FHWA REGION NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	KANSAS	87-N-0225-01	2002	23	47

BILL OF MATERIALS

ITEM	UNIT	QTY
PAD MOUNTED CONTROLLER & CABINET	EACH	1
TRAFFIC SIGNAL HEAD (SEE CHART A) W/ MOUNTING HARDWARE	EACH	24
TRAFFIC SIGNAL POLE (SEE CHART B) STEEL	EACH	4
CONCRETE CONTROLLER PAD	EACH	1
CONCRETE FOOTING – POLE	EACH	4
CONDUIT ELBOW 90°	EACH	As Req'd
CONDUIT ELBOW 90° 3"	EACH	As Req'd
BACK PLATE 5" – 3 SECTION	EACH	12
BACK PLATE 5" – 5 SECTION	EACH	4
SERVICE BOX	EACH	4
GROUND ROD & CLAMP	EACH	6
CONDUIT CLAMP	EACH	As Req'd
TRAFFIC SIGNAL LAMP RED LED KIT	EACH	16
TRAFFIC SIGNAL LAMP YELLOW LED KIT	EACH	16
TRAFFIC SIGNAL LAMP GREEN LED KIT	EACH	16
TRAFFIC SIGNAL LAMP GREEN ARROW LED KIT	EACH	4
TRAFFIC SIGNAL LAMP YELLOW ARROW LED KIT	EACH	4
TRAFFIC SIGNAL LAMP WALK LED KIT	EACH	8
TRAFFIC SIGNAL LAMP DON'T WALK LED KIT	EACH	8
CLASS 4 – WOOD POLE	EACH	1
ENTRANCE HEAD	EACH	1
CIRCUIT BREAKER & BOX	EACH	1
GUY WIRE GUARD	EACH	As Req'd
GUY WIRE CLAMP	EACH	As Req'd
THIMBLE EYE ANCHOR ROD	EACH	As Req'd
PEDESTRIAN PUSHBUTTON W/SIGN	EACH	8
LEAD–IN WIRE No. 4 A.W.G. 1/C (TYPE THNN)	LIN. m	9.6m
STANDARD 1C #8 (GROUND)	LIN. m	143.6m
MULTI–CONDUCTOR CABLE No. 16 A.W.G. 3/C (V3)	LIN. m	146.8m
MULTI–CONDUCTOR CABLE No. 14 A.W.G. 7/C	LIN. m	277.6m
VIDEO CABLE 75 OHM COAXIAL (BELDON 8281) (CX)	LIN. m	146.8m
CONDUIT 50mm PVC – WESTAR	LIN. m	162.3m
CONDUIT 35mm RGC	LIN. m	4.8m
CONDUIT 50mm RGC	LIN. m	13.1m
CONDUIT 75mm RGC	LIN. m	123.5m
CAMERA HOUSING	EACH	4
VIDEO DETECTION CAMERA & MOUNTING HARDWARE (RISER BRACKET)	EACH	4
VIDEO DETECTION PROCESSOR UNIT	EACH	4
VIDEO MONITER	EACH	1
CAMERA CHARGED COUPING DEVICE	EACH	4
TETHER WIRE 1/4" ASTM A475 SIEMENS–MARTIN GRADE MIN.	LIN. m	As Req'd
REMOVAL OF EXISTING TRAFFIC SIGNAL EQUIPMENT **	L.S.	–
STREET NAME SIGNS W/MOUNTING HARDWARE (D–3)	EACH	4
LEFT TURN YIELD ON GREEN W/MOUNTING HARDWARE (R10–12)	EACH	4
SPLICE KIT (TRAFFIC INTERCONNECT)	EACH	X

CHART 'A' - SIGNAL INVENTORY

NO. WAYS	NO. SECTIONS (Per Face)	SIGNAL FACE ARRANGEMENT	MOUNTING TYPE	QTY
1	3	A	TYPE I	8
1	5	I	TYPE I	4
1	3	A	TYPE III	4
2	2	K (SYMB)	TYPE II	4

CHART 'B' - TRAFFIC SIGNAL POLES

STATION	DIST.	SIDE	ARM LENGTH (Meters)	NO. OF SIGNALS ON ARM	SIGNAL SPACING (Meters)	TYPE
Sta. 0+199.0	12.3m	Lt.	12.0m	3	5.2-3.4-3.4	STD
Sta. 0+206.5	15.9m	Rt.	15.0m	3	8.2-3.4-3.4	STD
Sta. 0+230.6	15.8m	Lt.	12.0m	3	5.8-3.4-2.8	STD
Sta. 0+238.8	11.1m	Rt.	11.0m	3	4.2-3.4-3.4	STD

CHART C

CONDUIT SIZE (Millimeters)	TRENCHED (Meters)	PUSHED (Meters)
50mm PVC	162.3m	-
35mm RGC	4.8m	-
50mm RGC	13.1m	-
75mm RGC	123.5m	-

1. QUANTITIES ARE FOR INFORMATION ONLY. The Contractor shall supply and install all necessary materials and equipment for the complete installation and operation of the traffic signal system whether specifically mentioned or not.
2. ** Removal of existing traffic signal equipment shall include removal of foundations, service boxes, and junction boxes. See construction traffic control regarding removal of existing signals.

TYPE 170 CONTROLLER SETTINGS

WAPITI PROGRAM

Interval		1 WBLT	2 EB	3 SBLT	4 NB	5 EBLT	6 WB	7 NBLT	8 SB
		Phase							
Max.	0	30	80	30	80	30	80	30	80
Max. 2	1	30	80	30	80	30	80	30	80
Walk	2	0	8	0	8	0	8	0	8
Fl. Dw.	3	0	15	0	15	0	15	0	15
Max. Init.	4	6	10	6	10	6	10	6	10
Min. Green	5	5	8	5	8	5	8	5	8
TBR	6	1	15	1	15	1	15	1	15
TTR	7	1	25	1	25	1	25	1	25
	8								
Passage	9	1.0	3.0	1.0	3.0	1.0	3.0	1.0	3.0
Min. Gap	a	1.0	1.5	1.0	1.5	1.0	1.5	1.0	1.5
Add Act	b	1.0	1.3	1.0	1.3	1.0	1.3	1.0	1.3
Yellow	c	3.0	3.0	3.0	4.0	3.0	3.0	3.0	4.0
Red Clr	d	1.0	1.5	1.0	1.5	1.0	1.5	1.0	1.5
Red Rev	e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk II	f	0	0	0	0	0	0	0	0

Nominal Display

Time Clock		Features							
		Phase							
		1	2	3	4	5	6	7	8
0	Year	Veh Recall			X				X
1	Month	Ped Recall							
2	Day/Month	Red Lock							
3	Day/Week	Yel Lock							
4	Hour	0 Permit	X	X	X	X	X	X	X	X
5	Minute	Ped Phases		X		X				
6	Second	Lead Phases	X		X		X		X	
7		Dbl Entry								
8		Sequential								
9		Start Up Yel		X				X		
a		Overlap A								
b		Overlap B								
c		Overlap C								
d		Overlap D								
e		Exclusive								
f		Sim Gap								

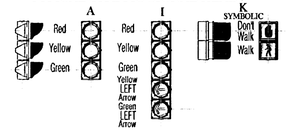
TRAFFIC MANHOLE SUMMARY

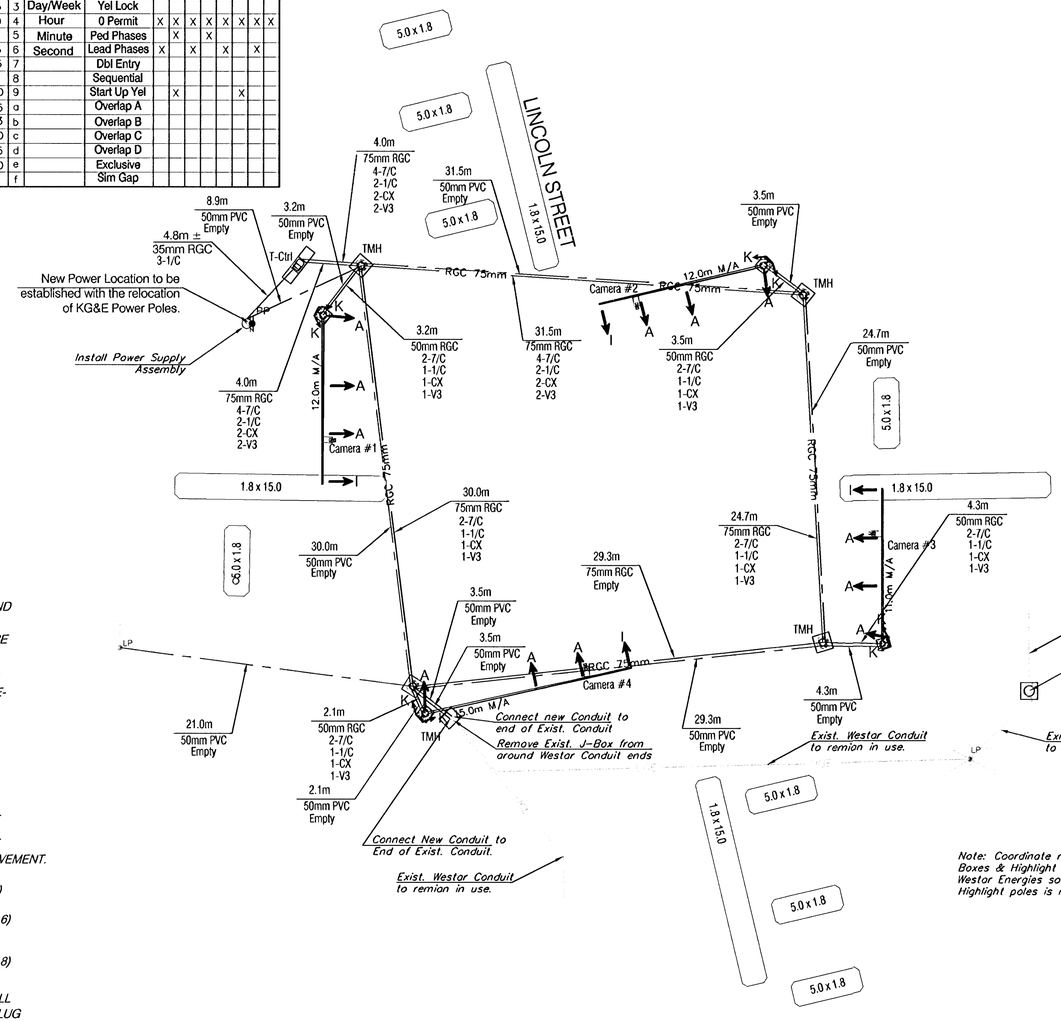
STATION	DIST. - SIDE
Sta. 0+201.7	15.8m Lt.
Sta. 0+205.6	14.0m Rt.
Sta. 0+233.4	13.7m Lt.
Sta. 0+234.5	10.9m Rt.

CHART 'D' - STREET NAME SIGN SUMMARY

LEGEND	TYPE	QTY	UNITS	SIZE (Millimeters)
Lincoln	D-3	2	EA	750 x 1500
McLean Blvd.	D-3	2	EA	750 x 1500

TYPICAL TRAFFIC SIGNAL HEADS





GENERAL NOTES

1. SIGNAL TIMING BY THE CONTRACTOR . THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING THE CONTROLLER, CABINET, CONCRETE BASE, AND FOR ALL EQUIPMENT NECESSARY FOR THE COMPLETE AND SATISFACTORY OPERATION OF THE TRAFFIC SIGNAL, WHETHER SAID EQUIPMENT IS SPECIFICALLY MENTIONED OR NOT.
2. LENGTHS GIVEN ARE TO CENTERLINE OF POLE/BOX AND DO NOT INCLUDE LENGTHS FOR ELBOWS AND RISERS.
3. SIGNAL HEADS, PEDESTRIAN SIGNALS, TRAFFIC SIGNS & ETC. INCLUDE ALL BRACKETS, HARDWARE & OTHER INCIDENTALS NECESSARY FOR INSTALLATION.
4. SEE CITY OF WICHITA STANDARD SPECIFICATIONS FOR ADDITIONAL WIRING NOTES.

SPECIAL FINISH FOR TRAFFIC SIGNAL EQUIPMENT:

The traffic signal controller cabinet, brackets, sign blank backs, signal backs and other exposed surfaces shall be shop painted with an aerosol lacquer cellulose ester to match the traffic signal pole color. The contractor shall submit two copies of the proposed coating system to the City for approval to application.

TRAFFIC SIGNAL POLE & PEDESTAL EXTERIOR COATING:

In addition to being galvanized, all exterior surfaces shall be coated with a zinc rich epoxy powder to a minimum dry film thickness of 2.0 mils. The coating shall be electrostatically applied and partially cured in a gas fired convection oven by heating the steel substrate to a minimum of 250 degrees Fahrenheit.

The powder primed surface shall be coated with an intermediate coat of polyester powder to a minimum dry film thickness of 2.0 mils. The coating shall be electrostatically applied and cured by heating the steel substrate in a convection oven to minimum of 350 degrees and a maximum of 400 degrees Fahrenheit.

The intermediate coat shall be top coated with one coat of high-build acrylic polyurethane enamel to a minimum dry film thickness of 2.0 mils. The coating shall be electrostatically applied and cured by heating the substrate in a convection oven to a minimum of 225 degrees Fahrenheit. The final top coating color shall be BLACK

NOTE

ALL SIGNAL CABLE SPLICES SHALL BE MADE ABOVE GROUND IN POLE OR PEDESTAL BASES.

2 m OF SLACK OR EXCESS CABLE, AS APPLICABLE, SHALL BE LEFT IN EACH TRAFFIC MANHOLE.

ONE SEVEN CONDUCTOR CABLE SHALL BE RUN FROM THE CONTROLLER TO EACH SIGNAL POLE FOR APPLICABLE FIVE-SECTION SIGNAL HEAD (LEFT TURN SIGNAL). THE FOLLOWING COLOR CODES SHALL BE USED:

WHITE	COMMON
RED	RED BALL
GREEN	GREEN BALL
ORANGE	YELLOW BALL
BLUE	GREEN ARROW
BLACK	YELLOW ARROW
WHITE W/BLACK	STREET NAME SIGN (WHERE

ONE SEVEN CONDUCTOR CABLE SHALL BE RUN FROM THE CONTROLLER TO EACH SIGNAL POLE FOR PEDESTRIAN MOVEMENT. THE FOLLOWING COLOR CODES SHALL BE USED:

RED	DON'T WALK (PHASE 2 OR 6)
GREEN	WALK (PHASE 2 OR 6)
ORANGE	PUSH BUTTON (PHASE 2 OR 6)
WHITE W/BLACK	DON'T WALK (PHASE 4 OR 8)
BLUE	WALK (PHASE 4 OR 8)
BLACK	PUSH BUTTON (PHASE 4 OR 8)
WHITE	COMMON

A SINGLE CONDUCTOR STRANDED NO. 8 GREEN WIRE SHALL CARRY THE EQUIPMENT GROUND FROM THE GROUNDING LUG OF ALL SIGNAL POLES TO THE CONTROLLER CABINET AND THE POWER DISCONNECT BOX.

ONE 75 OHM COAXIAL CABLE (BELDON 8281) SHALL BE RUN FROM THE CONTROLLER TO EACH SIGNAL POLE FOR VIDEO TRANSMISSION (CX).

ONE THREE CONDUCTOR CABLE SHALL BE RUN FROM THE CONTROLLER TO EACH SIGNAL POLE FOR CAMERA POWER (V3).

Type 170 Controller System to include:

1. Model 170E controller unit complete with W4IKS (53A or Latest Revisions) traffic program on 412B system memory module with a 400 modem
2. One (1) Model 332 Cabinet complete with all accessories & shall include:
   - A. One (1) Model 210ECL or 210MS Conflict Monitor with software.
   - B. Four (4) Model 430 Transfer Relays.
   - C. Two (2) Model 204 Flashing Units.
   - D. Twelve (12) Model 200 Switch Packs.
   - E. Three (3) Model 242 DC Isolators.
   - F. One (1) Surge Arrester.

KDOT METRIC

PROJECT NUMBER	SHEET NAME	ENGINEERING DIRECTORY
472-83799	Wiring	F:\\LinMcln\Traff

DESIGN	DRAWN	APPROVED	DATE	SCALE	BAUGHMAN NO
JFB	KWR	JFB	July 2003	Noted	01-03-E944

CAPITAL IMPROVEMENT PROJECT
WIRING DETAIL
AT LINCOLN AND MCLEAN
LINCOLN % MCLEAN INTERSECTION IMPROVEMENTS

BAUGHMAN COMPANY, P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

SHEET 23 OF 47