400 - EXST
LABORATORY
FACILITY

3:1 TO DAYLIGHT

MATCH
EXST

GRADING LIMITS

STORM E3
EXST 12" CMP
CULVERT

EXST ACCESS ROAD

GENERAL NOTES

1. FOR OVERALL GRADING AND DRAINAGE PLAN KEY MAP AND NOTES, REFER TO DWG 050-C-2400.
2. FOR LAYOUT AND PAVING PLAN, REFER TO DWG 050-C-2008.
3. NO FILL OR SPOILS TO BE PLACED WITHIN 100-YEAR FLOODPLAIN.
4. FOR HORIZONTAL AND VERTICAL CONTROL, REFER TO TABLES ON DWG 050-C-6001 AND 050-C-6002.
5. DISTURBED AREAS THAT ARE NOT PAVED, SHALL RECEIVE NATIVE GRASS SEEDING.

SHEET KEYNOTES

1-19. NOT USED.

20. PROVIDE 12" D50 RIPRAP (NON-GROUTED).

21-29. NOT USED.

30. CLEAN SEDIMENT AND DEBRIS FROM EXISTING CULVERT TO REMAIN AFTER CONSTRUCTION.

ROBERT LEE TOWNSEND
LICENSED
25258
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	DR	CHK	APVD	BY	APVD
DSGN	E NEPERUD		A GORDEN	R TOWNSEND		E JOHNSON	

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

SITE CIVIL

GRADING, DRAINAGE AND EROSION CONTROL PLAN AREA 8

KEYMAP

1 2 3
4 5 6
7 8 9

N

0 20 40 60
Scale In Feet

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-2408
SHEET	57 of 314

BIDDING SET

FILENAME: 050-C-2408_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 7:01:00 PM

MATCHLINE, SEE DWG 050-C-2406

MATCHLINE, SEE DWG 050-C-2408

350 - EXST DEWATERING AND LOADOUT

EXST ACCESS ROAD

EXST ACCESS ROAD

Mud Trap

SW

EXST FENCE

CONSTRUCTION LIMIT

SF

LIMIT OF FOURMILE CREEK FLOODPLAIN

IP

STORM E4
15" DIA RCP CULVERT
52 LF. REPLACE W/ 2-15" RCP
MATCH EXISTING INVERTS

RR

20

VTC

FOURMILE CREEK
100-YEAR FLOODPLAIN

RESTORE IN-KIND
POST CONSTRUCTION

EXST FENCE

MH NO. 105, SEE
DWG 051-Y-2009

EXST ACCESS ROAD

PROPERTY LINE

35'
BLDG SETBACK

13

HARRY STREET

STORM E7
EXST 2-15" CMP
CULVERTS

GENERAL NOTES

1. FOR OVERALL GRADING AND DRAINAGE PLAN KEY MAP AND NOTES, REFER TO DWG 050-C-2400.
2. FOR LAYOUT AND PAVING PLAN, REFER TO DWG 050-C-2009.
3. NO FILL OR SPOILS TO BE PLACED WITHIN 100-YEAR FLOODPLAIN OR FLOODWAY.
4. FOR HORIZONTAL AND VERTICAL CONTROL, REFER TO TABLES ON DWG 050-C-6001 AND 050-C-6002.
5. DISTURBED AREAS THAT ARE NOT PAVED, SHALL RECEIVE NATIVE GRASS SEEDING.

SHEET KEYNOTES

1-12. NOT USED.

13. EXTEND SILT FENCE ALONG CONSTRUCTION LIMIT AND PLACE TRENCH SPOILS UPSTREAM OF TRENCH AND EXTEND SILT FENCE DOWNSTREAM OF TRENCH. NO SPOILS ARE TO BE PLACED IN THE 100-YEAR FLOODPLAIN.

14-19. NOT USED.

20. PROVIDE 12" D50 RIPRAP (NON-GROUTED).

KEYMAP

1 2 3
4 5 6
7 8 9

N

0 20 40 60
Scale In Feet

ROBERT LEE TOWNSEND
LICENSED
25258
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	REVISION	CHK	APVD	BY	APVD
		E NEPERUD	A GORDEN		R TOWNSEND		E JOHNSON	

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

SITE CIVIL

GRADING, DRAINAGE AND EROSION CONTROL PLAN AREA 9

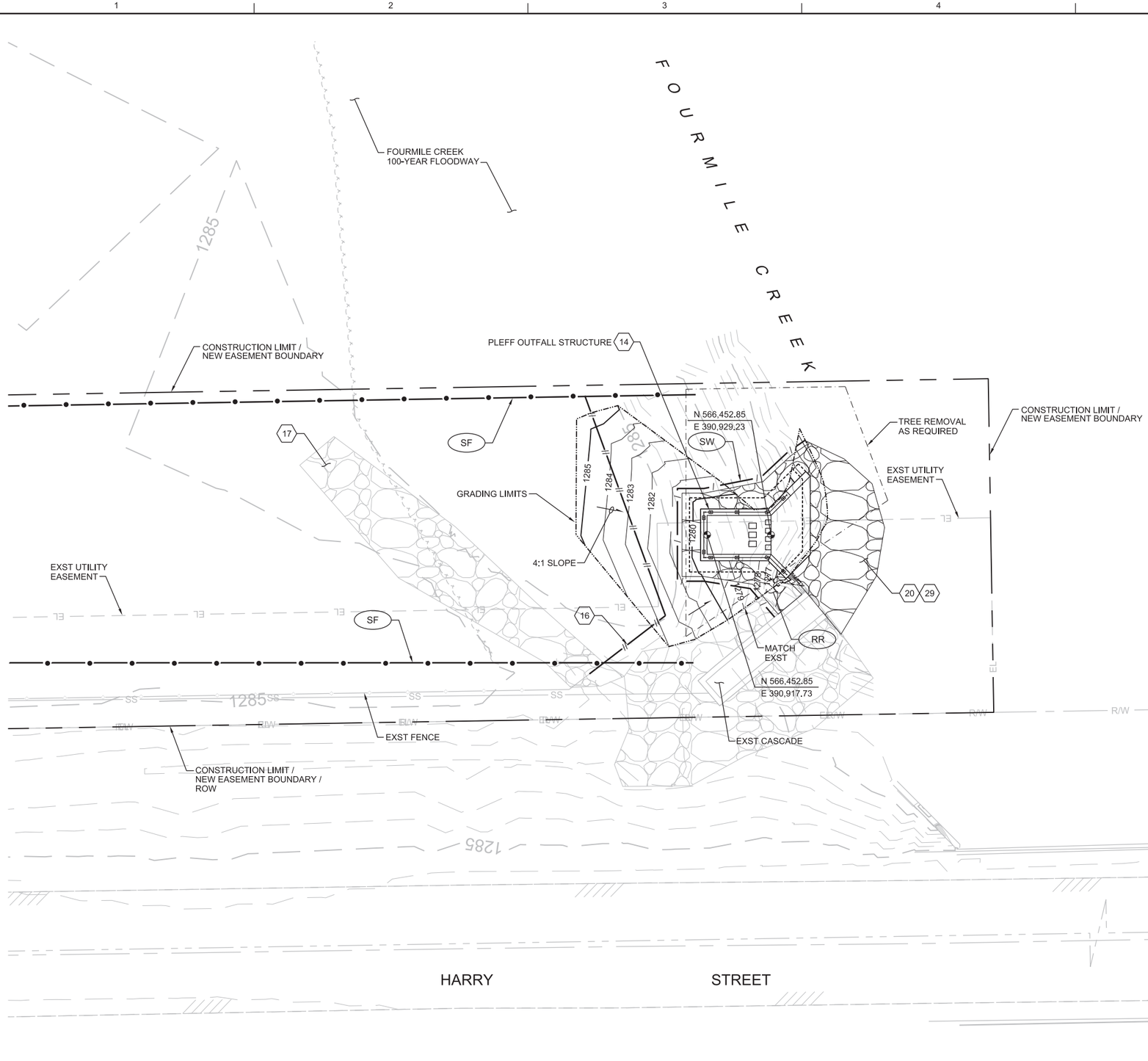
BIDDING SET

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-2409
SHEET	58 of 314

FILENAME: 050-C-2409_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 7:01:50 PM



GENERAL NOTES

1. FOR OVERALL GRADING AND DRAINAGE PLAN KEY MAP AND NOTES, REFER TO DWG 050-C-2400.
2. NO FILL OR SPOILS TO BE PLACED WITHIN 100-YEAR FLOODPLAIN OR FLOODWAY.
3. STOCKPILE SOILS ON UPSIDE OF TRENCH.
4. FOR STRUCTURE COORDINATE DETAILS, SEE DWG 050-C-5001.
5. DISTURBED AREAS THAT ARE NOT PAVED, SHALL RECEIVE NATIVE GRASS SEEDING.

SHEET KEYNOTES

1-13. NOT USED.

14. CONSTRUCT PLEFF OUTFALL STRUCTURE PER DETAILS ON DWG 050-C-5001.

15. NOT USED.

16. PROVIDE BARB WIRE REPAIR/REPLACEMENT AS REQUIRED BY (3123-450).

17. REPAIR RIPRAP AS REQUIRED. MATCH EXISTING.

20. PROVIDE 12" D50 RIPRAP (NON-GROUTED).

21-28. NOT USED.

29. CONTRACTOR TO SUBMIT EROSION CONTROL PLAN FOR PLEFF OUTFALL STRUCTURE PRIOR TO STARTING CONSTRUCTION. SILT CURTAIN OR SIMILAR BMP WILL BE REQUIRED AT MINIMUM.

ROBERT LEE TOWNSEND
LICENSED
25258
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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NO.	DATE	REVISION	BY	APVD
DSGN	E NEPERUD	DR A GORDEN	CHK R TOWNSEND	APVD E JOHNSON

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

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SITE CIVIL

PLEFF OUTFALL GRADING PLAN

BIDDING SET

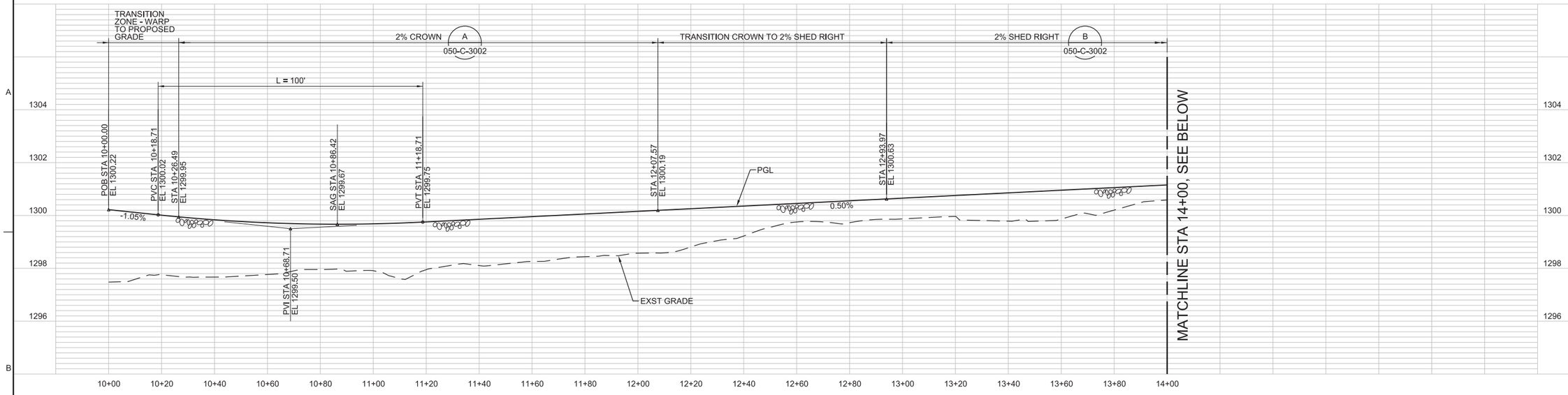
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0 10 20 30
Scale In Feet

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

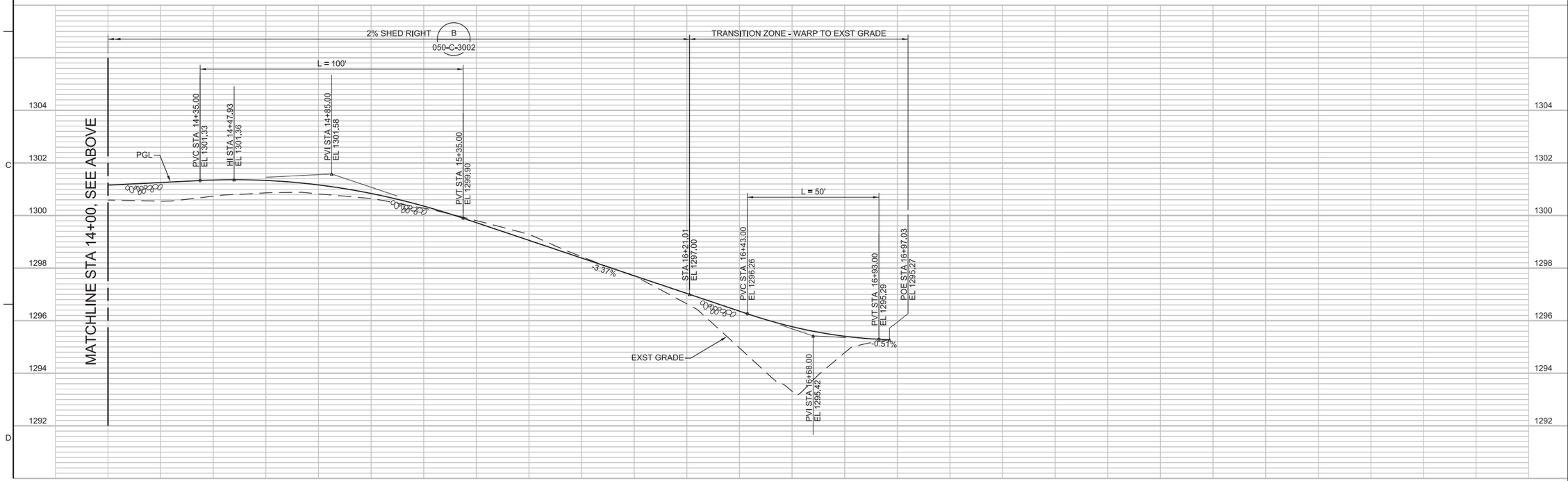
DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-2410
SHEET	59 of 314

FILENAME: 050-C-2410_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 7:03:09 PM



ACCESS ROAD PROFILE

HORIZ: 1"=20'
VERT: 1"=2'



ACCESS ROAD PROFILE

HORIZ: 1"=20'
VERT: 1"=2'

ROBERT LEE TOWNSEND
LICENSED
25258
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	DR	CHK	APVD	BY	APVD
DSGN	E NEPERUD		A GORDEN	R TOWNSEND		E JOHNSON	

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

ch2m

SITE CIVIL

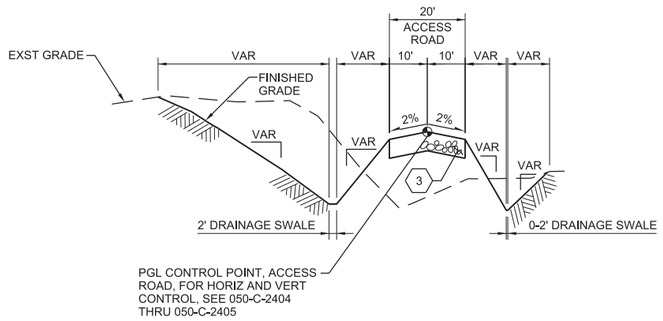
ACCESS ROAD PROFILE

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-3001
SHEET	60 of 314

BIDDING SET

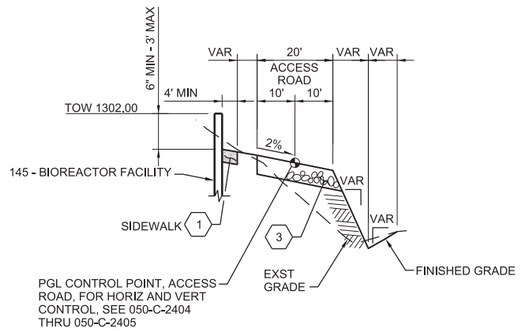
FILENAME: 050-C-3001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 4:36:09 PM



A TYPICAL SECTION - ACCESS ROAD

HORIZ: 1"=20'
VERT: 1"=2'

050-C-2404
050-C-2405
050-C-3001



B TYPICAL SECTION - ACCESS ROAD

HORIZ: 1"=20'
VERT: 1"=2'

050-C-2404
050-C-2405
050-C-3001

GENERAL NOTES

1. FOR ACCESS ROAD HORIZONTAL CONTROL, SEE DWG 050-C-2404 AND 050-C-2405.
2. FOR ACCESS ROAD PROFILE, SEE DWG 050-C-3001.
3. FOR GRADING, DRAINAGE AND EROSION CONTROL PLANS, SEE DWG 050-C-2404 AND 050-C-2405.

SHEET KEYNOTES

1. PROVIDE CONCRETE 4' WIDE SIDEWALK PER (3213-220). UNLESS OTHERWISE NOTED. 2' DIMENSION INDICATES A CONCRETE MOW STRIP. USE 1/2" PJF BETWEEN STRUCTURE AND SIDEWALK/MOW STRIP. SLOPE AWAY AT 1/4" PER FOOT FROM STRUCTURE.
2. NOT USED.
3. PROVIDE GRAVEL SURFACING PER (3215-260).

ROBERT LEE TOWNSEND
LICENSED
25258
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	BY
REVISION		E NEPERUD	A GORDEN	R TOWNSEND	APVD E JOHNSON

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

SITE CIVIL

TYPICAL ROAD CROSS SECTIONS

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-3002
SHEET	61 of 314

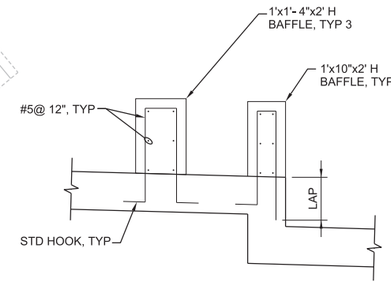
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FILENAME: 050-C-3002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 7:32:20 PM

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PLAN VIEW

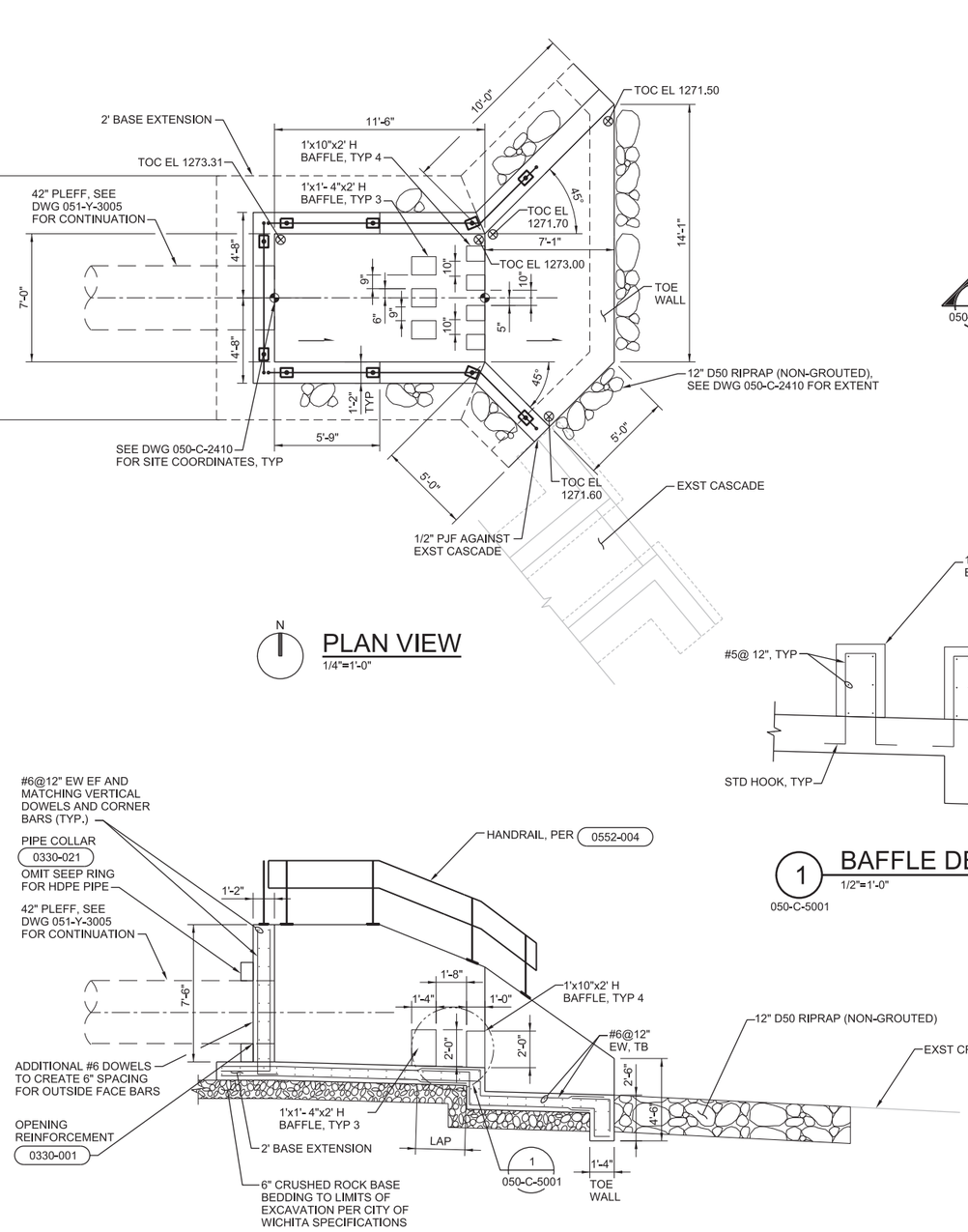
1/4"=1'-0"



1 BAFFLE DETAIL

1/2"=1'-0"

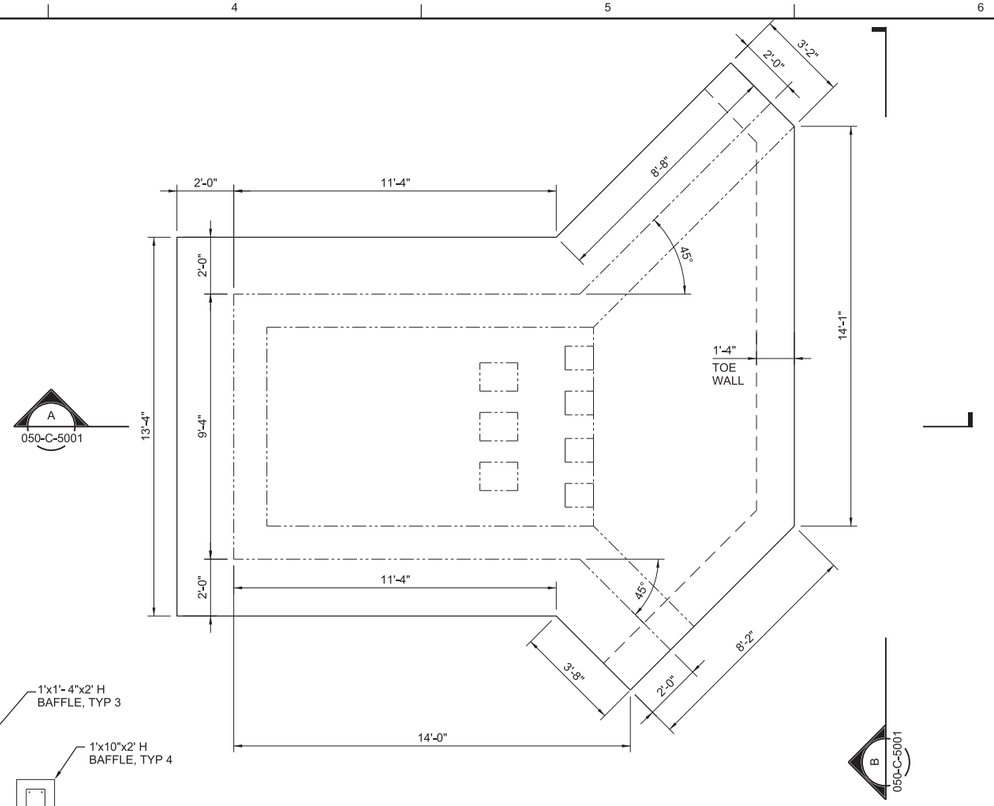
050-C-5001



A SECTION

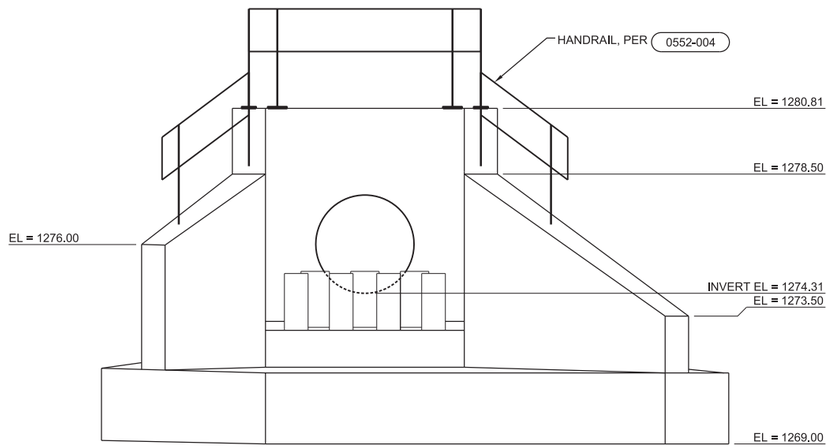
1/4"=1'-0"

050-C-5001



PLAN VIEW - BASE

3/8"=1'-0"



B SECTION

3/8"=1'-0"

050-C-5001

NOTES:

1. FOR STRUCTURAL GENERAL AND SPECIAL INSPECTION NOTES, SEE DWG 001-G-0300 THRU 001-G-0305.
2. FOR OUTFALL STRUCTURE LOCATION, SEE DWG 050-C-2410.

ROBERT LEE TOWNSEND LICENSED 25258 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		E NEPERUD	J WALKER	R TOWNSEND	APVD	E JOHNSON	

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

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SITE CIVIL

PLEFF OUTFALL STRUCTURE DETAILS

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-5001
SHEET	62 of 314

BIDDING SET

CONTROL POINT TABLE

POINT NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
1-500	567228.98	389616.01	N/A	STAGING AREA CORNER
1-501	567159.79	389616.01	N/A	STAGING AREA CORNER
1-502	567159.79	389538.49	N/A	STAGING AREA CORNER
2-500	567160.56	389990.31	1292.70	PC DITCH CL
2-501	567187.86	390020.21	1292.38	PT DITCH CL
2-502	567190.55	390038.92	1292.24	END DITCH CL - MATCH EXISTING
4-501	567136.94	389578.79	1300.05	PC DITCH CL
4-502	567104.94	389546.79	1299.57	PT DITCH CL
4-503	567042.84	389546.79	1299.02	PC DITCH CL
4-504	567025.73	389540.95	1298.86	PRC DITCH CL
4-505	566994.50	389530.11	1298.55	PT DITCH CL
4-506	566882.57	389528.90	1297.70	CULVERT
4-507	566874.50	389528.74	1297.38	CULVERT
4-508	566831.31	389528.34	1297.20	PC DITCH CL
4-509	566793.80	389492.72	1296.91	PRC DITCH CL
4-510	566763.11	389462.74	1296.68	PT DITCH CL
4-511	566877.65	389477.15	1299.96	BEGIN SWALE CL
4-512	566897.77	389478.96	1299.86	SWALE CL
4-513	566902.68	389510.07	1299.60	END SWALE CL
4-515	567014.65	389515.17	1301.1 +/-	LIMITS OF GRADING - MATCH EXISTING
4-516	566973.62	389503.45	1301.2 +/-	LIMITS OF GRADING - MATCH EXISTING
4-517	566919.07	389477.32	1300.6 +/-	LIMITS OF GRADING - MATCH EXISTING
4-518	566875.34	389475.18	1300.0 +/-	LIMITS OF GRADING - MATCH EXISTING
4-519	566790.46	389461.94	1298.8 +/-	LIMITS OF GRADING - MATCH EXISTING
4-520	566753.76	389453.70	1298.5 +/-	LIMITS OF GRADING - MATCH EXISTING
4-524	567004.44	389584.29	1298.88	DITCH CL, HPT
4-525	567011.31	389603.14	1298.60	PI DITCH CL
4-526	566978.70	389577.72	1298.44	PC DITCH CL
4-527	566968.52	389575.87	1298.28	PT DITCH CL
4-528	566821.43	389575.29	1296.81	PC DITCH CL
4-529	566803.50	389581.00	1296.62	PT DITCH CL
4-530	566784.48	389594.48	1296.39	END DITCH, CULVERT
4-531	566900.04	389585.92	1298.9 +/-	LIMITS OF GRADING - MATCH EXISTING
4-533	567119.19	389538.49	N/A	STAGING AREA CORNER
4-534	567119.17	389351.22	N/A	STAGING AREA CORNER
4-535	566 768.19	389 533.74	1300.72	TOC
4-536	566 768.19	389 517.03	1300.72	TOC
4-537	566766.86	389620.75	1300.05	PC EOP
4-538	566766.86	389609.36	1300.12	PC EOG
4-539	566766.86	389593.16	1300.21	EOP
4-540	566766.86	389544.36	1300.50	EOP
4-541	566811.86	389564.36	1299.60	PT EOG
5-501	567136.94	389684.48	1301.00	DITCH CL, HPT
5-502	567136.94	389832.90	1300.17	DITCH CL
5-503	567136.94	389891.68	1299.87	DITCH CL
5-504	567136.94	389984.22	1292.90	END SIDE DITCH
5-505	567136.94	567136.94	1300.17	DITCH CL
5-507	567027.69	390125.67	1294.50	BEGIN SWALE CL
5-508	567021.84	390134.11	1294.57	PC SWALE CL
5-509	566977.85	390130.85	1293.80	PC/BEGIN SWALE CL
5-510	567005.97	389693.51	1298.00	PC DITCH CL
5-511	566999.59	389715.84	1297.8 +/-	PT DITCH CL - MATCH EXISTING
5-512	566976.75	389919.57	1294.0 +/-	DITCH CL - MATCH EXISTING
5-513	566993.44	389971.02	1293.61	END DITCH, CULVERT
5-514	566970.70	389981.98	1293.73	DITCH CL
5-515	566964.07	389989.18	1293.78	DITCH CL
5-516	566954.81	389993.68	1293.83	DITCH CL
5-517	566948.31	389995.67	1293.87	DITCH CL
5-518	566932.98	389999.65	1293.9 +/-	DITCH CL - MATCH EXISTING
5-519	567009.44	389928.93	1296.99	PT, PI EOG
5-520	567049.93	389978.31	1293.33	START DITCH, CULVERT
5-521	567027.56	389943.02	1297.00	PC EOG

CONTROL POINT TABLE

POINT NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
5-522	567070.28	389994.86	1295.3 +/-	PT EOG - MATCH EXISTING
5-523	567066.45	390009.89	1296.1 +/-	LIMITS OF GRADING - MATCH EXISTING
5-524	567023.58	390024.36	1296.1 +/-	LIMITS OF GRADING - MATCH EXISTING
5-525	566996.41	389998.57	1294.9 +/-	LIMITS OF GRADING - MATCH EXISTING
5-526	566965.32	389997.86	1293.7 +/-	LIMITS OF GRADING - MATCH EXISTING
5-530	566822.42	389826.55	1295.11	END SWALE CL
5-531	566833.73	389855.27	1295.27	PT SWALE CL
5-532	566830.47	389875.41	1295.37	PC SWALE CL
5-533	566822.95	389884.43	1295.43	BEGIN SWALE CL
5-534	566830.26	389828.69	1295.2 +/-	LIMITS OF GRADING - MATCH EXISTING
5-535	566843.59	389860.28	1295.4 +/-	LIMITS OF GRADING - MATCH EXISTING
5-536	566844.29	389879.30	1295.3 +/-	LIMITS OF GRADING - MATCH EXISTING
5-537	566820.94	389828.52	1295.2 +/-	LIMITS OF GRADING - MATCH EXISTING
5-538	566824.15	389854.72	1295.1 +/-	LIMITS OF GRADING - MATCH EXISTING
5-539	566801.82	389876.58	1295.2 +/-	LIMITS OF GRADING - MATCH EXISTING
5-540	566802.53	390018.58	1293.0 +/-	LIMITS OF GRADING - MATCH EXISTING
5-541	566813.54	390015.14	1293.0 +/-	LIMITS OF GRADING - MATCH EXISTING
5-542	566813.95	389982.31	1293.5 +/-	LIMITS OF GRADING - MATCH EXISTING
5-543	566818.91	389977.28	1294.1 +/-	LIMITS OF GRADING - MATCH EXISTING
5-544	566822.46	389967.68	1294.3 +/-	LIMITS OF GRADING - MATCH EXISTING
5-550	566782.04	389957.49	1293.6 +/-	PT EOP - MATCH EXISTING
5-551	566752.69	389987.77	1292.47	PC EOP
5-555	566808.33	389670.02	1299.9 +/-	PT EOP - MATCH EXISTING
5-556	566781.24	389715.00	N/A	STAGING AREA CORNER
5-557	566781.66	389840.00	N/A	STAGING AREA CORNER
5-558	566782.17	389970.40	1293.3 +/-	PT EOP - MATCH EXISTING
5-559	566756.30	389995.70	1292.6 +/-	PC EOP - MATCH EXISTING
6-501	567120.08	390213.80	1291.7 +/-	END SWALE CL - MATCH EXISTING
6-502	567120.08	390186.29	1292.10	PT SWALE CL
6-503	567079.87	390135.88	1293.95	POC SWALE CL
6-504	567062.04	390137.42	1294.29	PC SWALE CL
6-505	567051.19	390141.89	1294.35	PT SWALE CL
6-506	567039.90	390139.17	1294.42	PC SWALE CL
6-507	566824.19	390244.91	1290.36	END GRADE BREAK
6-508	566804.41	390224.34	1290.77	BEGIN GRADE BREAK
6-509	566804.41	390244.91	1290.36	END GRADE BREAK
6-510	567117.72	390141.15	1294.1 +/-	LIMITS OF GRADING - MATCH EXISTING
6-511	567116.77	390159.13	1293.3 +/-	LIMITS OF GRADING - MATCH EXISTING
6-512	567127.50	390262.90	1290.1 +/-	LIMITS OF GRADING - MATCH EXISTING
6-515	566982.37	390157.52	1292.20	BEGIN SWALE CL
6-516	566988.21	390164.36	1291.93	PC SWALE CL
6-517	566991.76	390173.03	1291.64	PT SWALE CL
6-518	566993.93	390203.38	1289.60	PC SWALE CL
6-519	566945.47	390256.92	1288.30	PT SWALE CL
6-520	566901.62	390258.29	1287.89	PI SWALE CL
6-521	566819.05	390263.20	1287.68	PI SWALE CL
6-522	566810.50	390264.53	1287.60	PI SWALE CL
6-523	566805.95	390264.26	1287.42	PC SWALE CL
6-524	566801.75	390266.13	1287.23	PT SWALE CL
6-525	566800.68	390267.48	1287.1 +/-	END SWALE CL - MATCH EXISTING
6-526	567018.87	390136.80	1294.60	BEGIN SWALE CL
6-527	567035.93	390134.78	1294.45	PT SWALE CL
6-530	566943.37	390136.95	1293.73	PRC SWALE CL
6-531	566885.99	390171.08	1290.81	SWALE CL
6-532	566884.45	390196.64	1290.17	PRC SWALE CL
6-533	566888.19	390240.36	1289.07	PT SWALE CL
6-534	566888.00	390247.80	1288.88	END SWALE CL
6-535	566878.26	390162.78	1291.3 +/-	START SWALE - MATCH EXISTING
6-536	566883.85	390180.78	1290.56	SWALE INTERSECTION
6-537	566884.33	390167.88	1291.2 +/-	LIMITS OF GRADING - MATCH EXISTING
6-538	566877.91	390170.22	1291.2 +/-	LIMITS OF GRADING - MATCH EXISTING
6-540	566805.48	390165.61	1291.0 +/-	BEGIN SWALE CL - MATCH EXISTING

LEGEND

CONTROL POINT

1-5XX

- SEQUENTIAL POINT #
- SITE PLAN AREA #

ACCESS ROAD CENTERLINE DATA

STATION	COORDINATES		CURVE DATA		
	NORTHING	EASTING	RADIUS	DELTA	LENGTH
10+00.00 POB	566766.86	389554.36			
12+07.57 PC	566974.43	389554.36			
12+62.57 PI	567029.43	389554.36	55'	90°00'00" Right	86.39'
12+93.97 PT	567029.43	389609.36			
14+73.26 PC	567029.43	389788.65			
15+44.47 PI	567029.43	389859.86	1000'	8°08'47" Right	142.18'
16+15.44 PT	567019.34	389930.35			
16+97.03 POE	567007.78	390011.12			

GENERAL NOTES

1. FOR ACCESS ROAD PROFILE INFORMATION, SEE DWG 050-C-3001.
2. FOR CONTROL POINT PLAN SHEET LOCATIONS, SEE DWG 050-C-2001 THRU 050-C-2009 AND 050-C-2401 THRU 050-C-2409.

ROBERT LEE TOWNSEND LICENSED 25258 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	DR	CHK	APVD
DSGN	E NEPERUD		A GORDEN	R TOWNSEND	BY APVD
					E JOHNSON

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

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ch2m

SITE CIVIL

HORIZONTAL AND VERTICAL CONTROL 1

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-6001
SHEET	63 of 314

BIDDING SET

CONTROL POINT TABLE

POINT NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
7-512	566707.47	389597.37	1297.44	BEGIN DITCH CL
7-513	566667.65	389597.37	1296.92	PC DITCH CL
7-514	566572.52	389522.92	1295.26	PRC DITCH CL
7-515	566536.44	389485.44	1294.33	END DITCH CL
7-516	566535.51	389551.55	1294.63	BEGIN SWALE CL
7-517	566535.51	389536.08	1294.56	PC SWALE CL
7-518	566530.68	389527.52	1294.50	PT SWALE CL
7-519	566505.23	389512.13	1294.36	END SWALE CL
7-520	566536.95	389588.47	1294.51	BEG DITCH CL
7-522	566519.24	389530.70	1294.84	PC EOG
7-523	566529.24	389540.70	1294.65	PT EOG
7-524	566529.24	389616.70	1294.7 +/-	EOP - MATCH EXISTING
7-525	566505.24	389616.08	1294.1 +/-	EOP - MATCH EXISTING
7-526	566505.24	389606.54	1294.12	PC EOG
7-527	566485.24	389586.54	1294.22	PT EOG
7-528	566461.81	389586.54	1294.22	EOG
7-530	566498.83	389609.21	1294.03	BEGIN SWALE CL
7-531	566469.58	389600.45	1293.81	PC SWALE CL
7-532	566437.54	389571.23	1293.49	PT SWALE CL
7-533	566418.66	389524.32	1293.13	PI SWALE CL
7-534	566398.91	389521.76	1293.0 +/-	END SWALE CL - LIMIT OF GRADING - MATCH EXISTING
7-536	566418.75	389530.84	1293.3 +/-	LIMITS OF GRADING - MATCH EXISTING
7-537	566402.52	389524.35	1293.3 +/-	LIMITS OF GRADING - MATCH EXISTING
7-538	566682.86	389477.16	1300.25	TOC
7-539	566732.86	389477.16	1300.25	TOC
7-540	566638.50	389459.09	1296.6 +/-	LIMITS OF GRADING - MATCH EXISTING
7-541	566616.18	389445.92	1296.0 +/-	LIMITS OF GRADING - MATCH EXISTING
7-542	566563.63	389454.41	1295.5 +/-	LIMITS OF GRADING - MATCH EXISTING
7-543	566536.07	389463.62	1294.9 +/-	LIMITS OF GRADING - MATCH EXISTING
7-544	566510.55	389463.59	1294.2 +/-	LIMITS OF GRADING - MATCH EXISTING
7-545	566495.81	389461.44	1293.9 +/-	LIMITS OF GRADING - MATCH EXISTING
7-546	566490.15	389459.92	1293.8 +/-	LIMITS OF GRADING - MATCH EXISTING
7-547	566473.32	389450.94	1293.5 +/-	LIMITS OF GRADING - MATCH EXISTING
7-548	566464.91	389437.04	1293.1 +/-	LIMITS OF GRADING - MATCH EXISTING
7-549	566459.55	389431.89	1292.8 +/-	LIMITS OF GRADING - MATCH EXISTING
7-550	566448.73	389439.37	1292.8 +/-	LIMITS OF GRADING - MATCH EXISTING
7-551	566440.33	389463.83	1293.1 +/-	LIMITS OF GRADING - MATCH EXISTING
7-552	566431.38	389466.02	1293.0 +/-	LIMITS OF GRADING - MATCH EXISTING
7-553	566416.30	389457.55	1292.7 +/-	LIMITS OF GRADING - MATCH EXISTING
7-554	566397.84	389436.53	1292.1 +/-	LIMITS OF GRADING - MATCH EXISTING
7-555	566397.10	389454.66	1292.1 +/-	LIMITS OF GRADING - MATCH EXISTING
7-556	566390.26	389469.34	1290.6 +/-	LIMITS OF GRADING - MATCH EXISTING
7-557	566398.99	389488.94	1292.8 +/-	LIMITS OF GRADING - MATCH EXISTING
7-558	566403.94	389492.64	1292.9 +/-	LIMITS OF GRADING - MATCH EXISTING
7-560	566664.36	389564.49	1299.95	EOG
7-561	566693.86	389564.49	1300.22	PC EOG
7-562	566718.86	389589.49	1299.28	PT EOG
7-563	566718.86	389593.16	1299.17	EOP
7-564	566718.86	389620.83	1298.38	PC EOP
7-570	566673.86	389475.49	1300.50	BEGIN GRADE BREAK
7-571	566668.50	389475.49	1300.52	PI GRADE BREAK
7-572	566651.70	389488.05	1299.60	PI GRADE BREAK
7-573	566651.70	389563.83	1299.48	END GRADE BREAK
7-575	566683.34	389636.89	1298.24	BEGIN RIDGE
7-576	566653.86	389630.83	1297.77	PC RIDGE
7-577	566554.86	389538.63	1295.64	PRC RIDGE
7-578	566536.87	389507.96	1295.09	END RIDGE
7-579	566614.12	389468.96	1295.20	PI DITCH CL
7-580	566416.29	389359.70	N/A	FENCE CORNER
7-581	566696.40	389642.57	1297.28	DITCH CL PC
8-500	566622.67	389989.07	1290.86	EOP
8-501	566600.20	389997.25	1290.8 +/-	EOP - MATCH EXISTING

CONTROL POINT TABLE

POINT NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
8-502	566585.00	389715.00	N/A	STAGING AREA CORNER
8-503	566585.00	389890.00	N/A	STAGING AREA CORNER
8-504	566424.41	389924.32	N/A	FENCE CORNER
8-505	566438.64	389931.56	N/A	FENCE CORNER
8-506	566441.29	390083.53	N/A	FENCE CORNER
8-507	566426.91	390090.15	N/A	FENCE CORNER
8-508	566710.00	389840.00	N/A	STAGING AREA CORNER
8-509	566710.00	389890.00	N/A	STAGING AREA CORNER
8-510	566668.86	389670.83	1296.5 +/-	PT EOP - MATCH EXISTING
8-511	566628.87	389670.83	1295.8 +/-	EOP - MATCH EXISTING
8-512	566662.20	389661.83	1296.01	DITCH CL PT
8-513	566467.30	389652.59	1293.9 +/-	LIMITS OF GRADING - MATCH EXISTING
8-514	566420.92	389652.59	1293.8 +/-	LIMITS OF GRADING - MATCH EXISTING
8-515	566556.25	389661.83	1294.10	DITCH CL PI
8-516	566553.10	389670.77	1294.22 +/-	EOP - MATCH EXISTING
8-517	566541.11	389658.37	1294.02	DITCH CL PI
8-518	566530.42	389656.22	1294.22 +/-	EOP - MATCH EXISTING
8-519	566536.78	566536.78	1293.11	DITCH CL PI
8-520	566527.79	389683.00	1293.68	DITCH CL PI
8-521	566518.03	389701.40	1293.10 +/-	LIMITS OF GRADING - MATCH EXISTING
8-522	566515.16	389699.73	1293.05	DITCH CL PI
8-523	566512.59	389725.63	1292.91 +/-	LIMITS OF GRADING - MATCH EXISTING
8-524	566512.99	389698.73	1293.10 +/-	LIMITS OF GRADING - MATCH EXISTING
9-501	566733.59	390214.02	1290.05	TOC
9-502	566733.59	390197.02	1290.05	TOC
9-503	566429.02	390224.69	N/A	FENCE CORNER
9-504	566464.76	390258.29	N/A	FENCE CORNER
9-505	566466.55	390374.68	N/A	FENCE CORNER
9-506	566509.56	390374.50	N/A	FENCE CORNER

LEGEND

CONTROL POINT

1-5XX

- SEQUENTIAL POINT #
- SITE PLAN AREA #

GENERAL NOTES

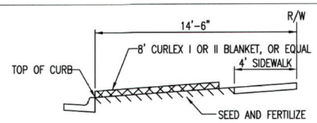
1. FOR CONTROL POINT PLAN SHEET LOCATIONS, SEE DWG 050-C-2001 THRU 050-C-2009 AND 050-C-2401 THRU 050-C-2409.

ROBERT LEE TOWNSEND LICENSED 25258 11/4/16 KANSAS PROFESSIONAL ENGINEER

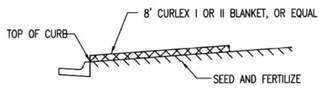
11/04/2016

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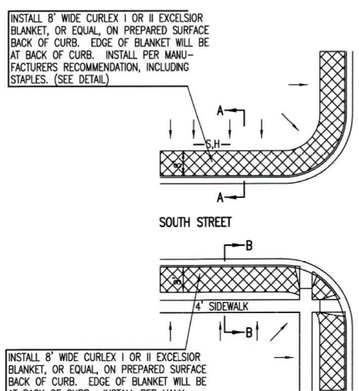
NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD



SECTION B-B



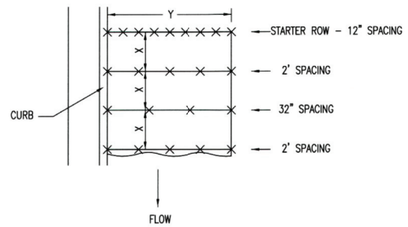
SECTION A-A

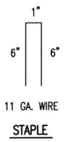


GENERAL NOTES

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

BACK OF CURB PROTECTION DETAIL



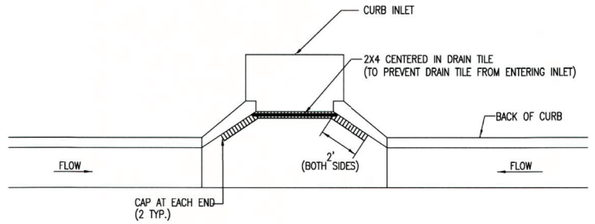


STAPLE

STAPLE PATTERN

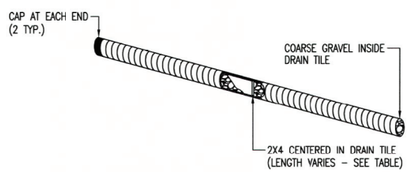
NOTES: USE 6" SEAM OVERLAP
(X & Y = RECOMMENDED BY MANUFACTURE)

DETAILS FOR APPROVED EROSION CONTROL MAT

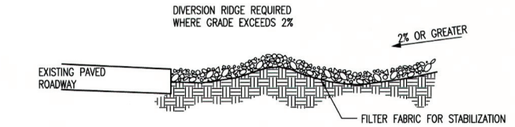


NOTE:
PLACE 4" PERFORATED PVC PIPE, FILLED WITH 1/2"-1" DIA. GRAVEL, IN FRONT OF CURB INLET AS SHOWN.

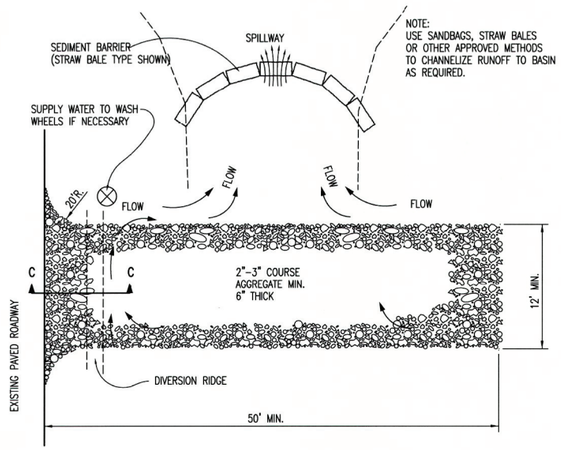
2X4 LENGTH	INLET TYPE	INLET OPENING
5'-6"	1-A	5'-0"
10'-6"	1-A	10'-0"
15'-6"	1-A	15'-0"



CURB INLET PROTECTION
4" PERFORATED PIPE W/ GRAVEL



SECTION C-C



STABILIZED CONSTRUCTION ENTRANCE

GENERAL NOTES

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

REVISION DATE: MAY 2013

GARY L. JANZEN — LICENSED — 16011 — KANSAS — PROFESSIONAL ENGINEER
05/31/13

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

BACK OF CURB PROTECTION, CURB INLET PROTECTION AND CONSTRUCTION ENTRANCE

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

SHEET

SW-501

ROBERT LEE TOWNSEND — LICENSED — 25258 — 11/4/16 — KANSAS — PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		E NEPERUD	A GORDEN	R TOWNSEND	APVD	E JOHNSON	

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REUSE OF DOCUMENTS:

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

ch2m

SITE CIVIL
CITY OF WICHITA
DETAILS 1

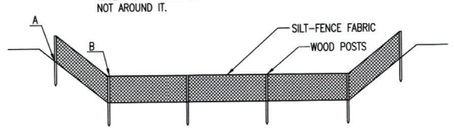
BIDDING SET

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-9001
SHEET	65 of 314

FILENAME: 050-C-9001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 7:22:57 PM

NOTE: POINT A MUST BE HIGHER THAN POINT B SO THAT WATER FLOWS OVER THE SILT FENCE FABRIC AND NOT AROUND IT.



ELEVATION

SILT FENCE DITCH CHECKS
(STREAM PROTECTION)

MATERIAL SPECIFICATION:

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

PLACEMENT:

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

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

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

PROPER INSTALLATION METHOD:

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

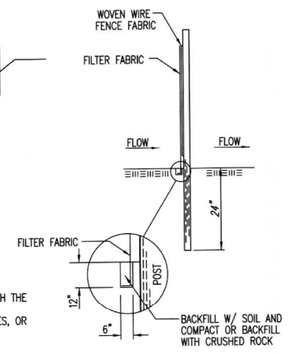
LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

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

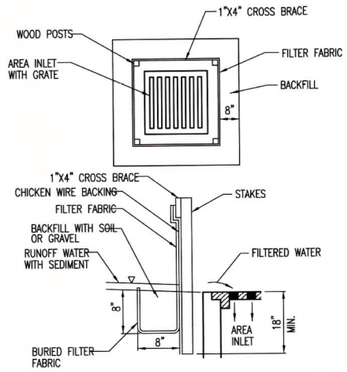
INSPECTION AND MAINTENANCE:

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

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



ANCHOR TRENCH DETAIL



SILT FENCE BARRIERS FOR AREA INLETS
(INLET PROTECTION)

MATERIAL SPECIFICATION:

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

PLACEMENT:

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

PROPER INSTALLATION METHOD:

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

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

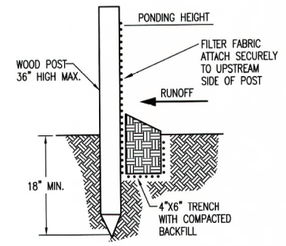
LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

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

INSPECTION AND MAINTENANCE:

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

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



SILT FENCE BARRIERS

MATERIAL SPECIFICATION:

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

PLACEMENT:

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

PROPER INSTALLATION METHOD:

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

LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

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

INSPECTION AND MAINTENANCE:

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

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

REVISION DATE: MAY 2013

GARY L. JANZEN — LICENSED — 19204 — KANSAS — PROFESSIONAL ENGINEER
01/21/13

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

SILT FENCE DITCH CHECK AND BARRIER DETAILS

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
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(316) 268-4501

SHEET

SW–502

ROBERT LEE TOWNSEND — LICENSED — 25258 — 11/4/16 — KANSAS — PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		E NEPERUD	A GORDEN	R TOWNSEND	APVD	E JOHNSON	

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ch2m

SITE CIVIL
CITY OF WICHITA
DETAILS 2

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

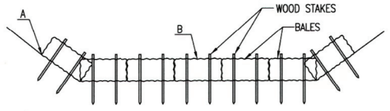
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
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SHEET	66 of 314

BIDDING SET

FILENAME: 050-C-9002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 7:23:02 PM

NOTE: POINT A MUST BE HIGHER THAN POINT B
SO THAT WATER FLOWS OVER THE BALES AND
NOT AROUND THEM.



STRAW BALE DITCH CHECKS

MATERIAL SPECIFICATION:

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

PLACEMENT:

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

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

PROPER INSTALLATION METHOD:

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

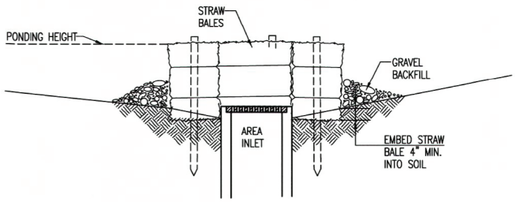
LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

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

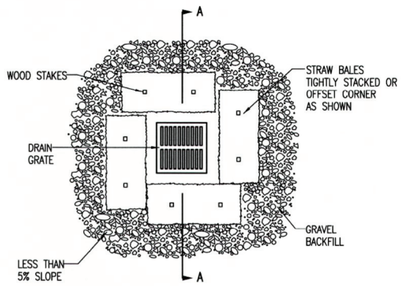
INSPECTION AND MAINTENANCE:

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

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



SECTION A-A



STRAW BALE BARRIERS FOR AREA INLETS
(INLET PROTECTION)

MATERIAL SPECIFICATION:

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

PLACEMENT:

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

PROPER INSTALLATION METHOD:

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

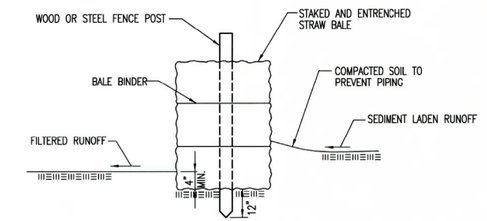
LIST OF COMMON PLACEMENT INSTALLATION MISTAKES TO AVOID:

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

INSPECTION AND MAINTENANCE:

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

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



STRAW BALE BARRIERS

MATERIAL SPECIFICATION:

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

PLACEMENT:

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

PROPER INSTALLATION METHOD:

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

LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

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

INSPECTION AND MAINTENANCE:

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

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

REVISION DATE: MAY 2013

ROBERT LEE TOWNSEND LICENSED 25258 11/4/16 KANSAS PROFESSIONAL ENGINEER

GARY L. JANZEN LICENSED 19294 05/24/13 KANSAS PROFESSIONAL ENGINEER

CITY OF WICHITA
PUBLIC WORKS & UTILITIES ENGINEERING DIVISION

STRAW BALE DITCH CHECK AND BARRIER DETAILS

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE

SHEET

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

SW-503

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
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PHASE II 6 MGD EXPANSION
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DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

SITE CIVIL
CITY OF WICHITA
DETAILS 3

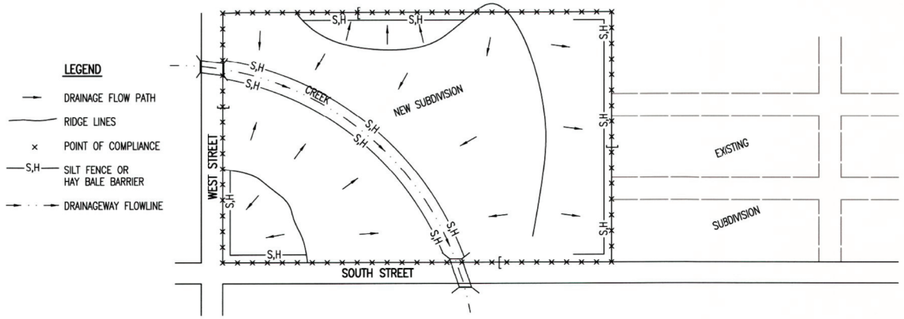
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
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DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-9003
SHEET	67 of 314

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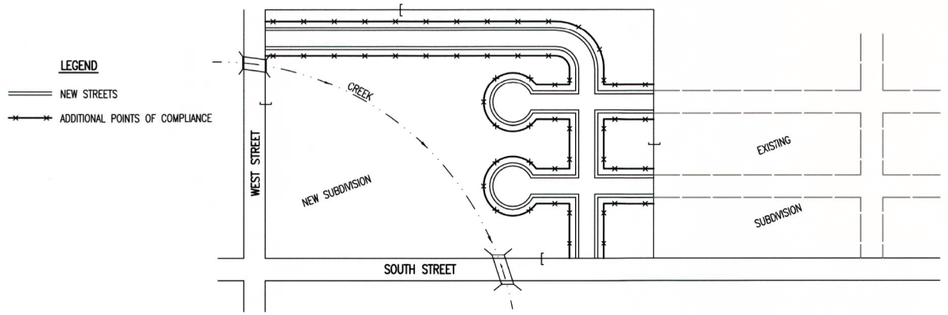
FILENAME: 050-C-9003_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 7:22:59 PM

PHASE 1 – INITIAL EARTHWORK AND UTILITIES (EXCEPT STORM SEWER)



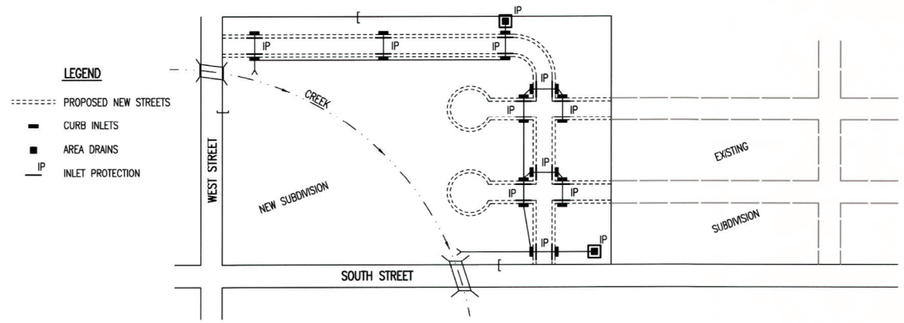
1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, THE POINTS OF COMPLIANCE ARE THE PERIMETER BOUNDARIES AND ANY DRAINAGE WAYS OR STORM SEWERS DRAINING THROUGH OR FROM THE SITE. SHOULD LAKES BE CONSTRUCTED WITHIN THE SUBDIVISION THAT WILL DISCHARGE DURING STORMS, THEY ARE ALSO A POINT OF COMPLIANCE.
2. HAY BALES OR SILT FENCE MUST BE CONSTRUCTED ALONG THE PROPERTY LINE WHERE ON SITE WATER CAN DRAIN OFF THE PROPERTY. THESE EROSION CONTROL DEVICES WILL ALSO BE INSTALLED ALONG ANY DRAINAGE DITCH OR LAKE THAT CAN DISCHARGE.
3. SHOULD SILT OR SEDIMENT ENTER THE DITCHES OR STREETS ON THE ADJACENT BOUNDARY STREETS, APPROPRIATE EROSION CONTROL DEVICES WILL BE PLACED WITHIN THE SUBDIVISION TO PREVENT THIS.
4. ANY MUD TRACKED ONTO ADJACENT STREETS WILL BE REMOVED WITHIN 48 HOURS OR BY FRIDAY AT 6:00 PM, WHICHEVER IS EARLIER.
5. CONTRACTORS WORKING WITHIN THE SITE WILL NOT BE REQUIRED TO USE INDIVIDUAL EROSION CONTROL DEVICES AS LONG AS THOSE SPECIFIED ABOVE ARE IN PLACE AND EFFECTIVE. CONTRACTORS WORKING ON THE BOUNDARY LINE STREETS OR ON ADJACENT PROPERTIES TO EXTEND UTILITIES ARE EXPECTED TO USE EROSION CONTROL DEVICES AT THEIR WORK LOCATIONS, AS NEEDED.
6. UTILIZE STABILIZED CONSTRUCTION ENTRANCE AT ENTRANCE AND EXIT ONTO ANY EXISTING PUBLIC STREETS.
7. IF THE INITIAL EARTH WORK AND UTILITIES ARE DONE AS PART OF A PUBLIC IMPROVEMENT PROJECT, THESE EROSION CONTROL DEVICES WILL BE INSTALLED BY THE CONTRACTOR AS SPECIFIED IN THE INDIVIDUAL PROJECT CONTRACTS. THE CONTRACTOR WILL MAINTAIN THE DEVICES UNTIL COMPLETION OF THE CONTRACT, AT WHICH TIME THE DEVELOPER WILL ASSUME MAINTENANCE RESPONSIBILITIES. IF THESE CONTRACTS ARE NOT PUBLIC IMPROVEMENT PROJECTS, THE DEVELOPER WILL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING THESE DEVICES.
8. WITHIN 14 DAYS OF COMPLETION OF EARTHWORK ACTIVITIES IN ANY GIVEN AREA, THAT AREA SHALL BE TEMPORARILY OR PERMANENTLY SEEDED AND MULCHED.

PHASE 3 – STREET CONSTRUCTION



1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, NEW STREETS ARE INSTALLED. ALL EROSION CONTROL DEVICES INSTALLED DURING PHASE 1 AND 2 MUST STILL BE MAINTAINED. THE POINT OF COMPLIANCE NOW SHIFTS TO THE BACK OF CURB ALONG EACH STREET.
2. CURB OPENING INLET PROTECTION:
   A. SUMP AREAS – INLET PROTECTION SHALL BE PROVIDED WHEN STREET SUBGRADE WORK IS COMPLETED.
   B. NON–SUMP LOCATIONS – PROVIDE INLET PROTECTION AS SOON AS BASE COURSE ASPHALT IS INSTALLED, BEFORE THE SURFACE COURSE LIFT.
3. EROSION CONTROL DEVICES WILL BE REQUIRED BACK OF CURB WHEREVER WATER CAN FLOW OVER THE CURB AND THE CURB HAS BEEN BACKFILLED TO WITHIN 3" OR LESS OF THE TOP OF CURB (SEE CURB BACKFILL DETAIL). FOR CURBS NOT YET ENTIRELY BACKFILLED (3" OR MORE BELOW TOP OF CURB), ADDITIONAL DEVICES WILL BE REQUIRED AT POINTS WHERE WATER BREAKS OVER CURB WHICH COULD RESULT IN THE PLACEMENT OF SEDIMENT IN THE GUTTER.
4. SEE DETAIL SHEET FOR BACK OF CURB PROTECTION.
5. THE BACK OF CURB PROTECTION SPECIFIED ON THIS PLAN MAY HAVE TO BE SUPPLEMENTED WITH HAY BALE OR SILT FENCE EROSION CONTROL DEVICES AT LOCATIONS WHERE CONCENTRATED FLOW RESULTS IN SEDIMENT BEING CARRIED OVER THE EXCELSIOR MATS.
6. THE STREET CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING BACK OF CURB EROSION CONTROL DEVICES.
7. THE INDIVIDUAL LOT OWNERS WILL BE RESPONSIBLE FOR MAINTAINING THE BACK OF CURB EROSION CONTROL DEVICES IN FRONT OF THEIR LOTS UNTIL SUCH TIME AS ADJACENT DISTURBED EARTH IS STABILIZED WITH GRASS OR SOD.

PHASE 2 – INSTALLATION OF STORM SEWER

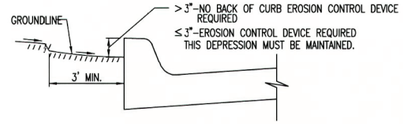


1. DURING THIS PHASE OF SUBDIVISION DEVELOPMENT, ALL EROSION CONTROL DEVICES REQUIRED IN PHASE 1 SHALL REMAIN IN PLACE AND BE MAINTAINED.
2. AS NEW STORM SEWERS, WITH INLETS, ARE INSTALLED, THE STORM SEWERS MUST NOW BE PROTECTED SO ALL NEW INLETS BECOME POINTS OF COMPLIANCE.
3. AREA DRAINS – AS SOON AS WATER CAN FLOW INTO THESE DRAINS, HAY BALE OR SILT FENCE PROTECTION WILL BE INSTALLED AROUND THEM.
4. CURB OPENING INLETS – AS SOON AS WATER CAN FLOW INTO THESE DRAINS, INLET PROTECTION DEVICES MUST BE INSTALLED. IF WATER CANNOT FLOW INTO CURB INLETS UNTIL STREET CONSTRUCTION IS COMPLETE, THEN STREET CONTRACTOR WILL INSTALL INLET PROTECTION. SEE PHASE 3 – STREET CONSTRUCTION.
5. THE STORM SEWER CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING THESE DEVICES.
6. THE SUBDIVISION DEVELOPER WILL MAINTAIN THESE EROSION CONTROL DEVICES ONCE INSTALLED.
7. ALL DISTURBED GROUND WILL BE FINAL GRADED AND TEMPORARILY OR PERMANENTLY SEEDED WITHIN 14 DAYS IF COMPLETION OF WORK IN ANY GIVEN PART OF THE SUBDIVISION.
8. ONCE ALL DISTURBED GROUND DRAINING TO AN INLET HAS BEEN RESTABILIZED WITH GRASS OR SOD, THE SUBDIVISION DEVELOPER WILL BE RESPONSIBLE FOR PERMANENTLY REMOVING THE INLET PROTECTON.

GENERAL NOTES

1. THE INTENT OF ALL EROSION CONTROL DEVICES IS TO PREVENT ERODED SOIL FROM ENTERING DITCHES, STORM SEWERS, LAKES, STREETS OR ANY OTHER OTHER DRAINAGE FEATURE.
2. THIS SHEET IS INTENDED TO PROVIDE GUIDELINES AS TO WHAT TYPE OF EROSION CONTROL DEVICES WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS. CONTRACTORS ARE EXPECTED TO BID PROJECTS ACCORDINGLY.
3. EROSION CONTROL DEVICES SHALL BE MAINTAINED DURING THE CONSTRUCTION PROCESS TO REMAIN EFFECTIVE. MAINTENANCE SHALL BE AS INDICATED ON SOIL EROSION BMP'S DETAIL SHEETS.
4. PERSONS DESTROYING EROSION CONTROL DEVICES SHALL BE RESPONSIBLE FOR IMMEDIATELY REPAIRING THEM OR INSTALLING SUITABLE REPLACEMENT DEVICES.
5. THE DEVELOPMENT OF ANY SUBDIVISION THAT DISTURBS 1 ACRE OR MORE WILL REQUIRE A FEDERAL/STATE NPDES STORMWATER PERMIT. THE PREPARATION OF A STORMWATER POLLUTION PREVENTION PLAN IS REQUIRED. EROSION CONTROL DEVICES ARE REQUIRED. THE DETAILS SHOWN ON THIS SHEET ARE THE MINIMUM STANDARDS TO BE SHOWN ON POLLUTION PREVENTION PLANS.
6. FOR SUBDIVISIONS SMALLER THAN 1 ACRE, SOIL EROSION DEVICES ARE REQUIRED. ALSO, DEVELOPERS AND CONTRACTORS ARE ENCOURAGED TO DEVELOP POLLUTION PREVENTION PLANS FOR EACH PROJECT PRIOR TO CONSTRUCTION.
7. FAILURE TO USE AND MAINTAIN SOIL EROSION DEVICES IS A VIOLATION OF SECTION 16.32 OF THE CITY CODE AND WILL SUBJECT THE SUBDIVISION DEVELOPER AND CONTRACTORS TO THE PENALTIES PROVIDED THEREIN.
8. THE APPLICATION OF EROSION CONTROL DEVICES SHOWN ON THIS SHEET IS FOR SITUATIONS NORMALLY ENCOUNTERED. FROM TIME TO TIME, SITUATIONS WILL ARISE THAT MAY REQUIRE DEVICES OTHER THAN THAT SHOWN. EROSION CONTROL DEVICES, OTHER THAN THOSE SHOWN, MAY BE UTILIZED SO LONG AS THEY ARE EFFECTIVE AND MAINTAINED.
9. A STABILIZED EARTH SURFACE IS DEFINED AS ONE THAT IS HARD SURFACED WITH CONCRETE, ASPHALT, OR THE LIKE, OR ONE ON WHICH 70% OF THE GRASS HAS GERMINATED ON THE ENTIRE SURFACE.

SEE DETAIL SHEET FOR BACK OF CURB PROTECTION DETAIL



CURB BACKFILL DETAIL (STREET CONSTRUCTION ONLY)

THIS IS A TEMPORARY MEASURE ONLY, WHEN APPROVED BY THE PROJECT ENGINEER. THE DIRT GRADE BEHIND THE CURB SHALL BE BROUGHT TO THE TOP OF CURB, WITH TEMPORARY EROSION CONTROL MAT OR PERMANENT VEGETATION PLACED, PRIOR TO THE COMPLETION OF ALL PROJECTS.

REVISION DATE: MAY 2013

GARY L. JANZEN LICENSED 16294 PROFESSIONAL ENGINEER KANSAS 05/13/13

CITY OF WICHITA
PUBLIC WORKS & UTILITIES ENGINEERING DIVISION

SUBDIVISION DEVELOPMENT PROCESS

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE

CITY ENGINEER'S OFFICE
CITY HALL –SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

SHEET

SW–505

ROBERT LEE TOWNSEND LICENSED 25258 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DR	CHK	APVD	BY	REVISION
DSGN	E NEPERUD	A GORDEN	R TOWNSEND	APVD	E JOHNSON	

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

ch2m

SITE CIVIL
CITY OF WICHITA
DETAILS 4

BIDDING SET

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	050-C-9004
SHEET	68 of 314

FILENAME: 050-C-9004_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 7:23:53 PM

FACILITY LEGEND

100. EXST WET WEATHER PUMP STATION
105. INFLUENT PUMP STATION
107. INFLUENT PUMP STATION VALVE VAULT
110. SCREENING FACILITY
120. EXST GRIT BUILDING
140. EXST AERATION BASIN
145. BIOREACTOR SPLITTER BOX
BIOREACTOR FACILITY
150. EXST FINAL CLARIFIER
155. CLARIFIER
170. FERRIC CHLORIDE FACILITY STORAGE TANK
EXST FERRIC CHLORIDE FACILITY PUMP BUILDING
210. UV DISINFECTION FACILITY
270. ODOR CONTROL FACILITY
300. EXST SLUDGE PUMP STATION
350. EXST DEWATERING AND LOADOUT
400. EXST LABORATORY FACILITY

BROOKHAVEN DRIVE
SITE PLAN AREA 1 NOT USED
SITE PLAN AREA 2 NOT USED
SITE PLAN AREA 3
SEE 051-Y-1003 AND 051-Y-2003
FUTURE
FUTURE NO. 5
SITE PLAN AREA 4
SEE 051-Y-1004 AND 051-Y-2004
DIGESTER NO. 1
DIGESTER NO. 2
NO. 4
NO. 3
SITE PLAN AREA 6
SEE 051-Y-1006 AND 051-Y-2006
EXST SLUDGE THICKENER
EXST FINAL CLARIFIER
SITE PLAN AREA 5
SEE 051-Y-1005 AND 051-Y-2005
EXST DISINFECTION BASIN
SITE PLAN AREA 7
SEE 051-Y-1007 AND 051-Y-2007
SITE PLAN AREA 8
SEE 051-Y-1008 AND 051-Y-2008
SITE PLAN AREA 9
SEE 051-Y-1009 AND 051-Y-2009
HARRY STREET
FOUR MILE CREEK
SD
KNW

N

0 100 200 300
Scale In Feet

ESTELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		A ESPOSITO	S MILLER	T STOUT	APVD	E JOHNSON	

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

ch2m

YARD PIPING

YARD PIPING KEY MAP

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-1000
SHEET	69 of 314

BIDDING SET

FILENAME: 051-Y-1000_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 10:28:59 AM

GENERAL NOTES

1. BACKGROUND INFORMATION SHOWN IS BASED ON A MIX OF AS-BUILT AND SURVEY INFORMATION AND IS APPROXIMATE. VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES.
2. ABANDONING AND DEMOLITION OF EXISTING LINES AND MANHOLES TO CONFORM TO CITY OF WICHITA STANDARDS PART 800.

Top Elev = 1290.97
E 21" (N): 1273.00
E 21" (S): 1273.00

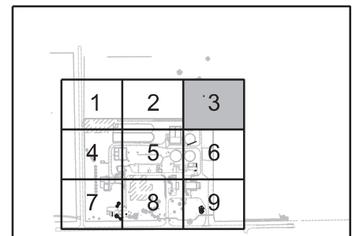
REMOVE 10' +/- OF EXST 24" RS SOUTH OF PROPOSED MH111, SEE DWG 051-Y-6001 FOR MANHOLE LOCATION

ABANDON EXST 24" RS

DEMO EXST TREE

SITE FENCE

MATCHLINE, SEE DWG 051-Y-1006



KEYMAP

N

0 20 40 60

Scale In Feet

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15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	BY	APVD
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PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

YARD PIPING
DEMO YARD PIPING
SITE PLAN AREA 3

BIDDING SET

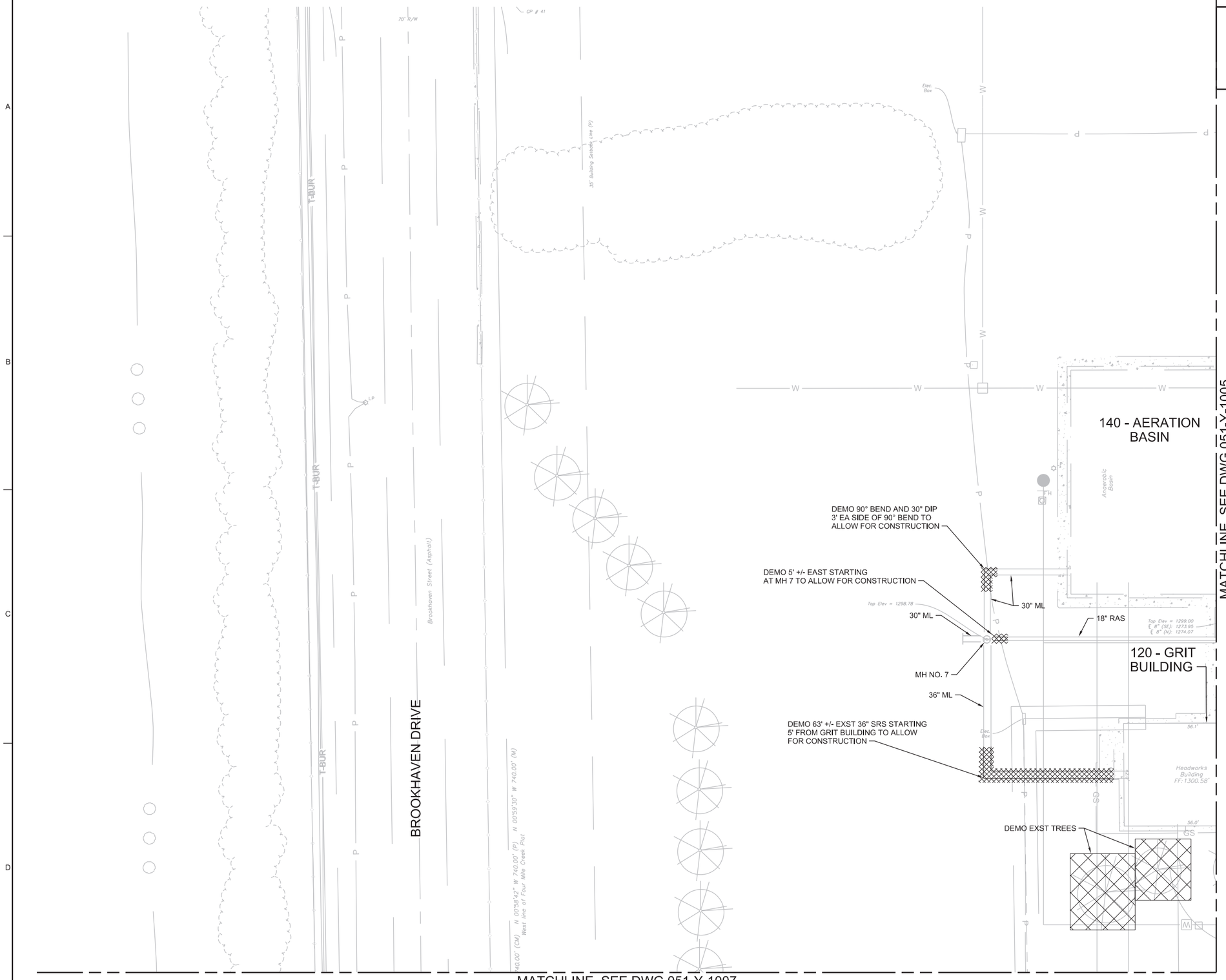
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

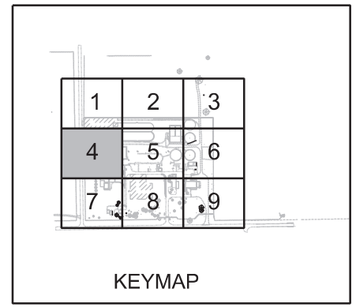
DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-1003
SHEET	70 of 314

FILENAME: 051-Y-1003_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 10:30:31 AM

GENERAL NOTES

1. BACKGROUND INFORMATION SHOWN IS BASED ON A MIX OF AS-BUILT AND SURVEY INFORMATION AND IS APPROXIMATE. VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES.
2. ABANDONING AND DEMOLITION OF EXISTING LINES AND MANHOLES TO CONFORM TO CITY OF WICHITA STANDARDS PART 800.





N

0 20 40 60
Scale In Feet

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11/4/16
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11/04/2016

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

YARD PIPING
DEMO YARD PIPING SITE PLAN AREA 4

BIDDING SET

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-1004
SHEET	71 of 314

FILENAME: 051-Y-1004_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 10:31:51 AM

MATCHLINE, SEE DWG 051-Y-1002

MATCHLINE, SEE DWG 051-Y-1004

MATCHLINE, SEE DWG 051-Y-1006

MATCHLINE, SEE DWG 051-Y-1008

GENERAL NOTES

1. BACKGROUND INFORMATION SHOWN IS BASED ON A MIX OF AS-BUILT AND SURVEY INFORMATION AND IS APPROXIMATE. VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES.
2. ABANDONING AND DEMOLITION OF EXISTING LINES AND MANHOLES TO CONFORM TO CITY OF WICHITA STANDARDS PART 800.

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PROFESSIONAL ENGINEER

11/04/2016

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DIGESTER NO. 1

DIGESTER NO. 2

300-SLUDGE PUMP STATION

EXST 24" NRCY TO REMAIN

REMOVE 25' OF 24" NRCY

EXST 18" RAS TO REMAIN

REMOVE 25' OF 18" RAS

140-ANOXIC BASIN

140-AERATION BASIN

150-FINAL CLARIFIER

SLUDGE THICKENER

FINAL CLARIFIER

DISINFECTION BASIN

REMOVE 5'+/- OF 24" SEFF TO ALLOW FOR CONNECTION

REMOVE 8" 45° BEND AND 8" SC PIPE TO CONNECTION POINT NORTH AS SHOWN

Sludge Pump Station FF: 1299.29

Solids Recirculation Pump Sta: FF: 1296.23'

Asphalt Drive

Asphalt Parking

Concrete Pavement

13"x18" HERCP Storm Pipe

PARCEL 2 Four Mile Creek Addition Sedgwick County, Lot 1, Block

**UNKNOWN ORIGIN

No As-Built was NOT located in field

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

YARD PIPING

DEMO YARD PIPING
SITE PLAN AREA 5

KEYMAP

1 2 3
4 5 6
7 8 9

N

0 20 40 60
Scale In Feet

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-1005
SHEET	72 of 314

BIDDING SET

FILENAME: 051-Y-1005_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 10:33:40 AM

MATCHLINE SEE DWG 051-Y-1003

MATCHLINE, SEE DWG 051-Y-1005

MATCHLINE SEE DWG 051-Y-1009

EXST 3" W3

EXST 10" D TO REMAIN

DEMO 130' +/- EXST GAS

DEMO 75' +/- 12" SS SOUTHWEST MH 2 TO 5' EAST OF MH 108. SEE DWG 051-Y-6001 FOR LOCATION OF MH 108

MH NO. 2

START GAS DEMO
N 567037.1 +/-
E 390267.4 +/-

MH NO. 3

START DEMO OF ABANDON 3" W3
N 566979.9 +/-
E 390162.9 +/-

EXST 2" W1

DEMO 152' +/- EXST 3" ABANDONED W3

START DEMO 24" RS
N 566876.6 +/-
E 390239.8 +/-

DEMO 70' +/- 3" W2

DEMO 34' +/- 24" RS

DEMO 10" RS FROM EXST MH 4 TO NEW MH 106 SEE DWG 01-Y-2006

DISINFECTION BASIN

DEMO MH NO. 4, SEE DWGS 051-Y-2006 AND 051-Y-6001

PROPERTY BOUNDARY

GENERAL NOTES

1. BACKGROUND INFORMATION SHOWN IS BASED ON A MIX OF AS-BUILT AND SURVEY INFORMATION AND IS APPROXIMATE. VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES.
2. ABANDONING AND DEMOLITION OF EXISTING LINES AND MANHOLES TO CONFORM TO CITY OF WICHITA STANDARDS PART 800.

KEYMAP

N

0 20 40 60
Scale In Feet

ESTELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	BY	APVD
DSGN	A ESPOSITO	DR	S MILLER	CHK	T STOUT	APVD	E JOHNSON

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

YARD PIPING

DEMO YARD PIPING SITE PLAN AREA 6

BIDDING SET

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-1006
SHEET	73 of 314

FILENAME: 051-Y-1006_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 10:34:44 AM

GENERAL NOTES

1. BACKGROUND INFORMATION SHOWN IS BASED ON A MIX OF AS-BUILT AND SURVEY INFORMATION AND IS APPROXIMATE. VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES.
2. ABANDONING AND DEMOLITION OF EXISTING LINES AND MANHOLES TO CONFORM TO CITY OF WICHITA STANDARDS PART 800.

MATCHLINE, SEE DWG 051-Y-1004

MATCHLINE, SEE DWG 051-Y-1008

BROOKHAVEN DRIVE

HARRY STREET

EXST ELECTRIC EASEMENT

DEMO EXST TREE

DEMO 80' +/- BURIED ELECTRIC FROM 35' SETBACK TO THE NORTH

EXST 16" SSFM/OF

DEMO 20' +/- OF 18" SSFM STARTING 5' OUTSIDE WET WEATHER P.S.

100 - WET WEATHER PUMP STATION

PROPERTY BOUNDARY, TYP

35' BUILDING SETBACK

EXST 42" RS

START BURIED ELECTRIC DEMO
N 566453.5 +/-
E 389573.2 +/-

SITE FENCE

DEMO EXST TREES

KEYMAP

N

0 20 40 60
Scale In Feet

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15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	BY
DSGN	A ESPOSITO	DR S MILLER	CHK T STOUT	APVD E JOHNSON

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

YARD PIPING

DEMO YARD PIPING SITE PLAN AREA 7

BIDDING SET

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-1007
SHEET	74 of 314

FILENAME: 051-Y-1007_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 10:37:13 AM

MATCHLINE, SEE DWG 051-Y-1005

MATCHLINE, SEE DWG 051-Y-1007

MATCHLINE, SEE DWG 051-Y-1009

ASPHALT DRIVE

ASPHALT DRIVE

HARRY STREET

400 - LABORATORY FACILITY

Sludge Processing Building FF: 1293.08'

Water line was NOT located in field

EXST 1 1/2" W1

EXST 12" RS

EXST GAS

EXST 6" W1

EXST 12" CMP

EXST 8" RS

EXST BURIED TELEPHONE

DEMO EXST 24" RS TO ALLOW FOR NEW MH TO BE INSTALLED

EXST MH NO. 6, SEE DWG 051-Y-6001

DEMO EXST TREES

DEMO EXST TREES

EXST 24' RS

EXST METER

PLANT MAIN ENTRANCE

Elec. Vault

AT&T

GENERAL NOTES

1. BACKGROUND INFORMATION SHOWN IS BASED ON A MIX OF AS-BUILT AND SURVEY INFORMATION AND IS APPROXIMATE. VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES.
2. ABANDONING AND DEMOLITION OF EXISTING LINES AND MANHOLES TO CONFORM TO CITY OF WICHITA STANDARDS PART 800.

KEYMAP

1 2 3 4 5 6 7 8 9

N

0 20 40 60
Scale In Feet

ESTELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	CHK	APVD	BY	APVD
DSGN	A ESPOSITO	DR	S MILLER	T STOUT	E JOHNSON	

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

YARD PIPING
DEMO YARD PIPING
SITE PLAN AREA 8

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-1008
SHEET	75 of 314

BIDDING SET

FILENAME: 051-Y-1008_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 10:38:33 AM

MATCHLINE, SEE DWG 051-Y-2006

MATCHLINE, SEE DWG 051-Y-1008

350 - DEWATERING AND LOADOUT

ASPHALT DRIVE

GRAVEL DRIVE

HARRY STREET

EXST 6" DS

EXST GAS

MH NO. 5

EXST 15" SD
SEE DWG 050-C-2409

EXST GAS

DEMO EXST TREES

EXST 24" RS

EXST SITE FENCE

Zone X

Zone AE
1% Chance Hazard

15" RCP Storm Pipe

15" CMP Storm Pipe (2x)

Elec. Box

SIGN

KEYMAP

1 2 3
4 5 6
7 8 9

N

0 20 40 60
Scale In Feet

GENERAL NOTES

1. BACKGROUND INFORMATION SHOWN IS BASED ON A MIX OF AS-BUILT AND SURVEY INFORMATION AND IS APPROXIMATE. VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES.
2. ABANDONING AND DEMOLITION OF EXISTING LINES AND MANHOLES TO CONFORM TO CITY OF WICHITA STANDARDS PART 800.

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15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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DSGN	A ESPOSITO		S MILLER		T STOUT		E JOHNSON

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

YARD PIPING

DEMO YARD PIPING SITE PLAN AREA 9

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

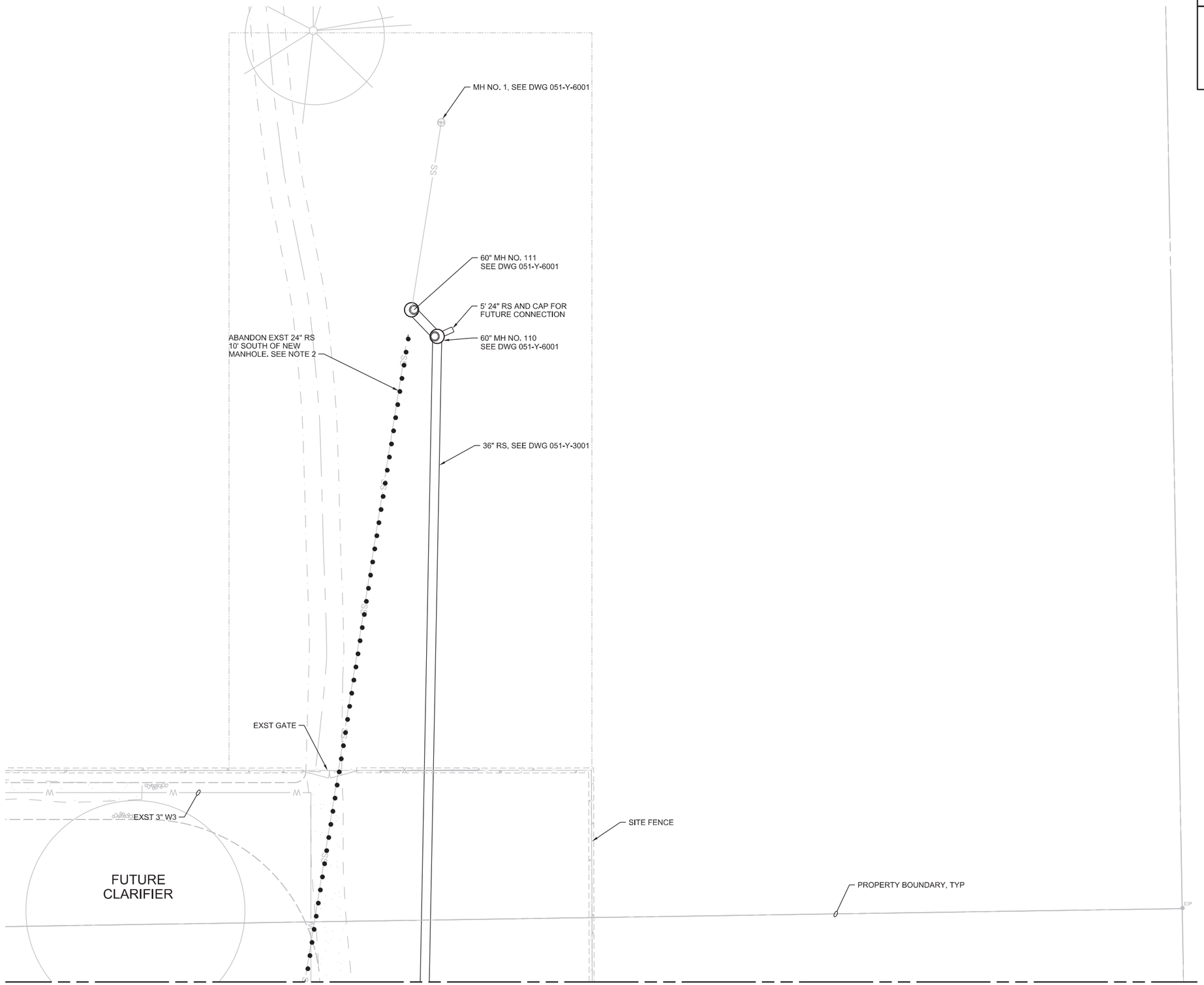
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PROJ	496312
DWG	051-Y-1009
SHEET	76 of 314

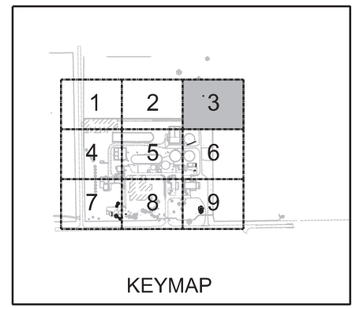
BIDDING SET

FILENAME: 051-Y-1009_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 10:39:37 AM

GENERAL NOTES

1. BACKGROUND INFORMATION SHOWN IS BASED ON A MIX OF AS-BUILT AND SURVEY INFORMATION AND IS APPROXIMATE. VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES.
2. ABANDONING AND DEMOLITION OF EXISTING LINES AND MANHOLES TO CONFORM TO CITY OF WICHITA STANDARDS PART 800.





KEYMAP

N

0 20 40 60

Scale In Feet

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15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	CHK	APVD	BY	APVD
DSGN	A ESPOSITO	DR	S MILLER	T STOUT		E JOHNSON

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REUSE OF DOCUMENTS:

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

YARD PIPING
YARD PIPING
SITE PLAN AREA 3

BIDDING SET

VERIFY SCALE

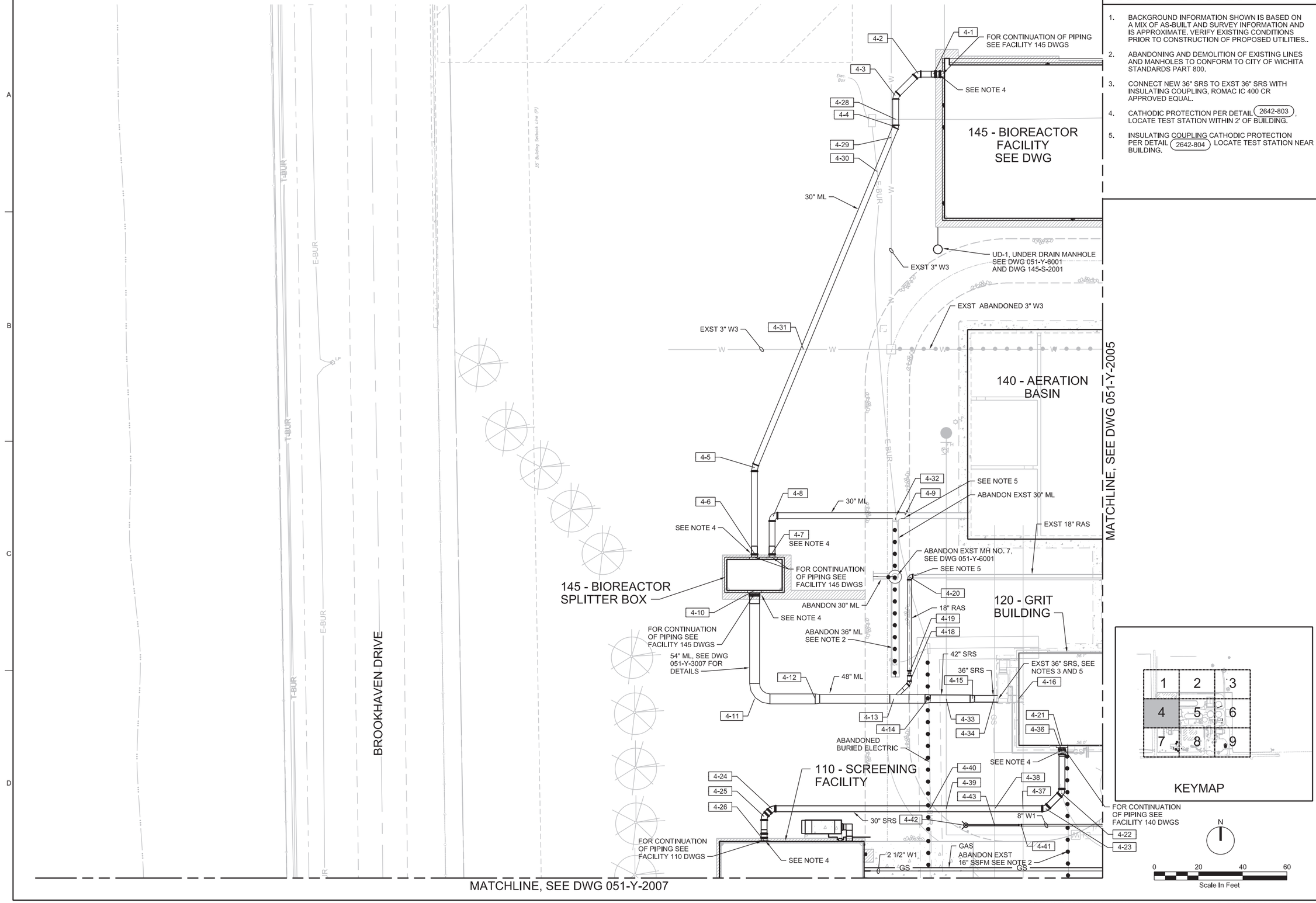
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-2003
SHEET	77 of 314

FILENAME: 051-Y-2003_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 10:41:09 AM

GENERAL NOTES

1. BACKGROUND INFORMATION SHOWN IS BASED ON A MIX OF AS-BUILT AND SURVEY INFORMATION AND IS APPROXIMATE. VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES..
2. ABANDONING AND DEMOLITION OF EXISTING LINES AND MANHOLES TO CONFORM TO CITY OF WICHITA STANDARDS PART 800.
3. CONNECT NEW 36" SRS TO EXST 36" SRS WITH INSULATING COUPLING, ROMAC IC 400 CR APPROVED EQUAL.
4. CATHODIC PROTECTION PER DETAIL (2642-803), LOCATE TEST STATION WITHIN 2' OF BUILDING.
5. INSULATING COUPLING CATHODIC PROTECTION PER DETAIL (2642-804) LOCATE TEST STATION NEAR BUILDING.



STELL JO JOHNSON
15411
11/4/16
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11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
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PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

YARD PIPING
YARD PIPING
SITE PLAN AREA 4

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-2004
SHEET	78 of 314

BIDDING SET

FILENAME: 051-Y-2004_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 10:43:26 AM

GENERAL NOTES

1. BACKGROUND INFORMATION SHOWN IS BASED ON A MIX OF AS-BUILT AND SURVEY INFORMATION AND IS APPROXIMATE. VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES.
2. NOT USED
3. WET TAP 1" SERVICE LINE AND FIELD ROUTE TO 170 - FERRIC CHLORIDE FACILITY - PUMP BUILDING.
4. 2, 1/2" FC IN 1" CARRIER PIPE ROUTED IN SAME TRENCH.
5. CONTRACTOR TO PROVIDE SUBMITTAL FOR APPROVAL. WATER YARD HYDRANT SHALL BE:
   - A. ECLIPSE NO. 2 POST HYDRANT AS MANUFACTURED BY JOHN C. KUPFERLE FOUNDRY COMPANY, OR APPROVED EQUAL.
   - B. HYDRANTS SHALL BE SELF-DRAINING, NON-FREEZE, COMPRESSION TYPE WITH 2-3/16" MAIN VALVE OPENING. INLET CONNECTION SHALL BE 3" MJ. OUTLET SHALL BE 2-1/2" NST.
   - C. HYDRANT SHALL HAVE A 3" DUCTILE IRON PIPE RISER WITH A CAST IRON TOP STOCK, AND NONTURNING OPERATING ROD. PRINCIPAL INTERIOR OPERATING PARTS SHALL BE BRASS AND REMOVABLE FROM THE HYDRANT FOR SERVICING WITHOUT EXCAVATING THE HYDRANT.
   - D. EACH HYDRANT SHALL BE SUPPLIED WITH AN OPERATING WRENCH SIZED TO MATCH THE OPERATING NUT.
   - E. HYDRANT SHALL BE SET IN 4 CUBIC FEET OF CRUSHED STONE TO ALLOW FOR PROPER DRAINAGE OF THE HYDRANT.
6. CATHODIC PROTECTION PER DETAIL 2642-803, LOCATE TEST STATION WITHIN 2 FEET OF BUILDING.

FUTURE BIOREACTOR

145 - BIOREACTOR FACILITY

300 - SLUDGE PUMP STATION

140 - ANOXIC BASIN

140 - AERATION BASIN

150 - FINAL CLARIFIER

170 - FERRIC CHLORIDE FACILITY - PUMP BUILDING

170 - FERRIC CHLORIDE FACILITY - STORAGE TANK

120 - GRIT BUILDING

SLUDGE THICKENER

FINAL CLARIFIER

DISINFECTION BASIN

MATCHLINE, SEE DWG 051-Y-2004

MATCHLINE SEE DWG 051-Y-2006

MATCHLINE, SEE DWG 051-Y-2008

YARD HYDRANT, SEE NOTE 5

3" W1

ENLARGED PLAN, SEE DWG 051-Y-4001

FOR CONTINUATION OF PIPING SEE FACILITY 145 DWGS

UD-2, UNDER DRAIN MANHOLE SEE DWG 051-Y-6001 AND DWG 145-S-2001

UD-3, UNDER DRAIN MANHOLE SEE DWG 051-Y-6001 AND DWG 145-S-2001

SEE NOTE 6

5-13, 5-14, 5-25, 5-26, 5-27, 5-52, 5-53, 5-54, 5-55, 5-56, 5-57, 5-58, 5-59, 5-60, 5-62, 5-63, 5-64, 5-73, 5-74, 5-76, 5-77, 5-78, 5-1, 5-2, 5-3, 5-4, 5-5, 5-6, 5-7, 5-19, 5-20

30" ML

36" ML

30" ML (NRCY)

1/2" FC IN 1" CARRIER

EXST ABANDONED 3" W3

EXST 24" ML (NRCY)

EXST 18" RAS

EXST 3" W1

EXST 48" ML/D

1 051-Y-4002

EXST 10" RAS

EXST 8" RAS

EXST 10" D

12" RAS

8" TF

3" W1

EXST 42" ML

8" SSM

30" ML

EXST 36" ML

EXST 8" D

EXST 24" ML

30" SEFF

EXST 8" SEFF

36" SEFF

1/2" FC IN 1" CARRIER (2) SEE NOTE 4

CP PER 2642-825

ABANDON EXST 24" SEFF, 3' SOUTH OF NEW TEE

FOR CONTINUATION OF PIPING SEE FACILITY170 DRAWINGS

FIELD FIT PVC DRAIN FROM FERRIC PUMP BUILDING TO FERRIC STORAGE TANK

1 1/2" W1

1 1/2" TAP SADDLE WITH CORP STOP SEE NOTE 3

1 1/2" 90° BEND

1 1/2" VALVE

1" GAS LINE

EXST 6" W1

SALVAGE EXST FIRE HYD TO BE RELOCATED

1 1/2" GAS LINE

2 1/2" SADDLE WITH CORP STOP

2 1/2" W1

8" W1

KEYMAP

1 2 3 4 5 6 7 8 9

N

0 20 40 60

Scale In Feet

FILENAME: 051-Y-2005_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 10:46:08 AM

ESTELL JO JOHNSON 15411 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	REVISION	BY	CHK	APVD
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PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

YARD PIPING

YARD PIPING
SITE PLAN AREA 5

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-2005
SHEET	79 of 314

BIDDING SET

MATCHLINE, SEE DWG 051-Y-2003

UD-4, UNDER DRAIN MANHOLE, TYP. OF 3 SEE DWG 051-Y-6001 AND DWG 145-S-2001

FOR ENLARGED PLAN SEE DWG 051-Y-4001

RELOCATED GAS BY OTHERS

6-2

6-3

EXST 3" W3

155 - CLARIFIER NO. 4

12" RAS

EXST 10" D

REMOVE ABANDON LINE SHOULD BE DEMOED PER 1006

6-4

2" YARD HYDRANT SEE NOTE 13

12" RS

60" MH NO. 109 SEE DWG 051-Y-6001

2" W1

8" TF

30" SEFF

EXST 2" W1

UD-5

12" RAS

30" ML

2" YARD HYDRANT SEE NOTE 13

155 - CLARIFIER NO. 3

30" SEFF

36" RS, SEE DWG 051-Y-3001

UD-6

42" SEFF, SEE DWG 051-Y-3008

ABANDON EXST 24" RS

6-16

6-17

6-18

6-27

6-28

6-29

6-70

6-71

6-30

SEE NOTE 8

3" W3

SEE NOTE 11, TYP OF 3

3/4" W1

6" D

210 - UV DISINFECTION FACILITY

FOR CONTINUATION OF PIPING, SEE FACILITY 210 DWGS

6-74

60" MH NO. 107 SEE DWG 051-Y-6001

DISINFECTION BASIN

2" W1

10" RS, SEE NOTE 7

6-73

6-75

GS

GAS LINE

48" MH NO. 106, SEE STANDARD MANHOLE, DWG 051-Y-9001, 051-Y-6001, AND NOTE 10

EXST 6" DS

42" PLEFF, SEE DWG 051-Y-3005

6-41

6-76

6-80

6-78

8" DC

6-38

6-77

SEE NOTE 9 AND 11

6-39

6-37

2
050-4-4002

6-36

4" DS

6-40

6-67

MATCHLINE, SEE DWG 051-Y-2005

MATCHLINE, SEE DWG 051-Y-2009

PROPERTY BOUNDARY

GENERAL NOTES

1. BACKGROUND INFORMATION SHOWN IS BASED ON A MIX OF AS-BUILT AND SURVEY INFORMATION AND IS APPROXIMATE. VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES.
2. ABANDONING AND DEMOLITION OF EXISTING LINES AND MANHOLES TO CONFORM TO CITY OF WICHITA STANDARDS PART 800
3. NOT USED
4. NOT USED
5. NOT USED
6. NOT USED
7. FIELD VERIFY DIAMETER OF WEST PIPE INTO MH NO. 4 AND MATCH INSIDE DIAMETER FOR PROPOSED PIPE EAST OF MH NO. 106.
8. FOR CONTINUATION OF PIPING SEE FACILITY 210 DWGS.
9. CONTRACTOR TO PROVIDE SUBMITTAL FOR APPROVAL. CONNECTION TO 36" RS SHALL BE SDR 35 GASKETED BELL GRAVITY APPLICATIONS AS MANUFACTURED BY INSERTA TEE, OR APPROVED EQUAL.
10. DEMO EXISTING 10" RS AFTER INSTALLATION OF NEW DOG HOUSE MH 106. CONNECT NEW 10" RS TO MH 106 AND 107.
11. CATHODIC PROTECTION PER DETAIL (2642-803).
12. CATHODIC PROTECTION PER DETAIL (2642-804).
13. CONTRACTOR TO PROVIDE SUBMITTAL FOR APPROVAL WATER YARD HYDRANT SHALL BE:
    - A. ECLIPSE NO. 2 POST HYDRANT AS MANUFACTURED BY JOHN C. KUPFERLE FOUNDRY COMPANY, OR APPROVED EQUAL.
    - B. HYDRANTS SHALL BE SELF-DRAINING, NON-FREEZE, COMPRESSION TYPE WITH 2-3/16" MAIN VALVE OPENING. INLET CONNECTION SHALL VE 3" MJ. OUTLET SHALL BE 2-1/2" NST.
    - C. HYDRANT SHALL HAVEA 3" DUCTILE IRON PIPE RISER WITH A CAST IRON TOP STOCK, AND NONTURNING OPERATING ROD. PRINCIPAL INTERIOR OPERATING PARTS SHALL BE BRASS AND REMOVABLE FROM THE HYDRANT FOR SERVICING WITHOUT EXCAVATING THEY HYDRANT.
    - D. EACH HYDRANT SHALL BE SUPPLIED WITH AN OPERATING WRENCH SIZED TO MATCH THE OPERATING NUT.
    - E. HYDRANT SHALL BE SET IN 4 CUBIC FEET OF CRUSHED STONE TO ALLOW FOR PROPER DRAINAGE OF THE HYDRANT.

KEYMAP

1 2 3 4 5 6 7 8 9

N

0 20 40 60
Scale In Feet

ESTELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		A ESPOSITO	S MILLER	T STOUT	APVD	E JOHNSON	

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

YARD PIPING

YARD PIPING SITE PLAN AREA 6

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-2006
SHEET	80 of 314

BIDDING SET

FILENAME: 051-Y-2006_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 10:47:48 AM

MATCHLINE, SEE DWG 051-Y-2004

BROOKHAVEN DRIVE

110 - SCREENING FACILITY

270 - ODOR CONTROL FACILITY

SEE NOTE 5

FOR CONTINUATION OF PIPING SEE FACILITY 110 DWGS

7-2

7-1

FOR CONTINUATION SEE DWG 110-D-2001

7-13

FOR CONTINUATION OF PIPING SEE FACILITY 110 DWGS

7-14

7-3

7-37

7-23

7-24

7-25

4" D

24" SSFM

7-15

7-4

7-26

7-16

7-27

7-5

7-6

7-17

ABANDON EXST 16" FM

ABANDON EXST BURIED ELECTRIC

EXST ELECTRIC EASEMENT

18" FA

SEE NOTE 3

7-7

7-28

7-18

7-9

7-32

16" SSFM

4" D

INSULATING COUPLING, 4027-650

SEE NOTE 5

FOR CONTINUATION OF PIPING SEE FACILITY 107 DWGS

7-8

7-35

7-34

7-33

7-19

7-20

7-29

FOR CONTINUATION OF PIPING SEE FACILITY 105 DWGS

7-10

7-36

7-11

7-12

SEE NOTE 6

FOR CONTINUATION OF PIPING SEE FACILITY 100 DWGS

100 - WET WEATHER PUMP STATION

107 - INFLUENT PUMP STATION VALVE VAULT

7-30

7-22

SEE NOTE 7

EXST 42" RS/OF

7-31

105 - INFLUENT PUMP STATION

EXST 42" RS

PROPERTY BOUNDARY, TYP

SITE FENCE

FOR CONTINUATION OF PIPING SEE FACILITY 105 DWGS

60" MH NO. 101 SEE DWG 051-Y-6001

36" RS, SEE DWG 051-Y-3001

EXST 16" SSFM/OF

(3) 18" RCP Storm Pipes

35' Building Setback Line (P)

HARRY STREET

MATCHLINE, SEE DWG 051-Y-2008

GENERAL NOTES

1. BACKGROUND INFORMATION SHOWN IS BASED ON A MIX OF AS-BUILT AND SURVEY INFORMATION AND IS APPROXIMATE. VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES.
2. ABANDON AND DEMOLITION OF EXISTING LINES AND MANHOLES TO CONFORM TO CITY OF WICHITA STANDARDS PART 500.
3. ABANDONING OF EXISTING LINES TO CONFORM TO CITY OF WICHITA STANDARDS PART 800.
4. 18" FA AND 4" D SLOPE FROM FACILITY 270 TO FACILITY 105.
5. CATHODIC PROTECTION PER DETAIL 2642-823 LOCATE TEST STATION WITHIN 2' OF BUILDING.
6. CATHODIC PROTECTION PER DETAIL 2642-825 LOCATE TEST STATION WITHIN 2' OF BUILDING.
7. CATHODIC PROTECTION PER DETAIL 2642-823 LOCATE TEST STATION WITHIN 2' OF BUILDING, PROVIDE ONE TEST STATION AND A NODE PER PIPE.
8. SEWER TRACER WIRE PER SS-106, SEWER TRACER WIRE, SEE CITY OF WICHITA STANDARD DETAILS, DRAWINGS 051-Y-9003 AND 051-Y-9004.

KEYMAP

1 2 3 4 5 6 7 8 9

N

0 20 40 60

Scale In Feet

ESTELL JO JOHNSON 15411 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DR	REVISION	CHK	BY
DSGN	A ESPOSITO		S MILLER	T STOUT	APVD
					APVD
					BY
					E JOHNSON

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

YARD PIPING
YARD PIPING
SITE PLAN AREA 7

BIDDING SET

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-2007
SHEET	81 of 314

FILENAME: 051-Y-2007_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 10:50:20 AM

MATCHLINE, SEE DWG 051-Y-2005

MATCHLINE, SEE DWG 051-Y-2007

MATCHLINE, SEE DWG 051-Y-2009

400 - LABORATORY FACILITY

ASPHALT DRIVE

HARRY STREET

1 1/2" W1

EXST 12" RS

ABANDON EXST 24" RS WITHIN 15' OF MANHOLE AND PLUG 24" RS FROM WEST OF MANHOLE NO. 102, SEE NOTE 2

48" MH NO. 102, SEE DOG HOUSE MANHOLE, DWG 051-Y-9001 AND 051-Y-6001

MH NO. 6, SEE DWG 051-Y-6001

24" RS

60" MH NO. 103

36" RS, SEE DWG 051-Y-3001

8-7

RELOCATED FIRE HYDRANT SEE NOTE 7

Water line was NOT located in field

8" W1

EXST 12" SD

EXST 8" RS

EXST BURIED TELEPHONE

EXST G

EXST 6' W1

8-9

EXST METER

EXST 24" RS

60" MH NO. 104

8-8

8-6

METER VAULT SEE NOTE 7

EXST SD, SEE DWG 050-C-2408

8-5

8-1 SEE NOTE 5 AND 6

PLANT MAIN ENTRANCE, SEE NOTE 4

8-4

8-3

GENERAL NOTES

1. BACKGROUND INFORMATION SHOWN IS BASED ON A MIX OF AS-BUILT AND SURVEY INFORMATION AND IS APPROXIMATE. VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES.
2. ABANDONING AND DEMOLITION OF EXISTING LINES AND MANHOLES TO CONFORM TO CITY OF WICHITA STANDARDS PART 500.
3. TEMPORARY CHAIN LINK FENCE AND GATE REQUIRED TO SECURE SITE AFTER REMOVAL OF EXISTING FENCE AND BEFORE INSTALLATION OF NEW FENCE.
4. ACCESS TO PLANT DURING RS CONSTRUCTION IS TO BE FROM THE ENTRANCE OFF OF BROOKHAVEN DRIVE.
5. LOCATION OF EXISTING 8" W1 SERVICE LINE FROM HARRY ST TO EXISTING METER HAS NOT BEEN LOCATED. CONTRACTOR TO LOCATE 8" W1 AND PROVIDE CONNECTION PLAN IF 8" W1 DIFFERS FROM WHAT IS SHOWN ON DRAWING.
6. LOCATION OF 8" TEE TO BE DETERMINED IN FIELD. TEE MUST BE A MINIMUM OF 10' UPSTREAM OF EXISTING 8x6 RDCR. 8x6 RDCR TO BE LOCATED IN FIELD PRIOR TO BEGINNING CONSTRUCTION.
7. CONSTRUCT FIRE HYDRANT MINIMUM DISTANCE FROM TEE ACCORDING TO CITY OF WICHITA STANDARD WATER ASSEMBLY DETAILS, SEE DWG 051-Y-9004.
8. CONSTRUCT METER VAULT FOR 8" FIRE SERVICE ACCORDING TO CITY OF WICHITA STANDARD VAULT DETAILS AND METER ASSEMBLIES, 4" THROUGH 8" FIRE SERVICE SEE DWG 015-Y-9007.

1 2 3 4 5 6

A B C D

N

0 20 40 60
Scale In Feet

FILENAME: 051-Y-2008_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 10:51:48 AM

ISRELL JOHNSON 15411 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	REVISION	BY	APVD
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PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

YARD PIPING

YARD PIPING SITE PLAN AREA 8

1 2 3 4 5 6 7 8 9

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-2008
SHEET	82 of 314

BIDDING SET

MATCHLINE, SEE DWG 051-Y-2006

MATCHLINE, SEE DWG 051-Y-2008

2" W1
8" DC
4" DS
SEE NOTE 4
350 - DEWATERING AND LOADOUT
EXST 6" DS
ABANDON EXST 24" RS
PLUG ABANDONED EXST 24" RS FROM NORTH SEE NOTE 2
ASPHALT DRIVE
MH NO. 5, SEE DWG 051-Y-6001
36" RS, SEE DWG 051-Y-3001
EXST GAS
GRAVEL DRIVE
42" PLEFF, SEE DWG 051-Y-3005
EXST 15" SD SEE DWG 050-C-2409
EXST GAS
EXST 24" RS
EXST 24" PLEFF
42" PLEFF FOR CONTINUATION OF PIPING SEE FACILITY DWG 051-Y-3005
35' Building Setback Line (P)
36" RS, SEE DWG 051-Y-3001
60" MH NO. 105 SEE DWG 051-Y-6001
EXST SITE FENCE
PROPERTY LINE
CONSTRUCTION LIMIT
CONSTRUCTION LIMIT
SIGN
HARRY STREET
SE/c of SE/4 Sec. 25-12S-R2E Found 1/2" Iron Pipe

GENERAL NOTES

1. CONTRACTOR TO PROVIDE SUBMITTAL FOR APPROVAL CONNECTION TO 36" RS SHALL BE SDR 35 GASKETED BELL GRAVITY APPLICATION AS MANUFACTURED BY INSERTA TEE, OR APPROVED EQUAL.
2. BACKGROUND INFORMATION SHOWN IS BASED ON A MIX OF AS-BUILT AND SURVEY INFORMATION AND IS APPROXIMATE. VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES.
3. ABANDONING AND DEMOLITION OF EXISTING LINES AND MANHOLES TO CONFORM TO CITY OF WICHITA STANDARDS PART 800.
4. INSULATING COUPLING, REFERENCE DETAIL4027-650 FOR CATHODIC PROTECTION REQUIREMENTS

ESTELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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NO.	DATE	DSGN	DR	REVISION	CHK	BY	APVD
		A ESPOSITO	S MILLER		T STOUT	E JOHNSON	

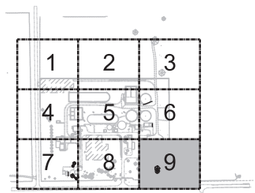
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FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

ch2m.

YARD PIPING

YARD PIPING SITE PLAN AREA 9



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

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-2009
SHEET	83 of 314

BIDDING SET

FILENAME: 051-Y-2009_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 10:54:30 AM

NOTES:

1. SEE DRAWINGS 051-Y-2007 AND 051-Y-2008 FOR IMPROVEMENTS SHOWN ON THIS SHEET, AND NOT ASSOCIATED WITH THE 36" RS.
2. BACKGROUND INFORMATION SHOWN IS BASED ON A MIX OF AS-BUILT AND SURVEY INFORMATION AND IS APPROXIMATE. VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES.

24" SSFM
107 - INFLUENT PUMP STATION VALVE VAULT
4" D
18" FA
16" SSFM/OF
1-1/2" W1
100 - WET WEATHER PUMP STATION
60" MH NO. 102, SEE DWG 051-Y-2008
MH NO.6
24" RS
105 - INFLUENT PUMP STATION
POB STA 36+00.00
FOR CONTINUATION, SEE DWG 105-D-2001
STA 36+15.03
60" MH NO. 101
SEE DWG 05-Y-6001
STA 37+35.69
60" MH NO. 103
SEE DWG 051-Y-6001
36" RS
EXST SITE FENCE
24" RS
8" W1
EXST BURIED TELEPHONE
EXST 6" W2
EXST 3" GAS
ASPHALT DRIVE
EXST SS
EXST BURIED TELEPHONE
STA 40+90.08
60" MH NO. 104, SEE DWG 051-Y-6001
PROTECT EXST 15" SD IN PLACE
MATCHLINE STA 44+20, SEE DWG 051-Y-3002
SCALE: 1"=20' HORZ
1"=5' VERT

3123-915

105-INFLUENT PUMP STATION
60" MH NO. 101
RIM EL 1293.84
EXST UNDERGROUND POWER EL UNKNOWN
60" MH NO. 103
RIM EL 1293.35
EXST GROUND PROFILE AT PIPE CENTERLINE
STA 40+11.3+/- EXST 3" GAS EL UNKNOWN
STA 40+15.4+/- 8" W1
STA 40+15.5+/- EXST 15" SD
EL UNKNOWN
STA 40+19.7+/- EXST 6" W2
EL UNKNOWN
STA 40+41.3+/- EXST BURIED TELEPHONE
EL UNKNOWN
ASPHALT DRIVE
STA 40+74.3+/- EXST BURIED TELEPHONE
EL UNKNOWN
60" MH NO. 104
RIM EL 1289.69
36" RS
S = 0.20%
S = 0.19%
S = 0.19%
STA 36+00.00
INV EL 1269.50
STA 36+15.03
INV EL 1269.54 (E)
1269.50 (N)
STA 37+35.69
INV EL 1270.27
24" RS INV
EL 1268.44 (N)
STA 40+90.08
INV EL 1270.45
MATCHLINE STA 41+20, SEE DWG 051-Y-3002
1305
1300
1295
1290
1285
1280
1275
1270
1265
1260
36+00
37+00
38+00
39+00
40+00
41+00

FILENAME: 051-Y-3001_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 10:56:45 AM

STEPHEN JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		A ESPOSITO	B NORVILLE	T STOUT	APVD	E JOHNSON	

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

ch2m

YARD PIPING

36" RAW SEWAGE
PLAN AND PROFILE
POB STA 36+00 TO STA 41+20

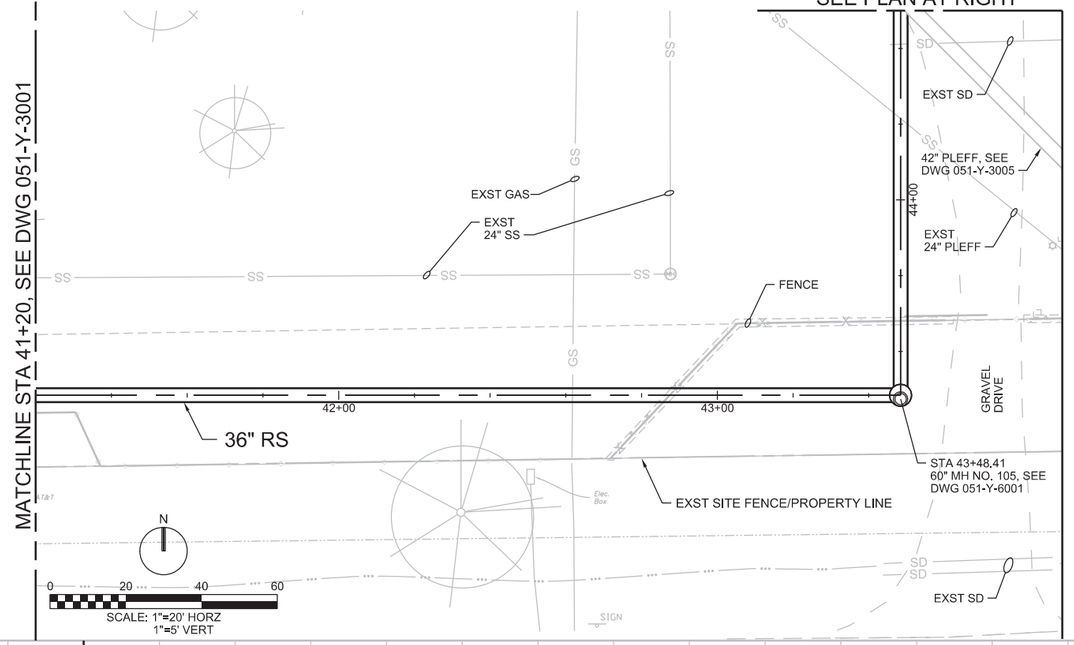
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

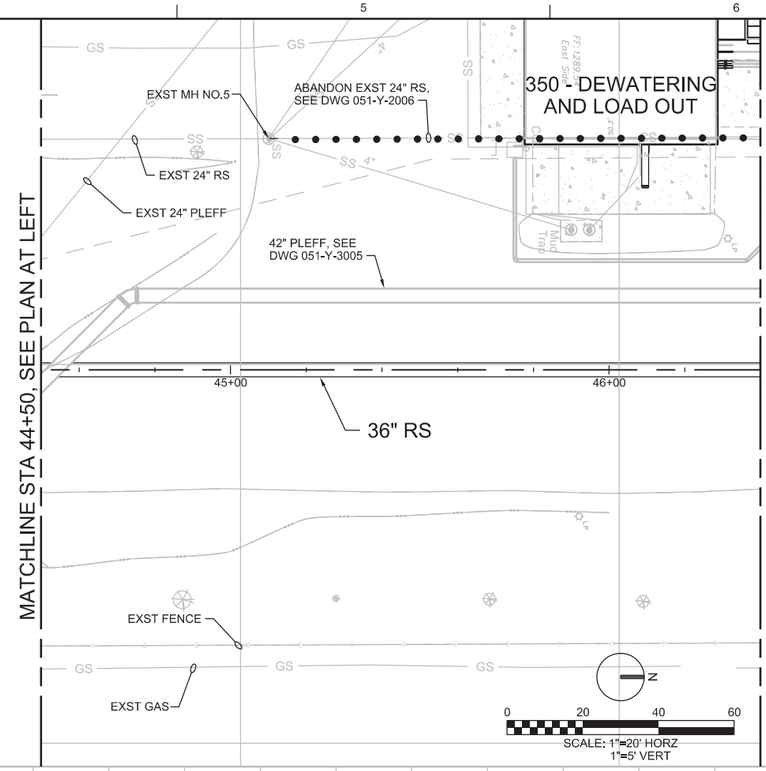
DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-3001
SHEET	84 of 314

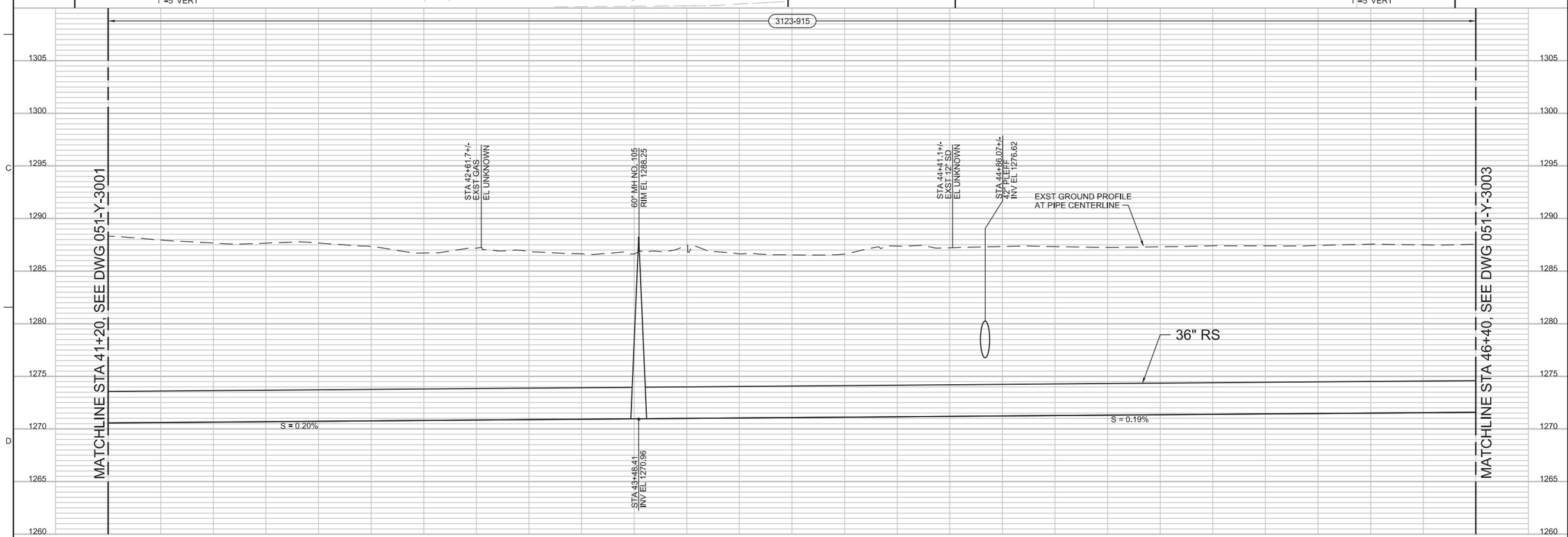
BIDDING SET

NOTES:

1. SEE DRAWINGS 051-Y-2006 AND 051-Y-2009 FOR IMPROVEMENTS SHOWN ON THIS SHEET AND NOT ASSOCIATED WITH THE 36" RS.
2. BACKGROUND INFORMATION SHOWN IS BASED ON A MIX OF AS-BUILT AND SURVEY INFORMATION AND IS APPROXIMATE. VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES.







RUSSELL JOHN JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		A ESPOSITO	B NORVILLE	T STOUT	APVD	E JOHNSON	

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

YARD PIPING

36" RAW SEWAGE PLAN AND PROFILE POB STA 41+20 TO STA 46+40

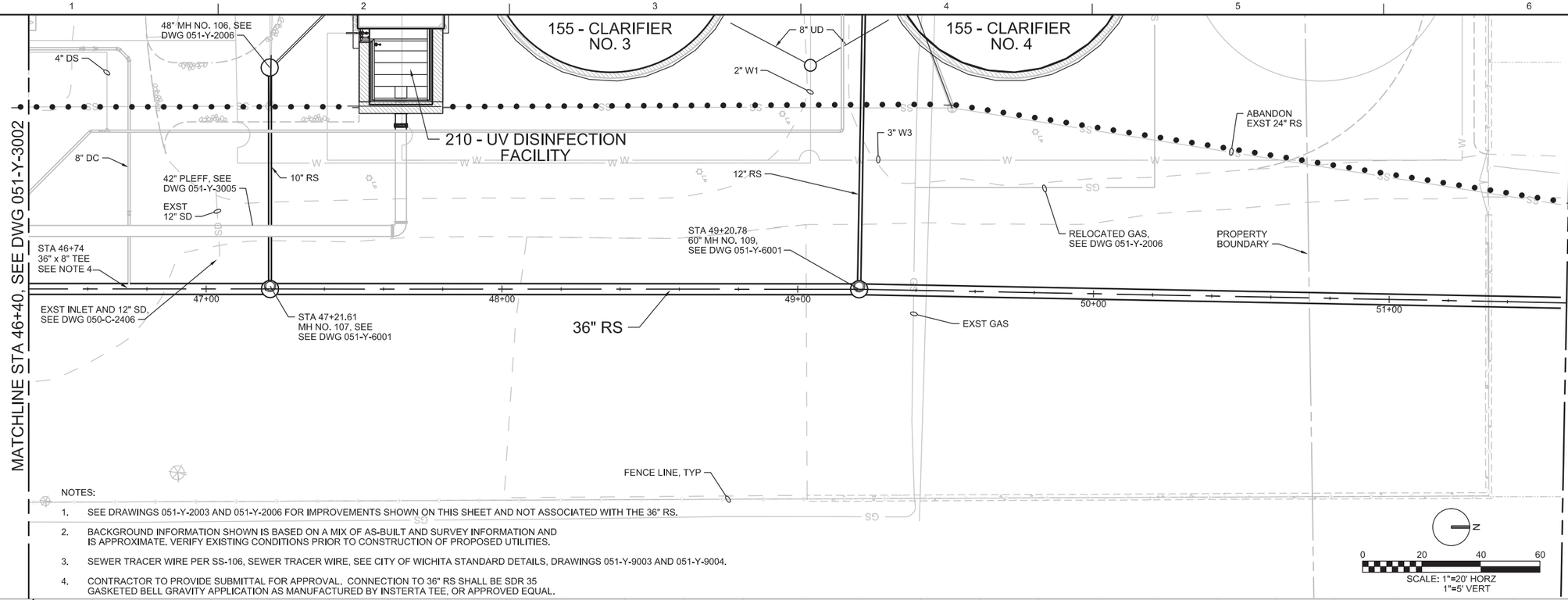
VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-3002
SHEET	85 of 314

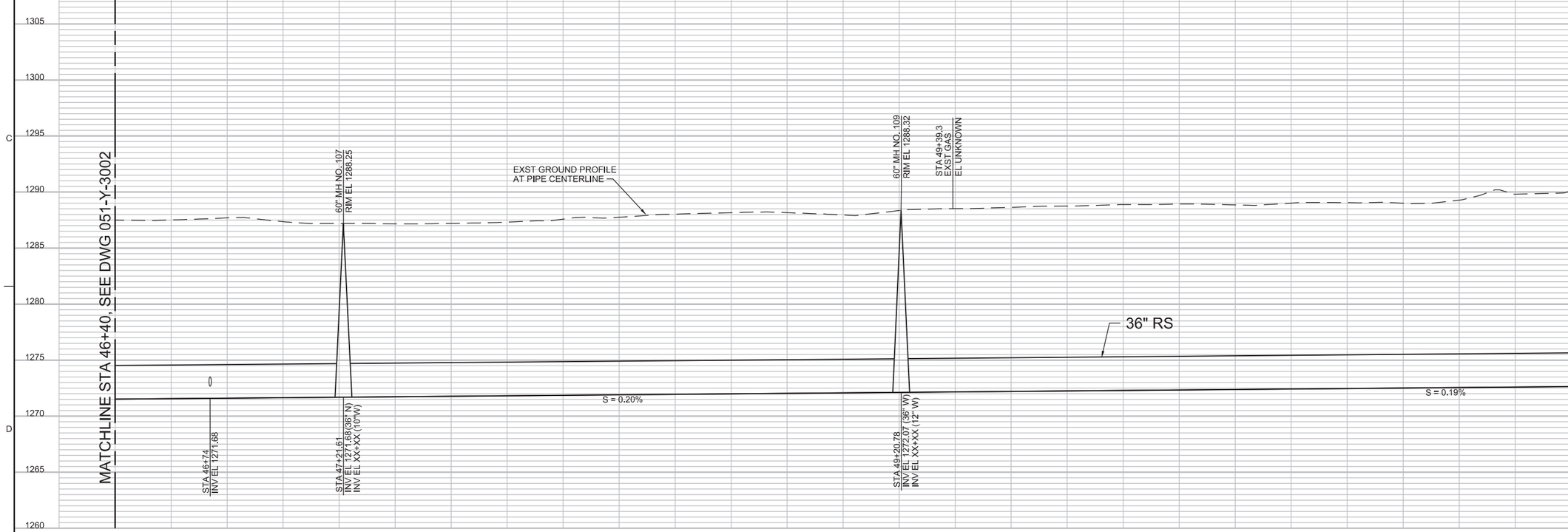
BIDDING SET

FILENAME: 051-Y-3002_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 11:00:18 AM



NOTES:

1. SEE DRAWINGS 051-Y-2003 AND 051-Y-2006 FOR IMPROVEMENTS SHOWN ON THIS SHEET AND NOT ASSOCIATED WITH THE 36" RS.
2. BACKGROUND INFORMATION SHOWN IS BASED ON A MIX OF AS-BUILT AND SURVEY INFORMATION AND IS APPROXIMATE. VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES.
3. SEWER TRACER WIRE PER SS-106, SEWER TRACER WIRE, SEE CITY OF WICHITA STANDARD DETAILS, DRAWINGS 051-Y-9003 AND 051-Y-9004.
4. CONTRACTOR TO PROVIDE SUBMITTAL FOR APPROVAL. CONNECTION TO 36" RS SHALL BE SDR 35 GASKETED BELL GRAVITY APPLICATION AS MANUFACTURED BY INSTERTA TEE, OR APPROVED EQUAL.



ESTELL JO JOHNSON
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11/4/16
KANSAS
PROFESSIONAL ENGINEER
11/04/2016

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NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		A ESPOSITO	B NORVILLE	T STOUT	APVD	E JOHNSON	

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FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

ch2m

YARD PIPING

36" RAW SEWAGE PLAN AND PROFILE POB STA 46+40 TO STA 51+60

VERIFY SCALE

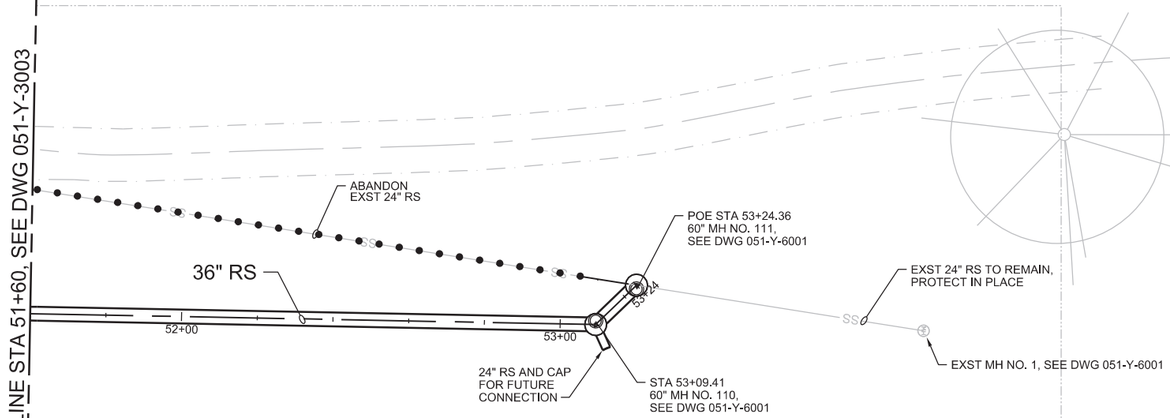
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

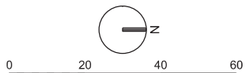
DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-3003
SHEET	86 of 314

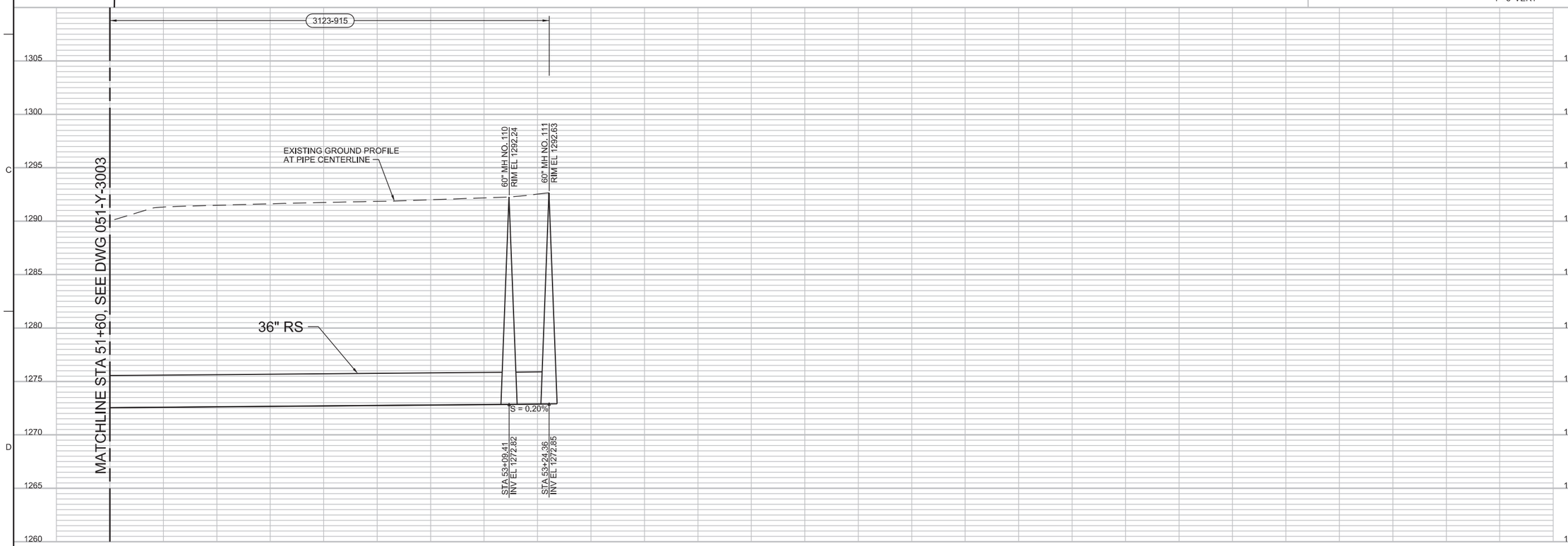
BIDDING SET

NOTES:

1. BACKGROUND INFORMATION SHOWN IS BASED ON A MIX OF AS-BUILT AND SURVEY INFORMATION AND IS APPROXIMATE. VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES.







STEPHEN JOSEPH JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		A ESPOSITO	B NORVILLE	T STOUT	APVD	E JOHNSON	

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REUSE OF DOCUMENTS:

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

ch2m

YARD PIPING

36" RAW SEWAGE PLAN AND PROFILE POB STA 51+60 TO STA 53+24.36

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-3004
SHEET	87 of 314

BIDDING SET

NOTES:

1. BACKGROUND INFORMATION SHOWN IS BASED ON A MIX OF AS-BUILT AND SURVEY INFORMATION AND IS APPROXIMATE. VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES.
2. SEWER TRACER WIRE PER SS-106, SEWER TRACER WIRE, SEE CITY OF WICHITA STANDARD DETAILS, DRAWINGS 051-Y-9003 AND 051-Y-9004.

HARRY STREET

EXST REAERATION

EXST 24" PLEFF

20' SANITARY SEWER EASEMENT (ORIGINAL)

HPI STA 47+27.38
42° 45° BEND

POB STA 42+00.00

HEADWALL WITH V696 SEE DWG 050-C-4001

40' SANITARY SEWER EASEMENT (NEW)

42" PLEFF

CONSTRUCTION EASEMENT

35' BUILDING SETBACK

FOUR MILE CREEK

PROPERTY BOUNDARY

MATCHLINE STA 47+20, SEE DWG 051-Y-3006

SCALE: 1"=20' HORZ
1"=5' VERT

3123-915

PROPOSED GROUND PROFILE AT PIPE CENTERLINE

EXST GROUND PROFILE AT PIPE CENTERLINE

DISCHARGE STRUCTURE

42" PLEFF

S=0.26%

VPI STA 42+00.00
CL EL 1274.31

MATCHLINE STA 47+20, SEE DWG 051-Y-3006

42+00 43+00 44+00 45+00 46+00 47+00

1305 1300 1295 1290 1285 1280 1275 1270 1265 1260

RUSSELL JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY
REVISION		A ESPOSITO	B NORVILLE	T STOUT	APVD	E JOHNSON

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REUSE OF DOCUMENTS.

PHASE II, 6 MGD EXPANSION
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DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

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YARD PIPING

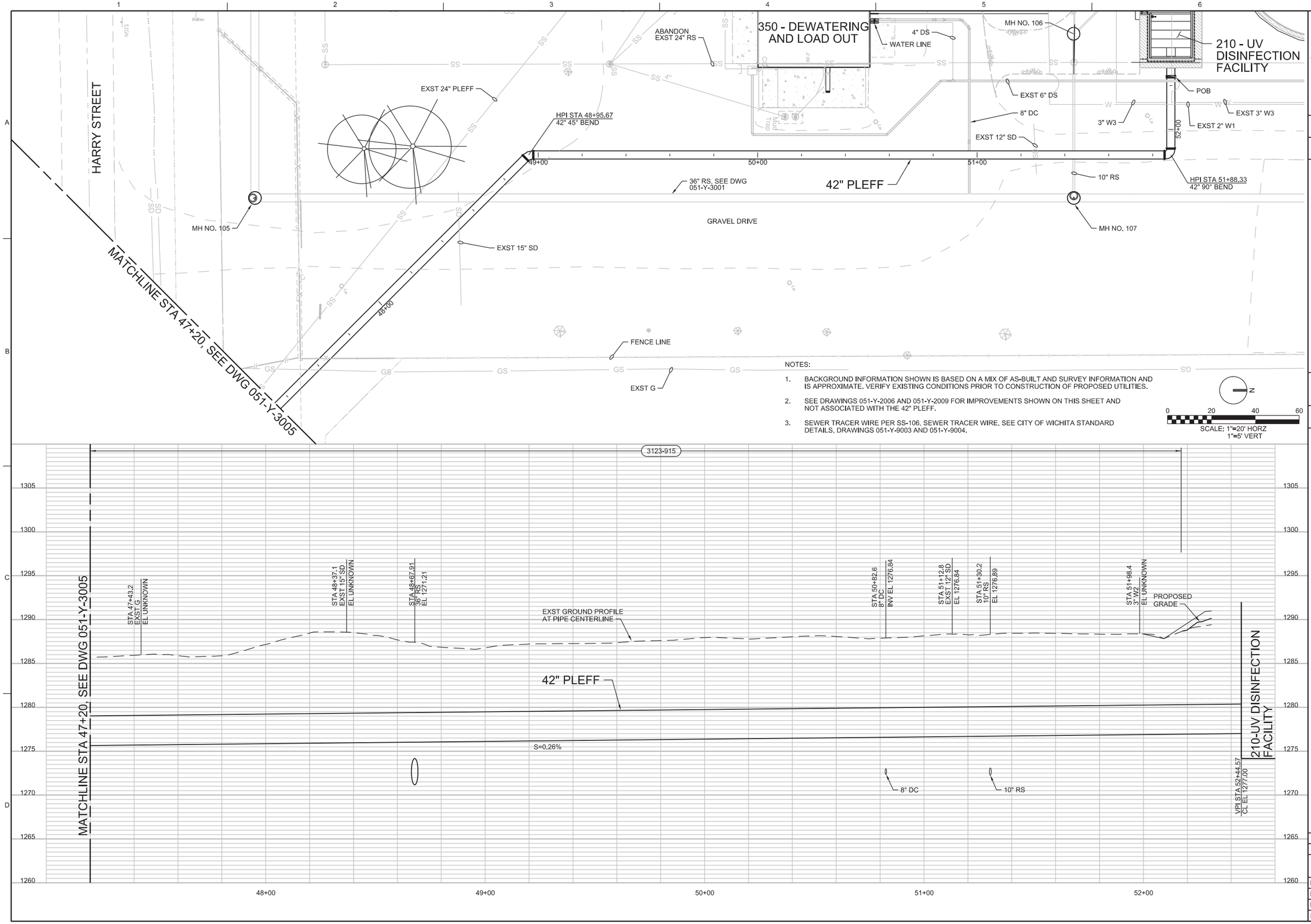
42" PLANT EFFLUENT PLAN AND PROFILE POB STA 42+00 TO STA 47+20

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-3005
SHEET	88 of 314

BIDDING SET

FILENAME: 051-Y-3005_496312.dgn PLOT DATE: 2016\11\03 PLOT TIME: 2:50:38 PM



NOTES:

1. BACKGROUND INFORMATION SHOWN IS BASED ON A MIX OF AS-BUILT AND SURVEY INFORMATION AND IS APPROXIMATE. VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES.
2. SEE DRAWINGS 051-Y-2006 AND 051-Y-2009 FOR IMPROVEMENTS SHOWN ON THIS SHEET AND NOT ASSOCIATED WITH THE 42" PLEFF.
3. SEWER TRACER WIRE PER SS-106, SEWER TRACER WIRE, SEE CITY OF WICHITA STANDARD DETAILS, DRAWINGS 051-Y-9003 AND 051-Y-9004.

N

0 20 40 60
SCALE: 1"=20' HORZ
1"=5' VERT

RUSSELL JOSEPH JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		A ESPOSITO	B NORVILLE	T STOUT	APVD	E JOHNSON	

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

YARD PIPING

42" PLANT EFFLUENT PLAN AND PROFILE STA 47+20 TO POB STA 52+17.19

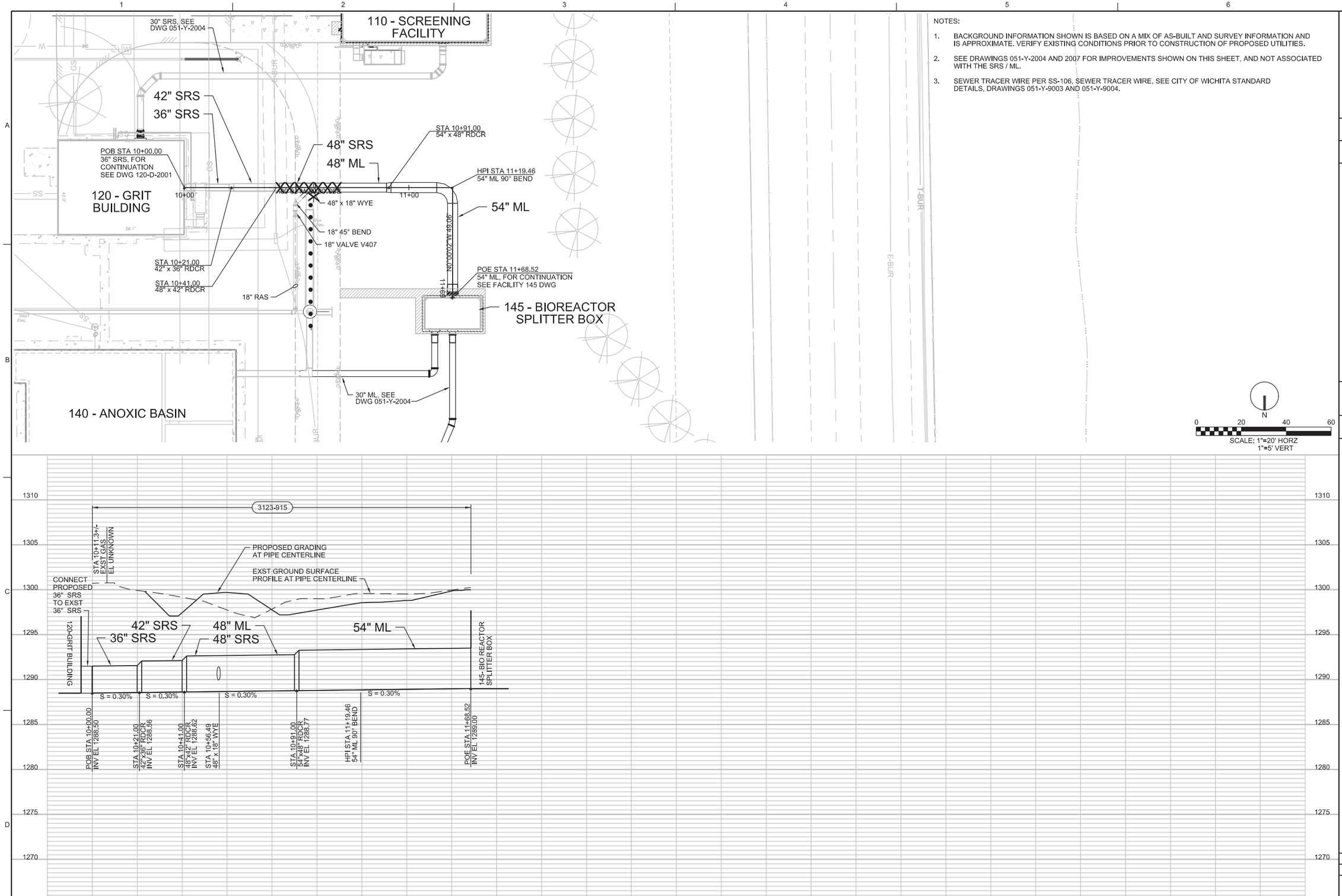
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BIDDING SET

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-3006
SHEET	89 of 314

FILENAME: 051-Y-3006_496312.dgn PLOT DATE: 2016\11\03 PLOT TIME: 2:56:13 PM



NOTES:

1. BACKGROUND INFORMATION SHOWN IS BASED ON A MIX OF AS-BUILT AND SURVEY INFORMATION AND IS APPROXIMATE. VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES.
2. SEE DRAWINGS 051-Y-2004 AND 2007 FOR IMPROVEMENTS SHOWN ON THIS SHEET, AND NOT ASSOCIATED WITH THE SRS / ML.
3. SEWER TRACER WIRE PER SS-106, SEWER TRACER WIRE, SEE CITY OF WICHITA STANDARD DETAILS, DRAWINGS 051-Y-9003 AND 051-Y-9004.

ESTELL JO JOHNSON
NUMBER
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	DR	CHK	APVD	BY	APVD
DSGN	A ESPOSITO	B NORVILLE		T STOUT		E JOHNSON	

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FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

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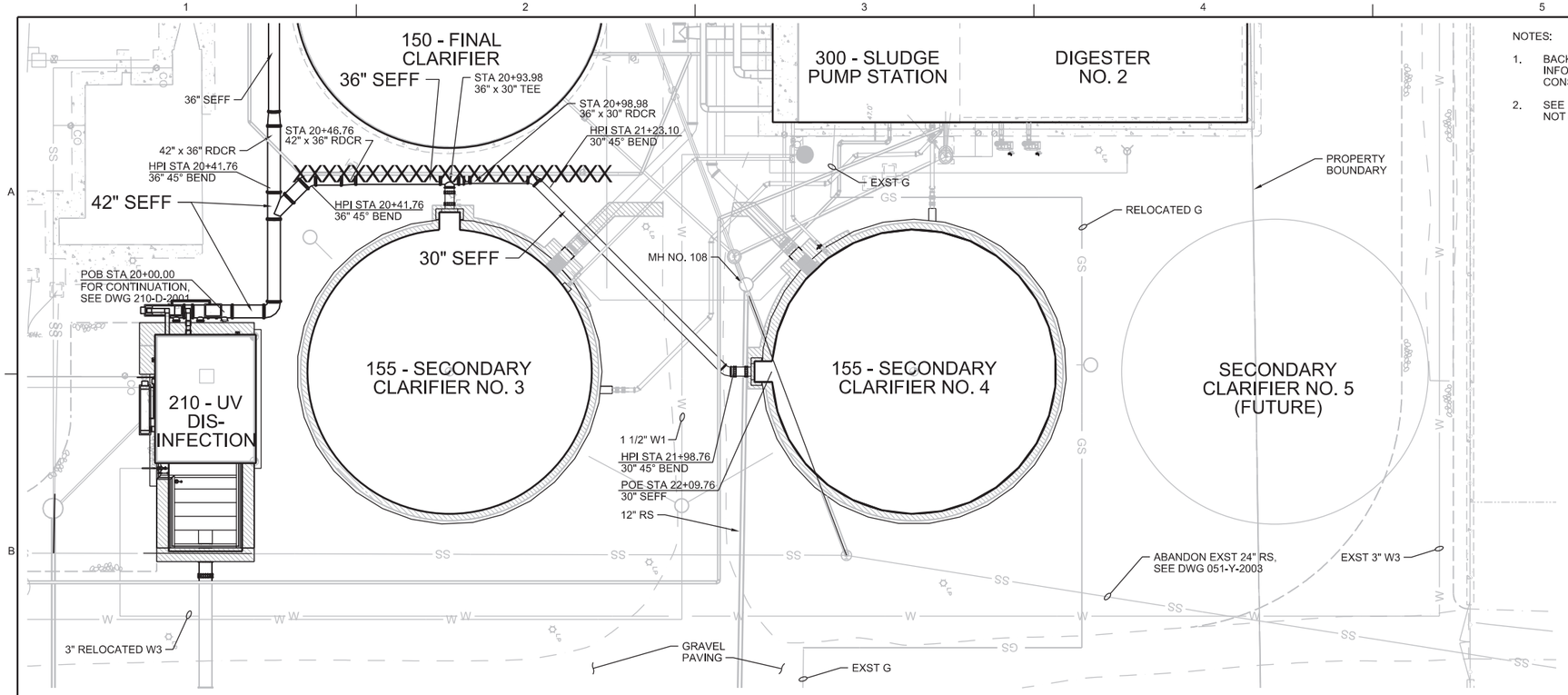
YARD PIPING

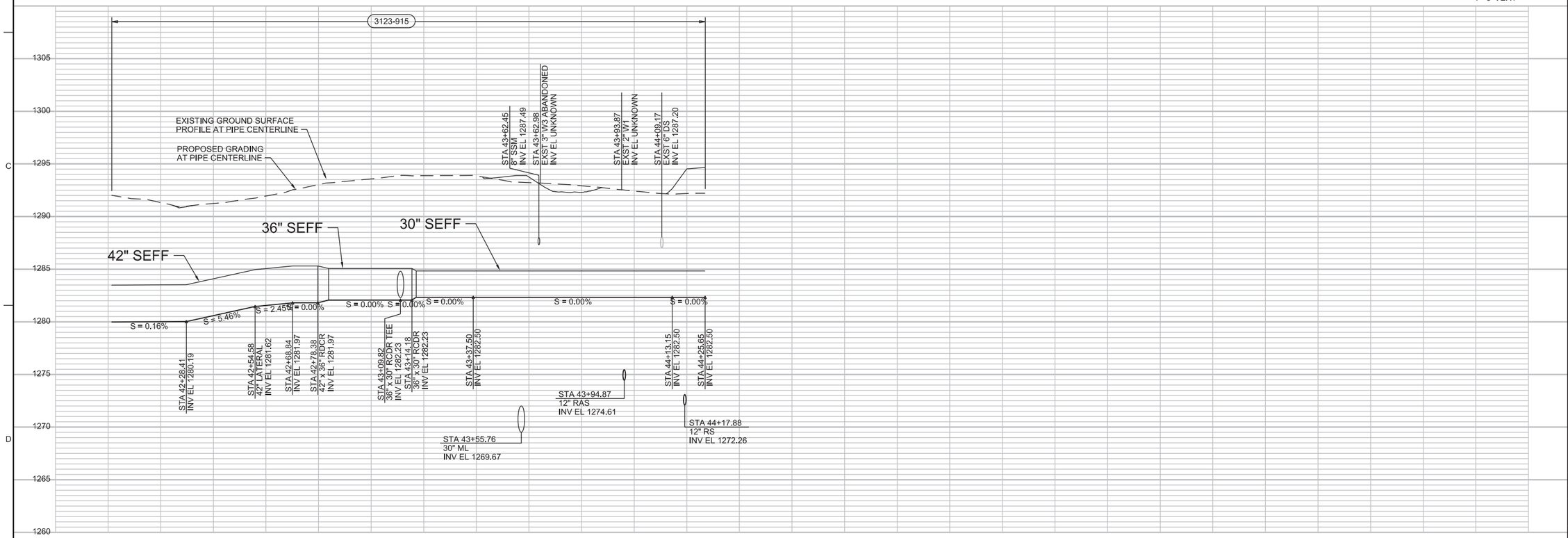
SCREENED RAW SEWAGE / MIXED LIQUOR PLAN AND PROFILE

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-3007
SHEET	90 of 314

BIDDING SET





NOTES:

1. BACKGROUND INFORMATION SHOWN IS BASED ON A MIX OF AS-BUILT AND SURVEY INFORMATION AND IS APPROXIMATE. VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES.
2. SEE DRAWINGS 051-Y-2006 AND 051-Y-4001 FOR IMPROVEMENTS SHOWN ON THE SHEET AND NOT ASSOCIATED WITH SEFF.

ESTELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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NO.	DATE	DSGN	DR	CHK	APVD	REVISION	BY	APVD
		A ESPOSITO	B NORVILLE	T STOUT			E JOHNSON	

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

ch2m

YARD PIPING

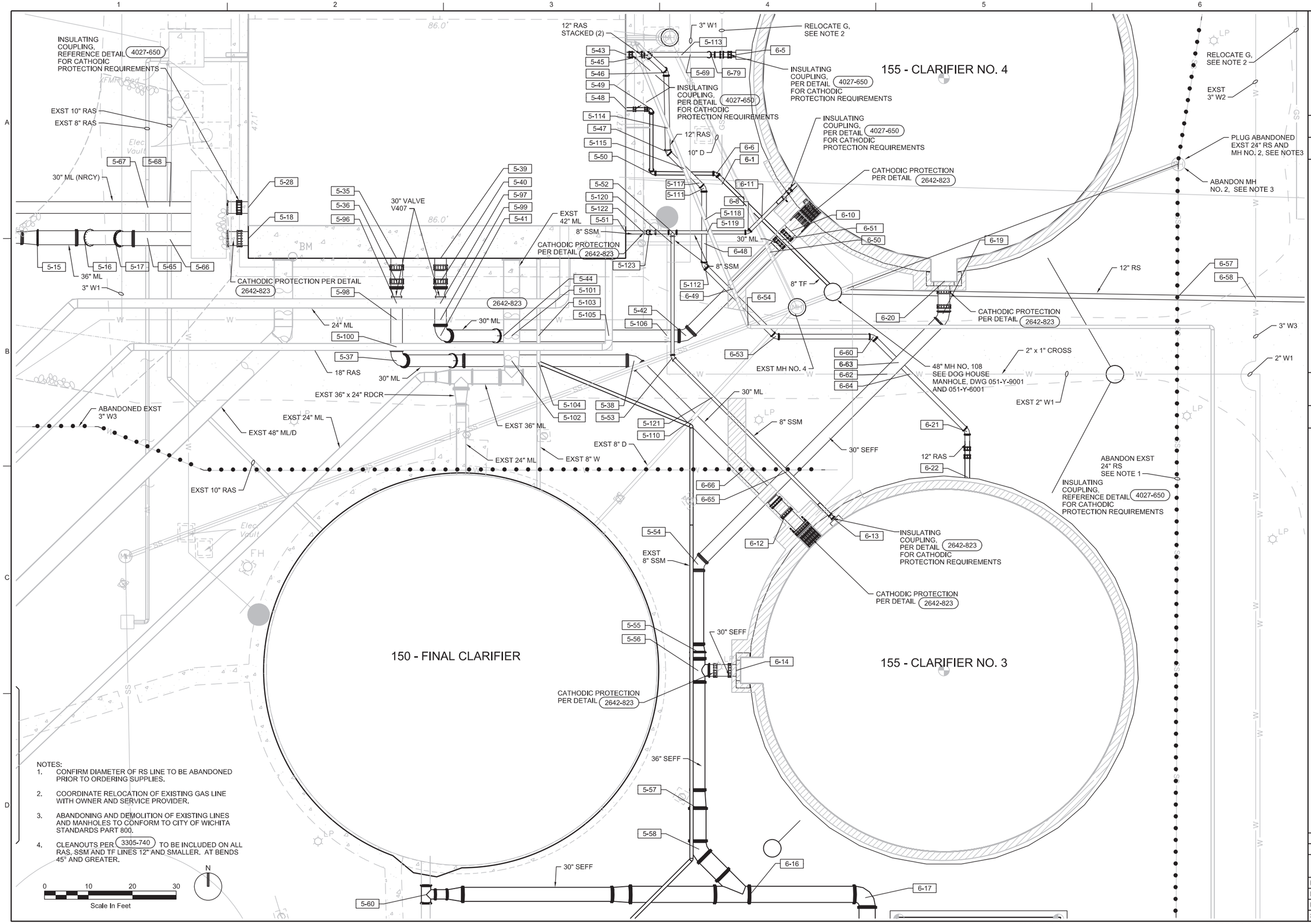
SECONDARY EFFLUENT PLAN AND PROFILE

BIDDING SET

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-3008
SHEET	91 of 314

FILENAME: 051-Y-3008_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 11:16:44 AM



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15411
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KANSAS
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11/04/2016

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NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		A ESPOSITO	S MILLER	T STOUT	APVD	E JOHNSON	

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

ch2m

YARD PIPING

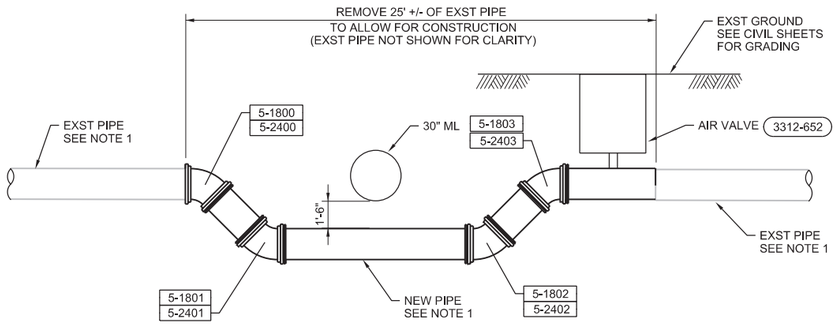
YARD PIPING ENLARGED SITE PLAN

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-4001
SHEET	92 of 314

BIDDING SET

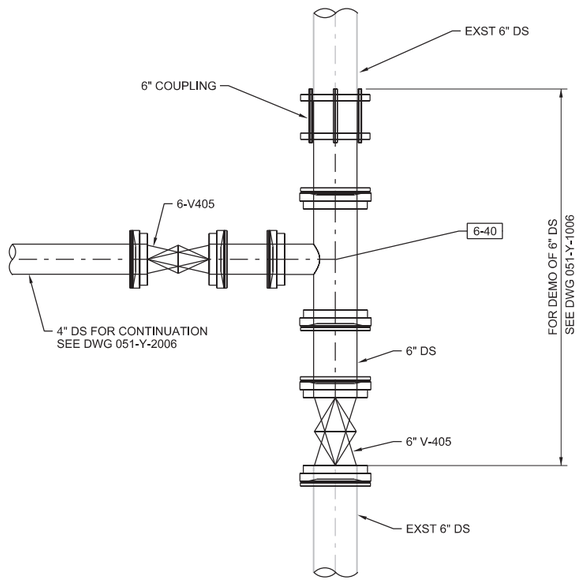
FILENAME: PLOT DATE: 2016\11\02 PLOT TIME: 11:18:22 AM



A SECTION
1/4"=1'-0"
051-Y-2005

POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
5-1800	566966.37	389856.84	1289.77	45° VERTICAL BEND
5-1801	566966.37	389860.22	1286.60	45° VERTICAL BEND
5-1802	566966.37	389871.87	1286.60	45° VERTICAL BEND
5-1803	566966.37	389874.95	1289.78	45° VERTICAL BEND
5-2400	566988.99	389857.35	1287.23	45° VERTICAL BEND
5-2401	566988.99	389860.5	1283.84	45° VERTICAL BEND
5-2402	566988.99	389871.55	1283.84	45° VERTICAL BEND
2-2403	566988.99	389875.03	1287.24	45° VERTICAL BEND

NOTES:
1. SECTION SHOWS 18" PIPE. INFORMATION IS SIMILAR FOR THE EXST 24" NRCY. SEE DWG 051-Y-2005 FOR LOCATION OF EXISTING 24 NRCY.
2. ALL EXISTING PIPING INFORMATION IS APPROXIMATE CONTRACTOR TO FIELD VERIFY LOCATION OF EXISTING PIPING BEFORE BEGINNING CONSTRUCTION.



1 DETAIL
1"=1'-0"

ESTELL JO JOHNSON
LICENSED
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY
					APVD	E JOHNSON

MANHOLE TABLE

NUMBER	SIZE	DETAIL	NORTHING	EASTING	RIM EL.	DESCRIPTION	INV EL.	NOTES
EXISTING								
MH NO. 1	UNKNOWN	N/A			1291.0 +/-	24" RS (N)	1273 +/-	
						24" RS (S)	1273 +/-	
MH NO. 2	UNKNOWN	N/A			1290.4 +/-	24" (N)	1272.2 +/-	ABANDON
						24" (S)	1271.9 +/-	ABANDON
						24" (WSW)	1273.1 +/-	DEMO
MH NO. 3	UNKNOWN	N/A			1293.7 +/-	12" RS (ENE)	1273.4 +/-	
						12" RS (WSW)	1273.5 +/-	
						10" RS (NW)	1275.8 +/-	
MH NO. 4	UNKNOWN	N/A	567017.0+/-	390153.4+/-	1288.4 +/-	24" RS (N)	1271.8 +/-	ABANDON
						10" RS (W)	1277.3 +/-	VERIFY DIAMETER
						24" RS (S)	1271.7 +/-	ABANDON
MH NO. 5	UNKNOWN	N/A			1287.3 +/-	24" RS (N)	1271.7 +/-	ABANDON
						24" RS (S)	1271.7 +/-	
						24" RS (NW)	1274.8 +/-	
MH NO. 6	UNKNOWN	N/A			1294.4 +/-	8" RS (N)	1272.3 +/-	
						24" RS (W)	1271.0 +/-	
						24" RS (E)	1271.1 +/-	
MH NO. 7	UNKNOWN	N/A	566886.57	389557.82	1298.8 +/-	30" ML (N)	UNKNOWN	ABANDON
						30" ML (W)	UNKNOWN	ABANDON
						36" ML (S)	UNKNOWN	ABANDON
						18" ML (E)	UNKNOWN	
NEW								
MH NO. 101	60 INCH	SS-101 STANDARD	566445.78	389568.04		24" RS (N)		SEE NOTE 1
						24" RS (E)		
MH NO. 102	60 INCH	SS-101 STANDARD	566475.2	389688.69		24" RS (S)		
MH NO. 103	60 INCH	SS-101 STANDARD	566445.78	389688.69		24" RS (W)		
						24" RS (N)		
						24" RS (E)		
MH NO. 104	60 INCH	SS-101 STANDARD	566445.78	390043.08		24" RS (W)		
						24" RS (E)		
MH NO. 105	60 INCH	SS-101 STANDARD	566445.78	390301.41		24" RS (W)		
						24" RS (N)		
MH NO. 106	48 INCH	SS-101 DOGHOUSE	566818.88	390226.57				
MH NO. 107	60 INCH	SS-101 STANDARD	566818.98	390301.41		10' (E)		
						24" (S)		
						24" (N)		
MH NO. 108	48 INCH	SS-101 DOGHOUSE	567020.46	3901615				
MH NO. 109	60 INCH	SS-101 STANDARD	567018.14	3903015		24" N 1272.07		
						10" E 1272.26		
						24" S 1272.07		
MH NO. 110	60 INCH	SS-101 DOGHOUSE	567406.7	390308.96		24" S 1272.82		
MH NO. 111	60 INCH	SS-101 STANDARD	567417.47	390298.60		24" S 1272.85		
UNDER DRAIN								
UD-1		SEE DWG 145-S-2001	567034.58	389577.21	1300.81	ON SHOULDER AT GRADE OR +2"		
UD-2		SEE DWG 145-S-2001	567036.58	389747.71	1301.46	IN ROAD, AT GRADE		
UD-3		SEE DWG 145-S-2001	567046.54	389913.17	1299.09	ON SLOPE AT GRADE OR +2"		
UD-4		SEE DWG 145-S-2001	567120.61	390184.85	1292.98	IN SWALE RAISE ABOVE GRADE 8"		
UD-5		SEE DWG 145-S-2001	567001.69	390225.78	1290.27	IN ROAD, AT GRADE		
UD-6		SEE DWG 145-S-2001	566893.62	3901477	1292.53	NEXT TO SWALE RAISE ABOVE GRADE 6"		

NOTES:

1. FOR CONTROL POINT PLAN SHEET LOCATIONS, SEE DEG 050-C-2001 TRHU 050-C-2009 AND 050-C-2401 THRU 050-C-2409.

LEGEND

CONTROL POINT

1-5XX

- SEQUENTIAL POINT #
- SITE PLAN AREA #

ESTELL JO JOHNSON — 15411 — 11/4/16 — KANSAS — PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	DR	CHK	APVD	BY	APVD
DSGN	A ESPOSITO	S MILLER		T STOUT		E JOHNSON	

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

ch2m

YARD PIPING

MANHOLE TABLE

BIDDING SET

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-6001
SHEET	94 of 314

FILENAME: 051-Y-6001_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 1:39:35 PM

CONTROL POINT TABLE

POINT NAME	NORTHING	EASTING	ELEVATION	ELEVATION LOCATION	DESCRIPTION
4-1	567113.78	389580.13	1277.67	INVERT	30" ML CONNECTION TO FACILITY 145
4-2	567113.83	389568.01	1277.73	INVERT	30" ML 45° BEND
4-3	567103.97	389558.14	1278.77	INVERT	30" ML 45° BEND
4-4	567089.97	389558.08	1279.41	INVERT	30" ML 22.5° BEND
4-5	566935.89	389494.43	1289.50	INVERT	30" ML 22.5° BEND
4-6	566894.42	389494.31	1289.45	INVERT	30" ML CONNECTION TO FACILITY 145
4-7	566894.42	389502.27	1289.50	INVERT	30" ML CONNECTION TO FACILITY 145
4-8	566913.57	389502.88	1289.50	INVERT	30" ML 90° BEND
4-9	566914.18	389562.3	1288.64	INVERT	30" ML EXISTING PIPE CONNECTION
4-10	566879.42	389494.31	1289.50	INVERT	54" ML CONNECTION TO FACILITY 145
4-11	566831.36	389494.31	1288.88	INVERT	54" ML 90° BEND
4-12	566831.36	389521.75	1288.78	INVERT	54" ML x 48" ML RDCR
4-13	566831.36	389557.28	1288.67	INVERT	48" ML x 18" RAS WYE
4-14	566831.36	389571.42	1288.62	INVERT	48" ML x 42" SRS RDCR
4-15	566831.37	389591.77	1288.55	INVERT	42" SRS x 36" SRS RDCR
4-16	566831.36	389608.77	1288.50	INVERT	36" SRS CONNECTION TO EXISTING 36" SRS
4-17				INVERT	NO¯ USED
4-18	566838.49	389564.22	1289.86	INVERT	18" RAS 45° BEND
4-19	566842.92	389564.35	1289.86	INVERT	18" VALVE V407
4-20	566886.46	389564.75	1290.43	INVERT	18 RAS 90° BEND AND CONNECTION TO EXISTING 18" RAS
4-21	566810.36	389633.28	1295.00	INVERT	30" SRS CONNECTION TO FACILITY 120
4-22	566789.15	389633.05	1295.14	INVERT	30" SRS 45° BEND
4-23	566781.69	389625.92	1295.19	INVERT	30" SRS 45° BEND
4-24	566781.69	389502.2	1296.25	INVERT	30" SRS 45° BEND
4-25	566778.15	389498.66	1296.33	INVERT	30" SRS 45° BEND
4-26	566767.19	389498.66	1296.42	INVERT	30" SRS CONNECTION TO FACILITY 110
4-27				INVERT	NO¯ USED
4-28	567093.42	389558.14	1279.24	INVERT	30" ML CROSSING
			UNKNOWN		EXISTING UNDERGROUND POWER
4-29	567085.17	389556.13	1279.71	INVERT	30" ML CROSSING
			UNKNOWN		EXISTING 3" W3
4-30	567069.8	389549.77	1280.74	INVERT	30" ML CROSSING
			UNKNOWN		EXISTING UNDERGROUND POWER
4-31	566989.34	389516.44	1286.05	INVERT	30" ML CROSSING
			UNKNOWN		EXISTING 3" W3
4-32	566914.18	389558.34	1288.67	INVERT	30" ML CROSSING
			UNKNOWN		EXISTING UNDERGROUND POWER
4-33	566831.36	389580.97	1288.58	INVERT	42" SRS CROSSING
			UNKNOWN		EXISTING 3" WATER
4-34					NO¯ USED
4-36	566807.34	389633.4	1295.00	INVERT	30" SRS CROSSING
			UNKNOWN		EXISTING 2-1/2" GAS LINE
4-37	566781.69	389615.72	1295.22	INVERT	30" SRS CROSSING
			UNKNOWN		EXISTING 3" PVC
4-38	566781.69	389602.86	1295.41	INVERT	30" SRS CROSSING
			UNKNOWN		EXISTING 2" PVC
4-39	566781.69	389580.97	1295.63	INVERT	30" SRS CROSSING
			UNKNOWN		EXISTING 3" WATER LINE
4-40	566781.69	389573.65	1295.69	INVERT	30" SRS CROSSING
			UNKNOWN		EXISTING UNDERGROUND POWER
4-41	566774.58	389614.84	1289.64	INVERT	8" W x 6" W1 RDCR AND CROSSING
			UNKNOWN		EXISTING 3" PVC
4-42	566774.22	389589.83	1289.71	INVERT	FIRE HYDRANT
4-43	566774.22	389602.86	1289.71		8" W1 CROSSING
					EXISTING 2" PVC

NOTES:

1. FOR CONTROL POINT PLANT SHEET LOCATIONS, SEE DWG 050-C-2001 THRU 050-C-2009 AND 050-C-2401 THRU 050--C-2409.

LEGEND

CONTROL POINT

1-5XX

- SEQUENTIAL POINT #
- SITE PLAN AREA #

ESTELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD
		A ESPOSITO	S MILLER	T STOUT	E JOHNSON

REVISION BY APVD

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

YARD PIPING

YARD PIPING LOCATION TABLES

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-6002
SHEET	95 of 314

BIDDING SET

FILENAME: 051-Y-6002_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 1:44:54 PM

CONTROL POINT TABLE

POINT NAME	NORTHING	EASTING	ELEVATION	ELEVATION LOCATION	DESCRIPTION
5-1	566774.22	389969.08	1289.61	INVERT	8" W1 90° BEND
5-2	566774.22	389932.58	1289.62	INVERT	8" W1 CROSSING
			UNKNOWN		PROPOSED GAS LINE
5-3	566774.22	389871.33	1289.62	INVERT	8" W1 CROSSING
					EXISTING 4" SSFM
5-4	566762.82	389969.08	1289.45	INVERT	8"W1 CROSSING
			UNKNOWN		EXISTING 4" SSFM
5-5	566774.22	389847.89	1289.62	INVERT	8"W1 CROSSING
			UNKNOWN		EXISTING 13"X18" HERCP SD
5-6	566774.22	389709.21	1289.62	INVERT	8"W1 CROSSING
			UNKNOWN		EXISTING 8" RS
5-7	566774.22	389663.05	1289.62	INVERT	8"W1 CROSSING
			UNKNOWN		EXISTING GAS LINE
5-8					NOT USED
5-9					NOT USED
5-10					NOT USED
5-11					NOT USED
5-12					NOT USED
5-13	567047.00	389770.59	1281.21	INVERT	30" ML CONNECTION TO FACILITY 145 AND 90° BEND
5-14	567035.16	389771.21	1281.21	INVERT	30" ML 90° BEND
5-15	567032.83	389980.08	1277.74	INVERT	36" ML x 30" ML RDCR
5-16	567032.82	389990.85	1277.74	INVERT	36" ML 45° BEND
5-17	567032.61	390000.39	1287.00	INVERT	36" ML 45° BEND
5-18	567032.61	390028.33	1287.00	INVERT	36" ML CONNECTION TO FACILITY 300
5-19	566751.35	389969.08	1289.36	INVERT	8" W1 CROSSING
			UNKNOWN		EXISTING GAS LINE
5-20	566769.18	389969.08	1289.53	INVERT	8" W1 CROSSING
					EXISTING 3" W1
5-21					NOT USED
5-22					NOT USED
5-23					NOT USED
5-24					NOT USED
5-25	566945.00	389865.95	1288.48	INVERT	30" ML CONNECTION TO FACILITY 140
5-26	566998.80	389867.05	1288.62	INVERT	30" ML 45° BEND
5-27	567039.47	389907.77	1288.86	INVERT	30" ML 45° BEND
5-28	567039.69	390028.31	1287.08	INVERT	30" ML CONNECTION TO FACILITY 300
5-29					NOT USED
5-30					NOT USED
5-31					NOT USED
5-32					NOT USED
5-33					NOT USED
5-34					NOT USED
5-35	567029.62	390062.13	1283.42	INVERT	30" ML CONNECTION TO FACILITY 300
5-36	567021.36	390062.11	1283.42	INVERT	30" ML VAVLE V407
5-37	567004.78	390062.11	1283.42	INVERT	30" ML 90° BEND
5-38	567004.78	390116.22	1269.67	INVERT	30" ML 45° BEND AND CROSSING
			1273.0 ±	INVERT	EXISTING 12" RS
5-39	567029.62	390072.13	1283.42	INVERT	30" ML CONNCTION TO FACILITY 300
5-40	567021.33	390072.11	1283.42	INVERT	30" ML VAVLE V407
5-41	567010.44	390072.11	1283.42	INVERT	30" ML 90° BEND
5-42	567010.44	390128.06	1269.67	INVERT	30" ML 45° BEND
5-43	567074.53	390114.44	1288.49	INVERT	UPPER 12" RAS CONNECTION TO FACILITY 300
			1286.50	INVERT	LOWER 12" RAS CONNECTION TO FACILITY 300
5-44	597010.44	390086.47	1269.67	INVERT	30" ML 45° BEND
5-45	567074.53	390118.97	1288.49	INVERT	12" RAS 45° BEND AND CROSSING
			1286.5±	INVERT	PROPOSED 12" RAS
5-46	567070.50	390123.45	1285.15	INVERT	12" RAS 45° BEND
5-47	567052.36	390124.00	1283.10	INVERT	12" RAS 45° BEND
5-48	567062.10	390114.39	1288.12	INVERT	8" TF CONNECTION TO FACILITY 300
5-49	567062.10	390120.16	1288.12	INVERT	8" TF 90° BEND
5-50	567047.43	390120.27	1277.88	INVERT	8" TF 90° BEND
5-51	567034.04	390114.31	1285.95	INVERT	8"SSM CONNCETION TO FACILITY 300
5-52	567034.04	390124.99	1287.50	INVERT	8" SSM TEE AND CROSSING
			UNKNOWN		EXISTING 1-1/2" W1
5-53	567005.48	390124.99	1287.50	INVERT	8" SSM 45° BEND AND CROSSING
			1272.9 ±	INVERT	EXISTING 12" RS
5-54	566958.44	390130.98	1282.50	INVERT	30" SEFF 45° BEND
5-55	566938.55	390130.77	1282.24	INVERT	36" x 30" SEFF RDCR
5-56	566934.19	390130.77	1282.24	INVERT	36" x 30" SEFF TEE
5-57	566903.08	390130.77	1281.98	INVERT	42" x 36" SEFF RDCR
5-58	566893.34	390131.14	1281.98	INVERT	42 SEFF 45° BEND
5-59	566883.24	390076.87	1285.75	INVERT	36" x 24" SEFF RDCR
5-60	566883.19	390066.15	1286.79	INVERT	24" SEFF TEE AND CONNCETION TO EXISTING 24" SEFF
5-61	567004.78	390076.47	1269.67		30" ML 45° BEND
5-62	566883.13	390115.02	1283.23	INVERT	42" x 36" SEFF RDCR
5-63	567034.06	389821.03	1280.41	INVERT	30" ML CROSSING
			UNKNOWN		PROPOSED 1-1/2" W1
5-64	567033.54	389901.71	1288.84	INVERT	30" ML CROSSING
			1279.2±	INVERT	PROPOSED 30" ML (NRCY)
5-65	567032.60	390005.31	1287.00	INVERT	30" ML CROSSING
			1283.3±	INVERT	EXISTING 8" RAS
5-66	567032.60	390010.31	1287.00	INVERT	30" ML CROSSING
			1283.7±	INVERT	EXISTING 10" RAS
5-67	567039.69	390005.31	1287.46	INVERT	30" ML (NRCY) CROSSING
			1284±	INVERT	EXISTING 8" RAS
5-68	567039.69	390010.31	1287.23	INVERT	30" ML (NRCY) CROSSING
			1284.6±	INVERT	EXISTING 10" RAS
5-69	567074.50	390129.04	1275.99	INVERT	12" RAS CROSSING
			UNKNOWN		PROPOSED 1" W1

CONTROL POINT TABLE

POINT NAME	NORTHING	EASTING	ELEVATION	ELEVATION LOCATION	DESCRIPTION
5-70					NOT USED
5-71					NOT USED
5-72					NOT USED
5-73	566989.01	389866.69	1288.61	INVERT	30" ML (NRCY) CROSSING
			1283.8±	INVERT	EXISTING 24" RAS
			UNKNOWN		EXISTING 3" W3 ABANDONED
5-74	566983.25	389866.64	1288.54	INVERT	30" ML (NRCY) CROSSING
			UNKNOWN		EXISITING 3" W1
5-75					NOT USED
5-76	566971.82	389866.28	1288.54	INVERT	30" ML (NRCY) CROSSING
			UNKNOWN		PROPOSED 1/2" FC
5-77	566966.30	389866.18	1288.51	INVERT	30" ML (NRCY) CROSSING
			1282.5 ±	INVERT	PROPOSED 18" RAS
5-78	566957.75	389866.01	1288.48	INVERT	30" ML (NRCY) CROSSING
					EXISTING 20" RS
5-79					NOT USED
5-80					NOT USED
5-81					NOT USED
5-82					NOT USED
5-83					NOT USED
5-84					NOT USED
5-85					NOT USED
5-86					NOT USED
5-87					NOT USED
5-88					NOT USED
5-89					NOT USED
5-90					NOT USED
5-91					NOT USED
5-92					NOT USED
5-93					NOT USED
5-94					NOT USED
5-95					NOT USED
5-96	567017.83	390062.11	1283.42	INVERT	30" ML CROSSING
			1287.4±	INVERT	EXISTING 24" RAS
5-97	567017.83	390072.11	1283.42	INVERT	30" ML CROSSING
			1287.4±	INVERT	EXISTING 24" RAS
5-98	567014.11	390062.11	1283.42	INVERT	30" ML CROSSING
			UNKNOWN		EXISTING 3" W1
5-99	567014.11	390072.11	1283.42	INVERT	30" ML CROSSING
			UNKNOWN		EXISTING 3" W1
5-100	567007.90	360062.08	1283.42	INVERT	30" ML CROSSING
			1289.3±		EXISTING 18" RAS
5-101	567010.44	390088.31	1269.67	INVERT	30" ML CROSSING
			1279.7 ±	INVERT	EXISTING 42" ML
5-102	567004.78	390088.31	1269.67	INVERT	30" ML CROSSING
			1279.5 ±	INVERT	EXISTING 42" ML
5-103	567010.44	390094.44	1269.67	INVERT	30" ML CROSSING
			1286.5 ±	INVERT	EXISTING 8" SC
5-104	567004.34	390094.44	1269.67	INVERT	30" ML CROSSING
			1286.5 ±	INVERT	EXISTING 8" SC
5-105	567010.44	390110.48	1269.67	INVERT	30" ML CROSSING
			1289.2 ±	INVERT	EXISTING 18" RAS
5-106	567010.44	390123.73	1269.67	INVERT	30" ML CROSSING
			1287.49	INVERT	PROPOSED 8" SSM
			UNKNOWN		EXISTING 2" W1
5-107					NOT USED
5-108					NOT USED
5-109					NOT USED
5-110	566991.48	390129.52	1269.67	INVERT	30" ML CROSSING
			1274.3 ±	INVERT	EXISTING 8" D
			1287.2 ±	INVERT	EXISTING 8" SSM
5-111	567074.53	390125.88	1288.49	INVERT	12" RAS 45° BEND
5-112	567026.58	390132.22	1280.38	INVERT	12" RAS 45° BEND
5-113	567057.78	390123.89	1283.68	INVERT	12" RAS CROSSING
			1276.5±	INVERT	EXISTING 10" D
5-114	567048.67	390127.58	1282.53	INVERT	12" RAS CROSSING
			1290.1 ±	INVERT	EXISTING 6" DS
5-115	567047.35	390134.87	1277.62	INVERT	12" RAS CROSSING
			1289.9 ±	INVERT	EXISTING 6" DS
5-116					NOT USED
5-117	567044.07	390132.11	1281.66	INVERT	12" RAS CROSSING
			UNKNOWN		EXISTING GAS LINE
5-118	567037.46	390132.16	1281.12	INVERT	12" RAS CROSSING
			1289.6 ±	INVERT	EXISTING 6" DS
5-119	567034.04	390133.55	1287.49	INVERT	8" TF CROSSING
			1289.5 ±	INVERT	EXISTING 6" DS
			1280.94		PROPOSED 12" RAS
5-120	567031.50	390124.99	1287.50	INVERT	8" SSM CROSSING
			1276.3 ±	INVERT	EXISTING 8" D
5-121	566996.41	390134.06	1287.87	INVERT	8" SSM CROSSING
			1274.2 ±	INVERT	EXISTING 8" D
5-122	567034.04	390119.08	1285.95	INVERT	8" 45° BEND
5-123	567034.04	390120.37	1287.50	INVERT	8" 45° BEND

LEGEND

CONTROL POINT

1-5XX

SEQUENTIAL POINT #

SITE PLAN AREA #

NOTES:

1. FOR CONTROL POINT PLAN SHEET LOCATIONS, SEE DWG 050-C-2001 THRU 050-C-2009 AND 050-C-2401 THRU 050-C-2409.

ESTELL JO JOHNSON
NUMBER
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		A ESPOSITO	S MILLER	T STOUT		E JOHNSON	

REVISION

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

ch2m

YARD PIPING

YARD PIPING LOCATION TABLES

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-6003
SHEET	96 of 314

BIDDING SET

FILENAME: 051-Y-6003_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 1:49:52 PM

CONTROL POINT TABLE

POINT NAME	NORTHING	EASTING	ELEVATION	ELEVATION LOCATION	DESCRIPTION
6-1	567044.94	390136.26	UNKNOWN		GAS LINE CONNECTION
6-2	567118.07	390136.26	UNKNOWN		GAS LINE 90° BEND
6-3	567118.07	390267.20	UNKNOWN		GAS LINE 90° BEND
6-4	567037.00	390267.20	UNKNOWN		GAS LINE CONNECTION
6-5	567074.52	390139.39	1271.45	INVERT	12" RAS CONNECTION TO FACILITY 155
6-6	567045.28	390131.07	1277.62	INVERT	8" TF 45° BEND AND CROSSING
			UNKNOWN		PROPOSED GAS LINE
6-7					NOT USED
6-8	567034.04	390142.19	1287.50	INVERT	8" SSM 45° BEND
6-9					NOT USED
6-10	567034.30	390151.93	1269.67	INVERT	30" ML CONNECTION TO FACILITY 155
6-11	567036.57	390144.87	1287.50	INVERT	8" SSM CROSSING
			1275.5±	INVERT	EXISTING 10" D
			1275.40	INVERT	PROPOSED 8" TF
6-12	566969.07	390151.93	1269.67	INVERT	30" ML CONNECTION TO FACILITY 155
6-13	566968.63	390161.84	1287.50	INVERT	8" SSM CONNECTION TO FACILITY 155
6-14	566934.19	390139.48	1282.50	INVERT	30" SEFF CONNCETION TO FACILITY 155
6-15					NOT USED
6-16	566883.13	390140.85	1281.70	INVERT	42" x 36" SEFF WYE
6-17	566883.13	390169.57	1280.17	INVERT	42" SEFF 90° BEND
6-18	566868.72	390169.57	1280.01	INVERT	42" x 20" SEFF TEE
6-19	567014.67	390186.57	1282.50	INVERT	30" 45° BEND AND CROSSING
			1288.2±	INVERT	EXISTING 6" DS
6-20	567021.85	390186.81	1282.50	INVERT	30" SEFF CONNECTION TO FACILITY 155
6-21	566988.75	390191.99	1271.67	INVERT	12" RAS 45° BEND
6-22	566981.52	390192.15	1271.45	INVERT	12" RAS CONNECTION TO FACILITY 155
6-23					NOT USED
6-24					NOT USED
6-25					NOT USED
6-26					NOT USED
6-27	566861.72	390169.32	1280.01	INVERT	42" SEFF CONNECTION TO FACILITY 210
6-28	566854.72	390169.32	1280.01	INVERT	42" SEFF CONNECTION TO FACILITY 210
6-29	566863.22	390239.07	1277.00	INVERT	42" PLEFF CONNECTION TO FACILITY 210
6-30	566863.22	390281.80	1276.94	INVERT	42" PLEFF 90° BEND
6-31					NOT USED
6-32					NOT USED
6-33					NOT USED
6-34					NOT USED
6-35					NOT USED
6-36	566755.38	390220.17	1290.12	INVERT	8" DC 45° BEND
6-37	566759.93	390220.55	1285.56	INVERT	8" DC 45° BEND
6-38	566767.74	390220.20	1285.24	INVERT	8" DC 45° BEND
6-39	566763.83	390221.89	1281.20	INVERT	8" DS 45° BEND
6-40	566763.83	390248.06	1281.20	INVERT	6" x 4" DS TEE WITH 6" V405 SOUTH AND 4" V405 WEST
6-41	566771.22	390223.82	1284.66	INVERT	8" DC 45° BEND
6-42					NOT USED
6-43					NOT USED
6-44					NOT USED
6-45					NOT USED
6-46					NOT USED
6-47					NOT USED
6-48	567031.49	390132.14	1280.74	INVERT	12" RAS CROSSING
			1276.9±	INVERT	EXISTING 8" D
6-49	567020.81	390138.54	1269.67	INVERT	30" ML CROSSING
			1279.30	INVERT	PROPOSED 12" RAS
			1289.0±	INVERT	EXISTING 6" DS
6-50	567029.66	390147.12	1269.67	INVERT	30" ML CROSSING
			1275.6 ±	INVERT	EXISTING 10" D
6-51	567032.45	390150.08	1269.67		30" ML CROSSING
			1274.60		PROPOSED 8" TF
6-52					NOT USED
6-53	567010.40	390148.38	1277.69	INVERT	12" RAS 45° BEND AND CROSSING
			1274.0 ±	INVERT	EXISTING 8" D
6-54	567013.79	390144.82	1278.00	INVERT	12" RAS 45° BEND AND CROSSING
			1274 .1 ±	INVERT	EXISTING 10" D
			1288.9 ±		EXISTING 6" DS
6-55					NOT USED
6-56					NOT USED
6-57	567019.31	390240.14	1272.26	INVERT	12" RS CROSSING
			1271.7±	INVERT	EXISTING 24" RS
6-58	567018.97	390257.87	1272.26	INVERT	12" RAS CROSSING
			UNKNOWN		EXISTING 3" W3
6-60	567010.18	390170.51	1275.30	INVERT	12" RAS 45° BEND

CONTROL POINT TABLE

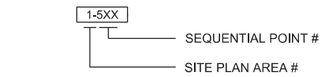
POINT NAME	NORTHING	EASTING	ELEVATION	ELEVATION LOCATION	DESCRIPTION
6-61					NOT USED
6-62	567001.72	390173.95	1282.50		30" SEFF CROSSING
			UNKNOWN		EXISTING 2" W1
6-63	567004.32	390176.57	1282.50	INVERT	30" SEFF CROSSING
			1274.1 ±	INVERT	PROPOSED 12" RAS
6-64	567001.73	390179.12	1273.99	INVERT	12" RAS CROSSING
			UNKNOWN		EXISTING 2" W1
6-65	566978.99	390151.46	1282.50	INVERT	30" SEFF CROSSING
			1287.90	INVERT	PROPOSED 8" SSM
			UNKNOWN		3" W3 ABANDONED
6-66	566974.47	390146.38	1282.50	INVERT	30" SEFF CROSSING
			1269.70	INVERT	PROPOSED 30" ML
6-67			1281.20		4" DS CROSSING
			1271.7±	INVERT	EXISTING 24" RS
6-68					NOT USED
6-69					NOT USED
6-70	566863.22	390248.06	1277.00	INVERT	42" PLEFF CROSSING
			1283.7 ±	INVERT	EXISTING 6" DS
6-71	566863.18	390257.82	1276.97	INVERT	42" PLEFF CROSSING
			UNKNOWN		PROPOSED 3" W3
			UNKNOWN		EXISTING 2" W1
6-72					NOT USED
6-73	566818.98	390248.06	1273.41	INVERT	10" RS CROSSING
			1282.6 ±	INVERT	EXISTING 6" DS
6-74	566818.98	390258.84	1273.09	INVERT	10" RS CROSSING
			UNKNOWN		EXISTING 2" W1
6-75	566818.98	390281.80	1272.41	INVERT	10" RS CROSSING
			1276.89	INVERT	PROPOSED 42" PLEFF
6-76	566771.32	390239.70	1280.95	INVERT	8" DC CROSSING
			1271.7 ±	INVERT	EXISTING 24" RS ABANDONED
6-77	566771.32	390248.06	1278.98	INVERT	8" DC CROSSING
			1281.50	INVERT	EXISTING 6" DS
6-78	566771.32	390281.80	1272.80	INVERT	8" DC CROSSING
			1276.85	INVERT	PROPOSED 42" PLEFF
6-79	567074.53	390133.79	1271.45	INVERT	12" RAS 45° BEND
6-80	566771.32	390275.73	1272.8	INVERT	8" DC 22.5° BEND

NOTES:

1. FOR CONTROL POINT PLAN SHEET LOCATIONS, SEE DWG 050-+C-2001 THRU 050-C-2009 AND 050-C-2401 THRU 050-C-2409.

LEGEND

CONTROL POINT





11/04/2016

NO.	DATE	BY	REVISION	CHK	APVD
DSGN	A ESPOSITO		S MILLER	T STOUT	E JOHNSON
DR					

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

YARD PIPING

YARD PIPING LOCATION TABLES

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-6004
SHEET	97 of 314

BIDDING SET

CONTROL POINT TABLE

POINT NAME	NORTHING	EASTING	ELEVATION	ELEVATION LOCATION	DESCRIPTION
7-1	566735.28	389475.66	1291.43	INVERT	24" SSFM CONNECTION TO FACILITY 110
7-2	566735.86	389465.49	1291.38	INVERT	24" SSFM 90° BEND
7-3	566669.26	389465.61	1290.36	INVERT	24" SSFM 45° BEND
7-4	566642.6	389492.28	1289.82	INVERT	24" SSFM 45° BEND
7-5	566642.38	389528.18	1289.32	INVERT	24" SSFM 45° BEND
7-6	566636.63	389533.93	1289.20	INVERT	24" SSFM 45° BEND
7-7	566541.69	389534.04	1288.42	INVERT	24" x 16" SSFM WYE
7-8	566500.98	389534.04	1288.42	INVERT	24" SSFM CONNECTION TO FACILITY 107
7-9	566529.33	389546.57	1288.77	INVERT	16" SSFM 45° BEND
7-10	566529.08	389618.22	1288.77	INVERT	16" SSFM 45° BEND
7-11	566510.44	389636.86	1288.58	INVERT	16" SSFM 45° BEND
7-12	566504.01	389636.99	1288.63	INVERT	16" SSFM CONNECTION TO EXISTING 16" SSFM
7-13	566716.61	389473.31	1294.89	INVERT	18" FA 90° BEND
7-14	566671.87	389473.31	1293.92	INVERT	18" FA 45° BEND
7-15	566650.2	389495.15	1293.25	INVERT	18" FA 45° BEND
7-16	566649.94	389529.64	1292.50	INVERT	18" FA 45° BEND
7-17	566637.25	389542.36	1292.13	INVERT	18" FA 45° BEND
7-18	566526.17	389542.45	1286.36	INVERT	18" FA 45° BEND
7-19	566501.72	389566.68	1285.52	INVERT	18" FA 45° BEND
7-20	566496.14	389566.78	1285.58	INVERT	18" FA 90° BEND
7-21	566496.14	389566.78	1299.21	INVERT	18" FA 90° BEND
7-22	566490.1	389566.78	1299.21	INVERT	18" FA 90° BEND AND CONNECTION TO FACILITY 105
7-23	566676.77	389478.23	UNKNOWN		4" D 45° BEND
7-24	566669.79	389478.22	UNKNOWN		4" D 45° BEND
7-25	566652.07	389495.94	UNKNOWN		4" D 45° BEND
7-26	566652.07	389530.54	UNKNOWN		4" D 45° BEND
7-27	566637.76	389544.85	UNKNOWN		4" D 45° BEND
7-28	566528.66	389544.85	UNKNOWN		4" D 45° BEND
7-29	566505.47	389568.04	UNKNOWN		4" D 45° BEND
7-30	566492.82	389568.04	1285.20	INVERT	4" D CONNECTION TO FACILITY 105
7-31	566460.98	389568.04	1270.00	INVERT	36" RS CONNECTION TO FACILITY 105
7-32	566529.2	389573.43	1288.77	INVERT	16" SSFM CROSSING
			UNKNOWN		EXISTING UNDERGROUND POWER
7-33	566512.91	389534.04	1287.51	INVERT	24" SSFM CROSSING
			UNKNOWN		EXISTING 16" SSFM/OF
7-34	566512.87	389555.65	1286.00	INVERT	18" FA CROSSING
			UNKNOWN		EXISTING 16" SSFM/OF
7-35	566512.89	389560.62	1285.60	INVERT	4" D CROSSING
			UNKNOWN		EXISTING 16" SSFM/OF
7-36	566513.05	389634.52	1288.58	INVERT	16" SSFM CROSSING
					EXISTING 16" SSFM/OF
7-37	566679.36	389480.91	UNKNOWN		4" D 45° BEND

CONTROL POINT TABLE

POINT NAME	NORTHING	EASTING	ELEVATION	ELEVATION LOCATION	DESCRIPTION
8-1	566399.33	389977.52	1284.62	INVERT	8" W1 TEE
8-2					NOT USED
8-3	566399.33	389973.37	1284.62	INVERT	8" W1 VALVE V132
8-4	566399.33	389969.08	1284.62	INVERT	8" W1 90° BEND
8-5	566411.67	389969.13			8" FIRE SERVICE METER VAULT
8-6	566441.77	389969.08	1285.19	INVERT	8" W1 CROSSING
			UNKNOWN		EXISTING 15" SD (2)
8-7	566731.13	389977.87	1289.06	INVERT	8" x 6" W1 RDCR TEE WITH FIRE HYDRANT EAST
8-8	566445.78	389969.08	1285.24	INVERT	8" W1 CROSSING
			1270.30	INVERT	PROPOSED 36" RS
8-9	566476.33	389969.08	1285.65	INVERT	8" W1 CROSSING
			UNKNOWN		EXISTING 24" RS

NOTES:

1. FOR CONTROL POINT PLAN SHEET LOCATIONS, SEE DWG 050-C-2001 THRU 050-C-2009 AND 050-C-2401 THRU 050-C-2409.

LEGEND

CONTROL POINT

1-5XX

- SEQUENTIAL POINT #
- SITE PLAN AREA #

ESTELL JO JOHNSON — 15411 — 11/4/16 — KANSAS — PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		A ESPOSITO	S MILLER	T STOUT		E JOHNSON	

REVISION

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CITY OF WICHITA, KANSAS

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YARD PIPING

YARD PIPING LOCATION TABLES

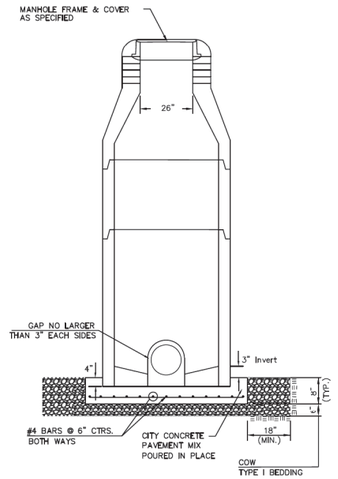
VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

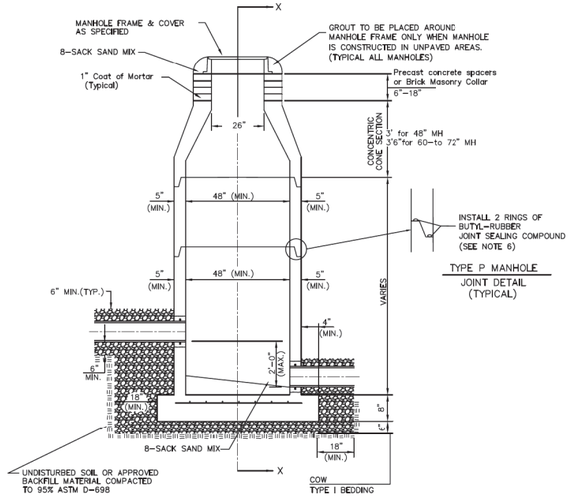
DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-6005
SHEET	98 of 314

BIDDING SET

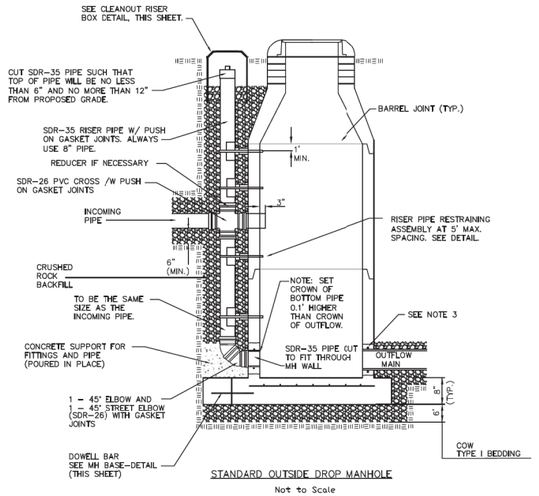
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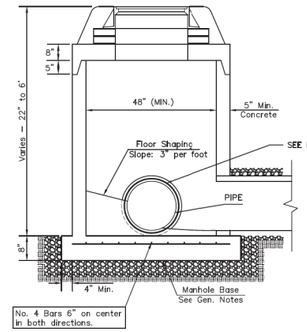
DOG HOUSE MANHOLE
(OVER EXISTING PIPE)
Not to Scale



STANDARD MANHOLE
Not to Scale

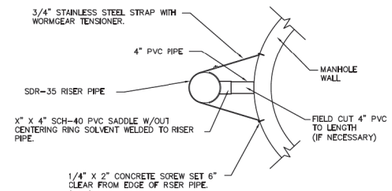


STANDARD OUTSIDE DROP MANHOLE
Not to Scale



SHALLOW MANHOLE
Not to Scale

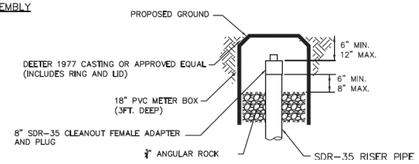
= COW TYPE I BEDDING = UNDISTURBED SOIL



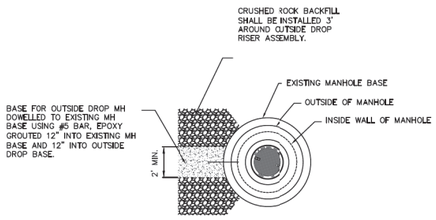
RISER PIPE RESTRAINING ASSEMBLY
Not to Scale

SANITARY SEWER MANHOLE DIAMETERS

DIAMETER	DEPTH	PIPE SIZE
4'	0'-15'	8"-18"
5'	>15'-30'	21"-30"
6'	>30'	36"-60"



CLEANOUT RISER BOX DETAIL
Not to Scale



MH BASE DETAIL
Not to Scale

PRECAST MANHOLE GENERAL NOTES

1. ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISIONS OF A.S.T.M. C478 AS MODIFIED BY THE SPECIFICATIONS.
2. NON-SHRINK GROUT SHALL BE NON-METALLIC TYPE.
3. APPROVED FLEXIBLE WATERSTOP SHALL BE INSTALLED TO JOIN THE SEWER PIPE TO THE MANHOLE WALL. THE SEWER PIPE SHALL BE SUPPORTED WITH CRUSHED ROCK A MINIMUM OF 3 FEET FROM THE MANHOLE WALL AND TO THE FIRST JOINT FOR V.C.P. SUCH THAT THE JOINT REMAINS FLEXIBLE.
4. ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED PER SECTION 804.4 OF STANDARD SPECIFICATIONS.
5. EXTERIOR MANHOLE WALLS SHALL BE COATED PER SECTION 804.4 OF STANDARD SPECIFICATIONS.
6. JOINT SEALING COMPOUND SHALL BE PER 804.4 OF STANDARD SPECIFICATIONS.
7. ALL MANHOLE SECTION JOINTS THAT WILL BE IN GROUNDWATER OR GREATER THAN 12' DEEP SHALL BE WRAPPED WITH AN EXTERNAL JOINT SEAL PER SECTION 804.4 OF STANDARD SPECIFICATIONS. AS INDICATED BY THE PLANS.
8. PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO THE MANHOLE BASE FOR DOG HOUSE MANHOLES.
9. TOP OF MANHOLE FLOOR SLAB SHALL BE AT LEAST 3 INCHES BELOW THE FLOW LINE OF THE OUTLET PIPE TO INSURE SUFFICIENT MINIMUM THICKNESS OF SHAPED INVERT.
10. LIFTING HOLES SHALL BE FILLED WITH NON-SHRINK GROUT AND THE INTERIOR SURFACE COATED AS SPECIFIED.
11. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 SACKS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE BASES SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE FOR CONCRETE PAVEMENT CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD PAVING SPECIFICATIONS USING CITY CONCRETE PAVEMENT MIX WITHOUT AIR ENTRAINING ADMIXTURE. MORTAR SHALL BE PLACE AROUND THE MANHOLE RING AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.
12. REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASES AND SHALL CONSIST OF NO.4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. THE MANHOLE BASE REINFORCEMENT SHALL BE PLACED AT LEAST 3" ABOVE THE BOTTOM OF THE MANHOLE BASE. ALL COSTS FOR FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
13. WALL THICKNESS SHALL BE 1" GREATER THAN MANHOLE DIAMETER IN FEET.
14. OPENINGS SHALL BE CORE DRILLED INTO THE MANHOLE WALL WHEN OUTSIDE DROPS ARE CONSTRUCTED ON EXISTING MANHOLES. SUCH OPENINGS DRILLED INTO EXISTING MANHOLES SHALL BE AS SMALL AS PRACTICAL TO FACILITATE INSTALLING AND GROUTING THE NEW PIPE IN PLACE. WATERSTOP GASKETS SHALL BE USED WITH P.V.C. PIPE. THE NEW PIPE SHALL BE GROUTED INTO THE OPENING USING AN APPROVED NONSHRINK GROUT FOR THE FULL MANHOLE WALL THICKNESS. THE EXTERIOR OF THE COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT. FLOOR OF MANHOLE SHALL BE MODIFIED TO FORM NEW FLOW CHANNEL FOR THE NEW CONNECTION AS INDICATED BY THE DRAWING. THIS WORK, INCLUDING MODIFICATION OF MANHOLE FLOOR, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR OUTSIDE DROP STACK CONSTRUCTED ON EXISTING MANHOLE.
15. THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF CLEANING AND FREE OF AREAS WHERE SOLIDS COULD BE DEPOSITED AS SEWAGE FLOWS THROUGH THE MANHOLE FROM ALL INLET PIPES TO THE OUTLET PIPE. FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM HALVES OF THE INFLOWING PIPES AND THE OUTFLOWING PIPE AS SHOWN BY THE DRAWINGS. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT IN THE AREAS OUTSIDE OF THE FLOW CHANNELS SLOPED TOWARD THE FLOW CHANNELS. PIPES LAID THROUGH MANHOLES SHALL HAVE THE TOP HALF REMOVED TO NEAT LINES FOR THE FULL INSIDE DIAMETER OF THE MANHOLE. MANHOLE FLOORS SHALL THEN BE SHAPED AROUND THE BOTTOM HALF OF THE PIPE WHICH FORMS THE FLOW CHANNEL.
16. MANHOLE COVER CASTINGS AND MANHOLE FRAME CASTINGS SHALL CONFORM TO THE REQUIREMENTS AS INDICATED IN THE STANDARD SPECIFICATIONS AND AS SHOWN IN THE STANDARD DETAIL DRAWING.
17. THE VERTICAL DROP IN STANDARD MANHOLES SHALL NOT EXCEED 2' REGARDLESS OF PIPE SIZE. THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
18. STANDARD MANHOLES SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES SHALL BE BID AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.
19. PRECAST CONCRETE SPACERS OR BRICK MASONRY COLLAR SHALL BE INSTALLED BETWEEN THE CAST IRON FRAME AND THE CONCENTRIC CONE. THE COLLAR WILL HAVE 8" WALLS AND A VERTICAL HEIGHT OF 6" MINIMUM AND 18" MAXIMUM. A 1" COAT OF MORTAR WILL BE PLASTERED ON THE OUTSIDE OF THE COLLAR. THE USE OF PRE-CAST CONCRETE SPACERS FOR MANHOLE TOP ADJUSTMENT IS ALSO ALLOWED.
20. THE FULL DIAMETER OF THE MANHOLE SHALL EXTEND THE ENTIRE DEPTH OF THE MANHOLE TO THE CONE SECTION. NO REDUCTION IN MANHOLE DIAMETER WILL BE ALLOWED.
21. REFER TO PLANS FOR SIZE OF OUTSIDE DROP RISER, SADDLES AND CROSS.

REVISED JANUARY 2015

CITY OF WICHITA
PUBLIC WORKS & UTILITIES ENGINEERING DIVISION

PRECAST SANITARY SEWER MANHOLE

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

SHEET

SS-101

STELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		A ESPOSITO	S MILLER	T STOUT	APVD	E JOHNSON	

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

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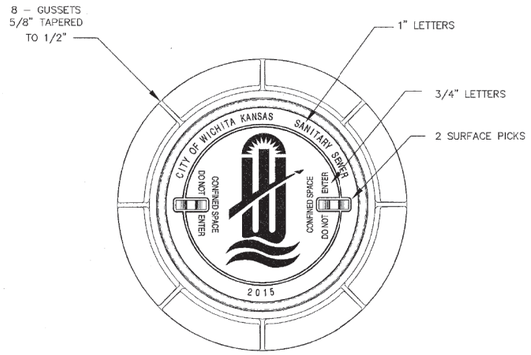
YARD PIPING
YARD PIPING
CITY OF WICHITA DETAILS

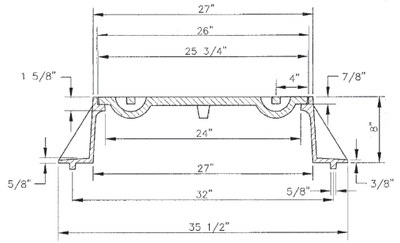
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-9001
SHEET	99 of 314

BIDDING SET

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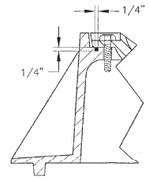


STANDARD MANHOLE FRAME & COVER

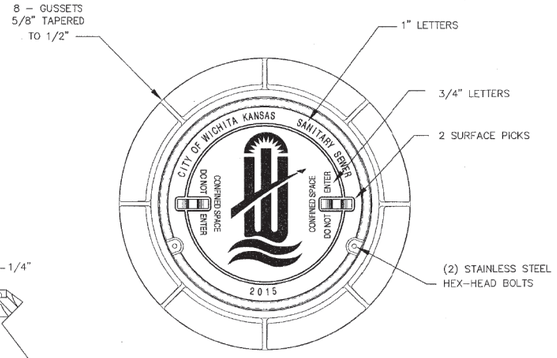
DEETER #1261 OR EJIW #1936–Z1

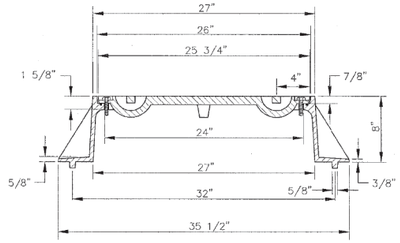
NOTE:

1. FURNISHED WITH MACHINED HORIZONTAL BEARING SURFACE.



DETAIL OF T–GASKET



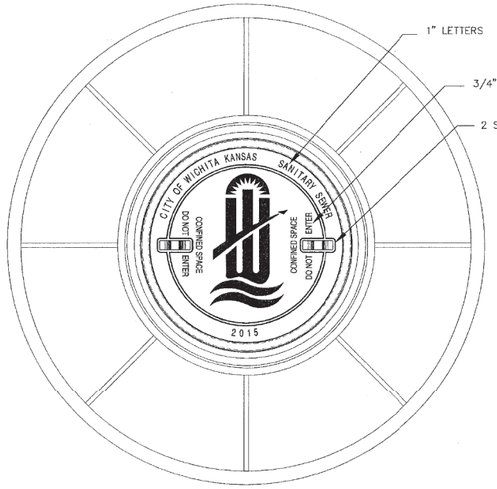


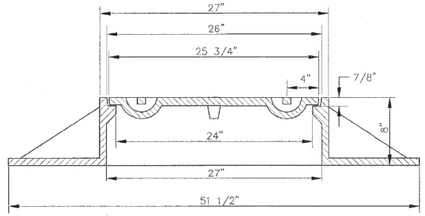
BOLT DOWN MANHOLE FRAME & COVER

DEETER #1261 OR EJIW #1936–Z1

NOTE:

1. FURNISHED WITH MACHINED HORIZONTAL BEARING SURFACE.
2. FURNISHED WITH A T–GASKET IN THE FRAME.





WIDE FLANGED FRAME & COVER

DEETER #1261A

NOTE:

1. FURNISHED WITH MACHINED HORIZONTAL BEARING SURFACE.

GENERAL NOTES

1. MANHOLE CASTINGS SHALL BE MANUFACTURED USING GOOD QUALITY GRAY IRON CONFORMING TO CLASS 30 OF A.S.T.M. DESIGNATION A–48. DIMENSIONS SHOWN ON THE DETAILED DRAWINGS SHALL BE CONSIDERED AS MINIMUM REQUIREMENTS AND ANY DEVIATIONS FROM THE DIMENSIONS SHOWN MUST BE SPECIFICALLY APPROVED. THE FINISHED CASTINGS SHALL BE OF UNIFORM QUALITY, FREE FROM BLOWHOLES, POROSITY, HARD SPOTS, SHRINKAGE DISTORTIONS OR OTHER DEFECTS.

2. MANHOLE CASTINGS SHALL BE MANUFACTURED SUCH THAT A COVER MANUFACTURED BY ANY ONE FOUNDARY WILL FIT INTERCHANGEABLY INTO A FRAME MANUFACTURED BY ANOTHER FOUNDRY AND STILL MEET ALLOWABLE CLEARANCES AND NON–ROCKING REQUIREMENTS. THIS WILL REQUIRE MANUFACTURING OF THE MATCHING FACES ON THE COVER AND THE FRAME TO CLOSE TOLERANCES.

3. THE OUTSIDE CIRCUMFERENCE OF THE VERTICAL FACE OF THE COVER AND THE INSIDE CIRCUMFERENCE OF THE VERTICAL FACE IN THE FRAME RECESS SHALL BE MANUFACTURED TO TOLERANCES SUCH THAT THE CLEARANCE BETWEEN THE COVER AND FRAME WILL NOT EXCEED 1/8" AT ANY POINT AROUND THE CIRCUMFERENCE OF THE COVER. THE SEATING SURFACES BETWEEN THE COVER AND FRAME SHALL BE MACHINED SUCH THAT THESE SEATING SURFACES SHALL MAKE FULL CONTACT FOR THEIR FULL CIRCUM–FERENCE TO PRECLUDE THE COVER FROM ROCKING IN THE FRAME.

4. THE MANHOLE FRAME AND COVER SHALL BE MARKED WITH LETTERING INDICATING THE NAME OF THE MANUFACTURER AND THE YEAR WHEN THE COVER OR FRAME WAS CAST. THE COVER SHALL BE FURTHER IDENTIFIED WITH REGARDS TO OWNERSHIP USING LETTERS AT LEAST 1 INCH IN HEIGHT. THIS IDENTIFICATION SHALL BE "CITY OF WICHITA SANITARY SEWER".
THE TOP SURFACE OF THE COVER SHALL BE MANUFACTURED IN WITH CITY OF WICHITA DESIGN AS INDICATED ON THE DRAWINGS. SMOOTH BLOCKOUTS SHALL BE UTILIZED TO HIGHLIGHT THE LETTERING ON THE COVER SURFACE. THE TOTAL AREA OF SMOOTH SURFACE BLOCKOUT SHALL NOT EXCEED THE AREA AS INDICATED ON THE DRAWING. POSITIONING OF SMOOTH BLOCKOUTS AND LETTERING MAY VARY FROM THAT SHOWN ON THE DETAILED DRAWING.

REVISED: JUNE 2015

GARY L. JANZEN
LICENSED
16294
KANSAS
PROFESSIONAL ENGINEER
06/14/16

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

MANHOLE
FRAME AND COVER
(SANITARY SEWER)

CITY ENGINEER
GARY JANZEN, P.E

PROJECT NUMBER	OCA NUMBER	DATE

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

SHEET

SS-I02

STELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		A ESPOSITO		S MILLER	T STOUT	APVD	E JOHNSON

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

ch2m

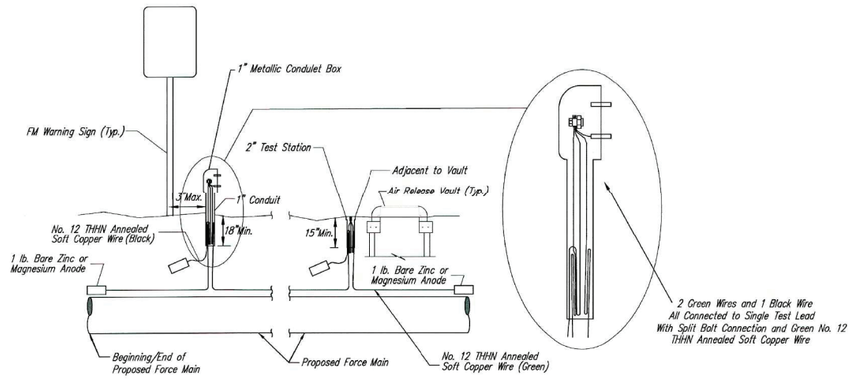
YARD PIPING
YARD PIPING
CITY OF WICHITA DETAILS

BIDDING SET

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-9002
SHEET	100 of 314

FILENAME: 051-Y-9002_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 12:01:44 PM



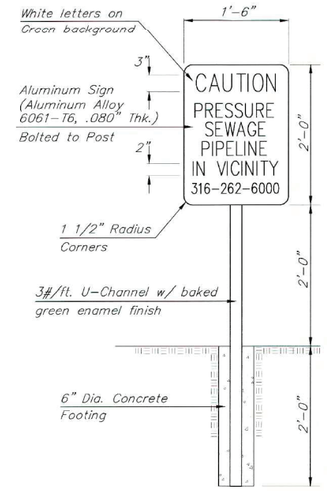
TRACER WIRE
Conductive type pipe locator/tracer wire shall be installed to locate all sanitary sewer force main pipe regardless of pipe material. The wire shall extend the entire length of the proposed pipe. The wire shall be taped to the force mains and pulled with the pipe. Split-bolt connectors shall be used at splice locations. Electrical tape shall cover all splices so no bare wire is exposed. Test stations shall be installed adjacent to all air release vaults and force main warning signs. Any exceptions to the location of test stations shall be approved by the engineer. At each test station, the tracer wire shall be connected to a 1 lb. Zinc or magnesium anode. Anodes shall also be attached to the tracer wire at both the beginning and the end of the proposed sewer line. A typical layout of the tracer wire and test station is provided in the above figure.

WIRE
The tracer wire shall be Green No. 12 THHN annealed soft copper wire with thermal plastic insulation. The insulation shall be heat, oil, and gasoline resistant as manufactured by Temple Electric or approved equal. To allow for grade adjustment, a minimum of 12" of excess wire shall be coiled at the bottom of the test station for all wires. The insulation sheathing shall be removed such that 1" bare copper wire is exposed at all points of connection.

TEST STATIONS
The test station for the force main warning signs applications shall be a 1 inch galvanized "condulet" style test station as manufactured by AGRA Industries with a removable solid cover having two leads extending from the face or approved equal. The test station for air release vault applications shall be 2 inch flush style test station T2PS3B as manufactured by HANDLEY Industries or approved equal. The conduit style shall be attached to a 1 inch rigid galvanized conduit with a minimum length of 36" and plastic end bushing. The flush style shall have the word "Sewer" stamped or molded into the lid. All test stations shall be manufactured using molded green tops or sufficiently coated with green enamel paint. The tracer wire and the anode wire shall be installed to allow 10 inches of wire within the test station. In concrete environments such as sidewalks or in the downtown area the contractor shall use the flush style test station. The location of all test stations shall be approved by the engineer, recorded, and shown in the as-built drawings.

ANODES
The anodes shall be 1 lb. bare zinc or magnesium. The anodes shall be buried at the same elevation as the sanitary sewer force main at each test station. The anodes shall be connected to Black No. 12 THHN annealed soft copper wire which shall be extended to the test station.

SEWER TRACER WIRE DETAIL
COST IS SUBSIDIARY TO PIPE INSTALLATION



FORCE MAIN WARNING SIGN DETAIL
Note: Install Metal Warning Signs at Locations as Shown on the Plans. Exact Locations of Warning Signs shall be Approved by the Engineer.

GARY L. JANZEN LICENSED 16294 KANSAS PROFESSIONAL ENGINEER 04/18/13

CITY OF WICHITA
PUBLIC WORKS & UTILITIES ENGINEERING DIVISION

TRACER WIRE & WARNING SIGN FOR SANITARY SEWER FORCE MAIN

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
		12/2012

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

SHEET

SS-106

ESTELL JO JOHNSON NUMBER 15411 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		A ESPOSITO	S MILLER	T STOUT	APVD	E JOHNSON	

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REUSE OF DOCUMENTS:

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

ch2m

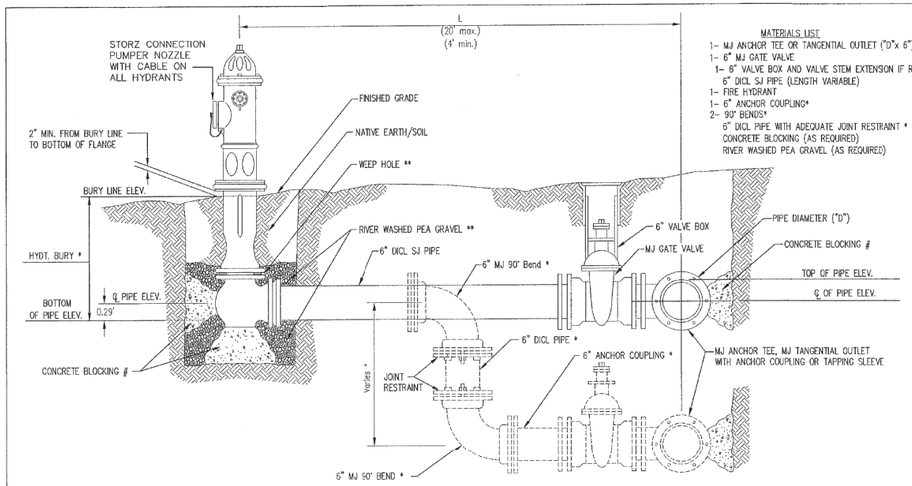
YARD PIPING
YARD PIPING
CITY OF WICHITA DETAILS

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-9003
SHEET	101 of 314

BIDDING SET

FILENAME: 051-Y-9003_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 12:02:39 PM



MATERIALS LIST
1- MJ ANCHOR TEE OR TANGENTIAL OUTLET ("D"x 6")
1- 6" MJ GATE VALVE
1- 6" VALVE BOX AND VALVE STEM EXTENSION IF REQUIRED *
6" DICL SJ PIPE (LENGTH VARIABLE)
1- FIRE HYDRANT
1- 6" ANCHOR COUPLING*
2- 90° BENDS*
6" DICL PIPE WITH ADEQUATE JOINT RESTRAINT *
CONCRETE BLOCKING (AS REQUIRED)
RIVER WASHED PEA GRAVEL (AS REQUIRED)

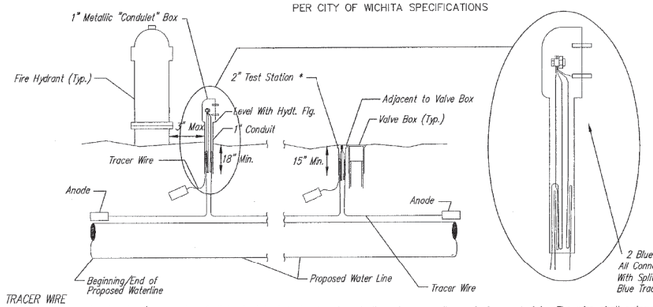
* IF THE REQUIRED HYDRANT BURY IS IN EXCESS OF 5', BUT LESS THAN 7', CONTRACTOR SHALL USE STANDARD 5' HYDRANT BURY AND HYDRANT BARREL EXTENSIONS AS NECESSARY. IF THE REQUIRED HYDRANT BURY IS GREATER THAN 7', CONTRACTOR SHALL USE 5' HYDRANT BURY, 2-MJ 90° BENDS, 6" ANCHOR COUPLING AND 6" DICL PIPE AS NECESSARY FOR VERTICAL ADJUSTMENT. THE CONTRACTOR SHALL PROVIDE ADEQUATE THRUST BLOCKING AT HYDRANT AND MEGALUGS, OR SIMILAR RESTRAINT BETWEEN 90° BENDS TO SECURE ALL FITTINGS DURING TESTING AND OPERATION. THE CONTRACTOR SHALL PROVIDE A VALVE STEM EXTENSION PER DETAIL THIS SHEET.

** CAUTION: WEEP HOLES TO BE KEPT CLEAR DURING CONSTRUCTION AND BACKFILL. CONCRETE FOR THRUST BLOCKING SHALL NOT OBSTRUCT WEEP HOLES. PLACE 1 CUBIC FOOT OF RIVER WASHED PEA GRAVEL AROUND EACH WEEP HOLE.

CONCRETE THRUST BLOCKING SHALL BE KEPT CLEAR OF BOLTS, NUTS, AND MJ ACCESSORIES.

FIRE HYDRANT ASSEMBLY

PER CITY OF WICHITA SPECIFICATIONS



* FLUSH STYLE TEST STATIONS SHALL ONLY BE USED IN PAVEMENT.

TRACER WIRE
Conductive type pipe locator/tracer wire shall be installed to locate all waterline pipe regardless of pipe material. The wire shall extend the entire length of the proposed pipe. The wire shall be taped to the waterline and pulled with the pipe. A waterproof connector shall be used at splice locations. Test stations shall be installed adjacent to all fire hydrants along the waterline and at blowoffs or valves near the ends of waterlines. Any exception to the location shall be approved by the engineer. At each test station, the tracer wire shall be connected to a 3 lb. Zinc or magnesium anode. Anodes shall also be attached to the tracer wire at both the beginning and the end of the proposed waterline. A typical layout of the tracer wire and test station is provided in the above figure.

WIRE
The tracer wire shall be Blue No. 12 AWG CCS with 3045 mil HDPE insulation. The isulation shall be heat, oil, and gasoline resistant as manufactured by Temple Electric or approved equal. To allow for grade adjustment, a minimum of 12" of excess wire shall be coiled at the bottom of the test station for all wires. the insulation sheathing shall be removed such that 1" bare copper wire at all points of connection. Contractor shall attach wire being installed with proposed water main to any tracer wire installed with adjacent waterline projects.

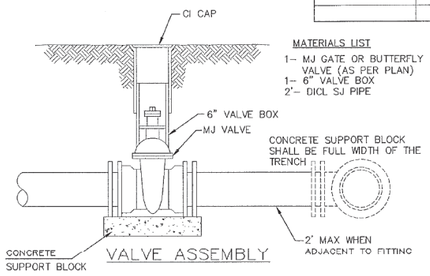
TEST STATIONS
A complete list of approved Tracer Wire can be found on City of Wichita's website at www.wichita.gov
The test station for fire hydrant applications shall be a 1 inch galvanized "conduiet" style test station as manufactured by AGRA Industries with a removable solid cover having two leads extending from the face or approved equal. The test station for valve applications shall be 2 inch flush style test station T2PS3B as manufactured by HANDLEY Industries or approved equal. The "conduit" style test station shall be attached to a 1 inch rigid galvanized conduit with a minimum length of 36" and plastic end bushing. The flush style shall have the word "WATER" stamped or molded into the lid. All test stations shall be manufactured using molded blue tops or sufficiently coated with blue enamel paint. The tracer wire and the anode wire shall be installed to allow 10 inches of wire within the test station. In concrete environments such as sidewalks or in the downtown area the contractor shall use the flush style test station. The location of all test stations shall be approved by the engineer, recorded, and shown in the as-built drawings.

ANODES
The anodes shall be 3 lb. bare zinc or magnesium. The anodes shall be buried at the same elevation as the waterline at each test station. The anodes shall be connected to 12 AWG ccs which shall be extended to the test station.

TRACER WIRE DETAIL

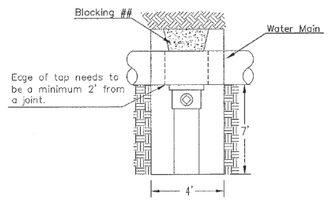
COST IS SUBSIDIARY TO PIPE INSTALLATION

FIRE HYDRANTS REQUIRED				
STATION	BURY LINE ELEVATION	TOP OF PIPE ELEVATION	FIRE HYDRANT BURY REQUIRED*	VALVE STEM EXT. REQUIRED (ft)*



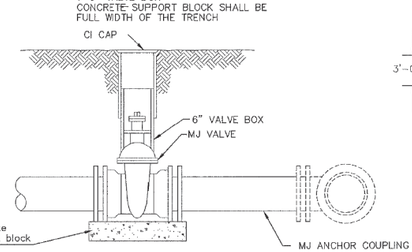
MATERIALS LIST
1- MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
1- 6" VALVE BOX
2'- DICL SJ PIPE

VALVE ASSEMBLY



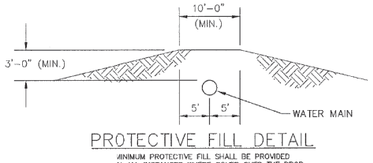
CITY TAP

is When the City of Wichita makes tap, blocking is to be done by Contractor



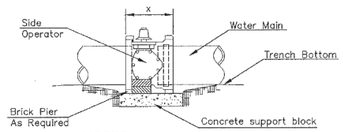
MATERIALS LIST
1-MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
1-MJ ANCHOR COUPLING (12" OR SMALLER)
1-6" VALVE BOX
CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH

ANCHORED VALVE ASSEMBLY



PROTECTIVE FILL DETAIL

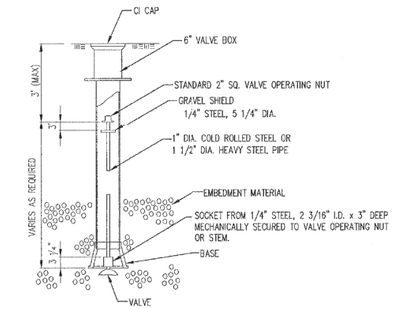
MINIMUM PROTECTIVE FILL SHALL BE PROVIDED
N ALL INSTANCES WHERE COVER OVER THE PROP.
WATER LINE IS LESS THAN 3'.
COST SUBSIDIARY TO PIPE INSTALLATION)



NOTES

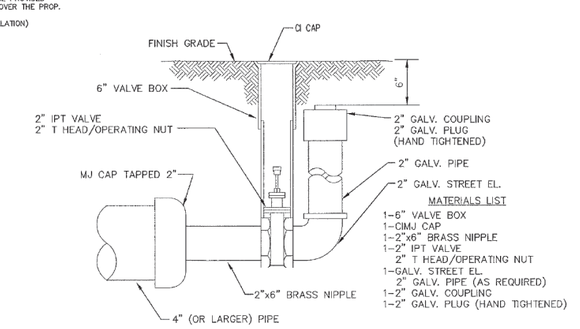
1. This detail covers Butterfly Valve installation, inclusive, regardless of type of pipe or joint used. 24" and larger lines to be detailed on plans.
2. 6" Valve Box and Cover required per City of Wichita Std. Specifications.
3. Conc. Support Block to be full width of trench.

CONCRETE SUPPORT BLOCKING FOR BUTTERFLY VALVE INSTALLATION

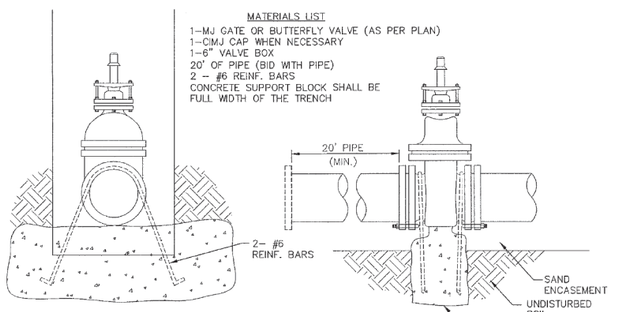


VALVE STEM EXTENSION DETAIL

NOTE: ONE VALVE STEM EXTENSION FOR EACH VALVE BURIED GREATER THAN 5'.



2" BLOWOFF ASSEMBLY



MATERIALS LIST
1-MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
1-CIMJ CAP WHEN NECESSARY
1-6" VALVE BOX
20' OF PIPE (BID WITH PIPE)
2 - #6 REINF. BARS
CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH

Notes:
1. Concrete Block at Valve to have sufficient bearing in undisturbed soil to prevent thrust movement as shown in table at right. Field Engineer to determine thrust loading of undisturbed soil and final size of thrust block.
2. The thrust block shall be constructed such that bolts, nuts, and other MJ accessories are kept clear of concrete.
3. All valves at dead ends and at other locations as called out on the plans shall be blocked as shown here.

THRUST AT VALVES	
VALVE	THRUST AT 150 #/in²
4"	1809 lbs.
6"	4245 lbs.
8"	7540 lbs.
12"	16965 lbs.

ANCHORED VALVE ASSEMBLY, SPECIAL

GARY L. JANZEN 16294 PROFESSIONAL ENGINEER 07/29/15

REVISED: JULY 2015

CITY OF WICHITA
PUBLIC WORKS & UTILITIES ENGINEERING DIVISION

STANDARD WATER ASSEMBLY DETAIL

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

SHEET

WL-101

STELL JO JOHNSON 15411 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DR	REVISION	CHK	APVD	BY
DSGN	A ESPOSITO		S MILLER	T STOUT	APVD	E JOHNSON

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

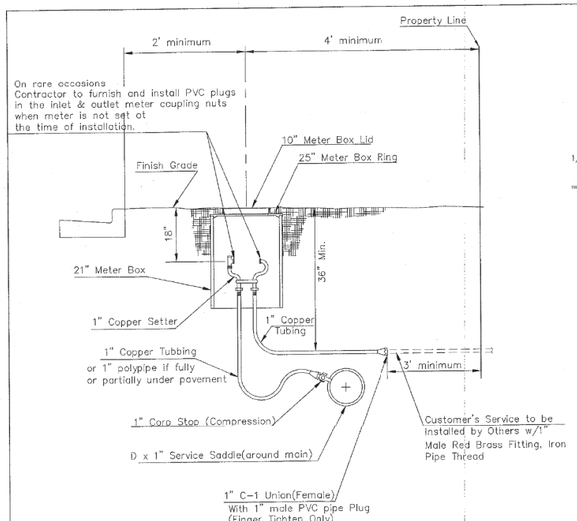
YARD PIPING
YARD PIPING
CITY OF WICHITA DETAILS

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-9004
SHEET	102 of 314

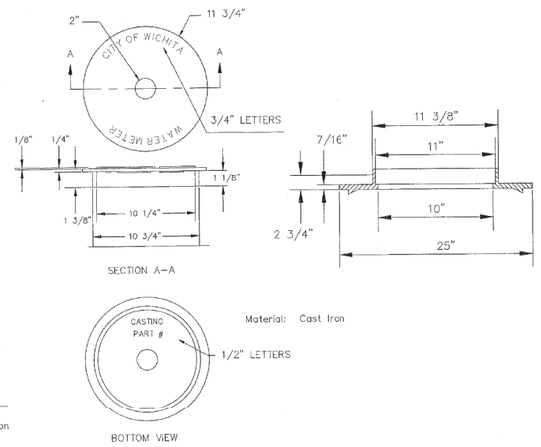
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FILENAME: 051-Y-9004_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 12:03:43 PM



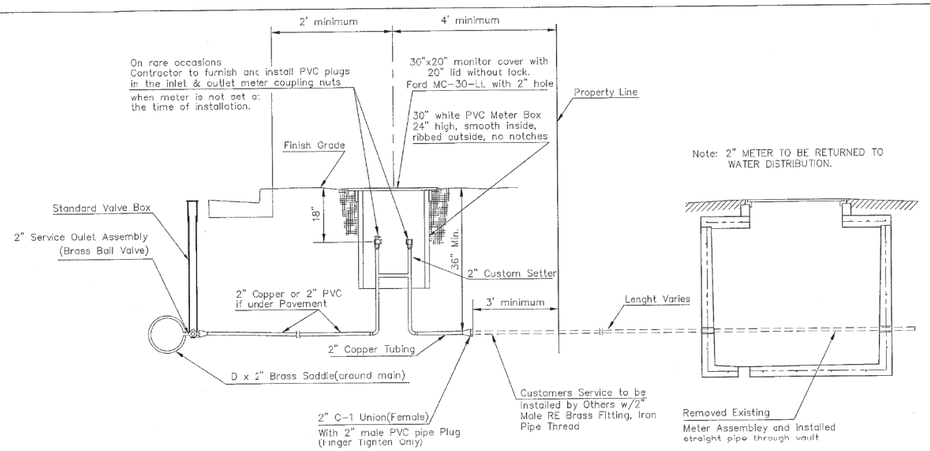
Minimum length of pigtail on consumer side is 36" of copper tubing from meter set.
Bore hole under paving shall be a maximum of 2" in diameter and a minimum of 36" below top of pavement.
Service Saddles are required on all mains.
Meter boxes will be located on each lot to be served, as indicated in the SPECIAL PROVISIONS

TYPICAL 1" METER SETTING



Material: Cast Iron

NOT TRAFFIC RATED
RING & LID FOR 1" METER BOX



TYPICAL 2" METER SETTING

Note: ONE VALVE STEM EXTENSION FOR EACH VALVE BURIED GREATER THAN 5'.

TYPICAL 2" METER SETTING INVOLVING EXISTING 2" METER VAULT

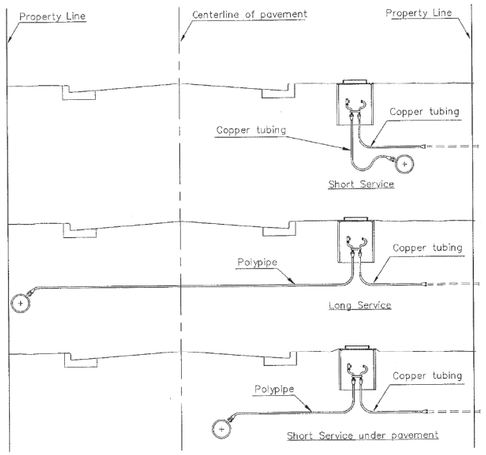
Note: ONE VALVE STEM EXTENSION FOR EACH VALVE BURIED GREATER THAN 5'.

1 – Ø Mueller Thread Corporation Stop
– Ø Type "K" Copper Tubing
1 – Ø Copper to Iron Union (Male)
1 – Ø Brass Curb Stop (Iron to Iron)
2 – Øx4" Brass Nipple

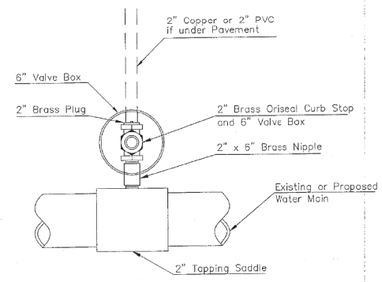
Air Release
2 – Ø Brass Elbows (90°)
1 – 1"x6" Brass Nipple
1 – 30" Monitor Cover
1 – 20" Meter Lid

NOTE:

THE 1"/2" AIR RELEASE ASSEMBLY WILL TYPICALLY BE USED ON WATER MAINS 24" AND SMALLER, AS SPECIFICALLY DESIGNATED IN THE PLANS. COMBINATION AIR RELAEASE ASSEMBLIES WILL BE SPECIFICALLY DESIGNED FOR PROJECTS WITH LARGER MAINS, AND WILL BE INCLUDED IN THE PLANS.



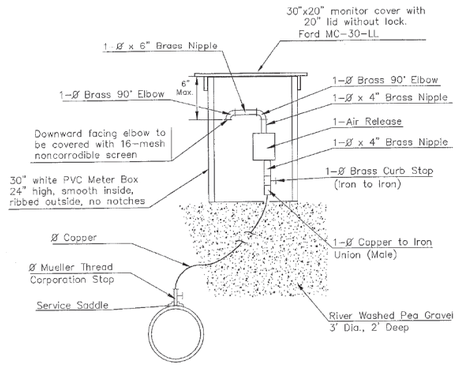
SERVICE TYPES



Note: Where the 2" Service Outlet Assembly is to be used to connect a 2" main to another main, the 2" valve shall be a 2" IPT Gate Valve. 2" ball or globe vavles shall not be approved for this use.

2" SERVICE OUTLET ASSEMBLY

TOP VIEW



MATERIALS FOR 1" or 2" AIR RELEASE ASSEMBLY
Ø = 1" or 2"

GARY L. JANZEN
16294
KANSAS
PROFESSIONAL ENGINEER
01/26/15

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

REVISED: JANUARY 2015

STANDARD
WATER SERVICE
DETAIL

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

SHEET
_ of _

WL-102

ISTELL JOHN JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	REVISION	CHK	BY	APVD
		A ESPOSITO	S MILLER		T STOUT	E JOHNSON	

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

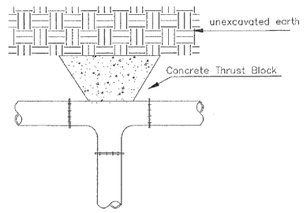
YARD PIPING
YARD PIPING
CITY OF WICHITA DETAILS

BIDDING SET

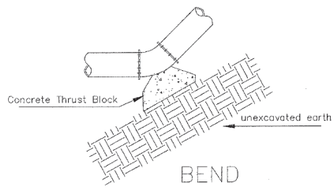
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-9005
SHEET	103 of 314

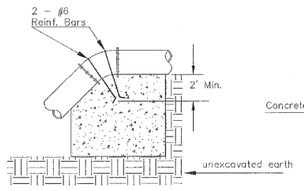
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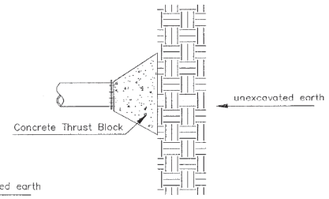
TEE



BEND



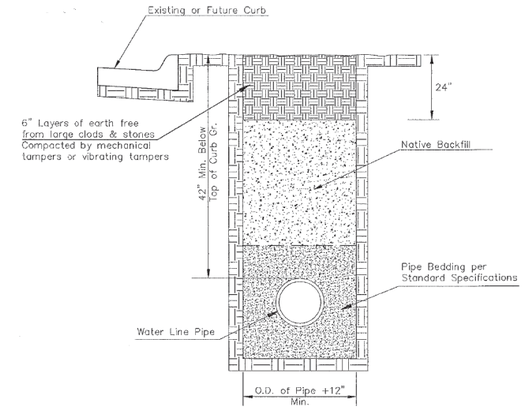
VERTICAL BEND



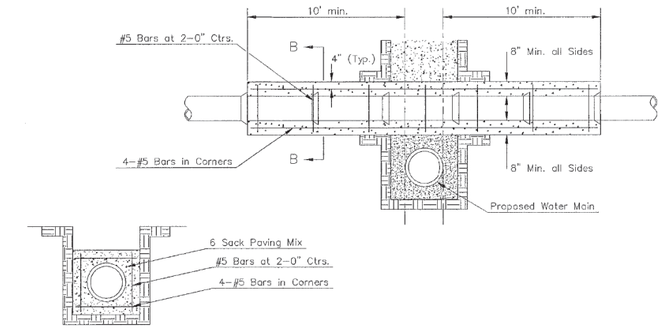
PLUG

PIPE SIZE	THRUST AT FITTINGS IN TONS-AT 150#/IN^{2}P					
	PLUG	90°	45°	22 1/2°	11 1/4°	TEE
6"	2.8	3.95	2.15	1.09	.55	2.8
8"	4.9	6.95	3.75	1.90	.96	4.9
12"	11.4	16.1	8.75	4.45	2.25	11.4
16"	20.15	28.5	15.4	7.85	3.95	20.15
20"	31.15	44.0	23.85	12.15	6.10	31.15
24"	44.55	63.0	34.1	17.4	8.75	44.55

TYPICAL THRUST BLOCKS



TRENCH COMPACTION IN ROAD RIGHT-OF-WAY

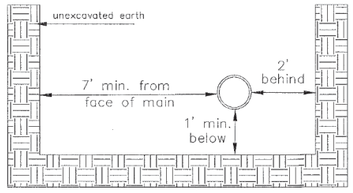


SECTION B-B

Note: Encasement to begin and end at a Bell on Sanitary Sewer Pipe.

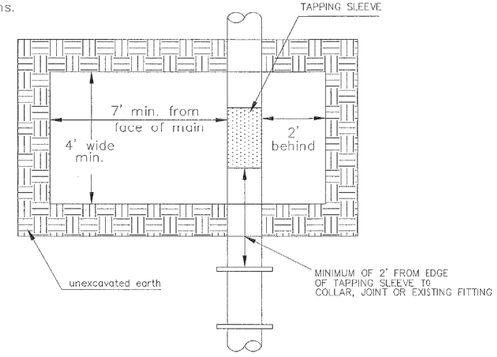
REINFORCED CONCRETE ENCASEMENT OF SANITARY SEWER

SIDE VIEW

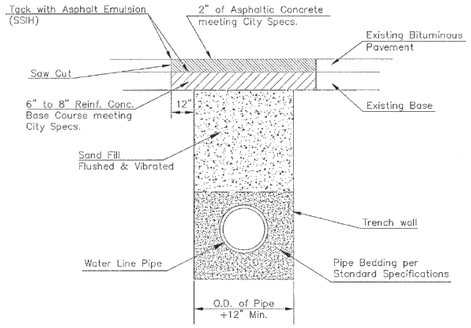


Note: When shoring is required it is to be per The City of Wichita Standard Specifications.

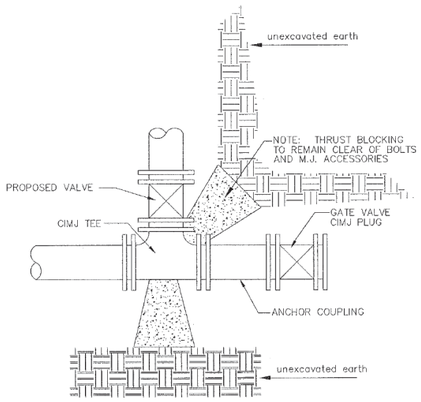
TOP VIEW



EXCAVATION FOR WET TAP



PAVEMENT REPLACEMENT & TRENCH COMPACTION UNDER EXISTING AND PROPOSED CITY ROADS



KEY BLOCK DETAIL

* PLANS GOVERN
UNLESS OTHERWISE NOTED ON PLANS

REVISED: JULY 2015

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

MISCELLANEOUS WATER DETAILS

CITY ENGINEER
GARY JANZEN, P.E..

PROJECT NUMBER	OCA NUMBER	DATE

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

SHEET

WL-104

STEPHEN JOHNSON 15411 KANSAS PROFESSIONAL ENGINEER
11/4/16
11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		A ESPOSITO	S MILLER	T STOUT	APVD	E JOHNSON	

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FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

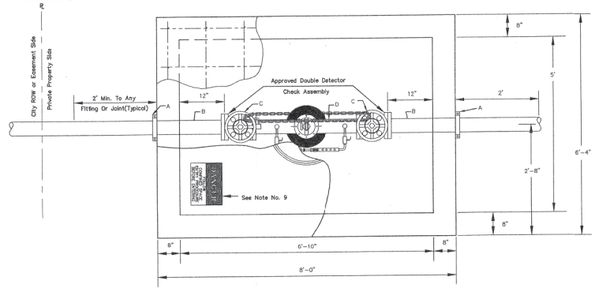
YARD PIPING
YARD PIPING
CITY OF WICHITA DETAILS

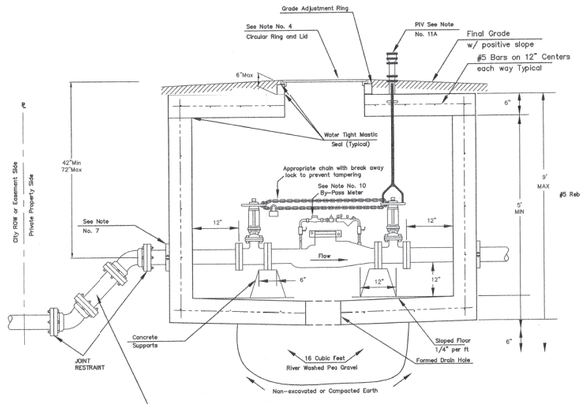
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
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DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-9006
SHEET	104 of 314

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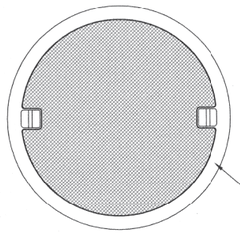


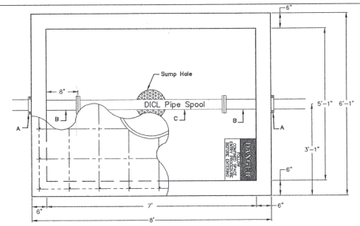


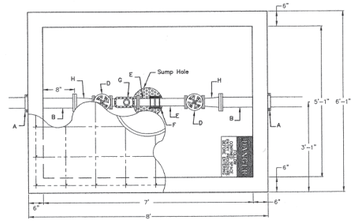
Use 45 degree fittings as necesscry to keep depth of vault within 76 inch maximum. All fittings should be mega lug, restrained joint or approved equal. All fittings for vertical and horizontal adjustments are to be on private property.

A – Mega Lug (See Note 7)*
B – Min. 3'–6" Piece of FL x PE DICL Pipe*
C – Flange Gate Valve, Wheel Operated*
D – Ames Model 3001SS or approved equal with metered(cubic foot) by–pass assembly*

4" thru 8" Fire Service

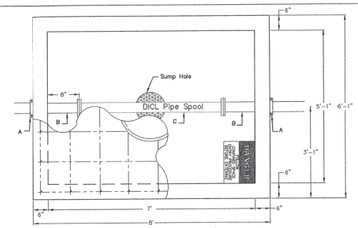


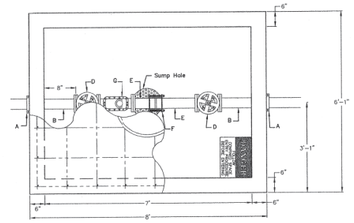




A – 4" Vault Clamp*
B – Min. 3' Piece of 4" FL x PE DICL Pipe*
C – 4" DICL Flanged Pipe Spool*
D – 3" Flange Non–rising Stem Gate Wheel Valve**
E – 3" FL x PE Pipe**
F – 3" Flex Coupling**
G – 3" Badger Recordall II Turbo Cubic Foot Meter with AMR Register.**
H – 3" x 4" FL Reducer**

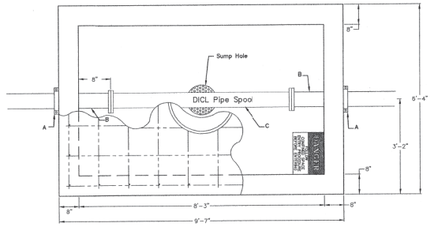
3" Domestic Service

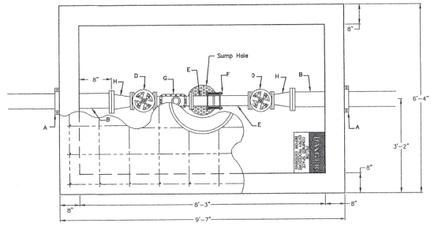


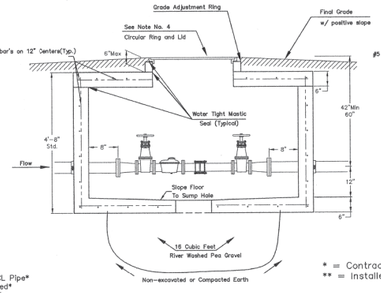


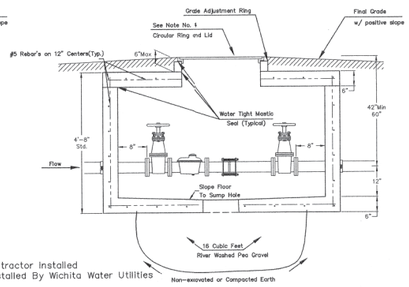
A – 4" Vault Clamp*
B – Min. 3' Piece of 4" FL x PE DICL Pipe*
C – 4" DICL Pipe Spool*
D – 4" Flange Non–rising Stem Gate Wheel Valve**
E – 4" FL x PE Pipe**
F – 4" Flex Coupling**
G – 4" Badger Recordall II Turbo Cubic Foot Meter with AMR Register.**

4" Domestic Service





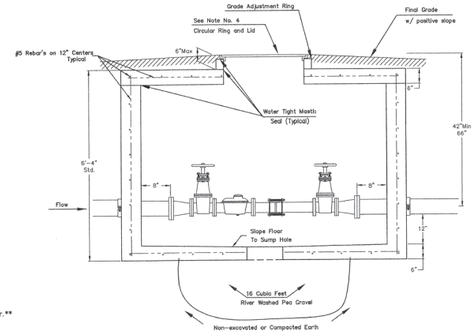




* = Contractor Installed
** = Installed By Wichita Water Utilities

A – 4" Vault Clamp*
B – Min. 3' Piece of 4" FL x PE DICL Pipe*
C – 4" DICL Pipe Spool*
D – 4" Flange Non–rising Stem Gate Wheel Valve**
E – 4" FL x PE Pipe**
F – 4" Flex Coupling**
G – 4" Badger Recordall II Turbo Cubic Foot Meter with AMR Register.**

3" Domestic Service



A – 6" Mega Lug (See Note 7)*
B – Min. 3' Piece of 6" FL x PE DICL Pipe*
C – 6" DICL Pipe Spool*
D – 4" Flange Non–rising Stem Gate Wheel Valve**
E – 4" FL x PE Pipe**
F – 4" Flex Coupling**
G – 4" Badger Recordall II Turbo Cubic Foot Meter with AMR Register**
H – 6" x 4" Flange Reducer**

6" Domestic Service with 4" meter

NOTE:
Domestic Services larger than 6" shall be custom designed by Consultant Engineer.

NOTE:
INSPECTOR FROM PUBLIC WORKS AND UTILITIES TO BE CONTACED 24 HOURS PRIOR TO INSTALLATION TO SET VAULT
CONTACT: 316–219–8928 OR 316–219–8929

Notes For All Services – 3" thru 12":

1. When the standard vault dimensions are not applicable, such as when additional space is required for special pipe, fittings, additional meters, etc. the consultant design engineering shall design a vault with the required dimensions for Public Works and Utilities approval.
2. The vault shall be poured concrete, cement blocks (voids to be completely filled with 2500 P.S.I. concrete), or approved precast structure. The intent of these details shall not be limited by drawings or standards of precast structures.
3. Vault location to be determined by Public Works and Utilities prior to construction and approved by Departments's field supervisor prior to installation. A final inspection will be required for acceptance. Vault location standards include but not limited to: not to be located where subjected to vehicular loads unless vault is H20 traffic rated, not to be located in any right–of–way or utility easement, and must be located on the property being served.
4. The manhole ring and lid shall be Neenah R–6034 Frame with Type "C" Solid Lid and Drop Down Handle or US Foundry APS–30x30 (Aluminum) or Deeter 1261 or EJ 1936z1(with pick hole(s) as shown in Detail A). Where applicable the standard 10" Public Works and Utilities pattern meter reading lid and ring shall be located directly above water meter register. All joints of concrete to concrete or metal to concrete in the construction of the vault shall have a approved water tight mastic joint seal.
5. Any fittings or appurtenances required to achieve proper elevation of pipe through the vault shall be provided by the contractor and appropriately noted on the as–builts submitted by the inspecting engineer. Such fittings shall be a minimum of 2' from the exterior wall of vault.
6. For all domestic services larger than 3" the contractor shall provide an outlet flange connection as shown 8" from the inside wall. Inlet and outlet wall sleeves shall be provided and installed by the contractor and shall be in alignment with one another. The inlet and outlet pipe shall be ductile iron pipe, cement lined, Class 150 per Standard Specifications and shall be continuous through vault and joint no less than 2' from the exterior wall of vault. Flanges of inlet and outlet pipe shall be in proper alignment and bolt pattern shall be rotated in such a way that valves and other fittings shall be in their proper vertical alignment when installed.
7. For all services 4" and larger the contractor shall install a mega lug, restrained joint, or approved equal on the exterior walls of the vault, which shall be manufactured of ductile iron conforming ASTM A 536–80, heat treated to a minimum hardness of 370 BHN and have a working pressure of a least 250 P.S.I. For a services smaller than 4" the contractor shall install an approved vault clamp on the exterior walls of the vault.
8. All valves, meters, assemblies and fitting shall be provided with sufficient concrete or other approved supports to the vault floor.
9. The "Confined Space Warning" sign shall be fastened to the top of all vaults. If necessary for landscaping or site consideration, the sign may be fastened to the vault lid if it does not impede access to the handle. Acceptable materials: Aluminum 73415HH, Plastic 73439HH or S.A. Vinyl 73463HH.
10. All meters shall have a electronic read register compatible with the current City of Wichita meter reading system. All detector meters shall be on 3/8 cubic foot Badger meter with ADE register and 25' long Itron cord and plug or approved equal. Gallon meters shall not be accepted.
11. Additional Notes For Fire Services
    A. A post indicator valve (PIV) is an option for the outlet valve. It is not required by the City of Wichita ordinance, it can be requested by the owner and will be allowed at the discretion of the City Engineer.
    B. When Siamese connections are required by the Wichita Fire Department, refer to the current City Code Section 15.
    C. If due to any reason the completed vault retains ground or drainage water in excess of 4" in depth from the floor of the vault, the property owner shall be responsible for providing and installing a appropriate automatic sump pump or approved equal, as well as any other appurtenances required to make such system function as intended.

GARY L. JANZEN LICENSED 16204 KANSAS PROFESSIONAL ENGINEER
08/13/15

REVISED: AUGUST 2015

CITY OF WICHITA
PUBLIC WORKS & UTILITIES ENGINEERING DIVISION

STANDARD VAULT DETAILS AND METER ASSEMBLIES

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

SHEET

WL-103

RUSSELL JO JOHNSON 15411 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DR	REVISION	CHK	APVD	BY	APVD
DSGN	A ESPOSITO		S MILLER	T STOUT		E JOHNSON	

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

ch2m

YARD PIPING
YARD PIPING
CITY OF WICHITA DETAILS

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	051-Y-9007
SHEET	105 of 314

BIDDING SET

FILENAME: 051-Y-9007_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 12:06:13 PM

SHEET KEYNOTES

1. 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.
2. 15KV DUCT BANK BURIAL DEPTH: TOP OF CONCRETE NOT LESS THAN 30 INCHES BELOW FINISHED GRADE.

DRIVE

BROOKHAVEN

MATCHLINE, SEE DWG 080-E-2002

2605-204
2605-235

CONSTRUCTION LIMIT

CE — CE — 285' — CE

15KV JUNCTION BOX (1)

(2)[EC-8] (2)

2605-400

STABILIZED STAGING AREA

FUTURE BIOREACTOR

CE (2)[EC-8] (2)

MATCHLINE, SEE DWG 080-E-2004

KEYMAP

1 2 3
4 5 6
7 8 9

N

0 20 40 60
Scale In Feet

MARY J. GROSS LICENSED 16702 KANSAS PROFESSIONAL ENGINEER

11/04/2016

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NO.	DATE	DSGN	DR	CHK	APVD	BY
		J LANDMAN	A CUGLIAT	M GROSS	M GROSS	M GROSS

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

SITE ELECTRICAL

ELECTRICAL SITE PLAN AREA 1

BIDDING SET

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

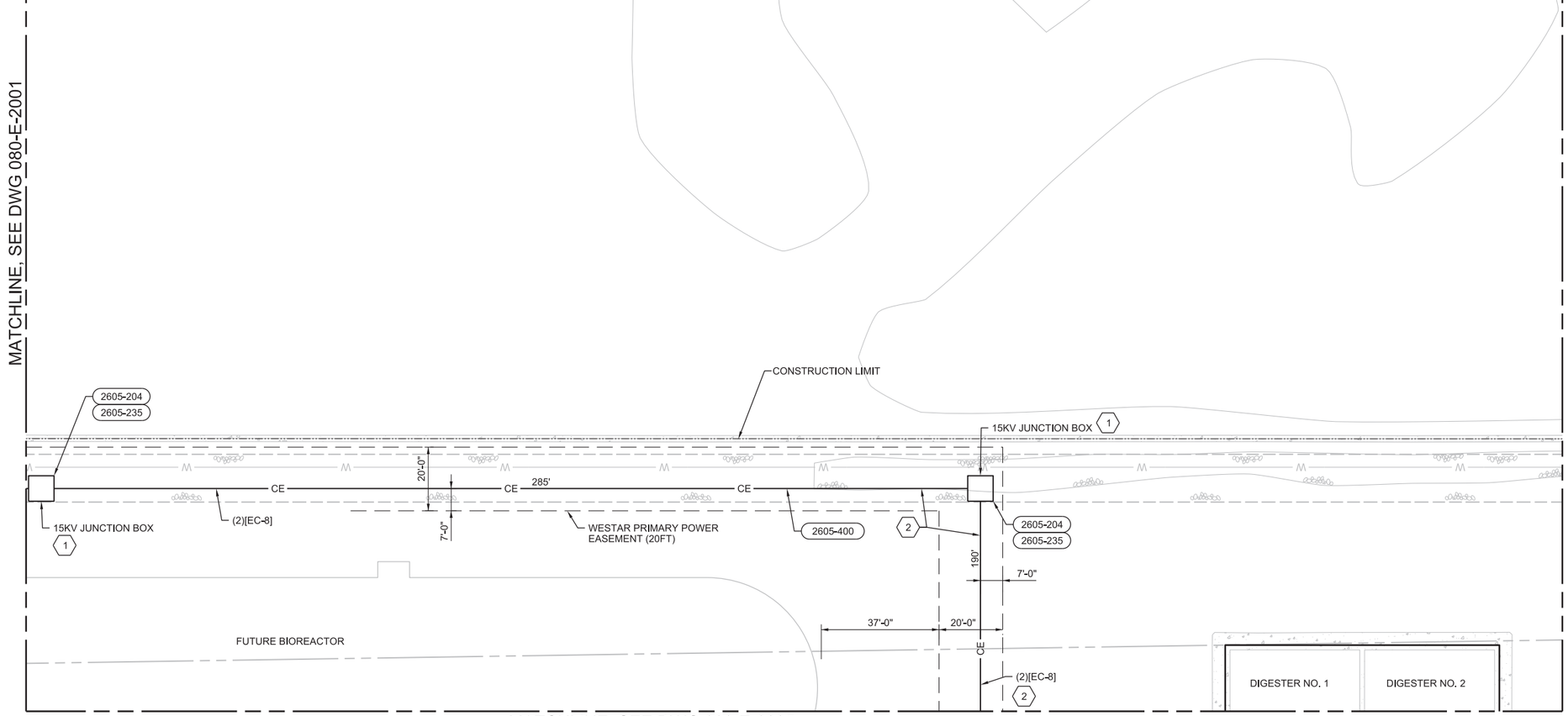
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PROJ	496312
DWG	080-E-2001
SHEET	106 of 314

FILENAME: 080-E-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:10:24 PM

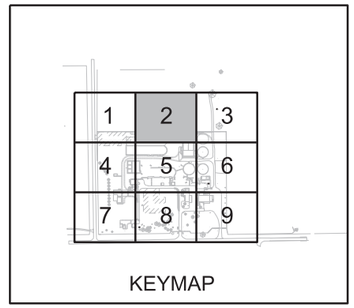
SHEET KEYNOTES

1. 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.
2. 15KV DUCT BANK BURIAL DEPTH: TOP OF CONCRETE NOT LESS THAN 30 INCHES BELOW FINISHED GRADE.

MATCHLINE, SEE DWG 080-E-2001



MATCHLINE, SEE DWG 080-E-2005



KEYMAP

N

0 20 40 60

Scale In Feet

MARY J. GROSS LICENSED 16702 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

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NO.	DATE	DSGN	DR	CHK	APVD
		J LANDMAN	A CUGLIAT	M GROSS	M GROSS

REVISION BY APVD

M GROSS

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

SITE ELECTRICAL

ELECTRICAL SITE PLAN AREA 2

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

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

BIDDING SET

FILENAME: 080-E-2002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:10:51 PM

MATCHLINE, SEE DWG 080-E-2001

STABILIZED STAGING AREA

PROPERTY LINE

CONSTRUCTION LIMIT

385'

T-BUR

P

CE

DRIVE

BROOKHAVEN

(2)[EC-8]

4 2605-400

2605-204

2605-235

15KV JUNCTION BOX

3

(2)[EC-8]

2605-444

2605-445

2605-448

HH45 (POWER) 2, TYP

FUTURE BIOREACTOR

DEMOLISH 15KV JUNCTION BOX

1

145 - BIOREACTOR FACILITY

W

5 2605-400

HH44 (POWER)

P2

DB

140 - ANOXIC BASIN

EXISTING SITE LIGHTING

140 - ANAEROBIC BASIN

145 - BIOREACTOR SPLITTER BOX

3'-0" TYP

120 - GRIT BUILDING

SS

110 - SCREENING FACILITY

MATCHLINE, SEE DWG 080-E-2005

MATCHLINE, SEE DWG 080-E-2007

SHEET KEYNOTES

1. WESTAR PRIMARY FEEDER. ABANDON IN PLACE OR DEMOLISH AS NECESSARY.
2. HANDHOLE: 4'x4'x4' PRECAST CONCRETE WITH HS-20 SIDEWALK COVER.
3. 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.
4. 15KV DUCT BANK BURIAL DEPTH: TOP OF CONCRETE NOT LESS THAN 30 INCHES BELOW FINISHED GRADE.
5. LOW-VOLTAGE DUCT BANK BURIAL DEPTH: TOP OF CONCRETE NOT LESS THAN 24 INCHES BELOW FINISHED GRADE.

KEYMAP

1 2 3
4 5 6
7 8 9

N

0 20 40 60
Scale In Feet

MARY J. GROSS LICENSED 16702 11-4-16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD	REVISION
		J LANDMAN	A CUGLIAT	M GROSS	M GROSS			

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

SITE ELECTRICAL
ELECTRICAL SITE PLAN
AREA 4

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	080-E-2004
SHEET	108 of 314

BIDDING SET

MATCHLINE, SEE DWG 080-E-2002

MATCHLINE, SEE DWG 080-E-2004

MATCHLINE, SEE DWG 080-E-2006

MATCHLINE, SEE DWG 080-E-2008

SHEET KEYNOTES

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

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11/04/2016

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NO.	DATE	DSGN	DR	REVISION	CHK	APVD	BY	APVD
		J LANDMAN	A CUGLIAT		M GROSS	M GROSS	M GROSS	

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

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SITE ELECTRICAL
ELECTRICAL SITE PLAN
AREA 5

KEYMAP

N

0 20 40 60
Scale In Feet

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	080-E-2005
SHEET	109 of 314

BIDDING SET

FILENAME: 080-E-2005_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:09:48 PM

SHEET KEYNOTES

1. TO HAND HOLE 32.
2. FROM LIGHTING CONTACTOR.

MATCHLINE, SEE DWG 080-E-2005

155 - CLARIFIER NO. 4

155 - CLARIFIER NO. 3

210 - UV DISINFECTION FACILITY

CASCADE

DISINFECTION BASIN

EXST SITE LIGHTING

EXST SITE LIGHTING (8 FT)

POWER DUCT BANK

I & C DUCT BANK

HH20 (POWER) (EXST)

HH19 (INST) (EXST)

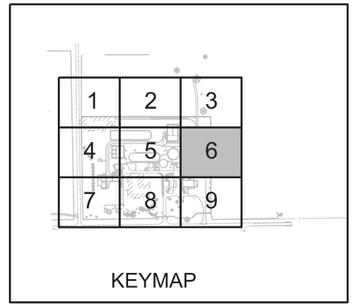
HH21 (INST) (EXST)

HH22 (POWER) (EXST)

CONSTRUCTION LIMIT

MATCHLINE NOT USED

KEYMAP



N

0 20 40 60

Scale In Feet

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11/04/2016

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NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		J LANDMAN	A CUGLIAT	M GROSS	M GROSS	M GROSS	

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

SITE ELECTRICAL

ELECTRICAL SITE PLAN AREA 6

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BIDDING SET

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	080-E-2006
SHEET	110 of 314

FILENAME: 080-E-2006_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:09:53 PM

MATCHLINE, SEE DWG 080-E-2004

MATCHLINE, SEE DWG 080-E-2008

BROOKHAVEN DRIVE

HARRY STREET

110 - SCREENING FACILITY

270 - ODOR CONTROL FACILITY

107 - INFLUENT PUMP STATION VALVE VAULT

105 - INFLUENT PUMP STATION WET WELL

100 - WET WEATHER PUMP STATION

HH49 (POWER)

HH50 (INST)

HH51 (POWER)

DB

CE

SS

P

T-BUR

SD

SIGN

3) 18" RCP Storm Pipes

PROPERTY LINE

2605-400

2605-444

2605-445

2605-447

2605-204

2605-235

(2)[EC-8]

DEMOLISH 15KV JUNCTION BOX

15KV JUNCTION BOX

FENCE LINE

CONSTRUCTION LIMIT

20'-0"

7'-0"

390'

5'-0"

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'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.

KEYMAP

N

0 20 40 60
Scale In Feet

MARY J. GROSS LICENSED 16702 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	REVISION	CHK	BY
		J LANDMAN	A CUGLIAT	DR	M GROSS
				APVD	M GROSS
					APVD

M GROSS

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

SITE ELECTRICAL
ELECTRICAL SITE PLAN
AREA 7

BIDDING SET

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	080-E-2007
SHEET	111 of 314

FILENAME: 080-E-2007_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:10:11 PM

MATCHLINE, SEE DWG 080-E-2005

MATCHLINE, SEE DWG 080-E-2007

MATCHLINE NOT USED

HH47 (POWER)

CE

CE

2605-444

2605-445

2605-447

HH48 (INST)

1, TYP

EXISTING DUCTBANK

HH4 (INST)
(EXST)

HH3 (POWER)
(EXST)

EXST SITE
LIGHTING

HH2 (INST)
(EXST)

HH1 (POWER)
(EXST)

CONSTRUCTION LIMIT

HARRY STREET

400 - LABORATORY
FACILITY

CE

HH52 (POWER)

CE

Mud
Trap

EXST SITE
LIGHTING

SHEET KEYNOTES

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

KEYMAP

N

0 20 40 60
Scale In Feet

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16702
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD
		J LANDMAN	A CUGLIAT	M GROSS	M GROSS

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M GROSS

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FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

SITE ELECTRICAL

ELECTRICAL SITE PLAN AREA 8

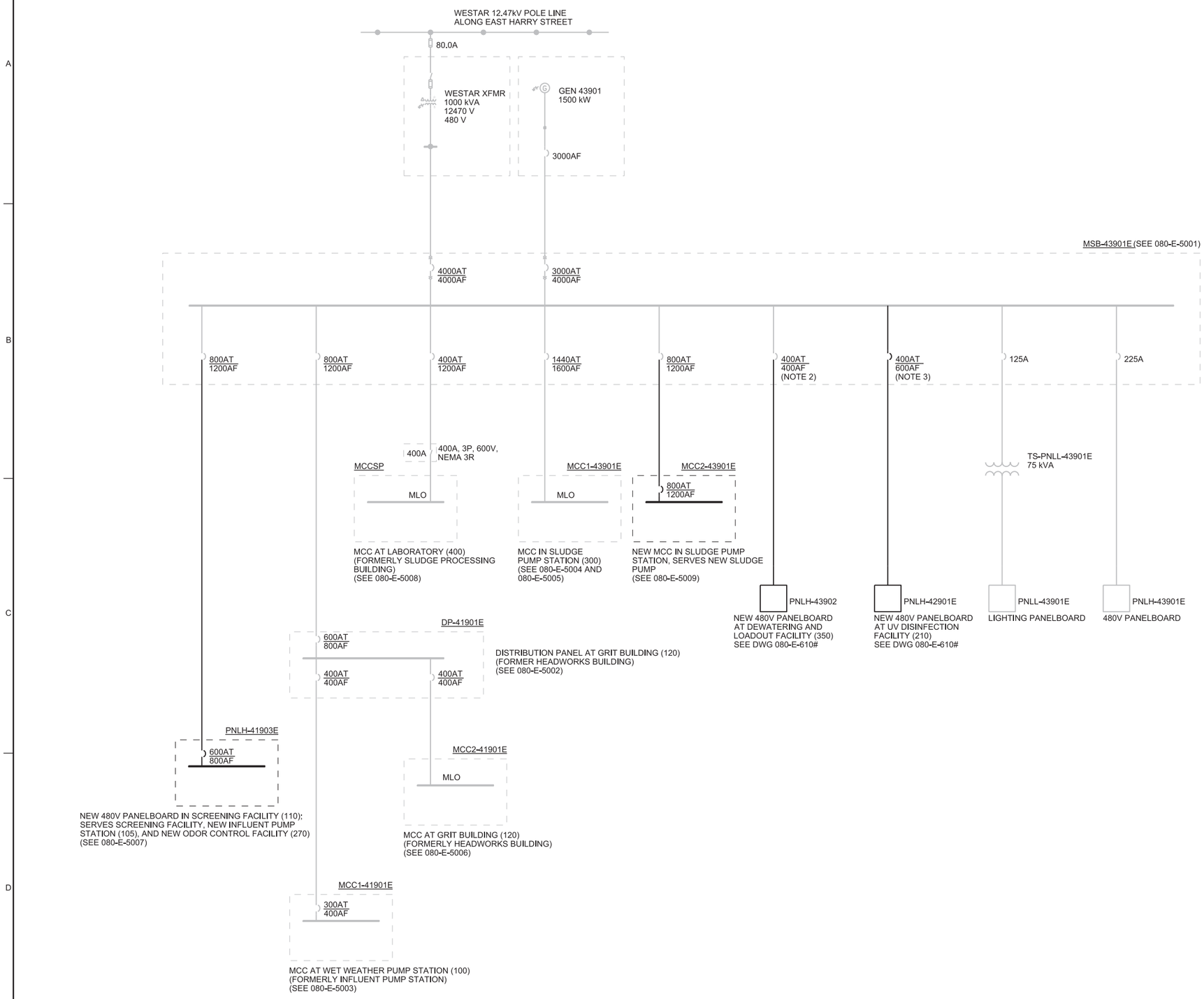
BIDDING SET

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	080-E-2008
SHEET	112 of 314

FILENAME: 080-E-2008_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:10:26 PM



GENERAL NOTES

1. NEW WORK SHOWN BOLD. EXISTING FACILITIES SHOWN SCREENED.
2. 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.
3. 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.

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11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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		J LANDMAN	A CUGLIAT		M GROSS	M GROSS	M GROSS	

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DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

SITE ELECTRICAL
ONE-LINE DIAGRAM
OVERALL POWER DISTRIBUTION SYSTEM

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	080-E-5000
SHEET	113 of 314

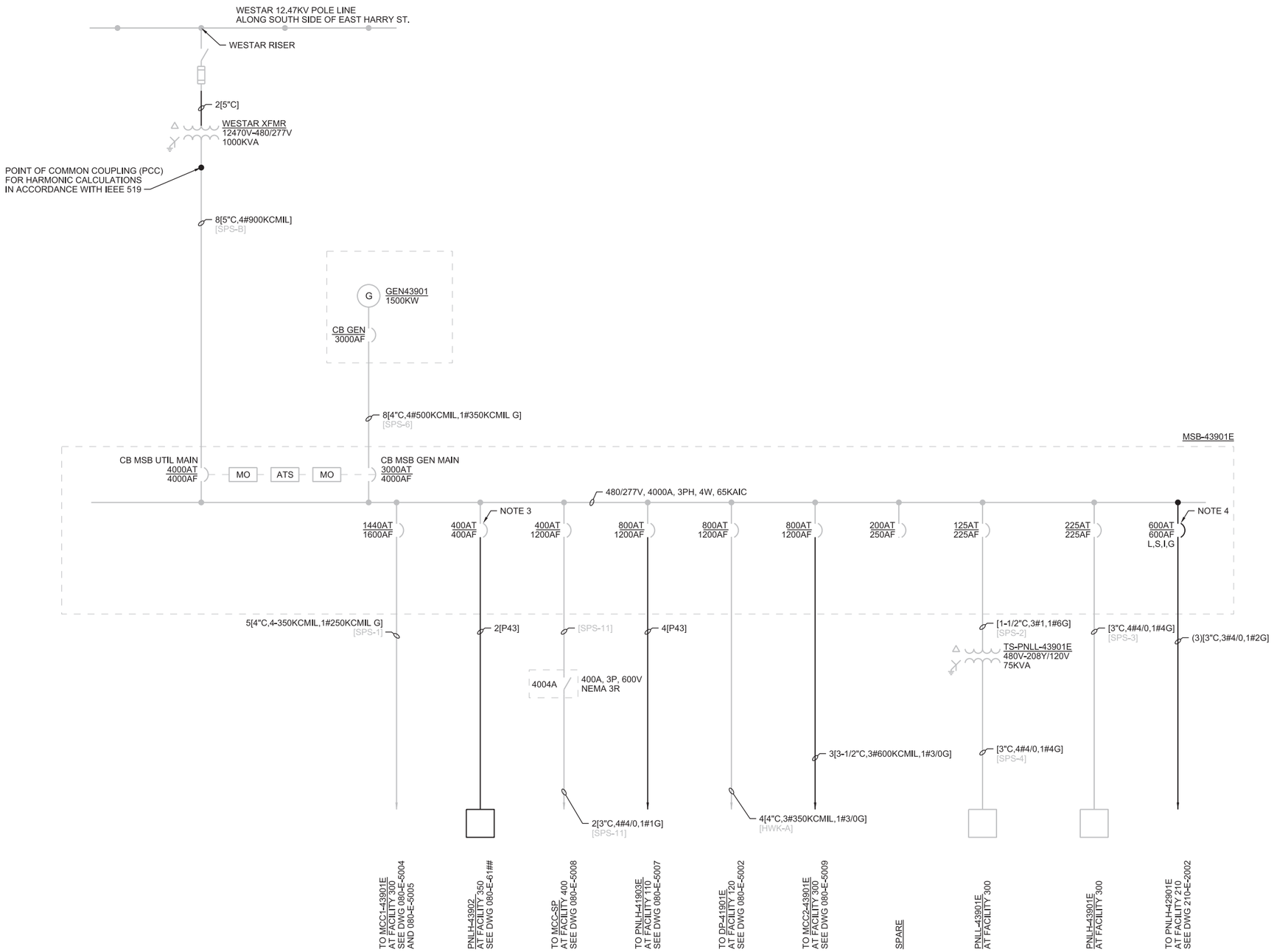
BIDDING SET

FILENAME: 080-E-5000_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:08:48 PM

m:DEN001/Documents/D

GENERAL NOTES

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



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16702
KANSAS
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11/04/2016

NO.	DATE	DSGN	DR	REVISION	CHK	APVD	BY	APVD
		J LANDMAN	A CUGLIAT		M GROSS	M GROSS	M GROSS	

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FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

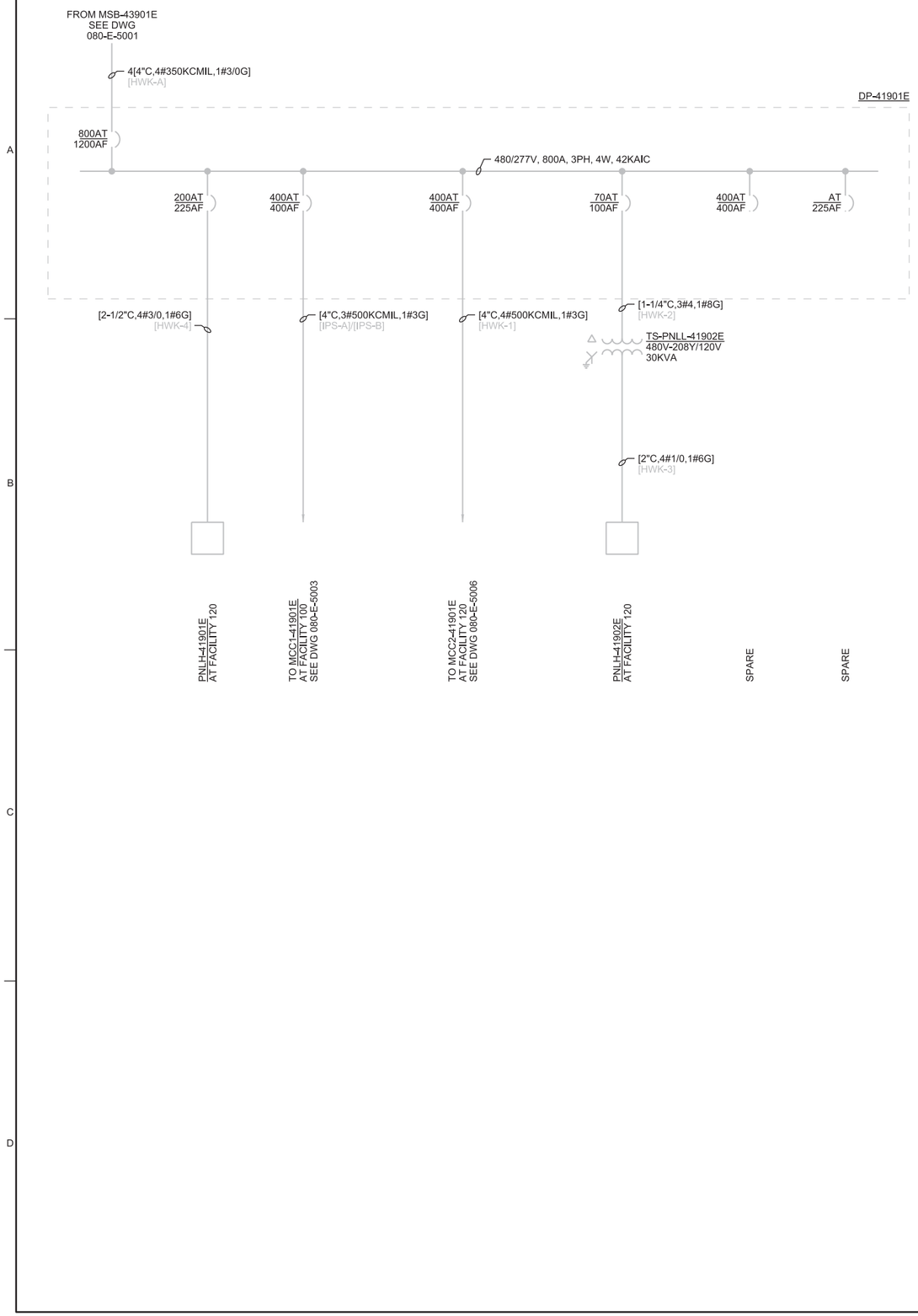
SITE ELECTRICAL
ONE-LINE DIAGRAM
MSB-43901E
SLUDGE PUMPING STATION (300)

BIDDING SET

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	080-E-5001
SHEET	114 of 314

FILENAME: 080-E-5001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:08:42 PM



GENERAL NOTES

1. NEW WORK SHOWN BOLD. EXISTING FACILITIES SHOWN SCREENED.
2. DP-41901E LOCATED IN FACILITY 120.

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16702
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		J LANDMAN	A CUGLIAT	M GROSS	M GROSS	M GROSS	

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ch2m

SITE ELECTRICAL

ONE-LINE DIAGRAM
DP-41901E
GRIT FACILITY (120)

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

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	080-E-5002
SHEET	115 of 314

BIDDING SET

FILENAME: 080-E-5002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:08:54 PM

m:DEN001/Documents/D

EQUIPMENT CONNECTION SCHEDULE

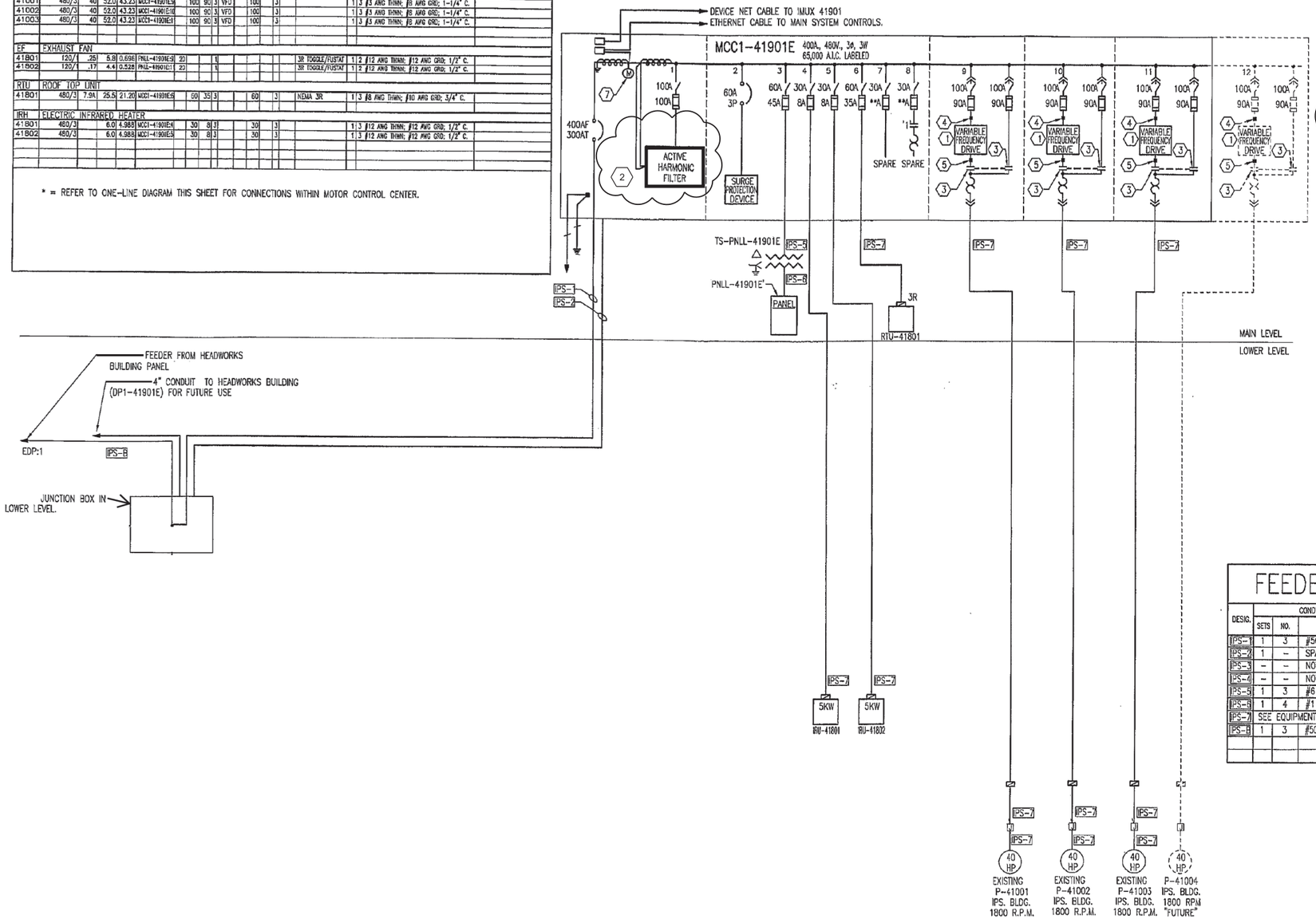
PROCESS EQUIPMENT CONNECTIONS

UNIT DESIG.	UNIT VOLTAGE	LOAD H.P.	LOAD FLA	LOAD KVA	PANEL DEVICE CIRCUIT NUMBER	PANEL DEVICE BKR AMPS	PANEL DEVICE SW AMPS	PANEL DEVICE FUST AMPS	PANEL DEVICE O/L E	PANEL DEVICE NEMA START SIZE	DEVICE AT UNIT BKR AMPS	DEVICE AT UNIT SW AMPS	DEVICE AT UNIT FUST AMPS	DEVICE AT UNIT O/L E	DEVICE AT UNIT PIN/VA CTROL SIZE	DEVICE AT UNIT OTHER	SETS	FEEDER DESCRIPTION OR SEE THE FEEDER SCHEDULE	REMARKS OR SEE THE INDICATED NOTES BELOW
P	INFLUENT PUMP																		
41001	480/3	40	52.0	43.23	MCC1-41901E5		100	90	3	VFD		100		3			1	3 #3 AWG THWN; #8 AWG GRD; 1-1/4" C.	
41002	480/3	40	52.0	43.23	MCC1-41901E10		100	90	3	VFD		100		3			1	3 #3 AWG THWN; #8 AWG GRD; 1-1/4" C.	
41003	480/3	40	52.0	43.23	MCC1-41901E11		100	90	3	VFD		100		3			1	3 #3 AWG THWN; #8 AWG GRD; 1-1/4" C.	
EF	EXHAUST FAN																		
41801	120/1	.25	5.8	0.696	PNLL-41901E9	20			1							3R TOGGLE/FUSTAT	1	2 #12 AWG THWN; #12 AWG GRD; 1/2" C.	
41802	120/1	.17	4.4	0.528	PNLL-41901E11	20			1							3R TOGGLE/FUSTAT	1	2 #12 AWG THWN; #12 AWG GRD; 1/2" C.	
RTU	ROOF TOP UNIT																		
41801	480/3	7.9A	25.5	21.20	MCC1-41901E6		60	35	3			60		3		NEMA 3R	1	3 #8 AWG THWN; #10 AWG GRD; 3/4" C.	
IRH	ELECTRIC INFRARED HEATER																		
41801	480/3		6.0	4.988	MCC1-41901E4		30	8	3			30		3			1	3 #12 AWG THWN; #12 AWG GRD; 1/2" C.	
41802	480/3		6.0	4.988	MCC1-41901E5		30	8	3			30		3			1	3 #12 AWG THWN; #12 AWG GRD; 1/2" C.	

* = REFER TO ONE-LINE DIAGRAM THIS SHEET FOR CONNECTIONS WITHIN MOTOR CONTROL CENTER.

TRANSFORMER SCHEDULE

TRANSF. DESIG.	KVA RATING	PRIMARY VOLTAGE 480 3ø, 3W.	PRIMARY VOLTAGE 12470 3ø, 3W.	SECONDRY VOLTAGE 120/208 3ø, 4W.	SECONDRY VOLTAGE 277/480 3ø, 4W.	DRY TYPE	PRIMARY FEEDER (SEE FEEDER SCHEDULE)	SECONDARY FEEDER (SEE FEEDER SCHEDULE)	GROUND WIRE TO NEAREST GROUNDING SOURCE PER N.E.C. ARTICLE 250-30(a)(3)
TS-PNLL-41901E	30	•		•		•	PS-5	PS-6	1-#8, 1/2" C.



GENERAL ONE-LINE DIAGRAM NOTES:

1. UNLESS OTHERWISE NOTED, ALL CIRCUIT BREAKERS AND/OR SWITCHES ARE THREE POLE.
2. EXISTING MCC-14901E IS LOCATED AT THE EXISTING INFLUENT PUMP STATION. (NEW WET WEATHER PUMP STATION) FACILITY 100.

KEY NOTES:

(1) 6-PULSE VARIABLE FREQUENCY DRIVE.

(2) REPLACE 100A ACTIVE HARMONIC FILTER. IF PRACTICAL, RE-USE CURRENT TRANSFORMERS AND 100A FUSED DISCONNECT SWITCH.

(3) VFD WITH AN INEGRAL FULL VOLTAGE ACROSS THE LINE BYPASS STARTER INTERLOCKED WITH THE VFD.

(4) 3% LINE SIDE REACTOR.

(5) LOAD SIDE FILTER

(7) SQUARE 'D' POWER LOGIC "PM650" OR EQUAL METERING MODULE

SCOPE NOTES:

1. THIS IS AN EXISTING INFLUENT PUMP STATION FOR THE FOUR MILE CREEK WASTE WATER TREATMENT FACILITY AND SHALL REMAIN IN OPERATION DURING REMODEL.

FEEDER SCHEDULE

DESIG.	CONDUCTORS SETS	CONDUCTORS NO.	CONDUCTORS SIZE	GROUND SIZE PER SET	ISOLATED GROUND SIZE	CONDUIT SIZE PER SET
IPS-1	1	3	#500 KCMIL CU	#3	-----	3 1/2"
IPS-2	1	--	SPARE CONDUIT	--	-----	3 1/2"
IPS-3	--	--	NOT USED	--	-----	--
IPS-4	--	--	NOT USED	--	-----	--
IPS-5	1	3	#6 CU	#10	-----	1"
IPS-6	1	4	#1 CU	#6	-----	2"
IPS-7	SEE EQUIPMENT CONNECT SCHEDULE					
IPS-8	1	3	#500 KCMIL CU (EXIST)	#3	-----	3 1/2"

MARY J. GROSS LICENSED 16702 11-4-16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	REVISION	BY	APVD
		J LANDMAN	A CUGLIAT	M GROSS	M GROSS
			DR	CHK	APVD

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DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

SITE ELECTRICAL
ONE-LINE DIAGRAM
MCC1-41901E
WET WEATHER PUMP STATION (100)

BIDDING SET

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	080-E-5003
SHEET	116 of 314



GENERAL NOTES

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

SHEET KEYNOTES

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

MARY J. GROSS
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16702
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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		J LANDMAN	A CUGLIAT	M GROSS	M GROSS	M GROSS	

REVISION

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SITE ELECTRICAL

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

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	080-E-5004
SHEET	117 of 314

BIDDING SET

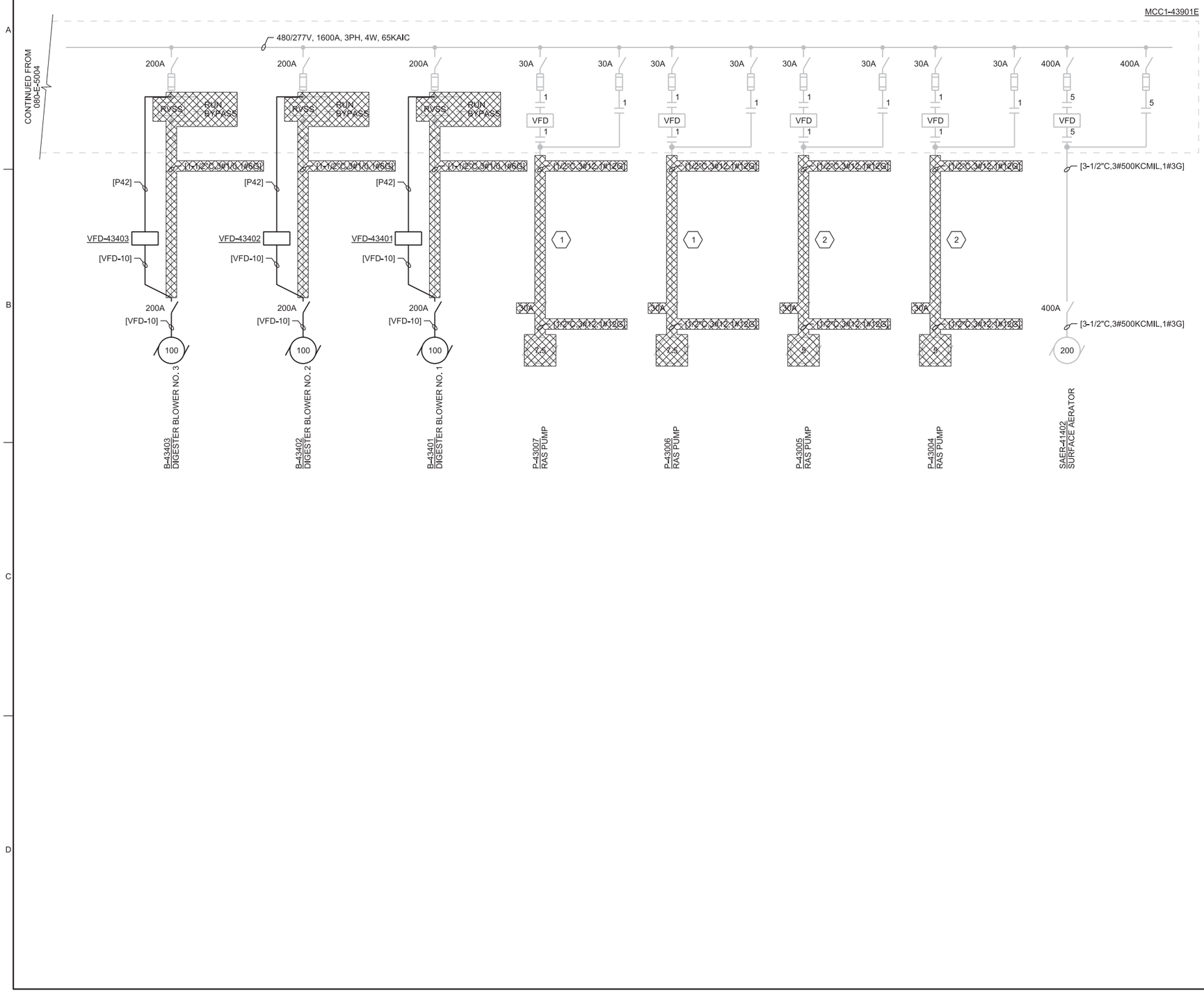
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PLOT DATE: 11/2/2016
PLOT TIME: 5:08:55 PM

GENERAL NOTES

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

SHEET KEYNOTES

1. DEMOLISH FEEDER TO PUMP. FOR CONNECTION TO UP-RATED PUMP, SEE MCC2-43901E 1-LINE DIAGRAM. PROVIDE "SPARE" NAMEPLATE AT MCC.
2. DEMOLISH FEEDER TO PUMP. DEMOLISH LOCAL CONTROL STATION AND DISCONNECT SWITCH AND MOUNTING STAND. PROVIDE "SPARE" NAMEPLATE AT MCC.



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SITE ELECTRICAL

ONE-LINE DIAGRAM
MCC1-43901E
SLUDGE PUMPING STATION (300)2 OF 2

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	080-E-5005
SHEET	118 of 314

BIDDING SET

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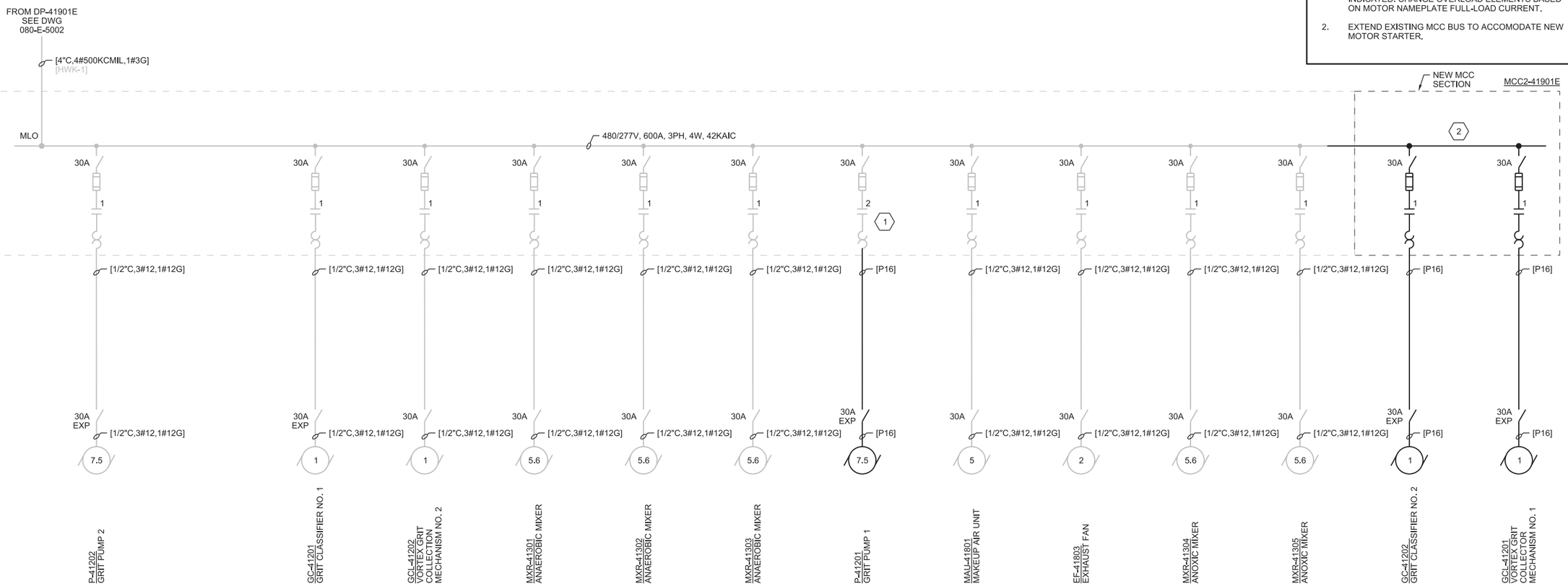
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GENERAL NOTES

1. NEW WORK SHOWN BOLD. EXISTING FACILITIES SHOWN SCREENED.
2. MCC2-41901E LOCATED AT FACILITY 120.

SHEET KEYNOTES

1. USE SPARE STARTER. CHANGE FUSES AS INDICATED. CHANGE OVERLOAD ELEMENTS BASED ON MOTOR NAMEPLATE FULL-LOAD CURRENT.
2. EXTEND EXISTING MCC BUS TO ACCOMODATE NEW MOTOR STARTER.



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SITE ELECTRICAL

ONE-LINE DIAGRAM MCC2-41901E GRIT FACILITY (120)

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	080-E-5006
SHEET	119 of 314

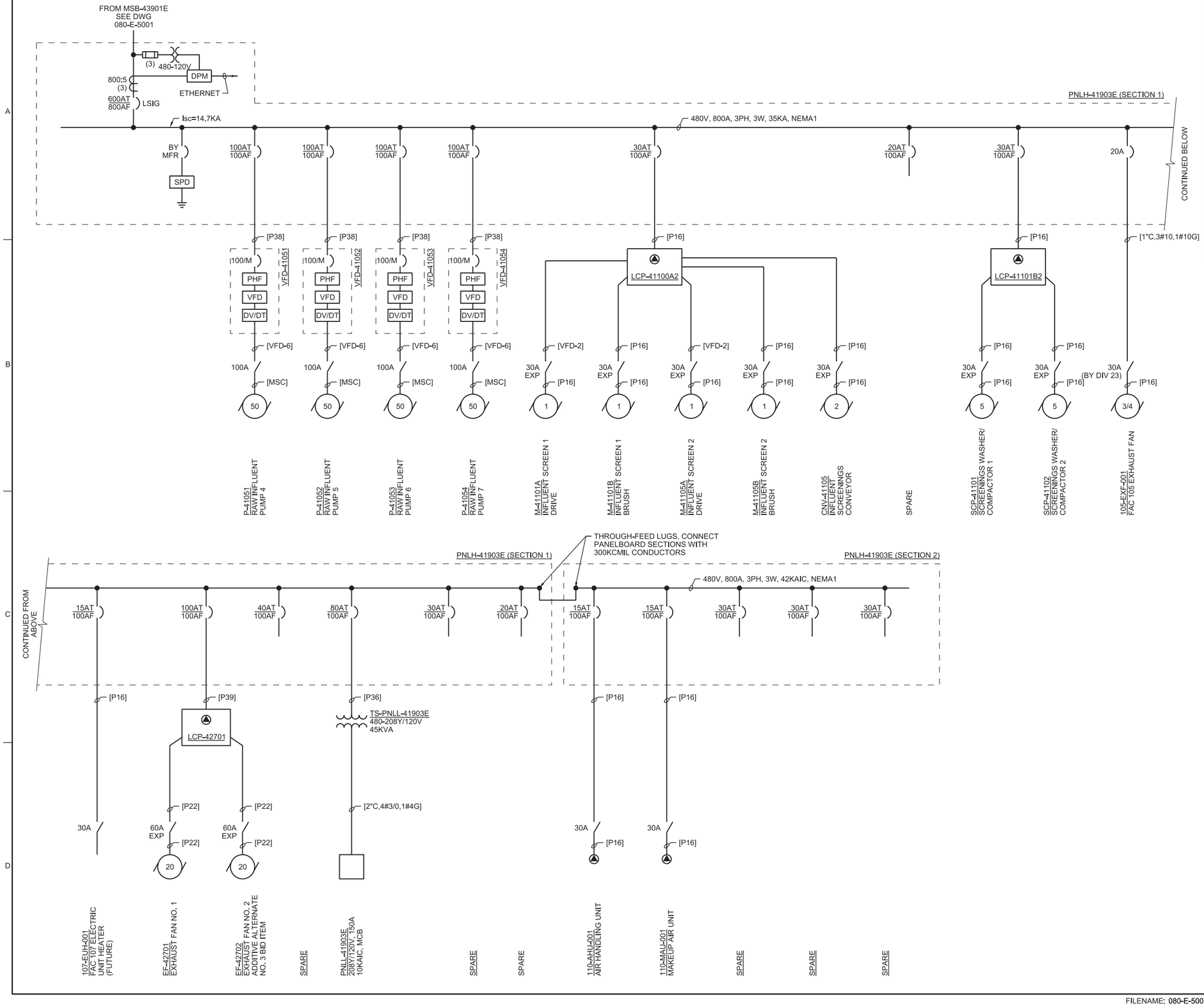
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GENERAL NOTES

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



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DSGN	J LANDMAN	A CUGLIAT	M GROSS	M GROSS		M GROSS	

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SITE ELECTRICAL

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

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	080-E-5007
SHEET	120 of 314

BIDDING SET

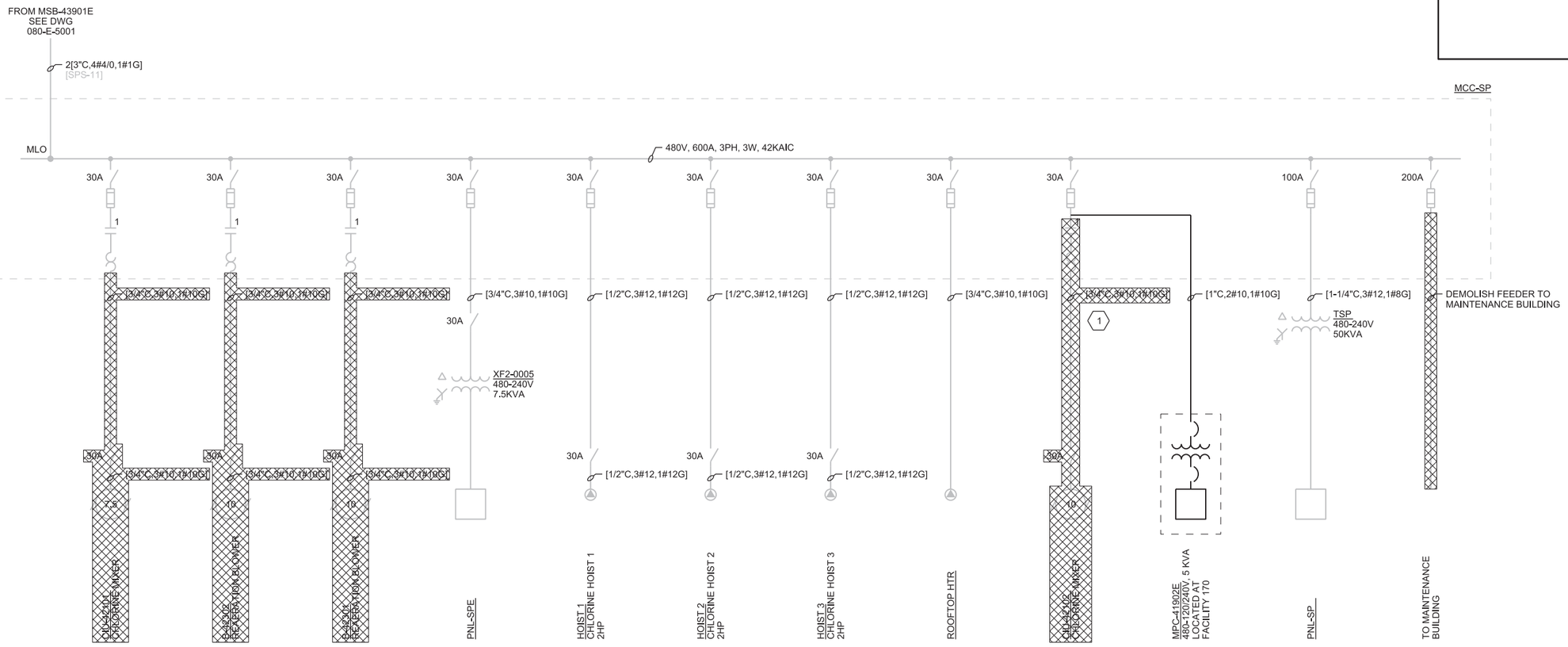
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GENERAL NOTES

1. NEW WORK SHOWN BOLD. EXISTING FACILITIES SHOWN SCREENED.
2. MCC-SP LOCATED AT FACILITY 400.

SHEET KEYNOTES

1. DEMOLISH FEEDER TO CHLORINE MIXER. CONNECT MPC-41902E AND PROVIDE "MPC-41902E" NAMEPLATE AT MCC.



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		J LANDMAN	A CUGLIAT	M GROSS	M GROSS	M GROSS	

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SITE ELECTRICAL

ONE-LINE DIAGRAM MCCSP OLD SLUDGE PROCESSING BUILDING

BIDDING SET

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

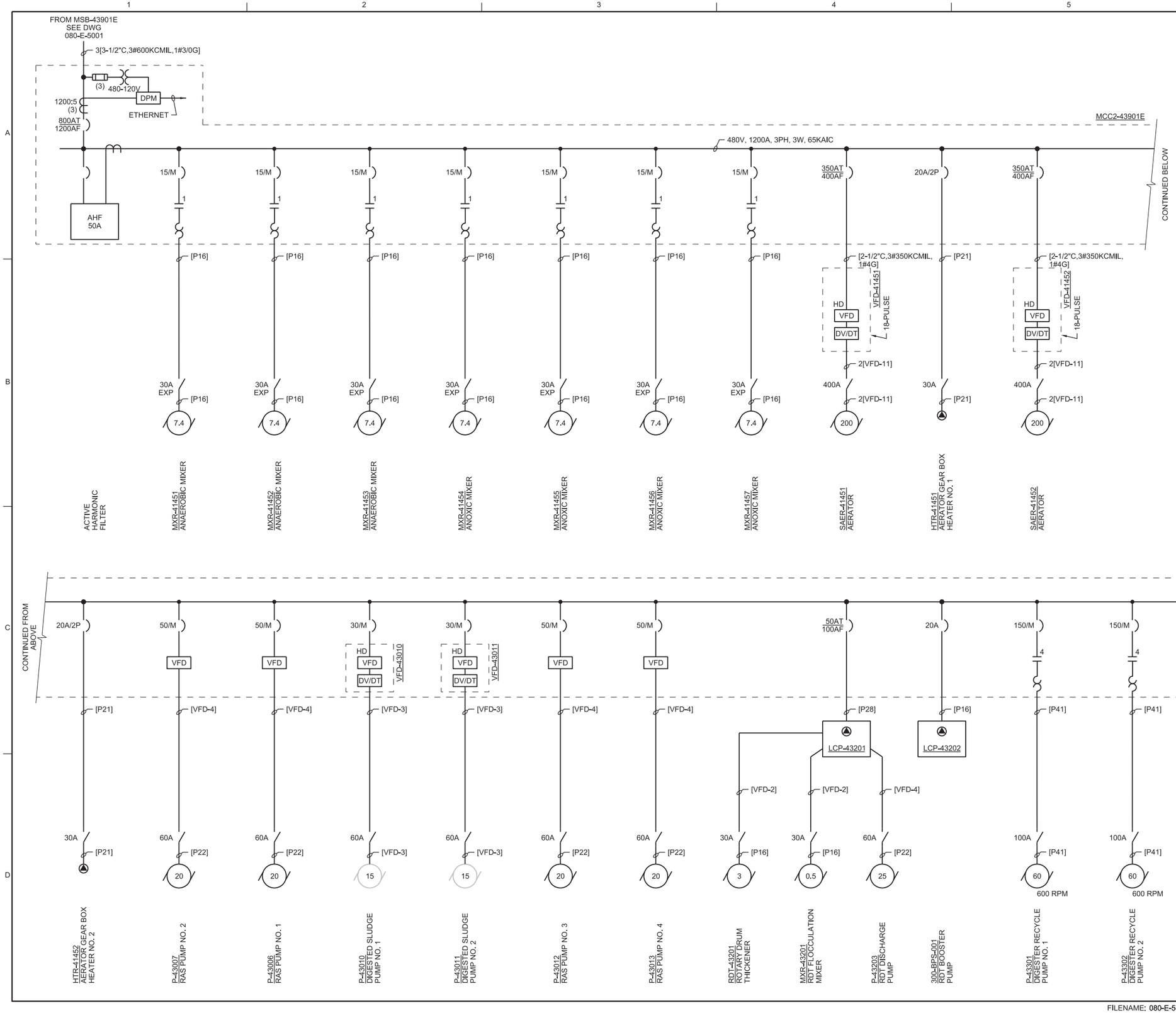
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PROJ	496312
DWG	080-E-5008
SHEET	121 of 314

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GENERAL NOTES

1. NEW WORK SHOWN BOLD. EXISTING FACILITIES SHOWN SCREENED.
2. MCC2-43901E LOCATED AT FACILITY 300.
3. CONNECT ALL DPM'S WITH CAT-6 CABLE TO RIO-#.



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SITE ELECTRICAL
ONE-LINE DIAGRAM MCC2-43901E SLUDGE PUMPING STATION (300)

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	080-E-5009
SHEET	122 of 314

BIDDING SET

FILENAME: 080-E-5009_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:08:58 PM

LUMINAIRE SCHEDULE

SYMBOL / TYPE	VOLTAGE	INPUT WATTS	DESCRIPTION	BASIS OF DESIGN	LUMENS	CRI	CCT	MOUNTING	NOTES
A1	120-277VAC	54	LED AREA LIGHTING	DIALIGHT - DUROSITE LED AREA STWWC2N	4100	>70	5000K	PENDANT	NEMA 4X RATED, 45 DEGREE WALL MOUNT, POLYCARBONATE LENSE, WIDE DISTRIBUTION
A2	120-277VAC	54	LED AREA LIGHTING, 45 DEGREE MOUNT	DIALIGHT - DUROSITE LED AREA STWWC2NW45	4100	>70	5000K	BRACKET	NEMA 4X RATED, 3/4 INCH NPT MOUNT, POLYCARBONATE LENSE, WIDE DISTRIBUTION
EX	120-277VAC	1	EXIT LIGHT	LITHONIA TLE 1/2 R EL N	N/A	N/A	N/A	CEILING OR WALL	DIE-CAST, BRUSHED ALUMINUM FRAME. RED LED WITH INTEGRAL BACKUP BATTERY FOR MINIMUM 1.5HRS OPERATION.
EXZ	120 / 277VAC	3.2	EXIT LIGHT - HAZARDOUS AREA	CROUSE-HINDS CCH UX60RSDHAZ	N/A	N/A	N/A	CEILING OR WALL	CLASS I DIV 2 RATED EMERGENCY EXIR SIGN. NICAD BATTERY. INTEGRAL SOLID STATE BATTERY CHARGER. SELF-DIAGNOSTIC CAPABLE.
EL	120 / 277VAC	40	LED EMERGENCY LIGHT	LITHONIA INDX12100LP05VSULT	N/A	N/A	N/A	WALL	NEMA 4X RATED EMERGENCY LIGHT. FIELD-ADJUSTABLE LED LAMPS, HIGH-TEMP NICAD BATTERY, SELF-DIAGNOSTIC WITH AUDIBLE FAIL ALARM
ELZ	120 / 277VAC	28	EMERGENCY LIGHT - HAZARDOUS AREA	CROUSE- HINDS N2LPS12222	80	N/A	N/A	WALL	CLASS I DIV 2 RATED EMERGENCY LIGHT. TWO (2) REMOTE MOUNTABLE LED LAMPS, NICAD BATTERY. INTEGRAL SOLID STATE BATTERY CHARGER
H1	120-277VAC		LED HIGHBAY	DIALIGHT - DUROSITE LED HIGHBAY					NEMA 4X RATED, 3/4 INCH NPT MOUNT, POLYCARBONATE LENSE, WIDE DISTRIBUTION
L1	100-277VAC	66	4FT LED LINEAR - OUTDOOR/INDOOR	DIALIGHT - DUROSITE LINEAR LPM3C4M2P	7250	75	5000K	LOW PROFILE WITH BRACKET	CLEAR POLYCARBONATE LENSE
L1E	100-277VAC	85	4FT LED LINEAR - OUTDOOR/INDOOR WITH INTEGRAL BACKUP BATTERY	DIALIGHT - DUROSITE LINEAR LPM3C4M2P	7000	85	5000K	PENDANT / BRACKET	3.6V 10AH BATTERY, POLYCARBONATE LENSE
L2	100-277VAC	33	2FT LED LINEAR - OUTDOOR/INDOOR	DIALIGHT - DUROSITE LINEAR LTM3C4D2P	3400	75	5000K	LOW PROFILE WITH BRACKET	CLEAR POLYCARBONATE LENSE
W1	120-277VAC	47	LED OUTDOOR WALL PACK	LITHONIA DSXW2 LED 20C 700 50K MVOLT	5563	70	5000K	WALL	TYPE III MEDIUM DISTRIBUTION, BRONZE FINISH
P1	120-277VAC	47	LED POLE MOUNT, TYPE 2 DISTRIBUTION	LITHONIA DSXWPM LED 20C 700 50K T2M MVOLT SPUMBA	5343	70	5000K	POLE	TYPE II MEDIUM DISTRIBUTION, BRONZE FINISH. PROVIDE WITH 10FT HINGED POLE; LITHONIA TYPE SSAH 10 4C IN MATCHING COLOR
Z1	100-277VAC	66	4FT LED LINEAR - HAZARDOUS AREAS	DIALIGHT - SAFESITE LED LINEAR LPD3C4M2P	7250	75	5000K	LOW PROFILE WITH BRACKET	CLASS 1 DIV 2, LOW PROFILE, POLYCARBONATE LENSE
Z1E	100-277VAC	85	4FT LED LINEAR - HAZARDOUS AREAS WITH INTEGRAL BACKUP BATTERY	DIALIGHT - SAFESITE LED LINEAR LSD3C4MEP	7000	75	5000K	PENDANT / BRACKET	CLASS 1 DIV 2 RATED, 3.6V 10AH BATTERY, POLYCARBONATE LENSE

MARY J. GROSS LICENSED 16702 II 4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		J LANDMAN	A CUGLIAT	M GROSS	M GROSS	APVD	

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SITE ELECTRICAL

ELECTRICAL LUMINAIRE SCHEDULE

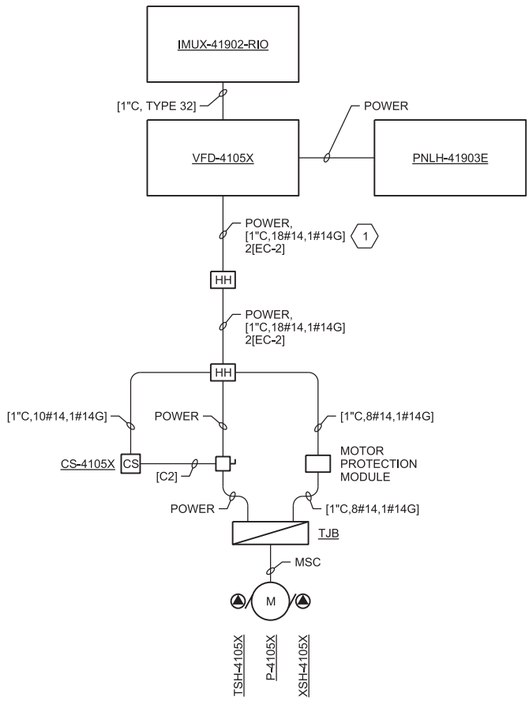
VERIFY SCALE

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DATE	NOVEMBER 2016
PROJ	496312
DWG	080-E-6001
SHEET	123 of 314

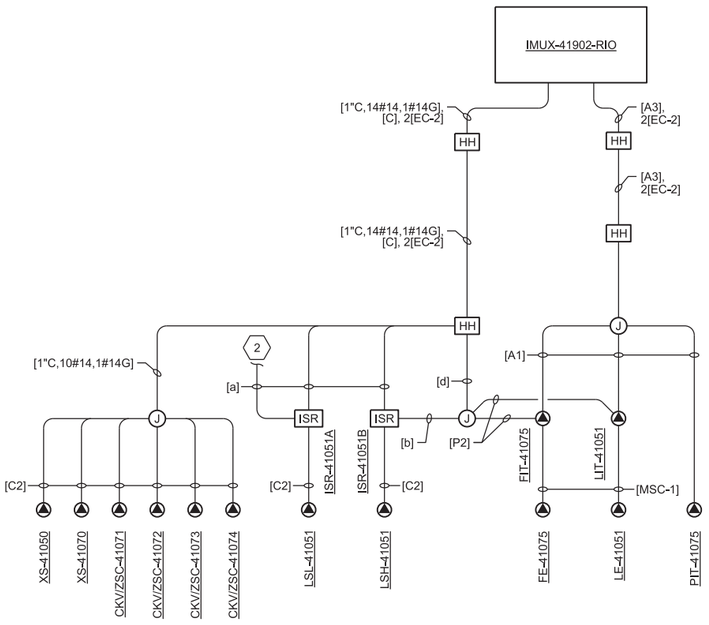
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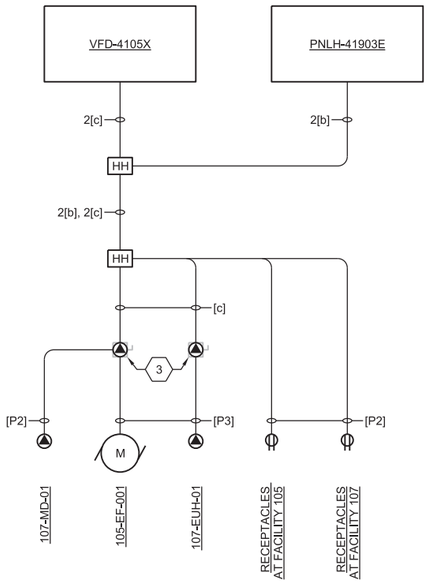
CBD-1: RAW INFLUENT PUMPS

NTS X=1,2,3,4



CBD-2: INFLUENT PUMP STATION & VAULT INSTRUMENTS

NTS X=1,2,3,4



CBD-3: INFLUENT PUMP STATION & VAULT FACILITY

NTS

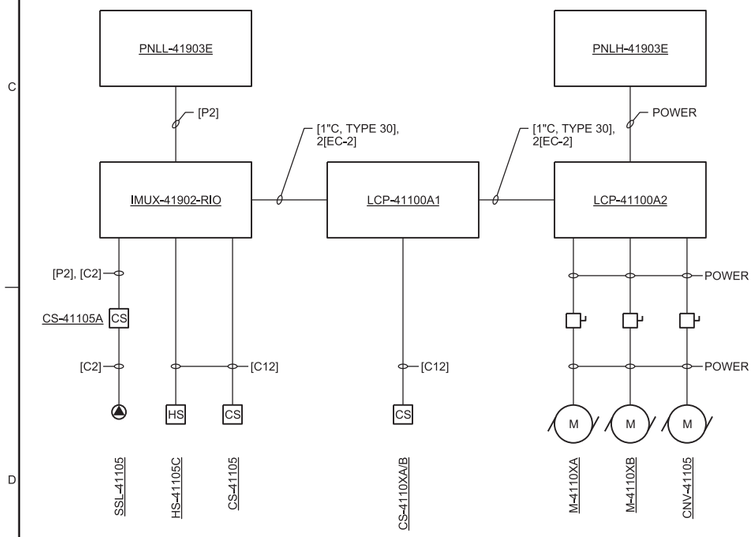
SHEET KEYNOTES

1. STUB UP SPARE CONDUITS IN ELECTRICAL ROOM AT FACILITY 110 NEAR VFD'S AND PNLH-41903E.
2. ISR-41051A SHALL HAVE FIVE (5) CONTACT OUTPUTS: ONE TO IMUX-41902-RIO, AND ONE TO EACH INFLUENT PUMP DRIVE.
3. DISCONNECT SWITCHES AND COMBINATION STARTERS PROVIDED UNDER DIVISION 23, BUILDING MECHANICAL. INSTALLATION BY DIVISION 26, ELECTRICAL.

CONDUIT CALLOUTS

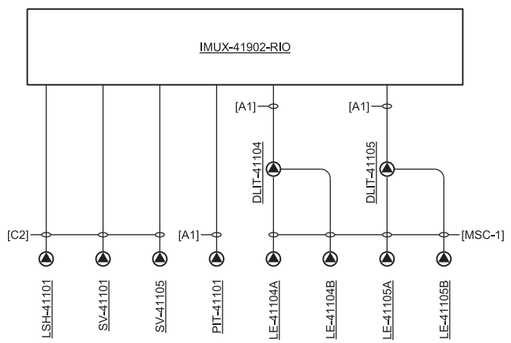
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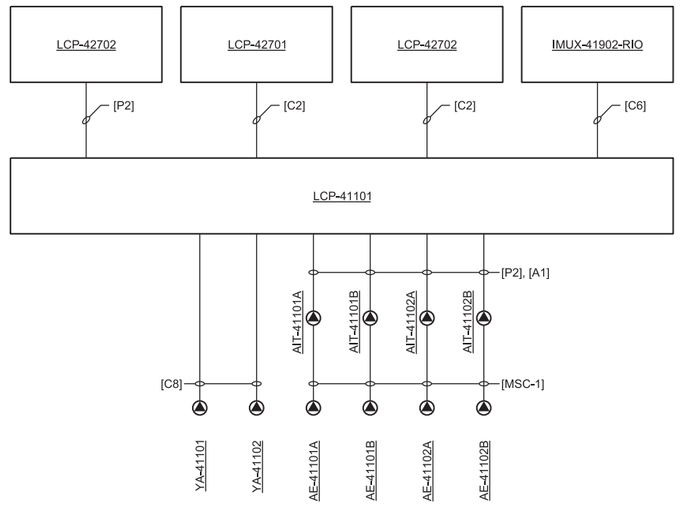
CBD-4: INFLUENT SCREENS AND CONVEYORS

NTS X=1,2



CBD-5: INFLUENT SCREEN AND CONVEYOR INSTRUMENTS

NTS



CBD-6: GAS DETECTION RELAY PANEL

NTS

MARY J. GROSS LICENSED 16702 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD
		J LANDMAN	A CUGLIAT	M GROSS	M GROSS

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CITY OF WICHITA, KANSAS

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SITE ELECTRICAL

CABLE BLOCK DIAGRAMS 1

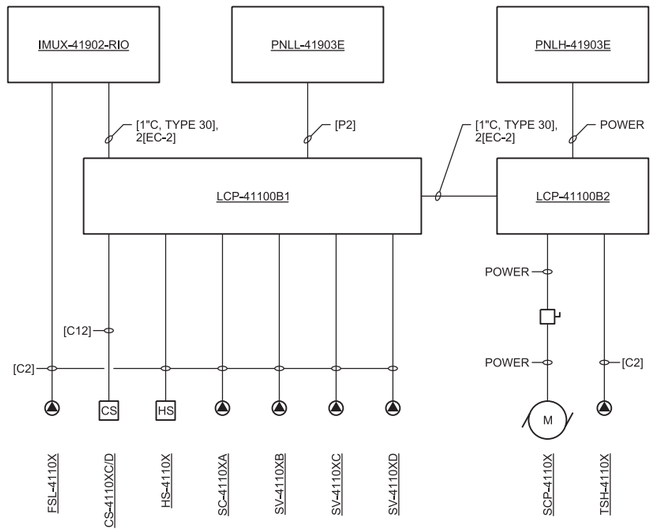
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DATE	NOVEMBER 2016
PROJ	496312
DWG	080-E-6301
SHEET	124 of 314

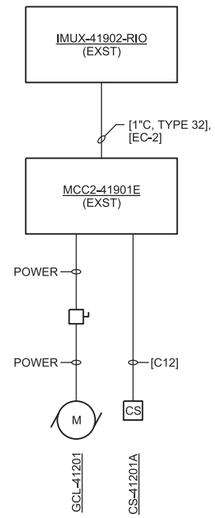
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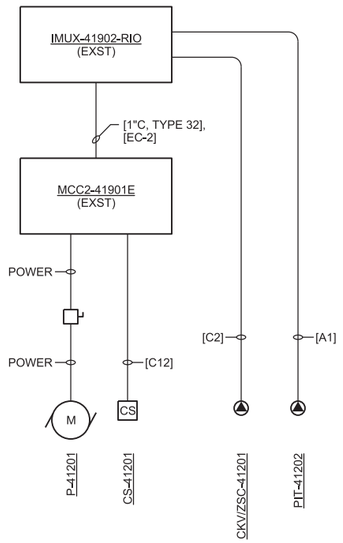
CBD-7: SCREENINGS WASHER/COMPACTORS

NTS X=1,2



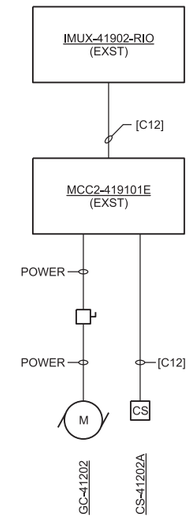
CBD-8: VORTEX GRIT COLLECTION MECHANISM

NTS



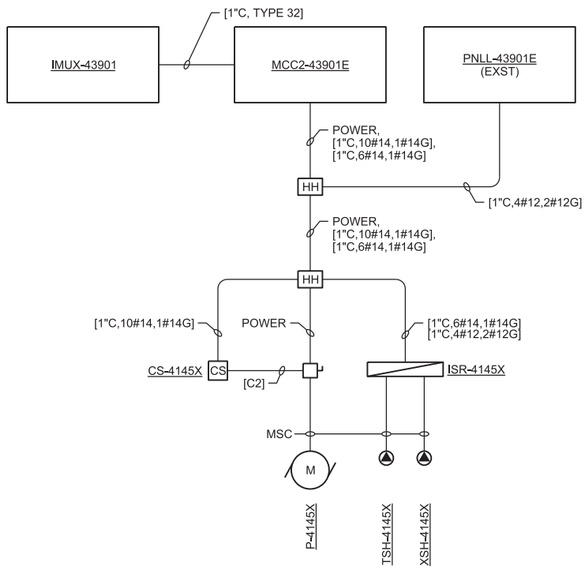
CBD-9: GRIT PUMP

NTS



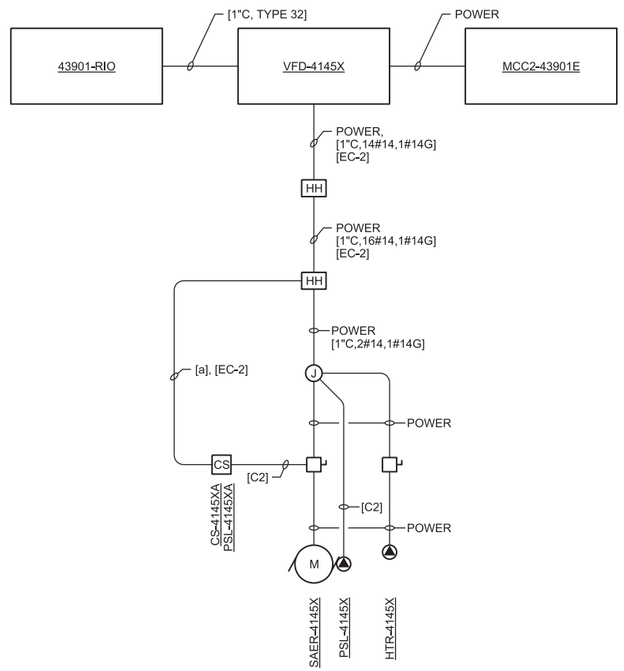
CBD-9A: GRIT CLASSIFIER

NTS



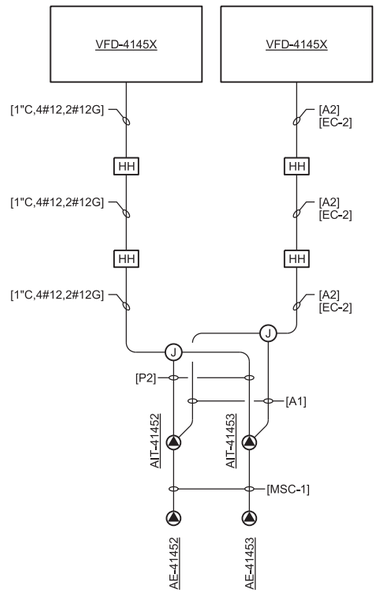
CBD-10: ANAEROBIC AND ANOXIC MIXER

NTS X=1,2,3,4,5,6,7



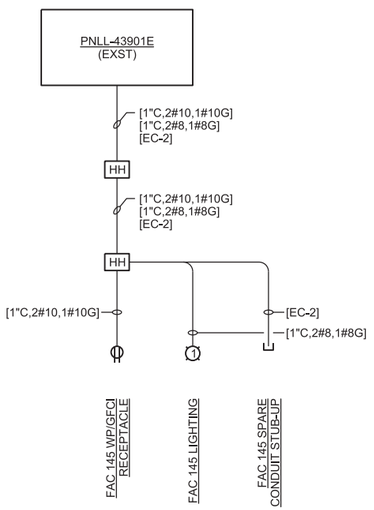
CBD-11: BIOREACTOR - AERATOR

NTS X=1,2



CBD-12: BIOREACTOR INSTRUMENTS

NTS



CBD-13: BIOREACTOR FACILITY

NTS

MARY J. GROSS LICENSED 16702 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

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SITE ELECTRICAL

CABLE BLOCK DIAGRAMS 2

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

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

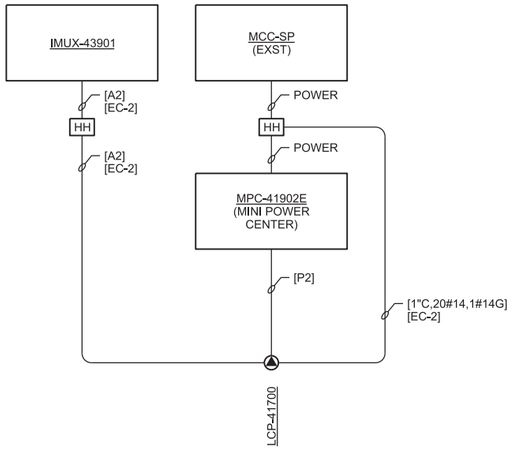
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FILENAME: 080-E-6302_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:09:20 PM

CONDUIT CALLOUTS

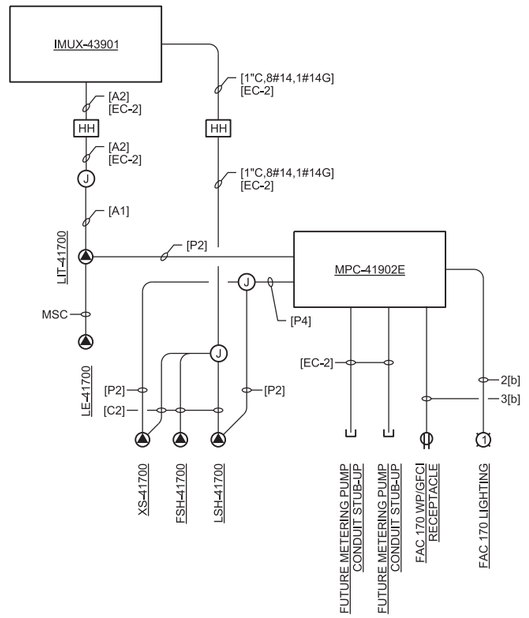
(THIS DWG ONLY)

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[b] = [1"C,2#12,1#12G]



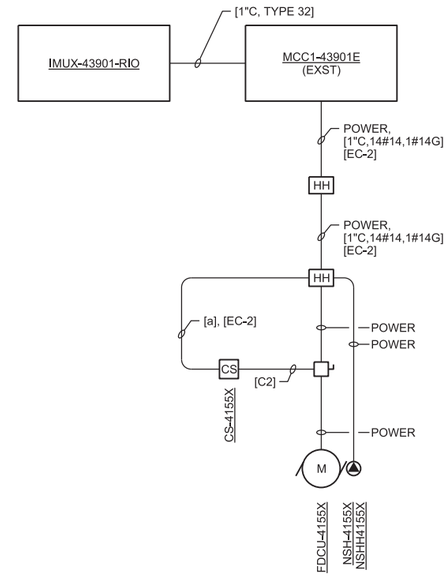
CBD-14: FERRIC CHLORIDE METERING PUMP

NTS X=1,2



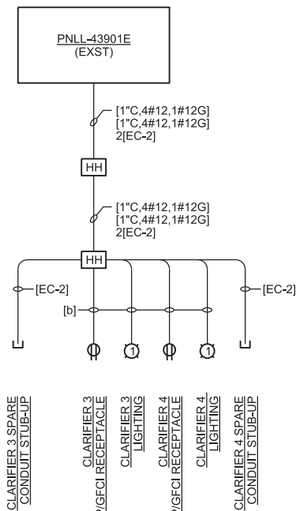
CBD-15: FERRIC CHLORIDE INSTRUMENT & FACILITY

NTS



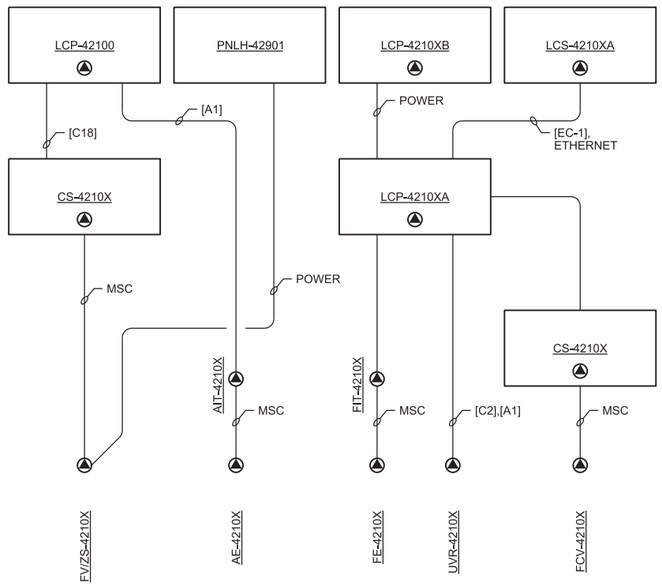
CDB-16: SECONDARY CLARIFIER DRIVE

NTS X=1,2



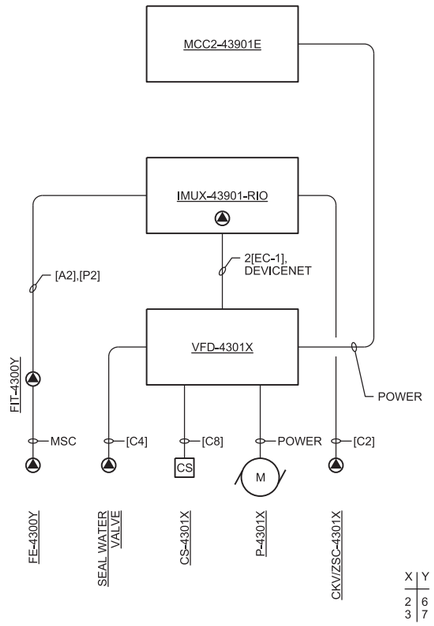
CBD-17: SECONDARY CLARIFIER DRIVE - FACILITY

NTS



CBD-18: UV REACTORS

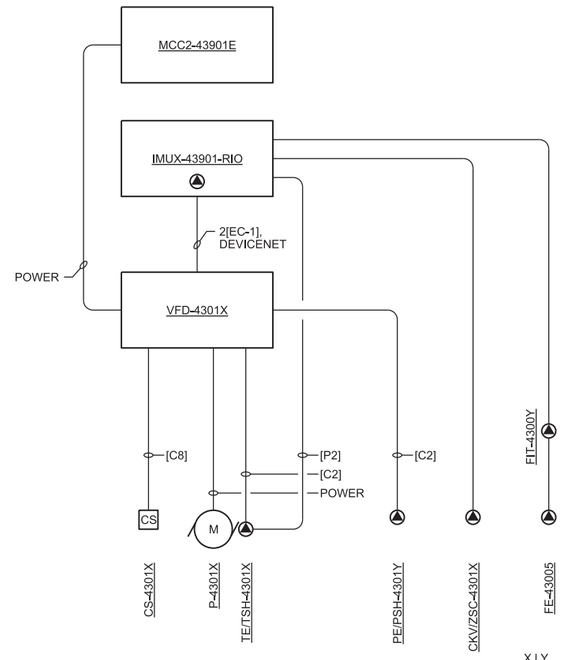
NTS X=1,2



X | Y
2 | 6
3 | 7

CBD-19: NEW RAS PUMPS

NTS



X | Y
4 | 7
5 | 9

CBD-20: WAS/RDT PUMPS

NTS

MARY J. GROSS LICENSED 16702 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY
		J LANDMAN	A CUGLIAT	M GROSS	M GROSS	APVD

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CABLE BLOCK DIAGRAMS 3

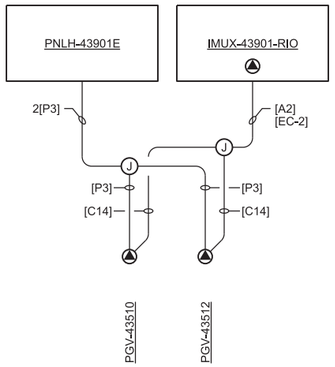
VERIFY SCALE

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0 1"

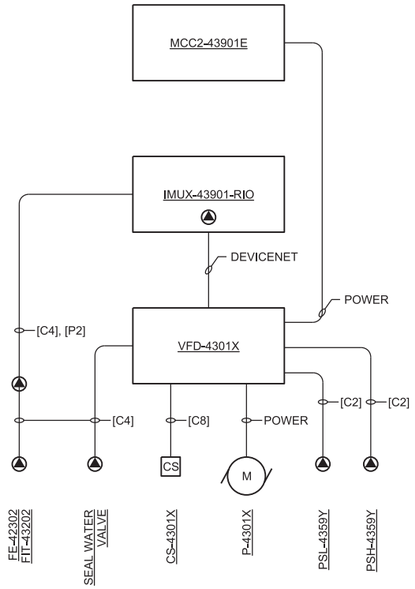
DATE	NOVEMBER 2016
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DWG	080-E-6303
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BIDDING SET

FILENAME: 080-E-6303_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:09:30 PM

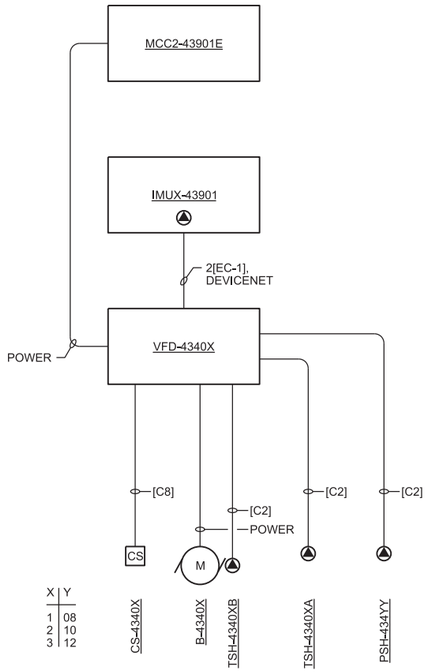


CBD-21: WAS VALVE
NTS



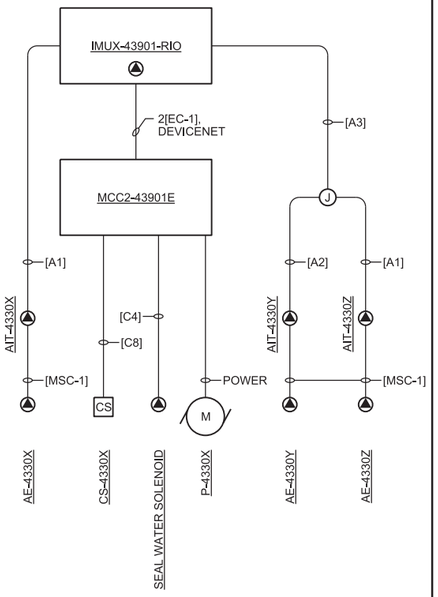
CBD-22: DIGESTED SLUDGE PUMPS (EXST)
NTS

X	Y
0	7
1	9



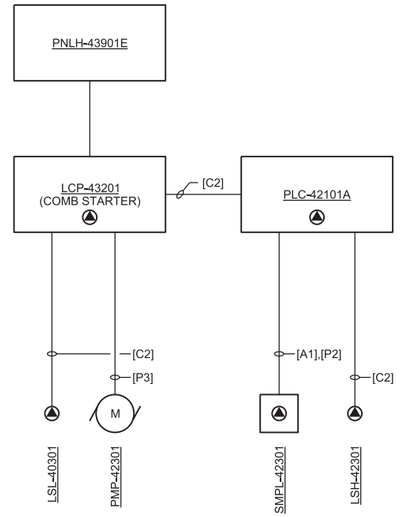
X	Y
1	08
2	10
3	12

CBD-23: DIGESTER BLOWERS
NTS

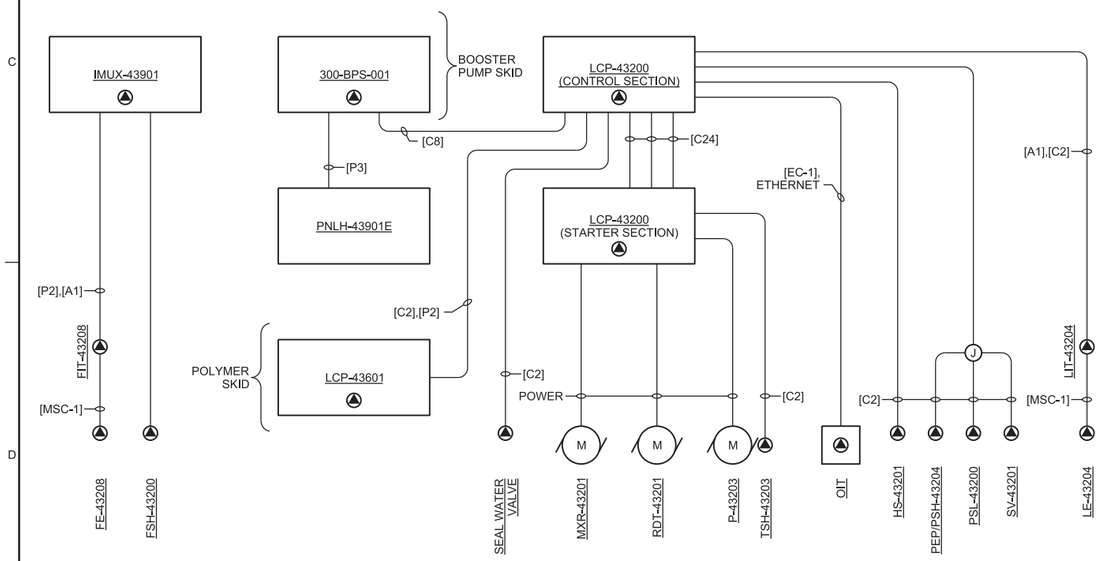


X	Y	Z
1	4	5
2	8	9

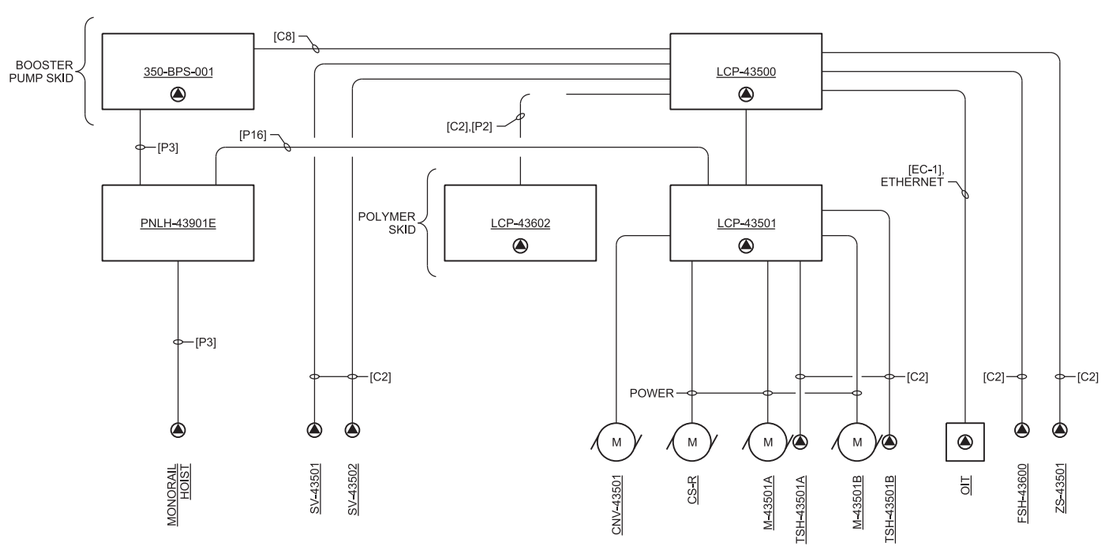
CBD-25: DIGESTER RECYCLE PUMPS
NTS



CBD-26: CASCADE AERATORS
NTS



CBD-24: ROTARY DRUM THICKENER SYSTEM
NTS



CBD-24: ROTARY DRUM THICKENER SYSTEM
NTS

MARY J. GROSS
LICENSED
16702
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD
		J LANDMAN	A CUGLIAT	M GROSS	M GROSS

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SITE ELECTRICAL

CABLE BLOCK DIAGRAMS 4

VERIFY SCALE
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0 1"

DATE	NOVEMBER 2016
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DWG	080-E-6304
SHEET	127 of 314

BIDDING SET

FILENAME: 080-E-6304_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:09:23 PM

ELECTRICAL PANELBOARD SCHEDULE

PANEL: MPC-41902E
VOLTAGE: 480-208Y/120V, 15KVA
BUS SIZE:
MAIN SIZE: PRI: 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 CKT NO.	AMP	POLE	LOAD, VA PHASE A	B	C	LOAD, VA PHASE A	B	C	BREAKER POLE	AMP	CKT NO.	CIRCUIT TITLE
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-417__ (TANK FILL STATION)	7	20		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	SPACE
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: 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 CKT NO.	AMP	POLE	LOAD, VA PHASE A	B	C	LOAD, VA PHASE A	B	C	BREAKER POLE	AMP	CKT NO.	CIRCUIT TITLE
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 RCOM
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							1	20	20	SPARE
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	1100	1220	1060				

PHASE A LOAD (VA) = 1850
PHASE B LOAD (VA) = 1470
PHASE C LOAD (VA) = 2060
TOTAL LOAD (VA)= 5380

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 CKT NO.	AMP	POLE	LOAD, VA PHASE A	B	C	LOAD, VA PHASE A	B	C	BREAKER POLE	AMP	CKT NO.	CIRCUIT TITLE
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-42101	25	20	3	100						3	30	26	SPARE
-	27	-	-		100					-	-	28	-
-	29	-	-			100				-	-	30	-
FV-42102	31	20	3	100						3	30	32	SPARE
-	33	-	-		100					-	-	34	-
-	35	-	-			100				-	-	36	-
FCV-42102	37	20	3	100			5000			3	60	38	PNLL-42901E (VIA TS-PNLL-42901E)
-	39	-	-		100			5000		-	-	40	-
-	41	-	-			100			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-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 CKT NO.	AMP	POLE	LOAD, VA PHASE A	B	C	LOAD, VA PHASE A	B	C	BREAKER POLE	AMP	CKT NO.	CIRCUIT TITLE
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									3		38	SURGE PROTECTIVE DEVICE
	39									-		40	-
	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

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11/04/2016

NO.	DATE	DSGN	BY	APVD
		J LANDMAN	A CUGLIAT	M GROSS

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DR CHK APVD

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PANELBOARD SCHEDULES

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0 1"

DATE	NOVEMBER 2016
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SHEET	128 of 314

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FILENAME: 080-E-6401_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:09:24 PM

ELECTRICAL PANELBOARD SCHEDULE

PANEL: PNLH-43901E (EXST)
VOLTAGE: 208/120 VAC, 3 PHASE, 4 WIRE
BUS SIZE: 225A
MAIN SIZE: 225A
SCCR: 14KA

LOCATION: FACILITY 300 - SLUDGE PUMP STATION
MOUNTING: SURFACE
FED FROM: MSB-43901E (FACILITY 300 - SLUDGE PUMPING STATION)
MAIN TYPE: BREAKER
NOTES: MULTI-SECTION, DOUBLE-LUGGED WITH GROUND BUS

CIRCUIT TITLE	BREAKER CKT NO.	AMP	POLE	LOAD, VA PHASE A	PHASE B	PHASE C	LOAD, VA PHASE A	PHASE B	PHASE C	BREAKER POLE	AMP	CKT NO.	CIRCUIT TITLE
FM (FE-43001)	1	20	1	500			600			1	20	2	LOWER LEVEL
FM (FE-43301)	3	20	1		500			600		1	20	4	LOWER LEVEL
FM (FE-43201, 43002)	5	20	1			500			1176	1	20	6	B-43401 CABINET EXHAUST
FM (FE-43003)	7	20	1	500			1176			1	20	8	B-43402 CABINET EXHAUST
PGV-43003	9	20	1		500			1176		1	20	10	B-43403 CABINET EXHAUST
PGV-43004	11	20	1			500			400	1	20	12	BLOWER ROOM
PGV-43005	13	20	1	500			1500			1	20	14	BUBBLER (LE-41601)
PGV-43301	15	20	1		500			1500		1	20	16	BUBBLER (LE-43301)
PGV-43002	17	20	1			500			1500	1	20	18	BUBBLER (LE-43302)
PGV-43001	19	20	1	500			1000			1	20	20	IMUX-43901
DOM. WATER SOL. VALVE	21	20	1		500			1000		1	20	22	IMUX-43901
PGV-43302	23	20	1			500			1000	1	20	24	IMUX-43901
MIXER BASIN RECEPTACLES	25	20	1	600			1000			1	20	26	IMUX-43901
MOTORIZED DAMPER	27	20	1		500			800		1	20	28	UPPER LEVEL CONV. REC
MOTORIZED DAMPER	29	20	1			500			600	1	20	30	UPPER LEVEL CONV. REC
DUCT SMOKE DETECTORS	31	20	1	1000			1500			1	20	32	SEAR-41402 GEAR OIL HTR
ROOF TOP RECEPTACLES	33	20	1		400			200		1	20	34	REC AT SEAR-41402
EMERGENCY HORN/LIGHT	35	20	1			200			1500	1	20	36	SEAR-41401 GEAR OIL HTR
PGV-43006	37	20	1				200			1	20	38	REC AT SEAR-41401
SUMP PUMP MAN HOLES	39	20	1					1500		1	20	40	FDCU-41502 GEAR OIL HTR
AE-41401, 41402	41	20	1						200	1	20	42	REC AT FDCU-41502
???	43	20	1				1500			1	20	44	FDCU-41501 GEAR OIL HEATER
GEN CRANKCASE HEATER	45	15	2		500			200		1	20	46	REC AT FDCU-41501
-	47	-	-			500			1500	2	20	48	GENSET BLOCK HEATER
LCP-43202	**49**	**20**	**3**	**333**			1500			-		50	-
-	51	-	-		**333**			1500		2	20	52	GENSET BLOCK HEATER
-	53	-	-			**333**			1500	-	-	54	-
SPACE	55						1500			1	20	56	GENSET BATTERY CHARGER
SPACE	57											58	SPACE
SPACE	59											60	SPACE
TOTAL LOAD				3933	3733	3533	11476	8476	9376				

PHASE A LOAD (VA) = 15409
PHASE B LOAD (VA) = 12209
PHASE C LOAD (VA) = 12909
TOTAL LOAD (VA)= 40527

ELECTRICAL PANELBOARD SCHEDULE

PANEL: PNLH-43902
VOLTAGE: 480 VAC, 3 PHASE, 3 WIRE
BUS SIZE: 400A
MAIN SIZE: 400A LSIG
SCCR: 35KA

LOCATION: FACILITY 350 (SOLIDS DEWATERING)
MOUNTING: FLOOR
FED FROM: MSB 43901 (FACILITY 300 - SLUDGE PUMPING STATION)
MAIN TYPE: CIRCUIT BREAKER
NOTES:

CIRCUIT TITLE	BREAKER CKT NO.	AMP	POLE	LOAD, VA PHASE A	PHASE B	PHASE C	LOAD, VA PHASE A	PHASE B	PHASE C	BREAKER POLE	AMP	CKT NO.	CIRCUIT TITLE
LCP-43501 (CENTRIFUGE POWER PNL)	1	200	3	50000			2600			3	30	2	350-BPS-001 (BOOSTER PUMP)
-	3	-	-		50000			2600		-	-	4	-
-	5	-	-			50000			2600	-	-	6	-
M-43500 (HOIST)	7	30	3	2100			3800			3	30	8	CNV-43501 (LOADOUT CONVEYOR)
-	9	-	-		2100			3800		-	-	10	-
-	11	-	-			2100			3800	-	-	12	-
SPARE	13	30	3							3	30	14	SPARE
-	15	-	-							-	-	16	-
-	17	-	-							-	-	18	-
SPARE	19	30	3							3	30	20	SPARE
-	21	-	-							-	-	22	-
-	23	-	-							-	-	24	-
	25											26	
	27											28	
	29											30	
SHOP SPACE 480V PANELBOARD	31	60	3									32	
-	33	-	-									34	
-	35	-	-									36	
PANELS "A" AND "EM" VIA TS-PMB	37	150	3	25000						3		38	SURGE PROTECTION DEVICE
-	39	-	-		25000					-		40	
-	41	-	-			25000				-		42	
TOTAL LOAD				77100	77100	77100	6400	6400	6400				

PHASE A LOAD (VA) = 83500
PHASE B LOAD (VA) = 83500
PHASE C LOAD (VA) = 83500
TOTAL LOAD (VA)= 250500

ELECTRICAL PANELBOARD SCHEDULE

PANEL: PNLL-43901E (EXISTING)
VOLTAGE: 208/120 VAC, 3 PHASE, 4 WIRE
BUS SIZE: 225A
MAIN SIZE: MLO
SCCR: 65KAIC

LOCATION: FACILITY 300 - SLUDGE PUMP STATION
MOUNTING: SURFACE
FED FROM: MSB-43901E (FACILITY 300 - SLUGE PUMPING STATION)
MAIN TYPE: MLO
NOTES: MULTI-SECTION, DOUBLE-LUGGED WITH GROUND BUS

CIRCUIT TITLE	BREAKER CKT NO.	AMP	POLE	LOAD, VA PHASE A	PHASE B	PHASE C	LOAD, VA PHASE A	PHASE B	PHASE C	BREAKER POLE	AMP	CKT NO.	CIRCUIT TITLE
H-43001	1	15	3	1330			2310			1	20	2	LOWER LEVEL (NORTH)
-	3	-	-		1330			2310		1	20	4	LOWER LEVEL (SOUTH)\
-	5	-	-			1330			1120	1	20	6	SPARE
H-43002	7	15	3	1330			840			1	20	8	MAIN LEVEL LTG (BLOWER RM)
-	9	-	-		1330			2520		1	20	10	MAIN LEVEL (E-BAY)
-	11	-	-			1330			980	1	20	12	MAIN LEVEL LTG (MCC LIGHTS)
H-4003	13	15	3	1330			733			1	20	14	EXTERIOR BLDG LTG
-	15	-	-		1330			733		1	20	16	SPARE
-	17	-	-			1330			733	1	20	18	SPARE
RTU-43801	19	40	3	7756			942			3	15	20	EF-43802
-	21	-	-		7756			942		-	-	22	-
-	23	-	-			7756			942	-	-	24	-
IRH-43801	25	15	3	1662			582			3	15	26	EF-43801
-	27	-	-		1662			582		-	-	28	-
-	29	-	-			1662			582	-	-	30	-
IRH-43802	31	15	3	1662			3878			3	30	32	MAU-43801
-	33	-	-		1662			3878		-	-	34	-
-	35	-	-			1662			3878	-	-	36	-
IRH-43803	37	15	3	1662			1662			3	15	38	IRH-43804
-	39	-	-		1662			1662		-	-	40	-
-	41	-	-			1662			1662	-	-	42	-
EXTERIOR LIGHTING	43	20	3	1000			942			3	15	44	EF-43803
-	45	-	-		1000			942		-	-	46	-
-	47	-	-			1000			942	-	-	48	-
EXTERIOR LIGHTING	49	20	3	1500						1	20	50	SPARE
-	51	-	-		1500					1	20	52	SPARE
-	53	-	-			1500				1	20	54	SPARE
EXTERIOR LIGHTING	55	20	3	833						1	20	56	SPARE
-	57	-	-		833					1	20	58	SPARE
-	59	-	-			833				1	20	60	SPARE
AER BASIN LIGHTING	61	20	1				94					62	SPACE
LIGHTS - CLARIFIER 3	63	20	1		**94**			94				64	SPACE
LIGHTS - CLARIFIER 4	65	20	1			**94**			360			66	SPACE
LIGHTS - FACILITY 145 (BIOREACTOR)	67	20	1	**188**			360					68	SPACE
RCPT - CLARIFIER 3	69	20	1		**360**							70	SPACE
RCPT - CLARIFIER 4	71	20	1			**360**						72	SPACE
RCPT - FACILITY 145 (BIOREACTOR)	73	20	1	**540**								74	SPACE
SPARE	75	20	1									76	SPACE
SPARE	77	20	1									78	SPACE
LIGHTNING ARRESTOR	79	20	1									80	SPACE
LIGHTNING ARRESTOR	81	20	1									82	SPACE
LIGHTNING ARRESTOR	83	20	1									84	SPACE
TOTAL LOAD				20793	20519	20519	12343	13663	11199				

PHASE A LOAD (VA) = 33136
PHASE B LOAD (VA) = 34182
PHASE C LOAD (VA) = 31718
TOTAL LOAD (VA)= 99036

ELECTRICAL PANELBOARD SCHEDULE

PANEL: PNL "EM" (EXISTING)
VOLTAGE: 208/120 VAC, 3 PHASE, 4 WIRE
BUS SIZE: 200A
MAIN SIZE: MLO
SCCR:

LOCATION: FACILITY 350 (SOLIDS DEWATERING) SHOP AREA
MOUNTING: SURFACE
FED FROM: PANEL "A" (FACILITY 350 - SOLIDS DEWATERING)
MAIN TYPE: LUGS
NOTES:

CIRCUIT TITLE	BREAKER CKT NO.	AMP	POLE	LOAD, VA PHASE A	PHASE B	PHASE C	LOAD, VA PHASE A	PHASE B	PHASE C	BREAKER POLE	AMP	CKT NO.	CIRCUIT TITLE
EMERGENCY LIGHTING	1	20	1	250			1920			1	20	2	RCPT - SHOP AND OFFICE 102
TELEPHONE RECEPTACLES	3	20	1		500			1920		1	20	4	RCPT - 101 AND 103
UPS	5	20	1			500			500	1	20	6	UPSTAIRS UPS
FURNACE	7	20	1	500			50			1	20	8	RADIO
FURNACE	9	20	1		500			200		3	20	10	GATE ACCESS CONTROLLER
WATER FOUNTAIN	11	20	1			300						12	SPACE
LCP-43602 (CENTRIFUGE POLYMER)	**13**	**20**	**1**	**500**			200					14	SPACE
SPACE	15											16	SPACE
SPACE	17											18	SPACE
TOTAL LOAD				1250	1000	800	2170	2120	500				

PHASE A LOAD (VA) = 3420
PHASE B LOAD (VA) = 3120
PHASE C LOAD (VA) = 1300
TOTAL LOAD (VA)= 7840

MARY J. GROSS LICENSED 16702 11-4-16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	REVISION	BY	APVD
		J LANDMAN	A CUGLIAT	M GROSS	M GROSS

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SITE ELECTRICAL

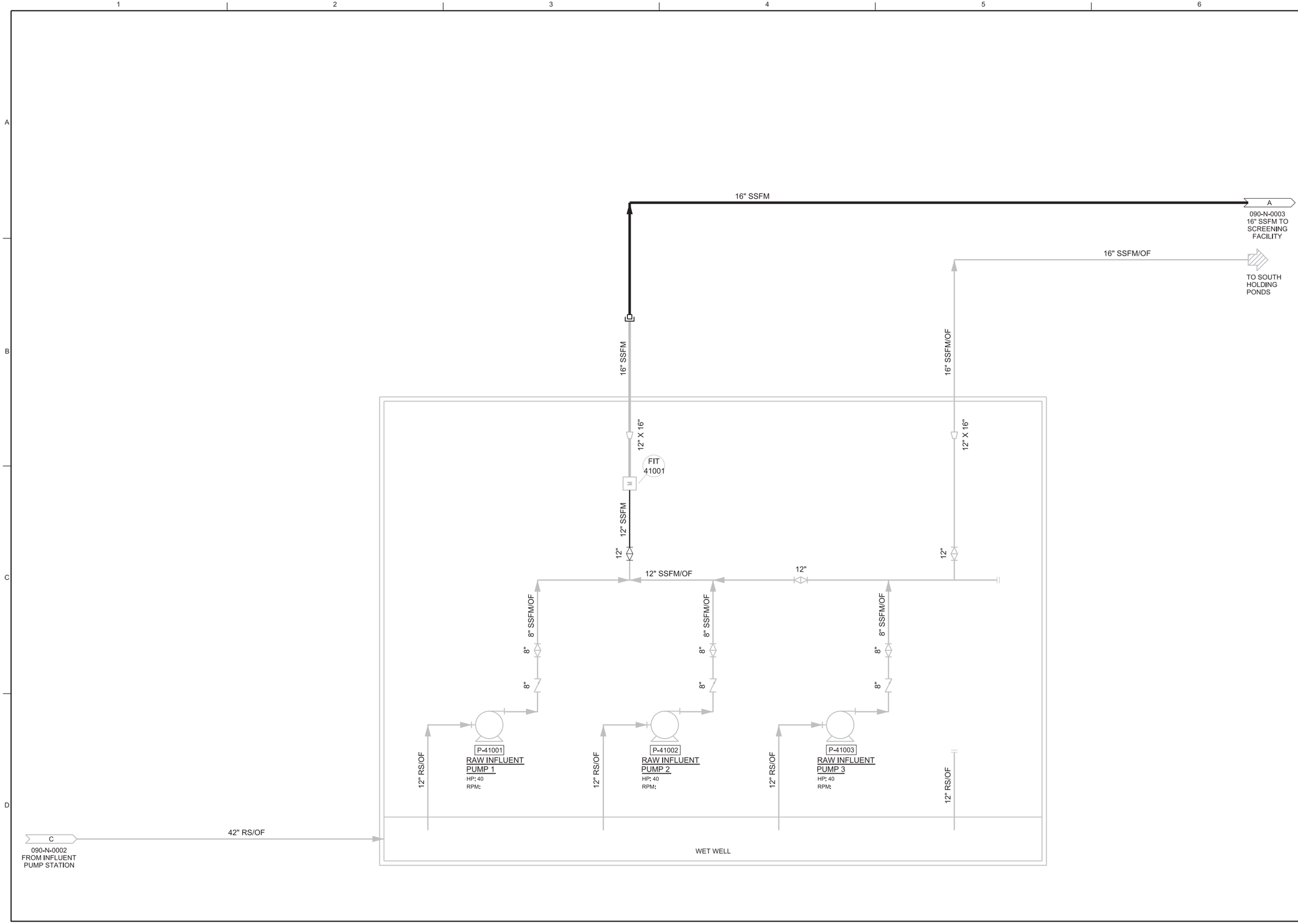
PANELBOARD SCHEDULES

BIDDING SET

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	080-E-6402
SHEET	129 of 314

FILENAME: 080-E-6402_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:10:05 PM



DENNIS JOHN THOMAS
LICENSED
25226
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		J PITTS	E KRISTEL	L FOX			E JOHNSON

REVISION

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INSTRUMENTATION AND CONTROLS

WET WEATHER PUMP STATION P&ID

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-0001
SHEET	130 of 314

BIDDING SET

GENERAL NOTES

1. MOUNT MAN DOWN PANEL IN ACCESSIBLE AREA.
2. CLASS 1 DIV 1 AREA.
3. INTRINSICALLY SAFE RELAY.
4. ALL I/O WIRES TO IMUX-41902-RIO.
5. PROVIDED BY PUMP VENDOR AS PER SPEC 44 42 56 04.

DENNIS JOHN THOMAS LICENSED 25226 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

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NO.	DSGN	DATE	DR	CHK	APVD	BY	REVISION
	J PITTS		E KRISTEL	L FOX	APVD	E JOHNSON	

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

INSTRUMENTATION AND CONTROLS

INFLUENT PUMPING P&ID

VERIFY SCALE

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DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-0002
SHEET	131 of 314

BIDDING SET

FILENAME: 090-N-0002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:14:51 PM

GENERAL NOTES

1. ALL I/O WIRES ON THIS SHEET ARE ROUTED TO LCP-41100A1 EXCEPT AS NOTED.
2. ROUTED TO IMUX-41902 RIO.
3. LCP-41100A1 AND LCP-41100A2 LOCATED IN ELECTRICAL ROOM.
4. MOUNT BEACON NEAR DOOR.
5. SCREW MOTORS POWER FROM LCP-41100A2.
6. MOUNT MAN DOWN PANEL IN ACCESSIBLE AREA.
7. CONVEYOR MOTOR POWERED FROM LCP-41100B2.

H2S DI
VHC DI
LCP-41101 GAS DETECTION RELAY PANEL
DOOR BEACON YL 41101E NOTE 4
ROOM BEACON YA 41101A
HORN YA 41101B
HORN YA 41101C
24VDC H2S AIT 41101A
24VDC VHC AIT 41102A
H2S AE 41101A
VHC AE 41102A
24VDC H2S AIT 41101B
24VDC VHC AIT 41102B
H2S AE 41101B
VHC AE 41102B
NOTE 2 AND NOTE 3
120V
TO PLANT SCADA
LCP-41100A1 *
120V "POWER"
LCP-41100A2 *
480V
Y 090-N-0014 LCP-42700
AB 090-N-0014 LCP-42702
ALM DI NOTE 2 XS 41101 NOTE 6 **
ALM DI NOTE 2 XS 41102 NOTE 6 **
ALM DI NOTE 2 XS 41103 NOTE 6 **
AV 090-N-0004 FROM WASHING/ COMPACTING
2 1/2" W2
2 1/2"
2 1/2" X 2"
2" W2
AW 090-N-0014 TO ODOR CONTROL
PI 41101
TO LCP-41100A1
2" W2
2"
2" X 1"
SV 41101
1"
1" W2
CS-41101A
HOA HS 41101A
RUN REV YL 41101A
FOR HS 41101AA
RUN FWD YL 41101AA
E-STOP HS 41101AB
TO LCP-41100A1
TO LCP-41100B1
CS-41105
HOA HS 41105
R YL 41105
E-STOP HS 41105C *
26" FA
AD 090-N-0014 TO ODOR CONTROL
26" FA
6"
6" FA
FOUL AIR COLLECTION (CHANNELS) FOUR LOCATIONS
FOUL AIR COLLECTION (ROOM)
SG-41107 SCREEN NO. 1 INFLUENT GATE
TO LCP-41100A1
DLIT 41104 *
LE 41104A *
SCR-41101 INFLUENT SCREEN NO. 1
AS M 480V M-41101A HP: 1 RPM: 1800
CS M 480V M-41101B HP: 1 RPM: 1800
LE 41104B *
SG-41111 SCREEN NO. 1 EFFLUENT GATE
CNV-41105 INFLUENT SCREENINGS CONVEYOR HP: 2.0 RPM:
NOTE 7
M
3" D
SCREENINGS
TO LCP-41100A1
PI 41102
SV 41105
2"
2" X 1"
1"
CS-41102A *
HOA HS 41102A
REV YL 41102A
FOR HS 41102AA
FWD YL 41102AA
E-STOP HS 41102AB
TO LCP-41100A1
SG-41108 SCREEN NO. 2 INFLUENT GATE
TO LCP-41100A1
DLIT 41105 *
LE 41105A *
SCR-41102 INFLUENT SCREEN NO. 2
AS M 480V M-41102A HP: 1 RPM: 1800
CS M 480V M-41102B HP: 1 RPM: 1800
LE 41102B *
SG-41112 SCREEN NO. 2 EFFLUENT GATE
SCREENINGS
30" SRS
D 0090-N-0005 TO GRIT REMOVAL FACILITY
TO LCP-41100B1
120V
TB-41105A *
SSL 41105 *
PACING AO
120V
SS
SMPL-41201 AUTOMATIC COMPOSITE SAMPLER
SCREENINGS
E 090-N-0004 TO SCREENINGS WASHER/ COMPACTORS
B 090-N-0002 FROM INFLUENT PUMP STATION
24" SSFM
A 090-N-0001 FROM WET WEATHER PUMP STATION
16" SSFM
HIGH LEVEL DI NOTE 2
LSH 41101
SG-41109 SCREEN NO. 3 INFLUENT GATE (FUTURE)
SCR-41106 MANUALLY CLEANED BAR SCREEN NO. 1
3" SCR/D
SG-41113 SCREEN NO. 3 EFFLUENT GATE (FUTURE)
SG-41110 MANUALLY CLEANED BAR RACK INFLUENT GATE
SCR-41107 MANUALLY CLEANED BAR SCREEN NO. 2
SG-41114 MANUALLY CLEANED BAR RACK EFFLUENT GATE
F 090-N-0004 FROM SCREENINGS WASHER/COMPACTOR
3" SCR/D

DENNIS JOHN THOMAS LICENSED 25226 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DSGN	DATE	DR	CHK	APVD	REVISION	BY	APVD
			J RYSAVY	E KRISTEL	L FOX		E JOHNSON	

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

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INSTRUMENTATION AND CONTROLS
SCREENING FACILITY
INFLUENT SCREENS P&ID

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-0003
SHEET	132 of 314

BIDDING SET

FILENAME: 090-N-0003_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:15:02 PM

GENERAL NOTES

1. ALL I/O WIRES ON THIS SHEET ARE ROUTED TO LCP-4110B1 EXCEPT AS NOTED.
2. WIRED TO 41902-RIO.
3. MOTORS POWERED FROM LCP-41100B2.

LCP-41100B1 ✳ — 120V — TO PLANT SCADA
"POWER"
LCP-41100B2 ✳ — 480V

E
090-N-0003
SCR FROM
INFLUENT
SCREENS

SCREENINGS

MANUAL
DIVERSION
GATE

SCREENINGS

TO
LCP-41100B1

OPEN CMD | OPEN CMD | OPEN CMD | OPEN CMD

SV 41101A — 1 1/2" W2
SV 41101B — 1 1/2" W2
SV 41101C — 1 1/2" W2
SV 41101D — 1 1/2" W2

PI 41103
1" — 1 1/2" — 1 1/2" W2
1 1/2" X 2 1/2"

PSL 41102
PCV 41102
2 1/2" — 2 1/2" — 2 1/2" W1
FROM PLANT
WATER SYSTEM

CS-41101B ✳
HOA FOR START E-STOP
HS 41101B | HS 41101BA | HS 41101BB | HS 41101BC
RUN FWD | RUN REV
YL 41101BA | YL 41101B

TSH 41101
CS
480V
M

SCP-41101
SCREENINGS
WASHER
COMPACTOR NO. 1
HP: 5
RPM: 1800
VENDOR SUPPLIED

1 1/2" W2
1 1/2" W2
1 1/2" W2
1 1/2" W2
1 1/2" W2
1 1/2" W2

SCREENINGS

2 1/2" W2

SCREENINGS

3" SCR/D

TO
LCP-41100B1

OPEN CMD | OPEN CMD | OPEN CMD | OPEN CMD

SV 41102A — 1 1/2" W2
SV 41102B — 1 1/2" W2
SV 41102C — 1 1/2" W2
SV 41102D — 1 1/2" W2

PI 41104
1" — 1 1/2" — 1 1/2" W2
1 1/2" X 2 1/2"

2 1/2" W2

AV
090-N-003
TO INFLUENT
SCREENS

CS-41102B ✳
HOA FOR START E-STOP
HS 41102B | HS 41102BA | HS 41102BB | HS 41102BC
RUN REV | RUN FWD
YL 41102B | YL 41102BA

TSH 41102
CS
480V
M

SCP-41102
SCREENINGS
WASHER
COMPACTOR NO. 2
HP: 5
RPM: 1800
VENDOR SUPPLIED

1 1/2" W2
1 1/2" W2
1 1/2" W2
1 1/2" W2
1 1/2" W2
1 1/2" W2

SCREENINGS

3" SCR/D

SCREENINGS
DUMPSTER

F
090-N-0003
TO INFLUENT
SCREENS

3" SCR/D
3" SCR/D

DENNIS JOHN THOMAS
LICENSED
25226
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	REVISION	CHK	APVD	BY	APVD
		DR		E KRISTEL	L FOX		E JOHNSON
				J RYSAVY			

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INSTRUMENTATION AND CONTROLS

SCREENING FACILITY WASHING/COMPACTING P&ID

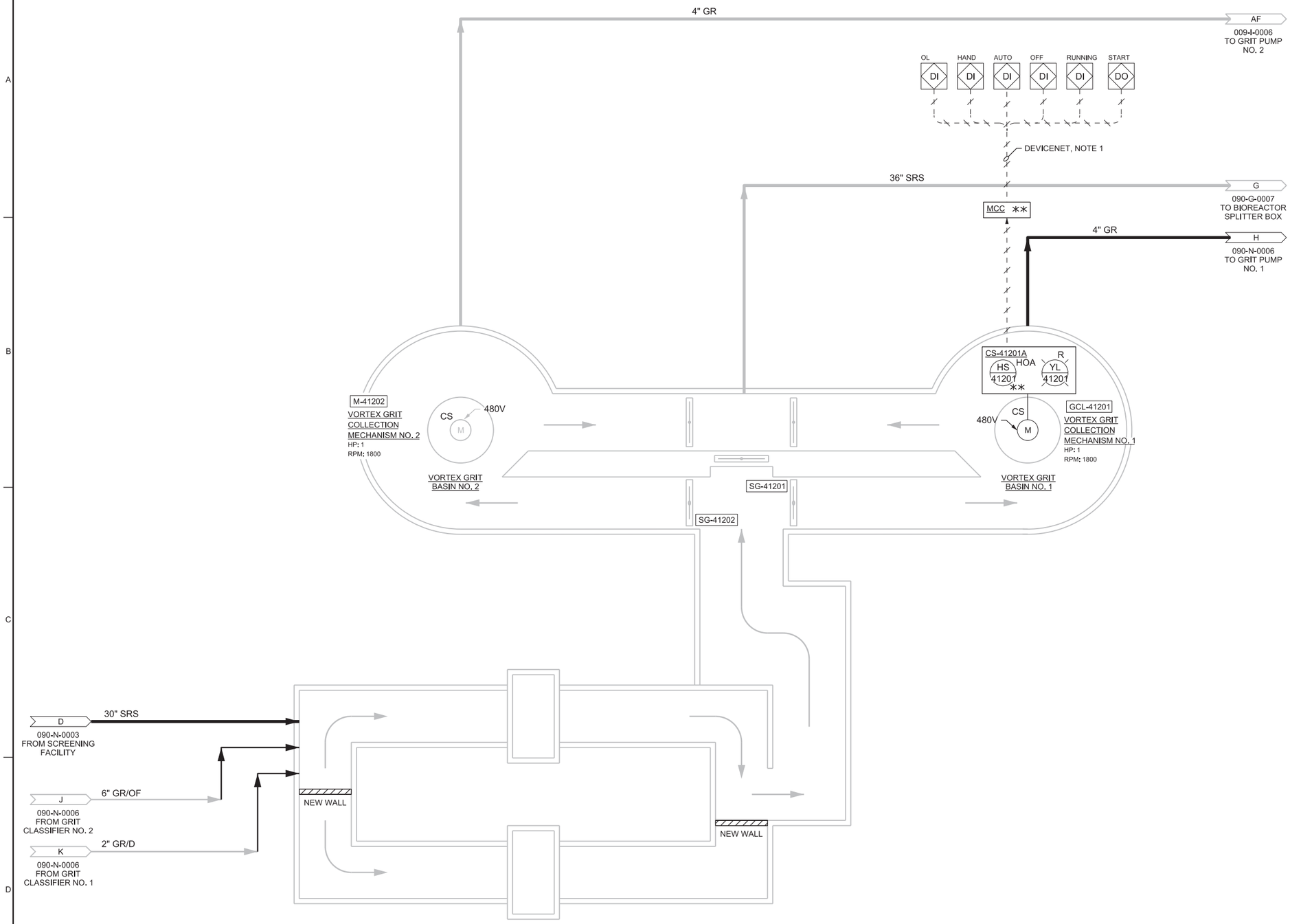
BIDDING SET

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-0004
SHEET	133 of 314

GENERAL NOTES

1. DEVICENET TO IMUX-41902-RIO.



DENNIS JOHN THOMAS
LICENSED
25226
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	REVISION	CHK	APVD	BY	APVD
		J RYSAVY	E KRISTEL		L FOX		E JOHNSON	

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CITY OF WICHITA, KANSAS

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INSTRUMENTATION AND CONTROLS

GRIT REMOVAL FACILITY P&ID

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-0005
SHEET	134 of 314

BIDDING SET

FILENAME: 090-N-0005_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:14:58 PM

GENERAL NOTES

1. DEVICENET TO IMUX-41902-RIO.

OL HAND OFF AUTO RUNNING START
DI DI DI DI DI DO
DEVICENET, NOTE 1
MCC **
CS-41201
HOA
HS 41201A **
R
YL 41201A
PRESS CLOSED
AI DI
PIT 41202
ZSC 41201
F
480V
M
CS
1"
4" GR
H
090-N-0005
FROM VORTEX
GRIT BASIN
NO. 1
P-41201
GRIT PUMP 1
HP: 7.5
RPM: 1800
PE 41202
4"
CKV 41201
4"
1"
1" GR/D
4" GR
PE 41203
1"
AF
090-N-0005
FROM VORTEX
BASIN NO. 2
PE 41204
1"
4"
4"
F
1"
PMP-41202
GRIT PUMP 2
HP:
RPM:
4" GR
4" GR
4" GR
4" GR
4"
4" GR
ARV 41202
OL HAND OFF AUTO RUNNING START
DI DI DI DI DI DO
DEVICENET, NOTE 1
MCC **
CS-41202A
HOA
HS 41202A **
R
YL 41202A
6" GR/OF
480V
M
CS
GC-41201
GRIT CLASSIFIER NO. 1
HP: 1
RPM: 20
GRAVITY DROP TO DUMPSTER
6" GR/OF
6" GR/D
2"
GRIT HANDLING
UNIT NO. 1
6" GR/OF
480V
M
CS
GC-41202
GRIT CLASSIFIER NO. 2
HP: 1
RPM: 10
GRAVITY DROP TO DUMPSTER
6" GR/OF
6" GR/OF
2"
GRIT HANDLING
UNIT NO. 2
2" GR/D
6" GR/OF
090-N-0005
TO GRIT REMOVAL
INFLUENT
CHANNEL
K
J
090-N-0005
TO GRIT REMOVAL
INFLUENT
CHANNEL
GRIT
DUMPSTER

DENNIS JOHN THOMAS
LICENSED
25226
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	REVISION	DR	CHK	APVD	BY	APVD
		J RYSAVY		E KRISTEL	L FOX		E JOHNSON	

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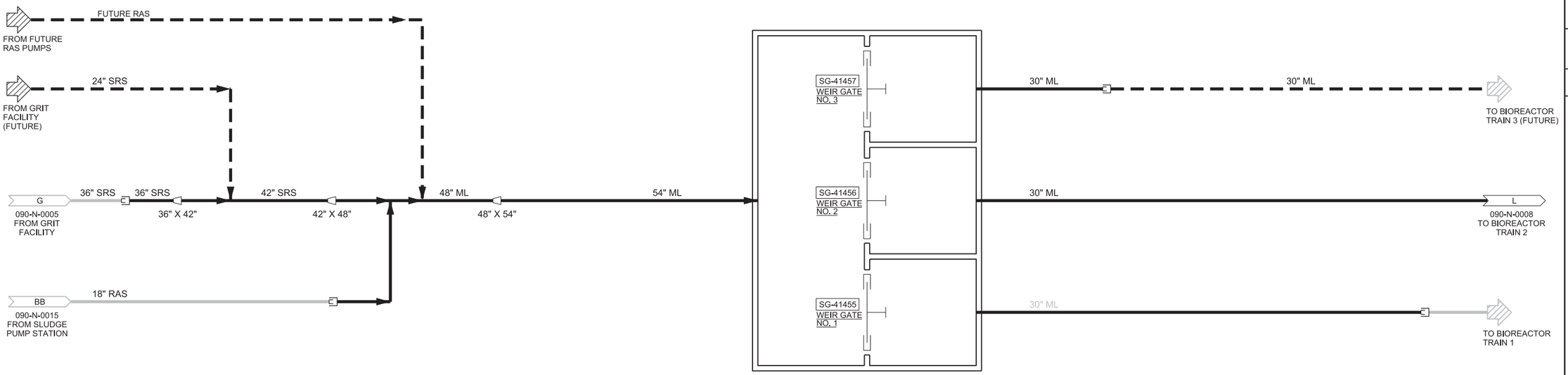
INSTRUMENTATION AND CONTROLS

GRIT HANDLING P&ID

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-0006
SHEET	135 of 314

BIDDING SET



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LICENSED
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11/4/16
KANSAS
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11/04/2016

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INSTRUMENTATION AND CONTROLS

BIOREACTOR SPLITTER BOX P&ID

BIDDING SET

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-0007
SHEET	136 of 314

FILENAME: 090-N-0007_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:14:58 PM

GENERAL NOTES

1. VENDOR SUPPLIED THERMOSTAT.
2. ALL I/O WIRS TO IMUX 43901-RIO.
3. INTRINSICALLY SAFE RELAY.

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11/04/2016

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INSTRUMENTATION AND CONTROLS

BIOREACTOR P&ID

BIDDING SET

VERIFY SCALE

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DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-0008
SHEET	137 of 314

FILENAME: 090-N-0008_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:14:53 PM

GENERAL NOTES

1. EQUIPMENT CONTAINED WITH PUMP SKID LIMITS PROVIDED BY PUMP SKID VENDOR.

LEVEL AI

LCP-41700 ✳
HORN/BEACON
XA 41700A
LI 41700
SILENCE
HS 41700
XA 41700B

120V AC
LIT 41700
LE 41700

2" FC

T-41700
FERRIC CHLORIDE TANK

4" FC

2" TRUCK LOADING

2" F

TO SUMP

HIGH LEVEL DI

120V AC
LSH 41700

CONTAINMENT

1" FC 2" CONT

1" F

1" 1" X 1/2"

1/2" F

1/2" F

SPEED CMD AO | START DO | RUNNING DI | FAIL DI | REMOTE DI
SPEED CMD AO | START DO | RUNNING DI | FAIL DI | REMOTE DI

LCP-41700 ✳
HOA R HS 41701 YL 41701
HOA R HS 41702 YL 41702
120V

"POWER" "POWER"

PSV

1/2" F

M AS

P-41701
FERRIC CHLORIDE METERING PUMP 1
HP:
RPM:

1/2" FC

1/2" F

1/2" 1/2"

PI 41703

1/2" PCV 41703 1/2"

LEAK DI

120V AC
XS 41700

1/2" FC 2" CONT

N
090-N-0008
BIOREACTOR

1" FC

1/2" FC 2" CONT

1/2" FC 2" CONT

TO EXISTING BIOREACTOR

1/2" FC

PSV

1/2"

"POWER"

F

CS-41702 ✳✳

M AS

1/2" 1/2" FC 1/2" 1/2"

F F

P-41702
FERRIC CHLORIDE METERING PUMP 2
HP:
RPM:

F

1/2"

1/2" 1/2" FC 1/2"

F

PUMP SKID

ALM DI
SHOWER EYEWASH STATION
FSH 41700
1"
1" W2
INSIDE FACILITY 170

ALM DI
SHOWER EYEWASH STATION
FSH 41701
1"
1" W2
INSIDE FACILITY 170

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11/04/2016

NO.	DSGN	DATE	DR	REVISION	CHK	APVD	BY	APVD
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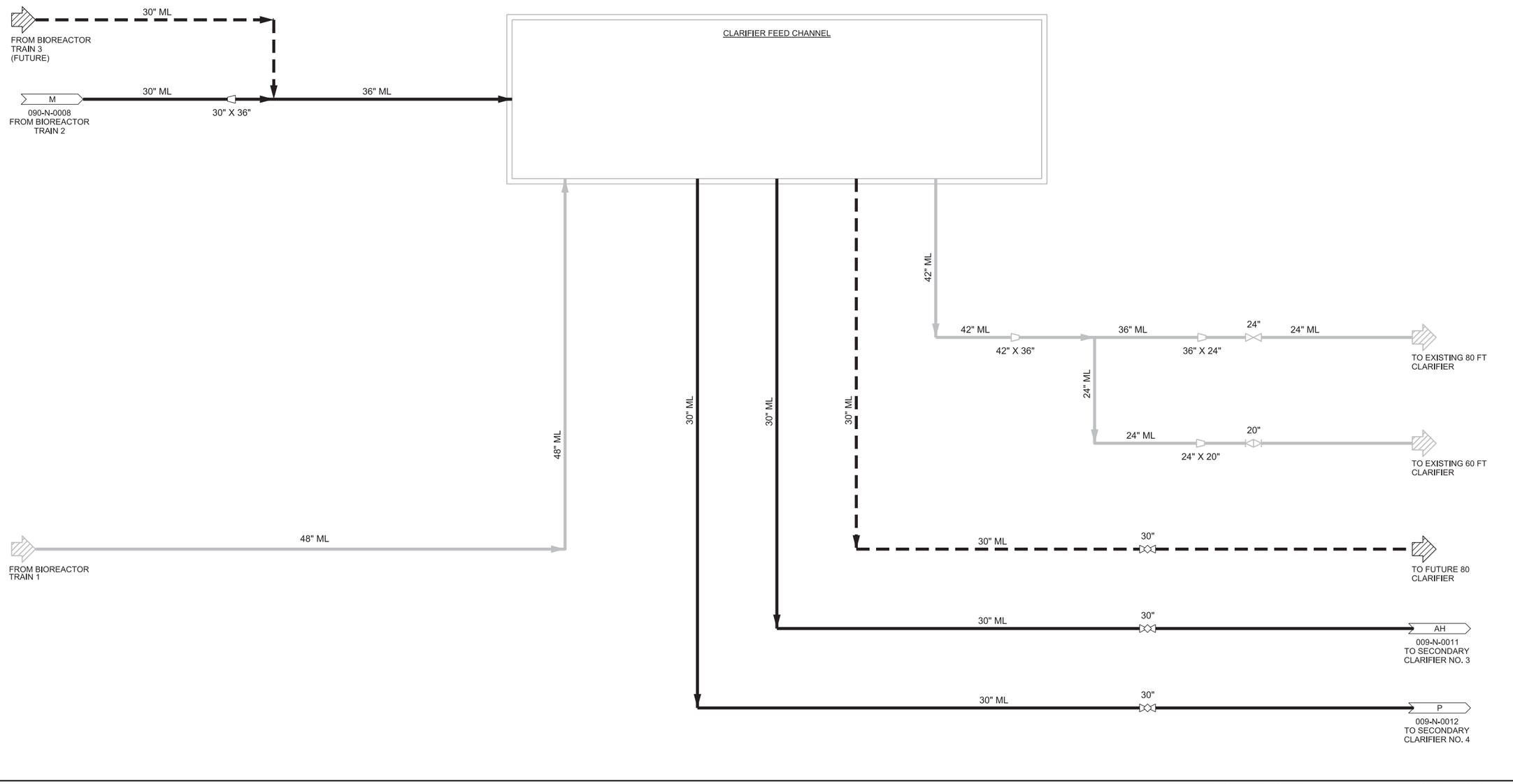
FERRIC CHLORIDE P&ID

VERIFY SCALE
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0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-0009
SHEET	138 of 314

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FILENAME: 090-N-0009_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:15:49 PM



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11/04/2016

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		S LEVESQUE	E KRISTEL	L FOX	APVD	E JOHNSON	

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CLARIFIER FEED CHANNEL P&ID

BIDDING SET

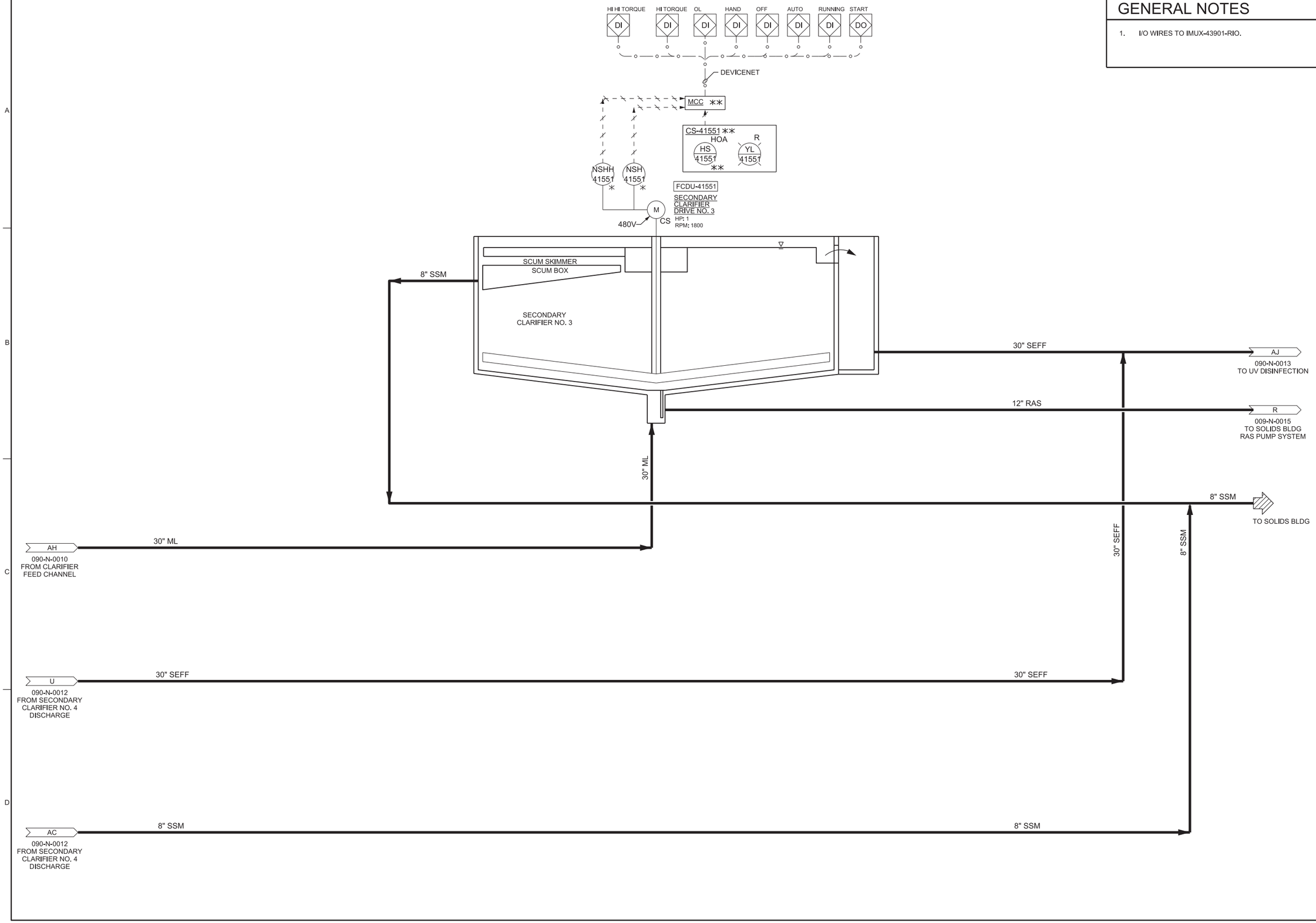
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-0010
SHEET	139 of 314

FILENAME: 090-N-0010_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:15:12 PM

GENERAL NOTES

1. I/O WIRES TO IMUX-43901-RIO.



11/04/2016

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		S RICHARDSON	E KRISTEL	L FOX			E JOHNSON

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SECONDARY CLARIFIER NO. 3 P&ID

BIDDING SET

VERIFY SCALE

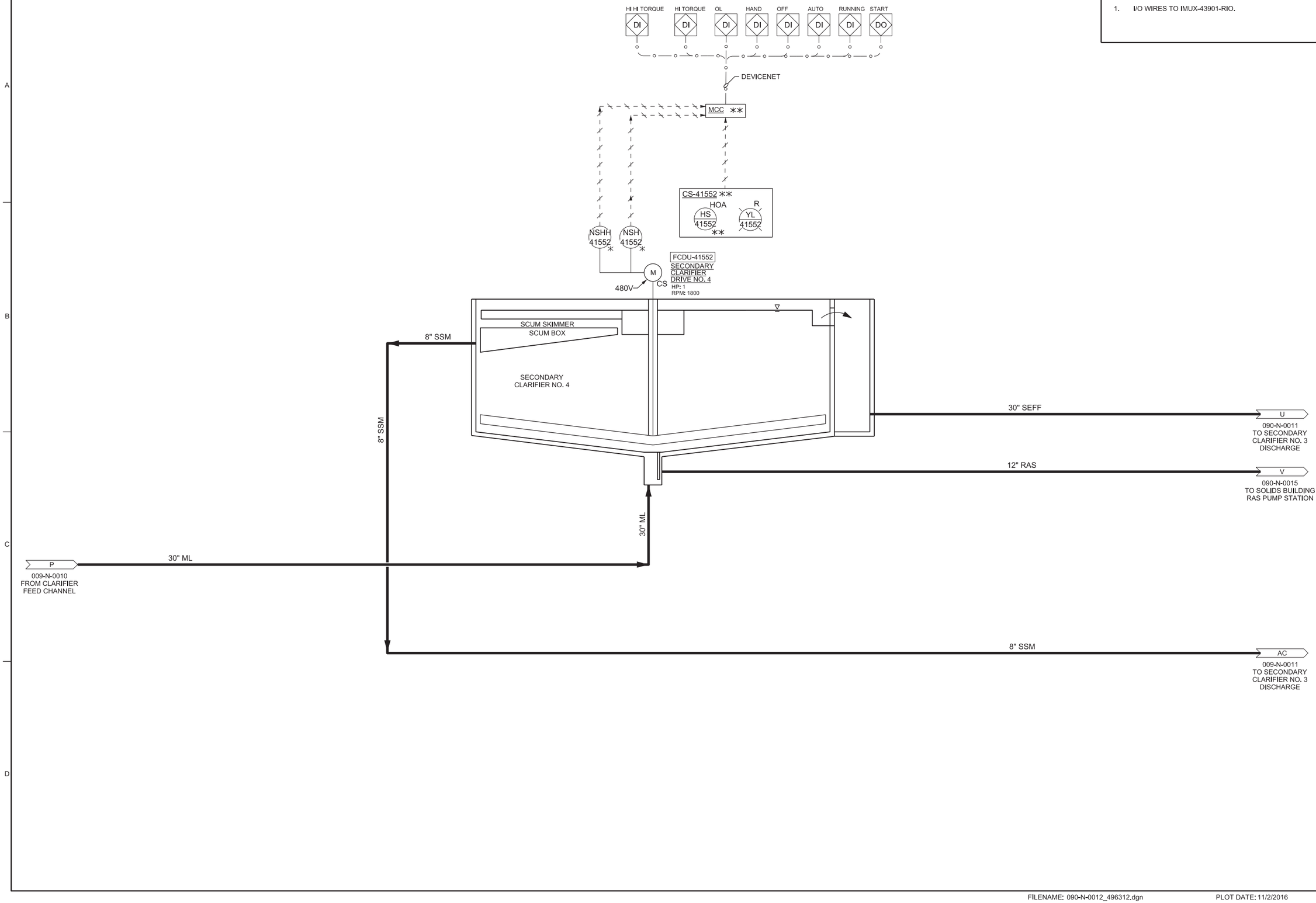
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-0011
SHEET	140 of 314

FILENAME: 090-N-0011_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:15:08 PM

GENERAL NOTES

1. I/O WIRES TO IMUX-43901-RIO.



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11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		S RICHARDSON	E KRISTEL	L FOX			E JOHNSON

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SECONDARY CLARIFIER NO. 4 P&ID

VERIFY SCALE

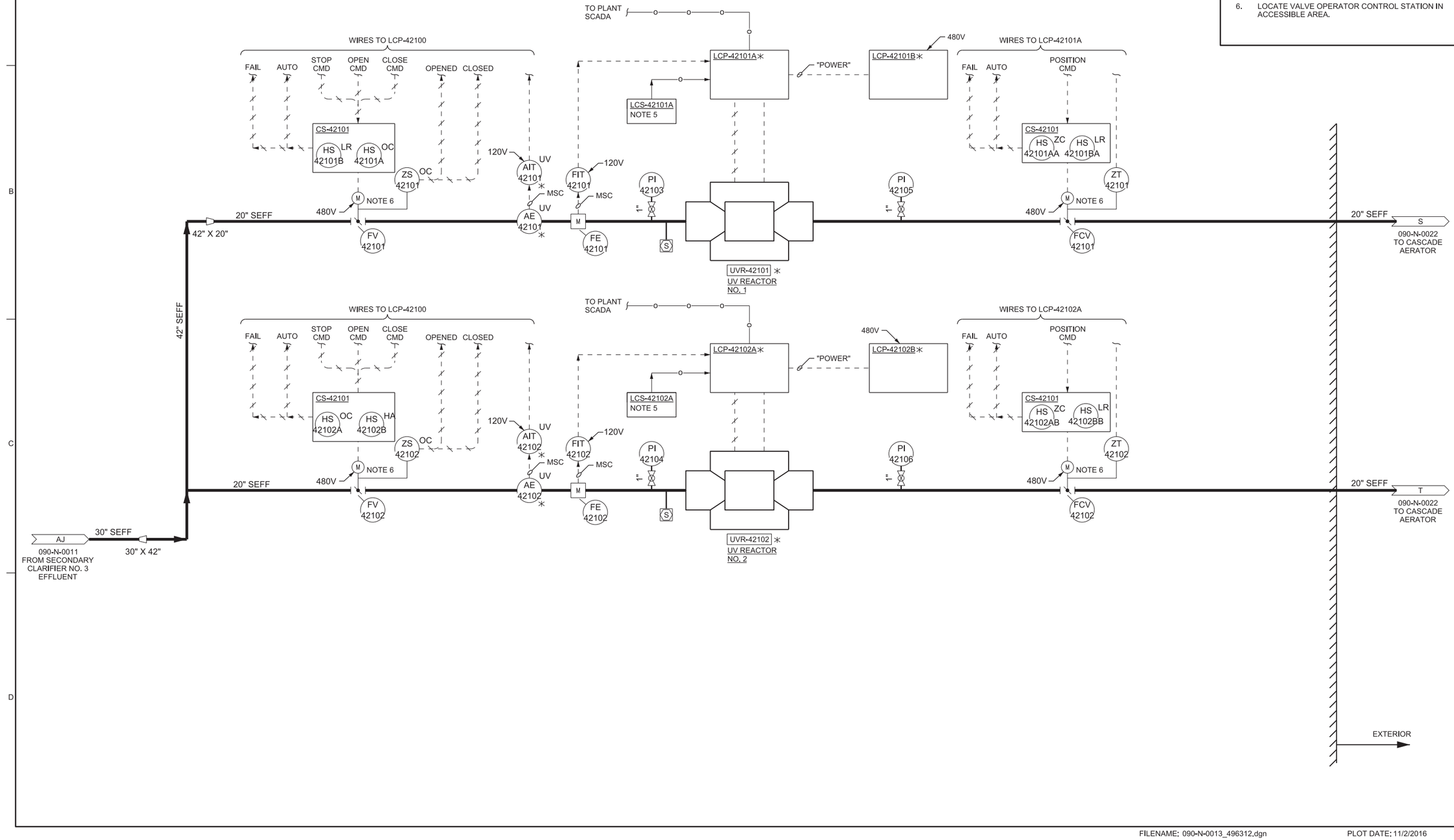
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-0012
SHEET	141 of 314

BIDDING SET

GENERAL NOTES

1. PROCESS UNIT / FACILITY IS DISINFACTION FACILITY (DIS). FACILITY NUMBER IS 210.
2. REFERENCE SECTION 44 44 73 UV DISINFECTION SYSTEM FOR ADDITIONAL INFORMATION ON IO SIGNALS, COMMUNICATIONS AND DATA MESSAGING.
3. PROVIDE INSTRUMENTS AND INTRINSIC SAFETY CONTROLS AND WIRING, APPROVED AND ARRANGED, FOR USE IN CLASS 1 DIVISION 1 AND DIVISION 2 LOCATIONS AS IDENTIFIED ON ELECTRICAL AREA CLASSIFICATION DRAWINGS AND NATIONAL ELECTRICAL CODE (NEC) ARTICLE 501 CLASS 1 LOCATIONS AND 504 INTRINSICALLY SAFE SYSTEMS.
4. ⁎ DENOTES SCOPE OF UV EQUIPMENT SUPPLIER.
5. LOCAL OPERATOR PANEL BY VENDOR.
6. LOCATE VALVE OPERATOR CONTROL STATION IN ACCESSIBLE AREA.



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REVISION			S FOSTER	E KRISTEL	L FOX	E JOHNSON	

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INSTRUMENTATION AND CONTROLS

UV DISINFECTION P&ID

BIDDING SET

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-0013
SHEET	142 of 314

FILENAME: 090-N-0013_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:15:29 PM

GENERAL NOTES

1. DASHED LINE INDICATES HEAT TRACING AND INSULATION REQUIRED.
2. PROVIDE BLIND FLANGE IF BIOFILTER SYSTEM IS NOT PROVIDED IN THE CURRENT PROJECT PHASE.
3. I/O WIRES TO IMUX-41902-RIO.
4. PANEL BY HVAC.
5. INTERLOCK TO LCP-41101 TO SOUND ALARM ON HI GAS OR ODOR FAN FAIL.

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NO.	DATE	DSGN	DR	CHK	APVD	REVISION	BY	APVD
		K GALARDI	E KRISTEL	L FOX			E JOHNSON	

ALM
DI
120V
LCP-42700 ✳
FSL 42701A
FSL 42700A
PAH 42702A
HS 42701A
OCA
HS 42700
OCA
NOTE 5
Y
ODOR FAN FAILED
090-N-0003
LCP-41101
AW
090-N-0003
FROM SCREENING FACILITY
NOTE 1
2" W2
PI 42700
FSL 42700
FE 42700
FV 42700
PCV 42700
PI 42703
FAIL
RUNNING
LO PRESS
DI
LCP-42701 ✳
NOTE 4
START
R
HS 42701
YL 42701
HS 42702
YL 42702
480V
"POWER"
"POWER"
WATERBOX PANEL ✳
TO ATM
120V
PCV 42701
PI 42704
1"
BYPASS STACK
24"
FSL 42701
FE 42701
FV 42701
1" W2
2" W2
1"
AD
090-N-0003
FROM SCREENING FACILITY
26" FA
AB
090-N-0003
LCP-41101
NOTE 5
M
CS
36" FA
36"
BACK DRAFT DAMPER
EF-42701
EXHAUST FAN NO. 1
HP: 20
RPM: 1800
1" D
HUMIDIFIER
36"
NOTE 2
36" FA
4"
SAMPLE TAP
120V
LCP-42702
LEL
FAIL
LOW FLOW
AI
DI
DI
SAMPLER
LEL 42700
AIT 42700
120VAC
"POWER"
1"
PSL 42701
NOTE 5
PI 42701 ✳
PSH 42702 ✳
PI 42702 ✳
4" D
BIOFILTER CELL
RUNNING TRAP, TYP
18"
AE
090-N-0002
IPS WET WELL
18" FA
EF-42702
EXHAUST FAN NO. 2
HP: 20
RPM: 1800
AA
090-N-0002
DRAIN TO IPS

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INSTRUMENTATION AND CONTROLS

ODOR CONTROL P&ID

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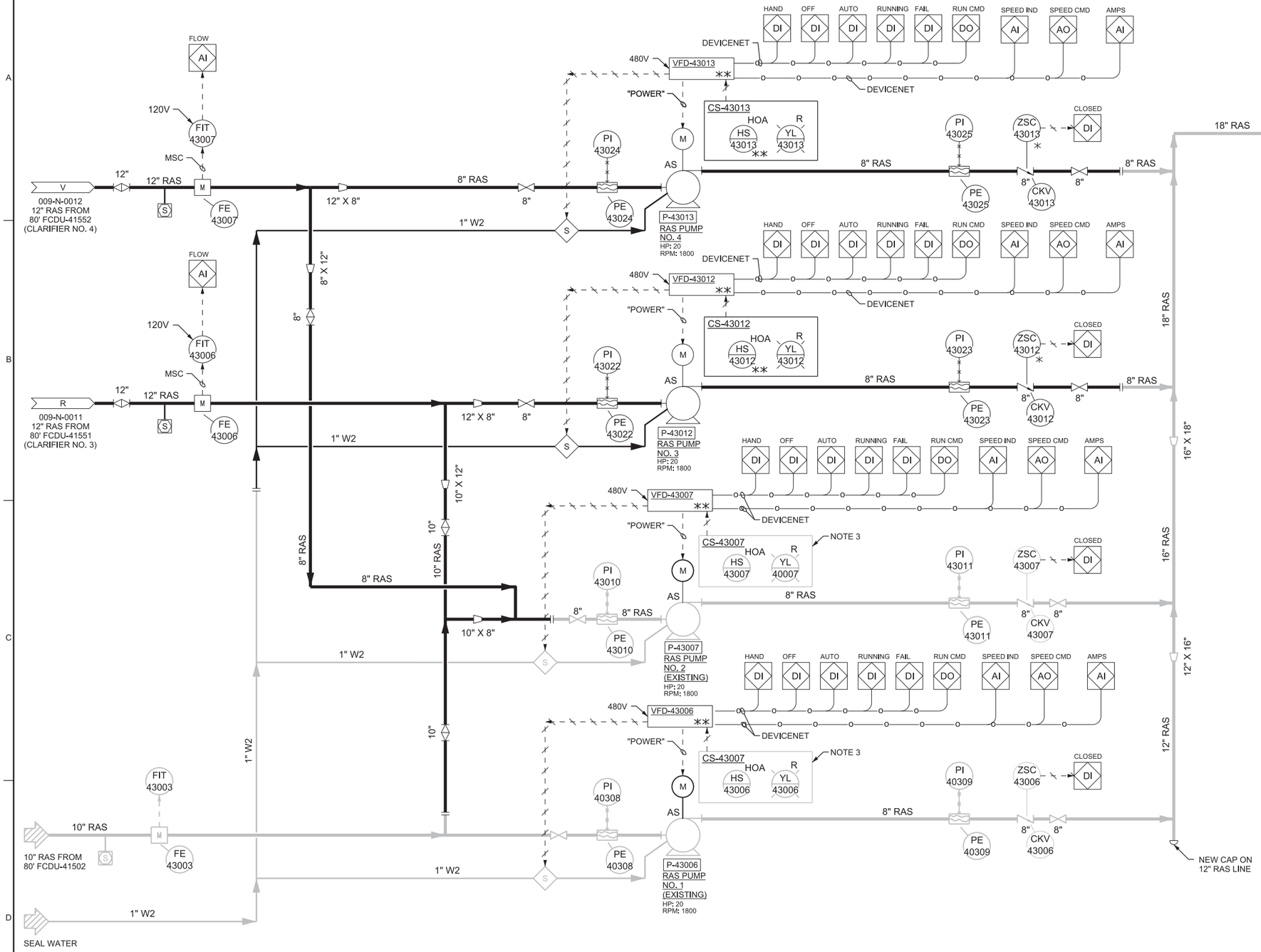
DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-0014
SHEET	143 of 314

BIDDING SET

FILENAME: 090-N-0014_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:14:55 PM

GENERAL NOTES

1. ✳ VENDOR SUPPLIED.
2. I/O WIRES TO IMUX 43901-RIO.
3. REUSE EXISTING CONTROL STATION. RECONNECT TO NEW VFDS.



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25226
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	REVISION	DR	CHK	APVD	BY	APVD
	E JOHNSON	E KRISTEL		L FOX	E JOHNSON			

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INSTRUMENTATION AND CONTROLS

RAS P&ID

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-0015
SHEET	144 of 314

BIDDING SET

FILENAME: 090-N-0015_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:15:04 PM

GENERAL NOTES

1. LINE IS EXISTING 6" STUB THROUGH WALL.
2. ✳ VENDOR SUPPLIED.
3. LOCATE VALVE OPERATOR CONTROL STATIONS IN ACCESSIBLE AREA.
4. I/O WIRES TO IMUX-43901-RIO.

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8" DS

FF
090-N-0017
FROM DIGESTERS

1" W2

Z
090-N-0017
SEAL WATER TO DIGESTED SLUDGE PUMPS

HAND DI | OFF DI | AUTO DI | RUNNING DI | FAIL DI | PAH DI | TAH DI | RUN CMD DO

DEVICENET

SPEED IND AI | SPEED CMD AO | AMPS AI

DEVICENET

480V

VFD-43014 ✳✳

"POWER"

CS-43014
HOA
HS 43014 ✳✳
R
YL 43414

PI 43026

6" | 6" DS

PE 43026

M

TE 43014 ✳

TSH 43014

120V

PI 43027

PSH 43027

AS

PMP-43014
WAS/RDT PUMP NO. 1
HP: 15
RPM: 1800

PE 43027

CLOSED DI

ZSC 43014 ✳

6" | 6"

CKV 43014

6" DS/WAS

DD
090-N-0018
6" TO RDT FEED

8" WAS/SSM

EE
090-N-0017
TO DIGESTERS

8" N.C.

8" WAS

1" W2

6" WAS

6" WAS/SSM

6"

HAND DI | OFF DI | AUTO DI | RUNNING DI | FAIL DI | PAH DI | TAH DI | RUN CMD DO

DEVICENET

SPEED IND AI | SPEED CMD AO | AMPS AI

DEVICENET

480V

VFD-43015 ✳✳

"POWER"

CS-43015
HOA
HS 43015 ✳✳
R
YL 43001

CLOSED DI

ZSC 43015 ✳

PI 43028

M

TE 43015 ✳

TSH 43015

120V

PI 43029

PSH 43029

CC
009-N-0015
8" WAS FROM 18" RAS

8" WAS | 8" N.O. | 6" | 6" WAS

PE 43028

AS

PMP-43015
WAS/RDT PUMP NO. 2
HP: 15
RPM: 1800

PE 43029

6" | 6"

CKV 43015

6" X 8"

8" WAS/SSM

FLOW AI

120V

FIT 43005

MSC

M

FE 43005

6" SSM

PI 42307 | PI 42308 | PI 42310 | PI 42309

6" SSM | 6" | PE 42307 | M CS | 6" SSM | 6" | PE 42308

P-43008
SCUM PUMP NO. 1 (EXISTING)
HP: 15
RPM: X

6" SSM | 6" | PE 42310 | M CS | 6" SSM | 6" | PE 42309

P-43009
SCUM PUMP NO. 2 (EXISTING)
HP: 15
RPM: X

1" W2

6" SSM

SCUM BOX

FROM BUILDING SEAL WATER SYSTEM

1" W2

NO.	DSGN	DATE	DR	REVISION	CHK	APVD	BY	APVD
		E JOHNSON	E KRISTEL		L FOX		E JOHNSON	11/04/2016

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INSTRUMENTATION AND CONTROLS

WAS AND DIGESTED SLUDGE (DS) PUMPING P&ID

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

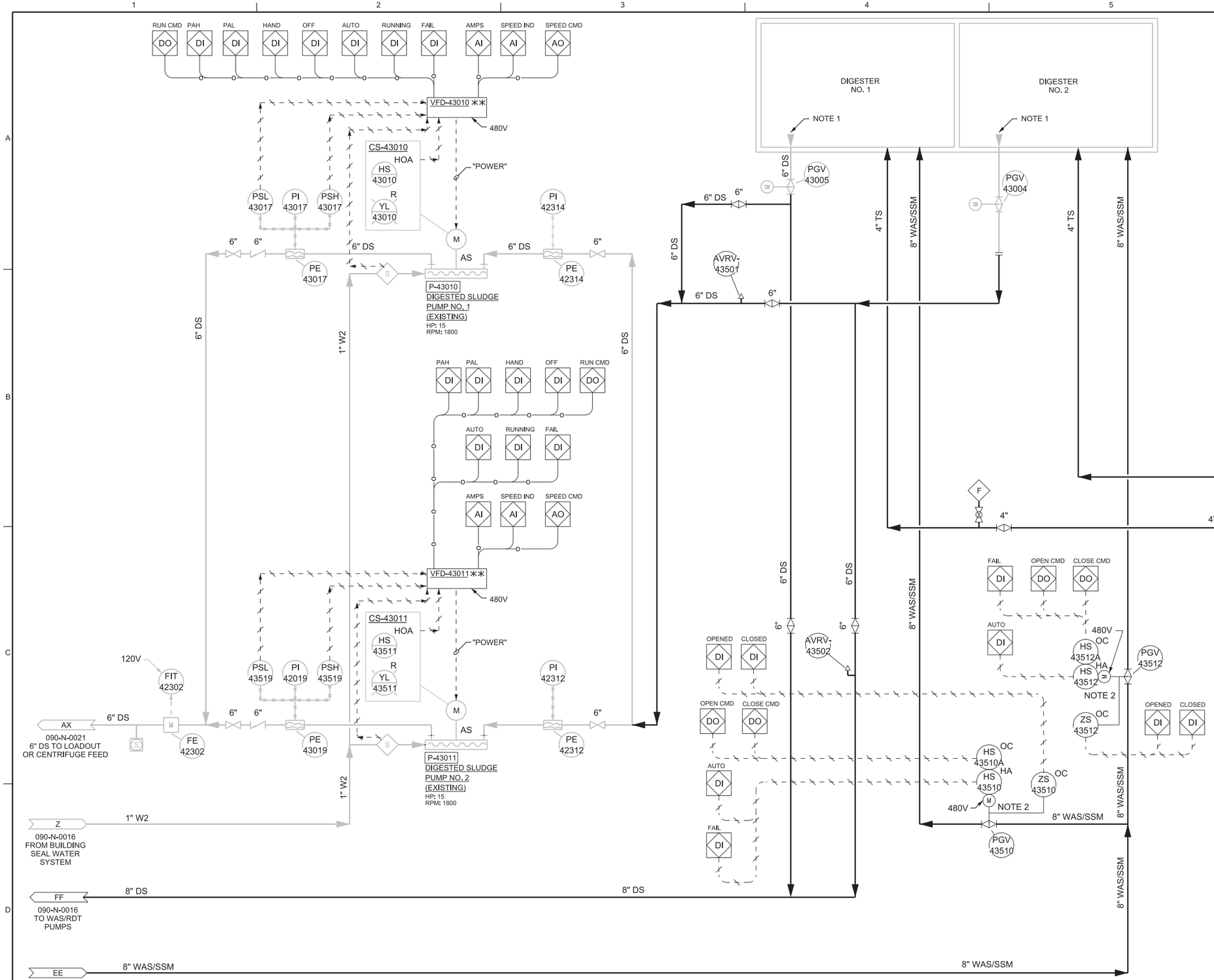
DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-0016
SHEET	145 of 314

BIDDING SET

FILENAME: 090-N-0016_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:15:23 PM

GENERAL NOTES

1. LINE IS EXISTING 6" STUB THROUGH WALL.
2. LOCATE VALVE OPERATOR CONTROL STATIONS IN ACCESSIBLE AREA.
3. I/O WIRES TO IMUX-43901-RIO.
4. RE-COMMISSION EXISTING DEVICENET I/O POINTS.



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11/04/2016

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NO.	DATE	DSGN	REVISION	DR	CHK	APVD	BY	APVD
		E JOHNSON		E KRISTEL	L FOX			E JOHNSON

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

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INSTRUMENTATION AND CONTROLS

WAS AND DIGESTED SLUDGE (DS) PUMPING P&ID

BIDDING SET

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-0017
SHEET	146 of 314

FILENAME: 090-N-0017_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:15:33 PM

GENERAL NOTES

1. WIRED TO PLANT SCADA. ALL OTHER I/O WIRED TO LCP-43200.
2. POWERED FROM LCP-43200.
3. ✳ VENDOR SUPPLIED.
4. LOCAL OPERATOR PANEL BY VENDOR.
5. SOLENOID VALVE CONTROLLED BY LCP-43601/43602 (POLYMER EQUIPMENT CONTROL PANEL).
6. BY HVAC/PLUMBING.

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NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
	E JOHNSON	E KRISTEL	L FOX	APVD	E JOHNSON		

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INSTRUMENTATION AND CONTROLS

RDT P&ID

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

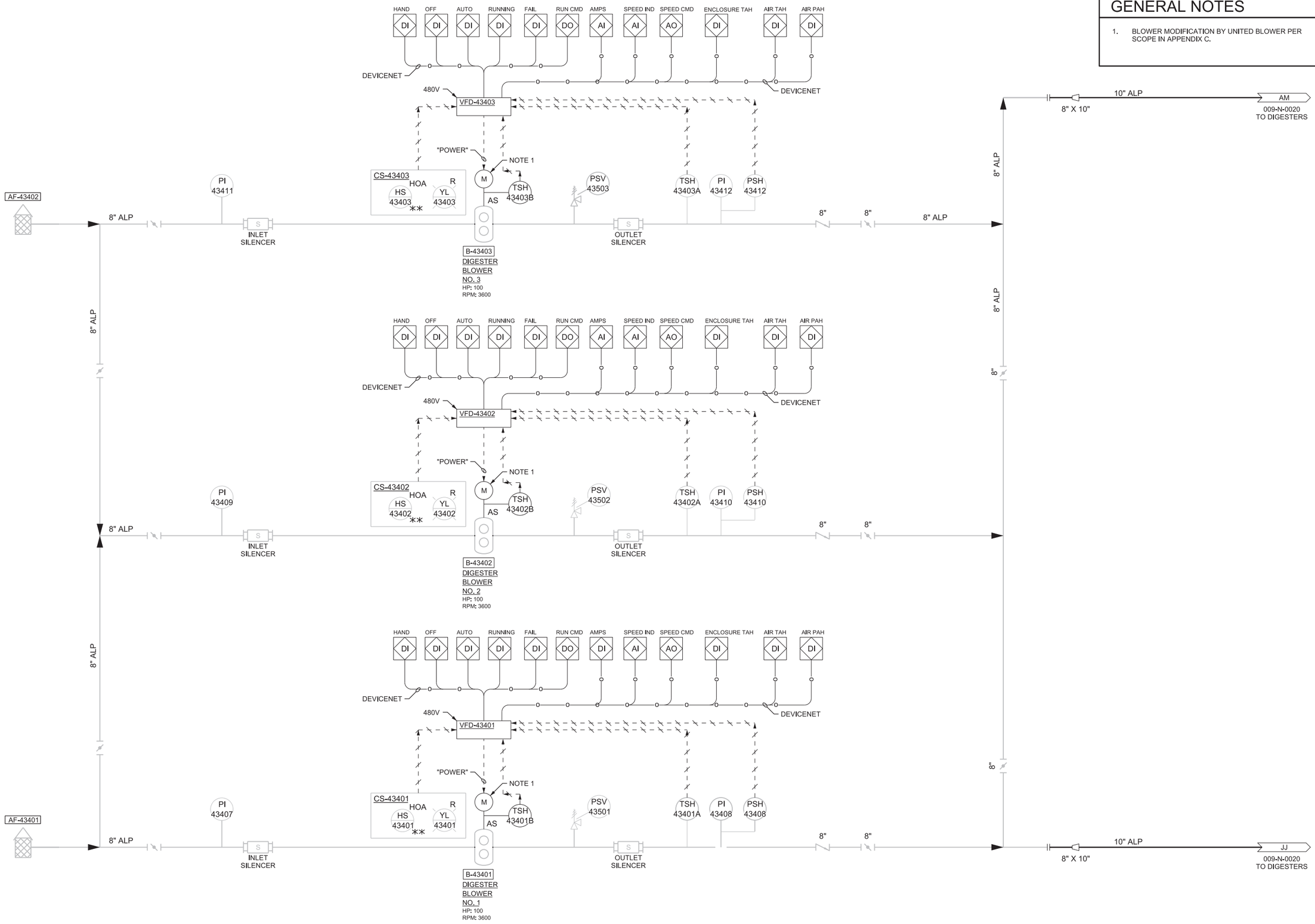
DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-0018
SHEET	147 of 314

BIDDING SET

FILENAME: 090-N-0018_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:15:24 PM

GENERAL NOTES

1. BLOWER MODIFICATION BY UNITED BLOWER PER SCOPE IN APPENDIX C.



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NO.	DATE	DSGN	DR	CHK	APVD	BY
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REVISION

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CITY OF WICHITA, KANSAS

INSTRUMENTATION AND CONTROLS

BLOWERS P&ID

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BIDDING SET

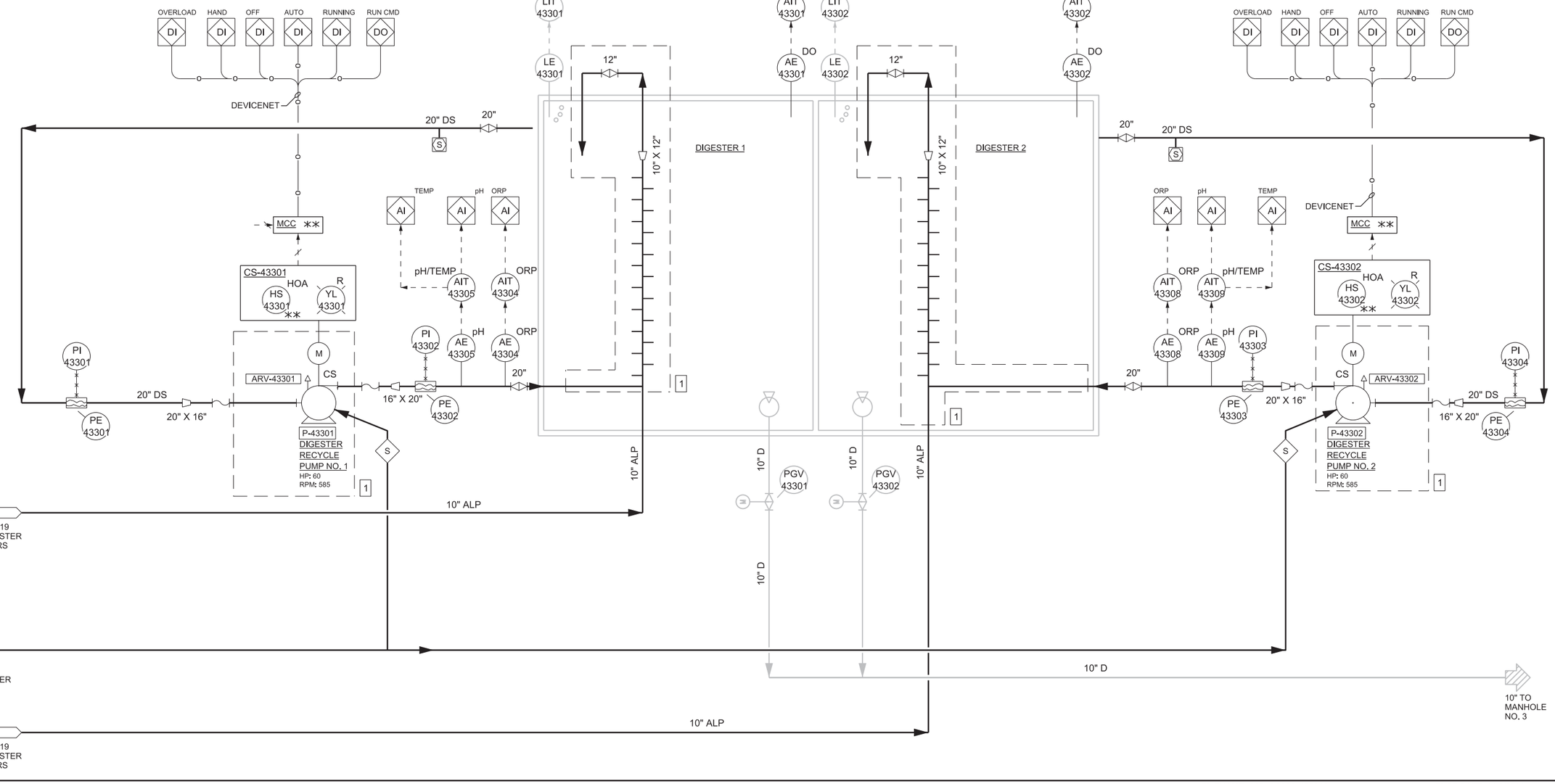
VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-0019
SHEET	148 of 314

GENERAL NOTES

1. PROVIDED UNDER SECTION 44 43 43 JET MIXING SYSTEM.



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PROFESSIONAL ENGINEER

11/04/2016

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DSGN	E JOHNSON	E KRISTEL		L FOX		E JOHNSON	

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INSTRUMENTATION AND CONTROLS

DIGESTER MIXING AND AERATION P&ID

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-0020
SHEET	149 of 314

BIDDING SET

GENERAL NOTES

1. ALL I/O ON THIS DRAWING WIRES TO LCP-43500 EXCEPT AS NOTED.
2. ALL MOTORS ARE POWERED FROM LCP-43501.
3. ✳ VENDOR SUPPLIED.
4. LOCAL OPERATOR PANEL BY VENDOR.
5. FSH SUPPLIED BY SHOWER SUPPLIER.
6. BY HVAC/PLUMBING.

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NO.	DESCRIPTION	DATE	DSGN	DR	CHK	APVD	BY	APVD
	REVISION		E JOHNSON	E KRISTEL	L FOX		E JOHNSON	

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INSTRUMENTATION AND CONTROLS

SOLIDS DEWATERING P&ID

BIDDING SET

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

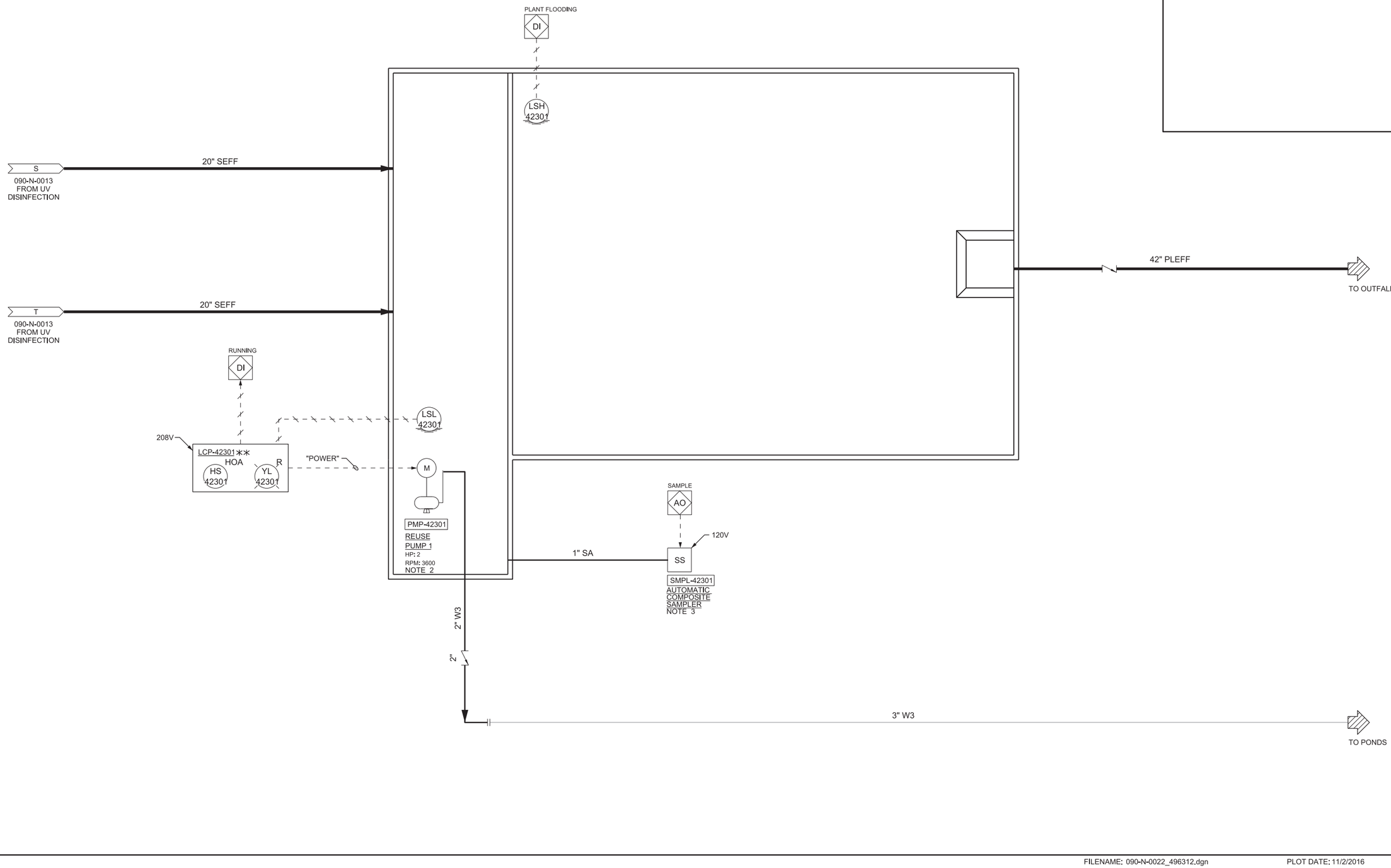
DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-0021
SHEET	150 of 314

FILENAME: 090-N-0021_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:14:51 PM

6" DS
EXISTING LIQUID SLUDGE LOADOUT
NOTE 1 ALM
FSH 43600
NOTE 5
SHOWER EYEWASH STATION
1"
1" X 1 1/4"
PRV 43600
350-WH-001 HEATER
6" DS
1" D
D
6" DS
6"
AX
090-N-0017 6" DS FROM DIGESTED SLUDGE PUMPS
6" DS
6"
6" DS
4" DS
2" DS
6" X 4"
4" X 2"
43.22.25 VENDOR EQUIPMENT
TO PLANT SCADA
ETHERNET
LCP-43500 ✳
120V
NOTE 1
OIT NOTE 4
LCP-43501 ✳
480V
M-43500 HOIST MOTOR HP: 4 HIGH SPEED / 1 LOW SPEED RPM:
M-43501 TROLLEY MOTOR HP: 0.4 HIGH SPEED / 0.1 LOW SPEED RPM:
480V
LCP-43501
TO LCP-43500
BEARING TEMP DRIVE END
VIBRATION
BEARING TEMP FEED END
VFD-43501A ✳
ESTOP
DI
E-STOP
HS 43501
"POWER"
TSH 43501A ✳
M
AS
M-43501A HP: 100 RPM: 1800 CENTRIFUGE BOWL
NOTE 1
NOTE 1
VFD-43501B ✳
TSH 43501B ✳
AS
M
"POWER"
M-43501B CENTRIFUGE BACK DRIVE HP: 20 RPM: 1800
CEN-43501 CENTRIFUGE
V
1" W2
1" POL
S
NOTE 1
ZS 43501
ZERO SPEED
CNV-43501 SINGLE LOADOUT REVERSING SCREW CONVEYOR HP: 7.5 RPM: 1800
CS-R
SV 43502
6" D
"POWER"
8" DC
TO SITE SANITARY SEWER
RUN NOTE 1
FAIL NOTE 1
480V, NOTE 6
LCP ✳
"POWER"
M
CS
2" W1
FROM W1 SYSTEM
350-BPS-001 BOOSTER PUMP
VENDOR SKID
2" X 1"
1"
1" W2
SV 43501
NOTE 1
SV 43602
FI 43602
PI 43604
PE 43604
1" POL
8" DC
NOTE 1
120V
LCP-43602 ✳
"POWER"
M
AS
FSL 43602
PDSH 43602
PI 43603
PE 43603
NOTE 1
120V
WIT 43602
WE 43602
TOTE-43602 POLYMER TOTE
PMP-43602 CENTRIFUGE POLYMER PUMP HP: 1 RPM:
MXR-43602 POLYMER MIXER
44.44.63.01 VENDOR EQUIPMENT
VENDOR SKID

GENERAL NOTES

1. WIRE TO UV PLC-42101A.
2. RELOCATE EXISTING PUMP. PROVIDE NEW STARTER PANEL AND WIRING AS SHOWN.
3. RELOCATE EXISTING EFFLUENT COMPOSITE SAMPLER. PROVIDE NEW POWER AND CONTROLS TO NEW LOCATION.



DENNIS JOHN THOMAS
LICENSED
25226
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		W KESSLER	E KRISTEL	L FOX			E JOHNSON

REVISION

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PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
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INSTRUMENTATION AND CONTROLS

CASCADE AERATOR P&ID

BIDDING SET

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-0022
SHEET	151 of 314

FILENAME: 090-N-0022_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:15:45 PM

GENERAL NOTES

1. POWER WIRING
2. EC — ETHERNET CAT 5 CABLE
3. FO — FIBER OPTIC CABLE (12 FIBER PER CABLE)
4. DEVICENET
5. FIBER PATCH PANEL - ONLY ONE PORT PER CHANNEL SHOWN FOR CLARITY

LASER PRINTER
PC-1 SUPERVISORY COMPUTER
UPS
ETHERNET CAT 5 CABLE
EC
HIRSCHMANN ETHERNET SWITCH
24VDC POWER SUPPLY
ETHERNET ROUTER
WAN NETWORK
FIBER OPTIC PATCH PANEL
1 - 2 3 - 4 5 - 6 7 - 8 9 - 10 11 - 12
MAIN CONTROL ROOM (EXISTING)

ETHERNET SWITCH
PLC
UPS
LCP-43500 CENTRIFUGE PLC (VENDOR)

TO IMUX 43901
TO IMUX 41902
TO IMUX 41902
TO IMUX 41901
GE GATEWAY
MSB-43901E
BY MCC SUPPLIER

12 FIBER CABLE
FO
EC

HIRSCHMANN ETHERNET SWITCH
MC
ADVANTECH
GE RX3i PLC
24VDC POWER SUPPLY
UPS
EXISTING CONTROL PANEL IMUX-43901 (SLUDGE PUMP STATION)

GE RX3i 12 SLOT I/O RACK
SERIAL CABLE
IMUX-43901 -RIO (SLUDGE PUMP STATION NEW)

EXISTING CONTROL PANEL IMUX-41902 (HEADWORKS)

IMUX-43902-RIO (IPS)

CONTROL PANEL IMUX-41901 (INFLUENT PUMP STATION)

CONTROL PANEL IMUX-ESPB (EXISTING SLUDGE PROCESSING BUILDING)

LCP-42101A UV REACTORS (VENDOR)
LCP-42102A UV REACTORS (VENDOR)
LCP-43200 RDT PLC (VENDOR)
LCP-41100A1 SCREENINGS PLC (VENDOR)
LCP-41100B1 WASHER/COMPACTOR (VENDOR)

B 090-N-0003
A 090-N-0002

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11/04/2016

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	D THOMAS		E KRISTEL	L FOX	APVD	E JOHNSON	

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FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

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INSTRUMENTATION AND CONTROLS

NETWORK DIAGRAM 1

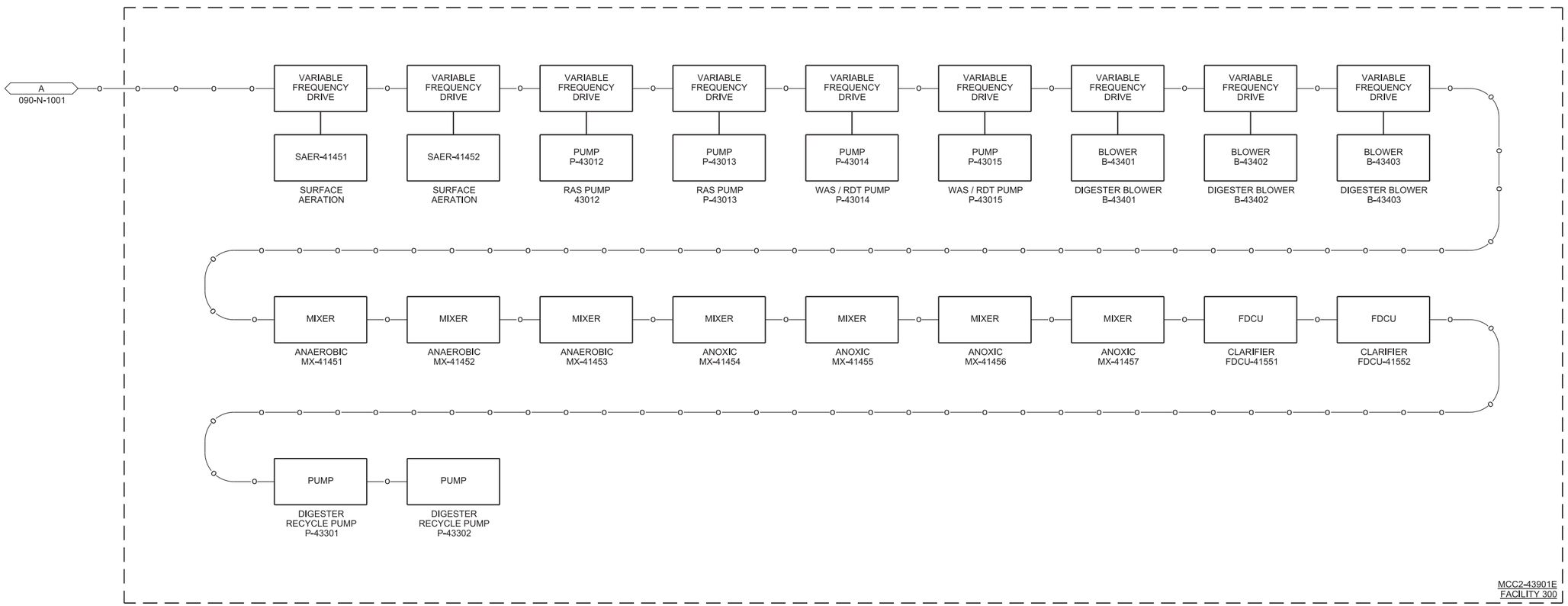
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-1001
SHEET	152 of 314

BIDDING SET

GENERAL NOTES

1. ---------- POWER WIRING
2. — - — - — ETHERNET CAT 5 CABLE
3. ———— FIBER OPTIC CABLE (12 FIBER PER CABLE)
4. —o———o— DEVICENET



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DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

INSTRUMENTATION AND CONTROLS

NETWORK DIAGRAM 2

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

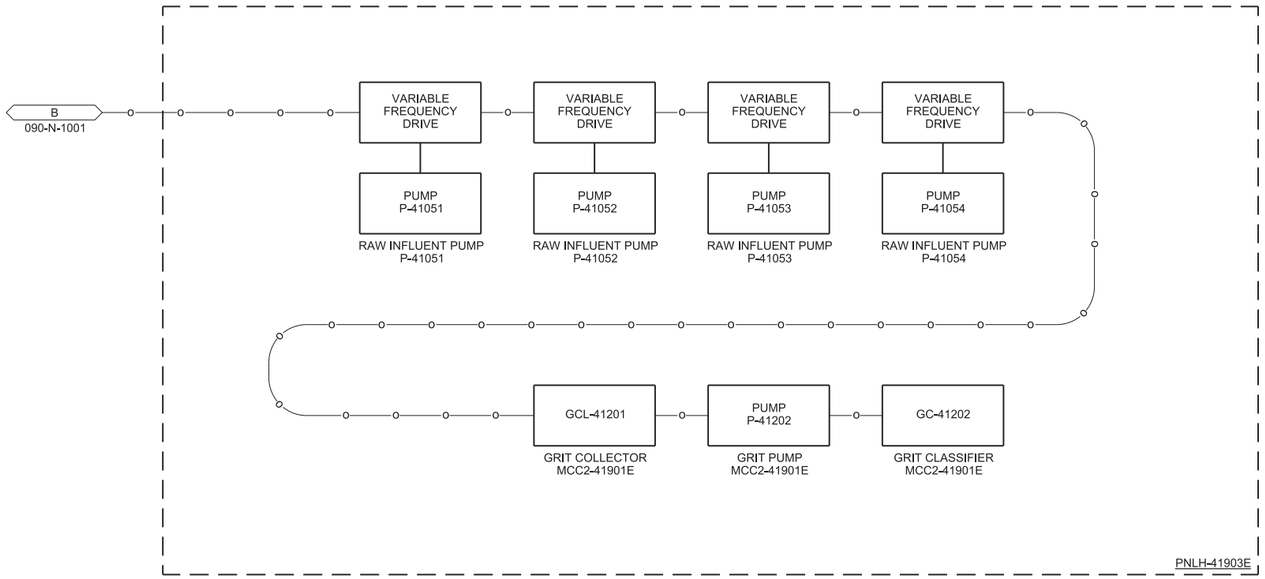
DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-1002
SHEET	153 of 314

BIDDING SET

FILENAME: 090-N-1002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:15:58 PM

GENERAL NOTES

1. ---------- POWER WIRING
2. — - — - — ETHERNET CAT 5 CABLE
3. ——— FIBER OPTIC CABLE (12 FIBER PER CABLE)
4. —o———o— DEVICENET



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		D THOMAS	E KRISTEL	L FOX		E JOHNSON	

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INSTRUMENTATION AND CONTROLS

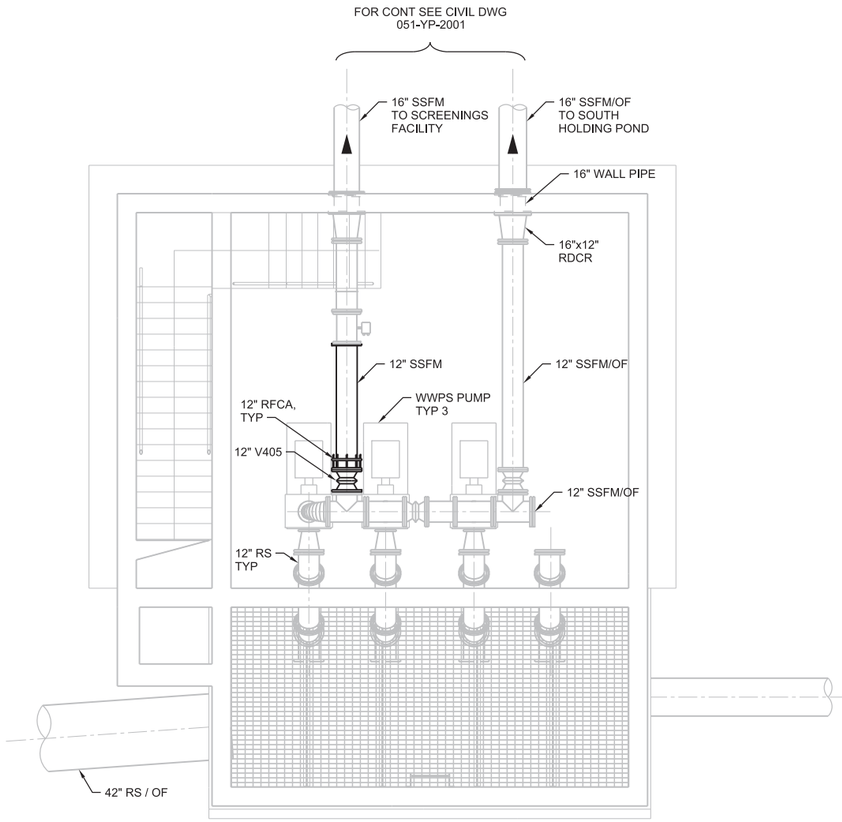
NETWORK DIAGRAM 3

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	090-N-1003
SHEET	154 of 314

BIDDING SET

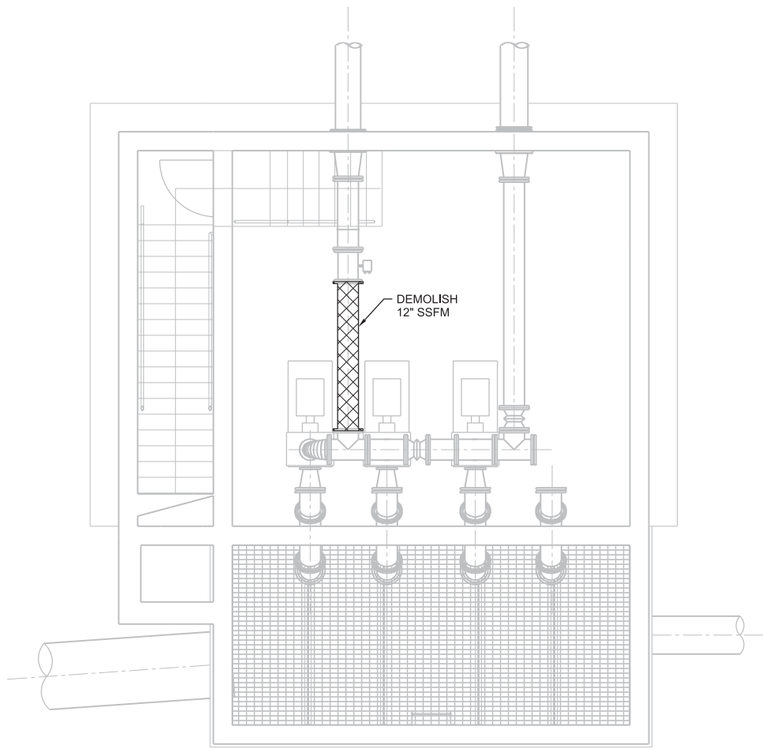
FILENAME: 090-N-1003_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 5:15:52 PM



N

LOWER PLAN

1/4"=1'-0"



N

DEMOLITION PLAN

1/4"=1'-0"

RUSSELL JO JOHNSON
LICENSED
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		J PITTS	D.CAVE	S POLSON	APVD	E.JOHNSON	

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WET WEATHER PUMP STATION

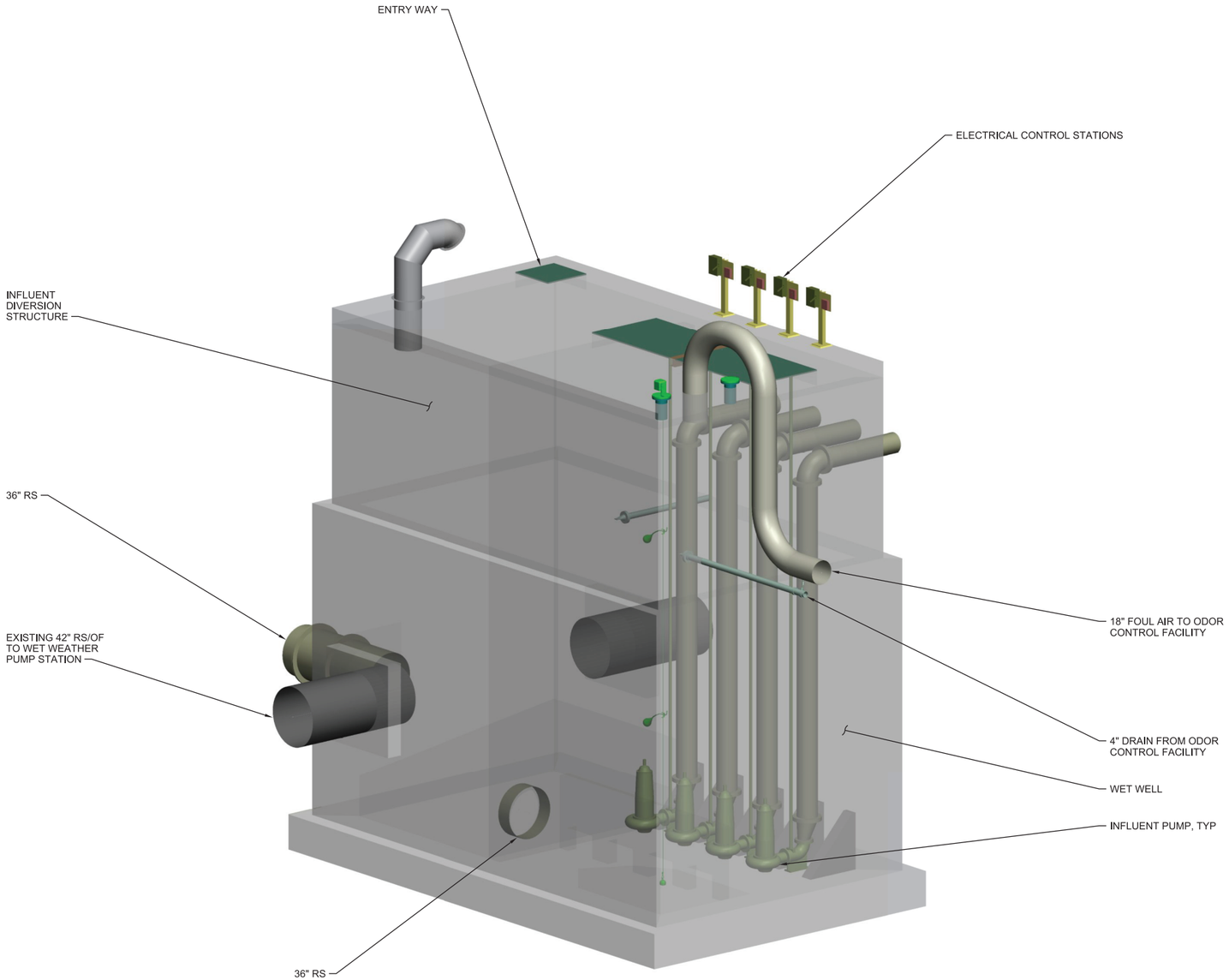
PROCESS MECHANICAL
LOWER AND DEMOLITION PLANS

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	100-D-2001
SHEET	155 of 314

BIDDING SET



RENDERING
NTS

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DR	REVISION	CHK	APVD	BY	APVD
DSGN	J PITTS	F JAGLA		J PITTS	APVD	E JOHNSON	

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FOUR MILE CREEK WQRF
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CITY OF WICHITA, KANSAS

INFLUENT PUMP STATION WET WELL

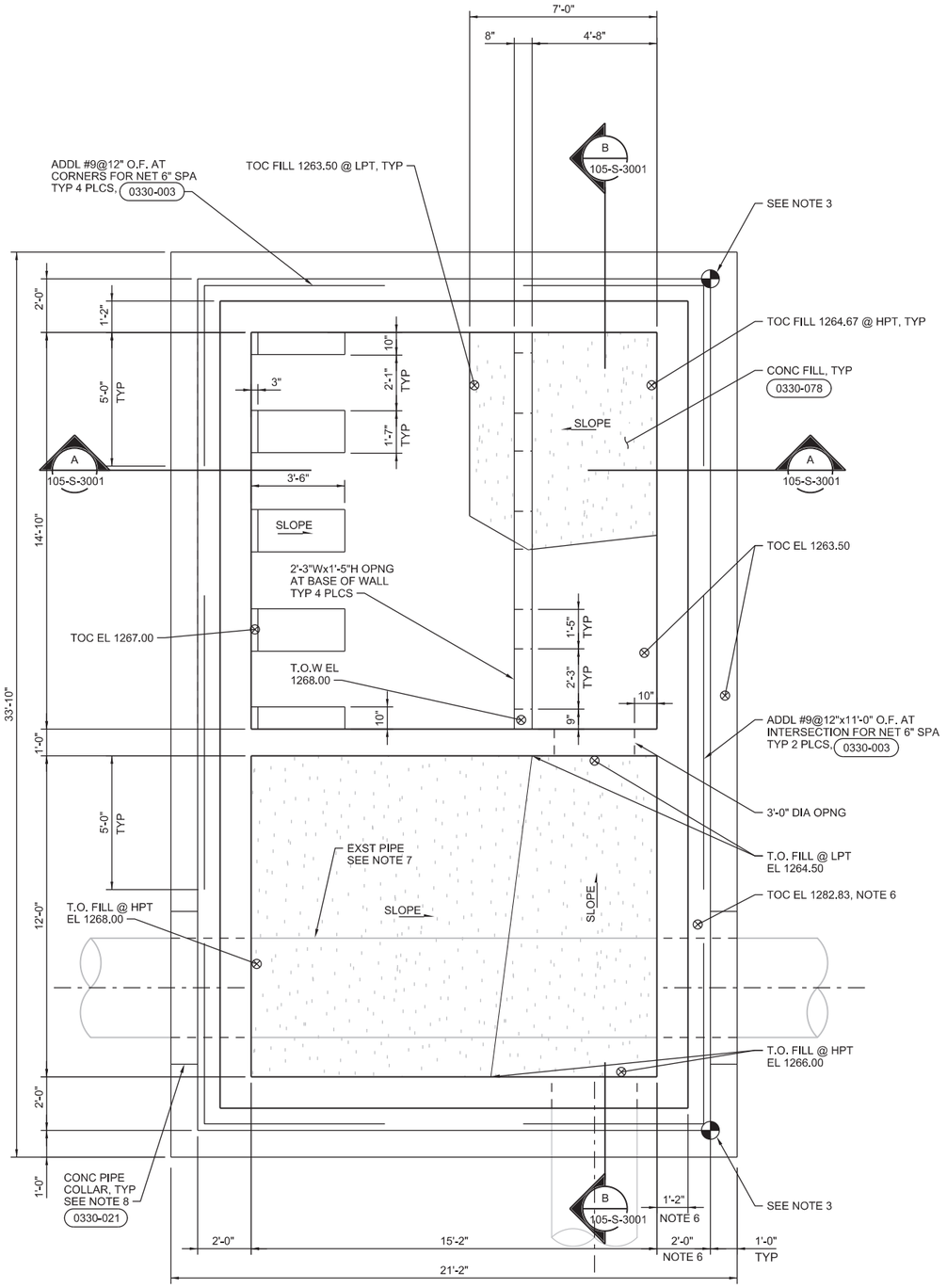
RENDERING

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	105-G-2000
SHEET	156 of 314

BIDDING SET

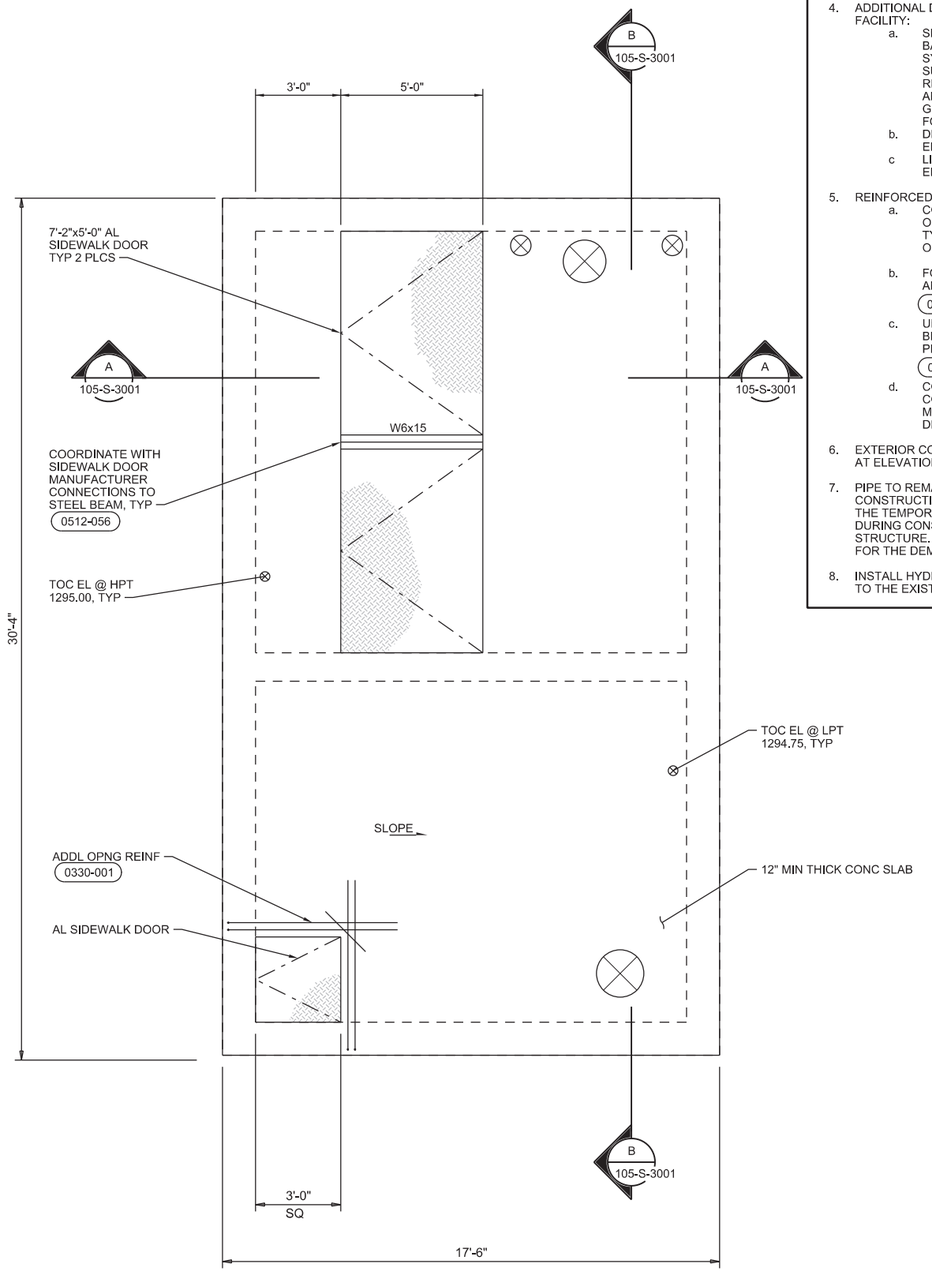
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N

FOUNDATION PLAN

3/8"=1'-0"



N

UPPER PLAN

3/8"=1'-0"

GENERAL NOTES

1. FOR DESIGN CRITERIA AND GENERAL STRUCTURAL NOTES, SEE DRAWINGS 001-G-0300 AND 001-G-0301.
2. FOR SPECIAL INSPECTION AND TESTING REQUIREMENTS, SEE DRAWINGS 001-G-0302 THROUGH 001-G-0305 .
3. FOR FACILITY SITE COORDINATES SEE CIVIL DRAWINGS.
4. ADDITIONAL DESIGN CRITERIA SPECIFIC TO THIS FACILITY:
   a. SEISMIC DESIGN DATA
   BASIC SEISMIC-FORCE RESISTING SYSTEM: FLAT BOTTOM GROUND SUPPORTED CONCRETE TANK WITH REINFORCED NON-SLIDING BASE
   ANALYSIS PROCEDURE USED: ASCE 7 GROUND SUPPORTED STORAGE TANKS FOR LIQUIDS
   b. DESIGN GROUND WATER ELEVATION = 1288.00 FT
   c LIQUID TIGHTNESS ELEVATION 1288.00 FT
5. REINFORCED CONCRETE NOTES
   a. COORDINATE SIZE AND LOCATION OF ALL OPENINGS WITH OTHER DISCIPLINES. FOR TYPICAL CONCRETE WALL OR SLAB OPENING REINFORCING SEE 0330-001 .
   b. FOR TYPICAL CONCRETE WALL CORNER AND INTERSECTION REINFORCING SEE 0330-003 .
   c. UNLESS OTHERWISE NOTED ALL PIPING BELOW A FACILITY SHALL BE ENCASED PER STANDARD DETAILS 0330-016 , 0330-017 , AND 0330-018 .
   d. COORDINATE SIZE AND LOCATION OF CONCRETE FILL WITH PUMP MANUFACTURER AND OTHER DISCIPLINE DRAWINGS.
6. EXTERIOR CONCRETE WALLS CHANGE THICKNESS AT ELEVATION 1282.83 FROM 2'-0" TO 1'-2".
7. PIPE TO REMAIN IN SERVICE DURING CONSTRUCTION. CONTRACTOR SHALL DESIGN THE TEMPORARY SUPPORT SYSTEM FOR THE PIPE DURING CONSTRUCTION OF THE CONCRETE STRUCTURE. REFER TO MECHANICAL DRAWINGS FOR THE DEMOLITION OF THE PIPE.
8. INSTALL HYDROPHILIC WATERSTOP BONDED TO THE EXISTING PIPE.

HUGO ANDRES ROJAS LICENSED 11/04/16 24949 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DESGN	DATE	DR	CHK	APVD	BY	REVISION
	H ROJAS		F JAGLA	M MERKLEIN	APVD	H ROJAS	

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

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ch2m

INFLUENT PUMP STATION WET WELL

STRUCTURAL
FOUNDATION AND UPPER PLANS

BIDDING SET

VERIFY SCALE

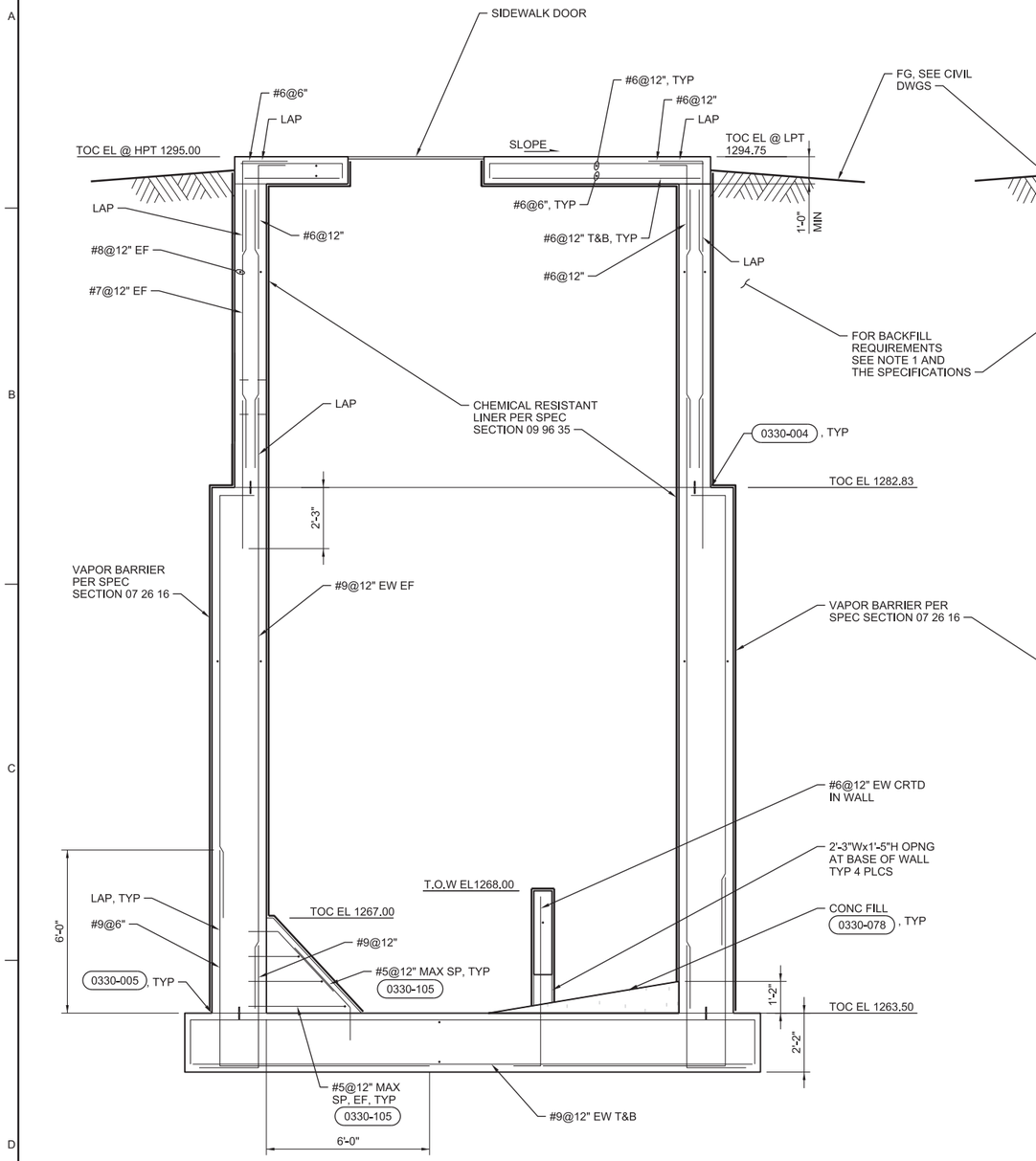
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	105-S-2001
SHEET	157 of 314

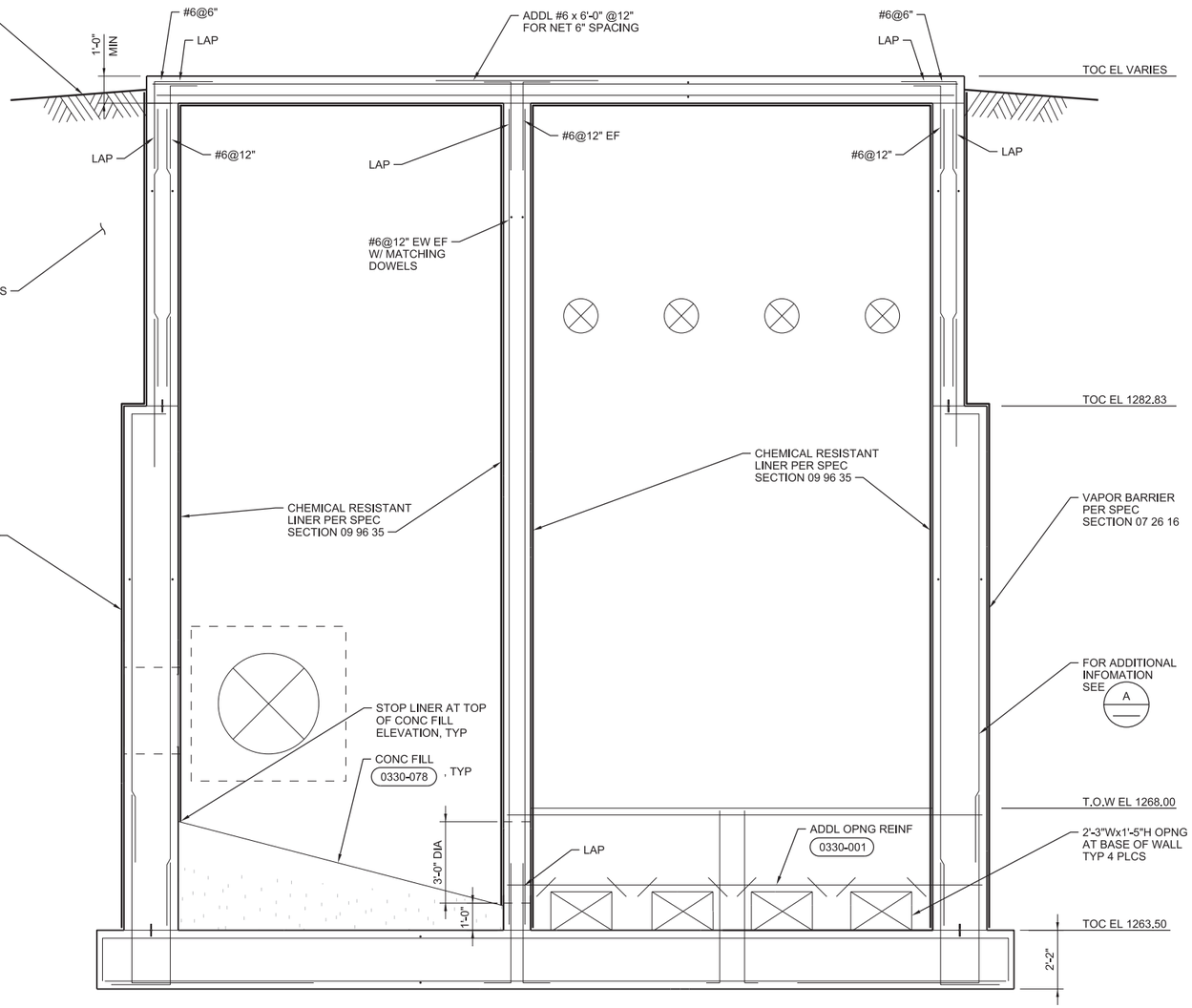
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GENERAL NOTES

1. BACKFILL USING GRANULAR FILL IN ZONE FROM THE BASE OF THE STRUCTURE EXTENDING UPWARD AT AN ANGLE OF AT LEAST 45 DEGREES FROM VERTICAL TO A DEPTH OF 2 FEET BELOW TOP OF BACKFILL. BACKFILL UPPER 2 FEET WITHIN 10 FEET OF PERIMETER OF STRUCTURE USING COHESIVE SOIL TO PREVENT INFILTRATION OF SURFACE WATER



A SECTION
3/8"=1'-0"
105-S-2001



B SECTION
3/8"=1'-0"
105-S-2001

HUGO ANDRES ROJAS
LICENSED
11/04/16
24949
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD
	H ROJAS	H ROJAS	F JAGLA	M MERKLEIN	APVD

REVISION BY H ROJAS

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

ch2m

INFLUENT PUMP STATION WET WELL
STRUCTURAL SECTIONS

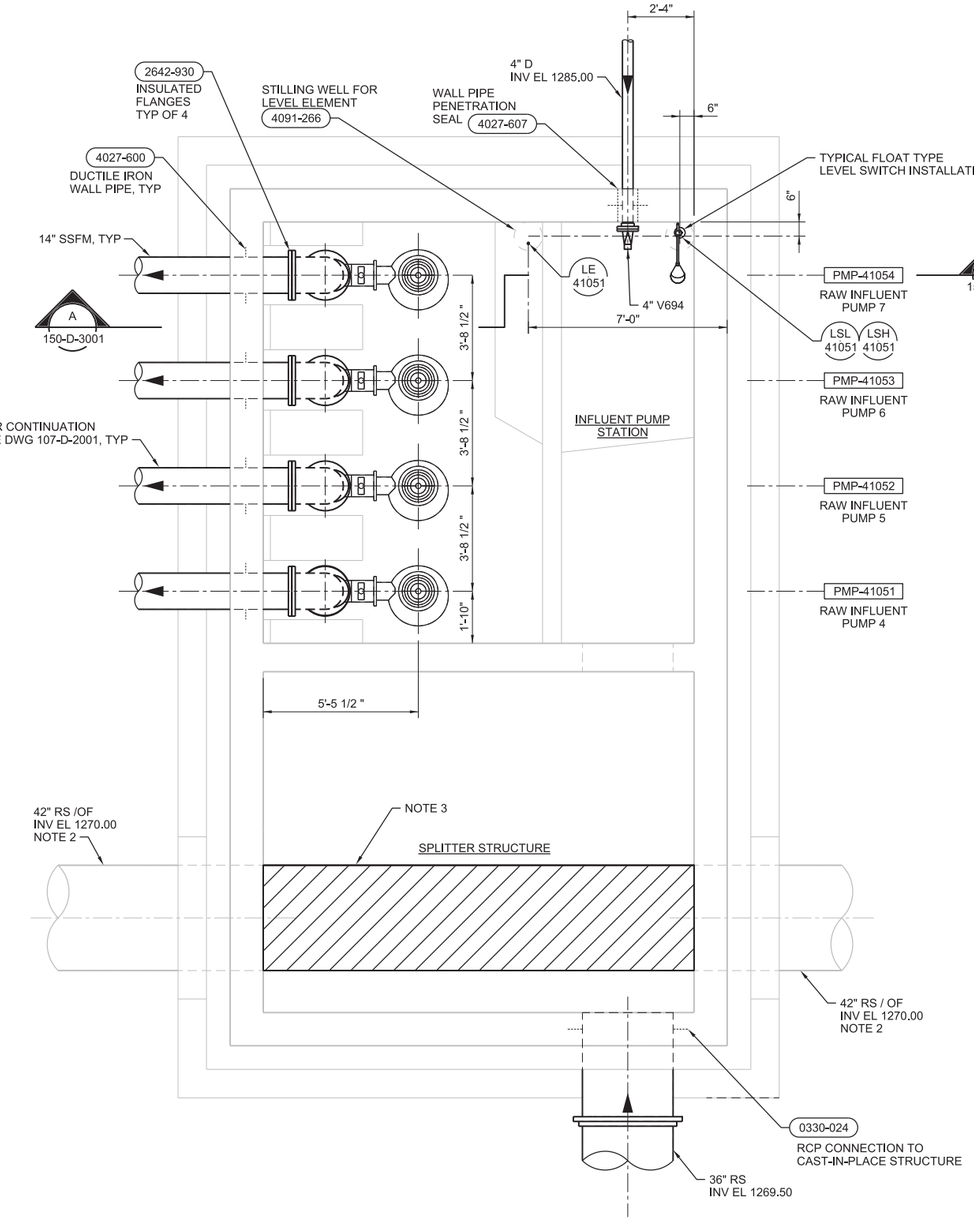
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	105-S-3001
SHEET	158 of 314

BIDDING SET

GENERAL NOTES

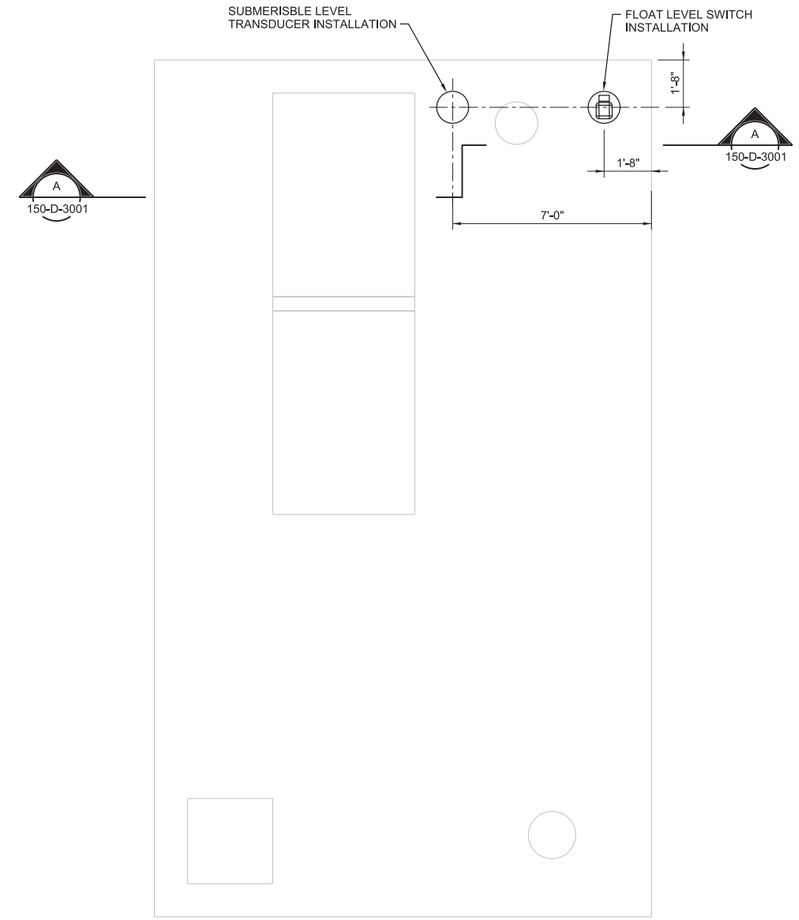
1. FOR CONTNUATION OF PIPING IN THE YARD, SEE DRAWING 051-Y-2007
2. STRUCTURE BUILD AROUND EXISTING 42" RS. REFER TO STRUCTURAL DRAWINGS FOR DETAIL.
3. 42" RS PIPE TO BE SUPPORTED IN PLACE AND REMAIN IN SERVICE DURING CONSTRUCTION. SECTION WITHIN THE SPLITTER STRUCTURE SHALL BE DEMOLISHED PRIOR TO START-UP.



N

LOWER PLAN

3/8"=1'-0"



N

UPPER PLAN

3/8"=1'-0"

RUSSELL JO JOHNSON — 15411 — 11/4/16 — KANSAS — PROFESSIONAL ENGINEER

11/04/2016

NO.	DSGN	DATE	DR	CHK	APVD	BY	REVISION
	J PITTS		D CAVE	S POLSON	APVD	E JOHNSON	

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FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

ch2m

INFLUENT PUMP STATION WET WELL
PROCESS MECHANICAL
LOWER PLAN

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

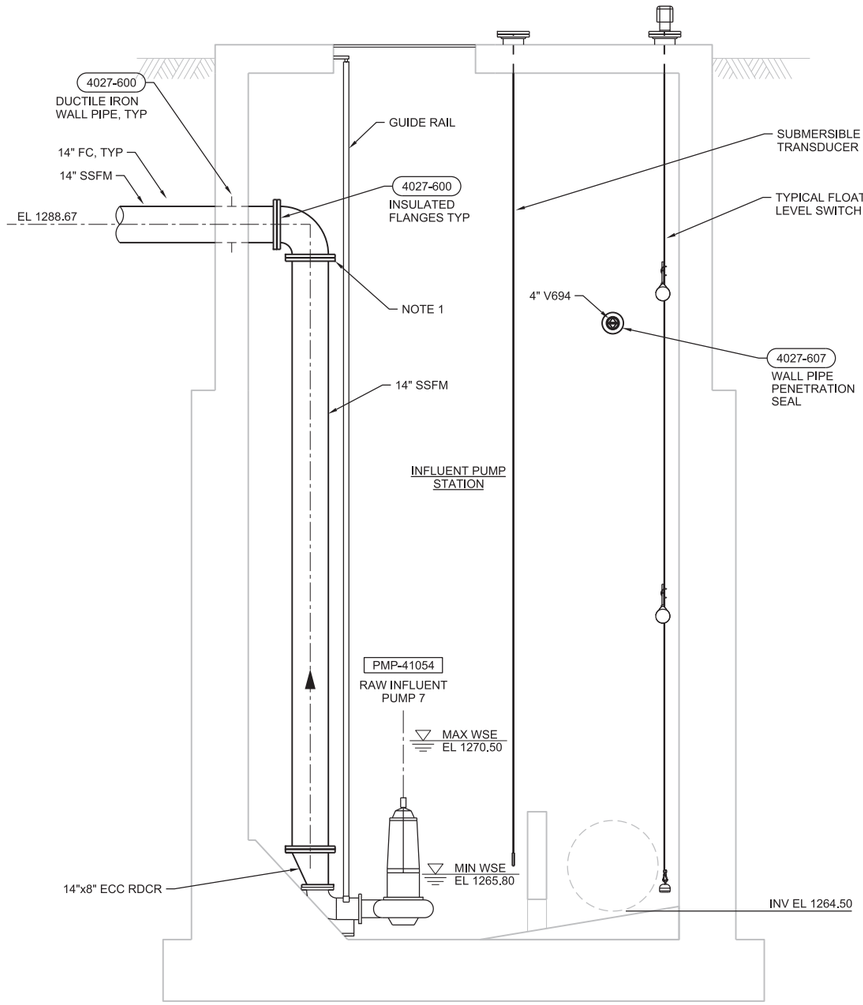
DATE	NOVEMBER 2016
PROJ	496312
DWG	105-D-2001
SHEET	159 of 314

BIDDING SET

FILENAME: 105-D-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:03:45 PM

GENERAL NOTES

1. IF DESIRED, CONTRACTOR SHALL INSTALL DISMANTLING JOINT TO FACILITATE CONSTRUCTION.



A SECTION
3/8"=1'-0"
105-D-2001

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DSGN	DATE	BY	APVD
	J PITTS	D CAVE	S POLSON	E JOHNSON

REVISION

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

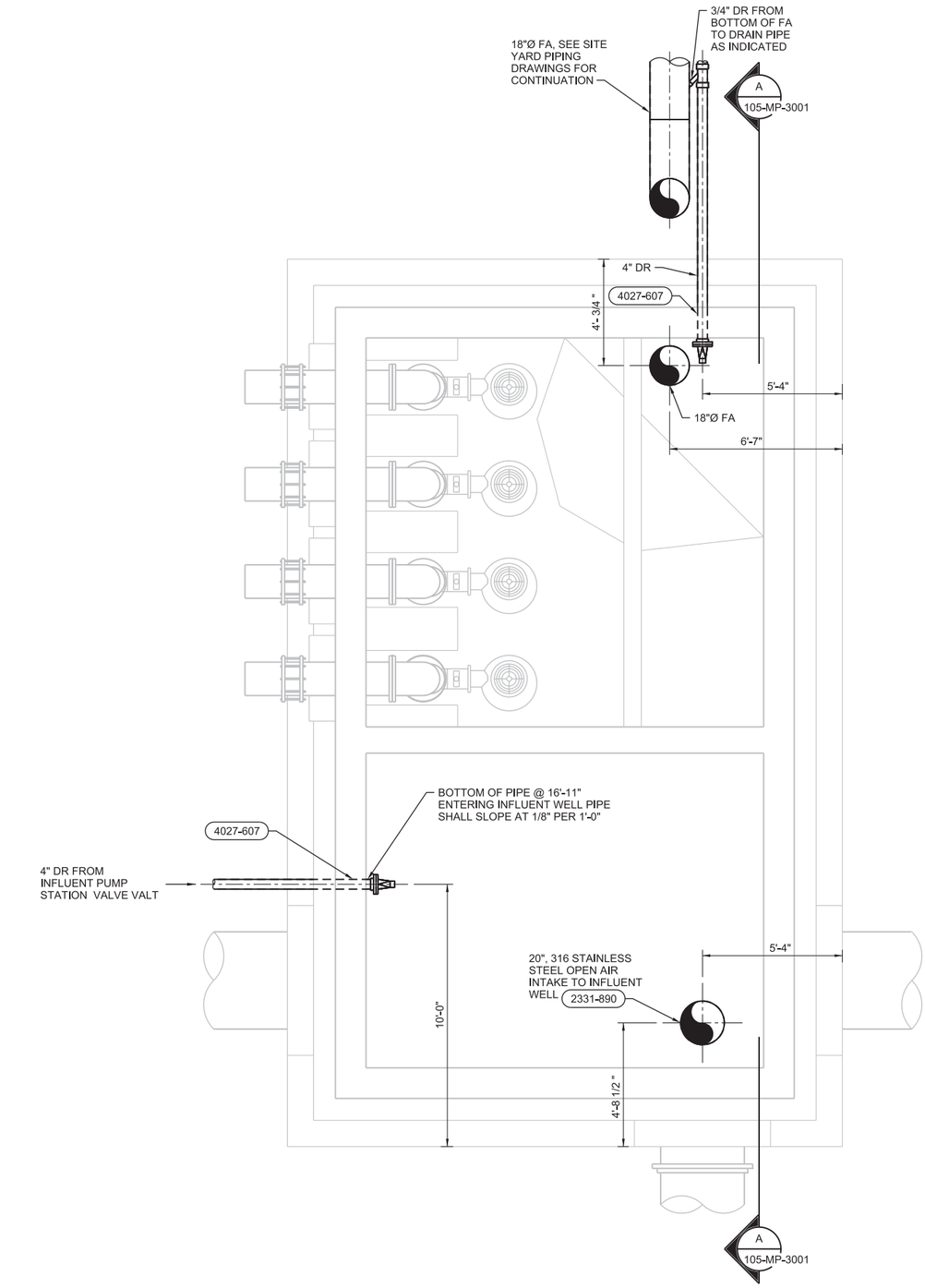
INFLUENT PUMP STATION WET WELL
PROCESS MECHANICAL
SECTION

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	105-D-3001
SHEET	160 of 314

BIDDING SET

FILENAME: 105-D-3001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:04:53 PM



N

LOWER PLAN

3/8"=1'-0"

SCOTT HOFFMAN LICENSED 11/4/16 25291 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	BY	APVD
DSGN	S HOFFMAN	DR T WHITE	CHK P RAUSCH	APVD S HOFFMAN

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

INFLUENT PUMP STATION WET WELL
HVAC/PLUMBING
LOWER PLAN

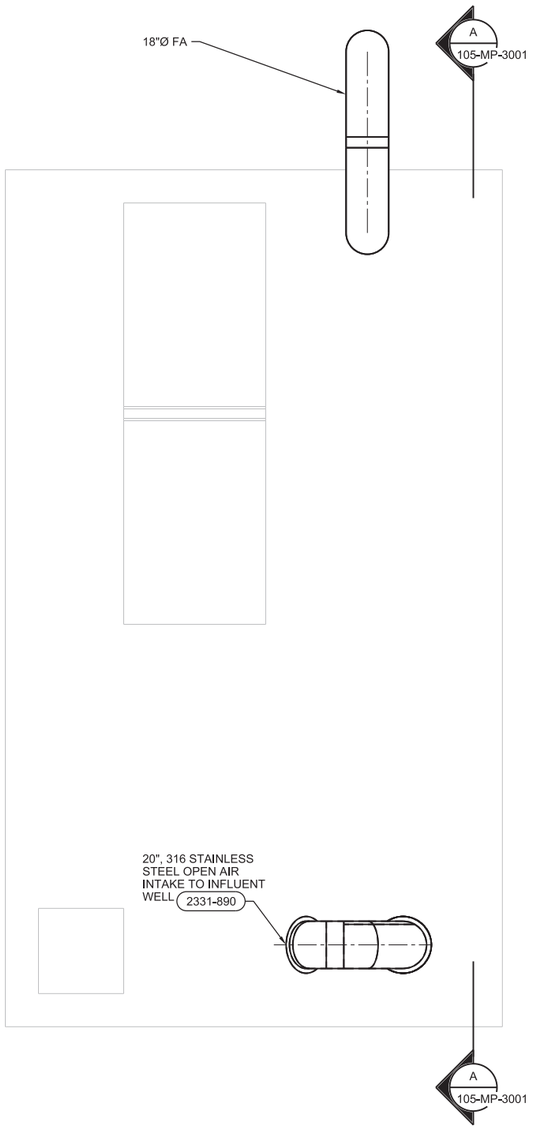
BIDDING SET

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	105-MP-2001
SHEET	161 of 314

FILENAME: 105-MP-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:03:41 PM



N

UPPER PLAN

3/8"=1'-0"

SCOTT HOFFMAN
LICENSED
11/4/16
25291
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	BY	APVD

DSGN S HOFFMAN | DR T WHITE | CHK P RAUSCH | APVD S HOFFMAN

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

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ch2m

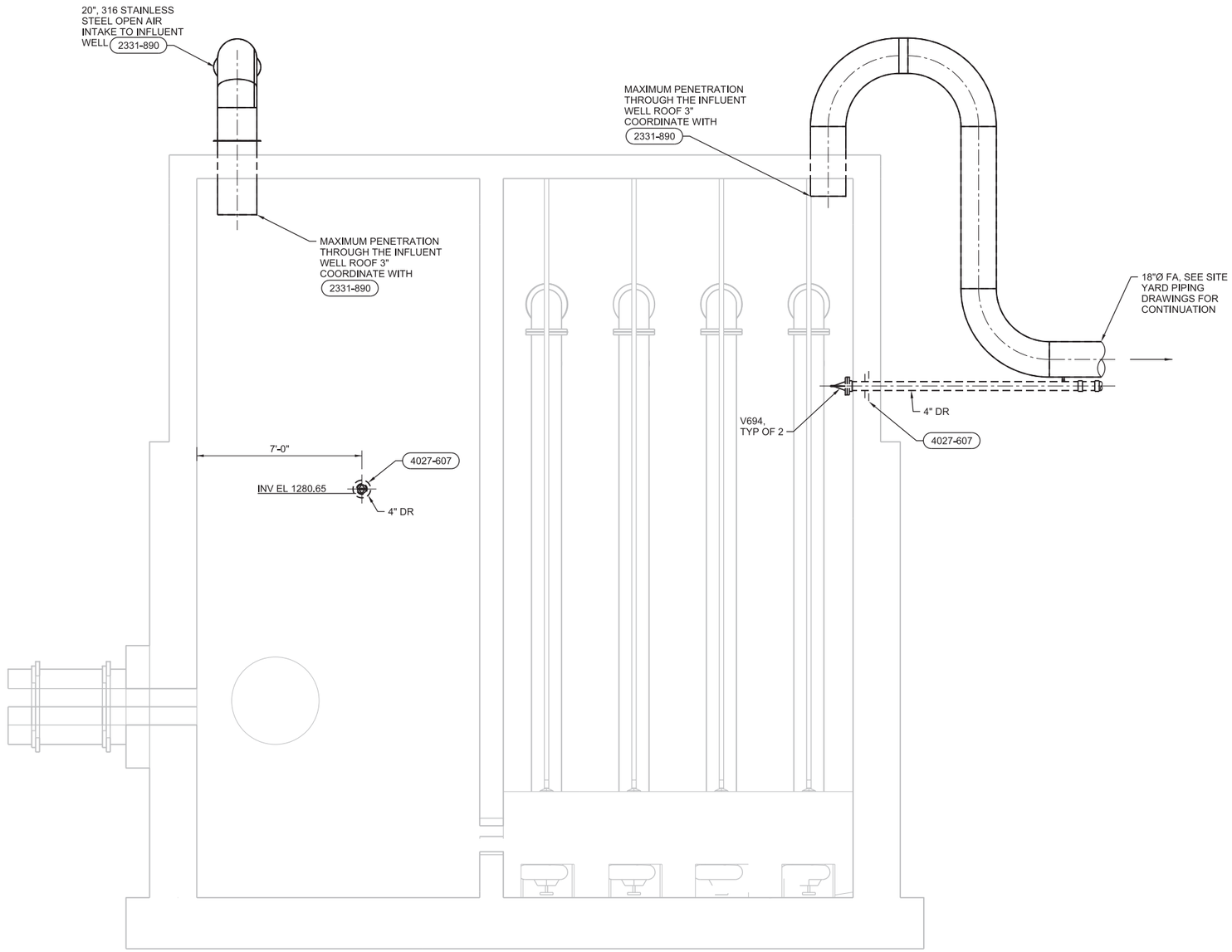
INFLUENT PUMP STATION WET WELL
HVAC/PLUMBING UPPER PLAN

BIDDING SET

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	105-MP-2002
SHEET	162 of 314

FILENAME: 105-MP-2002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:02:46 PM



A SECTION
3/8"=1'-0"

105-MP-2001
105-MP-2002

SCOTT HOFFMAN LICENSED 11/4/16 25291 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DESCRIPTION	DATE	BY	CHK	APVD
DSGN	S HOFFMAN	DR T WHITE	REVISION	P RAUSCH	APVD S HOFFMAN

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DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

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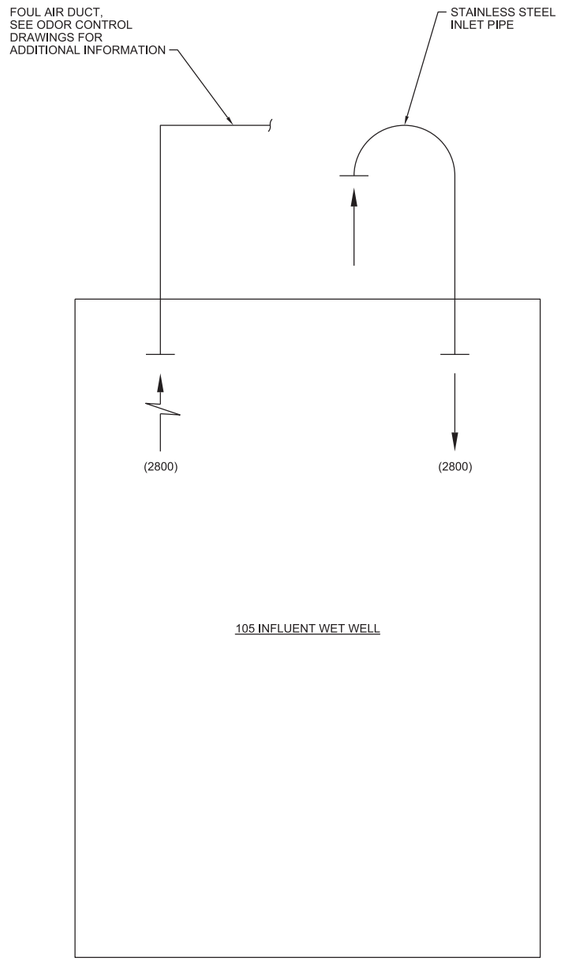
INFLUENT PUMP STATION WET WELL
HVAC/PLUMBING SECTION

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	105-MP-3001
SHEET	163 of 314

BIDDING SET

FILENAME: 105-MP-3001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:02:08 PM



AIRFLOW SCHEMATIC

NTS

SCOTT HOFFMAN
LICENSED
11/4/16
25291
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	BY	APVD
DSGN	S HOFFMAN	DR T WHITE	CHK P RAUSCH	APVD S HOFFMAN

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FOUR MILE CREEK WORF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

INFLUENT PUMP STATION WET WELL
HVAC/PLUMBING
AIRFLOW SCHEMATIC

VERIFY SCALE

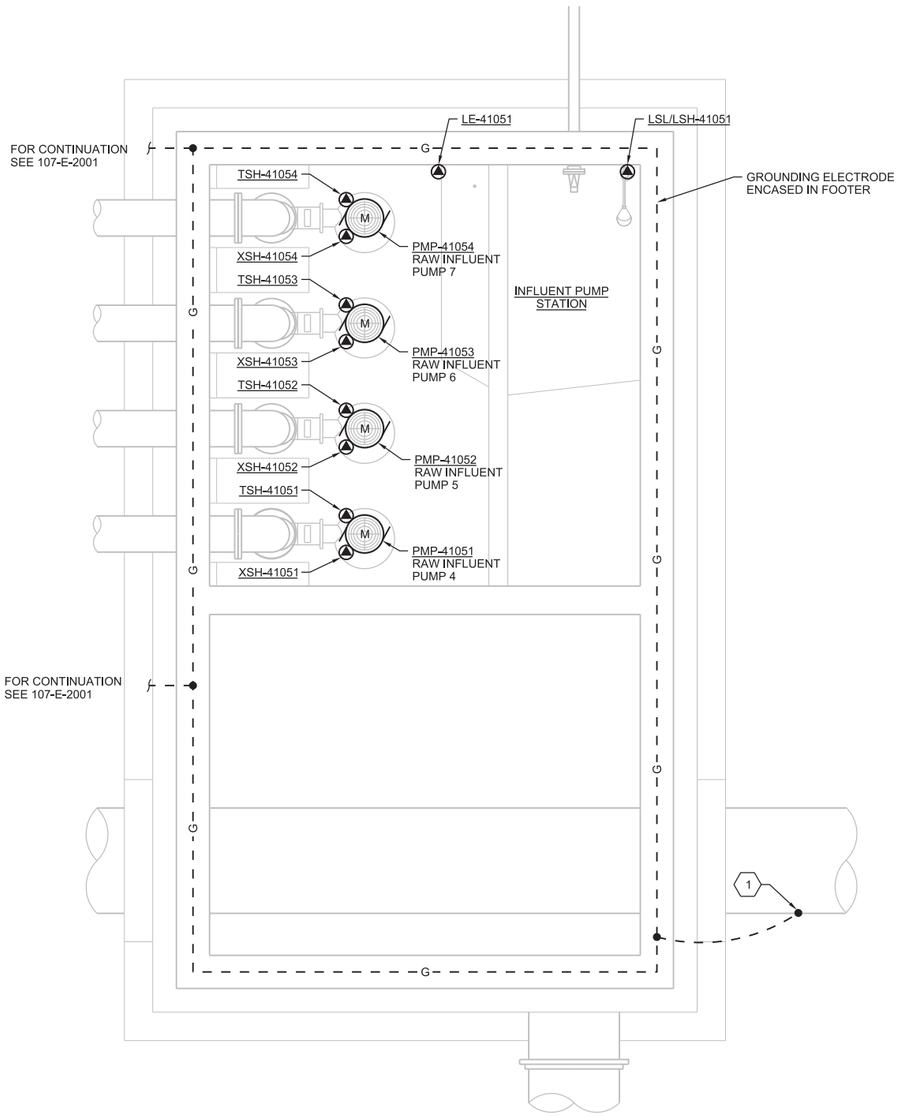
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	105-MP-6001
SHEET	164 of 314

BIDDING SET

SHEET KEYNOTES

1. PROVIDE 2/0 AWG BONDING CONDUCTOR TO MAIN GROUND CONDUCTOR, WHICH IS EMBEDDED IN THE FOUNDATION FOOTER.



N

LOWER PLAN

3/8"=1'-0"

MARY J. GROSS
LICENSED
16702
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	REVISION	CHK	BY	APVD
		J LANDMAN	A CUGLIAT		M GROSS	M GROSS	M GROSS

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FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

INFLUENT PUMP STATION WET WELL
ELECTRICAL
LOWER PLAN

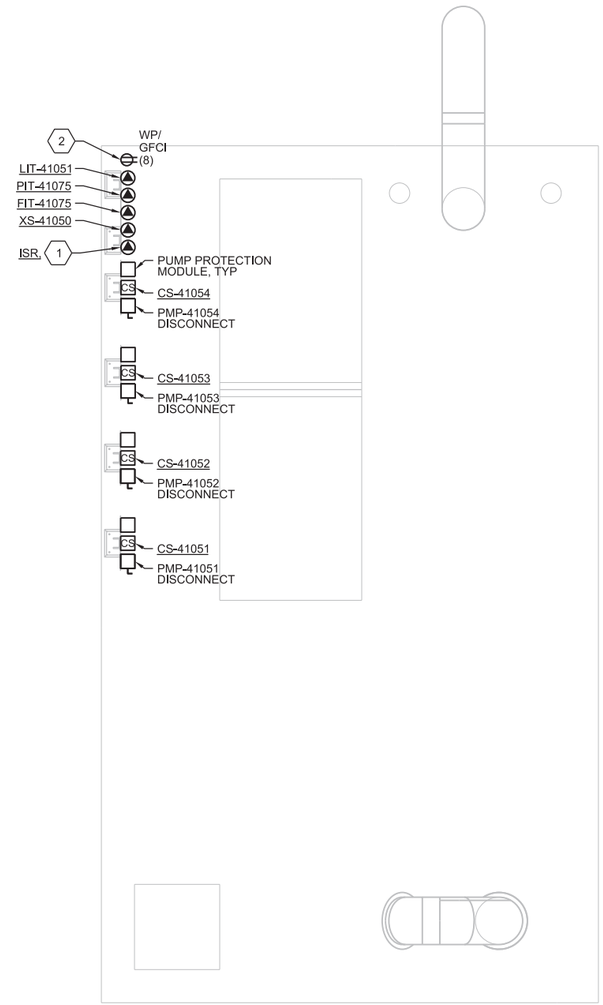
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	105-E-2001
SHEET	165 of 314

BIDDING SET

SHEET KEYNOTES

1. PROVIDE ENCLOSURE FOR INTRINSICALLY SAFE RELAYS. REFER TO THE MATERIALS SELECTION TABLE FOR ENCLOSURE RATING REQUIREMENTS. MOUNT ENCLOSURE TO COMMON BACKPLATE.
2. 120V CIRCUITS AT THE INFLUENT PUMP STATION AND VALVE VAULT ARE FED FROM PNLL-419003E AT FACILITY 110, SCREENINGS. REFER TO PANEL SCHEDULES FOR CIRCUITING INFORMATION.



N

UPPER PLAN

3/8"=1'-0"

MARY J. GROSS
LICENSED
16702
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		J LANDMAN	A CUGLIAT	M GROSS	M GROSS	M GROSS	APVD

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PHASE II, 6 MGD EXPANSION
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INFLUENT PUMP STATION WET WELL

ELECTRICAL
UPPER PLAN

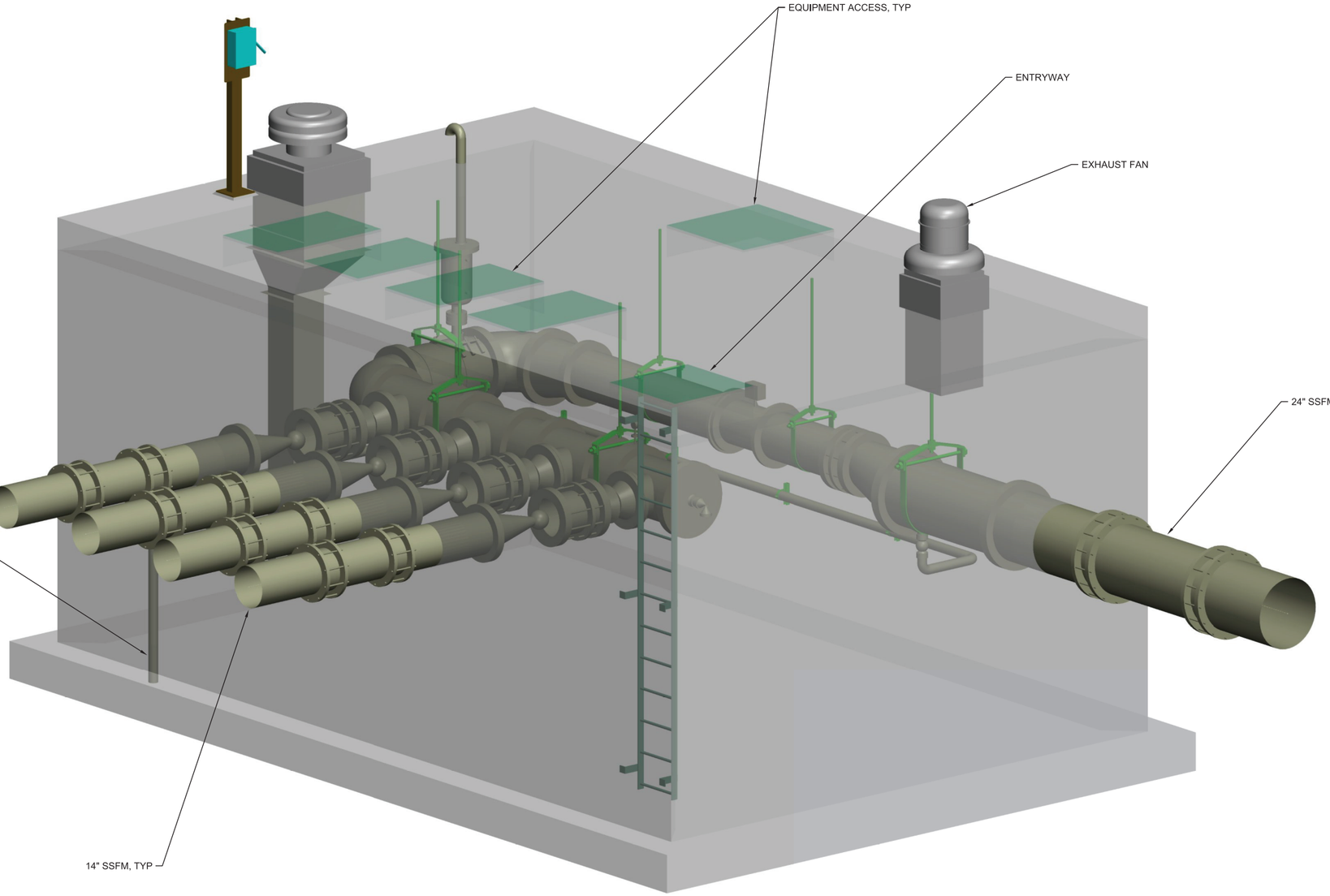
VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	105-E-2002
SHEET	166 of 314

BIDDING SET

FILENAME: 105-E-2002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 1:51:43 PM



RENDERING
NTS

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		J PITTS	F JAGLA	J PITTS	APVD	E JOHNSON	

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FOUR MILE CREEK WORF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

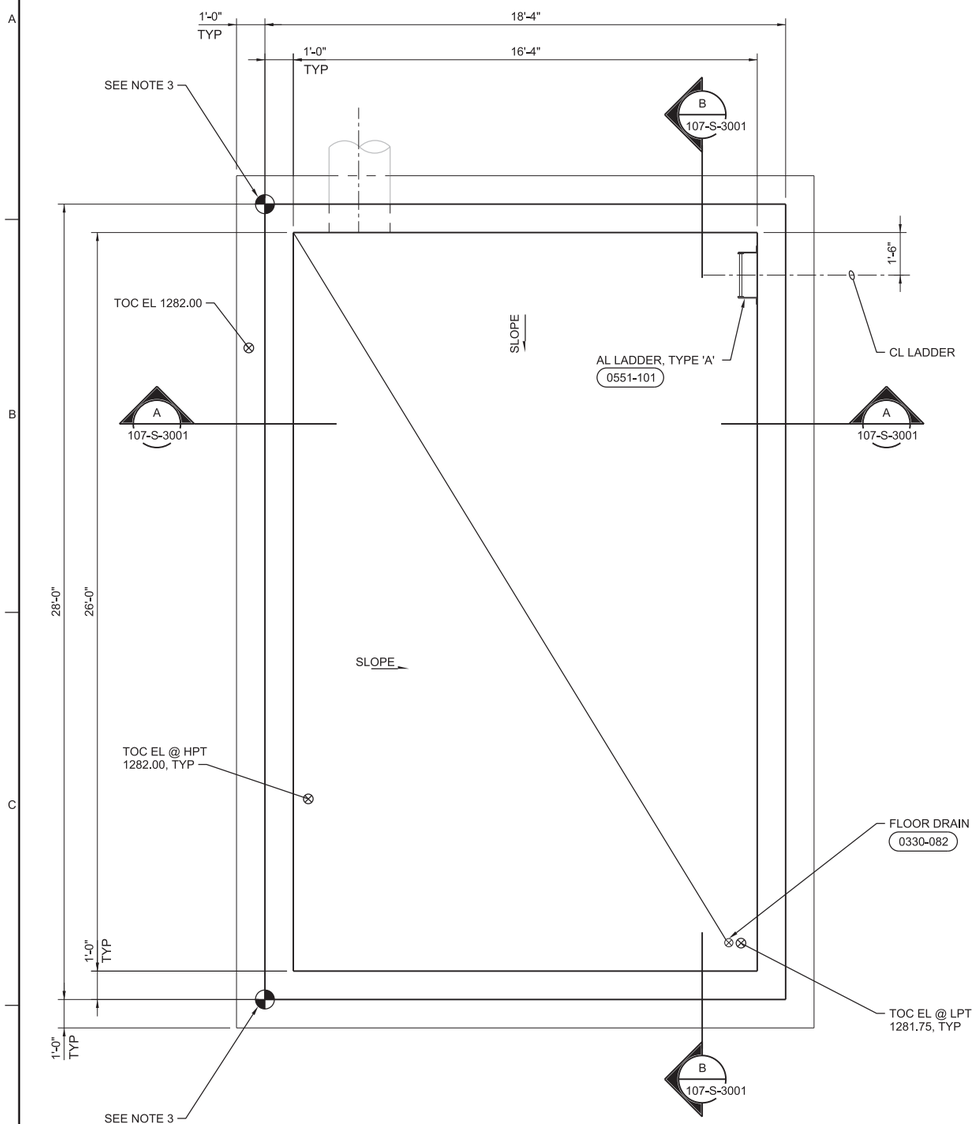
INFLUENT PUMP STATION VALVE VAULT

RENDERING

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	107-G-2000
SHEET	167 of 314

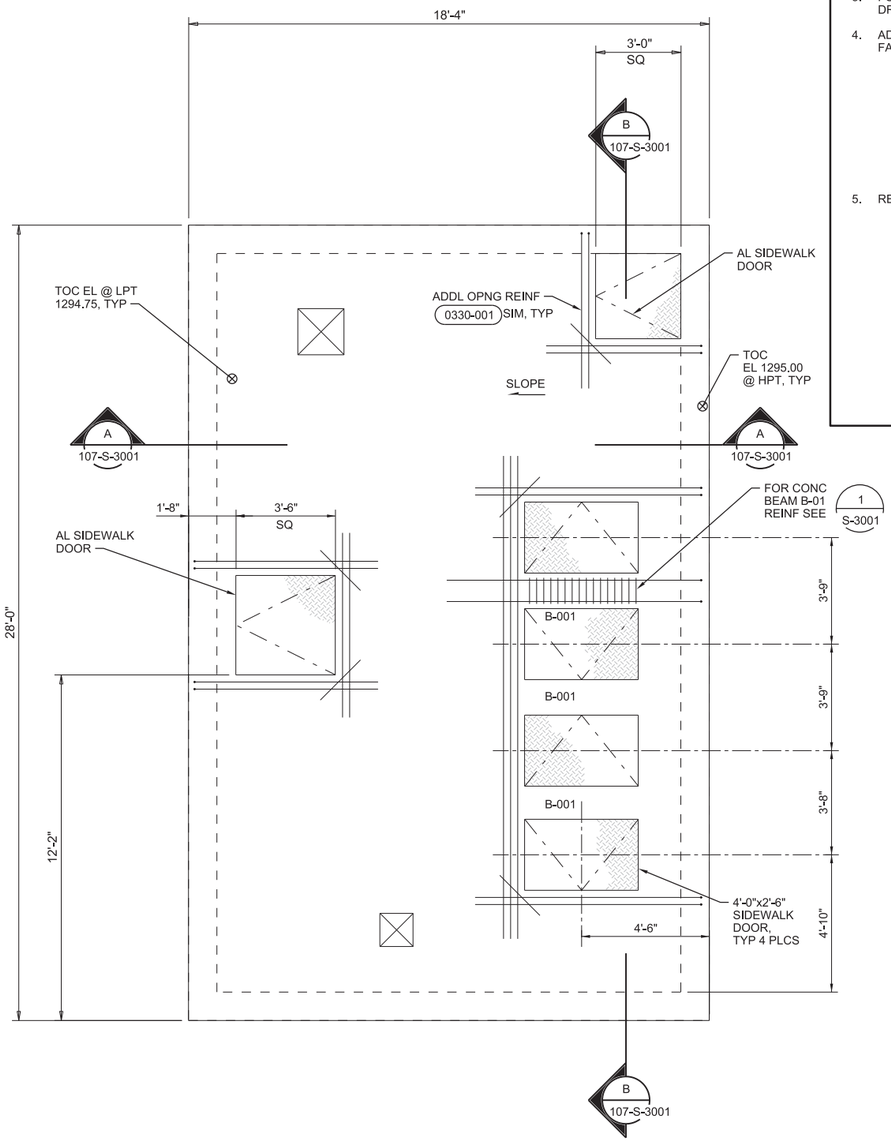
BIDDING SET



N

FOUNDATION PLAN

3/8"=1'-0"



N

UPPER PLAN

3/8"=1'-0"

GENERAL NOTES

1. FOR DESIGN CRITERIA AND GENERAL STRUCTURAL NOTES, SEE DRAWINGS 001-G-0300 AND 001-G-0301.
2. FOR SPECIAL INSPECTION AND TESTING REQUIREMENTS, SEE DRAWINGS 001-G-0302 THROUGH 001-G-0305.
3. FOR FACILITY SITE COORDINATES SEE CIVIL DRAWINGS.
4. ADDITIONAL DESIGN CRITERIA SPECIFIC TO THIS FACILITY:
   a. SEISMIC DESIGN DATA
   BASIC SEISMIC-FORCE RESISTING SYSTEM: FLAT BOTTOM GROUND SUPPORTED CONCRETE TANK WITH REINFORCED NON-SLIDING BASE
   ANALYSIS PROCEDURE USED: ASCE 7 GROUND SUPPORTED STORAGE TANKS FOR LIQUIDS
   b. DESIGN GROUND WATER ELEVATION = 1288.0 FT
5. REINFORCED CONCRETE NOTES
   a. COORDINATE SIZE AND LOCATION OF ALL OPENINGS WITH OTHER DISCIPLINES. FOR TYPICAL CONCRETE WALL OR SLAB OPENING REINFORCING SEE 0330-001.
   b. FOR TYPICAL CONCRETE WALL CORNER AND INTERSECTION REINFORCING SEE 0330-003.
   c. UNLESS OTHERWISE NOTED ALL PIPING BELOW A FACILITY SHALL BE ENCASED PER STANDARD DETAILS 0330-016, 0330-017, AND 0330-018.

HUGO ANDRES ROJAS LICENSED 11/04/16 24949 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DSGN	DATE	DR	REVISION	CHK	APVD	BY	APVD
	H ROJAS	H ROJAS	F JAGLA		M MERKLEIN		H ROJAS	

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

INFLUENT PUMP STATION VALVE VAULT
STRUCTURAL
FOUNDATION AND UPPER PLANS

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

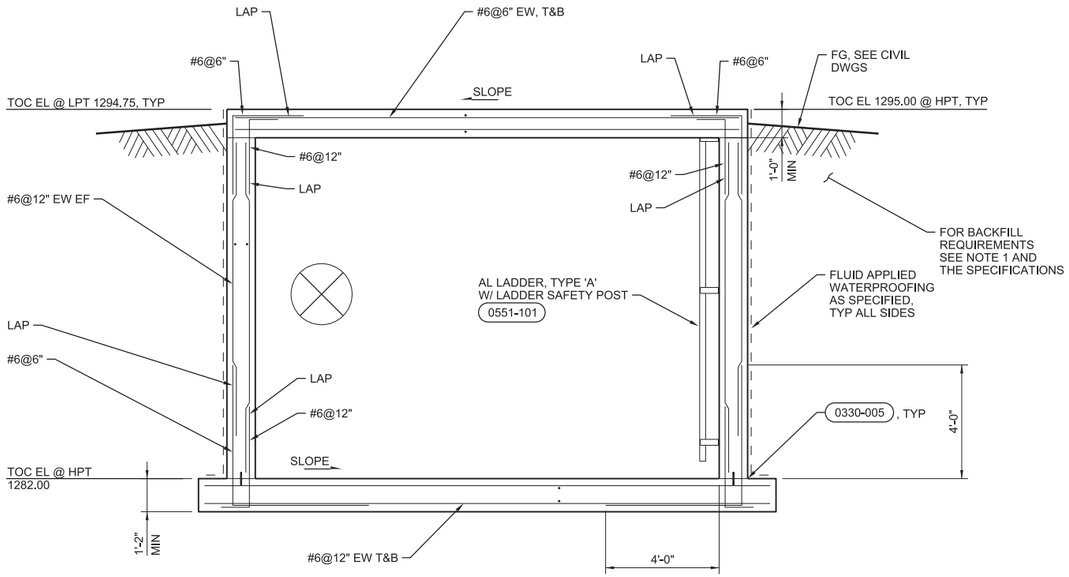
DATE	NOVEMBER 2016
PROJ	496312
DWG	107-S-2001
SHEET	168 of 314

BIDDING SET

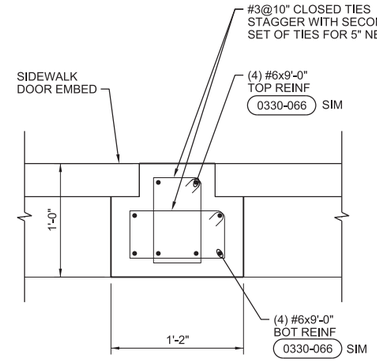
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GENERAL NOTES

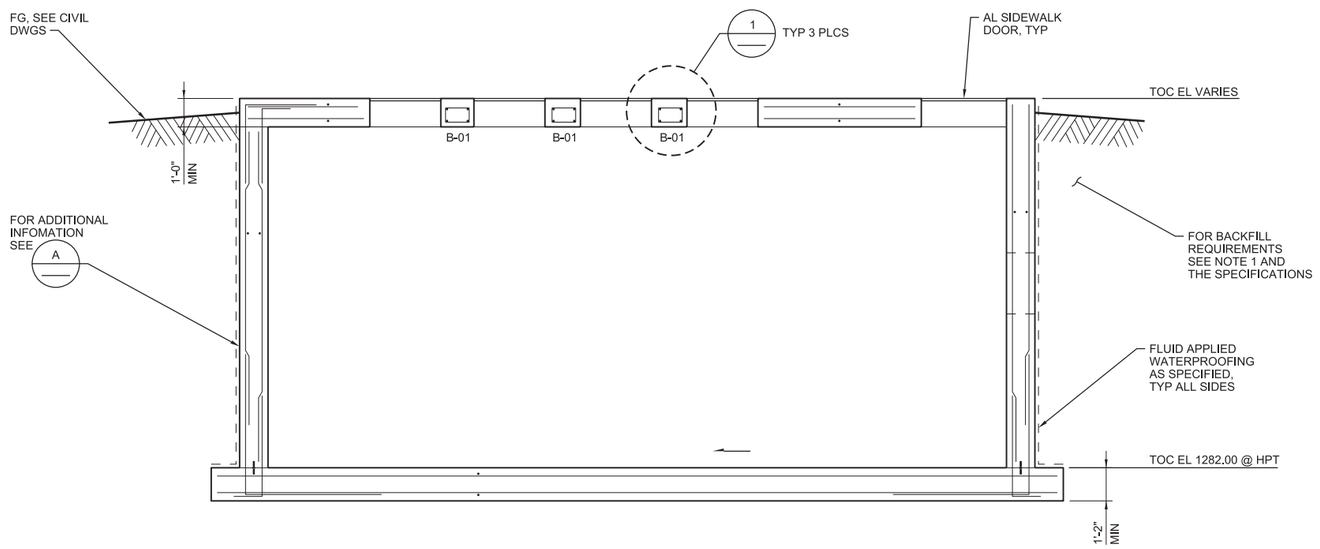
1. BACKFILL USING GRANULAR FILL IN ZONE FROM THE BASE OF THE STRUCTURE EXTENDING UPWARD AT AN ANGLE OF AT LEAST 45 DEGREES FROM VERTICAL TO A DEPTH OF 2 FEET BELOW TOP OF BACKFILL. BACKFILL UPPER 2 FEET WITHIN 10 FEET OF PERIMETER OF STRUCTURE USING COHESIVE SOIL TO PREVENT INFILTRATION OF SURFACE WATER



A SECTION
3/8"=1'-0"
107-S-2001



1 DETAIL
1 1/2"=1'-0"



B SECTION
3/8"=1'-0"
107-S-2001

HUGO ANDRES ROJAS LICENSED 11/04/16 24949 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
	H ROJAS		F JAGLA	M MERKLEIN	APVD	H ROJAS	

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

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ch2m

INFLUENT PUMP STATION VALVE VAULT
STRUCTURAL
SECTIONS AND DETAIL

BIDDING SET

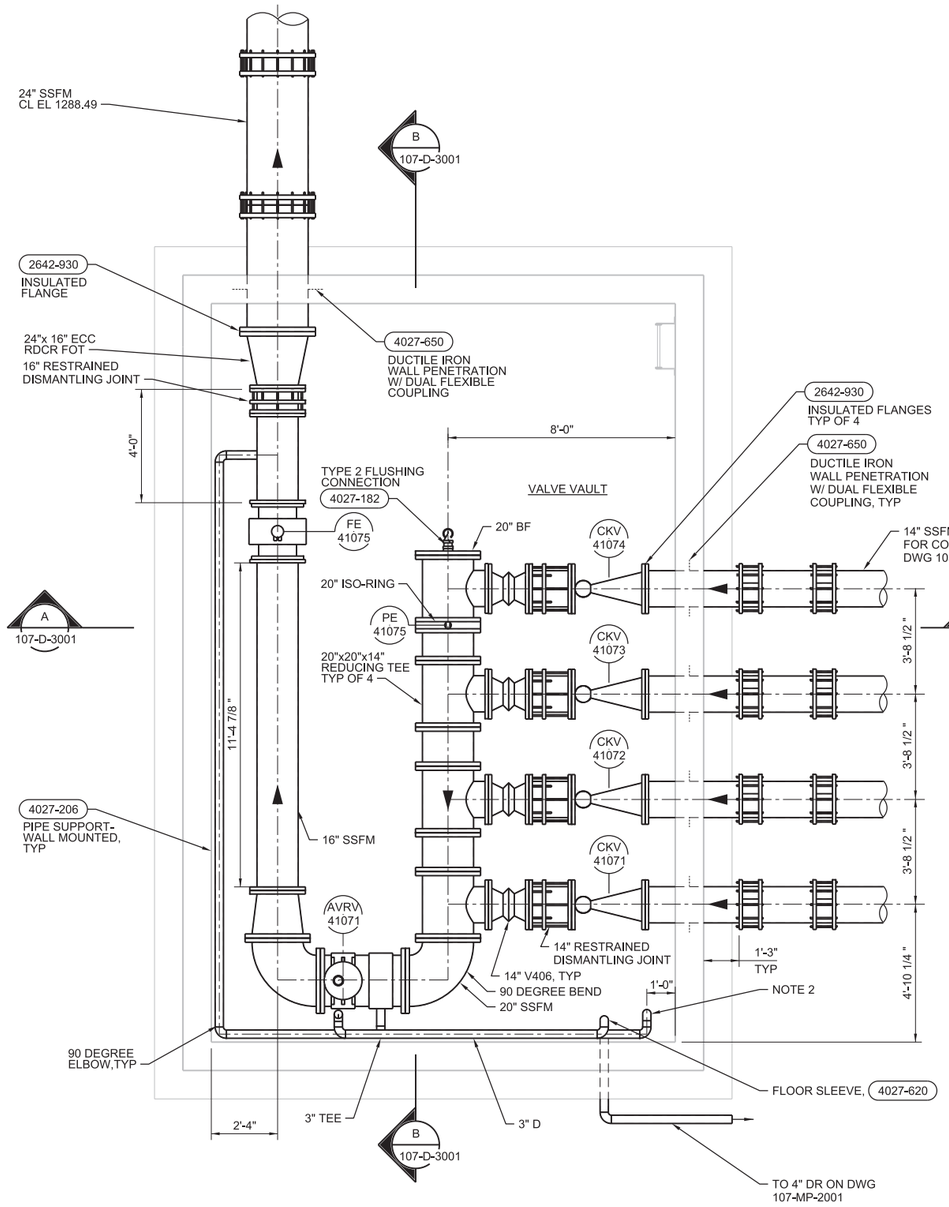
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0 1"

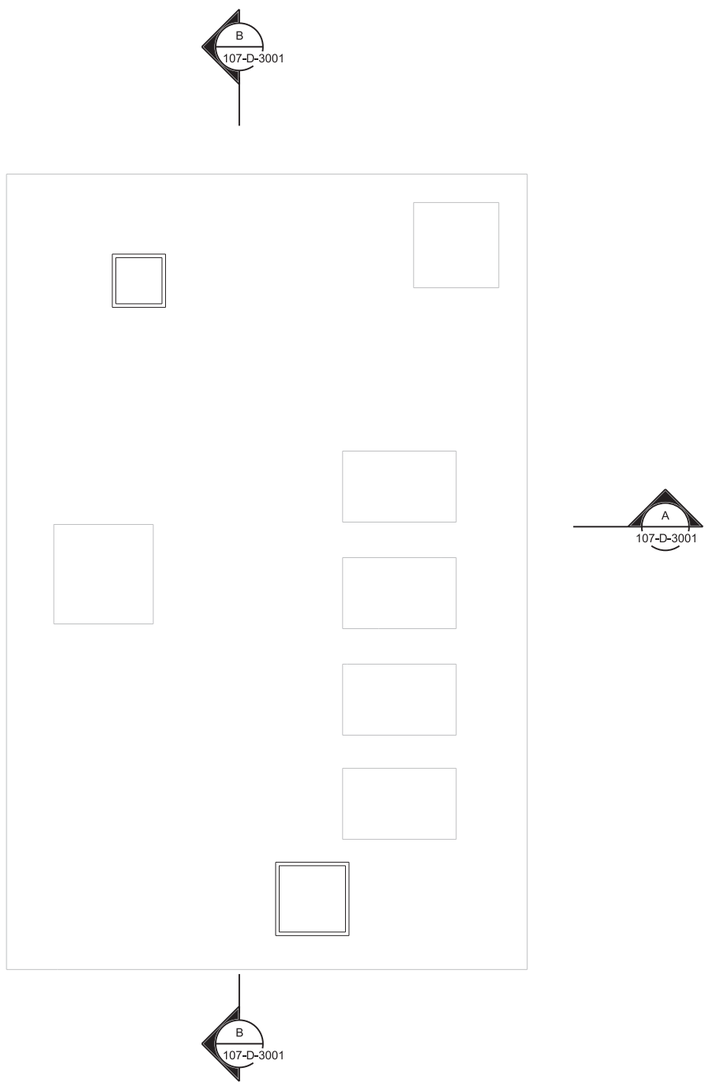
DATE	NOVEMBER 2016
PROJ	496312
DWG	107-S-3001
SHEET	169 of 314

FILENAME: 107-S-3001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:02:42 PM

GENERAL NOTES

1. FOR CONTNUATION OF PIPING IN THE YARD, SEE DRAWING 051-Y-2007.
2. DRAIN CONTINUED ON DRAWING 107-MP-2001, AIR GAP.





RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		J PITTS	D CAVE	S POLSON	APVD	E JOHNSON	

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

ch2m

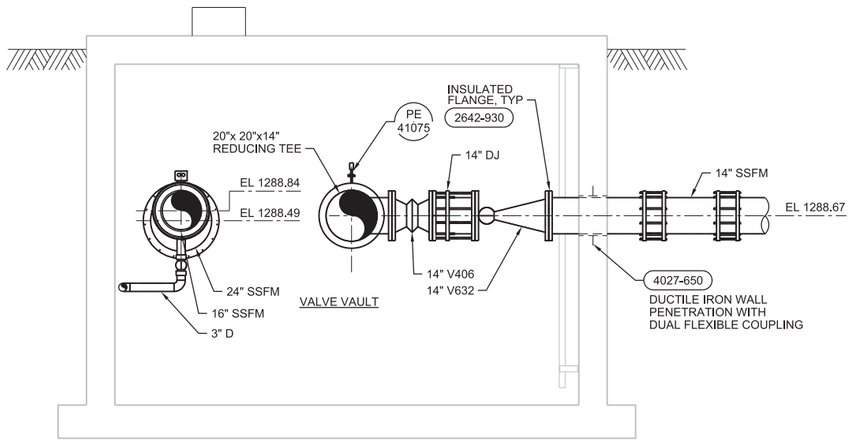
INFLUENT PUMP STATION VALVE VAULT
PROCESS MECHANICAL LOWER PLAN

BIDDING SET

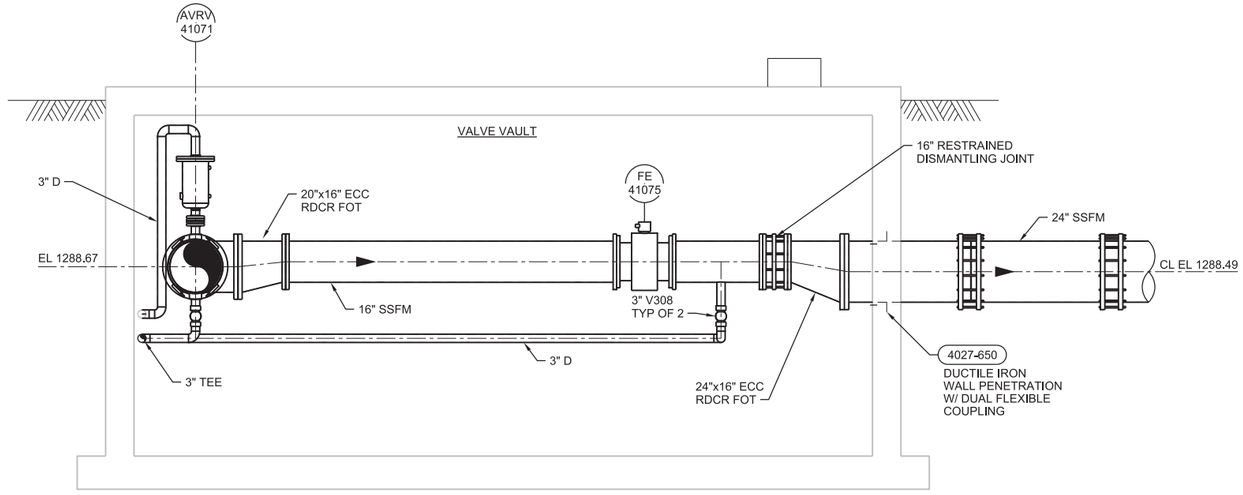
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
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DATE	NOVEMBER 2016
PROJ	496312
DWG	107-D-2001
SHEET	170 of 314

FILENAME: 107-D-2001_496312.dgn PLOT DATE: 11/3/2016 PLOT TIME: 9:32:31 PM



A SECTION
3/8"=1'-0"
107-D-2001



B SECTION
3/8"=1'-0"
107-D-2001

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
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11/04/2016

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

ch2m

INFLUENT PUMP STATION VALVE VAULT
PROCESS MECHANICAL
SECTIONS

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

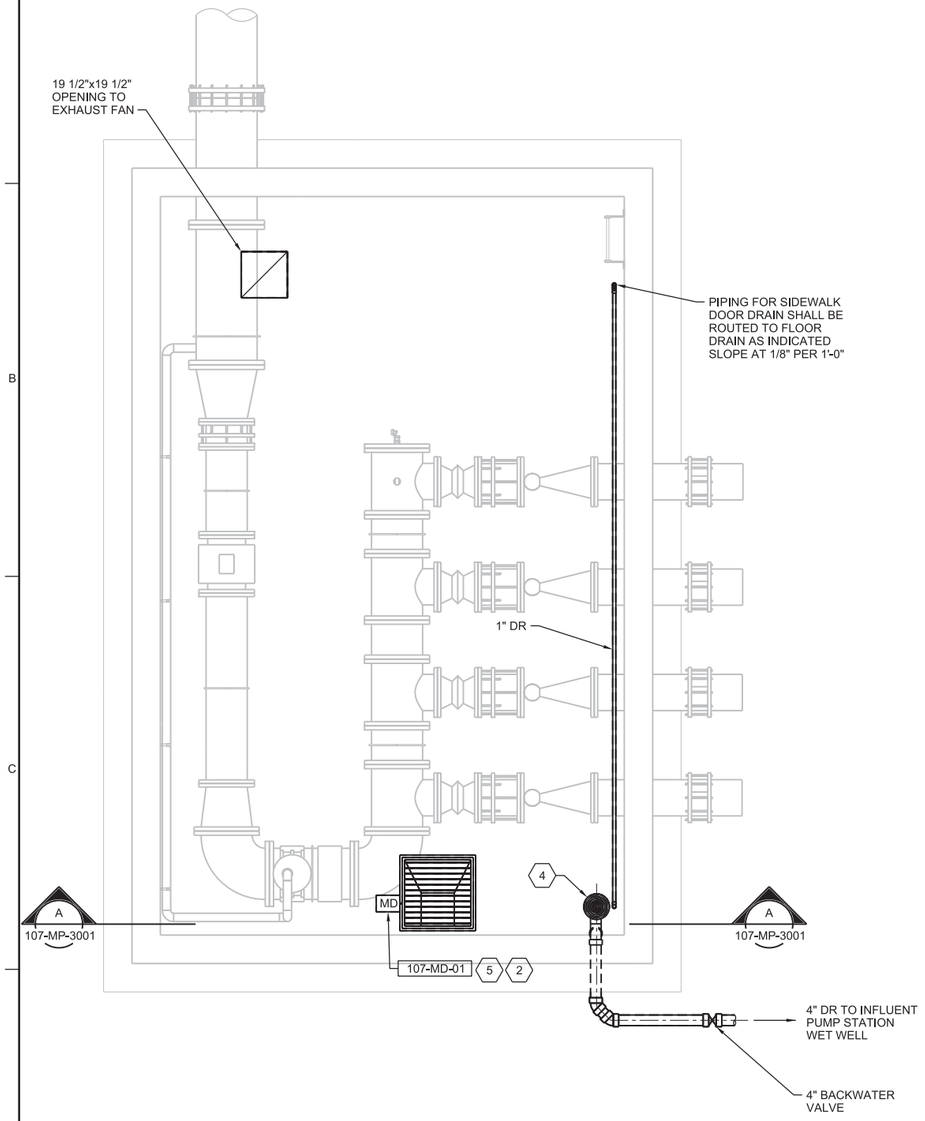
DATE	NOVEMBER 2016
PROJ	496312
DWG	107-D-3001
SHEET	171 of 314

BIDDING SET

FILENAME: 107-D-3001_496312.dgn PLOT DATE: 11/3/2016 PLOT TIME: 9:41:49 PM

SHEET KEYNOTES

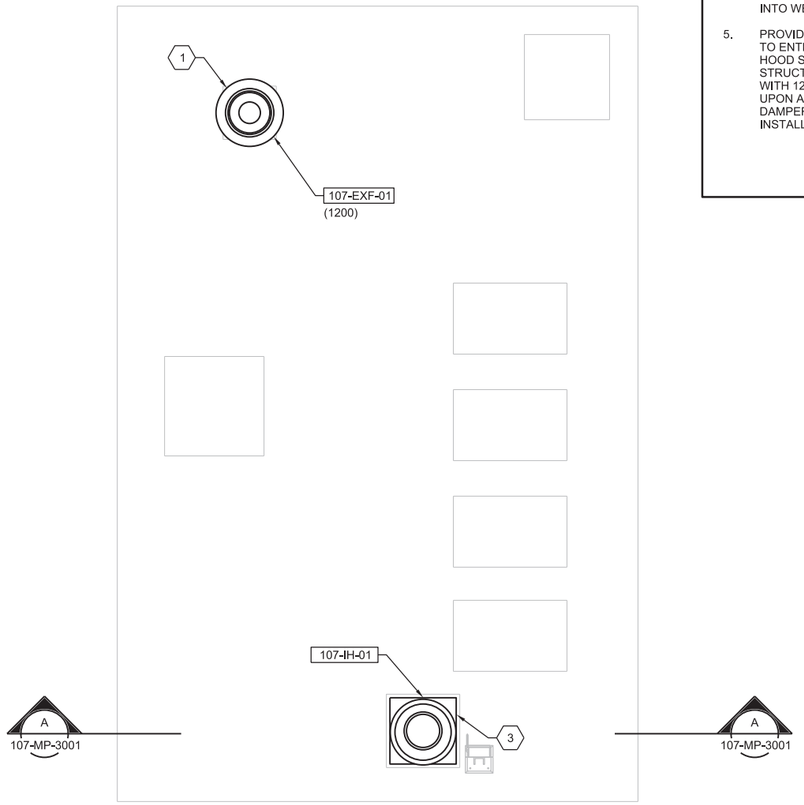
1. PROVIDE EXHAUST FAN AND TERMINATE DUCTWORK IN PIPE VAULT AS INDICATED. EXHAUST FAN SHALL BE MOUNTED WEATHER TIGHT TO PIPE VAULT CONCRETE AT GRADE. THE EXHAUST FAN SHALL BE LOCALLY CONTROLLED BY UTILIZING AN ON/OFF SWITCH INSTALLED AT THE FAN. ENCLOSURE SHALL BE RATED FOR CLASS 1 DIVISION 1 INSTALLATION.
2. PROVIDE 14"x14" INTAKE AIR DUCT DOWN ALONG WALL TO 18" ABOVE FINISHED FLOOR, PROVIDE 45° ANGLE IN DUCTWORK AND COVER WITH 1/2"x1/2" STAINLESS STEEL MESH SCREEN.
3. PROVIDE GRAVITY PROOF INTAKE WITH 120 V MOTORIZED DAMPER 107-MD-01. MOTORIZED DAMPER SHALL OPEN PRIOR TO THE ACTIVATION OF THE EXHAUST FAN 107-EXF-01. MOTORIZED DAMPER SHALL BE RATED FOR CLASS 1 DIVISION 1 INSTALLATION.
4. PROVIDE A 4" FD-5 WITH P-TRAP AND TRAP GUARD TO PREVENT ANY GAS FROM ENTERING THE PIPE VAULT FROM THE WET WELL. TIE DRAINAGE PIPING INTO WET WELL PER PROCESS DRAWINGS.
5. PROVIDE ROOF INTAKE HOOD TO ALLOW FOR AIR TO ENTER THE INFLUENT STATION PIPE VAULT. HOOD SHALL BE SEALED WEATHER TIGHT TO ROOF STRUCTURE. INTAKE HOOD SHALL BE PROVIDED WITH 120 V MOTORIZED DAMPER THAT SHALL OPEN UPON ACTIVATION OF EXHAUST FAN. MOTORIZED DAMPER SHALL BE RATED FOR CLASS 1 DIVISION 1 INSTALLATION.



N

LOWER PLAN

3/8"=1'-0"



N

UPPER PLAN

3/8"=1'-0"

SCOTT HOFFMAN LICENSED 11/4/16 25291 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	BY	APVD
		S HOFFMAN	T WHITE	P RAUSCH	S HOFFMAN	APVD

REVISION

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

INFLUENT PUMP STATION VALVE VAULT

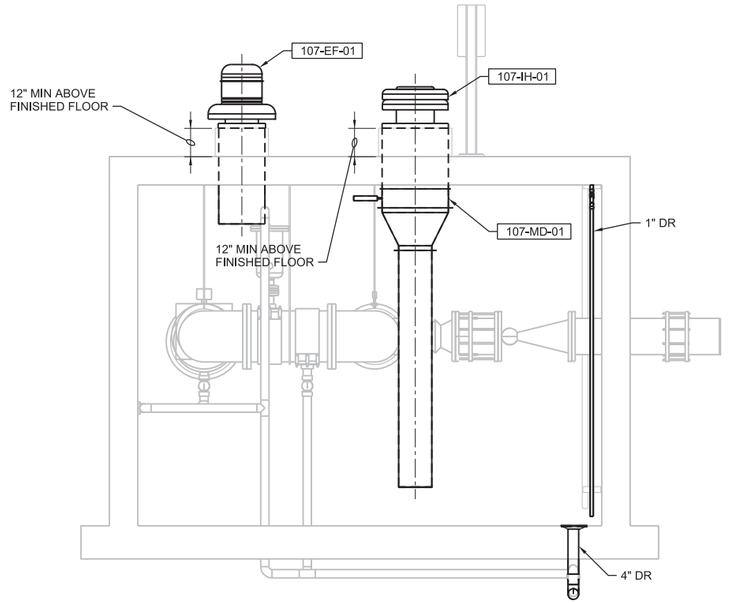
HVAC/PLUMBING LOWER PLAN AND UPPER PLAN

BIDDING SET

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	107-MP-2001
SHEET	172 of 314



A SECTION
3/8"=1'-0"
107-MP-2001

SCOTT HOFFMAN
LICENSED
11/4/16
25291
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		S HOFFMAN	T WHITE	P RAUSCH			S HOFFMAN

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FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

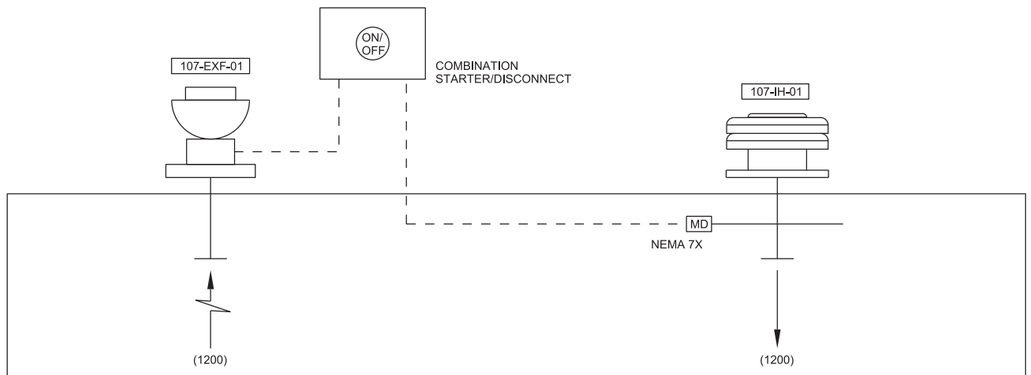
INFLUENT PUMP STATION VALVE VAULT
HVAC/PLUMBING SECTION

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	107-MP-3001
SHEET	173 of 314

BIDDING SET

FILENAME: 107-MP-3001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:02:30 PM



SEQUENCE OF OPERATION:

EXHAUST FAN 107-EXF-001 SHALL BE ACTIVATED BY UTILIZING A MANUAL ON/OFF SWITCH.

UPON SWITCHING THE MANUAL SWITCH TO THE ON POSITION THE MOTORIZED DAMPER FOR 107-IH-01 SHALL BE OPENED AND 107-EXF-001 SHALL BE POWERED ON.

WHEN THE MANUAL SWITCH IS IN THE OFF POSITION THE MOTORIZED DAMPER SHALL CLOSE AND THE EXHAUST FAN SHALL POWER OFF.

AIRFLOW SCHEMATIC

NTS

SCOTT HOFFMAN
LICENSED
11/4/16
25291
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		S HOFFMAN	T WHITE	P RAUSCH			S HOFFMAN

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DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

INFLUENT PUMP STATION VALVE VAULT
HVAC/PLUMBING
AIRFLOW SCHEMATIC

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

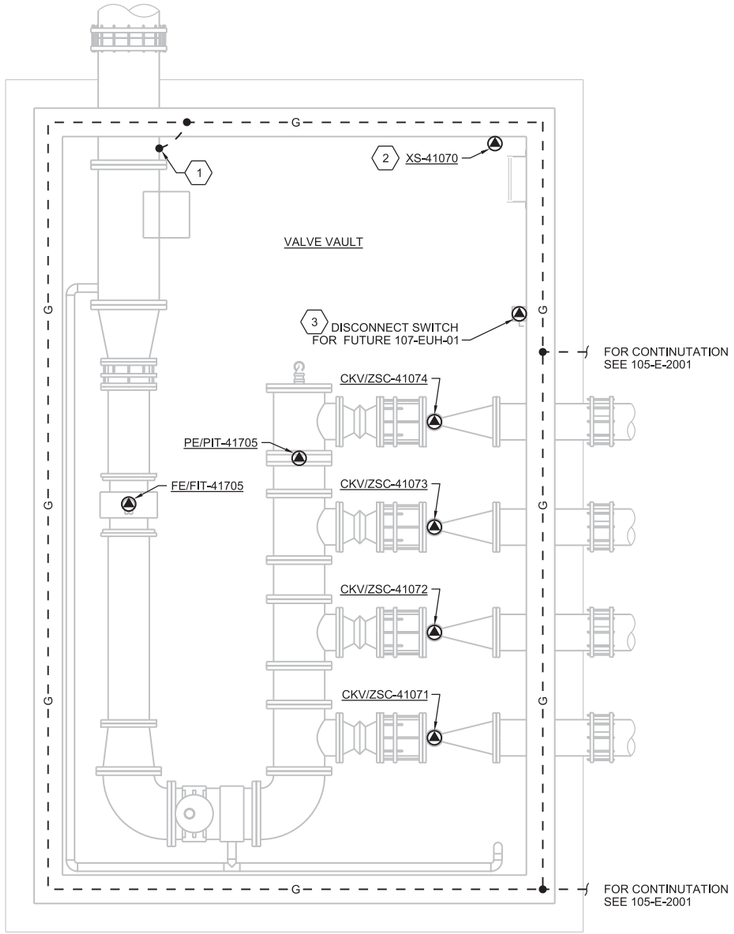
DATE	NOVEMBER 2016
PROJ	496312
DWG	107-MP-6001
SHEET	174 of 314

BIDDING SET

FILENAME: 107-MP-6001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:02:23 PM

SHEET KEYNOTES

1. PROVIDE 2/0 AWG BONDING CONDUCTOR TO MAIN GROUND CONDUCTOR, WHICH IS EMBEDDED IN THE FOUNDATION FOOTER.
2. MOUNT MAN-DOWN SWITCH AT 3FT ABOVE FINISHED FLOOR.
3. PROVIDE DISCONNECT SWITCH FOR FUTURE UNIT HEATER 107-EUH-01(BY OTHERS).



N

LOWER PLAN

3/8"=1'-0"

MARY J. GROSS LICENSED 16702 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	REVISION	CHK	APVD	BY	APVD
		J LANDMAN	A CUGLIAT		M GROSS	M GROSS	M GROSS	

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

INFLUENT PUMP STATION VALVE VAULT
ELECTRICAL
LOWER PLAN

BIDDING SET

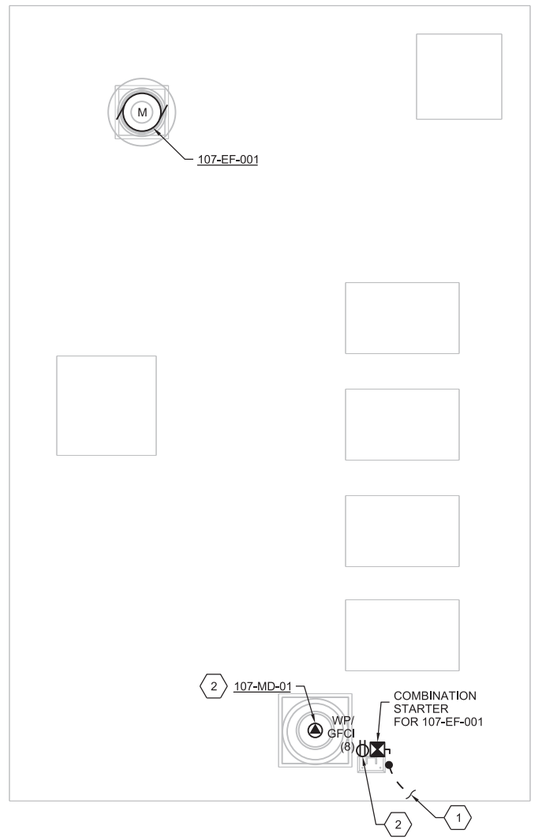
VERIFY SCALE
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0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	107-E-2001
SHEET	175 of 314

FILENAME: 107-E-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 1:50:56 PM

SHEET KEYNOTES

1. PROVIDE 2/0 AWG BONDING CONDUCTOR TO MAIN GROUND CONDUCTOR, WHICH IS EMBEDDED IN THE FOUNDATION FOOTER. SEE 107-E-2001 FOR CONTINUATION.
2. 120V CIRCUITS AT THE INFLUENT PUMP STATION AND VALVE VAULT ARE FED FROM PNLL-419003E AT FACILITY 110, SCREENINGS. REFER TO PANEL SCHEDULES FOR CIRCUITING INFORMATION.



N

UPPER PLAN

3/8"=1'-0"

MARY J. GROSS
LICENSED
16702
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	REVISION	BY	APVD
		J LANDMAN	A CUGLIAT	M GROSS	M GROSS		M GROSS	

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

INFLUENT PUMP STATION VALVE VAULT
ELECTRICAL
UPPER PLAN

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

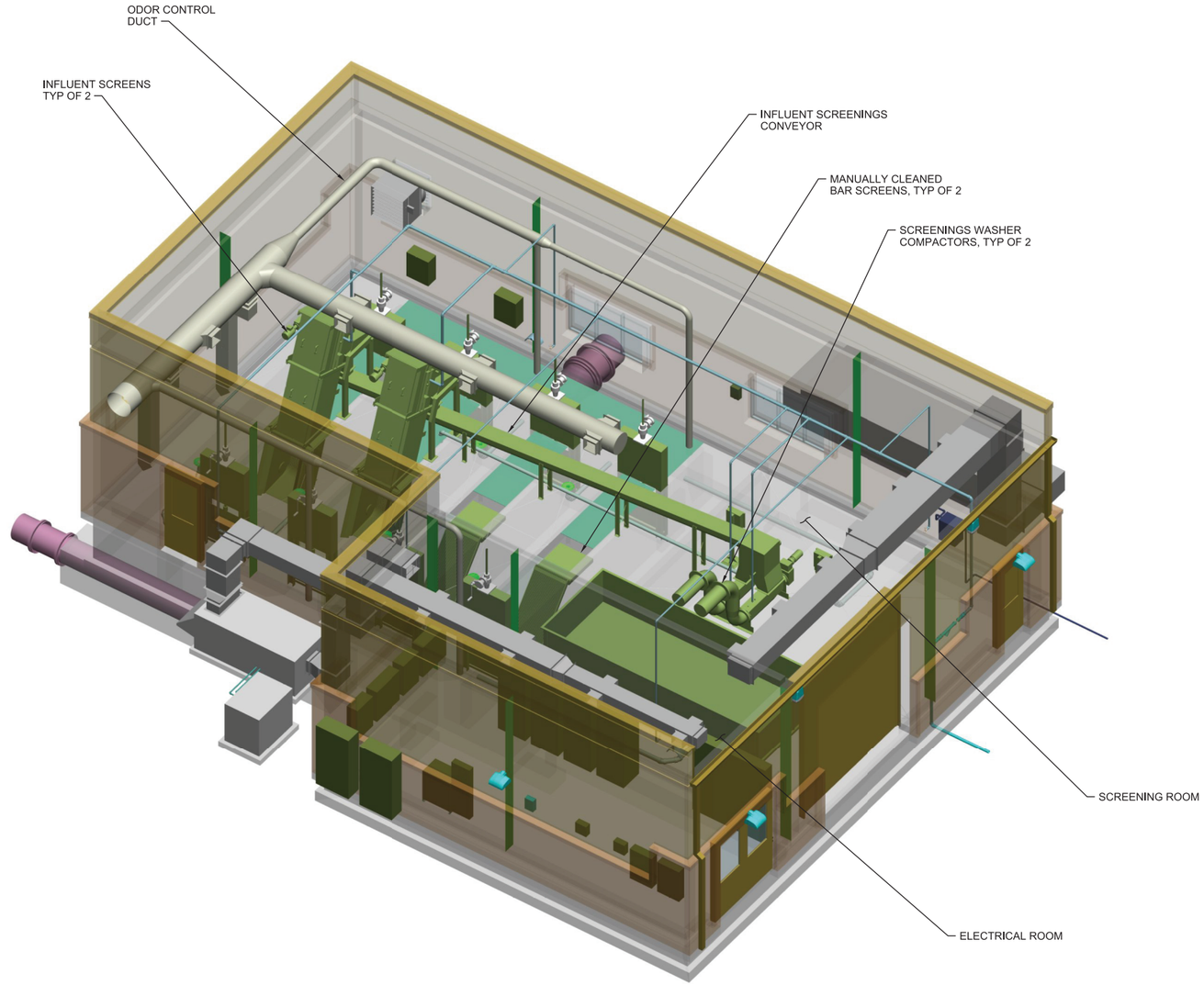
DATE	NOVEMBER 2016
PROJ	496312
DWG	107-E-2002
SHEET	176 of 314

BIDDING SET

FILENAME: 107-E-2002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 1:50:46 PM

GENERAL NOTES

1. ROOF NOT SHOWN FOR CLARITY.



RENDERING
NTS

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		J RYSAVY	J RYSAVY	F JAGLA	J RYSAVY		E JOHNSON

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CITY OF WICHITA, KANSAS

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SCREENING FACILITY

RENDERING

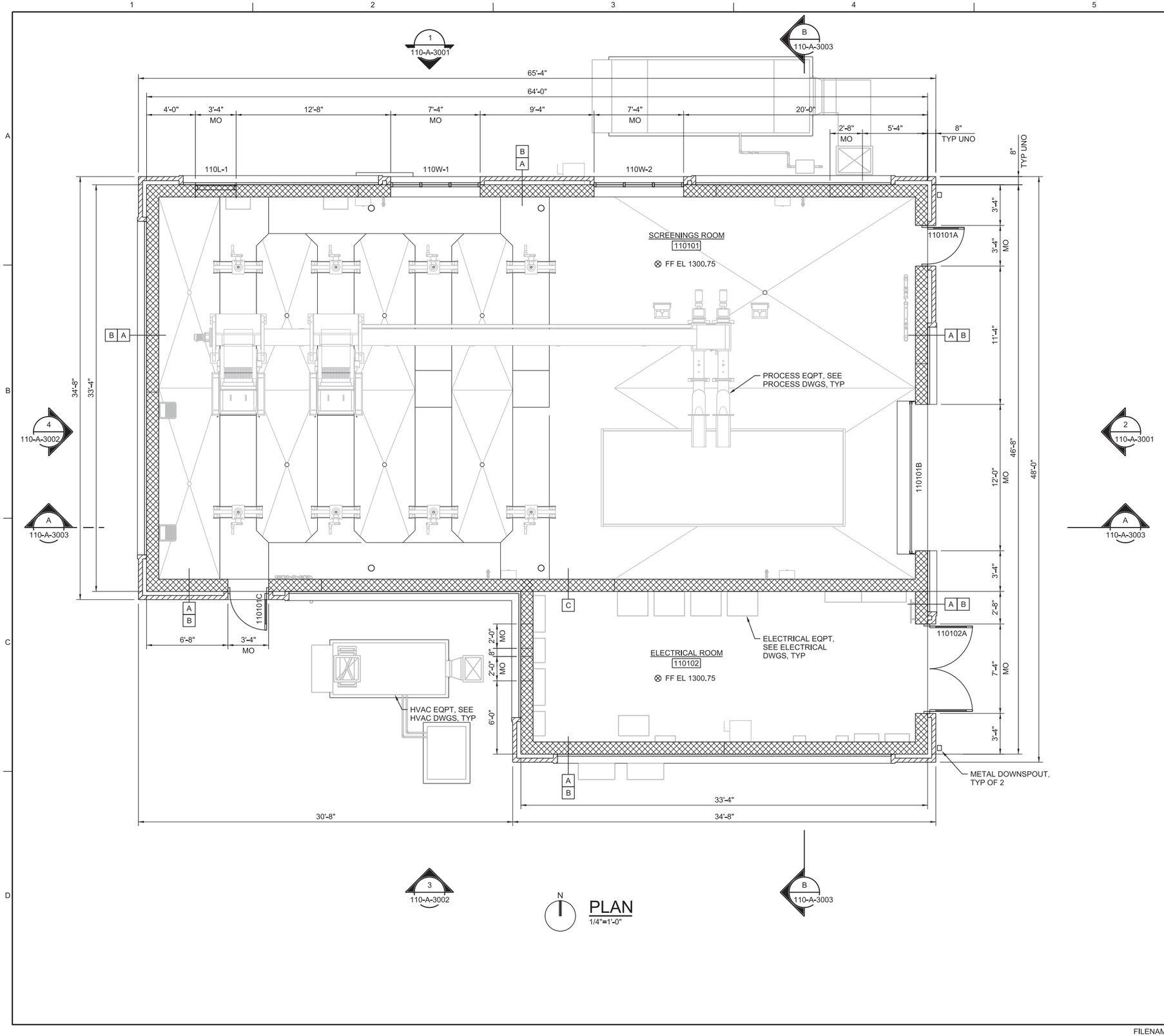
VERIFY SCALE

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0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	110-G-2000
SHEET	177 of 314

BIDDING SET

FILENAME: 110-G-2000_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:03:19 PM



MICHAEL C SAPP
LICENSED
11/7/16
6650
KANSAS
ARCHITECT

11/04/2016

NO.	DATE	DR	REVISION	CHK	APVD	BY	APVD
DSGN	M SAPP	S BARD		S SILKWORTH		M SAPP	

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

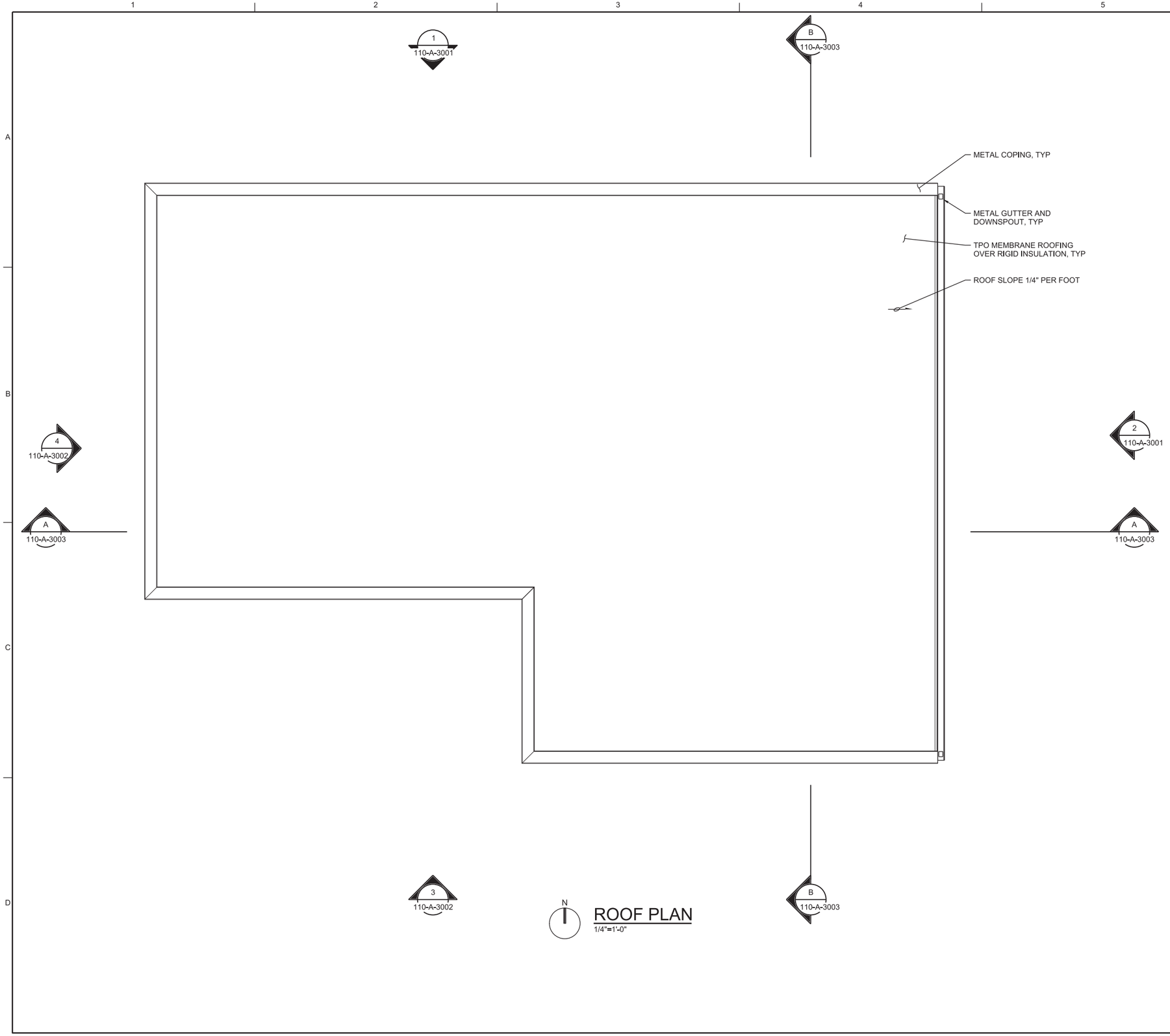
SCREENING FACILITY
ARCHITECTURAL
GROUND LEVEL FLOOR PLAN

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	110-A-2001
SHEET	178 of 314

BIDDING SET

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ROOF PLAN

1/4"=1'-0"

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11/7/16
6650
KANSAS
ARCHITECT

11/04/2016

NO.	DATE	DR	REVISION	CHK	BY	APVD
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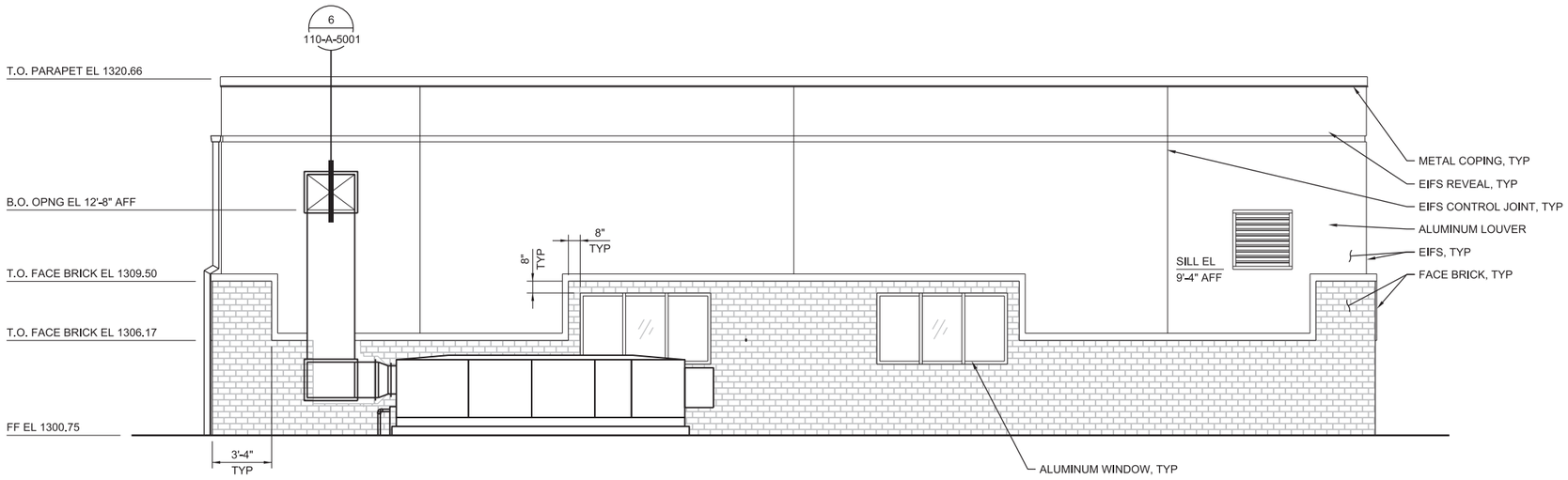
SCREENING FACILITY
ARCHITECTURAL
ROOF PLAN

VERIFY SCALE

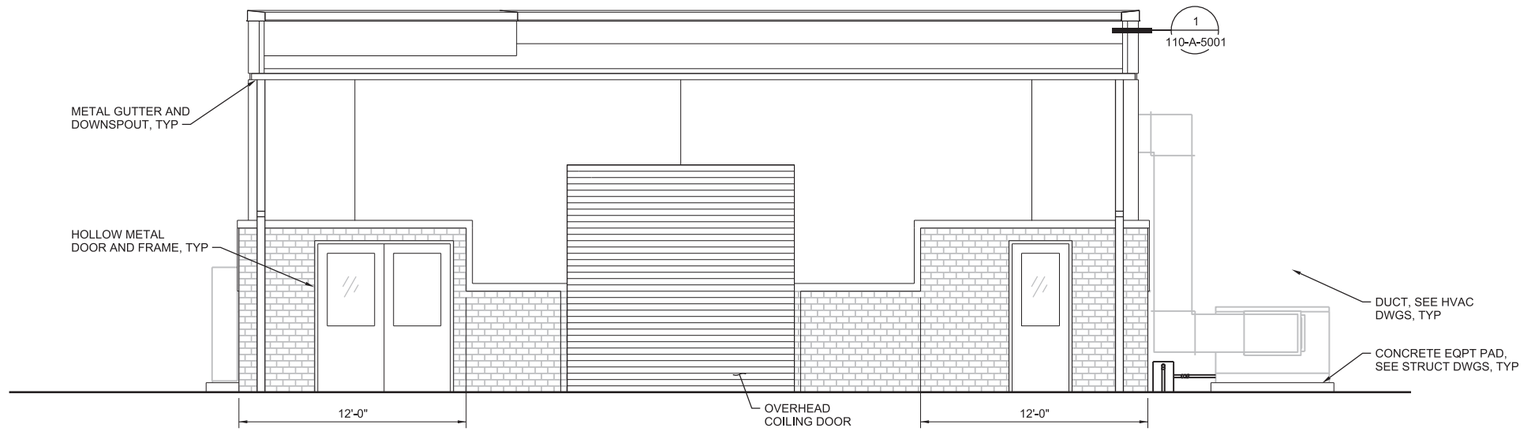
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	110-A-2002
SHEET	179 of 314

BIDDING SET



1 NORTH ELEVATION
1/4"=1'-0"
110-A-2001



2 EAST ELEVATION
1/4"=1'-0"
110-A-2001

MICHAEL C SAPP
LICENSED
11/7/16
6650
KANSAS
ARCHITECT

11/04/2016

NO.	DATE	DR	REVISION	CHK	APVD	BY	APVD
DSGN	M SAPP	S BARD		S SILKWORTH	APVD	M SAPP	

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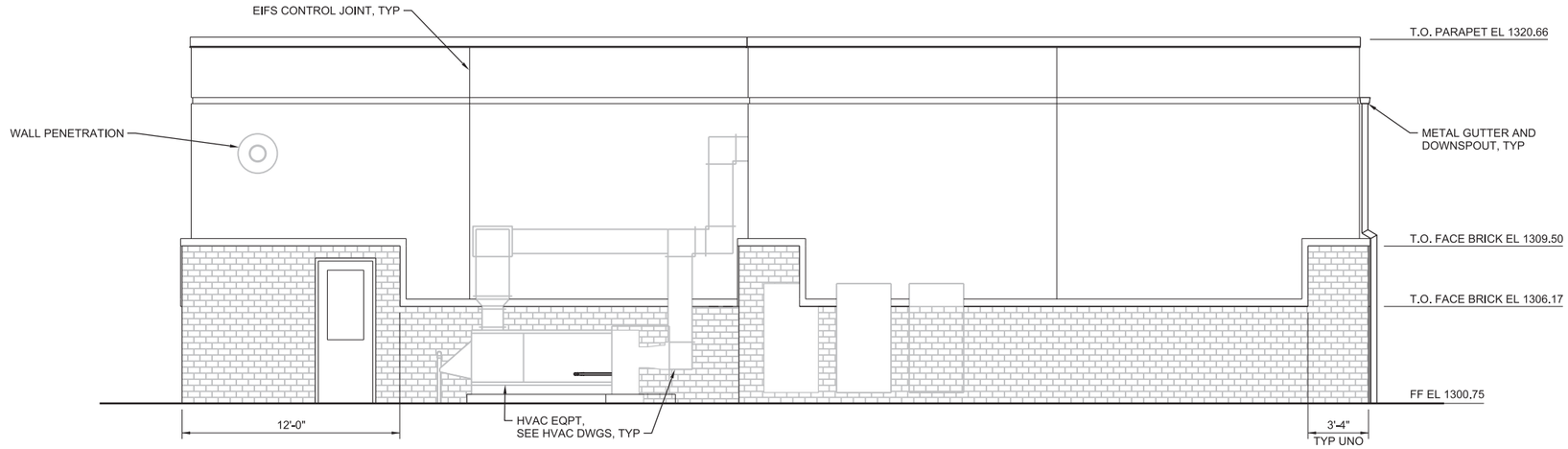
SCREENING FACILITY
ARCHITECTURAL ELEVATIONS

BIDDING SET

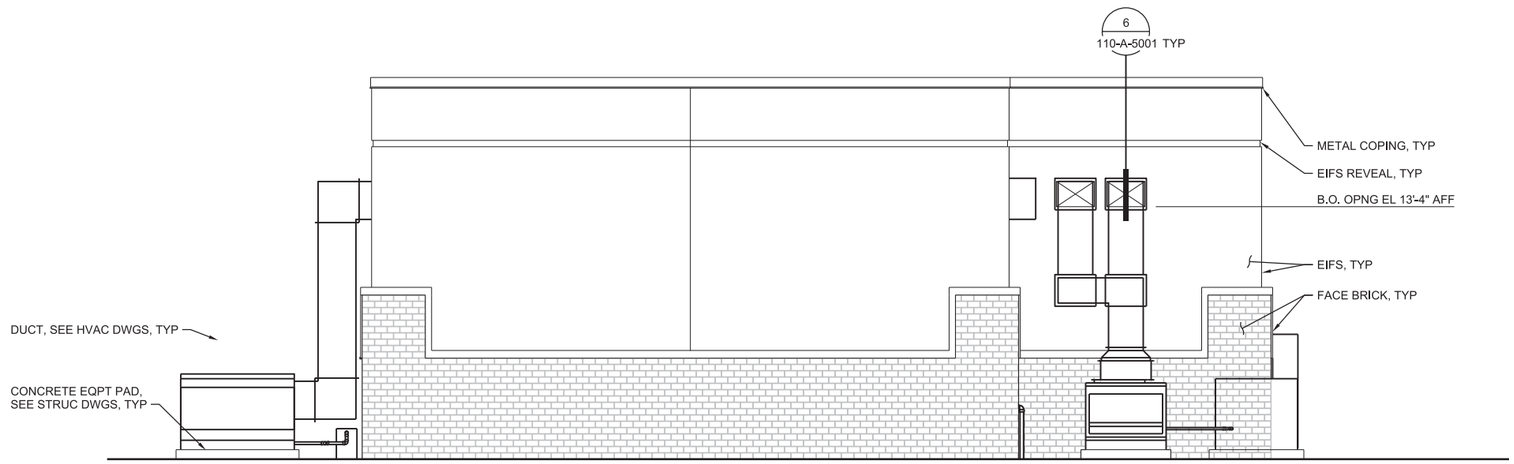
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	110-A-3001
SHEET	180 of 314

FILENAME: 110-A-3001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:01:59 PM



3 SOUTH ELEVATION
1/4"=1'-0"
110-A-2001



4 WEST ELEVATION
1/4"=1'-0"
110-A-2001

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11/7/16
6650
KANSAS
ARCHITECT

11/04/2016

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CITY OF WICHITA, KANSAS

ch2m

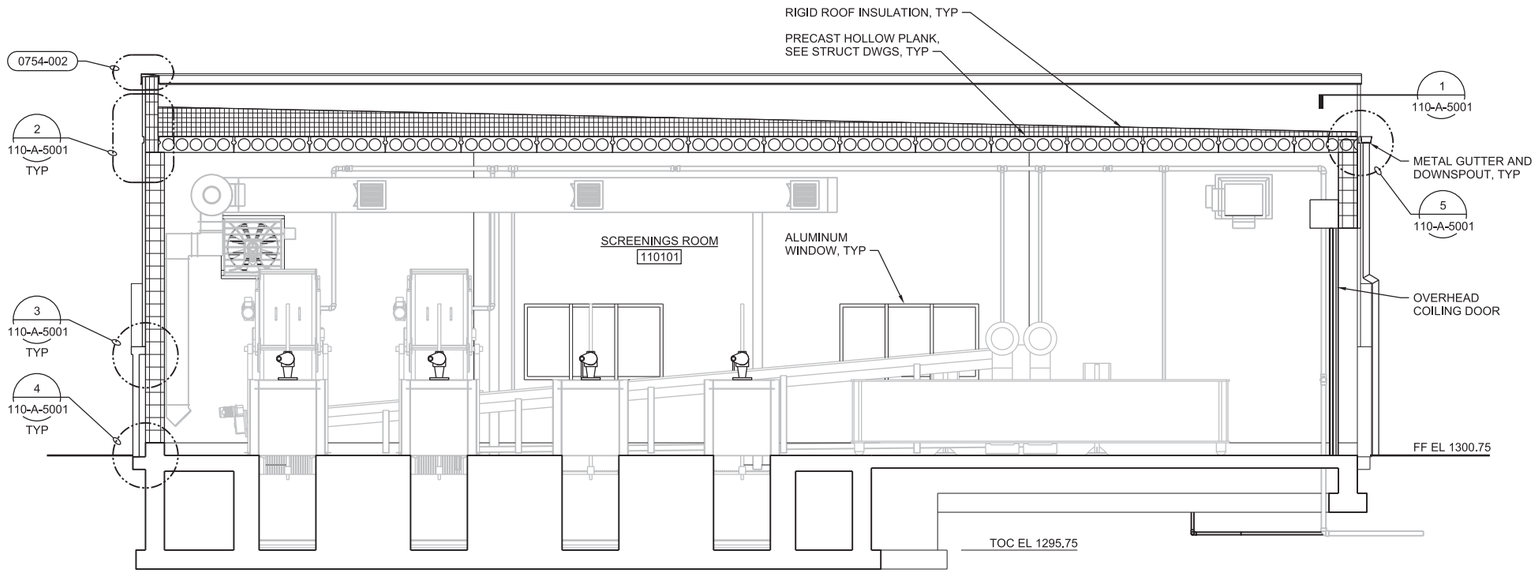
SCREENING FACILITY
ARCHITECTURAL ELEVATIONS

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

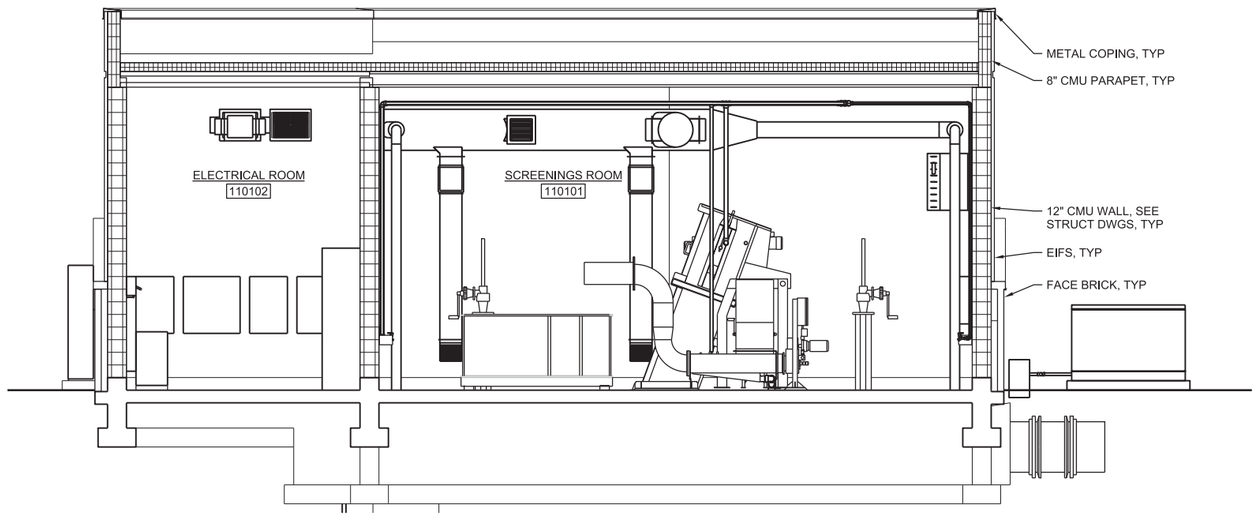
DATE	NOVEMBER 2016
PROJ	496312
DWG	110-A-3002
SHEET	181 of 314

BIDDING SET

FILENAME: 110-A-3002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:01:55 PM



A SECTION
1/4"=1'-0"
110-A-2001
110-A-2002



B SECTION
1/4"=1'-0"
110-A-2001
110-A-2002

MICHAEL C SAPP
LICENSED
11/7/16
6650
KANSAS
ARCHITECT

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		M SAPP	S BARD	S SILKWORTH	APVD	M SAPP	

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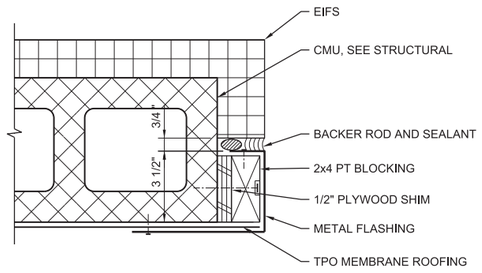
SCREENING FACILITY
ARCHITECTURAL SECTIONS

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

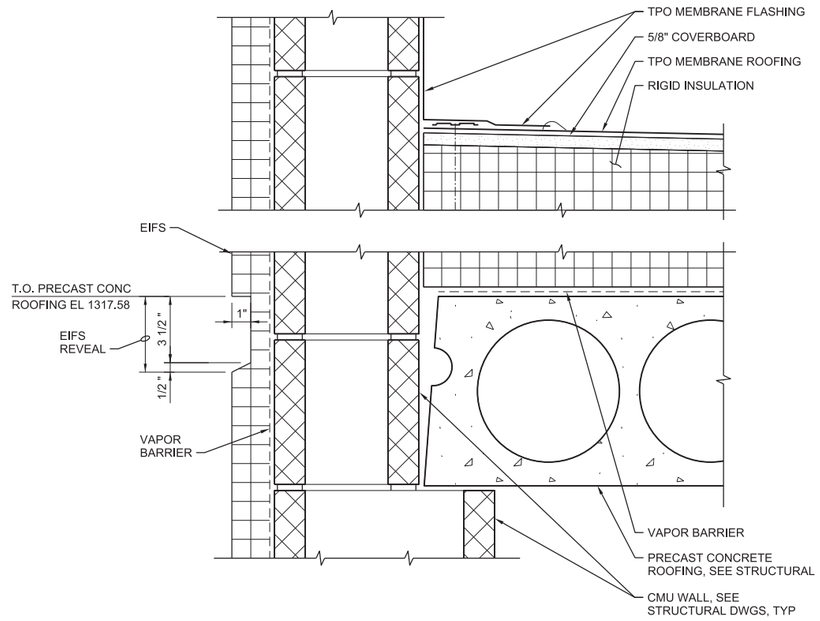
DATE	NOVEMBER 2016
PROJ	496312
DWG	110-A-3003
SHEET	182 of 314

BIDDING SET

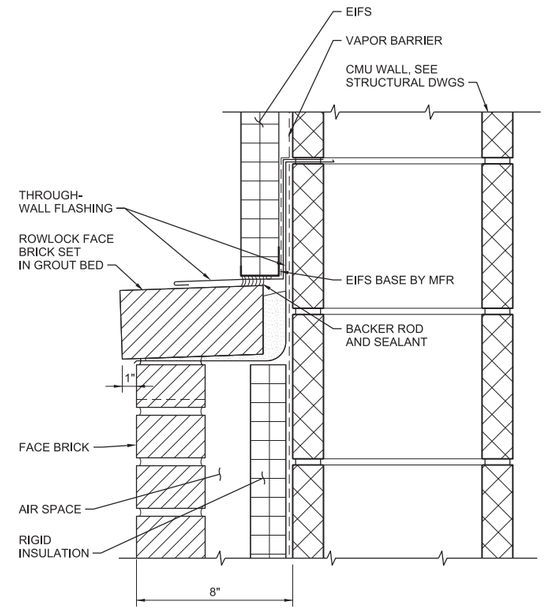
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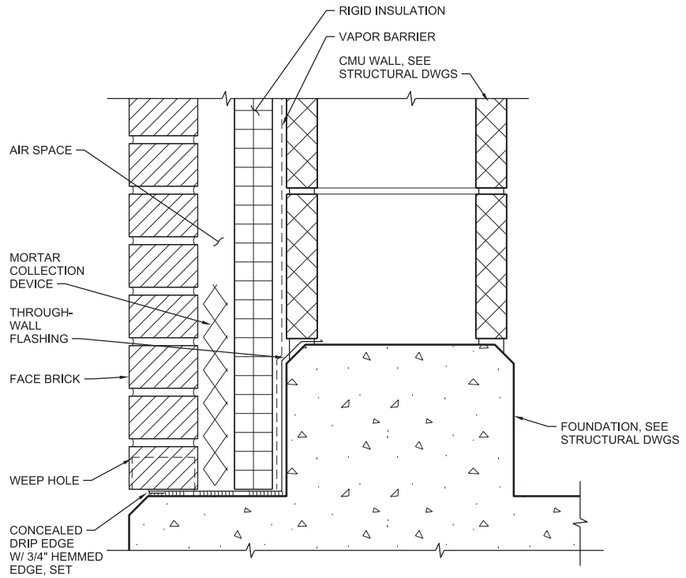
1 PARAPET PLAN
3"=1'-0"
110-A-3003



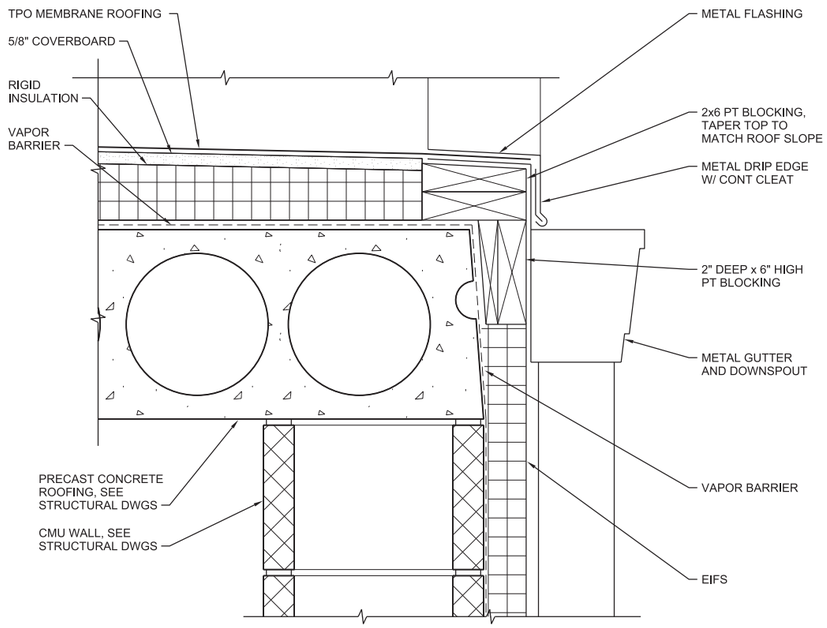
2 PARAPET BASE
3"=1'-0"
110-A-3003



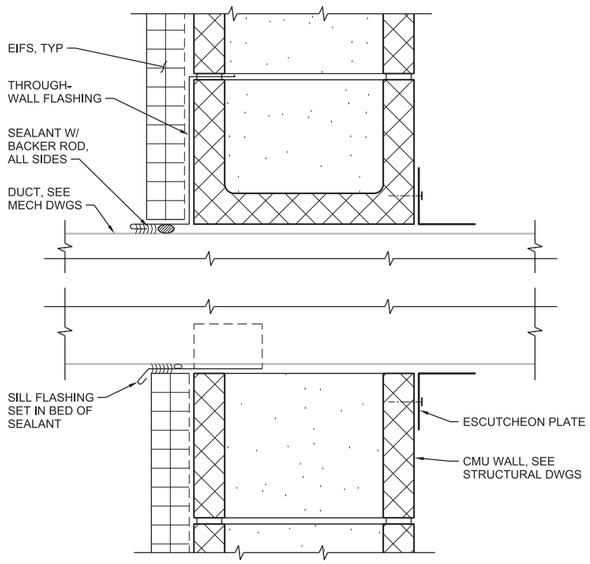
3 WALL TRANSITION
3"=1'-0"
110-A-3003



4 WALL BASE
3"=1'-0"
110-A-3003



5 ROOF EDGE / GUTTER
3"=1'-0"
110-A-3003



6 WALL PENETRATION
3"=1'-0"
110-A-3003

MICHAEL C SAPP
LICENSED
11/7/16
6650
KANSAS
ARCHITECT

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		M SAPP	S BARD	S SILKWORTH	APVD	M SAPP	

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CITY OF WICHITA, KANSAS

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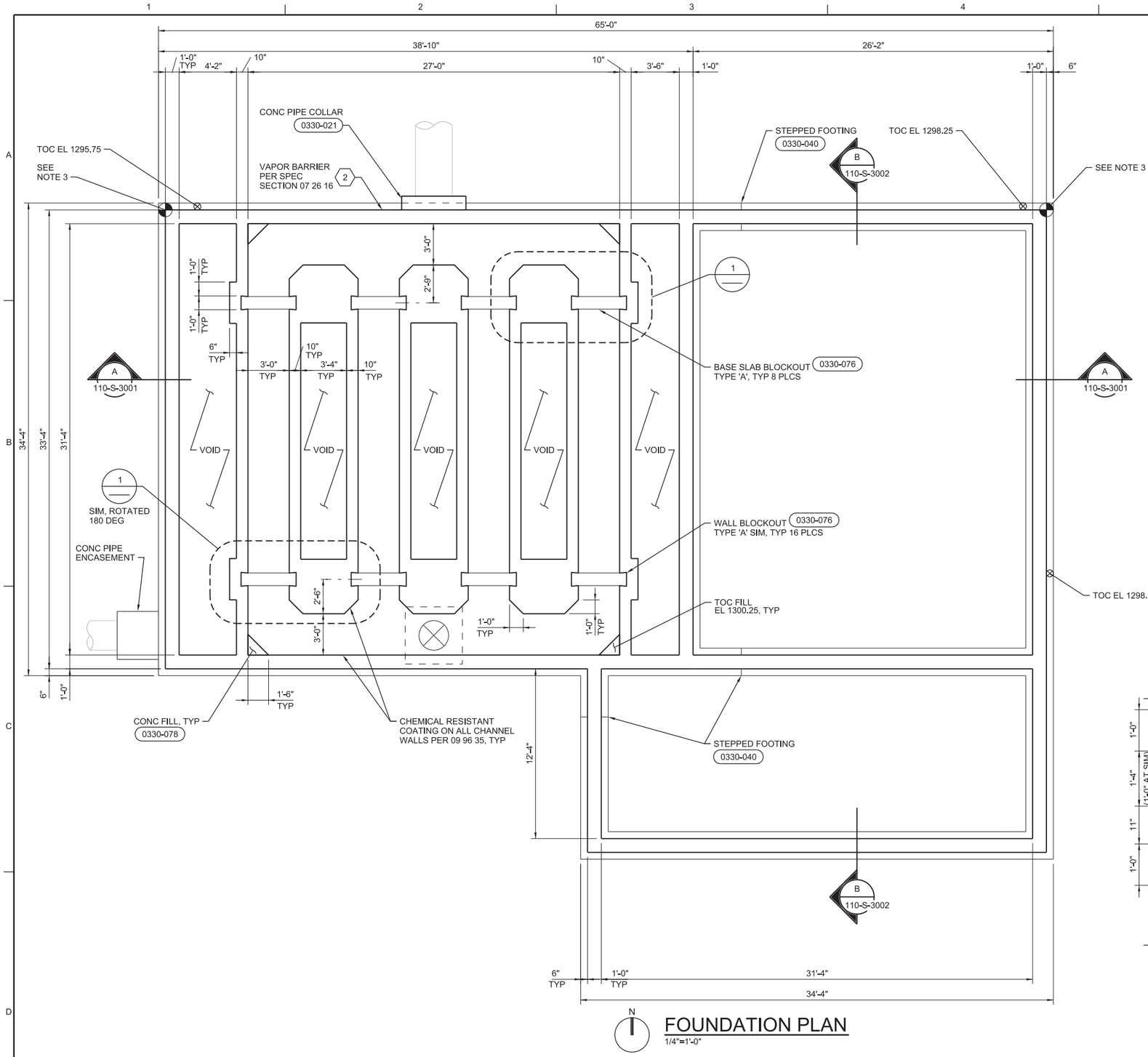
SCREENING FACILITY
ARCHITECTURAL
DETAILS

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	110-A-5001
SHEET	183 of 314

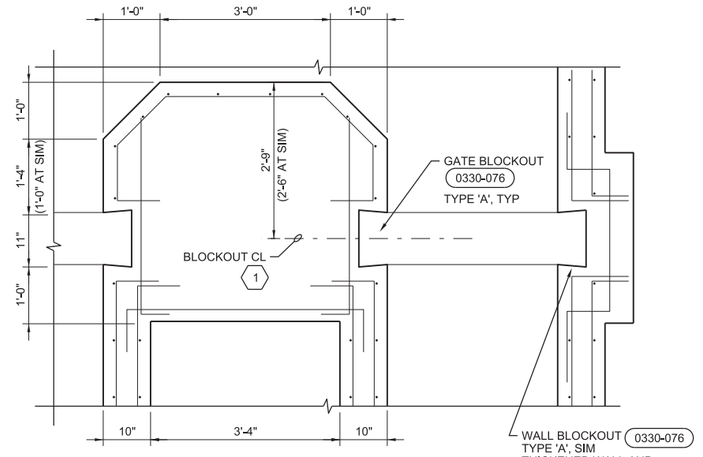
BIDDING SET

FILENAME: 110-A-5001_496312.dgn
PLOT DATE: 11/2/2016
PLOT TIME: 12:02:03 PM



FOUNDATION PLAN

1/4"=1'-0"



1 DETAIL

3/4"=1'-0"

GENERAL NOTES

1. FOR DESIGN CRITERIA AND GENERAL STRUCTURAL NOTES, SEE DRAWINGS 001-G-0300 AND 001-G-0301.
2. FOR SPECIAL INSPECTION AND TESTING REQUIREMENTS, SEE DRAWINGS 001-G-0302 THROUGH 001-G-0305 .
3. FOR FACILITY SITE COORDINATES SEE CIVIL DRAWINGS.
4. ADDITIONAL DESIGN CRITERIA SPECIFIC TO THIS FACILITY:
   a. SEISMIC DESIGN DATA
      BASIC SEISMIC-FORCE RESISTING SYSTEM: ORDINARY REINFORCED MASONRY SHEAR WALLS
      RESPONSE MODIFICATION FACTOR, R = 2
      SEISMIC RESPONSE COEFFICIENT, Cs = 0.093
      DESIGN SEISMIC SHEAR (SERVICE LEVEL), V = 69.15 KIPS
      ANALYSIS PROCEDURE USED: EQUIVALENT LATERAL FORCE
   b. DESIGN GROUND WATER ELEVATION = 1288.0 FT
   c. CHANNELS LIQUID TIGHTNESS TESTING ELEVATION = 1300.75 FT
5. REINFORCED CONCRETE NOTES
   a. COORDINATE SIZE AND LOCATION OF ALL OPENINGS WITH OTHER DISCPLINES. FOR TYPICAL CONCRETE WALL OR SLAB OPENING REINFORCING SEE 0330-001 .
   b. FOR TYPICAL CONCRETE WALL CORNER AND INTERSECTION REINFORCING SEE 0330-003 .
   c. UNLESS OTHERWISE NOTED ALL PIPING BELOW A FACILITY SHALL BE ENCASED PER STANDARD DETAILS 0330-016 , 0330-017 , AND 0330-018 .
   d. EQUIPMENT PAD SIZES AND LOCATIONS SHALL BE COORDINATED WITH THE EQUIPMENT MANUFACTURER'S SHOP DRAWINGS.

SHEET KEYNOTES

1. COORDINATE LOCATION OF GATE BLOCKOUTS WITH MANUFACTURER AND OTHER DISCIPLINE DRAWINGS.
2. INSTALL VAPOR BARRIER ON OUTSIDE FACE OF EXTERIOR WALLS WHERE COATING IS REQUIRED ON THE OPPOSITE FACE OF THE WALL.

HUGO ANDRES ROJAS LICENSED 11/04/16 24949 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
	H ROJAS		F JAGLA	M MERKLEIN	APVD	H ROJAS	

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CITY OF WICHITA, KANSAS

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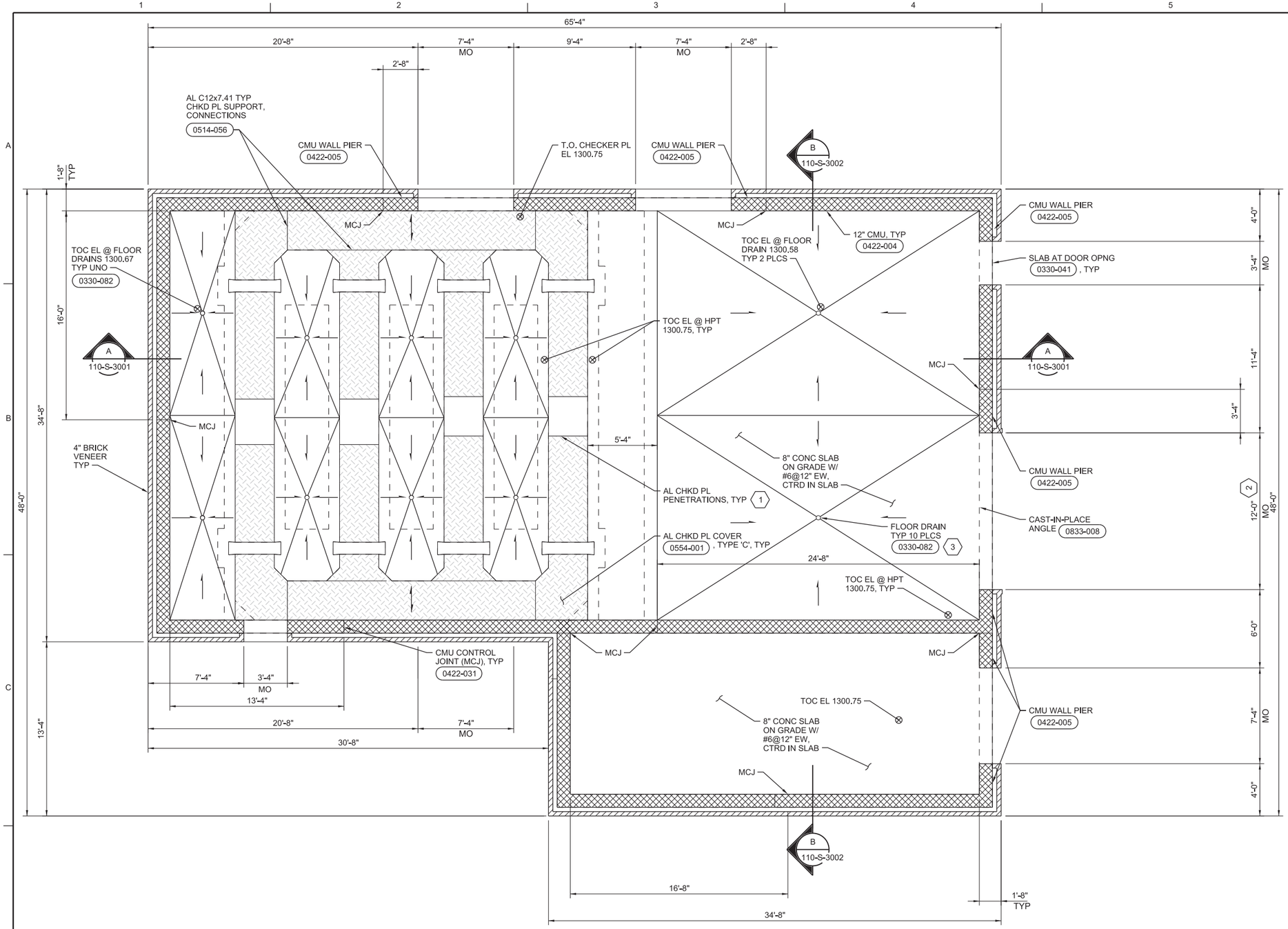
SCREENING FACILITY
STRUCTURAL FOUNDATION PLAN AND DETAIL

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	110-S-2001
SHEET	184 of 314

BIDDING SET

FILENAME: 110-S-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:03:38 PM



N

GROUND LEVEL PLAN

1/4"=1'-0"

GENERAL NOTES

1. ORDINARY REINFORCED MASONRY WALLS NOTES
   a. FOR TYPICAL CMU WALL CORNER REINFORCING SEE (0422-001).
   b. FOR TYPICAL CMU WALL REINFORCING PLACEMENT SEE (0422-004).
   c. FOR TYPICAL CMU WALL OPENING REINFORCING SEE (0422-003).
   d. ONLY GROUT CELL WITH REINFORCING OR AS INDICATED IN DETAILS.
   e. FOR WINDOWS, DOORS, LOUVERS, FLOOR DEPRESSIONS, AND DIMENSIONS NOT SHOWN SEE ARCHITECTURAL DRAWINGS.
   f. FOR VENEER CONTROL JOINTS SEE ARCHITECTURAL DRAWINGS.

SHEET KEYNOTES

1. COORDINATE LOCATION AND SIZE OF CHECKERED PLATE PENETRATIONS WITH EQUIPMENT AND GATE MANUFACTURERS, AND OTHER DISCIPLINE DRAWINGS.
2. CMU OPENING SIMILAR FOR 10'-0" OPENING PER (0422-003), 48" LINTEL DEPTH WITH 2#6
3. COORDINATE LOCATION OF FLOOR DRAINS WITH PLUMBING DRAWINGS.

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11/04/2016

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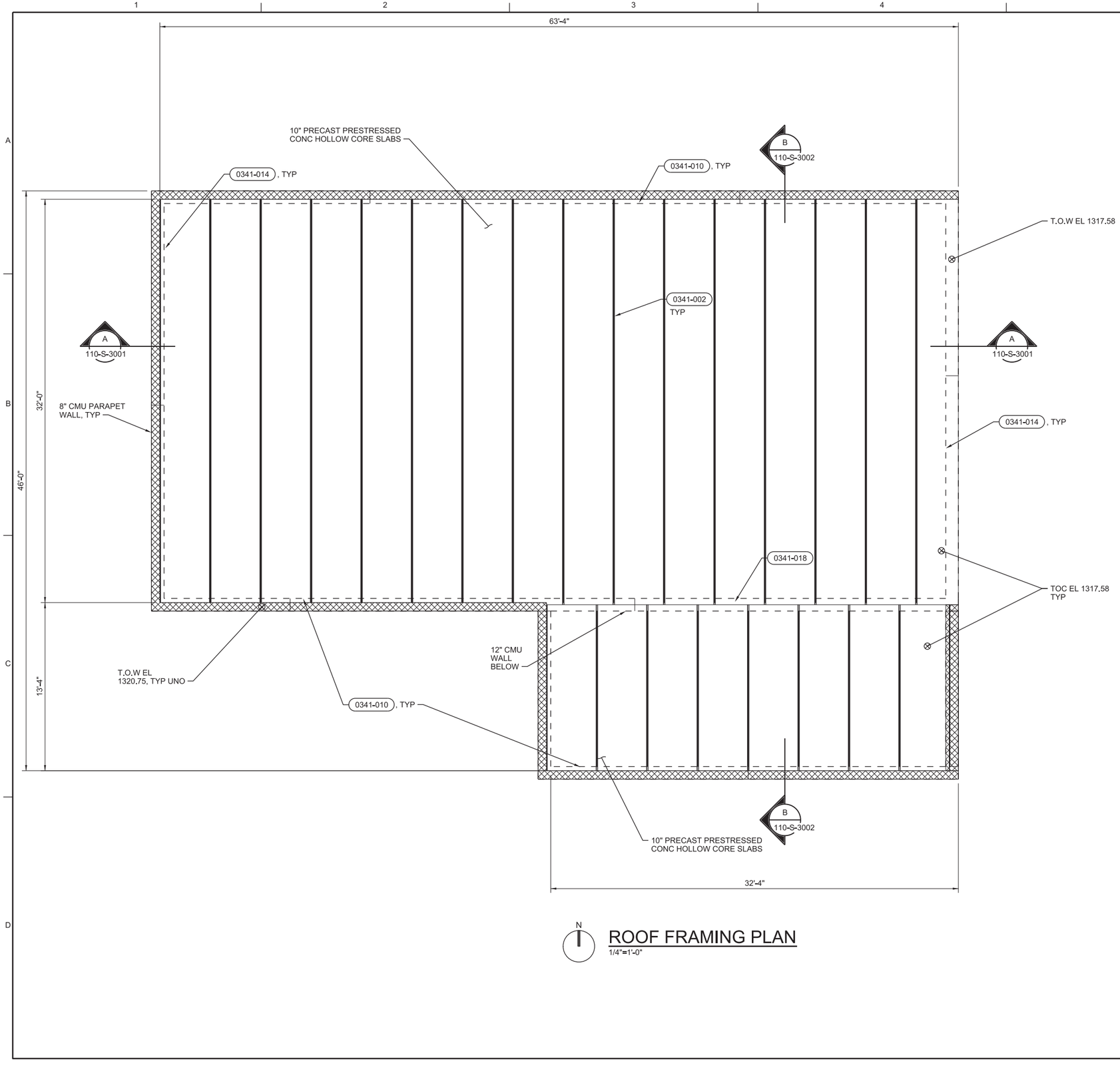
ch2m

SCREENING FACILITY
STRUCTURAL
GROUND LEVEL PLAN

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	110-S-2002
SHEET	185 of 314

BIDDING SET

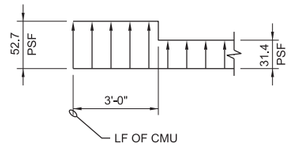


ROOF FRAMING PLAN

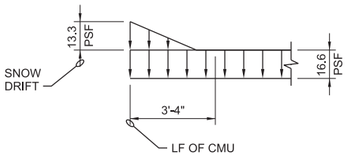
1/4"=1'-0"

GENERAL NOTES

1. PRECAST PRESTRESSED CONCRETE HOLLOW-CORE SLABS
   a. PRECAST PRESTRESSED CONCRETE HOLLOW-CORE SLABS SHALL BE DESIGNED BY PRECAST MANUFACTURER. FOR DESIGN CRITERIA, SEE DRAWINGS 001-G-0300 AND 001-G-0301, AND SPECIFICATION SECTION 03 40 00 PRECAST CONCRETE.
   b. COORDINATE ROOF PENETRATIONS WITH OTHER DISCIPLINE DRAWINGS AND PRECAST MANUFACTURER.
   c. COORDINATE LOCATION AND LOADS FOR PIPE SUPPORTS AND EQUIPMENT WITH PRECAST MANUFACTURER.
   d. MINIMUM SHEAR CAPACITY = 631 PLF
   e. WIND DRIFT DIAGRAM



   f. SNOW DRIFT DIAGRAM



HUGO ANDRES ROJAS
LICENSED
11/04/16
24949
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
	H ROJAS		F JAGLA	M MERKLEIN	APVD	H ROJAS	

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CITY OF WICHITA, KANSAS

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SCREENING FACILITY
STRUCTURAL
ROOF FRAMING PLAN

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

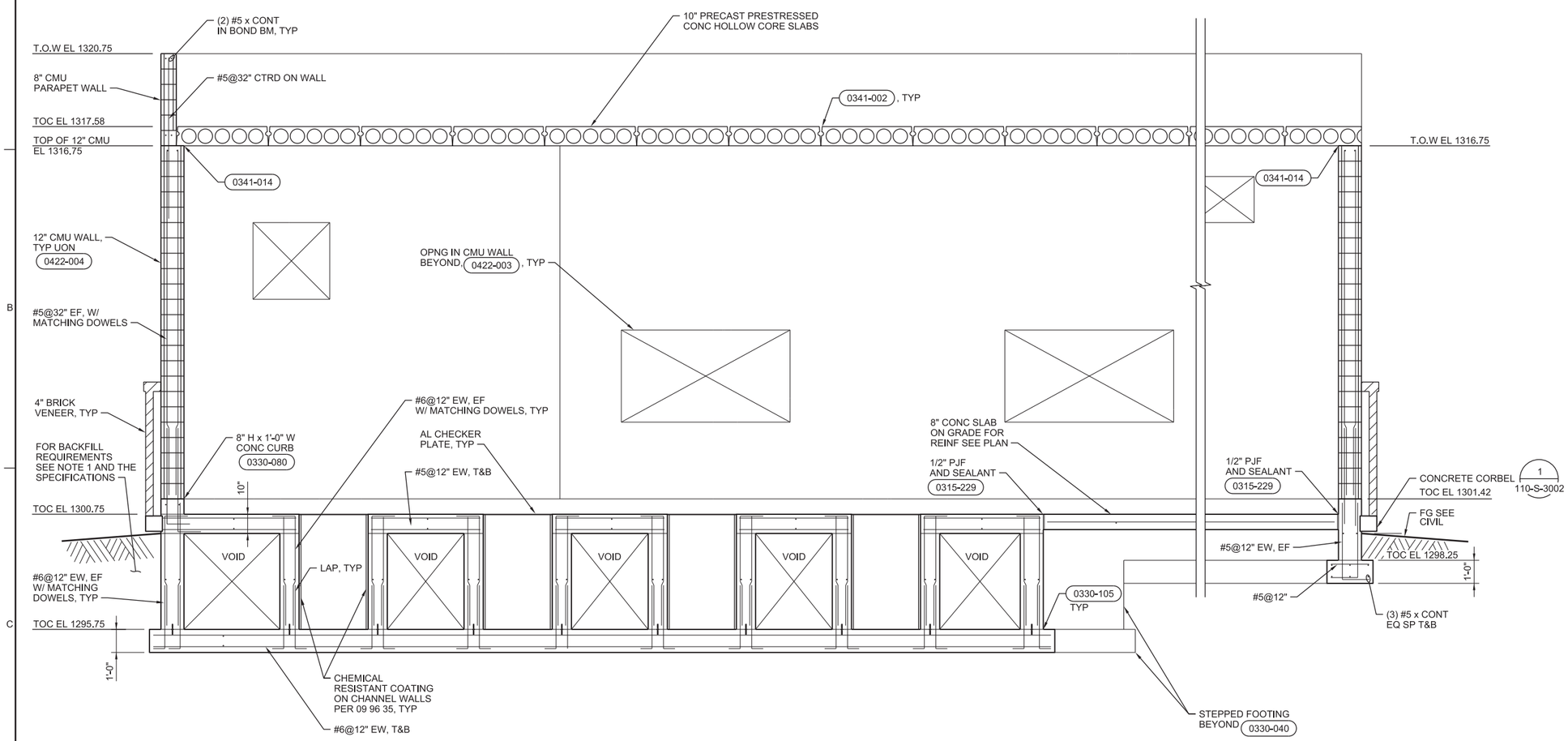
DATE	NOVEMBER 2016
PROJ	496312
DWG	110-S-2003
SHEET	186 of 314

BIDDING SET

FILENAME: 110-S-2003_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:04:25 PM

GENERAL NOTES

1. BACKFILL USING GRANULAR FILL IN ZONE FROM THE BASE OF THE STRUCTURE EXTENDING UPWARD AT AN ANGLE OF AT LEAST 45 DEGREES FROM VERTICAL TO A DEPTH OF 2 FEET BELOW TOP OF BACKFILL. BACKFILL UPPER 2 FEET WITHIN 10 FEET OF PERIMETER OF STRUCTURE USING COHESIVE SOIL TO PREVENT INFILTRATION OF SURFACE WATER



A SECTION
3/8"=1'-0"
110-S-2001
110-S-2002
110-S-2003

HUGO ANDRES ROJAS LICENSED 11/04/16 24949 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DESIGN	DATE	DR	REVISION	CHK	BY	APVD
	H ROJAS	H ROJAS	F JAGLA		M MERKLEIN	H ROJAS	APVD

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FOUR MILE CREEK WORF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

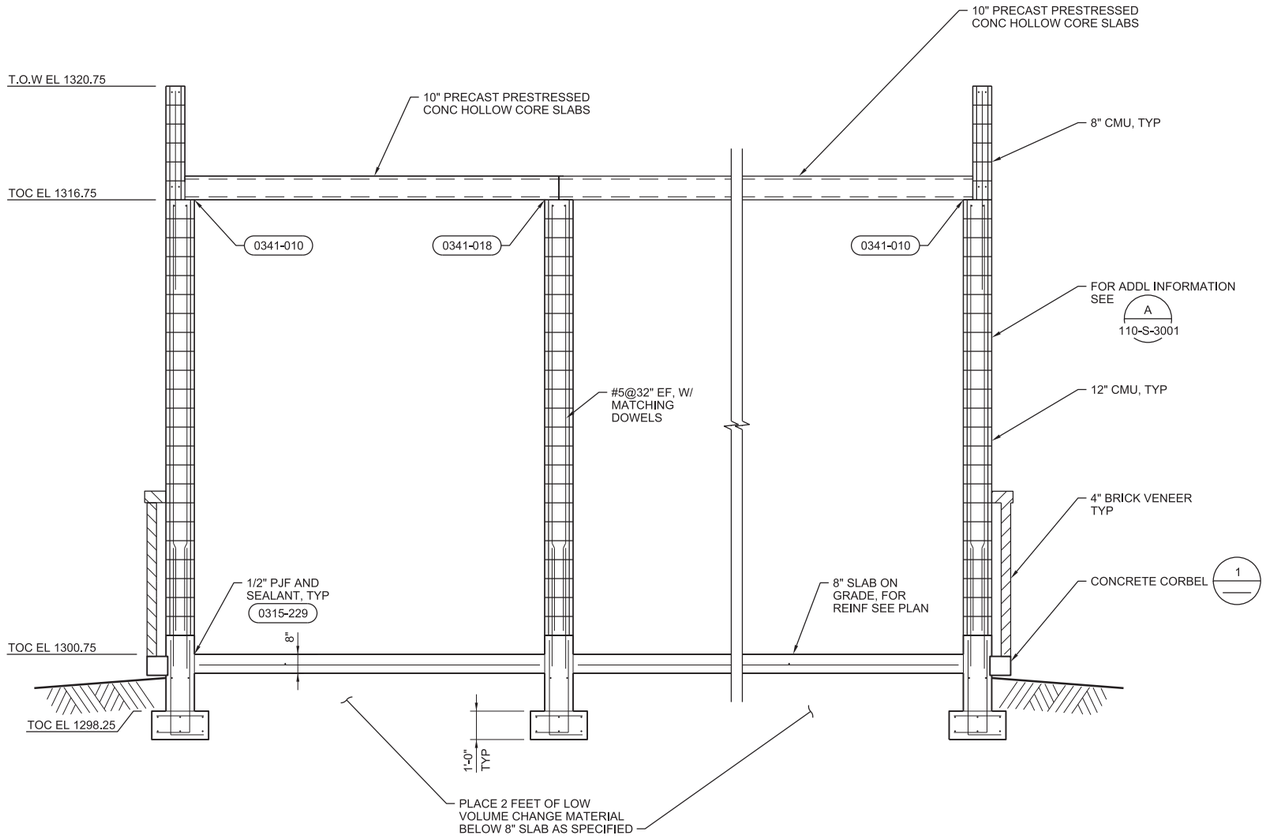
SCREENING FACILITY
STRUCTURAL SECTION

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

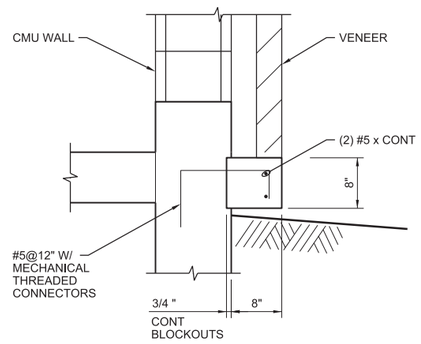
DATE	NOVEMBER 2016
PROJ	496312
DWG	110-S-3001
SHEET	187 of 314

BIDDING SET

FILENAME: 110-S-3001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:03:14 PM



B SECTION
3/8"=1'-0"
110-S-2001
110-S-2002
110-S-2003



1 CONCRETE CORBEL
1"=1'-0"
110-S-3001

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11/04/2016

NO.	DESIGN	DATE	DRAWN	REVISION	CHK	APVD	BY	APVD
		H ROJAS	H ROJAS	F JAGLA	M MERKLEIN	M MERKLEIN	H ROJAS	H ROJAS

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SCREENING FACILITY
STRUCTURAL
SECTION AND DETAIL

BIDDING SET

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	110-S-3002
SHEET	188 of 314

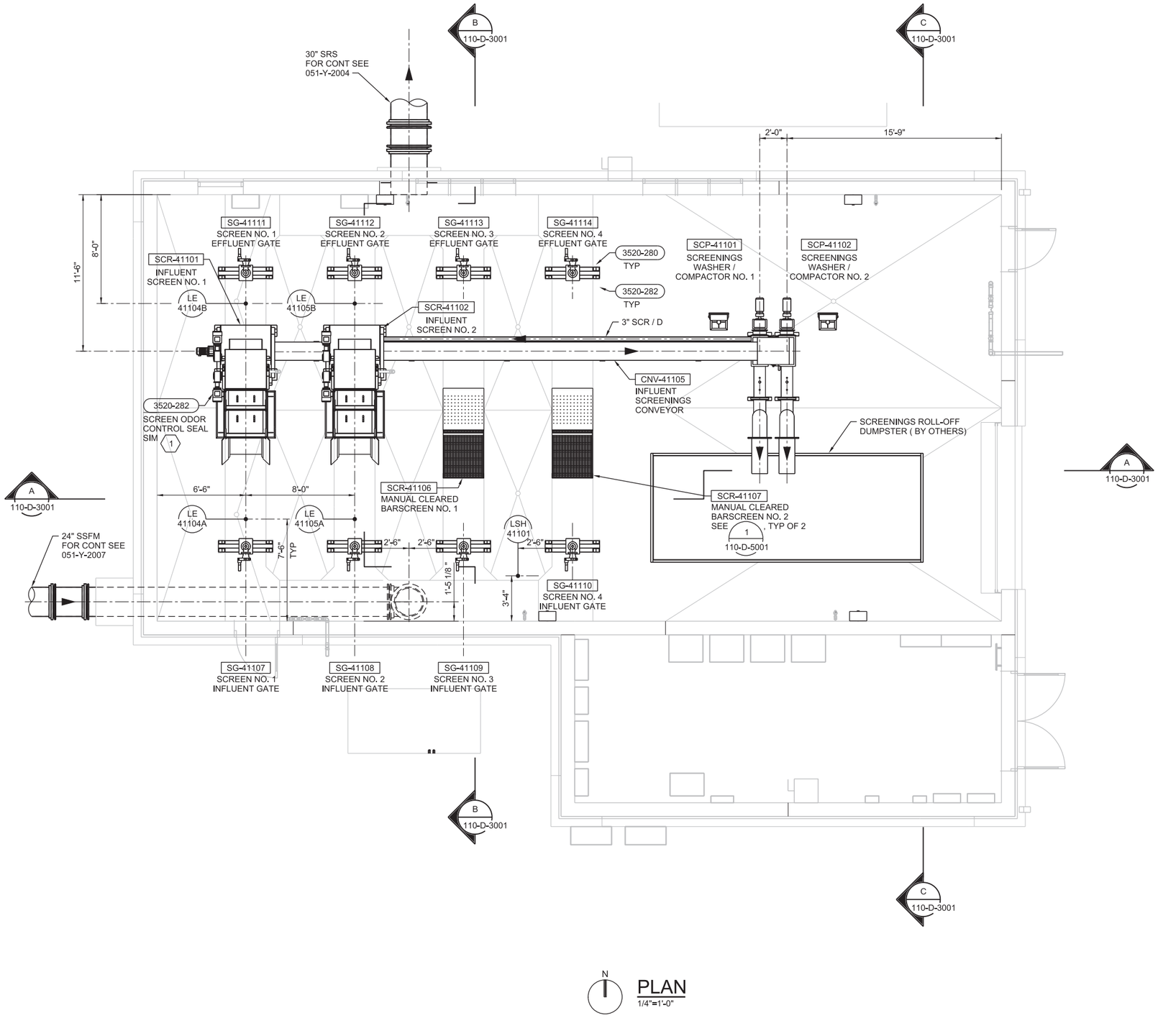
FILENAME: 110-S-3002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:02:55 PM

GENERAL NOTES

1. SEE 110-M-2001 FOR HVAC AND ODOROUS AIR SYSTEM IN THIS AREA.
2. SEE 110-P-2001 FOR NPW SUPPLY IN THIS AREA.

SHEET KEYNOTES

1. PROVIDE NEOPRENE SEAL AROUND ALL SIDES OF SCREEN HOUSING TO PREVENT ESCAPE OF ODOROUS AIR FROM CHANNEL.



11/04/2016

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FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

SCREENING FACILITY
PROCESS MECHANICAL
PLAN

VERIFY SCALE

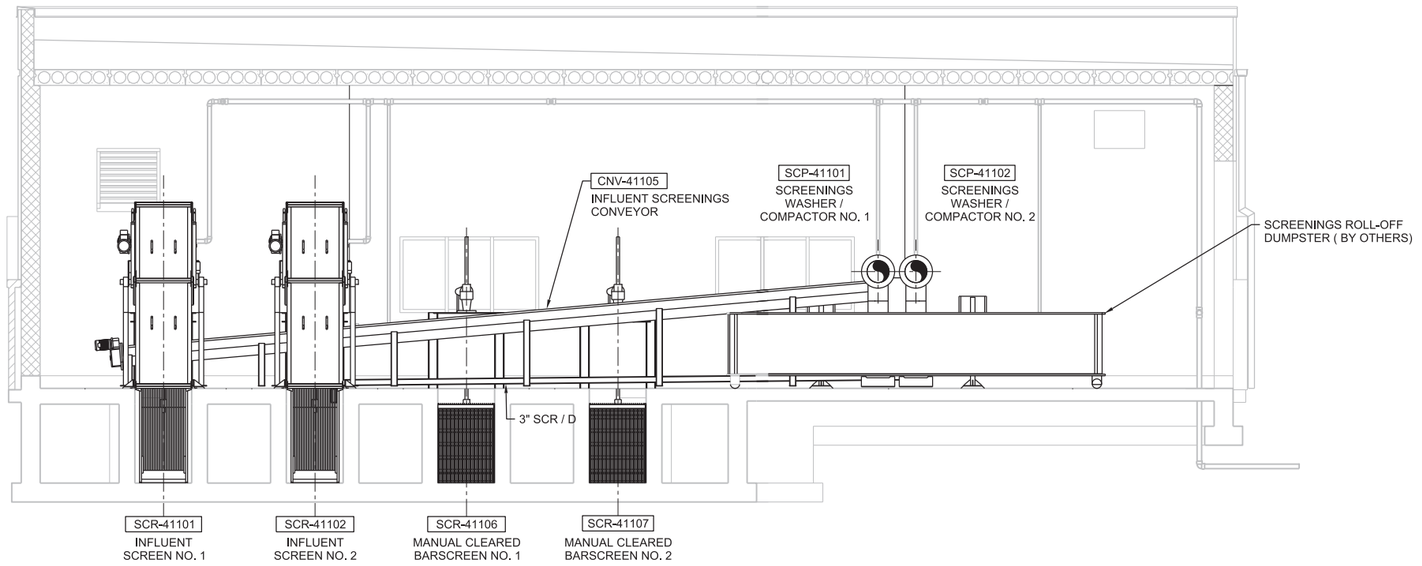
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	110-D-2001
SHEET	189 of 314

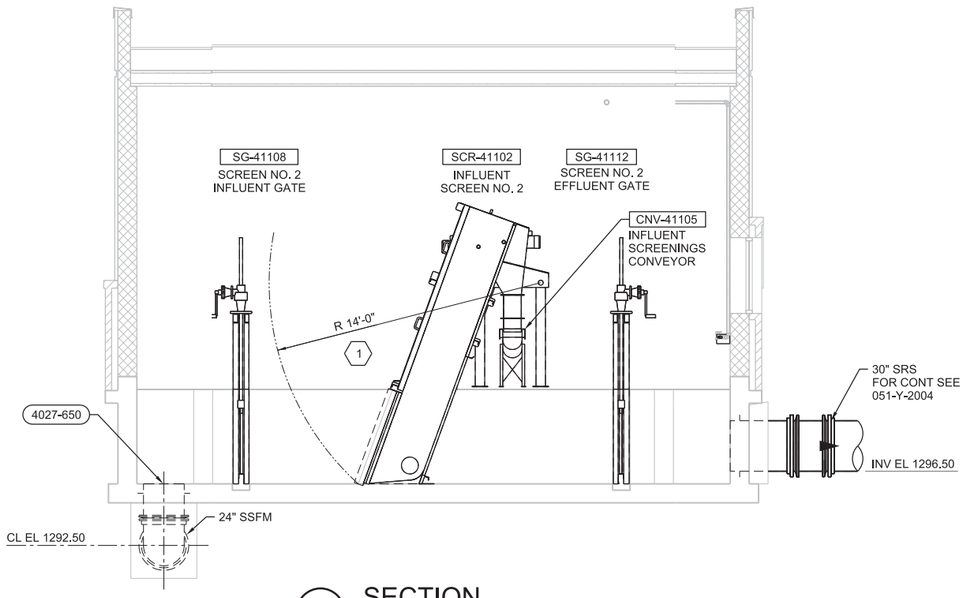
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SHEET KEYNOTES

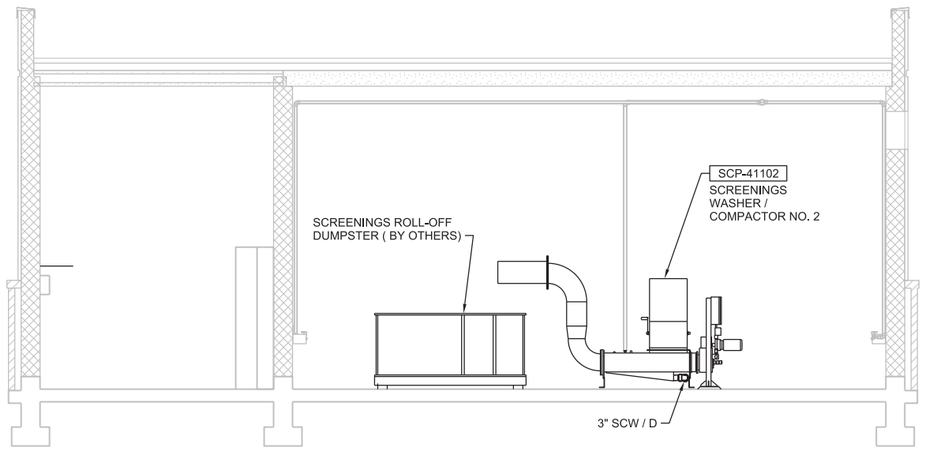
1. DIMENSIONS BASED ON FIRST NAMED MANUFACTURER IN SPECIFICATION 44 42 31. OTHER MANUFACTURERS ARE RESPONSIBLE FOR COORDINATING LAYOUT CHANGES AND INTERFACE CONNECTIONS TO OTHER WORK THAT IS DIFFERENT THAN SHOWN ON DRAWINGS.



A SECTION
1/4"=1'-0"
110-D-2001



B SECTION
1/4"=1'-0"
110-D-2001



C SECTION
1/4"=1'-0"
110-D-2001

RUSSELL JO JOHNSON
LICENSED
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DR	REVISION	CHK	APVD	BY	APVD
DSGN	J RYSAVY	D.CAVE		S POLSON		E.JOHNSON	

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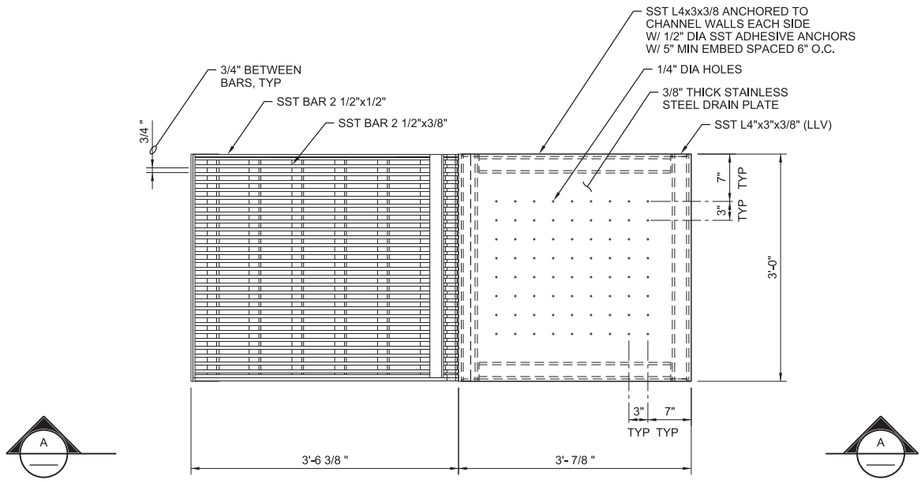
SCREENING FACILITY
PROCESS MECHANICAL SECTIONS

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

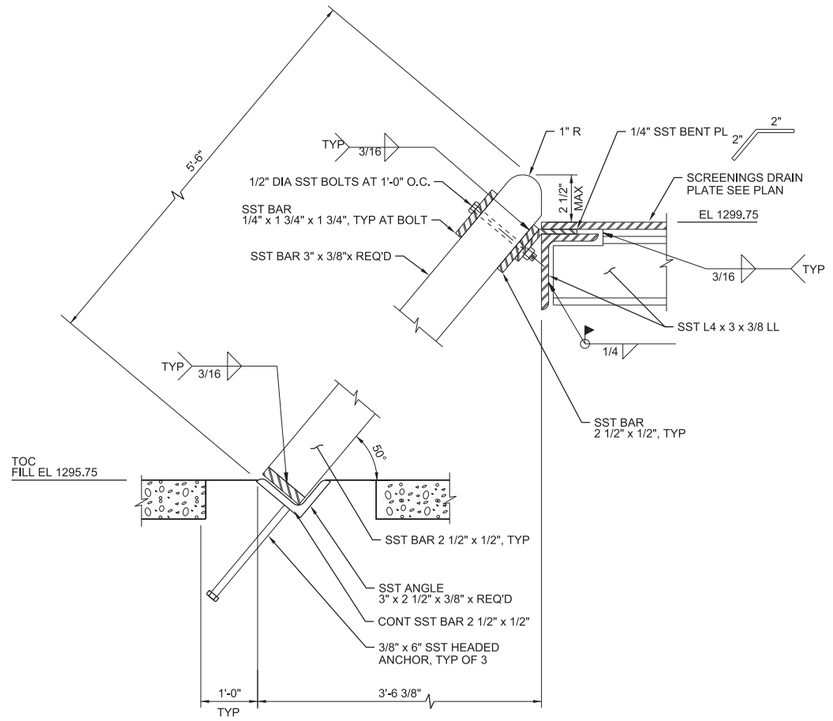
DATE	NOVEMBER 2016
PROJ	496312
DWG	110-D-3001
SHEET	190 of 314

BIDDING SET

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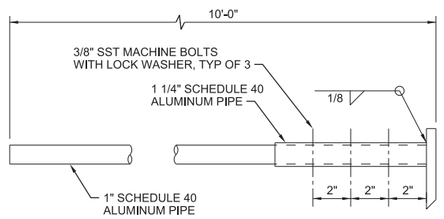


PLAN
1"=1'-0"

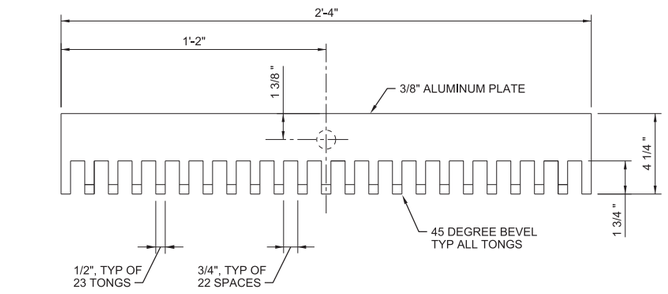


A SECTION
NTS

1 DETAIL
AS SHOWN
110-D-2001



SIDE VIEW



END VIEW

NOTES:
1. ONE RAKE REQUIRED

2 RAKE DETAIL
3"=1'-0"

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DR	CHK	APVD	BY	REVISION
DSGN	J RYSAVY	D CAVE	S POLSON	APVD	E JOHNSON	

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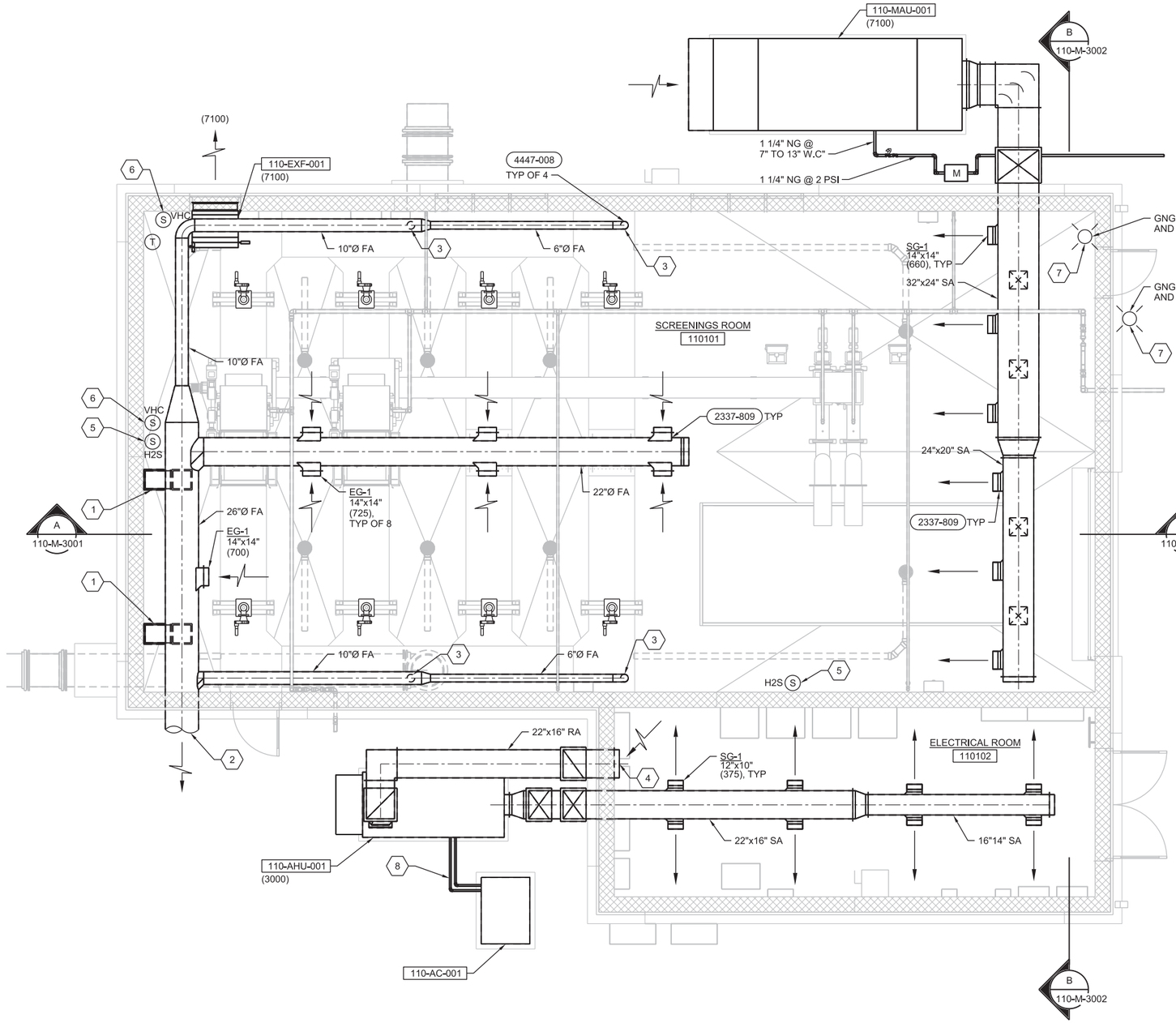
PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

SCREENING FACILITY
PROCESS MECHANICAL DETAILS

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	110-D-5001
SHEET	191 of 314

BIDDING SET



N

PLAN

1/4"=1'-0"

SHEET KEYNOTES

1. 4"x14" FA DOWN TO 18" ABOVE FINISHED FLOOR WITH 1/2"x1/2" SCREEN OVER 45° OPENING.
2. 26"Ø FA, SEE 270-M-2001 FOR CONTINUATION
3. 6"Ø FA DOWN THROUGH CHANNEL ENCLOSURE TO EXHAUST ODOROUS AIR FROM SCREENING CHANNEL.
4. 22"x16" RETURN AIR WITH 1/2"x1/2" SCREEN OVER OPENING.
5. PROVIDE H2S SENSOR FOR GAS DETECTION SYSTEM TO ALLOW FOR ALARM TO BE SENT UPON INCREASE OF H2S IN THE FACILITY. MOUNT H2S SENSOR 36" ABOVE FINISHED FLOOR. INSTALL PER INSTRUMENTATION AND CONTROL DRAWING 090-N-0003.
6. PROVIDE VHC SENSOR FOR GAS DETECTION SYSTEM TO ALLOW FOR ALARM TO BE SENT UPON INCREASE OF H2S IN THE FACILITY. MOUNT VHC SENSOR AT 12'-6" ABOVE FINISHED FLOOR. INSTALL PER INSTRUMENTATION AND CONTROL DRAWING 090-N-0003.
7. GO-NO LIGHT SHALL BE INSTALLED PER INSTRUMENTATION AND CONTROL DRAWING 090-N-0003.
8. PROVIDE REFRIGERANT LINES PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

SCOTT HOFFMAN LICENSED 11/4/16 25291 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
	S HOFFMAN	S HOFFMAN	T WHITE	P RAUSCH	APVD	S HOFFMAN	

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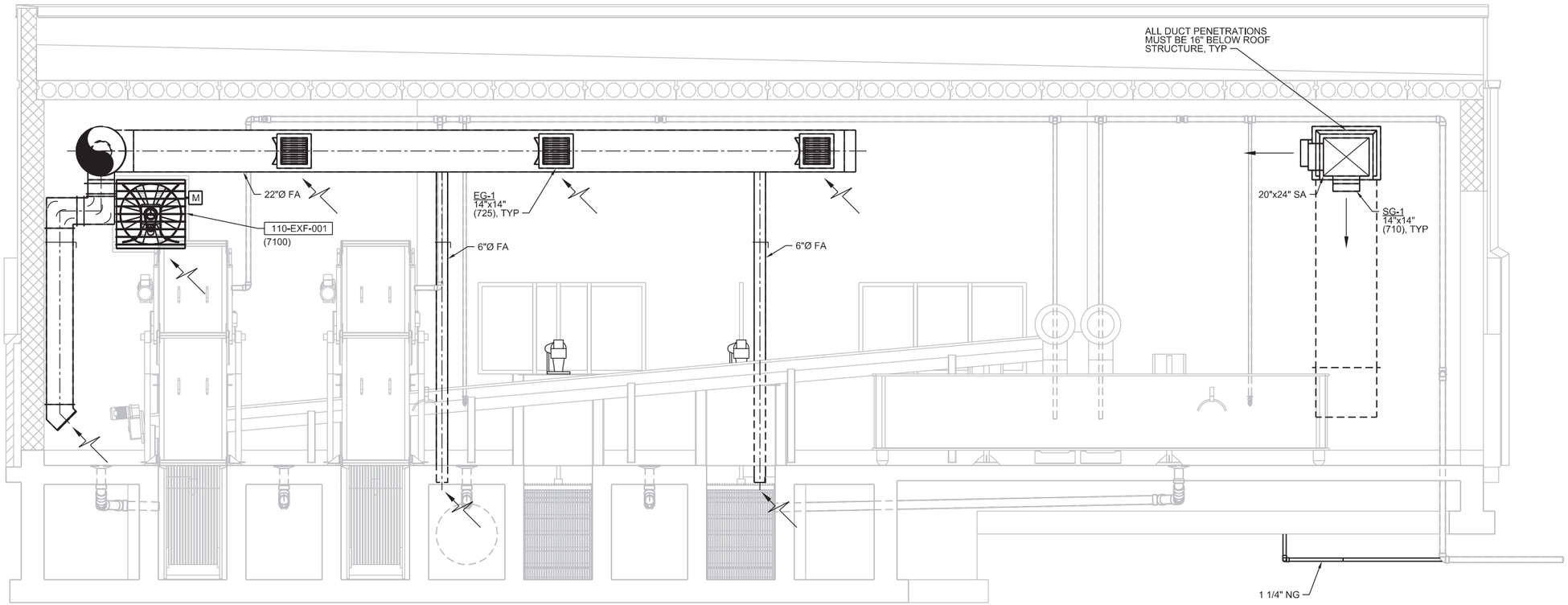
PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WORF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

SCREENING FACILITY
HVAC PLAN

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	110-M-2001
SHEET	192 of 314

BIDDING SET



A SECTION
3/8"=1-0"
110-M-2001

SCOTT HOFFMAN
LICENSED
11/4/16
25291
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	BY	APVD
DSGN	S HOFFMAN	DR T WHITE	CHK P RAUSCH	APVD S HOFFMAN

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

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ch2m:

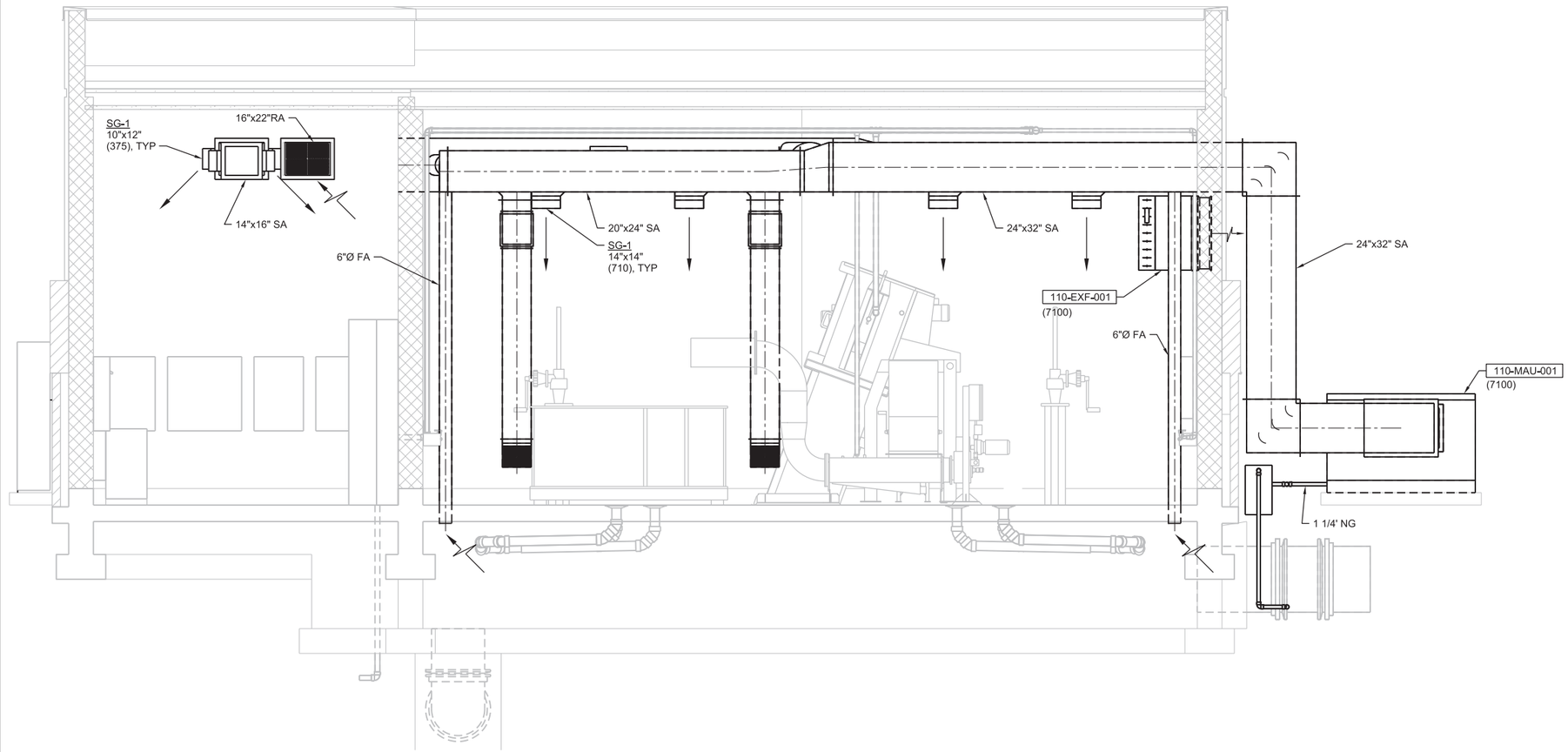
SCREENING FACILITY
HVAC
SECTION

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	110-M-3001
SHEET	193 of 314

BIDDING SET

FILENAME: 110-M-3001_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 7:00:12 PM



B SECTION
3/8"=1-0"
110-M-2001

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11/04/2016

NO.	DATE	DSGN	DR	REVISION	CHK	APVD	BY	APVD
		S HOFFMAN	T WHITE		P RAUSCH	APVD	S HOFFMAN	

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

ch2m

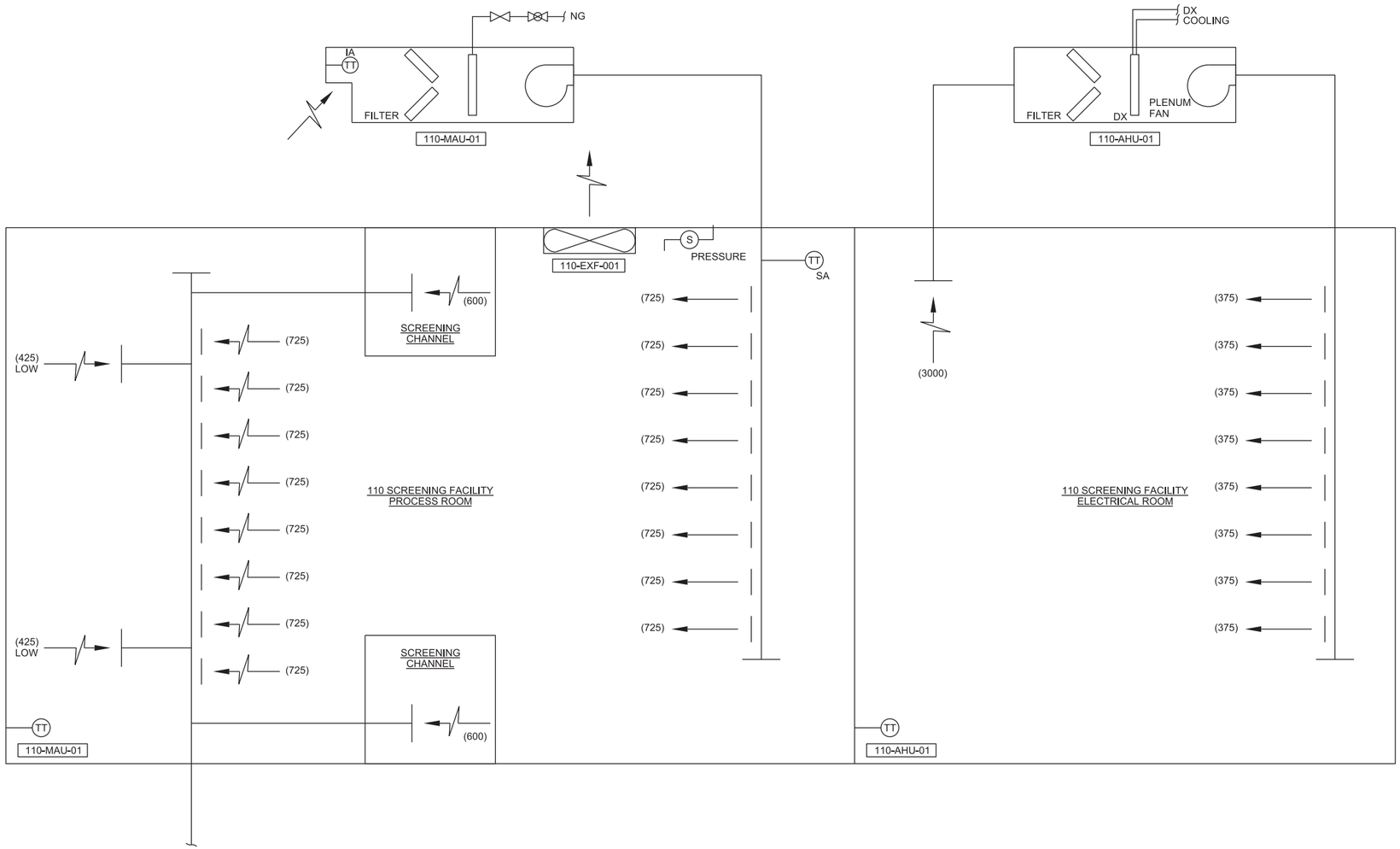
SCREENING FACILITY
HVAC
SECTION

BIDDING SET

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	110-M-3002
SHEET	194 of 314

FILENAME: 110-M-3002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:01:49 PM



AIRFLOW SCHEMATIC
NTS

SEQUENCE OF OPERATION:

110-MAU-001
SUPPLY FAN SHALL RUN CONTINUOUSLY

NATURAL GAS BURNER SHALL MODULATE FROM 0%-100% TO MAINTAIN A SPACE TEMPERATURE OF 60°F WHEN SPACE TEMPERATURE IS SATISFIED THE BURNER SHALL CONTINUE TO MODULATE TO MAINTAIN A DISCHARGE AIR TEMPERATURE OF 60°F.

110-EXF-001
EXHAUST FAN SHALL NORMALLY BE POWERED OFF.

EXHAUST FAN SHALL BE CONTROLLED BY SPACE PRESSURE SENSOR, WHEN SPACE PRESSURE DETECTS POSITIVE PRESSURE FOR MORE THAN 5 MINUTES THE FAN SHALL ACTIVATE AND RUN UNTIL MANUALLY RESET TO THE OFF POSITION.

110-AHU-001
SUPPLY FAN SHALL RUN CONTINUOUSLY.

WHEN SPACE TEMPERATURE IS BELOW 80°F COMPRESSOR CYCLE SHALL BE OFF.

WHEN THE SPACE TEMPERATURE RISES ABOVE 80°F COMPRESSOR ONE SHALL ACTIVATE. IF THE SPACE TEMPERATURE CONTINUES TO RISE THE SECOND COMPRESSOR SHALL ACTIVATE TO PROVIDE ADDITIONAL COOLING.

SCOTT HOFFMAN LICENSED 11/4/16 25291 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DESGN	DATE	DR	CHK	APVD	BY	APVD
REVISION			S HOFFMAN	T WHITE	P RAUSCH		S HOFFMAN

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FOUR MILE CREEK WORF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

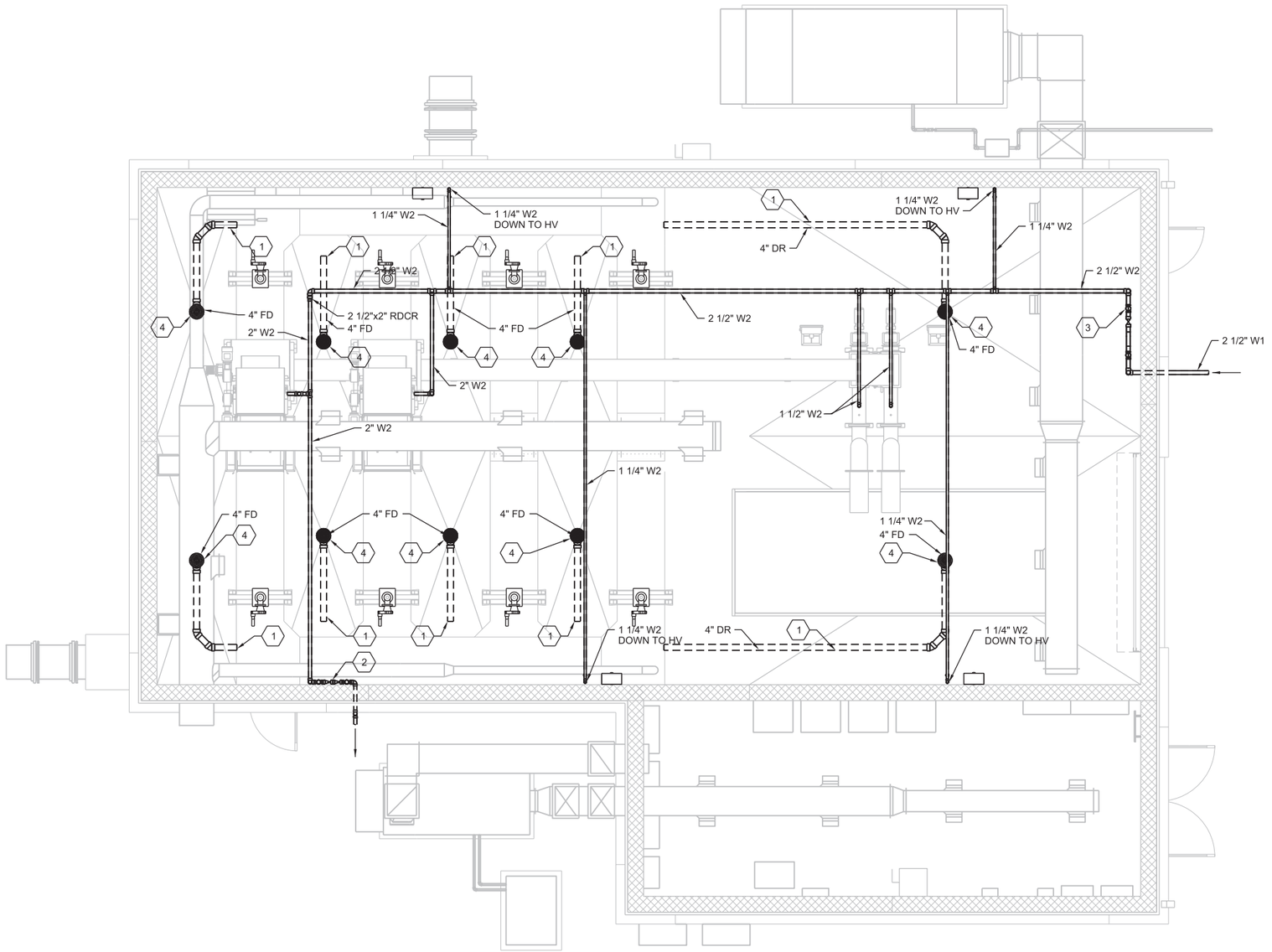
SCREENING FACILITY
HVAC
AIRFLOW SCHEMATIC

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	110-M-6001
SHEET	195 of 314

BIDDING SET

FILENAME: 110-M-6001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:01:41 PM



N

PLAN
1/4"=1'-0"

SHEET KEYNOTES

1. ROUTE 4" DRAIN PIPE TO INFLUENT CHANNEL TO ALLOW FOR DRAINING OF WASH DOWN OF THE FACILITY. PIPING SHALL BE SLOPED AT 1/8" PER 1'-0" TO ALLOW CONDENSATION TO DRAIN BACK INTO INFLUENT CHANNEL. TYPICAL OF 10.
2. 2" W2 TO SERVE HUMIDIFIER AT BIOFILTER BASIN FOR ODOR CONTROL. CONTINUATION OF PIPING IS INDICATED ON SHEET 270-P-2001. PIPING SHALL BE INSTALLED AND VALVED OFF EVEN IF BIOFILTER IS REMOVED FROM SCOPE. PIPING SHALL BE MARKED AS FUTURE BIOFILTER CONNECTION IF BIOFILTER SCOPE IS NOT INSTALLED.
3. 2 1/2" W1 PIPING SHALL ENTER THE FACILITY AS INDICATED AND SHALL BE ROUTED THROUGH A PRESSURE REDUCING VALVE AND BACKFLOW PREVENTOR AS INDICATED.
4. FLOOR DRAINS SHALL NOT BE INSTALLED WITH A P-TRAP TO ALLOW EXHAUST AIR TO BE PULLED THROUGH FLOOR DRAINS AND EXHAUST AT INFLUENT CHANNEL FAN DUCT.

SCOTT HOFFMAN LICENSED 11/4/16 25291 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY
		S HOFFMAN	T WHITE	P RAUSCH	APVD	S HOFFMAN

REVISION

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

SCREENING FACILITY
PLUMBING
PLAN

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	110-P-2001
SHEET	196 of 314

BIDDING SET

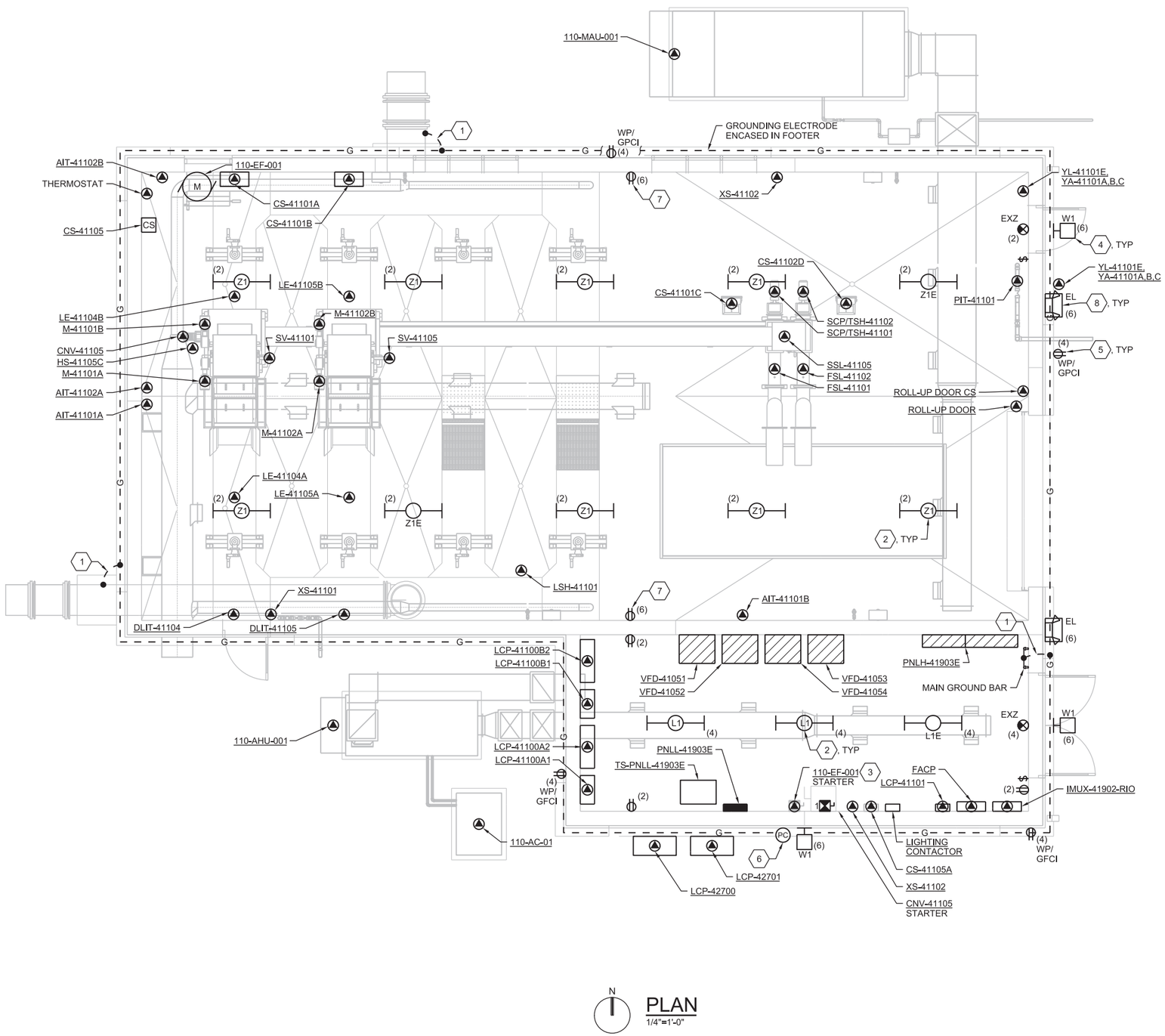
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GENERAL NOTES

1. ALL LUMINAIRES AT THIS FACILITY ARE FED FROM PNLH-41903E. ALL RECEPTACLES AT THIS FACILITY ARE FED FROM PNLL-41903E. SEE PANEL SCHEDULES AND BLOCK DIAGRAMS FOR FURTHER INFORMATION.

SHEET KEYNOTES

1. PROVIDE 2/0 AWG BONDING CONDUCTOR TO MAIN GROUND CONDUCTOR, WHICH IS EMBEDDED IN THE FOUNDATION FOOTER.
2. MOUNT ALL LUMINAIRES THIS ROOM 15FT AFF, UNLESS OTHERWISE NOTED.
3. COMBINATION STARTER-DISCONNECT PROVIDED BY DIVISION 23, BUILDING MECHANICAL. INSTALLATION BY DIVISION 26, ELECTRICAL.
4. MOUNT EXTERIOR LUMINAIRES 8FT ABOVE FINISHED GRADE.
5. MOUNT EXTERIOR RECEPTACLES 3FT ABOVE FINISHED GRADE.
6. MOUNT PHOTOCELL AS HIGH ON EXTERIOR WALL AS POSSIBLE, MINIMUM 10FT ABOVE GRADE.
7. 20A, 1P, 120VAC, DUPLEX RECEPTACLE. CLASS 1 DIV 2 RATED. HUBBELL #UGRA20231. USE HUBBELL 'SWB' SERIES BACK BOXES. MOUNT AT 48 INCHES AFF.
8. MOUNT EMERGENCY LIGHTING AS HIGH ON WALL AS POSSIBLE, NOT TO EXCEED 15 FT. FIELD-ADJUST LAMPS FOR MAXIMUM LIGHTING COVERAGE.
9. PROVIDE CONTROL WIRING TO FINAL SAMPLER LOCATION IN SCREEN ROOM, AS SELECTED BY OWNER



N

PLAN
1/4"=1'-0"

MARY J. GROSS LICENSED 16702 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		J LANDMAN	A CUGLIAT	M GROSS	M GROSS	M GROSS	

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

ch2m

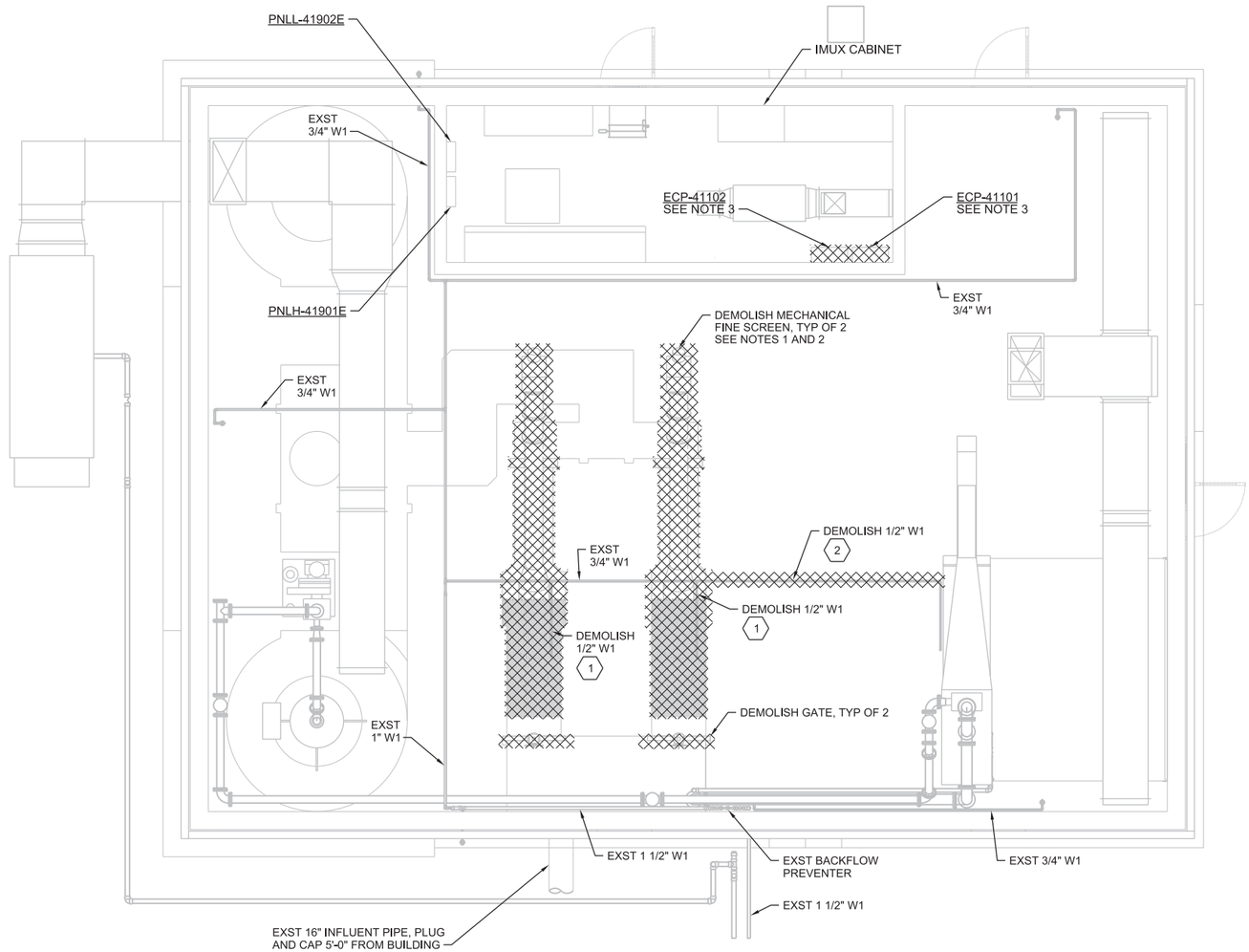
SCREENING FACILITY
ELECTRICAL PLAN

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	110-E-2001
SHEET	197 of 314

BIDDING SET

FILENAME: 110-E-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:03:20 PM



N

PLAN
1/4"=1'-0"

GENERAL NOTES

1. CORE DRILL 2" DIAMETER HOLE, 1-1/2" DEEP, AND CHIP AND GRIND TO REMOVE EXISTING EQUIPMENT ANCHORS TO 1-1/2" MIN BELOW TOP OF EXISTING CONCRETE TO REMAIN, CLEAN AND SOAK, AND DRY-PACK WITH NON-SHRINK GROUT.
2. REMOVE POWER, CONTROL AND INSTRUMENTATION CONDUCTORS AND RACEWAYS BETWEEN SCREEN EQUIPMENT AND CONTROL PANELS (ECP-41101 AND ECP-41102). PATCH HOLES ON BOTH SIDES OF ELECTRICAL ROOM WALL WITH GROUT. PAINT TO MATCH SURROUNDING WALL.
3. REMOVE CONTROL PANELS (ECP-41101 AND ECP-41102). REMOVE CONTROL AND INSTRUMENTATION CONDUCTORS AND RACEWAYS BETWEEN CONTROL PANELS AND IMUX CABINET. REMOVE POWER CONDUCTORS AND RACEWAYS BETWEEN PNLH-41901E AND CONTROL PANELS.

SHEET KEYNOTES

1. DISCONNECT AND REMOVE PIPING DOWN TO EXISTING SCREENING EQUIPMENT. CAP PIPING BACK AT MAIN.
2. DEMOLISH EXISTING 1/2" W1 PIPE BACK TO LOCATION INDICATED. EXTEND NEW 3/4" PIPING PER NEW PIPING LAYOUT.

RUSSELL JO JOHNSON
LICENSED
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		W KESSLER	D CAVE	S POLSON	APVD	E JOHNSON	

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

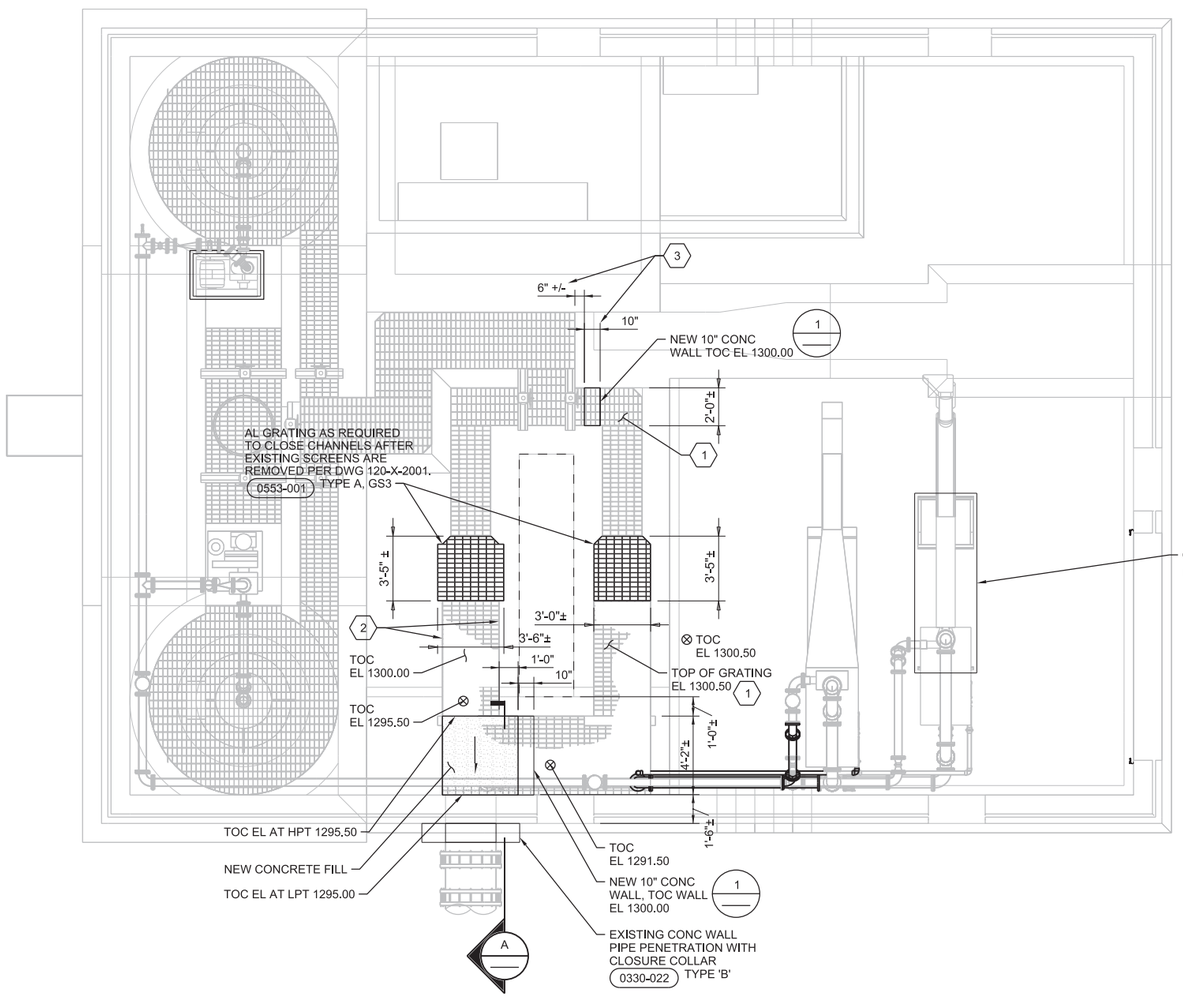
GRIT BUILDING
DEMOLITION PLAN

BIDDING SET

VERIFY SCALE
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0 1"

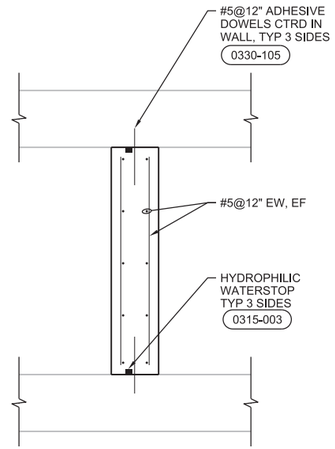
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PROJ	496312
DWG	120-X-2001
SHEET	198 of 314

FILENAME: 120-X-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:02:31 PM



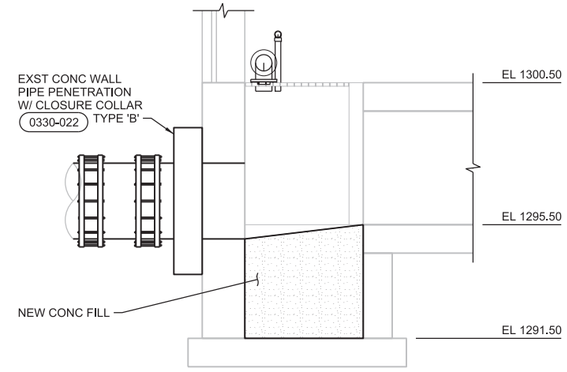
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PLAN
1/4"=1'-0"



PLAN

1 DETAIL
3/4"=1'-0"



A SECTION
3/8"=1'-0"

GENERAL NOTES

1. FOR DESIGN CRITERIA AND GENERAL STRUCTURAL NOTES, SEE DRAWINGS 001-G-0300 AND 001-G-0301.
2. FOR SPECIAL INSPECTION AND TESTING REQUIREMENTS, SEE DRAWINGS 001-G-0302 THROUGH 001-G-0305.
3. FOR FACILITY SITE COORDINATES SEE CIVIL DRAWINGS.
4. REINFORCED CONCRETE NOTES
   a. COORDINATE SIZE AND LOCATION OF ALL OPENINGS WITH OTHER DISCIPLINES. FOR TYPICAL CONCRETE WALL OR SLAB OPENING REINFORCING SEE 0330-001.
   b. EQUIPMENT PAD SIZES AND LOCATIONS SHALL BE COORDINATED WITH THE EQUIPMENT MANUFACTURER'S SHOP DRAWINGS.

SHEET KEYNOTES

1. REMOVE AND SALVAGE EXISTING GRATING AS REQUIRED TO PERFORM WALL CONSTRUCTION AND OTHER MODIFICATIONS SHOWN ON DRAWINGS. REINSTALL GRATING AFTER ALL MODIFICATIONS HAVE BEEN COMPLETED.
2. EXISTING CONCRETE SURFACE PRESENTS SOME DETERIORATION A SECTION OF UP TO 8 FT DAMAGE CONCRETE SECTION SHALL BE INSPECTED AND REPAIRED. SUBMIT FINDING AND REPAIR PROCEDURES FOR REVIEW AND APPROVAL.
3. LOCATE NEW CONCRETE WALL TO ALIGN WITH EDGE OF EXISTING CONCREE WALLS.

HUGO ANDRES ROJAS
LICENSED
11/04/16
24949
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	REVISION	BY	APVD
	H ROJAS		F JAGLA	M MERKLEIN			H ROJAS	

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

GRIT BUILDING
STRUCTURAL
PLAN AND SECTION

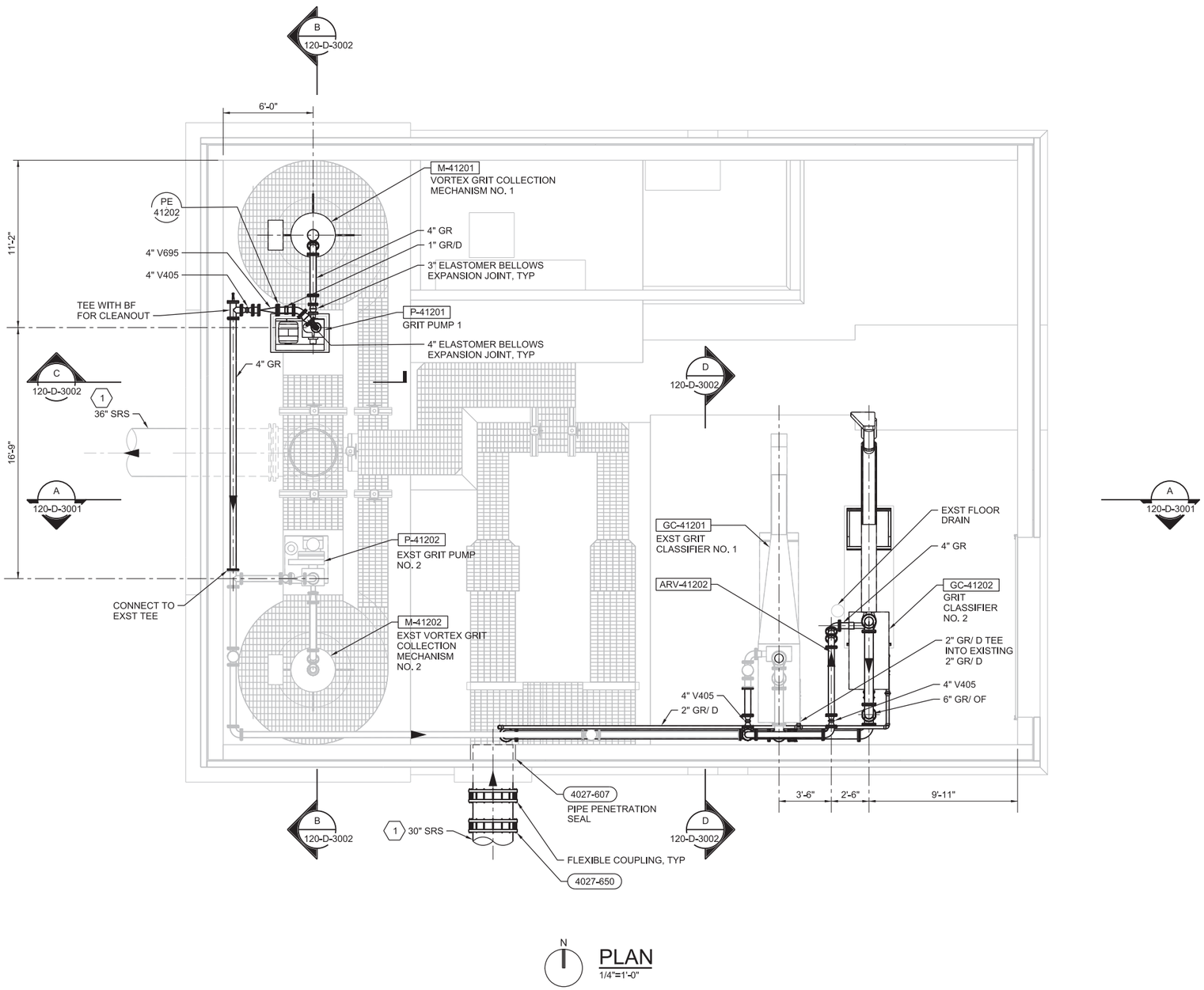
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	120-S-2001
SHEET	199 of 314

BIDDING SET

GENERAL NOTES

1. FOR CONTINUATION OF PIPING IN THE YARD, SEE DRAWING 051-Y-2004.



RUSSELL JO JOHNSON — 15411 — 11/4/16 — KANSAS — PROFESSIONAL ENGINEER

11/04/2016

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NO.	DATE	DSGN	DR	CHK	APVD	BY
REVISION		W KESSLER	D.CAVE	S POLSON	APVD	E.JOHNSON

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

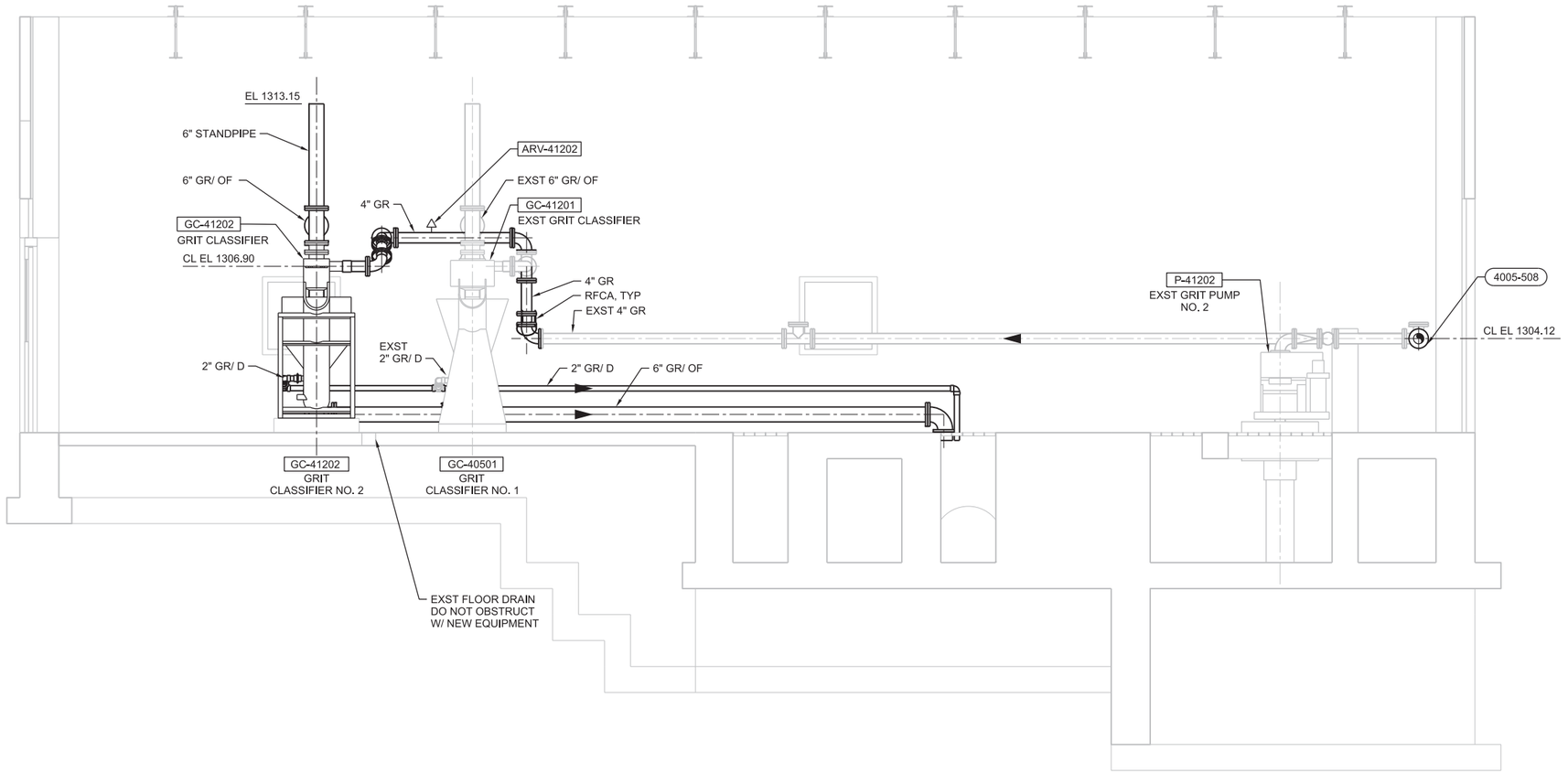
GRIT BUILDING
PROCESS MECHANICAL PLAN

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	120-D-2001
SHEET	200 of 314

BIDDING SET

FILENAME: 120-D-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:03:17 PM



A SECTION
3/8"=1'-0"
120-D-2001

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DR	REVISION	CHK	APVD	BY	APVD
DSGN	W KESSLER	D.CAVE		S POLSON	APVD	E.JOHNSON	

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

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ch2m

GRIT BUILDING
PROCESS MECHANICAL SECTION

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

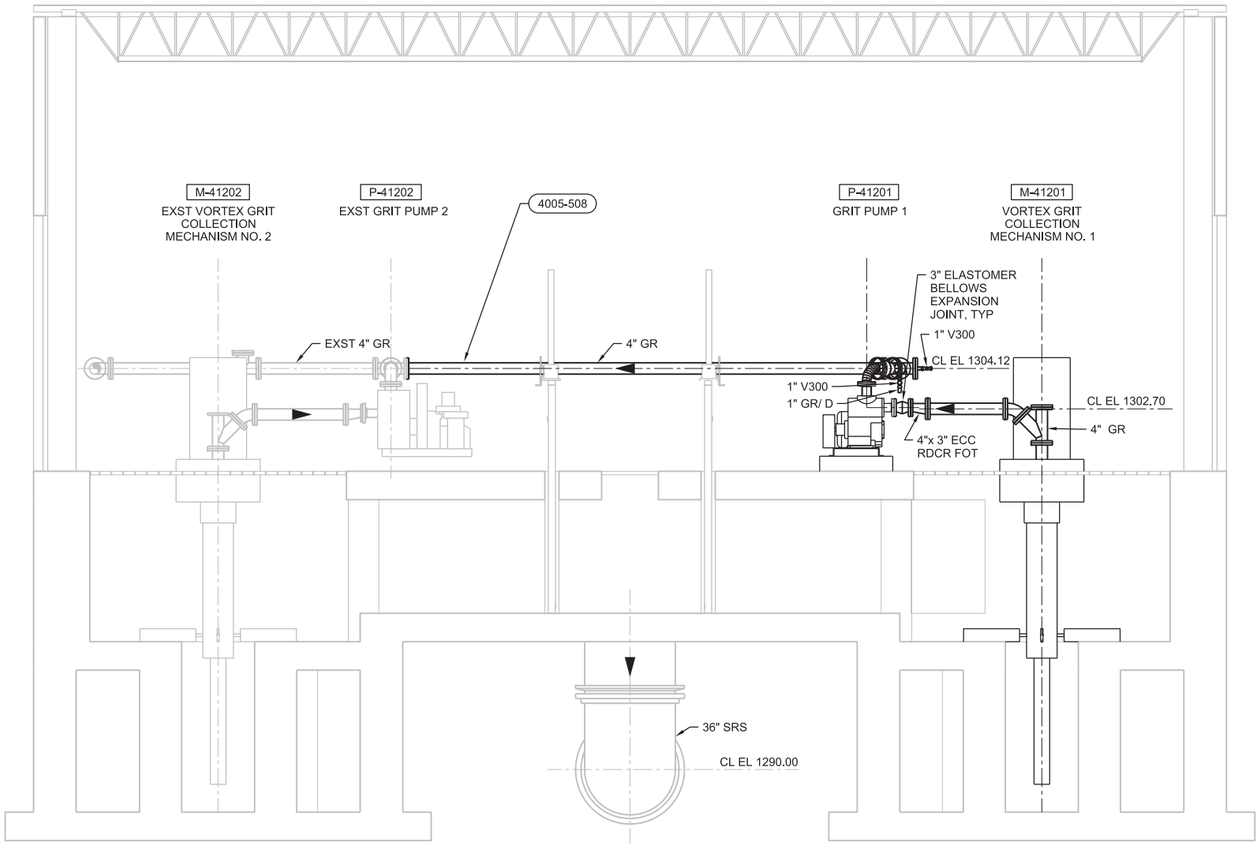
DATE	NOVEMBER 2016
PROJ	496312
DWG	120-D-3001
SHEET	201 of 314

BIDDING SET

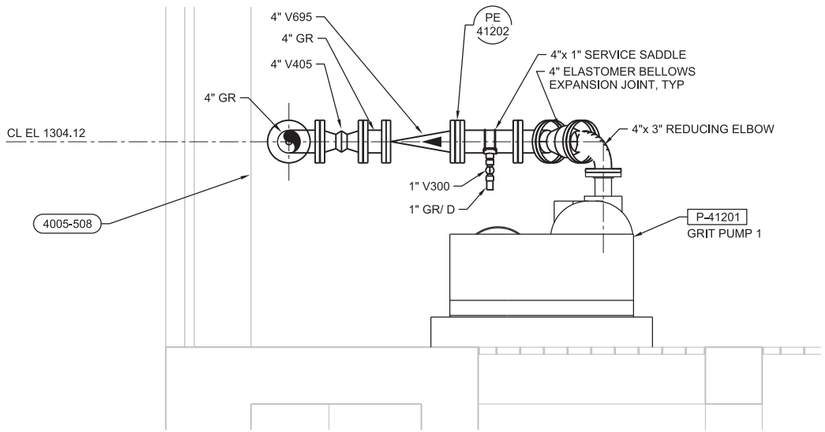
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GENERAL NOTES

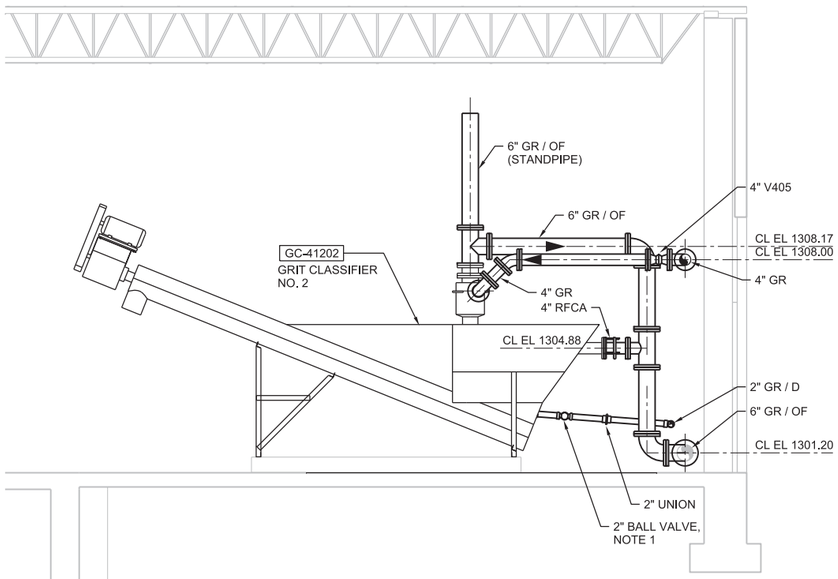
1. 2" BALL VALVE PROVIDED BY GRIT CLASSIFIER MANUFACTURER.



B SECTION
3/8"=1'-0"
120-D-2001



C SECTION
3/4"=1'-0"
120-D-2001



D SECTION
3/8"=1'-0"
120-D-2001

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		W KESSLER	D.CAVE	S POLSON	APVD	E.JOHNSON	

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FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

ch2m

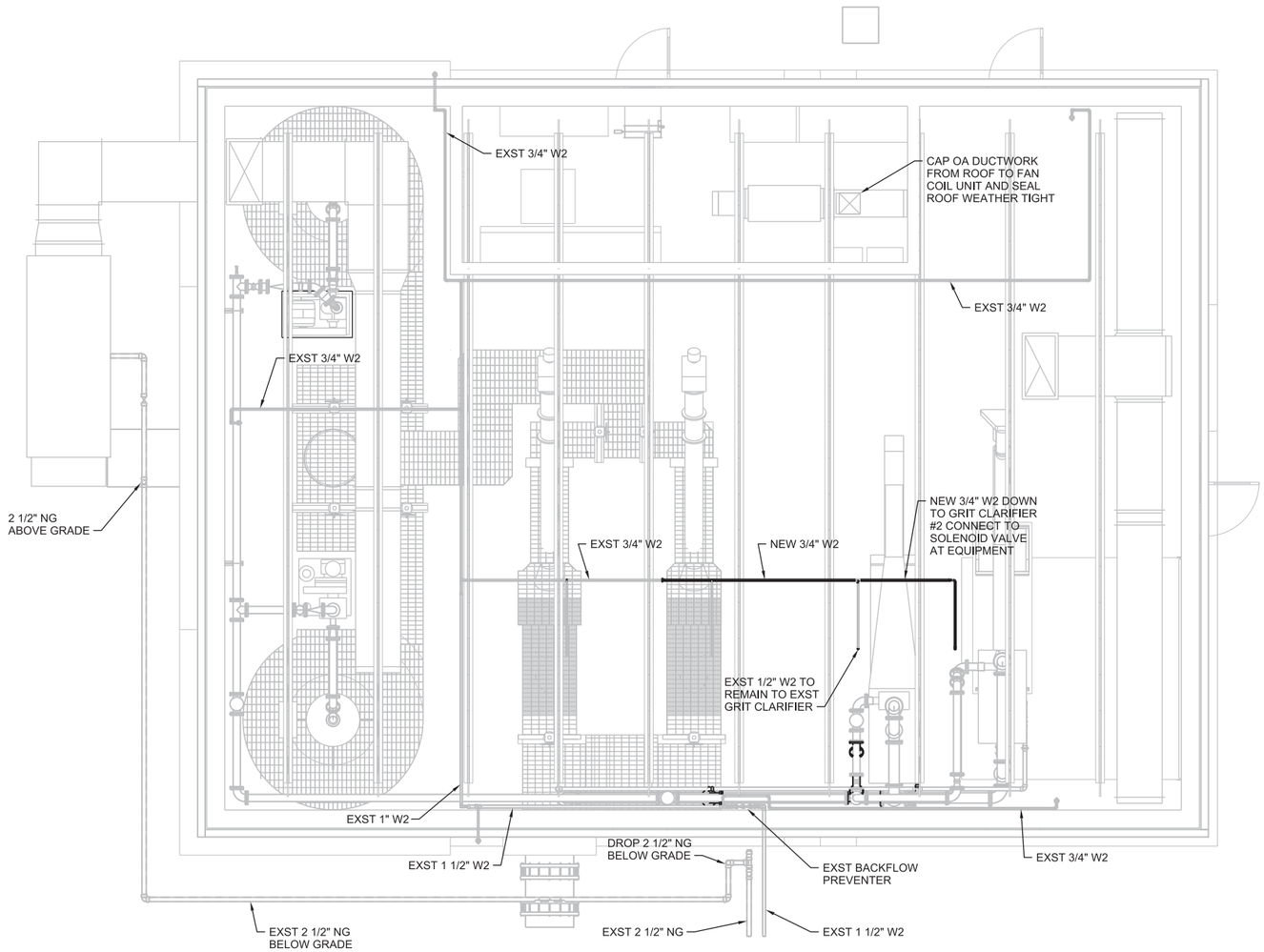
GRIT BUILDING
PROCESS MECHANICAL SECTIONS

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	120-D-3002
SHEET	202 of 314

BIDDING SET

FILENAME: 120-D-3002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:02:39 PM



N

PLAN
1/4"=1'-0"

SCOTT HOFFMAN LICENSED 11/4/16 25291 Scott Hoff KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		S HOFFMAN	T WHITE	P RAUSCH	APVD	S HOFFMAN	

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

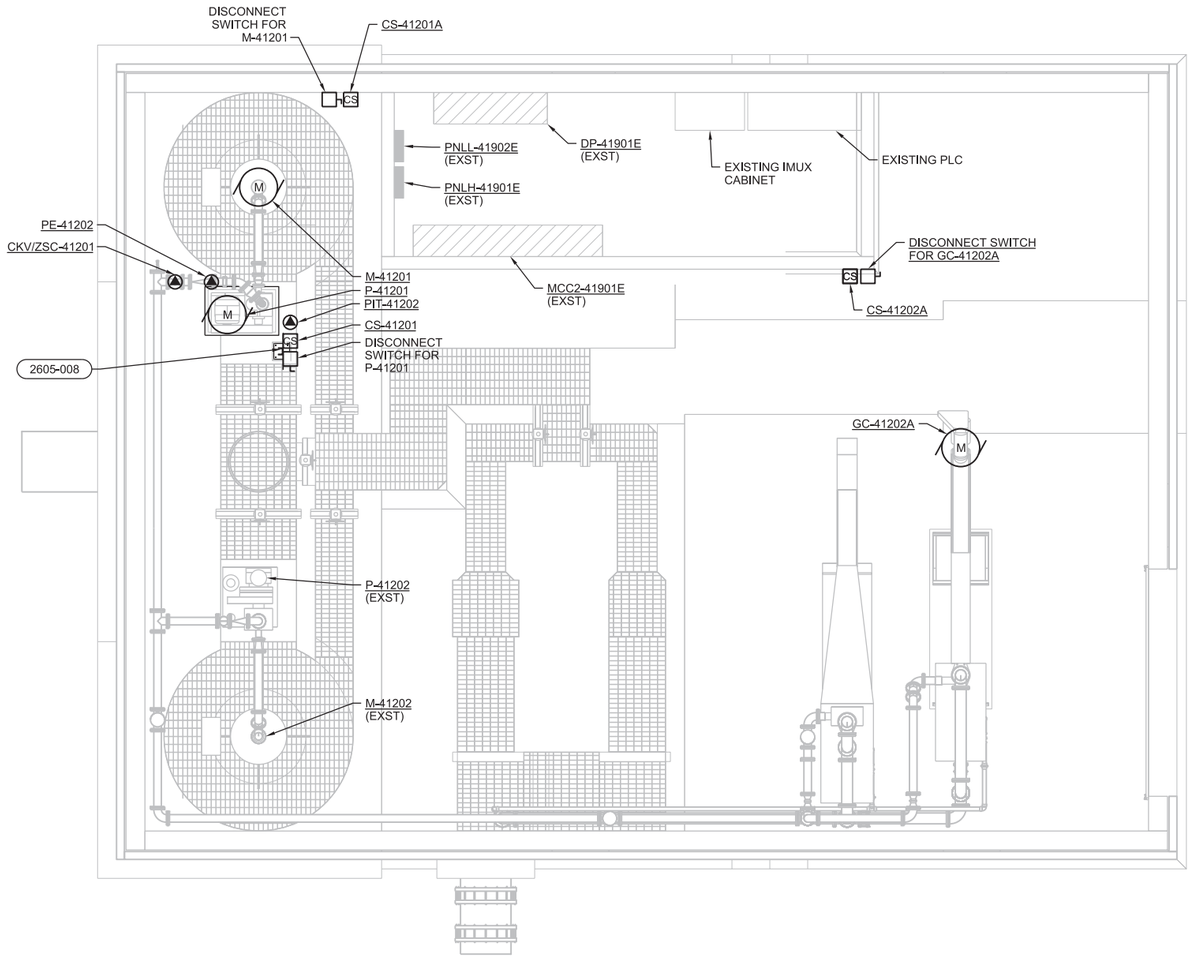
GRIT BUILDING
PLUMBING
GROUND LEVEL PLAN

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	120-P-2001
SHEET	203 of 314

BIDDING SET

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REUSE OF DOCUMENTS:



N

PLAN
1/4"=1'-0"

MARY J. GROSS
LICENSED
16702
11-4-16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		J LANDMAN	A CUGLIAT	M GROSS	M GROSS	M GROSS	APVD

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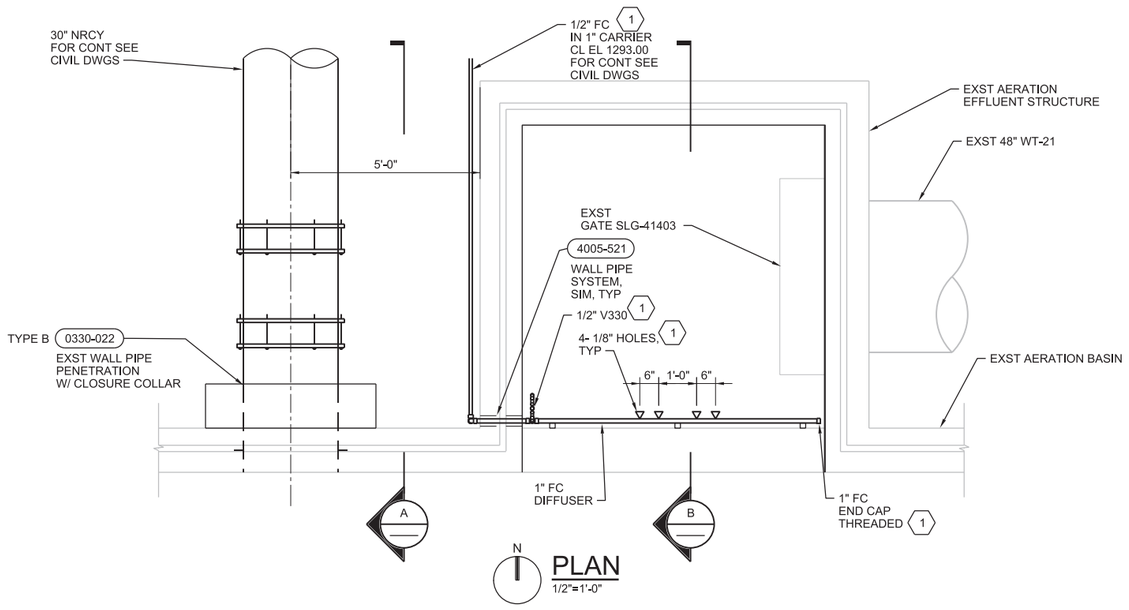
PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

GRIT BUILDING
ELECTRICAL
GROUND LEVEL PLAN

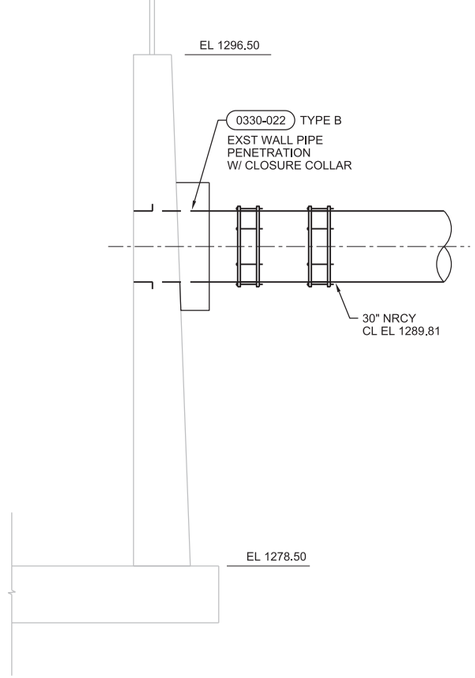
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	120-E-2001
SHEET	204 of 314

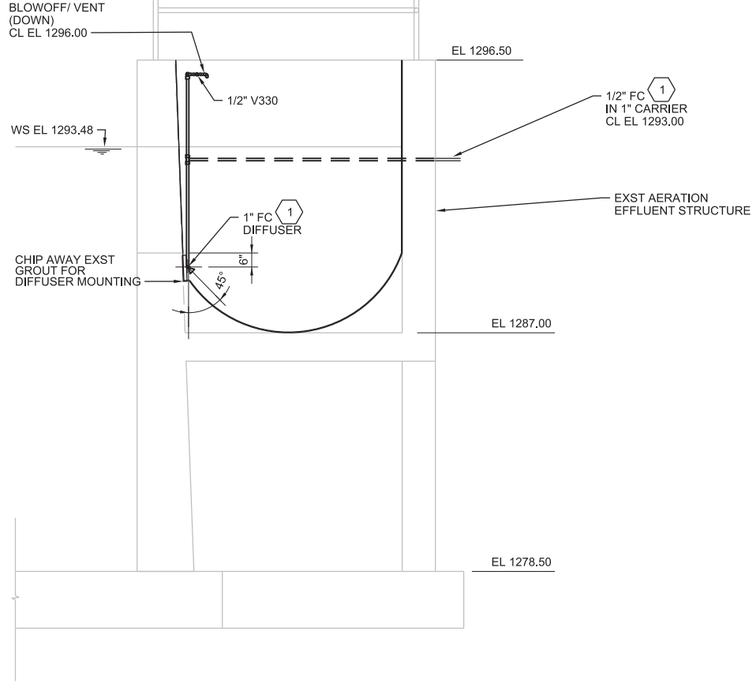
BIDDING SET



PLAN
1/2"=1'-0"



SECTION A
1/2"=1'-0"



SECTION B
1/2"=1'-0"

GENERAL NOTES

1. LINE INTERNAL WALLS, FLOOR AND APPURTENANCES PER 09 96 35 SYSTEM NO. 1.

SHEET KEYNOTES

1. ASSOCIATED WITH BID ITEM ADD ALTERNATIVE NUMBER 1, FERRIC FEED SYSTEM.

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		S MENK	G JAMROS	S POLSON		E JOHNSON	

REVISION

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FOUR MILE CREEK WQRF
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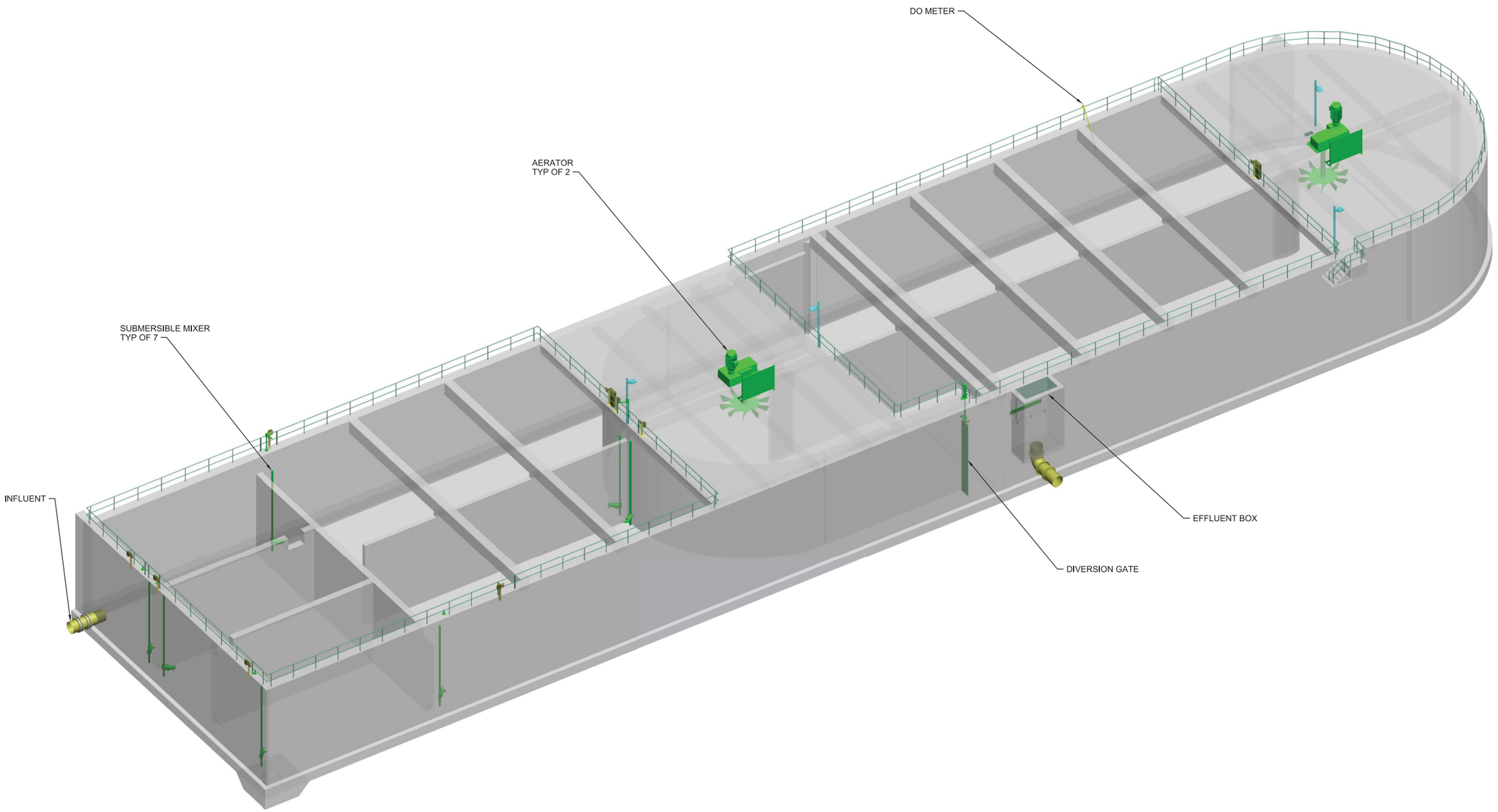
EXISTING AERATION BASIN
PROCESS MECHANICAL DETAILS

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	140-D-5001
SHEET	205 of 314

BIDDING SET

FILENAME: 140-D-5001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:04:22 PM



RENDERING
NTS

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DR	REVISION	CHK	APVD	BY	APVD
DSGN	M GAME	F JAGLA		M GAME		E JOHNSON	

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DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

BIOREACTOR FACILITY

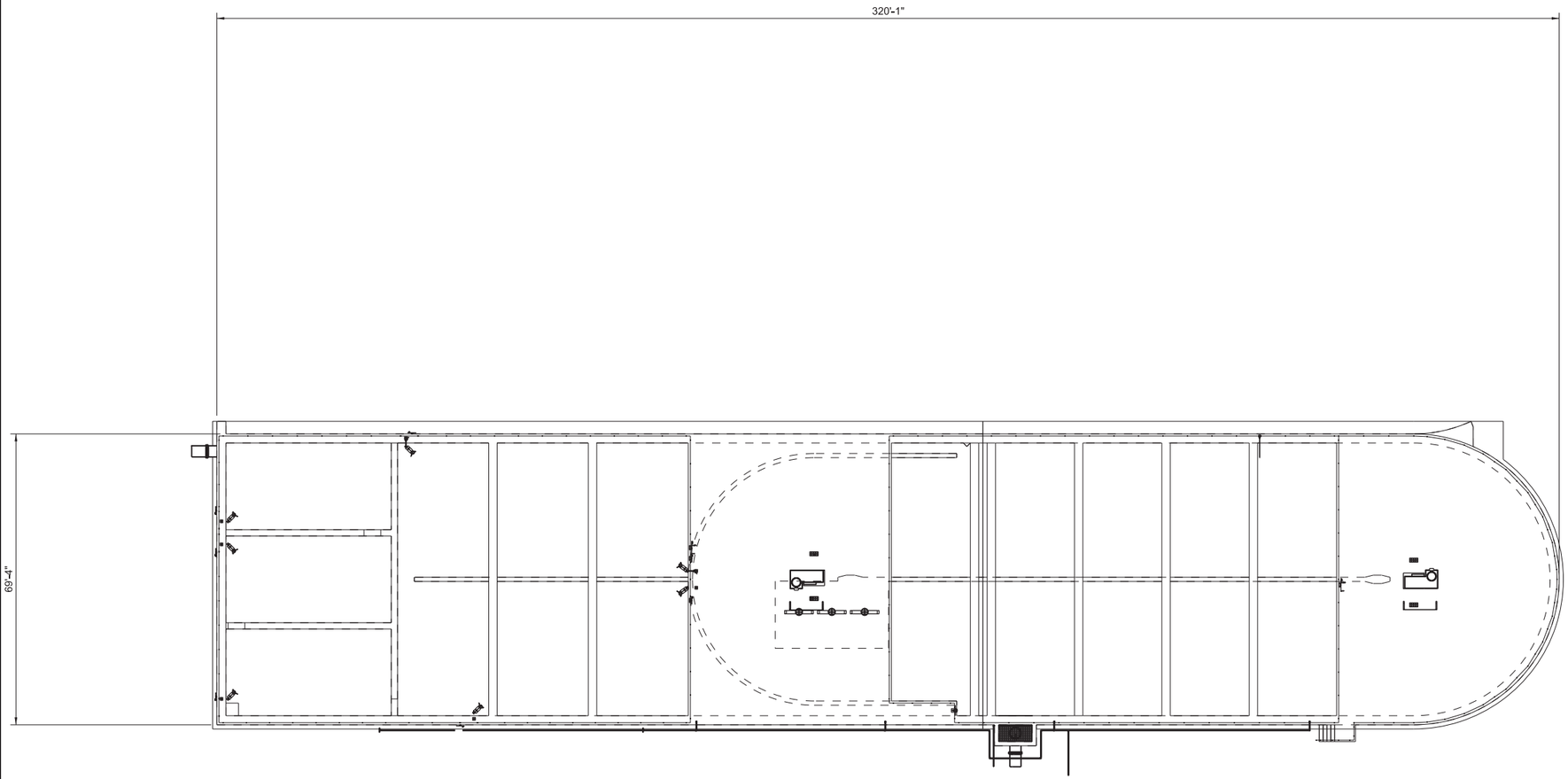
RENDERING

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	145-G-2000
SHEET	206 of 314

BIDDING SET

FILENAME: 145-G-2000_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:04:17 PM



N

OVERALL PLAN
1/16"=1'-0"

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		M GAME	F JAGLA	M GAME	APVD	E JOHNSON	

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

BIOREACTOR FACILITY

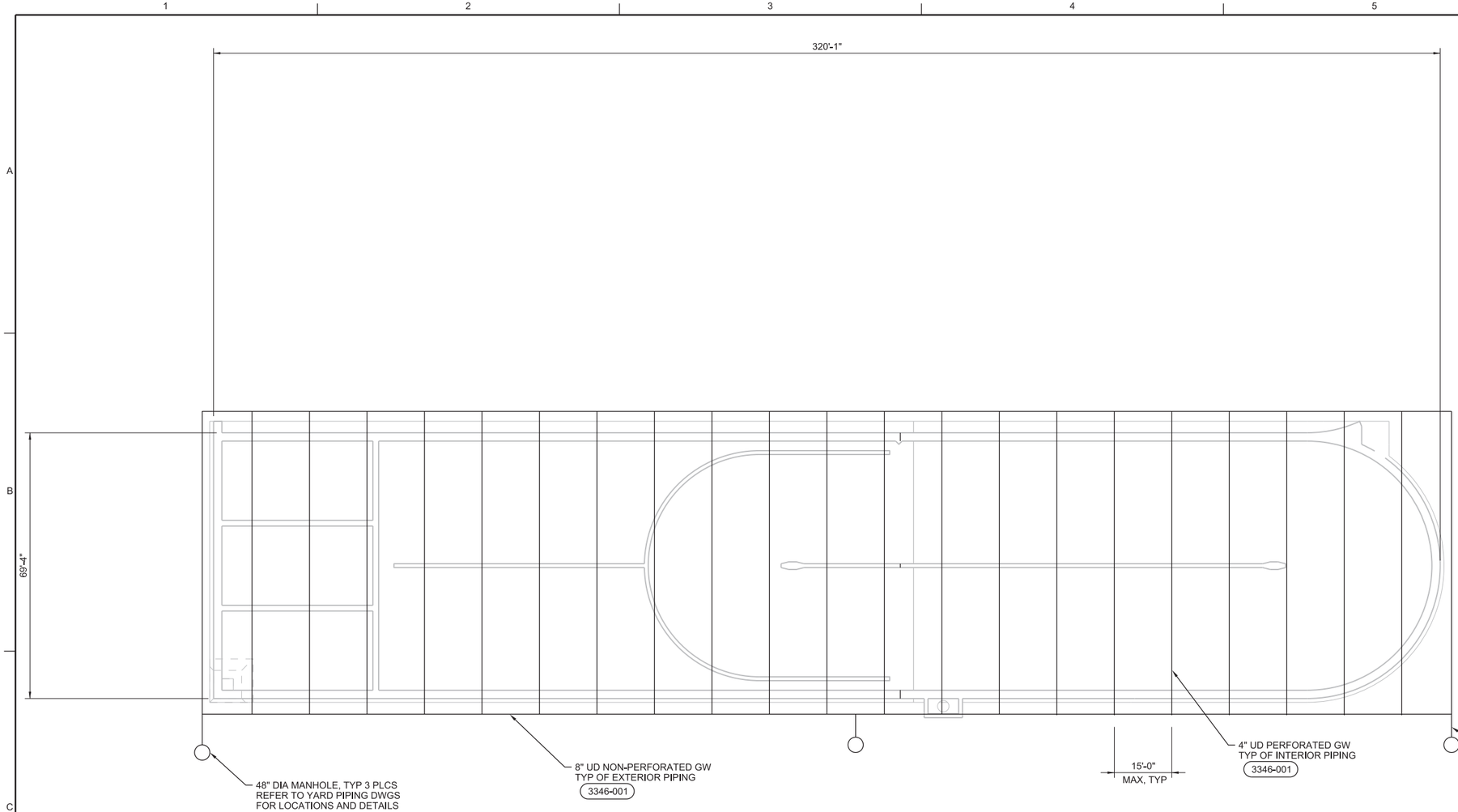
OVERALL PLAN

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	145-G-2001
SHEET	207 of 314

BIDDING SET

FILENAME: 145-G-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:04:15 PM



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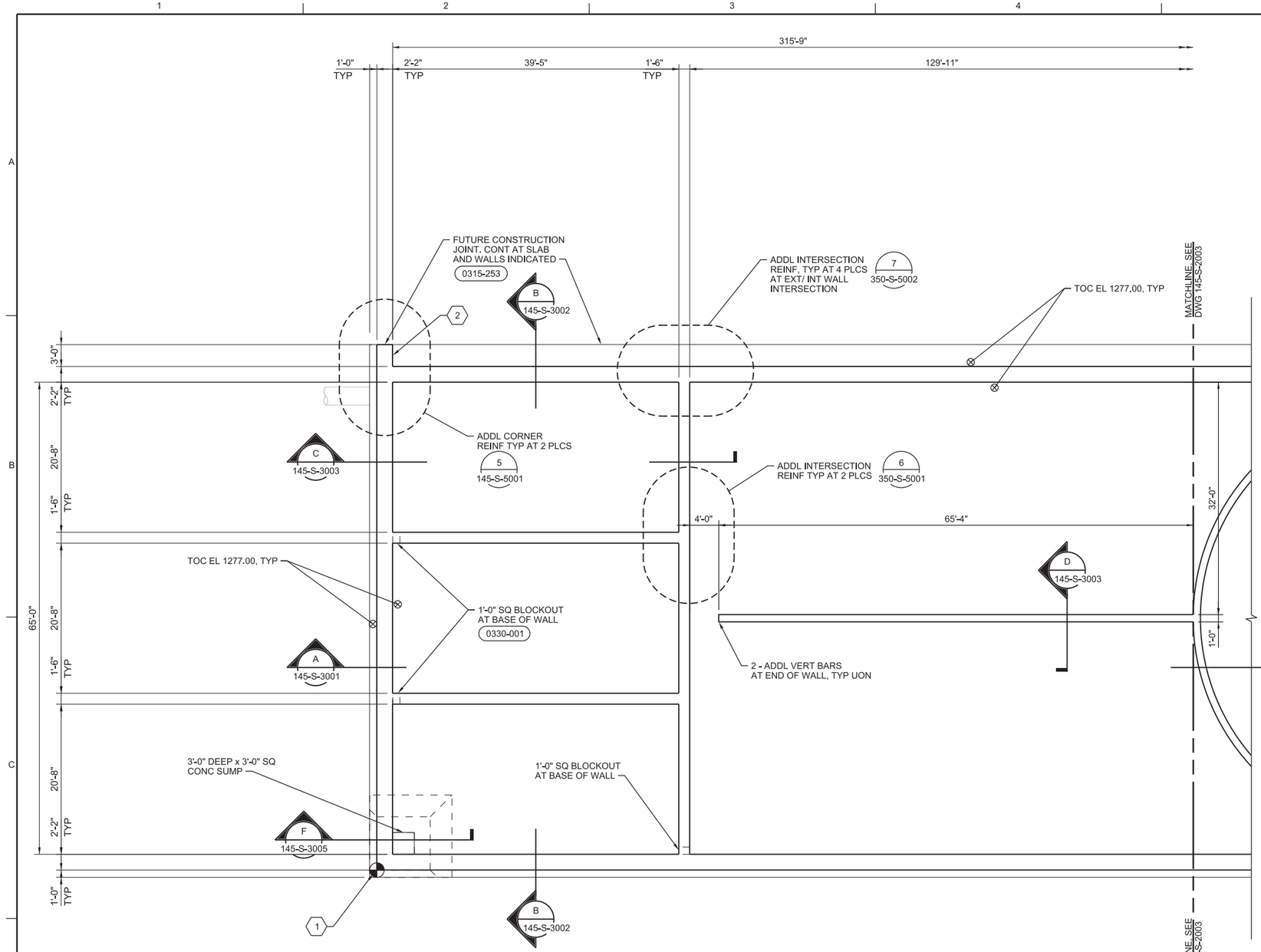
UNDERDRAIN PLAN

1/16"=1'-0"

HUGO ANDRES ROJAS
LICENSED
11/04/16
24949
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD



N

FOUNDATION PLAN - AREA A

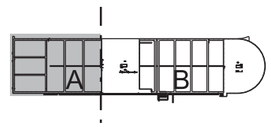
1/8"=1'-0"

GENERAL NOTES

1. FOR DESIGN CRITERIA AND GENERAL STRUCTURAL NOTES, SEE DRAWINGS 001-G-0300 AND 001-G-0301
2. FOR SPECIAL INSPECTION AND TESTING REQUIREMENTS, SEE DRAWINGS 001-G-0302 THROUGH 001-G-0305.
3. FOR FACILITY SITE COORDINATES SEE CIVIL DRAWINGS.
4. ADDITIONAL DESIGN CRITERIA SPECIFIC TO THIS FACILITY:
   a. SEISMIC DESIGN DATA
      BASIC SEISMIC-FORCE RESISTING SYSTEM: FLAT BOTTOM GROUND SUPPORTED CONCRETE TANK WITH REINFORCED NON-SLIDING BASE
      ANALYSIS PROCEDURE USED: ASCE 7 GROUND SUPPORTED STORAGE TANKS FOR LIQUIDS
   b. DESIGN GROUND WATER ELEVATION = 1274.75 FT
   c. LIQUID TIGHTNESS ELEVATION 1298.28 FT
5. REINFORCED CONCRETE NOTES
   a. FOR TYPICAL CONCRETE WALL OR SLAB OPENING REINFORCING SEE 0330-001.
      COORDINATE SIZE AND LOCATION OF ALL OPENINGS WITH OTHER DISCIPLINES.
   b. FOR TYPICAL CONCRETE WALL CORNER AND INTERSECTION REINFORCING SEE 0330-003.
   c. UNLESS OTHERWISE NOTED ALL PIPING BELOW A FACILITY SHALL BE ENCASED PER STANDARD DETAILS 0330-016, 0330-017, AND 0330-018.
   d. EQUIPMENT PAD SIZES AND LOCATIONS SHALL BE COORDINATED WITH THE EQUIPMENT MANUFACTURER'S SHOP DRAWINGS.
6. FUTURE EXPANSION NOTES
   a. STRUCTURE HAS BEEN DESIGNED FOR BALANCED BACKFILL CONDITIONS ONLY. PRIOR TO EXCAVATING FOR THE CONSTRUCTION OF FUTURE EXPANSION. TEMPORARY BRACING SHALL BE DESIGNED AND INSTALLED ON EXISTING STRUCTURE TO ACCOMODATE UNBALANCED BACKFILL CONDITIONS.

SHEET KEYNOTES

1. FOR FACILITY SITE COORDINATES SEE CIVIL DRAWINGS.
2. STUB OUT WALLS 3'-0" FOR FUTURE CONSTRUCTION 0315-253.



N

KEY PLAN

HUGO ANDRES ROJAS LICENSED 11/04/16 24949 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DESGN	DATE	DR	CHK	APVD	BY	APVD
		H ROJAS	F JAGLA	M MERKLEIN		H ROJAS	

REVISION

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

BIOREACTOR FACILITY

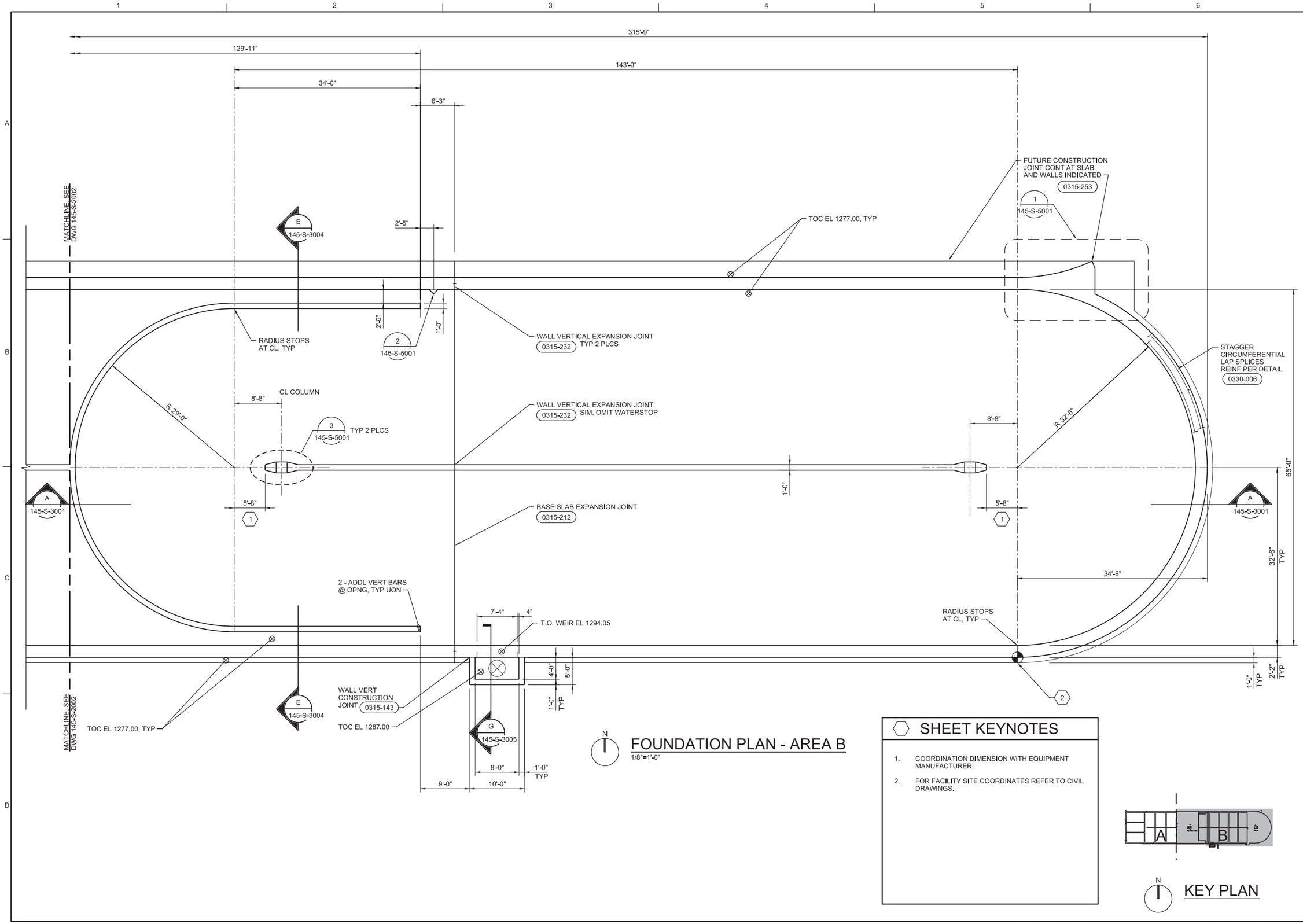
STRUCTURAL FOUNDATION PLAN AREA A

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	145-S-2002
SHEET	209 of 314

BIDDING SET

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N

FOUNDATION PLAN - AREA B

1/8"=1'-0"

SHEET KEYNOTES

1. COORDINATION DIMENSION WITH EQUIPMENT MANUFACTURER.
2. FOR FACILITY SITE COORDINATES REFER TO CIVIL DRAWINGS.

N

KEY PLAN

HUGO ANDRES ROJAS
LICENSED
11/04/16
24949
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DESCRIPTION	DATE	DSGN	DR	CHK	BY	APVD
	REVISION		H ROJAS	F JAGLA	M MERKLEIN	H ROJAS	APVD

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BIOREACTOR FACILITY
STRUCTURAL
FOUNDATION PLAN
AREA B

BIDDING SET

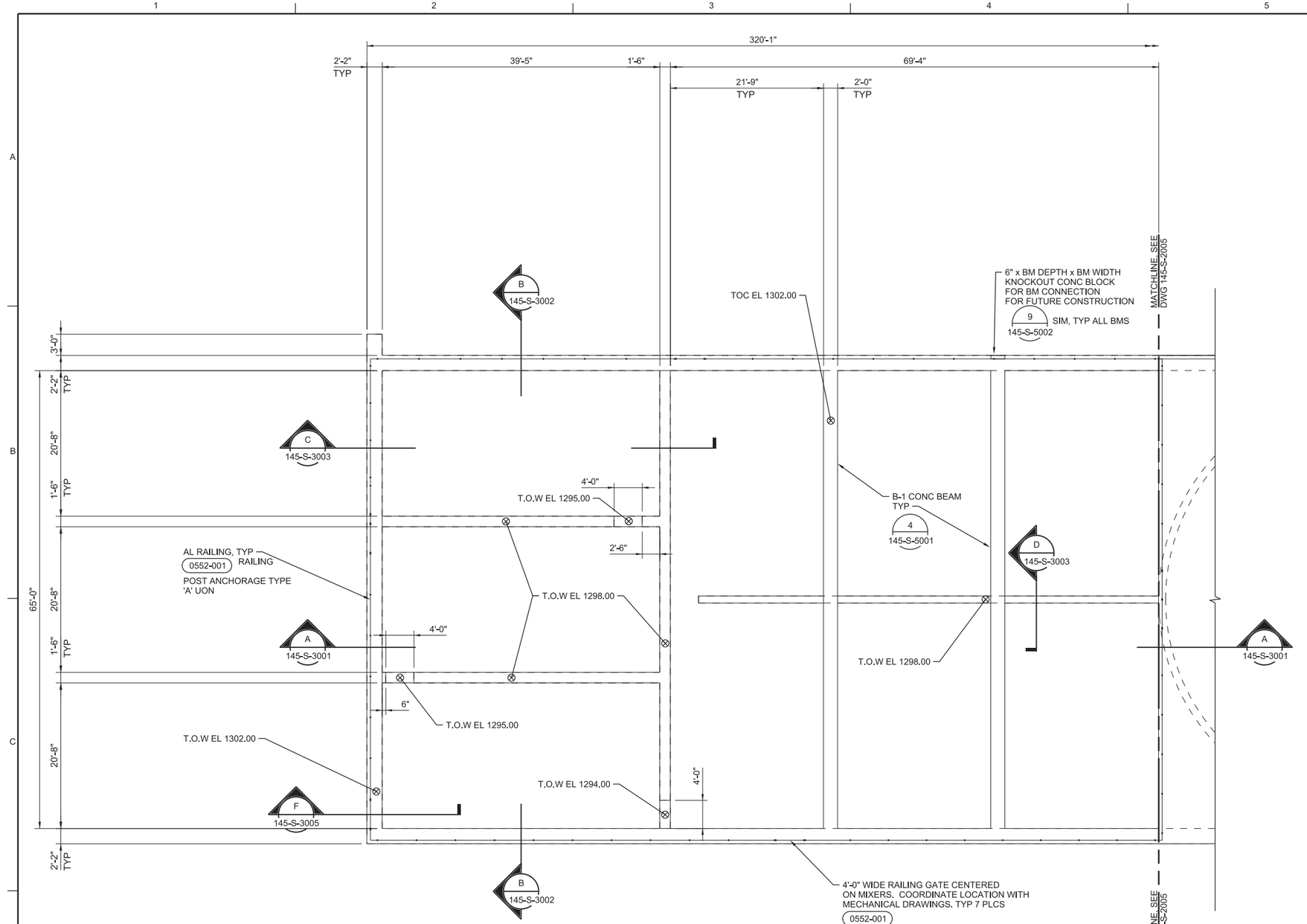
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	145-S-2003
SHEET	210 of 314

FILENAME: 145-S-2003_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:05:09 PM

GENERAL NOTES

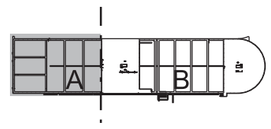
1. REFER TO MECHANICAL DRAWINGS FOR LOCATIONS OF DAVID CRANE BASES. COORDINATE ANCHORAGE REQUIREMENTS WITH CRANE MANUFACTURER.



N

TOP PLAN - AREA A

1/8"=1'-0"



N

KEY PLAN

HUGO ANDRES ROJAS
LICENSED
11/04/16
24949
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
	H ROJAS		F JAGLA	M MERKLEIN	APVD	H ROJAS	

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

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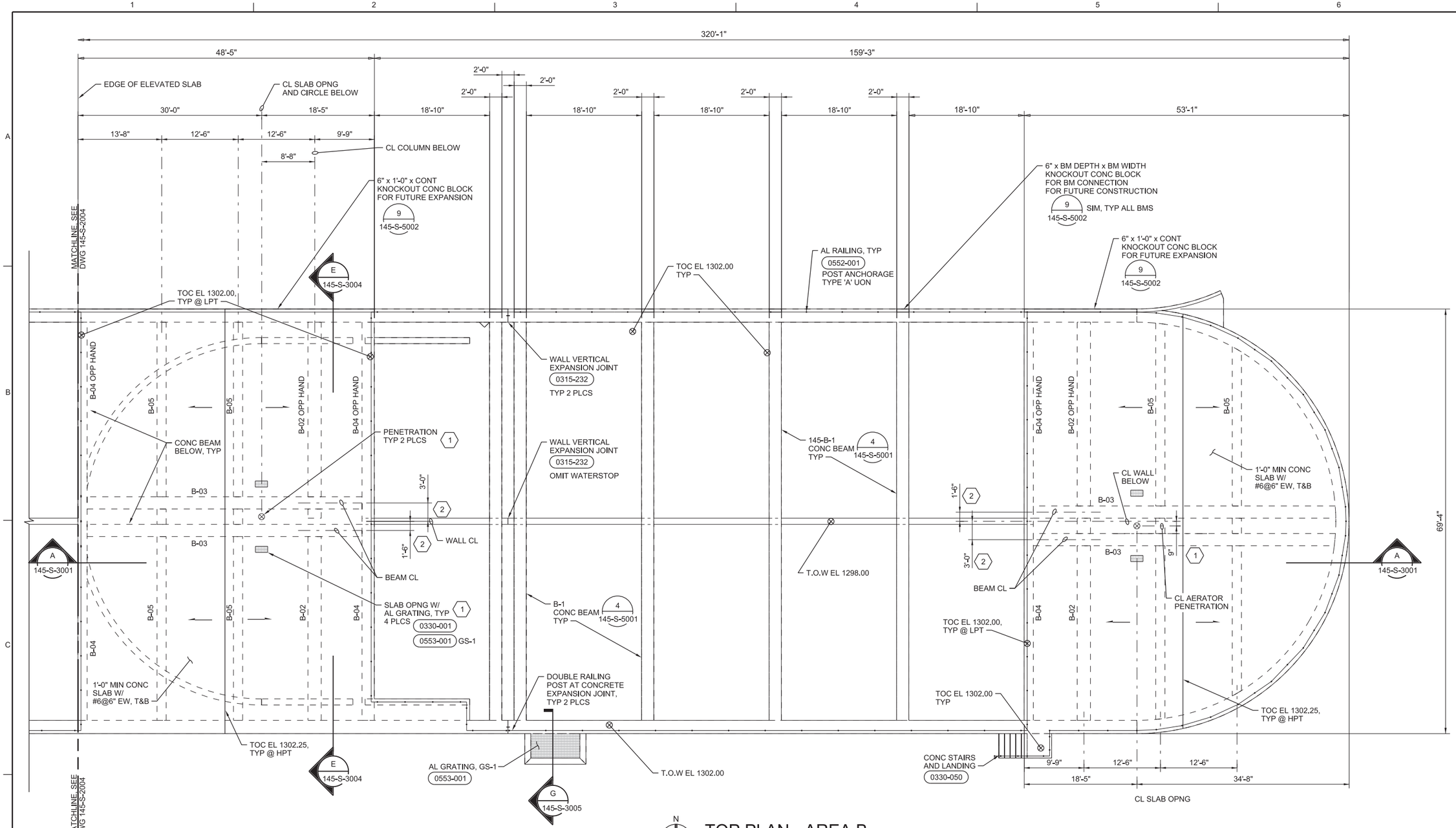
BIOREACTOR FACILITY
STRUCTURAL
TOP PLAN
AREA A

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	145-S-2004
SHEET	211 of 314

BIDDING SET

FILENAME: 145-S-2004_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:05:49 PM



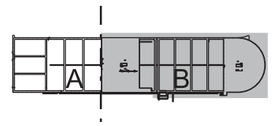
N

TOP PLAN - AREA B

1/8"=1'-0"

SHEET KEYNOTES

1. COORDINATE SIZE AND LOCATION OF PENETRATION WITH EQUIPMENT MANUFACTURER..
2. COORDINATE LOCATION OF CONCRETE BEAM WITH EQUIPMENT MANUFACTURER. LOCATE JACKSTUDS TO MATCH THE CENTERLINE OF CONCRETE BEAMS. NOTIFY THE ENGINEER IF DIMENSION NEEDS TO BE ADJUSTED MORE THAN 1'-0". FROM THE DIMENSION SHOWN.



N

KEY PLAN

HUGO ANDRES ROJAS LICENSED 11/04/16 24949 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	REVISION	DR	CHK	APVD	BY	APVD
		H ROJAS	F JAGLA		M MERKLEIN		H ROJAS	

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FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

ch2m

BIOREACTOR FACILITY
STRUCTURAL
TOP PLAN
AREA B

BIDDING SET

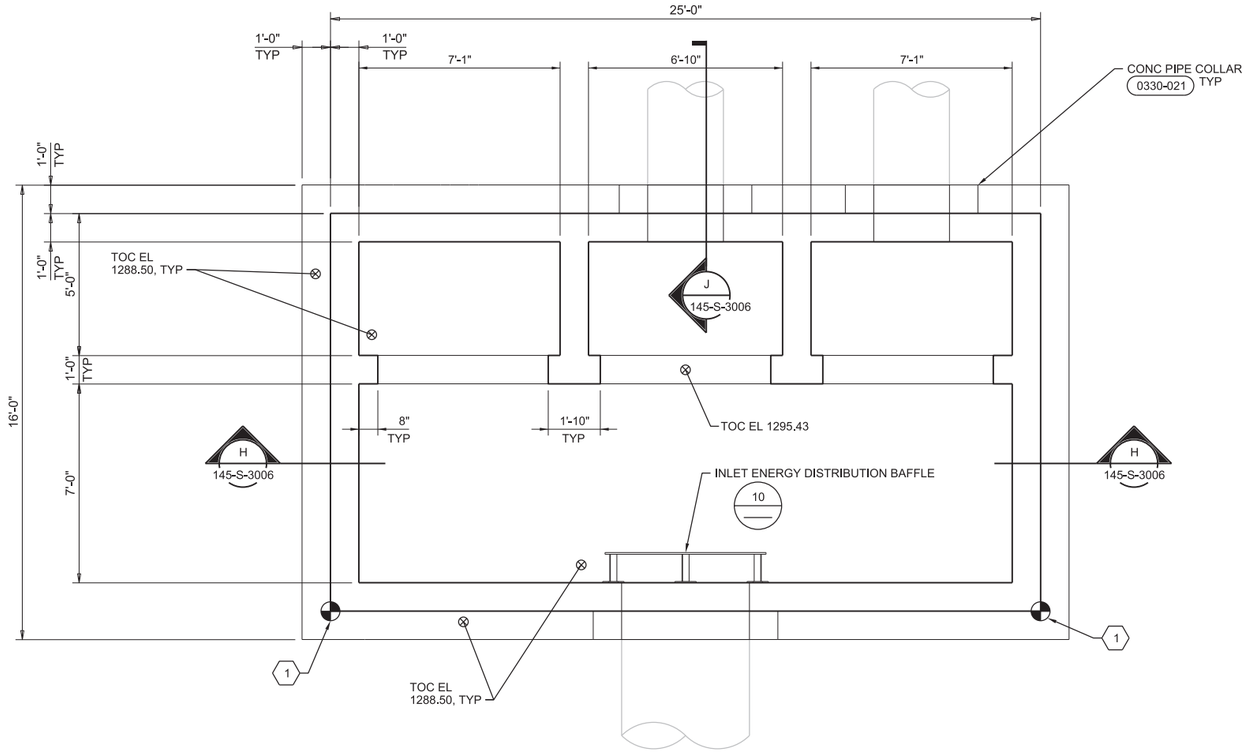
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	145-S-2005
SHEET	212 of 314

FILENAME: 145-S-2005_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:04:14 PM

SHEET KEYNOTES

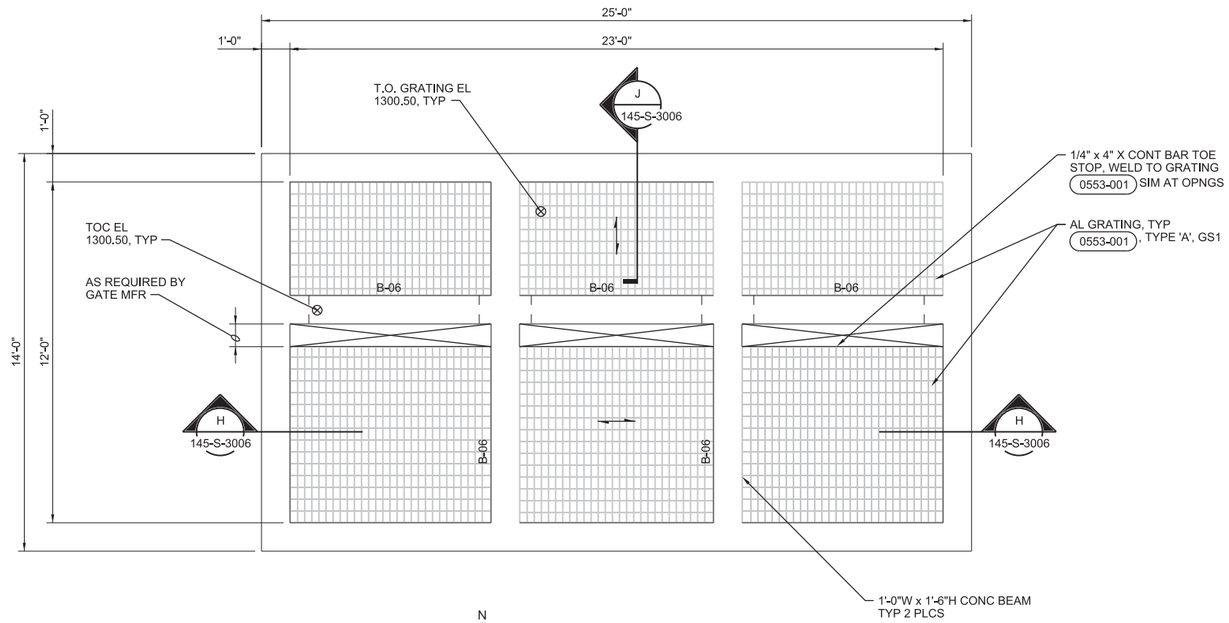
1. FOR FACILITY SITE COORDINATES REFER TO CIVIL DRAWINGS.



N

FOUNDATION PLAN

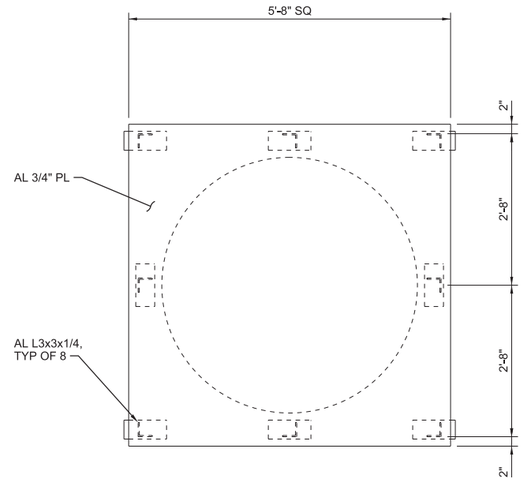
3/8"=1'-0"



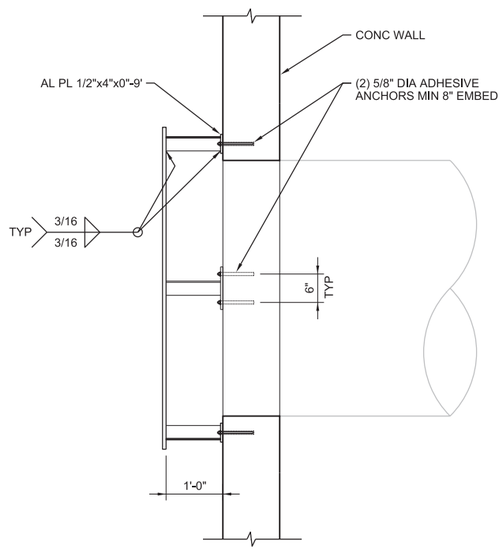
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TOP PLAN

3/8"=1'-0"



ELEVATION



SECTION

10 INLET ENERGY DISTRIBUTION BAFFLE

3/4"=1'-0"

HUGO ANDRES ROJAS LICENSED 11/04/16 24949 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DESCRIPTION	DATE	BY
DSGN	F JAGLA	H ROJAS	APVD
DR	M MERKLEIN	H ROJAS	APVD
CHK	H ROJAS		

REVISION

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CITY OF WICHITA, KANSAS

BIOREACTOR FACILITY
STRUCTURAL
SPLITTER BOX
FOUNDATION AND TOP PLANS

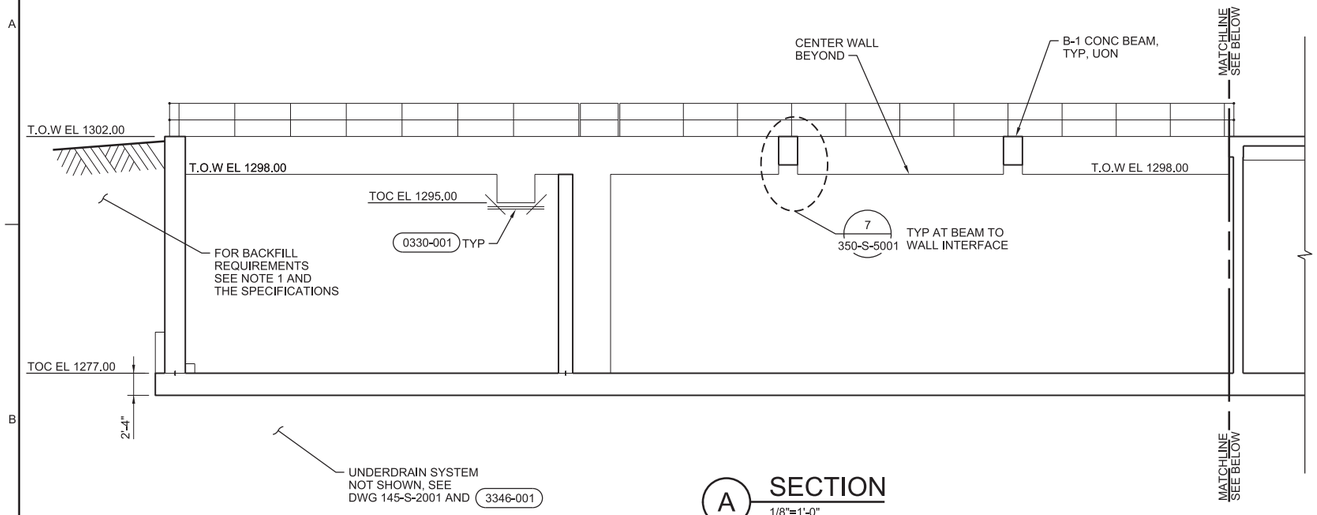
BIDDING SET

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	145-S-2006
SHEET	213 of 314

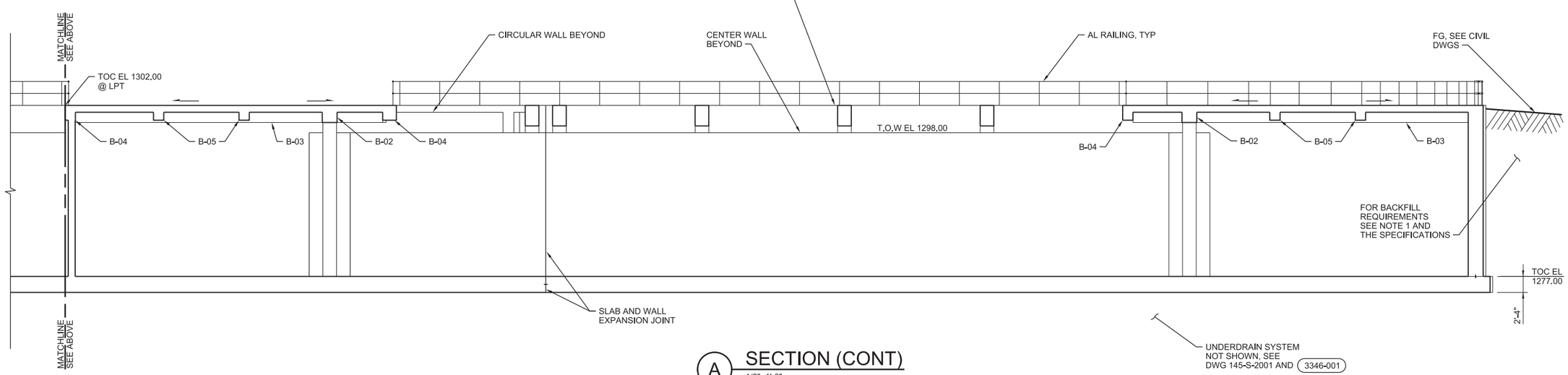
GENERAL NOTES

1. BACKFILL USING GRANULAR FILL IN ZONE FROM THE BASE OF THE STRUCTURE EXTENDING UPWARD AT AN ANGLE OF AT LEAST 45 DEGREES FROM VERTICAL TO A DEPTH OF 2 FEET BELOW TOP OF BACKFILL. BACKFILL UPPER 2 FEET WITHIN 10 FEET OF PERIMETER OF STRUCTURE USING COHESIVE SOIL TO PREVENT INFILTRATION OF SURFACE WATER



A SECTION
1/8"=1'-0"

145-S-2002
145-S-2003
145-S-2004
145-S-2005



A SECTION (CONT)
1/8"=1'-0"

145-S-2002
145-S-2003
145-S-2004
145-S-2005

HUGO ANDRES ROJAS
LICENSED
11/04/16
24949
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DESCRIPTION	DATE	DSGN	DR	CHK	APVD
	REVISION		H ROJAS	F JAGLA	M MERKLEIN	H ROJAS
					BY	APVD

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CITY OF WICHITA, KANSAS

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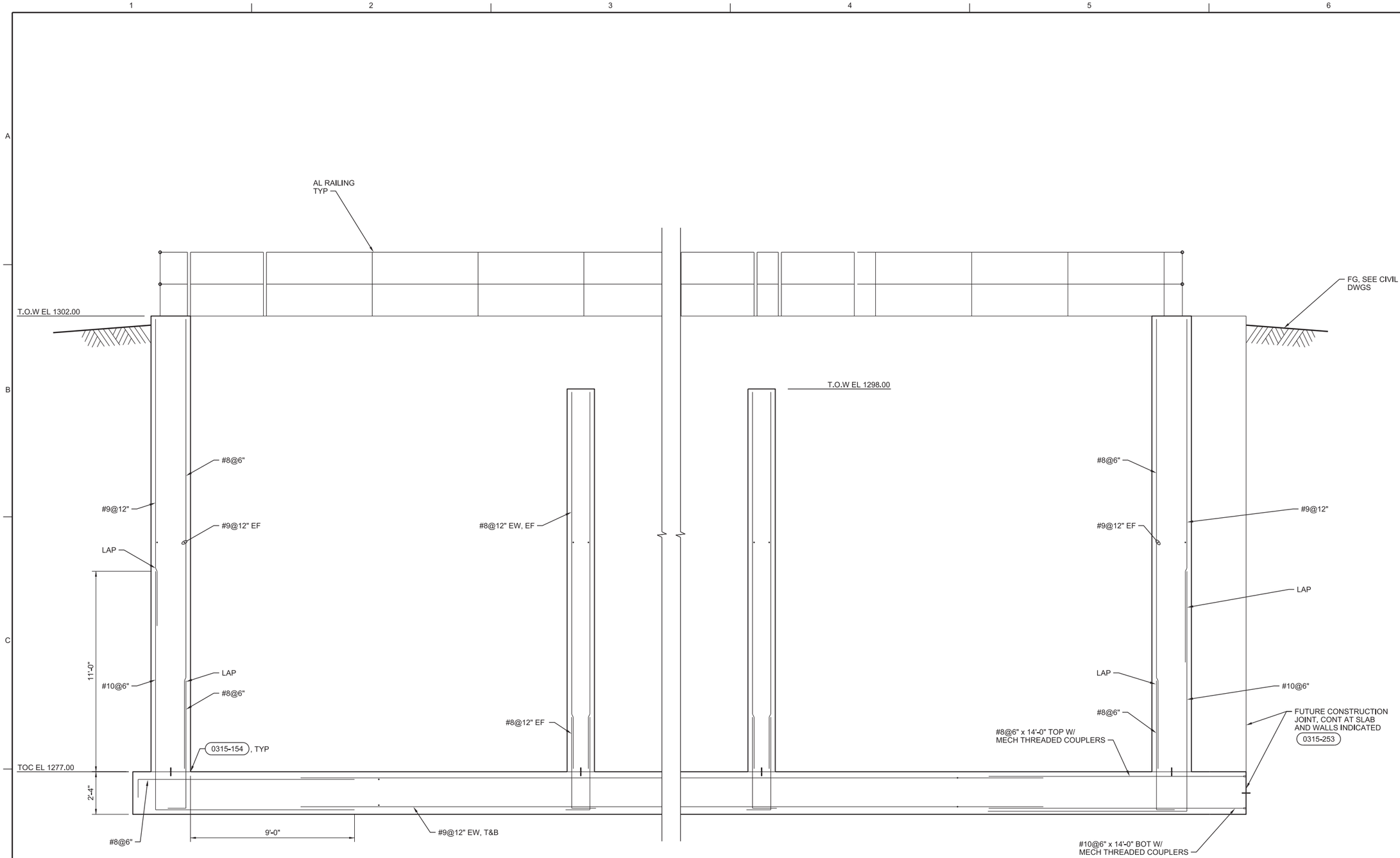
BIOREACTOR FACILITY
STRUCTURAL SECTION

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	145-S-3001
SHEET	214 of 314

BIDDING SET

FILENAME: 145-S-3001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:04:45 PM



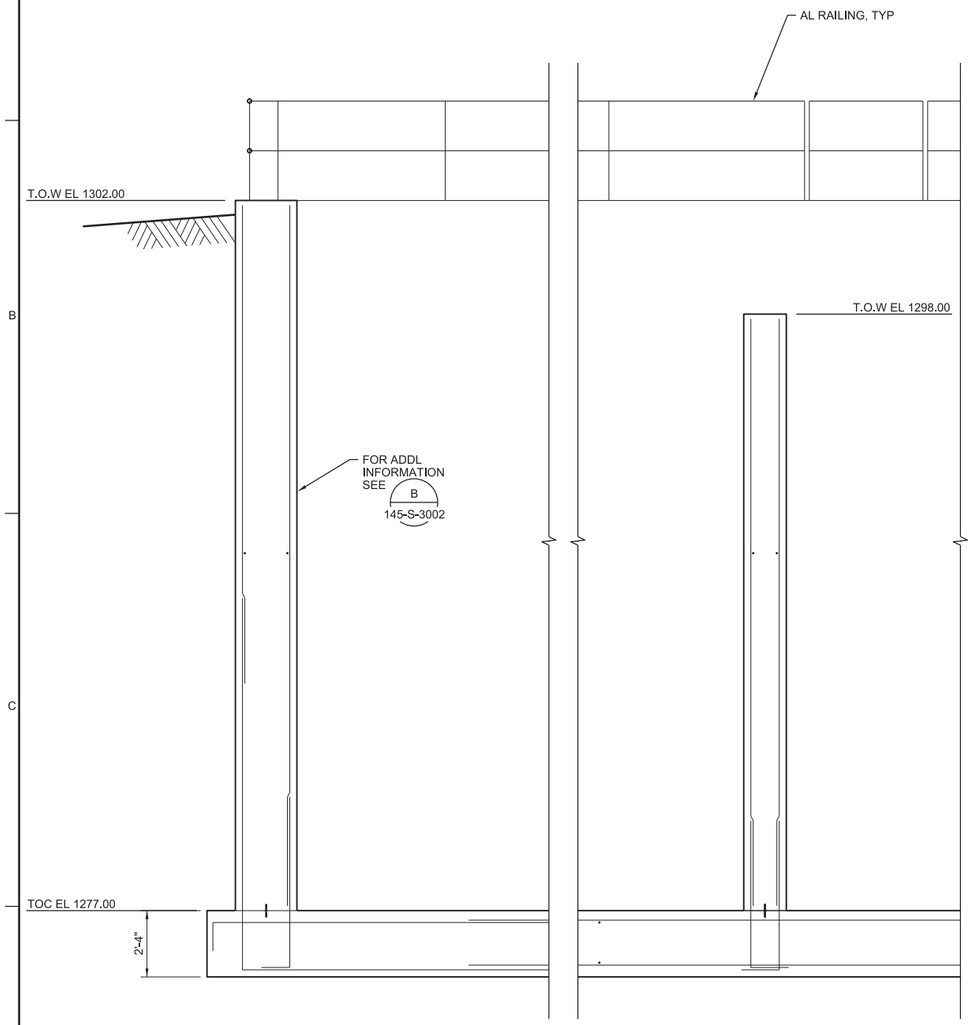
B SECTION
3/8"=1'-0"

145-S-2002
145-S-2004

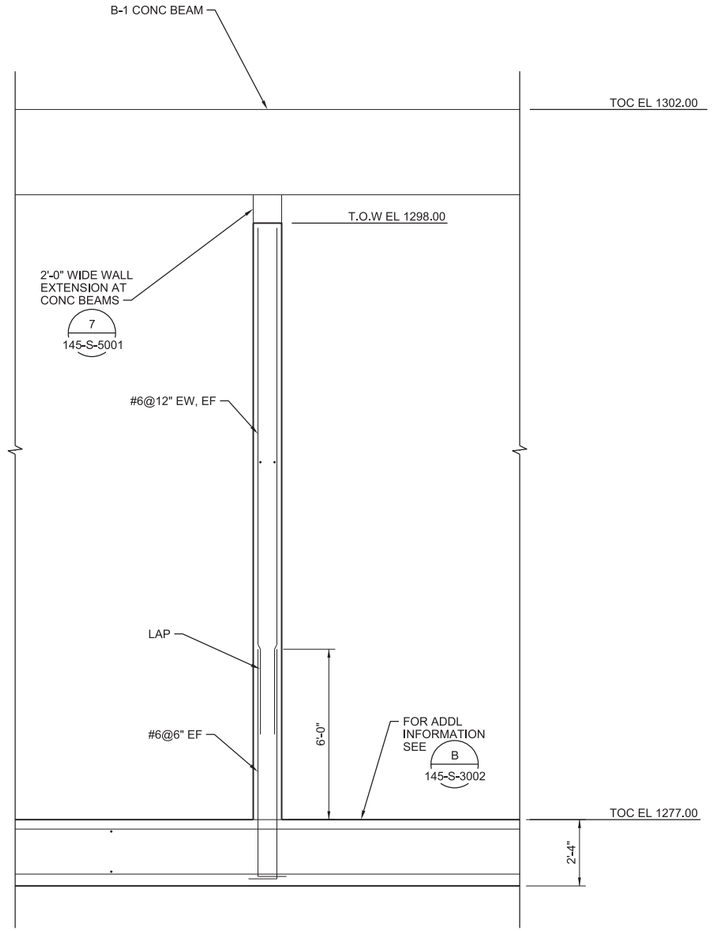
HUGO ANDRES ROJAS
LICENSED
11/04/16
24949
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD



C SECTION
3/8"=1'-0"
145-S-2002
145-S-2004



D SECTION
3/8"=1'-0"
145-S-2002
145-S-2004

HUGO ANDRES ROJAS
LICENSED
11/04/16
24949
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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NO.	DESCRIPTION	DATE	BY	APVD
DSGN	H ROJAS		H ROJAS	
DR	F JAGLA	REVISION	CHK	M MERKLEIN
				APVD

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DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

ch2m

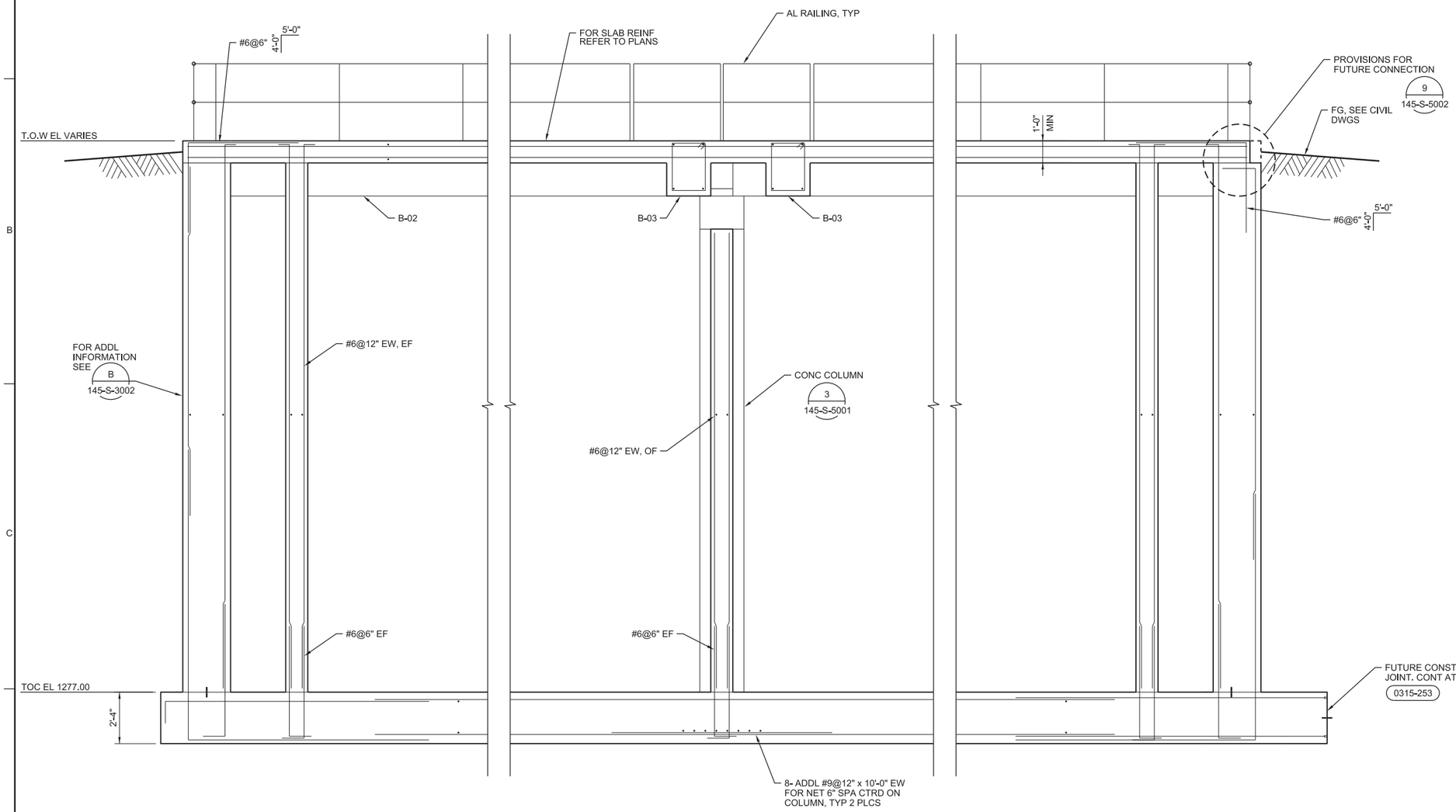
BIOREACTOR FACILITY
STRUCTURAL SECTIONS

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	145-S-3003
SHEET	216 of 314

BIDDING SET

FILENAME: 145-S-3003_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:06:05 PM



E SECTION
3/8"=1'-0"

145-S-2003
145-S-2005

HUGO ANDRES ROJAS
LICENSED
11/04/16
24949
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	DR	CHK	APVD	BY	APVD
DSGN	H ROJAS		F JAGLA	M MERKLEIN		H ROJAS	

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CITY OF WICHITA, KANSAS

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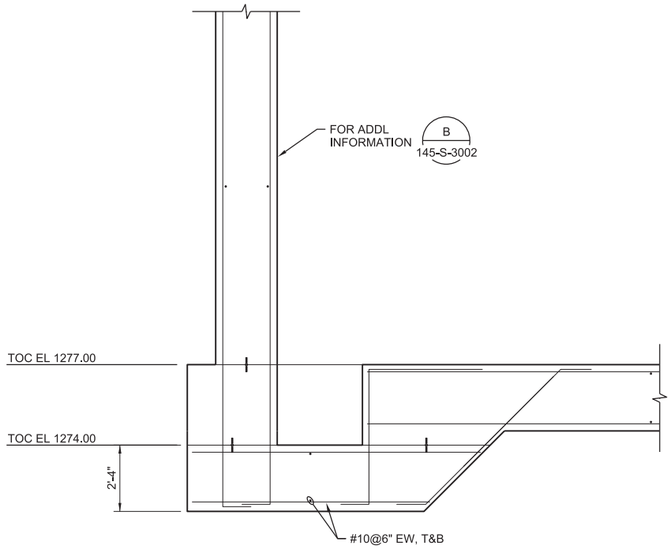
BIOREACTOR FACILITY
STRUCTURAL
SECTION

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

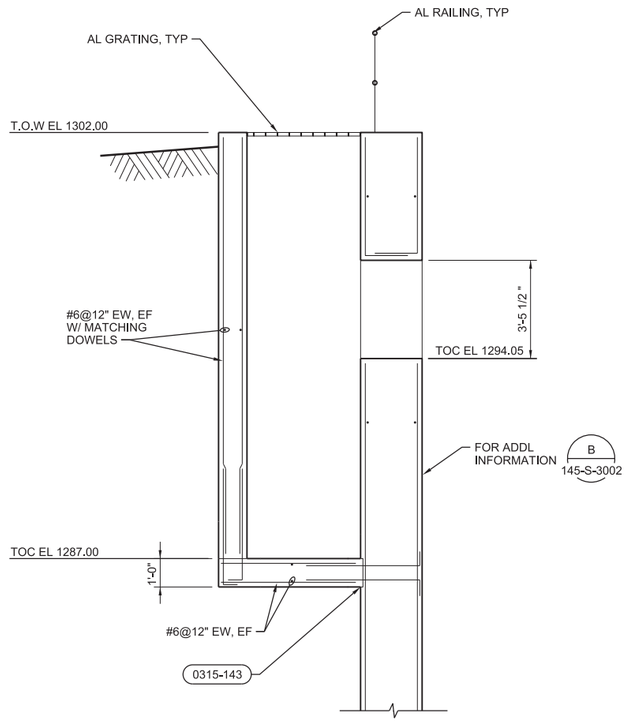
DATE	NOVEMBER 2016
PROJ	496312
DWG	145-S-3004
SHEET	217 of 314

BIDDING SET

FILENAME: 145-S-3004_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:06:33 PM



F SECTION
3/8"=1'-0"
145-S-2002
145-S-2004

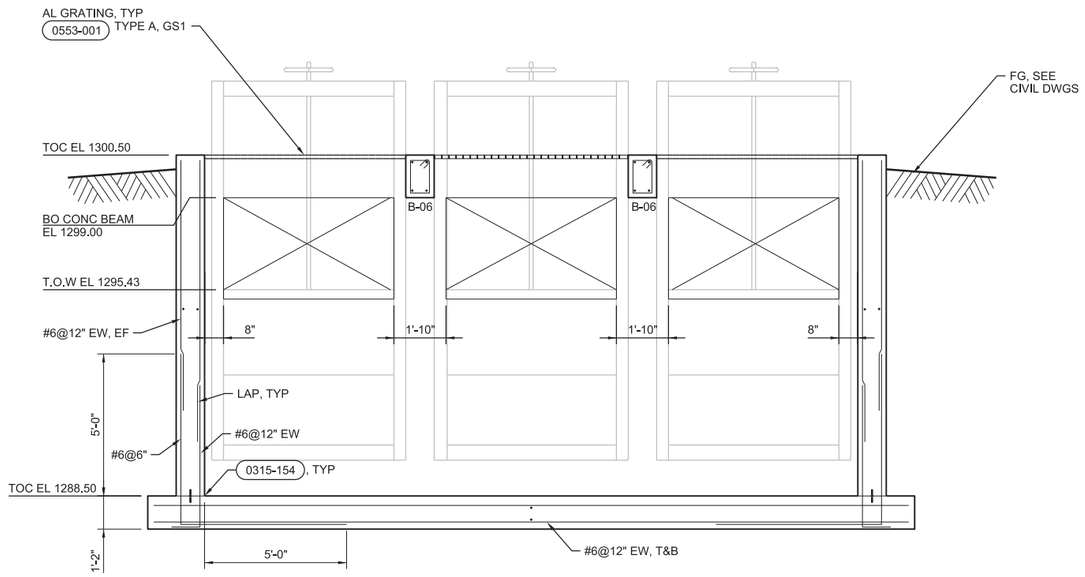


G SECTION
3/8"=1'-0"
145-S-2003
145-S-2005

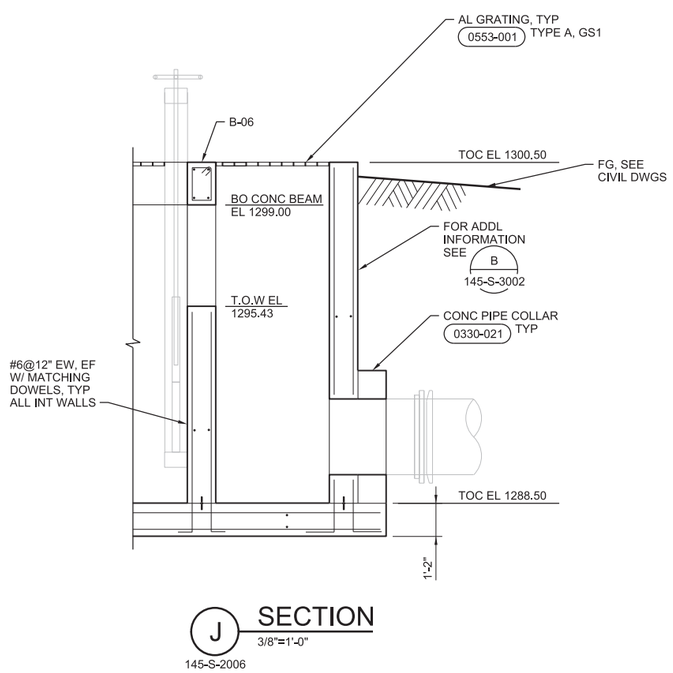
HUGO ANDRES ROJAS
LICENSED
11/04/16
24949
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD



H SECTION
3/8"=1'-0"
145-S-2006



J SECTION
3/8"=1'-0"
145-S-2006

HUGO ANDRES ROJAS
LICENSED
11/04/16
24949
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
	H ROJAS	H ROJAS	F JAGLA	M MERKLEIN	APVD	H ROJAS	

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CITY OF WICHITA, KANSAS

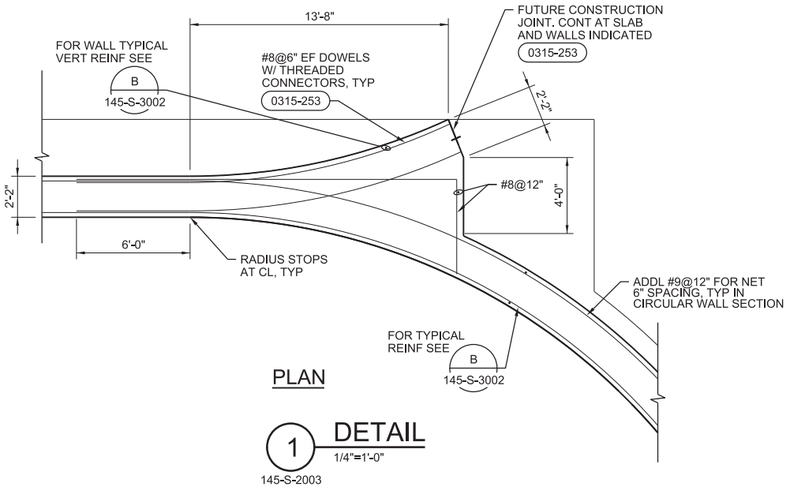
BIOREACTOR FACILITY
STRUCTURAL SPLITTER BOX SECTIONS

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	145-S-3006
SHEET	219 of 314

BIDDING SET

FILENAME: 145-S-3006_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:05:53 PM



PLAN

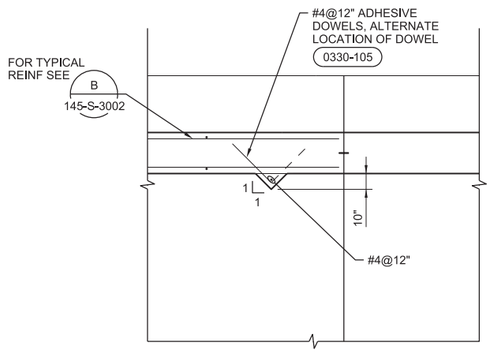
1 DETAIL
1/4"=1'-0"
145-S-2003

BEAM NO. (SEE PLANS)	SIZE		* TOP REINF AT LEFT SUPPORT		BOTTOM REINF		* TOP REINF AT RIGHT SUPPORT		S BARS	SHEAR REINF				REMARKS
	W	D	T	TC	B	BC	T	TC		NO. (NOTE 5)	SIZE	TYPE	SPACING FROM LEFT SUPPORT	
B-01	2'-0"	3'-0"	3#8	3#8	3#8	3#8	3#8	3#8	6#8		#4	CLOSED TIES	16" MAX	ADD A HAIRPIN ON MIDDLE S BARS
B-02	2'-4"	2'-6"	5#9	5#9	4#8	4#8	5#9	5#9	2#6		#4	CLOSED TIES	12@10", 12" MAX, 24@5"	
B-03	2'-0"	2'-6"	4#7	4#7	4#7	4#7	4#7	4#7	2#6		#4	CLOSED TIES	12" MAX	
B-04	1'-6"	2'-2"	4#7	4#7	4#7	4#7	4#7	4#7	2#6		#4	CLOSED TIES	12" MAX	
B-05	1'-6"	2'-2"	4#7	4#7	4#7	4#7	4#7	4#7	2#6		#4	CLOSED TIES	12" MAX	
B-06	1'-6"	2'-2"	4#7	4#7	4#7	4#7	4#7	4#7	2#6		#3	CLOSED TIES	6" MAX	
B-07	1'-0"	1'-6"	4#7	4#7	4#7	4#7	4#7	4#7	2#6		#3	CLOSED TIES	6" MAX	

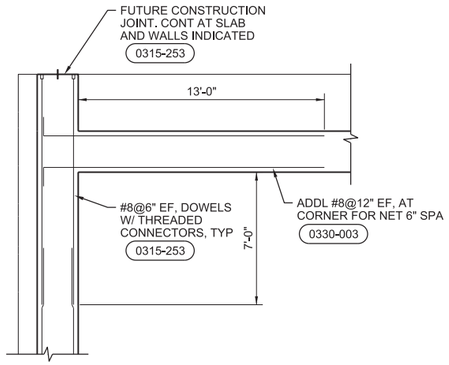
NOTES:

1. * TOP REINFORCING MAY BE CALLED-OUT TWICE IN SCHEDULE. (I.E. "TOP REINFORCING AT RIGHT SUPPORT" OF BEAM THAT IS CONTINUOUS OVER THE RIGHT SUPPORT IS CALLED-OUT AS "TOP REINFORCING AT LEFT SUPPORT" OF ADJACENT BEAM.)
2. LEFT SUPPORT IS DESIGNATED AS THE SUPPORT CLOSEST TO THE LEFT SIDE OR BOTTOM OF SHEET ON WHICH FRAMING PLAN IS DRAWN, UNLESS NOTED OTHERWISE ON PLAN.
3. WHERE FLOOR SLOPES, DEPTH OF BEAM (D) SHOWN IS MINIMUM DEPTH. BOTTOM ELEVATION OF BEAM SHALL BE CONSTANT, UNLESS INDICATED OTHERWISE.
4. WHERE SHEAR REINFORCING "TYPE" IS INDICATED AS "STIRRUP", PROVIDE SHEAR REINFORCING AND CLOSURES AS SHOWN IN BEAM REINFORCING DETAIL. WHERE SHEAR REINFORCING "TYPE" IS INDICATED AS "CLOSED TIE", PROVIDE CLOSED TIES IN LIEU OF STIRRUPS AND CLOSURE BARS.
5. "NO." INDICATES NUMBER OF STIRRUPS OR TIES PER SET.
6. FOR BEAM REINFORCING LAYOUT REFER TO 0330-066

4 DETAIL
NTS
145-S-2004
145-S-2005

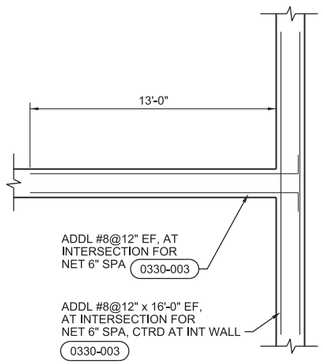


2 DETAIL
1/4"=1'-0"
145-S-2003



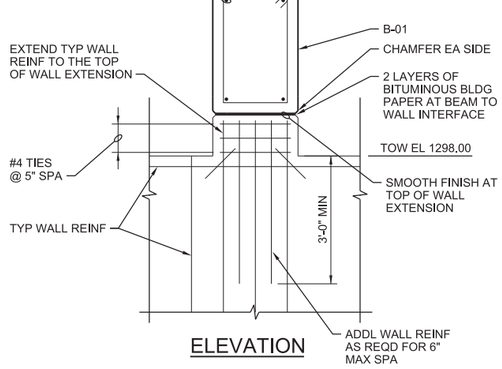
PLAN

5 DETAIL
1/4"=1'-0"
145-S-5001



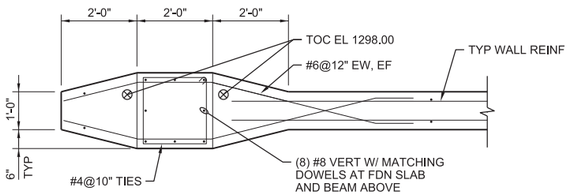
PLAN

6 DETAIL
1/4"=1'-0"
145-S-2002



ELEVATION

7 DETAIL
3/8"=1'-0"
145-S-3001
145-S-3003



PLAN

3 DETAIL
1/2"=1'-0"
145-S-2003

HUGO ANDRES ROJAS
LICENSED
11/04/16
24949
KANSAS
PROFESSIONAL ENGINEER
11/04/2016
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NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
	H ROJAS		F JAGLA	M MERKLEIN	APVD	H ROJAS	

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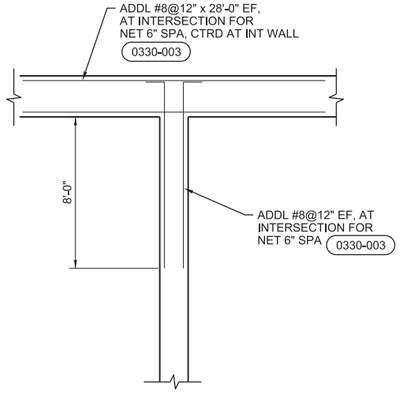
BIOREACTOR FACILITY
STRUCTURAL DETAILS

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	145-S-5001
SHEET	220 of 314

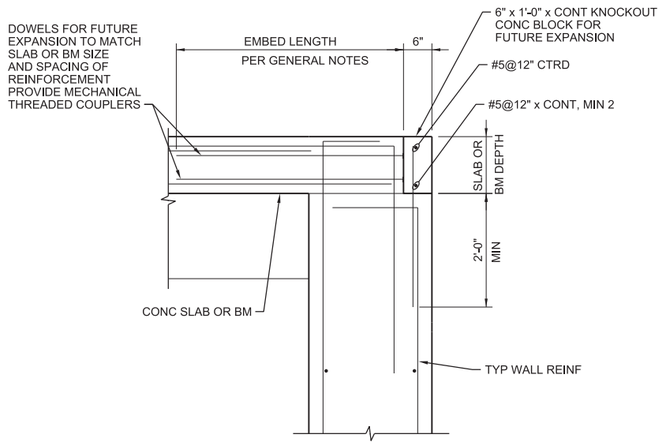
BIDDING SET

FILENAME: 145-S-5001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:04:33 PM



PLAN

8 DETAIL
1/4"=1'-0"
145-S-2002



SECTION

9 DETAIL
3/4"=1'-0"
145-S-2002

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11/04/16
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BIOREACTOR FACILITY
STRUCTURAL
DETAILS

BIDDING SET

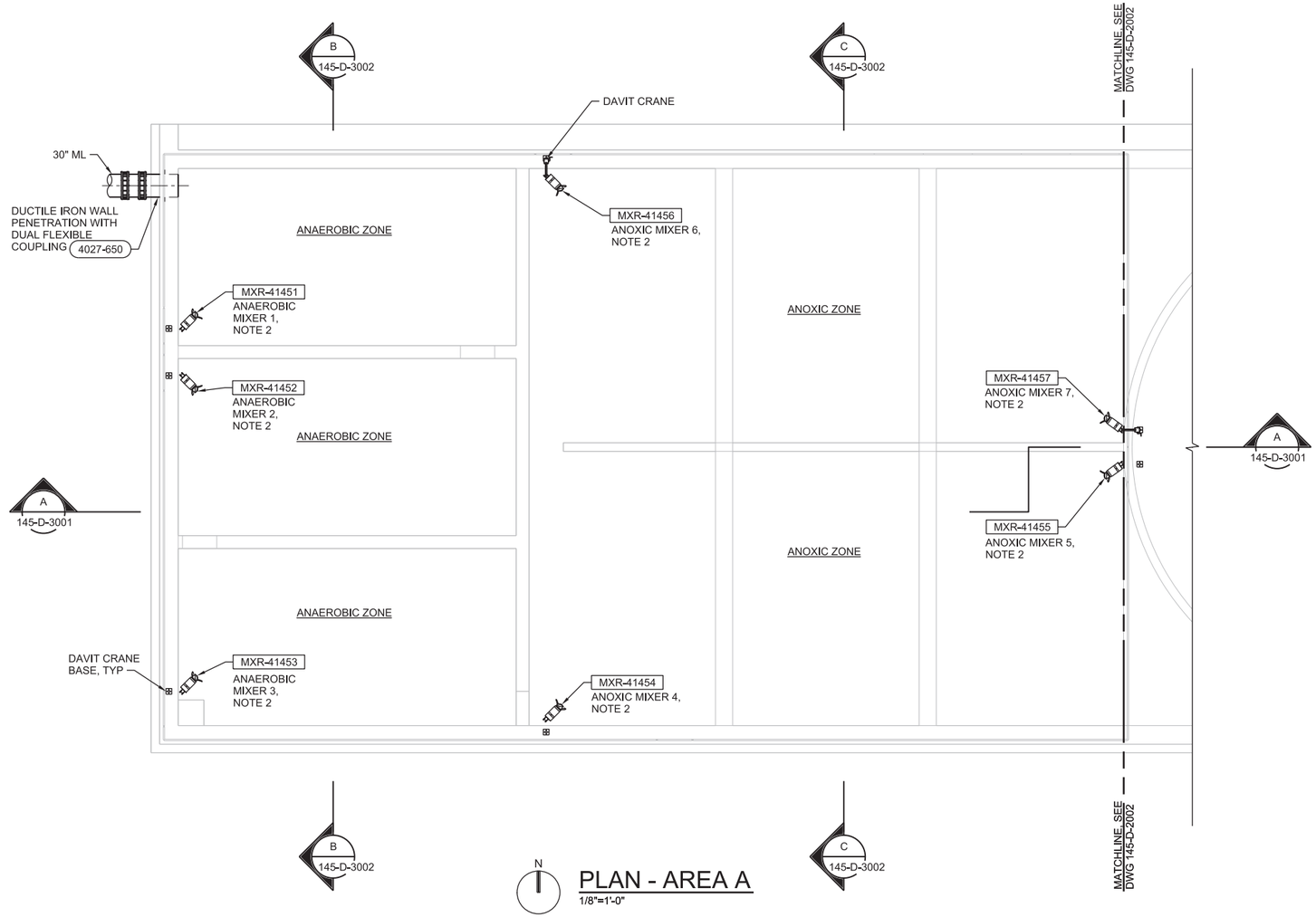
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	145-S-5002
SHEET	221 of 314

FILENAME: 145-S-5002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:04:58 PM

GENERAL NOTES

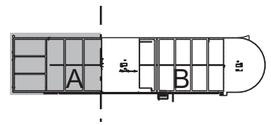
1. FOR CONTINUATION OF PIPING IN THE YARD, SEE DRAWING 051-Y-2004.
2. EXACT LOCATION OF EACH SUBMERSIBLE MIXER TO BE COORDINATED WITH THE MANUFACTURER.



N

PLAN - AREA A

1/8"=1'-0"



N

KEY PLAN

ESTELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		M GAME	D CAVE	S POLSON		E JOHNSON	

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BIOREACTOR FACILITY

PROCESS MECHANICAL
PLAN - AREA A

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	145-D-2001
SHEET	222 of 314

BIDDING SET

FILENAME: 145-D-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:05:27 PM

GENERAL NOTES

1. FOR CONTINUATION OF PIPING IN THE YARD, SEE DRAWING 051-Y-2005.
2. 3'-0" DISTANCE FROM EQUIPMENT TO THE SOUND PANELS, PER MANUFACTURER. PLACEMENT PER MANUFACTURER REQUIREMENTS.
3. SOUND PANELS TO BE SUPPLIED BY ACOUSTIBLOCK OR PRE-APPROVED EQUAL. 4'x 8' ALUMINUM, ALL WEATHER SOUND PANELS (MODEL# AWSPIND 48) AND (1) 8' ALUM T BAR AND HH-SS 3/8"x 3.25" STAINLESS STEEL MOUNTING HARDWARE. ALL PANELS TO INCLUDE SOUND ISOLATION MATERIAL PLUS A SPECIFICALLY ENGINEERED 2" THICK WEATHERPROOF NON-FIBERGLASS, HYROPHOBIC, SOUND ABSORBING MATERIAL. PANELS MUST HAVE AN NRC OF 1.00 AND STC OF 29. ANCHORAGE SHALL BE DESIGNED BY THE MANUFACTURER. REFER TO STRUCTURAL GENERAL NOTES DRAWINGS FOR DESIGN CRITERIA. SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL.

SHEET KEYNOTES

1. ASSOCIATED WITH BID ITEM ADD ALTERNATIVE NUMBER 1, FERRIC FEED SYSTEM.

MATCHLINE, SEE DWG 145-D-2001

E 145-D-3002

AE 41452

20'-0"

D 145-D-3002

AIT 41452

2'-0"

AEROBIC ZONE

SAER-41403
AERATOR 1

SAER-41404
AERATOR 2

3'-0"

NOTE 2

SOUND-ATTENUATING PANEL, NOTE 3, TYP OF 2

A 145-D-3001

MOW STRIP

SG-41454
DIVERSION GATE

AIT 41453

AE 41453

1 145-D-3002

2'-0"

1/2" FC IN 1" CARRIER

30" ML

SIDEWALK

MATCHLINE, SEE DWG 145-D-2001

N

PLAN - AREA B
1/8"=1'-0"

E 145-D-3002

D 145-D-3002

A B

N

KEY PLAN

KASTELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DSGN	DATE	DR	CHK	APVD	BY	APVD
			M GAME	D CAVE	S POLSON	REVISION	E JOHNSON

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FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

BIOREACTOR FACILITY

PROCESS MECHANICAL PLAN - AREA B

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

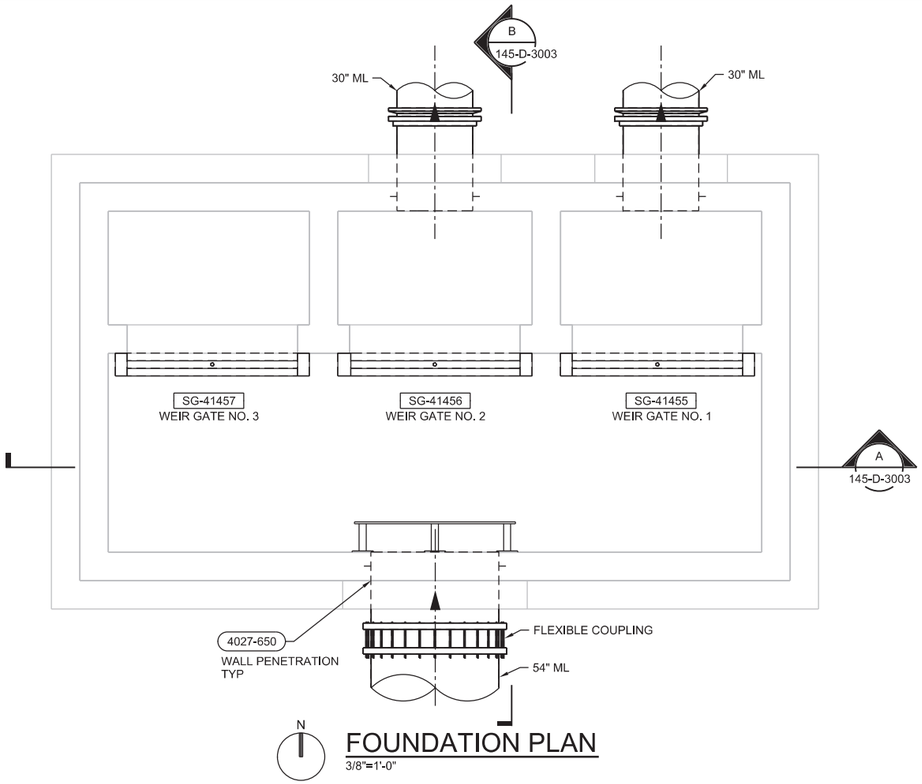
DATE	NOVEMBER 2016
PROJ	496312
DWG	145-D-2002
SHEET	223 of 314

BIDDING SET

FILENAME: 145-D-2002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:05:38 PM

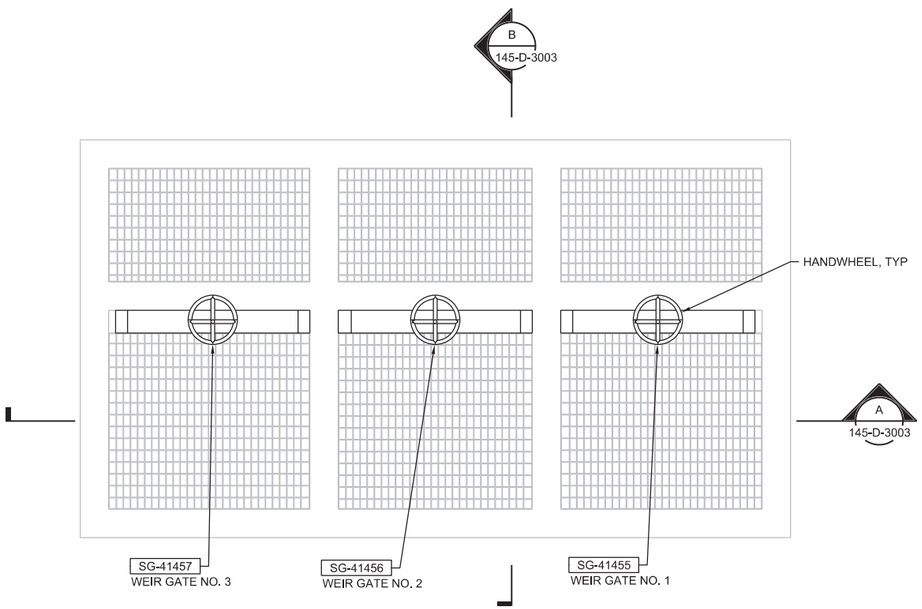
GENERAL NOTES

1. FOR CONTINUATION OF PIPING IN THE YARD, SEE DRAWING 051-Y-2004



FOUNDATION PLAN

3/8"=1'-0"



TOP PLAN

3/8"=1'-0"

ESTELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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NO.	DATE	REVISION	BY	APVD
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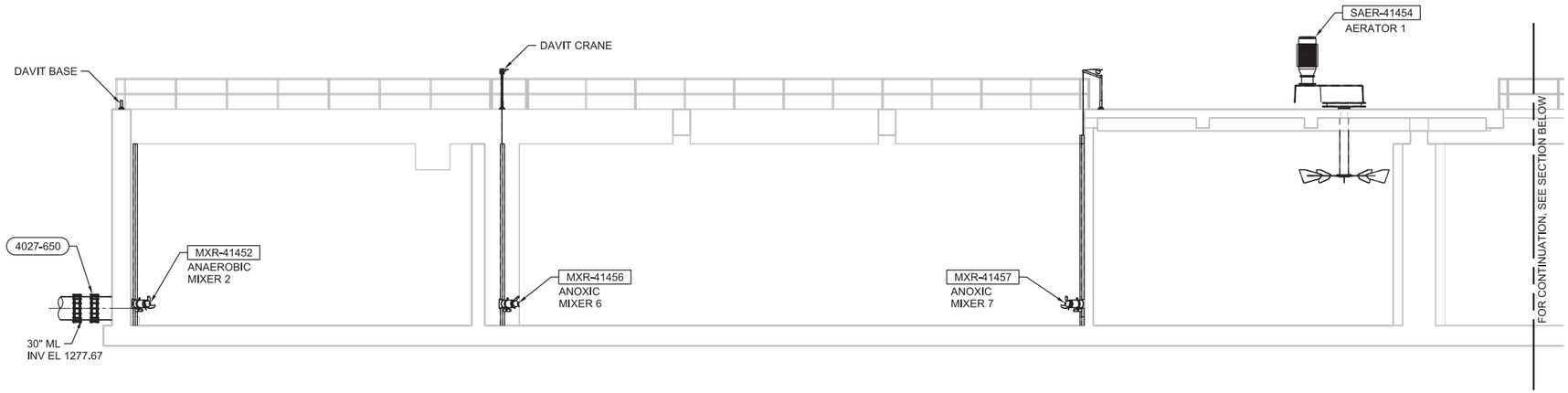
BIOREACTOR FACILITY
PROCESS MECHANICAL
SPLITTER BOX
PLANS

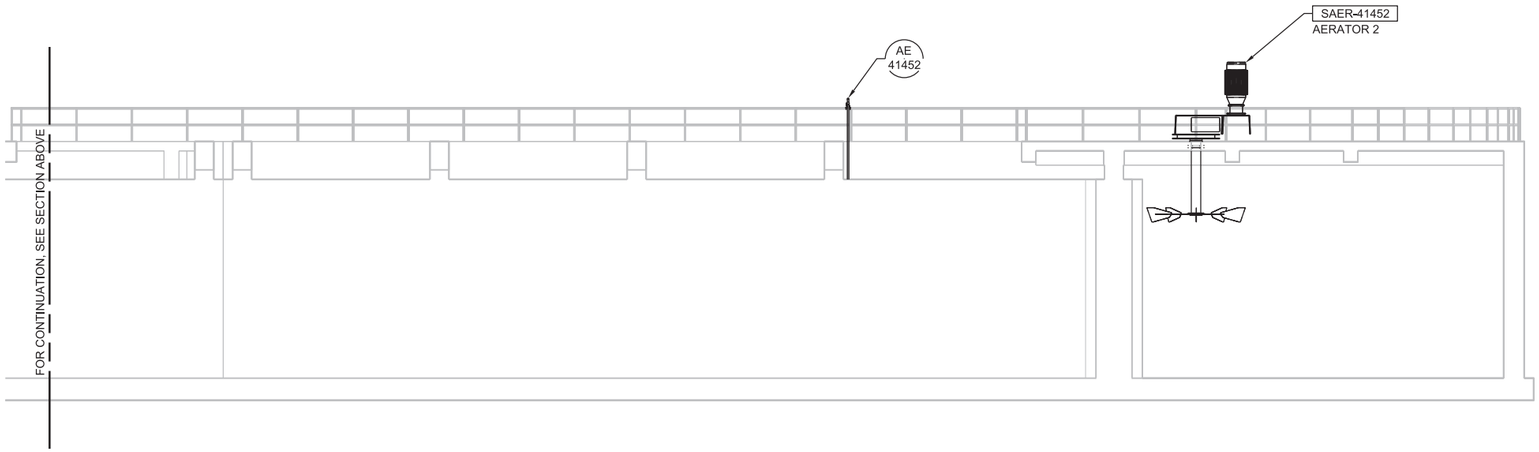
BIDDING SET

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	145-D-2003
SHEET	224 of 314

FILENAME: 145-D-2003_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 7:10:56 PM





A SECTION
1/8"=1'-0"

145-D-2001
145-D-2002

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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NO.	DATE	REVISION	BY	APVD
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BIOREACTOR FACILITY

PROCESS MECHANICAL SECTION

BIDDING SET

VERIFY SCALE

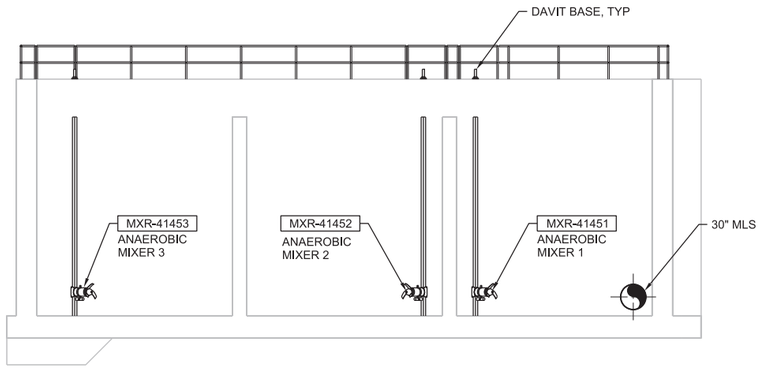
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	145-D-3001
SHEET	225 of 314

FILENAME: 145-D-3001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:04:20 PM

SHEET KEYNOTES

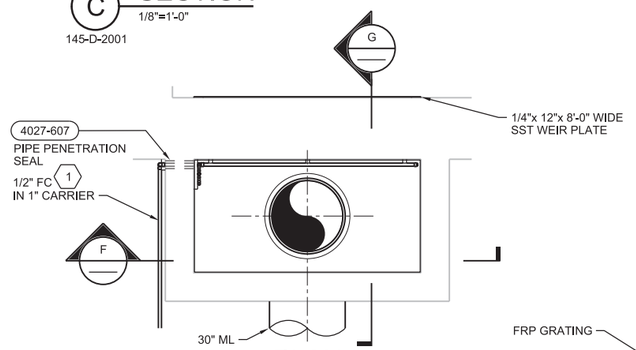
1. ASSOCIATED WITH BID ITEM ADD ALTERNATIVE NUMBER 1, FERRIC FEED SYSTEM.



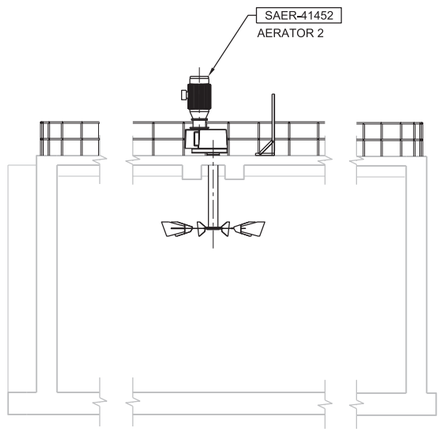
B SECTION
1/8"=1'-0"
145-D-2001



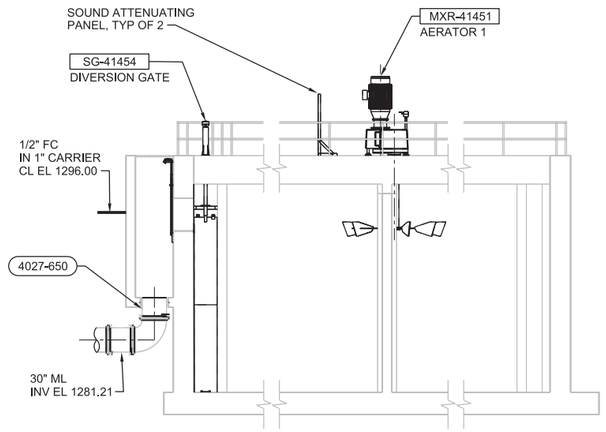
C SECTION
1/8"=1'-0"
145-D-2001



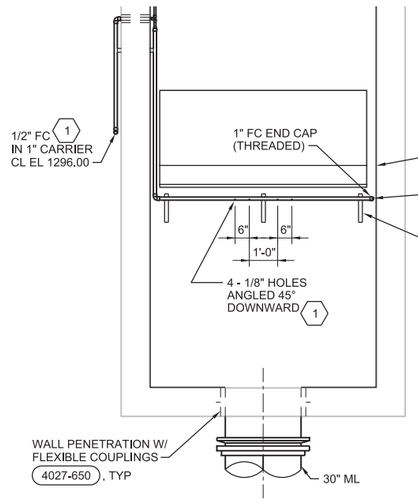
PLAN



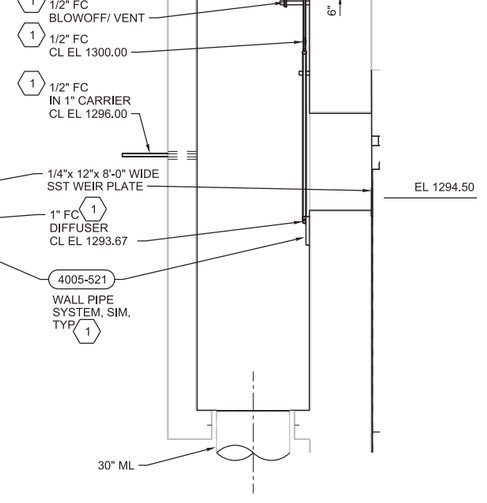
D SECTION
1/8"=1'-0"
145-D-2002



E SECTION
1/8"=1'-0"
145-D-2002



F SECTION



G SECTION

1 DETAIL
3/8"=1'-0"
145-D-2002

NOTE:
COAT ALL FLOORS, WALLS AND METALLIC APPURTENANCES PER 09 96 35, SYSTEM NO. 1.

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DSGN	DATE	REVISION	BY	APVD
	DR	M GAME	D CAVE	CHK	S POLSON
				APVD	E JOHNSON

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BIOREACTOR FACILITY

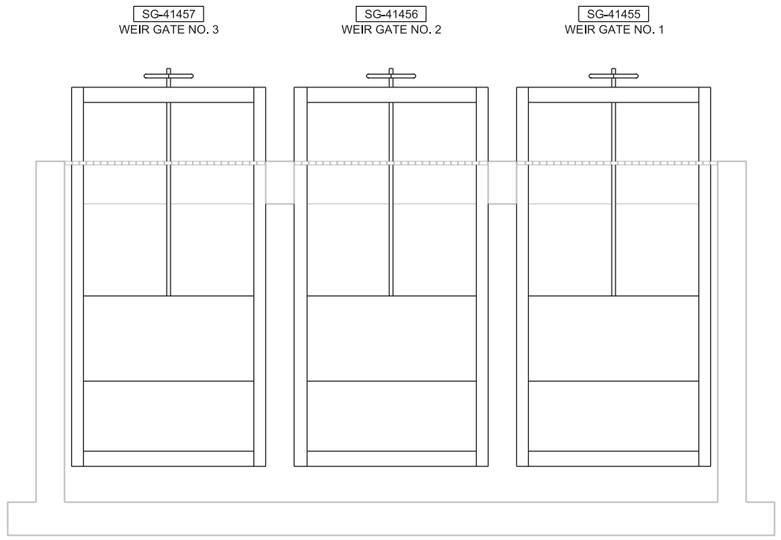
PROCESS MECHANICAL
SECTIONS AND DETAIL

BIDDING SET

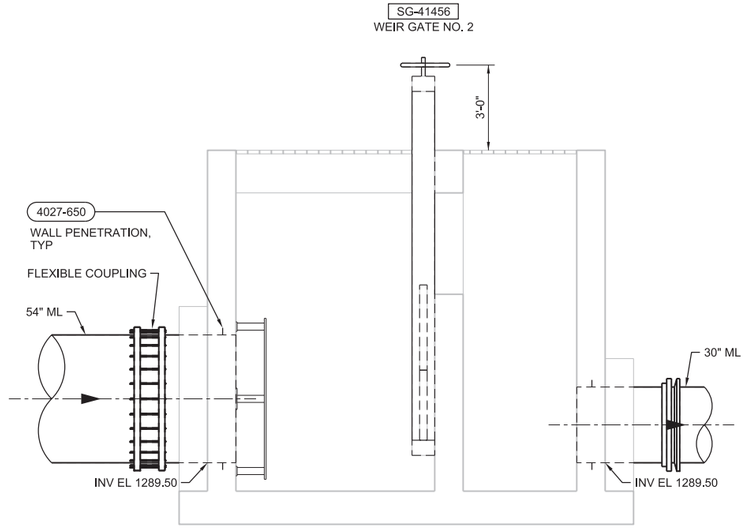
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	145-D-3002
SHEET	226 of 314

FILENAME: 145-D-3002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:05:04 PM



A SECTION
3/8"=1'-0"
145-D-2003



B SECTION
3/8"=1'-0"
145-D-2003

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DR	CHK	APVD	BY	APVD
DSGN	A SMITH	D CAVE	S POLSON		E JOHNSON	

REVISION

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FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

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BIOREACTOR FACILITY

PROCESS MECHANICAL SPLITTER BOX SECTIONS

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

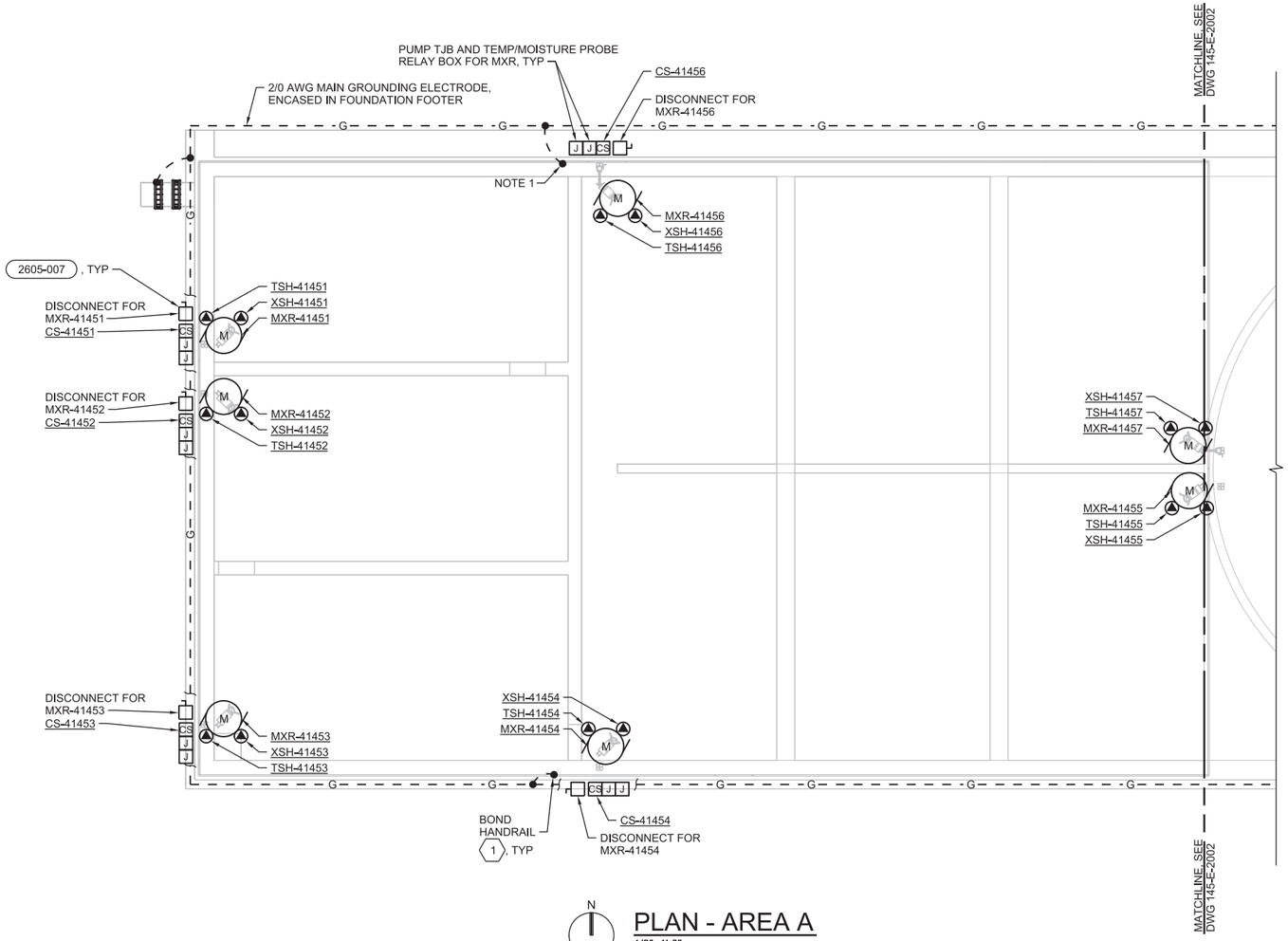
DATE	NOVEMBER 2016
PROJ	496312
DWG	145-D-3003
SHEET	227 of 314

BIDDING SET

FILENAME: 145-D-3003_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:05:51 PM

SHEET KEYNOTES

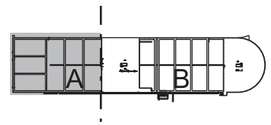
1. AT INTERVALS NOT TO EXCEED 50 FEET, BOND GUARD RAIL TO GROUNDING ELECTRODE. USE PIPE GROUNDING CLAMPS AND 2/0 BARE COPPER WIRE.



N

PLAN - AREA A

1/8"=1'-0"



N

KEY PLAN

MARY J. GROSS LICENSED 16702 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	REVISION	CHK	BY	APVD
		J LANDMAN	A CUGLIAT		M GROSS	M GROSS	M GROSS

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

BIOREACTOR FACILITY
ELECTRICAL
PLAN - AREA A

BIDDING SET

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	145-E-2001
SHEET	228 of 314

FILENAME: 145-E-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 1:49:07 PM

SHEET KEYNOTES

1. AT INTERVALS NOT TO EXCEED 50 FEET, BOND GUARD RAIL TO GROUNDING ELECTRODE. USE PIPE GROUNDING CLAMPS AND 2/0 BARE COPPER WIRE.
2. 120V CIRCUITS AT THIS FACILITY ARE FED FROM PNLL-43901E AT FACILITY 300, SLUDGE PUMP STATION. REFER TO PANEL SCHEDULES FOR CIRCUITING INFORMATION.

MATCHLINE SEE DWG 145-E-2001

BOND HANDRAIL (1), TYP

2/0 AWG MAIN GROUNDING ELECTRODE, ENCASED IN FOUNDATION FOOTER

AE-41452

AIT-41452

2605-007, TYP

CS-41451A
DISCONNECT FOR SAER-41451

CS-41457
DISCONNECT FOR MXR-41457

P1

2, TYP

WP/ GFCI

CS-41455
DISCONNECT FOR MXR-41455

PUMP TJB AND TEMP/ MOISTURE PROBE RELAY BOX FOR MXR, TYP

PSL-41451

SAER-41451

TS/HTR-41451, MOTOR GEARBOX HEATER

2605-006

2605-008, TYP

CS-41452A
DISCONNECT FOR SAER-41452

SAER-41452

TS/HTR-41452, MOTOR GEARBOX HEATER

PSL-41452

2656-212, TYP

AE-41453

AIT-41453

MATCHLINE SEE DWG 145-E-2001

N

PLAN - AREA B
1/8"=1'-0"

A B

N

KEY PLAN

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		J LANDMAN	A CUGLIAT	M GROSS	APVD	M GROSS	

MARY J. GROSS LICENSED 16702 11-4-16 KANSAS PROFESSIONAL ENGINEER

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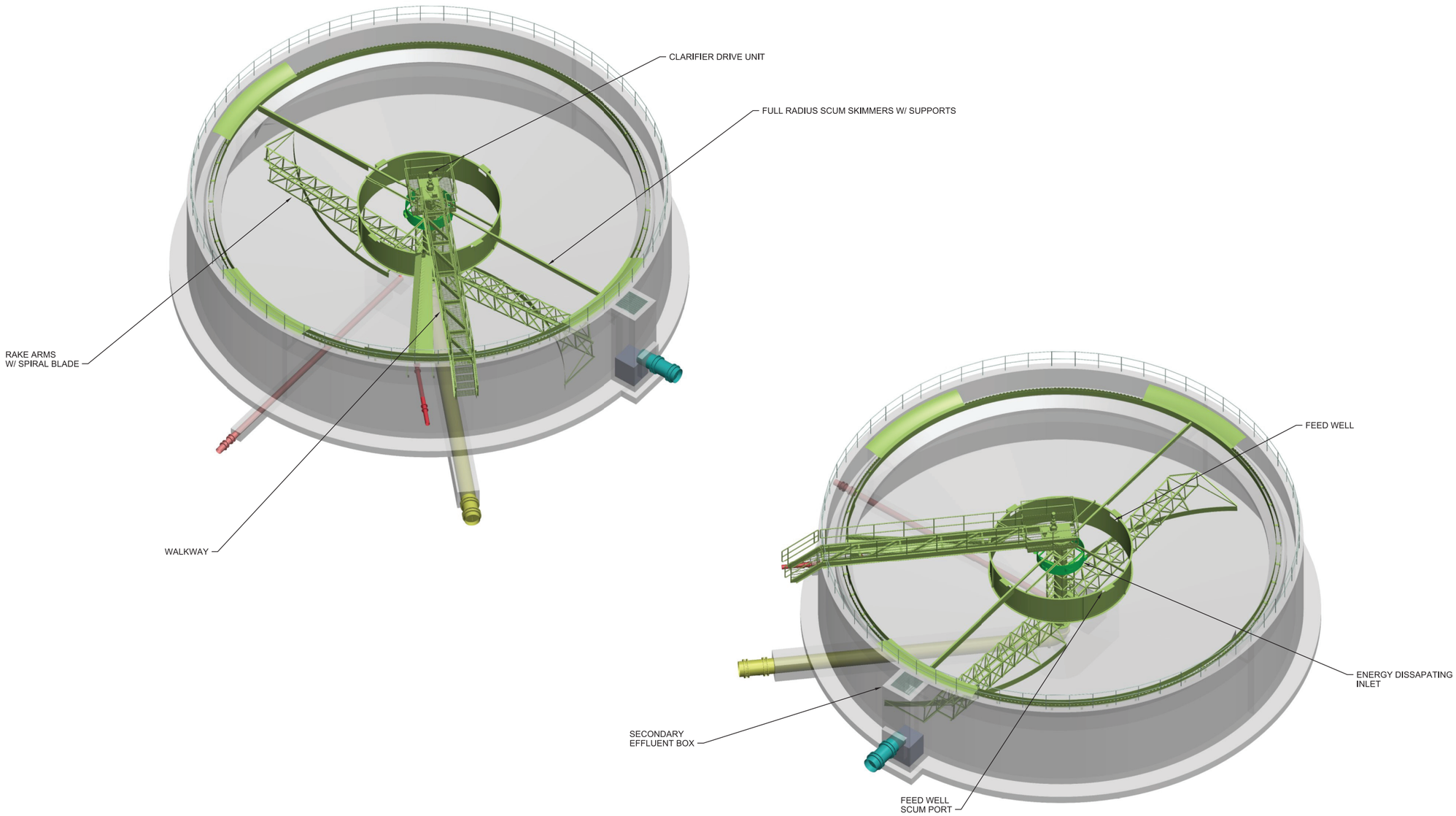
BIOREACTOR FACILITY
ELECTRICAL
PLAN - AREA B

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	145-E-2002
SHEET	229 of 314

BIDDING SET

FILENAME: 145-E-2002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 1:49:04 PM



RENDERING
NTS

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		S RICHARDSON	F JAGLA	S RICHARDSON		E JOHNSON	

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CLARIFIERS

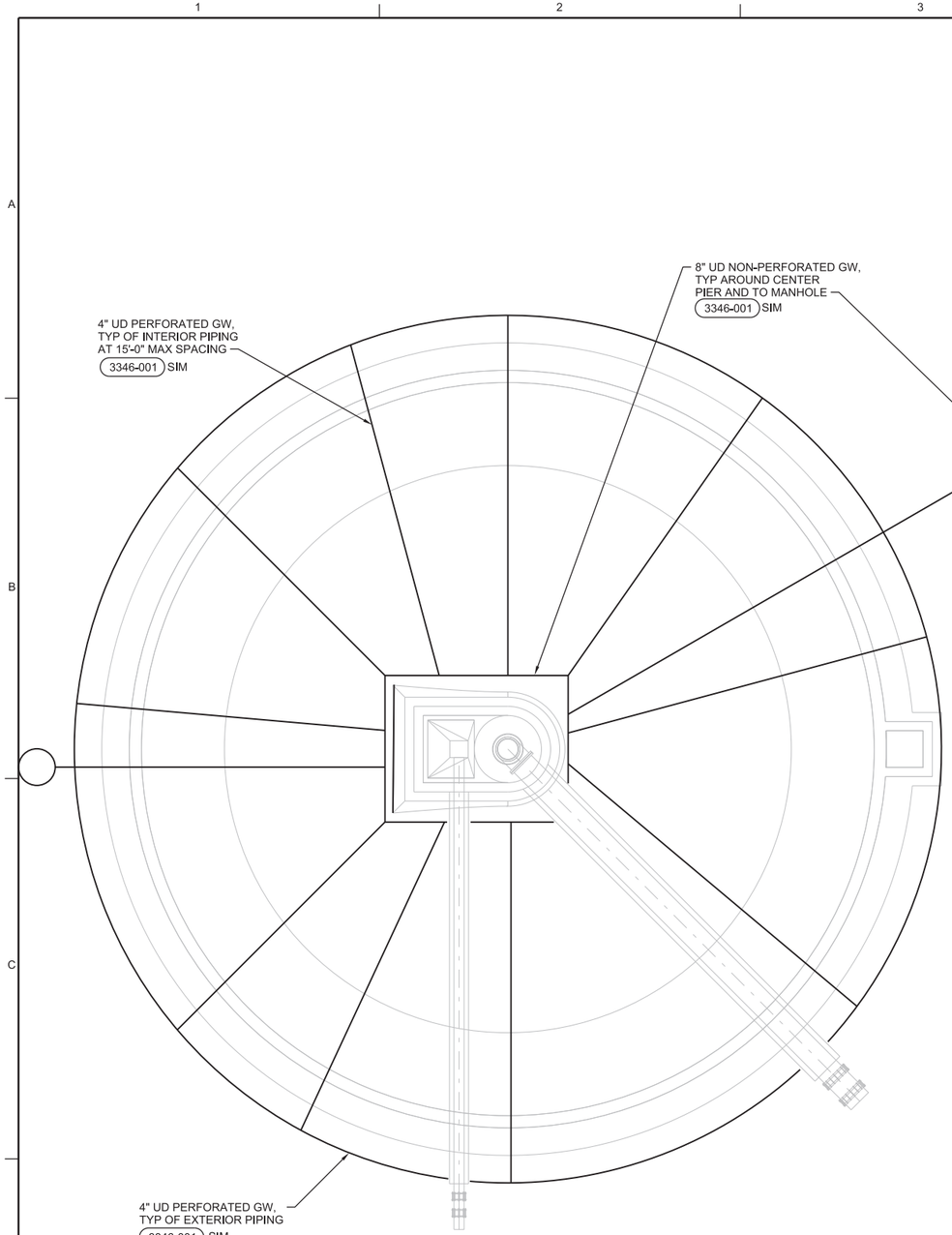
RENDERING

VERIFY SCALE

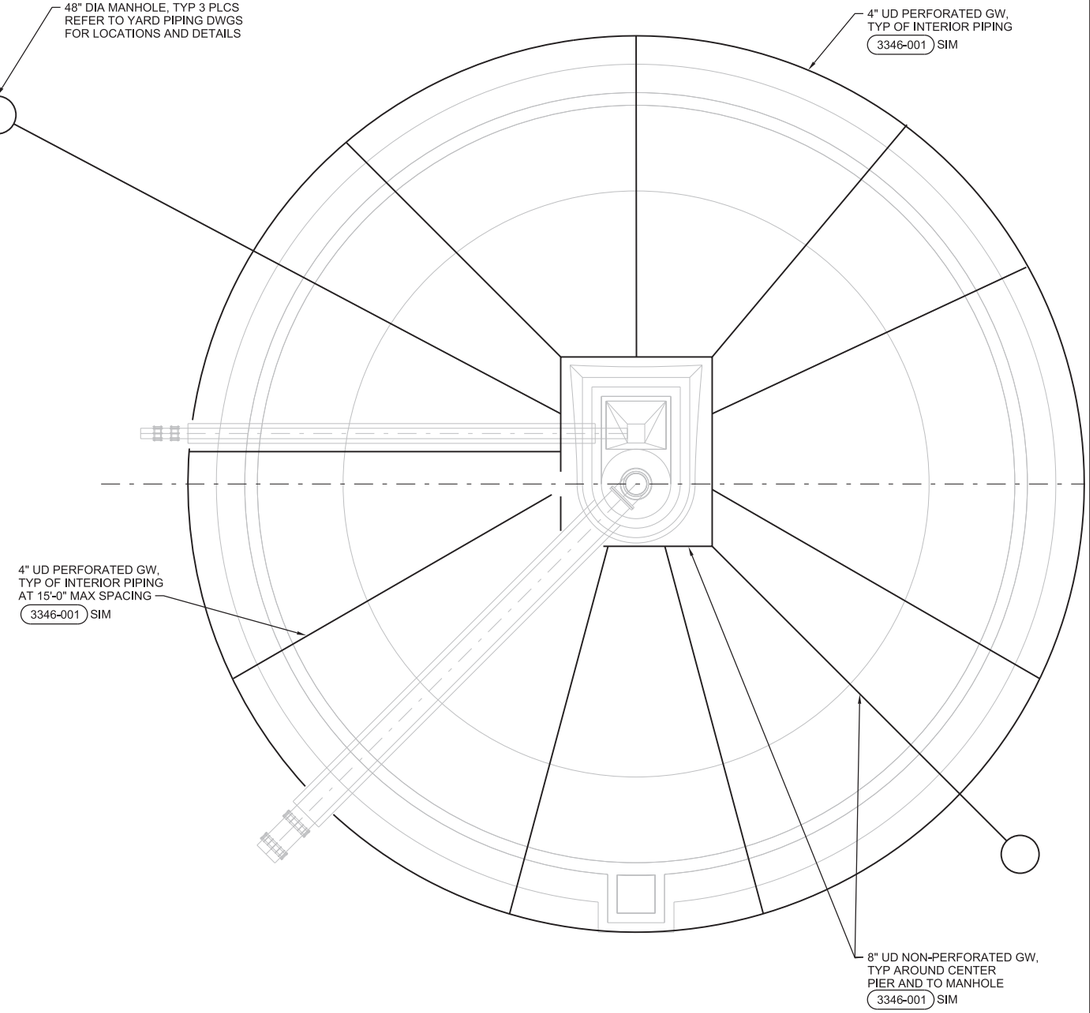
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	155-G-2000
SHEET	230 of 314

BIDDING SET



CLARIFIER NO. 4



CLARIFIER NO. 3

N

UNDERDRAIN PLAN

1/8"=1'-0"

HUGO ANDRES ROJAS
LICENSED
11/04/16
24949
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DSGN	DATE	DR	REVISION	CHK	BY	APVD
	H ROJAS	H ROJAS	F JAGLA		M MERKLEIN	H ROJAS	

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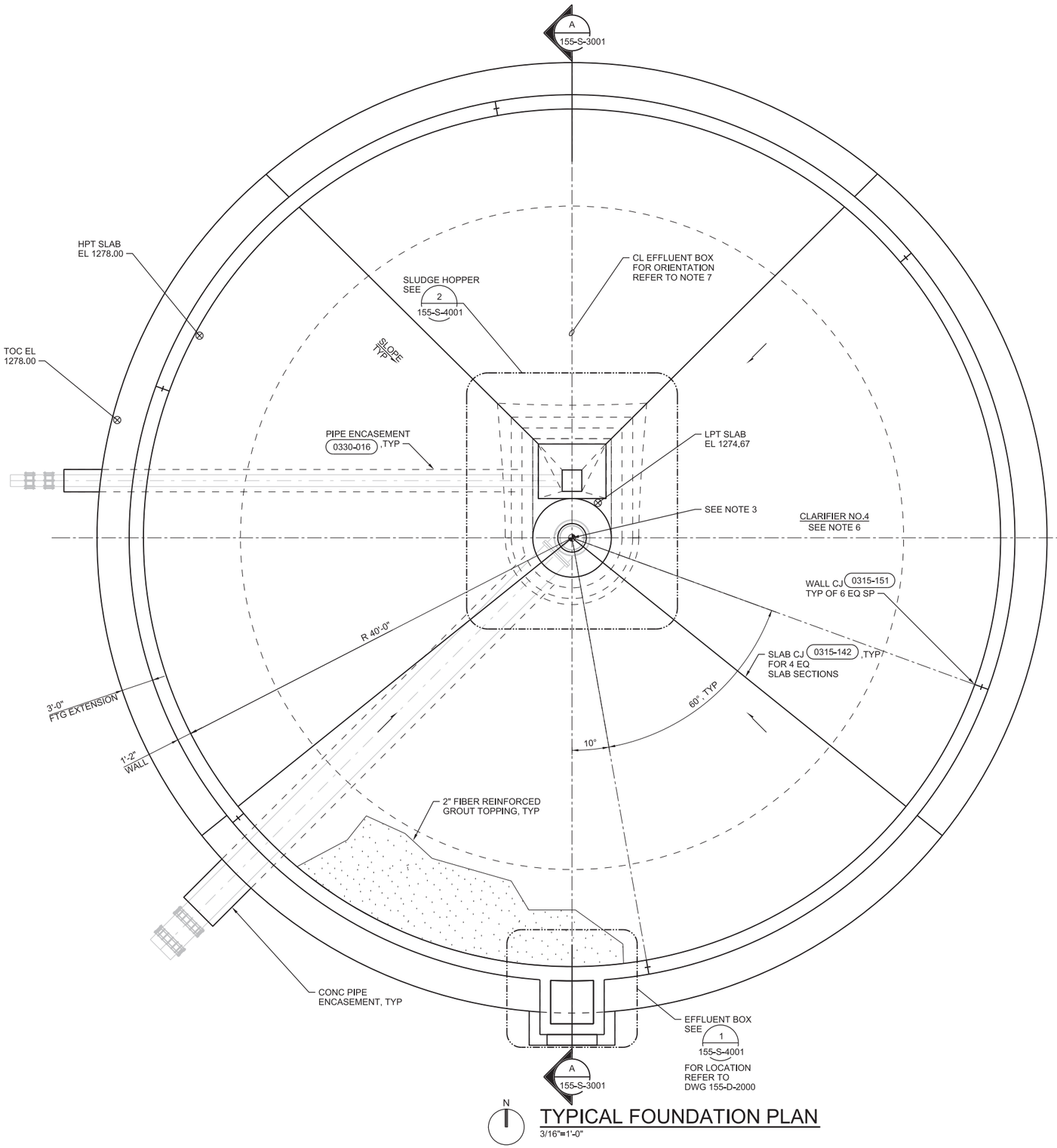
CLARIFIERS
STRUCTURAL
UNDERDRAIN PLAN

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	155-S-2001
SHEET	231 of 314

BIDDING SET

FILENAME: 155-S-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:04:59 PM



TYPICAL FOUNDATION PLAN

3/16"=1'-0"

GENERAL NOTES

1. FOR DESIGN CRITERIA AND GENERAL STRUCTURAL NOTES, SEE DRAWINGS 001-G-0300 AND 001-G-0301.
2. FOR SPECIAL INSPECTION AND TESTING REQUIREMENTS, SEE DRAWINGS 001-G-0302 THROUGH 001-G-0305.
3. FOR FACILITY SITE COORDINATES SEE CIVIL DRAWINGS.
4. ADDITIONAL DESIGN CRITERIA SPECIFIC TO THIS FACILITY:
   a. SEISMIC DESIGN DATA
      BASIC SEISMIC-FORCE RESISTING SYSTEM: FLAT BOTTOM GROUND SUPPORTED CONCRETE TANK WITH REINFORCED NON-SLIDING BASE
      ANALYSIS PROCEDURE USED: ASCE 7 GROUND SUPPORTED STORAGE TANKS FOR LIQUIDS
   b. DESIGN GROUND WATER
      ELEVATION = 1275.00 FT
   c. LIQUID TIGHTNESS
      ELEVATION 1292.71 FT
5. REINFORCED CONCRETE NOTES
   a. COORDINATE SIZE AND LOCATION OF ALL OPENINGS WITH OTHER DISCIPLINES. FOR TYPICAL CONCRETE WALL OR SLAB OPENING REINFORCING SEE 0330-001 .
   b. FOR TYPICAL CONCRETE WALL CORNER AND INTERSECTION REINFORCING SEE 0330-003 .
   c. UNLESS OTHERWISE NOTED ALL PIPING BELOW A FACILITY SHALL BE ENCASED PER STANDARD DETAILS 0330-016 , 0330-017 , AND 0330-018 .
6. SECONDARY CLARIFIER NO.4 SHOWN, SECONDARY CLARIFIER NO.3 SIMILAR.
7. FOR EFFLUENT BOX LOCATION REFER TO DRAWING 155-D-2000.
8. CIRCUMFERENTIAL BARS LAP SPLICES IN WALL AND SLAB SHALL BE STAGGERED SEE 0330-006

HUGO ANDRES ROJAS
LICENSED
11/04/16
24949
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
	H ROJAS	H ROJAS	F JAGLA	M MERKLEIN	APVD	H ROJAS	

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CITY OF WICHITA, KANSAS

ch2m

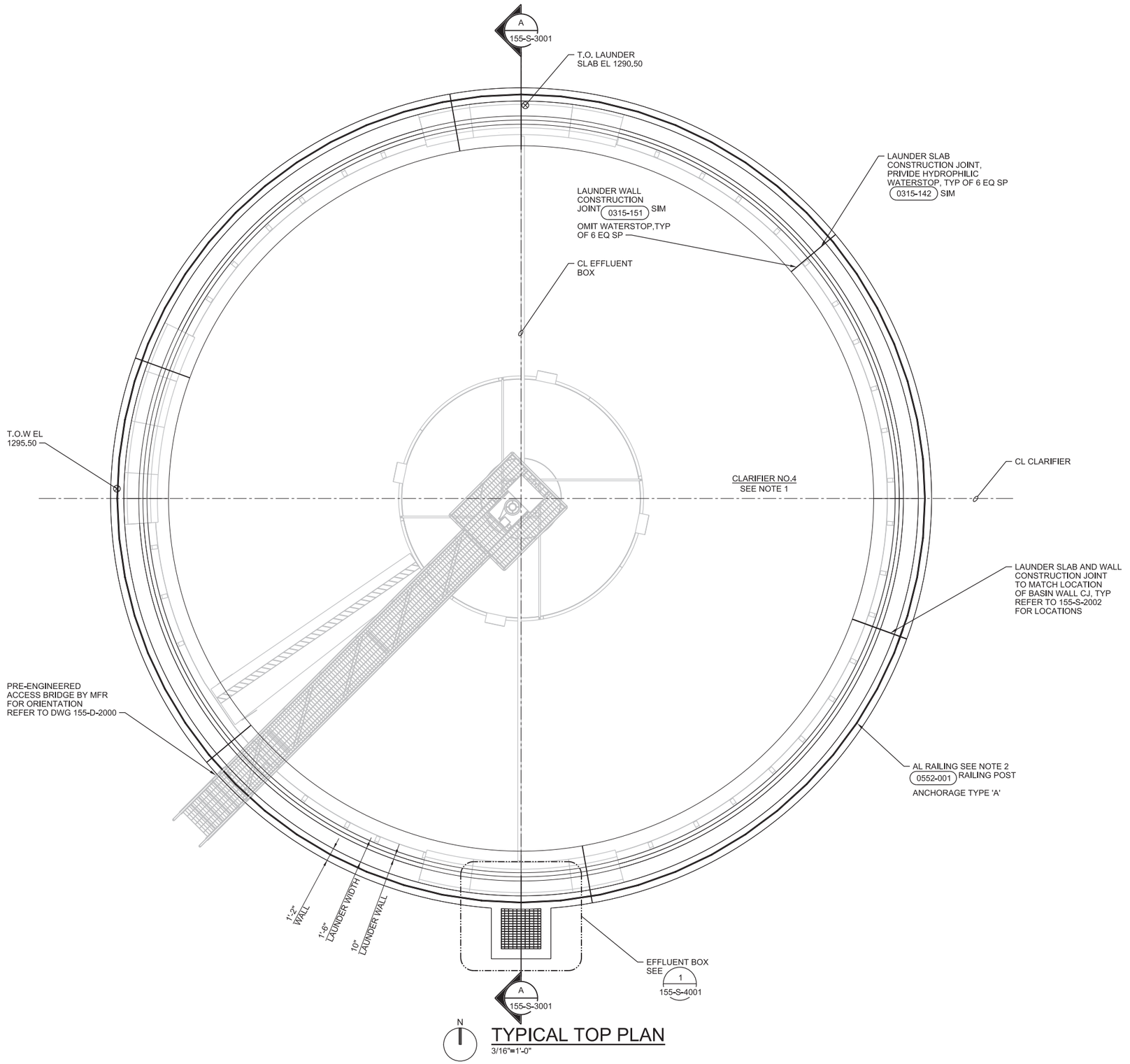
CLARIFIERS
STRUCTURAL
TYPICAL FOUNDATION PLAN

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	155-S-2002
SHEET	232 of 314

BIDDING SET

FILENAME: 155-S-2002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:05:59 PM



TYPICAL TOP PLAN

3/16"=1'-0"

GENERAL NOTES

1. SECONDARY CLARIFIER NO.4 SHOWN, SECONDARY CLARIFIER NO.3 SIMILAR.
2. RAILING REQUIREMENTS SHALL BE COORDINATED WITH FINAL GRADING ELEVATIONS. RAILING SHALL EXTEND A MINIMUM OF 3'-0" BEYOND WHERE THE DISTANCE BETWEEN TOP OF CONCRETE WALL AND FINISHED GRADE ELEVATION IS 3'-6" IN ORDER TO PROVIDE A MINIMUM 3'-6" RAILING HEIGHT ALL AROUND.

HUGO ANDRES ROJAS LICENSED 11/04/16 24949 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	BY
		H ROJAS	F JAGLA	M MERKLEIN	APVD

REVISION

H ROJAS APVD

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

ch2m

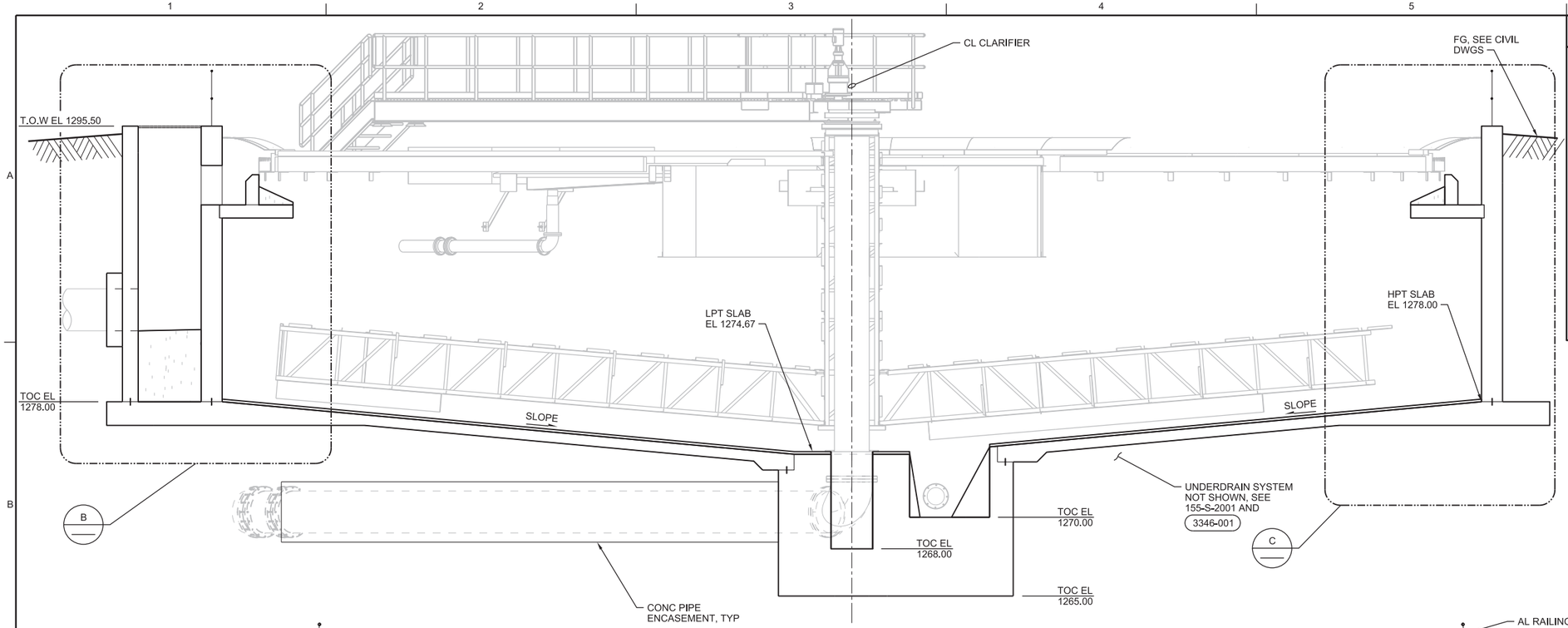
CLARIFIERS
STRUCTURAL
TYPICAL TOP PLAN

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	155-S-2003
SHEET	233 of 314

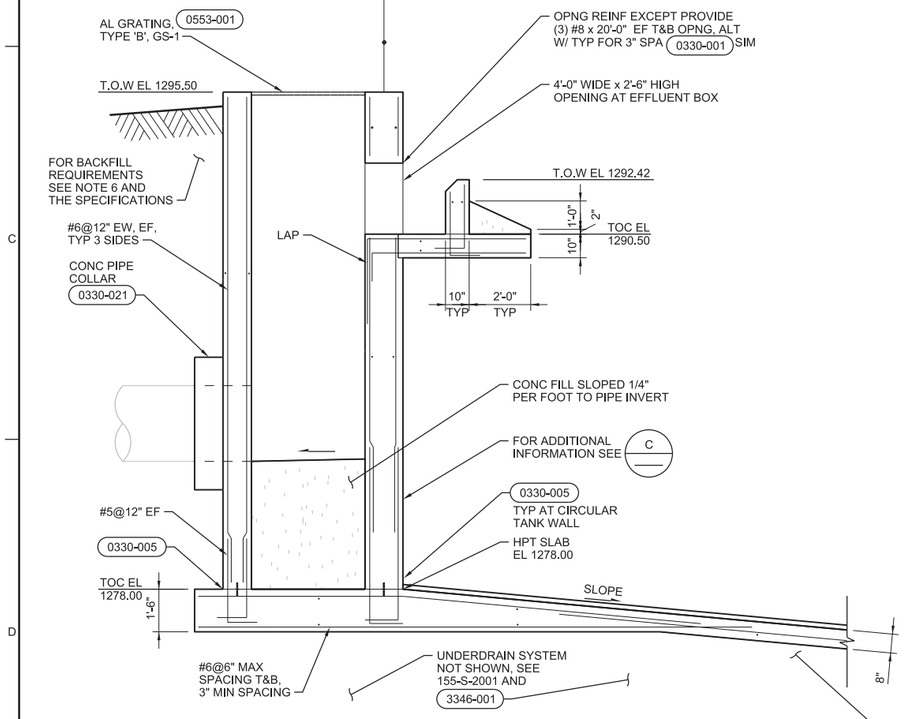
BIDDING SET

FILENAME: 155-S-2003_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:04:39 PM



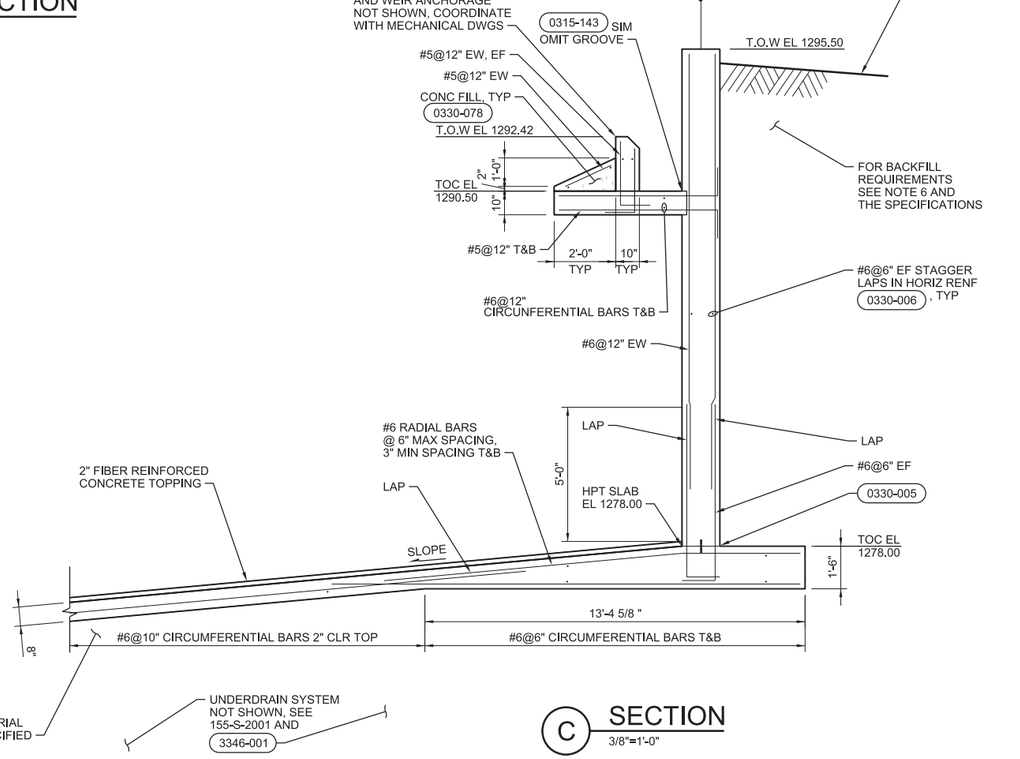
GENERAL NOTES

1. SECONDARY CLARIFIER NO.4 SHOWN, SECONDARY CLARIFIER NO.3 IS AT THE SAME ELEVATION.
2. CIRCUMFERENTIAL BARS LAP SPLICES IN WALL AND SLAB SHALL BE STAGGERED, SEE 0330-006
3. ALL PENETRATIONS IN SLABS AND WALLS SHALL CONFORM TO 0330-001 UNO.
4. FOR LOCATIONS AND SIZE OF PIPE PENETRATIONS SEE MECHANICAL DRAWINGS.
5. UNLESS NOTED OTHERWISE, ALL PIPING BELOW FOUNDATION SLAB SHALL BE ENCASED PER STANDARD DETAILS 0330-016, 0330-017 AND 0330-018.
6. BACKFILL USING GRANULAR FILL IN ZONE FROM THE BASE OF THE STRUCTURE EXTENDING UPWARD AT AN ANGLE OF AT LEAST 45 DEGREES FROM VERTICAL TO A DEPTH OF 2 FEET BELOW TOP OF BACKFILL. BACKFILL UPPER 2 FEET WITHIN 10 FEET OF PERIMETER OF STRUCTURE USING COHESIVE SOIL TO PREVENT INFILTRATION OF SURFACE WATER



B SECTION
3/8"=1'-0"

A SECTION
1/4"=1"
155-S-2002
155-S-2003



C SECTION
3/8"=1'-0"

HUGO ANDRES ROJAS
LICENSED
11/04/16
24949
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	REVISION	CHK	BY	APVD
	H ROJAS		F JAGLA		M MERKLEIN	H ROJAS	

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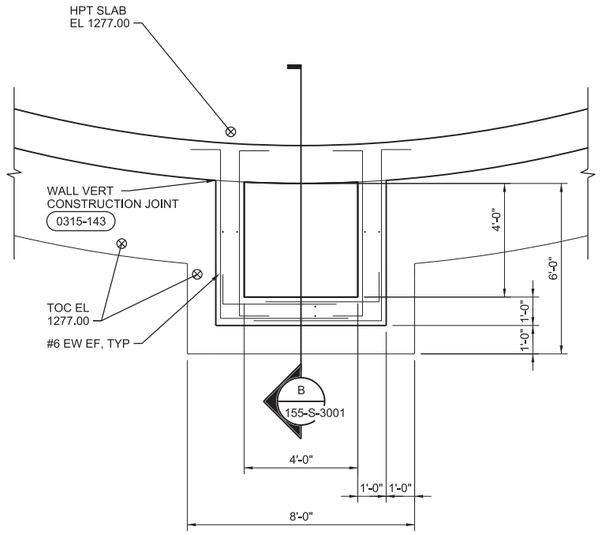
CLARIFIERS
STRUCTURAL SECTIONS

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

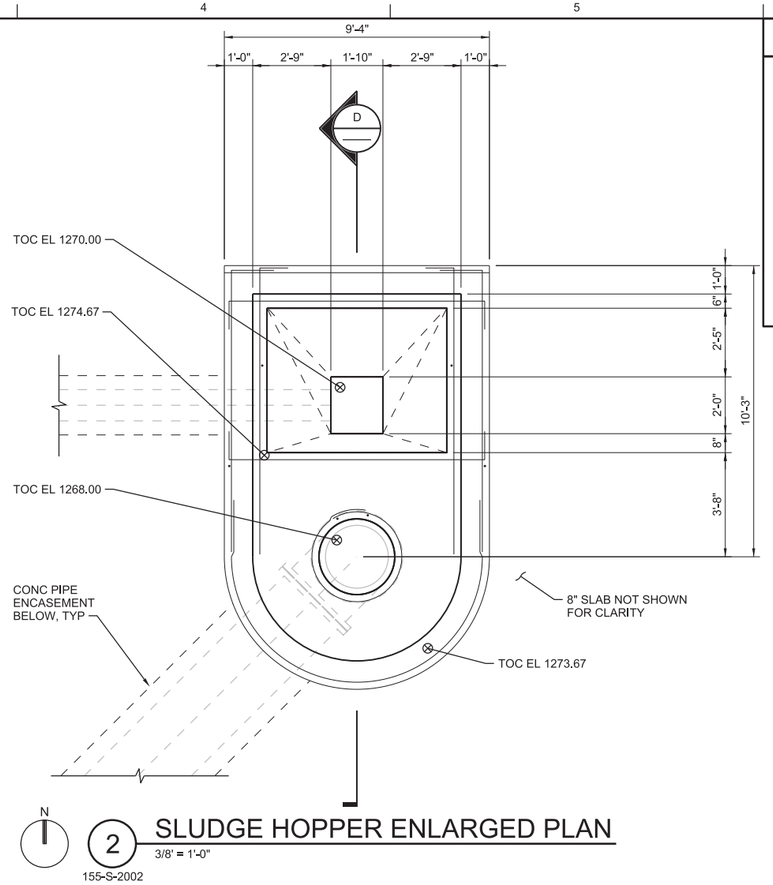
DATE	NOVEMBER 2016
PROJ	496312
DWG	155-S-3001
SHEET	234 of 314

BIDDING SET

FILENAME: 155-S-3001_496312.dgn
PLOT DATE: 11/2/2016
PLOT TIME: 12:04:41 PM



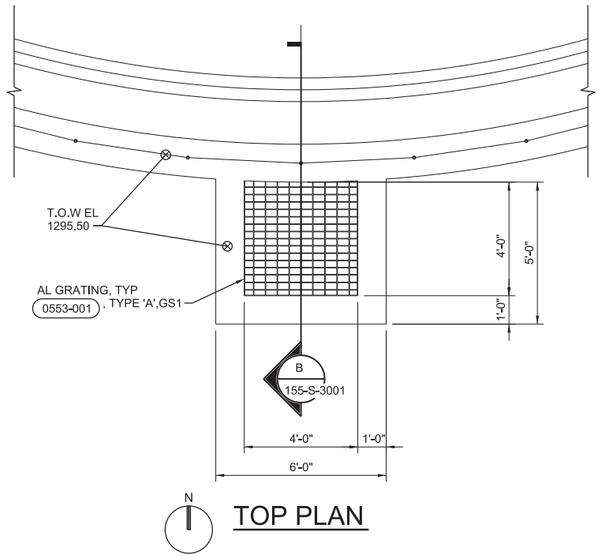
LOWER PLAN



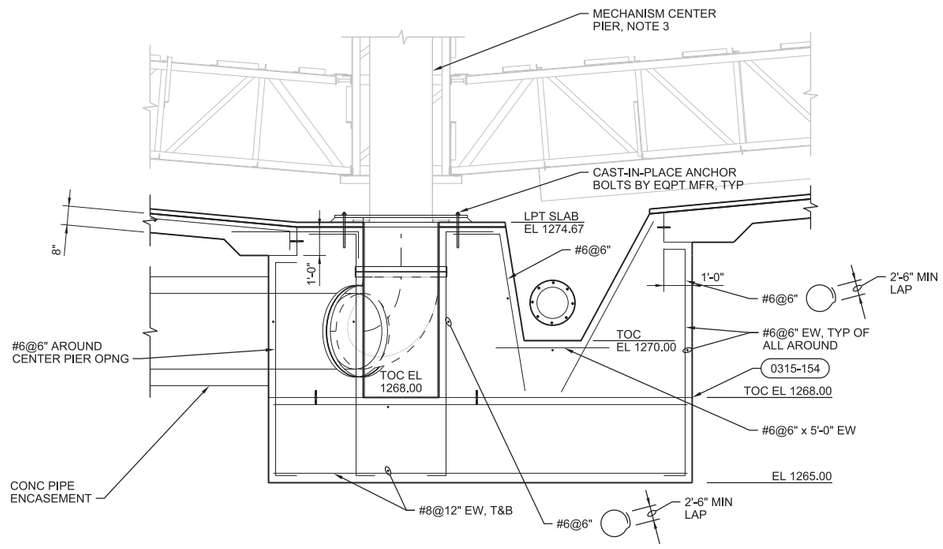
2 SLUDGE HOPPER ENLARGED PLAN

3/8' = 1'-0"

155-S-2002



TOP PLAN



1 EFFLUENT BOX ENLARGED PLANS

3/8' = 1'-0"

155-S-2002
155-S-2003

D SECTION

3/8"=1'-0"

GENERAL NOTES

1. CENTER HOPPER ELEVATION AND DIMENSIONS SHALL BE COORDINATED WITH MECHANICAL DRAWINGS AND MECHANISM MANUFACTURER.
2. SIZE AND LOCATION OF PIPE PENETRATIONS SHALL BE COORDINATED WITH OTHER FACILITY DRAWINGS.
3. CENTER PIER TO CONCRETE FOUNDATION CONNECTION SHALL BE COORDINATED WITH THE MECHANISM MANUFACTURER.
4. UNLESS NOTED OTHERWISE, ALL PIPING BELOW FOUNDATION SLAB SHALL BE ENCASED PER STANDARD DETAILS 0330-016, 0330-017 AND 0330-018
5. SECONDARY CLARIFIER NO.4 SHOWN, SECONDARY CLARIFIER NO.3 IS AT THE SAME ELEVATION.

HUGO ANDRES ROJAS
LICENSED
11/04/16
24949
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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REVISION		H ROJAS	F JAGLA	M MERKLEIN	APVD	H ROJAS

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

CLARIFIERS
STRUCTURAL
ENLARGED PLANS AND SECTION

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

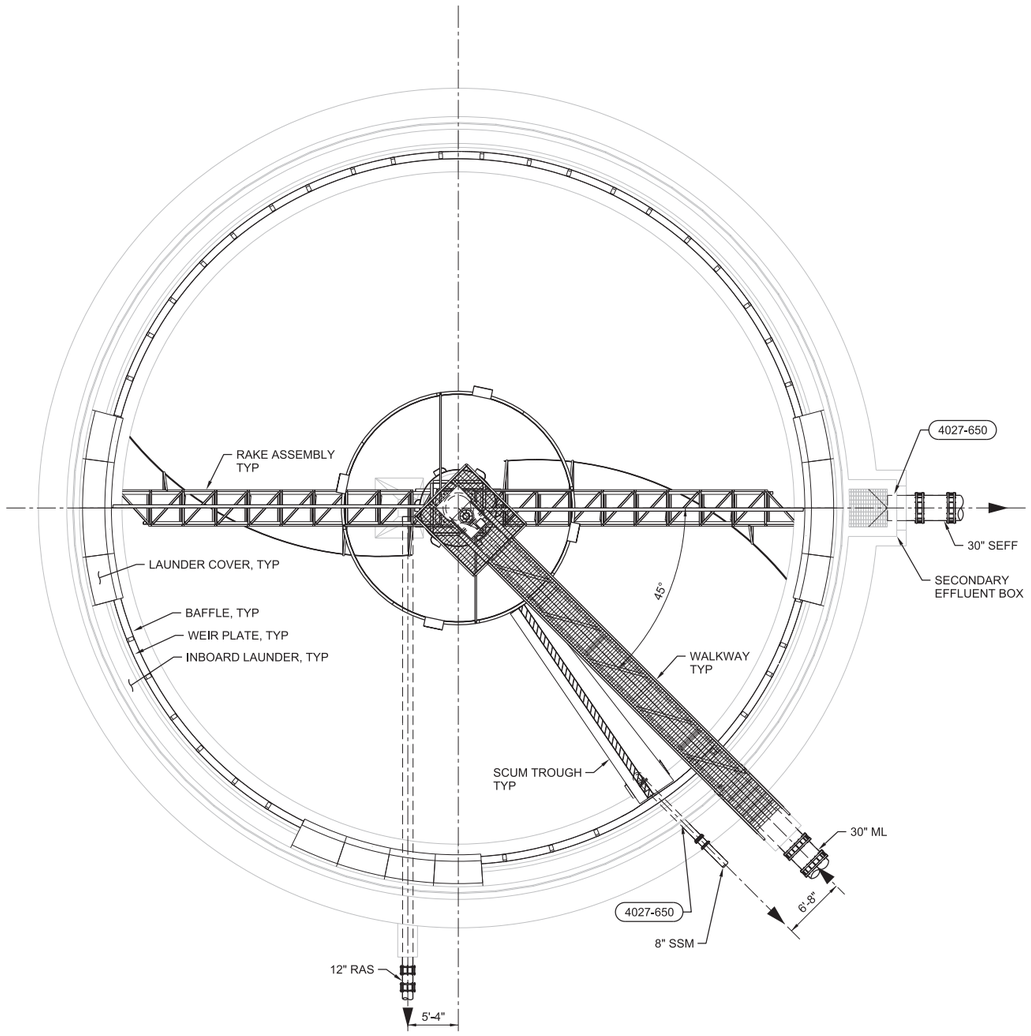
DATE	NOVEMBER 2016
PROJ	496312
DWG	155-S-4001
SHEET	235 of 314

BIDDING SET

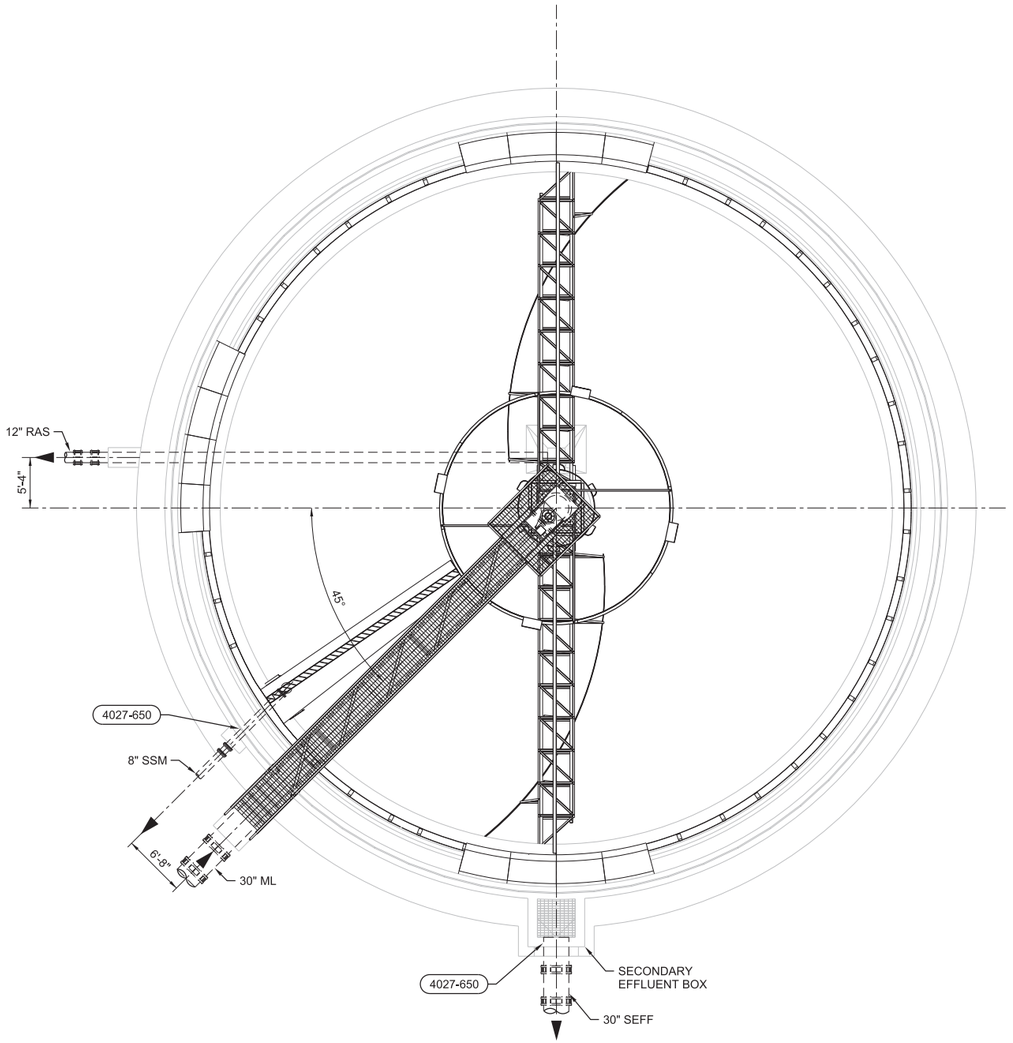
FILENAME: 155-S-4001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:04:42 PM

GENERAL NOTES

1. FOR CONTINUATION OF PIPING IN THE YARD, SEE DWG 051-Y-2006.



CLARIFIER NO. 4



CLARIFIER NO. 3

N

OVERALL PLAN
1/8"=1'-0"

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		S RICHARDSON	D CAVE	S POLSON	APVD	E JOHNSON	

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FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

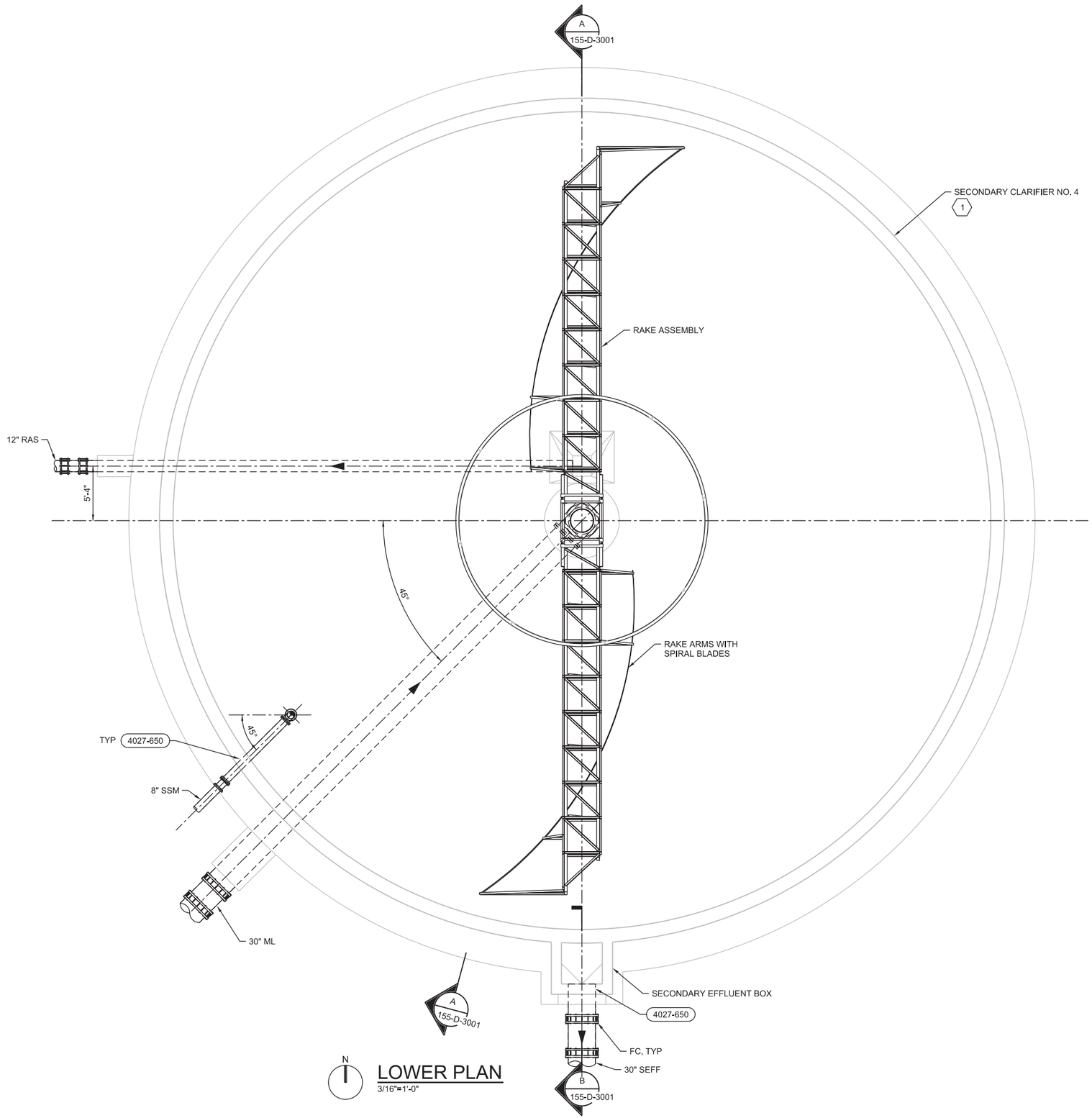
CLARIFIERS

PROCESS MECHANICAL OVERALL PLAN

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	155-D-2000
SHEET	236 of 314

BIDDING SET



LOWER PLAN

3/16"=1'-0"

GENERAL NOTES

1. FOR CONTINUATION OF PIPING IN THE YARD, SEE DRAWING 051-Y-2006.

SHEET KEYNOTES

1. THIS DRAWING IS FOR CLARIFIER NO. 4. CLARIFIER NO. 3 IS SIMILAR, PENETRATIONS AND ELEVATIONS ARE THE SAME. SEE DRAWING 155-D-2000 FOR LOCATION AND ORIENTATION.

ESTELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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

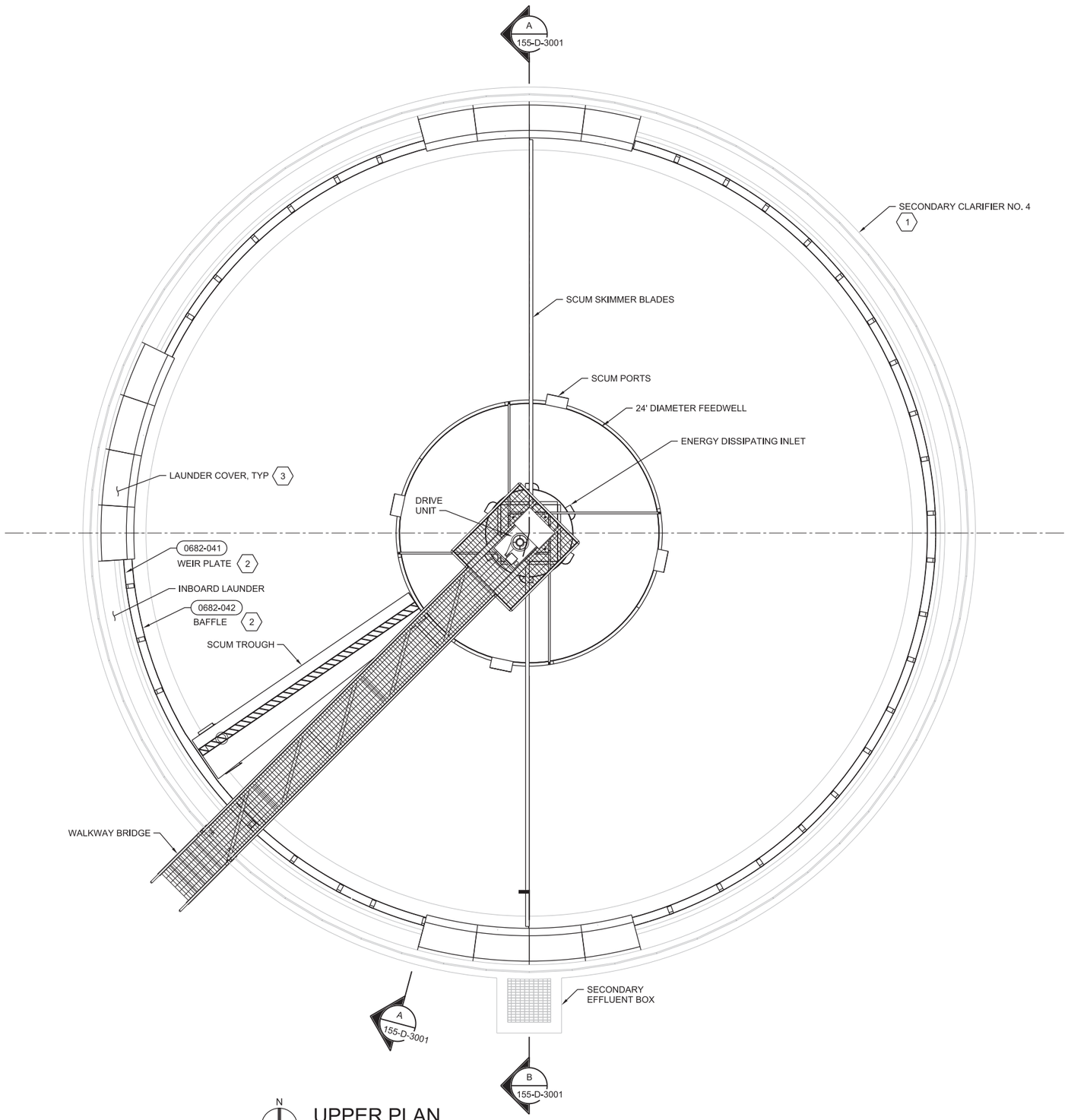
CLARIFIERS
PROCESS MECHANICAL
LOWER PLAN

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	155-D-2001
SHEET	237 of 314

BIDDING SET

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UPPER PLAN

3/16"=1'-0"

SHEET KEYNOTES

1. THIS DRAWING IS FOR CLARIFIER NO. 4. CLARIFIER NO. 3 IS SIMILAR, PENETRATIONS AND ELEVATIONS ARE THE SAME. SEE DRAWING 155-D-2000 FOR LOCATION AND ORIENTATION.
2. WEIR PLATE AND BAFFLE EXTEND ALL THE WAY AROUND THE CLARIFIER.
3. LAUNDER COVER IS REPRESENTATION, ACTUAL COVER WILL VARY BY MANUFACTURER.

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	REVISION	BY	APVD
		S RICHARDSON	D CAVE	S POLSON	APVD		E JOHNSON	

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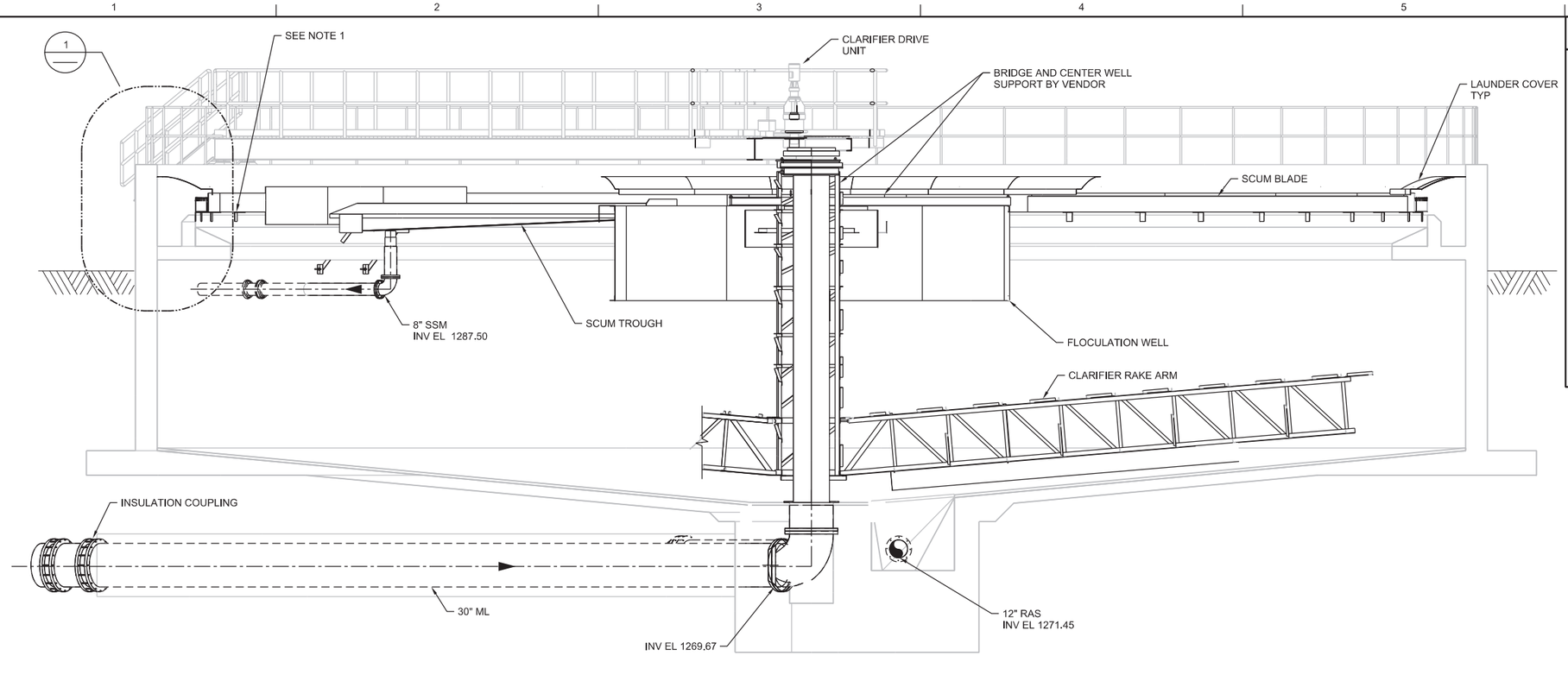
PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

CLARIFIERS
PROCESS MECHANICAL
UPPER PLAN

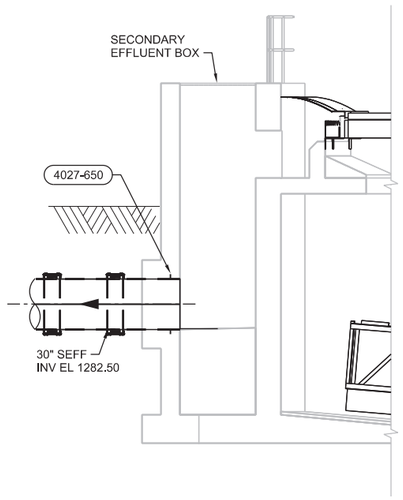
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	155-D-2002
SHEET	238 of 314

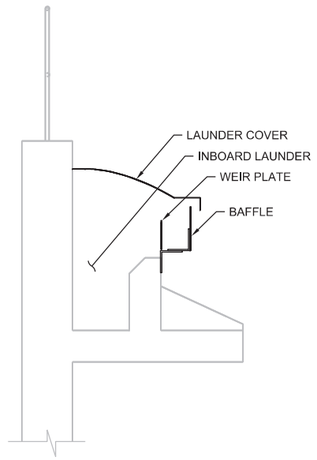
BIDDING SET



A SECTION
1/4=1'-0"
155-D-2001
155-D-2002



B SECTION
1/4=1'-0"
155-D-2001
155-D-2002



1 DETAIL
1/2"=1'-0"

GENERAL NOTES

1. SCUM BLADE ONLY SHOWN ON RIGHT SIDE FOR CLARITY AND ABILITY TO SEE SCUM BEACH ON LEFT SIDE.
2. SLUDGE WITHDRAWAL RING IS A REPRESENTATION. RING DESIGN WILL VARY BY MANUFACTURER.

ESTELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	DR	CHK	APVD	BY	APVD
DSGN	S RICHARDSON		D CAVE	S POLSON		E JOHNSON	

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FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

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CLARIFIERS

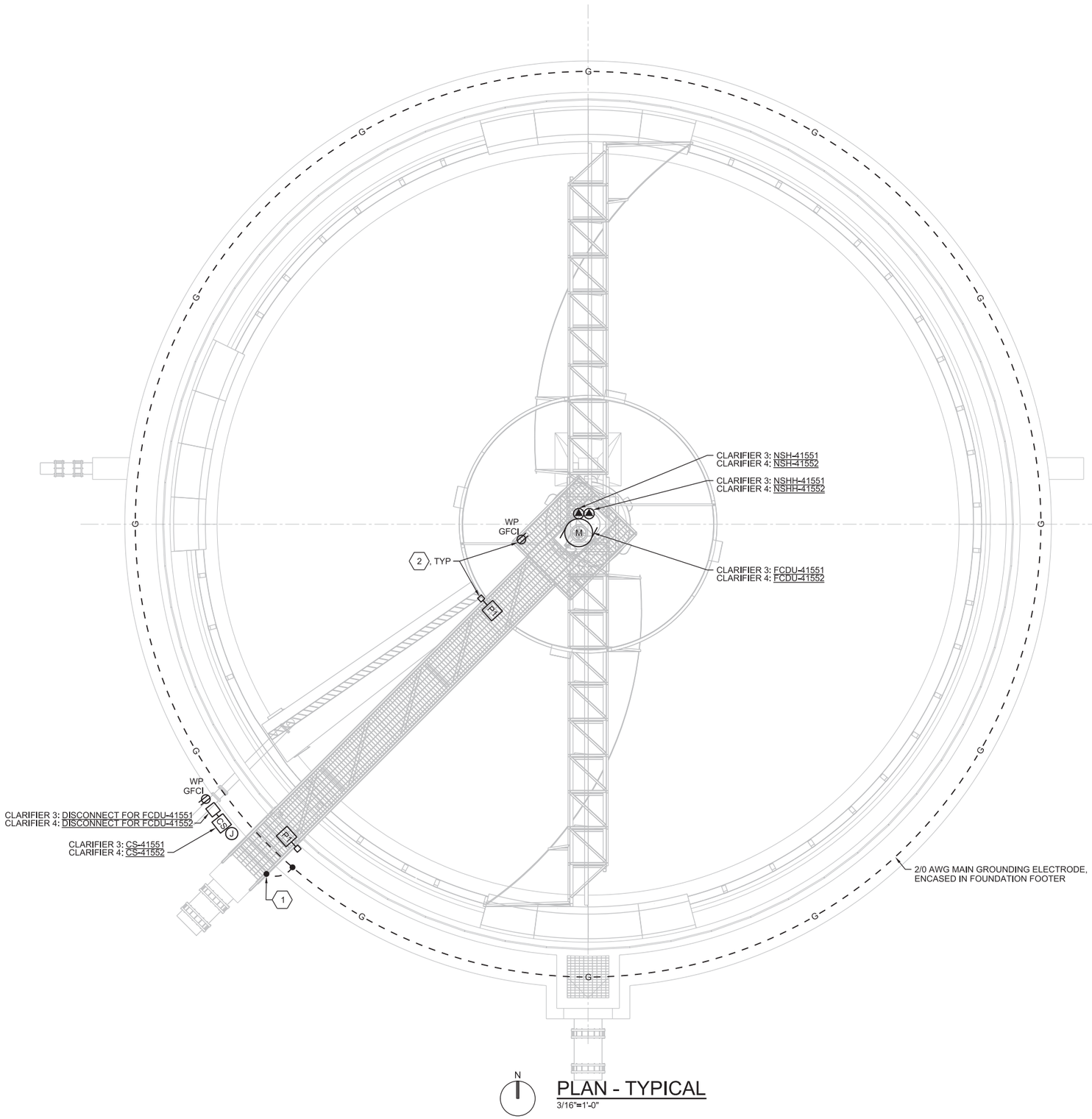
PROCESS MECHANICAL SECTIONS AND DETAIL

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	155-D-3001
SHEET	239 of 314

BIDDING SET

FILENAME: 155-D-3001_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 7:15:02 PM



PLAN - TYPICAL

3/16"=1'-0"

GENERAL NOTES

1. THIS PLAN DRAWING IS TYPICAL FOR TWO CLARIFIERS.

SHEET KEYNOTES

1. PROVIDE 2/0 AWG BONDING CONDUCTOR TO MAIN GROUND CONDUCTOR, WHICH IS EMBEDDED IN THE FOUNDATION FOOTER.
2. 120V CIRCUITS AT BOTH CLARIFIERS ARE FED FROM PNLL-43901E AT FACILITY 300, SLUDGE PUMP STATION. REFER TO PANEL SCHEDULES FOR CIRCUITING INFORMATION.

MARY J. GROSS
LICENSED
16702
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD
REVISION		J LANDMAN	A CUGLIAT	M GROSS	M GROSS
BY	APVD				
M GROSS	M GROSS				

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

CLARIFIERS
ELECTRICAL
PLAN - TYPICAL

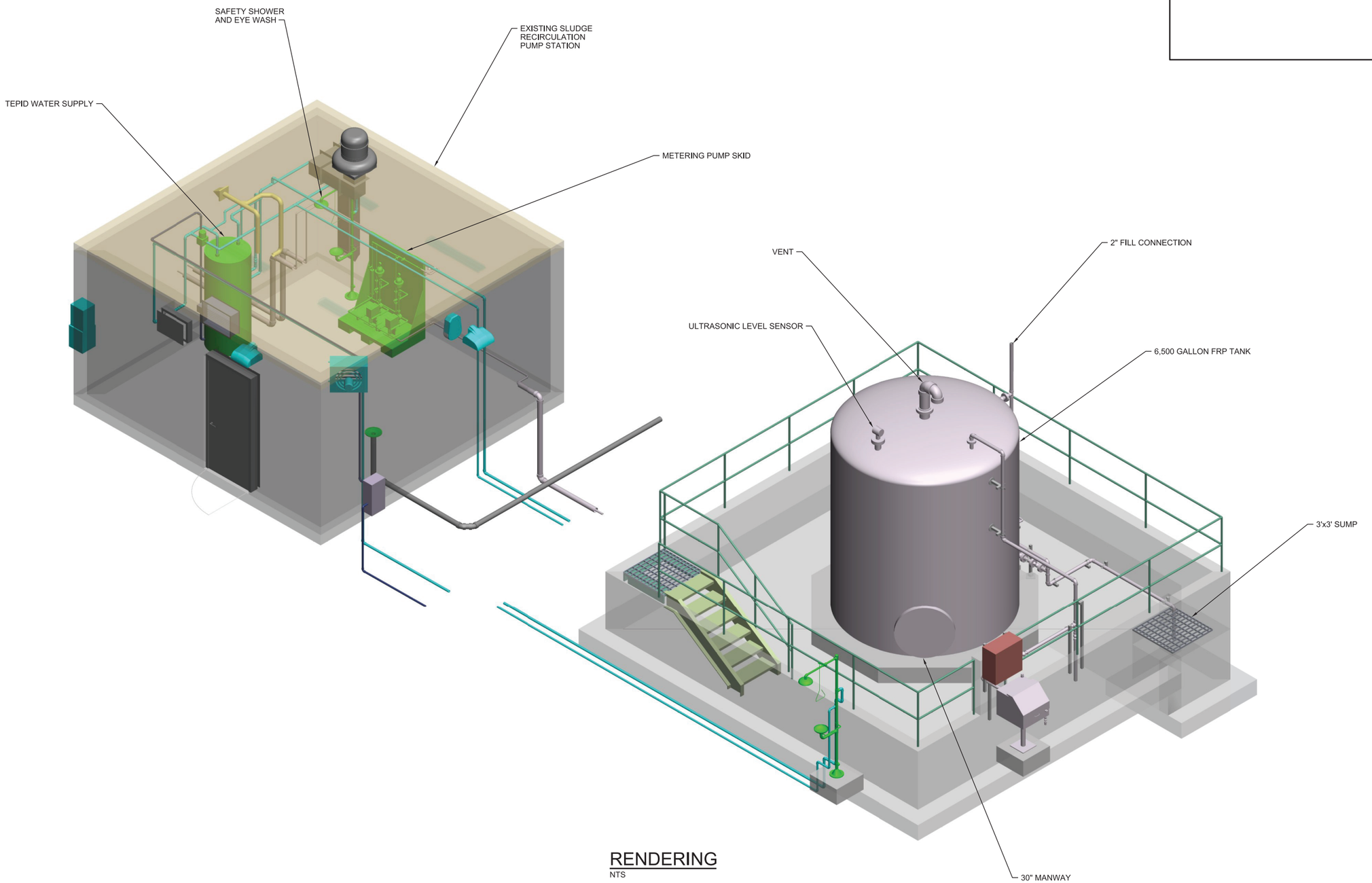
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	155-E-2001
SHEET	240 of 314

BIDDING SET

GENERAL NOTES

1. ASSOCIATED WITH BID ITEM ADD ALTERNATIVE NUMBER 1, FERRIC FEED SYSTEM.



RENDERING
NTS

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		S MENK	F JAGLA	S MENK	S MENK	E JOHNSON	

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

FERRIC CHLORIDE STORAGE FACILITY

RENDERING

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

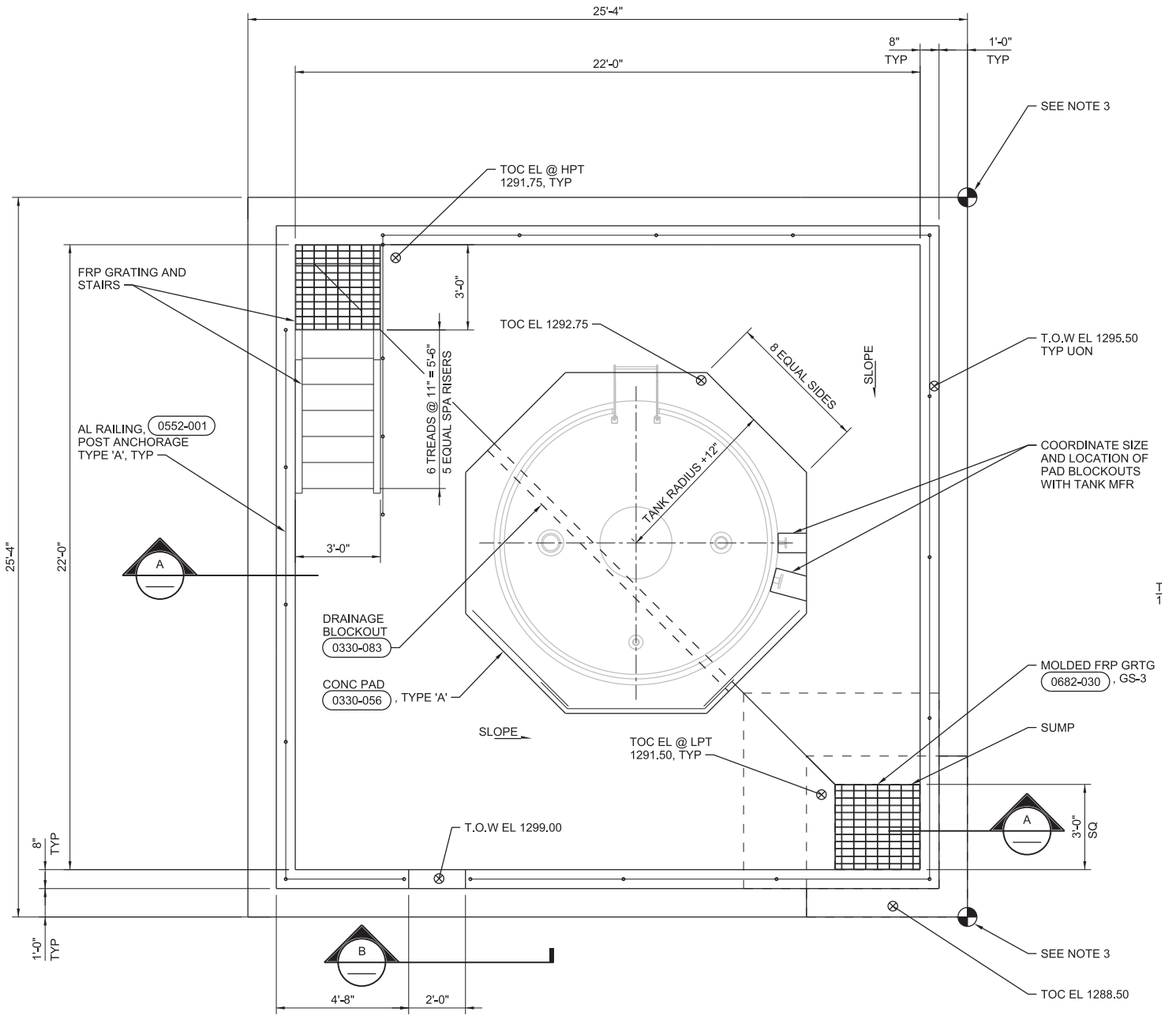
DATE	NOVEMBER 2016
PROJ	496312
DWG	170-G-2000
SHEET	241 of 314

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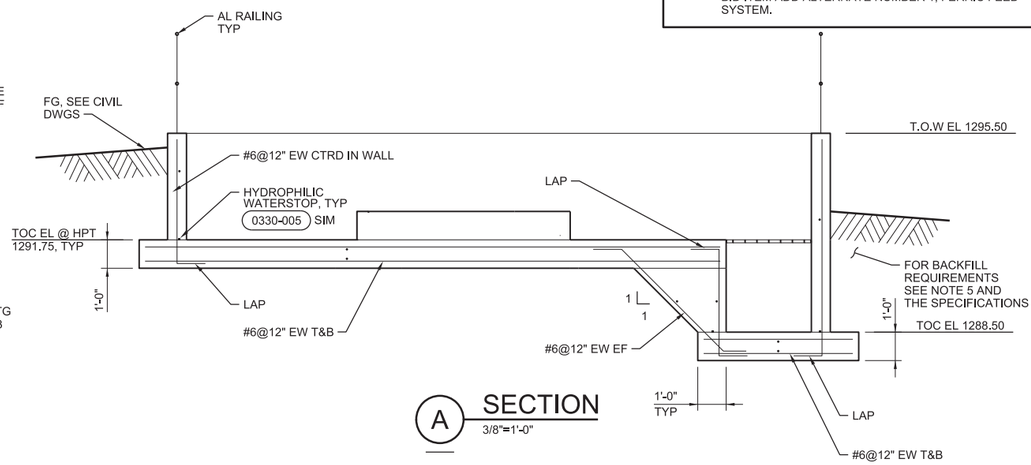
GENERAL NOTES

1. FOR DESIGN CRITERIA AND GENERAL STRUCTURAL NOTES, SEE DRAWINGS 001-G-0300 AND 001-G-0301.
2. FOR SPECIAL INSPECTION AND TESTING REQUIREMENTS, SEE DRAWINGS 001-G-0302 THROUGH 001-G-0306.
3. FOR FACILITY SITE COORDINATES SEE CIVIL DRAWINGS.
4. REINFORCED CONCRETE NOTES
   a. COORDINATE SIZE AND LOCATION OF ALL OPENINGS WITH OTHER DISCIPLINES. FOR TYPICAL CONCRETE WALL OR SLAB OPENING REINFORCING SEE (0330-001).
   b. FOR TYPICAL CONCRETE WALL CORNER AND INTERSECTION REINFORCING SEE (0330-003).
   c. UNLESS OTHERWISE NOTED ALL PIPING BELOW A FACILITY SHALL BE ENCASED PER STANDARD DETAILS (0330-016), (0330-017), AND (0330-018).
   d. EQUIPMENT PAD SIZES AND LOCATIONS SHALL BE COORDINATED WITH THE EQUIPMENT MANUFACTURER'S SHOP DRAWINGS.
5. BACKFILL USING GRANULAR FILL IN ZONE FROM THE BASE OF THE STRUCTURE EXTENDING UPWARD AT AN ANGLE OF AT LEAST 45 DEGREES FROM VERTICAL TO A DEPTH OF 2 FEET BELOW TOP OF BACKFILL. BACKFILL UPPER 2 FEET WITHIN 10 FEET OF PERIMETER OF STRUCTURE USING COHESIVE SOIL TO PREVENT INFILTRATION OF SURFACE WATER.
6. ALL WORK FOR FACILITY 170 IS ASSOCIATED WITH BID ITEM ADD ALTERNATE NUMBER 1, FERRIC FEED SYSTEM.

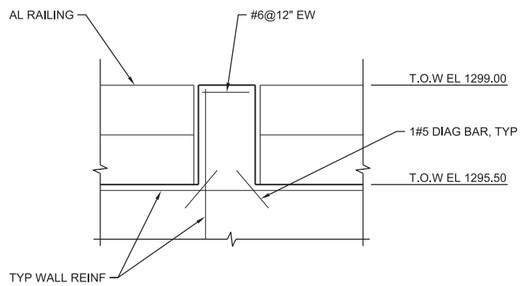


N

FOUNDATION PLAN
3/8"=1'-0"



A SECTION
3/8"=1'-0"



B SECTION
3/8"=1'-0"

LICENSED 11/04/16 24949 KANSAS HUGO ANDRES ROJAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		H ROJAS	F JAGLA	M MERKLEIN		H ROJAS	

REVISION

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

ch2m

FERRIC CHLORIDE STORAGE FACILITY

STRUCTURAL
FOUNDATION PLAN AND SECTIONS

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	170-S-2001
SHEET	242 of 314

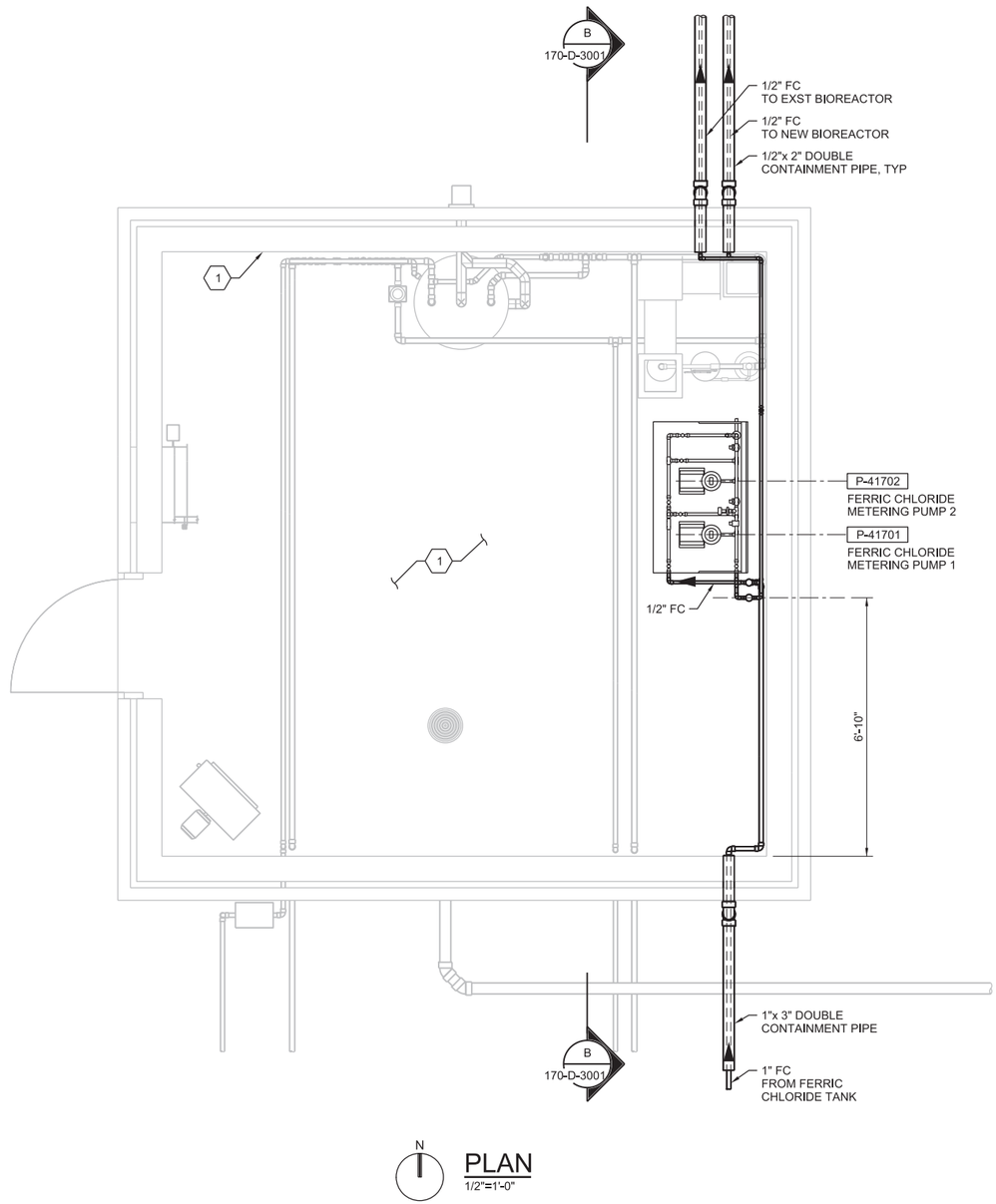
BIDDING SET

GENERAL NOTES

1. FOR CONTINUATION OF PIPING IN THE YARD, SEE DRAWING 051-Y-2005.
2. ASSOCIATED WITH BID ITEM ADD ALTERNATIVE NUMBER 1, FERRIC FEED SYSTEM.

SHEET KEYNOTES

1. ADD PROTECTIVE LINER TO FLOOR AND UP TO 1 FOOT ABOVE BASE OF WALLS PER SPECIFICATION 09 96 35.



PLAN
1/2"=1'-0"

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		S MENK	D.CAVE	E.JOHNSON	E.JOHNSON	APVD	

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

FERRIC CHLORIDE STORAGE FACILITY
PROCESS MECHANICAL PLAN

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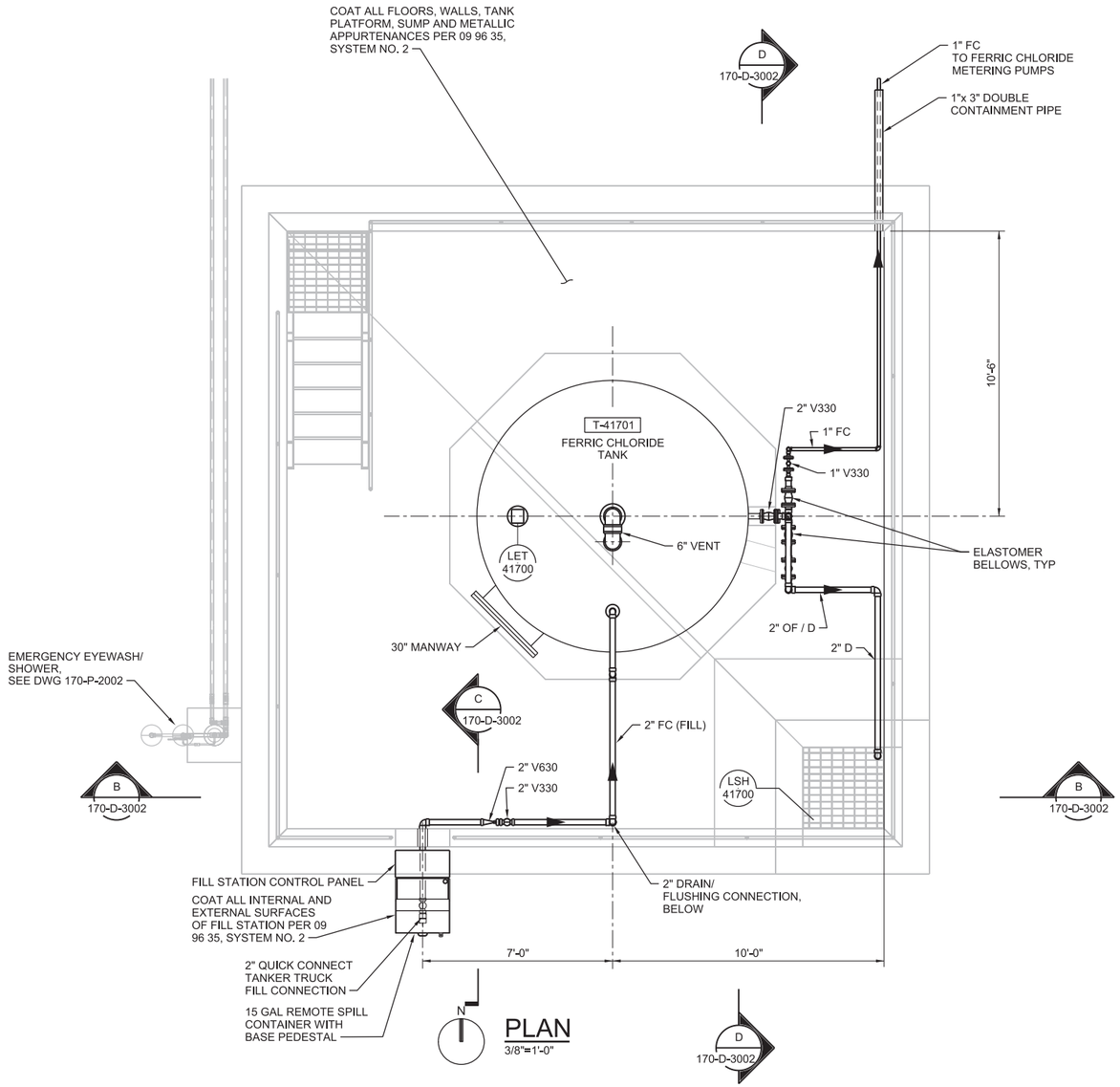
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	170-D-2001
SHEET	243 of 314

BIDDING SET

GENERAL NOTES

1. FOR CONTINUATION OF PIPING IN THE YARD, SEE DRAWING 051-Y-2005.
2. ASSOCIATED WITH BID ITEM ADD ALTERNATIVE NUMBER 1, FERRIC FEED SYSTEM.



RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		S MENK	D.CAVE	E.JOHNSON	APVD	E.JOHNSON	

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

ch2m

FERRIC CHLORIDE STORAGE FACILITY
PROCESS MECHANICAL PLAN

BIDDING SET

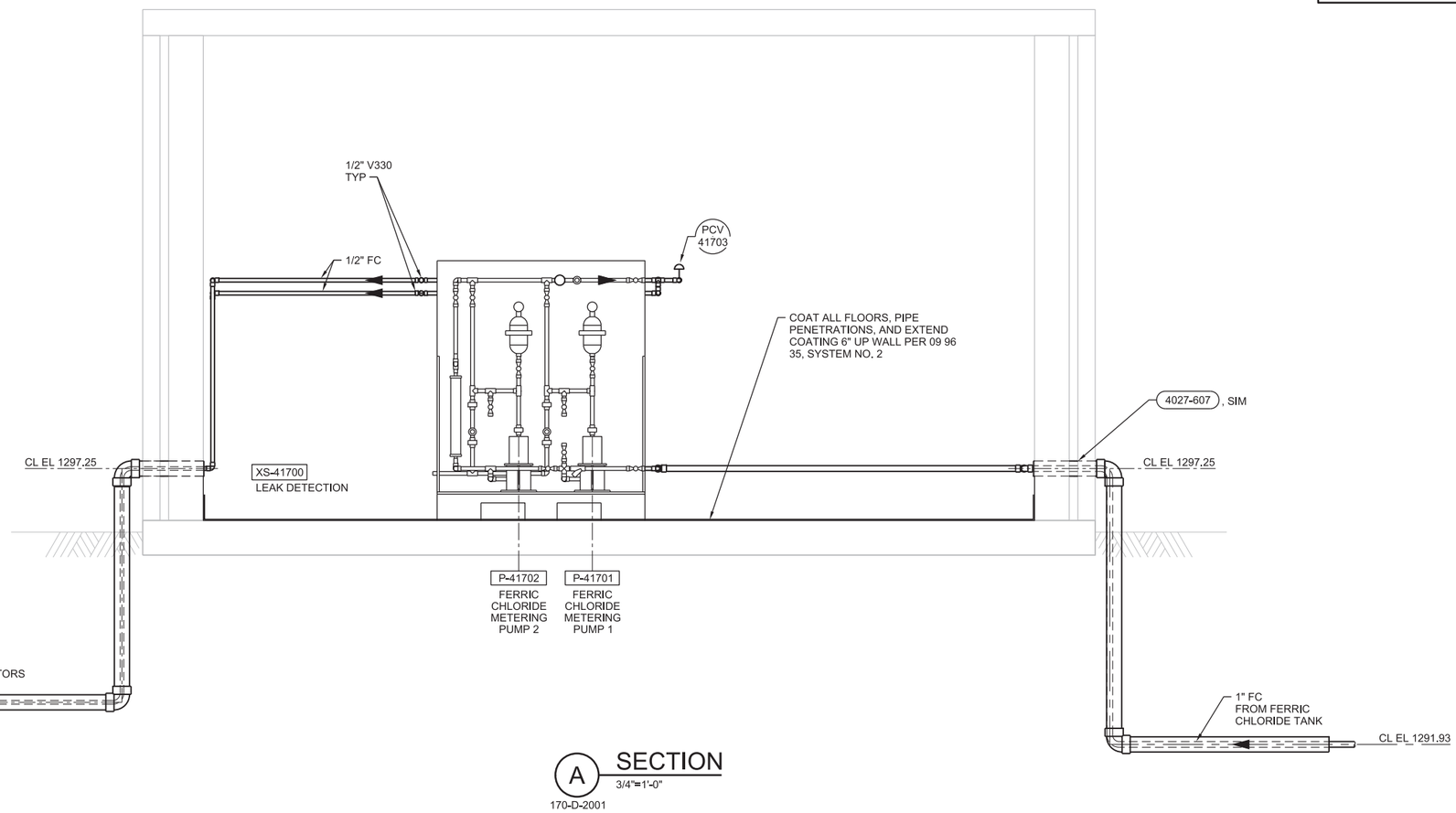
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	170-D-2002
SHEET	244 of 314

FILENAME: 170-D-2002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:04:47 PM

GENERAL NOTES

1. ASSOCIATED WITH BID ITEM ADD ALTERNATIVE NUMBER 1, FERRIC FEED SYSTEM.



A SECTION
3/4"=1'-0"
170-D-2001

ESTELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		S MENK	D.CAVE	E.JOHNSON	E.JOHNSON	E.JOHNSON	

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

ch2m

FERRIC CHLORIDE STORAGE FACILITY
PROCESS MECHANICAL
SECTION

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

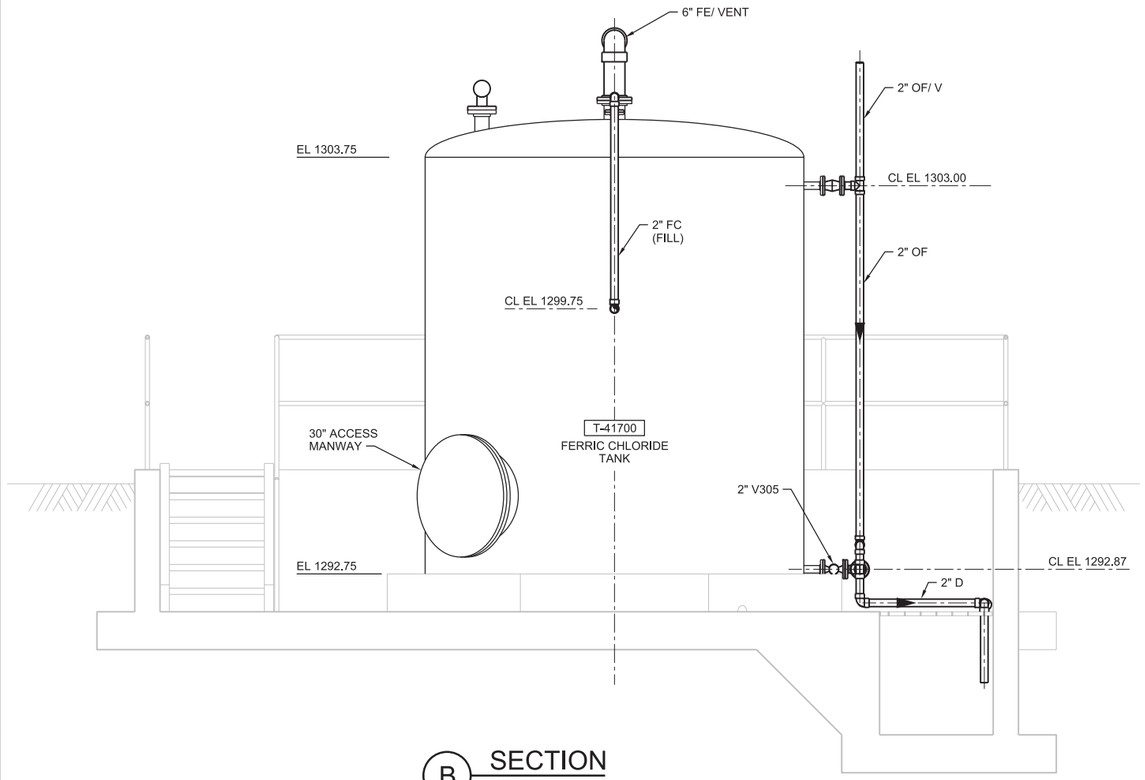
DATE	NOVEMBER 2016
PROJ	496312
DWG	170-D-3001
SHEET	245 of 314

BIDDING SET

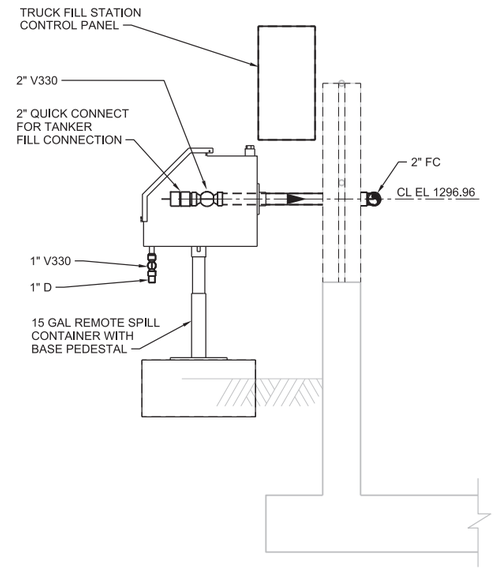
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GENERAL NOTES

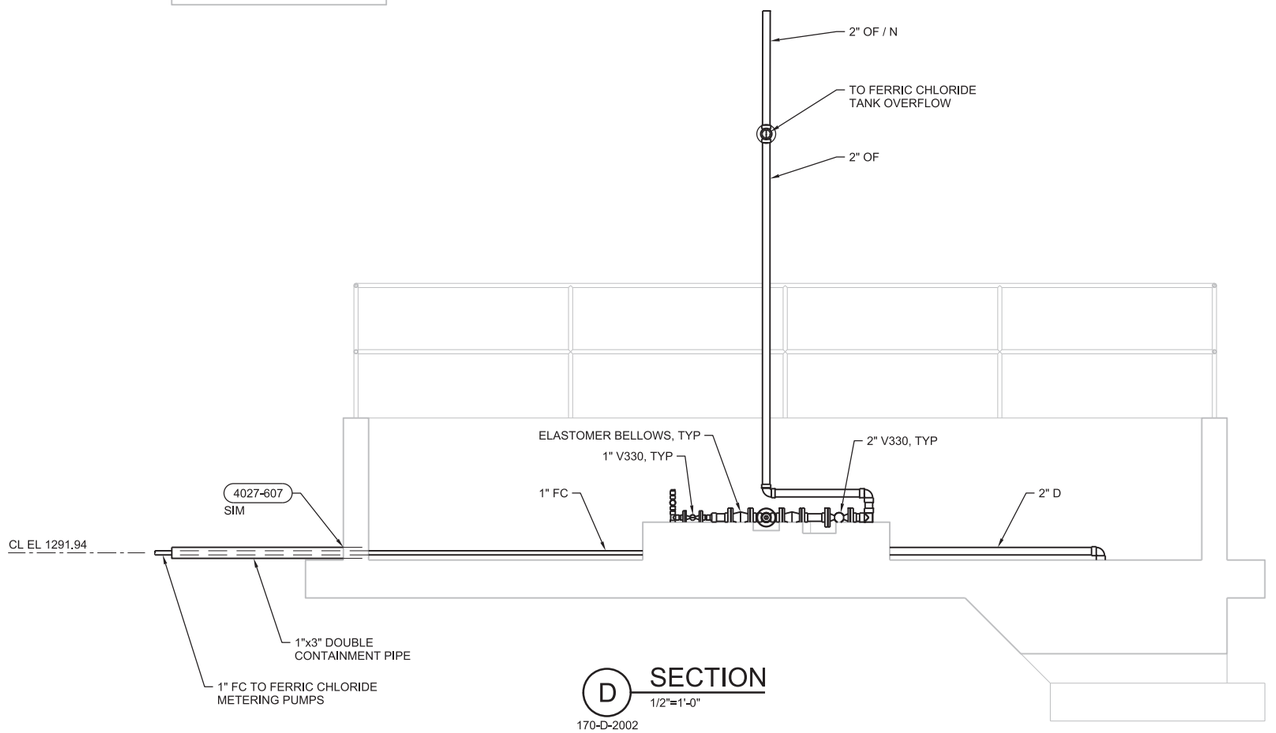
1. ASSOCIATED WITH BID ITEM ADD ALTERNATIVE NUMBER 1, FERRIC FEED SYSTEM.



B SECTION
1/2"=1'-0"
170-D-2002



C SECTION
3/4"=1'-0"
170-D-2002



D SECTION
1/2"=1'-0"
170-D-2002

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DR	CHK	APVD	BY	REVISION
DSGN	S MENK	D.CAVE	E.JOHNSON	APVD	E.JOHNSON	

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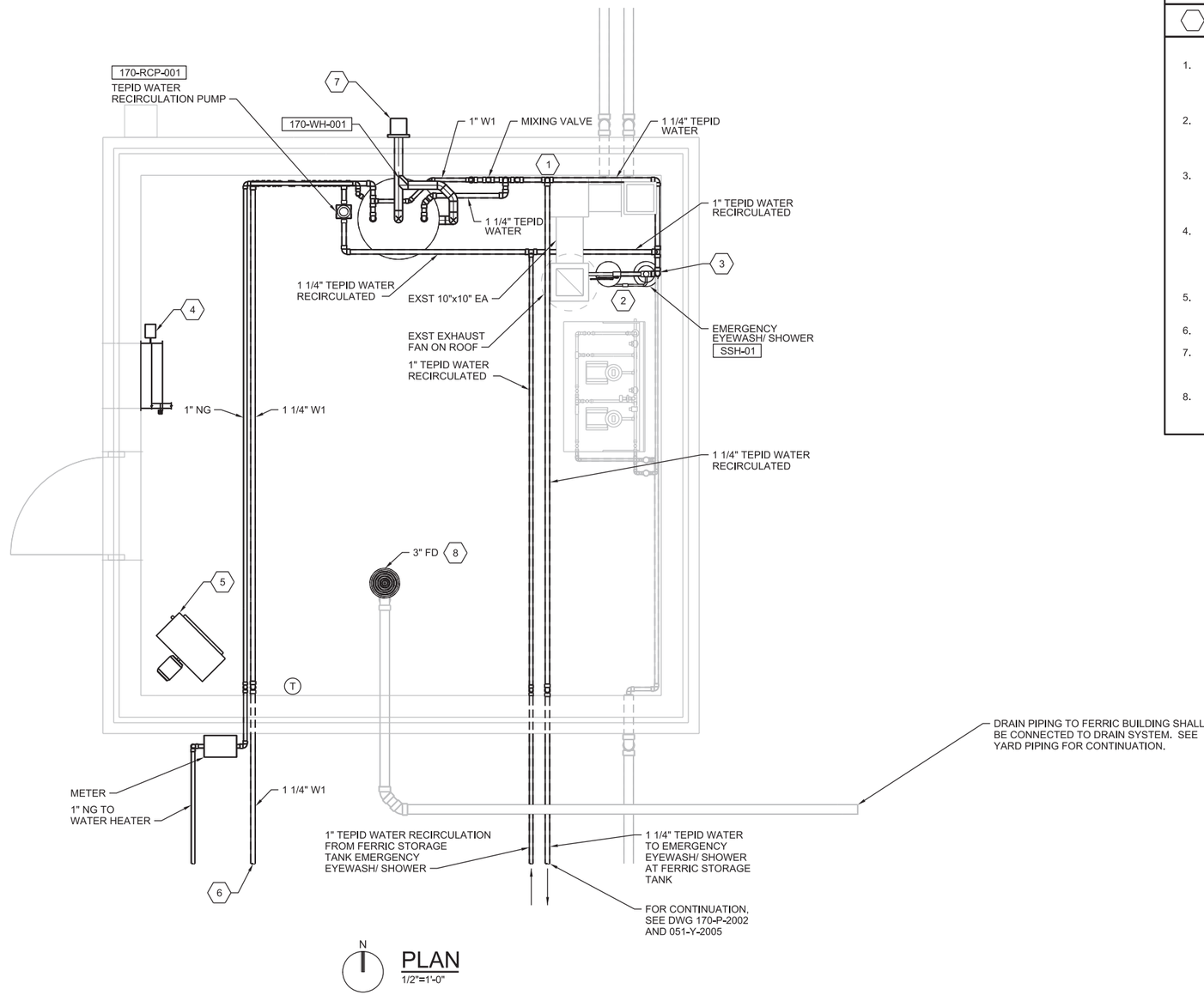
FERRIC CHLORIDE STORAGE FACILITY
PROCESS MECHANICAL SECTIONS

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	170-D-3002
SHEET	246 of 314

BIDDING SET

FILENAME: 170-D-3002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:05:25 PM



PLAN
1/2"=1'-0"

GENERAL NOTES

1. ALL WORK FOR FACILITY 170 IS ASSOCIATED WITH BID ITEM ADD ALTERNATE NUMBER 1 FERRIC FEED SYSTEM.

SHEET KEYNOTES

1. MIXING VALVE SHALL BE SET TO A MAXIMUM OF 85°F DISCHARGE FOR TEPID WATER. TEPID WATER SHALL SERVE EMERGENCY SAFETY EYEWASH/ SHOWER AT POLYMER TANKS AND FERRIC TANK.
2. EMERGENCY SAFETY EYEWASH/ SHOWER SHALL BE PROVIDED WITH HORNS/ STROBE TO ALERT THE SURROUNDING AREA THAT THE EYEWASH/ SHOWER HAS BEEN ACTIVATED.
3. FLOW SWITCH SHALL BE PROVIDED AND CONNECTED TO SCADA TO ALERT CONTROL ROOM THAT AN EMERGENCY EYEWASH/ SHOWER HAS BEEN ACTIVATED.
4. PROVIDE NEW 120V ACTUATOR FOR MECHANICAL DAMPER. INTERLOCK WITH EXISTING EXHAUST FAN STARTER SO DAMPER OPENS WHEN FAN IS POWERED ON AND CLOSES WHEN FAN IS POWERED OFF.
5. REPLACE EXISTING 208V / 1PH 3.3 KILOWATT UNIT HEATER WITH SIMILAR UNIT.
6. W1 WATER PIPING INTO FACILITY IS NEW.
7. WATER HEATER COMBUSTION AIR AND FLUE SHALL BE TERMINATED USING A CONCENTRIC VENT KIT THROUGH THE WALL OF THE EXISTING FACILITY.
8. REPLACE EXISTING 3" FLOOR DRAIN WITH NEW FLOOR DRAIN.

SCOTT HOFFMAN LICENSED 11/4/16 25291 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	DR	CHK	APVD	BY	APVD
DSGN	S HOFFMAN		T WHITE	P RAUSCH		S HOFFMAN	

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PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WQRF
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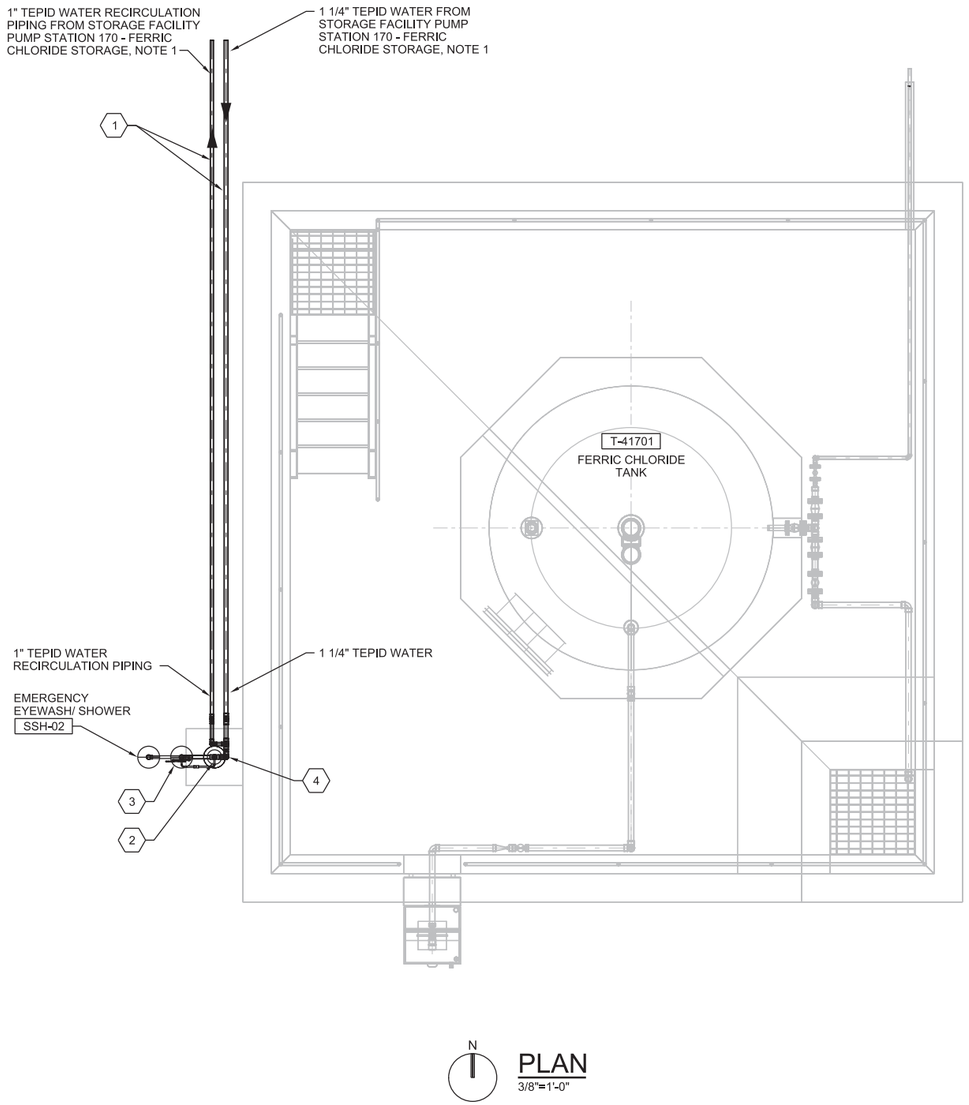
FERRIC CHLORIDE STORAGE FACILITY

PLUMBING PLAN

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	170-P-2001
SHEET	247 of 314

BIDDING SET



N

PLAN
3/8"=1'-0"

GENERAL NOTES

1. FOR CONTINUATION OF PIPING IN THE YARD, SEE DRAWINGS 051-Y-2005 AND 170-P-2001.

SHEET KEYNOTES

1. TEPID WATER AND RECIRCULATION WATER SHALL BE ROUTED UNDERGROUND AT A MINIMUM OF 36".
2. TEPID WATER AND RECIRCULATION WATER ABOVE GRADE SHALL BE HEAT TRACED TO PREVENT FREEZING.
3. EMERGENCY SAFETY EYEWASH/ SHOWER PROVIDED WITH HORN/ STROBE TO ALERT THE SURROUNDING AREA THAT A EYEWASH/ SHOWER HAS BEEN ACTIVATED.
4. FLOW SWITCH SHALL BE PROVIDED AND CONNECTED TO SCADA TO ALERT CONTROL ROOM THAT EMERGENCY EYEWASH/ SHOWER HAS BEEN ACTIVATED.

SCOTT HOFFMAN LICENSED 11/4/16 25291 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD
		S HOFFMAN	G JAMROS	P RAUSCH	S HOFFMAN

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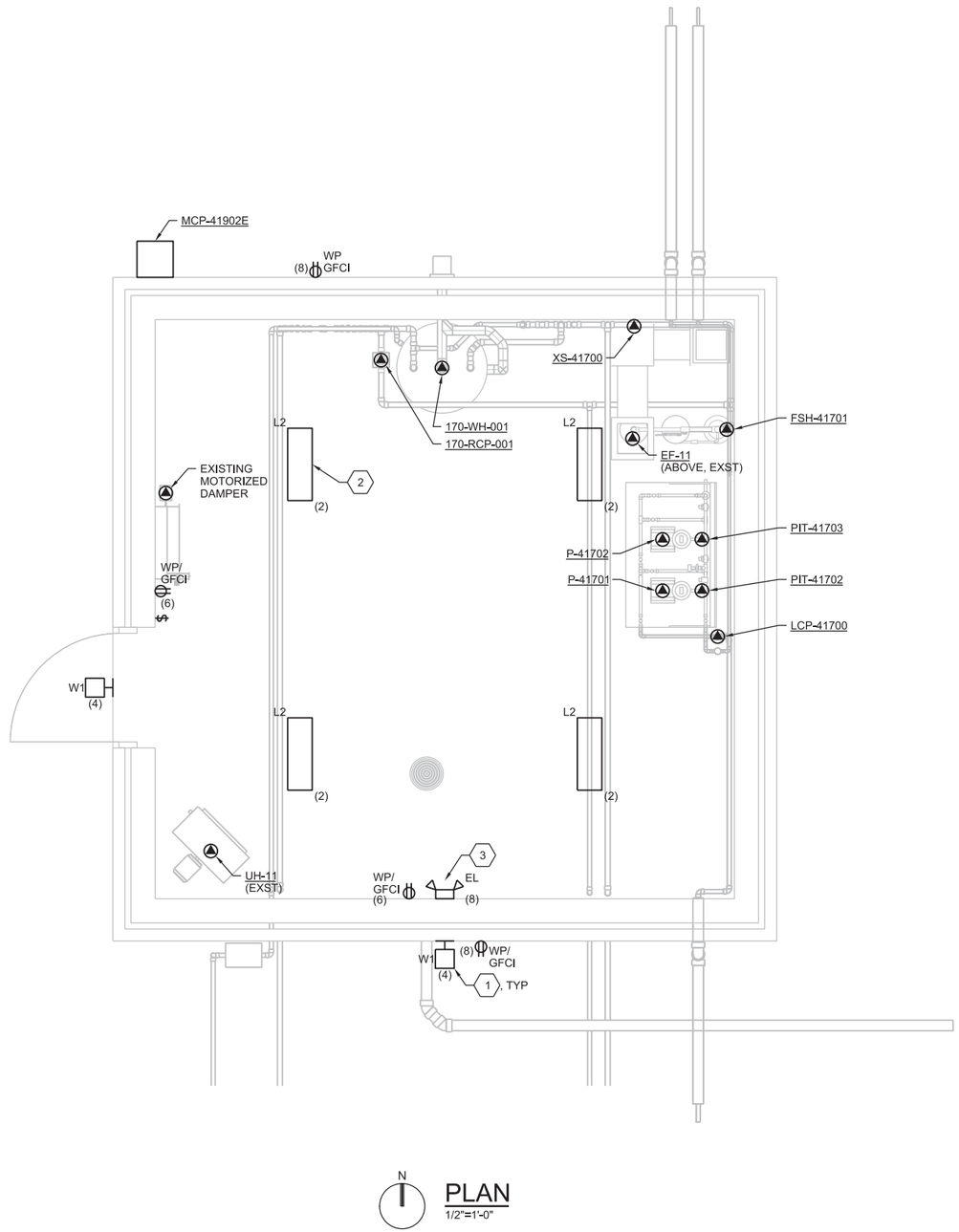
PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

FERRIC CHLORIDE STORAGE FACILITY
PLUMBING PLAN

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	170-P-2002
SHEET	248 of 314

BIDDING SET



N

PLAN
1/2"=1'-0"

GENERAL NOTES

1. EXCEPT AS NOTED, DEMOLISH EXISTING ELECTRICAL EQUIPMENT AND SYSTEMS INCLUDING, BUT NOT LIMITED TO: LIGHTING, RECEPTACLES, BRANCH CIRCUITS TO HVAC EQUIPMENT. PRESERVE UH-11 AND THE MOTORIZED DAMPER FOR RE-USE.

SHEET KEYNOTES

1. MOUNT EXTERIOR LUMINAIRES 1 FT ABOVE DOOR, MINIMUM. PROVIDE WITH INTEGRAL PHOTOCELL.
2. MOUNT INTERIOR LUMINAIRES TO CEILING. MOUNTING HEIGHT: 8 FT ABOVE FINISHED FLOOR, MINIMUM.
3. MOUNT EMERGENCY LIGHTING AS HIGH ON WALL AS POSSIBLE. FIELD ADJUST LAMPS FOR MAXIMUM LIGHTING COVERAGE.

MARY J. GROSS LICENSED 16702 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD
		J LANDMAN	A CUGLIAT	M GROSS	M GROSS

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M GROSS

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DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

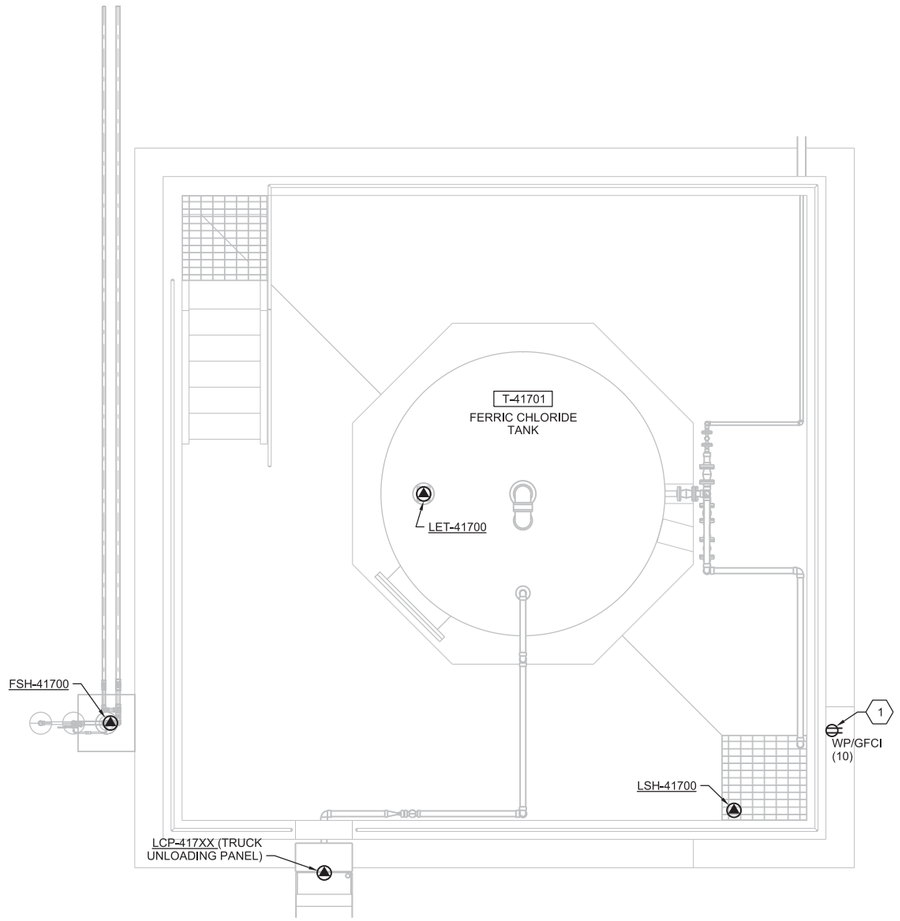
FERRIC CHLORIDE STORAGE FACILITY

ELECTRICAL
PLAN

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	170-E-2001
SHEET	249 of 314

BIDDING SET



N

PLAN
3/8"=1'-0"

SHEET KEYNOTES

1. MOUNT RECEPTACLE TO BOTTOM RUNG OF HANDRAIL. THIS RECEPTACLE IS POWERED FROM MPC-41902E IN THE FERRIC CHLORIDE STORAGE FACILITY

MARY J. GROSS
LICENSED
16702
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	DR	CHK	APVD	BY	APVD
DSGN	J LANDMAN		A CUGLIAT	M GROSS	M GROSS	M GROSS	M GROSS

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CITY OF WICHITA, KANSAS

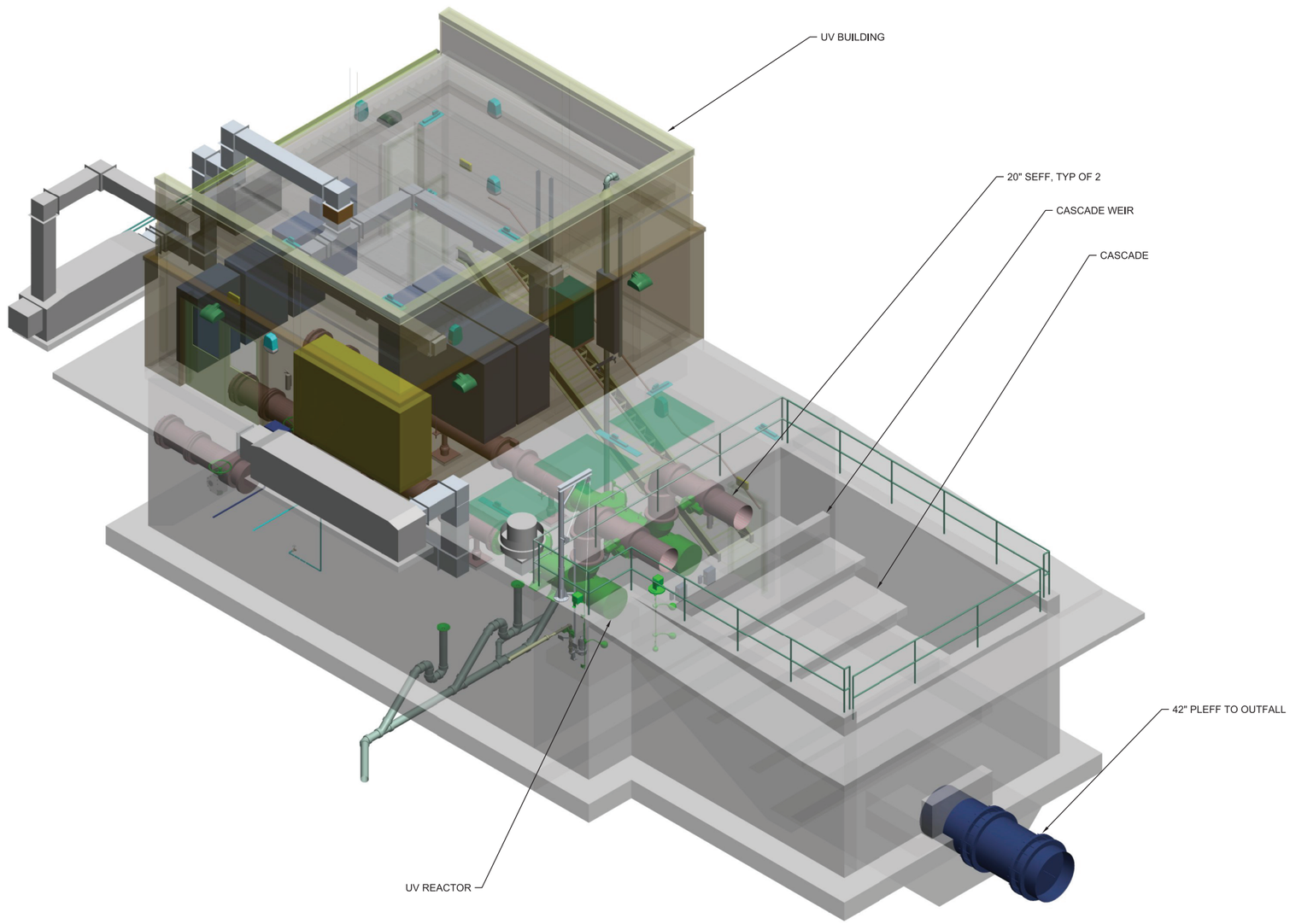
FERRIC CHLORIDE STORAGE FACILITY
ELECTRICAL PLAN

BIDDING SET

VERIFY SCALE
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0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	170-E-2002
SHEET	250 of 314

FILENAME: 170-E-2002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:05:10 PM



RENDERING
NTS

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	BY	APVD
DSGN	S FOSTER	DR F JAGLA	CHK S FOSTER	APVD E JOHNSON

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

UV DISINFECTION FACILITY

RENDERING

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

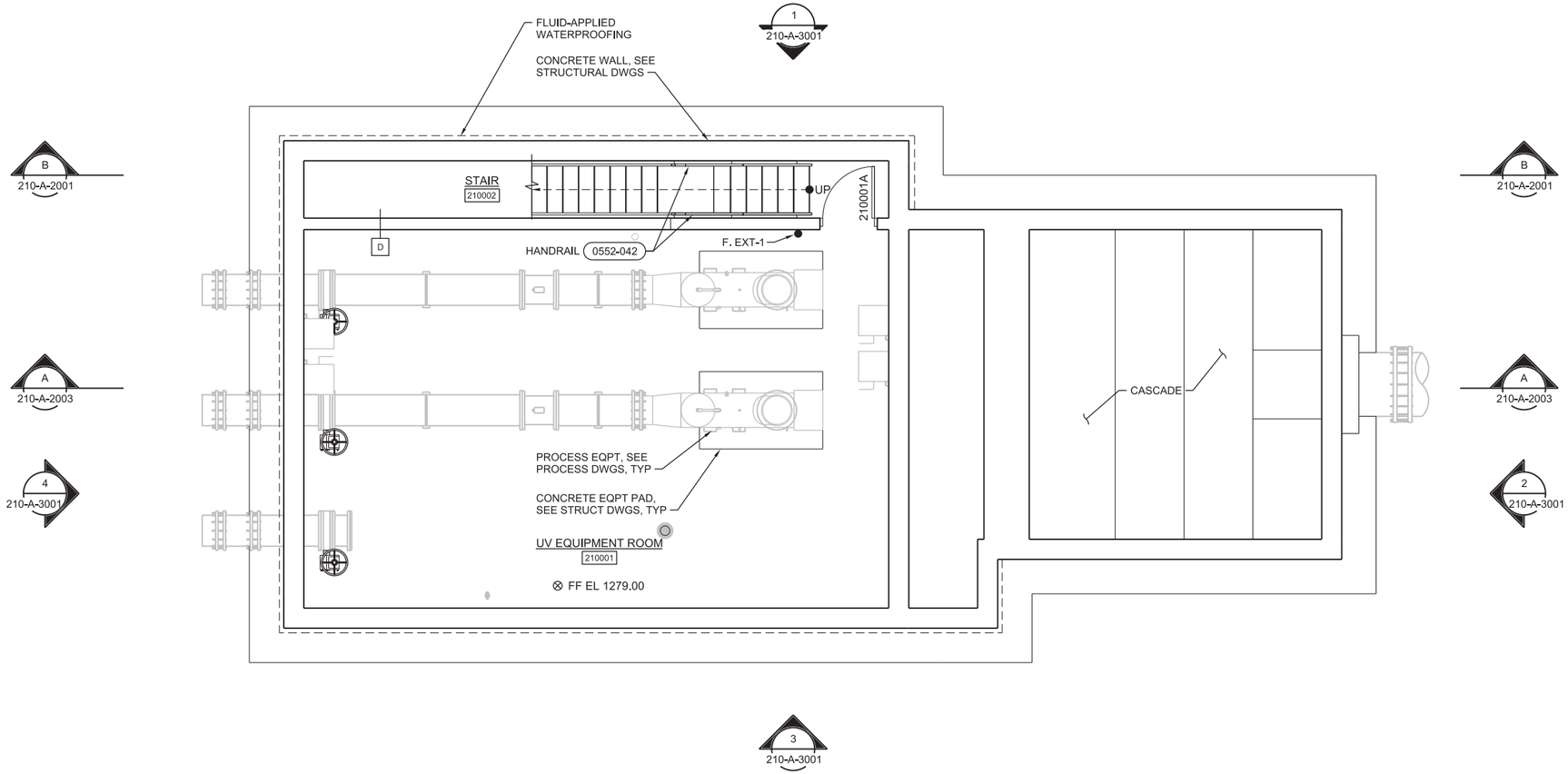
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PROJ	496312
DWG	210-G-2000
SHEET	251 of 314

BIDDING SET

FILENAME: 210-G-2000_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:06:01 PM

GENERAL NOTES

1. FOR GENERAL ARCHITECTURAL NOTES, LEGEND, SYMBOLS AND AND WALL TYPES, SEE DWG 001-G-0200.
2. FOR INTERIOR FINISHES, EXTERIOR FINISHES, DOOR HARDWARE, COLOR LIST, WINDOW AND LOUVER SCHEDULES, SEE DWG 001-G-0201.



N

LOWER FLOOR PLAN

1/4"=1'-0"

MICHAEL C SAPP LICENSED 11/4/16 6650 KANSAS ARCHITECT

11/04/2016

NO.	DSGN	DATE	DR	REVISION	CHK	APVD	BY	APVD
		M SAPP	S BARD		S SILKWORTH		M SAPP	

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

UV DISINFECTION FACILITY
ARCHITECTURAL
LOWER LEVEL FLOOR PLAN

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

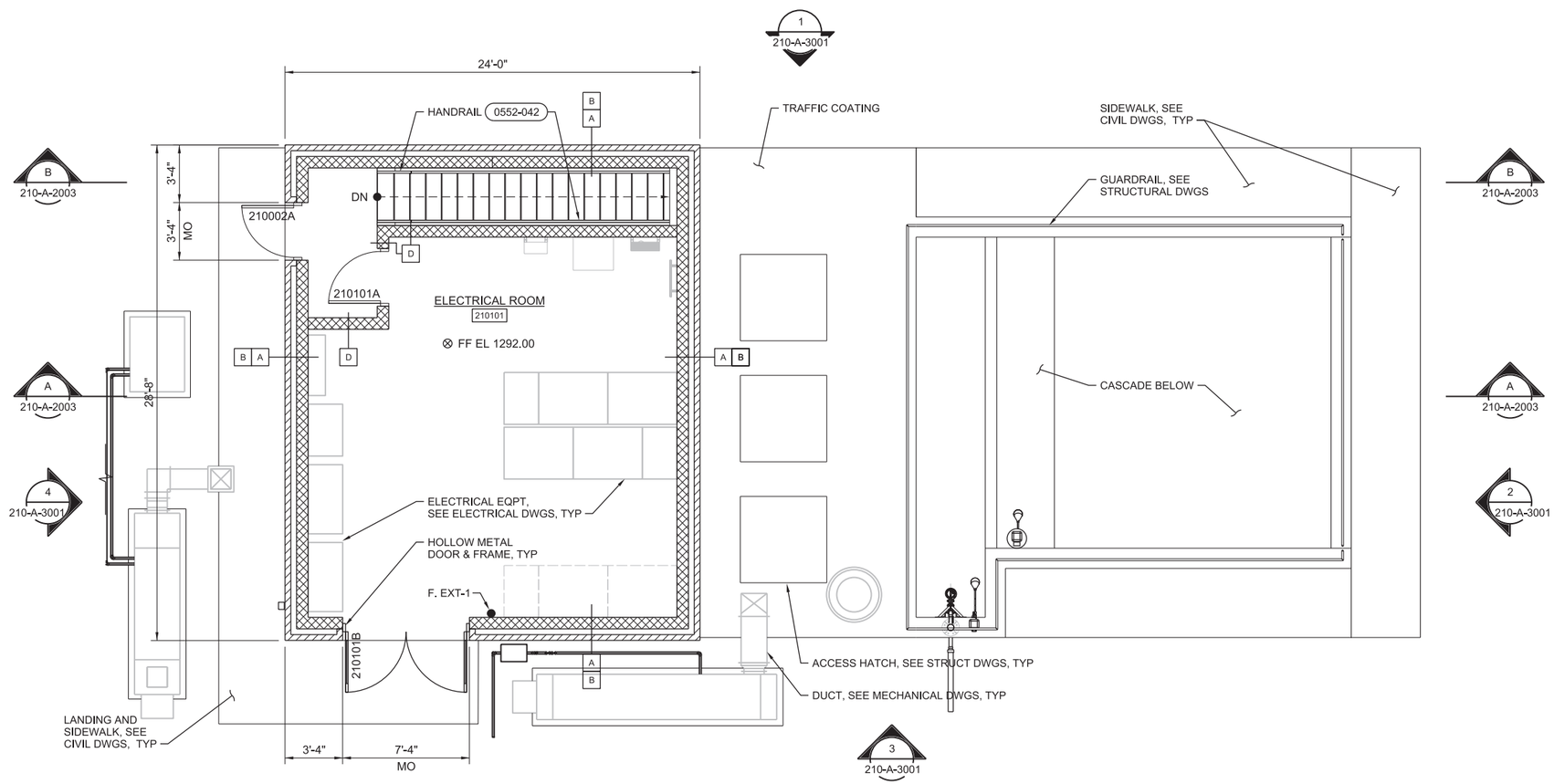
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PROJ	496312
DWG	210-A-2001
SHEET	252 of 314

BIDDING SET

FILENAME: 210-A-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:07:56 PM

GENERAL NOTES

1. FOR GENERAL ARCHITECTURAL NOTES, LEGEND, SYMBOLS AND AND WALL TYPES, SEE DWG 001-G-0200.
2. FOR INTERIOR FINISHES, EXTERIOR FINISHES, DOOR HARDWARE, COLOR LIST, WINDOW AND LOUVER SCHEDULES, SEE DWG 001-G-0201.



N

GROUND FLOOR PLAN

1/4"=1'-0"

MICHAEL C SAPP LICENSED 11/4/16 6650 KANSAS ARCHITECT

11/04/2016

NO.	DSGN	DATE	DR	REVISION	CHK	BY	APVD
			M SAPP	S BARD	S SILKWORTH	M SAPP	APVD

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CITY OF WICHITA, KANSAS

UV DISINFECTION FACILITY

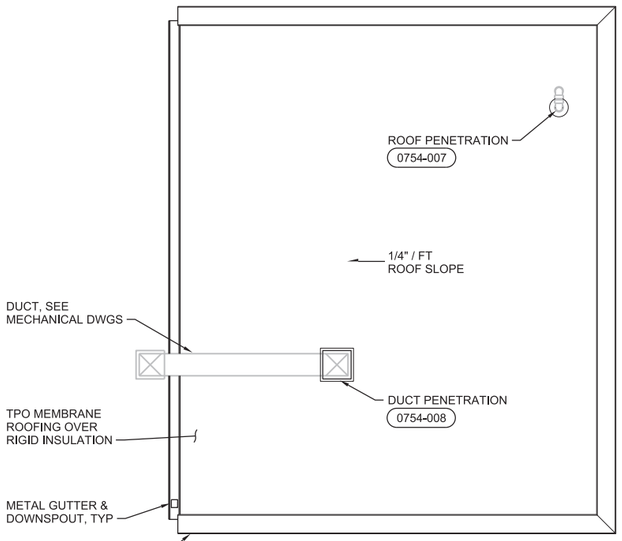
ARCHITECTURAL
GROUND LEVEL FLOOR PLAN

VERIFY SCALE

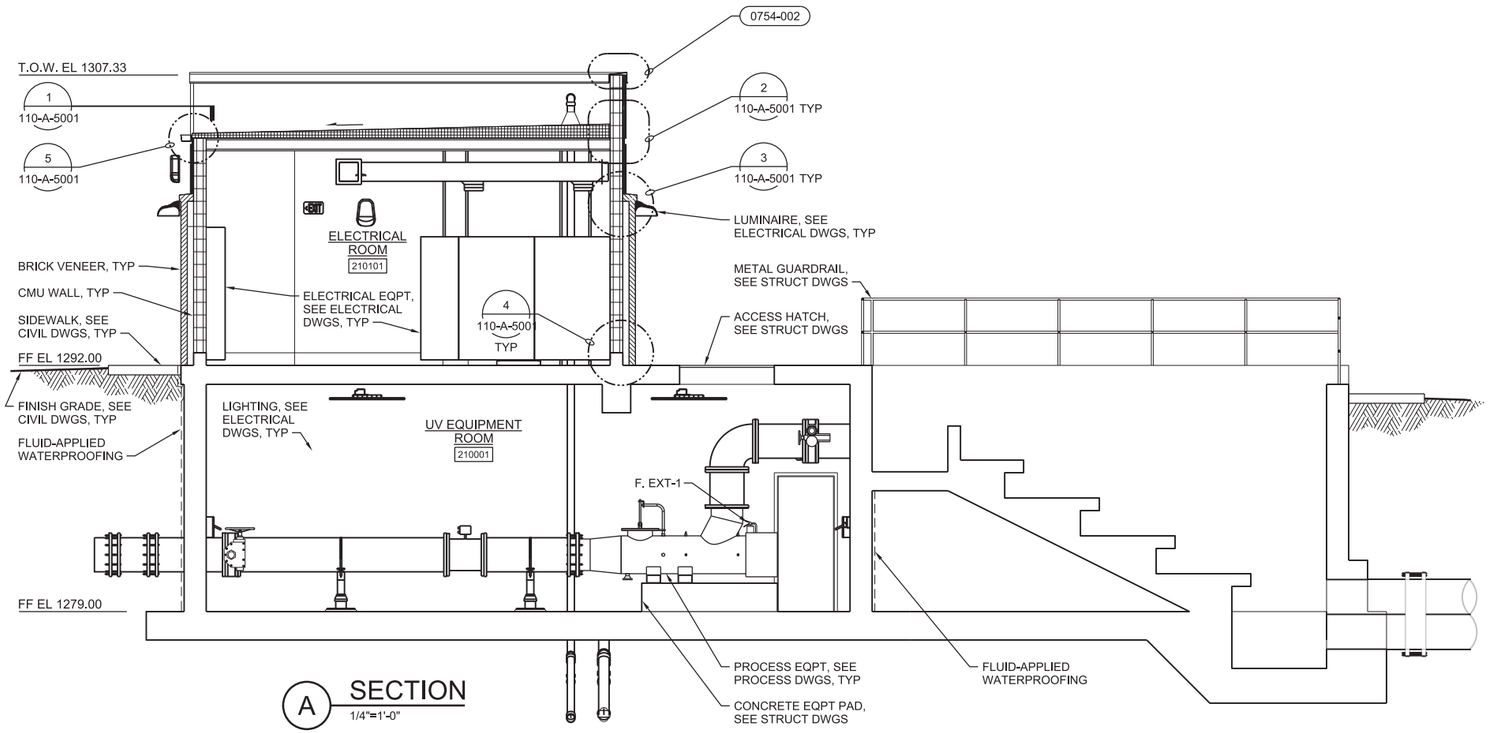
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	210-A-2002
SHEET	253 of 314

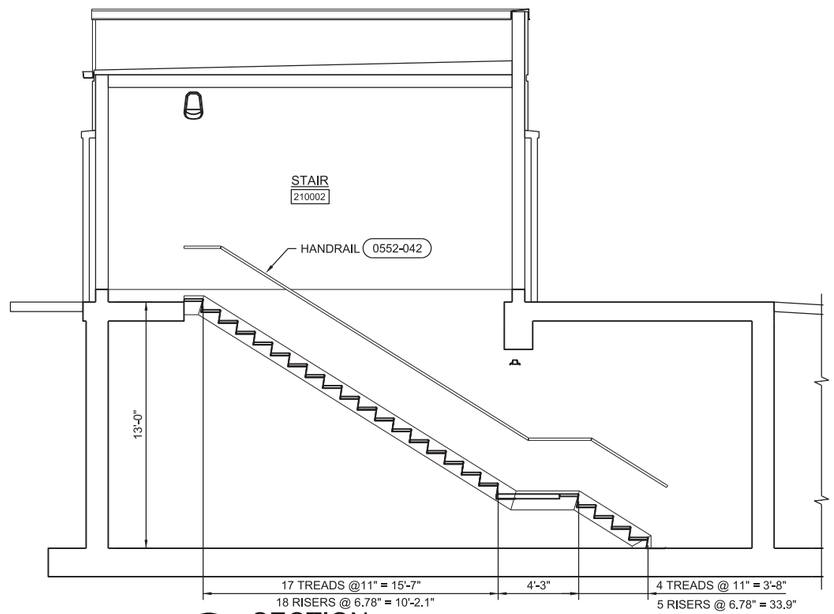
BIDDING SET



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



A SECTION
1/4"=1'-0"
210-A-2001



B SECTION
1/4"=1'-0"
210-A-2001

MICHAEL C SAPP
LICENSED
11/7/16
6650
KANSAS
ARCHITECT

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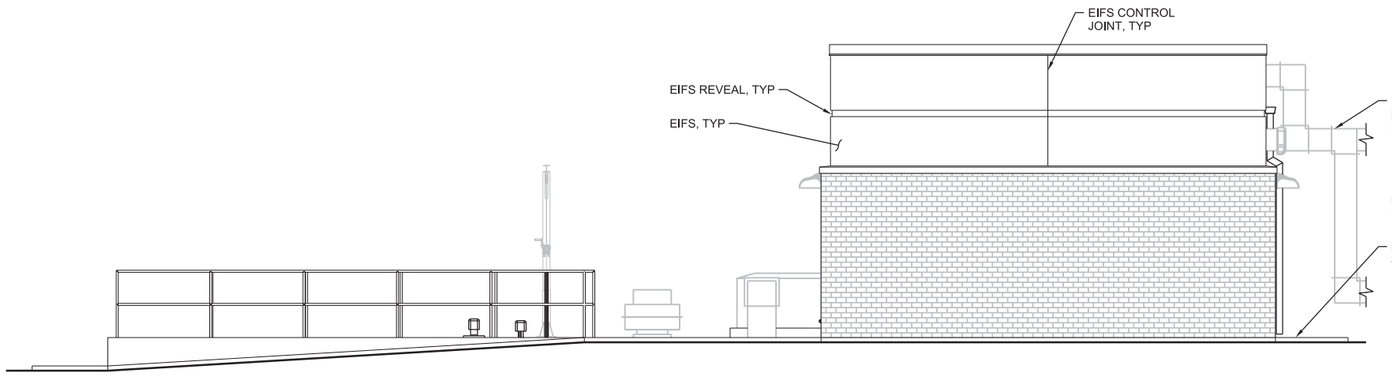
ch2m

UV DISINFECTION FACILITY
ARCHITECTURAL
ROOF PLAN AND SECTIONS

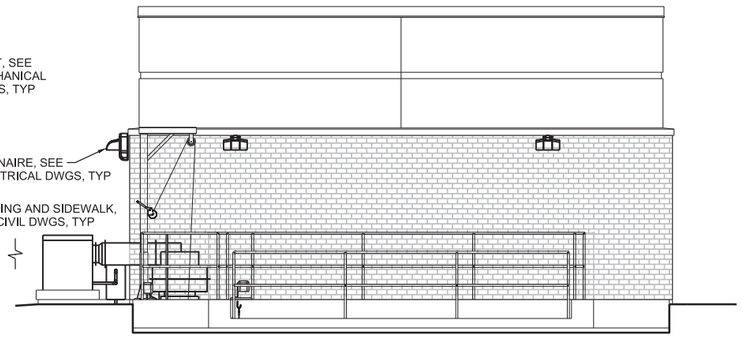
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	210-A-2003
SHEET	254 of 314

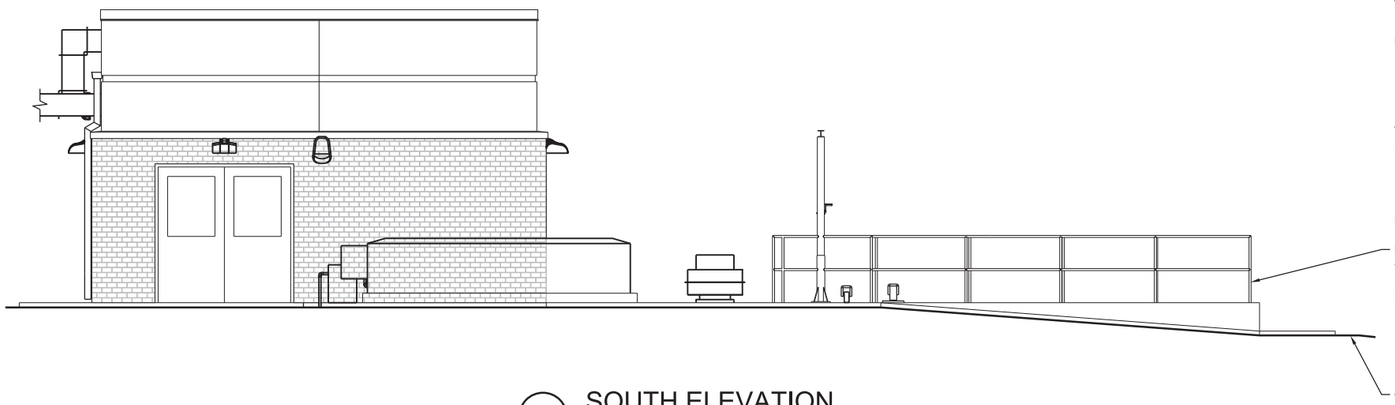
BIDDING SET



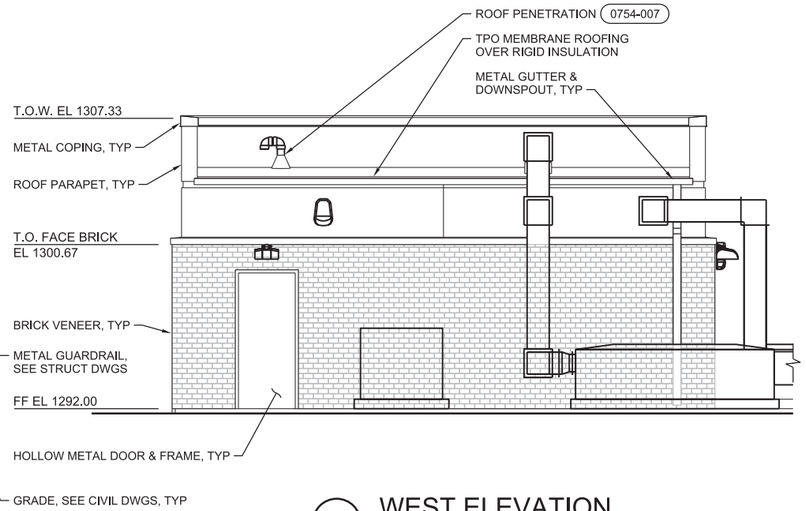
1 NORTH ELEVATION
1/4"=1'-0"
210-A-2001



2 EAST ELEVATION
1/4"=1'-0"
210-A-2001



3 SOUTH ELEVATION
1/4"=1'-0"
210-A-2001



4 WEST ELEVATION
1/4"=1'-0"
210-A-2001

MICHAEL C SAPP
LICENSED
11/7/16
6650
KANSAS
ARCHITECT

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		M SAPP	S BARD	S SILKWORTH	APVD	M SAPP	

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PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WQRF
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UV DISINFECTION FACILITY

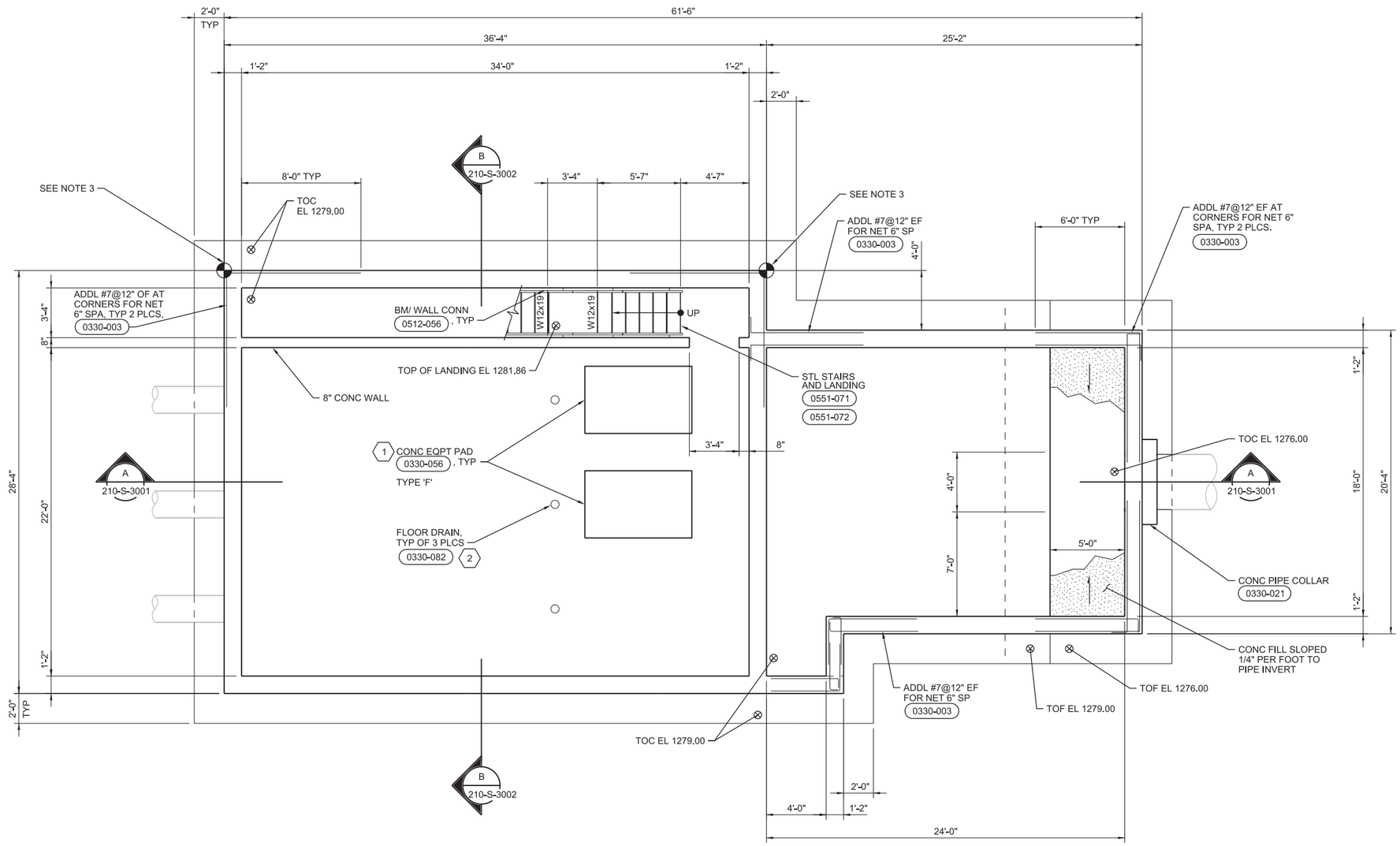
ARCHITECTURAL EXTERIOR BUILDING ELEVATIONS

BIDDING SET

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	210-A-3001
SHEET	255 of 314

FILENAME: 210-A-3001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:07:29 PM



N

FOUNDATION PLAN

1/4"=1'-0"

GENERAL NOTES

1. FOR DESIGN CRITERIA AND GENERAL STRUCTURAL NOTES, SEE DRAWINGS 001-G-0300 AND 001-G-0301.
2. FOR SPECIAL INSPECTION AND TESTING REQUIREMENTS, SEE DRAWINGS 001-G-0302 THROUGH 001-G-0305 .
3. FOR FACILITY SITE COORDINATES SEE CIVIL DRAWINGS.
4. ADDITIONAL DESIGN CRITERIA SPECIFIC TO THIS FACILITY:
   a. BASIC SEISMIC-FORCE RESISTING SYSTEM: FLAT BOTTOM GROUND SUPPORTED CONCRETE TANK WITH REINFORCED NON-SLIDING BASE ANALYSIS PROCEDURE USED: ASCE 7 GROUND SUPPORTED STORAGE TANKS FOR LIQUIDS
   b. DESIGN GROUND WATER ELEVATION = 1288.0 FT
   c. CASCADE LIQUID TIGHTNESS TESTING ELEVATION = 1291.00 FT
5. REINFORCED CONCRETE NOTES
   a. COORDINATE SIZE AND LOCATION OF ALL OPENINGS WITH OTHER DISCIPLINES. FOR TYPICAL CONCRETE WALL OR SLAB OPENING REINFORCING SEE (0330-001).
   b. FOR TYPICAL CONCRETE WALL CORNER AND INTERSECTION REINFORCING SEE (0330-003).
   c. UNLESS OTHERWISE NOTED ALL PIPING BELOW A FACILITY SHALL BE ENCASED PER STANDARD DETAILS (0330-016), (0330-017), AND (0330-018).
   d. EQUIPMENT PAD SIZES AND LOCATIONS SHALL BE COORDINATED WITH THE EQUIPMENT MANUFACTURER'S SHOP DRAWINGS.

SHEET KEYNOTES

1. COORDINATE LOCATION AND SIZE OF EQUIPMENT PADS WITH EQUIPMENT MANUFACTURER AND OTHER DISCIPLINE DRAWINGS.
2. COORDINATE LOCATIONS WITH PLUMBING DRAWINGS

HUGO ANDRES ROJAS
LICENSED
11/04/16
24949
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
	H ROJAS		F JAGLA	M MERKLEIN	APVD	H ROJAS	

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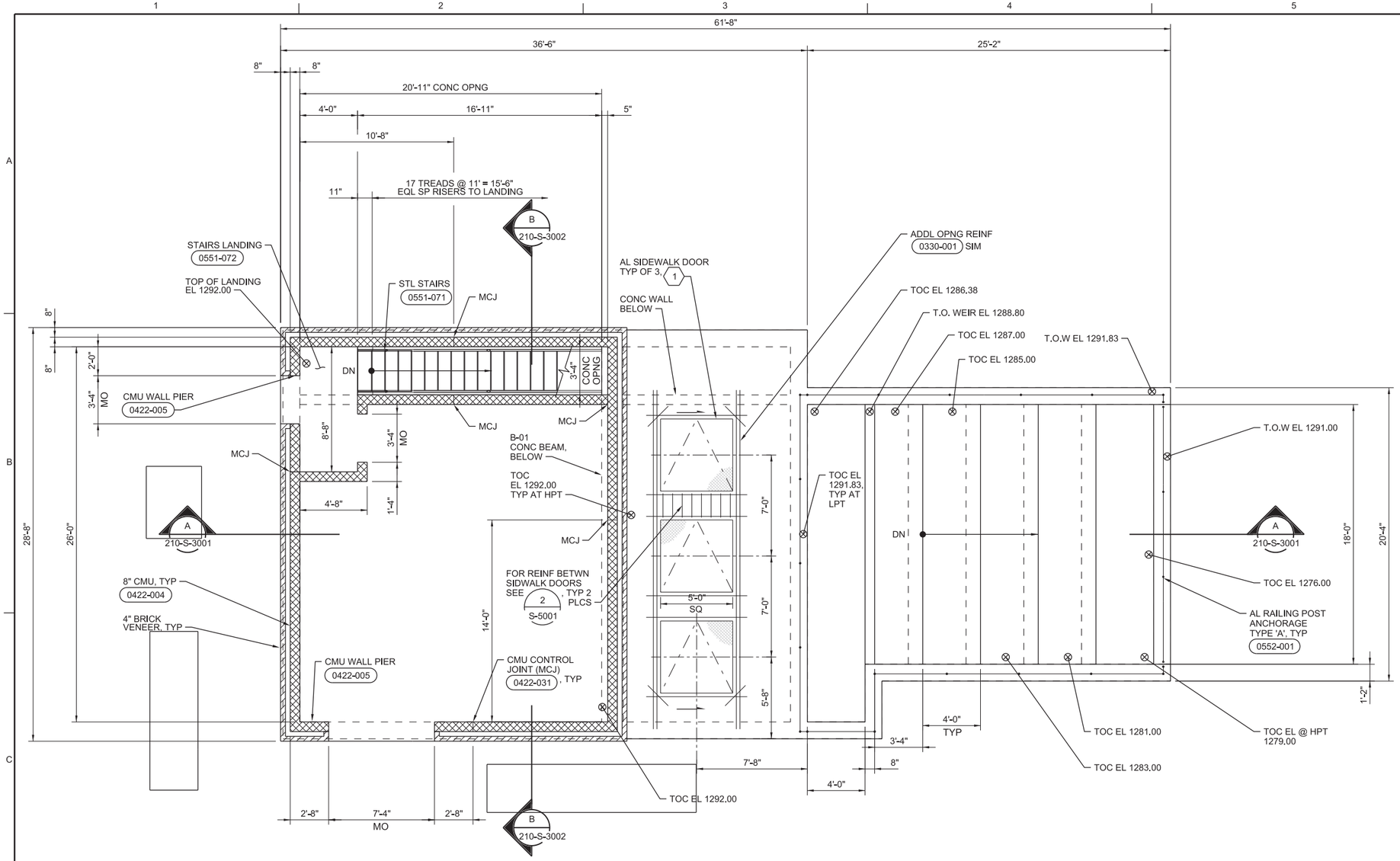
ch2m

UV DISINFECTION FACILITY
STRUCTURAL
FOUNDATION PLAN

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

DATE	NOVEMBER 2016
PROJ	496312
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BIDDING SET



N

GROUND LEVEL PLAN

1/4"=1'-0"

GENERAL NOTES

1. ORDINARY REINFORCED MASONRY WALLS NOTES:
   a. FOR TYPICAL CMU WALL CORNER REINFORCING SEE DETAIL (0422-001).
   b. FOR TYPICAL CMU WALL REINFORCING PLACEMENT SEE DETAIL (0422-004).
   c. FOR TYPICAL CMU WALL OPENING REINFORCING SEE DETAIL (0422-003).
   d. ONLY GROUT CELL WITH REINFORCING OR AS INDICATED IN DETAILS.
   e. FOR WINDOWS, DOORS, LOUVERS, FLOOR DEPRESSIONS, AND DIMENSIONS NOT SHOWN SEE ARCHITECTURAL DRAWINGS.
   f. FOR VENEER CONTROL JOINTS SEE ARCHITECTURAL DRAWINGS.
2. ADDITIONAL DESIGN CRITERIA SPECIFIC TO THIS FACILITY:
   a. SEISMIC DESIGN DATA BASIC SEISMIC-FORCE RESISTING SYSTEM: ORDINARY REINFORCED MASONRY SHEAR WALLS RESPONSE MODIFICATION FACTOR, = 2 SEISMIC RESPONSE COEFFICIENT, C = 0.084 DESIGN SEISMIC SHEAR (SERVICE LEVEL) V = 17 KIPS ANALYSIS PROCEDURE USED: EQUIVALENT LATERAL FORCE.

SHEET KEYNOTES

1. COORDINATE LOCATION OF SIDEWALK DOORS WITH EQUIPMENT MANUFACTURER AND OTHER DISCIPLINE DRAWINGS.

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NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
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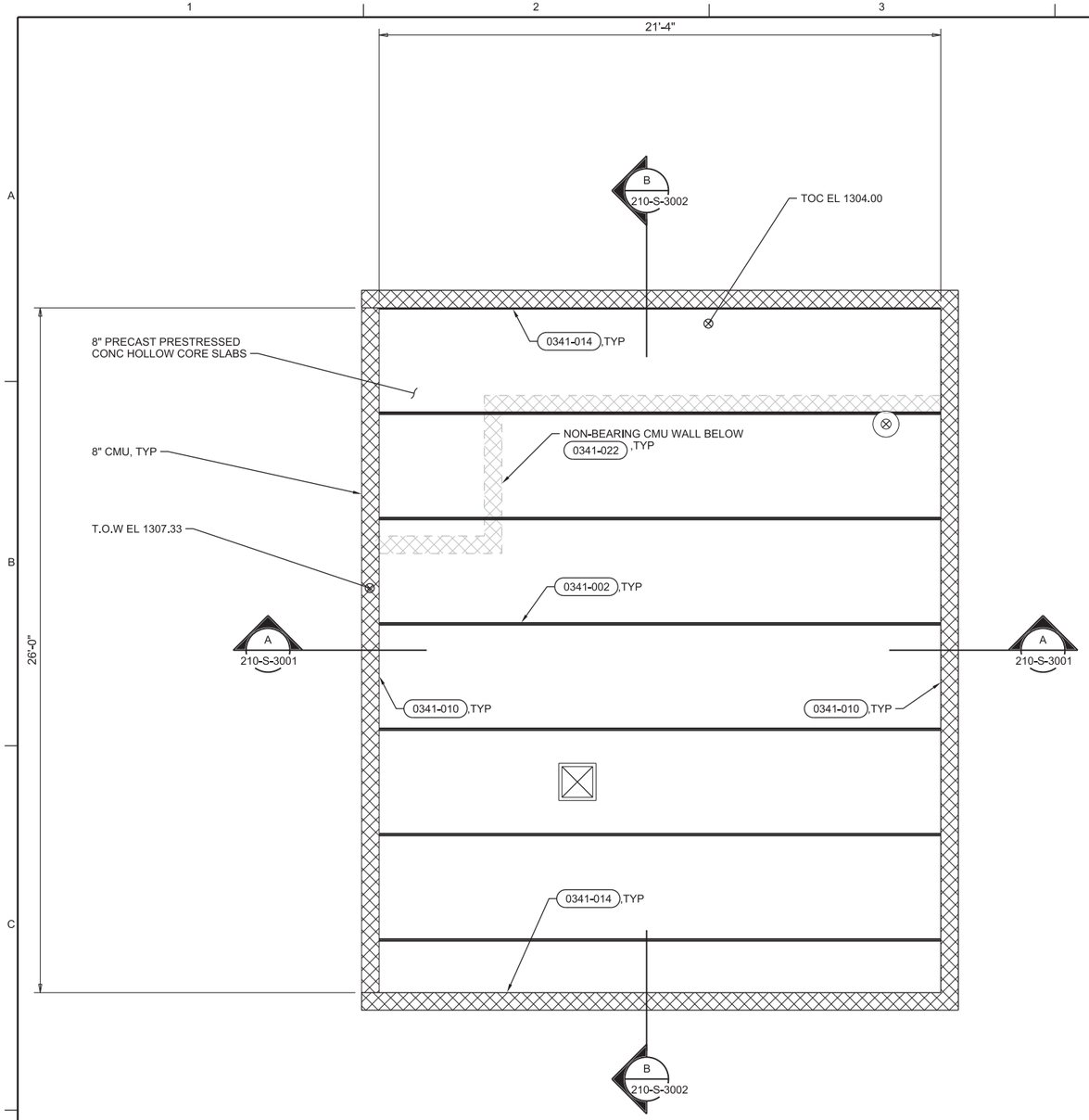
PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

UV DISINFECTION FACILITY
STRUCTURAL
GROUND LEVEL PLAN

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

DATE	NOVEMBER 2016
PROJ	496312
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SHEET	257 of 314

BIDDING SET



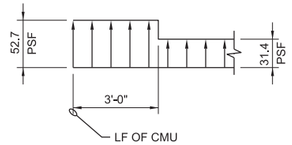
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ROOF FRAMING PLAN

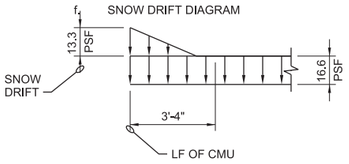
3/8"=1'-0"

GENERAL NOTES

1. PRECAST PRESTRESSED CONCRETE HOLLOW-CORE SLABS
   a. PRECAST PRESTRESSED CONCRETE HOLLOW-CORE SLABS SHALL BE DESIGNED BY PRECAST MANUFACTURER. FOR DESIGN CRITERIA, SEE DRAWINGS 001-G-0300 AND 001-G-0301, AND SPECIFICATION SECTION 03 40 00 PRECAST CONCRETE.
   b. COORDINATE ROOF PENETRATIONS WITH OTHER DISCIPLINE DRAWINGS AND PRECAST MANUFACTURER.
   c. COORDINATE LOCATION AND LOADS FOR PIPE SUPPORTS AND EQUIPMENT WITH PRECAST MANUFACTURER.
   d. MINIMUM SHEAR CAPACITY = 196 PLF
   e. WIND DRIFT DIAGRAM



   f. SNOW DRIFT DIAGRAM





11/04/2016

NO.	DESCRIPTION	DATE	DSGN	DR	CHK	APVD	BY
	REVISION		H ROJAS	F JAGLA	M MERKLEIN	APVD	H ROJAS

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

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UV DISINFECTION FACILITY
STRUCTURAL
ROOF FRAMING PLAN

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	210-S-2003
SHEET	258 of 314

BIDDING SET

FILENAME: 210-S-2003_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:06:25 PM

GENERAL NOTES

1. BACKFILL USING GRANULAR FILL IN ZONE FROM THE BASE OF THE STRUCTURE EXTENDING UPWARD AT AN ANGLE OF AT LEAST 45 DEGREES FROM VERTICAL TO A DEPTH OF 2 FEET BELOW TOP OF BACKFILL. BACKFILL UPPER 2 FEET WITHIN 10 FEET OF PERIMETER OF STRUCTURE USING COHESIVE SOIL TO PREVENT INFILTRATION OF SURFACE WATER

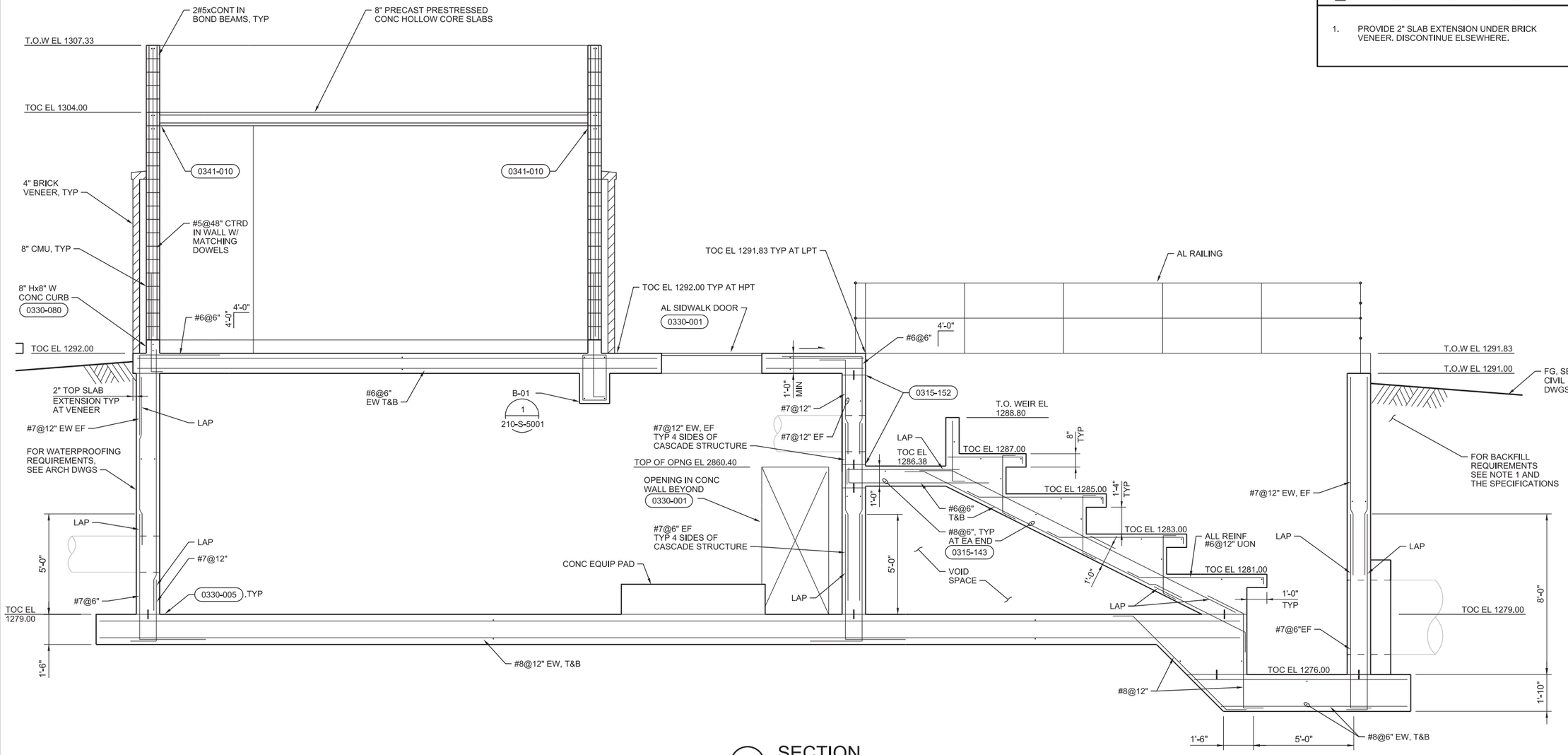
SHEET KEYNOTES

1. PROVIDE 2" SLAB EXTENSION UNDER BRICK VENEER. DISCONTINUE ELSEWHERE.

HUGO ANDRES ROJAS LICENSED 11/04/16 24949 KANSAS PROFESSIONAL ENGINEER

11/04/2016

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A SECTION
3/8"=1'-0"

210-S-2001
210-S-2002
210-S-2003
210-S-3002

NO.	DSGN	DATE	DR	CHK	APVD	REVISION	BY	APVD
		H ROJAS	F JAGLA	M MERKLEIN	APVD		H ROJAS	

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

UV DISINFECTION FACILITY
STRUCTURAL SECTION

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

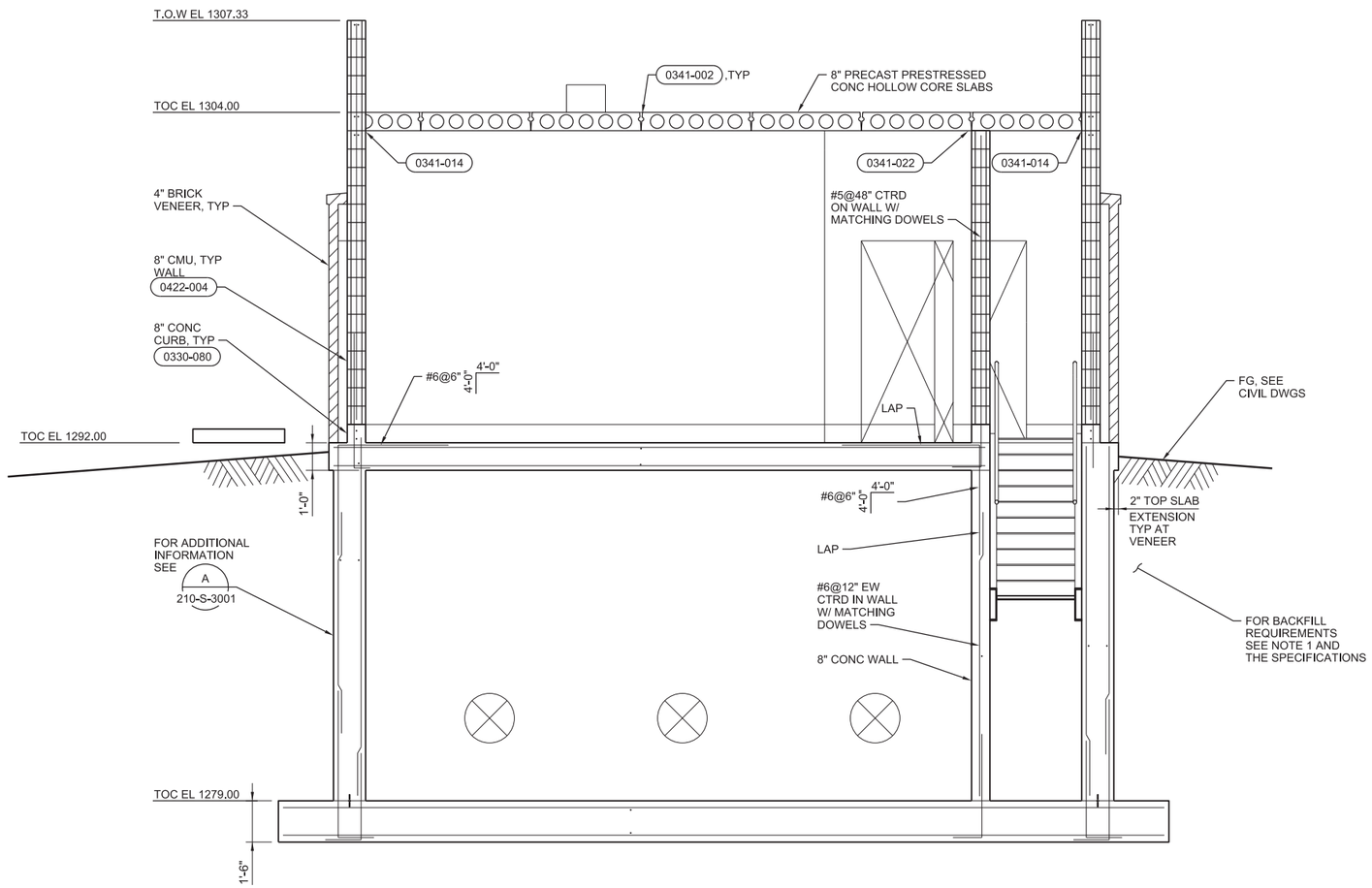
DATE	NOVEMBER 2016
PROJ	496312
DWG	210-S-3001
SHEET	259 of 314

BIDDING SET

FILENAME: 210-S-3001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:07:05 PM

GENERAL NOTES

1. BACKFILL USING GRANULAR FILL IN ZONE FROM THE BASE OF THE STRUCTURE EXTENDING UPWARD AT AN ANGLE OF AT LEAST 45 DEGREES FROM VERTICAL TO A DEPTH OF 2 FEET BELOW TOP OF BACKFILL. BACKFILL UPPER 2 FEET WITHIN 10 FEET OF PERIMETER OF STRUCTURE USING COHESIVE SOIL TO PREVENT INFILTRATION OF SURFACE WATER



B SECTION
3/8"=1'-0"
210-S-2001
210-S-2002
210-S-2003

HUGO ANDRES ROJAS LICENSED 11/04/16 24949 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
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CITY OF WICHITA, KANSAS

UV DISINFECTION FACILITY

STRUCTURAL SECTION

BIDDING SET

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	210-S-3002
SHEET	260 of 314

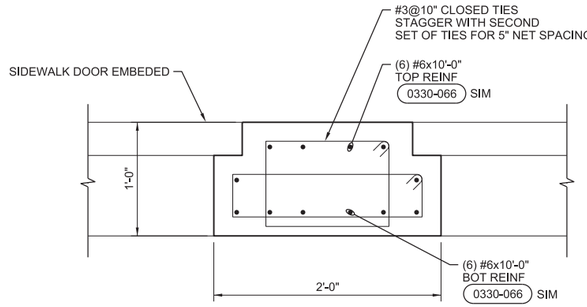
FILENAME: 210-S-3002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:07:55 PM

BEAM NO. (SEE PLANS)	SIZE		* TOP REINF AT LEFT SUPPORT		BOTTOM REINF		* TOP REINF AT RIGHT SUPPORT		S BARS	SHEAR REINF				REMARKS
	W	D	T	TC	B	BC	T	TC		NO. (NOTE 5)	SIZE	TYPE	SPACING FROM LEFT SUPPORT	
B-01	1'-6"	2'-6"	4#9	4#9	4#9	4#9	4#9	4#9			#4	CLOSED TIES	6" MAX	

NOTES:

1. * TOP REINFORCING MAY BE CALLED-OUT TWICE IN SCHEDULE. (I.E. "TOP REINFORCING AT RIGHT SUPPORT" OF BEAM THAT IS CONTINUOUS OVER THE RIGHT SUPPORT IS CALLED-OUT AS "TOP REINFORCING AT LEFT SUPPORT" OF ADJACENT BEAM.)
2. LEFT SUPPORT IS DESIGNATED AS THE SUPPORT CLOSEST TO THE LEFT SIDE OR BOTTOM OF SHEET ON WHICH FRAMING PLAN IS DRAWN, UNLESS NOTED OTHERWISE ON PLAN.
3. WHERE FLOOR SLOPES, DEPTH OF BEAM (D) SHOWN IS MINIMUM DEPTH. BOTTOM ELEVATION OF BEAM SHALL BE CONSTANT, UNLESS INDICATED OTHERWISE.
4. WHERE SHEAR REINFORCING "TYPE" IS INDICATED AS "STIRRUP", PROVIDE SHEAR REINFORCING AND CLOSURES AS SHOWN IN BEAM REINFORCING DETAIL. WHERE SHEAR REINFORCING "TYPE" IS INDICATED AS "CLOSED TIE", PROVIDE CLOSED TIES IN LIEU OF STIRRUPS AND CLOSURE BARS.
5. "NO." INDICATES NUMBER OF STIRRUPS OR TIES PER SET.
6. FOR BEAM REINFORCING LAYOUT REFER TO (0330-066)

1 DETAIL
NTS
210-S-2002
210-S-3001



2 DETAIL
1 1/2"=1'-0"
210-S-2002

HUGO ANDRES ROJAS LICENSED 11/04/16 24949 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
REVISION		H ROJAS	F JAGLA	M MERKLEIN		H ROJAS	

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CITY OF WICHITA, KANSAS

UV DISINFECTION FACILITY
STRUCTURAL DETAILS

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

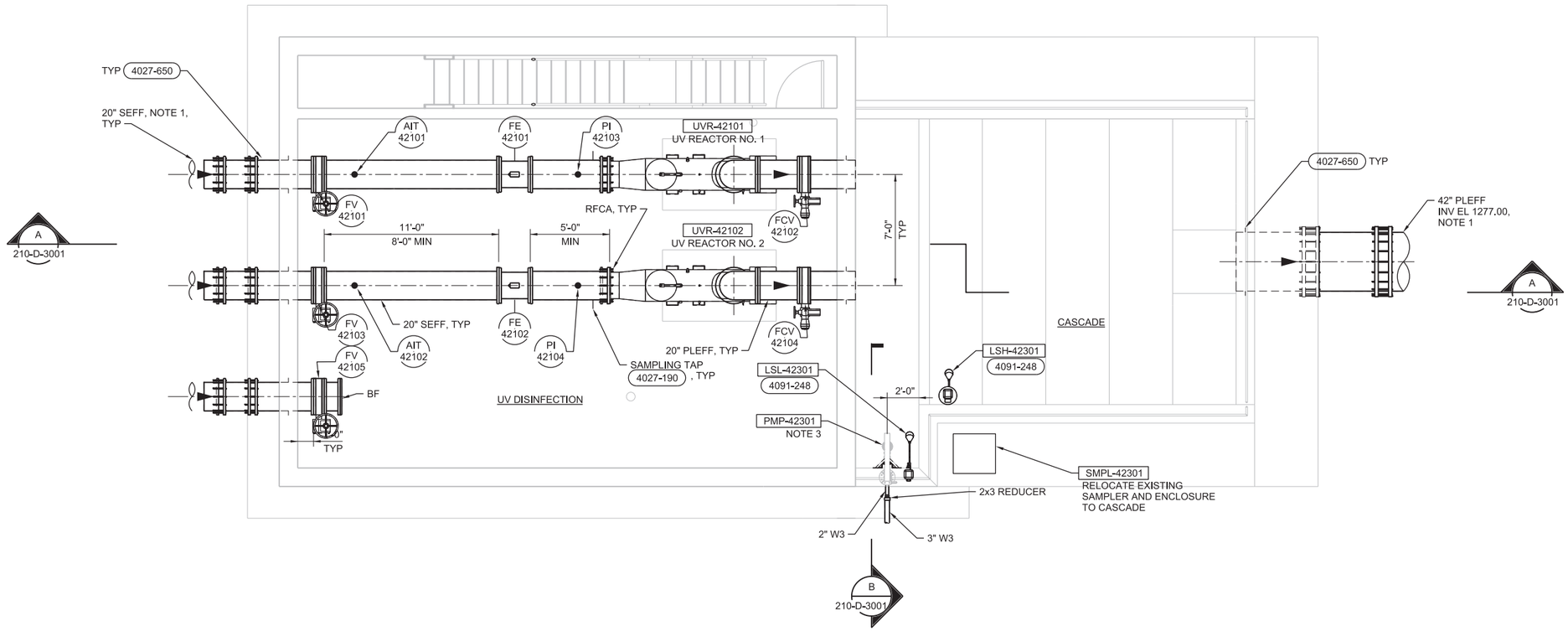
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PROJ	496312
DWG	210-S-5001
SHEET	261 of 314

BIDDING SET

FILENAME: 210-S-5001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:07:50 PM

GENERAL NOTES

1. FOR CONTINUATION OF PIPING IN THE YARD , SEE DWG 051-Y-2006.
2. FOR SCOPE OF EQUIPMENT SUPPLIER, SEE DWG 090-N-0013.
3. RELOCATE EXISTING RECYCLE PUMP, HOIST, GUIDE RAIL AND ASSOCIATED EQUIPMENT FROM CHLORINATION/DECHLORINATION BASIN.



N

PLAN

1/4"=1'-0"

ESTELL JO JOHNSON
LICENSED
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DSGN	DATE	DR	REVISION	CHK	APVD	BY	APVD
			S FOSTER	D CAVE	P SWAIM		E JOHNSON	

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UV DISINFECTION FACILITY

PROCESS MECHANICAL
LOWER LEVEL PLAN

VERIFY SCALE

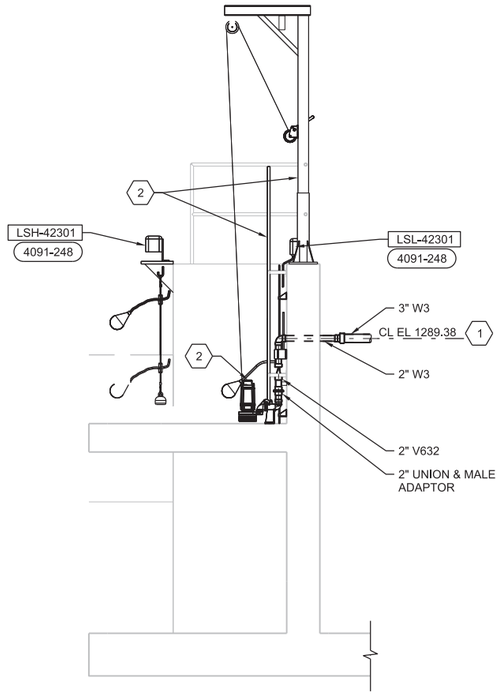
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	210-D-2001
SHEET	262 of 314

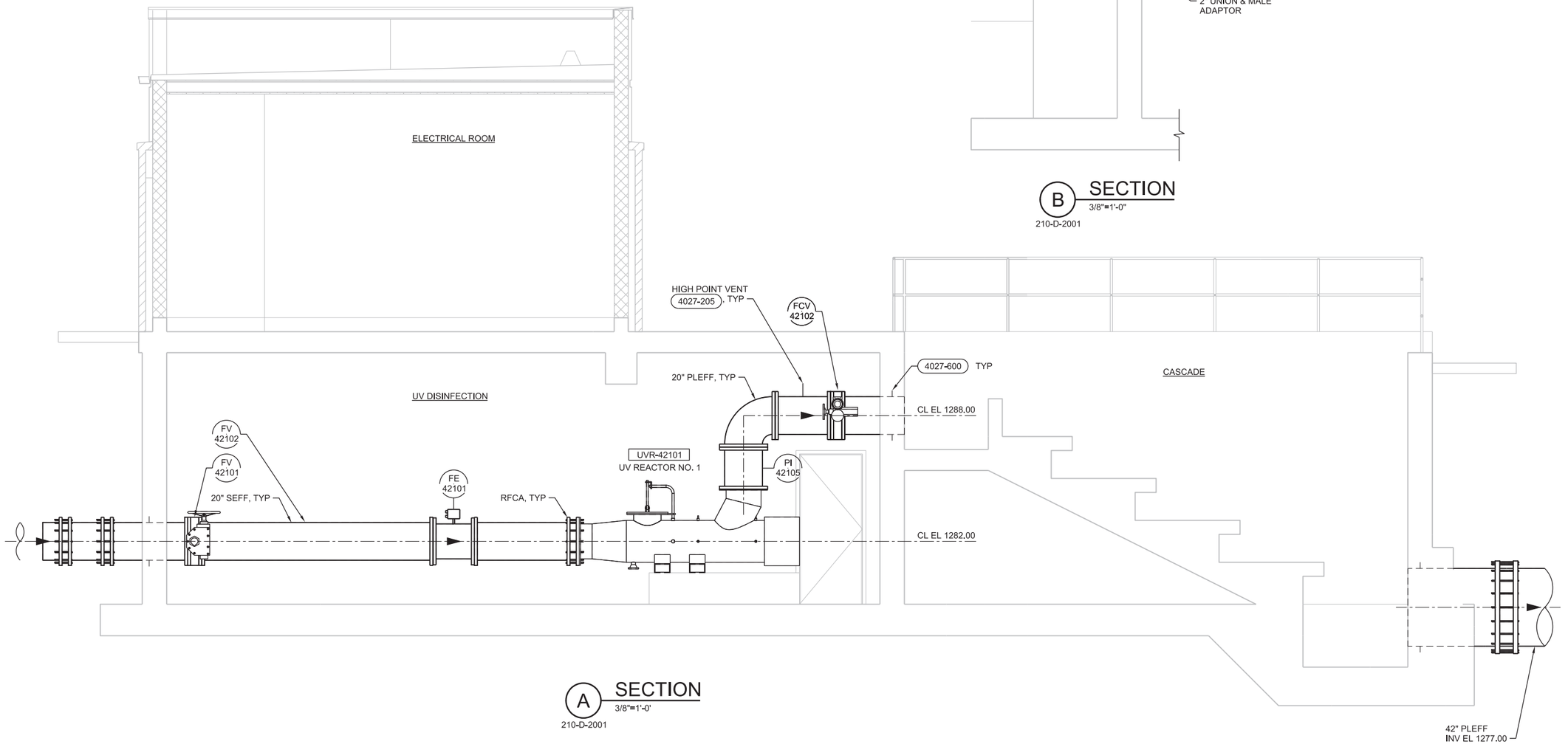
BIDDING SET

SHEET KEYNOTES

1. FOR CONTINUATION OF PIPING IN THE YARD, SEE DRAWING 051-Y-2006.
2. RELOCATE EXISTING RECYCLE PUMP, HOIST, GUIDE RAIL AND ASSOCIATED EQUIPMENT FROM CLORINATION/DECHLORINATION BASIN.



B SECTION
3/8"=1'-0"
210-D-2001



A SECTION
3/8"=1'-0'
210-D-2001

ESTELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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		S FOSTER	D CAVE	P SWAIM	APVD	E JOHNSON	

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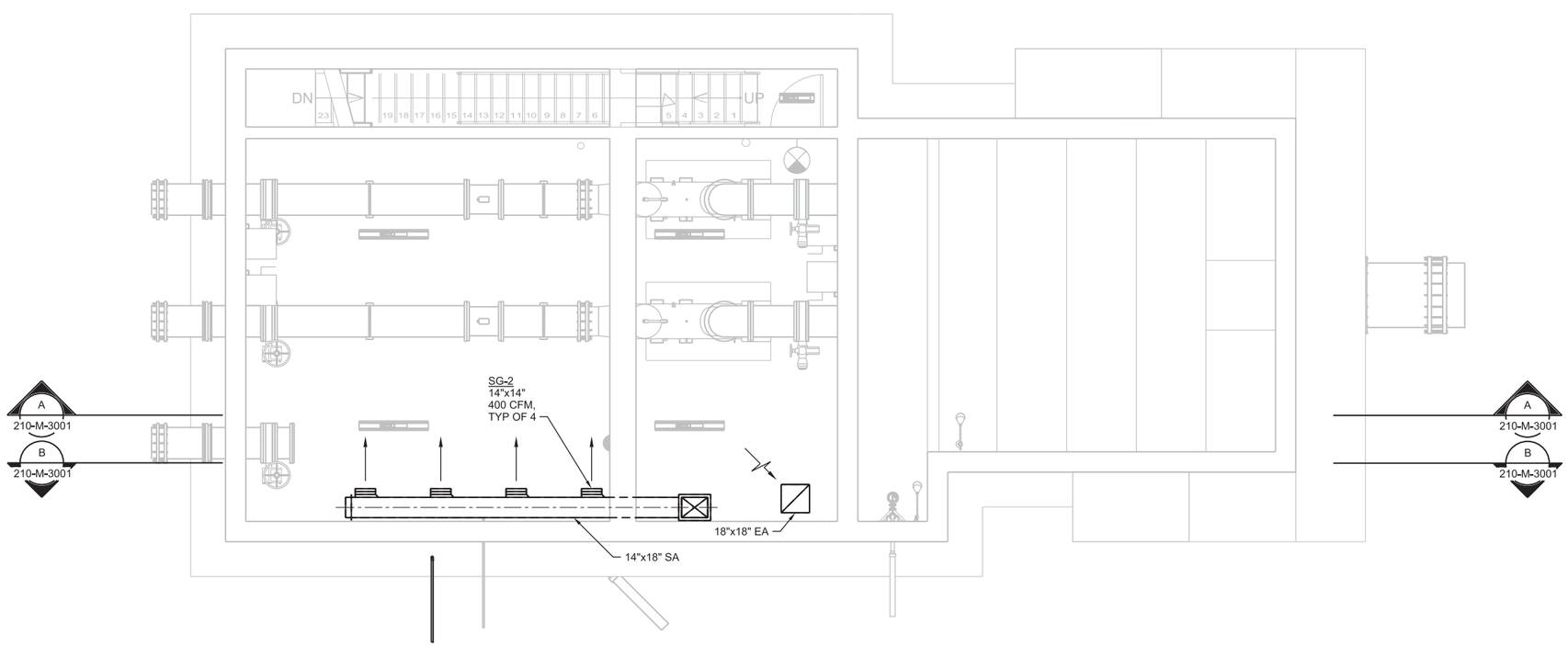
ch2m

UV DISINFECTION FACILITY
PROCESS MECHANICAL SECTION

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	210-D-3001
SHEET	263 of 314

BIDDING SET



N

LOWER PLAN

1/4"=1'-0"

SCOTT HOFFMAN
LICENSED
11/4/16
25291
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		S HOFFMAN	T WHITE	P RAUSCH			S HOFFMAN

REVISION

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UV DISINFECTION FACILITY

HVAC
LOWER LEVEL PLAN

BIDDING SET

VERIFY SCALE

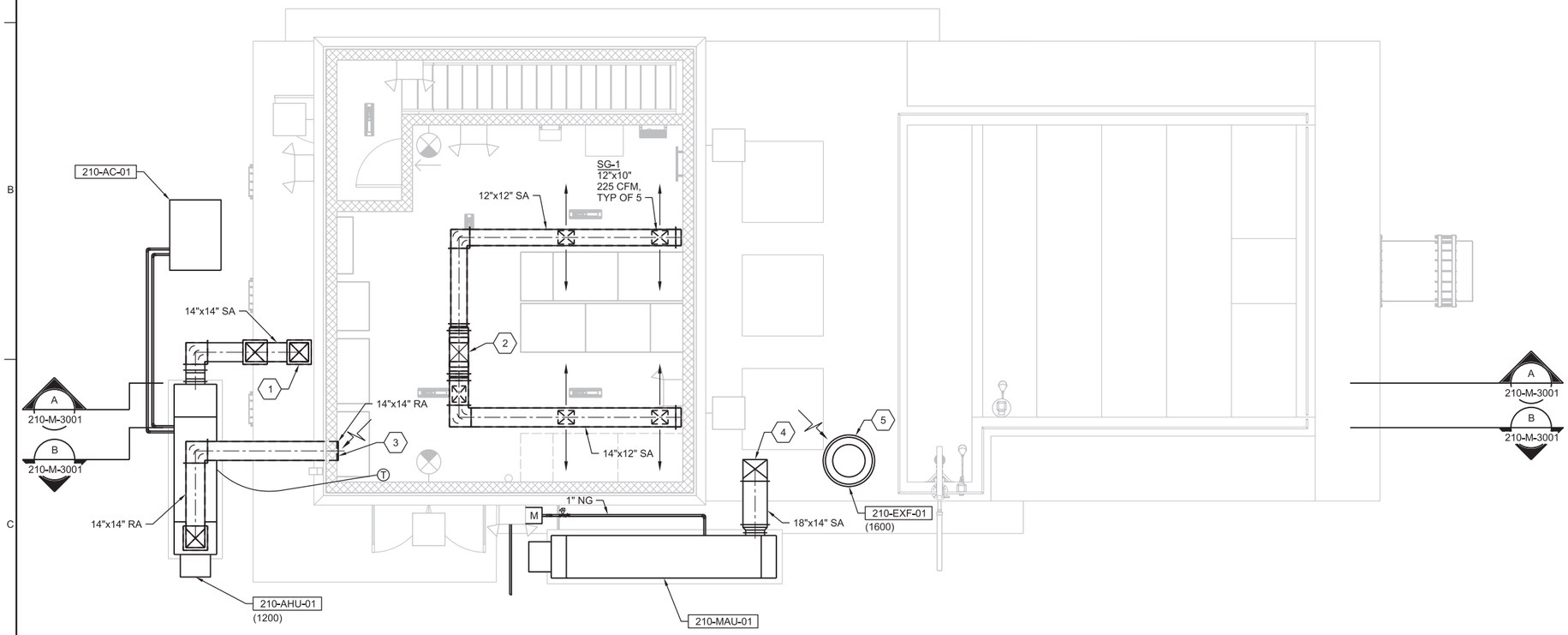
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	210-M-2001
SHEET	264 of 314

FILENAME: 210-M-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:06:55 PM

GENERAL NOTES

1. ROUTE SUPPLY DUCTWORK UP ALONG OUTSIDE WALL TO ROOF LEVEL. ROUTE DUCT AS INDICATED ON ROOF.
2. 14"x14" SUPPLY DUCT DROP THROUGH ROOF. SEAL DUCT PENETRATION WEATHER TIGHT WITH ARCHITECTURAL FLASHING. CONTINUE DUCT ROUTE AS INDICATED IN DRAWING AND SECTION.
3. 14"x14" RETURN DUCT DROP THROUGH WALL. SEAL DUCT PENETRATION WEATHER TIGHT WITH ARCHITECTURAL FLASHING. DROP DUCTWORK THROUGH ROOF EXTEND 18" AND FINISH WITH 1/2"x1/2" BIRD SCREEN TO PROTECT RETURN OPENING.
4. 18"x14" MAKE-UP AIR UNIT SUPPLY DOWN THROUGH PROCESS VAULT SLAB AND INTO THE VAULT. SEE DWG 210-M-2001 FOR DUCTWORK CONTINUATION.
5. PROVIDE EXHAUST FAN 210-EXF-01 FOR EXHAUST AIR FROM THE PROCESS VAULT. EXHAUST FAN SHALL RUN CONTINUOUSLY.



N

PLAN
1/4"=1'-0"

SCOTT HOFFMAN LICENSED 11/4/16 25291 KANSAS PROFESSIONAL ENGINEER

11/04/2016

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		S HOFFMAN	T WHITE	P RAUSCH	APVD	S HOFFMAN	

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

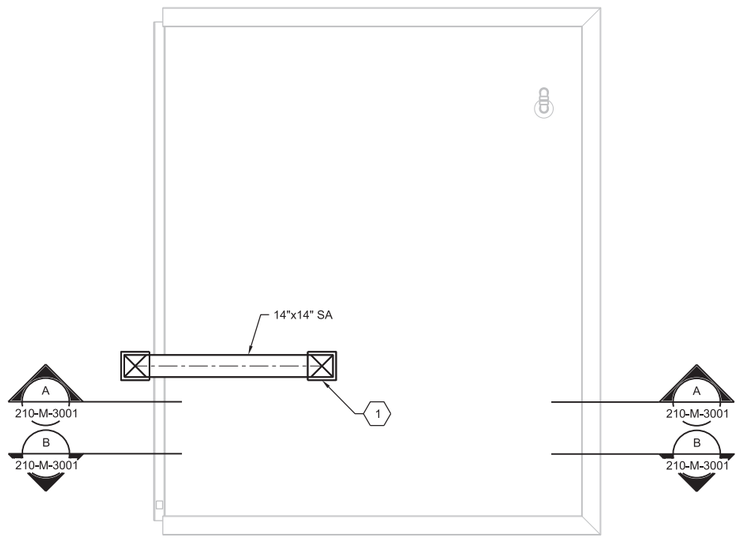
UV DISINFECTION FACILITY

HVAC
GROUND LEVEL PLAN

BIDDING SET

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	210-M-2002
SHEET	265 of 314



N

ROOF PLAN

1/4"=1'-0"

SHEET KEYNOTES

1. ROUTE SUPPLY DUCT DOWN THROUGH ROOF AND SEAL WEATHER TIGHT.

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11/4/16
25291
Scott Hoff
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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		S HOFFMAN	T WHITE	P RAUSCH	S HOFFMAN

REVISION BY APVD

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CITY OF WICHITA, KANSAS

UV DISINFECTION FACILITY

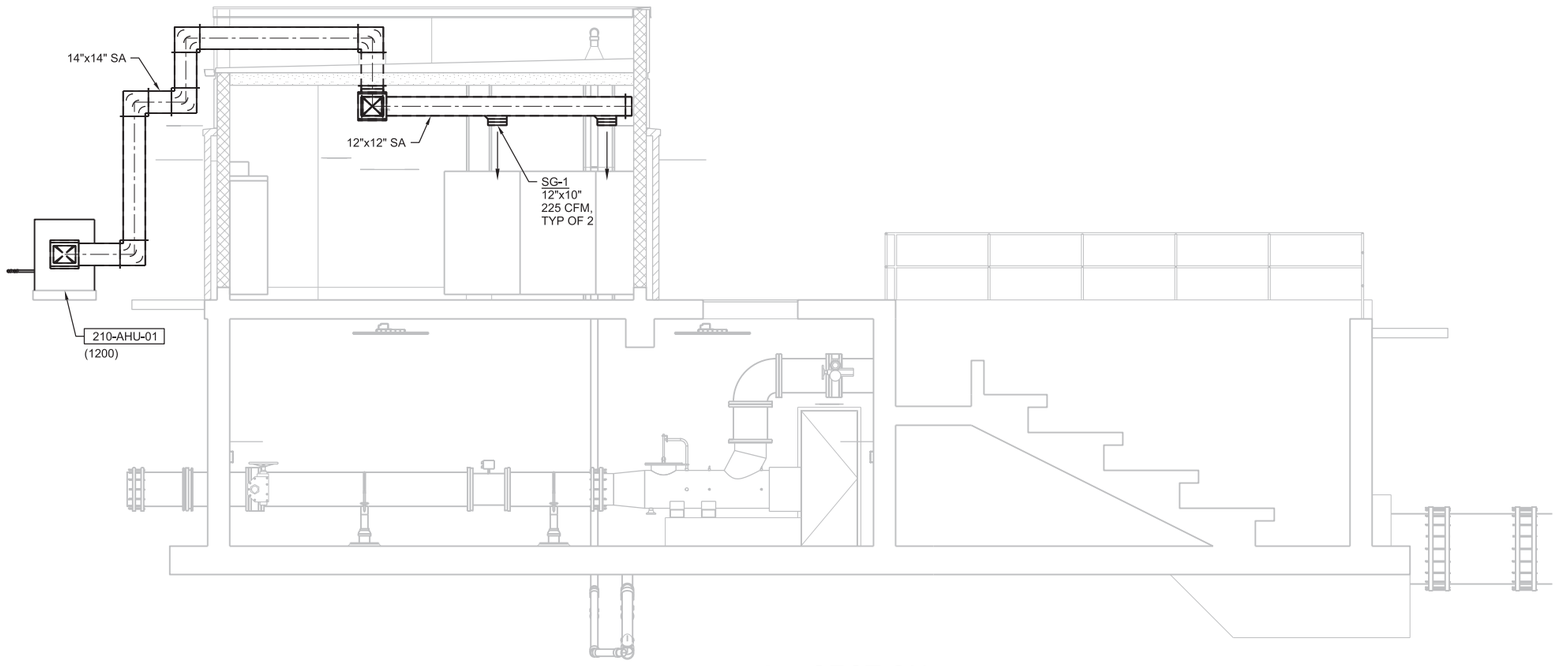
HVAC ROOF PLAN

VERIFY SCALE

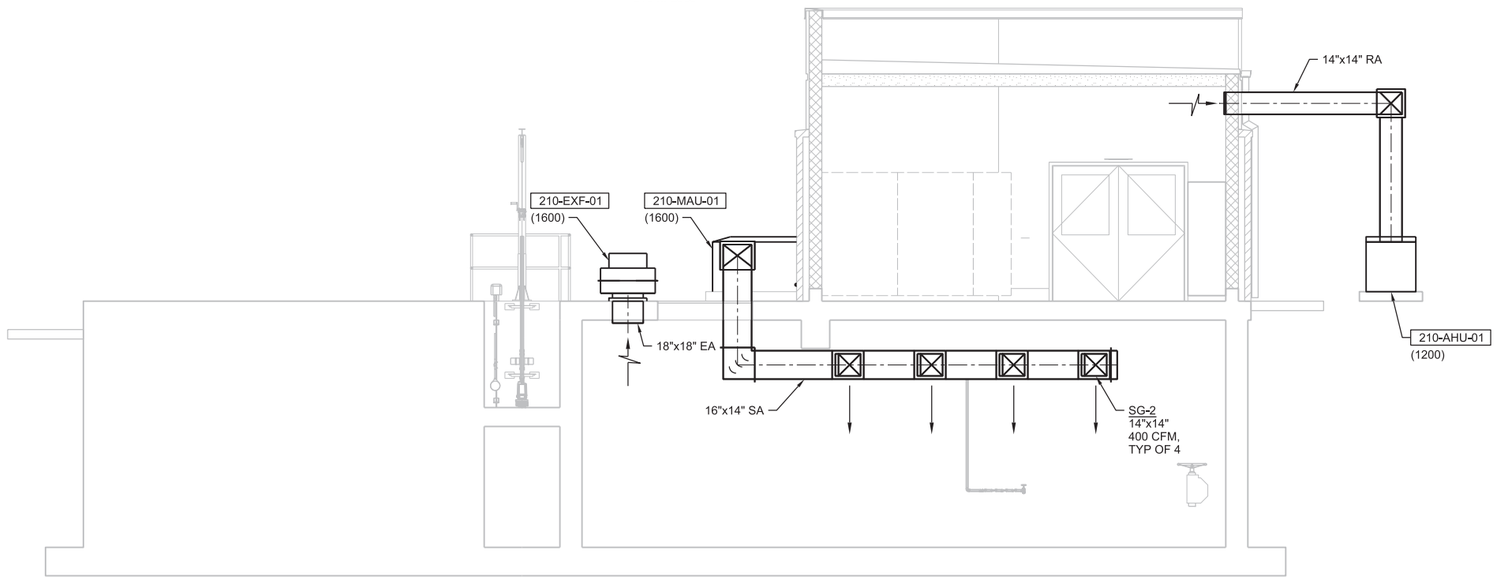
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	210-M-2003
SHEET	266 of 314

BIDDING SET



A SECTION
1/4=1'-0"
210-M-2001
210-M-2002
210-M-2003



B SECTION
1/4=1'-0"
210-M-2001
210-M-2002
210-M-2003

SCOTT HOFFMAN
LICENSED
11/4/16
25291
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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DSGN	S HOFFMAN	DR T WHITE	CHK P RAUSCH	APVD S HOFFMAN

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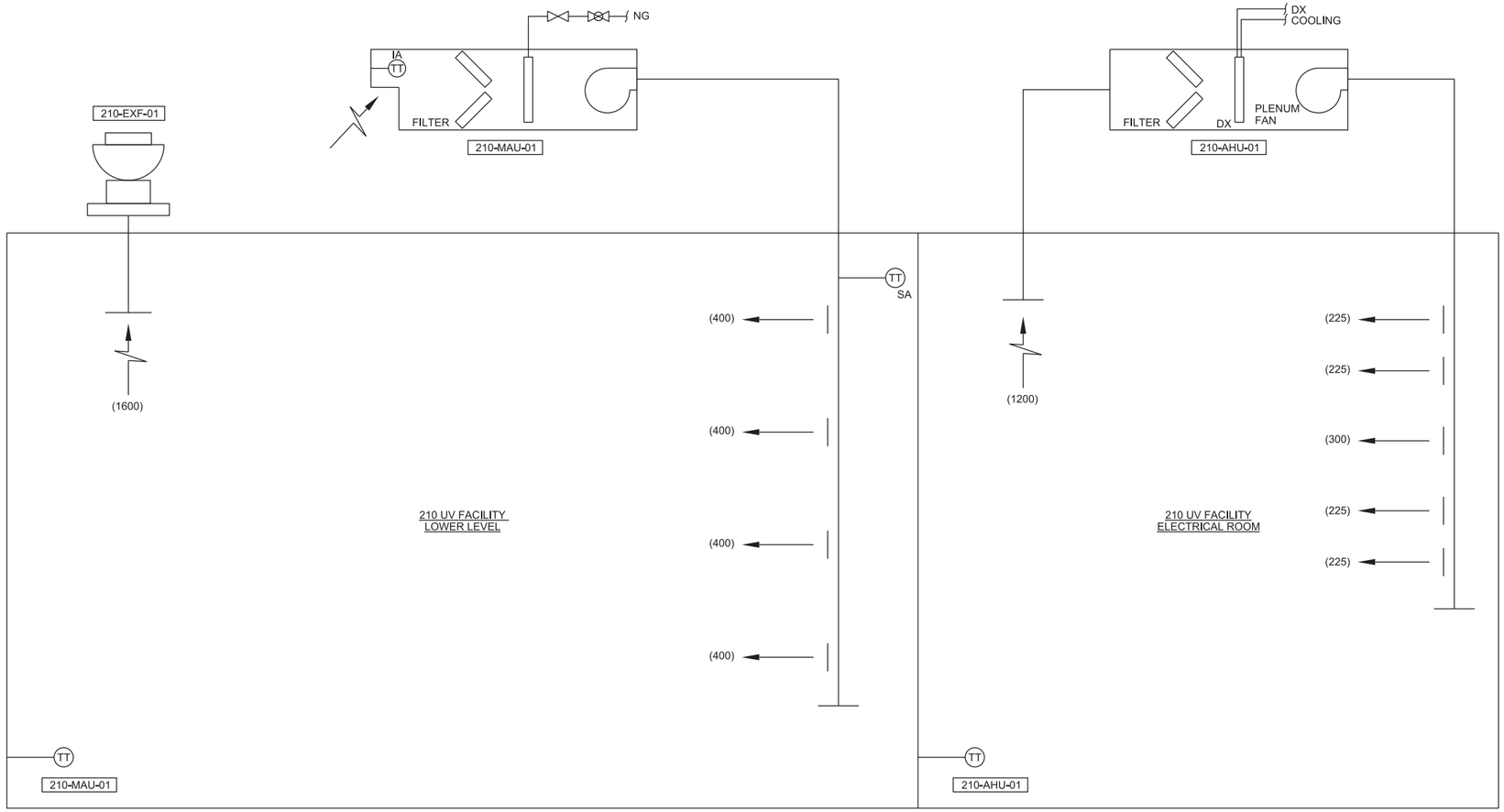
PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

UV DISINFECTION FACILITY
HVAC SECTIONS

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	210-M-3001
SHEET	267 of 314

BIDDING SET



SEQUENCE OF OPERATION:

210-MAU-001
SUPPLY FAN SHALL RUN CONTINUOUSLY.

NATURAL GAS DIRECT FIRE BURNER SHALL BE ACTIVATED WHEN OUTSIDE AIR TEMPERATURE IS BELOW 60°F.

THE NATURAL GAS BURNER SHALL MODULATE FROM 0%-100% TO MAINTAIN A SPACE TEMPERATURE OF 60°F. WHEN SPACE TEMPERATURE IS SATISFIED THE BURNER SHALL CONTINUE TO MODULATE TO MAINTAIN A DISCHARGE AIR TEMPERATURE OF 60°F.

210-AHU-001
SUPPLY FAN SHALL RUN CONTINUOUSLY.

WHEN SPACE TEMPERATURE IS BELOW 80°F COMPRESSOR CYCLE SHALL BE OFF.

WHEN THE SPACE TEMPERATURE RISES ABOVE 80°F COMPRESSOR ONE SHALL ACTIVATE.

AIRFLOW SCHEMATIC

NTS

SCOTT HOFFMAN
LICENSED
11/4/16
25291
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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	S HOFFMAN	S HOFFMAN	T WHITE	P RAUSCH	APVD	S HOFFMAN	

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PHASE II, 6 MGD EXPANSION
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DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

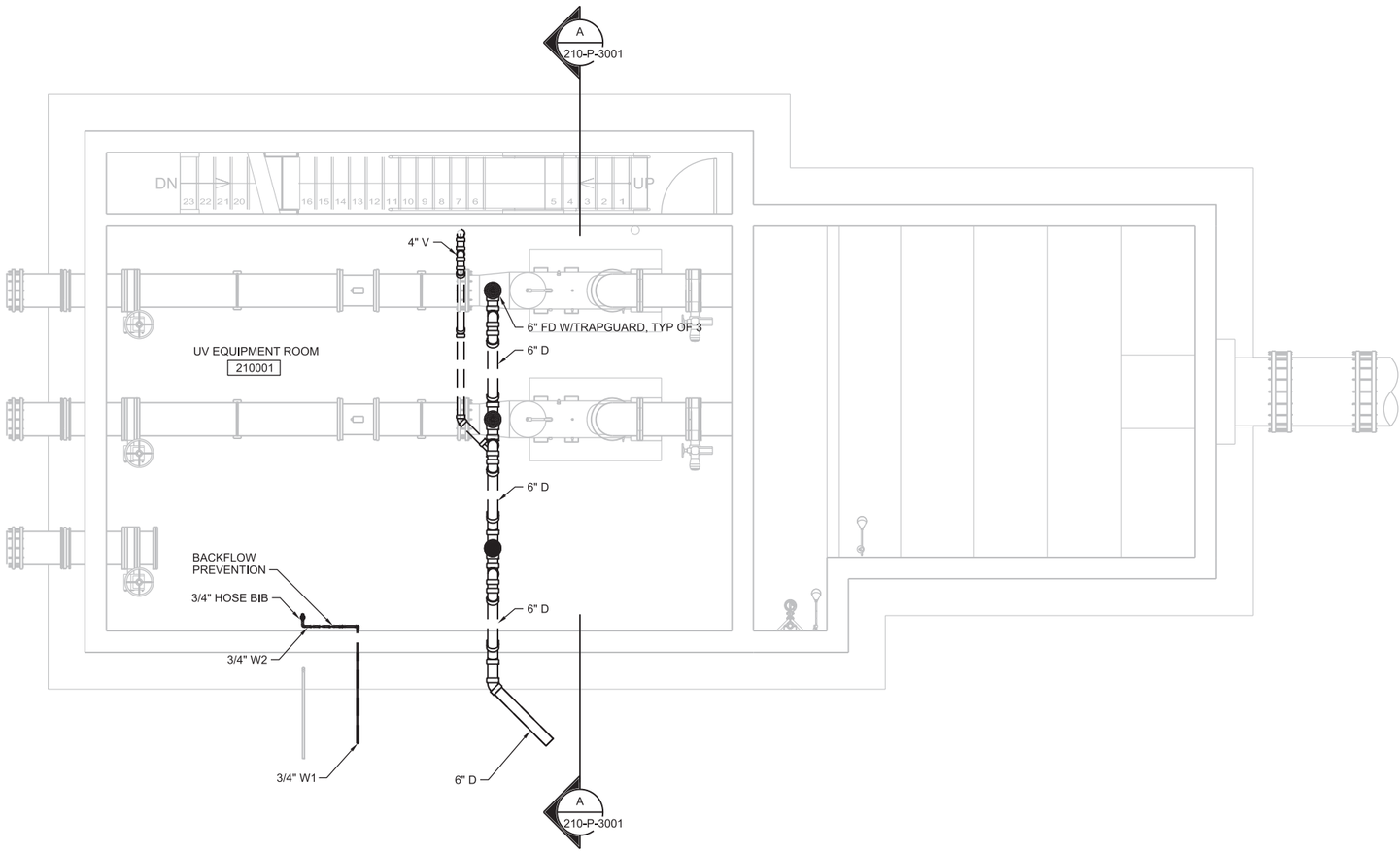
UV DISINFECTION FACILITY
HVAC
AIRFLOW SCHEMATIC

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	210-M-6001
SHEET	268 of 314

BIDDING SET

FILENAME: 210-M-6001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:08:03 PM



N

PLAN
1/4"=1'-0"

SCOTT HOFFMAN
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25291
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PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		S HOFFMAN	T WHITE	P RAUSCH			S HOFFMAN

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DEPARTMENT OF PUBLIC WORKS
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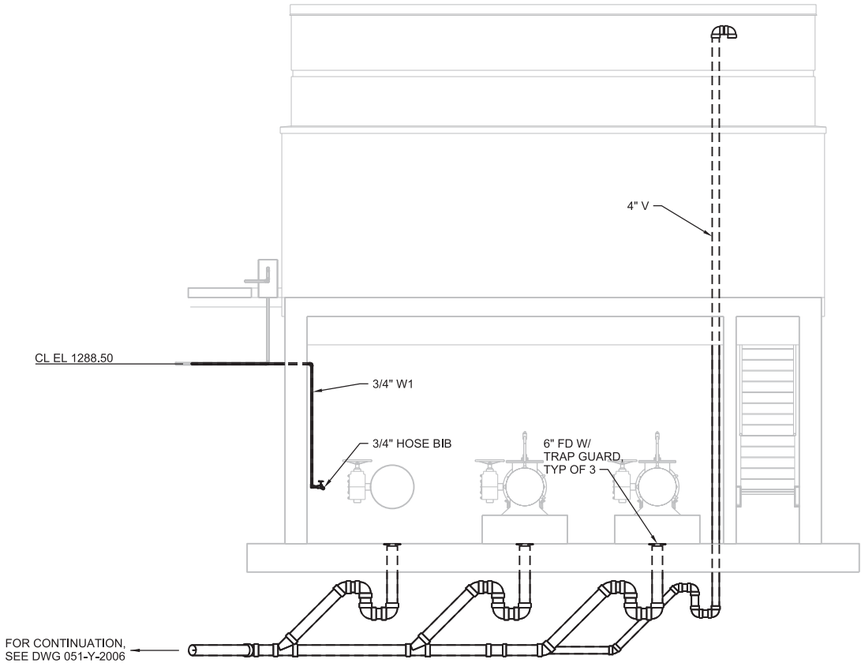
ch2m

UV DISINFECTION FACILITY
PLUMBING
LOWER LEVEL PLAN

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	210-P-2001
SHEET	269 of 314

BIDDING SET



1 SECTION
1/4"=1'-0"
210-P-2001

SCOTT HOFFMAN
LICENSED
11/4/16
25291
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	BY	APVD
DSGN	S HOFFMAN	DR T WHITE	CHK P RAUSCH	APVD S HOFFMAN

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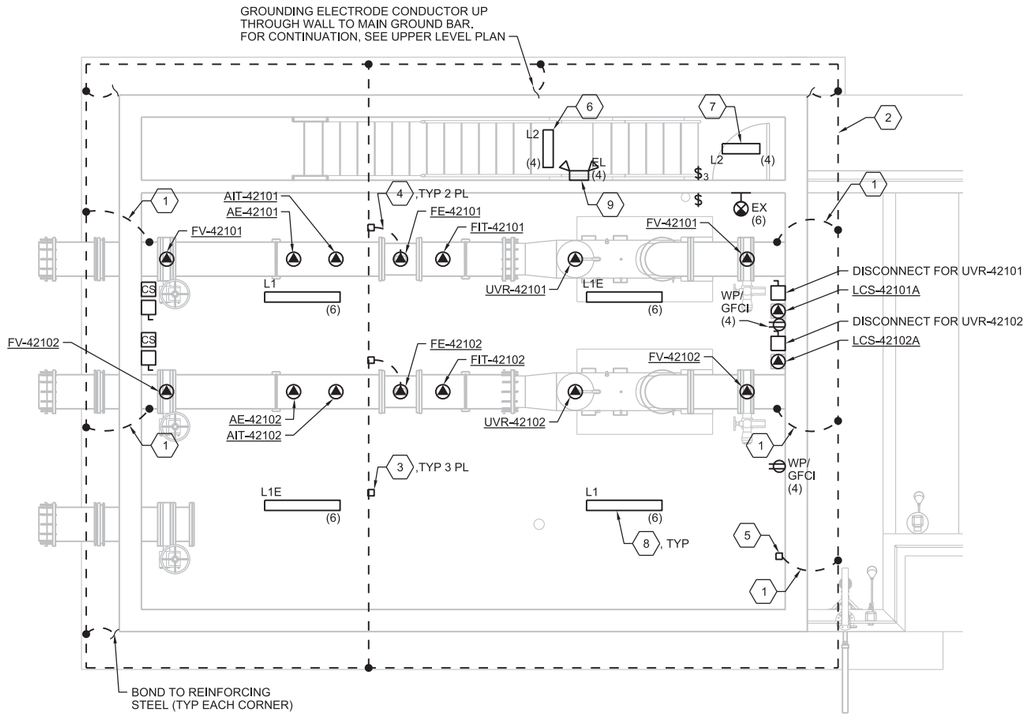
UV DISINFECTION FACILITY
PLUMBING
SECTION

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	210-P-3001
SHEET	270 of 314

BIDDING SET

FILENAME: 210-P-3001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:07:42 PM



N

PLAN
1/4"=1'-0"

SHEET KEYNOTES

1. 2/0 AWG GROUNDING ELECTRODE, BOND TO PIPE.
2. 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.
3. GROUNDING PAD: NEMA 4-HOLE, INSTALLED FLUSH WITH FLOOR SURFACE BENEATH EACH FLOW ELEMENT LOCATION.
4. MAGMETER BONDING JUMPER: 2/0 AWG COPPER WIRE. CONNECT FLOW ELEMENT IN ACCORDANCE WITH INSTRUMENT MANUFACTURER'S INSTRUCTIONS.
5. GROUNDING PAD FOR FUTURE PIPE BOND. NEMA 4-HOLE, INSTALLED FLUSH WITH WALL, 7 FEET AFF.
6. MOUNT LUMINAIRE NEXT TO STRUCTURAL BEAM, ABOVE LANDING. BOTTOM OF LUMINAIRE SHALL BE FLUSH WITH BOTTOM OF THE BEAM.
7. MOUNT LUMINAIRE 8FT ABOVE FINISHED FLOOR.
8. MOUNT LUMINAIRES IN THIS ROOM TO CEILING, UNLESS OTHERWISE NOTED. MOUNTING HEIGHT: 10FT ABOVE FINISHED FLOOR, MINIMUM
9. MOUNT EMERGENCY LIGHTING AS HIGH ON WALL AS POSSIBLE, NOT TO EXCEED 15 FT. FIELD-ADJUST LAMPS FOR MAXIMUM LIGHTING COVERAGE

MARY J. GROSS
LICENSED
16702
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		J LANDMAN	A CUGLIAT	M GROSS	APVD	M GROSS	

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PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WQRF
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.
0 1"

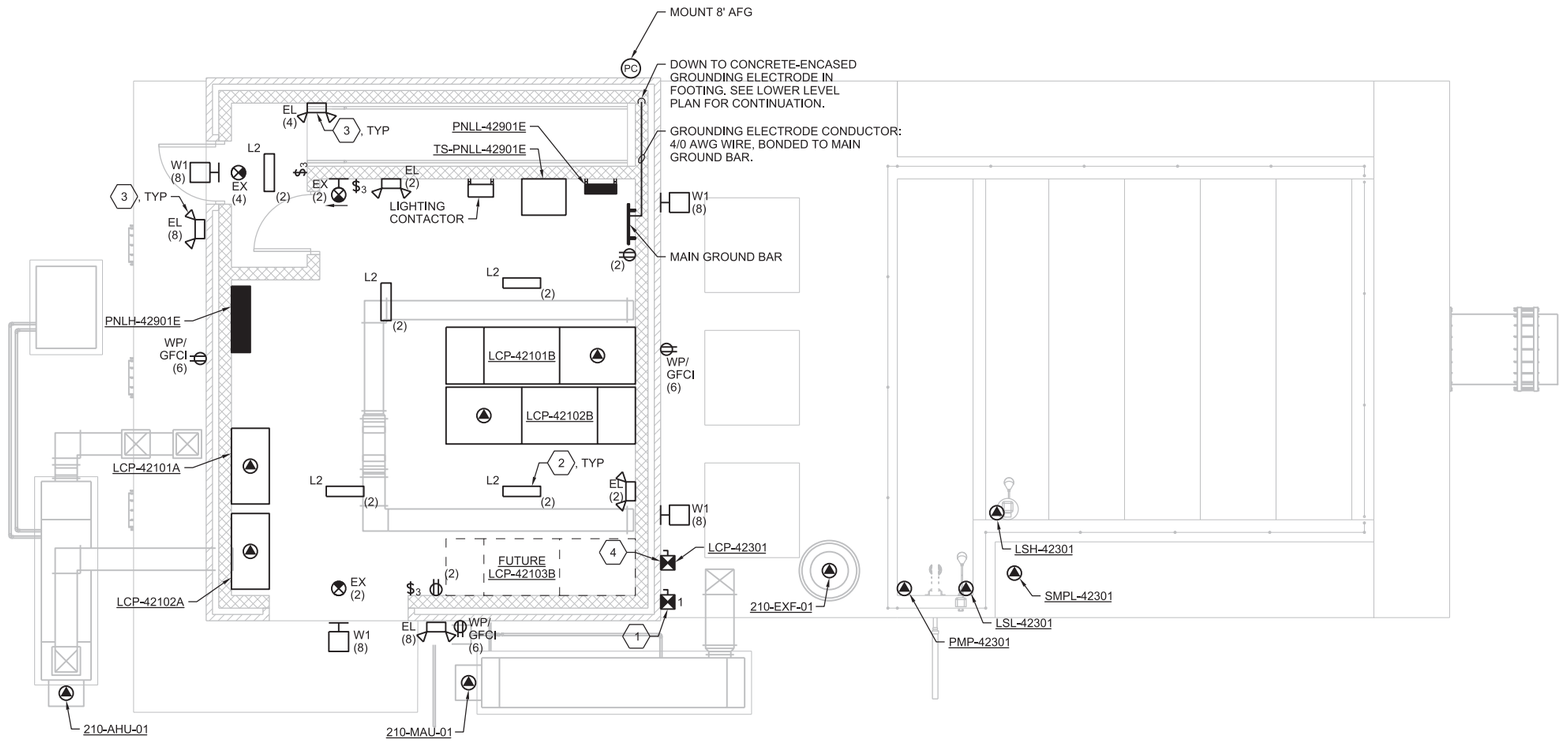
DATE	NOVEMBER 2016
PROJ	496312
DWG	210-E-2001
SHEET	271 of 314

BIDDING SET

FILENAME: 210-E-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 1:51:10 PM

SHEET KEYNOTES

1. COMBINATION STARTER FOR 210-EXF-01 PROVIDED BY DIVISION 23. INSTALLATION BY DIVISION 26, ELECTRICAL.
2. MOUNT INTERIOR LUMINAIRES 10FT ABOVE FINISHED FLOOR, UNLESS OTHERWISE NOTED.
3. MOUNT EMERGENCY LUMINAIRES 8 FEED AFF. FIELD- ADJUST LIGHT HEADS FOR MAXIMUM LIGHTING COVERAGE.
4. COMBINATION 208V STARTER FOR PMP-42301.



N

PLAN
1/4"=1'-0"

MARY J. GROSS LICENSED 16702 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

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				A CUGLIAT	M GROSS	M GROSS	M GROSS	

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DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

UV DISINFECTION FACILITY
ELECTRICAL
GROUND LEVEL PLAN

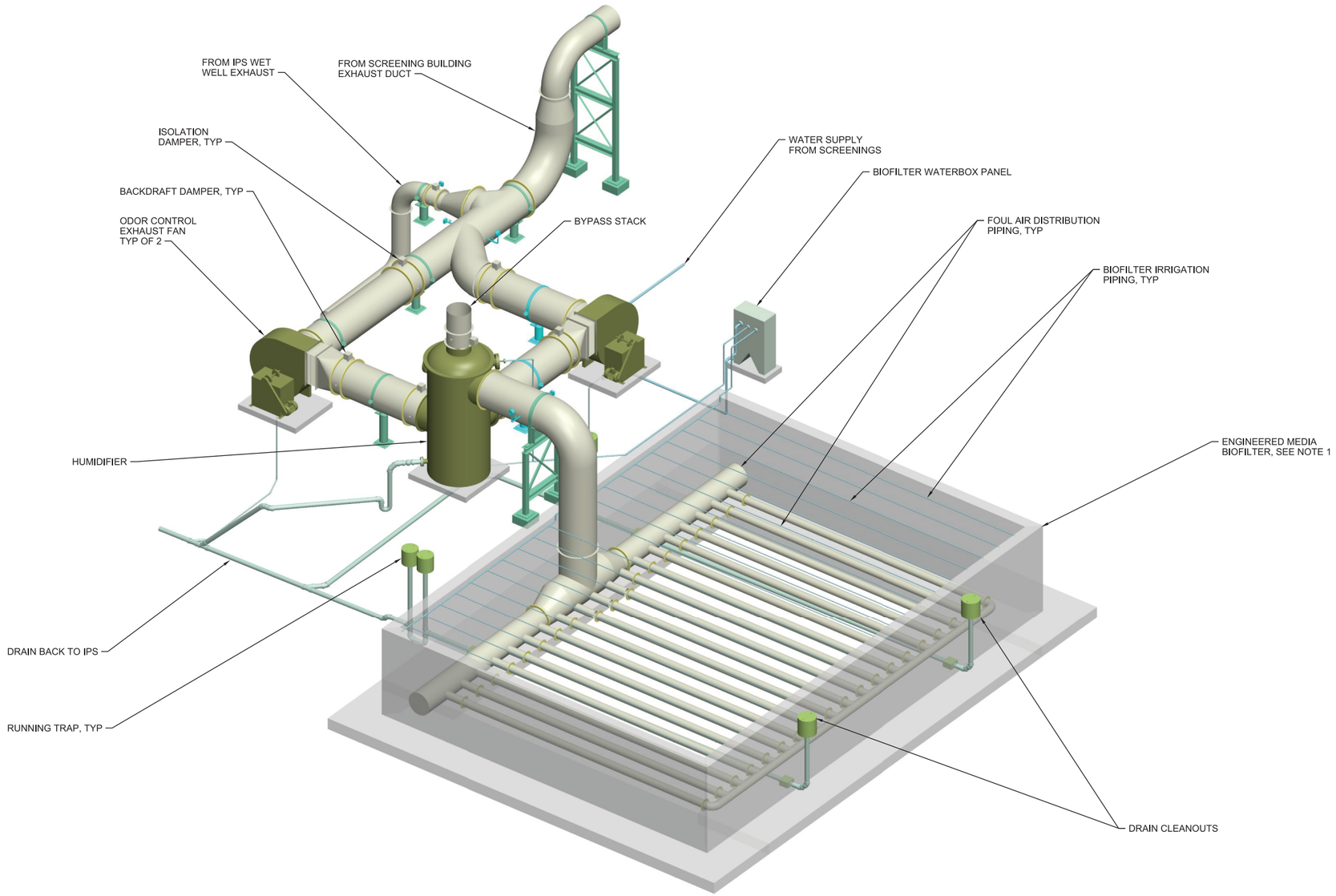
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	210-E-2002
SHEET	272 of 314

BIDDING SET

GENERAL NOTES

1. BIOFILTER MEDIA NOT SHOWN FOR CLARITY.



RENDERING
NTS

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DSGN	DATE	DR	REVISION	CHK	APVD	BY	APVD
		K GALARDI	K GALARDI	F JAGLA	K GALARDI	K GALARDI	E JOHNSON	

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CITY OF WICHITA, KANSAS

ODOR CONTROL FACILITY

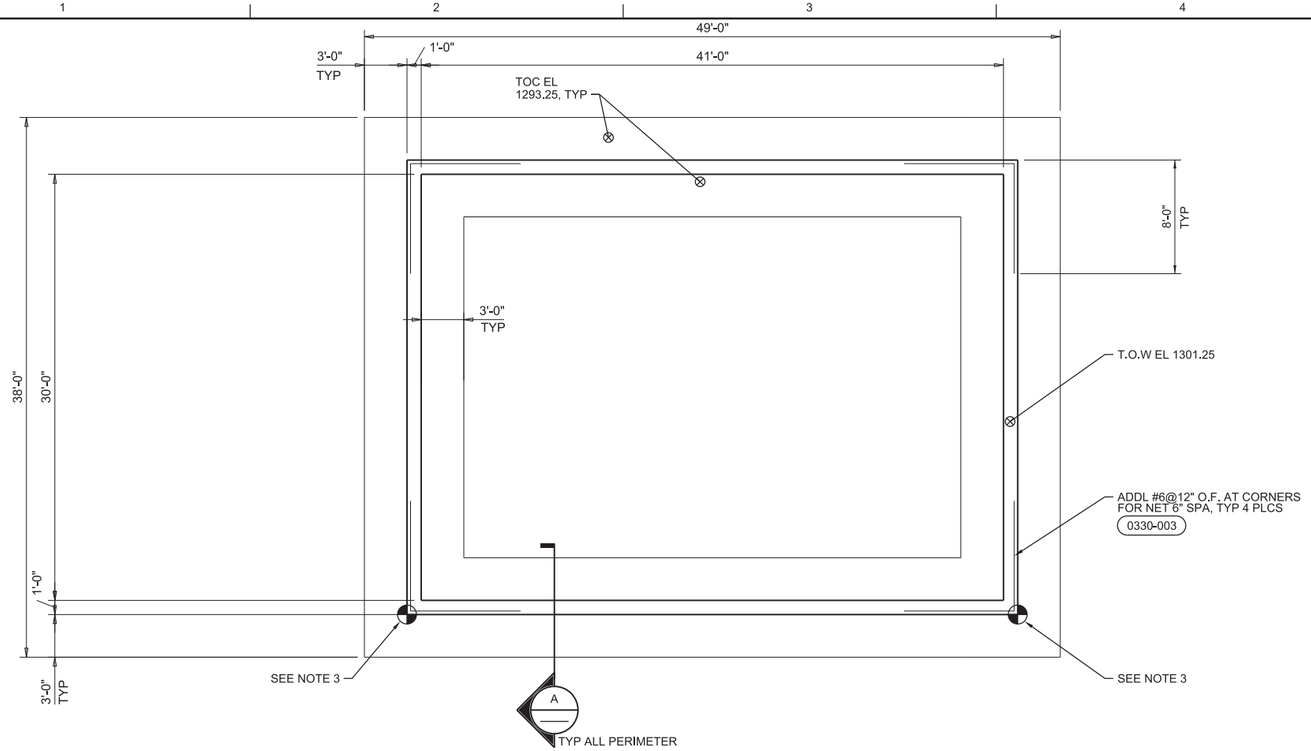
RENDERING

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	270-G-2000
SHEET	273 of 314

BIDDING SET

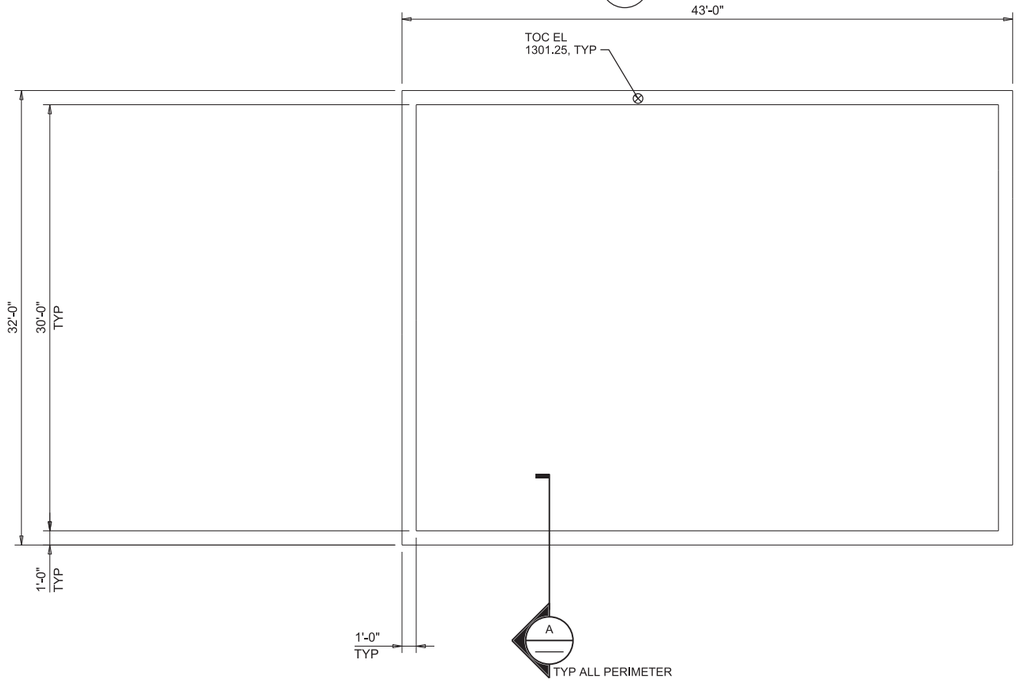
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FOUNDATION PLAN

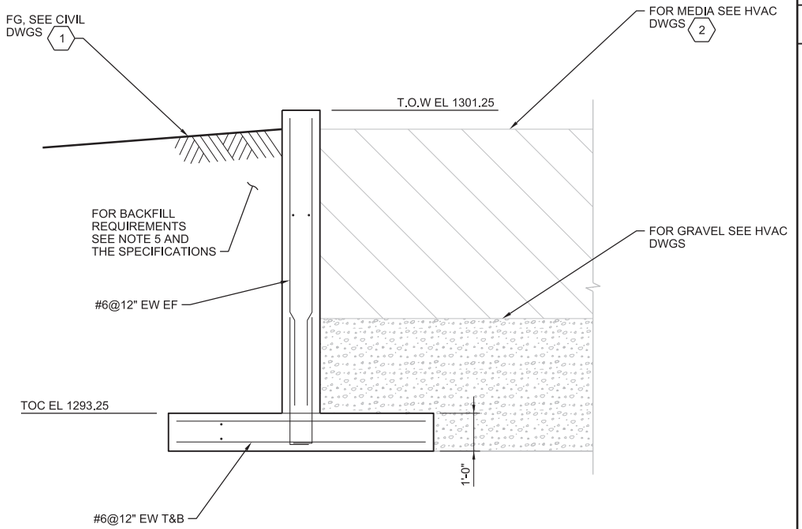
3/16"=1'-0"



N

TOP PLAN

3/16"=1'-0"



A

SECTION

1/2"=1'-0"

GENERAL NOTES

1. FOR DESIGN CRITERIA AND GENERAL STRUCTURAL NOTES, SEE DRAWINGS 001-G-0300 AND 001-G-0301.
2. FOR SPECIAL INSPECTION AND TESTING REQUIREMENTS, SEE DRAWINGS 001-G-0302 THROUGH 001-G-0305.
3. FOR FACILITY SITE COORDINATES SEE CIVIL DRAWINGS.
4. REINFORCED CONCRETE NOTES
   a. COORDINATE SIZE AND LOCATION OF ALL OPENINGS WITH OTHER DISCIPLINES. FOR TYPICAL CONCRETE WALL OR SLAB OPENING REINFORCING SEE (0330-001).
   b. FOR TYPICAL CONCRETE WALL CORNER AND INTERSECTION REINFORCING SEE (0330-003).
5. BACKFILL USING GRANULAR FILL IN ZONE FROM THE BASE OF THE STRUCTURE EXTENDING UPWARD AT AN ANGLE OF AT LEAST 45 DEGREES FROM VERTICAL TO A DEPTH OF 2 FEET BELOW TOP OF BACKFILL. BACKFILL UPPER 2 FEET WITHIN 10 FEET OF PERIMETER OF STRUCTURE USING COHESIVE SOIL TO PREVENT INFILTRATION OF SURFACE WATER

SHEET KEYNOTES

1. NO BACKFILL SHALL BE PLACED BEHIND WALL UNTIL THE WALL'S CONCRETE HAS ATTAINED 100 PERCENT OF IT'S SPECIFIED 28-DAY COMPRESSIVE STRENGTH. BACKFILL SHALL BE PLACED UNIFORMLY ON ALL SIDES OF THE STRUCTURE.
2. IT IS ACCEPTABLE TO PLACE MEDIA BEHIND WALLS BEFORE BACKFILL HAS BEEN PLACED TO FINAL ELEVATION.

HUGO ANDRES ROJAS
LICENSED
11/04/16
24949
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
	H ROJAS	H ROJAS	F JAGLA	M MERKLEIN	APVD	H ROJAS	

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CITY OF WICHITA, KANSAS

ch2m

ODOR CONTROL FACILITY
STRUCTURAL
FOUNDATION PLAN, TOP PLAN AND SECTION

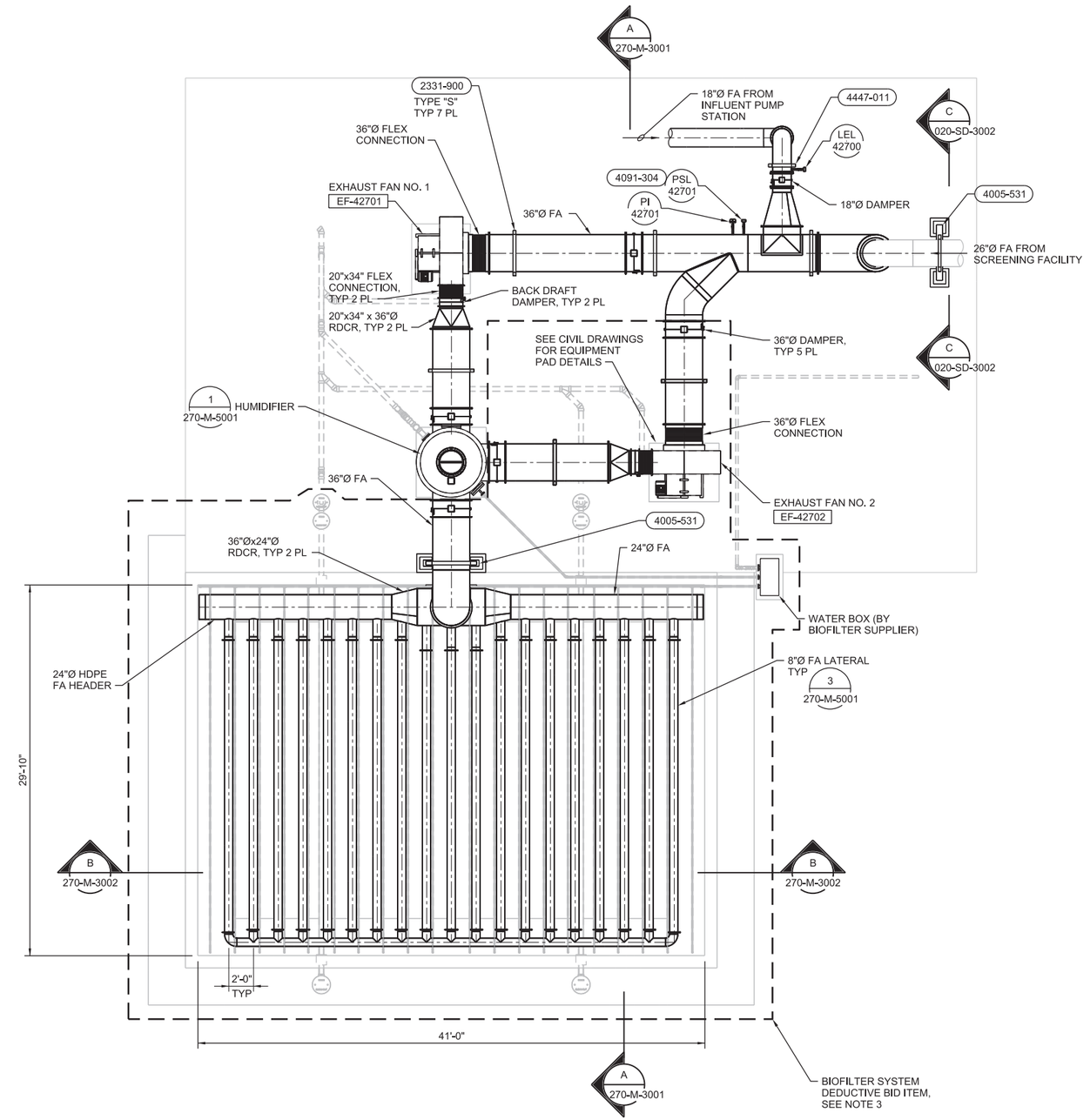
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	270-S-2001
SHEET	274 of 314

BIDDING SET

GENERAL NOTES

1. BIOFILTER SHOWN WITH CONCRETE RETAINING WALLS, HOWEVER, AN EARTHEN BERM WALL MAY BE USED. SEE CIVIL SITE LAYOUT DRAWINGS FOR ADDITIONAL FOOTPRINT REQUIRED.
2. FOR BERM USE 0.75H:1V. BERM FILL: USE NATIVE EARTH FILL MEETING SPECIFICATION _____ CONTRACTOR MUST VERIFY THAT THE SOIL MEETS THE REQUIREMENTS OF 29 CFR 1926, SUBPART P FOR TYPE A SOILS
3. BIOFILTER SYSTEM AND STANDBY FAN ARE DEDUCTIVE BID ITEM ALTERNATE NO. 1. PROVIDE 36" DIA BLIND FLANGES ON HUMIDIFIER OUTLETS AND ON WYE CONNECTION TO FAN NO. 2.
4. BIOFILTER MEDIA, COVER MATERAIL AND PLENUM ZONE MATERIAL NOT SHOWN FOR CLARITY.
5. FA HEADER AND LATERALS WITHIN THE BIOFILTER CELL SHALL BE AS SPECIFIED IN SECTION 44 42 33.



N

PLAN
3/16"=1'-0"

KENNETH JOSEPH GALARDI
LICENSED
11/9/16
25177
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
REVISION		K GALARDI	T WHITE	P RAUSCH		S HOFFMAN	

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ch2m

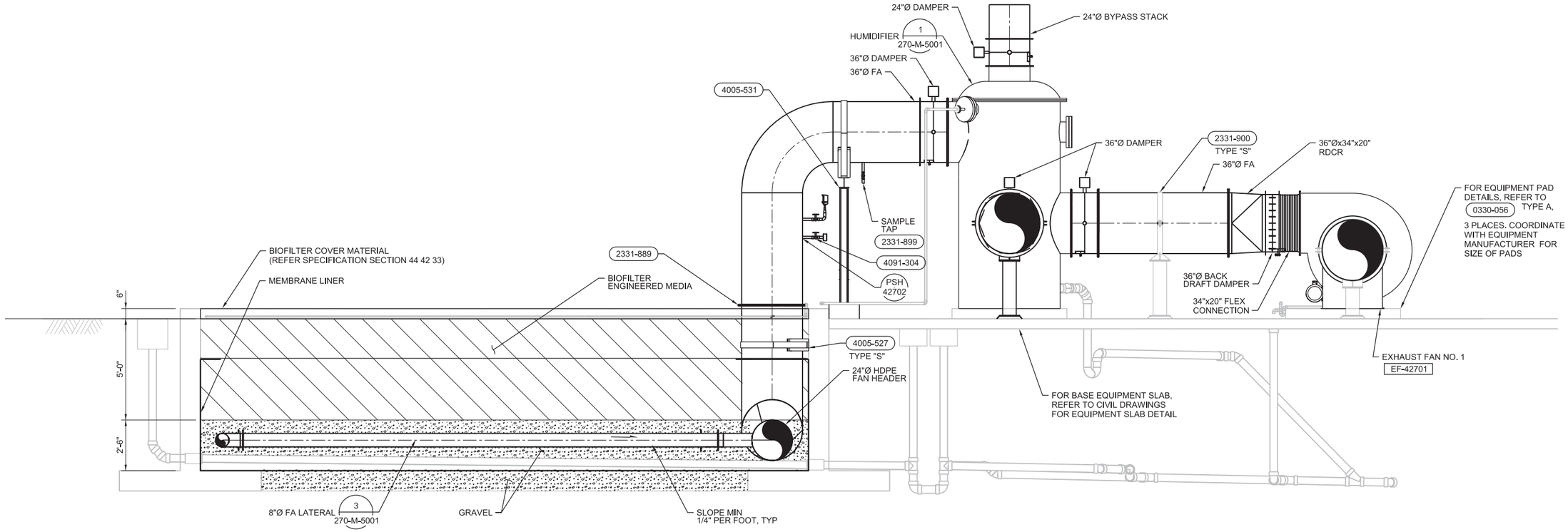
ODOR CONTROL FACILITY
HVAC
PLAN

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	270-M-2001
SHEET	275 of 314

BIDDING SET

FILENAME: 270-M-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:06:17 PM



A SECTION
3/8"=1'-0"
270-M-2001

KENNETH JOSEPH GALARDI
LICENSED
11/9/16
25177
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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NO.	DATE	DR	REVISION	CHK	APVD	BY	APVD
DSGN	K GALARDI		T WHITE	P RAUSCH			S HOFFMAN

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CITY OF WICHITA, KANSAS

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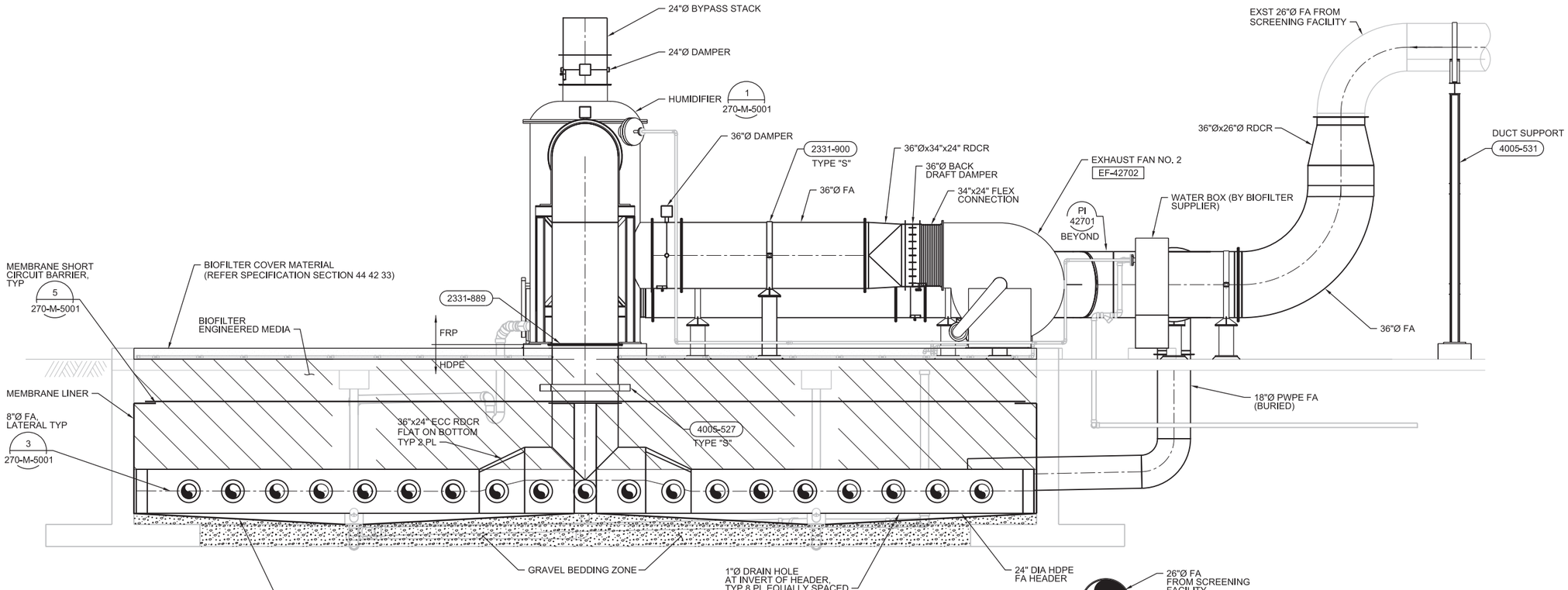
ODOR CONTROL FACILITY
HVAC
SECTION

BIDDING SET

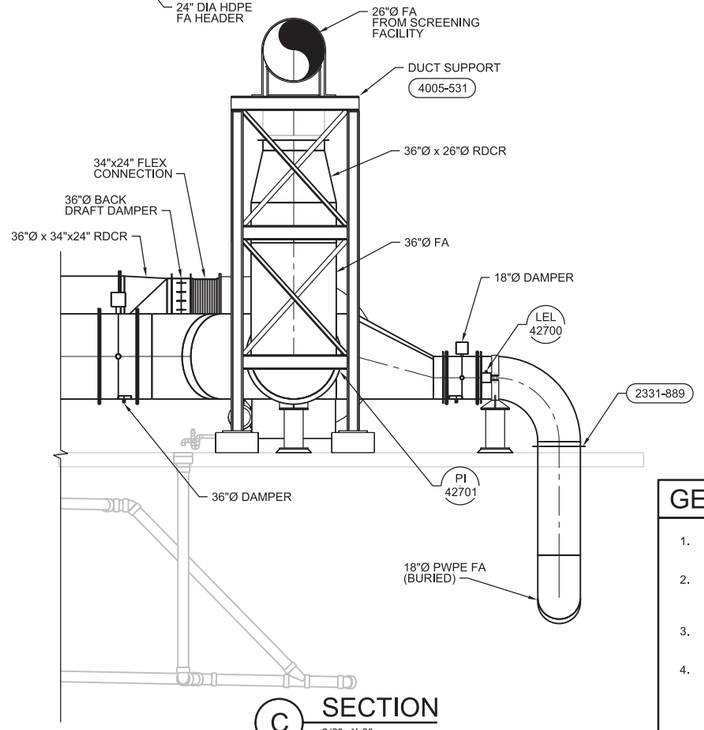
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	270-M-3001
SHEET	276 of 314

FILENAME: 270-M-3001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:05:17 PM



B SECTION
3/8"=1'-0"
270-M-2001



C SECTION
3/8"=1'-0"
270-M-2001

GENERAL NOTES

1. BIOFILTER MEDIA AND PLENUM ZONE MATERIAL NOT SHOWN FOR CLARITY. REFER TO 270-M-3001.
2. PREPARE BIOFILTER SUBGRADE TO PROVIDE CONTINUOUS SLOPE OF GEOMEMBRANE TOWARD BIOFILTER DRAIN LINES.
3. FA HEADER AND LATERAL WITHIN THE BIOFILTER CELLS SHALL BE AS SPECIFIED IN SECTION 44 42 33.
4. BIOFILTER SHOWN WITH CONCRETE RETAINING WALLS, HOWEVER, AN EARTHEN BERM WALL MAY BE USED. SEE CIVIL SITE LAYOUT DRAWINGS FOR ADDITIONAL FOOTPRINT REQUIRED.

KENNETH JOSEPH GALARDI
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11/9/16
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KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
REVISION		K GALARDI	T WHITE	P RAUSCH		S HOFFMAN	

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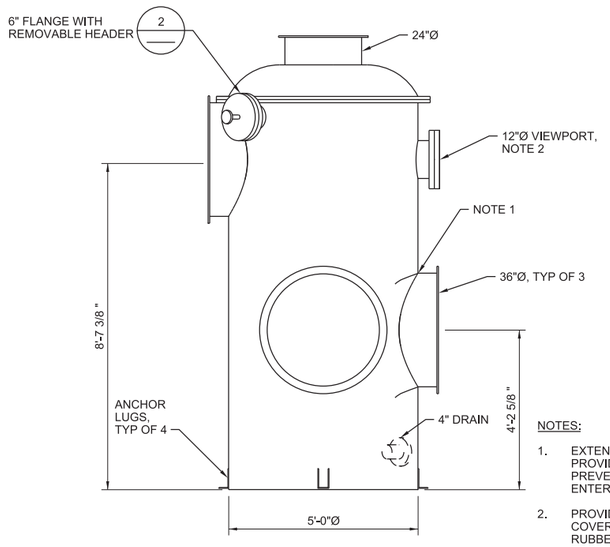
ODOR CONTROL FACILITY
HVAC
SECTIONS

VERIFY SCALE
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0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	270-M-3002
SHEET	277 of 314

BIDDING SET

FILENAME: 270-M-3002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:06:00 PM



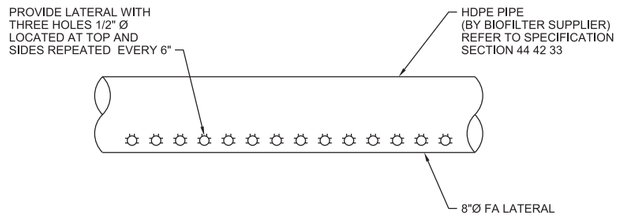
NOTES;

1. EXTEND NOZZLE 4" MIN TO PROVIDE DRIP RING AND PREVENT WATER FROM ENTERING DUCT.
2. PROVIDE TRANSPARENT COVER FOR VIEW PORT C/W RUBBER FLAP TO PROTECT FROM SUNLIGHT. USE FRP BACKING RINGS TO PROTECT COVER.

1 HUMIDIFIER DETAIL

1/2"=1'-0"

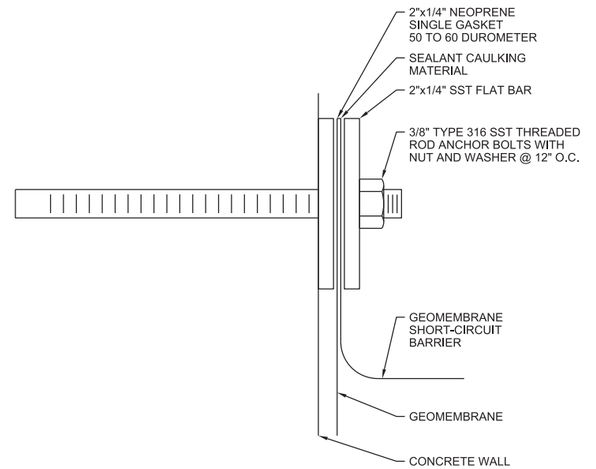
270-M-2001
270-M-3001
270-M-3002



3 LATERAL DETAIL

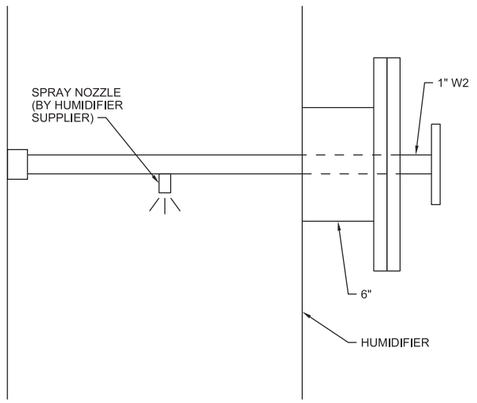
1 1/2"=1'-0"

270-M-2001
270-M-3001
270-M-3002



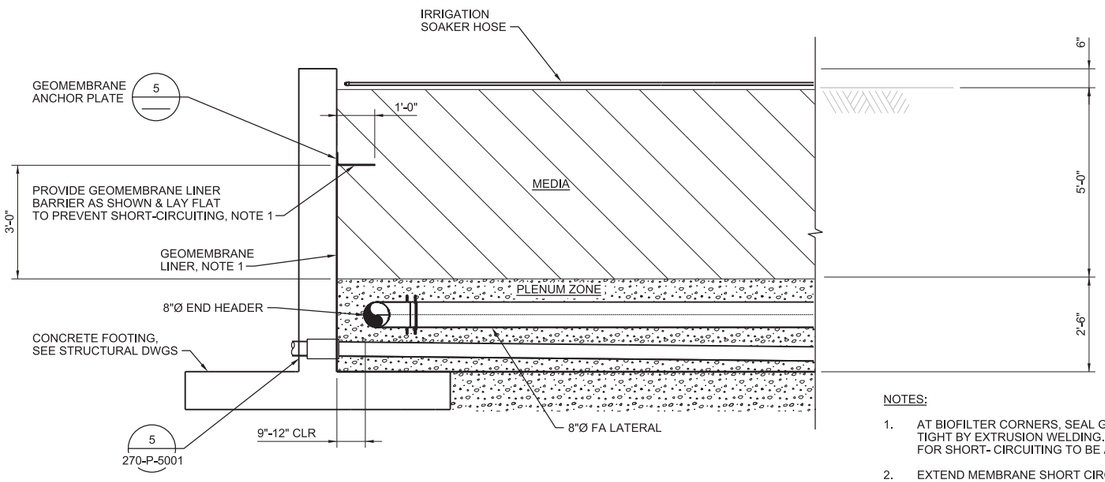
5 GEOMEMBRANE ANCHOR PLATE

NTS



2 SPRAY NOZZLE DETAIL

3"=1'-0"



NOTES:

1. AT BIOFILTER CORNERS, SEAL GEOMEMBRANE TIGHT BY EXTRUSION WELDING. NO PATHWAY FOR SHORT- CIRCUITING TO BE ALLOWED.
2. EXTEND MEMBRANE SHORT CIRCUIT BARRIER 12" AROUND VERTICAL FA PIPE SHOWN IN SECTION VIEWS.

4 BIOFILTER PERIMETER DETAIL

1/2"=1'-0"

270-M-2001
270-M-3001
270-M-3002

KENNETH JOSEPH GALARDI
LICENSED
11/9/16
25177
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		K GALARDI	T WHITE	P RAUSCH	APVD	S HOFFMAN	

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FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

ch2m

ODOR CONTROL FACILITY

HVAC DETAILS

VERIFY SCALE

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0 1"

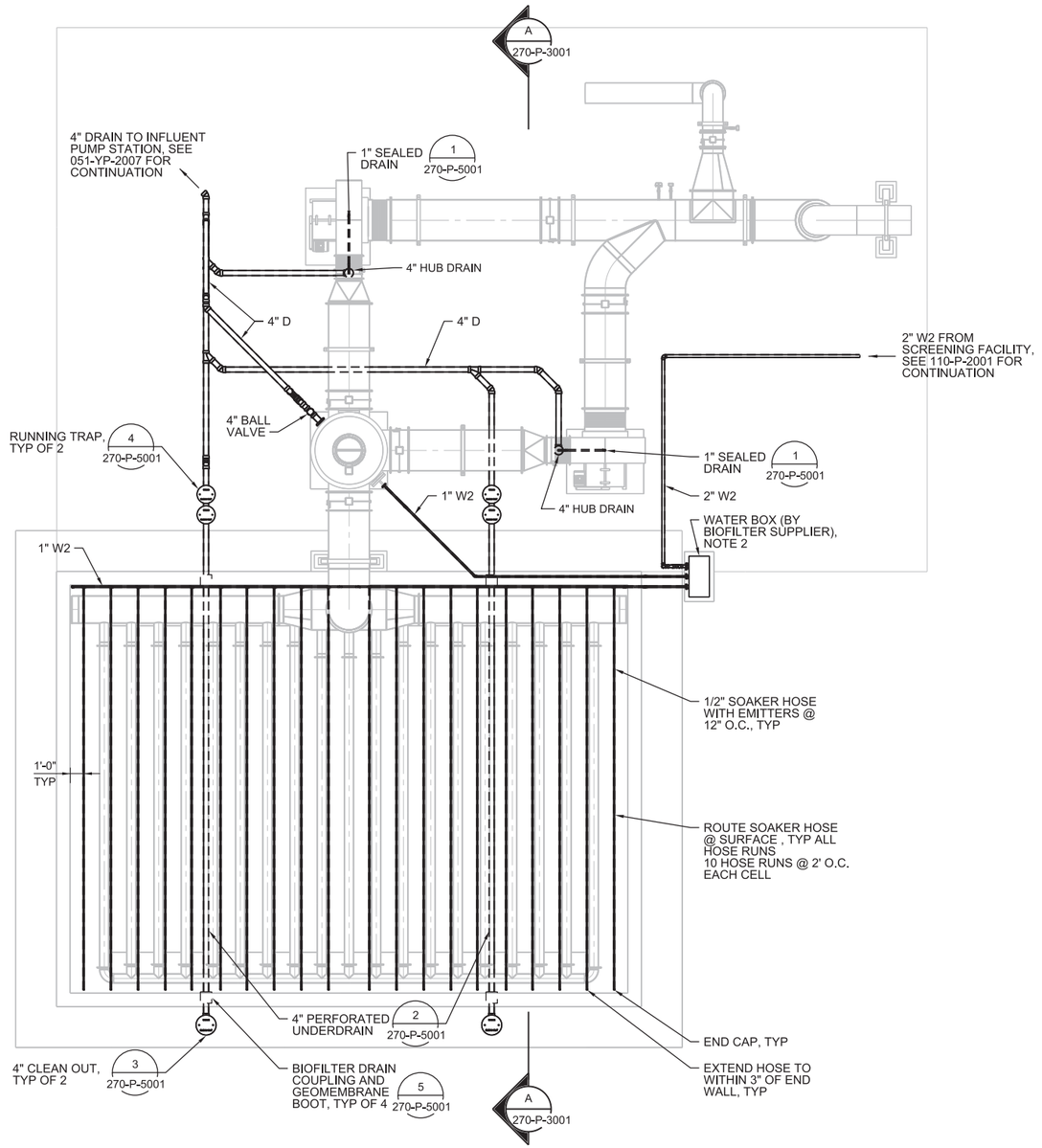
DATE	NOVEMBER 2016
PROJ	496312
DWG	270-M-5001
SHEET	278 of 314

BIDDING SET

FILENAME: 270-M-5001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:05:47 PM

GENERAL NOTES

1. ALL ABOVE GROUND EXPOSED PIPE TO BE HEAT TRACED AND INSULATED
2. PROVIDE LOW POINT DRAIN ON WATER SUPPLY LINE FOR DRAINAGE DURING WINTER WHEN IRRIGATION IS NOT USED.



N

PLAN

3/16"=1'-0"

KENNETH JOSEPH GALARDI
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11/4/16
25177
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	REVISION	CHK	APVD	BY	DATE
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PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WQRF
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CITY OF WICHITA, KANSAS

ODOR CONTROL FACILITY
PLUMBING PLAN

VERIFY SCALE
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0 1"

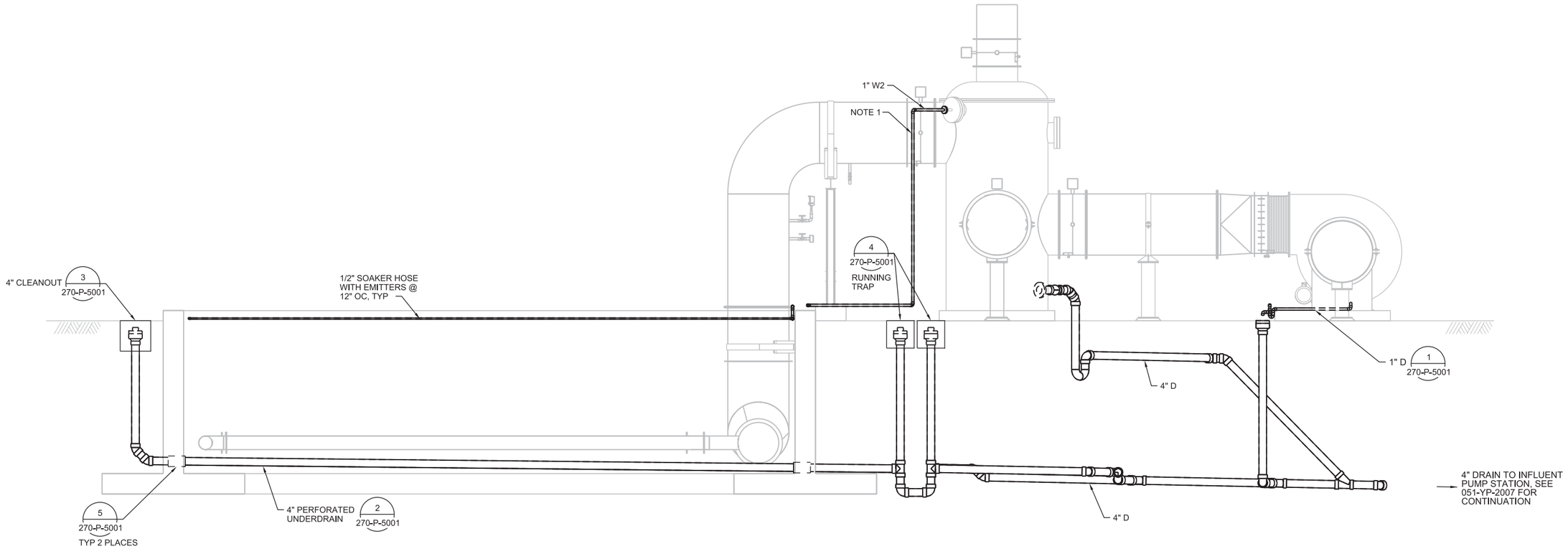
DATE	NOVEMBER 2016
PROJ	496312
DWG	270-P-2001
SHEET	279 of 314

BIDDING SET

FILENAME: 270-P-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:06:29 PM

GENERAL NOTES

1. HEAT TRACE AND INSULATE EXPOSED PIPING AS INDICATED ON PROCESS AND INSTRUMENTATION DRAWINGS.
2. BIOFILTER MEDIA, COVER MATERIAL AND PLENUM ZONE MATERIAL NOT SHOWN FOR CLARITY.



A SECTION
3/8"=1'-0"
270-P-2001

KENNETH JOSEPH GALARDI
LICENSED
11/9/16
25177
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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		K GALARDI	T WHITE	P RAUSCH	APVD	S HOFFMAN	

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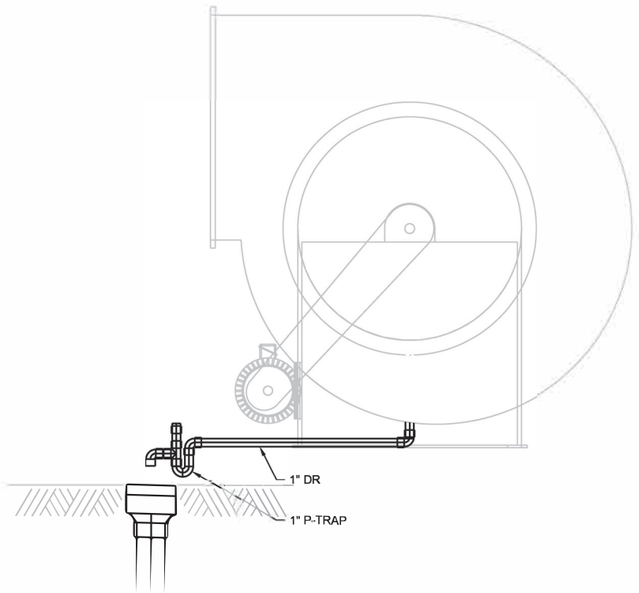
PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WORF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

ODOR CONTROL FACILITY
PLUMBING SECTION

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	270-P-3001
SHEET	280 of 314

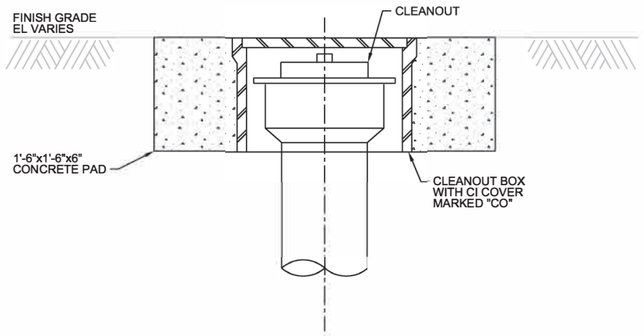
BIDDING SET



1 FAN DRAIN DETAIL

1"=1'-0"

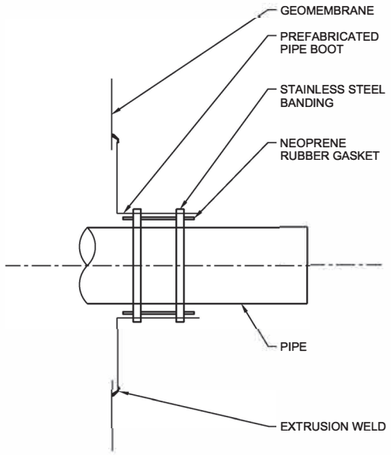
270-P-2001
270-P-3001



3 CLEANOUT DETAIL

3"=1'-0"

270-P-2001
270-P-3001

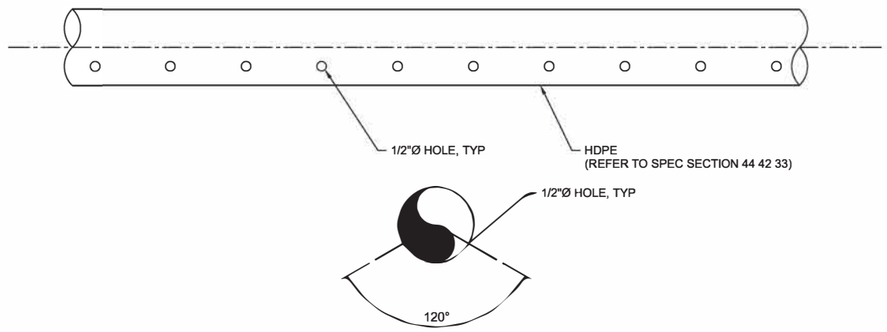


BIOFILTER DRAIN COUPLING GEOMEMBRANE BOOT DETAIL

5

NTS

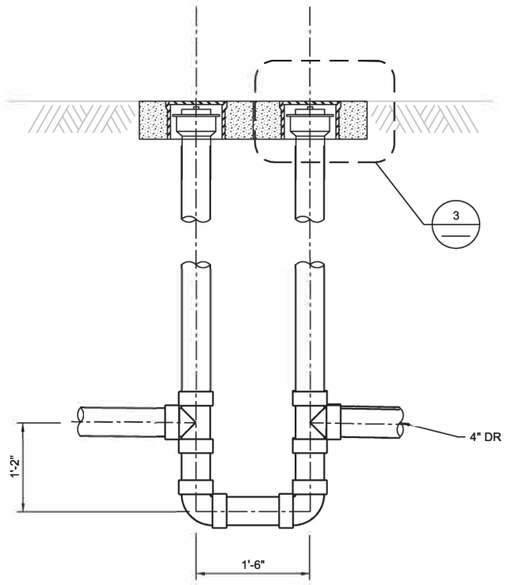
270-P-2001
270-P-3001
270-M-5001



2 4" PERPORATED UNDERDRAIN DETAIL

3"=1'-0"

270-P-2001
270-P-3001



4 RUNNING TRAP DETAIL

1/2"=1'-0"

270-P-2001
270-P-3001

KENNETH JOSEPH GALARDI
LICENSED
11/4/16
25177
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	DR	CHK	BY	APVD
DSGN	K GALARDI		T WHITE	P RAUSCH	S HOFFMAN	APVD

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CITY OF WICHITA, KANSAS

ch2m:

ODOR CONTROL FACILITY

PLUMBING DETAILS

VERIFY SCALE
BA RIS ONE INCH ON ORIGINAL DRAWING.
0 1"

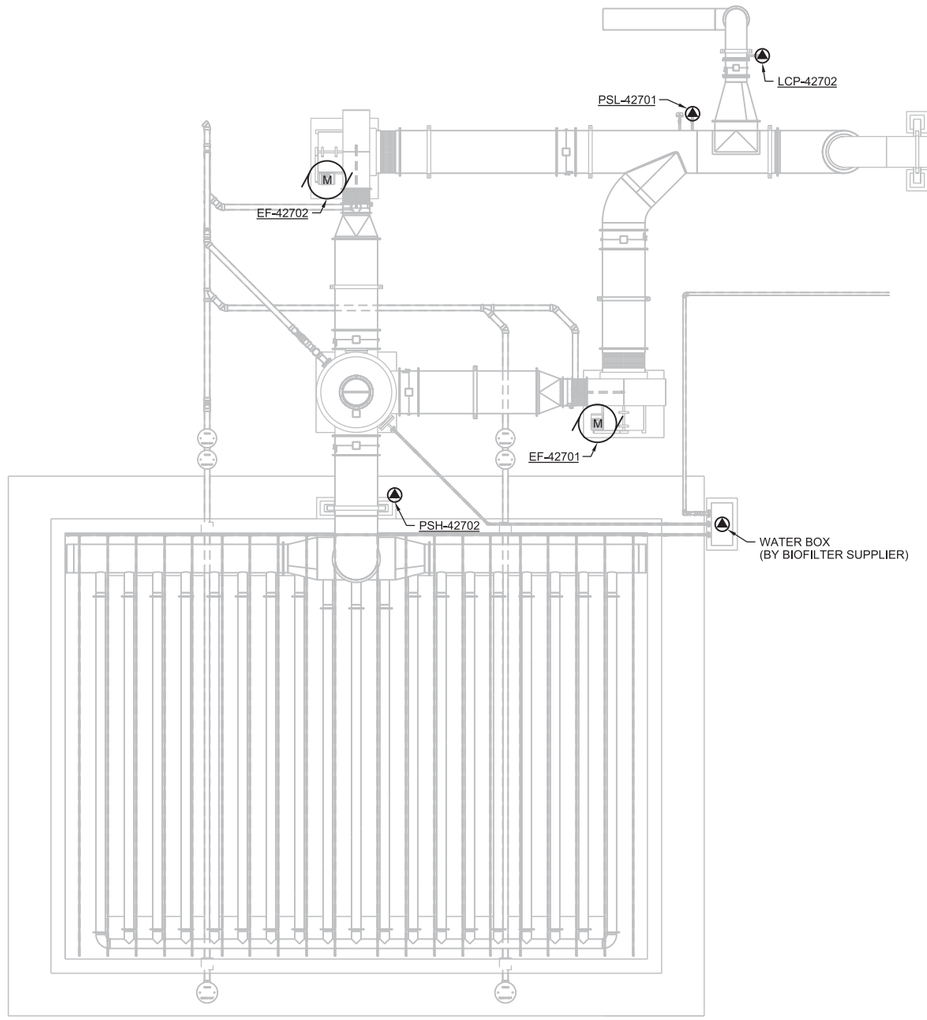
DATE	NOVEMBER 2016
PROJ	496312
DWG	270-P-5001
SHEET	281 of 314

BIDDING SET

FILENAME: 270-P-5001_496312.dgn PLOT DATE: 2016\11\03 PLOT TIME: 2:14:36 PM

GENERAL NOTES

1. ALL ABOVE GROUND EXPOSED PIPE TO BE HEAT TRACED AND INSULATED



N

FACILITY / PROCESS PLAN

3/16"=1'-0"

MARY J. GROSS
LICENSED
16702
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		J LANDMAN	A CUGLIAT	M GROSS	M GROSS	M GROSS	

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CITY OF WICHITA, KANSAS

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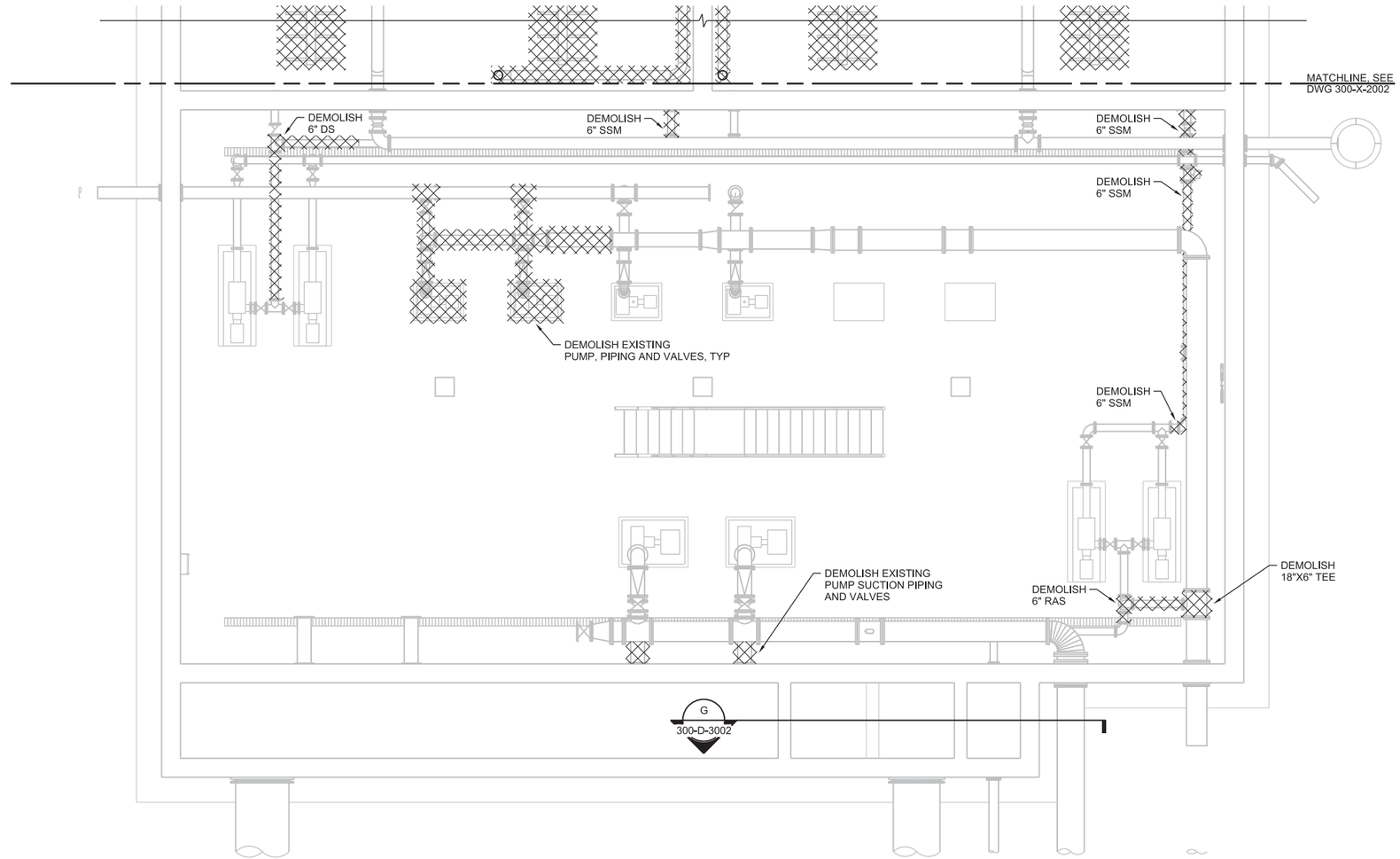
ODOR CONTROL FACILITY
ELECTRICAL
FACILITY / PROCESS PLAN

BIDDING SET

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	270-E-2001
SHEET	282 of 314

FILENAME: 270-E-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 1:50:46 PM



N

LOWER PLAN

3/16"=1'-0"

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER
LICENSED

11/04/2016

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DSGN	E JOHNSON		D CAVE	D OERKE		E JOHNSON	

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

SLUDGE PUMP STATION
DEMOLITION
LOWER PLAN

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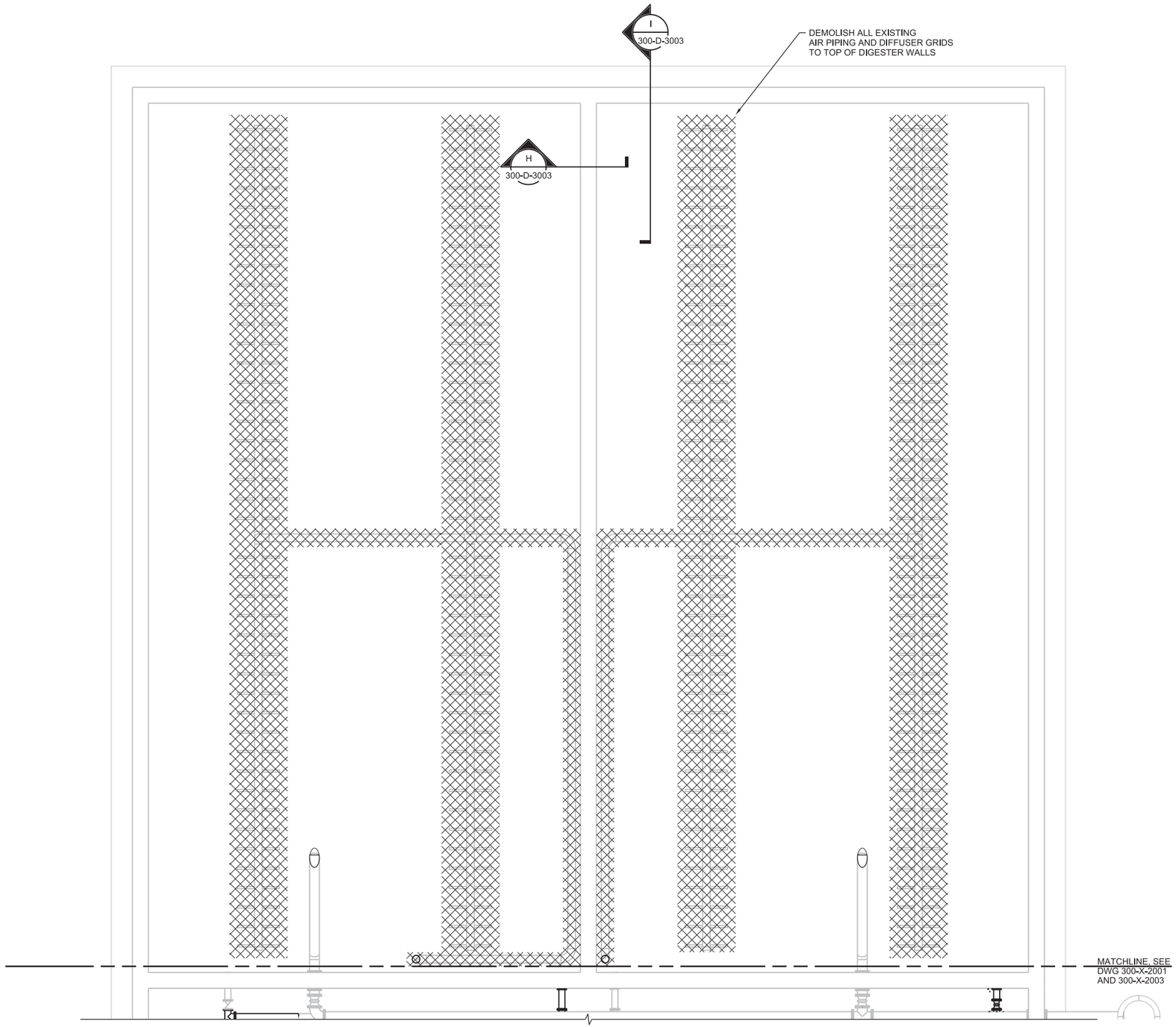
VERIFY SCALE

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0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	300-X-2001
SHEET	283 of 314

BIDDING SET

FILENAME: 300-X-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:07:23 PM



N

DIGESTERS PLAN

3/16"=1'-0"

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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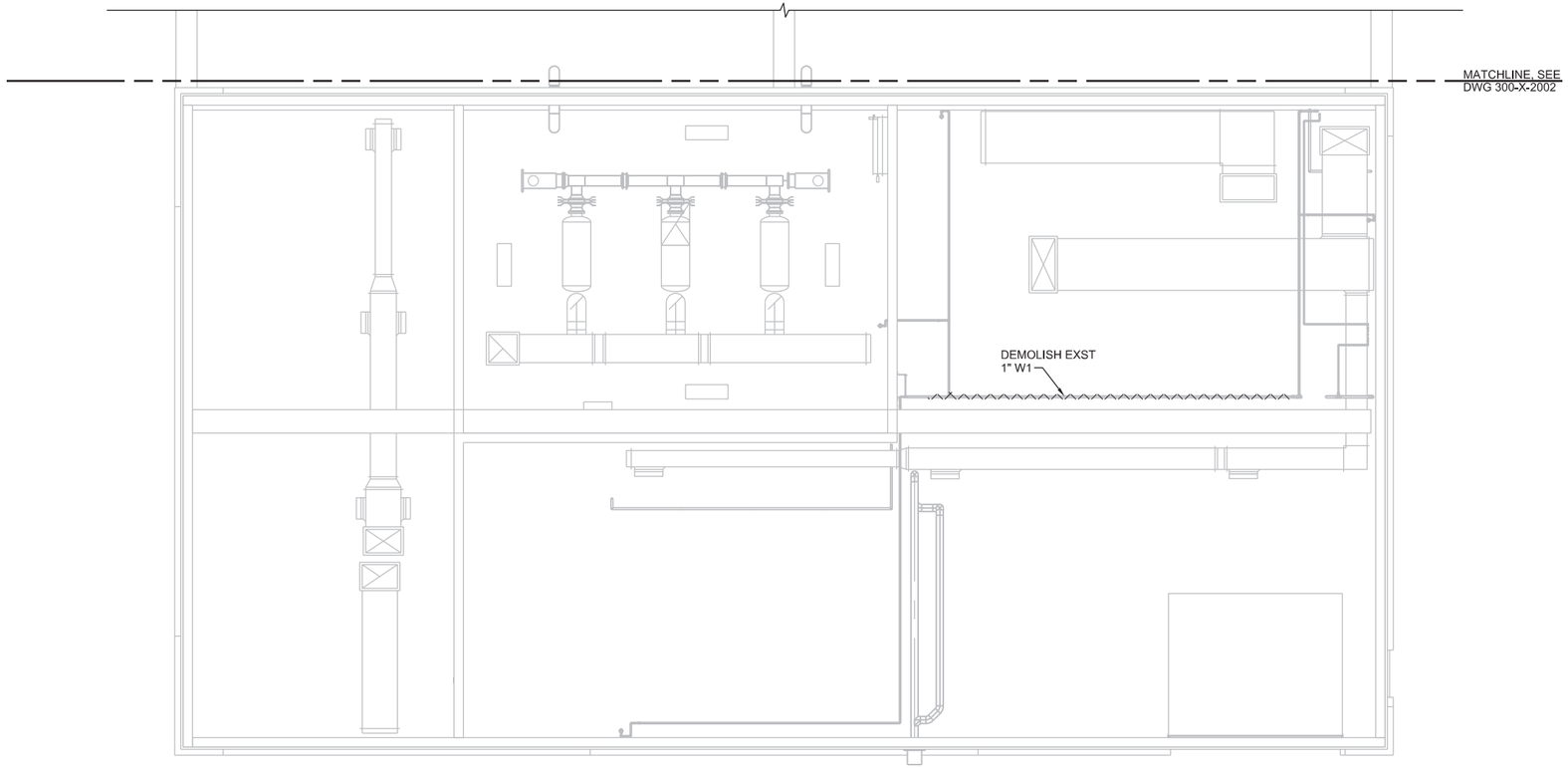
SLUDGE PUMP STATION
DEMOLITION
DIGESTERS PLAN

VERIFY SCALE

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0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	300-X-2002
SHEET	284 of 314

BIDDING SET



N

UPPER PLAN

3/16"=1'-0"

ESTELL JO JOHNSON
KANSAS
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	REVISION	BY	APVD
		E. JOHNSON	D. CAVE	D. OERKE	D. OERKE		E. JOHNSON	

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CITY OF WICHITA, KANSAS

SLUDGE PUMP STATION
DEMOLITION
UPPER PLAN

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

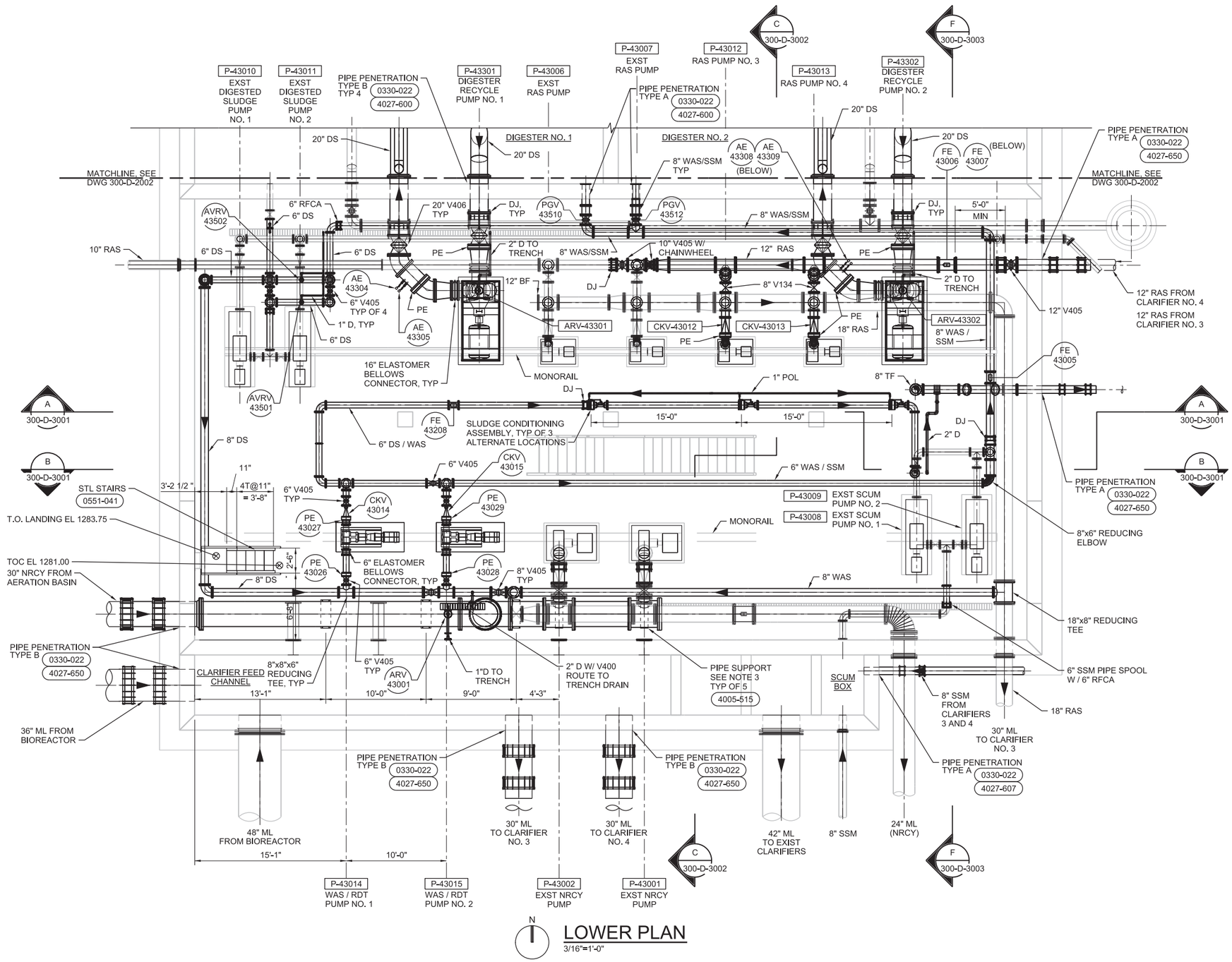
DATE	NOVEMBER 2016
PROJ	496312
DWG	300-X-2003
SHEET	285 of 314

BIDDING SET

FILENAME: 300-X-2003_496312.dgn PLOT DATE: 2016\11\02 PLOT TIME: 7:04:25 PM

GENERAL NOTES

1. FOR CONTINUATION OF PIPING IN THE YARD, SEE DRAWING 051-Y-2005.
2. COORDINATE SIZE AND LOCATION WITH EQUIPMENT MANUFACTURER AND OTHER DISCIPLINE DRAWINGS. DO NOT CUT EXISTING SLAB REINFORCEMENT DURING DRILLING AND INSTALLATION OF ADHESIVE ANCHORS.
3. COORDINATE LOCATION OF PIPE SUPPORTS WITH OTHER DISCIPLINE DRAWINGS, EXISTING CONSTRUCTION AND SPECIFICATIONS. DO NOT CUT EXISTING SLAB REINFORCEMENT DURING DRILLING OF ADHESIVE ANCHORS.
4. CONTRACTOR SHALL UTILIZE GROOVED TYPE JOINT CONNECTIONS FOR EXPOSED SLUDGE PIPING EXCEPT WHERE INSTALLATION IS IMPRACTICAL DUE TO VALVE OR EQUIPMENT CONNECTION OPTION AVAILABILITY.



LOWER PLAN

3/16"=1'-0"

NO.	DATE	DSGN	REVISION	BY	CHK	APVD
		E.JOHNSON		E.JOHNSON	D.CAVE	D.OERKE

11/04/2016

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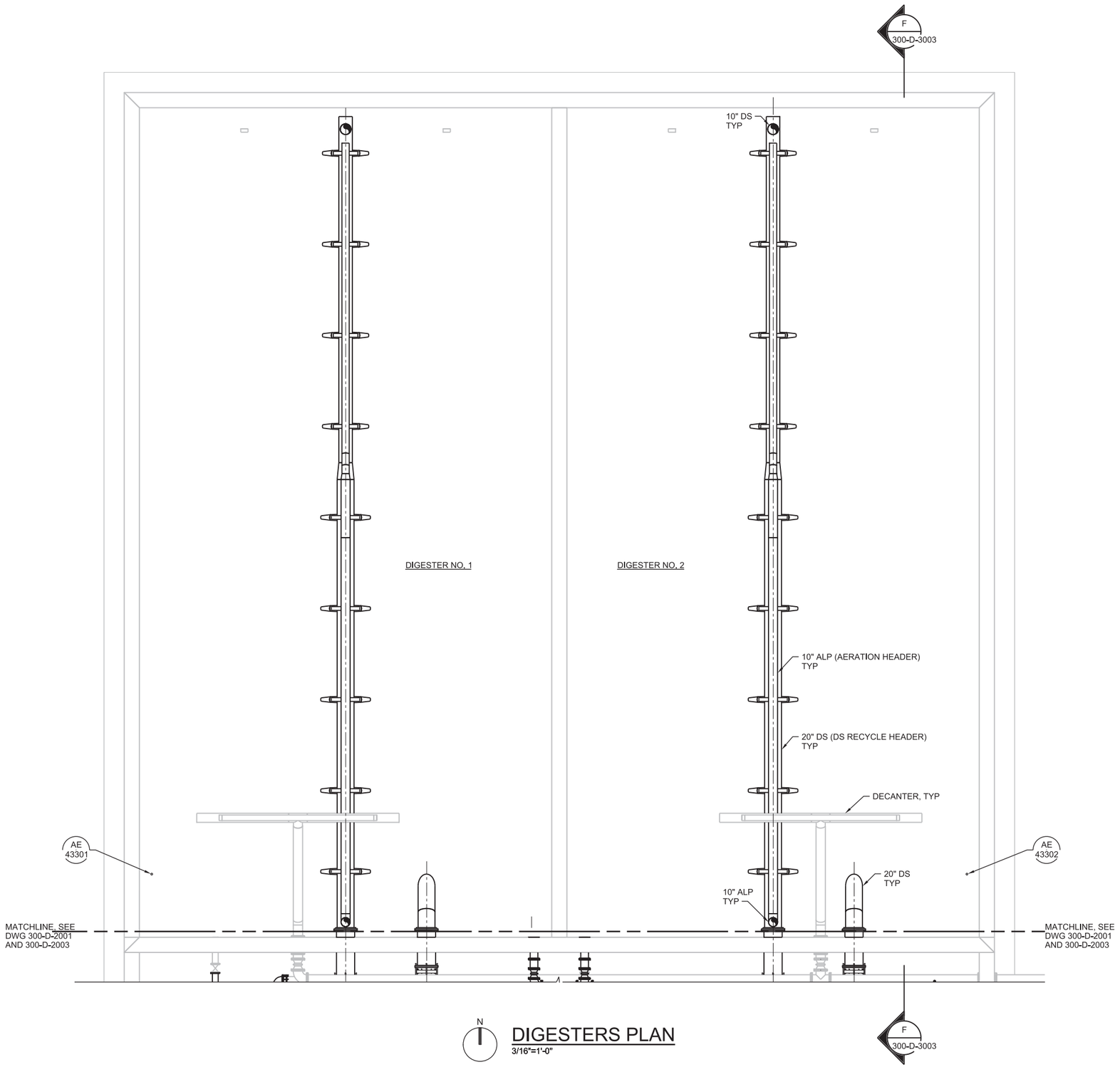
PHASE II, 6 MGD EXPANSION
FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

SLUDGE PUMP STATION
PROCESS MECHANICAL
LOWER PLAN

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	300-D-2001
SHEET	286 of 314

BIDDING SET



DIGESTERS PLAN

3/16"=1'-0"

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD
		E. JOHNSON	D. CAVE	D. OERKE	E. JOHNSON

REVISION BY APVD

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FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

SLUDGE PUMP STATION

PROCESS MECHANICAL
DIGESTERS - LOWER PLAN

BIDDING SET

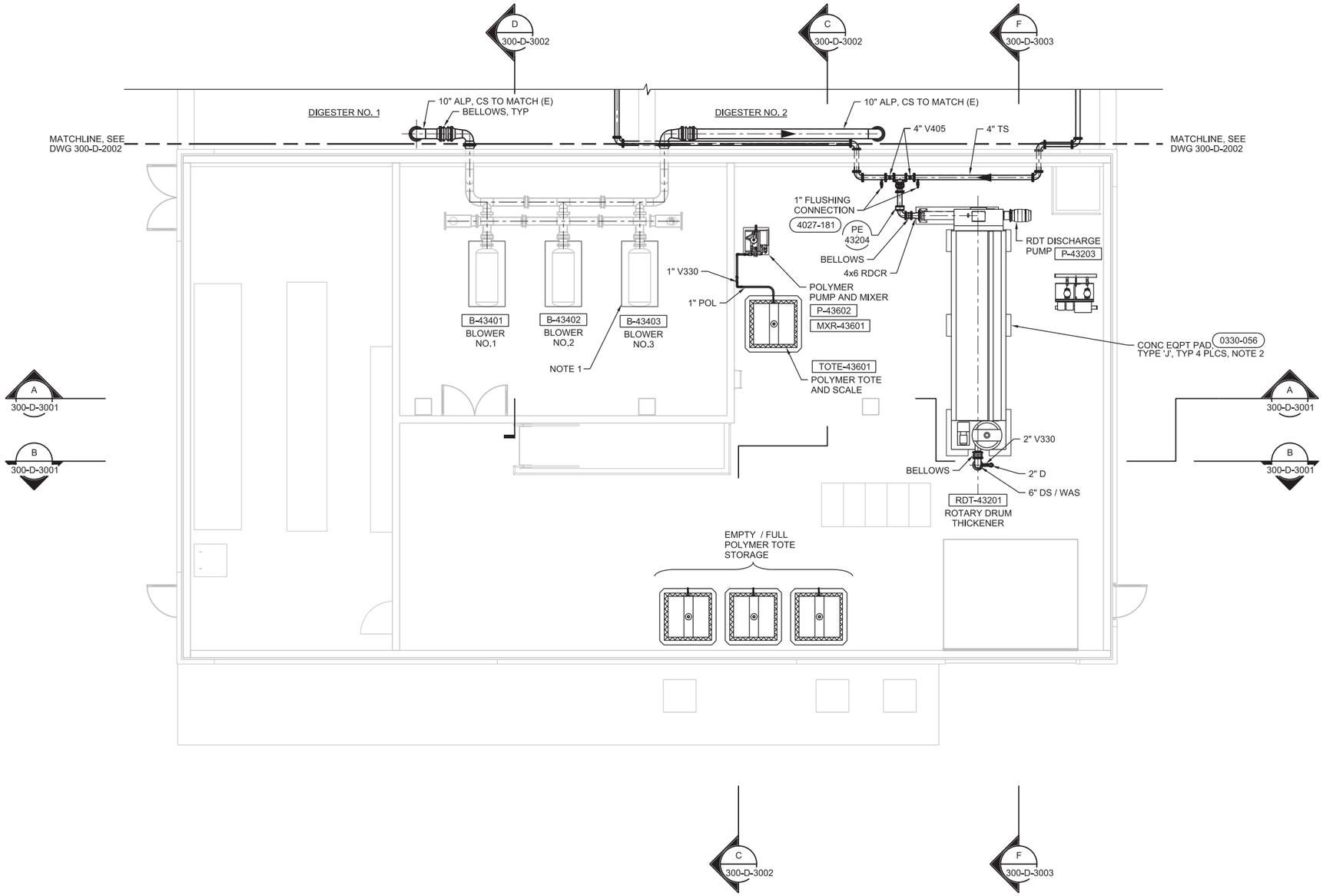
VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	300-D-2002
SHEET	287 of 314

GENERAL NOTES

1. BLOWER MODIFICATIONS BY UNITED BLOWER PER SCOPE IN APPENDIX C.
2. COORDINATE SIZE AND LOCATION WITH EQUIPMENT MANUFACTURER AND OTHER DISCIPLINE DRAWINGS.CONCRETE PAD WIDTH SHALL BE 2-FOOT MINIMUM DO NOT CUT EXISTING SLAB DURING DRILLING AND INSTALLATION OF CONCRETE .



UPPER PLAN

3/16"=1'-0"

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
	E JOHNSON	E JOHNSON	D CAVE	D OERKE	APVD	E JOHNSON	11/04/2016

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RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

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

SLUDGE PUMP STATION
PROCESS MECHANICAL
UPPER PLAN

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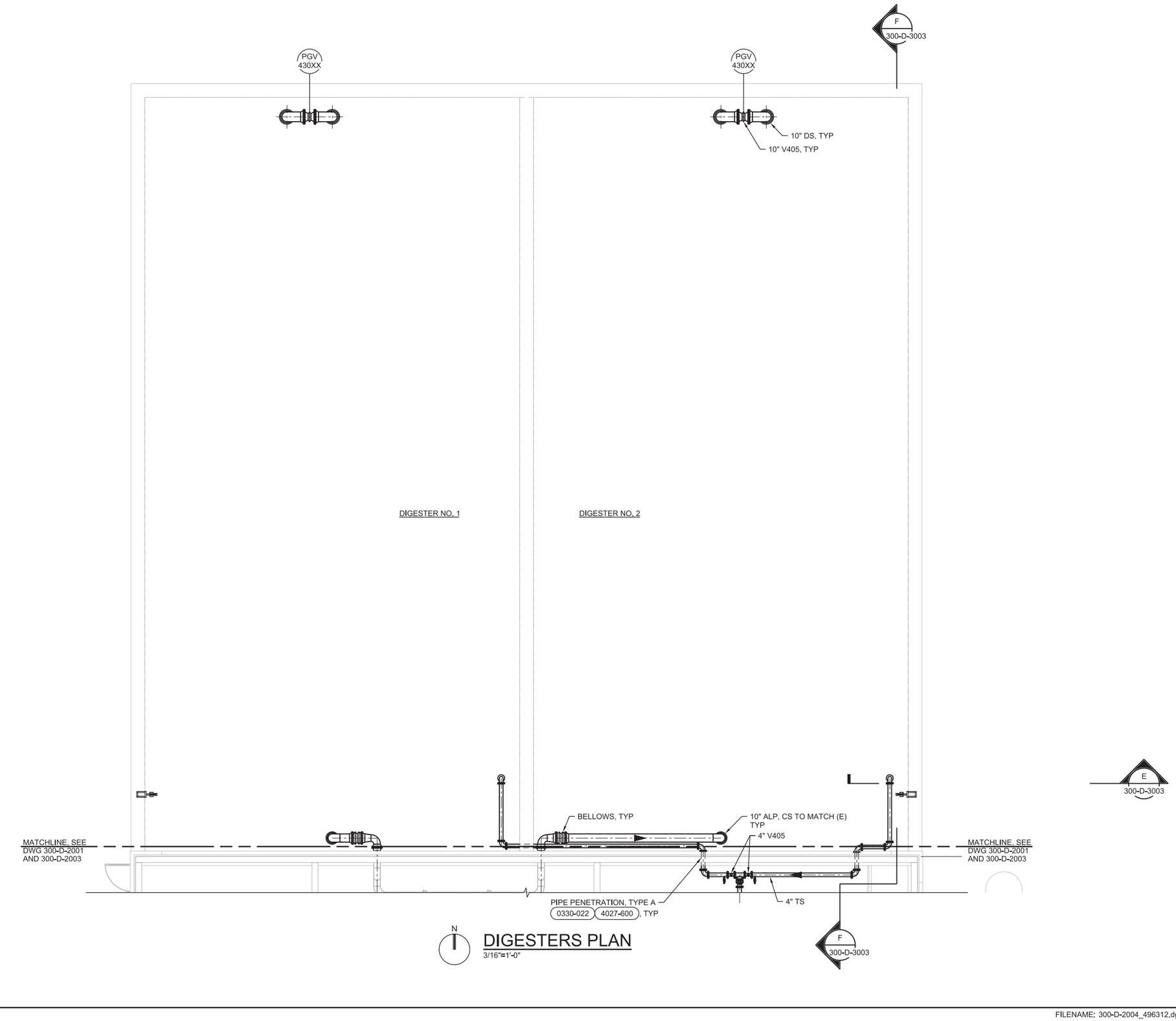
BIDDING SET

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	300-D-2003
SHEET	288 of 314

FILENAME: 300-D-2003_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:06:44 PM



DIGESTERS PLAN

3/16"=1'-0"

RUSSELL JO JOHNSON — 15411 — 11/4/16 — KANSAS — LICENSED PROFESSIONAL ENGINEER

11/04/2016

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NO.	DATE	REVISION	BY	APVD
DSGN	E.JOHNSON	DR	E.JOHNSON	
		CHK	D.CAVE	APVD D.OERKE

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

SLUDGE PUMP STATION

PROCESS MECHANICAL
DIGESTERS - UPPER PLAN

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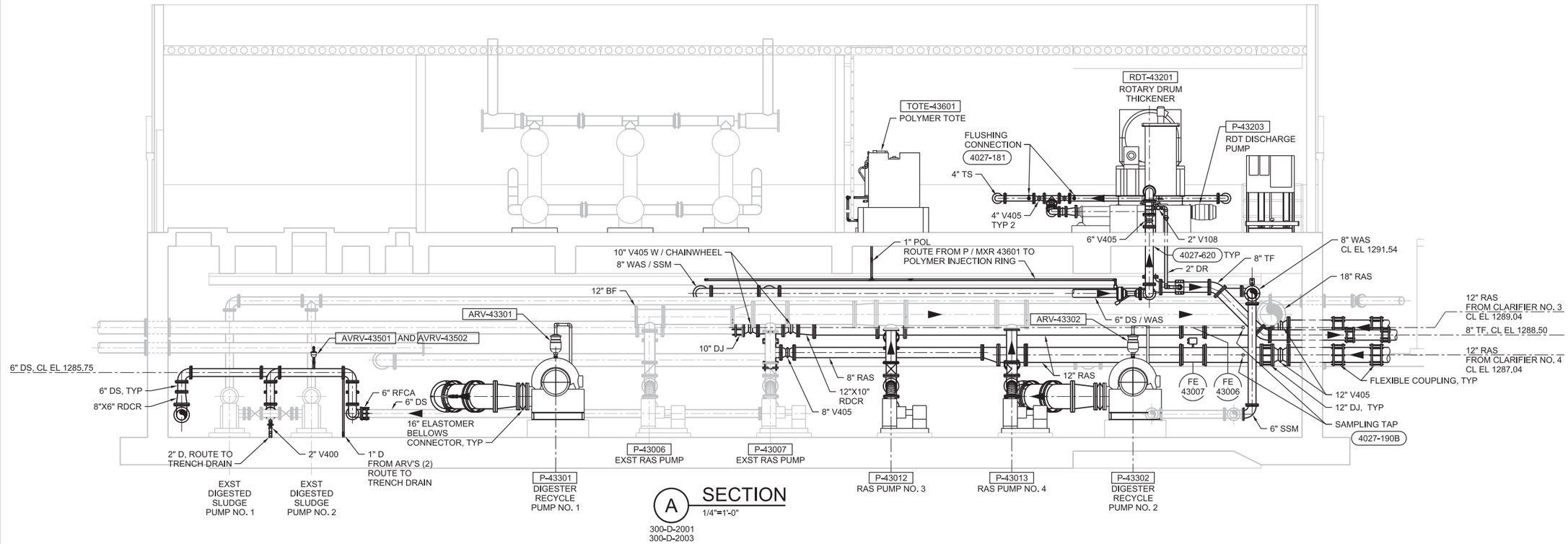
VERIFY SCALE

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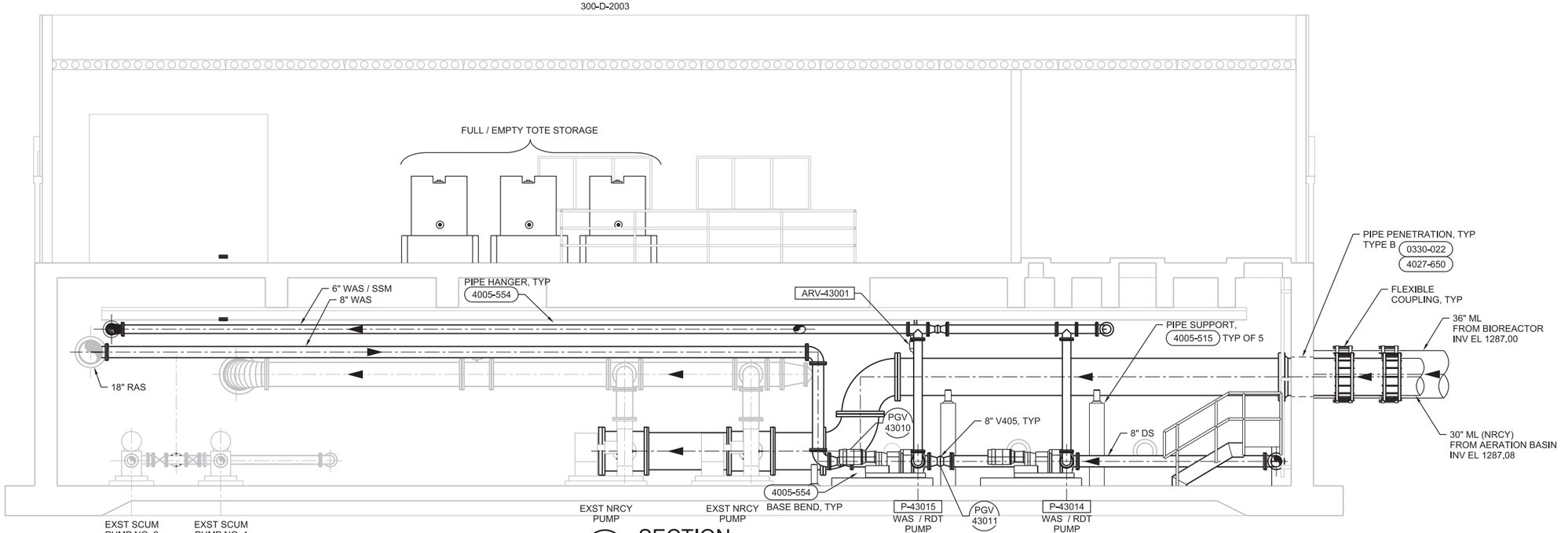
DATE	NOVEMBER 2016
PROJ	496312
DWG	300-D-2004
SHEET	289 of 314

BIDDING SET

FILENAME: 300-D-2004_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:06:12 PM



A SECTION
1/4"=1'-0"
300-D-2001
300-D-2003



B SECTION
1/4"=1'-0"
300-D-2001
300-D-2003

ESTELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	REVISION	BY	CHK	APVD
	E.JOHNSON	D.CAVE		E.JOHNSON	D.OERKE	APVD

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

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REUSE OF DOCUMENTS:

ch2m

SLUDGE PUMP STATION
PROCESS MECHANICAL SECTIONS

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

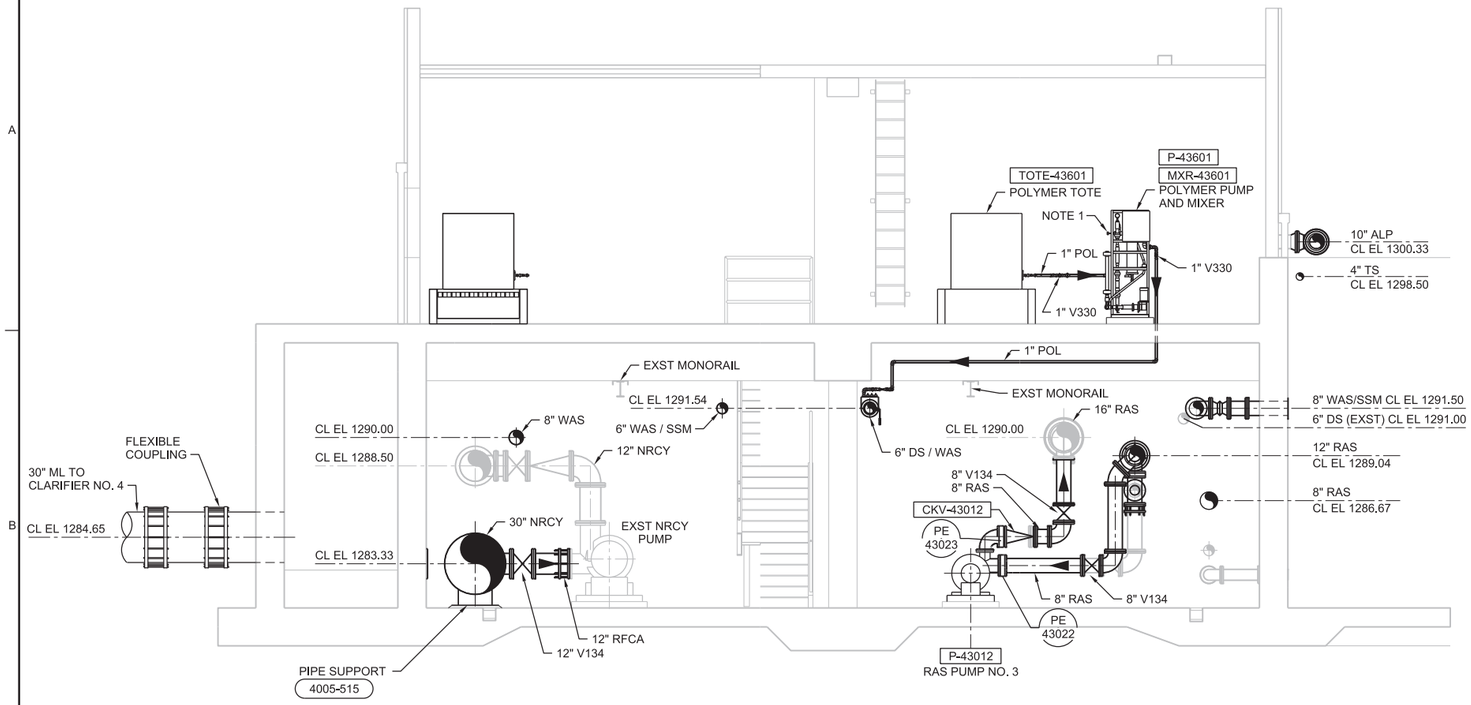
DATE	NOVEMBER 2016
PROJ	496312
DWG	300-D-3001
SHEET	290 of 314

BIDDING SET

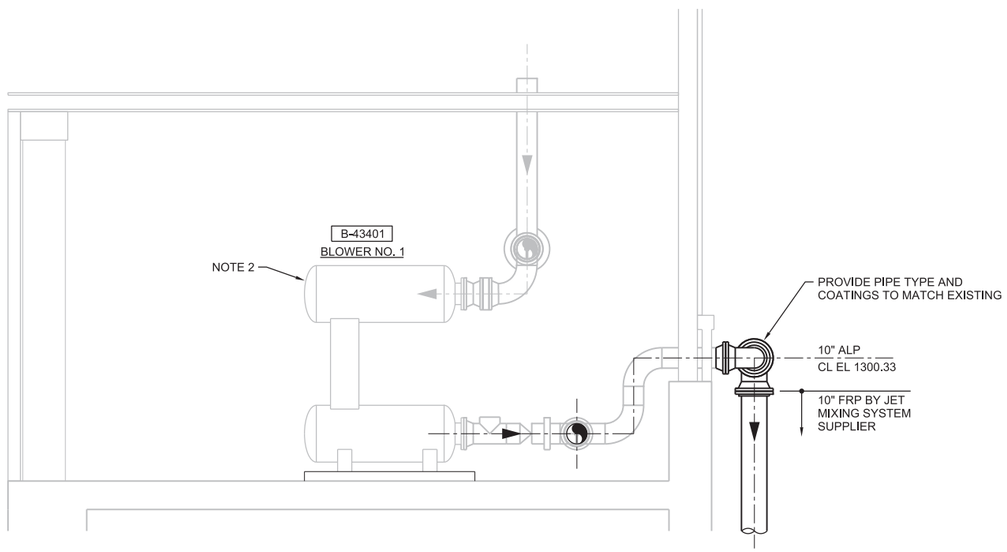
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GENERAL NOTES

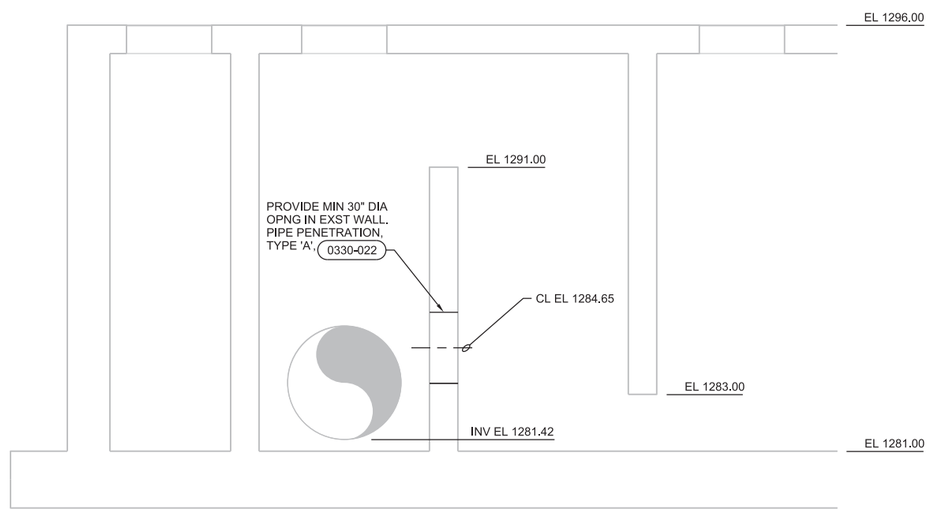
1. REFERENCE 300-P-2002 FOR 1" W2 CONNECTION.
2. BLOWER MODIFICATIONS BY UNITED BLOWER PER SCOPE IN APPENDIX C.



C SECTION
1/4"=1'-0"
300-D-2001
300-D-2003



D SECTION
3/8"=1'-0"
300-D-2003



G SECTION
3/8"=1'-0"
300-X-2001

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER
11/04/2016
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NO.	DATE	DSGN	REVISION	BY	CHK	APVD
	E JOHNSON	DR	D CAVE	E JOHNSON	D OERKE	APVD

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

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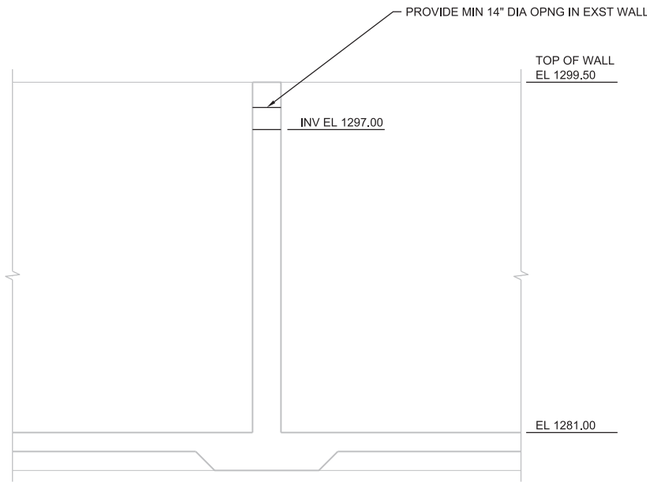
SLUDGE PUMP STATION
PROCESS MECHANICAL SECTIONS

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

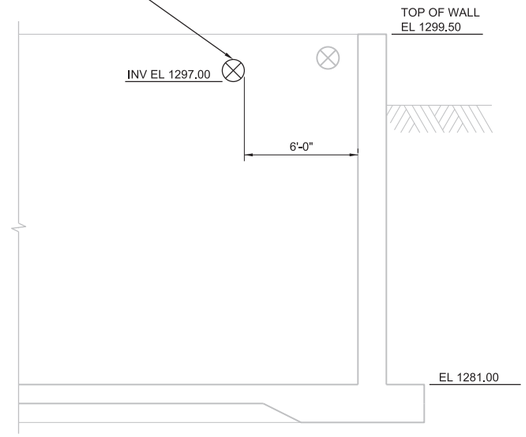
DATE	NOVEMBER 2016
PROJ	496312
DWG	300-D-3002
SHEET	291 of 314

BIDDING SET

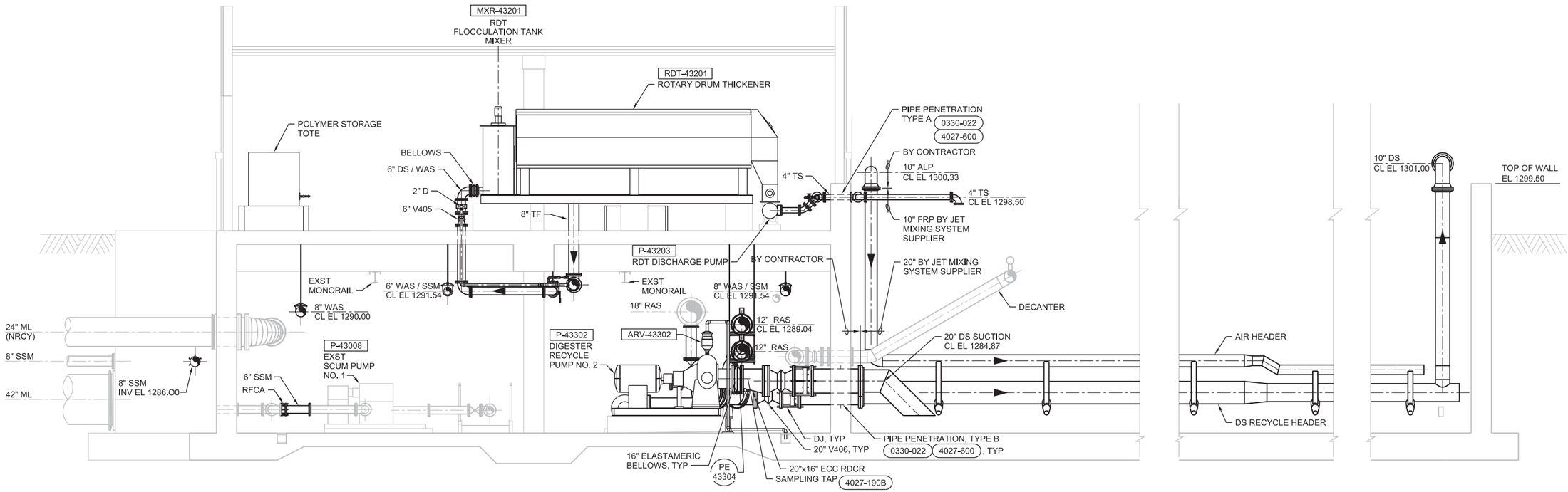
FILENAME: 300-D-3002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:07:01 PM



H SECTION
1/4"=1'-0"
300-X-2002



I SECTION
1/4"=1'-0"
300-X-2002



F SECTION
1/4"=1'-0"
300-D-2001
300-D-2002
300-D-2003
300-D-2004

ESTELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER
11/04/2016

NO.	DSGN	DATE	REVISION	DR	CHK	APVD	BY	APVD
	E. JOHNSON			D. CAVE	D. OERKE		E. JOHNSON	

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SLUDGE PUMP STATION
PROCESS MECHANICAL
SECTIONS

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

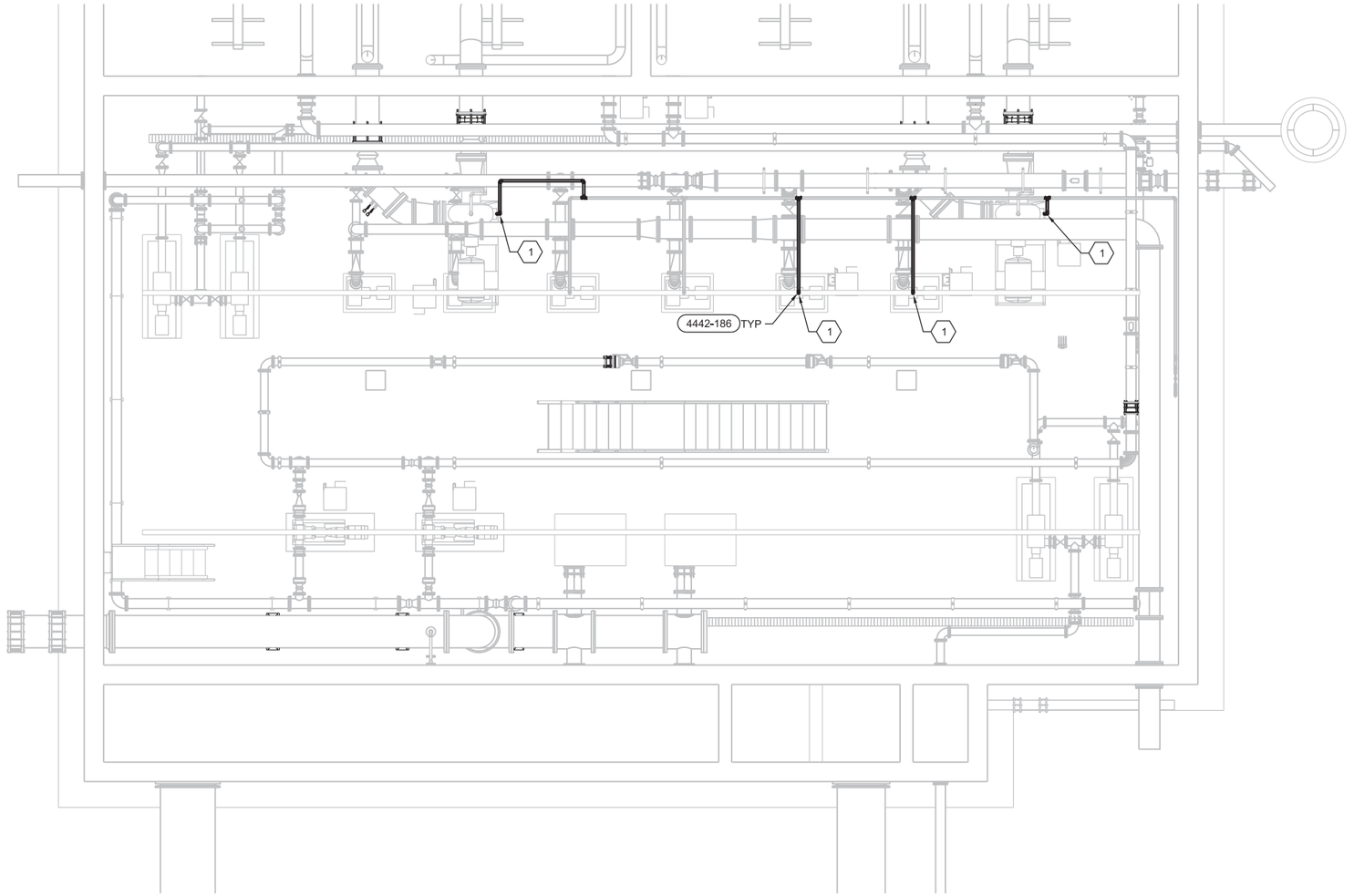
DATE	NOVEMBER 2016
PROJ	496312
DWG	300-D-3003
SHEET	292 of 314

BIDDING SET

FILENAME: 300-D-3003_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 6:13:46 PM

SHEET KEYNOTES

1. PROVIDE NEW SEAL WATER FROM EXISTING 1/2" SEAL WATER PIPE TO NEW RAS PUMPS AND DIGESTER RECYCLE PUMPS.



N

LOWER PLAN

3/16"=1'-0"

SCOTT HOFFMAN LICENSED 11/4/16 25291 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	BY	APVD
DSGN	S HOFFMAN	DR T WHITE	CHK P RAUSCH	APVD S HOFFMAN

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

ch2m

SLUDGE PUMP STATION
PLUMBING
LOWER PLAN

VERIFY SCALE

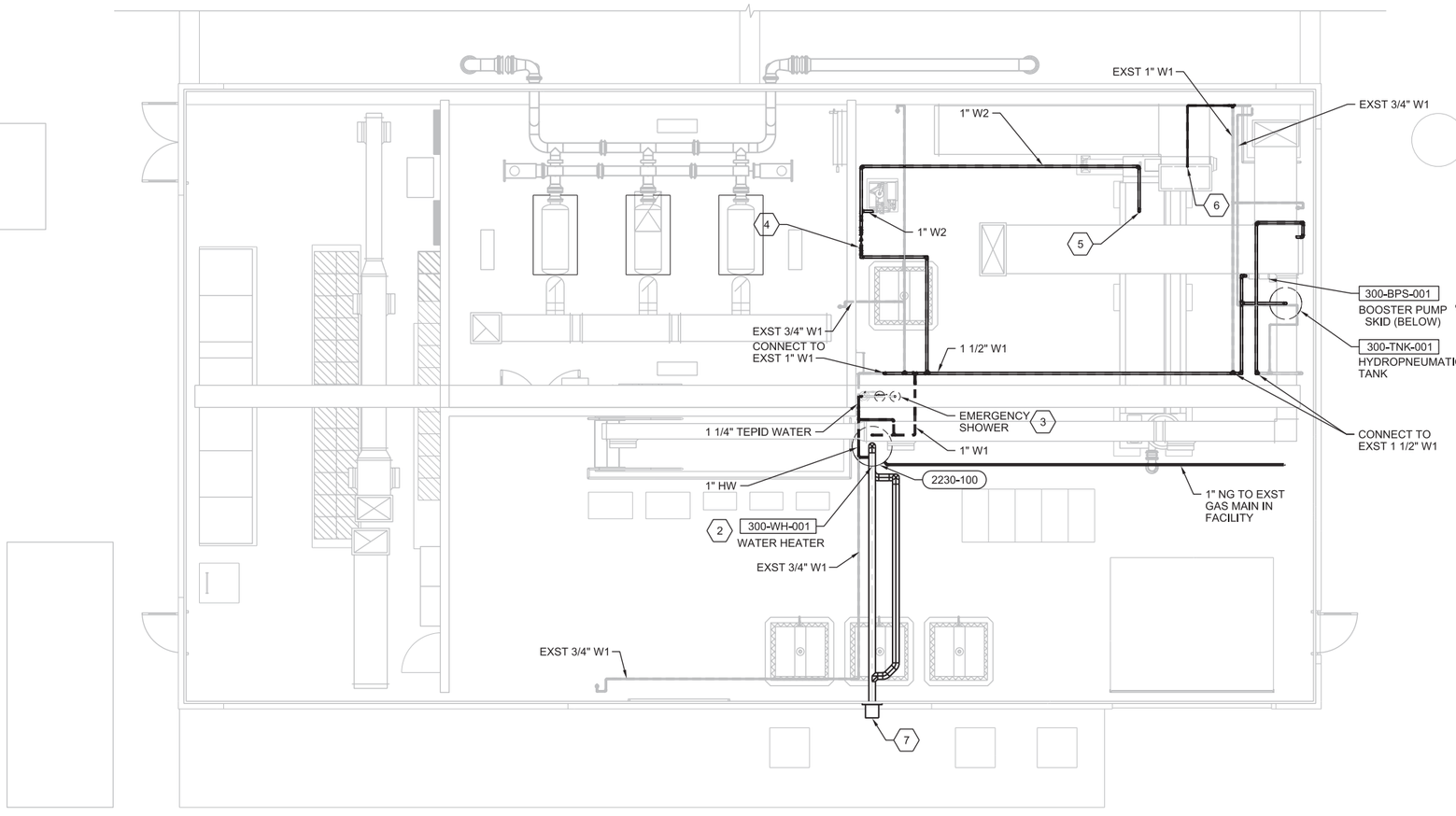
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	300-P-2001
SHEET	293 of 314

BIDDING SET

SHEET KEYNOTES

1. BOOSTER PUMP SYSTEM TO PROVIDE 70 PSI OF PRESSURE TO SERVE PROCESS EQUIPMENT. BOOSTER PUMP MUST BE INSTALLED PER SPECIFICATIONS. SEE ELECTRICAL DRAWINGS FOR POWER CONNECTION INFORMATION. CONTROLS SHALL BE PROVIDED BY THE MANUFACTURER. PUMPS SHALL BE DUTY STANDBY TO ALLOW FOR REDUNDUNDANCY IN SYSTEM DESIGN.
2. DOMESTIC TANK TYPE WATER HEATER AND MIXING VALVE TO ALLOW FOR TEPID WATER TO BE DELIVERED TO SAFETY SHOWER AND EYEWASH. WATER HEATER SHALL BE CONNECTED TO NATURAL GAS PIPING AS INDICATED.
3. SAFETY SHOWER AND EYEWASH WITH FLOW SENSOR IN PIPING TO ALLOW FOR NOTIFICATION TO SCADA SYSTEM THAT SHOWER AND EYEWASH HAVE BEEN ACTIVATED. TEPID WATER SHALL BE DELIVERED AT 65° F.
4. BACKFLOW PREVENTER TO ISOLATE PROCESS SYSTEM FROM POTABLE WATER SYSTEM.
5. PROVIDE W2 WATER CONNECT TO ROTARY DRUM THICKENER.
6. PROVIDE 1/2" SEAL WATER TO ROTARY DRUM.
7. PROVIDE CONCENTRIC VENT KIT THROUGH WALL FOR WATER HEATER. COORDINATE PENETRATION WITH GENERAL CONTRACTOR FOR OPENING IN PREFORMED, PRESTRESSED CONCRETE PANEL.



N

UPPER PLAN

3/16"=1'-0"

SCOTT HOFFMAN LICENSED 11/4/16 25291 Scott Hoffman KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DSGN	DATE	DR	CHK	APVD	BY	REVISION
		S HOFFMAN	T WHITE	P RAUSCH	APVD	S HOFFMAN	

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

SLUDGE PUMP STATION
PLUMBING
UPPER PLAN

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

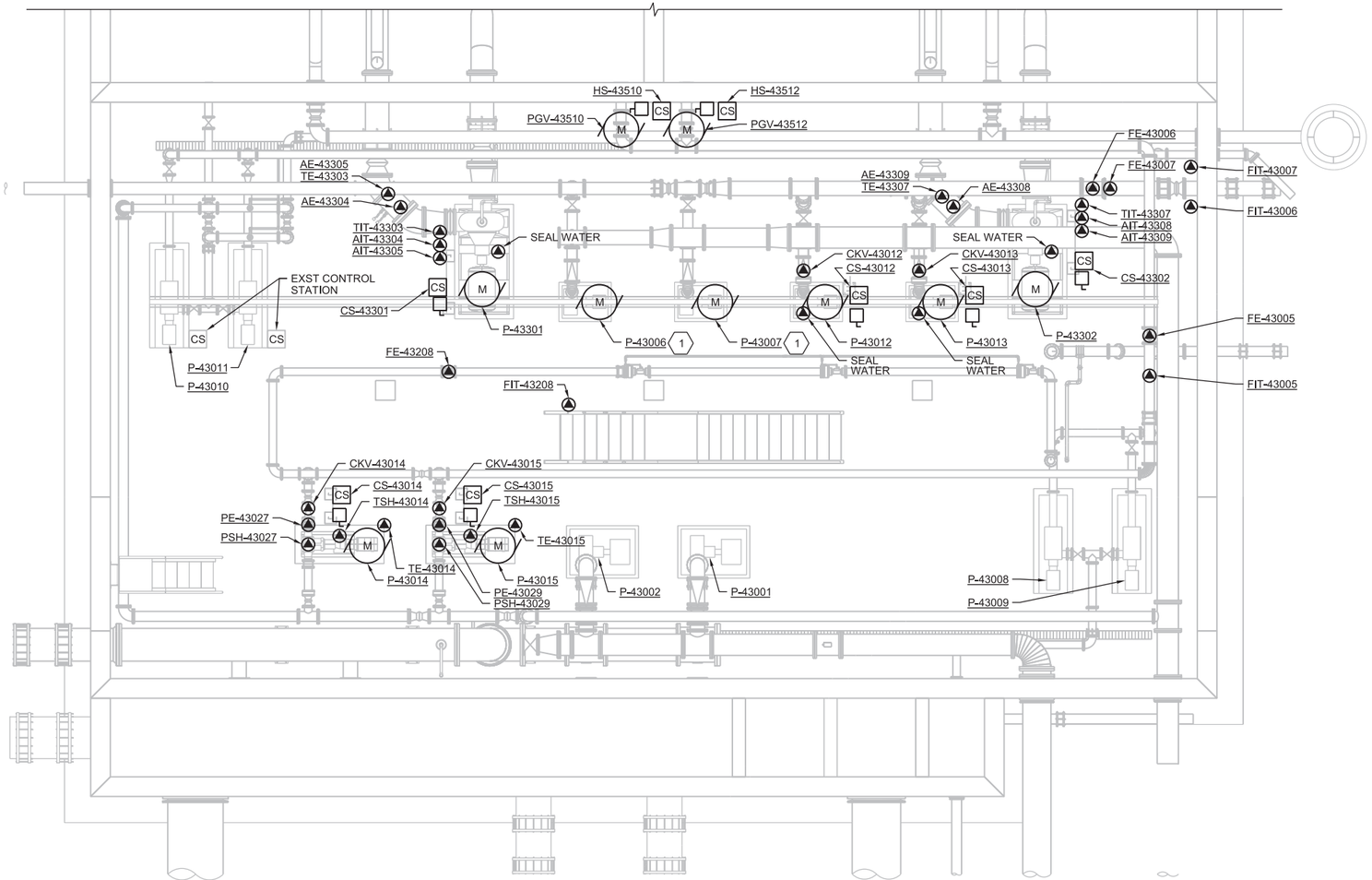
DATE	NOVEMBER 2016
PROJ	496312
DWG	300-P-2002
SHEET	294 of 314

BIDDING SET

FILENAME: 300-P-2002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:07:05 PM

SHEET KEYNOTES

1. REPLACE MOTOR, SEE ONE-LINE DIAGRAM.



N

LOWER PLAN

3/16"=1'-0"

MARY J. GROSS LICENSED 16702 11/4/16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

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NO.	DSGN	DATE	DR	REVISION	CHK	APVD	BY	APVD
		J LANDMAN	A CUGLIAT		M GROSS	M GROSS	M GROSS	

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

ch2m

SLUDGE PUMP STATION
ELECTRICAL LOWER PLAN

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	300-E-2001
SHEET	295 of 314

BIDDING SET

FILENAME: 300-E-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 1:42:40 PM



N

DIGESTERS UPPER LEVEL PLAN

3/16"=1'-0"

MARY J. GROSS
LICENSED
16702
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	BY	APVD
DSGN	J LANDMAN	DR	A CUGLIAT	CHK	M GROSS	APVD	M GROSS

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FOUR MILE CREEK WQRF
DEPARTMENT OF PUBLIC WORKS
CITY OF WICHITA, KANSAS

ch2m

SLUDGE PUMP STATION
ELECTRICAL
DIGESTERS - UPPER PLAN

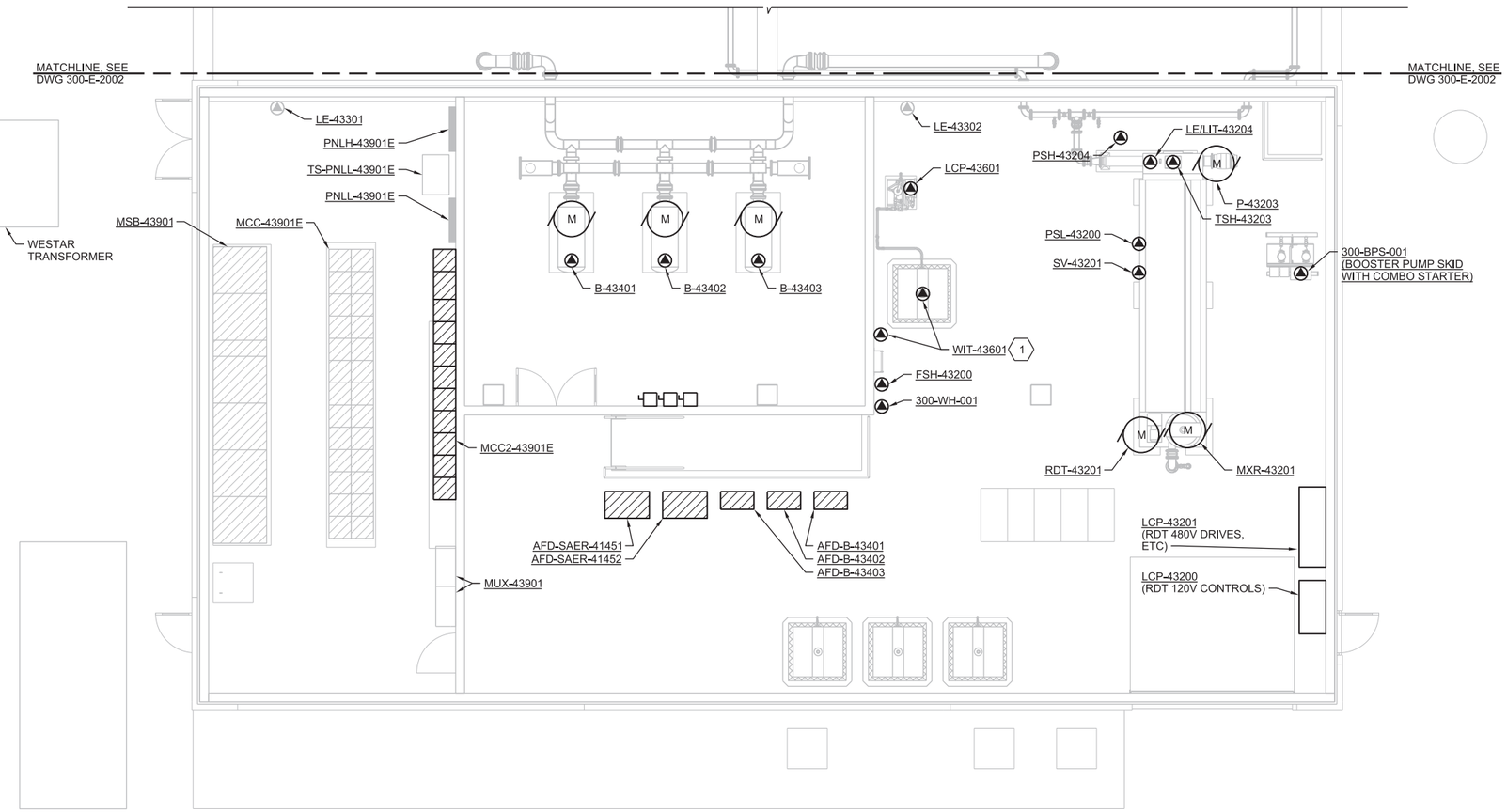
VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	300-E-2002
SHEET	296 of 314

BIDDING SET

FILENAME: 300-E-2002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 1:42:33 PM



N

UPPER PROCESS PLAN

3/16"=1'-0"

MARY J. GROSS
16702
11/4/16
LICENSED
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		J LANDMAN	A CUGLIAT	M GROSS	M GROSS	M GROSS	APVD

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FOUR MILE CREEK WQRF
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CITY OF WICHITA, KANSAS

SLUDGE PUMP STATION
ELECTRICAL
UPPER PROCESS PLAN

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

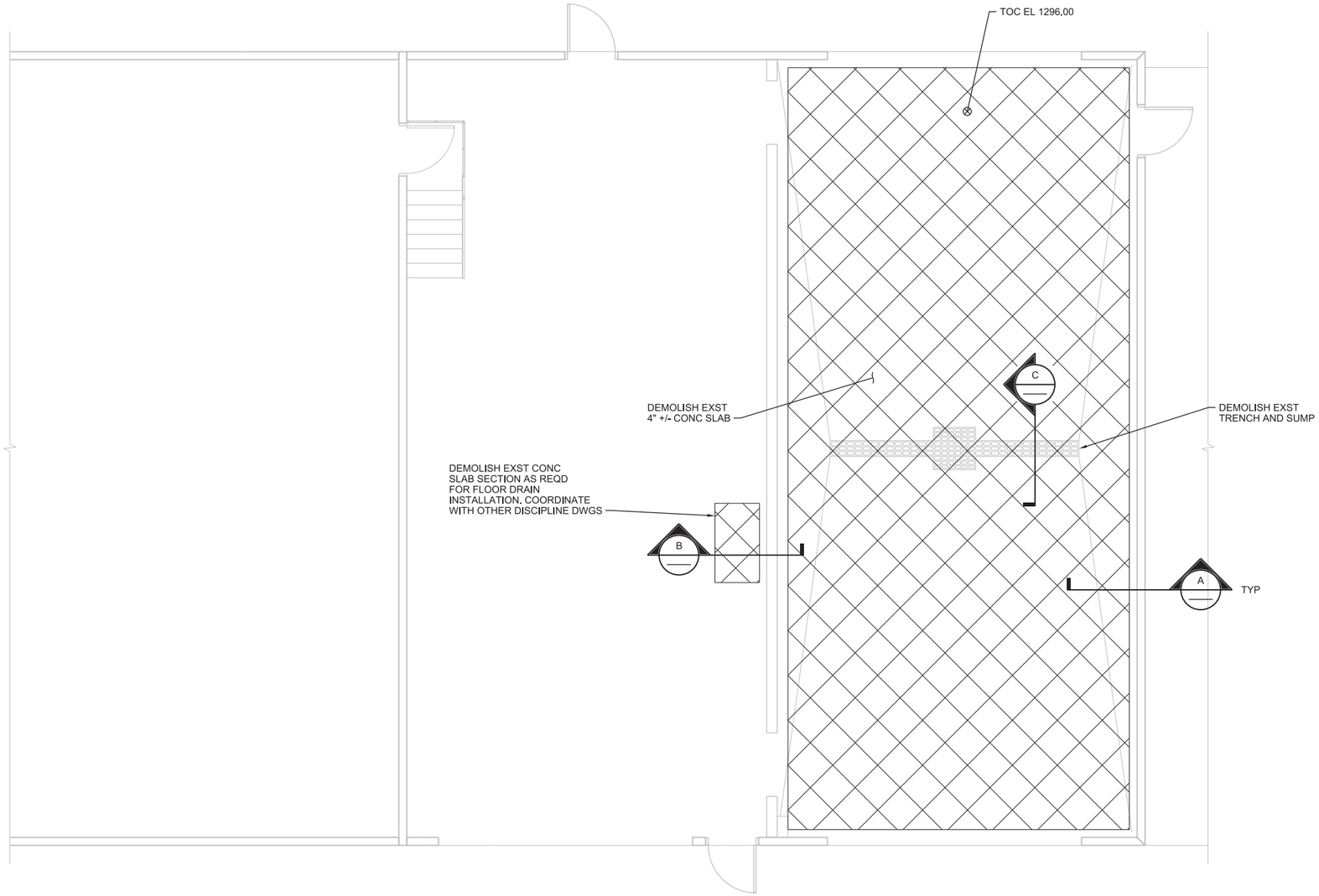
DATE	NOVEMBER 2016
PROJ	496312
DWG	300-E-2003
SHEET	297 of 314

BIDDING SET

FILENAME: 300-E-2003_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 1:42:38 PM

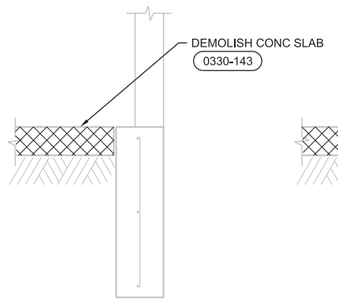
GENERAL NOTES

1. ALL WORK FOR FACILITY 350 IS ASSOCIATED WITH BID ITEM ADD ALTERNATE NUMBER 2, DEWATERING FACILITY.

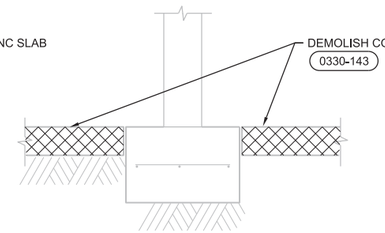


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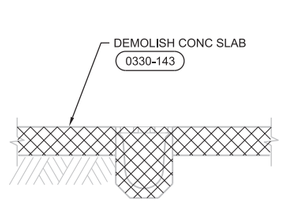
FOUNDATION PLAN
1/4"=1'-0"



A SECTION
NTS



B SECTION
NTS



C SECTION
NTS

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

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NO.	DATE	DR	REVISION	CHK	APVD	BY	APVD
DSGN	H ROJAS	F JAGLA		E JOHNSON	E JOHNSON		E JOHNSON

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

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ch2m

DEWATERING AND LOADOUT FACILITY
DEMOLITION PLAN

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

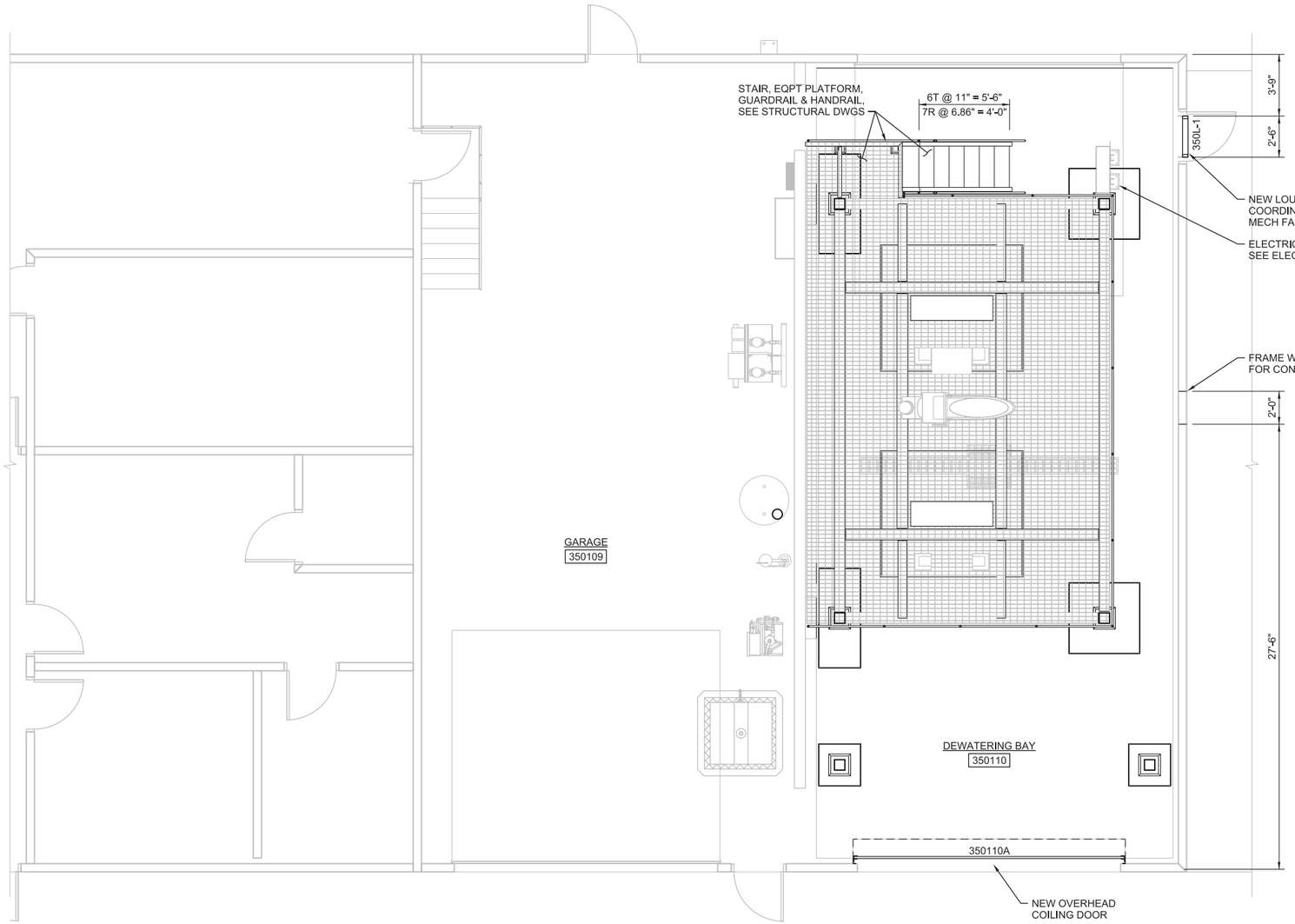
DATE	NOVEMBER 2016
PROJ	496312
DWG	350-X-2001
SHEET	298 of 314

BIDDING SET

FILENAME: 350-X-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:08:06 PM

GENERAL NOTES

1. FOR GENERAL ARCHITECTURAL NOTES, LEGEND, SYMBOLS, AND WALL TYPES, SEE DWG 001-G-0200.
2. FOR INTERIOR FINISHES, EXTERIOR FINISHES, DOOR HARDWARE, COLOR LIST, AND WINDOW AND LOUVER SCHEDULES, SEE DWG 001-G-0201.
3. ALL WORK FOR FACILITY 350 IS ASSOCIATED WITH BID ITEM ADD ALTERNATE NUMBER 2, DEWATERING FACILITY.



N

FLOOR PLAN

1/4"=1'-0"

MICHAEL C SAPP LICENSED 11/4/16 6650 KANSAS ARCHITECT

11/04/2016

NO.	DATE	DSGN	DR	CHK	BY	REVISION
		M SAPP	S BARD	S SILKWORTH	M SAPP	APVD

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

DEWATERING AND LOADOUT FACILITY

ARCHITECTURAL
FLOOR PLAN

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

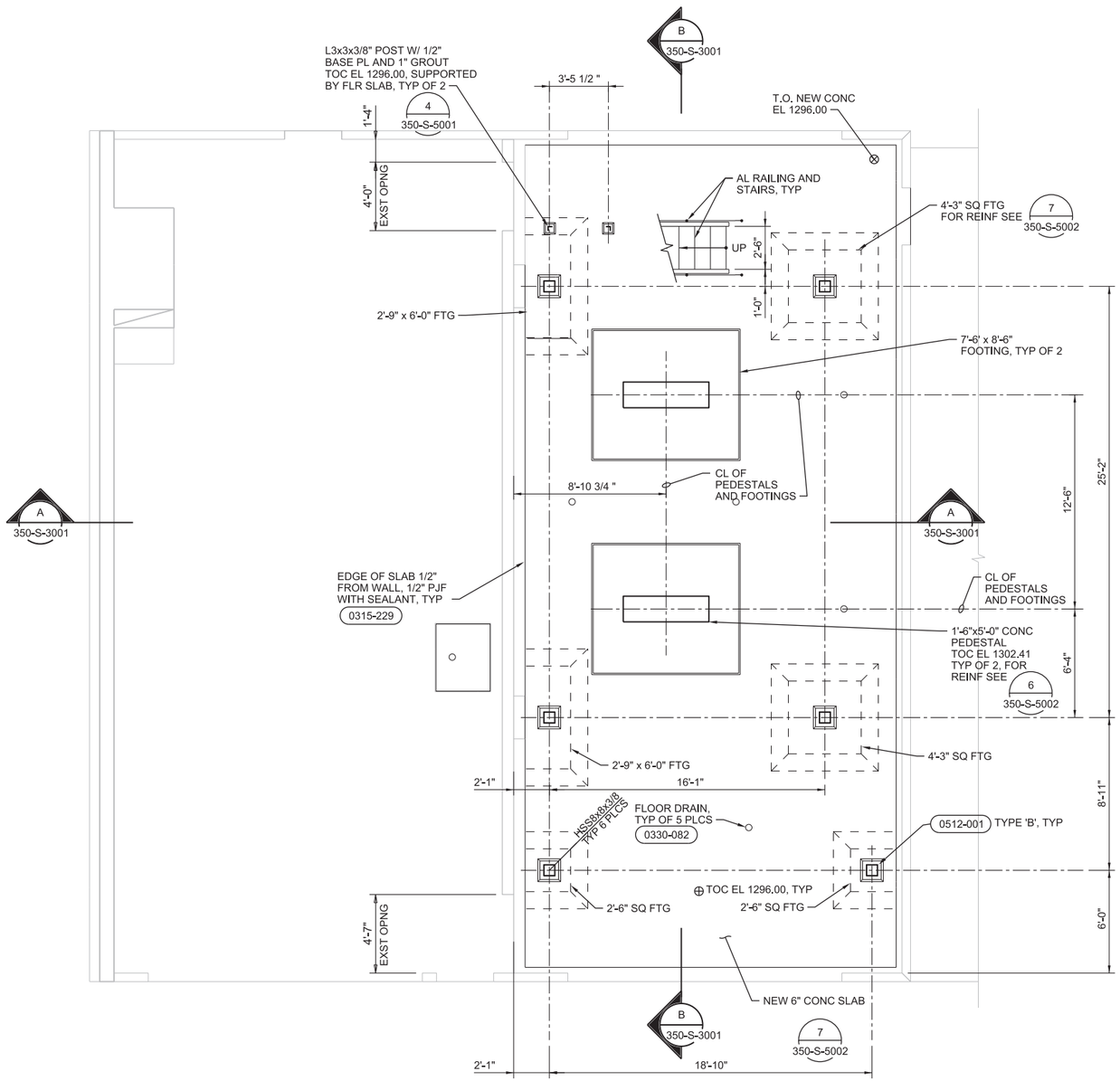
DATE	NOVEMBER 2016
PROJ	496312
DWG	350-A-2001
SHEET	299 of 314

BIDDING SET

FILENAME: 350-A-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:05:42 PM

GENERAL NOTES

1. FOR DESIGN CRITERIA AND GENERAL STRUCTURAL NOTES, SEE DRAWINGS 001-G-0300 AND 001-G-0301.
2. FOR SPECIAL INSPECTION AND TESTING REQUIREMENTS, SEE DRAWINGS 001-G-0302 THROUGH 001-G-0305.
3. FOR FACILITY SITE COORDINATES SEE CIVIL DRAWINGS.
4. UNLESS OTHERWISE NOTED ALL PIPING BELOW A FACILITY SHALL BE ENCASED PER STANDARD DETAILS (0330-016), (0330-017), AND (0330-018).
5. EQUIPMENT PAD SIZES AND LOCATIONS SHALL BE COORDINATED WITH THE EQUIPMENT MANUFACTURER'S SHOP DRAWINGS.
6. ALL WORK FOR FACILITY 350 IS ASSOCIATED WITH BID ITEM ADD ALTERNATE NUMBER 2, DEWATERING FACILITY.



N

FOUNDATION PLAN

1/4"=1'-0"

HUGO ANDRES ROJAS
LICENSED
11/04/16
24949
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DSGN	DATE	DR	CHK	APVD	BY	REVISION
	H ROJAS	H ROJAS	F JAGLA	M MERKLEIN	APVD	H ROJAS	

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

DEWATERING AND LOADOUT FACILITY

STRUCTURAL FOUNDATION PLAN

VERIFY SCALE

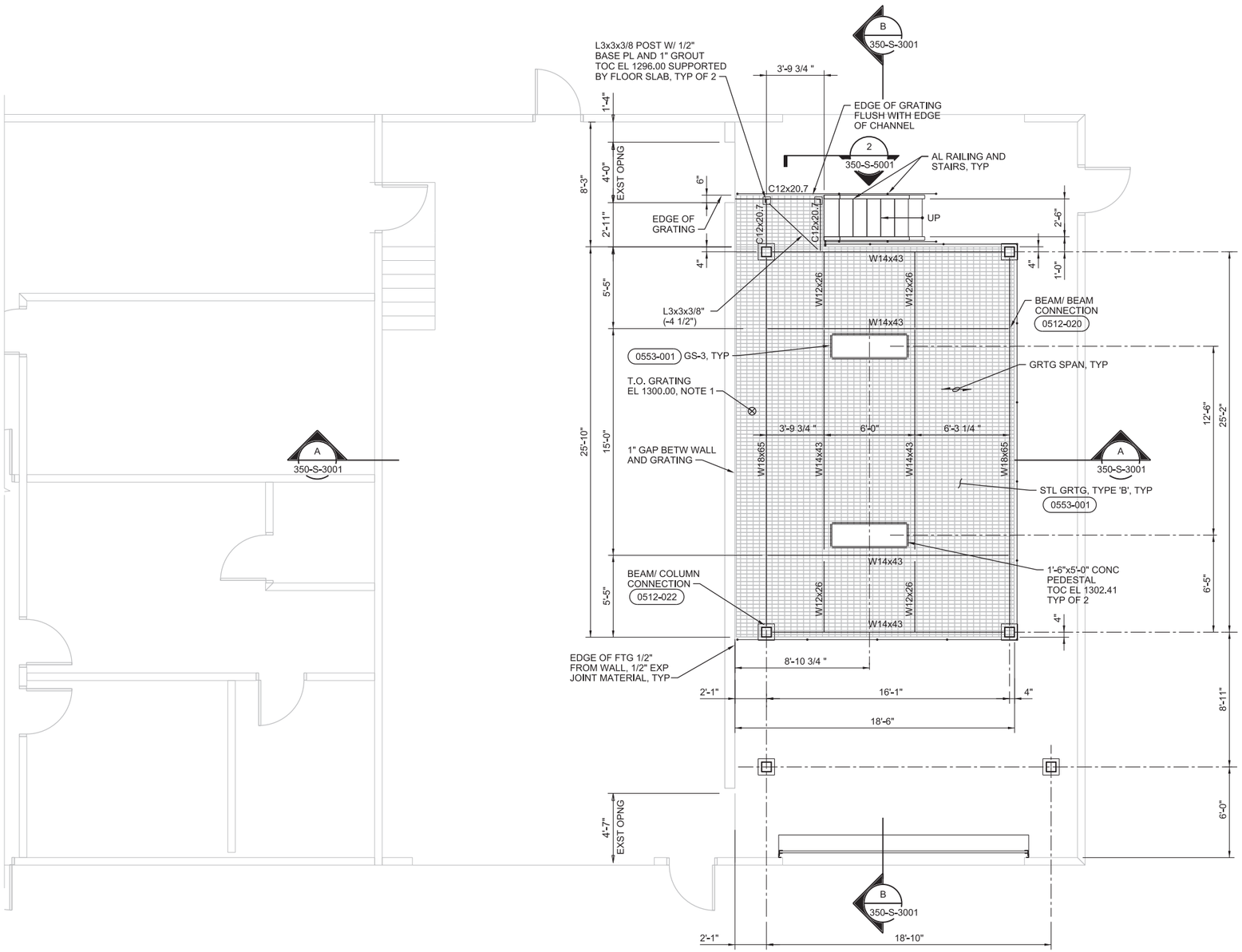
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	350-S-2001
SHEET	300 of 314

BIDDING SET

GENERAL NOTES

1. ALL WORK FOR FACILITY 350 IS ASSOCIATED WITH BID ITEM ADD ALTERNATE NUMBER 2, DEWATERING FACILITY.



N

PLATFORM LEVEL PLAN

1/4"=1'-0"

HUGO ANDRES ROJAS LICENSED 11/04/16 24949 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD
REVISION	H ROJAS	F JAGLA	M MERKLEIN	APVD	H ROJAS
BY					

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

DEWATERING AND LOADOUT FACILITY
STRUCTURAL
PLATFORM LEVEL PLAN

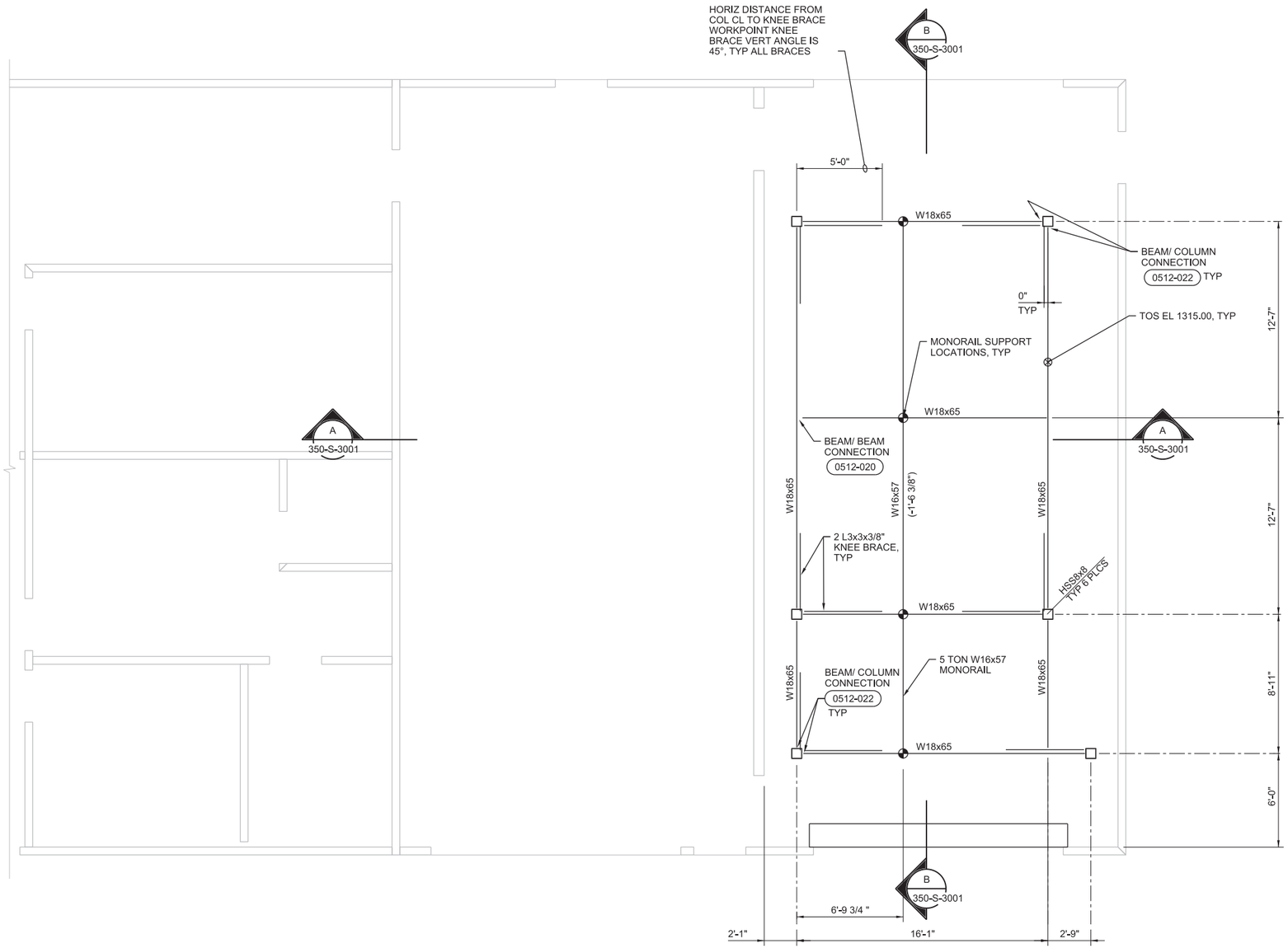
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	350-S-2002
SHEET	301 of 314

BIDDING SET

GENERAL NOTES

1. ALL WORK FOR FACILITY 350 IS ASSOCIATED WITH BID ITEM ADD ALTERNATE NUMBER 2, DEWATERING FACILITY.



N

MONORAIL FRAMING PLAN

1/4"=1'-0"

HUGO ANDRES ROJAS LICENSED 11/04/16 24949 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
	H ROJAS			F JAGLA	M MERKLEIN	APVD	H ROJAS

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

DEWATERING AND LOADOUT FACILITY

STRUCTURAL
MONORAIL FRAMING PLAN

VERIFY SCALE

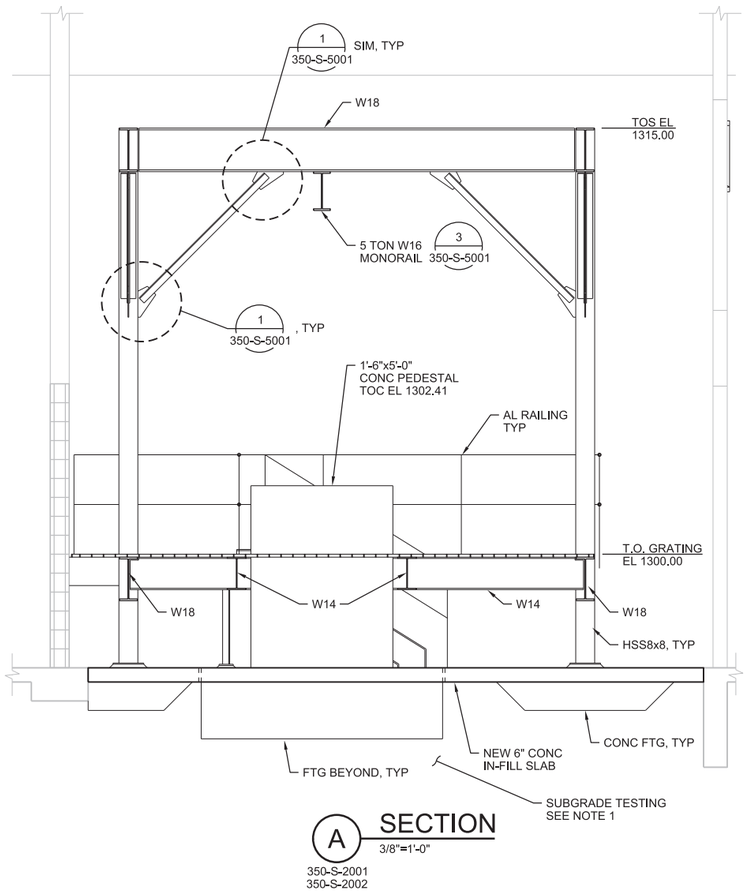
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	350-S-2003
SHEET	302 of 314

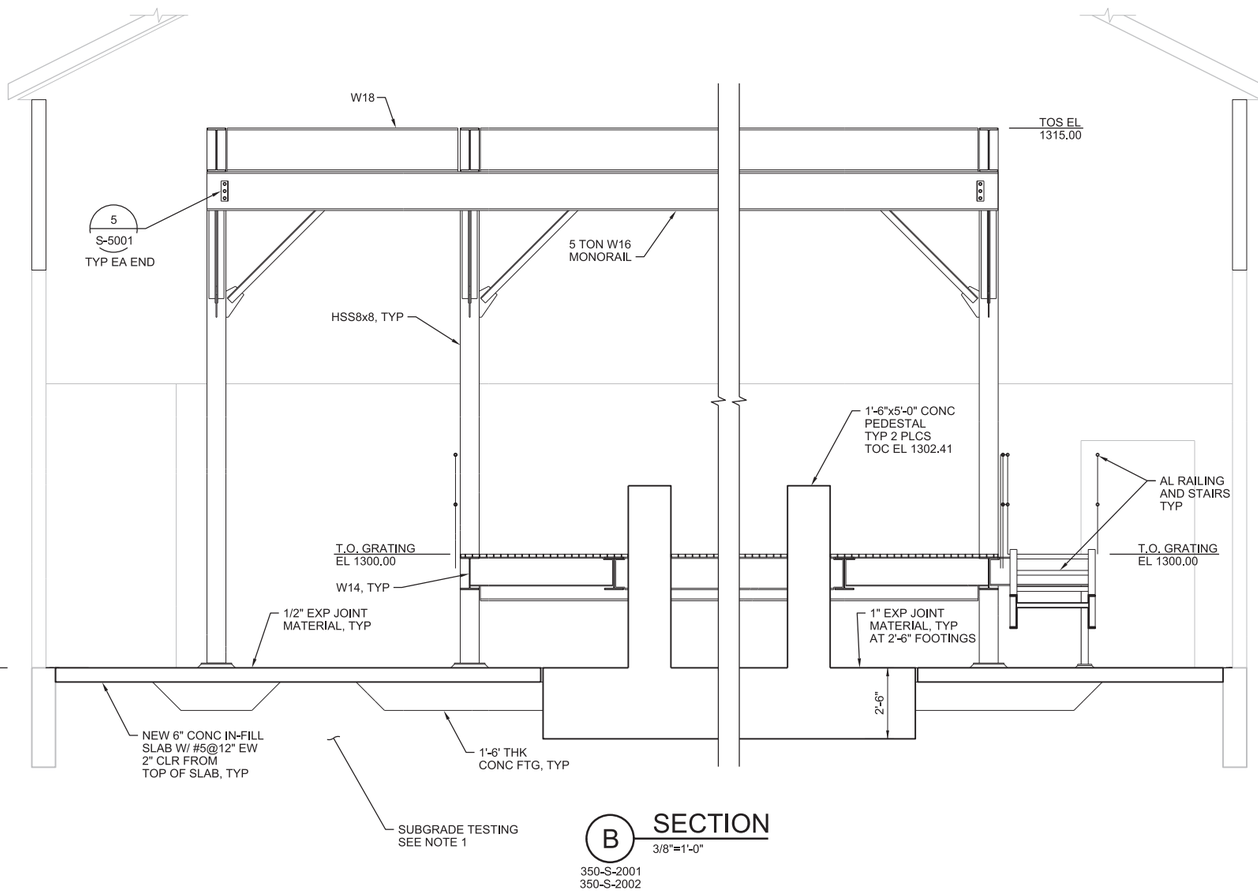
BIDDING SET

GENERAL NOTES

1. EXISTING SUBGRADE MATERIAL HAS NOT BEEN TESTED. NEAREST BORING INDICATES THE NATIVE SOILS SHOULD BE SUITABLE FOR AN ALLOWABLE BEARING PRESSURE OF 3,000 PSF. HOWEVER, TESTING SHOULD BE PROVIDED DURING CONSTRUCTION TO CONFIRM SUBGRADE MATERIAL IS SUITABLE FOR AN ALLOWABLE BEARING PRESSURE OF 2,500PSF IF SOIL IS NOT SUITABLE OVER-EXCAVATIONS WILL BE REQUIRED TO REACH SUITABLE MATERIAL. FOUNDATION SHALL BEAR ON PROPERLY COMPACTED BACKFILL EXTENDING DOWN TO THE SUITABLE MATERIALS AND BACKFILLED WITH GRANULAR MATERIAL AS SPECIFIED
2. ALL WORK FOR FACILITY 350 IS ASSOCIATED WITH BID ITEM ADD ALTERNATE NUMBER 2, DEWATERING FACILITY.



A SECTION
3/8"=1'-0"
350-S-2001
350-S-2002



B SECTION
3/8"=1'-0"
350-S-2001
350-S-2002

HUGO ANDRES ROJAS
LICENSED
11/04/16
24949
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	REVISION	BY	APVD
		H ROJAS	F JAGLA	M MERKLEIN			H ROJAS	

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

DEWATERING AND LOADOUT FACILITY
STRUCTURAL SECTIONS

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

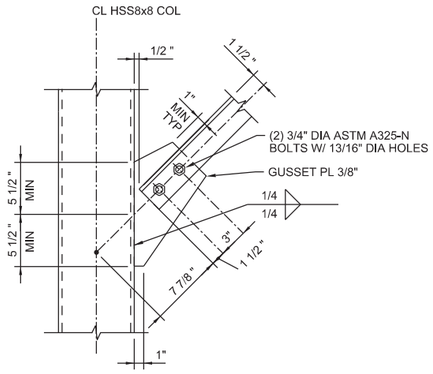
DATE	NOVEMBER 2016
PROJ	496312
DWG	350-S-3001
SHEET	303 of 314

BIDDING SET

GENERAL NOTES

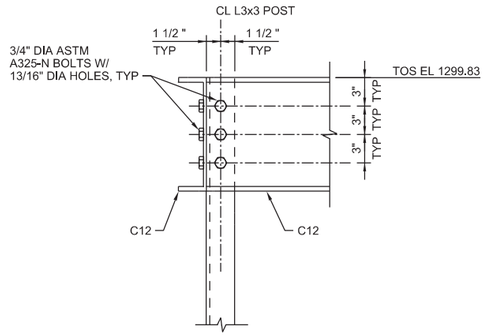
1. ALL WORK FOR FACILITY 350 IS ASSOCIATED WITH BID ITEM ADD ALTERNATE NUMBER 2, DEWATERING FACILITY.

HUGO ANDRES ROJAS
LICENSED
11/04/16
24949
KANSAS
PROFESSIONAL ENGINEER



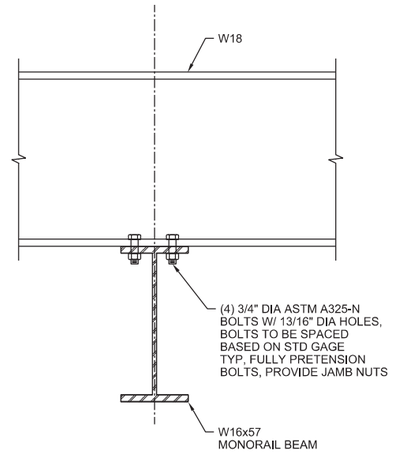
1 DETAIL
1 1/2"=1'-0"
350-S-3001

TYPICAL 2 L3X3 KNEE BRACE TO HSS 6x6 CONN
SIMILAR 2 L3X3 KNEE BRACE TO W18 CONN



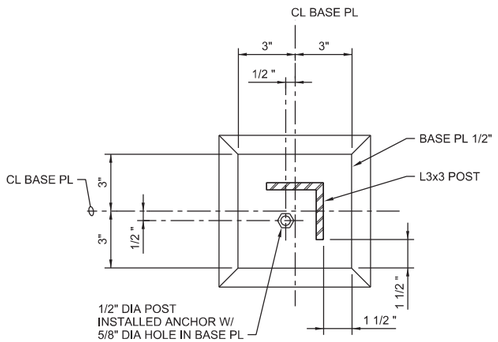
2 DETAIL
1 1/2"=1'-0"
350-S-2002

(1) AS SHOWN
(1) OPP HAND



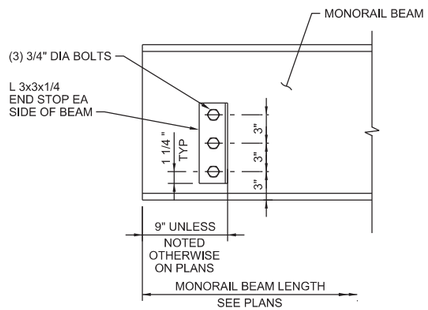
3 DETAIL
1 1/2"=1'-0"
350-S-3001

TYPICAL 4 PLACES



4 DETAIL
3"=1'-0"
350-S-2001

(1) AS SHOWN
(1) OPP HAND



5 MONORAIL STOP DETAIL
1 1/2"=1'-0"
350-S-3001

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
	11/04/2016	H ROJAS	F JAGLA	M MERKLEIN	APVD	H ROJAS	

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

ch2m

DEWATERING AND LOADOUT FACILITY
STRUCTURAL DETAILS

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

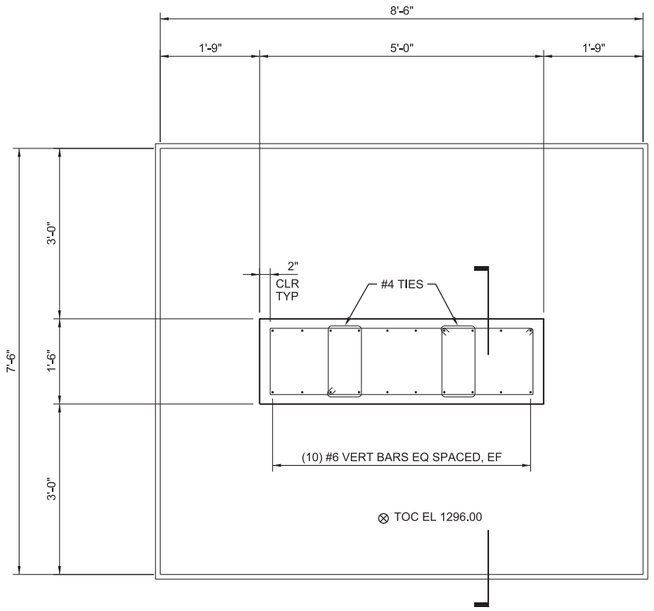
DATE	NOVEMBER 2016
PROJ	496312
DWG	350-S-5001
SHEET	304 of 314

BIDDING SET

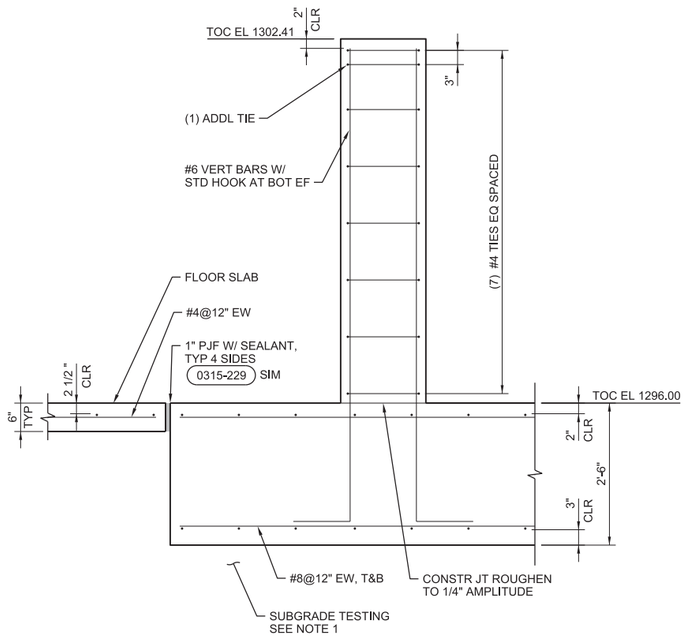
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GENERAL NOTES

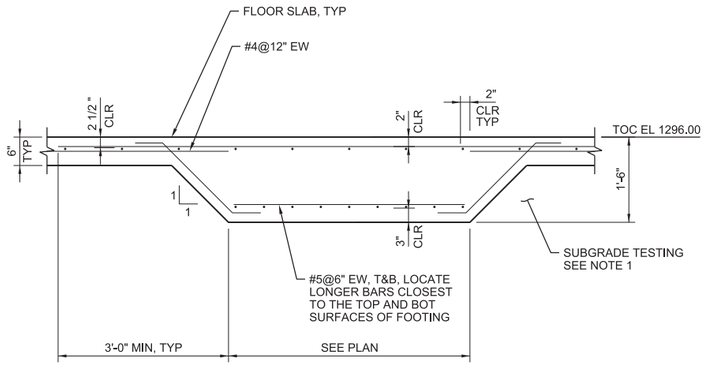
1. EXISTING SUBGRADE MATERIAL HAS NOT BEEN TESTED. NEAREST BORING INDICATES THE NATIVE SOILS SHOULD BE SUITABLE FOR AN ALLOWABLE BEARING PRESSURE OF 3,000 PSF. HOWEVER, TESTING SHOULD BE PROVIDED DURING CONSTRUCTION TO CONFIRM SUBGRADE MATERIAL IS SUITABLE FOR AN ALLOWABLE BEARING PRESSURE OF 2,500PSF IF SOIL IS NOT SUITABLE OVER-EXCAVATIONS WILL BE REQUIRED TO REACH SUITABLE MATERIAL. FOUNDATION SHALL BEAR ON PROPERLY COMPACTED BACKFILL EXTENDING DOWN TO THE SUITABLE MATERIALS AND BACKFILLED WITH GRANULAR MATERIAL AS SPECIFIED.
2. ALL WORK FOR FACILITY 350 IS ASSOCIATED WITH BID ITEM ADD ALTERNATE NUMBER 2, DEWATERING FACILITY.



PLAN



SECTION



PLATFORM/ HOIST STRUCTURE TYPICAL FOOTING DETAIL

7 — 3/4"=1'-0"
350-S-2001

DETAIL

6 — 3/4"=1'-0"
350-S-2001

HUGO ANDRES ROJAS LICENSED 11/04/16 24949 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
	H ROJAS	C SINCLAIR	M MERKLEIN	APVD	H ROJAS		

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

DEWATERING AND LOADOUT FACILITY
STRUCTURAL DETAILS

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

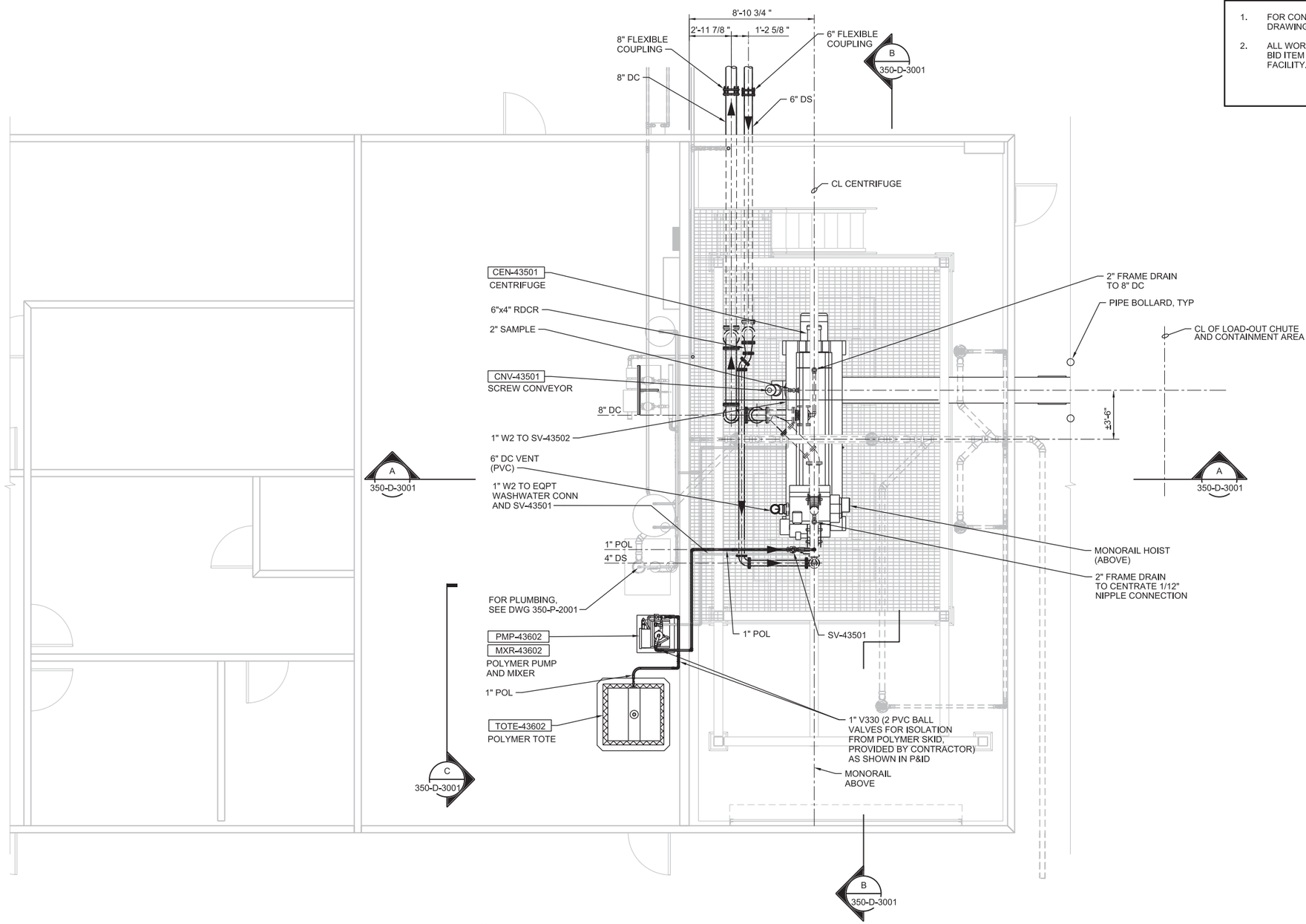
DATE	NOVEMBER 2016
PROJ	496312
DWG	350-S-5002
SHEET	305 of 314

BIDDING SET

FILENAME: 350-S-5002_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:07:37 PM

GENERAL NOTES

1. FOR CONTINUATION OF PIPING IN THE YARD, SEE DRAWING 051-Y-2009.
2. ALL WORK FOR FACILITY 350 IS ASSOCIATED WITH BID ITEM ADD ALTERNATE NUMBER 2, DEWATERING FACILITY.



N

PLAN
1/4"=1'-0"

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD
REVISION		E.JOHNSON	D.CAVE	E.JOHNSON	E.JOHNSON
BY					APVD
E.JOHNSON					

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

DEWATERING AND LOADOUT FACILITY
PROCESS MECHANICAL PLAN

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

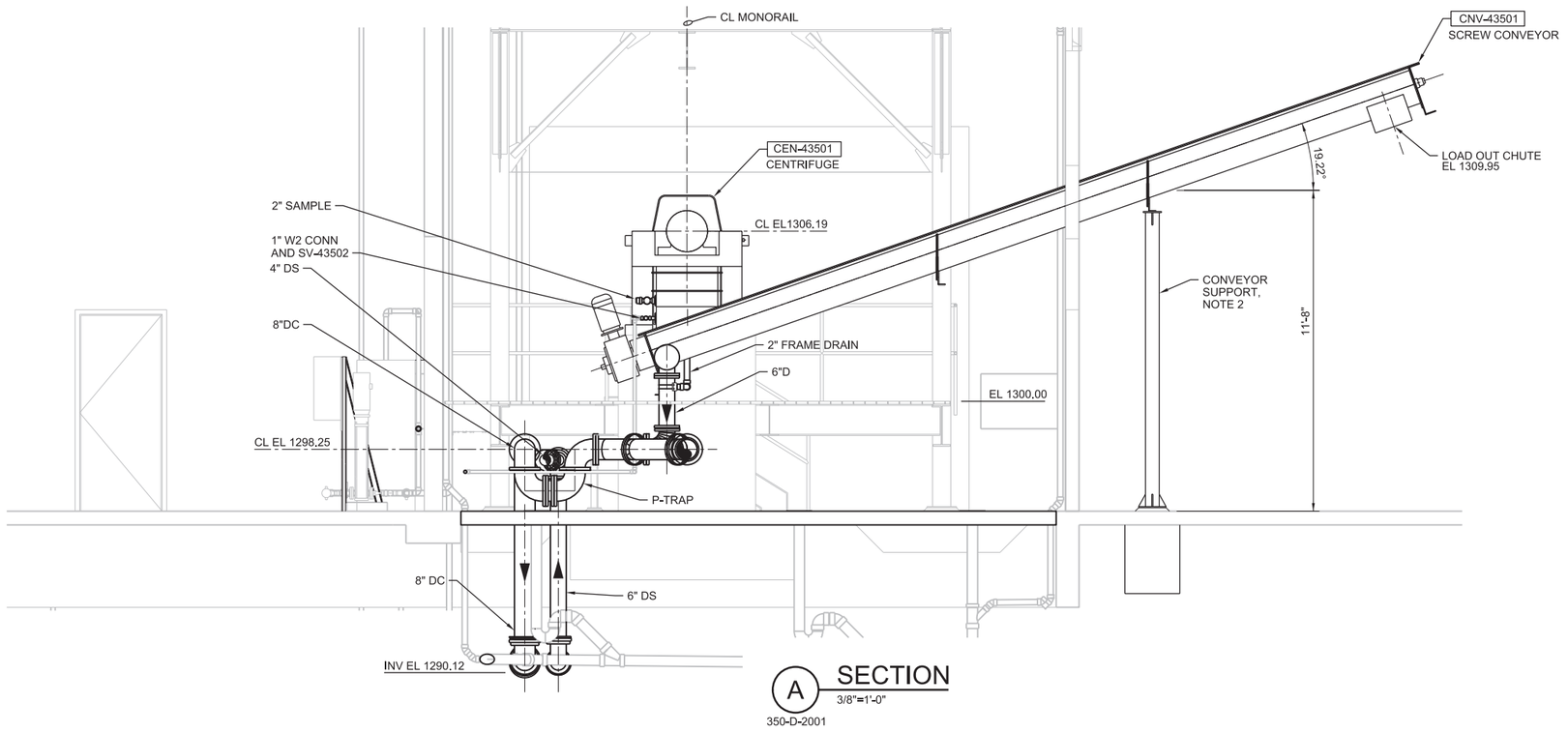
DATE	NOVEMBER 2016
PROJ	496312
DWG	350-D-2001
SHEET	306 of 314

BIDDING SET

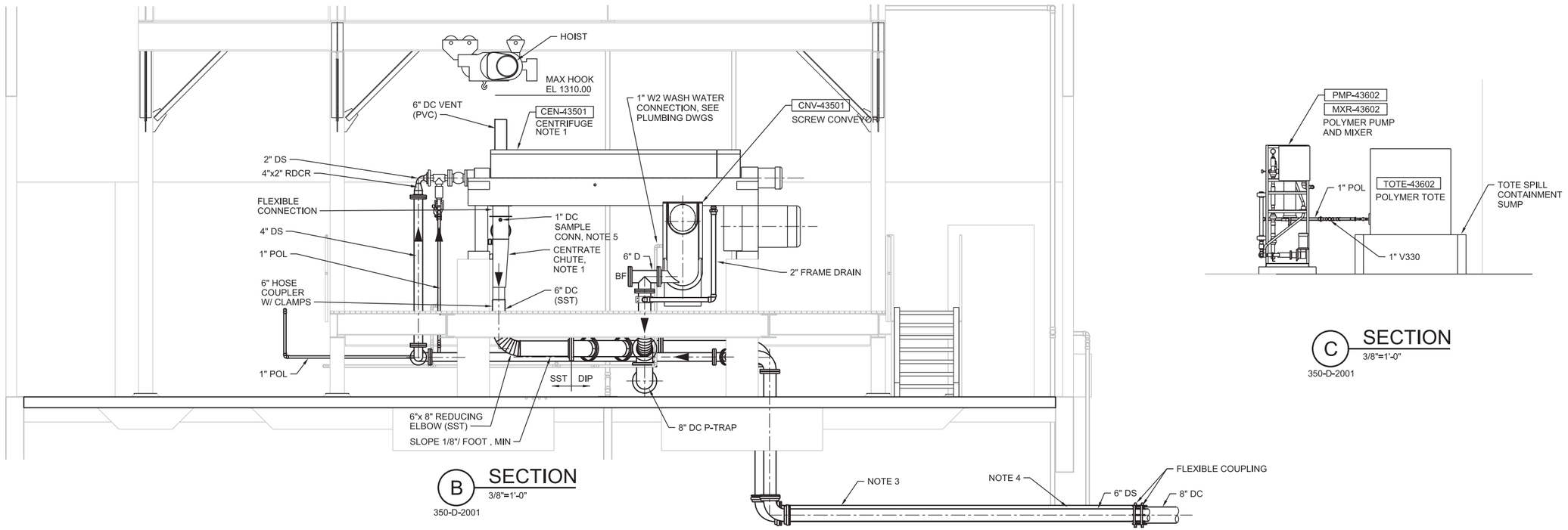
FILENAME: 350-D-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:08:12 PM

GENERAL NOTES

1. INSTALL REHABILITATED CENTRIFUGE EQUIPMENT PER SPECIFICATION 43 22 25j AND SHEET 090-N-0021. REUSE EXISTING CENTRATE CHUTE.
2. CONVEYOR MANUFACTURER SHALL PROVIDE EQUIPMENT SUPPORT TO GRADE AND SHALL PROVIDE SUPPORT LOADS FOR FOOTING DESIGN CALCULATIONS. CONCRETE FOOTING DESIGN CALCULATIONS SHALL BE PREPARED BY PROFESSIONAL ENGINEER AND SUBMITTED FOR REVIEW.
3. CONCRETE ENCASE PIPING BELOW FACILITY PER DETAIL (0330-016)
4. TAKE ALL NECESSARY PRECAUTIONS TO AVOID UNDERMINING AND DAMAGING EXISTING BUILDING FOUNDATION.
5. ROUTE 1" SAMPLE CONNECTION WITH HOSE TO NEAREST FLOOR DRAIN.
6. ALL WORK FOR FACILITY 350 IS ASSOCIATED WITH BID ITEM ADD ALTERNATE NUMBER 2, DEWATERING FACILITY.



A SECTION
3/8"=1'-0"
350-D-2001



B SECTION
3/8"=1'-0"
350-D-2001

C SECTION
3/8"=1'-0"
350-D-2001

ISTELL JO JOHNSON
EXPIRES: 12/31/17
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
REVISION		E.JOHNSON	D.CAVE	E.JOHNSON	E.JOHNSON	E.JOHNSON	E.JOHNSON

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

ch2m

DEWATERING AND LOADOUT FACILITY
PROCESS MECHANICAL SECTIONS

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

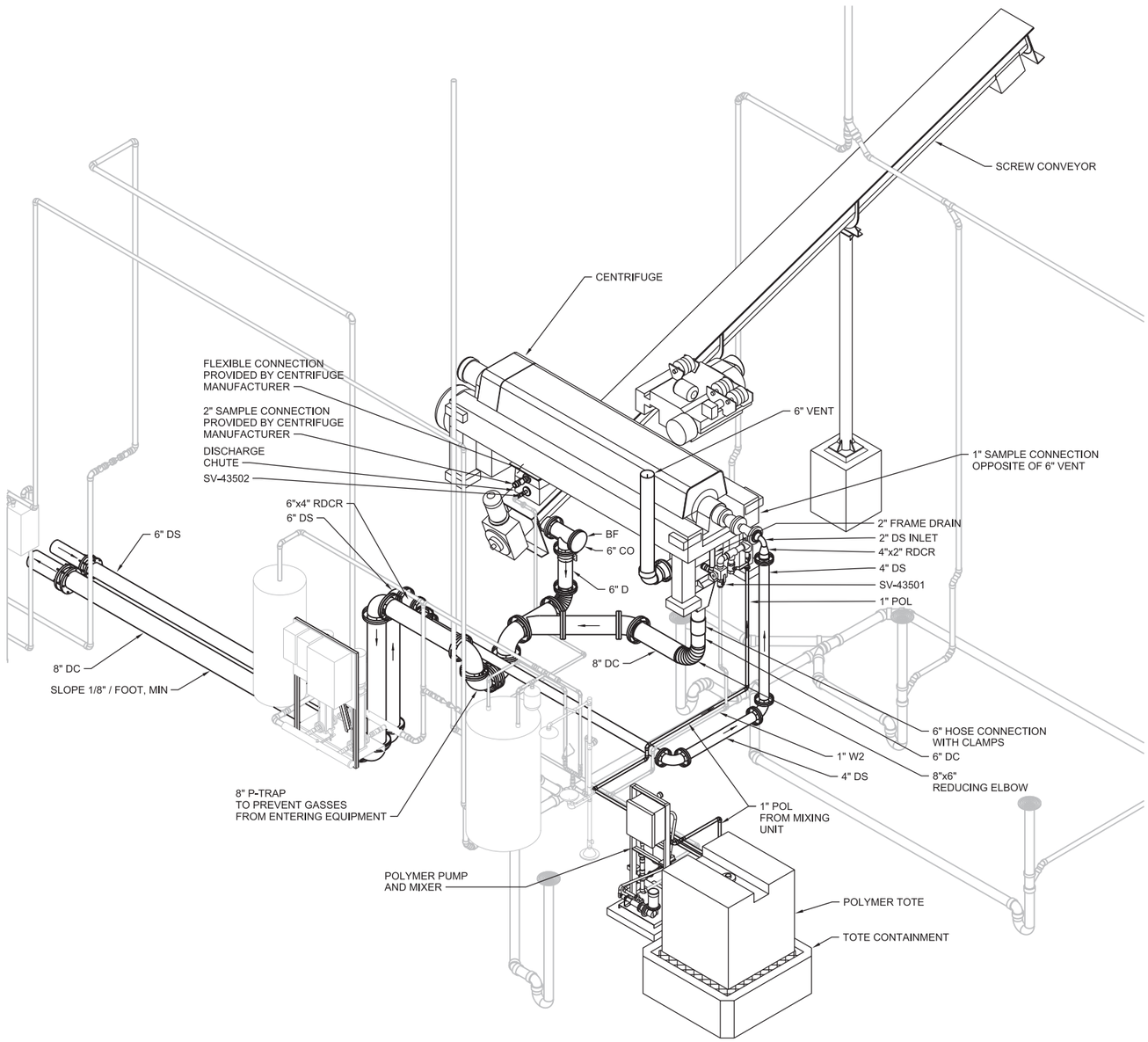
DATE	NOVEMBER 2016
PROJ	496312
DWG	350-D-3001
SHEET	307 of 314

BIDDING SET

FILENAME: 350-D-3001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:07:28 PM

GENERAL NOTES

1. ALL WORK FOR FACILITY 350 IS ASSOCIATED WITH BID ITEM ADD ALTERNATE NUMBER 2, DEWATERING FACILITY.



ISOMETRIC - CENTRIFUGE

NTS

RUSSELL JO JOHNSON
15411
11/4/16
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	REVISION	CHK	APVD	BY	APVD
		E.JOHNSON	D.CAVE		E.JOHNSON	E.JOHNSON	E.JOHNSON	E.JOHNSON

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

DEWATERING AND LOADOUT FACILITY
PROCESS MECHANICAL
ISOMETRIC

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

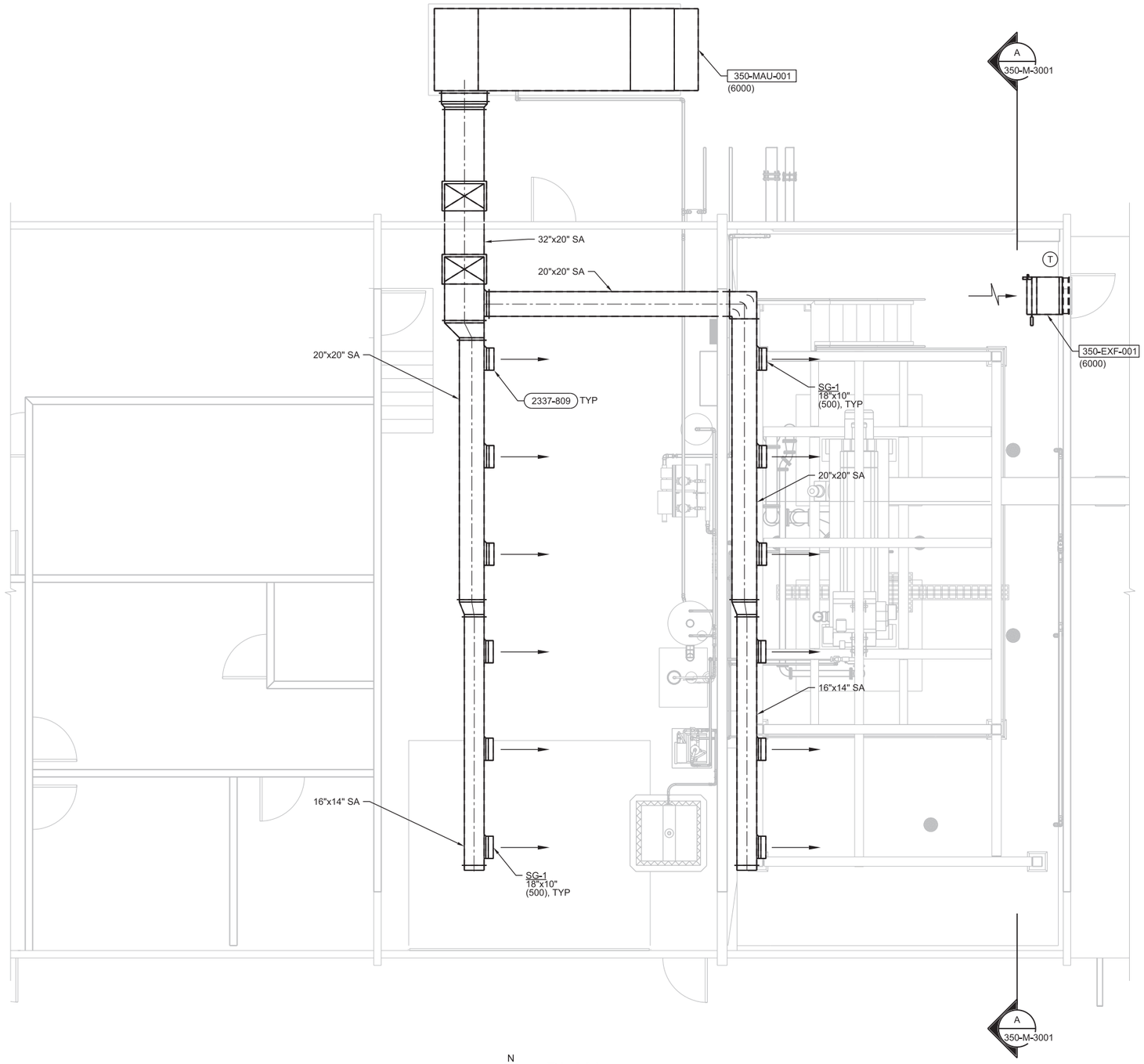
DATE	NOVEMBER 2016
PROJ	496312
DWG	350-D-5001
SHEET	308 of 314

BIDDING SET

FILENAME: 350-D-5001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:07:30 PM

GENERAL NOTES

1. ALL WORK FOR FACILITY 350 IS ASSOCIATED WITH BID ITEM ADD ALTERNATE NUMBER 2, DEWATERING FACILITY.



N

PLAN
1/4"=1'-0"

SCOTT HOFFMAN LICENSED 11/4/16 25291 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		S HOFFMAN	T WHITE	P RAUSCH	APVD	S HOFFMAN	

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

DEWATERING AND LOADOUT FACILITY

HVAC
PLAN

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

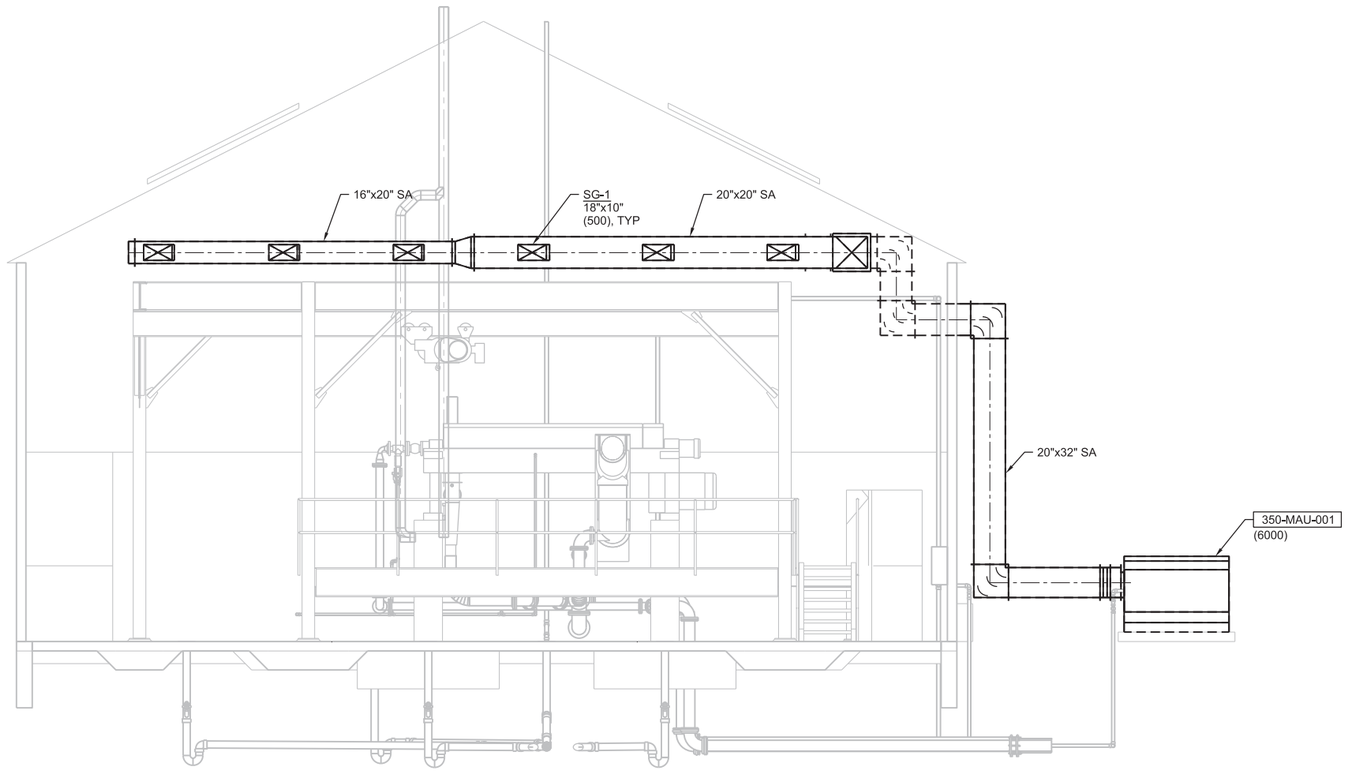
DATE	NOVEMBER 2016
PROJ	496312
DWG	350-M-2001
SHEET	309 of 314

BIDDING SET

FILENAME: 350-M-2001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:06:44 PM

GENERAL NOTES

1. ALL WORK FOR FACILITY 350 IS ASSOCIATED WITH BID ITEM ADD ALTERNATE NUMBER 2, DEWATERING FACILITY.



A SECTION
1/4"=1'-0"
350-M-2001

SCOTT HOFFMAN
LICENSED
11/4/16
25291
KANSAS
PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	REVISION	BY	APVD
DSGN	S HOFFMAN	DR T WHITE	CHK P RAUSCH	APVD S HOFFMAN

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

DEWATERING AND LOADOUT FACILITY

HVAC
SECTION

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

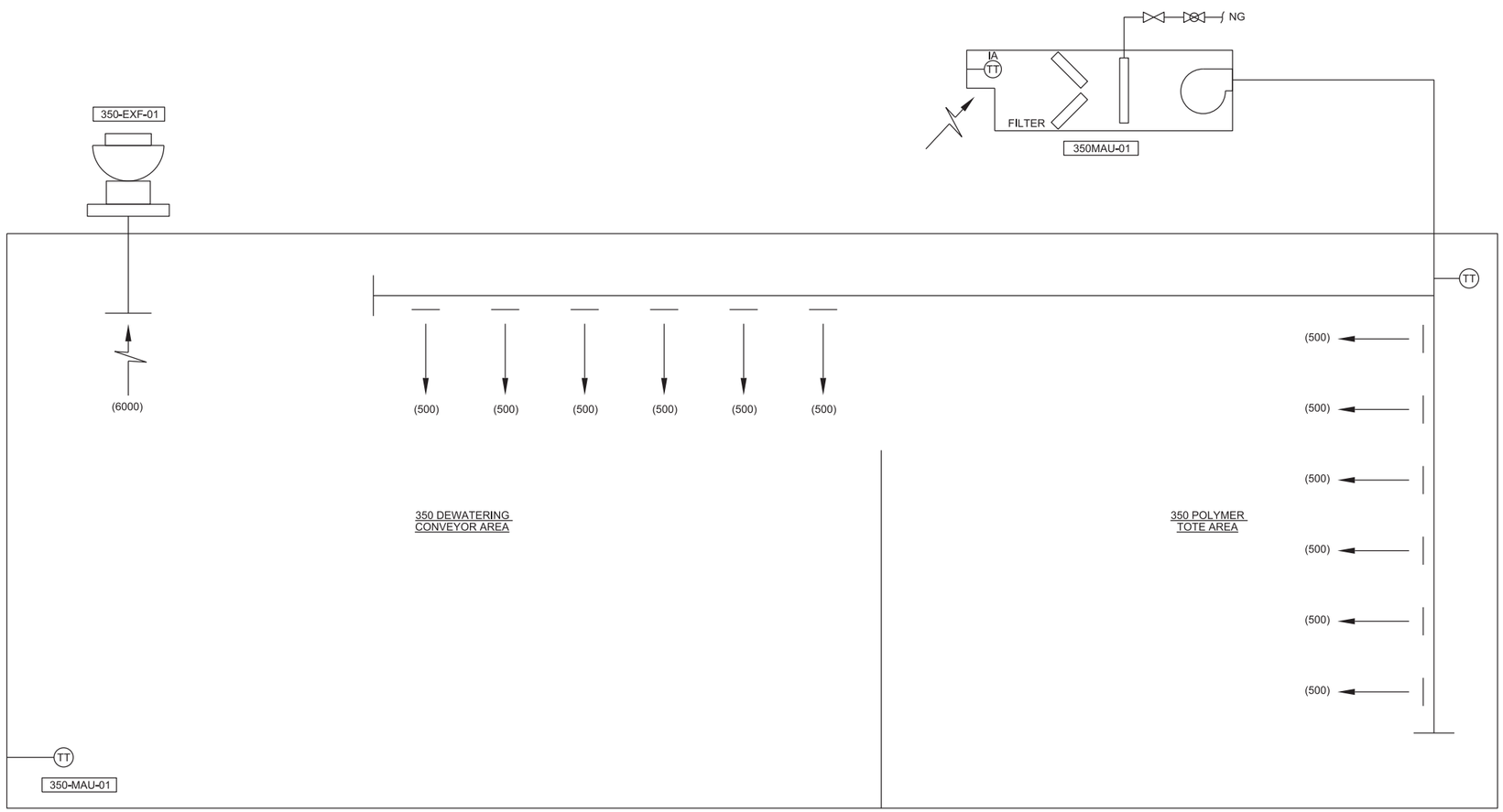
DATE	NOVEMBER 2016
PROJ	496312
DWG	350-M-3001
SHEET	310 of 314

BIDDING SET

FILENAME: 350-M-3001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:06:44 PM

GENERAL NOTES

1. ALL WORK FOR FACILITY 350 IS ASSOCIATED WITH BID ITEM ADD ALTERNATE NUMBER 2, DEWATERING FACILITY.



SEQUENCE OF OPERATION:

350-MAU-001
SUPPLY FAN SHALL RUN CONTINUOUSLY.

NATURAL GAS BURNER SHALL MODULATE FROM 0%-100% TO MAINTAIN A SPACE TEMPERATURE OF 60°F. WHEN SPACE TEMPERATURE IS SATISFIED THE BURNER SHALL CONTINUE TO MODULATE TO MAINTAIN A DISCHARGE AIR TEMPERATURE OF 60°F.

350-EXF-001
SUPPLY FAN SHALL RUN CONTINUOUSLY.

AIRFLOW SCHEMATIC
NTS

SCOTT HOFFMAN LICENSED 11/4/16 25291 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DSGN	DATE	BY	CHK	APVD
REVISION		S HOFFMAN	T WHITE	P RAUSCH	S HOFFMAN

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

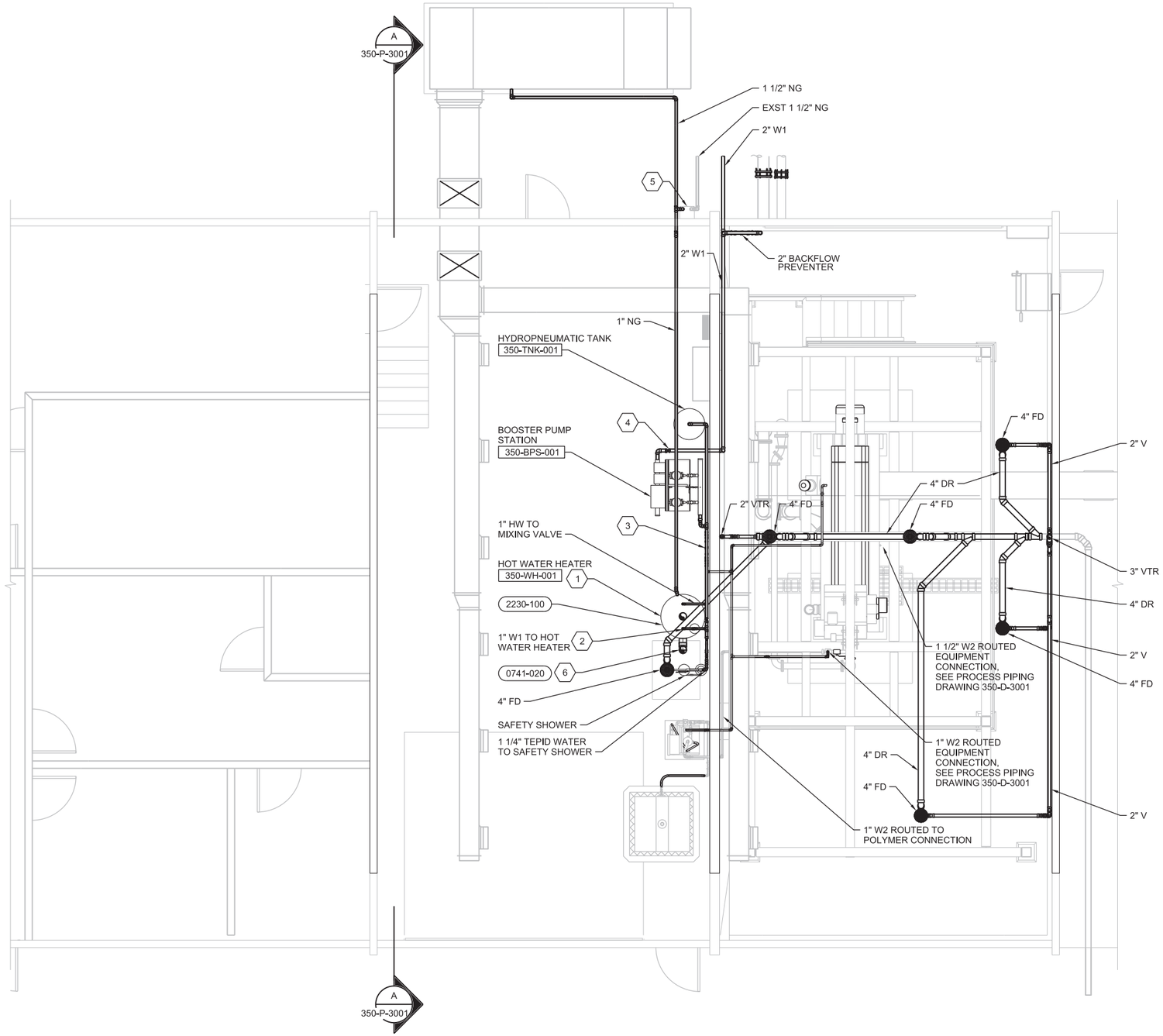
DEWATERING AND LOADOUT FACILITY
HVAC
AIRFLOW SCHEMATIC

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

DATE	NOVEMBER 2016
PROJ	496312
DWG	350-M-6001
SHEET	311 of 314

BIDDING SET

FILENAME: 350-M-6001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:06:27 PM



PLAN
1/4"=1'-0"

SHEET KEYNOTES

1. INSTALL WATER HEATER BY MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE EXPANSION TANK ON COLD WATER SIDE.
2. INSTALL PRESSURE REDUCING VALVE ON W1 HEATER PRIOR TO SERVING THE DOMESTIC WATER HEATER OR THE THERMOSTATIC MIXING VALVE THAT SERVES THE SAFETY SHOWER. PRESSURE REDUCER SHALL BE SET TO PROVIDE MAXIMUM OF 80 PSI WATER TO THE W1 SYSTEM.
3. PROVIDE BACKFLOW PREVENTER AT BRANCH FOR W2 WATER SERVING THE PROCESS EQUIPMENT.
4. PROVIDE PRESSURE REDUCER AT POLYMER SUPPLY AND SET PRESSURE TO MANUFACTURER'S RECOMMENDATION.
5. CONNECT NEW 1 1/2" NATURAL GAS PIPE INTO EXISTING MAIN FROM EXISTING METER.
6. 6" FLUE / COMBUSTION VENT UP TO ROOF. COMBINE INTO CONCENTRIC VENT KIT FOR PENETRATION FROM ROOF. FLASH PER ARCHITECTURAL DETAIL.
7. ALL WORK FOR FACILITY 350 IS ASSOCIATED WITH BID ITEM ADD ALTERNATE NUMBER 2, DEWATERING FACILITY.

SCOTT HOFFMAN LICENSED 11/4/16 25291 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		S HOFFMAN	T WHITE	P RAUSCH	APVD	S HOFFMAN	

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

ch2m

DEWATERING AND LOADOUT FACILITY
PLUMBING PLAN

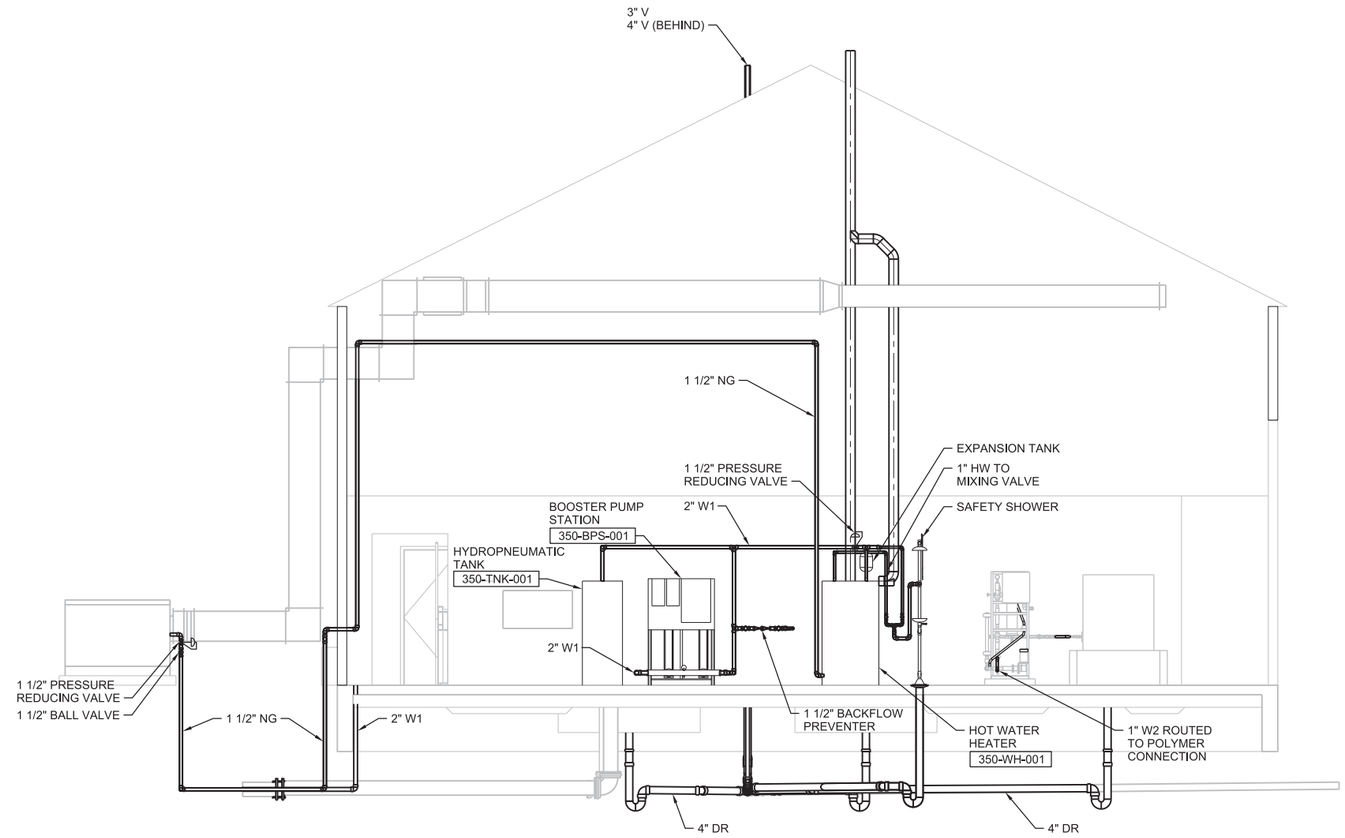
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	350-P-2001
SHEET	312 of 314

BIDDING SET

GENERAL NOTES

1. ALL WORK FOR FACILITY 350 IS ASSOCIATED WITH BID ITEM ADD ALTERNATE NUMBER 2, DEWATERING FACILITY.



A SECTION
1/4"=1'-0"
350-P-2001

SCOTT HOFFMAN LICENSED 11/4/16 25291 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		S HOFFMAN	T WHITE	P RAUSCH	APVD	S HOFFMAN	APVD

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

DEWATERING AND LOADOUT FACILITY

PLUMBING SECTION

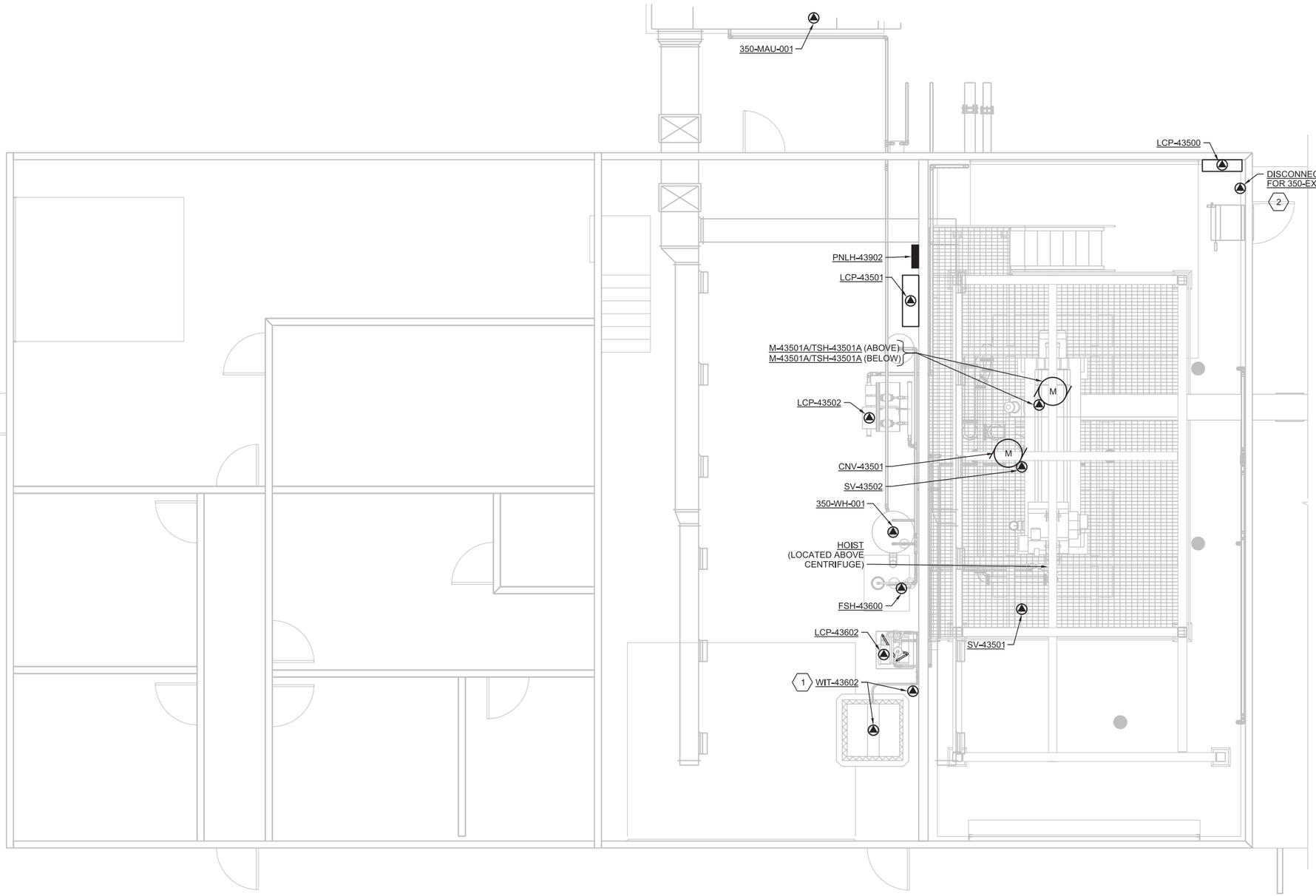
VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	NOVEMBER 2016
PROJ	496312
DWG	350-P-3001
SHEET	313 of 314

BIDDING SET

FILENAME: 350-P-3001_496312.dgn PLOT DATE: 11/2/2016 PLOT TIME: 12:07:22 PM



N

PLAN
1/4"=1'-0"

SHEET KEYNOTES

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

MARY J. GROSS LICENSED 16702 11-4-16 KANSAS PROFESSIONAL ENGINEER

11/04/2016

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		J LANDMAN	A CUGLIAT	M GROSS	M GROSS	M GROSS	APVD

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

ch2m

DEWATERING AND LOADOUT FACILITY
ELECTRICAL PLAN

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

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

BIDDING SET