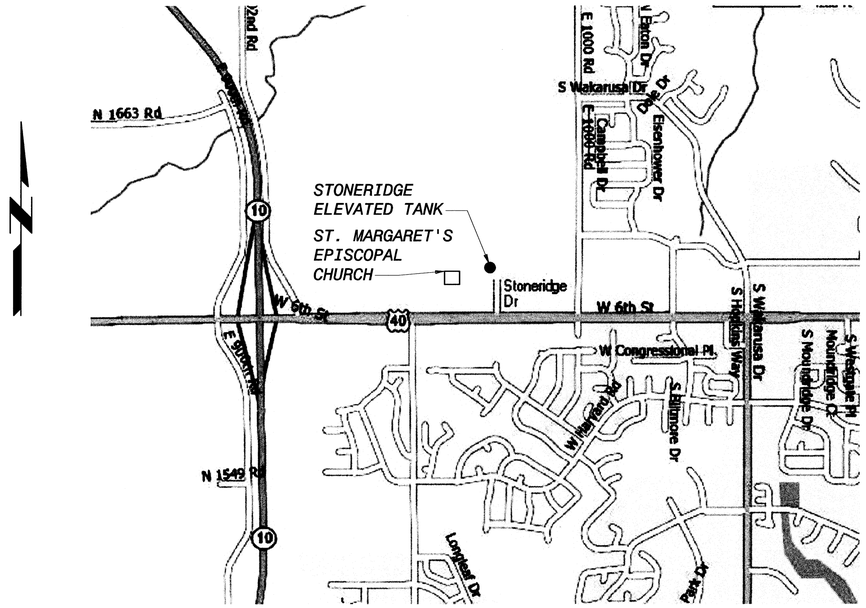

LOCATION MAP

1000' 500' 0 1000' 2000'

APPROX. SCALE IN FEET

LAWRENCE, KANSAS

UTILITIES DEPARTMENT
PROJECT NO. 6CP-906
CITY BID NO. B07054

STONERIDGE ELEVATED TANK

DRAWING INDEX

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			GENERAL/SITEWORK
			COVER SHEET
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4	B1	CIVIL/STRUCTURAL	TANK ENLARGED PLAN, SECTIONS & DETAILS
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9	C1	ELECTRICAL	LEGEND & ABBREVIATIONS
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12	D1	INSTRUMENTATION	P&ID LEGEND
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14	D3	INSTRUMENTATION	INSTRUMENT INSTALLATION DETAILS

BLACK & VEATCH
Corporation
Lawrence, Kansas
Project No. 146781
2007

JUDY J. WINGER
LICENSED
2925
10-29-07
KANSAS
PROFESSIONAL ENGINEER

D40012 146781-3000-WTCH-C-T0000GR2

ABBREVIATIONS

A	AMBER
AB	ANCHOR BOLT, FREEZE PROTECTION BLOWER
AC	AIR COMPRESSOR
A/C	AIR CONDITIONER, (ING)
ACST	ACOUSTIC, (AL)
AD	ACCESS DOOR, AREA DRAIN
ADH	ADHESIVE
ADJ	ADJUSTABLE, ADJACENT
ADMIN	ADMINISTRATION
AF	AIR FLOW
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISH FLOOR
AH	AHEAD
AHU	AIR HANDLING UNIT
AL	ACTIVE LEAF
ALT	ALTERNATE, (IVE)
ALUM	ALUMINUM
APPROX	APPROXIMATE, (LY)
AR	ALARM RELAY
ARCH	ARCHITECTURAL
ASSY	ASSEMBLY
AUTO	AUTOMATIC
AUX	AUXILIARY
AV	AIR RELEASE VALVE
AVTR	CHEMICAL RESISTANT VENT THROUGH ROOF
AW	AIR WASH BLOWER
AWG	AMERICAN WIRE GAGE
B TO B	BACK TO BACK
BA	BEARING AREA
BC	BEGIN CURVE, BRIDGE CRANE
BD	BOARD
BF	BLIND FLANGE
BFV	BUTTERFLY VALVE
BITUM	BITUMINOUS
BK	BACK
BLDG	BUILDING
BLK	BLOCK
BM	BENCHMARK
BOP	BOTTOM OF BASEPLATE
BOT	BOTTOM
BPMK NO	BASEPLATE MARK NUMBER
BPS	BOOSTER PUMP STATION
BRG	BEARING
BRK	BRICK
B&S	BELL AND SPIGOT
BU	BELL-UP
BUR	BUILT UP ROOFING
BV	BALL VALVE
BVC	BEGIN VERTICAL CURVE
CB	CATCH BASIN
C TO C	CENTER TO CENTER
CDC	CARBON DUST COLLECTOR
CFM	CUBIC FEET PER MINUTE
CHKD	CHECKERED
CHKD PL	CHECKERED PLATE
CI	CAST IRON
CIMH	CAST IRON MANHOLE
CIP	CAST IRON PIPE
CISP	CAST IRON SOIL PIPE
CJT	CONTROL JOINT
CLR	CLEAR, (ANCE)
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT, COMPANY
COL	COLUMN, BASIN RESIDUALS COLLECTOR
COMB SWR	COMBINED SEWER
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUE,(ED),(OUS),(ATION)
CONTR	CONTRACTOR
CORR	CORRIDOR, CORRUGATED
CPLG	COUPLING
CRNR	CORNER
CRS	COURSES, (ING)
CS	CUP SINK
CSJ	CONSTRUCTION JOINT
CSK	COUNTERSUNK, (INK)
CT	CHEMICAL TANK, CERAMIC TILE
CTR(S)	CENTER(S)
CU	CUBIC
CU YD	CUBIC YARD
CV	CHECK VALVE
CW	COLD WATER
DEPT	DEPARTMENT
DET	DETAIL
DF	DRINKING FOUNTAIN
DI	DROP INLET, DUCTILE IRON
DIA	DIAMETER
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DIST	DISTRIBUTION
DN	DOWN
DO	DOOR OPENING, DISSOLVED OXYGEN
DW	DISHWASHER
DWG(S)	DRAWING(S)
DWL(S)	DOWEL(S)
E	EAST, ELECTRICAL
EA	EACH
EC	END CURVE
ECC	ECCENTRIC
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION, ELEVATOR
ELEC	ELECTRIC, (AL)
ELEV	ELEVATOR
EMER	EMERGENCY
EMH	ELECTRICAL MANHOLE
EOL	END OF LINE
EPV	ECCENTRIC PLUG VALVE
EQ	EQUAL
EQUIP	EQUIPMENT
ESF	EXPLOSION-PROOF STORAGE FREEZER
EW	EACH WAY
EWEF	EACH WAY EACH FACE
EWRH	ELECTRIC WIRE ROPE HOIST
EWT&B	EACH WAY TOP & BOTTOM
EXIST	EXISTING
EXP	EXPANSION, EXPOSED
EXT	EXTENSION, EXTERIOR, EXTERNAL

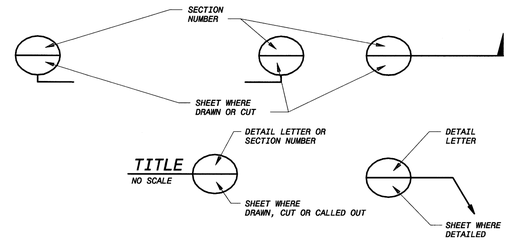
F TO F	FACE TO FACE
FB	FACE BRICK
FC	FLEXIBLE CONNECTION, FLOW CONTROL
FCA	FLANGED COUPLING ADAPTER
FD	FLOOR DRAIN
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FH	FLAT HEAD, FIRE HYDRANT
FHMS	FLAT HEAD MACHINE SCREW
FIN	FINISH
FIN GR	FINISH GRADE
FL	FLOOR, FLOW LINE, FLOCCULATOR
FLEX	FLEXIBLE
FLG	FLANGE
FLR	FLOOR
FR	FUNNEL RECEPTOR
FRP	FIBERGLASS REINFORCED PLASTIC
FS	FAR SIDE, FLOOR SLEEVE, FLOAT SWITCH
FT	FOOT
FTG	FOOTING
FURN	FURNISH, FURNISHED
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GLV	GLOBE VALVE
GPM	GALLONS PER MINUTE
GR	GRADE
GV	GATE VALVE
GYP	GYPSUM
H	HIGH
HB	HOSE BIBB
HC	HOLLOW CORE
HDR	HEADER
HEX	HEXAGONAL
HF	HOSE FAUCET
HMC	HARNESSED MECHANICAL COUPLING
HMJ	HARNESSED MECHANICAL JOINT
HORIZ	HORIZONTAL
HP	HIGH POINT, HORSEPOWER
HR	HOUR, HANDRAIL
HS	HEAT PUMP, HIGH SERVICE PUMP
HSPS	HIGH SERVICE PUMPING STATION
HV	HOSE VALVE
HVAC	HEATING,VENTILATING AND AIR CONDITIONING
HW	HOT WATER
HWY	HIGHWAY
ID	INSIDE DIAMETER
IF	INSIDE FACE
IN	INCHES
INC	INCORPORATED
INCR	INCREASE
INT	INTERIOR, INTERNAL
INV	INVERT
IPS	IRON PIPE SIZE, INCHES PER SECOND
JB	JUNCTION BOX
JF	JOINT FILLER
JT	JOINT
KO	KNOCK OUT
KS	KITCHEN SINK
KV	KILOVOLT
KVA	KILOVOLT AMPERE
LAB	LABORATORY
LAM	LAMINATE(D)
LAV	LAVATORY
LB(S)	POUNDS
LFH	LABORATORY FUME HOOD
LH	LEFT HAND
LIN	LINEAL, LINEAR
LLH	LONG LEG HORIZONTAL
LLV	LON LEG VERTICAL
LO	LOUVER OPENING
LR	LABORATORY REFRIGERATOR
LS	LABORATORY SINK, LEVEL SWITCH, LIMIT SWITCH
LT	LEFT
MAS	MASONRY
MAX	MAXIMUM
MB	MACHINE BOLT
MC	MECHANICAL COUPLING
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MED	MEDIUM
MET	METAL
MFR(S)	MANUFACTURER(S)
MG	MILLION GALLONS
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM, MINUTE
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MO	MASONRY OPENING, MOTOR OPERATED
MP	METERING PUMP
MS	MACHINE SCREW
MT	MOUNT,(ED),(ING)
MTL	MATERIAL
N	NORTH
N/A	NOT APPLICABLE
NBC	NAIL IN BOTTLE CAP
NC	NORMALLY CLOSED
N & F	NAIL & FLAG
NO	NORMALLY OPEN
NO.(S)	NUMBER(S)
NOM	NOMINAL
NPT	NATIONAL PIPE THREAD
NPW	NONPOTABLE WATER
NTS	NOT TO SCALE
OC	ON CENTER, ODOR CONTROL
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE, OVERFLOW
OFRD	OVERFLOW ROOF DRAIN
OH	OVERHEAD
OL	OVERLOAD
OPER	OPERATING
OPNG	OPENING
OPP	OPPOSITE
OSL	OUTSTANDING LEG
OZ	OUNCE

P	LABORATORY PURIFIER CABINET
PC	POINT OF CURVE
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
PE	PLAIN END
PI	POINT OF INTERSECTION
PIHC	POINT OF INTERSECTION ON HORIZONTAL CURVE
PIVC	POINT OF INTERSECTION ON VERTICAL CURVE
PL	PLATE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PLCS	PLACES
POT	POINT ON TANGENT
PP	POWER POLE
PR	PAIR
PROJ	PROJECTION
PRV	POWER ROOF VENTILATOR, PRESSURE REDUCING VALVE
PS	PIPE SUPPORT
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
PT	POINT, POINT OF TANGENCY
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE, POINT ON VERTICAL CURVE
PVMT	PAVEMENT
PW	POTABLE WATER
R	RADIUS, RISER, REFRIGERATOR
RCP	REINFORCED CONCRETE PIPE
RCCP	REINFORCED CONCRETE CYLINDER PIPE
RD	ROOF DRAIN, ROAD
RDL	ROOF DRAIN LEADER
RED	REDUCER, REDUCING
REG	REGULATOR, REGULATING
REF	REFERENCE
REINF	REINFORCING
REQD	REQUIRED
RET	RETURN
REV	REVISION, REVISED, REVERSED
RFG	ROOFING
RH	ROOF HOOD, RIGHT HAND, ROUND HEAD, RED HEAD
RHMS	ROUND HEAD MACHINE SCREW
RHWS	ROUND HEAD WOOD SCREW
RJ	RESTRAINED JOINT
RM	RAPID MIX
RO	ROUGH OPENING
ROU	RO WATER UNIT
RP	RECYCLE PUMP
RR	RAILROAD
RSD	ROLLING STEEL DOOR
RT	RIGHT
RV	REGULATING VALVE
R/W	RIGHT OF WAY
RWP	RAW WATER PUMP
S	SOUTH, SPEAKER
SAN SWR	SANITARY SEWER
SCHED	SCHEDULE
SEC	SECOND
SECT	SECTION
SG	SLUICE GATE, SUPPLY GRILLE
SH	SHEET
SIM	SIMILAR
SM	SHEET METAL
SP	SAMPLE PUMP
SPA	SPACING, SPACES
SPEC(S)	SPECIFICATION(S)
SQ	SQUARE
SS	STAINLESS STEEL
SSK	SERVICE SINK
ST SWR	STORM SEWER
STA	STATION
STD	STANDARD
STL	STEEL
STOR	STORAGE
STR	STRUCTURAL
SV	SHUTOFF VALVE
SW	SERVICE WATER
SYM	SYMMETRICAL
SYS	SYSTEM
T	TREAD
TAN	TANGENT
T&B	TOP AND BOTTOM
TBM	TEMPORARY BENCHMARK
TEL	TELEPHONE, TELESCOPING
TEMP	TEMPERATURE, TEMPORARY
T&G	TONGUE & GROOVE
TH	TEST HOLE
THK	THICK, THICKNESS
TOC	TOP OF CONCRETE, TOP OF CURB
TOM	TOP OF MASONRY
TOS	TOP OF STEEL
TWS	TOTAL WATER SYSTEM
TYP	TYPICAL
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
USGS	UNITED STATES GEOLOGICAL SURVEY
V	VOLT
VAC	VACUUM
VB	VACUUM BREAKER
VC	VERTICAL CURVE, VICTAULIC COUPLING
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
VNR	VENEER
VRH	VACUUM REGULATOR HEATER
VTR	VENT THROUGH ROOF
W	WEST, WIDE
W/	WITH
WC	WATER CLOSET
WD	WOOD, WIDTH
WF	WALL FITTING
WH	WALL HYDRANT
WO	WINDOW OPENING
W/O	WITHOUT
WP	WATERPROOF, WORKING POINT
WS	WATERSTOP
WT	WEIGHT
WW	WETWELL
WWF	WELDED WIRE FABRIC
WWS	WASH WATER SUPPLY PUMP
x	BY,TIMES
YH	YARD HYDRANT
&	AND
@	AT
C/L	CENTERLINE
<	DEFLECTION ANGLE
#	NUMBER
%	PER CENT

MATERIALS LEGEND

- EARTH OR GRADE
- GRANULAR FILL (CRUSHED ROCK OR GRAVEL)
- UNDISTURBED EARTH OR ROCK
- NEW CONCRETE
- ALUMINUM
- EXISTING CONCRETE, PRECAST OR PRESTRESSED CONCRETE
- WOOD, STUDS, BEAMS, JOISTS, ETC.
- INSULATION (RIGID)
- INSULATION (BATT)
- RIPRAP
- BRICK, FACE
- BRICK, COMMON
- CONCRETE MASONRY UNITS (CMU)
- CUT STONE OR SAND FILL, GROUT, MORTAR, AND PLASTER
- CHECKERED PLATE
- STEEL (FOR 1" SCALE & LARGER)
- STEEL OR ALUMINUM (FOR 3/4" SCALE & SMALLER)
- BAR GRATING (LINES IN DIRECTION OF SPAN)
- WOOD, SHEATHING, PANELING, DECKING, ETC.

SYMBOLS LEGEND



REFER TO DRAWING C1 AND D1 FOR ADDITIONAL LEGENDS AND ABBREVIATIONS.

SITE LEGEND

NEW	EXISTING	
		BUILDINGS, STRUCTURES
		SURFACED STREET, ROAD OR DRIVE
		CONCRETE WALK
		YARD PIPING (22" & SMALLER)
		YARD PIPING (24" & LARGER)
	W	BURIED WATER PIPING
FM	FM	BURIED SAN FORCE MAIN
SAN	SAN	BURIED SAN SEWER
		BURIED PIPING BY OTHERS
G	G	BURIED GAS PIPING
E	E	BURIED ELECTRICAL
T	UGT	BURIED TELEPHONE
OHE		OVERHEAD POWER OR TELEPHONE WIRE
		TELEPHONE/POWER POLE W/ GUY ANCHOR
	BH-15	SOIL BORING DESIGNATION
		FENCING
		CHAIN LINK FENCING
		SILT FENCING
740	740	FINISH GRADE CONTOUR
		HEDGE, BRUSH, SHRUBS, WOODS

- $P_{/L}$ PROPERTY LINE
- $E_{/L}$ EASEMENT LINE
- $R_{/W}$ RIGHT-OF-WAY LINE
- $SB_{/L}$ BUILDING SETBACK LINE

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					WF: 16.1s (LWS Tech) XREF2:
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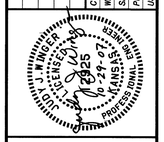


BLACK & VEATCH
Black & Veatch Corporation
Lawrence, Kansas

LAWRENCE, KANSAS
STONERIDGE ELEVATED TANK

GENERAL
LEGENDS & ABBREVIATIONS

DESIGNED:	JJW
DETAILED:	JJG
CHECKED:	RCB
APPROVED:	JJW
DATE:	10-26-07

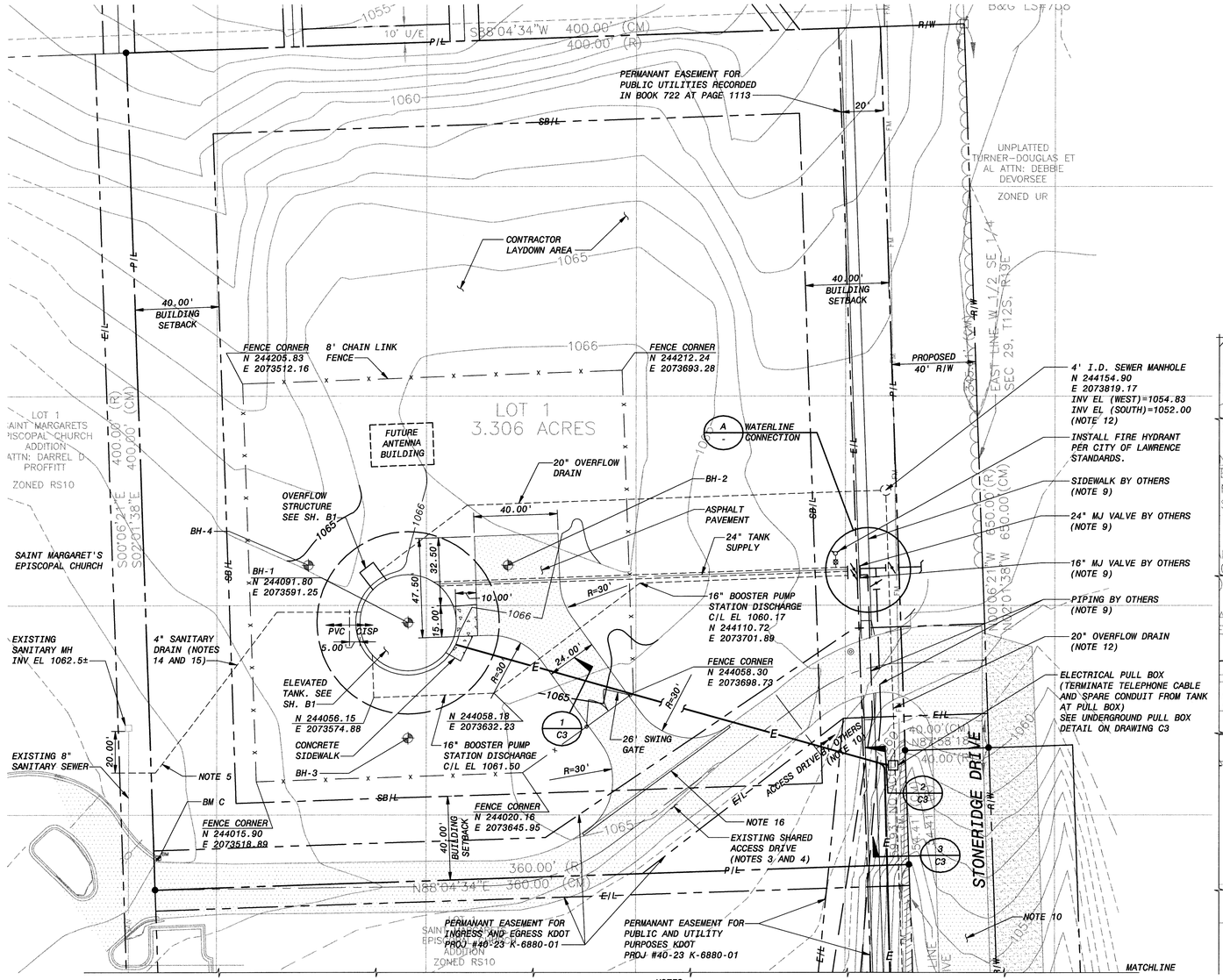
0 1/2 1

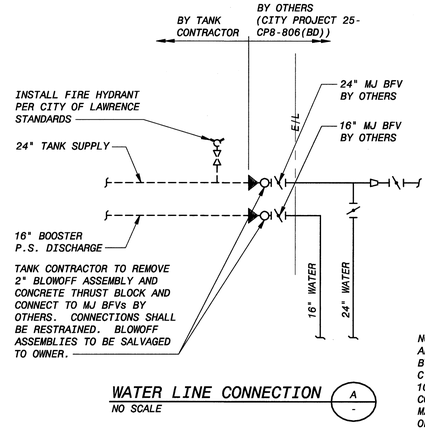
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
146781

A1
SHEET
OF

FD60000
D146781





WATER LINE CONNECTION

NO SCALE

NOTE:
APPROXIMATE C/L EL OF 24"MJ BFV BY OTHERS IS 1056.5. APPROXIMATE C/L EL OF 16" MJ BFV BY OTHERS IS 1058.5. CONTRACTOR TO FIELD VERIFY CONNECTION LOCATIONS PRIOR TO ORDERING MATERIALS AND SHALL ADJUST ALIGNMENT OF NEW PIPING AS REQUIRED.

SITE PLAN

BORING COORDINATES	
NUMBER	COORDINATES
BH-1	N 244091.80 E 2073591.25
BH-2	N 244119.30 E 2073638.88
BH-3	N 244036.78 E 2073591.20
BH-4	N 244119.30 E 2073543.62

30' 20' 10' 0 30' 60'

SCALE IN FEET

NOTES:

1. REFER TO SHEET A3 FOR LANDSCAPING PLAN.
2. REFER TO SHEET C3 FOR POWER SUPPLY FROM ELECTRIC UTILITY.
3. CONTRACTOR SHALL MAINTAIN ACCESS TO ST. MARGARET'S EPISCOPAL CHURCH AT ALL TIMES DURING CONSTRUCTION PERIOD, INCLUDING TEMPORARY ROAD IF REQUIRED. UPON COMPLETION OF WORK, CONTRACTOR SHALL RESTORE DISTURBED AREAS TO ORIGINAL CONDITION OR BETTER.
4. CONTRACTOR SHALL NOT USE EXISTING ACCESS ROAD TO ST. MARGARET'S CHURCH FOR CONSTRUCTION TRAFFIC. PROVIDE TEMPORARY CONSTRUCTION ROAD NORTH OF EXISTING ACCESS ROAD FROM STONERIDGE DR. TANK CONTRACTOR TO COORDINATE LOCATION AND TIMING OF TEMPORARY ACCESS ROAD WITH CONTRACTOR UNDER PROJECT NO. 25-CP8-806(BD).
5. CONNECT TO EXISTING 8" SANITARY SEWER (CONTECH "TRUSS PIPE"). CONTRACTOR TO VERIFY LOCATION, PIPE SIZE AND TYPE, AND ELEVATION AND ADJUST ALIGNMENT OF NEW PIPING AS REQUIRED. 4" SANITARY DRAIN TO BE CONTECH "A-2000" AND SHALL COMPLY WITH REQUIREMENTS OF ASTM-F794.
6. CONTRACTOR TO FIELD VERIFY LOCATION OF PIPING BY OTHERS PRIOR TO THE ORDERING OF MATERIALS AND BEGINNING CONSTRUCTION.
7. SEE DRAWING C1 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENTS.
8. THE GRID SYSTEM SHOWN IS BASED ON KANSAS NORTH STATE PLANE COORDINATE SYSTEM OF 1983. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
   CONTROL BENCHMARKS:
   -BM C-371 USGS MONUMENT AT 6TH AND FRONTIER STREETS
   -BM B "+" CUT ON C/L INLET, NE QUAD, 6TH & STONERIDGE DRIVE, ELEVATION 1049.78
   -BM C "□" CUT AT END OF NORTH CURB OF CHURCH PARKING LOT, ELEVATION 1067.38
9. CONTRACTOR BY OTHERS UNDER CITY PROJECT NO. 25-CP8-806(BD) - "STONERIDGE DRIVE (NORTH)".
10. STONERIDGE DRIVE AND ENTRANCE FOR SHARED ACCESS DRIVE TO BE IMPROVED UNDER SEPARATE CONTRACT - CITY PROJECT NO. 25-CP8-806(BD). ALL ROAD IMPROVEMENTS NOT SHOWN.
11. CONTRACTOR TO CONNECT NEW OVERFLOW DRAIN PIPING TO EXISTING MANHOLE AT INV ELEVATION 1044.50. EXISTING MANHOLE INVERT 1044.3±. TANK CONTRACTOR TO COORDINATE WORK WITH MODIFICATIONS TO EXISTING MANHOLE BY CONTRACTOR FOR PROJECT 25-CP8-806(BD).
12. TANK CONTRACTOR TO VERIFY LOCATION OF EXISTING SANITARY FORCE MAIN AND PROPOSED WATER PIPING CONSTRUCTED BY OTHERS (CITY PROJECT NO. 25-CP8-806(BD)) PRIOR TO CONSTRUCTING OVERFLOW DRAIN AND SHALL ADJUST ALIGNMENT OF NEW PIPING AS REQUIRED TO CLEAR THESE UTILITIES.
13. STORM DRAIN MANHOLE, 20-INCH STORM DRAIN, AND ELECTRIC DUCT BANK BY TANK CONTRACTOR TO BE INSTALLED BY SPECIFIED MILESTONE DATE TO ALLOW FOR CONSTRUCTION OF SIDEWALK BY OTHERS.
14. INSTALL 1" STYROFOAM INSULATION BOARD (4' WIDE SHEETS) IN PIPE TRENCH, CENTERED OVER PIPE AND LOCATED 6" ABOVE TOP OF PIPE, FOR A DISTANCE OF APPROXIMATELY 80' FROM THE TANK FOUNDATION. CARE SHALL BE TAKEN DURING BACKFILL OF TRENCH TO PREVENT DAMAGE TO INSULATION BOARD.
15. TERMINATE DUCT BANK AT EXISTING POWER POLE.
16. CONTRACTOR TO SAWCUT AND REMOVE A SECTION OF EXISTING PAVEMENT (FULL DEPTH) 12 INCHES FROM THE EDGE OF THE ENTIRE LENGTH OF THE SECTION OF NEW ASPHALT TO PROVIDE SOUND SURFACE FOR PLACEMENT OF NEW PAVEMENT.

NO.	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE
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				PLOTTED: 10/29/2007 11:08:09 AM, Batch Plot	XREF4:
				USER: st060078	DWG VER: 4.6	XREF5:

JOHN J. WINGER — LICENSED PROFESSIONAL ENGINEER — 10-29-07 — KANSAS — PROFESSIONAL ENGINEER

BLACK & VEATCH
Black & Veatch Corporation
Lawrence, Kansas

LAWRENCE, KANSAS
STONERIDGE ELEVATED TANK

SITEWORK
SITE PLAN & DETAILS

DESIGNED:	JJW
DETAILED:	JJG,JKS
CHECKED:	RCB
APPROVED:	JJW
DATE:	10-26-07

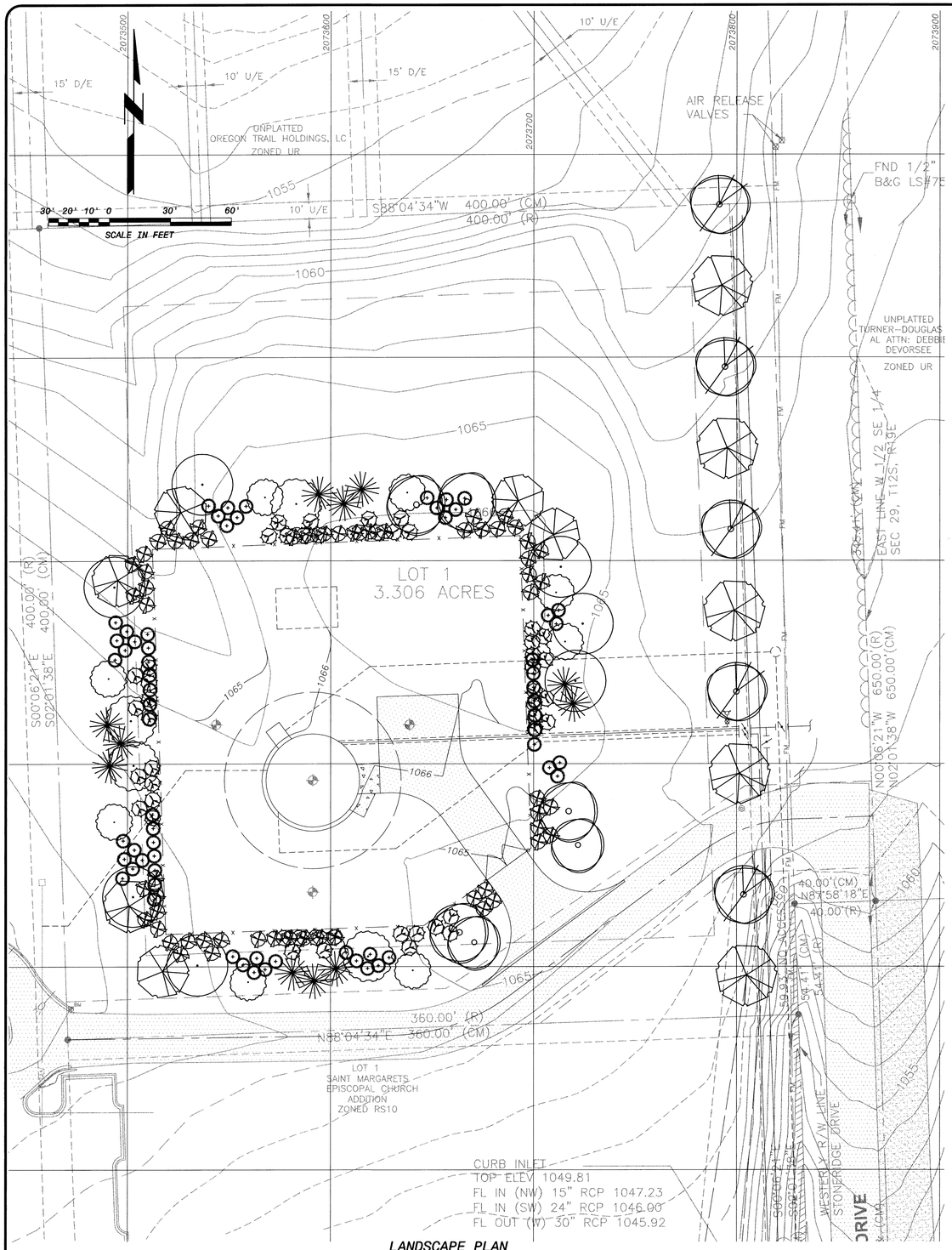
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
146781

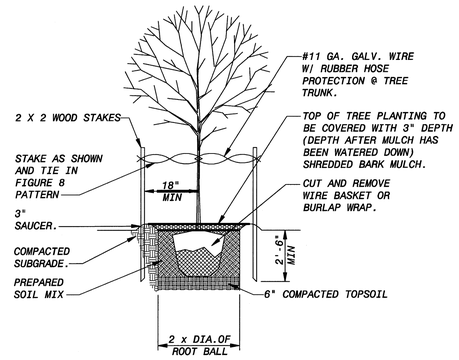
A2
SHEET
OF

FD60000
D146781

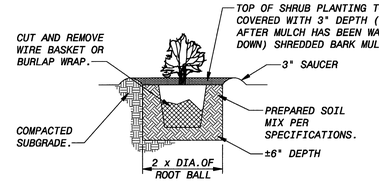
Date/Time



LANDSCAPE PLAN



TREE PLANTING DETAIL
NO SCALE



SHRUB PLANTING DETAIL
NO SCALE

PLANT SCHEDULE

SYMBOL	NO.	NAME	QTY.	SIZE	COND.
TREES					
	1	REDBUD- CERCIS CANADENSIS	8	3" CAL. MIN.	B&B
	2	ROSEHILL ASH- FRAXINUS PENNSLYVANICA 'ROSEHILL'	2	3" CAL. MIN.	B&B
	3	PACIFIC SUNSET MAPLE - ACER RUBRUM 'PACIFIC SUNSET'	11	3" CAL. MIN.	B&B
	4	EASTREN RED CEDAR JUNIPERUS VIRGINIANA 'CANAERTII'	11	6' HT. MIN.	B&B
	5	AUTUMN GOLD GINKGO GINKGO BILOBA 'AUTUMN GOLD'	5	3" CAL. MIN.	B&B
SHRUBS					
	6	GOLDEN PRIVET - LIGUSTRUM X VICARYI 'ANTHONY WATERER'	24	24" HT. 5 GAL.	CONT.
	7	SUNRISE FORSYTHIA FORSYTHIA X 'SUNRISE'	24	24" HT. 5 GAL.	CONT.
	8	SEA GREEN JUNIPER JUNIPERUS CHINENSIS 'SEA GREEN'	42	24" HT. 5 GAL.	CONT.

LANDSCAPE NOTES:

1. GENERAL CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIAL FOR A PERIOD OF ONE (1) YEAR FROM DATE OF PROJECT SUBSTANTIAL COMPLETION. ANY PLANT MATERIAL REPLACED DURING THE CORRECTION PERIOD SHALL BE PROVIDED WITH AN ADDITIONAL ONE-YEAR GUARANTEE FROM THE DATE OF REPLACEMENT.
2. ALL PLANT MATERIALS SHALL MEET MINIMUM REQUIREMENTS SHOWN IN THE "AMERICAN STANDARDS FOR NURSERY STOCK" (ANSI Z60.1-1990).
3. EACH TREE AND SHRUB SHALL BE SECURELY LABELED WITH A WATERPROOF TAG INDICATING BOTANICAL NAME AND COMMON NAME FOR DELIVERY TO SITE.
4. NO PLANT MATERIAL SHALL BE SUBSTITUTED WITH OUT THE APPROVAL OF THE OWNER. ALL PLANTING LOCATIONS FOR TREES AND SHRUBS SHALL BE FLAGGED BY THE CONTRACTOR AND APPROVED BY THE OWNER, PRIOR TO INSTALLATION.
5. ALL DISCREPANCIES AND/OR FIELD CHANGES SHALL BE REPORTED TO THE OWNER FOR APPROVAL PRIOR TO IMPLEMENTATION. WHEN CONDITIONS DETRIMENTAL TO PLANT GROWTH ARE ENCOUNTERED, SUCH AS RUBBLE FILL, ADVERSE DRAINAGE CONDITIONS OR OBSTRUCTIONS, LANDSCAPE CONTRACTOR SHALL NOTIFY THE OWNER BEFORE PLANTING.
6. THE GENERAL CONTRACTOR SHALL VERIFY LOCATION OF AND PROTECT ALL UTILITIES AND STRUCTURES. DAMAGE TO UTILITIES AND STRUCTURES SHALL BE REPAIRED BY THE GENERAL CONTRACTOR TO THE SATISFACTION OF THE OWNER.
7. THE LANDSCAPE CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER CONTRACTORS ON SITE THROUGHOUT THE CONSTRUCTION PROCESS.
8. ALL SHRUB AND TREE PLANTING AREAS SHALL BE EXCAVATED AND BACK-FILLED WITH PLANT MIX. PROVIDE FERTILIZER WITH NOT LESS THAN 5% TOTAL NITROGEN, 10% AVAILABLE PHOSPHORIC ACID AND 5% SOLUBLE POTASH. DISCARD SUBSOIL REMOVED FROM PLANTING AREA EXCAVATION; DO NOT MIX WITH PLANT MIX OR USE AS BACK-FILL. SEE DETAILS FOR COMPLETE PLANTING PREPARATION. PREPARE PLANTING AREAS AND INSTALL PLANTS COMPLETELY, PRIOR TO SEEDING.
9. PLANT MIX SHALL CONSIST OF TOPSOIL COMPLETELY FREE OF DEBRIS, ROCK IN EXCESS OF 1" IN DIAMETER, STICKS AND CLAY. MIX ONE PART COMPOSTED STABLE MANURE AND THREE PARTS TOPSOIL WITH FERTILIZER AS SPECIFIED ABOVE.
10. ALL SHRUBS SHALL BE INSTALLED IN PROPOSED PLANTING BEDS AND COVERED WITH SHREDDED BARK MULCH OR ACCEPTABLE MATERIAL APPROVED BY THE OWNER.
11. ALL PLANTED SURFACES SHALL RECEIVE EMULSION TYPE, FILM FORMING, ANTI-DESSICANT AGENT DESIGNED TO PERMIT TRANSPIRATION, BUT RETARD EXCESSIVE LOSS OF MOISTURE FROM PLANTS. ANTI-DESSICANT TO BE DELIVERED IN MANUFACTURER'S FULLY IDENTIFIED CONTAINERS AND MIXED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. APPLY PRIOR TO APPLICATION OF MULCH.
12. ALL UTILITY INFORMATION SHOWN HEREIN IS BASED ON THE INFORMATION AVAILABLE TO THE ENGINEER AT THE TIME OF DESIGN. THE CONTRACTOR SHALL VERIFY ALL UTILITY DEPTHS AND LOCATIONS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES TO FIELD LOCATE AND/OR ADJUST THEIR UTILITY AS REQUIRED FOR CONSTRUCTION. ALL UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND THE ENGINEER ASSUMES NO LIABILITY FOR SAME.
13. ALL AREAS NOT DESIGNATED AS PAVEMENT OR PLANTING BEDS SHALL BE SEEDED.
14. ALL EDGING IS A NATURAL EARTH EDGE AS SHOWN, CONSTRUCTED WITH A SHARPSHOOTER OR OTHER SUITABLE IMPLEMENT. LINES AND CURVES SHALL BE CONTINUOUS AND SMOOTH, MEETING THE DESIGN INTENT SHOWN ON THE DRAWINGS.
15. REMOVE ANY EXCESS SOIL AND DEBRIS FROM AREA AND DISPOSE OF IN AN APPROVED MANNER.
16. SPACING SHOWN FOR PLANTS IS FOR INFORMATION ONLY AND SHALL BE ADJUSTED AS REQUIRED TO PROVIDE UNIFORM SPACING WITHIN PLANTING BEDS.

DATE	NO.	BY	CK	APP
REVISIONS AND RECORD OF ISSUE				

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PLOTTED: 10/29/2007 11:08:48 AM, Batch Plot
USER: $LOGON078
XREF1: C-SITE-EXIST-TOPO.dwg
XREF2: C-SITE-PROPOSED.dwg
XREF3:
XREF4:
XREF5:
DWG VER: 4.2

LICENSED PROFESSIONAL ENGINEER JOHN W. CLEVENGER 24925 10-29-07 KANSAS PROFESSIONAL ENGINEER

BLACK & VEATCH
Black & Veatch Corporation
Lawrence, Kansas

LAWRENCE, KANSAS
STONERIDGE ELEVATED TANK

SITEWORK
LANDSCAPE PLAN AND DETAILS

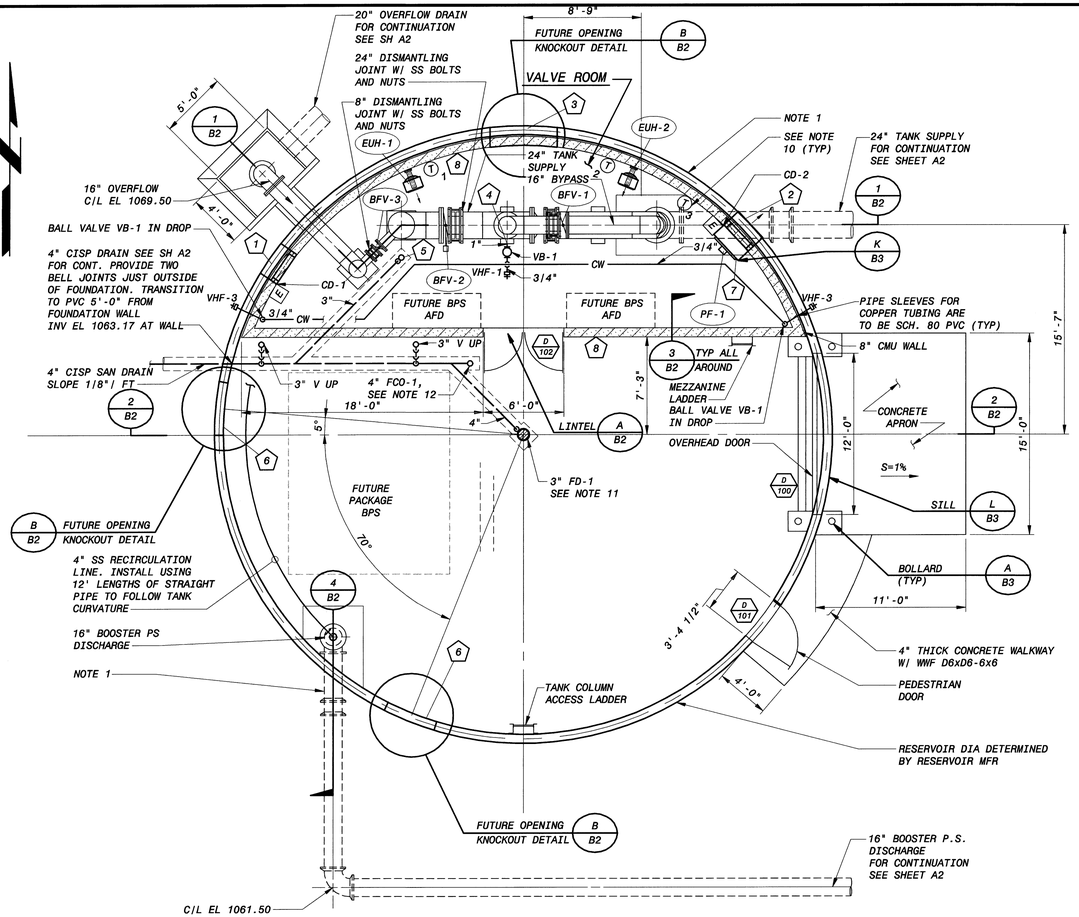
DESIGNED:	JJW,JGC
DETAILED:	JJG,JKS
CHECKED:	JGC
APPROVED:	JJW
DATE:	10-26-07

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

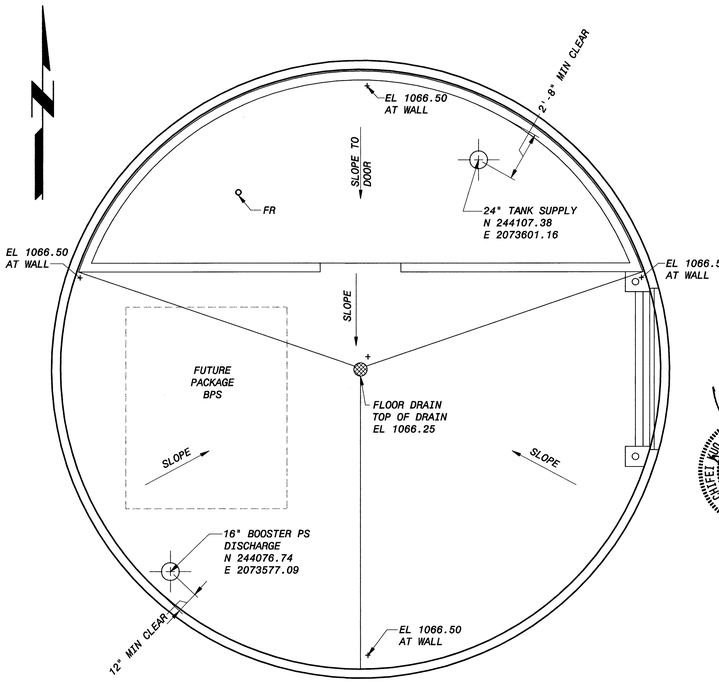
PROJECT NO.
146781

A3
SHEET
OF

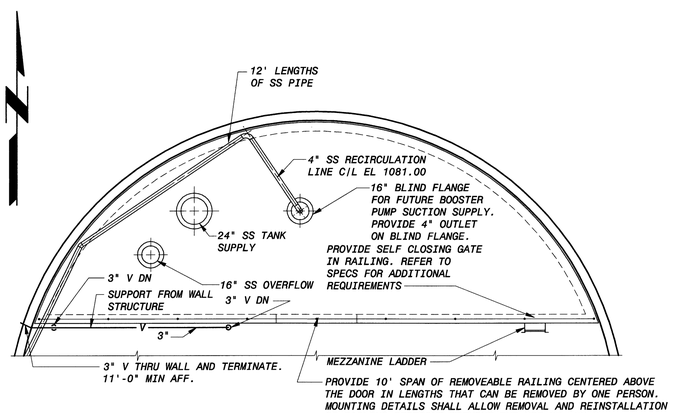
F29000
D146781



FLOOR PLAN
3/16" = 1'-0"



FLOOR JOINT AND SLOPE PLAN
3/16" = 1'-0"



MEZZANINE PLAN
3/16" = 1'-0"

MECHANICAL EQUIPMENT

PF-1 PROPELLER FAN TO BE GREENHECK MODEL "SBE-1H20", 2000 CFM, 1/2 HP MOTOR @ 240 VOLT /1 PHASE; MOUNT BOT EL APPROX 8'-0" AFF. FAN CONTROLLED BY THERMOSTAT (T-3). THERMOSTAT INITIAL SETPOINT @ 90 DEGREES F. ASSOCIATED LOUVERS/DAMPERS SHALL BE PROVEN OPEN BEFORE FAN CAN START.

EUH-1 ELECTRIC UNIT HEATER TO BE CHROMALOX MODEL "LUH-10-21-34", 10 KW CAPACITY @ 240 VOLT / 1 PHASE. COMPLETE WITH WALL MOUNT BRACKET. MOUNT BOT EL APPROX 8'-0" AFF. UNIT HEATER TO BE CONTROLLED BY THERMOSTAT (T-1). THERMOSTAT INITIAL SETPOINT @ 50 DEGREES F.

EUH-2 ELECTRIC UNIT HEATER TO BE CHROMALOX MODEL "LUH-10-21-34", 10 KW CAPACITY @ 240 VOLT / 1 PHASE. COMPLETE WITH WALL MOUNT BRACKET. MOUNT BOT EL APPROX 8'-0" AFF. UNIT HEATER TO BE CONTROLLED BY THERMOSTAT (T-2). THERMOSTAT INITIAL SETPOINT @ 50 DEGREES F.

PLAN NOTES:

1. 32"x32" COMBINATION INTAKE LOUVER/DAMPER RUSKIN MODEL "ELC6375DAX". DAMPER MOTOR TO BE INTERLOCKED WITH PROPELLER FAN (PF-1) TO OPEN WHEN FAN IS ENERGIZED. BOT EL APPROX 4'-0" AFF. REFER TO DETAIL 'J' ON DWG B-3. DAMPER OPERATOR SHALL BE BELIMO "NF120-S".
2. 32"x32" COMBINATION INTAKE LOUVER/DAMPER RUSKIN MODEL "ELC6375DAX". DAMPER MOTOR TO BE INTERLOCKED WITH PROPELLER FAN (PF-1) TO OPEN WHEN FAN IS ENERGIZED. BOT EL APPROX 8'-0" AFF. REFER TO DETAIL 'J' ON DWG B-3. DAMPER OPERATOR SHALL BE BELIMO "NF120-S".
3. PROVIDE 60"x40" KNOCKOUT FOR FUTURE AIR CONDITIONING DUCTWORK. BOTTOM OF OPENING 24" AFF. REFER TO DETAIL B ON DRAWING B2. PROVIDE LINTEL IN MASONRY WALL AS REQUIRED.
4. 1" TAP FOR CW SEVICE OFF 24" TANK SUPPLY
5. PROVIDE 2" FR FOR INSTRUMENTATION DRAIN. FIELD VERIFY LOCATION. SEE NOTE 6
6. PROVIDE 48"x48" KNOCKOUT FOR FUTURE VENTILATION. BOTTOM OF OPENING 3' AFF. REFER TO DETAIL B ON DRAWING B2.
7. SHEET METAL FAN BOX SHALL BE FABRICATED WITH 12 GAGE GALVANIZED SHEET METAL SKIN AND STRUCTURAL STEEL FRAMING.
8. DOUBLE FACE GLAZED BLOCK SHALL BE PROVIDED FOR THE PUMP ROOM STRAIGHT WALL AND SINGLE FACE GLAZED BLOCK FOR THE CURVED WALL.

NOTES:

1. RESERVOIR MANUFACTURER SHALL DETERMINE TOTAL SETTLEMENT OF RESERVOIR FOOTING AND CONTRACTOR SHALL PROVIDE A 2" MINIMUM GAP PLUS SETTLEMENT ALLOWANCE BETWEEN RESERVOIR FOOTING AND PIPE. GAP SHALL BE SEALED TO PREVENT ANY MATERIAL SUCH AS SOIL FROM ENTERING GAP.
2. ALL PIPE PENETRATIONS THROUGH WALLS, FLOORS, CEILINGS, AND ROOFS SHALL BE DESIGNED BY RESERVOIR MANUFACTURER ACCORDING TO CONTRACT SPECIFICATIONS AND AS REQUIRED TO ACCOMMODATE FOR SETTLEMENT. ALL PENETRATIONS SHOULD BE SEALED AND WEATHERPROOFED AS RECOMMENDED BY RESERVOIR MANUFACTURER TO ALLOW FOR SETTLEMENT. SIZES SHALL BE CONFIRMED BY THE RESERVOIR MANUFACTURER TO ACCOMODATE INSTALLATION OF PIPING INCLUDING FLANGES AND VALVES.
3. REINFORCE ALL CMU WALL JAMBS WITH 1-#5 VERTICAL, EACH SIDE OF OPENINGS.
4. DOOR LEAF SIZE TO BE 3'-0" x 7'-2" FOR D101 AND 3'-0" x 7'-10" FOR EACH DOOR LEAF FOR DOUBLE DOOR D102, WITH 2" HOLLOW METAL FRAMES. ROLLING STEEL DOOR D100 TO BE 12'-0" WIDE x 14'-0" HIGH. REFER TO SPECIFICATIONS FOR ADDITIONAL DOOR REQUIREMENTS. REFER TO DOOR DETAILS "O", "P" AND "Q" ON DWG. B3.
5. ALL PIPE JOINTS FOR THE BURIED 16" AND 24" DIP PIPING SHALL BE RESTRAINED.
6. FUNNEL RECEPTOR TO BE SMITH FIGURE NUMBER SQ-3-1793 WITH DOME BOTTOM STRAINER.
7. PROVISIONS FOR FUTURE ANTENNAS NOT SHOWN.
8. CONCRETE PIPE SUPPORTS FOR THE RISER PIPE AND OVERFLOW PIPE TO BE DESIGNED BY RESERVOIR MANUFACTURER.
9. CONTRACTOR SHALL INSTALL 2 SIGNS VISIBLE FROM THE MEZZANINE CONCRETE SLAB OVER THE VALVE ROOM. SIGNS SHALL READ:

   CAUTION
   MAX LIVE LOAD
   100 PSF

10. TWO POSITION WALL MOUNTED THERMOSTATS SHALL BE HONEYWELL "T631A AIRSWITCH".
11. FD-1 SHALL BE SMITH 2320 SERIES.
12. FCO-1 SHALL BE SMITH 4239 SERIES.
13. 4-INCH RECIRCULATION PIPING TO BE HEAT TRACED AND INSULATED. INSULATION SHALL BE 1" THICK FLEXIBLE CELLULAR ELASTOMERIC OR POLYOLEFIN FOAM IN CONFORMANCE W/ ASTM C534, AND SHALL BE ARMACELL "AP/ARMAFLEX" OR IMCOA "IMCOLOCK".

FOR STRUCTURAL

NO.	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE
				CYGNET ID: 146781-3000-WTOH-C-T000002SDN	XREF1:CS-TANK-PLAN.dwg
				WF: 16.1s (LMS Tech)	XREF2:CS-TANK-SECTIONS.DWG
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				PLOTTED: 10/29/2007 11:11:18 AM, Batch Plot	XREF4:
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BLACK & VEATCH
Black & Veatch Corporation
Lawrence, Kansas

LAWRENCE, KANSAS
STONERIDGE ELEVATED TANK

CIVIL/STRUCTURAL
TANK ENLARGED PLAN, SECTIONS & DETAILS

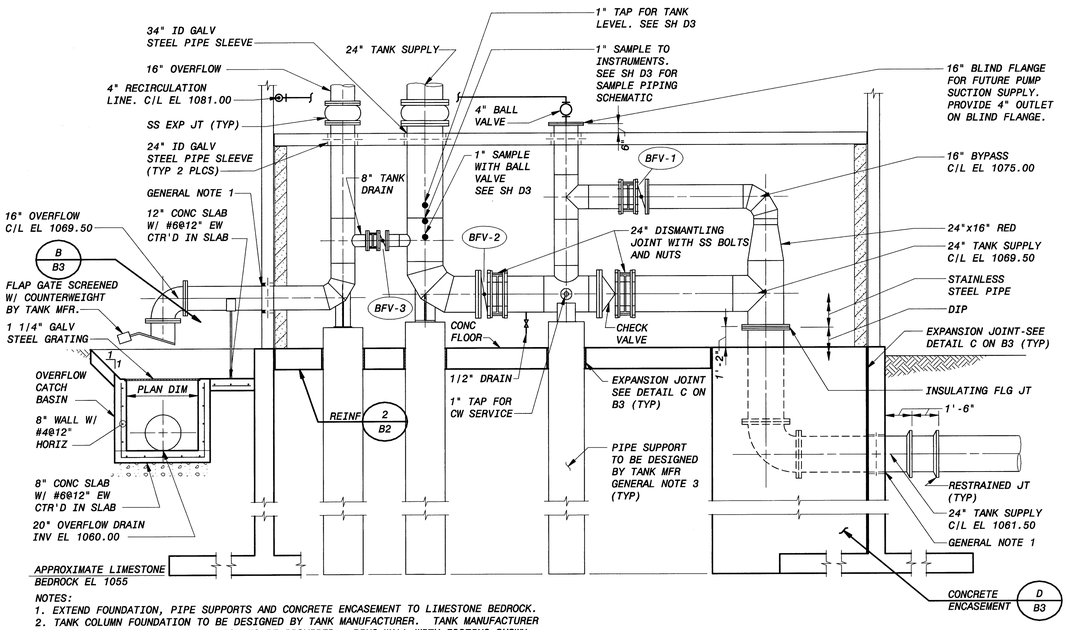
DESIGNED:	JJW, CK
DETAILED:	JJG
CHECKED:	RCB,WJW
APPROVED:	JJW
DATE:	10-26-07

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
146781

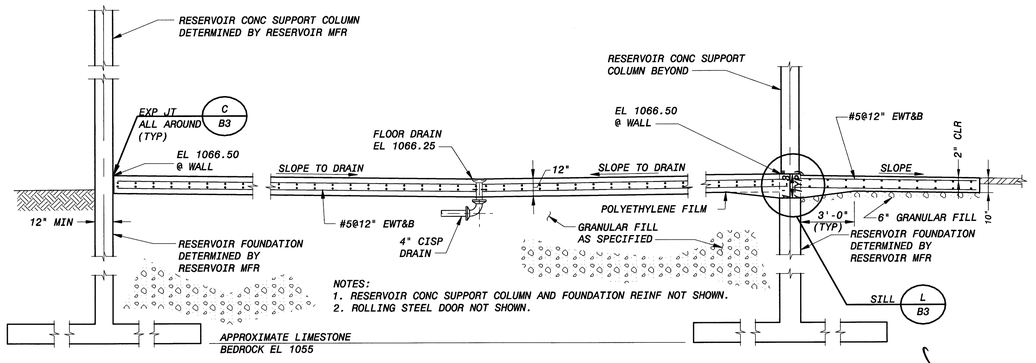
B1
SHEET
4 OF 13

F06000
D146781



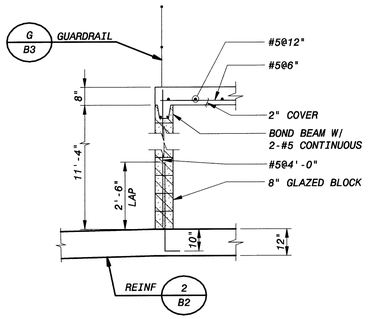
NOTES:
1. EXTEND FOUNDATION, PIPE SUPPORTS AND CONCRETE ENCASEMENT TO LIMESTONE BEDROCK.
2. TANK COLUMN FOUNDATION TO BE DESIGNED BY TANK MANUFACTURER. TANK MANUFACTURER WILL DECIDE TYPE OF FOUNDATION TO BE PROVIDED. RING WALL WITH FOOTING SHOWN. THE ALLOWABLE BEARING AT LIMESTONE BEDROCK IS 20 KSF.

SECTION 1 / B1
1/4" = 1'-0"

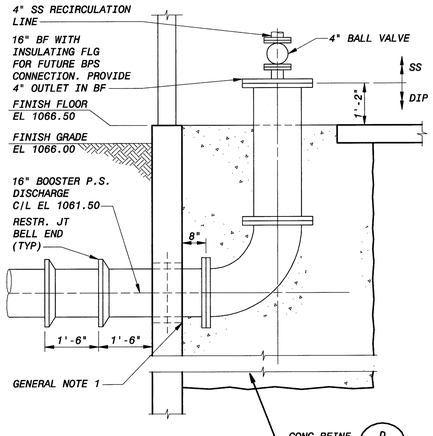


NOTES:
1. RESERVOIR CONC SUPPORT COLUMN AND FOUNDATION REINF NOT SHOWN.
2. ROLLING STEEL DOOR NOT SHOWN.

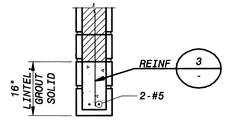
SECTION 2 / B1
NO SCALE



SECTION 3 / B1
3/8" = 1'-0"

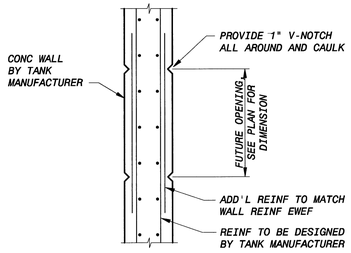


SECTION 4 / B1
1/2" = 1'-0"



NOTES:
1. LINTEL REINF TO EXTEND 2'-0" MIN BEYOND EACH SIDE OF DOOR OPENING. CONTINUE GROUTED BOND BEAMS 2'-0" MIN BEYOND EACH SIDE OF DOORS.
2. LINTEL ABOVE DOOR SHALL BE 1'-4" DEEP. LINTEL ABOVE OTHER OPENINGS SHALL BE 8" DEEP.

LINTEL A / B1
NO SCALE



NOTE:
PROVIDE ADD'L REINF AROUND FUTURE OPENING, SEE B4 FOR DETAILS

FUTURE OPENING KNOCKOUT DETAIL B / B1
1/2"=1'-0"

GENERAL NOTES:
1. RESERVOIR MFR SHALL DETERMINE TOTAL SETTLEMENT OF RESERVOIR FOOTING AND CONTRACTOR SHALL PROVIDE A 2" MINIMUM GAP PLUS SETTLEMENT ALLOWANCE BETWEEN RESERVOIR FOOTING AND PIPE. GAP SHALL BE SEALED TO PREVENT ANY MATERIAL SUCH AS SOIL FROM ENTERING GAP.
2. ALL PIPE PENETRATIONS THROUGH WALLS, FLOORS, CEILINGS, AND ROOFS SHALL BE DESIGNED BY RESERVOIR MANUFACTURER ACCORDING TO CONTRACT SPECIFICATIONS AND AS REQUIRED TO ACCOMMODATE FOR SETTLEMENT. ALL PENETRATIONS SHOULD BE SEALED AND WEATHERPROOFED AS RECOMMENDED BY RESERVOIR MANUFACTURER TO ALLOW FOR SETTLEMENT. SIZES SHALL BE CONFIRMED BY THE RESERVOIR MANUFACTURER TO ACCOMMODATE INSTALLATION OF PIPING INCLUDING FLANGES.
3. CONCRETE PIPE SUPPORTS, INCLUDING ANCHORS, TO BE DESIGNED BY RESERVOIR MANUFACTURER. EXP JT AND CAULK ALL AROUND SUPPORT.

FOR STRUCTURAL

NO.	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE
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				PLOTTED: 10/29/2007 11:11:34 AM, Batch Plot	XREF4:
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					XREF5:

BLACK & VEATCH
Black & Veatch Corporation
Lawrence, Kansas

LAWRENCE, KANSAS
STONERIDGE ELEVATED TANK

CIVIL/STRUCTURAL SECTIONS

DESIGNED:	JJW, CK
DETAILED:	JJG
CHECKED:	RCB,WJW
APPROVED:	JJW
DATE:	10-26-07

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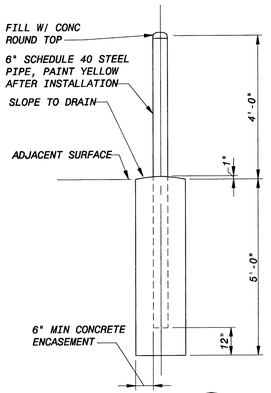
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
146781

B2
SHEET
5 OF 13

FD6000
D146781



BOLLARD (A / B1)
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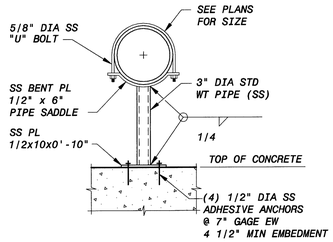
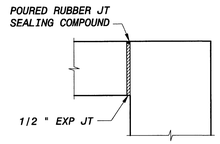


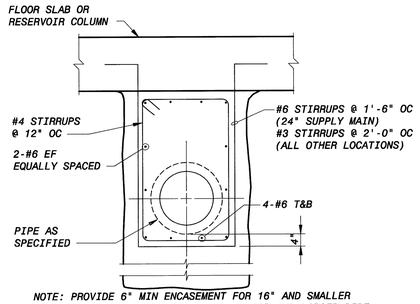
PIPE SUPPORT (B / B2)
3/4" = 1'-0"



TYPICAL JOINT

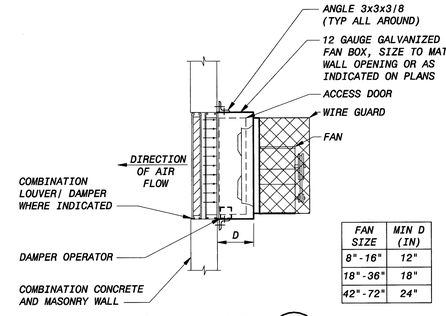
NOTE:
1. RESERVOIR FOUNDATION SIZE & REINF TO BE DETERMINED BY RESERVOIR MFR.

EXPANSION JOINT (C / B2)
3/4" = 1'-0"



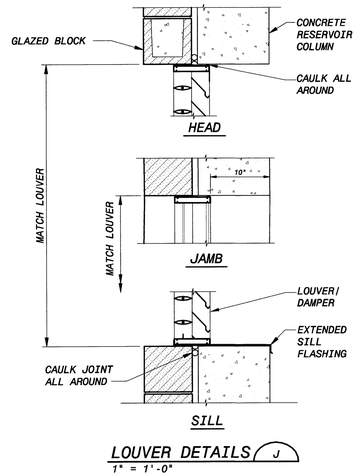
NOTE: PROVIDE 6" MIN ENCASEMENT FOR 16" AND SMALLER PIPE, 12" MIN ENCASEMENT FOR 18" AND LARGER PIPE.

CONCRETE ENCASEMENT FOR PIPE UNDER SLABS (D / B2)
NO SCALE

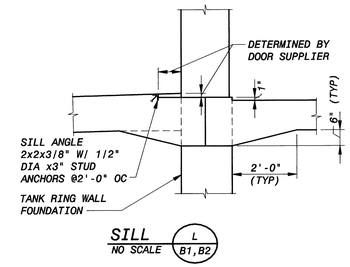


FAN SIZE	MIN D (IN)
8"-16"	12"
18"-36"	18"
42"-72"	24"

PROPELLER FAN (K)
NO SCALE



LOUVER DETAILS (J)
1" = 1'-0"



SILL (L / B1, B2)
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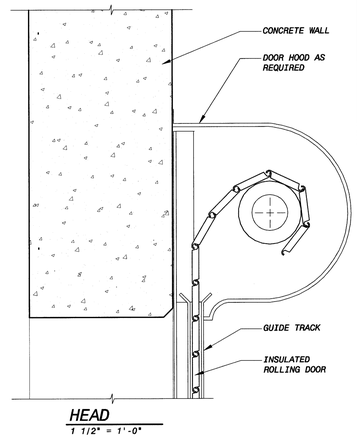


1 1/2" = 1'-0"

END TERMINATION AND CORNER ELEVATION

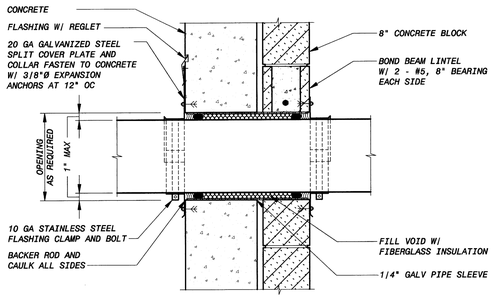
THREE RAIL GUARDRAIL (G)
NO SCALE

THOMPSON CAST ALUMINUM BASE FLANGE TYPE B (#TBF-3.4 FOR 4 BOLTS, #TBF-3.2 FOR 2 BOLTS), OR ACCEPTABLE EQUAL.

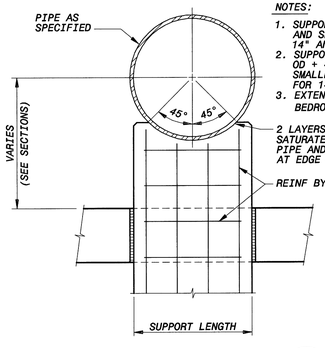
ALUMINUM RAILING

NOTE:
MOUNTINGS SHALL BE SUITABLE FOR THE INDICATED LOADS AND APPLICABLE LOCAL BUILDING CODE. FOR REMOVABLE RAILING SEE MEZZANINE PLAN ON SHEET B1.

BASE FLANGE MOUNT (H)
NO SCALE

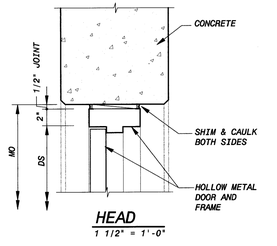


SECTION (M / -)
1" = 1'-0"

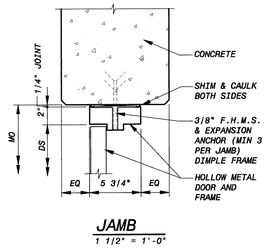


NOTES:
1. SUPPORT WIDTH: 8" FOR 12" AND SMALLER PIPE, 12" FOR 14" AND LARGER PIPE
2. SUPPORT LENGTH = PIPE OD + 4" FOR 12" AND SMALLER PIPE, PIPE OD FOR 14" AND LARGER PIPE
3. EXTEND PIPE SUPPORT TO LIMESTONE BEDROCK.
2 LAYERS 15 LB ASPHALT SATURATED FELT BETWEEN PIPE AND CONCRETE, TRIM AT EDGE OF CONCRETE
REINF BY TANK MFR

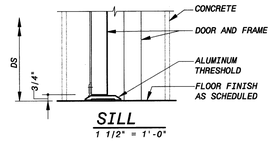
CONCRETE PIPE SUPPORT (N)
NO SCALE



1 1/2" = 1'-0"

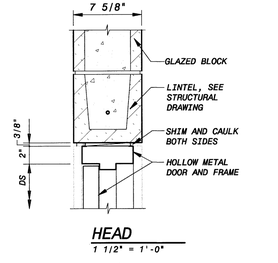


1 1/2" = 1'-0"

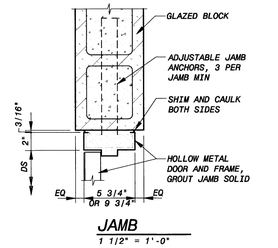


1 1/2" = 1'-0"

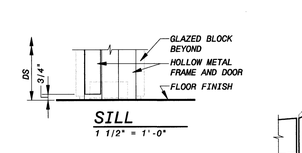
DOOR DETAILS (O)
1 1/2" = 1'-0"



1 1/2" = 1'-0"

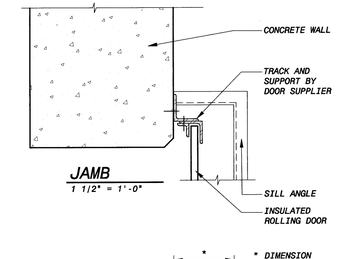


1 1/2" = 1'-0"

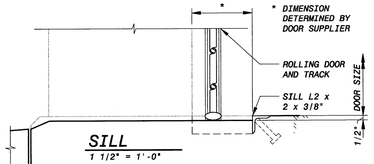


1 1/2" = 1'-0"

DOOR DETAILS (P)
1 1/2" = 1'-0"



1 1/2" = 1'-0"



1 1/2" = 1'-0"

DOOR DETAILS (Q)
1 1/2" = 1'-0"

NO.	BY	CK	APP

REVISIONS AND RECORD OF ISSUE

XREF1:
XREF2:
XREF3:
XREF4:
XREF5:

CYGNET ID: 146781-3000-WTCN-C-TOOOOOTOR
WF: 16.1s (LMS Tech)
SAVED: BJC06388, 10/23/2007 2:34:33 PM
PLOTTED: 10/29/2007 11:47:19 AM, Batch Plot
USER: sto50078
DWG VER: 4.2
DATE:

BLACK & VEATCH
Black & Veatch Corporation
Lawrence, Kansas

LAWRENCE, KANSAS
STONERIDGE ELEVATED TANK

CIVIL/STRUCTURAL
MISCELLANEOUS SECTIONS & DETAILS

DESIGNED:	JJW, CK
DETAILED:	JJG
CHECKED:	RCB,WJW
APPROVED:	JJW
DATE:	10-26-07

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
146781

B3
SHEET
6 OF 13

F06500
D146781

SPLICE & DEVELOPMENT LENGTHS
(UNLESS NOTED OTHERWISE ON THE DRAWINGS)

BAR SIZE	BEAMS AND COLUMNS: LENGTH OF LAPPED SPLICES FOR REINF (INCHES)		BEAMS AND COLUMNS: LENGTH OF END ANCHORAGE FOR DEVELOPMENT OF REINFORCEMENT (INCHES)			WALLS, SLABS AND FOOTINGS: LENGTH OF LAPPED SPLICES FOR REINF (INCHES)		WALLS, SLABS AND FOOTINGS: LENGTH OF END ANCHORAGE FOR DEVELOPMENT OF REINFORCEMENT (INCHES)			BAR SIZE
	*TOP BARS	OTHERS	*TOP BARS	OTHERS	HOOKED BARS	*TOP BARS	OTHERS	*TOP BARS	OTHERS	HOOKED BARS	
3	21	16	16	13	6	21	16	16	13	6	3
4	28	22	22	17	8	28	22	22	17	8	4
5	35	27	27	21	10	35	27	27	21	10	5
6	46	36	32	25	12	42	32	32	25	12	6
7	63	48	38	29	14	63	48	48	37	14	7
8	82	63	45	35	16	117	90	63	49	16	8
9	104	80	57	44	18	149	114	80	62	18	9
10	132	102	73	56	20	189	145	102	78	20	10
11	162	125	89	69	22	232	178	178	137	22	11
14	---	---	122	94	38	---	---	243	187	38	14
18	---	---	178	137	50	---	---	356	274	50	18

* TOP BARS ARE HORIZONTAL BARS SO PLACED THAT MORE THAN 12" OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR. HORIZONTAL BARS IN WALLS ARE TO BE PROVIDED WITH LAP LENGTHS AS REQUIRED FOR TOP BARS. VERTICAL BARS MAY BE CONSIDERED AS OTHER BARS.

IN WALLS, SLABS AND FOOTINGS; LAPPED SPLICE LENGTH FOR BARS SIZE 8 THROUGH 11 AND STRAIGHT (NON-HOOKED) END ANCHORAGE DEVELOPMENT LENGTH FOR BAR SIZE 11 (IN TABLE ABOVE) PLACED WITH MORE THAN 2 BAR DIAMETER CLEAR SPACING MAY BE MULTIPLIED BY A FACTOR OF 0.7.

IN BEAMS, COLUMNS, WALLS, SLABS AND FOOTINGS; LAPPED SPLICE LENGTH AND STRAIGHT (NON-HOOKED) END ANCHORAGE DEVELOPMENT LENGTH FOR BARS SIZE 7 THROUGH 11 (IN THE TABLE ABOVE) PLACED WITH MORE THAN 6 BAR DIAMETER CLEAR SPACING MAY BE MULTIPLIED BY A FACTOR OF 0.8. THE MULTIPLICATION FACTORS OF 0.7 AND 0.8 MAY BE COMBINED ONLY FOR BARS COMMON TO THIS NOTE AND THE NOTE ABOVE.

LAPPED SPLICES SHALL NOT BE MADE AT POINTS OF MAXIMUM STRESS UNLESS OTHERWISE INDICATED ON THE DRAWINGS OR AS DETERMINED BY THE ENGINEER.

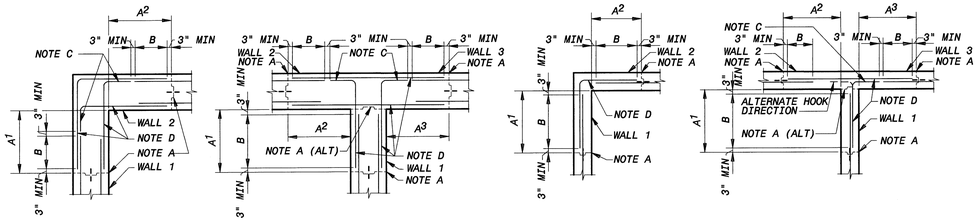
CONCRETE COVER FOR REINFORCEMENT

LOCATION	MINIMUM COVER
UNFORMED SURFACES ADJACENT TO EXCAVATION	3"
FORMED OR TOP SURFACES EXPOSED TO WEATHER OR SATURATED AIR, SUBMERGED OR IN CONTACT WITH EARTH, INCLUDING STIRRUPS, TIES OR SPIRALS	2"
OTHER LOCATIONS	
BARS IN BEAMS OR GIRDERS, INCLUDING STIRRUPS AND COLUMN SPIRALS OR TIES	1 1/2"
SLABS, WALLS AND JOISTS #6 AND LARGER	1 1/2"
#5 AND SMALLER	1"

NOTE: TOLERANCES FOR CONCRETE COVER AND THE FABRICATION AND PLACING OF REINFORCEMENT SHALL CONFORM TO ACI 117.

NOTES

1. DETAILS ON THIS DRAWING APPLY TO ALL DRAWINGS UNLESS OTHERWISE NOTED.
2. WORK THIS DRAWING WITH THE STANDARD CONCRETE JOINT DETAILS SHEET B5.



A = VERTICAL CONSTRUCTION JOINT NEAREST TO WALL CORNER.

A(ALT) = ALTERNATE VERTICAL CONSTRUCTION JOINT NEAREST TO WALL CORNER IN T WALL JOINT WHICH DOES NOT REQUIRE WATERSTOP.

Ax = DISTANCE FROM INSIDE CORNER FACE TO NEAREST VERTICAL CONSTRUCTION JOINT IN SIMILARLY NUMBERED WALL. Ax SHALL NOT BE LESS THAN DIMENSIONS INDICATED BY THESE DETAILS; NOR GREATER THAN INDICATED ON PLAN DRAWINGS; BUT IN ANY CASE SHALL NOT EXCEED 30 FEET IN LIQUID CONTAINMENT STRUCTURES OR 40 FEET IN OTHER STRUCTURES. IN T WALL JOINTS WHICH DO NOT REQUIRE WATERSTOP, A1 MAY BE ZERO.

B = OPTIONAL SPLICE LOCATION UNLESS SPECIFICALLY NOTED ON PLAN DRAWINGS. SPLICE LENGTH SHALL NOT BE LESS THAN THAT REQUIRED FOR TOP BARS AS SHOWN IN TABLE ON THIS SHEET. USE SPLICE LENGTH FOR THE SMALLER OF THE TWO BARS BEING SPLICED.

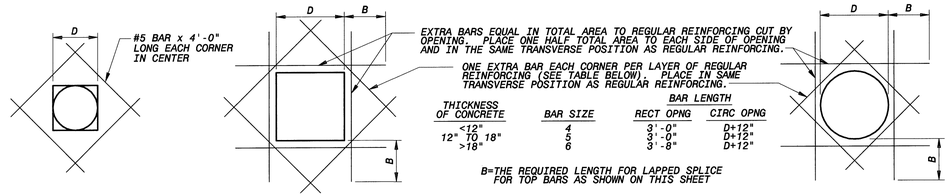
C = STANDARD HOOK

D = TYPICAL CORNER REINFORCEMENT. SIZE SHALL MATCH LARGEST ADJACENT WALL HORIZONTAL REINFORCEMENT; SPACING SHALL MATCH MINIMUM ADJACENT WALL HORIZONTAL REINFORCEMENT SPACING.

MAIN REINFORCEMENT FOR ALL STRUCTURES

TYPICAL HORIZONTAL CORNER REINFORCING DETAILS

NOTES: 1. VERTICAL REINFORCING NOT SHOWN
2. THESE DETAILS SHALL BE APPLICABLE TO ALL WALL CORNERS UNLESS NOTED OTHERWISE ON THE DRAWINGS.



THICKNESS OF CONCRETE	BAR SIZE	BAR LENGTH: RECT OPNG	BAR LENGTH: CIRC OPNG
<12"	4	3'-0"	D+12"
12" TO 18"	5	3'-0"	D+12"
>18"	6	3'-8"	D+12"

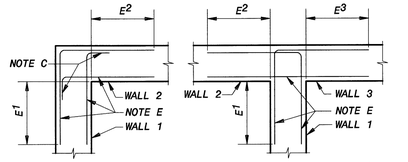
B=THE REQUIRED LENGTH FOR LAPPED SPLICE FOR TOP BARS AS SHOWN ON THIS SHEET

FOR OPENINGS 12" <= D <= 21"

FOR RECTANGULAR OPENINGS 21" < D <= 54"

FOR CIRCULAR OPENINGS 21" < D <= 54"

TYPICAL EXTRA REINFORCING AT OPENINGS 12" TO <= 60"
(TYPICAL REQUIRED UNLESS ADDITIONAL REINFORCEMENT SPECIFICALLY INDICATED AT OPENINGS ON DRAWINGS)



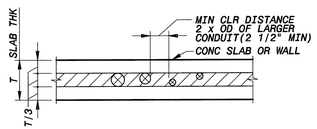
E = WHERE SPECIFICALLY NOTED ON THE DRAWINGS, ADDITIONAL CORNER REINFORCEMENT SHALL BE PLACED IN BOTH FACES OF THE INDICATED CORNER OVER THE FULL HEIGHT. ADDITIONAL CORNER REINFORCEMENT SHALL BE OF THE SAME SIZE AND SPACING AS THE MAIN CORNER REINFORCEMENT. PLACE ADDITIONAL REINFORCEMENT ALTERNATELY WITH, AND EQUAL DISTANCE BETWEEN, MAIN CORNER REINFORCEMENT.

Ex = DISTANCE FROM INSIDE CORNER FACE TO TERMINATION OF ADDITIONAL CORNER REINFORCEMENT IN SIMILARLY NUMBERED WALL. Ex SHALL NOT BE LESS THAN 0.20 THE CLEAR SPAN DISTANCE MEASURED HORIZONTALLY BETWEEN THIS CORNER AND THE NEXT OR 0.40 THE CLEAR SPAN DISTANCE OR CANTILEVERED DISTANCE MEASURED VERTICALLY, WHICHEVER IS SMALLER, BUT NOT LESS THAN 3'-0".

CONTRACTORS OPTION:
E BAR TAILS MAY BE SPLICED USING LAPPED SPLICE LENGTHS FOR TOP BARS. SPLICES SHALL NOT BE LOCATED IN THE CORNER AREA COMMON TO BOTH WALLS AND SHALL CLEAR HOOK ENDS BY 3" MIN.

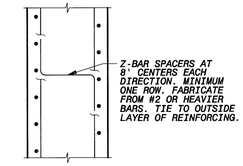
ADDITIONAL REINFORCEMENT WHERE SPECIFICALLY NOTED ON THE DRAWINGS

DETAIL A
NO SCALE

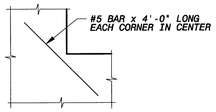


NOTES:
1. PLACE CONDUIT ONLY IN SHADED AREA
2. FOR CONDUIT REQUIREMENTS SEE THE ELECTRICAL DRAWINGS AND SPECIFICATIONS.

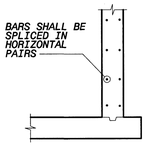
CONDUIT PLACING DETAIL
NO SCALE



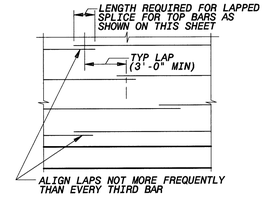
SPACERS FOR WALL REINFORCEMENT



TYPICAL EXTRA REINFORCING AT ISOLATED RE-ENTRANT CORNERS
(TYPICAL REQUIRED UNLESS ADDITIONAL REINFORCEMENT ACI 07 SPECIFICALLY INDICATED AT OPENINGS ON DRAWINGS)

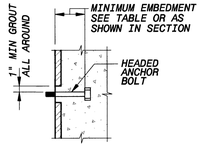


WALL SECTION



WALL ELEVATION

TYPICAL CIRCULAR TANK OR RING WALL REINFORCING SPLICE DETAIL



BOLT EMBEDMENT SCHEDULE (UNO)	
BOLT SIZE	EMBED
1/2"	4"
5/8"	4"
3/4"	5"
7/8"	6"
1"	7"

NOTE:
AT CONTRACTOR'S OPTION, EPOXY GROUTED ANCHORS CAN BE USED IN LIEU OF CAST-IN PLACE ANCHORS

TYPICAL MASONRY ANCHOR DETAIL
NO SCALE

NO.	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE
					XREF1:
					XREF2:
					XREF3:
					XREF4:
					XREF5:

CYGNET ID: 146781-3000-WTCN-S-T0000DTR3
WF: 16.1$ (LMS Tech)
SAVED: KU007234, 10/17/2007 4:08:52 PM
PLOTTED: 10/29/2007 11:47:30 AM, Batch Plot
USER: tc0078
DWG VER: 4.1

CERTIFIED PROFESSIONAL ENGINEER — KURTIS W. WAGNER — 94463 — STATE OF KANSAS

BLACK & VEATCH
Black & Veatch Corporation
Lawrence, Kansas

LAWRENCE, KANSAS
STONERIDGE ELEVATED TANK

STRUCTURAL
STANDARD CONCRETE REINFORCING DETAILS

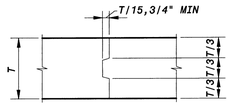
DESIGNED:	B&V
DETAILED:	B&V
CHECKED:	WJW
APPROVED:	TFS
DATE:	10-26-2007

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

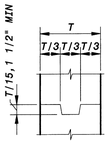
PROJECT NO. 146781

B4
SHEET 7 OF 13

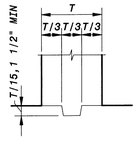
730000 D140701



SLABS

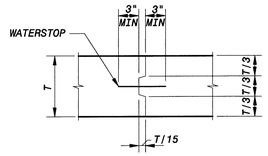


WALLS

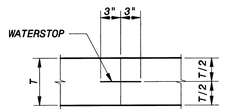


BASE OF WALLS

JOINTS WITHOUT WATERSTOPS

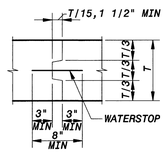


SECTION
T=>12"



SECTION
T<12"

SLABS



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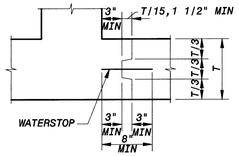
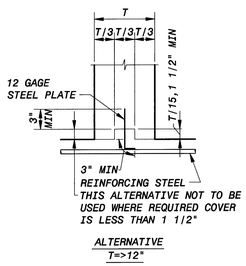


T=>12"

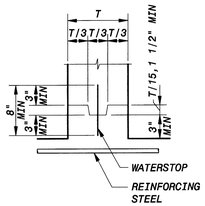
WALLS

T=>12"

CORNERS



ALTERNATIVE
T=>12"



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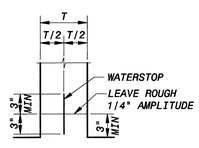
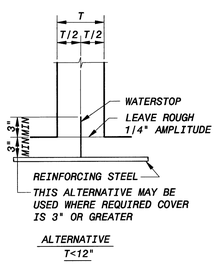


T<12"

BASE OF WALLS

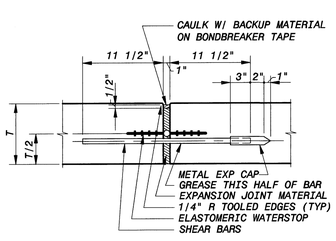


ALTERNATIVE
T<12"

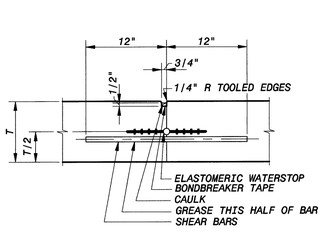
JOINTS WITH WATERSTOPS

TYPICAL CONSTRUCTION JOINTS

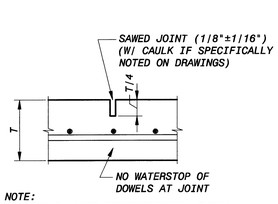
NOTES:
1. REINFORCING STEEL IS CONTINUOUS THROUGH ALL CONSTRUCTION JOINTS
2. "CSJ W/WS" - WITH WATERSTOP
3. "CSJ" - WITHOUT WATERSTOP



SLABS

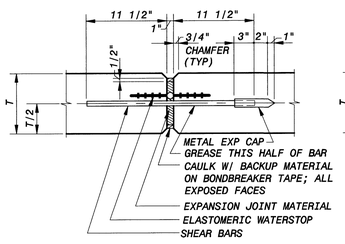


SLABS

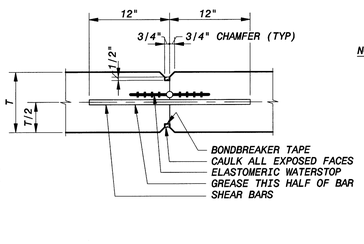


NOTE:
IF SINGLE LAYER REINFORCEMENT. EVERY OTHER BAR IS DISCONTINUOUS AT JOINT. IF 2 LAYER REINFORCEMENT, TOP LAYER IS COMPLETELY DISCONTINUOUS AT JOINT.

SAWED CONTRACTION JOINT
SLAB-ON-GRADE



WALLS



WALLS

NOTES:
1. TYPICAL CONTROL JOINT NOTES 1 THRU 3 NOT APPLICABLE.
2. "SJ" - NO WATERSTOP
3. JOINT FORMED WITH TOOL OR INSERT STRIP MAY BE SUBSTITUTED FOR SAWED TYPE ONLY WITH PRIOR ACCEPTANCE BY THE ENGINEER.

EXPANSION JOINTS

NOTE:
"EJ" W/ WS" - WITH ELASTOMERIC WATERSTOP
"EJ" - WITHOUT ELASTOMERIC WATERSTOP

CONTRACTION JOINTS

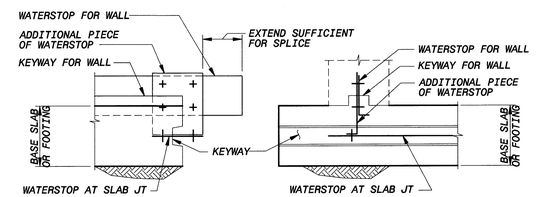
NOTE:
"CJ" W/ WS" - WITH ELASTOMERIC WATERSTOP
"CJ" - WITHOUT ELASTOMERIC WATERSTOP

TYPICAL CONTROL JOINTS

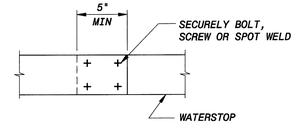
NOTES:
1. PROVIDE 3/4" SHEAR BARS @ 1'-6" CTRS ACROSS JOINT UNLESS NOTED OTHERWISE.
2. REINFORCING STEEL SHALL NOT BE EXTENDED ACROSS JOINT UNLESS NOTED OTHERWISE.
3. SHEAR BARS SHALL BE SMOOTH FREE FROM RUST OR SCALE, AND GREASED TO PREVENT BOND (ONE HALF OF BAR ONLY).

NOTES

1. DETAILS ON THIS DRAWING APPLY TO ALL DRAWINGS UNLESS OTHERWISE NOTED.
2. WORK THIS DRAWING WITH THE STANDARD CONCRETE REINFORCING DETAILS SHEET B4.
3. AT WALL JOINTS AND AT WALL BASE JOINTS, SECURE ALL ELASTOMERIC WATERSTOPS IN THE CORRECT POSITION USING HOG RINGS OR GROMMETS SPACED AT 12 INCHES ALONG THE LENGTH OF THE WATERSTOP AND WIRE TIE TO ADJACENT REINFORCING STEEL.
4. AT SLAB JOINTS AND FOOTING JOINTS, ENSURE SPACE BENEATH AND AROUND WATERSTOP IS COMPLETELY FILLED WITH CONSOLIDATED CONCRETE. DURING OPERATION MAKE VISUAL INSPECTION OF ENTIRE WATERSTOP AREA. LIMIT CONCRETE PLACEMENT TO ELEVATION OF WATERSTOP IN FIRST LIFT. RAISE ELASTOMERIC WATERSTOPS TO CONFIRM FULL CONSOLIDATION WITHOUT VOIDS. PLACE REMAINING CONCRETE TO FULL DEPTH OF SLAB.



STEEL WATERSTOP INTERSECTION AT BASE SLAB CONSTRUCTION JOINT



STEEL WATERSTOP SPLICE

NO.	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE
					CYGNET ID: 146781-3000-WTQH-C-TQQQQDTS1 XREF1:
					WF: 16.1s (LMS Tech) XREF2:
					SAVED: KJQQ7234, 10/17/2007 4:15:09 PM XREF3:
					PLOTTED: 10/29/2007 11:47:45 AM, Batch Plot XREF4:
					USER: stoSQQ78 DWG VER: 4.1 XREF5:

BLACK & VEATCH
Black & Veatch Corporation
Lawrence, Kansas

LAWRENCE, KANSAS
STONERIDGE ELEVATED TANK

STRUCTURAL
STANDARD CONCRETE JOINT DETAILS

DESIGNED:	B&V
DETAILED:	B&V
CHECKED:	WJW
APPROVED:	TFS
DATE:	10-26-2007

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
146781

B5
SHEET
8 OF 13

F06000
D146781

ONE-LINE DIAGRAM LEGEND

1500KVA
2.4KVD-480Y/277
3Ø, 60HZ — TRANSFORMER WITH PRIMARY AND SECONDARY VOLTAGE, AND KVA RATING AS NOTED

20 — 22: 3#8,#10G,2" — CIRCUIT NO.22 WITH #8 INSULATED CONDUCTORS, 1#10 BARE GROUND WIRE ALL IN 2" CONDUIT TO 20 HP MOTOR

AUXILIARY ITEMS MAY NOT BE SHOWN COMPLETELY
15 — ONE-LINE SHOWING POWER AND CONTROL TO A PACKAGE UNIT, AS FOR EXAMPLE A STEAM GENERATOR OR AN AIR HANDLING UNIT, SHALL IMPLY THAT ANY AND ALL ASSOCIATED EQUIPMENT SHALL ALSO BE INSTALLED AND WIRED AS REQUIRED BY THE EQUIPMENT FURNISHED.

INDICATES THAT ALL OR PART OF CIRCUIT MAY BE ROUTED IN DUCT BANK OR UNDERGROUND. CONDUIT SIZE SHOWN ON ONE-LINE IS ABOVE GROUND AND/OR INSIDE OF STRUCTURE. SEE DUCT BANK SCHEDULE AND SECTIONS FOR CONDUIT SIZE OF UNDERGROUND PORTION OF CIRCUIT.

HIGH VOLTAGE DRAWOUT AIR OR VACUUM CIRCUIT BREAKER

3P-20 — LOW VOLTAGE AIR CIRCUIT BREAKER, 3 POLE, 20 AMPERE

S4 — SIZE 4 COMBINATION MAGNETIC MOTOR STARTER

LOW VOLTAGE DRAWOUT AIR CIRCUIT BREAKER

HIGH VOLTAGE DRAWOUT CONTACTOR

FUSE AND DISCONNECT SWITCH

S2 — SIZE 2 COMBINATION MAGNETIC MOTOR STARTER, REVERSING OR 2 SPEED

S1 — SIZE 1 COMBINATION REDUCED VOLTAGE STARTER

POTENTIAL TRANSFORMER

CURRENT TRANSFORMER

CONDUIT & WIRING INSTALLATION LEGEND

CONDUIT EXPOSED

CONDUIT CONCEALED

CONDUIT TURNING UP. CONDUIT TURNING DOWN.

CONDUIT PLUGGED FLUSH. CONDUIT CAPPED.

L2-5 — TYPICAL FOR HOME RUN TO BE ROUTED TO LIGHTING PANEL L2 & CONNECTED TO CIRCUIT #5 (MINIMUM NO. 12 AWG CONDUCTORS AND 3/4" CONDUIT)

A — LIGHTING FIXTURE. REFER TO NUMBER OR LETTER IN FIXTURE SCHEDULE

11 — FLUORESCENT FIXTURE. REFER TO NUMBER OR LETTER IN FIXTURE SCHEDULE.

LP1-3 — RECEPTACLE POWERED FROM LIGHTING PANEL LP1, CIRCUIT 3

A LP2-2 — LIGHTING FIXTURE POWERED FROM LIGHTING PANEL LP2, CIRCUIT 2 (NON-SWITCHED)

LPA-4 A / 11 — LIGHTING FIXTURE POWERED FROM LIGHTING PANEL LPA, CIRCUIT 4, VIA SWITCH A

E — UNDERGROUND CONCRETE ENCASED ELECTRICAL DUCT BANK

UNDERGROUND CONCRETE ENCASED ELECTRICAL BANK ROUTED BENEATH SLAB-ON-GRADE

EE — DIRECT BURIED CONDUIT

GROUND CONDUCTOR

SCHEMATIC SYMBOLS

- WIRE CONNECTION POINT
- EXTERNAL CONNECTION POINT
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- STARTER, CONTACTOR OR RELAY COIL
- NORMALLY OPEN PUSH BUTTON
- NORMALLY CLOSED PUSH BUTTON
- MAINTAINED PUSH BUTTON
- NORMALLY CLOSED GEARED LIMIT SWITCH
- NORMALLY OPEN GEARED LIMIT SWITCH
- INDICATING LIGHT
- FUSE
- POTENTIOMETER
- CAPACITOR
- DIODE
- RESISTOR
- CONTROL POWER TRANSFORMER
- SWITCH
- MS — MANUAL STARTER
- OL — OVERLOAD
- ELECTRODE
- FLOAT SWITCH (CLOSING ON RISING LEVEL)
- FLOAT SWITCH (OPENING ON RISING LEVEL)
- PRESSURE SWITCH (CLOSING ON RISING PRESSURE)

MISCELLANEOUS SYMBOLS

- BELL
- HORN
- THERMOSTAT
- JUNCTION BOX
- GROUND ROD
- GROUND ROD WITH TEST WELL
- GROUND CONNECTION
- DISCONNECT SWITCH
- COMBINATION STARTER
- POWER PANEL
- LIGHTING PANEL
- MISCELLANEOUS PANEL
- LIGHTING CONTACTOR

SWITCH & OUTLET SYMBOLS

S	SINGLE POLE SWITCH	S_{PL}	SWITCH WITH PILOT LIGHT		DUPLEX RECEPTACLE 120 VOLT
S_2	TWO POLE SWITCH	S_{KO}	KEY OPERATED SWITCH		SIMPLEX RECEPTACLE
S_3	THREE-WAY SWITCH	S_{XP}	EXPLOSION PROOF SWITCH		RANGE RECEPTACLE
S_4	FOUR-WAY SWITCH	S_{DM}	DIMMER SWITCH		TWISTLOCK RECEPTACLE
S_M^{C1}	MOMENTARY SWITCH CONTROLLING CONTACTOR C1	S_{3A}	THREE-WAY SWITCH CONTROLLING LIGHTS WITH "A" DESIGNATION	30	240V, 1Ø RECEPTACLE, TYPICAL AMPERE RATING NOTED
S_{WP}	WEATHERPROOF SWITCH			60	480V, 3Ø WELDING RECEPTACLE, TYPICAL AMPERE RATING NOTED

	120 VOLT DUPLEX RECEPTACLE (UPS)
	DUPLEX FLOOR OUTLET
	TELEPHONE OUTLET
	TELEPHONE FLOOR OUTLET
CX	COAXIAL CABLE OUTLET

- PRESSURE SWITCH (OPENING ON RISING PRESSURE)
- VACUUM SWITCH (CLOSING ON INCREASING VACUUM)
- VACUUM SWITCH OPENING ON INCREASING VACUUM)
- TEMPERATURE SWITCH (CLOSING ON RISING TEMPERATURE)
- TEMPERATURE SWITCH (OPENING ON RISING TEMPERATURE)
- FLOW ACTUATED SWITCH (CLOSING ON INCREASE IN FLOW)
- FLOW ACTUATED SWITCH (OPENING ON INCREASE IN FLOW)
- ON TIME DELAY CONTACT (NORMALLY OPEN, WHEN THE COIL IS ENERGIZED THE CONTACT WILL CLOSE AFTER A TIME DELAY)
- ON TIME DELAY CONTACT (NORMALLY CLOSED, WHEN THE COIL IS ENGERGIZED THE CONTACT WILL OPEN AFTER A TIME DELAY)
- OFF TIME DELAY CONTACT (NORMALLY OPEN, WHEN THE COIL IS DE-ENERGIZED THE CONTACT WILL OPEN AFTER A TIME DELAY)
- OFF TIME DELAY CONTACT (NORMALLY CLOSED, WHEN THE COIL IS DE-ENERGIZED THE CONTACT WILL CLOSE AFTER A TIME DELAY)
- TORQUE SWITCH (NORMALLY OPEN)
- TORQUE SWITCH (NORMALLY CLOSED)
- LIMIT SWITCH (NORMALLY OPEN)
- LIMIT SWITCH (NORMALLY OPEN, HELD CLOSED)
- LIMIT SWITCH (NORMALLY CLOSED)
- LIMIT SWITCH (NORMALLY CLOSED, HELD OPEN)
- DIFFERENTIAL PRESSURE SWITCH (NORMALLY OPEN, CLOSING ON INCREASING DIFF.)
- DIFFERENTIAL PRESSURE SWITCH (NORMALLY CLOSED, OPENING ON INCREASING DIFF.)

COMMUNICATION SYMBOLS

- HORN SPEAKER
- DUAL HORN SPEAKER
- WALL MOUNTED CONE SPEAKER
- SK — CEILING MOUNTED CONE SPEAKER
- WS / WP — WALL STATION
- DS — DESK TOP STATION
- RH / WP — REMOTE HANDSET
- SA — SPEAKER AMPLIFIER
- LB — LINE BALANCE ASSEMBLY
- TG — TONE GENERATOR
- TI — TELEPHONE INTERFACE
- IA — INTERFACE AMPLIFIER
- IJB — INTERCOM JUNCTION BOX

NOTE: WP=WEATHERPROOF H=HAZARDOUS AREA

ABBREVIATIONS

A	AMBER, AMPERE, ALARM
AC	ALTERNATING CURRENT
ACB	AIR CIRCUIT BREAKER
AF	AMPERE FRAME
AFD	ADJUSTABLE FREQUENCY DRIVE
AM	AMMETER
ANN	ANNUNCIATOR
AR	ALARM RELAY
AS	AMMETER SWITCH
AT	AMPERE TRIP
AWG	AMERICAN WIRE GAGE
BC	BATTERY CHARGER
BR	BRAKE
BT	BEARING TEMPERATURE
C	CLOSE, COUNTER OR CONTACTOR
CAP	CAPACITOR
CB	CIRCUIT BREAKER
CB*A*	CIRCUIT BREAKER AUXILIARY CONTACT (OPEN WHEN BREAKER IS OPEN OR TRIPPED CLOSED WHEN BREAKER IS CLOSED)
CB*B*	CIRCUIT BREAKER AUXILIARY CONTACT (CLOSED WHEN BREAKER IS OPEN OR TRIPPED OPEN WHEN BREAKER IS CLOSED)
CD	CONTROL DAMPER
CI	CELL INTERLOCK
CKT	CIRCUIT
CL2	CHLORINE
COS	CABLE OPERATED SWITCH
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CURRENT OR CONTROL RELAY
CS	CONTROL STATION
CT	CYCLE TIMER OR CURRENT TRANSFORMER
CTC	CYCLE TIMER CLUTCH
CTM	CYCLE TIMER MOTOR
2/C	2 CONDUCTOR
4*C	4* CONDUIT
DC	DIRECT CURRENT
DI	DOOR INTERLOCK
DM	DAMPER MOTOR OR DEMAND METER
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
DPR	DIFFERENTIAL PRESSURE REGULATOR
DPS	DIFFERENTIAL PRESSURE SWITCH
DS	DISCONNECT SWITCH
DVLS	DISCHARGE VALVE LIMIT SWITCH
E	ELECTRIC OPERATOR FOR CONVTROL DAMPER OR VALVE
EC	EMPTY CONDUIT
EL	ELEVATION OR EMERGENCY LIGHT
EMH	ELECTRICAL MANHOLE
ER	ELECTRODE RELAY
ES	END SWITCH
ETM	ELAPSED TIME METER
EX	EXISTING
F	FORWARD
FS	FLOW SWITCH
G	GREEN OR GROUND
GD	GROUND DETECTOR
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GLS	GEARED LIMIT SWITCH
#8G	#8 GROUND WIRE
H	HIGH OR HUMIDISTAT
HC	HOT CIRCUIT
HH	HANDHOLE
HMT	HIGH MOTOR TEMPERATURE
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
HP	HORSEPOWER
HWCO	HIGH WATER CUTOFF
HZ	HERTZ (CYCLE)
I/O	INPUT/OUTPUT
INST	INSTANTANEOUS
J	JUNCTION BOX
JB	JUNCTION BOX
K	KEY INTERLOCK
KCMIL	THOUSAND CIRCULAR MIL
KV	KILOVOLT
KVA	KILOVOLT AMPERE
KVAR	KILOVAR
KW	KILOWATT
KWH	KILOWATT HOUR
L	LOW, LEVEL
LA	LIGHTNING ARRESTER
LAN	LOCAL AREA NETWORK
LC	LIGHTING CONTACTOR
LOA	LOCAL-OFF-AUTO
LOR	LOCAL-OFF-REMOTE
LP	LIGHTING PANEL
LS	LIMIT OR LEVEL SWITCH
LWCO	LOW WATER CUTOFF
1-1PR#16S	ONE, SINGLE PAIR, TWISTED, SHIELDED #16 CABLE
3-7/C#14	THREE, SINGLE, SEVEN CONDUCTOR #14 MULTICONDUCTOR CONTROL CABLES
M	MAGNETIC MOTOR STARTER
MA	MILLIAMPERE
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCLU	MOTOR CONTROL LINEUP
MD	MOISTURE DETECTOR
MFM	MAGNETIC FLOW METER
MFR	MANUFACTURER
MH	MANHOLE OR MOUNTING HEIGHT
MOV	MOTOR OPERATED VALVE
MPR	MOTOR PROTECTION RELAY
MS	MANUAL MOTOR STARTER
MSH	MOTOR SPACE HEATER
MV	MILLIVOLT
MVA	MEGA VOLT AMPERE
N	NEUTRAL
NC	NORMALLY CLOSED
NO	NORMALLY OPEN, NUMBER
O	OPEN
OCB	OIL CIRCUIT BREAKER
OL	OVERLOAD
OOA	ON-OFF-AUTO
OOR	ON-OFF-REMOTE
P	PRIMARY
PCS	PLANT CONTROL SYSTEM
PB	PUSH BUTTON OR PULL BOX
PF	POWER FACTOR METER
PH	PHASE, CHEMICAL TERM
PLC	PROGRAMMABLE LOGIC CONTROLLER
PP	POWER PANEL
PRS	PROXIMITY SWITCH
PS	PRESSURE SWITCH
PT	POTENTIAL TRANSFORMER, PROGRAM TIMER
2P	2 POLE
R	RED, RAISE, RELAY OR REVERSE
RECP	RECEPTACLE
RES	RESISTOR
RT	REPEATING TIMER
RTD	RESISTANCE TYPE TEMP DETECTOR
RTU	REMOTE TERMINAL UNIT
RVSS	REDUCED VOLTAGE SOLID STATE STARTER
S2	SIZE 2 STARTER
SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
SH	SPACE HEATER
SN	SOLID NEUTRAL
SO	SOLENOID OILER
SP	SINGLE POLE
SPDT	SINGLE POLE DOUBLE THROW
SPST	SINGLE POLE SINGLE THROW
SS	SELECTOR SWITCH
SSS	SOLID STATE STARTER
SUPV	SUPERVISORY CONTROL
SV	SOLENOID VALVE
SWB	SWITCHBOARD
SWGR	SWITCHGEAR
T	THERMOSTAT, TIMER, OR TOTALIZER
TACH	TACHOMETER
TB	TERMINAL BLOCK
TC	TIMER CLUTCH
TD	TIME DELAY RELAY
TEMP	TEMPERATURE
TM	TIMER MOTOR
TQ	TORQUE
TS	TEMPERATURE SWITCH
TTB	TELEPHONE TERMINAL BOX
UG	UNDERGROUND
UV	UNDER VOLTAGE
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
VA	VOLT AMPERE
VAR	VARMETER
VLS	VALVE LIMIT SWITCH
VM	VOLTMETER
VPI	VALVE POSITION INDICATOR
VS	VOLTMETER SWITCH
W	WHITE OR WATTS
WH	WATTHOUR METER
WM	WATT METER
WP	WEATHERPROOF
WPI	WEATHERPROOF IN-USE
X	AUXILIARY RELAY
XFMR	TRANSFORMER
XP	EXPLOSION PROOF
Y	YELLOW
Z	AUXILIARY RELAY
ZS	POSITION SWITCH
ZSS	ZERO SPEED SWITCH

AREA DESIGNATIONS

THE SPECIAL AREA DESIGNATION BOXES, AS DEFINED BELOW, ARE LOCATED ON THE PLAN DRAWINGS TO DEFINE ELECTRICAL INSTALLATION REQUIREMENTS. DESIGNATION BOXES ARE LOCATED WITHIN ROOM OR BELOW ROOM NUMBER. ALL INDOOR AREAS NOT INDICATED OTHERWISE ARE AREA TYPE 1 AND MINIMUM NEMA TYPE 1 ENCLOSURES.

AREA TYPE 1A — CORROSIVE CHEMICAL FEED AND STORAGE ROOMS. CONDUIT SYSTEM SHALL BE EXPOSED PVC RIGID NON-METALLIC CONDUIT WITH PVC FITTINGS, BOXES, AND ACCESSORIES. INDOOR WET LOCATIONS SUCH AS VAULTS, HOSEDOWN AREAS, BASEMENTS, ETC. MINIMUM NEMA TYPE 4 ENCLOSURE FOR EQUIPMENT AND GASKETED FITTINGS IN A CONDUIT SYSTEM.

AREA TYPE 4 — CLASS I, DIVISION 1 AREA AS DEFINED BY NEC. ALL EQUIPMENT AND CONDUIT SYSTEMS SHALL BE RATED FOR USE IN THIS AREA.

AREA TYPE 7A — CLASS I, DIVISION 2, GROUP C AND D (METHANE, GASOLINE) AS DEFINED BY NEC. EQUIPMENT AND CONDUITS SYSTEMS SHALL BE RATED FOR USE IN THIS AREA.

AREA TYPE 7B — INDOOR, DRY, DIRTY AREA. REQUIRES MINIMUM NEMA TYPE 12 GASKETED ENCLOSURES FOR ALL EQUIPMENT AND GASKETED FITTINGS IN CONDUIT SYSTEMS.

AREA TYPE 12

GENERAL REQUIREMENTS

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ROUTING ALL CONDUITS NOT SHOWN ON THE PLANS. THIS SHALL INCLUDE ALL CONDUITS SHOWN ON THE ONE-LINES AND HOME-RUNS SHOWN ON THE PLAN DRAWINGS. CONDUITS SHALL BE ROUTED AS DEFINED IN THE SPECIFICATIONS.
2. SPARE WIRES SHALL BE TAPED AND COILED.
3. IF EQUIPMENT SUPPLIED BY MANUFACTURER HAS A LARGER LOAD THAN VALUE SHOWN, THE CABLE CONDUIT AND ELECTRICAL EQUIPMENT SHALL BE ENLARGED, AS REQUIRED, TO ACCOMMODATE THE HIGHER VALUE.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING PROPERLY SIZED STARTER OVERLOADS FOR EQUIPMENT FURNISHED.
5. LIGHTING AND RECEPTACLE CIRCUITS DESIGNATED ON THE FLOOR PLANS ARE NOT SHOWN ON THE ONE-LINES. CONDUCTORS FOR LIGHTING, RECEPTACLES, AND MISCELLANEOUS 120VAC CIRCUITS SHALL BE MINIMUM NO. 12 AWG. CONDUIT FOR LIGHTING, RECEPTACLES, AND MISCELLANEOUS 120VAC CIRCUITS SHALL BE MINIMUM 3/4".
6. IN AREAS WHERE THERE ARE OVERHEAD BRIDGE CRANES, HOISTS, ETC., NO CONDUITS SHALL BE RUN OVERHEAD THAT WILL INTERFERE WITH THE OPERATION OF THE EQUIPMENT.

GENERAL NOTES

1. SOLID LINES (————) INDICATE NEW WORK OR EQUIPMENT.
2. SCREENED LINES (▒▒▒▒▒▒▒▒) INDICATE EXISTING WORK OR EQUIPMENT.
3. DASHED LINES (– – – – –) INDICATE FUTURE WORK OR EQUIPMENT.
4. REFER TO THE FOLLOWING DRAWING(S) FOR INSTRUMENTATION LEGEND: PID-1
5. THIS IS A GENERAL LEGEND SHEET. SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT.
6. INFORMATION RELATED TO CIRCUIT IDENTIFICATION, WIRE & CONDUIT SIZES, AND ROUTING, IS ON THE FOLLOWING DRAWING TYPES.
   - A. ONE-LINE DIAGRAMS SHOW CIRCUIT IDENTIFICATION, WIRE QUANTITY AND SIZES, AND CONDUIT SIZE WITHIN STRUCTURES. ONE-LINE DIAGRAMS ALSO INDICATE ORIGIN AND DESTINATION OF CIRCUITS, AND IDENTIFY CIRCUITS ROUTED UNDERGROUND.
   - B. FOR CIRCUITS WITHOUT UNDERGROUND PORTIONS, BUILDING FLOOR PLANS SHOW LOCATION OF EQUIPMENT FOR DETERMINING CIRCUIT LENGTH WITHIN THE STRUCTURE. FOR CIRCUITS WITH UNDERGROUND PORTIONS, ANTICIPATED PENETRATION OF UNDERGROUND CONDUITS ARE SHOWN ON STRUCTURE PLANS FOR DETERMINING THE LENGTH OF THE IN-STRUCTURE PORTIONS OF CIRCUITS. BUILDING FLOOR PLANS MAY ALSO SHOW HOME RUNS FOR LIGHTING, RECEPTACLE, AND OTHER MISCELLANEOUS EQUIPMENT CIRCUITS.
   - C. SITE PLANS INDICATE THE GENERAL ROUTING OF UNDERGROUND CONDUITS AND DUCT BANKS. CIRCUITS ROUTED IN UNDERGROUND CONDUITS OR DUCT BANKS ARE INDICATED IN DUCT BANK SECTIONS REFERENCED ON THE SITE PLAN.
   - D. DUCT BANK SECTIONS AND SCHEDULES IDENTIFY CONDUIT SIZE CONDUIT MATERIAL, ARRANGEMENT OF THE UNDERGROUND CONDUITS, AND CIRCUITS ROUTED IN EACH UNDERGROUND CONDUIT.

NO.	BY	CK	APP

REVISIONS AND RECORD OF ISSUE
CYDNET ID: 146781-3000-WTCN-E-TOOOORAWR
WF: 16.1& (LMS Tech)
SAVED: KRA46802, 10/24/2007 3:00:09 PM
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USER: stc50078
DATE
XREF1:
XREF2:
XREF3:
XREF4:
XREF5:
DWG VER: 4.2

MARK J. KLEIN — LICENSED PROFESSIONAL ENGINEER — 15148 — STATE OF KANSAS — 10/29/07

BLACK & VEATCH
Black & Veatch Corporation
Kansas City, Missouri

LAWRENCE, KANSAS
STONERIDGE ELEVATED TANK

ELECTRICAL
LEGEND & ABBREVIATIONS

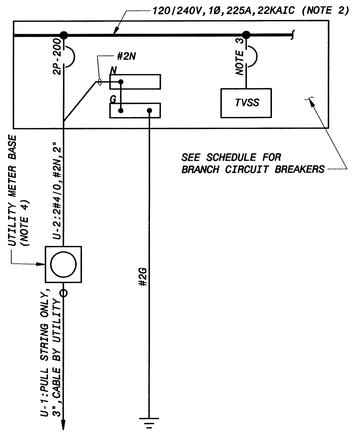
DESIGNED: JJK
DETAILED: JJK
CHECKED: JTF
APPROVED: MJK
DATE: 10-26-07

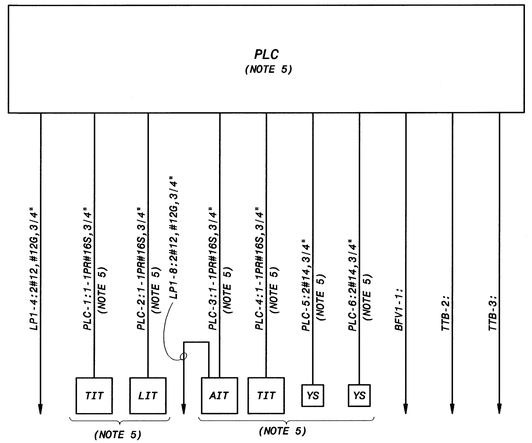
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

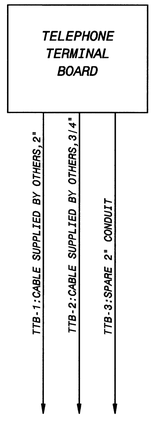
PROJECT NO.
146781

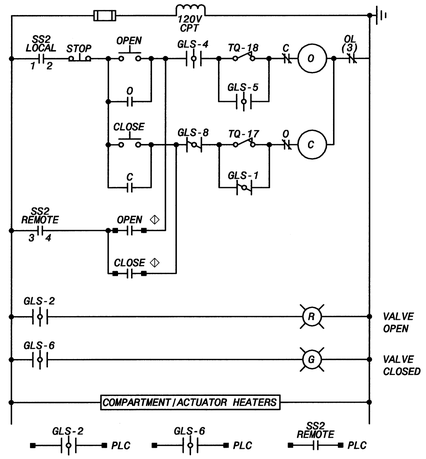
C1
SHEET
9 OF 14

FD0000
D0000

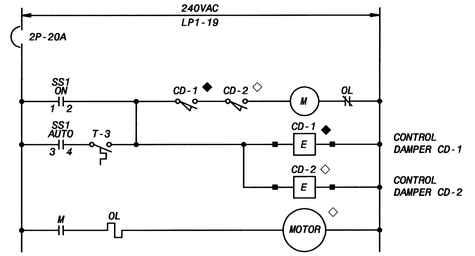








ALTITUDE VALVE BFV-1



PF-1 STARTER

SWITCH DEVELOPMENT

SS1

CONTACTS	POSITION ON	OFF	AUTO
1-2	×		
3-4			×

SS2

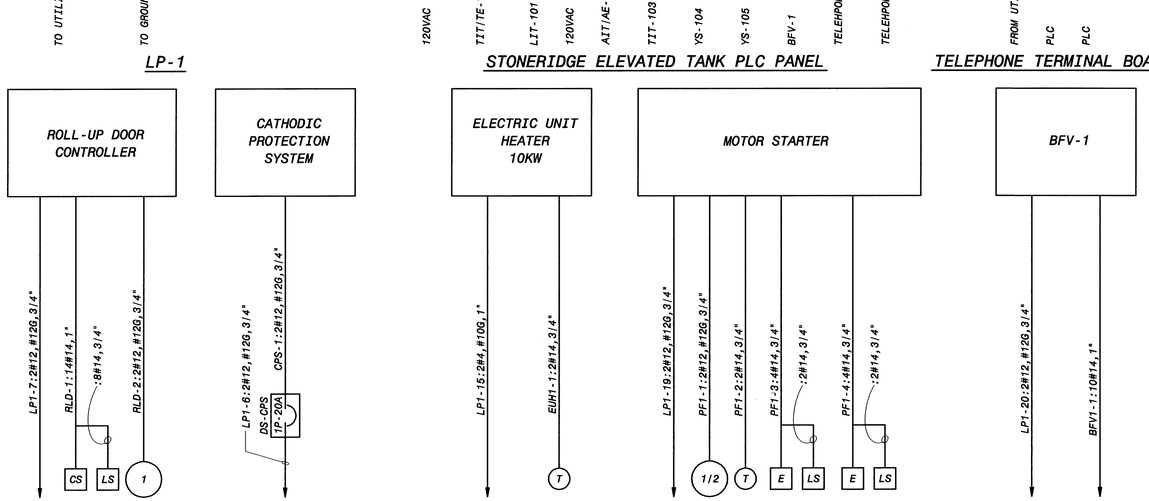
CONTACTS	POSITION LOCAL	OFF	REMOTE
1-2	×		
3-4			×

ROTOR	GLS CONTACT	ACTUATOR POSITION FULL OPEN 0%	INTERMEDIATE POSITION (90%)	FULL CLOSED 100%
1	1			
	2			
	3			
	4			
	5			
2	6			
	7			
	8			
	9			
	10			
3	11			
	12			
	13			
	14			
4	15			
	16			

T0/17 OPENS ON HIGH CLOSING TORQUE
T0/18 OPENS ON HIGH OPENING TORQUE
=CONTACT CLOSED

DEVICE LOCATION LEGEND

- ◇ AT DRIVEN EQUIPMENT
- ◆ REMOTE FROM STARTER AND DRIVEN EQUIPMENT
- ◈ FROM PLC



PHASE "A" V.A.	PHASE "B" V.A.	PANELBOARD:LP-1 (NOTE 2) SERVICE:120/240,1PH,3W,S/N MOUNTING: SURFACE LOAD	P	BKR	CKT #		BKR	P	LOAD	PHASE "A" V.A.	PHASE "B" V.A.
		BUS: COPPER RATING: 225A							MAINS:2P-200A MAIN BREAKER LOCATION:VALVE ROOM		
384		LIGHTS-VALVE ROOM	1	20	1	2	20	1	RECP-VALVE ROOM	360	
	540	RECP-VALVE ROOM	1	20	3	4	20	1	PLC PANEL		500
		SPARE	1	20	5	6	20	1	CATHODIC PROTECTION SYSTEM	300	
	1500	ROLL-UP DOOR CONTROLLER	1	20	7	8	20	1	AIT-102		50
460		OUTDOOR POLE LIGHT	1	20	9	10	20	1	LIGHTS-SUPP. COLUMN (SECTION 13210)	500	
	500	LIGHTS-LADDER (SECTION 13210)	1	20	11	12	20	1	LIGHTS-PLTFRM & ABOVE (SECT. 13210)		500
300		RECP-LADDER (SECTION 13210)	1	20	13	14	20	1	RECP-ROOF LADDER (SECTION 13210)	300	
	5000	EUH-1	2	60	15	16	60	2	EUH-2		5000
5000		--	-	--	17	18	--	-	--	5000	
	588	PF-1	2	20	19	20	20	2	VALVE BFV-1		960
588		--	-	--	21	22	--	-	--	960	
	500	HEAT TRACE CONTROLLER*	1	20	23	24	20	1	SPARE **		
		SPARE **	1	20	25	26	20	1	SPARE **		
		SPARE **	1	20	27	28	20	1	RECEPTACLE - OUTSIDE		180
		SPARE	1	20	29	30	20	1	SPARE		
		SPARE	1	20	31	32	20	1	SPARE		
		SPARE	1	20	33	34	20	1	SPARE		
		SPARE	1	20	35	36	20	1	SPARE		
		SPACE			37	38			SPACE		
		SPACE			39	40			SPACE		
		SPACE			41	42			SPACE		
6732		TOTAL "A"			14152				TOTAL "A"	7420	
	8628	TOTAL "B"			15818				TOTAL "B"		7190
		TOTAL =			29970						

* CONTRACTOR SHALL SUPPLY GFI BREAKER FOR CIRCUIT
** DEDICATED SPARE CIRCUIT FOR INSTRUMENTATION

NOTES:

1. SEE DRAWING C1 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENTS.
2. LIGHTING PANEL SHALL BE SERVICE ENTRANCE RATED.
3. TVSS OVERCURRENT PROTECTION, PROVIDED BY CIRCUIT BREAKING AND/OR FUSING, TO BE SIZED AND SUPPLIED BY TVSS MANUFACTURER AND SUPPLIED AS AN INTEGRAL UNIT.
4. COORDINATE WITH UTILITY FOR SERVICE ENTRANCE EQUIPMENT REQUIREMENTS.
5. PLC PANEL, INSTRUMENTS, AND INSTRUMENT CABLES BETWEEN THE INSTRUMENTS AND THE PLC WILL BE FURNISHED BY THE CITY. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING CONDUITS BETWEEN THE PLC CABINET AND THE INSTRUMENTS.

NO.	BY	CK.	APP.	DATE	REVISIONS AND RECORD OF ISSUE

CYBNET ID: 146781-3000-WTCH-E-T0000M874 XREF1:LP-1.xls XREF2: XREF3:
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PLOTTED: 10/29/2007 11:47:57 AM, Batch Plot XREF6:
USER: stroudm DWG VER: 4.2

MARK KLIEWER LICENSED 15148 PROFESSIONAL ENGINEER KANSAS 10/29/07

BLACK & VEATCH
Black & Veatch Corporation
Kansas City, Missouri

LAWRENCE, KANSAS
STONERIDGE ELEVATED TANK

ELECTRICAL
SCHEMATICS & ONE-LINE DIAGRAMS

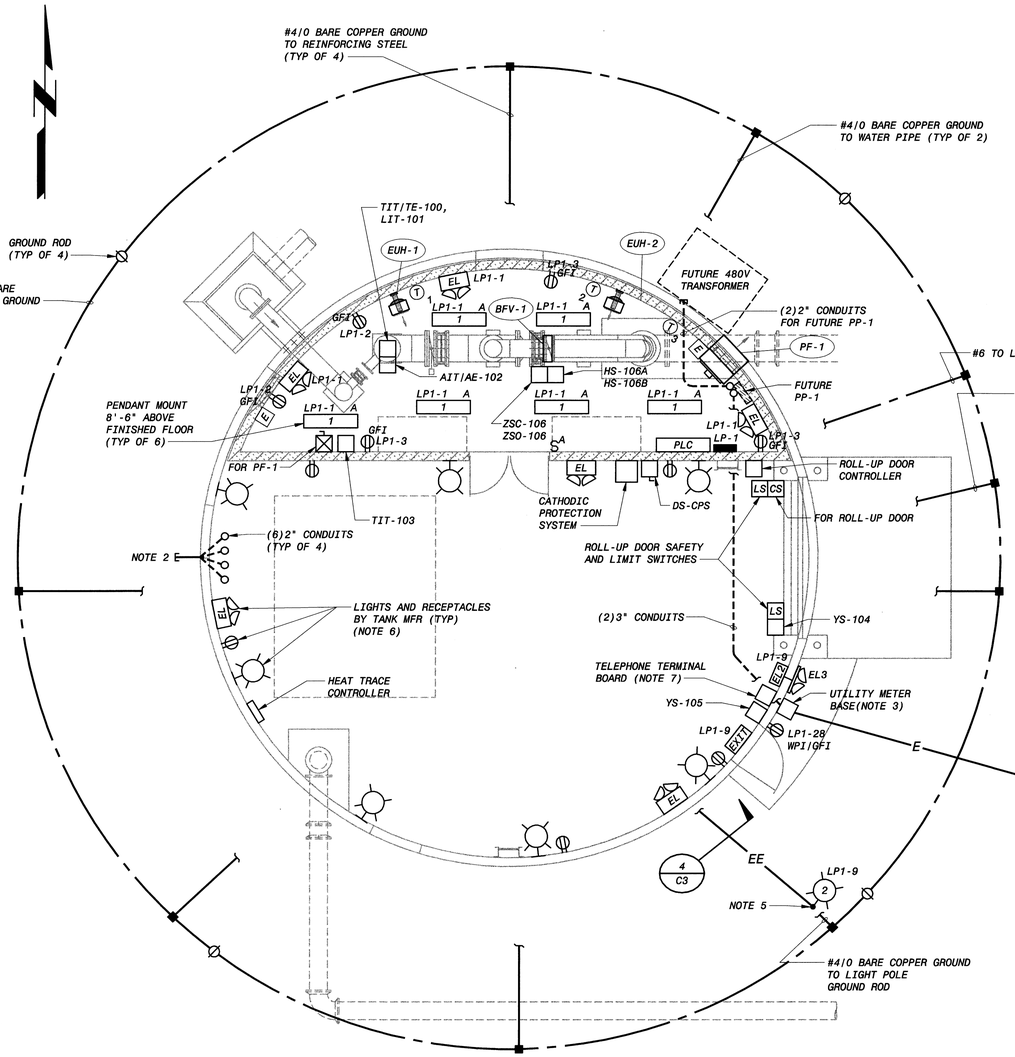
DESIGNED:	JJK
DETAILED:	JJK
CHECKED:	JTF
APPROVED:	MJK
DATE:	10-26-07

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO. 146781

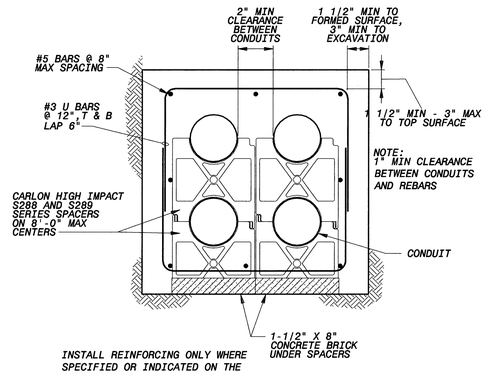
C2
SHEET 10 OF 14

FD8000 080600



ELECTRICAL POWER & LIGHTING PLAN

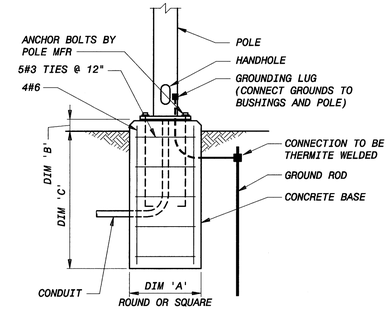
3/16" = 1'-0"



INSTALL REINFORCING ONLY WHERE SPECIFIED OR INDICATED ON THE DRAWINGS.

TYPICAL DUCT BANK SECTION

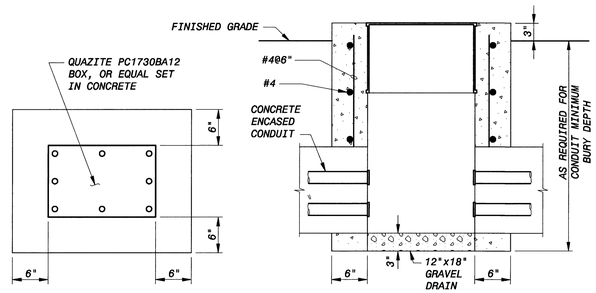
NO SCALE



TYPICAL POLE MOUNTING DETAIL

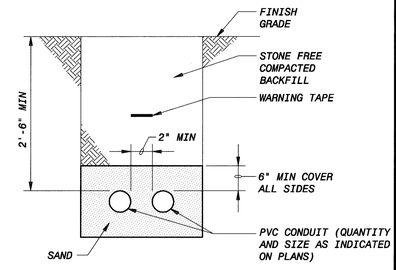
NO SCALE

A	B	C	POLE LENGTH
1'-0"	2"	3'-0"	10' TO 12'
1'-6"	2"	4'-0"	12' TO 20'
2'-0"	2"	5'-0"	20' TO 40'
2'-0"	2'-6"	5'-0"	20' TO 40'



TYPICAL UNDERGROUND (UG) PULL BOX DETAIL

NO SCALE

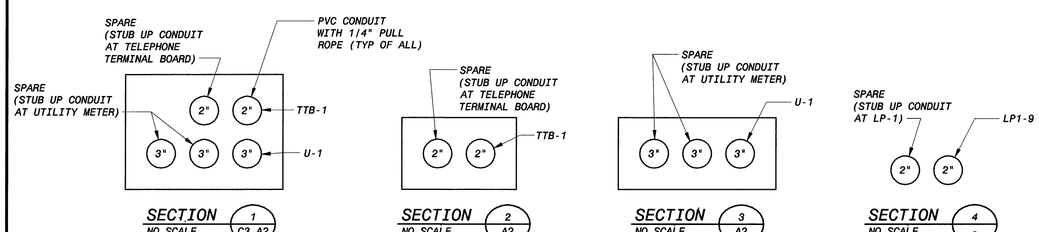


TYPICAL DIRECT BURIED CONDUIT SECTION

NO SCALE

LIGHTING FIXTURE SCHEDULE

FIXTURE	LAMP	MTG HGT	DESCRIPTION	MANUFACTURER
1	F32T8/SP35 2850 LUMENS	AS NOTED ON PLANS	2-LAMP OPEN INDUSTRIAL FLUORESCENT FIXTURE, 10% UP-LIGHT, WHITE PORCELAIN REFLECTOR, ELECTRONIC BALLAST, 120V	LITHONIA #AF102321200EBPO
2	400W MH MEDIUM BASE 39,000 LUMENS	30'-0" SQUARE STRAIGHT POLE	400W METAL HALIDE FIXTURE, TYPE III DISTRIBUTION, FULL CUTOFF, BLACK FINISH, HOUSE SIDE SHIELD, PHOTO-ELECTRIC CONTROL, 120V	HOLOPHANE FIXTURE #MS2A400MH12H3NNK-F1RMSH2X POLE #SSS3055CD1J4BK
EL	2 LAMPS FURNISHED WITH UNIT	7'-6" ABOVE FLOOR OR AS NOTED ON PLANS	EMERGENCY LIGHTING UNIT, WALL MOUNTED THERMOPLASTIC HOUSING, LEAD-CALCIUM 12 VOLT BATTERY, 100 WATT CAPACITY, TWO 50 WATT HALOGEN LAMPS,TIME DELAY, SUITABLE FOR DAMP LOCATION,120V	LITHONIA #IND12100H5012SSEL
EL2	NO LAMPS FURNISHED WITH UNIT	7'-6" ABOVE FLOOR OR AS NOTED ON PLANS	50W, 12V NICKEL CADMIUM BATTERY, SUITABLE FOR WASHDOWN AREAS, CORROSION AND IMPACT RESISTANT HOUSING, TIME DELAY, 120V	HOLOPHANE #DM6N50T0T1
EL3	2 LAMPS FURNISHED WITH UNIT	7'-6" ABOVE FLOOR OR AS NOTED ON PLANS	2-18W LAMPS, REMOTE HEAD FIXTURE, NEMA 4X ENCLOSURE, CORROSION RESISTANT, 12V	HOLOPHANE #DRNHT18B-2
EXIT	LED LAMPS FURNISHED WITH UNIT	1'-6" ABOVE DOORWAY	LED LAMP UNIVERSAL MOUNTED EXIT SIGN, WHITE HOUSING, SINGLE FACE, RED FACEPLATE, SEALED NICKEL CADMIUM BATTERY, IMPACT RESISTANT, CORROSION PROOF, 120V	LITHONIA #LQMSW1R120



NO SCALE

NOTES:

1. SEE DRAWING C1 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENTS.
2. PROVIDE TWENTY-FOUR 2" CONDUITS WITH END CAPS, FOR FUTURE ANTENNA BUILDING, FROM APPROXIMATE AREA SHOWN ON PLAN DRAWING WEST OF BUILDING TO INSIDE OF TANK COLUMN.
3. UTILITY METER BASE LOCATION BASED UPON PRELIMINARY DISCUSSION WITH WESTAR ENERGY. CONTRACTOR SHALL COORDINATE WITH WESTAR ENERGY TO FINALIZE POWER SERVICE ENTRANCE. CONTACT AT WESTAR ENERGY IS KENNETH BRUMLEY AT (785)-865-4857. SEE DRAWING A2 FOR DUCT BANK CONTINUATION.
4. RESERVOIR TO BE EQUIPPED WITH LIGHTNING PROTECTION SYSTEM AS SPECIFIED IN SPECIFICATION 16670.
5. PROVIDE PHOTOELECTRIC CONTROL PER SPECIFICATION 16050.
6. CONTRACTOR SHALL INSTALL LIGHTING AND RECEPTACLES PER SPECIFICATION 13210, SECTION 2-2.06.

NO.	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE

CYGNET ID: 146781.3000-WTCH-E-TOOOORBBK
WF: 16.1& (LWS Tech)
SAVED: KRA45602, 10/24/2007 3:00:38 PM
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USER: sto56078
XREF1: CS-TANK-PLAN.dwg
XREF2:
XREF3:
XREF4:
XREF5:
DWG VER: 4.2

MARK K. KLEVETER, 15148, LICENSED PROFESSIONAL ENGINEER, KANSAS, 10/29/07

BLACK & VEATCH
Black & Veatch Corporation
Lawrence, Kansas

LAWRENCE, KANSAS
STONERIDGE ELEVATED TANK

ELECTRICAL
POWER & LIGHTING PLAN

DESIGNED:	JJK
DETAILED:	JJK
CHECKED:	JTF
APPROVED:	MJK
DATE:	10-26-07

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IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
146781

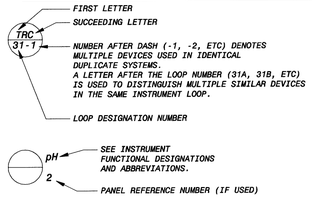
C3
SHEET
11 OF 14

F06000
D146781

GENERAL INSTRUMENT SYMBOLS

- FIELD MOUNTED INSTRUMENT
- INSTRUMENT MOUNTED ON FACE OF PANEL
- INSTRUMENT MOUNTED BEHIND OR INSIDE OF PANEL
- INSTRUMENT MOUNTED ON FACE OF LOCAL PANEL
- INSTRUMENT MOUNTED BEHIND OR INSIDE OF LOCAL PANEL
- SINGLE INSTRUMENT HOUSING CONTAINING TWO (OR MORE) INSTRUMENTATION FUNCTIONS
- 1 — CONTROL INTERLOCK FUNCTION, SEE SCHEMATICS AND SYSTEM SPECIFICATIONS FOR SPECIFIC FUNCTION

TAG NUMBERS AND ADDITIONAL DESIGNATIONS

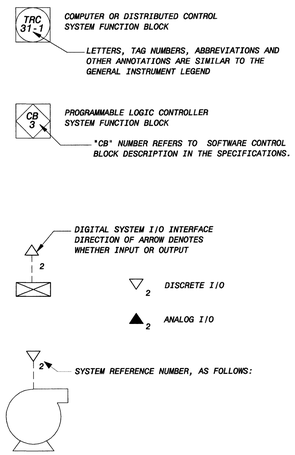


TAG NUMBERS
MEANINGS OF IDENTIFICATION LETTERS

LETTER	FIRST LETTER: MEASURED OR INITIATING VARIABLE	FIRST LETTER: MODIFIER	SUCCEEDING LETTERS: READOUT OR PASSIVE FUNCTION	SUCCEEDING LETTERS: OUTPUT FUNCTION	SUCCEEDING LETTERS: MODIFIER
A	ANALYSIS		ALARM		
B	BURNER COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	CONDUCTIVITY (ELECTRICAL)			CONTROL	
D	DENSITY (MASS) OR SPECIFIC GRAVITY	DIFFERENTIAL			
E	VOLTAGE (EMF)		PRIMARY ELEMENT		
F	FLOW RATE	RATIO (FRACTION)			
G	USER'S CHOICE		GLASS		
H	HAND (MANUALLY INITIATED)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME OR TIME-SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOISTURE OR HUMIDITY	MOMENTARY			MIDDLE OR INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE (RESTRICTION)		
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION)		
Q	QUANTITY	INTEGRATE OR TOTALIZE	INTEGRATE OR TOTALIZE		
R	RADIATION		RECORD OR PRINT		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION			VALVE, DAMPER, OR LOUVER	
W	WEIGHT OR FORCE		WELL		
X	UNCLASSIFIED		UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, OR PRESENCE			RELAY OR COMPUTE	
Z	POSITION, DIMENSION			DRIVE, ACTUATOR OR UNCLASSIFIED FINAL CONTROL ELEMENT	

DIGITAL SYSTEMS
INTERFACE SYMBOLS

NOTE: REFER TO DETAILED SYSTEM SPECIFICATIONS FOR FUNCTIONAL DESCRIPTION. ALSO SEE I/O SCHEDULES FOR COMPLETE INPUT AND OUTPUT LISTINGS.



FUNCTION DESIGNATIONS AND ABBREVIATIONS

INSTRUMENT DESIGNATIONS

K	GAIN OR ATTENUATE (INPUT:OUTPUT)
-K	GAIN AND REVERSE
Σ	ADD OR SUM (ADD AND SUBTRACT)
Δ	SUBTRACT (DIFFERENCE)
√	EXTRACT SQUARE ROOT
÷	DIVIDE
F(X)	CHARACTERIZE SIGNAL
>	HIGH-SELECT
<	LOW-SELECT
×	MULTIPLY
∫	INTEGRATE (TIME INTEGRAL)
CH_4	METHANE
CL_2	CHLORINE RESIDUAL
CO_2	CARBON DIOXIDE
DO	DISSOLVED OXYGEN
LEL	LOWER EXPLOSIVE LIMIT
MCC	MOTOR CONTROL CENTER
MLSS	MIXED LIQUOR SUSPENDED SOLIDS
O_2	OXYGEN (PURITY)
pH	pH CELL
TURB	TURBIDITY

HAND SWITCH DESIGNATIONS

HOA	HAND-OFF-AUTO
LR	LOCAL REMOTE
OC	OPEN-CLOSE
OO	ON-OFF
LOR	LOCAL-OFF-REMOTE
OOA	ON-OFF-AUTO
OCR	OPEN-CLOSE-REMOTE
OOR	ON-OFF-REMOTE
OSC	OPEN-STOP-CLOSE
SS	START-STOP

TRANSDUCER & CONVERTER DESIGNATION

E	VOLTAGE
FSK	FREQUENCY SHIFT KEYING
H	HYDRAULIC
I	CURRENT
P	PNEUMATIC
PD	PULSE DURATION
PF	PULSE FREQUENCY
R	RESISTANCE (ELECTRICAL)

EXAMPLE: I/P = CURRENT TO PNEUMATIC TRANSDUCER

POWER SUPPLY ABBREVIATIONS

AS	AIR SUPPLY
ES	ELECTRIC SUPPLY
GS	GAS SUPPLY
HS	HYDRAULIC SUPPLY
NS	NITROGEN SUPPLY
SS	STEAM SUPPLY
WS	WATER SUPPLY

AS — POWER SUPPLY SOURCE LABEL. USED ONLY WHERE NECESSARY TO HELP CLARIFY AN INSTRUMENT OR SYSTEM FUNCTION.

LINE SYMBOLS

- MAJOR PROCESS PIPING OR FLOW CHANNEL
- SECONDARY PROCESS PIPING
- MISCELLANEOUS PIPING
- SHADED OR LIGHT LINE WEIGHT DENOTES EXISTING PIPING AND EQUIPMENT
- DASHED LINE DENOTES FUTURE PIPING AND EQUIPMENT
- ELECTRIC SIGNAL
- HYDRAULIC SIGNAL
- PNEUMATIC SIGNAL
- ELECTRICAL DIRECTION ARROW
- SIGNAL CONNECTION POINT
- A — SIGNAL LINE GOING TO ANOTHER SHEET
- A — SIGNAL LINE FROM ANOTHER SHEET (MATCH LETTERS)
- FLOW ARROW FOR PROCESS PIPING
- B I-3 — PROCESS LINE GOING TO ANOTHER SHEET; MATCH SHEET NO. IDENTIFIER; MATCH LINE NO.
- B I-2 — PROCESS LINE COMING FROM ANOTHER SHEET
- PROCESS LINES CROSSING (NOT CONNECTED)
- INTERNAL SYSTEM SIGNAL LINK (SOFTWARE OR DATA LINK)

PROCESS DEVICE SYMBOLS

- DIAPHRAGM SEAL
- ANNULAR TYPE DIAPHRAGM SEAL
- P — PURGE OR FLUSHING DEVICE
- POSITIVE DISPLACEMENT TYPE FLOWMETER
- PRIMARY FLOW ELEMENT: ORIFICE PLATE
- PRIMARY FLOW ELEMENT: VENTURI TUBE
- PRIMARY FLOW ELEMENT: FLUME
- PRIMARY FLOW ELEMENT: WEIR
- PRIMARY FLOW ELEMENT: TURBINE OR PROPELLER-TYPE
- PRIMARY FLOW ELEMENT: PITOT TUBE
- PRIMARY FLOW ELEMENT: ELECTROMAGNETIC OR TRANSIT-TIME ULTRASONIC
- DOPPLER TYPE ULTRASONIC FLOW SENSOR
- PRIMARY ELEMENT: ROTAMETER
- DRAIN
- THERMAL DISPERSION TYPE FLOW ELEMENT

- FLOW CONTROL OR ISOLATION GATE
- VALVE: GLOBE, GATE, OR OTHER IN-LINE TYPE NOT OTHERWISE IDENTIFIED
- VALVE: EXISTING
- VALVE: FUTURE
- VALVE: THREE WAY
- VALVE: FOUR WAY
- VALVE: BUTTERFLY, DAMPER OR LOUVER
- VALVE: ROTARY BALL TYPE
- VALVE: CHECK
- VALVE: PLUG TYPE

THE FOLLOWING ADDITIONAL DESIGNATIONS MAY BE UTILIZED ADJACENT TO SOME VALVE OR GATE SYMBOLS.

NC	NORMALLY CLOSED
FC	FAILS CLOSED
FO	FAILS OPEN
FIP	FAILS IN LAST POSITION

- PUMP — VS DENOTES: VARIABLE SPEED
- PUMP (FUTURE)
- SCREW (LIFT) PUMP
- COMPRESSOR OR BLOWER
- MIXER
- PROPORTIONING OR METERING PUMP

GENERAL NOTES

GENERAL NOTES

1. IN GENERAL, THE P &ID SYMBOLS AND DEVICE IDENTIFICATIONS ARE BASED ON INSTRUMENT SOCIETY OF AMERICA, STANDARD PRACTICE ISA-S5.1 (1988). SOME MODIFICATIONS, ADDITIONS, AND ALTERATIONS HAVE BEEN MADE AS NEEDED TO ACCOMMODATE THE PROJECT REQUIREMENTS.
2. ADDITIONAL CONTROL AND INTERLOCK REQUIREMENTS WHICH CAN BE MORE CLEARLY ILLUSTRATED ON SCHEMATIC DRAWINGS HAVE BEEN OMITTED FROM THE P & ID DRAWINGS. SOME PROCESS ITEMS, SUCH AS EQUIPMENT ISOLATION VALVES, BYPASS LINES, ETC., WHICH ARE NOT CRITICAL FOR AN UNDERSTANDING OF THE INSTRUMENTATION FUNCTIONS HAVE ALSO BEEN OMITTED.
3. THIS IS A GENERAL LEGEND SHEET. SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT.
4. PIPING AND EQUIPMENT LEGEND APPLIES TO P & ID SHEETS ONLY AND MAY DIFFER FROM LEGENDS FOR OTHER SHEETS.

VALVE AND GATE ACTUATOR SYMBOLS

- DIAPHRAGM
- DIAPHRAGM WITH POSITIONER
- PRESSURE-REDUCING VALVE, SELF-CONTAINED
- PRESSURE-SUSTAINING VALVE, SELF-CONTAINED
- DIAPHRAGM VALVE
- P — AIR CYLINDER
- S — SOLENOID
- P/O — AIR-OIL CYLINDER
- E — ELECTRIC MOTOR
- H — HYDRAULIC CYLINDER
- NO SYMBOL — MANUALLY (HAND) OPERATED

NO.	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE
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BLACK & VEATCH
Black & Veatch Corporation
Lawrence, Kansas

LAWRENCE, KANSAS
STONERIDGE ELEVATED TANK

INSTRUMENTATION
P & ID LEGEND

DESIGNED:	TRK
DETAILED:	TRK
CHECKED:	JSM
APPROVED:	JSM
DATE:	10-26-07

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
146781

D1
SHEET
12 OF 14

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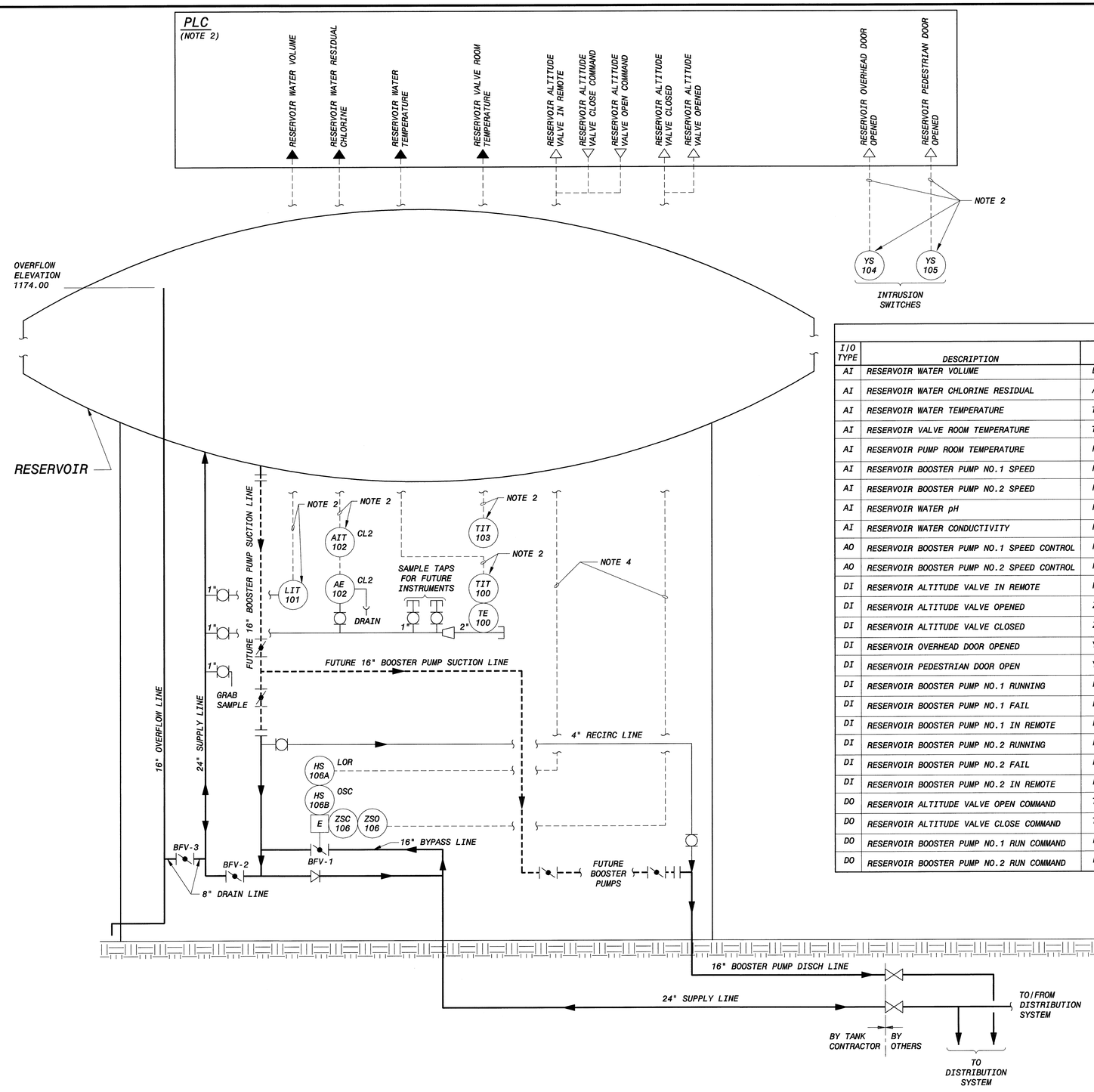

PLC INPUT/OUTPUT LIST

I/O TYPE	DESCRIPTION	FIELD DEVICE	SIGNAL TYPE	CALIBRATED RANGE	POWER TYPE	POWER SOURCE	INTERP RELAY	REMARKS
AI	RESERVOIR WATER VOLUME	LIT-101	4-20mA	0-1.5 M GAL	2-WIRE	PLC	N/A	
AI	RESERVOIR WATER CHLORINE RESIDUAL	AIT-102	4-20mA	0-5 PPM	4-WIRE	LP	N/A	
AI	RESERVOIR WATER TEMPERATURE	TIT-100	4-20mA	32-100 F	2-WIRE	PLC	N/A	
AI	RESERVOIR VALVE ROOM TEMPERATURE	TIT-103	4-20mA	32-100 F	2-WIRE	PLC	N/A	
AI	RESERVOIR PUMP ROOM TEMPERATURE	FUTURE	4-20mA	32-100 F	2-WIRE	PLC	N/A	
AI	RESERVOIR BOOSTER PUMP NO.1 SPEED	FUTURE	4-20mA	0-100%	2-WIRE	PLC	N/A	FUTURE
AI	RESERVOIR BOOSTER PUMP NO.2 SPEED	FUTURE	4-20mA	0-100%	2-WIRE	PLC	N/A	FUTURE
AI	RESERVOIR WATER pH	FUTURE	4-20mA	2-12 pH	4-WIRE	LP	N/A	FUTURE
AI	RESERVOIR WATER CONDUCTIVITY	FUTURE	4-20mA	0-9999 PPM	4-WIRE	LP	N/A	FUTURE
AO	RESERVOIR BOOSTER PUMP NO.1 SPEED CONTROL	FUTURE	4-20mA	0-100%	2-WIRE	PLC	N/A	FUTURE
AO	RESERVOIR BOOSTER PUMP NO.2 SPEED CONTROL	FUTURE	4-20mA	0-100%	2-WIRE	PLC	N/A	FUTURE
DI	RESERVOIR ALTITUDE VALVE IN REMOTE	HS-106A	120VAC	IN REMOTE		PLC	NO	FUTURE
DI	RESERVOIR ALTITUDE VALVE OPENED	ZSO-106	120VAC	VLV OPENED		PLC	NO	
DI	RESERVOIR ALTITUDE VALVE CLOSED	ZSC-106	120VAC	VLV CLOSED		PLC	NO	
DI	RESERVOIR OVERHEAD DOOR OPENED	YS-104	120VAC	DOOR OPENED		PLC	NO	
DI	RESERVOIR PEDESTRIAN DOOR OPEN	YS-105	120VAC	DOOR CLOSED		PLC	NO	
DI	RESERVOIR BOOSTER PUMP NO.1 RUNNING	FUTURE	120VAC	RUNNING		PLC	NO	FUTURE
DI	RESERVOIR BOOSTER PUMP NO.1 FAIL	FUTURE	120VAC	FAIL		PLC	NO	FUTURE
DI	RESERVOIR BOOSTER PUMP NO.1 IN REMOTE	FUTURE	120VAC	IN REMOTE		PLC	NO	FUTURE
DI	RESERVOIR BOOSTER PUMP NO.2 RUNNING	FUTURE	120VAC	RUNNING		PLC	NO	FUTURE
DI	RESERVOIR BOOSTER PUMP NO.2 FAIL	FUTURE	120VAC	FAIL		PLC	NO	FUTURE
DI	RESERVOIR BOOSTER PUMP NO.2 IN REMOTE	FUTURE	120VAC	IN REMOTE		PLC	NO	FUTURE
DO	RESERVOIR ALTITUDE VALVE OPEN COMMAND	TANK VALVE	120VAC	VLV OPEN CMND		FIELD	YES	
DO	RESERVOIR ALTITUDE VALVE CLOSE COMMAND	TANK VALVE	120VAC	VLV CLOSE CMND		FIELD	YES	
DO	RESERVOIR BOOSTER PUMP NO.1 RUN COMMAND	FUTURE	120VAC	PUMP RUN CMND		FIELD	YES	FUTURE
DO	RESERVOIR BOOSTER PUMP NO.2 RUN COMMAND	FUTURE	120VAC	PUMP RUN CMND		FIELD	YES	FUTURE

NOTES:

1. SEE P&ID LEGEND ON DRAWING D1.
2. THE OWNER WILL FURNISH AND INSTALL THE PLC CABINET AND INTERNALS, ALL INSTRUMENTS, AND THE INSTRUMENT CABLE BETWEEN THE INSTRUMENTS AND THE PLC AND PERFORM ALL PROGRAMMING. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL CONDUIT, POWER CABLE, SAMPLE WATER PIPING, VALVES AND APPURTENANCES TO INSTRUMENTS AND ANY PROCESS PIPING TAPS FOR INSTRUMENTS.
3. THE OWNER WILL ACQUIRE THE LEASED PHONE LINES FOR SCADA COMMUNICATION. THE CONTRACTOR SHALL FURNISH AND INSTALL THE CONDUIT FOR THE LEASED PHONE LINES.
4. THE CONTRACTOR SHALL FURNISH AND INSTALL POWER AND CONTROL CABLE AND CONDUIT BETWEEN THE ALTITUDE VALVE ACTUATOR AND THE PLC.
5. SEE SHEET D3 FOR INSTRUMENT PIPING SCHEMATIC.

NO.	BY	CK	APP	REVISIONS AND RECORD OF ISSUE
				DATE
				CYGNET ID: 146781-3000-WTUP-I-T0000R408
				WF: 16.1$ (LWS Tech)
				SAVED: KUE07266, 10/24/2007 10:23:16 AM
				PLOTTED: 10/29/2007 11:48:16 AM, Batch Plo
				USER: stc50078

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KANSAS LICENSED PROFESSIONAL ENGINEER 12256 10/29/07

BLACK & VEATCH
Black & Veatch Corporation
Lawrence, Kansas

LAWRENCE, KANSAS
STONERIDGE ELEVATED TANK

INSTRUMENTATION
P & ID

DESIGNED:	TRK
DETAILED:	TRK
CHECKED:	JSM
APPROVED:	JSM
DATE:	10-26-07

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
146781

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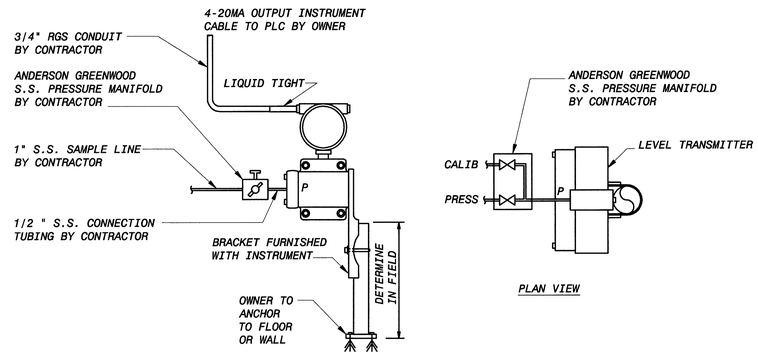
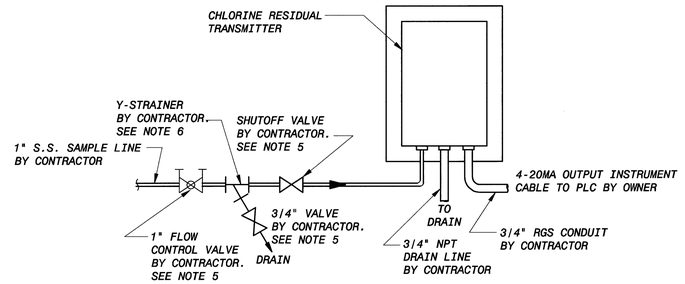
F06000
D146781

INSTRUMENT DEVICE SCHEDULE								
TAG	LOOP NUMBER	DESCRIPTION	DEVICE TYPE	SIZE	OUTPUT TYPE	OUTPUT RANGE	MANUFACTURER/MODEL	REMARKS
TE	100	RESERVOIR WATER TEMPERATURE	RESISTANCE TEMPERATURE DETECTOR	2"	mV TO TIT	SEE TIT-100	LATER	FURNISHED AND INSTALLED BY OWNER
TIT	100	RESERVOIR WATER TEMPERATURE	TEMPERATURE TRANSMITTER	N/A	4-20mA	32-100 F	LATER	FURNISHED AND INSTALLED BY OWNER
LIT	101	RESERVOIR WATER LEVEL	PRESSURE SENSING LEVEL TRANSMITTER	N/A	4-20mA	0-1.5 M GAL	LATER	FURNISHED AND INSTALLED BY OWNER
AE	102	RESERVOIR WATER RESIDUAL CHLORINE	RESIDUAL CHLORINE SENSOR	N/A	mV TO AIT	SEE AIT-102	LATER	FURNISHED AND INSTALLED BY OWNER
AIT	102	RESERVOIR WATER RESIDUAL CHLORINE	RESIDUAL CHLORINE TRANSMITTER	N/A	4-20mA	0-5 PPM	LATER	FURNISHED AND INSTALLED BY OWNER
TIT	103	RESERVOIR VALVE ROOM TEMPERATURE	WALL MOUNTED TEMPERATURE TRANSMITTER	N/A	4-20mA	32-100 F	LATER	FURNISHED AND INSTALLED BY OWNER
YS	104	RESERVOIR OVERHEAD DOOR OPENED	PROXIMITY DOOR SWITCH	N/A	DRY CONTACT	N/A	LATER	FURNISHED AND INSTALLED BY OWNER
YS	105	RESERVOIR PEDESTRIAN DOOR OPENED	PROXIMITY DOOR SWITCH	N/A	DRY CONTACT	N/A	BY CONTRACTOR	FURNISHED AND INSTALLED BY OWNER
HS	106A	RESERVOIR ALTITUDE VALVE CONTROL	3-POSITION SELECTOR SWITCH	N/A	DRY CONTACT	N/A	BY CONTRACTOR	FURNISHED AND INSTALLED BY CONTRACTOR
HS	106B	RESERVOIR ALTITUDE VALVE CONTROL	PUSHBUTTONS	N/A	DRY CONTACT	N/A	BY CONTRACTOR	FURNISHED AND INSTALLED BY CONTRACTOR
ZSC	106	RESERVOIR ALTITUDE VALVE CLOSED	LIMIT SWITCH	N/A	DRY CONTACT	N/A	BY CONTRACTOR	FURNISHED AND INSTALLED BY CONTRACTOR
ZSO	106	RESERVOIR ALTITUDE VALVE OPENED	LIMIT SWITCH	N/A	DRY CONTACT	N/A	BY CONTRACTOR	FURNISHED AND INSTALLED BY CONTRACTOR



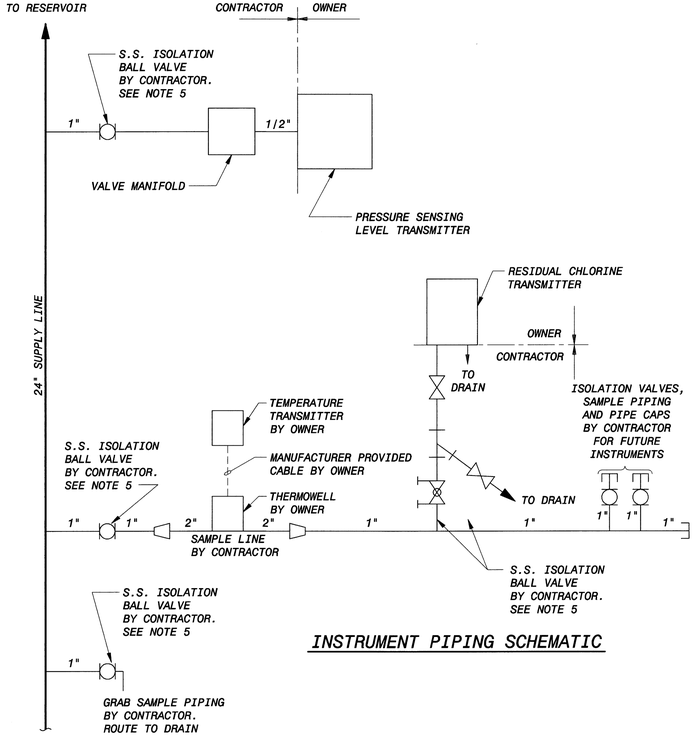
PRESSURE SENSING LEVEL TRANSMITTER INSTALLATION DETAIL

NO SCALE

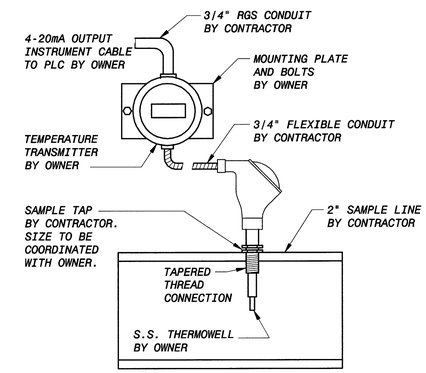


CHLORINE RESIDUAL ANALYZER INSTALLATION DETAIL

NO SCALE



INSTRUMENT PIPING SCHEMATIC



RTD/THERMOWELL INSTALLATION DETAIL

NO SCALE

NOTES:

1. SEE P&ID LEGEND ON DRAWING D1.
2. THE OWNER WILL FURNISH AND INSTALL THE PLC CABINET AND INTERNALS, ALL INSTRUMENTS, AND THE INSTRUMENT CABLE BETWEEN THE INSTRUMENTS AND THE PLC AND PERFORM ALL PROGRAMMING. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL CONDUIT, POWER CABLE, SAMPLE WATER PIPING, VALVES AND APPURTENANCES TO INSTRUMENTS AND ANY PROCESS PIPING TAPS FOR INSTRUMENTS.
3. THE OWNER WILL ACQUIRE THE LEASED PHONE LINES FOR SCADA COMMUNICATION. THE CONTRACTOR SHALL FURNISH AND INSTALL THE CONDUIT FOR THE LEASED PHONE LINES.
4. THE CONTRACTOR SHALL FURNISH AND INSTALL POWER AND CONTROL CABLE AND CONDUIT BETWEEN THE ALTITUDE VALVE ACTUATOR AND THE PLC.
5. STAINLESS STEEL PROCESS ISOLATION VALVES, INSTRUMENT SHUTOFF VALVES AND INSTRUMENT FLOW CONTROL VALVES SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. A VALVE SCHEDULE SHALL BE SUBMITTED INDICATING THE QUANTITY, MATERIAL, SIZE, FUNCTION, AND ASSOCIATED INSTRUMENT, FOR SHUTOFF AND FLOW CONTROL VALVES. PERMANENT TAGGING OF THE INSTRUMENT VALVES IS NOT REQUIRED. HOWEVER, TEMPORARY HAND-WRITTEN TAGS OR OTHER MEANS OF IDENTIFICATION SHALL BE PROVIDED TO ENSURE THAT THE APPROPRIATE VALVE IS INSTALLED FOR A GIVEN INSTRUMENT. PROCESS ISOLATION VALVES SHALL BE CONBRACO INDUSTRIES "APOLLO" SERIES OR EQUAL. INSTRUMENT SHUTOFF AND FLOW CONTROL VALVES SHALL BE ANDERSON GREENWOOD OR EQUAL.
6. STAINLESS STEEL WYE STRAINER SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR FOR THE SAMPLE LINE TO THE RESIDUAL CHLORINE ANALYZER. STRAINER SHALL BE CONBRACO "APOLLO" SERIES OR EQUAL.

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					PLOTTED: 10/29/2007 11:48:27 AM, Batch Plot
					USER: stc60078

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LICENSED PROFESSIONAL ENGINEER — TRACY K. MILLER — 22562 — STATE OF KANSAS — 10/24/07

BLACK & VEATCH
Black & Veatch Corporation
Lawrence, Kansas

LAWRENCE, KANSAS
STONERIDGE ELEVATED TANK

INSTRUMENTATION
INSTRUMENT INSTALLATION DETAILS

DESIGNED:	TRK
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