

LEGEND

- PROPOSED 69KV UG TRANSMISSION LINE
- DUCT BANK CENTER LINE
- PROPOSED UG DISTRIBUTION LINE
- DUCT BANK CENTER LINE
- MATCHLINE
- - - - - RIGHT OF WAY / EASEMENT
- - - - - FENCE LINE
- - - - - AL/BR
- - - - - PROPERTY LINE
- - - - - WATER LINE
- - - - - SANITARY SEWER LINE
- - - - - S
- - - - - SD
- - - - - EXISTING UNDERGROUND ELECTRICAL TRANSMISSION LINE
- - - - - E
- - - - - T
- - - - - UNDERGROUND TELEPHONE LINE
- - - - - P
- - - - - EXISTING ELECTRIC DISTRIBUTION LINE, UG & OH
- - - - - G
- - - - - GAS LINE
- - - - - FO
- - - - - UNDERGROUND FIBER OPTIC
- PROPOSED MANHOLE
- TELEPHONE MANHOLE
- GAS MANHOLE
- ELECTRICAL MANHOLE/Vault
- WATER Vault
- G.V
- GAS VALVE
- W.V
- WATER VALVE
- WM
- WATER METER
- SEWER/STORM DRAIN MANHOLE
- FIRE HYDRANT
- TELEPHONE BOX
- SANITARY SEWER MANHOLE
- TELEPHONE MANHOLE
- UTILITY POLE
- TREE LINE
- TREE
- PLANT
- UTILITY MANHOLE
- CATCH BASIN/STORM DRAIN
- FIRE HYDRANT
- TRAFFIC SIGNAL UNDERGROUND SENSOR CITY/COUNTY MONUMENT
- TRAFFIC SIGNAL BOX
- EXISTING TRANSFORMER
- NEW TRANSFORMER

ABBREVIATIONS

ABBREV	DESCRIPTION	LOC	LOCATION
A	ARC LENGTH	LOC	LOCATION
ABBRV	ABBREVIATION	LPW	LOW PRESSURE WATER
ABND	ABANDONED	LT	LEFT
ACP	ASBESTOS CEMENT PIPE	MAX	MAXIMUM
AL/BR	ALUMINUM BRONZE ALLOY	MFR	MANUFACTURER
APPROX	APPROXIMATE	MH	MANHOLE
AVE	AVENUE	MIN	MINIMUM
AWG	AMERICAN WIRE GAGE	mm	MILLIMETER
B.C.	BEGIN CURVE	N	NORTH
BL	BASE LINE	NO.	NUMBER
BRKR	BREAKER	NIS	NOT TO SCALE
CKT	CIRCUIT	OC	ON CENTER
CL, C	CENTER LINE	OD	OUTSIDE DIAMETER
CLR	CLEAR	P.C.	POINT OF CURVATURE
COMP	CORRUGATED METAL PIPE	P.I.	POINT OF INTERSECTION
COMM	COMMUNICATION	PL	PROPERTY LINE
CONC	CONCRETE	PP, P/P	PLAN AND PROFILE
CULV	CULVERT	PLS	PLACES
CUV	CULVERT	PSF	POUNDS PER SQUARE FOOT
Ø	DIAMETER	PSI	POUNDS PER SQUARE INCH
DWG	DRAWING	P.T. P.T.	POINT OF TANGENCY
E	EAST	PVC	POLYVINYL CHLORIDE
E.C.	END OF CURVE	R, RAD	RADIUS
EF	EACH FACE	ROB	REINFORCED CONCRETE BOX
EL	ELEVATION	ROP	REINFORCED CONCRETE PIPE
ELEC	ELECTRICAL	RD	ROAD
EST	ESTIMATED	REN	REINFORCED OR REINFORCEMENT
EW	EACH WAY	ROW, R/W	RIGHT-OF-WAY
EMF	EACH WAY EACH FACE	RR	RAILROAD
F.H. F HND	FIRE HYDRANT	RT	RIGHT
F/O	FIBER-OPTIC	S	SOUTH
FDN	FOUNDATION	SOH	SCHEDULE
FRP	FIBERGLASS REINFORCED PLASTIC	SH	SHEET
FT	FEET	SIM	SIMILAR
FTB	FLUIDIZED THERMAL BACKFILL	SPEC	SPECIFICATION
GALV	GALVANIZED	SO	SQUARE
GND	GROUND	SIA	STATION
HORIZ	HORIZONTAL	SIR	STRUCTURE
HPW	HIGH PRESSURE WATER	T, TAN	TANGENT LENGTH
ID	INSIDE DIAMETER	T-LINE	TRANSMISSION LINE
ID.	IDENTIFICATION, USED IN REFERENCE TO A TAG OR NAMEPLATE	TTP	TYPICAL
INV	INVERT	UG	UNDERGROUND
KCML	KILOCIRCULAR MIL	UK, UKN	UNKNOWN
KV	KILOVOLT	VCP	VERTICAL CLAY PIPE
LEB	LEADS	VERT	VERTICAL

GENERAL NOTES:

1. CONTRACTOR SHALL NOTIFY PROPERTY OWNERS ALONG ROUTE OF CONSTRUCTION A MINIMUM OF TWO WEEKS BEFORE BEGINNING CONSTRUCTION ALONG THEIR PROPERTY. CONTRACTOR SHALL MAINTAIN AT LEAST ONE ACCESS DRIVEWAY UNBLOCKED DURING ALL BUSINESS HOURS OR HOURS OF USE. CONTRACTOR SHALL COORDINATE OPEN CUTTING/PLATING AND RESTORATION OF EACH DRIVEWAY ALONG ROUTE WITH PROPERTY OWNER. CONTRACTOR SHALL WORK COMPLETELY AND ONLY WITHIN THE ROW SHOWN ON THE DRAWINGS.
2. CONTRACTOR SHALL FOLLOW ALL PROVISIONS OF PERMITS, WHETHER FROM CITY, COUNTY, STATE, OR OTHER DISTRICTS OR AGENCIES.
3. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE UPDES GENERAL PERMIT (STORM WATER POLLUTION PREVENTION PLAN) FOR THIS PROJECT.
4. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
5. UNDERGROUND FACILITY ELEVATIONS & LOCATIONS SHOWN ON THE DRAWINGS ARE BASED ON THE BEST AVAILABLE INFORMATION LOCATED DURING DESIGN. NOTE THAT THE DEPTH OF UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE (SEE NOTE 6).
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL EXISTING UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION. HE SHALL BE RESPONSIBLE FOR ANY DAMAGE TO SURFACE OR UNDERGROUND FACILITIES WHETHER SHOWN OR NOT SHOWN ON THE DRAWINGS (SEE NOTE 5).
7. SURVEY IS BASED ON DATA PROVIDED BY:
 COOK, FLATT & STROBEL
 6111 SW 29TH STREET
 OLLI, SM 45, 76814
 785-272-4100
8. PROFILE SECTIONS ON THE PLAN AND PROFILE DRAWINGS ARE ALONG CENTER LINE SURVEY.
9. THE ROUTING OF THE 69KV DUCT BANK SHOWN ON THE DRAWINGS HAS BEEN DESIGNED TO PROVIDE A MINIMUM 305 MILLIMETER SEPARATION FROM FOREIGN FACILITIES, EXCEPT AS OTHERWISE NOTED.
10. A CABLE MARKING TAPE SHALL BE INSTALLED ALONG THE ENTIRE LENGTH OF EACH 69KV DUCT BANK. CABLE MARKING TAPE SHALL BE 305 MILLIMETERS WIDE, RED PLASTIC STRIP, WITH THE WORDS "CAUTION ELECTRIC LINE BURIED BELOW" PRINTED IN BLACK. TAPE SHALL BE INSTALLED FLAT AND DIRECTLY ABOVE THE DUCT BANK WITH THE PRINTED SIDE UP. CABLE MARKING TAPE SHALL BE TERRA TAPE EXTRA-STRETCH AS MANUFACTURED BY REF INDUSTRIES, INC., HOUSTON, TEXAS, OR EQUAL.
11. THE CONTRACTOR SHALL INSTALL THE DUCT BANK A MINIMUM OF 915 MILLIMETERS BELOW FINAL GRADE TO TOP OF CONCRETE, EXCEPT AS OTHERWISE NOTED ON DRAWINGS.
12. THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT AND SERVICES TO PROPERLY PERFORM AND FULLY COMPLETE ALL WORK SHOWN ON CONTRACT DRAWINGS AND SPECIFICATIONS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORATION OF ALL GROUND SURFACES DISTURBED DURING CONSTRUCTION. REPLACEMENT LANDSCAPING SHALL BE 90 DAYS OF COMPLETION OF CONSTRUCTION.
14. CONTRACTOR SHALL KEEP CONSTRUCTION NOISE AND VIBRATION TO MINIMUM, DIRECT EQUIPMENT EXHAUST STACKS AWAY FROM BUILDINGS, KEEP EQUIPMENT IN GOOD WORKING ORDER, USE NON-VIBRATORY EQUIPMENT WHEN POSSIBLE, AND USE TEMPORARY SOUND BARRIERS NEAR STATIONARY EQUIPMENT IF NECESSARY.
15. ALL WORK AREAS SHALL BE KEPT CLEAN AND Tidy AND LITTER REMOVED DAILY.
16. ALL REFUELING AND LUBRICATION ACTIVITIES SHALL BE PERFORMED AT LEAST 30 METERS FROM ANY STREAM OR STORM DRAIN.
17. ALL PAVED ACCESS ROADS, PARKING AREAS AND STAGING AREAS AT CONSTRUCTION SITES SHALL BE SWEEPED DAILY WITH WATER SWEEPERS.
18. THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN ALL NECESSARY SIGNS, LIGHTS, FLARES, BARRIERS, MARKERS, CONES AND OTHER PROTECTIVE FACILITIES. LIGHTS SHALL BE USED AT ALL TIMES AND ALL NECESSARY PRECAUTIONS FOR THE PROTECTION, CONVENIENCE AND SAFETY OF THE PUBLIC.
19. ALL MATERIALS SHALL BE NEW AND MANUFACTURED IN THE UNITED STATES OF AMERICA WHENEVER PRACTICAL.
20. IN MAKING OPEN CUT ROAD CROSSINGS, THE CONTRACTOR SHALL NOT BLOCK MORE THAN ONE HALF OF THE ROAD AT A TIME. ONE LANE OF TRAFFIC MUST BE MAINTAINED AT ALL TIMES.
21. ALL TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH TRAFFIC CONTROL PLANS APPROVED BY THE CITY OF WICHITA, SEDGWICK COUNTY AND KANSAS DEPARTMENT OF TRANSPORTATION (KDOT). ALL PERSONNEL, SIGNS, EQUIPMENT AND FACILITIES NECESSARY FOR PUBLIC SAFETY AND TRAFFIC CONTROL SHALL BE FURNISHED, INSTALLED AND MAINTAINED BY CONTRACTOR.
22. THE CITY OF WICHITA TRAFFIC DEPARTMENT (316-258-4266) SHALL BE CONTACTED TWO DAYS PRIOR TO REMOVING TRAFFIC LOOPS AND THE LOOPS SHALL BE RESTORED WITHIN 24 HOURS AFTER REMOVAL.
23. ALL PAVEMENT, CURB, SIDEWALK AND GUTTER REPAIR SHALL MEET CITY OF WICHITA REQUIREMENTS. ROADWAY RESTORATION SHALL BE COMPLETED WITHIN 30 DAYS OF DAMAGE.
24. ALL BACKFILLS ABOVE DUCT BANK MUST BE TESTED FOR THERMAL PROPERTIES AND COMPACTION AS SPECIFIED. BACKFILLS MUST BE COMPATIBLE WITH ALL PERMITTING AGENCY REQUIREMENTS, AND APPROVED BY THE CITY OF WICHITA. SEE PROJECT SPECIFICATIONS FOR BACKFILL REQUIREMENTS. GEOTECHNICAL SHALL TEST DUCT CONCRETE IN CYLINDER AS SPECIFIED.
25. SEE PROJECT SPECIFICATION FOR GENERAL CONCRETE REQUIREMENTS.
26. SEE PROJECT SPECIFICATION FOR THERMAL CONCRETE REQUIREMENTS TO BE USED FOR ALL DUCT BANK ENCASEMENT. SAMPLES FROM LOCAL BATCH PLANT MUST BE TESTED FOR THERMAL PROPERTIES AND STRENGTH AS SPECIFIED.
27. THE MINIMUM BENDING RADIUS OF CONDUITS SHALL BE 30.5 METERS FOR HORIZ. AND VERT BENDS, EXCEPT AS OTHERWISE NOTED ON DRAWINGS. OF ANY PROPOSED CHANGES IN BENDS OR ALIGNMENT BEFORE PROCEEDING.
28. THE CONTRACTOR SHALL INSTALL THE PVC CONDUIT SUCH THAT THE BELL END FACES THE DIRECTION OPPOSITE THE DIRECTION OF CABLE PULLING. CABLE PULLING DIRECTIONS ARE SHOWN AT EACH MANHOLE LOCATION.
29. REBAR WITHIN THE MANHOLE WALLS OR DUCT BANKS SHALL NOT FORM A LOOP AROUND ANY INDIVIDUAL 153mm CONDUIT. REBAR LOOPS ARE ACCEPTABLE WHEN ENCIRCLING ALL 153mm CONDUITS.
30. CONTRACTOR SHALL PERFORM A VIDEO RECORD AND SURVEY OF THE ENTIRE CONSTRUCTION ROUTE TO DOCUMENT THE EXISTING CONDITION OF PAVEMENT, SIDEWALKS, CURBS, LANDSCAPING AND STRUCTURES ALONG THE ALIGNMENT PRIOR TO BEGINNING WORK.
31. A MINIMUM OF 1 FOOT SEPARATION SHALL BE CONSTRUCTED AND MAINTAINED BETWEEN THE DUCT CONCRETE AND ALL UTILITIES.

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APPROVED FOR
 CONSTRUCTION

NO	DATE	REVISIONS AND RECORD OF ISSUE	BRN	CHK	APP
1	03/01/06	ISSUED FOR CONSTRUCTION			
0	01/31/05	95% REVIEW ISSUE			

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF KANSAS

REG. NO. _____ DATE _____

BLACK & VEATCH

ENGINEER
 KCM DRAWN MRL
 CHECKED RLR DATE 01/31/05

WESTAR ENERGY COMPANY
 US HIGHWAY 54/KELLOGG AVENUE PROJECT
 69KV UNDERGROUND TRANSMISSION LINE
 LEGEND, ABBREVIATIONS AND GENERAL NOTES

PROJECT CODE AREA
 136462-WSTR-E002

DRAWING NUMBER
 1